

Land Information Memorandum



Property address:

4/75 Andover Street

LIM number: H09224028

Page 1

Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

www.ccc.govt.nz

Application details

Date issued 6 August 2025
Date received 4 August 2025

Property details

Property address 4/75 Andover Street, Merivale, Christchurch
Valuation roll number 22251 27900 D
Valuation information Capital Value: \$600,000
Land Value: \$510,000
Improvements Value: \$90,000
Please note: these values are intended for Rating purposes
Legal description Flat 4 DP 74461 on Lot 1 DP 74166 having share in 664 m2
Existing owner Wrightway Property Limited
PO Box 10070
Phillipstown 8145

Council references

Rate account ID 73087372
LIM number H09224028
Property ID 1098764

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Document information

This Land Information Memorandum (LIM) has been prepared for the purpose of section 44A of the Local Government Official Information and Meetings Act 1987 (LGOIMA). It is a summary of the information that we hold on the property. Each heading or "clause" in this LIM corresponds to a part of section 44A.

Sections 1 to 10 contain all of the information known to the Christchurch City Council that must be included under section 44A(2) LGOIMA. Any other information concerning the land as the Council considers, at its discretion, to be relevant is included at section 11 of this LIM (section 44A(3) LGOIMA). If there are no comments or information provided in these sections this means that the Council does not hold information on the property that corresponds to that part of section 44A.

The information included in this LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council. Please note that other agencies may also hold information relevant to the property, or administer legislation relevant to the use of the land, for example, the Regional Council (Ecan), Heritage New Zealand Pouhere Taonga, and Land Information New Zealand.

Council records may not show illegal or unauthorised building or works on the property. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose.

A LIM is only valid at the date of issue as information is based only upon information the Council held at the time of that LIM request being made. It is essential that the applicant undertakes their own due diligence to verify the suitability of the property for their intended use.

Property file service

This Land Information Memorandum does not contain all information held on a property file. Customers may request property files by phoning the Council's Customer Call Centre on (03) 941 8999, or visiting any of the Council Service Centres. For further information please visit www.ccc.govt.nz.

To enable the Council to measure the accuracy of this LIM document based on our current records, we would appreciate your response should you find any information contained therein which may be considered to be incorrect or omitted. Please telephone the Customer Call Centre on (03) 941 8999.

Property address:

4/75 Andover Street

LIM number: H09224028

Page 3

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A search of records held by the Council has revealed the following information:

1. Special features and characteristics of the land

Section 44A(2)(a) LGOIMA. This is information known to the Council but not apparent from the district scheme under the Town and Country Planning Act 1977 or a district plan under the Resource Management Act 1991. It identifies each (if any) special feature or characteristic of the land concerned, including but not limited to potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, or inundation, or likely presence of hazardous contaminants.

☎ For enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Natural Hazards

(a) Coastal Hazards

As at the date of this LIM, Council research found no information under this heading.

(b) Earthquakes

- Liquefaction Assessment

Christchurch City Council holds indicative information on liquefaction hazard for Christchurch. Information on liquefaction, including an interactive web tool, can be found on the Council website at ccc.govt.nz/liquefaction. Depending on the liquefaction potential of the area that the property is in, the Council may require site-specific investigations before granting future subdivision or building consent for the property.

(c) Flooding

As at the date of this LIM, Council research found no information under this heading.

(d) Landslides

As at the date of this LIM, Council research found no information under this heading.

(e) Subsidence

- Consultant Report Available

Land Information New Zealand (LINZ) engaged Tonkin and Taylor to provide a Geotechnical Report on Ground Movements that occurred as a result of the Canterbury Earthquake Sequence. The report indicates this property may have been effected by a degree of earthquake induced subsidence. The report obtained by LINZ can be accessed on their website at <https://www.linz.govt.nz> and search Information for Canterbury Surveyors.

(f) Tsunamis

- Tsunami Evacuation Zone

This property is not in a tsunami evacuation zone. It is not necessary to evacuate in a long or strong earthquake or during an official Civil Defence tsunami warning. Residents may wish to offer to open their home to family or friends who need to evacuate from a tsunami zone, and should plan with potential guests to do so in advance. More information can be found at <https://ccc.govt.nz/services/civil-defence/hazards/tsunami-evacuation-zones-and-routes/>

(g) Volcanic and Geothermal Hazards

As at the date of this LIM, Council research found no information under this heading.

(h) Wind

As at the date of this LIM, Council research found no information under this heading.

(i) Any Other Natural Hazards

As at the date of this LIM, Council research found no information under this heading.

(j) District Plan Natural Hazard Information

Please refer to *Section 8. Land use and conditions* of this report for District Plan related natural hazard information.

Property address:

4/75 Andover Street

LIM number: H09224028

Page 4

Christchurch City Council

53 Hereford Street, PO Box 73015
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(k) Building Notices

Please refer to *Section 5. Consents, certificates, notices, orders, or requisitions affecting the land and buildings* of this report for Building Act notice information.

Other Special Features or Characteristics of the Land

- **Fill**


This property is located in an area known to have been filled. The year the fill occurred is Unknown. The filling was, according to the Councils records carried out in an uncontrolled manner and comprises Unknown Material.

Related Information

- The latest soil investigation report for this property is attached for your information

2. Private and public stormwater and sewerage drains

Section 44A(2)(b) LGOIMA. This is information about private and public stormwater and sewerage drains as shown in the Council's records.

 For stormwater and sewerage enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Related Information

- Attached are all drainage plans that Council hold for details of private and public drainage. Not all plans provided are verified by Council, and therefore Council cannot be liable for inaccuracies. Site investigation will be required by owners to determine exact layouts.
- This property is shown to be served by Christchurch City Council Sewer and Stormwater.

3. Drinking Water Supply

Section 44A(2)(ba) and (bb) LGOIMA. This is information notified to the Council about whether the land is supplied with drinking water, whether the supplier is the owner of the land or a networked supplier, any conditions that are applicable, and any information the Council has about the supply.

Please note the council does not guarantee a particular water quality to its customers. If you require information on current water quality at this property please contact the Three Waters & Waste Unit.

☎ For water supply queries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Water supply

Christchurch City Council is the networked supplier of water to this property. This property is connected to the Christchurch City Council Water Supply. The conditions of supply are set out in the Christchurch City Council Water Supply and Wastewater Bylaw (2022), refer to www.ccc.govt.nz.

4. Rates

Section 44A(2)(c) LGOIMA. This is information on any rates owing in relation to the land.

☎ For rates enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

(a) Annual rates

Annual rates to 30/06/2026: \$3,716.75

	Instalment Amount	Date Due
Instalment 1	\$929.14	15/08/2025
Instalment 2	\$929.14	15/11/2025
Instalment 3	\$929.14	15/02/2026
Instalment 4	\$929.33	15/05/2026

Rates owing as at 06/08/2025: \$581.28

(b) Excess Water Rates

For excess water charge enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz/contact-us.

(c) Final water meter reading required at settlement?

Property settlements must ensure all water usage and outstanding debts are accurately accounted for.

To advise of a property settlement, please complete the request for settlement information form at www.ccc.govt.nz/services/rates-and-valuations/solicitors-request.

A settlement statement of accounts will be provided on the expected settlement date advised.

Property address:

4/75 Andover Street

LIM number: H09224028

Page 8

Christchurch City Council

53 Hereford Street, PO Box 73015
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5. Consents, certificates, notices, orders, or requisitions affecting the land and buildings

Section 44A(2)(d) LGOIMA. This is information concerning any consent, certificate, notice, order, or requisition, affecting the land or any building on the land, previously issued by the Council. The information in this section may also cover building consent and/or code compliance information issued by building certifiers under the Building Act 1991 and building consent authorities that are not the Council under the Building Act 2004.

You can check the property file to identify whether any consent or certificate was issued by a building certifier under the Building Act 1991.

Section 44A(2)(da) LGOIMA. The information required to be provided to a territorial authority under section 362T(2) of the Building Act 2004. There is currently no information required to be provided by a building contractor to a territorial authority under section 362T(2) of the Building Act 2004. The Building (Residential Consumer Rights and Remedies) Regulations 2014 only prescribed the information that must be given to the clients of a building contractor.

Sections 71 to 74 of the Building Act 2004 require the Building Consent Authority to consider natural hazards when it receives a building consent application for the construction or major alteration of a building on land that is subject to, or likely to be subject to, a natural hazard. A building consent for this property may have been issued subject to a section 72 or 73 notice. This means at the time of building consent the Building Consent Authority was not satisfied that adequate provision would be made to protect the building and land from the natural hazard and was subsequently required to notify the Registrar-General of Land to record the natural hazard on the Record of Title. The Building Act 2004 defines natural hazards as erosion (including coastal erosion, bank erosion, and sheet erosion), falling debris (including soil, rock, snow, and ice), subsidence, inundation (including flooding, overland flow, storm surge, tidal effects, and ponding), and slippage.

If your property contains a notice under s73 of the Building Act 2004, this will be identified on the building consent decision below (decision under s72 of the Building Act 2004) and on the properties' Record of Title. The Record of Title may also record this as a s36 notice under the Building Act 1991, or a s641A notice under the Local Government Act 1974.

☎ For building enquiries, please phone (03) 941 8999, email EPADutyBCO@ccc.govt.nz or visit www.ccc.govt.nz.

(a) Consents

- BCN/1981/1525 Applied: 24/03/1981 Status: Completed
1/75 Andover Street Merivale
Permit issued 02/04/1981
GARAGE- Historical Reference PER81200951
- BCN/1996/222 Applied: 17/01/1996 Status: Completed
1/75 Andover Street Merivale
Accepted for processing 17/01/1996
Building consent granted 28/03/1996
Building consent issued 17/05/1996
Code Compliance Certificate Granted 11/02/1997
Code Compliance Certificate Issued 11/02/1997
4 new attached units, attached garages multi unit dwelling/4 new attached units outbuildings/ attached garages-
Historical Reference CON95008179
- BCN/1996/2091 Applied: 21/03/1996 Status: Completed
1/75 Andover Street Merivale
Accepted for processing 21/03/1996
Building consent granted 26/03/1996
Building consent issued 26/03/1996
Code Compliance Certificate Granted 10/07/1996
Code Compliance Certificate Issued 10/07/1996
Demolition of existing dwelling housing/ demolition of existing dwelling- Historical Reference CON96002247

Property address:

4/75 Andover Street

LIM number: H09224028

Page 9

Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

www.ccc.govt.nz

- BCN/1997/3212 Applied: 30/04/1997 Status: Completed
3/75 Andover Street Merivale
Accepted for processing 30/04/1997
Building consent granted 13/05/1997
Building consent issued 04/06/1997
Code Compliance Certificate Granted 17/12/1997
Code Compliance Certificate Issued 17/12/1997
Enclose existing attached garages (units 3 and 4)- Historical Reference CON97003571 - 3/75 & 4/75 Andover Street.
- BCN/2025/2114 Applied: 26/03/2025 Status: Completed
4/75 Andover Street Merivale
Exemption from building consent approved 01/04/2025
EQ repair - Re-level
- BCN/2025/2653 Applied: 13/04/2025 Status: Completed
3/75 Andover Street Merivale
Exemption from building consent approved 22/04/2025
Internal Alterations - Tiled Shower
- BCN/2025/4523 Applied: 15/06/2025 Status: Completed
2/75 Andover Street Merivale
Exemption from building consent approved 25/06/2025
Internal Alterations - Tiled Shower

(b) Certificates

Note: Code Compliance Certificates were only issued by the Christchurch City Council since January 1993.

(c) Notices

(d) Orders

(e) Requisitions

Property address:

4/75 Andover Street

LIM number: H09224028

Page 10

Christchurch City Council

53 Hereford Street, PO Box 73015
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Fax 64 3 941 8984

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6. Certificates issued by a building certifier

Section 44A(2)(e) LGOIMA. This is information notified to the Council concerning any certificate issued by a building certifier pursuant to the Building Act 1991 or the Building Act 2004.

☎ For building enquiries, please phone (03) 941 8999, email EPADutyBCO@ccc.govt.nz or visit www.ccc.govt.nz.

7. Weathertightness

Section 44A(2)(ea) LGOIMA. This is information notified to the Council under section 124 of the Weathertight Homes Resolution Services Act 2006.

 For weathertight homes enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

If there is no information below this means Council is unaware of any formal Weathertight Homes Resolution Services claim lodged against this property.

Property address:

4/75 Andover Street

LIM number: H09224028

Page 12

Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
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8. Land use and conditions

Section 44A(2)(f) LGOIMA. This is information relating to the use to which the land may be put and conditions attached to that use. The planning information provided below is not exhaustive and reference to the Christchurch District Plan and any notified proposed changes to that plan is recommended: <https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/christchurch-district-plan/>.

There may be some provisions of the Christchurch City Plan or Banks Peninsula District Plan that affect this property that are still operative.

☎ For planning queries, please phone (03) 941 8999, email DutyPlanner@ccc.govt.nz or visit www.ccc.govt.nz.

- **Regional plan or bylaw**

There may be objectives, policies or rules in a regional plan or a regional bylaw that regulate land use and activities on this site. Please direct enquiries to Canterbury Regional Council (Environment Canterbury).

(a)(i) Christchurch City Plan & Banks Peninsula District Plan

(ii) Christchurch District Plan

- **Precinct**

Property or part of property within the Residential High Density Precinct precinct, which has been publicly notified

- **Liquefaction Management Area (LMA)**

Property or part of property within the Liquefaction Management Area (LMA) Overlay, which is operative.

- **District Plan Zone**

Property or part of property within the Residential Medium Density Zone, which is operative.

- **Flood Management Area**

Property or part of property within the Flood Management Area (FMA) Overlay which is operative.

(b) Resource consents

If there are any land use resource consents issued for this property the Council recommends that you check those resource consents on the property file. There may be conditions attached to those resource consents for the property that are still required to be complied with.

- RMA/1996/332 - Resource consents
1/75 Andover Street Merivale
Four unit development - Historical Reference RES960388
Status: Processing complete
Applied 13/02/1996
Granted 27/03/1996
Granted 27/03/1996
Decision issued 27/03/1996
Decision issued 27/03/1996

Property address:

4/75 Andover Street

LIM number: H09224028

Christchurch City Council

53 Hereford Street, PO Box 73015
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- RMA/1996/3961 - Subdivision Consent
2/75 Andover Street Merivale
Cross Lease SUBDIVISION - Historical Reference RMA5325
Status: Processing complete
Applied 30/05/1996
- RMA/1997/1012 - Resource consents
3/75 Andover Street Merivale
Enclosure of existing garage, units 3 and 4. - Historical Reference RES971071
Status: Processing complete
Applied 30/04/1997
Declined 01/01/1999
Declined 01/01/1999
Decision issued 01/01/1999
Decision issued 01/01/1999

Property address:

4/75 Andover Street

LIM number: H09224028

Page 14

Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

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9. Other land and building classifications


Section 44A(2)(g) LGOIMA. This is information notified to the Council by any statutory organisation having the power to classify land or buildings for any purpose.

 For land and building enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

Please refer to Section 1 for details

10. Network utility information

Section 44A(2)(h) LGOIMA. This is information notified to the Council by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004.

 For network enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

- **None recorded for this property**

11. Other information

Section 44A(3) LGOIMA. This is information concerning the land that the Council has the discretion to include if it considers it to be relevant.

☎ For any enquiries, please phone (03) 941 8999 or visit www.ccc.govt.nz.

(a) Kerbside waste collection

- Your organics are collected Weekly on Friday. Please leave your organics at the Kerbside by 6:00 a.m.
- Your recycling is collected Fortnightly on the Week 2 collection cycle on a Friday. Please leave your recycling at the Kerbside by 6:00 a.m. Your nearest recycling depot is the Parkhouse Road EcoDrop.
- Your refuse is collected Fortnightly on the Week 2 collection cycle on a Friday. Please leave your rubbish at the Kerbside by 6:00 a.m. Your nearest rubbish depot is the Parkhouse Road EcoDrop.

(b) Other

• Floor Levels Information

Christchurch City Council holds a variety of information relevant to building/property development across the city. This includes minimum finished floor levels that need to be set to meet the surface water requirements in clause E1.3.2 of the building code (where this applies), and the requirements of the Christchurch District Plan (where a property is in the Flood Management Area). Where this information has been processed for your site, it can be viewed at <https://ccc.govt.nz/floorlevelmap/>, otherwise site specific advice can be obtained by emailing floorlevels@ccc.govt.nz

• Guest Accommodation

Guest accommodation (including whole unit listings on Airbnb; BookaBach; etc.) generally requires a resource consent in this zone when the owner is not residing on the site. For more information, please refer to: <https://ccc.govt.nz/providing-guest-accommodation/>.

• Community Board

Property located in Fendalton-Waimairi-Harewood Community Board.

• Electoral Ward

Property located in Fendalton Electoral Ward

• Listed Land Use Register

Hazardous activities and industries involve the use, storage or disposal of hazardous substances. These substances can sometimes contaminate the soil. Environment Canterbury identifies land that is used or has been used for hazardous activities and industries. This information is held on a publically available database called the Listed Land Use Register (LLUR). The Christchurch City Council may not hold information that is held on the LLUR. Therefore, it is recommended that you check Environment Canterbury's online database at www.llur.ecan.govt.nz

• Spatial Query Report

A copy of the spatial query report is attached at the end of this LIM. The spatial query report lists land use resource consents that have been granted within 100 metres of this property.

Related Information

Property address:

4/75 Andover Street

LIM number: H09224028

Page 17

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53 Hereford Street, PO Box 73015
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Tel 64 3 941 8999
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www.ccc.govt.nz

- **Advisory Note** - This is a general note to advise that this building falls within those identified under sections 133AA and 133AG(3) of the Building Act 2004, which applies to potentially earthquake-prone buildings. The Council has no record of a Detailed Engineering Evaluation (DEE) or Detailed Structural Assessment (DSA) being carried out for this building. Please refer to our <https://ccc.govt.nz/consents-and-licences/earthquake-prone-buildings> webpage for more information.

Property address:

4/75 Andover Street

LIM number: H09224028

Page 18

Christchurch City Council

53 Hereford Street, PO Box 73015
Christchurch 8154, New Zealand
Tel 64 3 941 8999
Fax 64 3 941 8984

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- Buildings
- StreetAddress
- WwPrivateDrainField
- WwAccess
 - Flush Manhole
 - Inspection Point
 - Sealed Manhole
 - Standard Manhole
 - Vented Manhole
- WwEye
 - Eye
 - Eye
- WwLateralFitting
 - Raised Inspection Point
 - Lateral Fitting
 - WwPipeFlowDirection
- WwPipe
 - NominalDiameter
 - Diameter is 200mm or smaller
 - WwLateral
 - WwLateral (non CCC)
 - In Service
 - SwAccess
 - SwInlet
 - Single Sump
 - Double Sump
 - SwOutlet
 - SwFitting
 - Bend
 - Junction
 - Junction
 - End Cap
 - SwPipeFlowDirection
 - SwLateralFitting
 - Single Sump
 - Inspection Point
 - SwPipe
 - NominalDiameter
 - Diameter is 450mm or smaller
- Diameter is greater than 750mm
- SwLateral
- SwPipeProtection
- SwStructure
- SwPipe (non CCC) In Service
- SwLateral (non CCC) In Service
- WsValve
 - Gate
 - Sluice
- WsHydrant
- WsConnection
 - Meter
 - WsPipeRestraint
- WsFitting
 - End Cap
 - Connector
 - Connector
 - Connector
- WsPipe
 - NominalDiameter
 - Diameter is 110mm or smaller
 - Diameter is greater than 110mm, up to 225mm
 - WsLateral
 - WsConnection (not In Service)
 - Meter
 - WsFitting (not In Service)
 - End Cap
 - WsPipe (not In Service)
 - NominalDiameter
 - Diameter is 110mm or smaller
 - RatingUnit
 - WcWaterCourse
 - WaterCourseSegmen





GEOTECHNICAL INVESTIGATION REPORT

75 ANDOVER STREET, MERIVALE, CHRISTCHURCH



Project Ref: 456-2209

Revision: 1

Prepared for: PERIDOT ENGINEERING

Date: 03rd October 2022

Should have any queries or any further clarifications, do not hesitate to contact following undersigned

Prepared and Reviewed by:		Approved by:	
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LIMITATIONS

The recommendations and ideas presented in this report are based on geotechnical information received at specific test locations by using appropriate investigation techniques with limited number of tests. This geotechnical advisory report is prepared based on data available at the time of reporting, best engineering practice, judgement, and experience. Surface ground conditions are depending on the test location point on site. Also, subsurface condition may change as a result of human induced events and natural phenomena. Further geotechnical assessment may be required where the actual ground condition vary from the assumed model.

This report is prepared for the exclusive use of **‘Peridot Engineering Limited’**, and its associated building approval authority and is provided in accordance with the terms of the agreement between SL Engineering Group Limited and **‘Peridot Engineering Limited’**. SL Engineering Group Limited accepts no responsibility or liability for any use or reliability of this statement by any third party. This report is copyright of SL Engineering Group Limited. Except for the use of **‘Peridot Engineering Limited’**, subject to the terms of the Agreement, either wholly or part of this publication cannot be copied without SL Engineering Group Limited's written permission.

CONTENTS

1. INTRODUCTION AND SCOPE OF WORK.....	3
2. SITE DESCRIPTION	3
2.1 Existing Site Conditions and Proposed Development	3
3. SITE GEOLOGY	3
3.1 Publish Geology.....	3
3.2 MBIE Land Classification	4
4. GEOTECHNICAL DESKTOP STUDY	4
4.1 Minimum Finish Floor Level.....	4
4.2 Site History.....	4
5. GEOTECHNICAL FIELD INVESTIGATION	7
5.1 Ground Test	7
5.2 Subsurface Condition	7
5.3 Ground water Condition	7
5.4 Site Walkover Field Inspection.....	8
5.5 Slope Stability.....	8
6. INVESTIGATION RESULTS	8
6.1 Seismic Coefficients	8
6.2 Seismic Subsoil Classification	8
6.3 Soil Liquefaction Assessment.....	8
6.4 Lateral Deformation.....	9
6.5 Static Settlement.....	9
6.6 Summary of Structural Assessment	9
7. RECOMMENDATIONS	9
7.1 Foundation Remediation	9
7.2 Structural Design Parameters	10

1 INTRODUCTION AND SCOPE OF WORK

SL Engineering Group Limited has been engaged by Peridot Engineering Limited to carry out a geotechnical investigation report at 75 Andover Street, Merivale. This assessment was for investigating and evaluating the subsurface condition and to provide geotechnical recommendation for repairing/ releveling/ rebuilding the foundation of the existing dwelling.

Geotechnical investigation procedures for the property are as follow:

- Desktop study
 - Review publicly available information of the site from New Zealand Geotechnical Database (NZGD), Christchurch City Council (CCC), and Canterbury Maps
- Site investigation including
 - Site walkover
 - Shallow ground investigation (Scala penetrometer tests and hand augers)
 - Deep ground investigation via cone penetration test (CPT).
- Geotechnical Investigation Report
 - Liquefaction hazard assessment based on above geotechnical investigation
 - Provision of geotechnical characterisation of the site.
 - Advice on foundation repair option for the existing dwelling
 - Reporting of investigation findings.

2 SITE DESCRIPTION

2.1 Existing Site Conditions

The site is located on a flat topography and a residential area of the Merivale suburb. Its legal description is "Lot 1 DP 74166". The site has a three-storey dwelling to the section. The total site area is approximately 664 m².

It is understood that the existing dwelling is going to be repaired to relevel the floor and remained at this section.

3 SITE GEOLOGY

3.1 Published Geology

The soils of the area are designated as Late Quaternary alluvium and colluvium IQd (Refer Geological maps). These are mainly consolidated quartzofeldspathic and mafic-rich sands in fixed dunes, with this sandy clay beds. These soils are of the Holocene Period and tend to be less than 20 thousand years old.

Our onsite soil investigation is similar to the published geology and no major discrepancies have been noted.

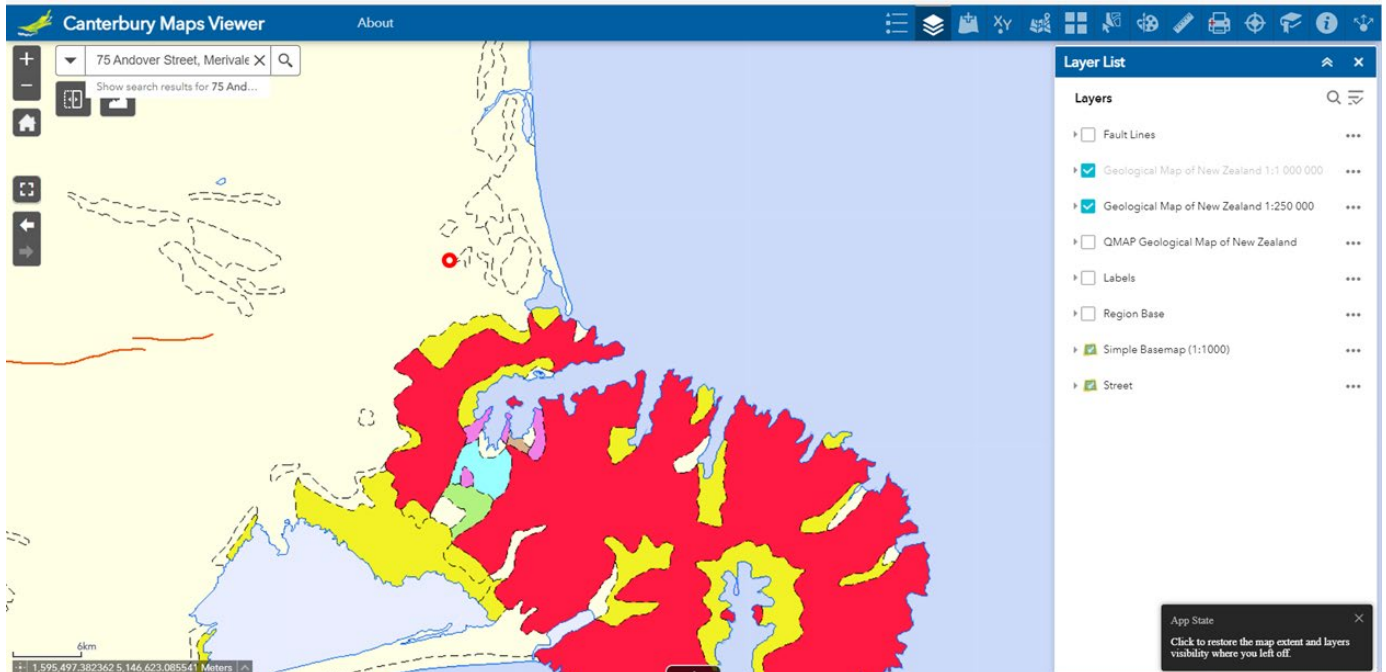


Figure 1: Geological Map of Christchurch

3.2 MBIE Land Classification

The site is currently mapped as “Blue Zone, Technical Category 3, Yellow” as defined by the Ministry of Business, Innovation and Employment (MBIE) Residential Technical Categories. This indicates that the land has higher probability to have moderate to high land damage from liquefaction in future significant earthquakes.

4 GEOTECHNICAL DESKTOP STUDY

A desktop study has been undertaken by reviewing of available geotechnical information and summarised as follows,

4.1 Minimum Finished Floor Level (FFL)

Based on Christchurch city council flood management map

- The site is not located within the CCC Flood Management Area (FMA).
- Floor levels have been not assessed by the Christchurch City Council (CCC) and a specific floor level has not been given for the site.
- The minimum and average (mean) ground elevation at the property is approximately 12.18m and 12.83m above the Christchurch Drainage Datum.

4.2 Site History

The history of the site has been studied using the details given in Canterbury maps website and summarised below.

Vulnerability to Liquefaction: The vulnerability to liquefaction damage of this site categorised as **MEDIUM** as shown in the figure below.

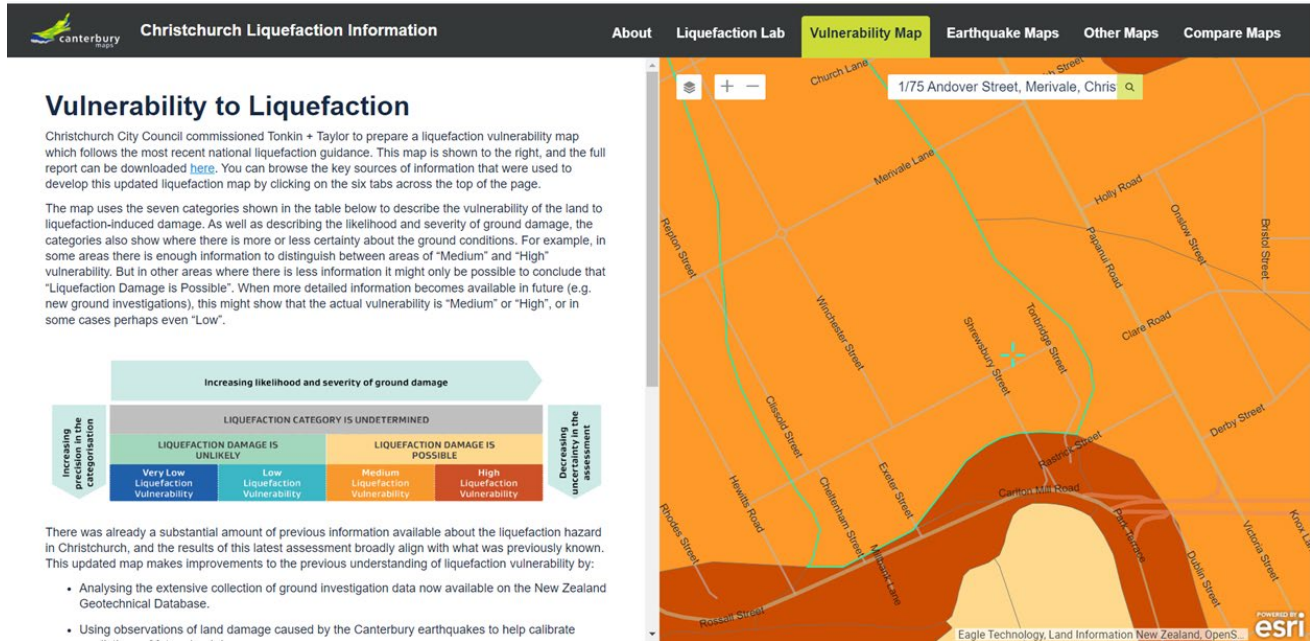


Figure 2: Vulnerability to Liquefaction

Observed Liquefaction and Lateral spreading: There is Moderate Liquefaction observed between September 2010 and December 2011 from the map as shown in the figure below.

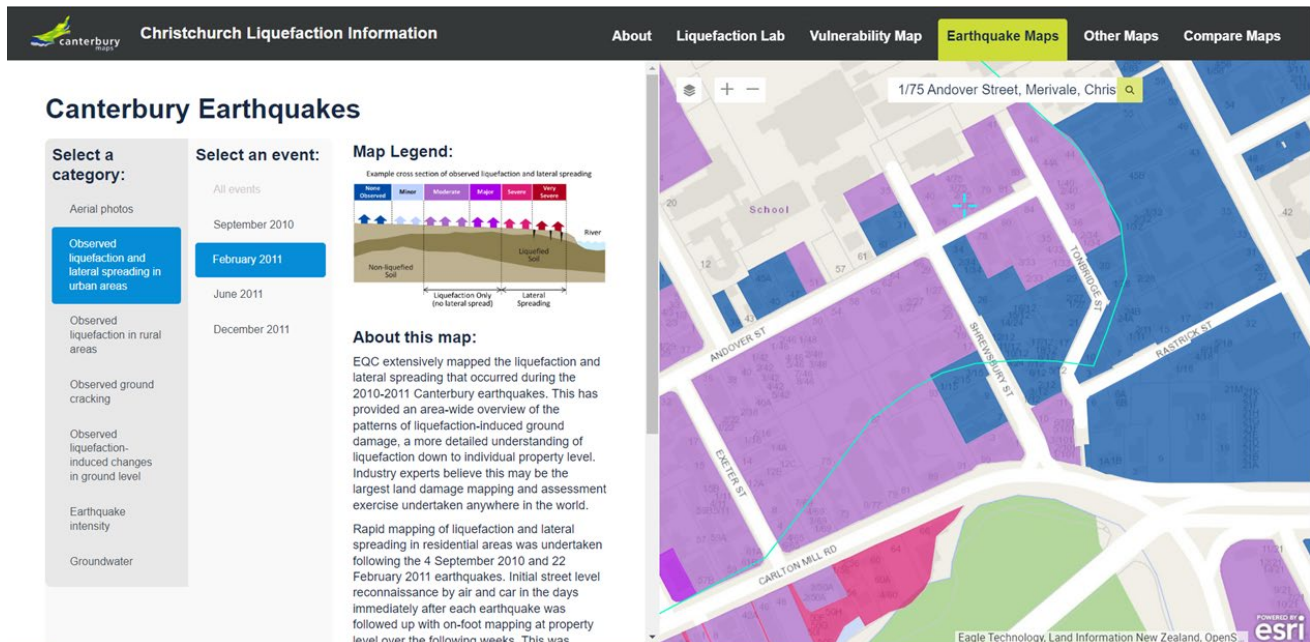


Figure 3: Observed Liquefaction and Lateral spreading in February 2011

Observed ground cracking: There are no ground cracks observed in this property as per the details given on the website.

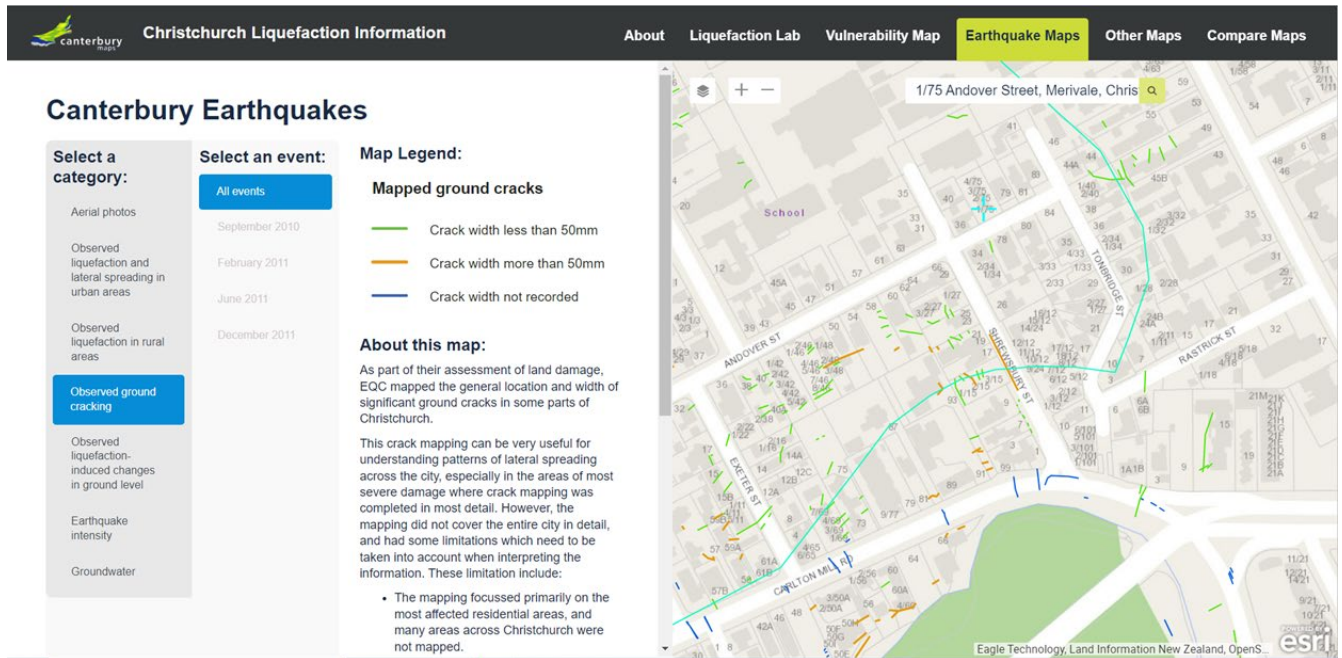


Figure 4: Observed Ground Cracking

Observed liquefaction induced changes in ground level: There are some subsidence in the ground level was registered due to past liquefaction as shown in the figure below. The change is less than 0.20m within this property.

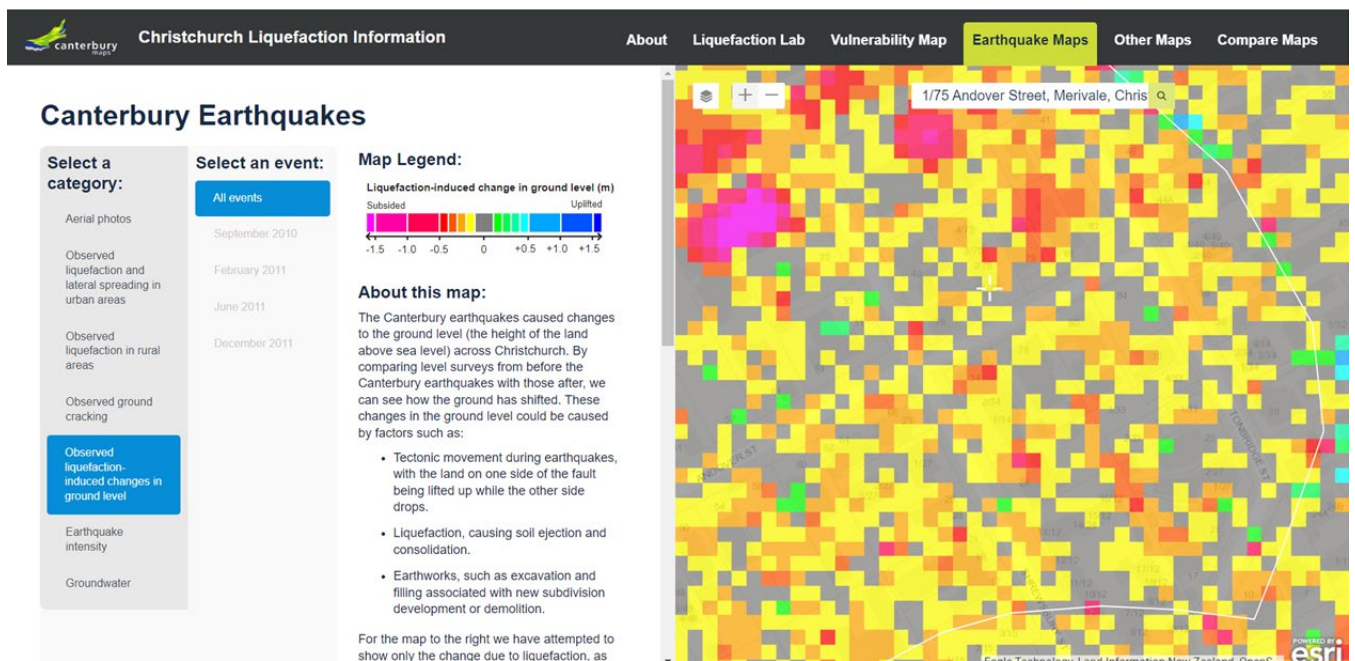


Figure 5: Observed Liquefaction Induced Settlement

Technical Categories: As per the past site record, the site categorized as TC3 foundation type as shown in the figure below.

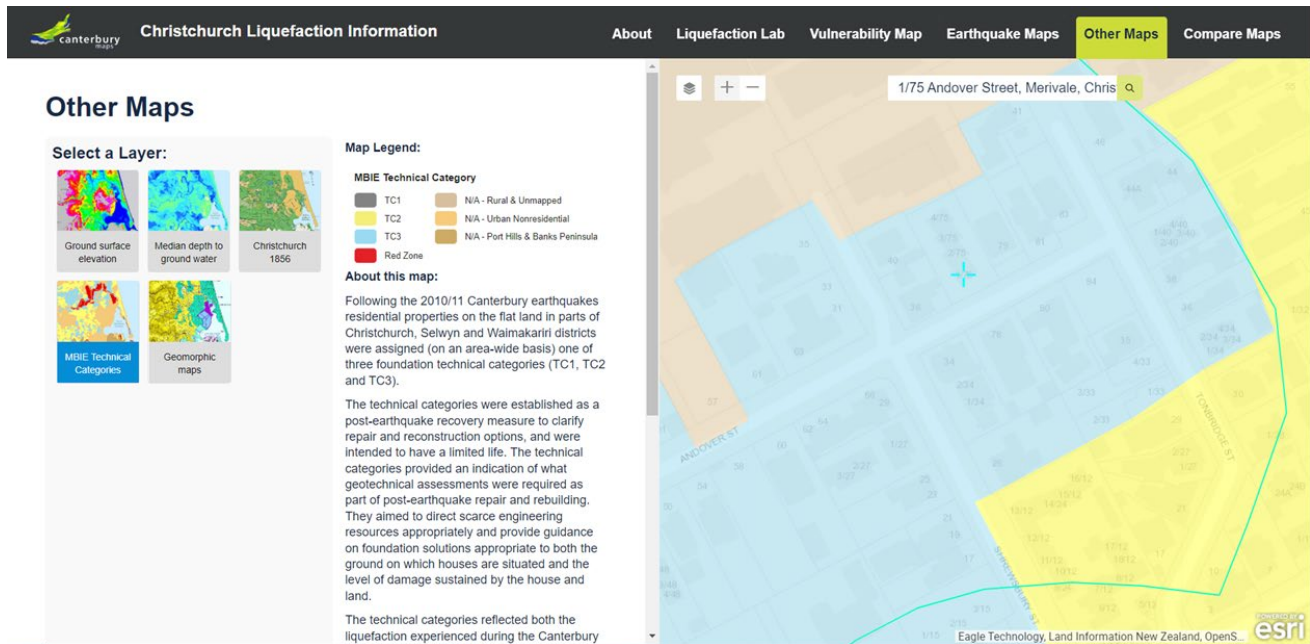


Figure 6: Technical Categories

5 GEOTECHNICAL FIELD INVESTIGATION

5.1 Ground test

Deep ground investigation has been carried out by LandTest Limited (Mcmillan Drilling) on behalf of SL Engineering Group Limited on 22nd September 2022, comprising two Cone Penetrometer Tests (CPT) up to 15m depth from natural ground level.

A shallow ground investigation has been also carried out by Peridot Engineering Limited and Mcmillan Drilling on behalf of SL Engineering Group Limited on 22nd September 2022, comprising of 4 Dynamic Cone Penetrometers (DCPs) and 4 Hand augured bore holes (HA).

5.2 Subsurface Condition

Refer to 'Appendix B' of this report for the CPT locations and the bore logs depicting the soil profile found on site. Totally four scala tests were carried within the development site and the soil profile was plotted for each of them.

As per the CPT and hand augers, 100mm-400mm thickness of topsoil/ undocumented fill was observed at site overlying a 1.2m thick sandy silt layer. A varying thickness of sense sand layer was observed below the sandy silt layer, which was extending up to 3m -6m below the ground level. A 2m thick clayey silt and silty clay layer was observed below the dense sand layer and overlaying a thick of dense Sand layer. The cone resistance of CPTs was reached slightly more than 20 MPa below 10m from the ground level before it was terminated at 15m.

5.3 Ground Water Conditions

Ground water was encountered at hand auger 4 and CPT location at approximately 1200mm – 1500mm below the ground level, which is matching with the CPT test results.

5.4 Site Walkover Field Inspection

A site visit was undertaken by SL Engineering on 22nd September 2022 to study the site condition and observe for other features. There were no hummocks, cracks, soil scarp, deep seated or shallow seated failures noted on the site.

5.5 Slope Stability

The site is on a flat topography. Slope stability (static) shall not be an issue. The historic aerials of the property from Geomaps and Google Earth, show that no slope instability features were noted on the site or in the immediate area next to the site.

6 INVESTIGATION RESULTS

6.1 Seismic Coefficients

The input Peak Ground Acceleration (PGA) for the models was obtained from NZS 1170 standard, for a temporary condition with 500-year return period, with subsoil **class D**, and Importance Level (IL) of 2. From these, the following PGA has been adopted for the liquefaction analysis.

Table 1 – Summary of the Liquefaction assessment

Load Case	Annual Probability of Occurrence	Magnitude, Mw	PGA
The Serviceability Limit State (SLS 1)	1/25	7.5	0.13g
The Serviceability Limit State (SLS 2)	1/25	6.0	0.19g
The Ultimate Limit State (ULS)	1/500	7.5	0.35g

6.2 Seismic Subsoil Classification

The site's subsoil classification has been assessed based on our site investigation results and the known geology of the area, in accordance with New Zealand Standard for Structural Design Actions NZS1170.5:2004. The site subsoil classification is considered to be **Class D- Deep soil**.

6.3 Soil Liquefaction Assessment

Susceptibility to cyclic liquefaction of non-plastic soils and cyclic softening of plastic soils has been assessed using in-situ CPT data in the vicinity of the property.

Analyses were carried out using proprietary software CLiq (Geologismiki) and followed the methodology of the MBIE guidelines. The structure importance level of the building is IL2, taken from NZS 1170:

The following methods have been adopted for the soil liquefaction assessment:

- Cone penetration test-based soil liquefaction triggering method (Boulanger and Idriss 2014);
- Liquefaction strength of materials (Olson & Stark; Ozener 2013);
- Seismic induced settlement of liquefiable layers using the method proposed by Zhang et al (2002).

The summary of the liquefaction assessment result is summarised in the table below.

Table 2 – Estimated Total Free Field Ground Surface Settlement in the Upper 10m

CPT Number	Liquefied Settlement in SLS 1 Case (mm)	Liquefied Settlement in SLS 2 Case (mm)	Liquefied Settlement in ULS Case (mm)
CPT 01	15	25	75
CPT 5490	45	55	95

Appendix B presents the determined potential liquefiable and cyclically softened ground layers for the site.

6.4 Lateral Deformation

Based on the procedure outlined by the MBIE (2012), an assessment of the global lateral movement of the site and lateral stretch across the building footprint have been undertaken as follow.

From the data obtained from Canterbury map as per figure 3 above, there is not significant lateral spreading was observed from the seismic events happened between September 2010 and December 2011.

6.5 Summary of Structural Assessment

A structural assessment was carried out by Peridot Engineering Limited on 18 March 2022 on this property. The assessment report is attached in appendix C of this report. The summary and conclusion of the site assessment as follows.

Multi-unit Residential dwelling

- 1) Existing Foundation Type - Type C2 slab on grade foundation with Timber-framed suspended timber floor spanning between the precast panel.
- 2) The overall floor level variation across the entire foundation of this multi-unit complex, based on a common datum, was 76mm with the floor slopes exceeding general construction tolerance.
- 3) Localised floor slopes exceeding 1: 200 (0.5%) throughout the dwelling.
- 4) Evidence of previous cracking to the concrete slab foundation was observed during site investigation. As per the Scope of Works by EQC crack repairs had been carried out to the concrete slab-on-grade foundation in the garage of each flat; however, cracking damage to the internal slab was still observed.
- 5) Globally, the foundation showed a sloping pattern towards the north and east of the dwelling

Conclusion by Peridot

The multi-unit complex on this property has likely sustained moderate earthquake-related damage and the floor level variation across the multi-unit complex can be attributed to the CES. Peridot is of the opinion that foundation of the multi-unit complex needs to be fully re-levelled.

7 RECOMMENDATIONS

7.1 Foundation Remediation

Based on the information provided by Peridot assessment report and our site walkover, the existing building observed to be a three-storey concrete wall structure with ground floor garage and suspended floor upper level. SL Engineering could not observe the foundation during the site walkover as the foundation was recessed below the existing ground finish level. However, by engineering experience, this type of precast panel with light weight suspended timber floor building likely to have a strip footing underneath the precast panel with ground floor slab on grade system.

MBIE guidelines does not applicable for the above three-storey concrete wall building. However, based on the site investigation and geotechnical desktop study, SL Engineering is of the opinion that the foundation re-levelling option for the dwelling can be considered from a geotechnical perspective.

Based on the information from the structural assessment and measured floor levels, the foundation appears have settled all around the perimeter. Therefore, from a geotechnical perspective and for the future performance, we are of the opinion that full perimeter foundation beam lifting is recommended to relevel the floor levels

Foundation Relevelling

The foundation system can be fully re-levelled by mechanical lifting using portable jacks and/or screw piles. The lifting sequence need to be detailed by a qualified chartered structural engineer and Appendix A1 of the MBIE Guidance: Part A, Appendix A1.1.3 can be used as a reference. The underpinning pad should be design by a qualified chartered structural engineer according to the bearing pressure specified in section 7.2 of this report.

For the lifting using the portable jacking, the excavation should be 900mm below the ground level. The excavation base needs to be compacted using hand equipment and backfilled with 300mm thick no-fines concrete before placing the jacking pad on top of it. The excavation base should be at least 200mm bigger than the pad size on four sides. The base of the excavation needs to be compacted using hand equipment before placing no fines concrete. The underpinning excavation should be monitored prior to pouring concrete by a geotechnical engineer to confirm if there is no evidence of organic /soft soil. If mechanical jacks are used to relevel, the jacking pits should be filled with grout.

Lifting using screw piles, the base of the screw pile should be terminated between 3m and 4m below the ground level to avoid punching failure during liquefaction.

If any alternative dwelling foundation re-levelling methodologies are considered, please contact us for further advice from a geotechnical perspective.

Foundation re-levelling works using portable jacks may cause a differential settlement up to 30mm – 50mm (between flat 1 and flat 4) during future earthquakes. It is recommended to use a screw pile to re-level the building and use it as a permanent support if the above-mentioned differential settlement and total settlement is hard to accommodate into the building.

7.2 Structural Design Parameters

The following parameters to be considered for structural design calculations on the subject property:

➤ Soil bulk density of fill	17 - 18 kN/m ³
➤ Internal friction angle of existing material (ϕ')	30-32°
➤ Ultimate Bearing Capacity @ 600mm bgl (q_{ult})	150 kPa
➤ Material reduction factor for bearing capacity	0.5 (Static) 0.6 (Seismic)

REFERENCES

- Bradley and Hughes, 2012. Conditional Peak Ground Accelerations in the Canterbury Earthquakes for Conventional Liquefaction Assessment – Technical Report for the Ministry of Business, Innovation and Employment.
- Canterbury Maps, 2020. Property search <https://propertysearch.canterburymaps.govt.nz/#/>

- Geologismiki Geotechnical Software, Cliq v3.0.2.4. Liquefaction Assessment Software
- G. Zhang, P.K. Robertson, R.W.I. Brachman, 2002. Estimating Liquefaction-Induced Ground Settlements from CPT for Level Ground (Canadian Geotechnical Journal 39, pages 1168-1180).
- I.M.Idriss. and R.W.Boulanger., 2008. Soil Liquefaction during Earthquakes – Earthquake Engineering Research Institute Monograph MNO12, pp. 266.
- Ministry of Business, Innovation and Employment (MBIE), 2012. Repairing and Rebuilding Houses affected by the Canterbury Earthquakes.
- New Zealand Geotechnical Society, 2005. Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes.
- R.W.Boulanger, I.M.Idriss., 2014. “CPT and SPT based liquefaction triggering procedures.” Report No. UCD/CGM-14/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 134 pp
- Peridot Engineering Limited, Structural Assessment Report (Ref 21384, dated 18 March 2022)
- The New Zealand Geotechnical Database (NZGD). Online database for new and existing geotechnical information (<https://www.nzgd.org.nz/>)

APPENDICES

Appendix A –Site Location Plan

Appendix B –Borehole Locations and Soil Investigation logs

Appendix C – Liquefaction Assessment Results

Appendix D – Structural Assessment

Appendix A – Site Location Plan



CPTu002

HA004

HA003

40

75

79

81

HA002

HA001

36

CPTu001

Appendix B – Borehole Locations and Soil Investigation logs

CONE PENETRATION TEST (CPT) REPORT



Client: Peridot Engineering Ltd

Location: 75 Andover Street, Christchurch

Printed: 27/09/2022

Client:	Peridot Engineering Ltd	Bore No.:	CPTu001
Project:	75 Andover Street, Christchurch	Job No.:	21170

Date: 22/9/2022

Rig Operator: C. Whitau

Equipment: Pagani TG63-150

[illegible]

EOH: 15m

Cone Type: Pagani Piezocone - Compression
Cone Reference: MKS365
Cone Area Ratio: 0.81
Standards: ISO 22476-1:2012

Predrill: 0.20m
Water Level: -
Collapse: 1.40m

Termination

Target Depth

Effective Refusal

Zero load outputs (MPa)	Before test	After test
Tip Resistance	23.7427	23.7108
Local Friction	0.2599	0.2599
Pore Pressure	3.0025	3.0018

Tip	<input checked="" type="checkbox"/>
Gauge	<input type="checkbox"/>
Inclinometer	<input type="checkbox"/>
Other	<input type="checkbox"/>

Soil Behaviour Type (SBT) - Robertson et al. 1986

0	Undefined	5	Sand mixtures: silty sand to sandy silt
1	Sensitive fine-grained	6	Sands: clean sands to silty sands
2	Clay - organic soil	7	Dense sand to gravelly sand
3	Clays: clay to silty clay	8	Stiff sand to clayey sand
4	Silt mixtures: clayey silt & silty clay	9	Stiff fine-grained

Notes & Limitations

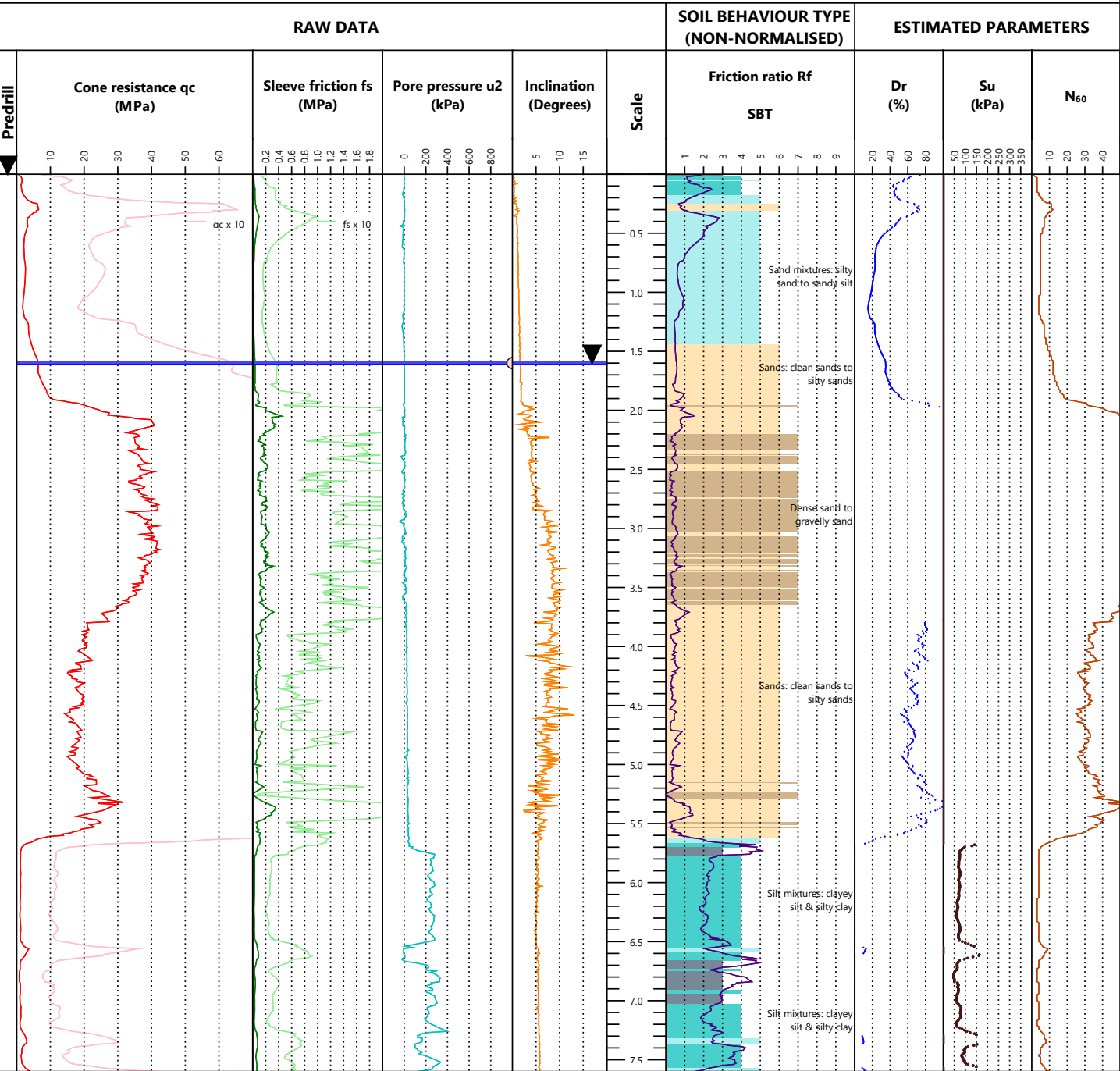
Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal, Guide to Cone Penetration Testing for Geotechnical Engineering. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. No warranty is provided as to the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.

Remarks

Sheet 2 of 2

Client:	Peridot Engineering Ltd	Bore No.:	CPTu002
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch	Date: 22/9/2022
Grid Reference: 1569614.36m E, 5181507.93m N (NZTM) - Map or aerial photograph	Rig Operator: C. Whitau
Elevation: 0.00m	Equipment: Pagani TG63-150
Datum: Ground	

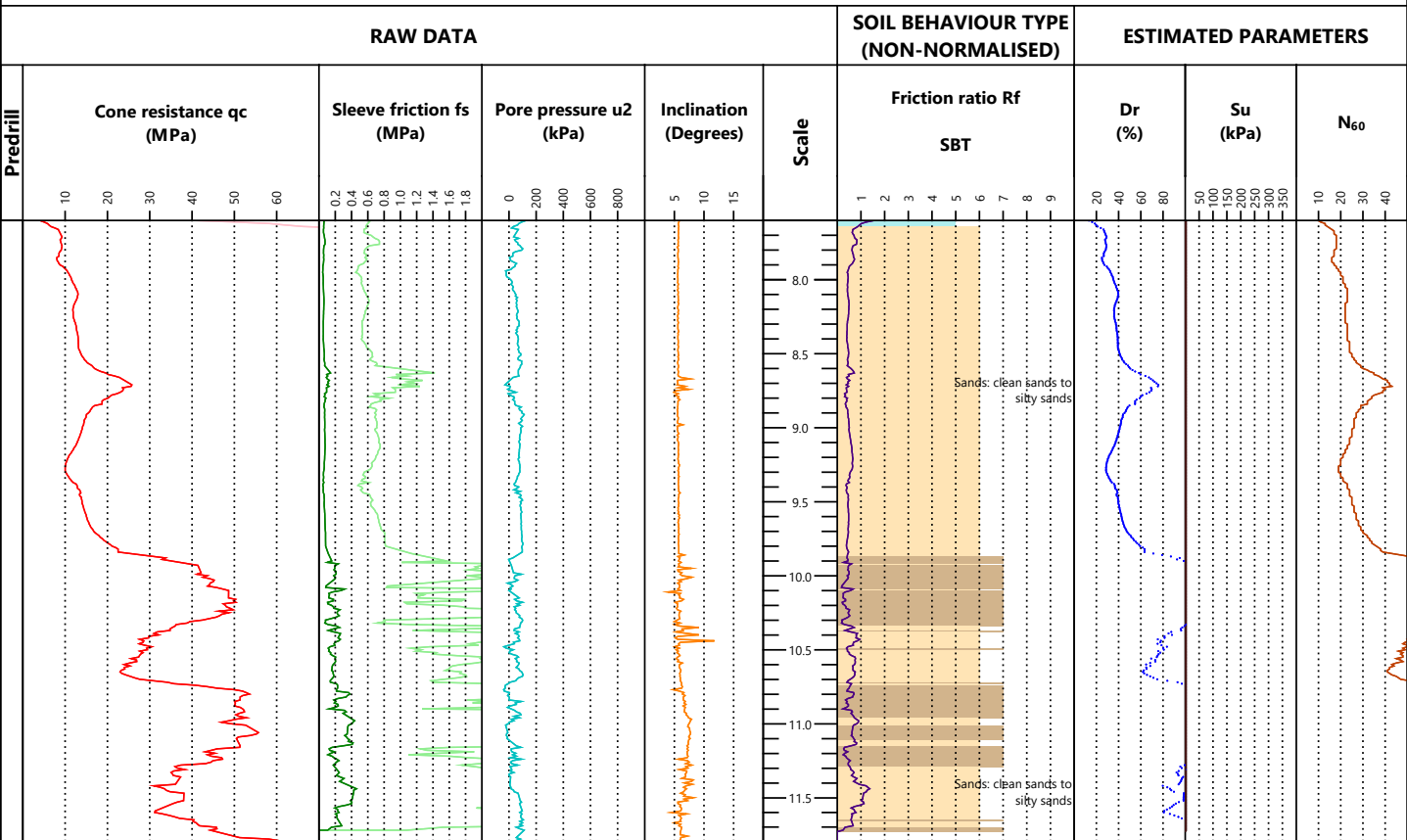


Cone Type: Pagani Piezocone - Compression	Predrill: -	Termination	Soil Behaviour Type (SBT) - Robertson et al. 1986
Cone Reference: MKS365	Water Level: 1.60m	Effective Refusal	0 Undefined
Cone Area Ratio: 0.81	Collapse: 3.50m	Tip <input checked="" type="checkbox"/>	1 Sensitive fine-grained
Standards: ISO 22476-1:2012		Gauge <input type="checkbox"/>	2 Clay - organic soil
Zero load outputs (MPa)	Before test	Inclinometer <input type="checkbox"/>	3 Clays: clay to silty clay
Tip Resistance 23.7161	After test 23.7374	Other <input type="checkbox"/>	4 Silt mixtures: clayey silt & silty clay
Local Friction 0.2592	0.2598		5 Sand mixtures: silty sand to sandy silt
Pore Pressure 3.0015	3.0014		6 Sands: clean sands to silty sands
			7 Dense sand to gravelly sand
			8 Stiff sand to clayey sand
			9 Stiff fine-grained

Notes & Limitations Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal, Guide to Cone Penetration Testing for Geotechnical Engineering. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. No warranty is provided as to the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.	Remarks
	Sheet 1 of 2

Client:	Peridot Engineering Ltd	Bore No.:	CPTu002
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch	Date: 22/9/2022
Grid Reference: 1569614.36m E, 5181507.93m N (NZTM) - Map or aerial photograph	Rig Operator: C. Whitau
Elevation: 0.00m	Equipment: Pagani TG63-150
Datum: Ground	



EOH: 11.8m

Cone Type: Pagani Piezocone - Compression Cone Reference: MKS365 Cone Area Ratio: 0.81 Standards: ISO 22476-1:2012	Predrill: - Water Level: 1.60m Collapse: 3.50m	Termination Target Depth <input type="checkbox"/> Effective Refusal Tip <input checked="" type="checkbox"/> Gauge <input type="checkbox"/> Inclinometer <input type="checkbox"/> Other <input type="checkbox"/>	Soil Behaviour Type (SBT) - Robertson et al. 1986 0 Undefined 1 Sensitive fine-grained 2 Clay - organic soil 3 Clays: clay to silty clay 4 Silt mixtures: clayey silt & silty clay 5 Sand mixtures: silty sand to sandy silt 6 Sands: clean sands to silty sands 7 Dense sand to gravelly sand 8 Stiff sand to clayey sand 9 Stiff fine-grained
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Notes & Limitations Data shown on this report has been assessed to provide a basic interpretation in terms of Soil Behaviour Type (SBT) and various geotechnical soil and design parameters using methods published in P. K. Robertson and K.L. Cabal, Guide to Cone Penetration Testing for Geotechnical Engineering. The interpretations are presented only as a guide for geotechnical use, and should be carefully reviewed by the user. No warranty is provided as to the correctness or the applicability of any of the geotechnical soil and design parameters shown and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used to derive data shown in this report.	Remarks Sheet 2 of 2
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TEST DETAIL

PointID: CPTu001
Sounding: 1

Operator: C. Whitau
Cone Type: Pagani Piezocone - Compression
Cone Reference: MKS365
Cone Area Ratio: 0.81

Date: 22/9/2022
Predrill: 0.20m
Water Level: -
Collapse: 1.40m

Termination
Target Depth ☐
Effective Refusal
Tip ☒
Gauge ☐
Inclinometer ☐
Other ☐

Zero load outputs (MPa)	Before test	After test
Tip Resistance	23.7427	23.7108
Local Friction	0.2599	0.2599
Pore Pressure	3.0025	3.0018

PointID: CPTu002
Sounding: 1

Operator: C. Whitau
Cone Type: Pagani Piezocone - Compression
Cone Reference: MKS365
Cone Area Ratio: 0.81

Date: 22/9/2022
Predrill: 0.00m
Water Level: 1.60m
Collapse: 3.50m

Termination
Target Depth ☐
Effective Refusal
Tip ☒
Gauge ☐
Inclinometer ☐
Other ☐

Zero load outputs (MPa)	Before test	After test
Tip Resistance	23.7161	23.7374
Local Friction	0.2592	0.2598
Pore Pressure	3.0015	3.0014

CPT CALIBRATION AND TECHNICAL NOTES

These notes describe the technical specifications and associated calibration references pertaining to the Pagani piezocone types measuring cone resistance, sleeve friction, inclination and pore pressure (piezocone, 10cm²)

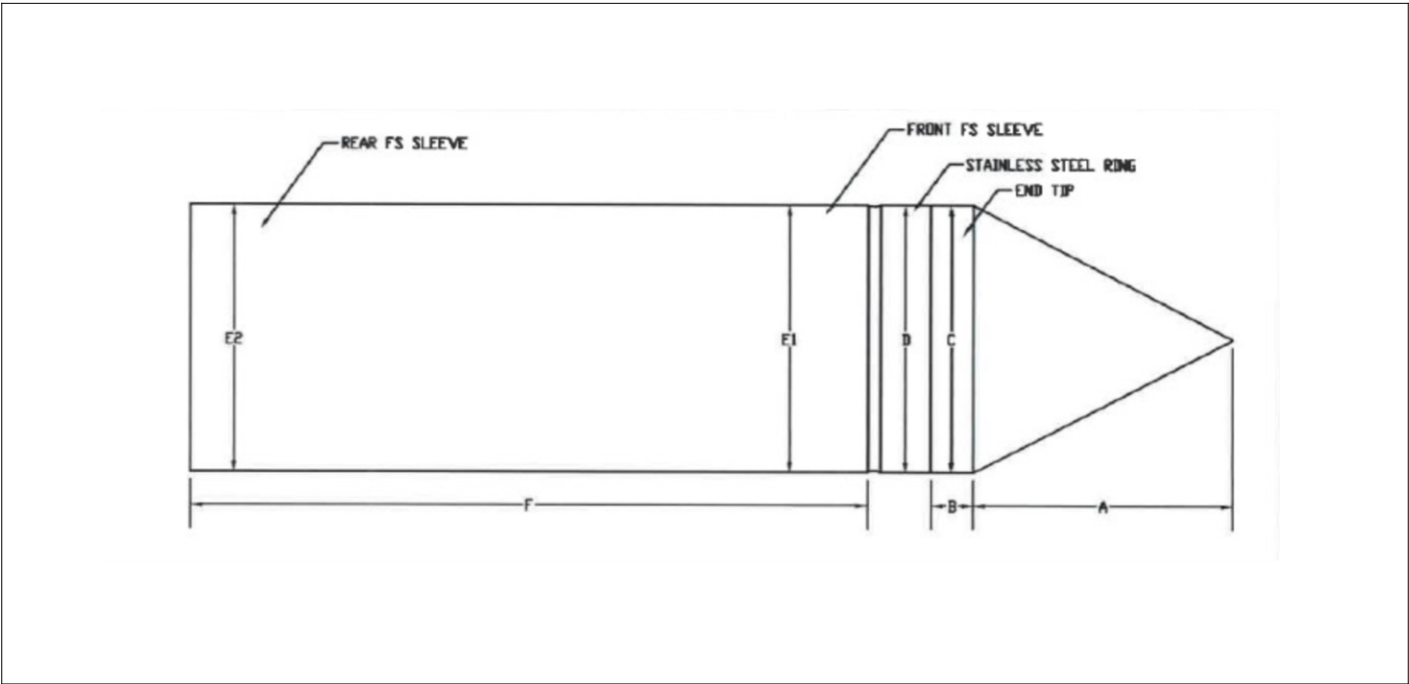
Dimensions

Dimensional specifications are detailed below. All tolerances are routinely checked prior to testing and measurements taken are electronically recorded. All records are kept on file and available on request.

Technical specifications

	Tip	Friction	Pore Pressure	Inclination
Maximum Measuring Range:	50 - 100 MPa	1.60 MPa	2.50 MPa	0° - 20°
Resolution:	24 bit	24 bit	24 bit	12 bit
Accuracy:	0.005 MPa	0.04 MPa	0.04 MPa	0.5°

Length:	320 mm	Weight:	1.8 kg
Diameter:	35.8 mm	Opening angle of bit:	60°
Cone base area:	10 cm ²	Side sleeve surfaces:	150 cm ²
Cone area ratio:	Varies - refer to cone certificate	Tip and Local Friction sensor displacement:	80 mm





CONE CALIBRATION CERTIFICATE
N° Z058/22

Calibrated system (Sistema tarato) :	
Serial number	Mks365
Sensor	TIP RESISTANCE
Max. Capacity [MPa]:	100
Scaling Factor:	192090
Tip net area ratio (a ₀):	0,81
Sleeve net ratio (b ₀):	0,00

Addressee (destinatario) :	
McMillan Drilling Ltd	
36 Hickory Place, Islington	
Christchurch 8042, New Zealand	
Applied load measurement system:	
(Sistema di rilevamento del carico applicato)	


Load cell:	
Manufacturer	AEP transducers
Model	KAL 200 kN
Serial Number	138913
Power press:	
Manufacturer	Easydur Italiana
Model	Aura 20T
Serial Number	29084
The measurement system is periodically checked in a SIT calibration center. (Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)	
Last verification date: 11/01/2022	
Certificate N.	LAT 091 2022-005
Temperature of calibration	22°C
Humidity	45%
Factory calibration in accordance with ASTM D5778-12	



CONE CALIBRATION CERTIFICATE
N° Z058/22

Calibrated system (Sistema tarato) :	
Serial number	Mks365
Sensor	SLEEVE FRICTION
Max. Capacity [kPa]:	1600
Scaling Factor:	31617

Addressee (destinatario) :	
McMillan Drilling Ltd	
36 Hickory Place, Islington	
Christchurch 8042, New Zealand	
Applied load measurement system:	
(Sistema di rilevamento del carico applicato)	

Load cell:	
Manufacturer	AEP transducers
Model	KAL 50 kN
Serial Number	65495
Power press:	
Manufacturer	Easydur Italiana
Model	Aura 10T
Serial Number	29002
The measurement system is periodically checked in a SIT calibration center. (Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)	
Last verification date: 11/01/2022	
The adopted calibration procedure has been developed according to the suggestions given by Prof. Paul W. Mayne (Georgia Institute of Technology) and Prof. Diego Lo Presti (University of Pisa)	
Cone calibrated by 	



CONE CALIBRATION CERTIFICATE
N° Z058/22


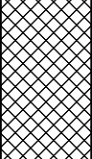

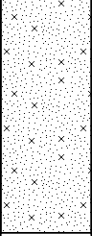
Calibrated system (Sistema tarato) :	
Serial number	Mks365
Sensor	PORE PRESSURE
Max. Capacity [kPa]:	2500
Scaling Factor:	10526
TILT ANGLE	
Sensor	
Max. Inclination [°]:	20
Scaling Factor:	337352

Addressee (destinatario) :	
McMillan Drilling Ltd	
36 Hickory Place, Islington	
Christchurch 8042, New Zealand	
Applied load measurement system:	
(Sistema di rilevamento del carico applicato)	

Pressure Generator:	
Manufacturer	MENSOR
Model	CPC 4000
Serial Number	41000V56
Sensor Descr	Silicon Pressure Transducer
Sensor Serial Number	41000SYF
The measurement system is periodically checked in a SIT calibration center. (Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)	
Last verification date: 04/05/2021	
The adopted calibration procedure has been developed according to the suggestions given by Prof. Paul W. Mayne (Georgia Institute of Technology) and Prof. Diego Lo Presti (University of Pisa)	
Date of issue 02/03/2022	

Client:	Peridot Engineering Ltd	Bore No.:	HA001
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch
Grid Reference: 1569629.23m E, 5181480.76m N (NZTM) - Map or aerial photograph
Elevation: 0.00m **Datum:** Ground
Date: 22/9/2022
Operator: B. Wilson
Equipment: Hand auger

Soil Description <small>Logged to NZGS guidelines by C. Whitau</small>	Legend	Depth (m)	Scala Penetrometer <small>NZS 4402.6.5.2 (Blows / 100mm)</small>	Hand Shear Vane <small>(Uncorrected)</small>	Water
ASPHALT.					
Fine to coarse GRAVEL with minor sand; grey. Tightly packed, moist, subrounded, well graded (FILL).		0.1 0.2 0.3			
Sandy SILT; grey, brown staining. Firm, moist, high plasticity. Sand, fine to medium, moderately graded.		0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1			
Silty medium SAND; grey, brown staining. Loosely packed, moist, moderately graded.		1.2 1.3 1.4 1.5			
		1.6 1.7 1.8 1.9 2.0			

Remarks
Termination: Effective refusal
Prehole: 0.30m bgl.
Hand auger refusal at 1.50m bgl due to gravels.
Hole collapse: 1.15m bgl.
SWL: Not encountered.

Client:	Peridot Engineering Ltd	Bore No.:	HA002
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch
Grid Reference: 1569636.36m E, 5181484.28m N (NZTM) - Map or aerial photograph
Elevation: 0.00m **Datum:** Ground
Date: 22/9/2022
Operator: B. Wilson
Equipment: Hand auger

Soil Description Logged to NZGS guidelines by C. Whitau	Legend	Depth (m)	Scala Penetrometer NZS 4402.6.5.2 (Blows / 100mm)	Hand Shear Vane (Uncorrected)	Water
SILT with some organics and trace sand; dark brown. Soft, moist, low plasticity (TOPSOIL).		0.1			
Fine to coarse GRAVEL with minor sand; grey. Tightly packed, moist, subrounded, well graded (FILL).		0.3			
SILT; grey, minor brown staining. Firm, moist, high plasticity.		0.4			
		0.5			
		0.6			
		0.7			
		0.8			
		0.9			
Sandy SILT; grey, minor brown staining. Soft, moist, high plasticity. Sand, fine to medium, moderately graded.		1.0			
		1.1			
		1.2			
		1.3			
		1.4			
		1.5			
		1.6			
		1.7			
		1.8			
		1.9			
		2.0			

Remarks
Termination: Effective refusal
Hand auger refusal at 1.40m bgl due to gravels.
Hole collapse: 1.15m bgl.
SWL: Not encountered.

Client:	Peridot Engineering Ltd	Bore No.:	HA003
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch	Date: 22/9/2022
Grid Reference: 1569614.94m E, 5181497.79m N (NZTM) - Map or aerial photograph	Operator: B. Wilson
Elevation: 0.00m	Datum: Ground
	Equipment: Hand auger

Soil Description <small>Logged to NZGS guidelines by C. Whitau</small>	Legend	Depth (m)	Scala Penetrometer <small>NZS 4402.6.5.2 (Blows / 100mm)</small>	Hand Shear Vane <small>(Uncorrected)</small>	Water
Fine to coarse GRAVEL with minor sand; grey. Tightly packed, moist, subrounded, well graded (FILL).		0.1 0.2 0.3			
Sandy SILT; grey, minor brown staining. Soft, dry to moist, low to medium plasticity. Sand, fine to medium, moderately graded.		0.4 0.5 0.6 0.7			
Silty fine to medium SAND; grey, brown staining. Loosely packed, moist, moderately graded.		0.8 0.9 1.0 1.1 1.2 1.3 1.4			
		1.5 1.6 1.7 1.8 1.9 2.0			

Remarks Termination: Effective refusal Hand auger refusal at 1.40m bgl due to gravels. Hole collapse: 1.20m bgl. SWL: Not encountered.

120 High Street, Southbridge 7602, Canterbury, New Zealand	ph: (03) 324 2571 fax: (03) 324 2431	web: www.drilling.co.nz	Hole Depth: 1.4m
			Page 1 of 1

Client:	Peridot Engineering Ltd	Bore No.:	HA004
Project:	75 Andover Street, Christchurch	Job No.:	21170

Site Location: 75 Andover Street, Christchurch	Date: 22/9/2022
Grid Reference: 1569623.57m E, 5181511.89m N (NZTM) - Map or aerial photograph	Operator: B. Wilson
Elevation: 0.00m	Datum: Ground
	Equipment: Hand auger

Soil Description <small>Logged to NZGS guidelines by C. Whitau</small>	Legend	Depth (m)	Scala Penetrometer	Hand Shear Vane <small>(Uncorrected)</small>	Water
			NZS 4402.6.5.2		
			(Blows / 100mm) 2 4 6 8 10 12 14 16 18		
SILT with some organics and trace sand; dark brown. Soft, moist, low plasticity (TOPSOIL).		0.1			
		0.2			
		0.3			
Sandy SILT; grey, minor brown staining. Soft, dry to moist, low plasticity. Sand, fine to medium, moderately graded.		0.4			
		0.5			
		0.6			
Silty fine to medium SAND; grey. Loosely packed, moist, moderately graded.		0.7			
		0.8			
		0.9			
		1.0			
		1.1			
		1.2			
		1.3			
		1.4			
		1.5			
		1.6			
		1.7			
		1.8			
		1.9			
		2.0			

▼
SWL
1.50m

Remarks
Termination: Effective refusal
Hand auger refusal at 2.00m bgl due to gravels.
Hole collapse: 1.60m bgl.

SCALA / BOREHOLE LOG 4.0m					Job:	
Date:	22/09/2022				Address:	75 And over streets
Depth	Location no. :					
	1	2	3	4	1	2
100	0	1	1	1	20 ⁺	20 ⁺
200	1	2	1	1	20 ⁺	
300	1	6	3	13		
400	2	3	8	5		
500	2	1.5	5	4		
600	2	1.5	5	4		
700	2	1	4	2		
800	2	1	3	3		
900	3	3	2	4		
1000	2	2	2	3		
1100	3	4	2	3		
1200	4	7	4	9		
1300	6	6	4	19		
1400	4	6	6	20 ⁺		
1500	3	7	7	20 ⁺		
1600	9	9	7			
1700	8	10	16			
1800	7	12	16			
1900	9	14	20 ⁺			
2000	12	20 ⁺	20 ⁺			

unit 4

unit 3

unit 2

unit 1

ANDOVER ST.

Appendix C – Liquefaction Assessment Results

LIQUEFACTION ANALYSIS REPORT

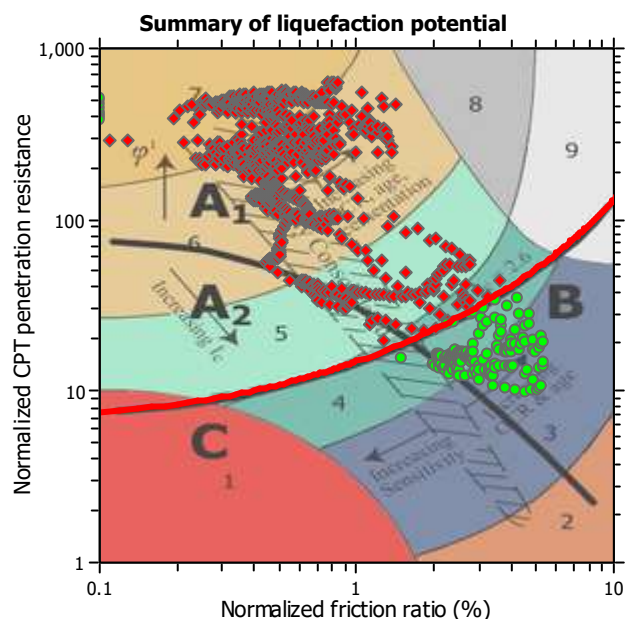
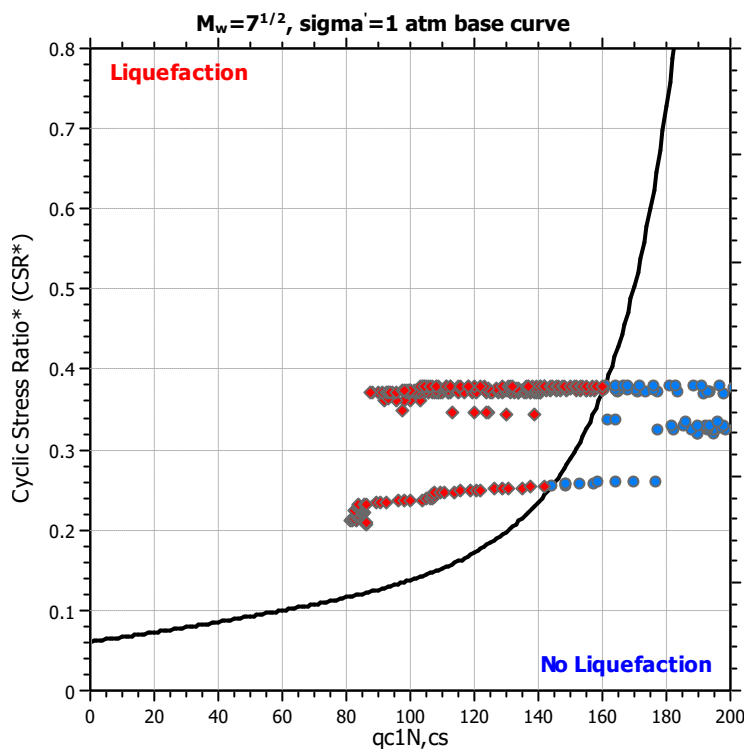
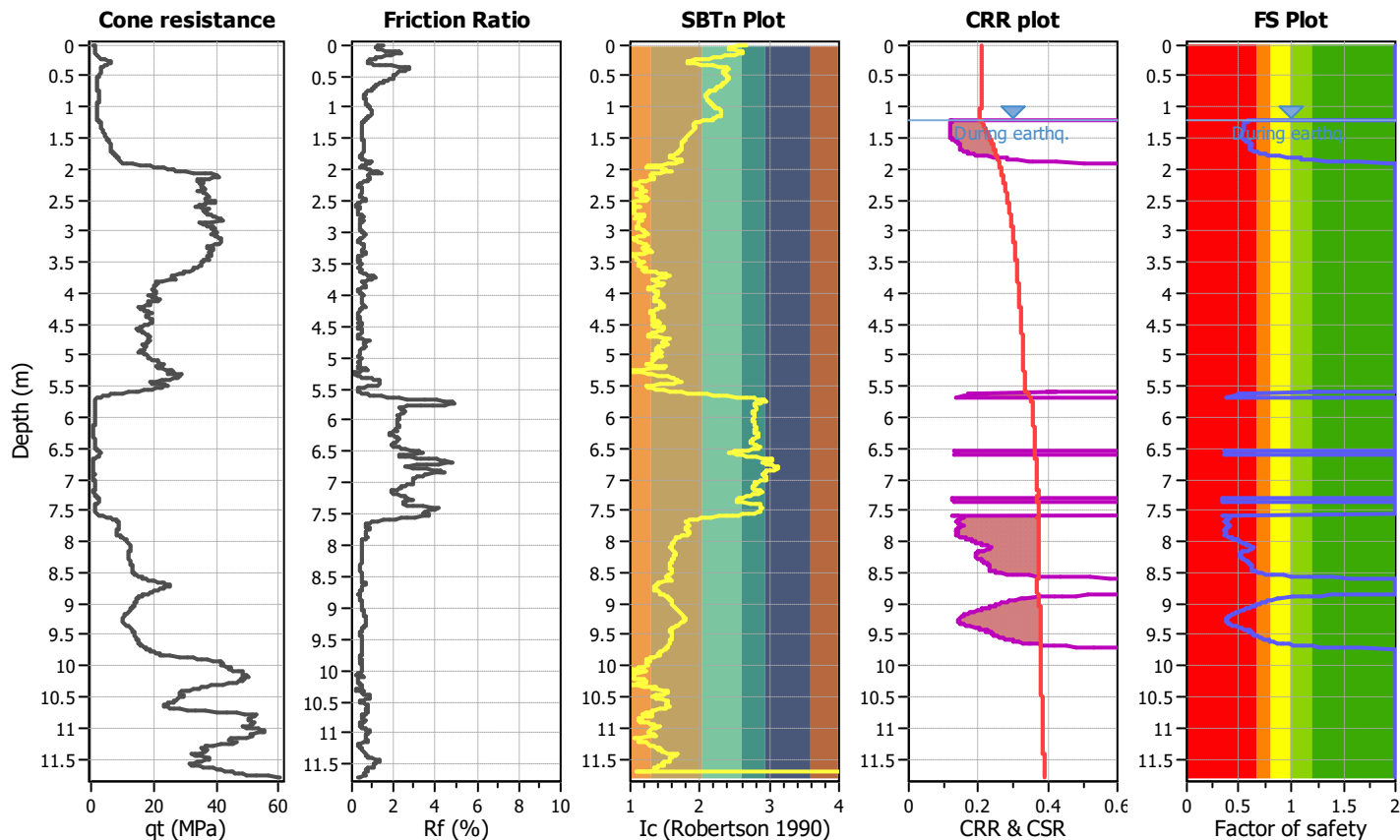
Project title :

Location :

CPT file : CPT 2 ULS

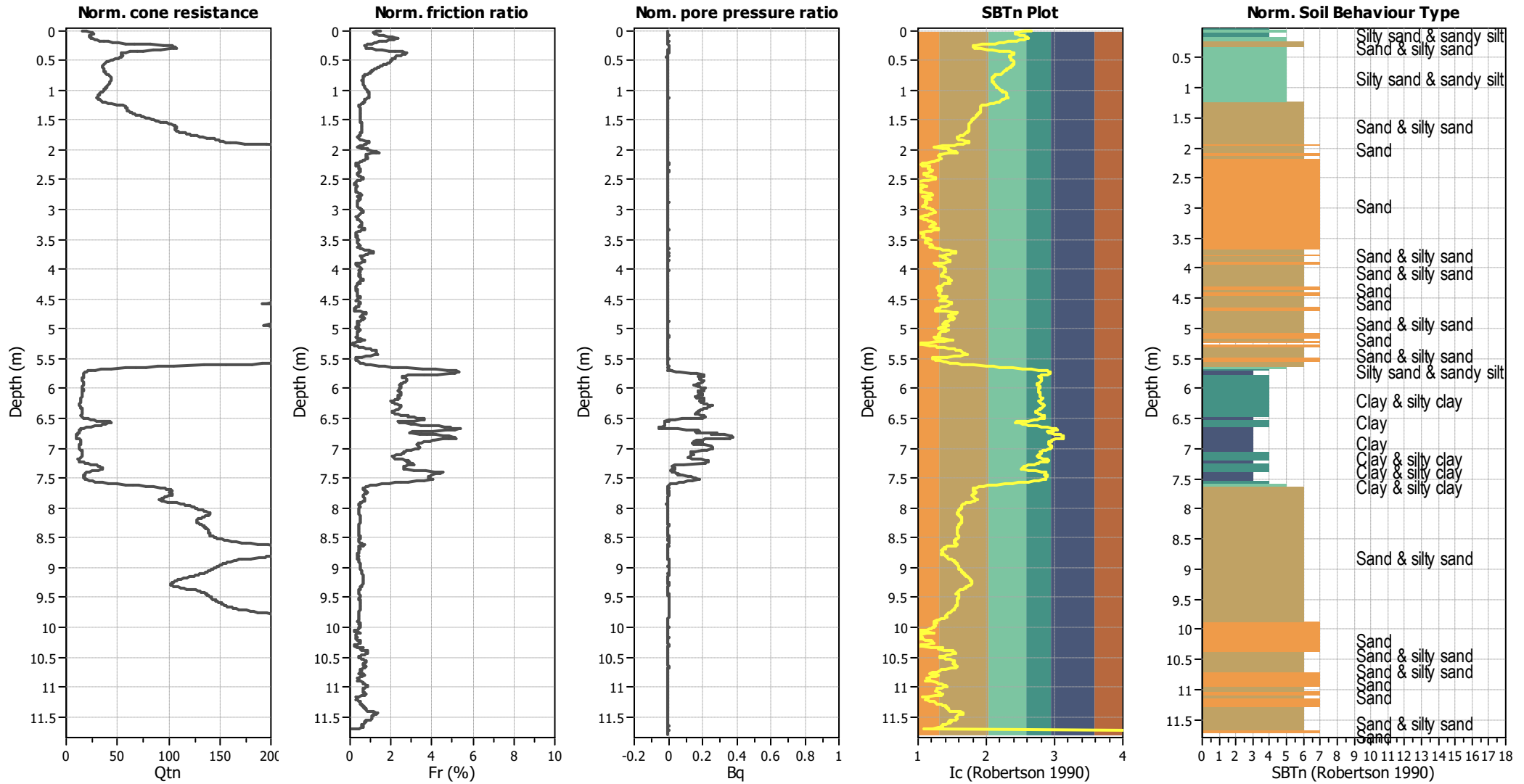
Input parameters and analysis data

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Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.35	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



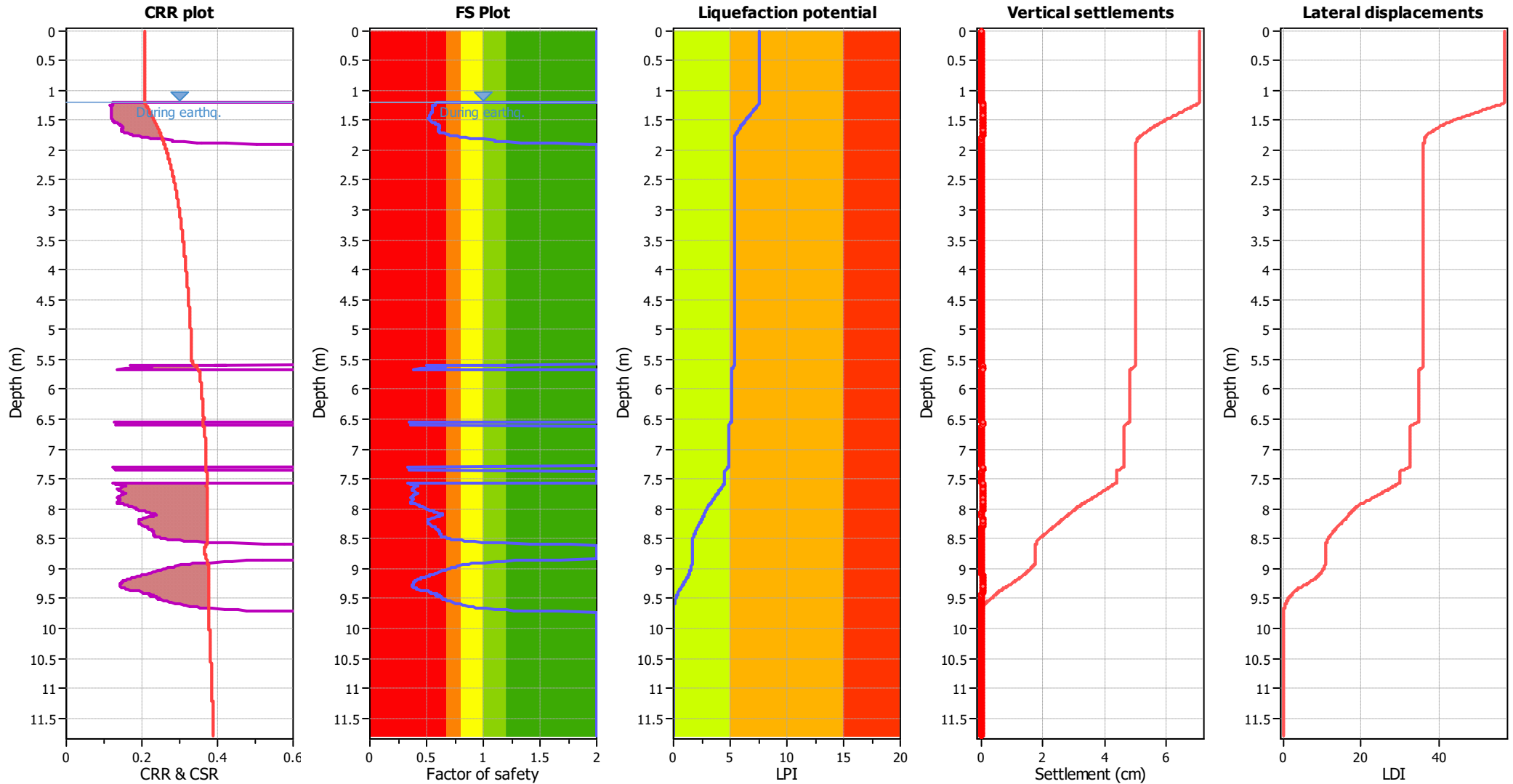
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

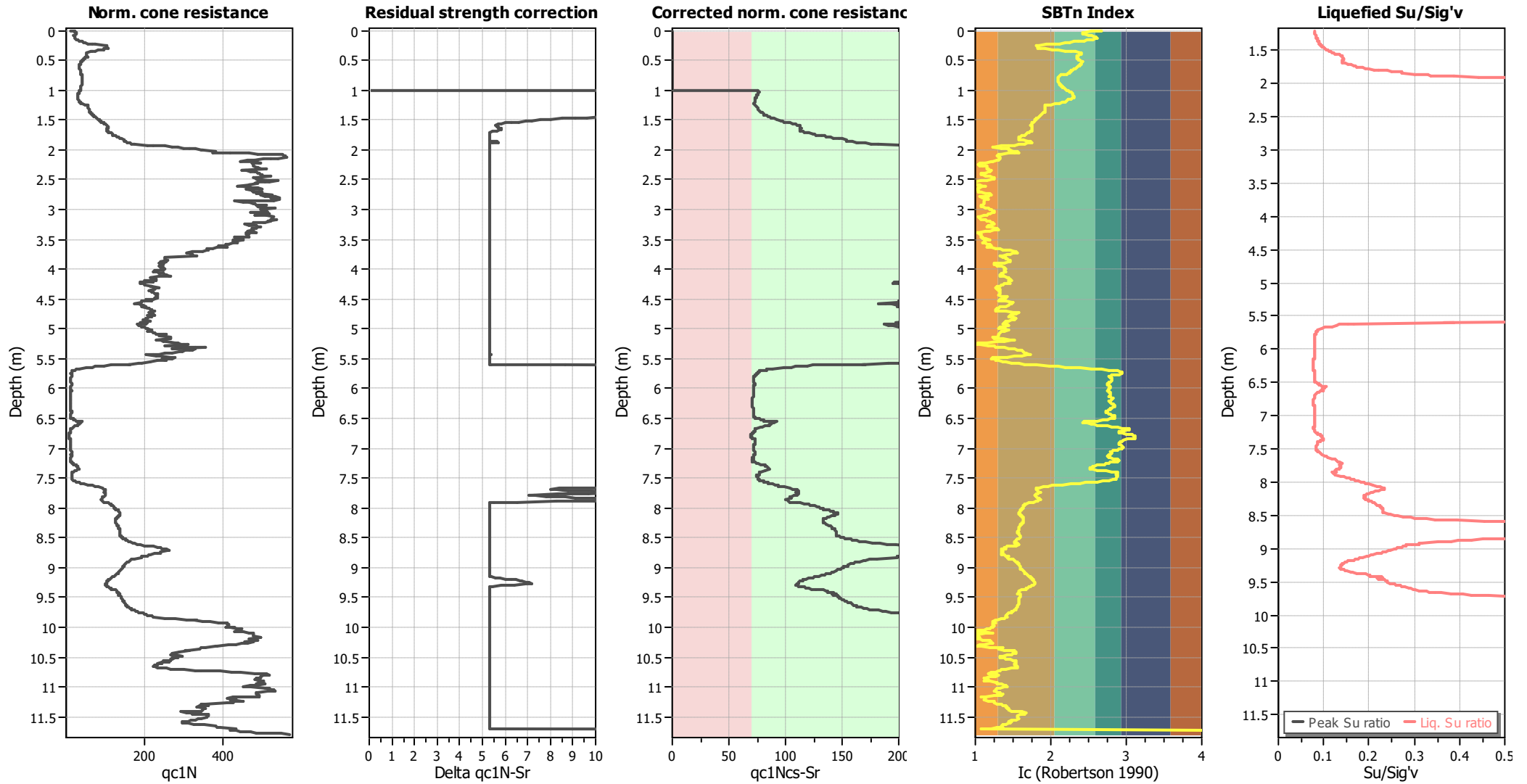
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

LIQUEFACTION ANALYSIS REPORT

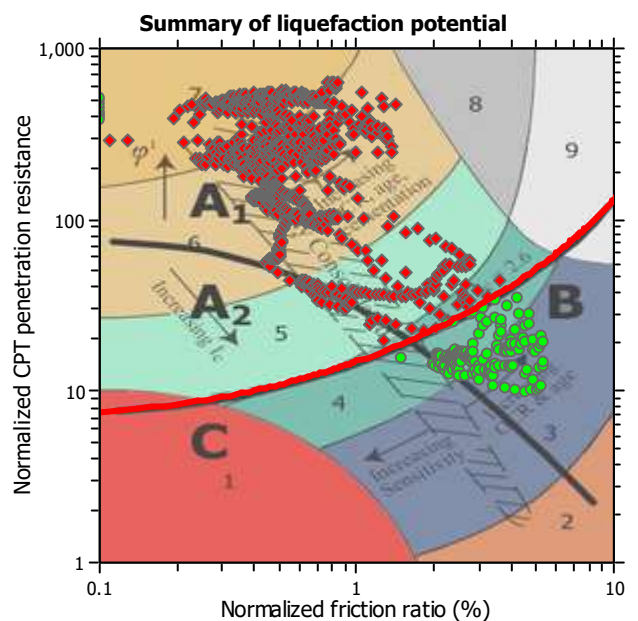
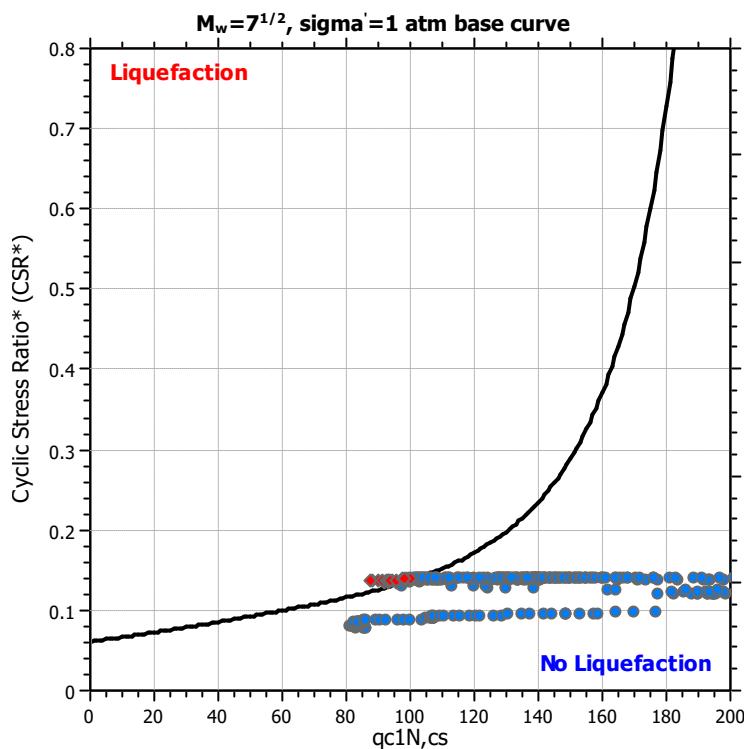
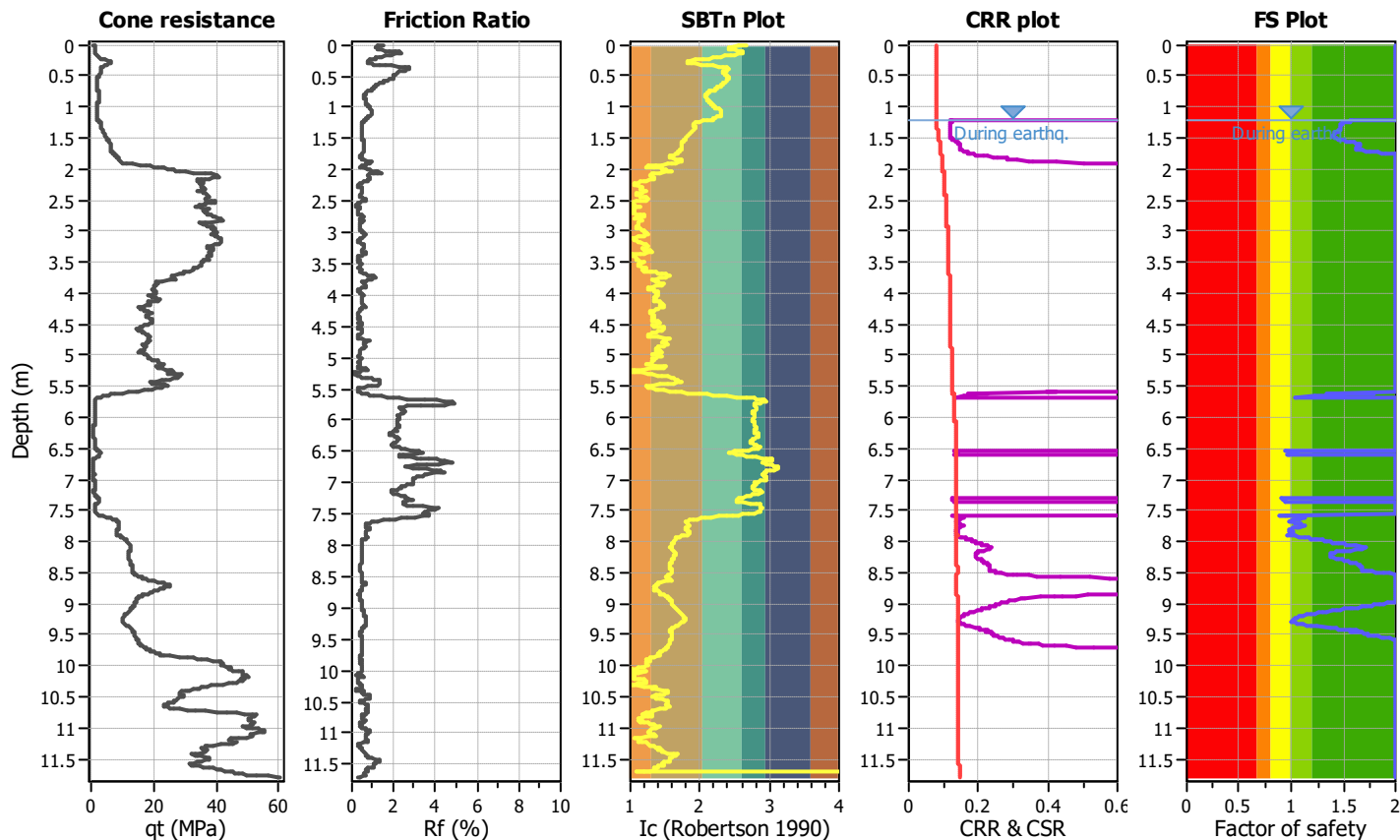
Project title :

Location :

CPT file : CPT 2 SLS1

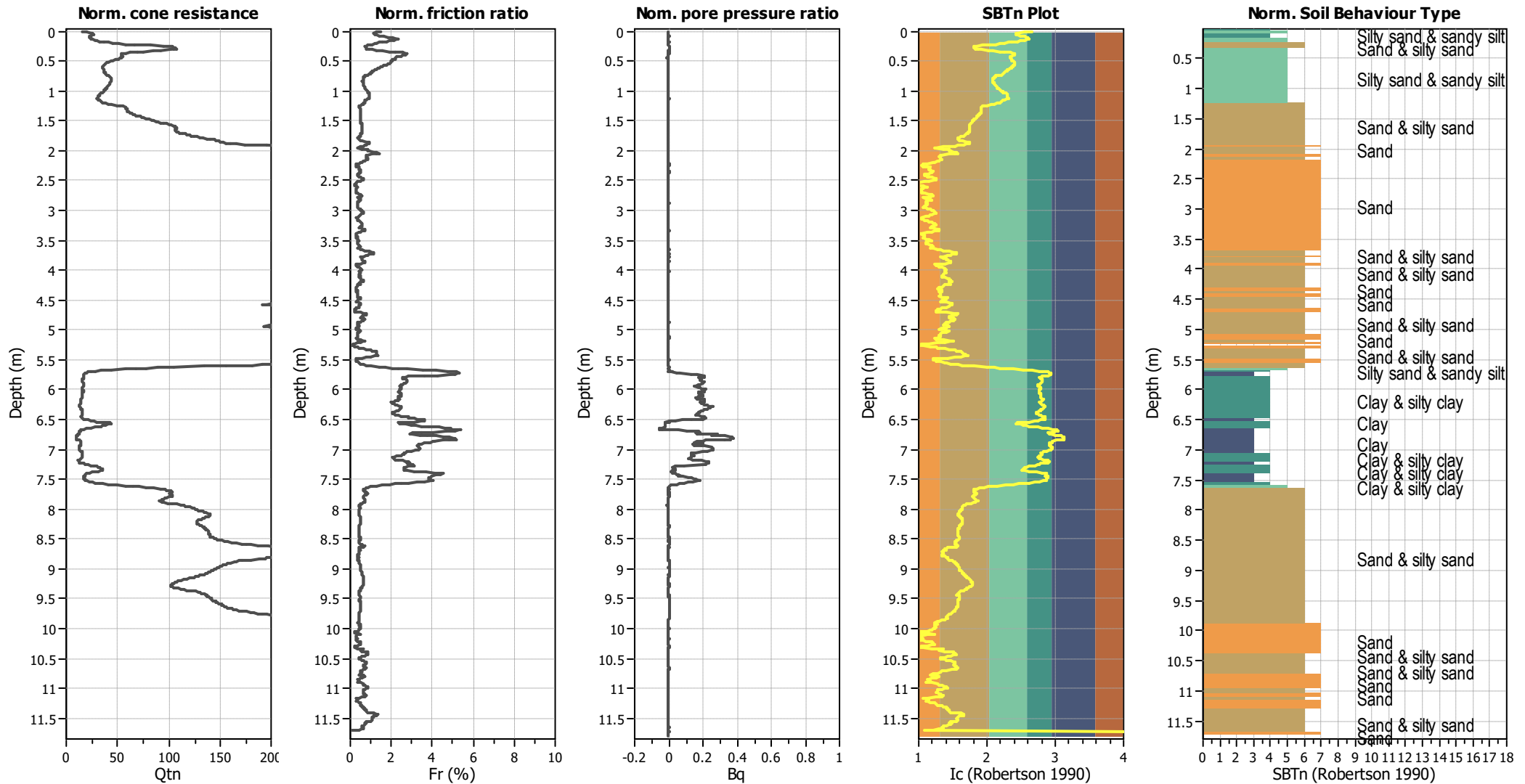
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

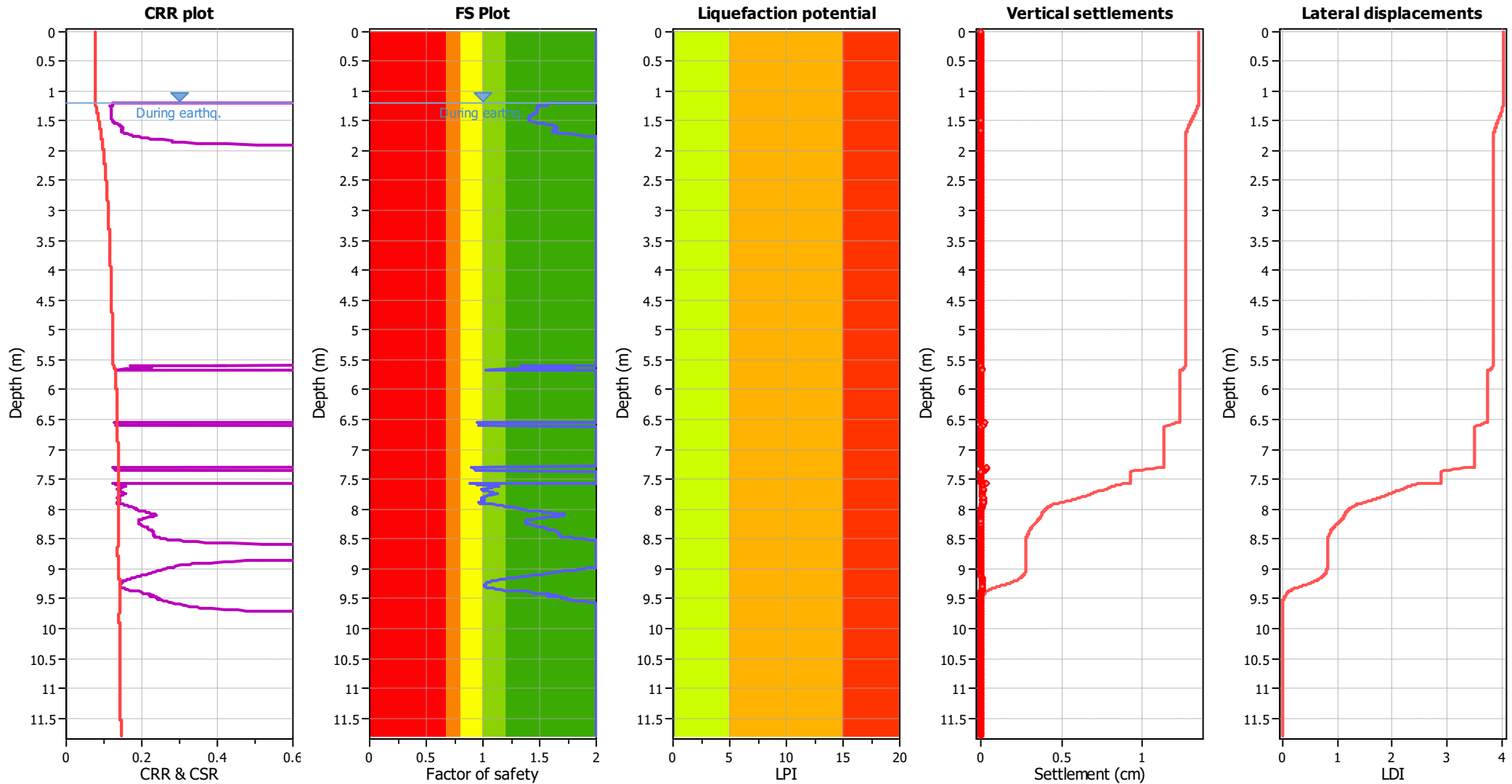
CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

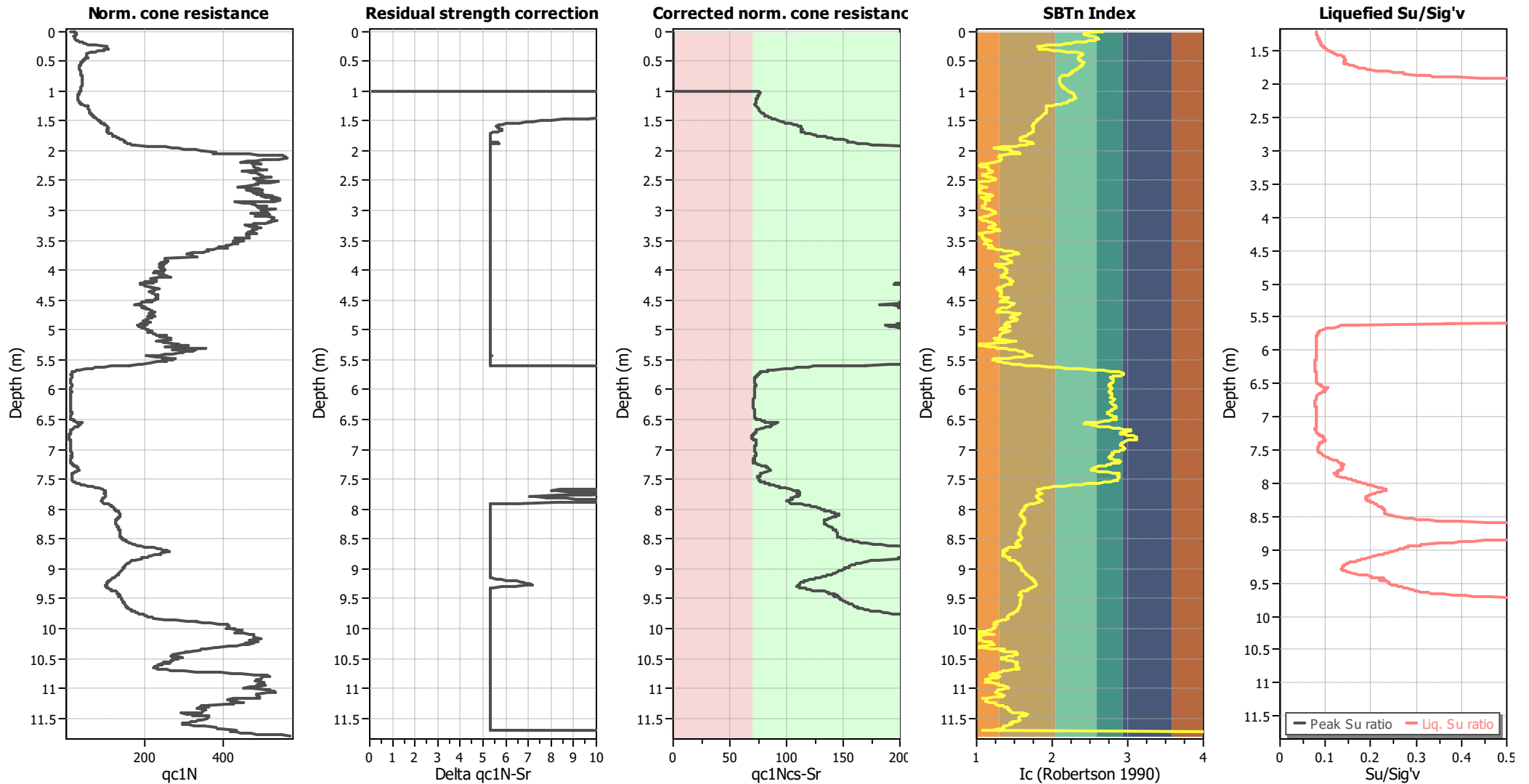
F.S. color scheme

Red	Almost certain it will liquefy
Orange	Very likely to liquefy
Yellow	Liquefaction and no liq. are equally likely
Light Green	Unlike to liquefy
Dark Green	Almost certain it will not liquefy

LPI color scheme

Red	Very high risk
Orange	High risk
Yellow	Low risk

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

LIQUEFACTION ANALYSIS REPORT

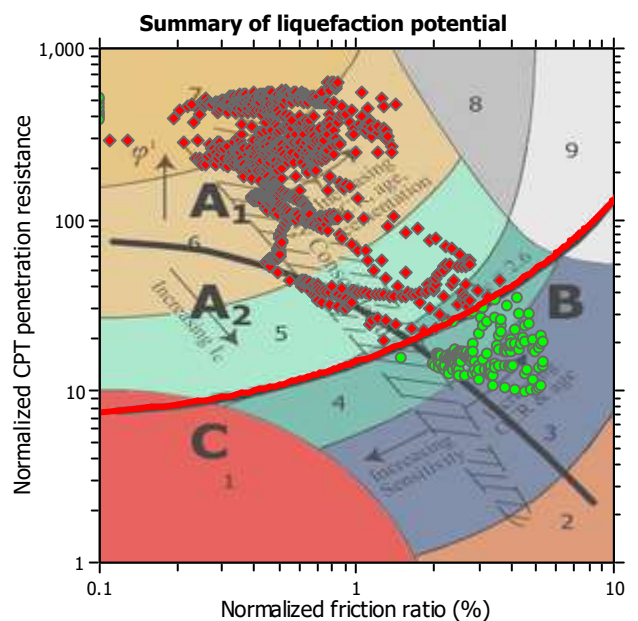
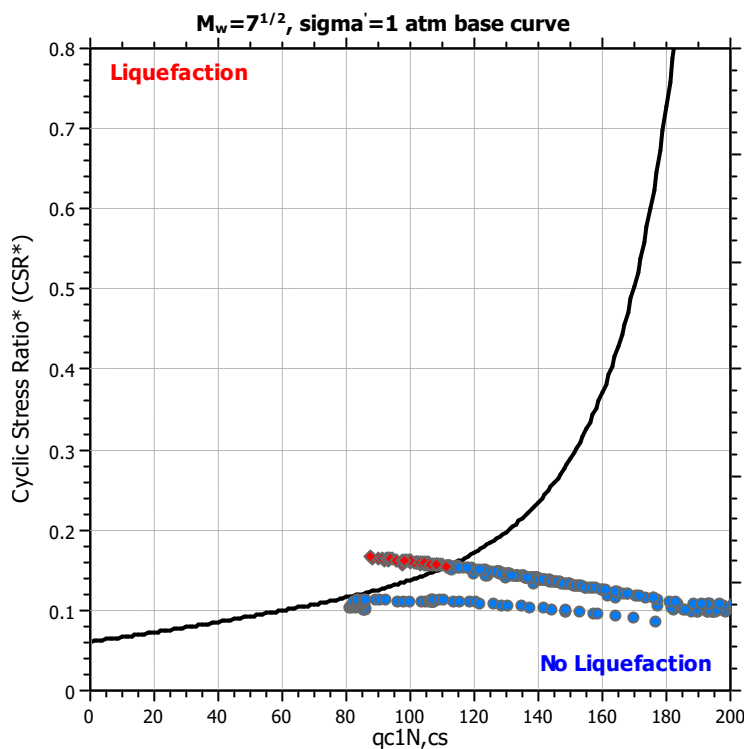
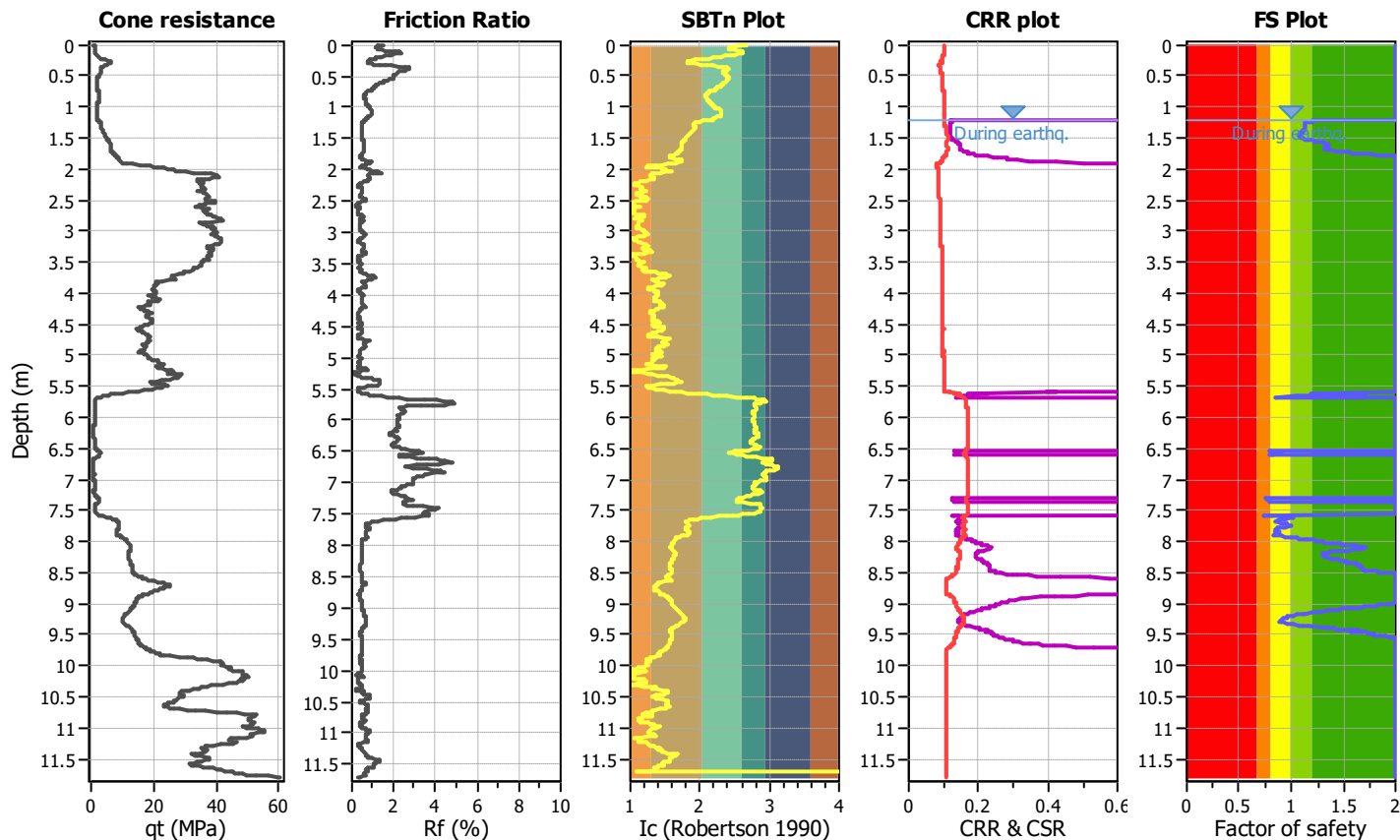
Project title :

Location :

CPT file : CPT 2 SLS 2

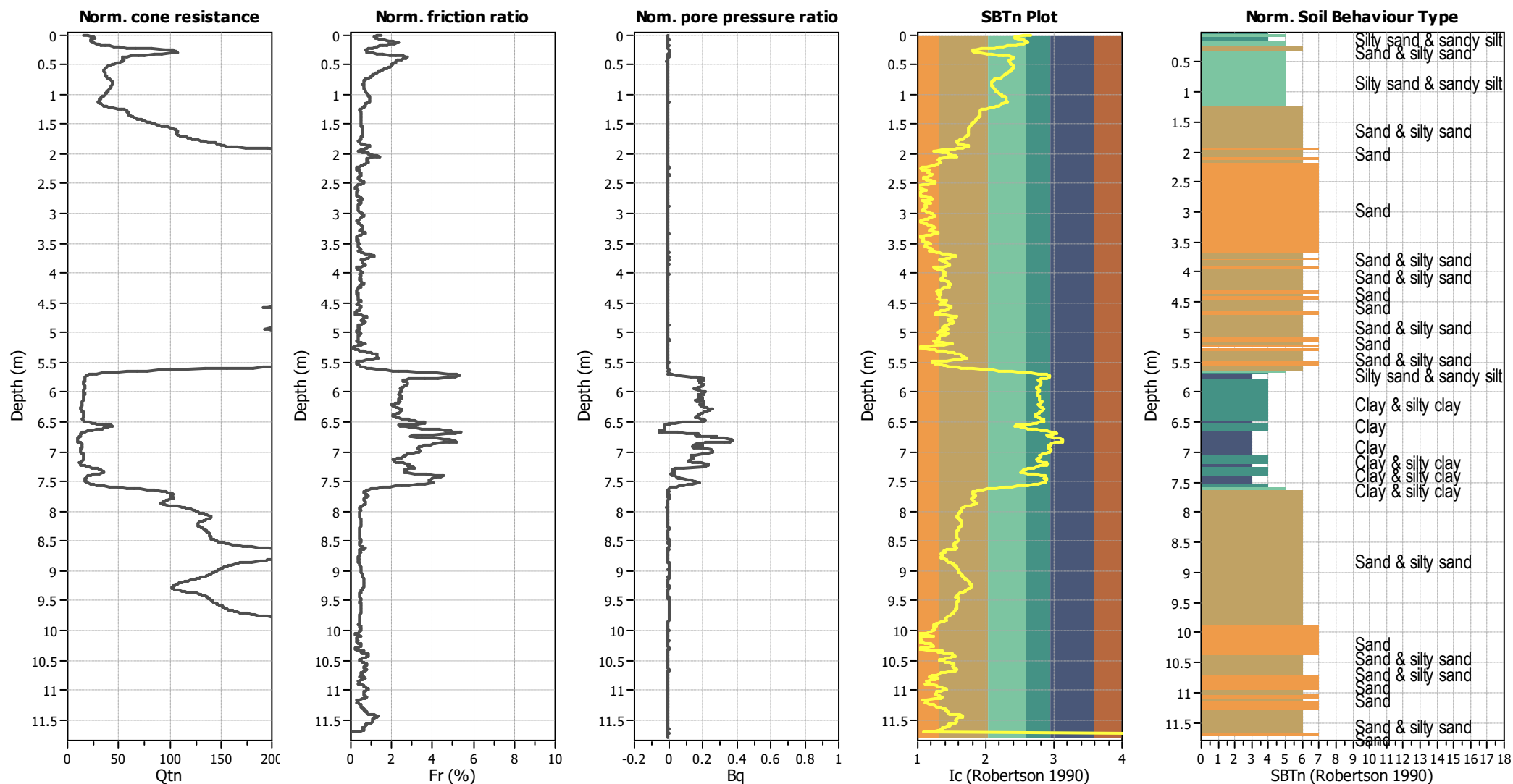
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

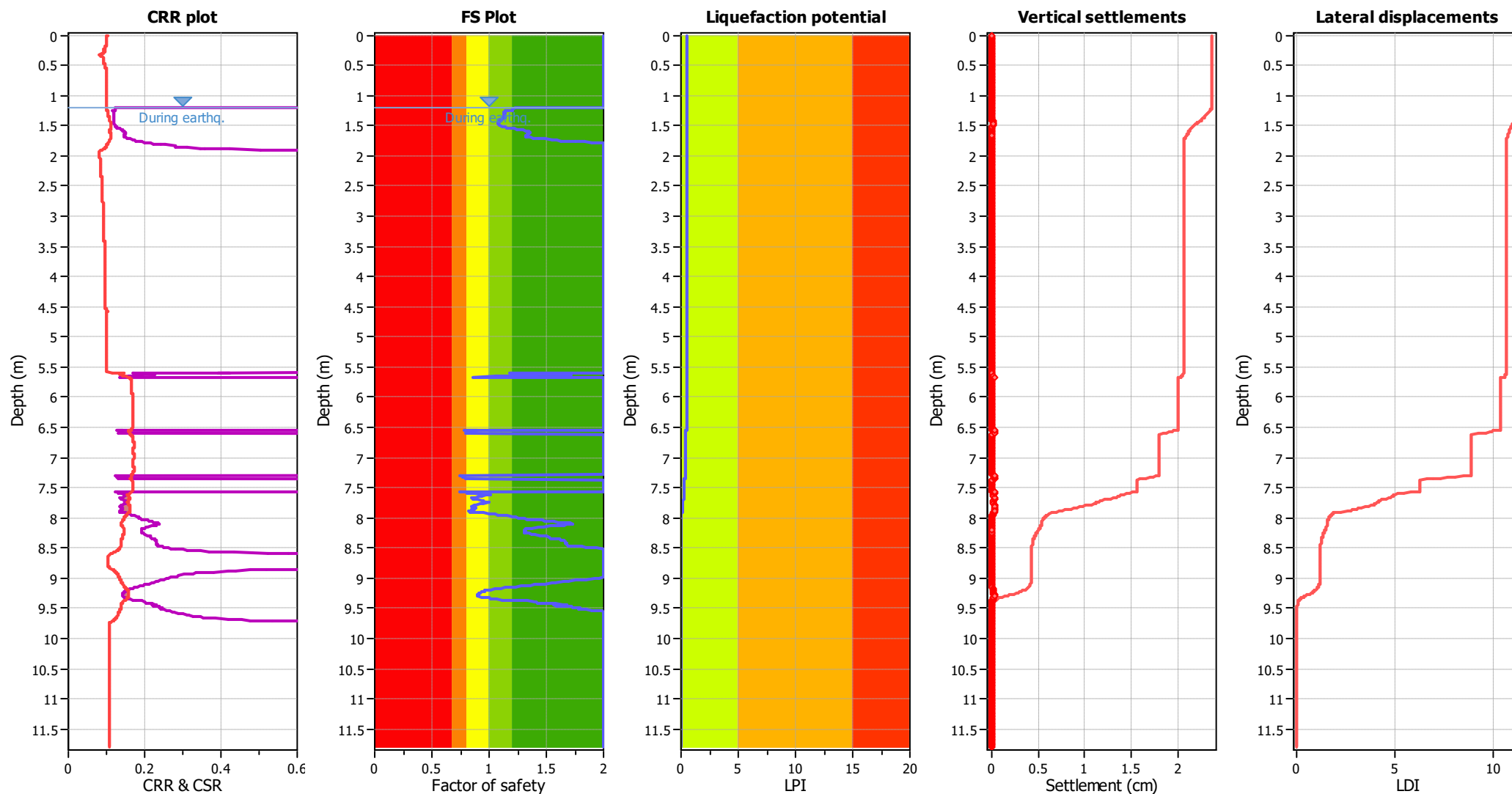
CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

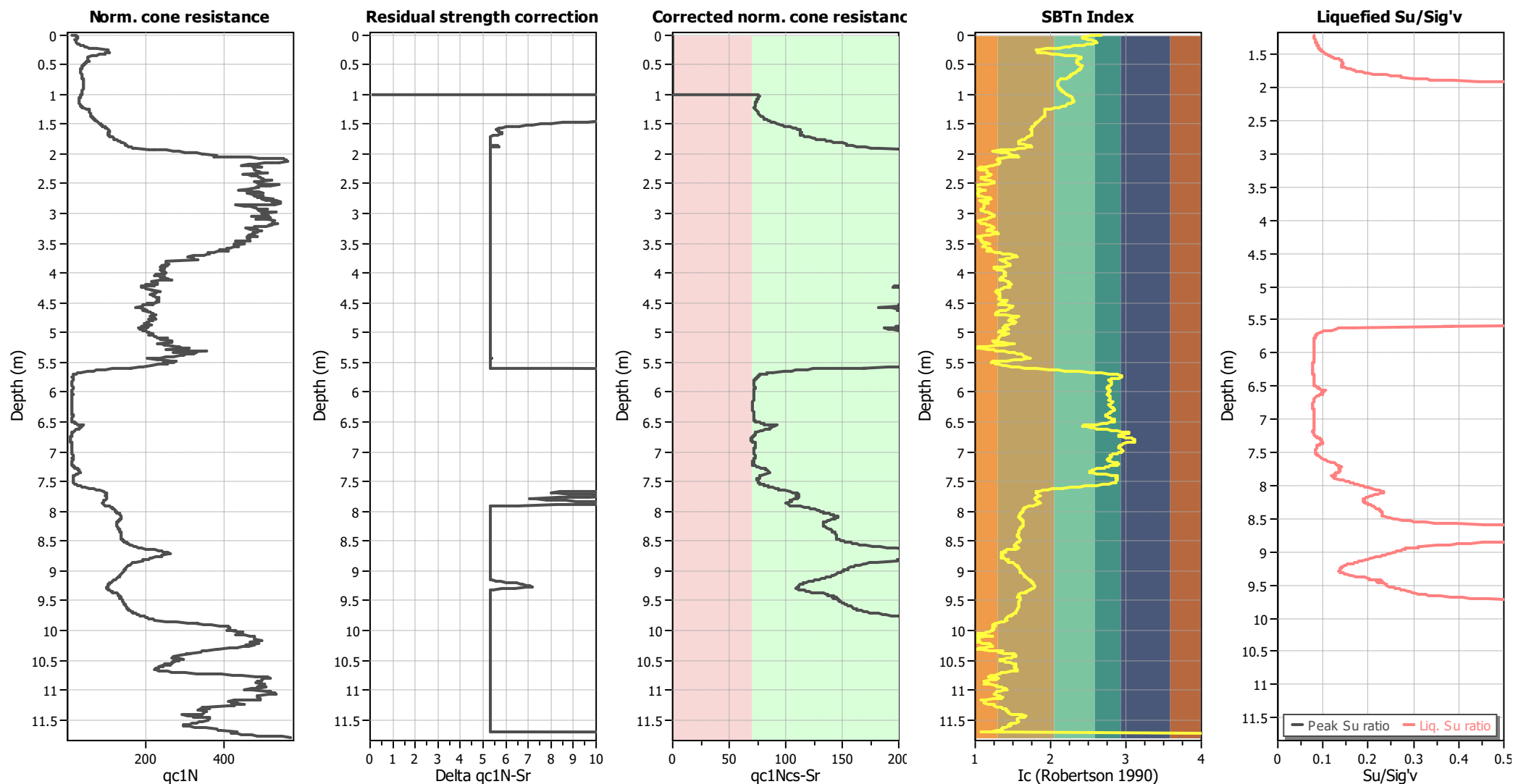
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

LIQUEFACTION ANALYSIS REPORT

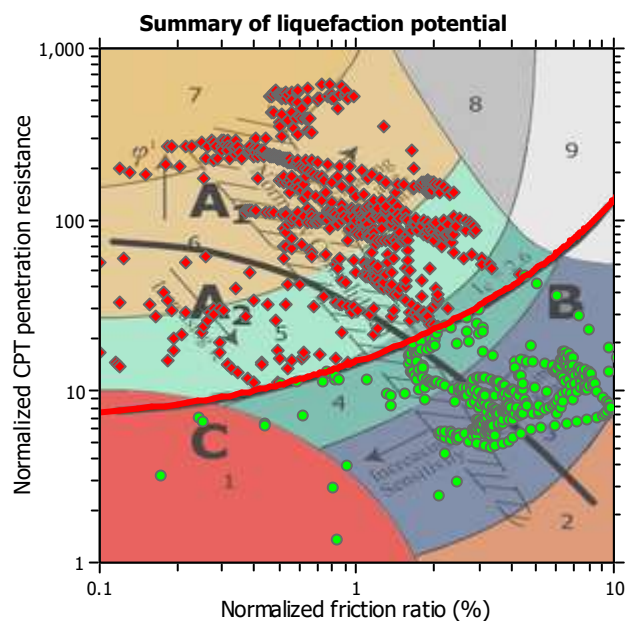
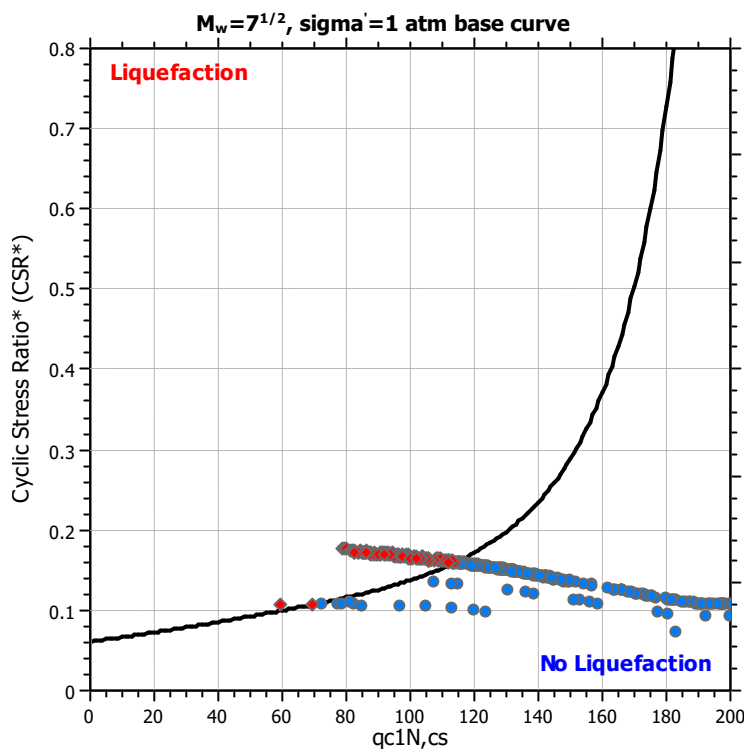
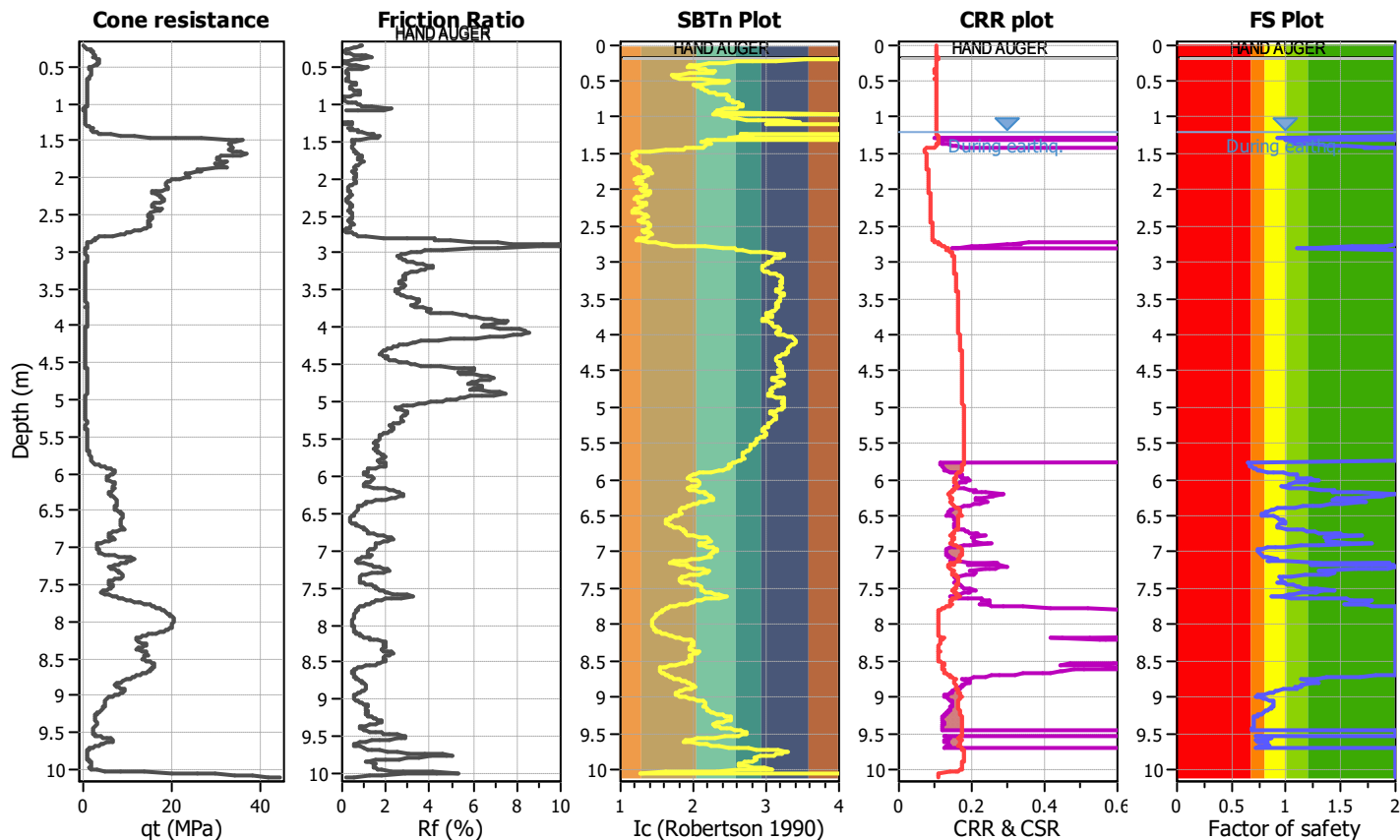
Project title :

Location :

CPT file : CPT 5490 SLS2

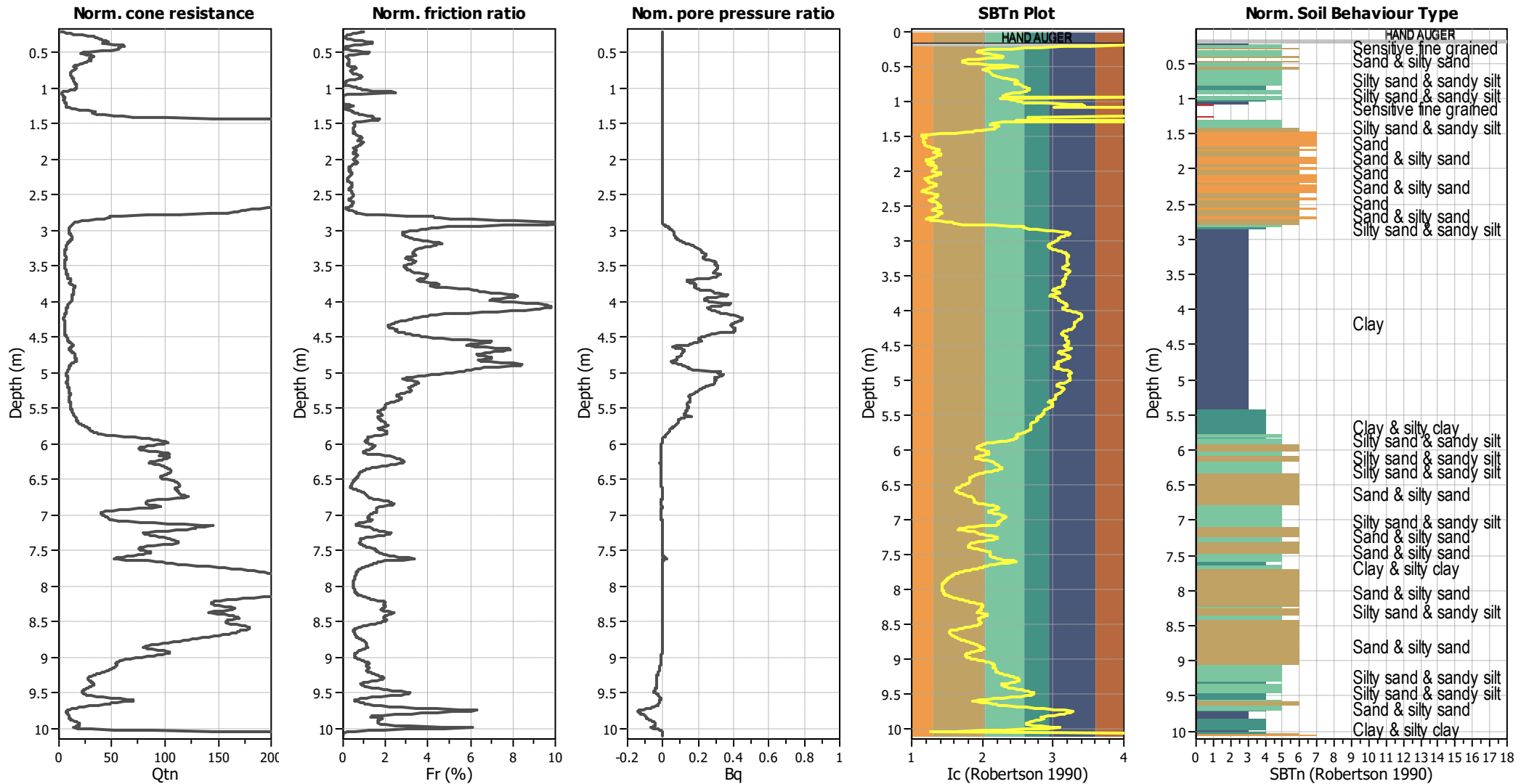
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	6.00	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



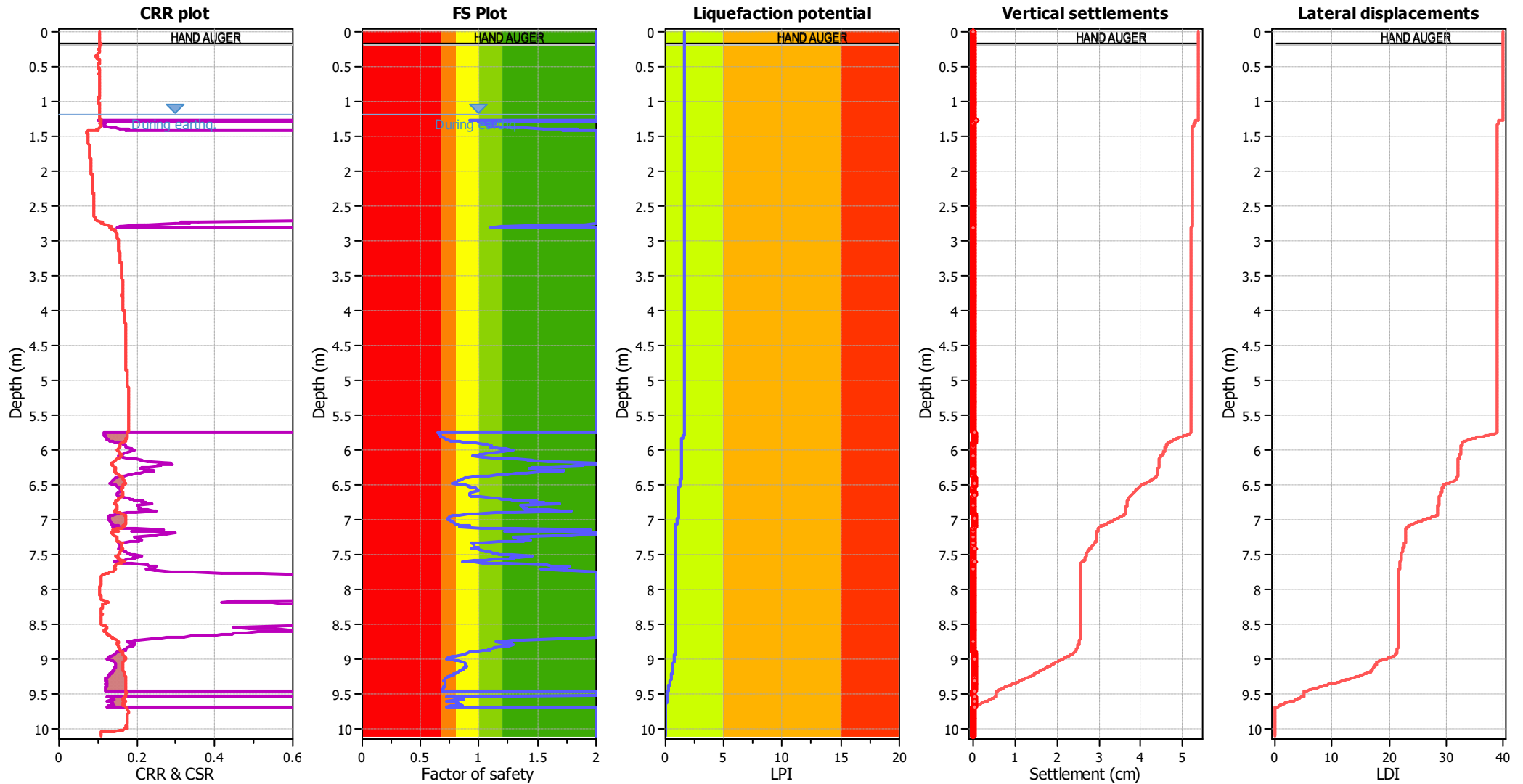
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

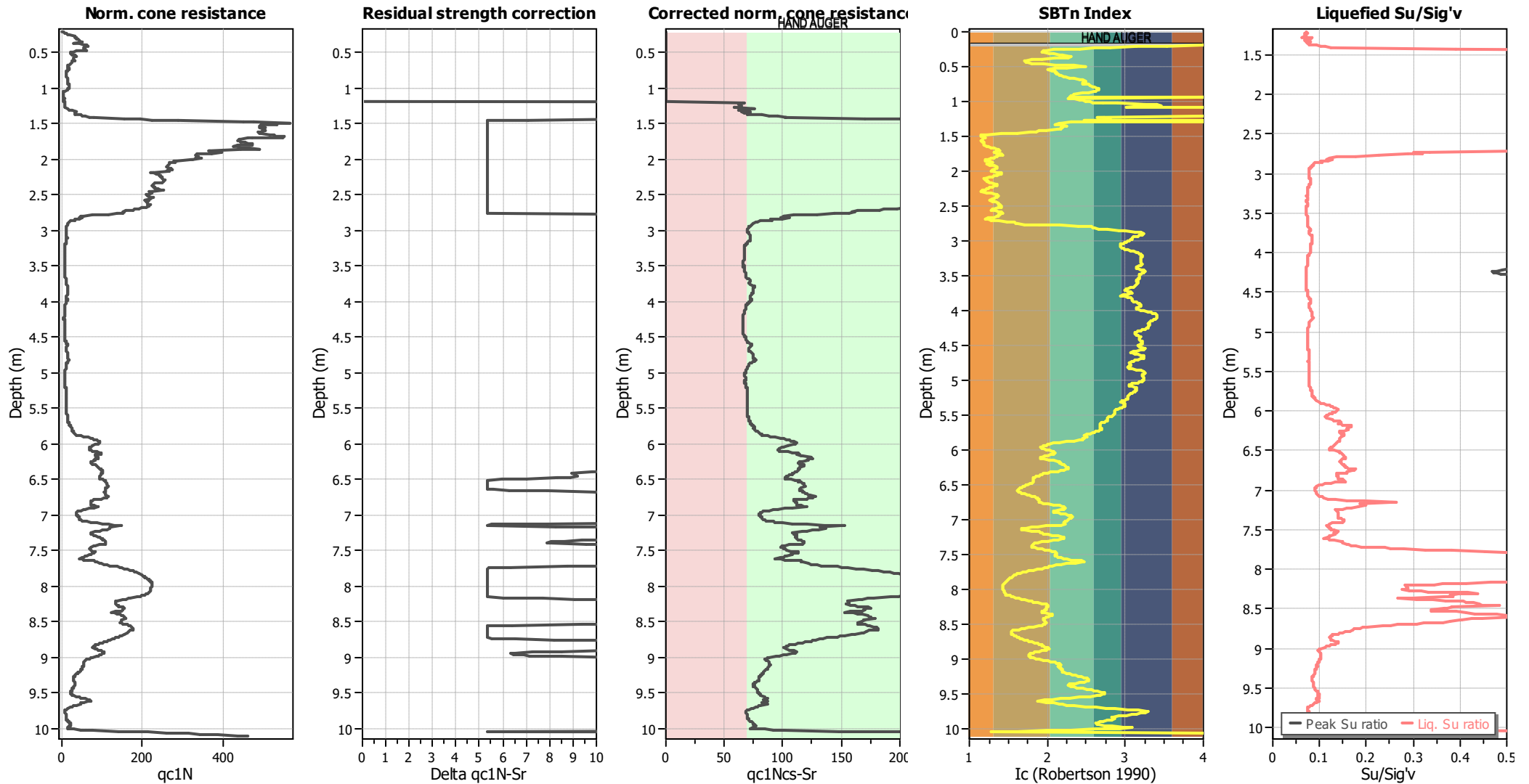
F.S. color scheme

Red	Almost certain it will liquefy
Orange	Very likely to liquefy
Yellow	Liquefaction and no liq. are equally likely
Light Green	Unlike to liquefy
Dark Green	Almost certain it will not liquefy

LPI color scheme

Red	Very high risk
Orange	High risk
Yellow	Low risk

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

LIQUEFACTION ANALYSIS REPORT

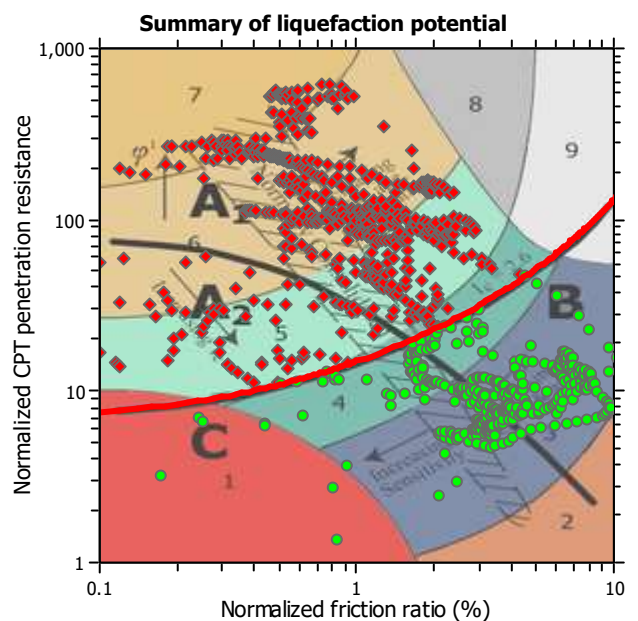
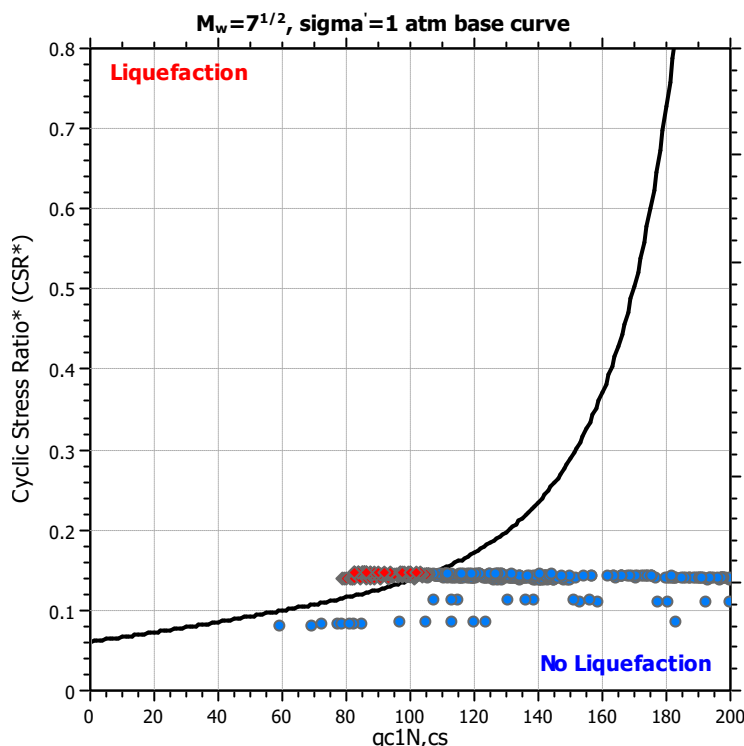
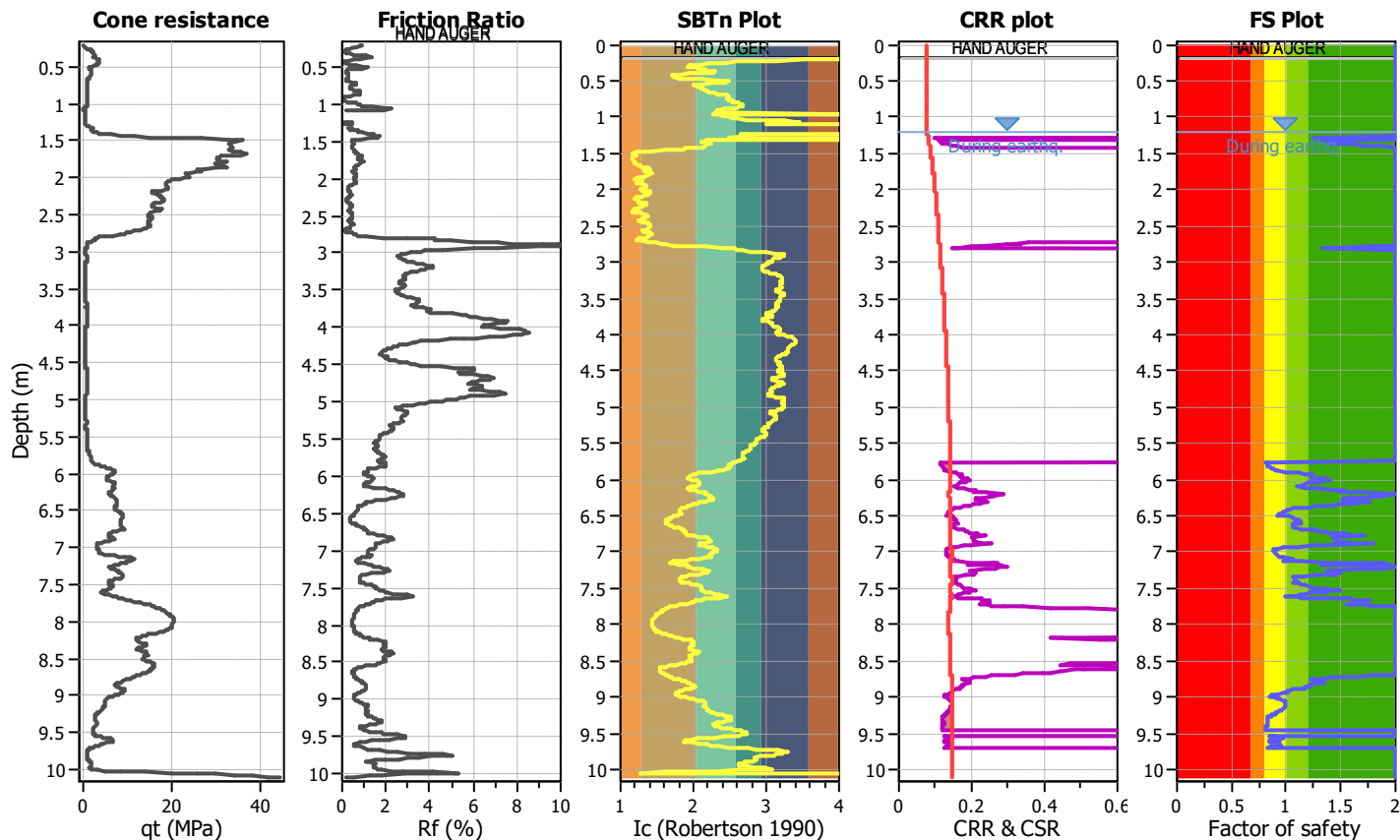
Project title :

Location :

CPT file : CPT 5490 SLS1

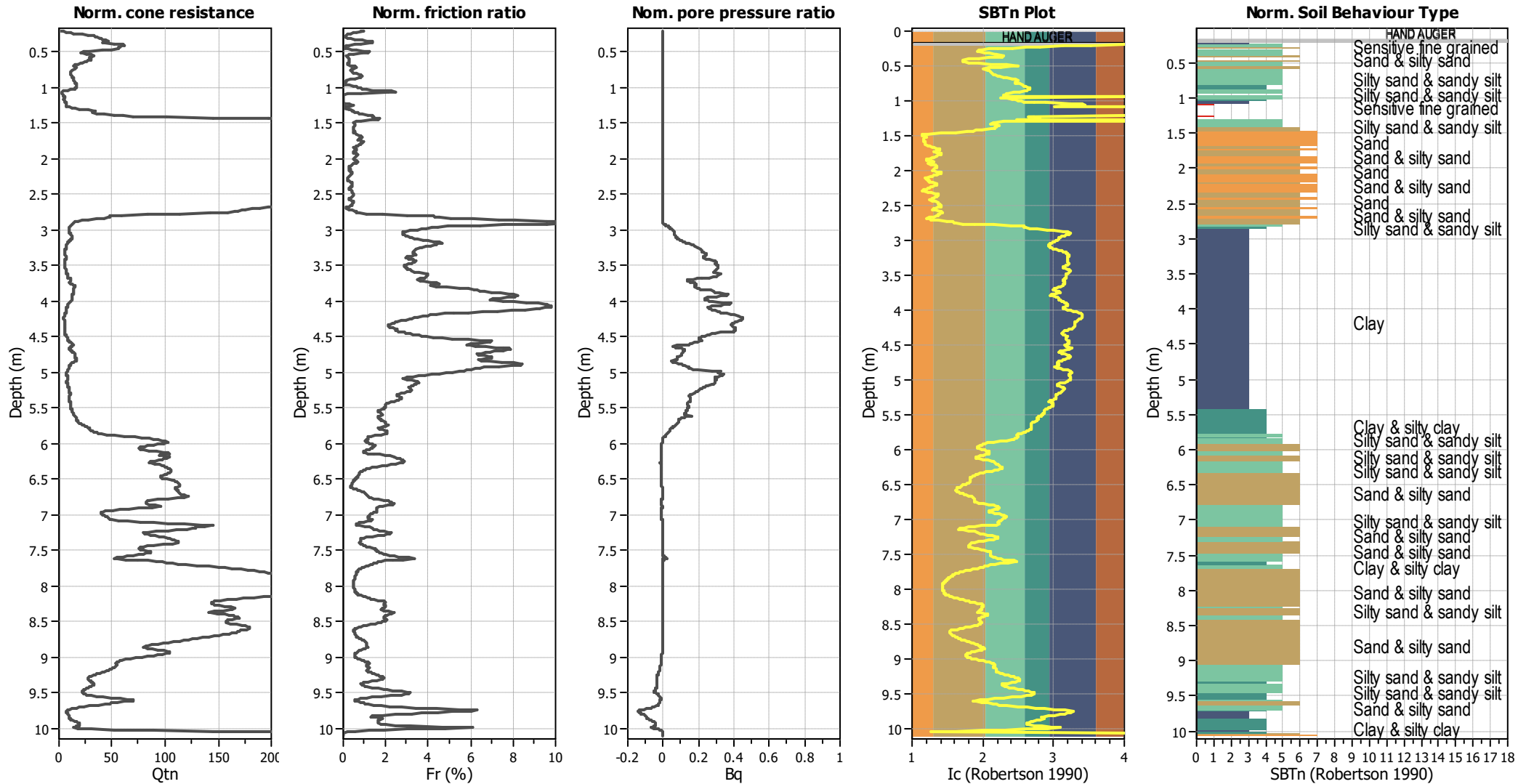
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

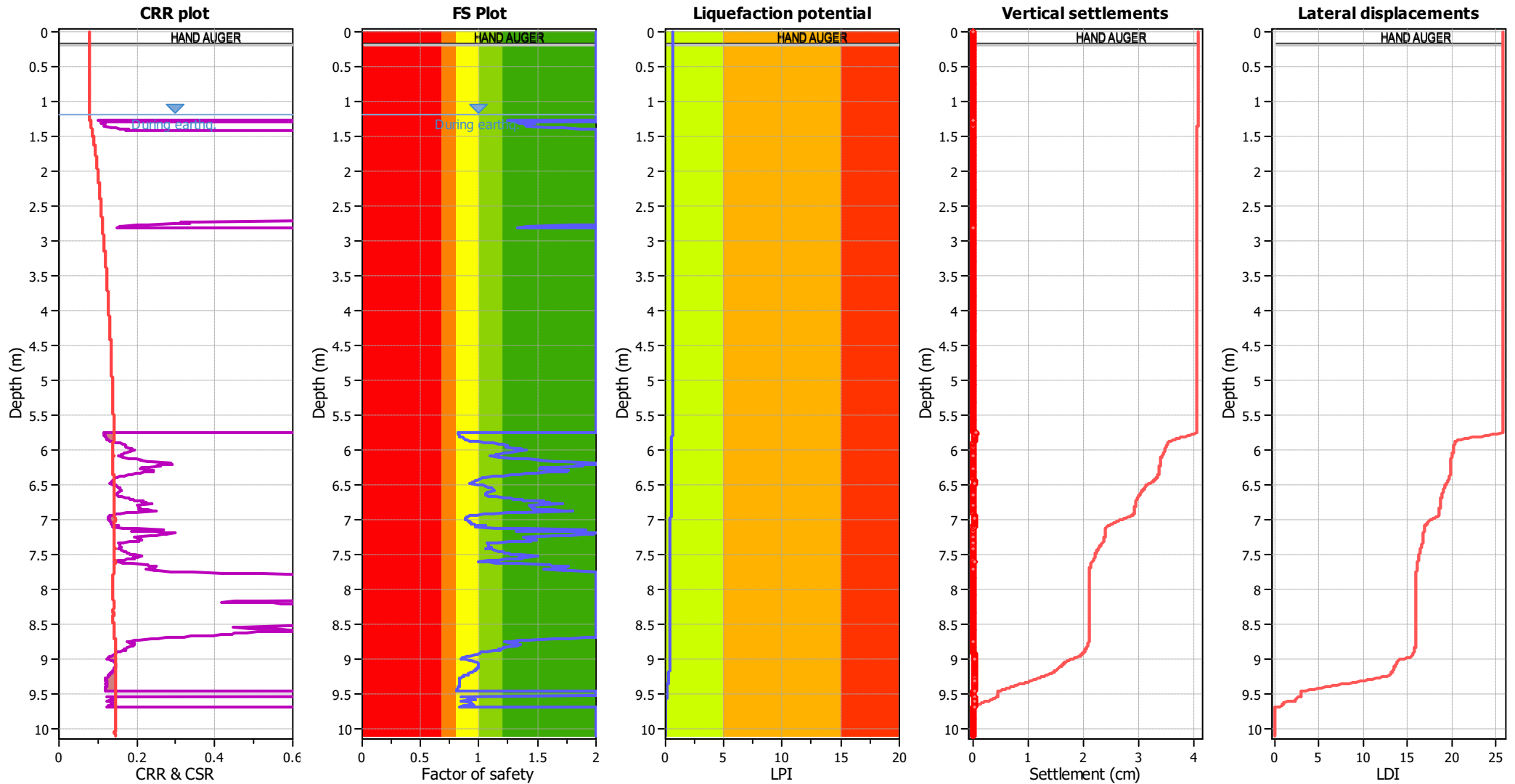
CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

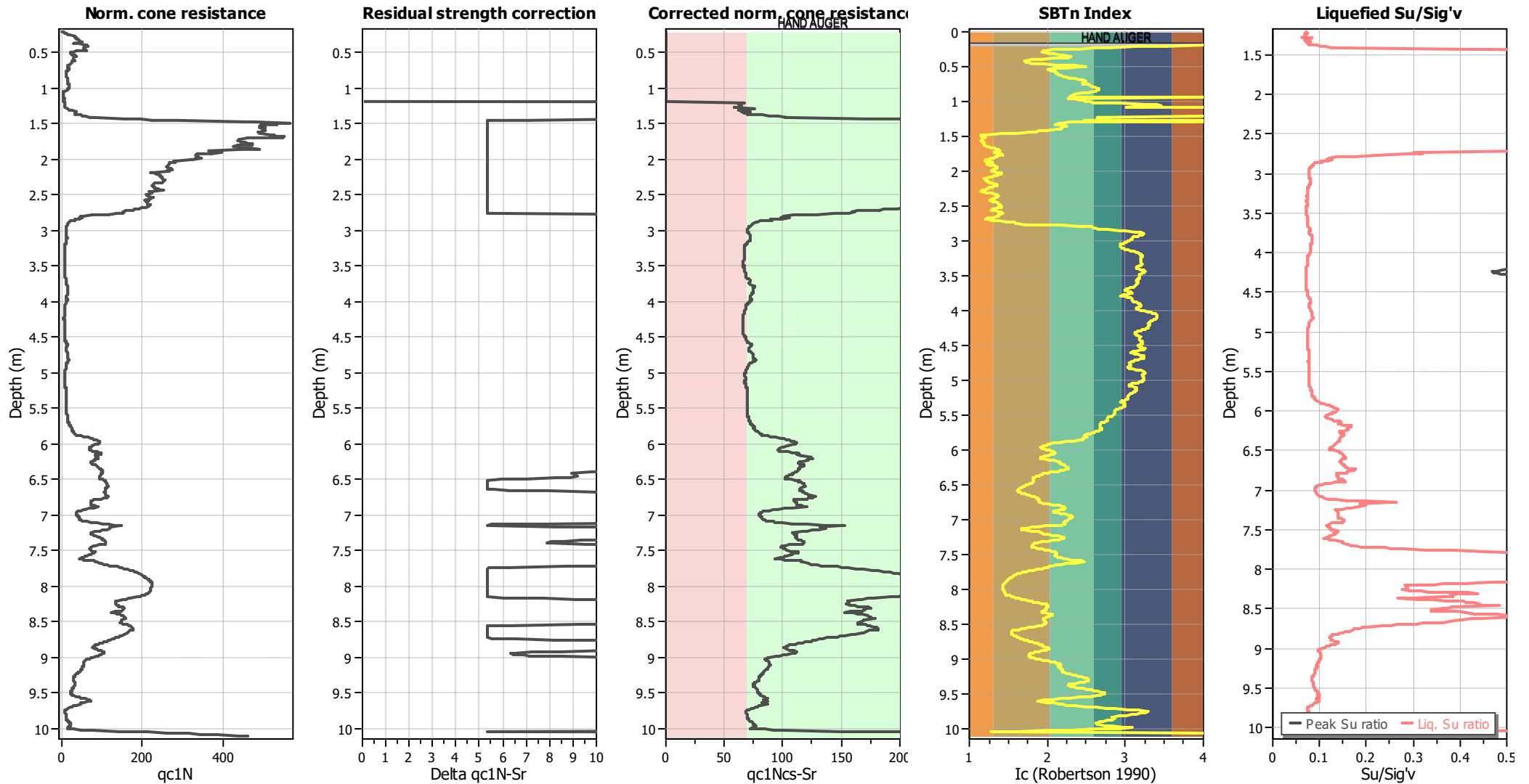
F.S. color scheme

Red	Almost certain it will liquefy
Orange	Very likely to liquefy
Yellow	Liquefaction and no liq. are equally likely
Light Green	Unlike to liquefy
Dark Green	Almost certain it will not liquefy

LPI color scheme

Red	Very high risk
Orange	High risk
Yellow	Low risk

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

LIQUEFACTION ANALYSIS REPORT

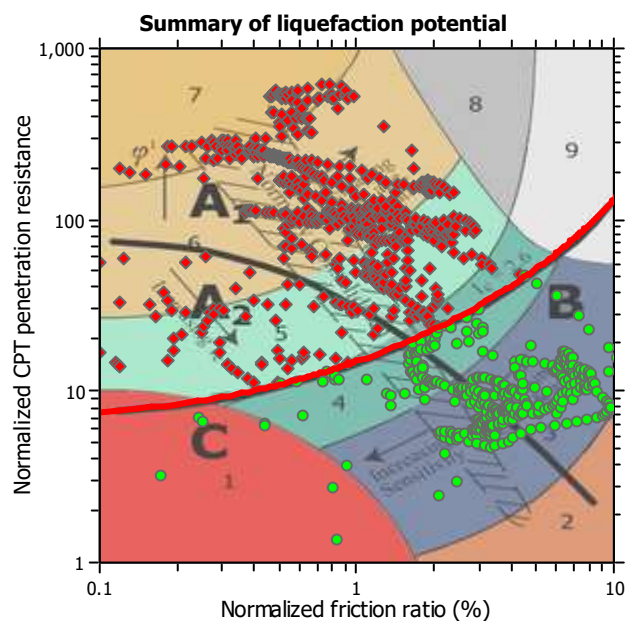
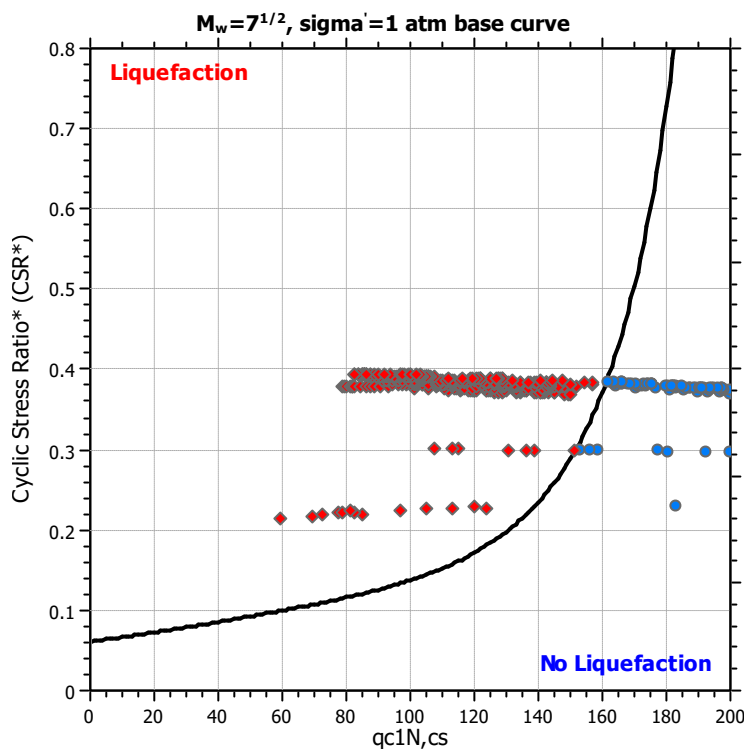
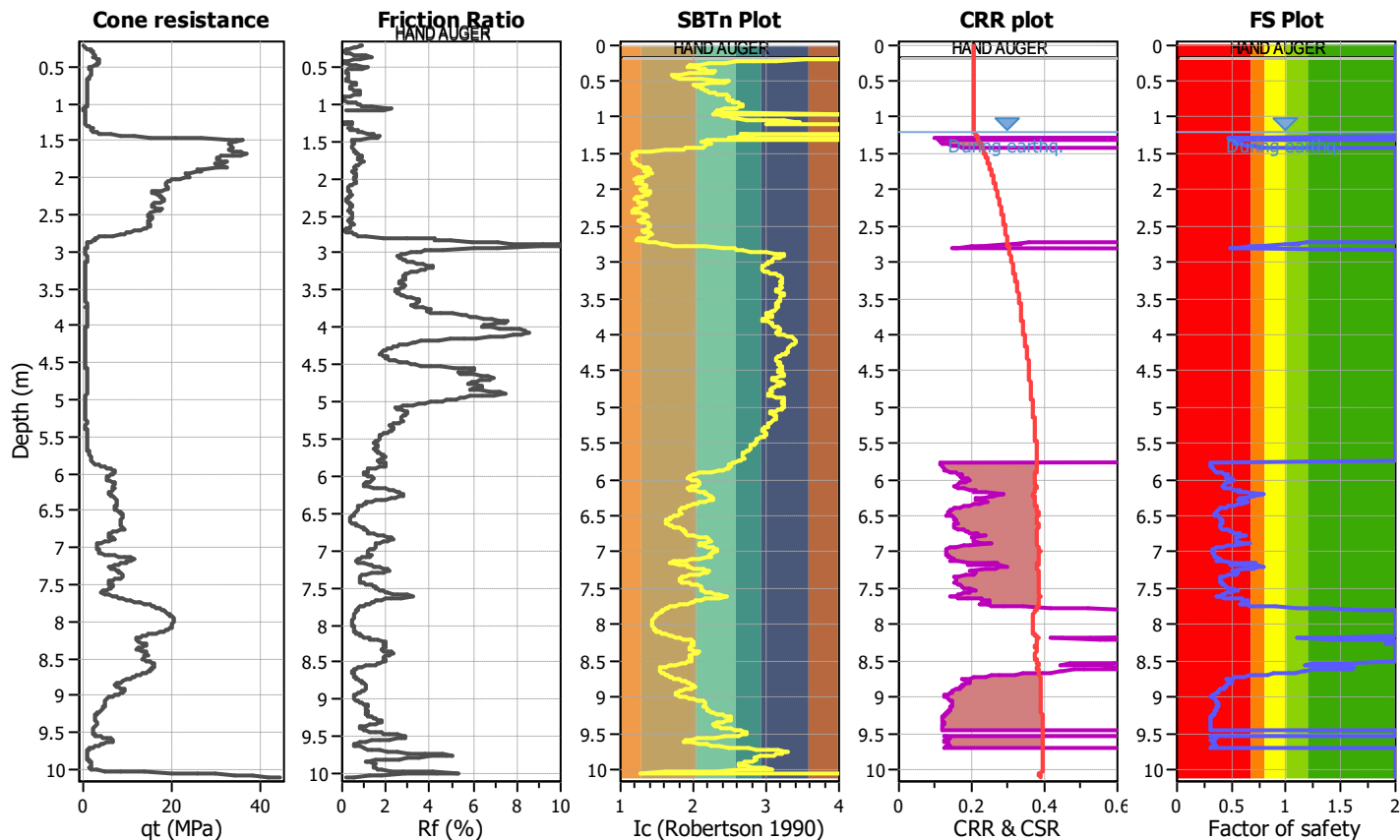
Project title :

Location :

CPT file : CPT 5490 ULS

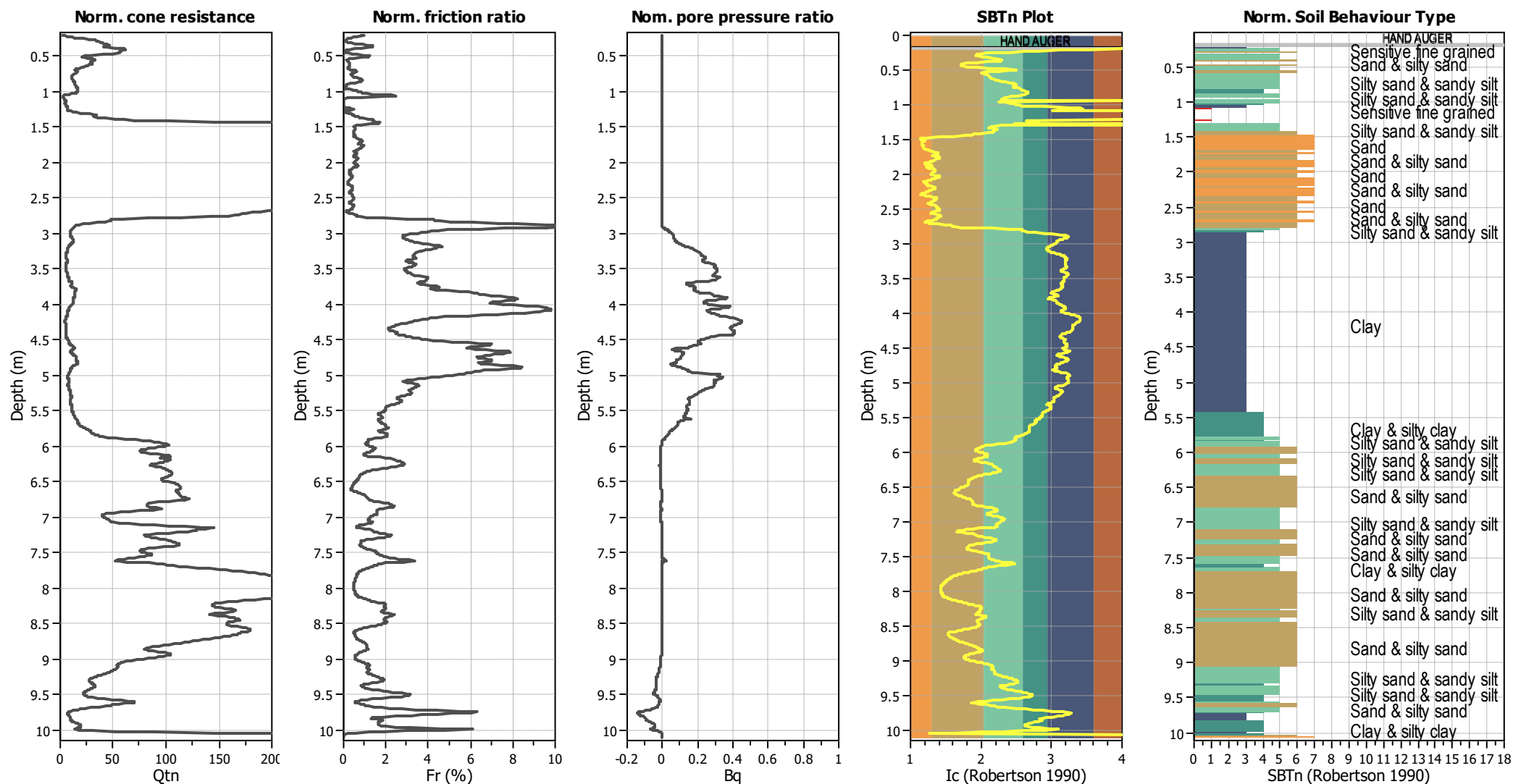
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.20 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	10.00 m
Earthquake magnitude M_w :	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.35	Unit weight calculation:	Based on SBT	K_g applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
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 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



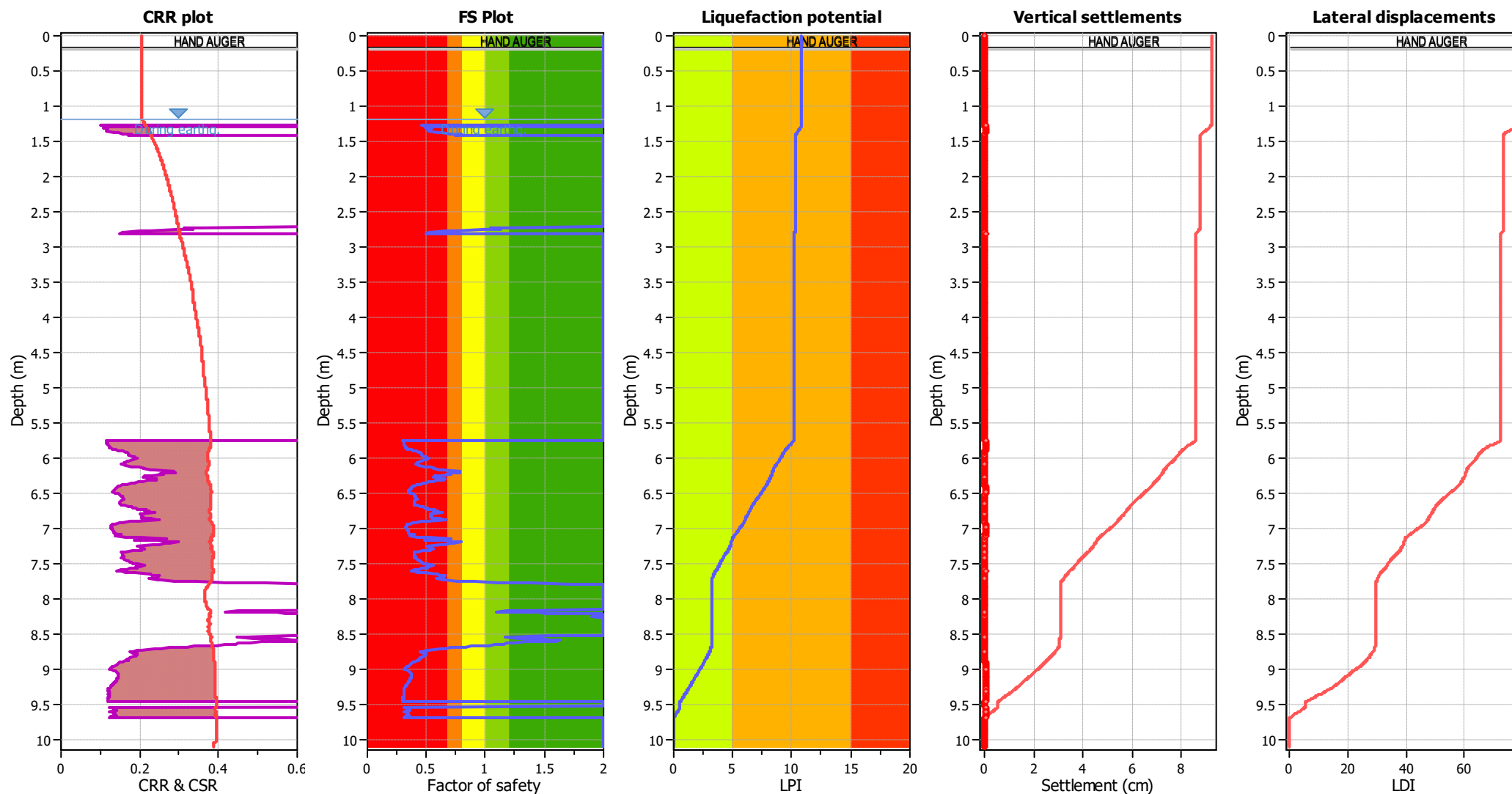
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

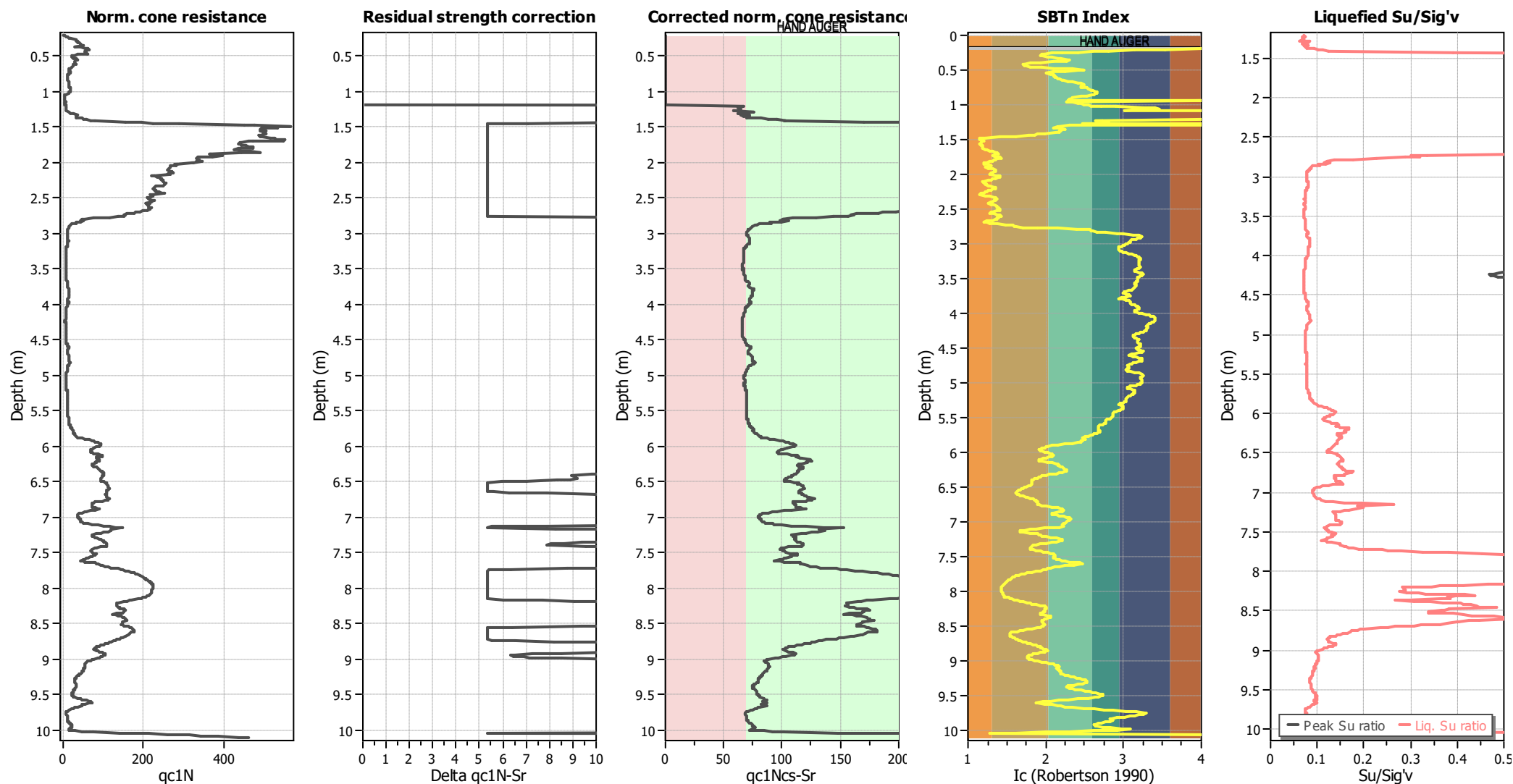
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LPI color scheme

Red	Very high risk
Orange	High risk
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Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.35	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	1.20 m	Fill height:	N/A	Limit depth:	10.00 m

Appendix D – Structural Assessment

STRUCTURAL ASSESSMENT REPORT

75 Andover Street, Merivale, Christchurch 8014



Project Number 21384

Prepared to Flat 1 – Eddie Clark
Flat 2 – Jan & Marc Roberts
Flat 3 – Todd & Rochelle Giles
Flat 4 – Gerald & Jo Lieshout

Issue Date 18 March 2022




Revision A

ISSUE AUTHORISATION

Report Tracking

Revision	Description	Date
A	Final report (comprehensive)	17/03/2022

Authorisation

	Name	Signature	Title
Author	Kiran Joshi		Graduate Structural Engineer <i>BEngTech (Civil)</i>
Reviewer	Leo Zhang		Structural Engineer <i>BEngTech (Civil); MEngNZ</i>
Approver	Gajanthan Vethanathan		Senior Structural Engineer <i>BSc(Civil), MSc (Structure), CMEngNZ CPEng(NZ), MIStructE, CEng (UK)</i>

ABBREVIATIONS

CCC	- Christchurch City Council
CES	- Canterbury Earthquake Sequence
DBH	- The Department of Building and Housing
EQC	- Earthquake Commission
FLV	- Floor Level Variation
IL	- Importance Level
MBIE	- Ministry of Business, Innovation & Employment
MBIE Guidance	- Guidance – Repairing and rebuilding houses affected by the Canterbury earthquakes – 2012 and additional updates, MBIE
NGL	- Natural Ground Level
NZBC	- New Zealand Building Code
NZS	- New Zealand Standard

1. INTRODUCTION AND SCOPE OF ENGAGEMENT

Peridot Engineering Limited (Peridot) has been engaged by Eddie Clark (Flat 1), Jan & Marc Roberts (Flat 2), Todd & Rochelle Giles (Flat 3), and Gerald & Jo Lieshout (Flat 4) to act as an independent engineering expert in relation to a non-invasive inspection of the residential property located at 75 Andover Street, Merivale, Christchurch 8014.

This report outlines the findings of our investigation, our review of the documents provided, opinions and recommendations based on our findings in our capacity as an independent engineering consultant.

2. SCOPE OF WORK

Peridot has been requested to undertake a non-invasive inspection of the residential building at above address. The purpose of the inspection was to determine the extent of damage caused as a result of the series of seismic events since the September 2010 event and to provide an independent professional engineering repair strategy to address the damage identified.

In order to assist in developing our opinion, Peridot has completed the following activities:

1. A site inspection completed on 01 February 2022, including the following:
 - a. Visual inspection to confirm characteristics and overall dimensions of the building.
 - b. Non-intrusive survey of the building including:
 - Floor and ceiling level survey using Zip-Level Pro-2000.
 - Wall verticality survey using SmartTool Digital 1200mm Level.
 - General visual damage survey.
 - Amenity slope survey (windowsills, bench tops and door heads) where necessary.
2. Review of documents provided by the client.
 - a. Scope of Works and full assessment report by EQC for Flat 1 – dated 25 November 2011, Claim No.: 2011/149220
 - b. Scope of Works and full assessment report by EQC for Flat 2 – dated 10 September 2011, Claim No.: 2011/145448
 - c. Scope of Works by EQC – dated 25 November 2010, Claim No.: 2010/114627 and Scope of works and full assessment report by EQC for Flat 3 – dated 13 July 2011, Claim No.: 2011/049274
 - d. Scope of Works by EQC – dated 25 November 2010, Claim No.: 2010/032990 and Scope of works and full assessment report by EQC for Flat 4 – dated 10 September 2011, Claim No.: 2011/196307.
 - e. Exterior damage report by R.M Hadley Ltd for 75 Andover Street (for all Flats) – dated 17 August 2012.
 - f. Variation to works order by Fletcher for Flat 2 – dated 29 September 2014 and 10 October 2014, Claim No.: 2011/145448
 - g. Variation to works order by Fletcher for Flat 3 – dated 29 September 2014 and 13 October 2014, Claim No.: 2011/049274
 - h. Variation to works order by Fletcher for Flat 4 – dated 29 September 2014 and 10 October 2014, Claim No.: 2011/196307

3. PROPERTY DESCRIPTION

3.1 SITE DESCRIPTION

The site is located in an existing residential subdivision in Merivale, Christchurch, and has a flat topography. No site-specific geotechnical investigation was undertaken as part of this assessment.

The site is classified as “Green Zone, Technical Category 3, blue” area as given by the Ministry of Business, Innovation and Employment (MBIE). The MBIE states that moderate to significant land damage from liquefaction is possible on TC3 land in future significant earthquakes.



Figure 1. Aerial view of the property at 75 Andover Street, Merivale, Christchurch 8014 (source: Property Search).

EQC liquefaction and lateral spreading observations obtained from the Canterbury Geotechnical Database show “No observed ground cracking or ejected liquified material” following the September 2010 earthquake events and “No lateral spreading but minor to moderate quantities of ejected material” following the February 2011 earthquake events.



Figure 2. EQC liquefaction and lateral spreading observations obtained from the Canterbury Geotechnical Database.

As per the Land Engineering Report by EQC, dated 21 September 2011, the liquefaction was recorded at the northwest corner of the multi-unit complex.



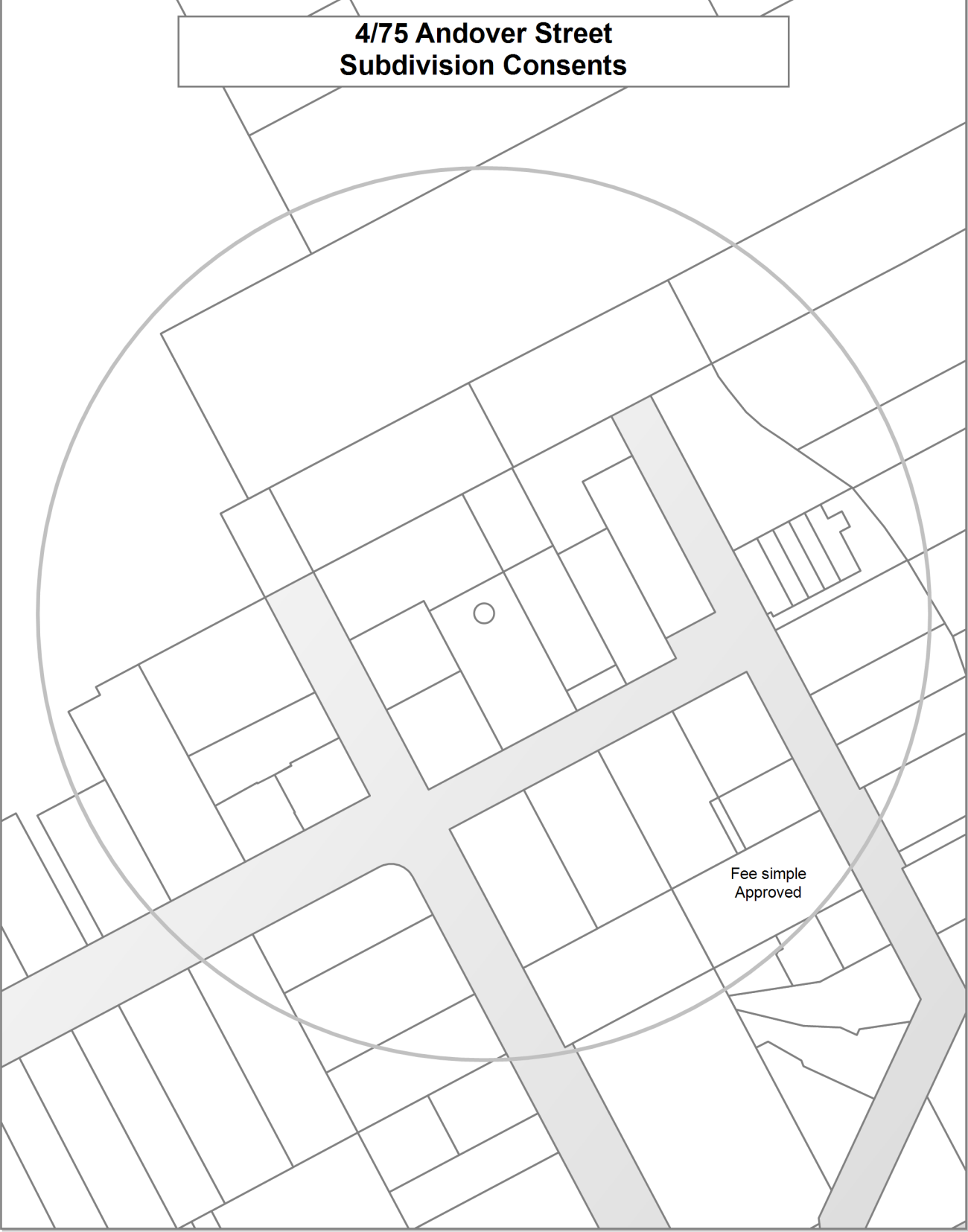
Figure 3. Aerial view of liquefaction observations obtained from Land Engineering Report by EQC.

4/75 Andover Street Land Use Consents



**4/75 Andover Street
Subdivision Consents**

Fee simple
Approved



4/75 Andover Street
Private occupation of public land



Land Use Resource Consents within 100 metres of 4/75 Andover Street

Note: This list does not include subdivision Consents and Certificates of Compliance issued under the Resource Management Act.

1/33 Tonbridge Street

RMA/2014/1858

Four Townhouses - Historical Reference RMA92026530

Processing complete

Applied 23/07/2014

Decision issued 12/09/2014

Granted 11/09/2014

RMA/2016/1142

Fee simple subdivision - 4 lots - Historical Reference RMA92033252

s223 Certificate issued

Applied 02/05/2016

s223 Certificate issued 28/08/2019

s223 Certificate issued 28/08/2018

s224 Certificate issued 29/10/2019

Decision issued 27/05/2016

Granted 27/05/2016

1/34 Shrewsbury Street

RMA/2006/1897

addition to dwelling - Historical Reference RMA92005971

Processing complete

Applied 14/08/2006

Decision issued 29/09/2006

Granted 29/09/2006

1/38 Tonbridge Street

RMA/1995/1885

A 3 unit development which do not comply - Historical Reference RES952129

Processing complete

Applied 23/06/1995

Decision issued 16/10/1995

Granted 16/10/1995

RMA/2013/223

To erect two attached residential units with attached garages, replacing three residential units to be demolished due to earthquake damage - Historical Reference RMA92021810

Processing complete

Applied 14/02/2013

Decision issued 18/03/2013

Granted 18/03/2013

1/44 Tonbridge Street

RMA/2021/2516

To construct a five unit multi-unit residential complex

Processing complete

Applied 04/08/2021

Decision issued 21/10/2021

Granted 21/10/2021

RMA/2021/2532

Minimum Floor Levels Certificate

Processing complete

Applied 05/08/2021

Certificate issued 20/09/2021

RMA/2022/2326

Fee simple subdivision - five lots and land use

Processing complete

Applied 18/07/2022

s223 Certificate issued 16/11/2022

s224 Certificate issued 13/06/2023

Decision issued 15/09/2022

Granted 14/09/2022

RMA/2025/2070

Unhosted visitor accommodation for a maximum of 4 guests; 61+ nights p.a. therefore equating to 365 p.a. if there is demand.

On hold - waiting for response from applicant

Applied 26/06/2025

1/62 Andover Street

RMA/1992/138

Resource Consent (non-complying activity) to waive the reverse manoeuvring requirement. - Historical Reference RES9203002

Processing complete

Applied 20/02/1992

Decision issued 11/03/1992

Granted 11/03/1992

1/75 Andover Street

RMA/1996/332

Four unit development - Historical Reference RES960388

Processing complete

Applied 13/02/1996

Decision issued 27/03/1996

Granted 27/03/1996

1/78 Andover Street

RMA/2015/3335

Front boundary fence and gate - Historical Reference RMA92031736

Processing complete

Applied 01/12/2015

Decision issued 16/12/2015

Granted 16/12/2015

2/25 Shrewsbury Street

RMA/2015/3622

Dwelling S.88 - PAID Replaced by RMA92032659 - Historical Reference RMA92032047

Withdrawn

Applied 23/12/2015

RMA/2016/572

Dwelling - Replaces RMA92032047 - Historical Reference RMA92032659

Processing complete

Applied 07/03/2016

Decision issued 11/03/2016

Granted 11/03/2016

2/33 Tonbridge Street

RMA/2014/1858

Four Townhouses - Historical Reference RMA92026530

Processing complete

Applied 23/07/2014

Decision issued 12/09/2014

Granted 11/09/2014

RMA/2016/1142

Fee simple subdivision - 4 lots - Historical Reference RMA92033252

s223 Certificate issued

Applied 02/05/2016

s223 Certificate issued 28/08/2019

s223 Certificate issued 28/08/2018

s224 Certificate issued 29/10/2019

Decision issued 27/05/2016

Granted 27/05/2016

2/34 Shrewsbury Street

RMA/2020/1864

Additions and alterations to an existing dwelling

Processing complete

Applied 27/08/2020

Permitted activity notice issued 14/09/2020

2/38 Tonbridge Street

RMA/2013/223

To erect two attached residential units with attached garages, replacing three residential units to be demolished due to earthquake damage - Historical Reference RMA92021810

Processing complete

Applied 14/02/2013

Decision issued 18/03/2013

Granted 18/03/2013

2/44 Tonbridge Street

RMA/2021/2516

To construct a five unit multi-unit residential complex

Processing complete

Applied 04/08/2021

Decision issued 21/10/2021

Granted 21/10/2021

RMA/2021/2532

Minimum Floor Levels Certificate

Processing complete

Applied 05/08/2021

Certificate issued 20/09/2021

RMA/2022/2326

Fee simple subdivision - five lots and land use

Processing complete

Applied 18/07/2022

s223 Certificate issued 16/11/2022

s224 Certificate issued 13/06/2023

Decision issued 15/09/2022

Granted 14/09/2022

2/62 Andover Street

RMA/1992/138

Resource Consent (non-complying activity) to waive the reverse manoeuvring requirement. - Historical Reference
RES9203002

Processing complete

Applied 20/02/1992

Decision issued 11/03/1992

Granted 11/03/1992

26 Shrewsbury Street

RMA/2018/686

Minimum Floor Level Certificate

Processing complete

Applied 21/03/2018

Certificate issued 27/03/2018

RMA/2019/183

Single level residential dwelling with attached garage.

Processing complete

Applied 01/02/2019

Conditions changed/cancelled - s127 24/04/2020

Conditions changed/cancelled - s127 03/09/2020

Decision issued 11/03/2019

Granted 08/03/2019

29B Tonbridge Street

RMA/2021/1727

Minimum Floor Level Certificate

Processing complete

Applied 10/06/2021

Certificate issued 17/06/2021

RMA/2021/2988

To establish three new residential units on site

Processing complete

Applied 08/09/2021

Decision issued 22/11/2021

Granted 18/11/2021

Within scope amendment accepted 29/03/2022

Within scope amendment decision issued 29/03/2022

RMA/2022/3329

Subdivision - Fee Simple - Three lots with Land Use

Processing complete

Applied 27/10/2022

s223 Certificate issued 19/05/2023

s224 Certificate issued 19/05/2023

Decision issued 01/12/2022

Granted 01/12/2022

3/33 Tonbridge Street

RMA/2014/1858

Four Townhouses - Historical Reference RMA92026530

Processing complete

Applied 23/07/2014

Decision issued 12/09/2014

Granted 11/09/2014

RMA/2016/1142

Fee simple subdivision - 4 lots - Historical Reference RMA92033252

s223 Certificate issued

Applied 02/05/2016

s223 Certificate issued 28/08/2019

s223 Certificate issued 28/08/2018

s224 Certificate issued 29/10/2019

Decision issued 27/05/2016

Granted 27/05/2016

3/38 Tonbridge Street

RMA/2013/223

To erect two attached residential units with attached garages, replacing three residential units to be demolished due to earthquake damage - Historical Reference RMA92021810

Processing complete

Applied 14/02/2013

Decision issued 18/03/2013

Granted 18/03/2013

3/44 Tonbridge Street

RMA/2021/2516

To construct a five unit multi-unit residential complex

Processing complete

Applied 04/08/2021

Decision issued 21/10/2021

Granted 21/10/2021

RMA/2021/2532

Minimum Floor Levels Certificate

Processing complete

Applied 05/08/2021

Certificate issued 20/09/2021

RMA/2022/2326

Fee simple subdivision - five lots and land use

Processing complete

Applied 18/07/2022

s223 Certificate issued 16/11/2022

s224 Certificate issued 13/06/2023

Decision issued 15/09/2022

Granted 14/09/2022

3/66 Andover Street

RMA/1992/138

Resource Consent (non-complying activity) to waive the reverse manoeuvring requirement. - Historical Reference RES9203002

Processing complete

Applied 20/02/1992

Decision issued 11/03/1992

Granted 11/03/1992

3/75 Andover Street

RMA/1997/1012

Enclosure of existing garage, units 3 and 4. - Historical Reference RES971071

Processing complete

Applied 30/04/1997

Decision issued 01/01/1999

Declined 01/01/1999

31 Tonbridge Street

RMA/2021/1727

Minimum Floor Level Certificate

Processing complete

Applied 10/06/2021

Certificate issued 17/06/2021

Certificate issued 17/06/2021

RMA/2021/2988

To establish three new residential units on site

Processing complete

Applied 08/09/2021

Decision issued 22/11/2021

Granted 18/11/2021

Within scope amendment decision issued 29/03/2022

Within scope amendment accepted 29/03/2022

Within scope amendment accepted 29/03/2022

Within scope amendment decision issued 29/03/2022

Granted 18/11/2021

Decision issued 22/11/2021

RMA/2022/3329

Subdivision - Fee Simple - Three lots with Land Use

Processing complete

Applied 27/10/2022

s223 Certificate issued 19/05/2023

s224 Certificate issued 19/05/2023

Decision issued 01/12/2022

Granted 01/12/2022

Granted 01/12/2022

Decision issued 01/12/2022

s224 Certificate issued 19/05/2023

s223 Certificate issued 19/05/2023

33 Shrewsbury Street

RMA/1987/628

Consent to erect a garage setback 2m from front boundary in lieu of 6m. Neighbours consent - Historical Reference RES9213116

Processing complete

Applied 07/01/1987

Decision issued 21/01/1987

Granted 21/01/1987

35 Tonbridge Street

RMA/2016/3126

Minimum Floor Level Certificate

Processing complete

Applied 02/11/2016

Certificate issued 02/11/2016

RMA/2017/1470

To construct dwelling with attached garage

Processing complete

Applied 26/06/2017

Decision issued 11/09/2017

Granted 04/09/2017

36 Shrewsbury Street

RMA/2022/1307

Minimum Floor Level Certificate

Processing complete

Applied 26/04/2022

Certificate issued 28/04/2022

4/33 Tonbridge Street

RMA/2014/1858

Four Townhouses - Historical Reference RMA92026530

Processing complete

Applied 23/07/2014

Decision issued 12/09/2014

Granted 11/09/2014

RMA/2016/1142

Fee simple subdivision - 4 lots - Historical Reference RMA92033252

s223 Certificate issued

Applied 02/05/2016

s223 Certificate issued 28/08/2019

s223 Certificate issued 28/08/2018

s224 Certificate issued 29/10/2019

Decision issued 27/05/2016

Granted 27/05/2016

4/44 Tonbridge Street

RMA/2021/2516

To construct a five unit multi-unit residential complex

Processing complete

Applied 04/08/2021

Decision issued 21/10/2021

Granted 21/10/2021

RMA/2021/2532

Minimum Floor Levels Certificate

Processing complete

Applied 05/08/2021

Certificate issued 20/09/2021

RMA/2022/2326

Fee simple subdivision - five lots and land use

Processing complete

Applied 18/07/2022

s223 Certificate issued 16/11/2022

s224 Certificate issued 13/06/2023

Decision issued 15/09/2022

Granted 14/09/2022

41 Tonbridge Street

RMA/2014/1918

Dwelling with Attached Garage - Historical Reference RMA92026592

Processing complete

Applied 29/07/2014

Decision issued 11/08/2014

Granted 08/08/2014

46 Tonbridge Street

RMA/2009/1898

siting of accessory building storage shed at 2.0m from road boundary - Historical Reference RMA92015385

Processing complete

Applied 16/12/2009

Decision issued 15/03/2010

Granted 12/03/2010

RMA/2014/3349

School Laundry and Storage Shed - Historical Reference RMA92028058

Processing complete

Applied 15/12/2014

Decision issued 04/06/2015

Granted 04/06/2015

49 Papanui Road

RMA/1967/37

Conditional use to erect 9 motels and a residence. - Historical Reference RES9205329

Processing complete

Applied 14/11/1967

Decision issued 21/12/1967

Granted 21/12/1967

5/44 Tonbridge Street

RMA/2021/2516

To construct a five unit multi-unit residential complex

Processing complete

Applied 04/08/2021

Decision issued 21/10/2021

Granted 21/10/2021

RMA/2021/2532

Minimum Floor Levels Certificate

Processing complete

Applied 05/08/2021

Certificate issued 20/09/2021

RMA/2022/2326

Fee simple subdivision - five lots and land use

Processing complete

Applied 18/07/2022

s224 Certificate issued 13/06/2023

Decision issued 15/09/2022

Granted 14/09/2022

s223 Certificate issued 16/11/2022

55 Papanui Road

RMA/1986/252

Consent to use an existing dwelling as a small educational College, sited less than 5m from two internal boundaries, 1.950m and 2.02m respectively. appealed. - Historical Reference RES9205334

Processing complete

Applied 20/11/1986

Decision issued 02/12/1986

Granted 02/12/1986

Outcome not recorded 02/12/1986

RMA/1990/256

Erect an addition to an existing private language school building which does not meet the required setback from the side boundary. to be used as a students common room setback of 1.95m from internal southern boundary. - Historical Reference RES9205333

Processing complete

Applied 13/12/1990

Decision issued 24/12/1990

Granted 24/12/1990

59 Papanui Road

RMA/1985/297

Erect a free standing sign of 1.1m2 at the Alglenn motel. - Historical Reference RES9205336

Processing complete

Applied 01/07/1985

Decision issued 23/07/1985

Granted 23/07/1985

RMA/2006/2770

change of use from motel to student accommodation - Historical Reference RMA92006877

Processing complete

Applied 21/11/2006

Decision issued 20/02/2007

Granted 20/02/2007

RMA/2013/91

To construct an extension to St Maragaret's College as accommodation for year 13 students - Historical Reference RMA92021669

Processing complete

Applied 23/01/2013

Decision issued 04/02/2013

Granted 04/02/2013

71 Papanui Road

RMA/1969/160

Convert dwelling into storage rooms and a school shop - Historical Reference RES9218747

Processing complete

Applied 21/08/1969

Decision issued 20/10/1969

Granted 20/10/1969

RMA/1971/170

Consent to use a dwelling as -accomodation for 2 tutors/ house mistresses (predominant use) -day class instruction - storage of dr - Historical Reference RES9219469

Processing complete

Applied 28/01/1971

Decision issued 22/03/1971

Granted 22/03/1971

RMA/1987/627

Consent to erect a garage 1m from front boundary in lieu of required 2m (side entry). Neighbours consent - Historical Reference RES9213115

Processing complete

Applied 28/10/1987

Decision issued 12/11/1987

Granted 12/11/1987

RMA/1996/2489

Addition of two new classrooms. - Historical Reference RES962880

Processing complete

Applied 08/11/1996

Decision issued 11/11/1997

Granted 11/11/1997

RMA/1996/3775

Establish staff/ teaching room in existing residential dwelling - Historical Reference RMA413

Withdrawn

Applied 05/10/1996

RMA/1996/3779

School alterations - do not comply with hours of operation or Residential Coherence. - Historical Reference RMA414

Processing complete

Applied 05/09/1996

Decision issued 01/11/2000

Granted 01/11/2000

RMA/1997/2784

Establish and operate a new Science and technology block with 12 teaching rooms, associated preparation rooms and ancillary rooms. the b - Historical Reference RES973215

Processing complete

Applied 07/11/1997

Decision issued 01/01/1999

Granted 01/01/1999

RMA/2001/274

To prune a protected tree on the si College, Common Walnut. - Historical Reference RMA20004125

Processing complete

Applied 30/01/2001

Decision issued 12/03/2001

Granted 09/03/2001

RMA/2001/488

To establish hockey fields and relo to be used by the wider community. - Historical Reference RMA20004348

Processing complete

Applied 23/02/2001

Decision issued 19/03/2001

Granted 16/03/2001

RMA/2002/929

Four 14.7m high lighting poles. - Historical Reference RMA20009914

Processing complete

Applied 23/04/2002

Decision issued 30/05/2002

Granted 30/05/2002

RMA/2005/1015

Application to erect a garage within the street scene setback from 20 Winchester Street - Historical Reference RMA20019860

Processing complete

Applied 02/05/2005

Decision issued 27/05/2005

Granted 27/05/2005

RMA/2009/1222

Remove a notable tree - Historical Reference RMA92014677

Processing complete

Applied 26/08/2009

Decision issued 01/09/2010

Granted 01/09/2010

RMA/2011/1674

Temporary Accommodation - Classrooms, a dance studio and staff rooms - Historical Reference RMA92019249

Processing complete

Applied 08/12/2011

Decision issued 20/12/2011

Granted 20/12/2011

RMA/2011/771

PERMITTED TEMPORARY ACCOMMODATION - Four temporary classroom blocks on site at 12 Winchester St and temporary carparking on site as 46 Tonbridge Street - Historical Reference RMA92018320

Processing complete

Applied 28/06/2011

Decision issued 30/06/2011

Granted 30/06/2011

RMA/2011/775

PERMITTED TEMPORARY ACCOMMODATION - SITE SPECIFIC - LABORATORIES BUILDINGS - Historical Reference RMA92018324

Processing complete

Applied 29/06/2011

Decision issued 30/06/2011

Granted 30/06/2011

RMA/2012/518

PRUNING A HAZARD TREE - Historical Reference RMA92019855

Processing complete

Applied 11/04/2012

Decision issued 17/05/2012

Granted 17/05/2012

RMA/2013/212

Works within 10 metres of a protected tree - Historical Reference RMA92021799

Processing complete

Applied 12/02/2013

Decision issued 20/03/2013

Granted 20/03/2013

RMA/2013/265

Replacement of a demolished earthquake damaged building - Historical Reference RMA92021852

Processing complete

Applied 19/02/2013

Decision issued 05/03/2013

Granted 04/03/2013

RMA/2015/2596

Within Scope RMA92014677 - Historical Reference RMA92030941

Withdrawn

Applied 18/09/2015

RMA/2019/1029

To Construct a New School Common Room & Office Building

Withdrawn

Applied 13/05/2019

79 Andover Street

RMA/2018/2655

Minimum Floor Level Certificate

Processing complete

Applied 31/10/2018

Certificate issued 01/11/2018

RMA/2018/3002

Earthworks within a Flood Management Area

Not accepted for processing

Applied 07/12/2018

Not accepted for processing 20/12/2018

RMA/2019/143

Residential dwelling with an attached garage, and associated earthworks within a flood management area.

Processing complete

Applied 28/01/2019

Fees amended - s357 23/12/2019

Decision issued 29/07/2019

Granted 29/07/2019

80 Andover Street

RMA/2013/1405

Erect a single storey dwelling with attached garage - Historical Reference RMA92023070

Processing complete

Applied 23/07/2013

Decision issued 08/08/2013

Granted 08/08/2013

81 Andover Street

RMA/2013/2154

Rebuild two-storey dwelling with attached double garage - Historical Reference RMA92023868

Processing complete

Applied 15/10/2013

Decision issued 24/10/2013

Granted 24/10/2013

83 Andover Street

RMA/1988/583

Consent to erect a garage 1.2m from the street boundary (Tonbridge Street) at the rear of the section, in lieu of required 6m - Historical Reference RES9213117

Processing complete

Applied 01/09/1988

Decision issued 04/11/1988

Declined 04/11/1988

Outcome not recorded 04/11/1988

84 Andover Street

RMA/2015/353

Dwelling with detached garage - Historical Reference RMA92028542

Processing complete

Applied 11/02/2015

Decision issued 09/03/2015

Granted 09/03/2015

85 Papanui Road

RMA/1970/265

Consideration of using an existing dwelling house for a day class instruction and storage of equipment . - Historical Reference RES960105

Processing complete

Applied 18/12/1970

Decision issued 23/03/1971

Granted 23/03/1971

RMA/1995/1606

School hostel - existing buildings don't comply re boundary distance and recession planes. July 1997 an extension of time granted for two years. - Historical Reference RES951810

Processing complete

Applied 22/06/1995

Decision issued 27/06/1995

Granted 27/06/1995

RMA/1995/2684

Two motel developments on a site in front of Acland house, amend conditions 9/5/96 - Historical Reference RES955547

Processing complete

Applied 17/10/1995

Decision issued 07/03/1996

Granted 07/03/1996

Outcome not recorded 07/03/1996

RMA/1996/3633

Works within 10m of a group of protected trees. - Historical Reference RMA347

Processing complete

Applied 23/01/1996

Decision issued 15/12/1996

Granted 15/12/1996

RMA/1998/661

Extension of time on RC955547 for 2 motel developments at the front of Acland house. - Historical Reference RES980650

Processing complete

Applied 18/02/1998

Decision issued 28/07/1999

Declined 28/07/1999

RMA/1999/4325

Redevelopment of the School Hostel - Historical Reference RMA1203

Processing complete

Applied 04/11/1999

Decision issued 02/12/1999

Granted 02/12/1999

RMA/2000/1881

Building and demolition works part of the Acland - Historical Reference RMA20002614

Processing complete

Applied 27/07/2000

Decision issued 07/08/2000

Granted 07/08/2000

RMA/2003/987

To erect a sign within 10m of a protected tree and does not comply with recession plane and is within 10m road boundary setback. - Historical Reference RMA20013269

Processing complete

Applied 10/04/2003

Decision issued 01/05/2003

Granted 01/05/2003

RMA/2004/1098

Alterations to heritage building Application not required. - Historical Reference RMA20016693

Withdrawn

Applied 28/04/2004

RMA/2004/2752

Excavation within 10m of a protected tree. - Historical Reference RMA20018404

Processing complete

Applied 26/10/2004

Decision issued 11/11/2004

Granted 11/11/2004

RMA/2008/148

new communication ducting in road being within 10m of notable trees at 85 & 87 Papanui Rd - Historical Reference RMA92010928

Processing complete

Applied 29/01/2008

Decision issued 13/03/2008

Granted 13/03/2008

RMA/2010/1664

PRUNING OF PROTECTED TREES - Historical Reference RMA92017275

Processing complete

Applied 19/11/2010

Decision issued 15/12/2010

Granted 15/12/2010

RMA/2013/881

To undertake earthquake related stabilisation works processes of deconstruction, repairs and alterations to the 'Old House' (Acland House) - Historical Reference RMA92022515

Processing complete

Applied 17/05/2013

Decision issued 08/07/2013

Granted 08/07/2013

Data Quality Statement

Land Use Consents

All resource consents are shown for sites that have been labelled with an address. For sites that have been labelled with a cross (+) no resource consents have been found. Sites that have no label have not been checked for resource consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay. Resource consents which are on land occupied by roads, railways or rivers are not, and currently cannot be displayed, either on the map or in the list. Resource consents that relate to land that has since been subdivided, will be shown in the list, but not on the map. They will be under the address of the land as it was at the time the resource consent was applied for. Resource consents that are listed as Non-notified and are current, may in fact be notified resource consents that have not yet been through the notification process. If in doubt. Please phone (03)941 8999.

The term "resource consents" in this context means land use consents. Subdivision consents and certificates of compliance are excluded.

Subdivision Consents

All subdivision consents are shown for the sites that have been labelled with consent details. For Sites that have been labelled with a cross (+) no records have been found. Sites that have no label have not been checked for subdivision consents. This will be particularly noticeable on the margins of the search radius. If there are such sites and you would like them included in the check, please ask for the LIM spatial query to be rerun accordingly. This will be done free of charge although there may be a short delay.

The term "subdivision consents" in this context means a resource consent application to subdivide land. Non subdivision land use resource consents and certificates of compliance are excluded.

This report will only record those subdivision applications which have not been completed i.e once a subdivision has been given effect to and the new lots/properties have been established the application which created those lots will not be shown

All subdivision consent information is contained on the map and no separate list is supplied