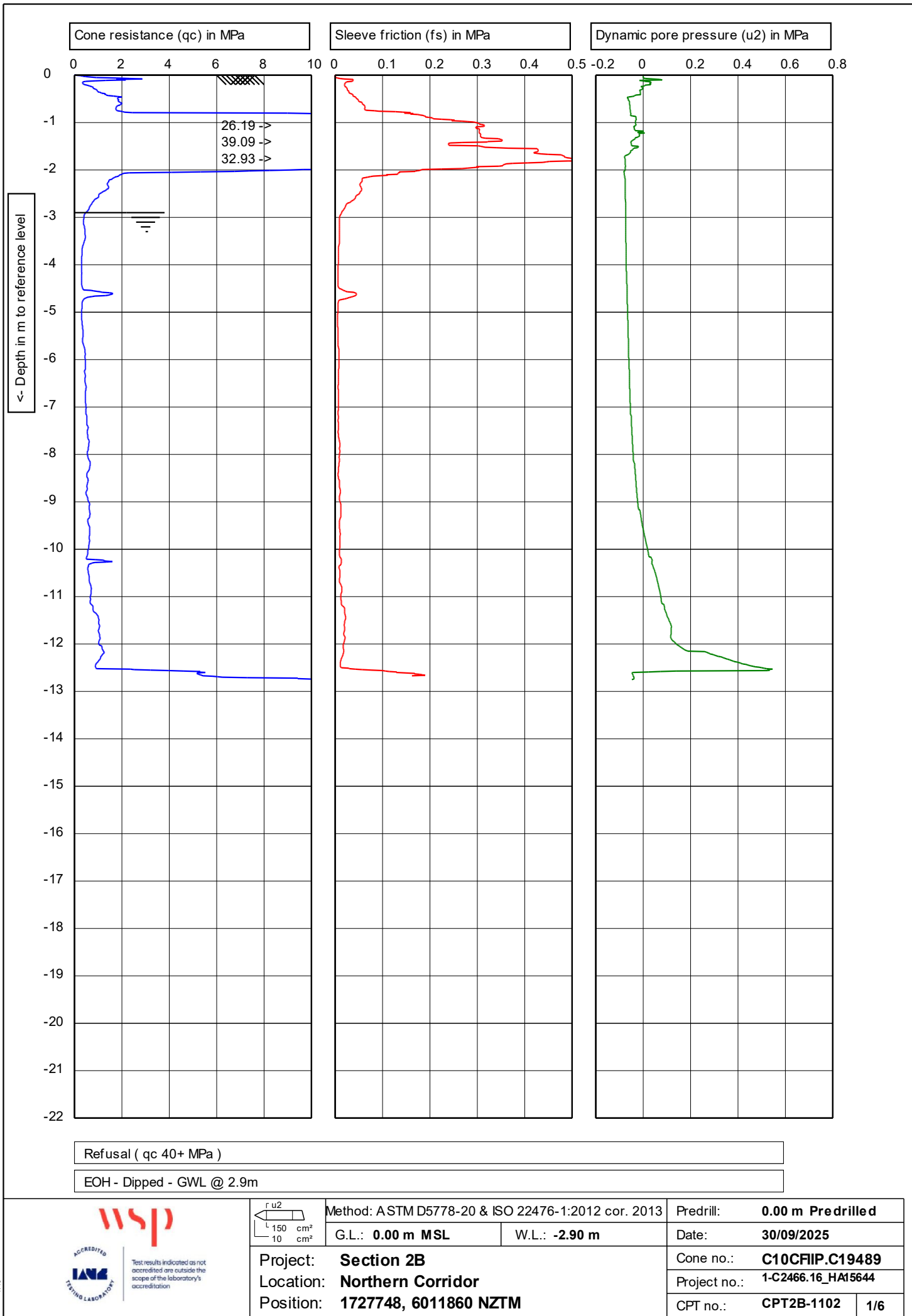
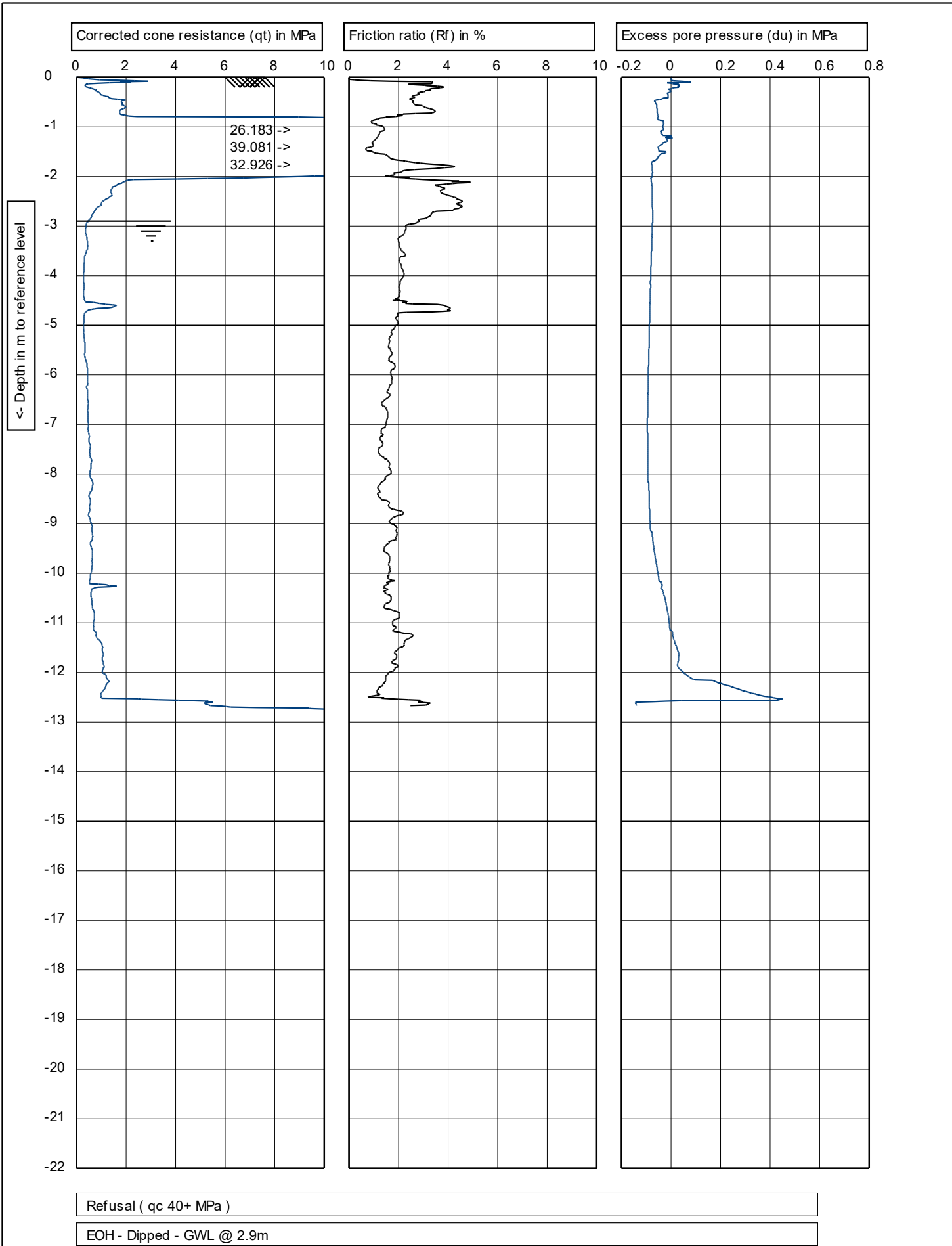
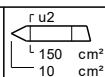






Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -2.90 m

Predrill: 0.00 m Predrilled

Date: 30/09/2025

Cone no.: C10CFIIP.C19489

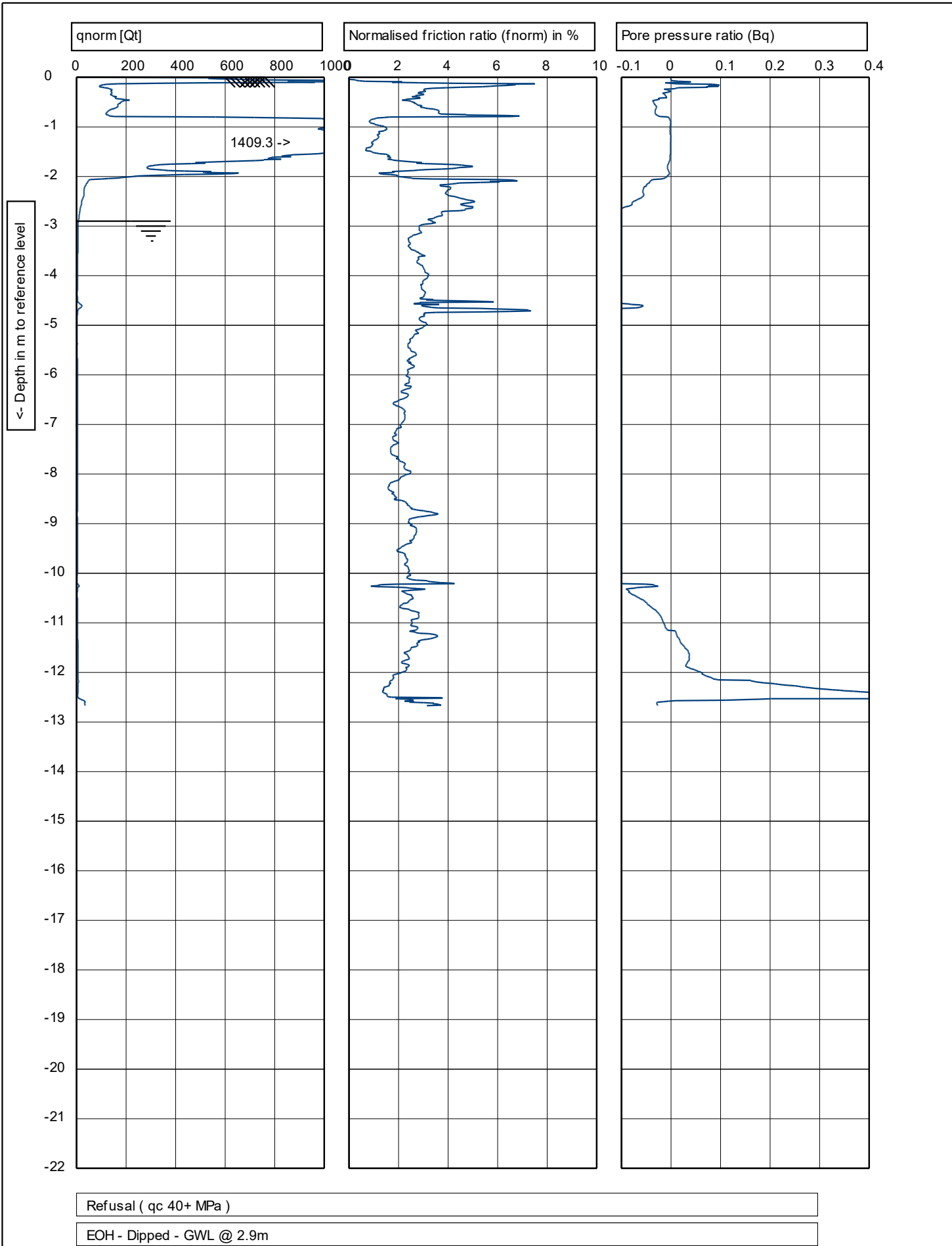
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1102 2/6

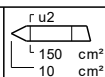
Project: Section 2B

Location: Northern Corridor

Position: 1727748, 6011860 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -2.90 m

Predrill: 0.00 m Predrilled

Date: 30/09/2025

Cone no.: C10CFIIP.C19489

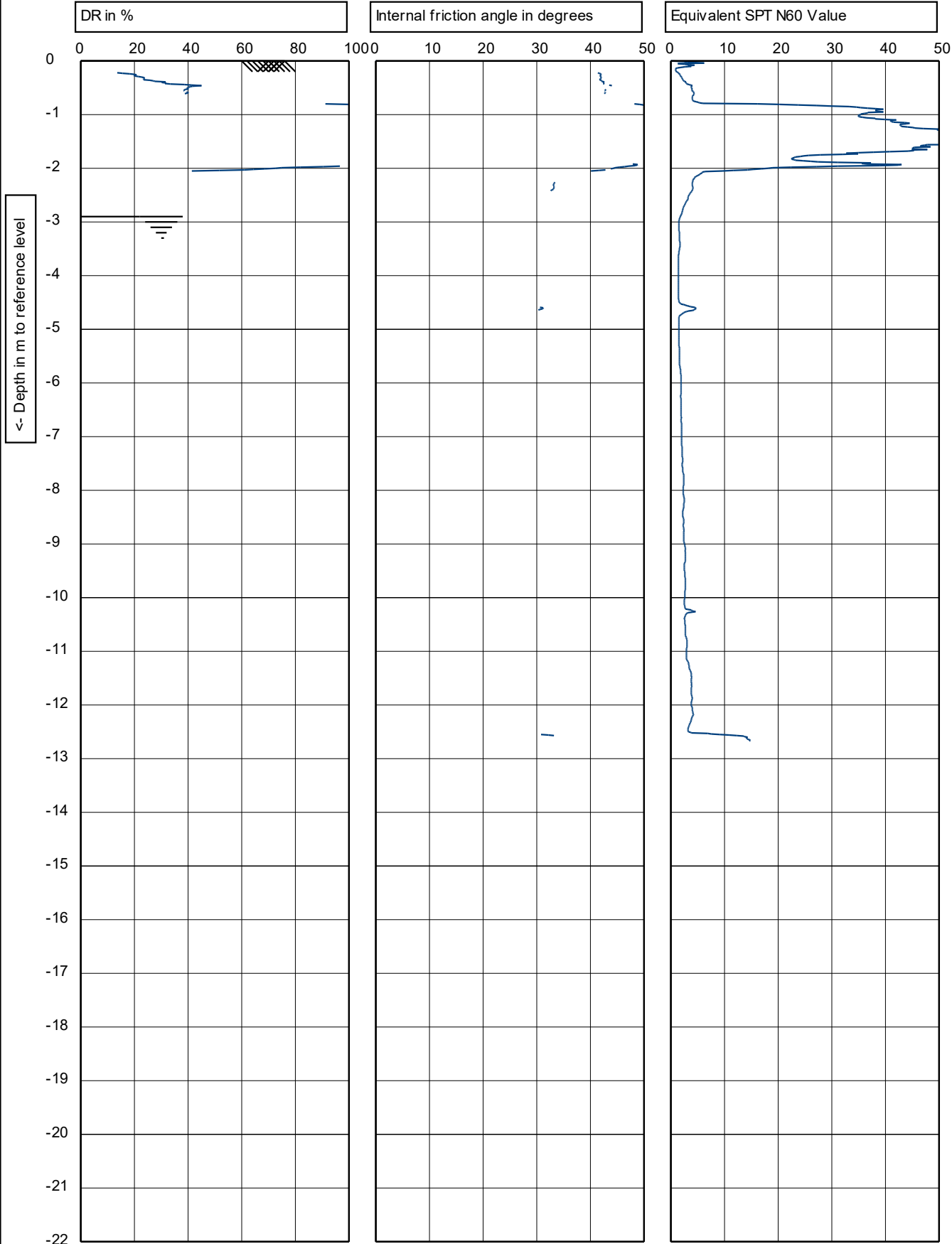
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1102 3/6

Project: Section 2B

Location: Northern Corridor

Position: 1727748, 6011860 NZTM



Refusal (qc 40+ MPa)

EOH - Dipped - GWL @ 2.9m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -2.90 m

Predrill: 0.00 m Predrilled

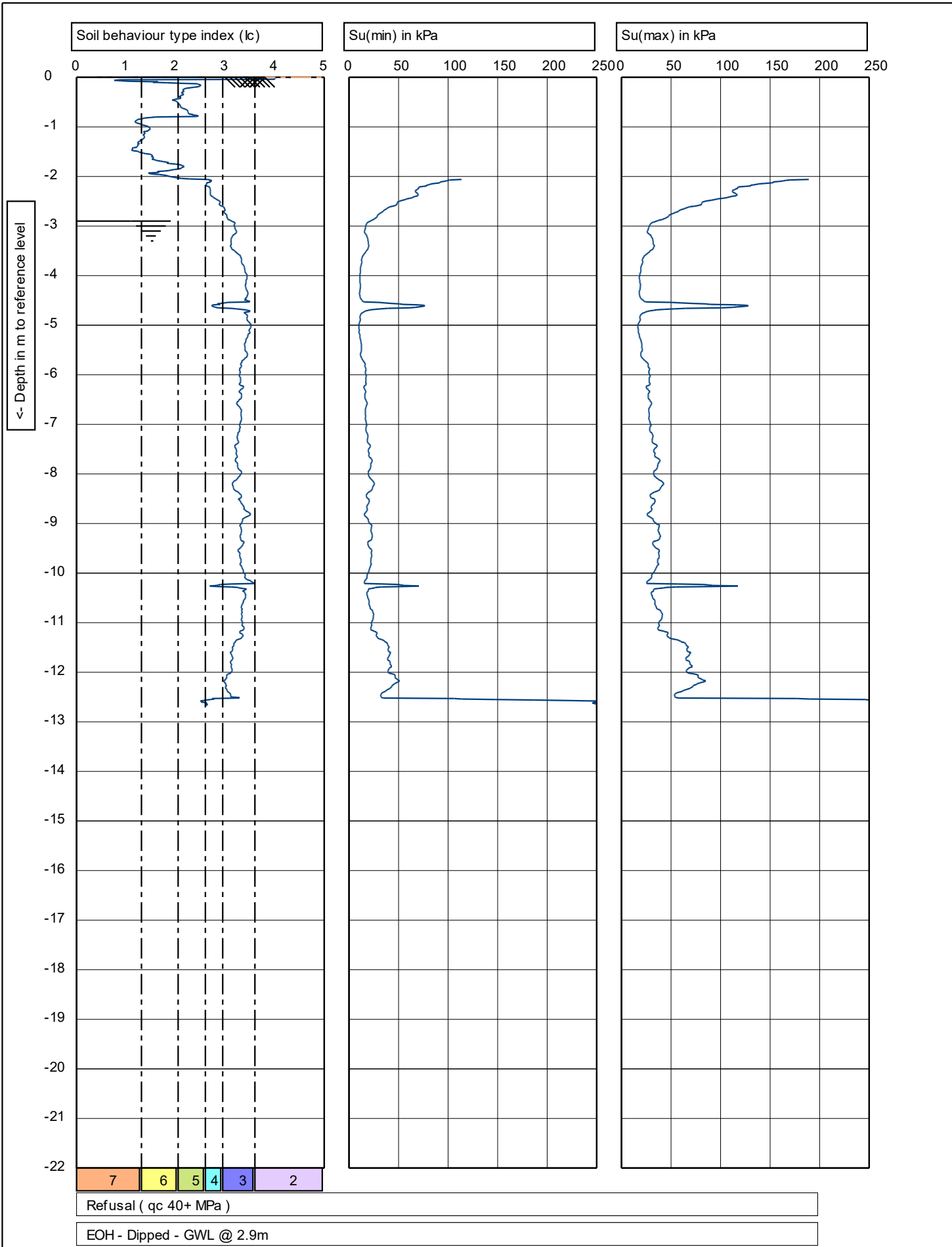
Date: 30/09/2025

Cone no.: C10CFIIP.C19489

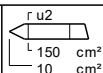
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1102 5/6

Project: Section 2B
Location: Northern Corridor
Position: 1727748, 6011860 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -2.90 m

Predrill: 0.00 m Predrilled

Date: 30/09/2025

Cone no.: C10CFIIP.C19489

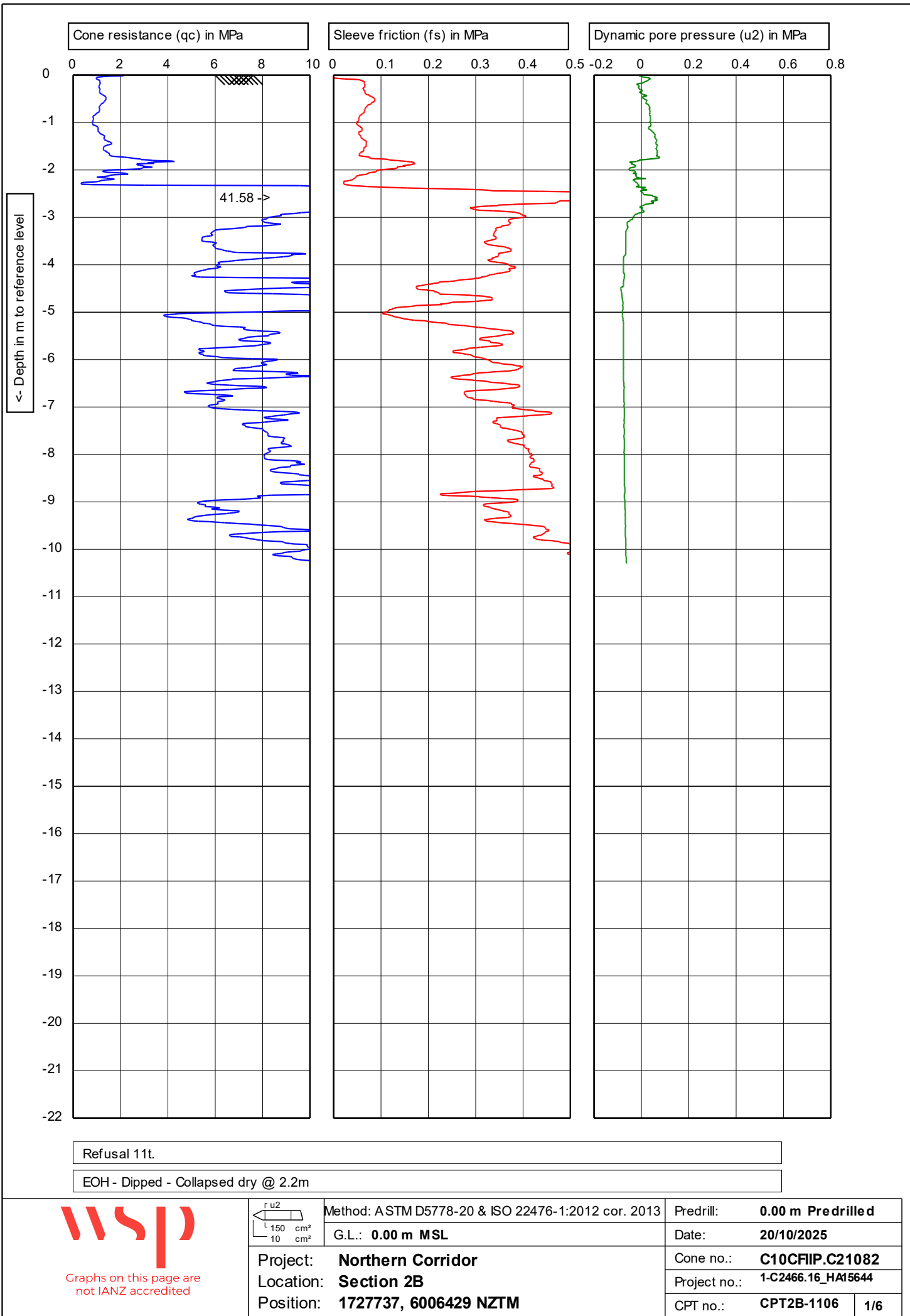
Project no.: 1-C2466.16_HA15644

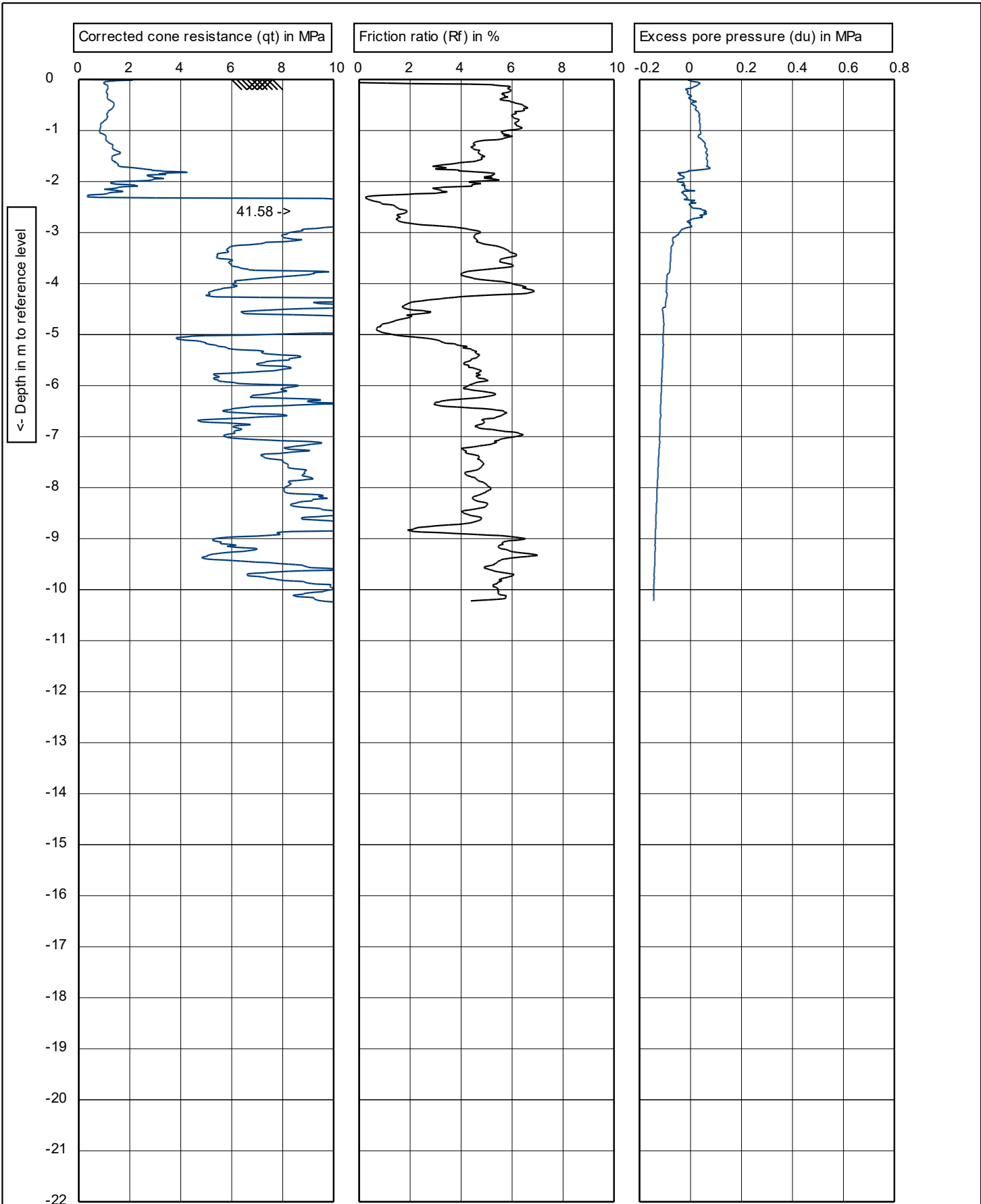
CPT no.: CPT2B-1102 6/6

Project: Section 2B

Location: Northern Corridor

Position: 1727748, 6011860 NZTM



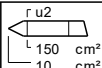


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Project: Northern Corridor

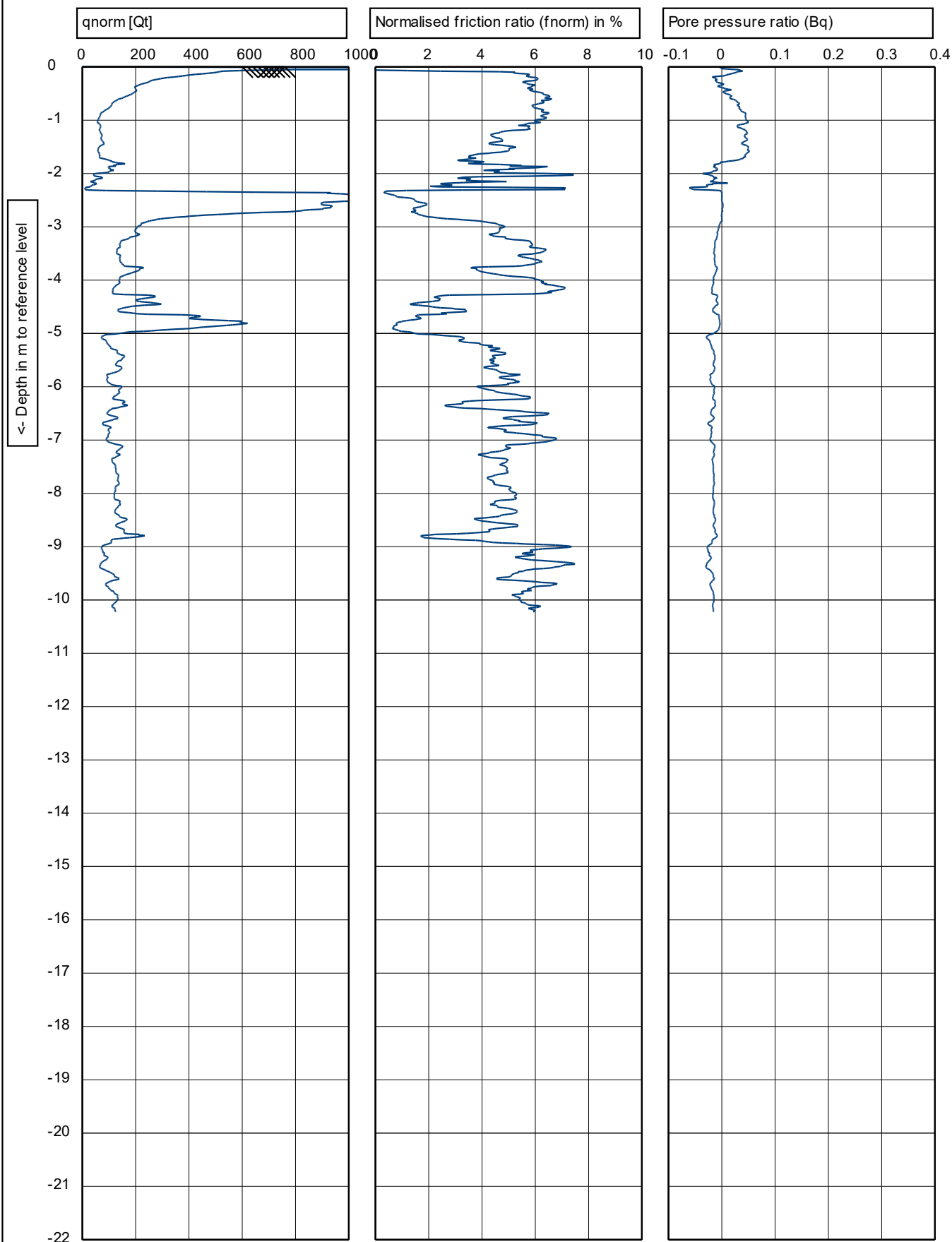
Location: Section 2B

Position: 1727737, 6006429 NZTM

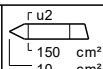
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Project no.: 1-C2466.16_HA15644

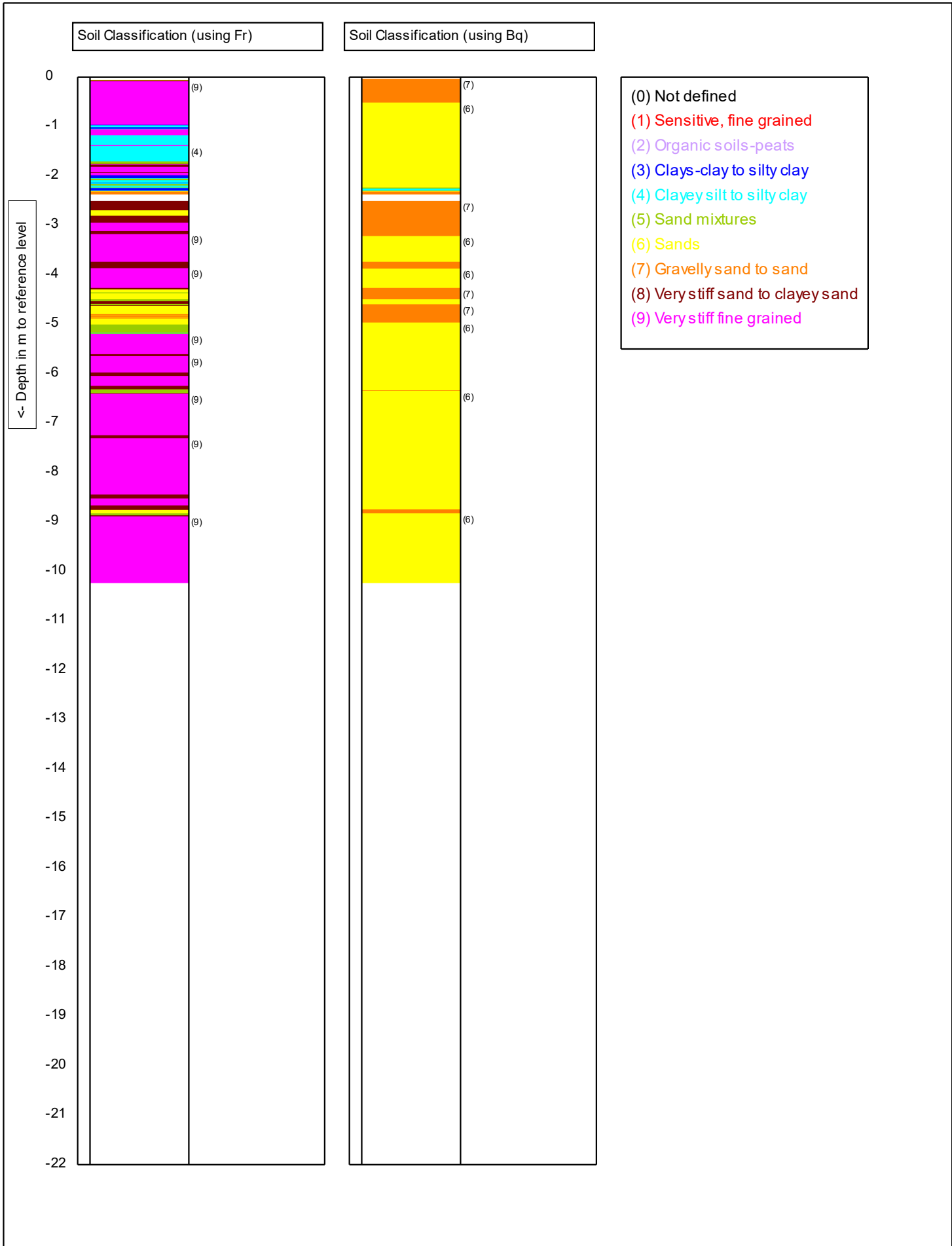
CPT no.: CPT2B-1106 2/6



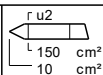
Refusal 11t.



Project: **Northern Corridor**
Location: **Section 2B**
Position: **1727737, 6006429 NZTM**



Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Project: Northern Corridor
Location: Section 2B
Position: 1727737, 6006429 NZTM

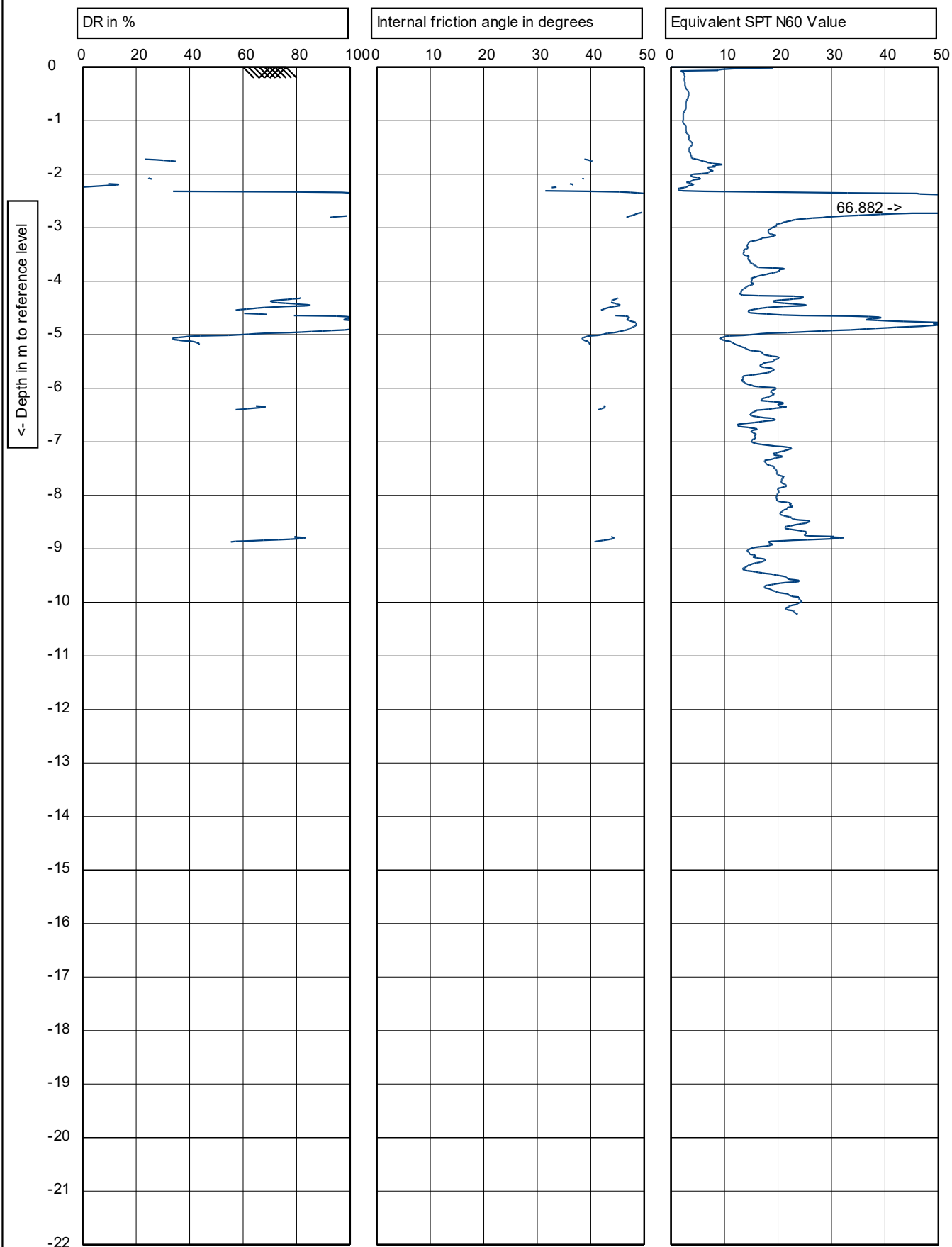
Predrill: 0.00 m Predrilled

Date: 20/10/2025

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1106 4/6



Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are not IANZ accredited

Diagram of a pencil with dimensions: length 150 cm, width 10 cm, and a label "r u2".

Method: A STM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

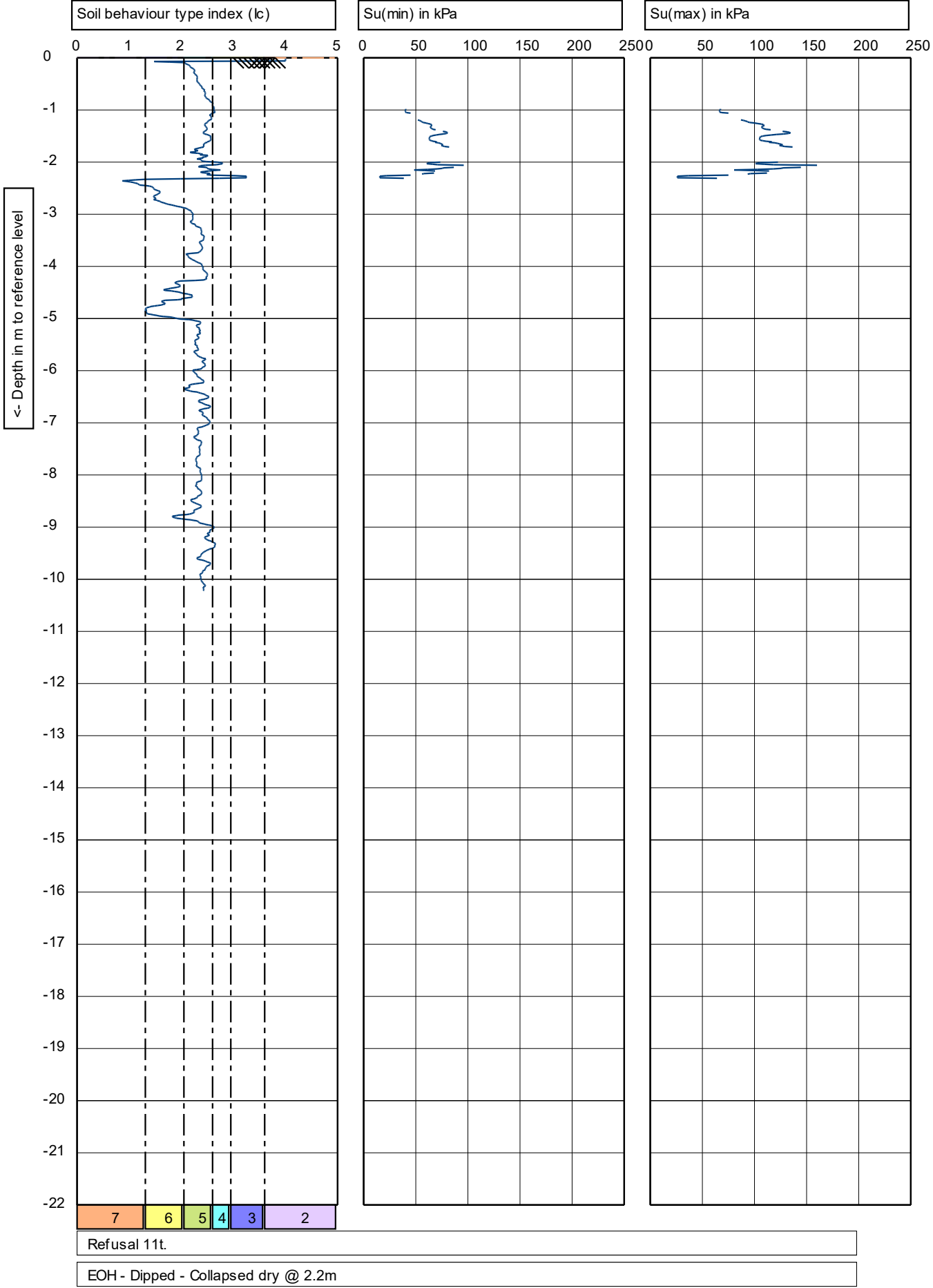
Predrill:	0.00 m Pre drilled
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Date: 20/10/2025

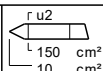
Cone no.: **C10CFIP.C21082**

Project no.: 1-C2466.16_HA15644

CPT no.:	CPT2B-1106	5/6
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Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Project: Northern Corridor

Location: Section 2B

Position: 1727737, 6006429 NZTM

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1106 6/6

CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Northern Corridor
 Location : Section 2B
 Hole Number: CPT2B-1106
 Tested by : J Kavanaugh/ T Dimmock
 Date tested : 20/10/25
 Coordinates : 1727737 E
 6006429 N
 Elevation : 107m
 Water level : EOH - Dipped - Collapsed dry @ 2.2m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1106
 Client Ref No :

Test Results

Start Time	4:19:00 pm
Time at penetration	4:27:49 pm
End Time	12:08:49 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	10.3
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned south of CPT2B-1106D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 20/10/25
 Date reported : 21/10/25

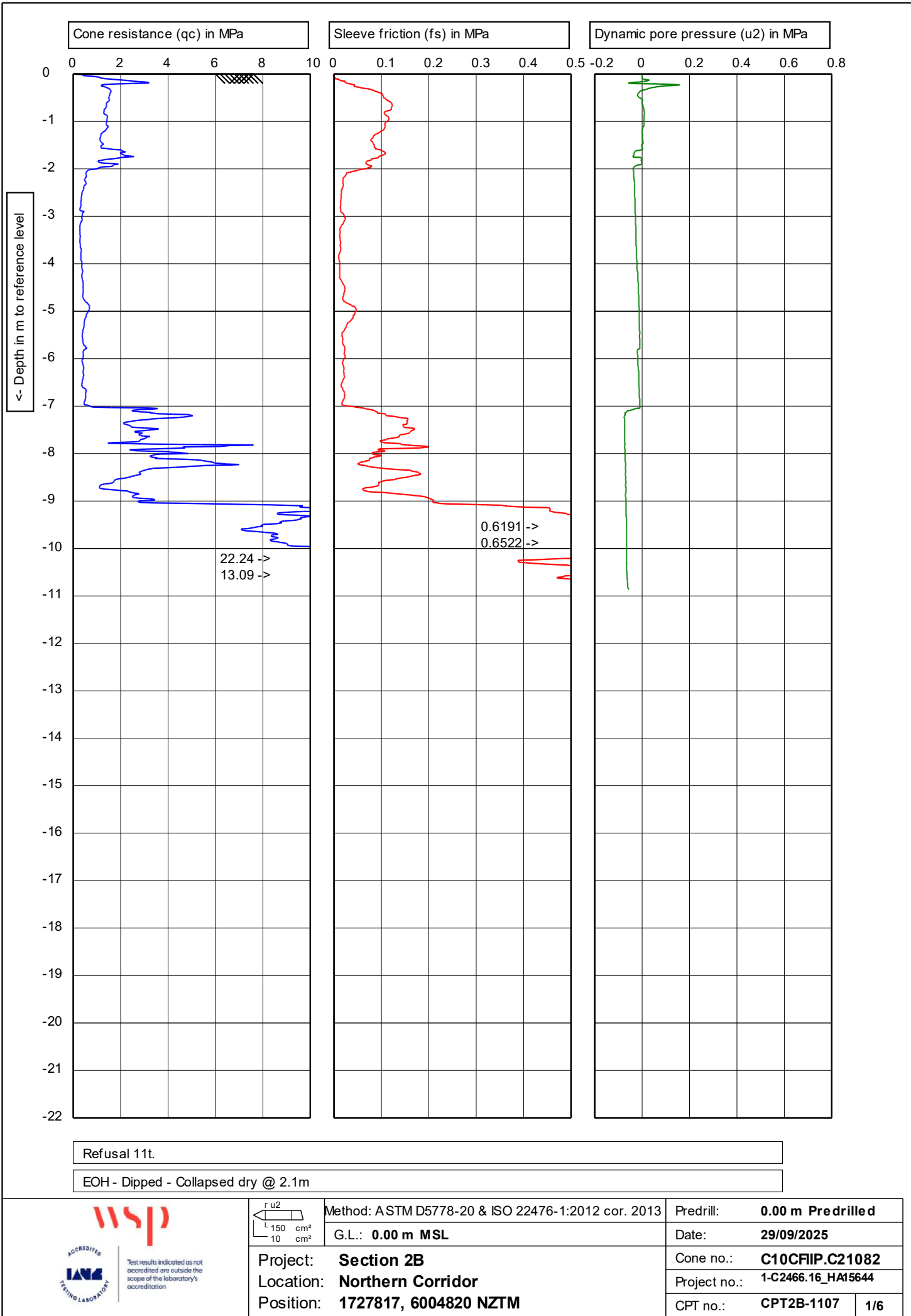
This report may only be reproduced in full, including
 corresponding calibration data, daily logs, and CPT graphs.

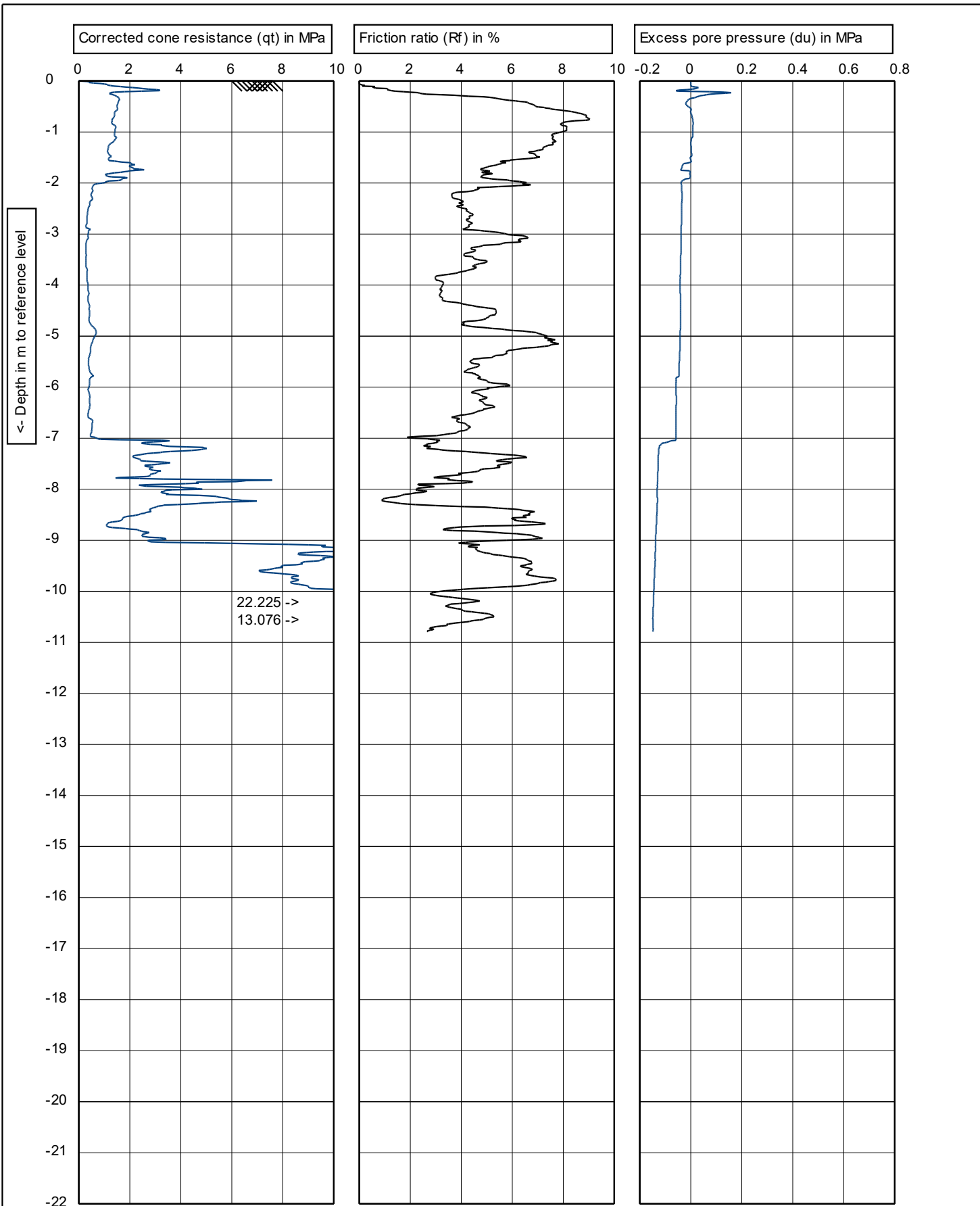
Approved Signatory

Designation : CPT North Island Manager
 Date : 21/10/25



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation



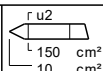


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.1m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 29/09/2025

Cone no.: C10CFIP.C21082

Project no.: 1-C2466.16_HA15644

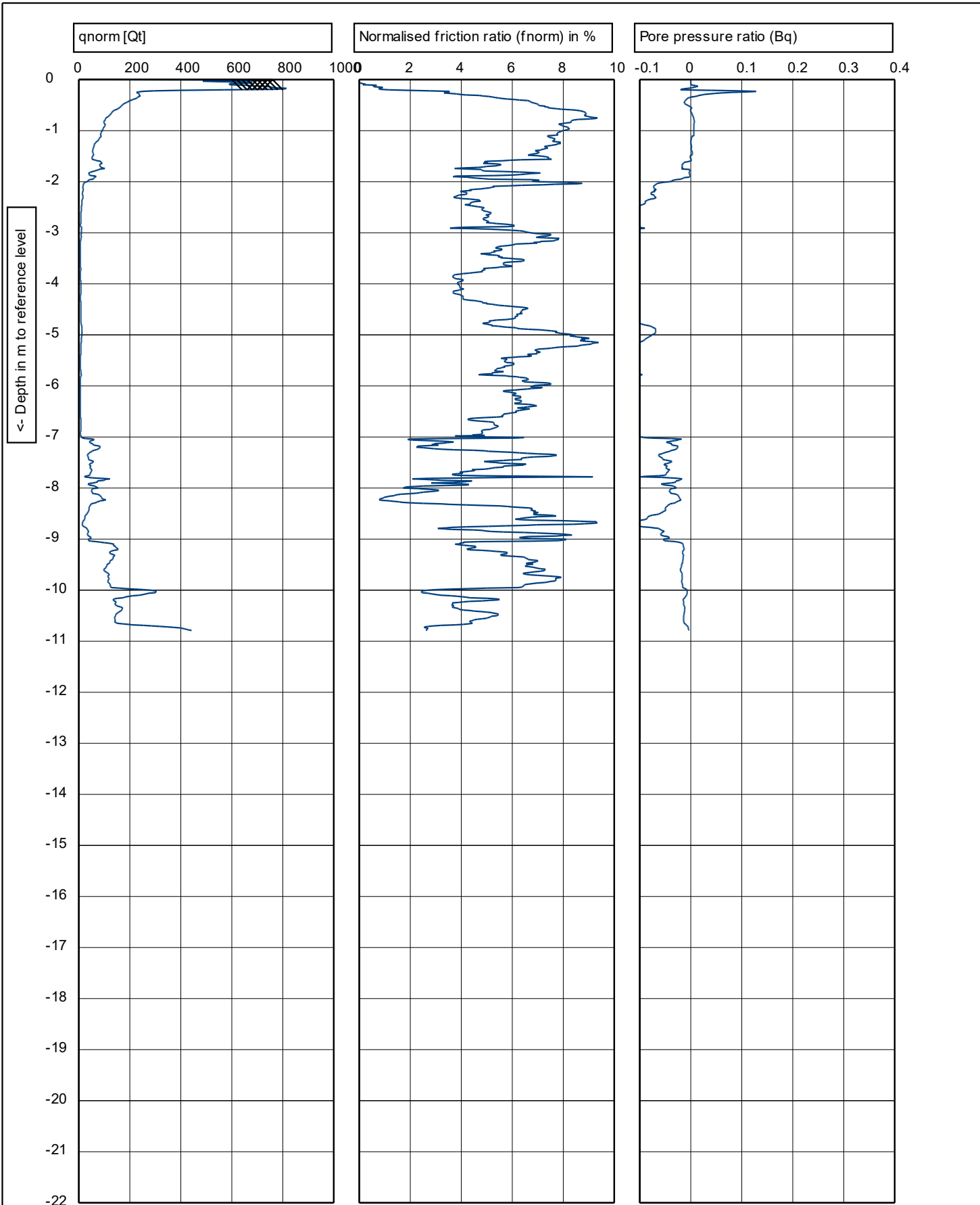
CPT no.: CPT2B-1107

2/6

Project: Section 2B

Location: Northern Corridor

Position: 1727817, 6004820 NZTM

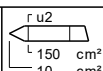


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.1m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 29/09/2025

Cone no.: C10CFIP.C21082

Project no.: 1-C2466.16_HA15644

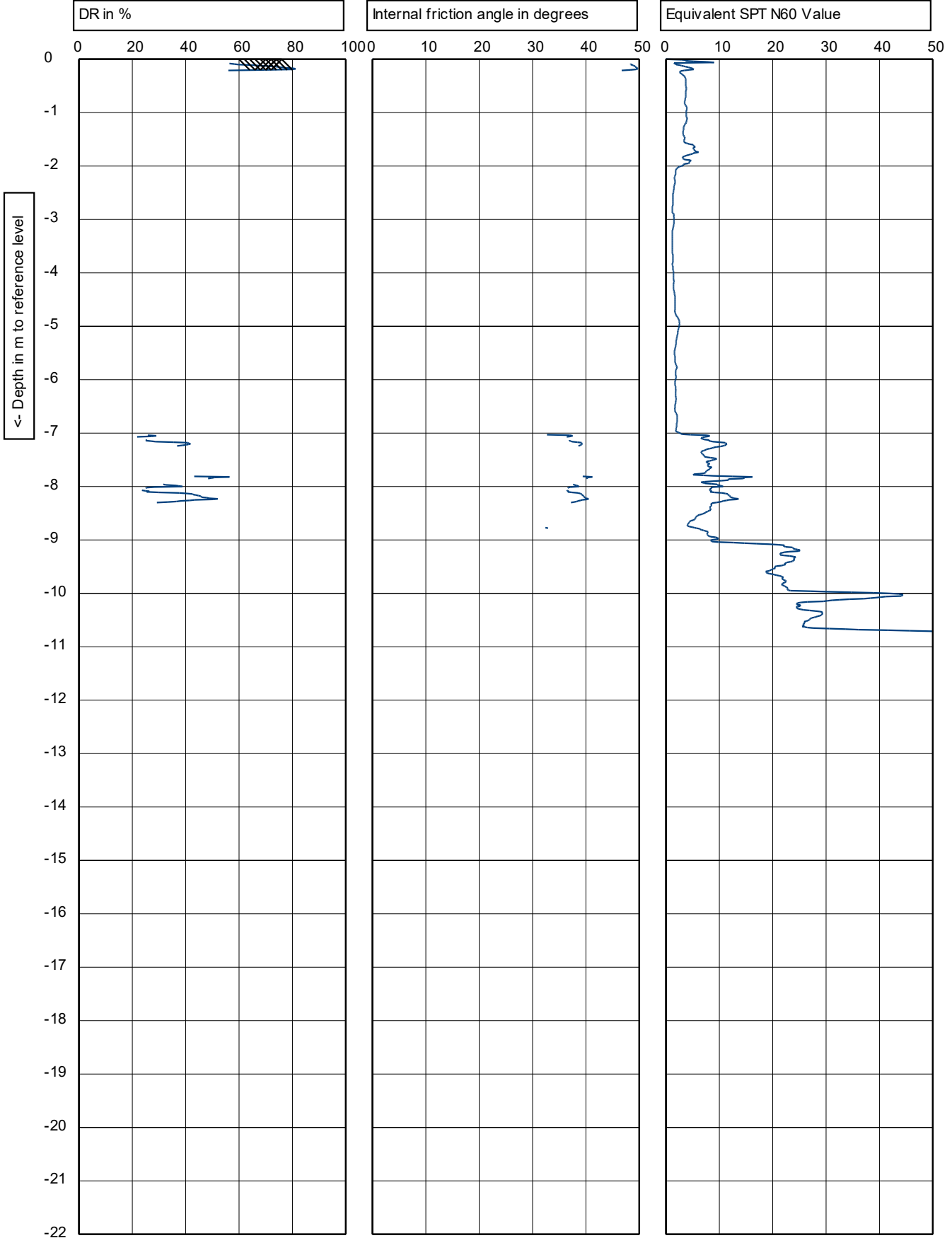
CPT no.: CPT2B-1107 3/6

Project: Section 2B

Location: Northern Corridor

Position: 1727817, 6004820 NZTM



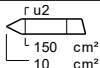


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.1m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

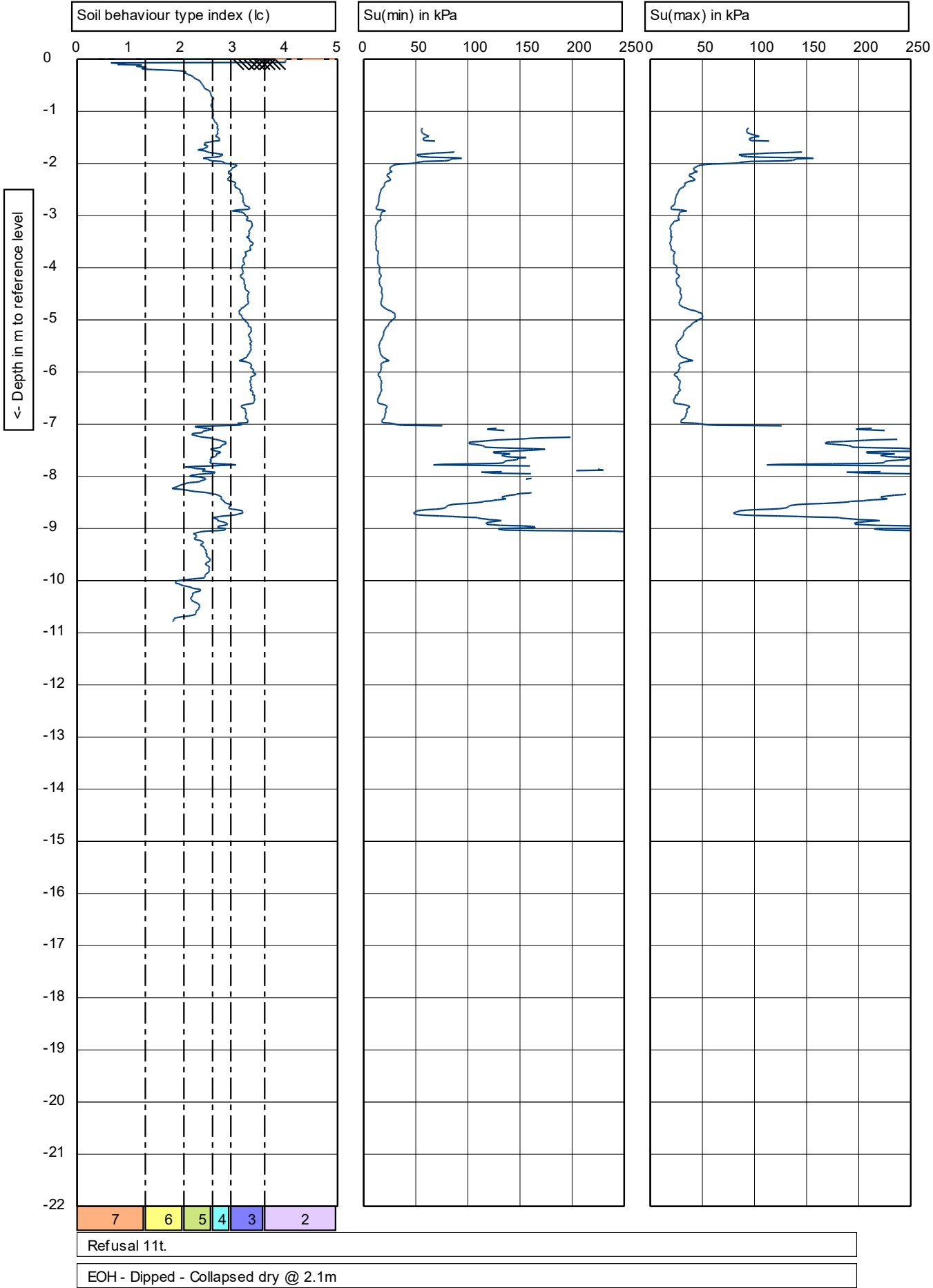
Date: 29/09/2025

Cone no.: C10CFIIP.C21082

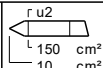
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1107 5/6

Project: Section 2B
Location: Northern Corridor
Position: 1727817, 6004820 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 29/09/2025

Project: Section 2B

Location: Northern Corridor

Position: 1727817, 6004820 NZTM

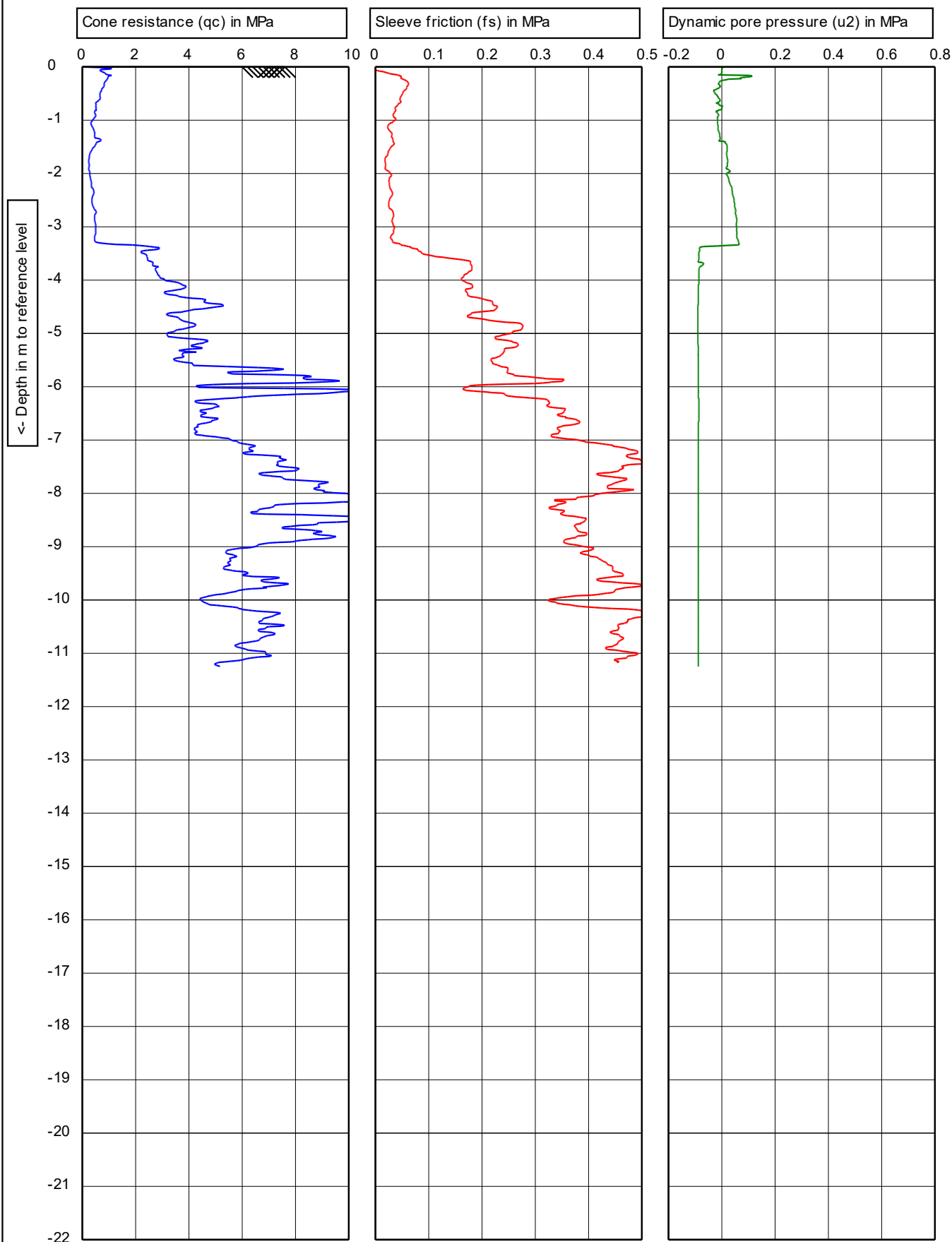
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Project no.: 1-C2466.16_HA15644

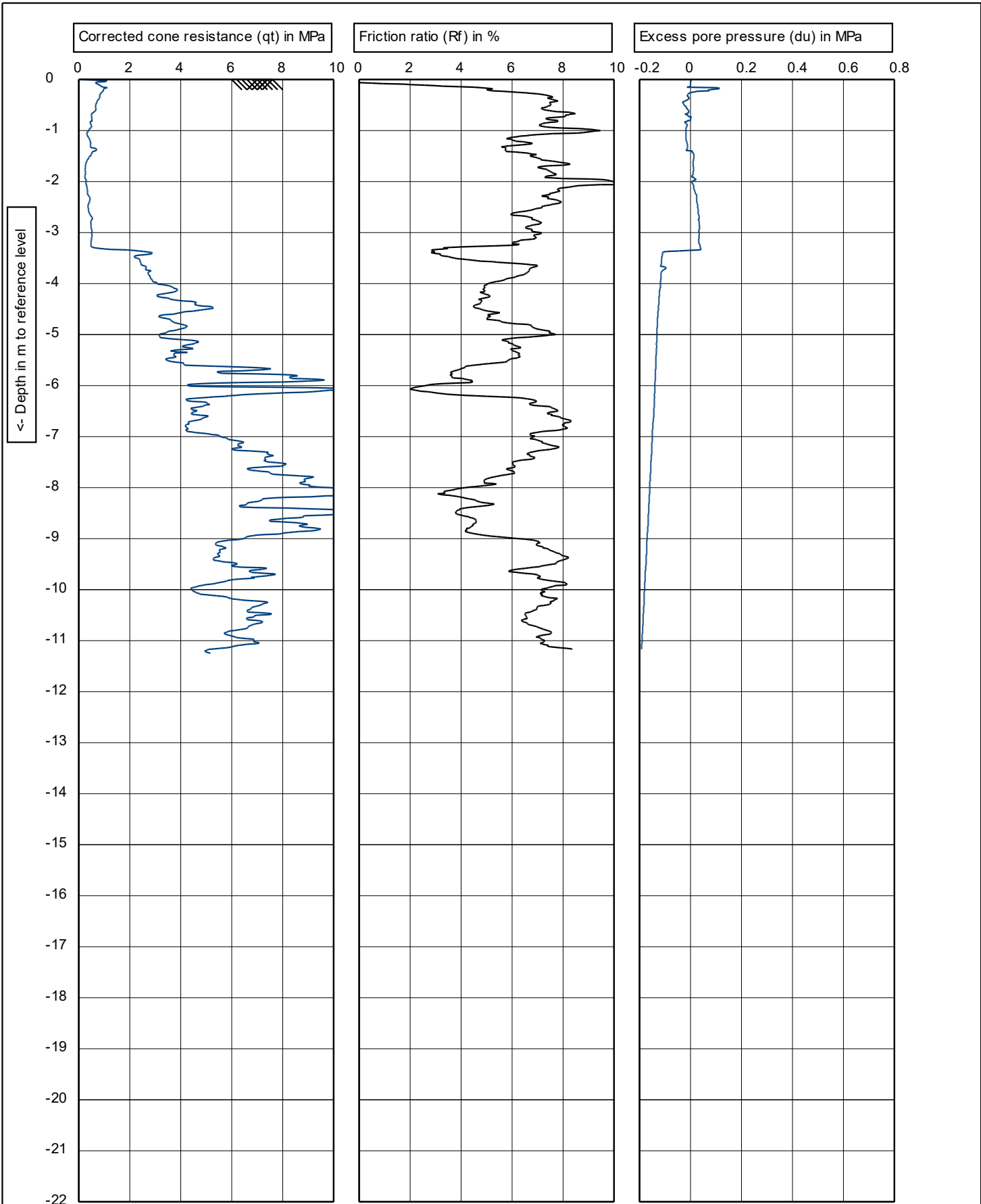
CPT no.: CPT2B-1107

6/6

Project No :	1-C2466.16
Lab Ref No :	HA15644 CPT2B-1107



  Test results indicated as not accredited are outside the scope of the laboratory's accreditation		Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013	Predrill: 0.00 m Pre drilled	
		G.L.: 0.00 m MSL	Date: 29/09/2025	
		Project: Section 2B Location: Northern Corridor Position: 1727542, 6004168 NZTM	Cone no.: C10CFIP.C21082	
			Project no.: 1-C2466.16_HA15644 CPT no.: CPT2B-1108	
			1/6	

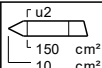


Refusal 11t.

EOH - Dipped - Collapsed dry @ 0.8m



Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 29/09/2025

Project: Section 2B

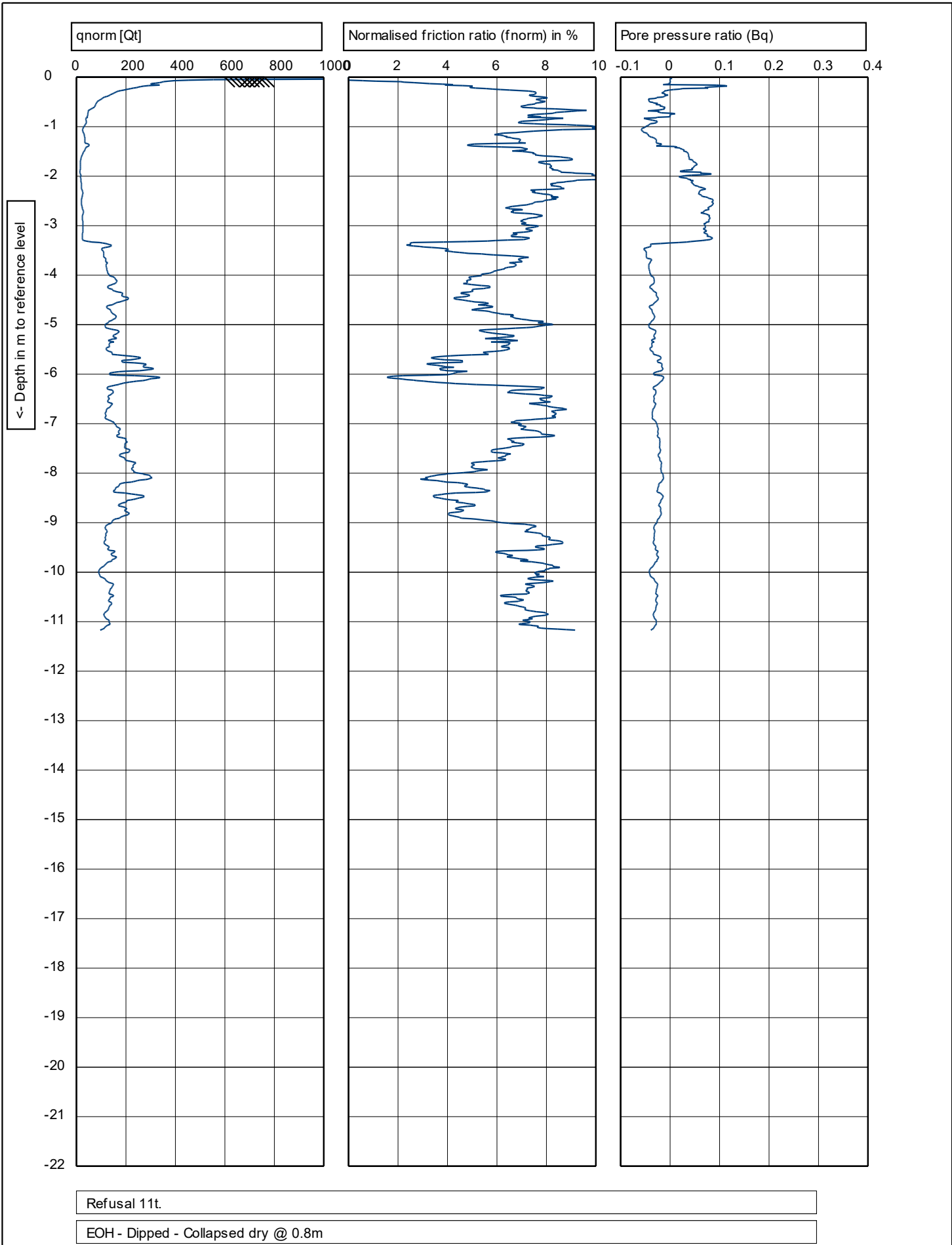
Location: Northern Corridor

Position: 1727542, 6004168 NZTM

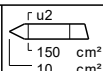
Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1108 2/6



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 29/09/2025

Cone no.: C10CFIP.C21082

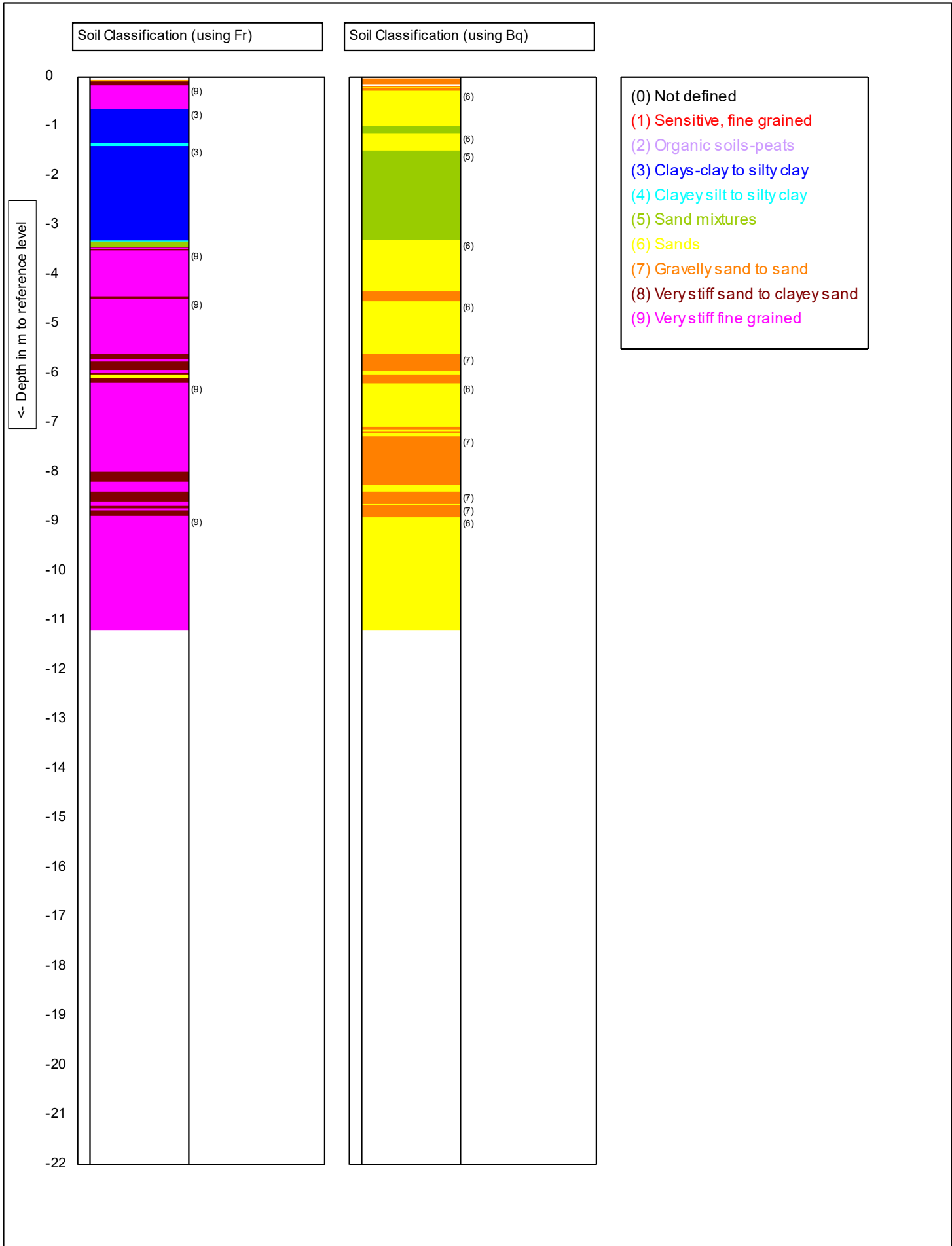
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1108 3/6

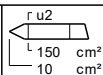
Project: Section 2B

Location: Northern Corridor

Position: 1727542, 6004168 NZTM



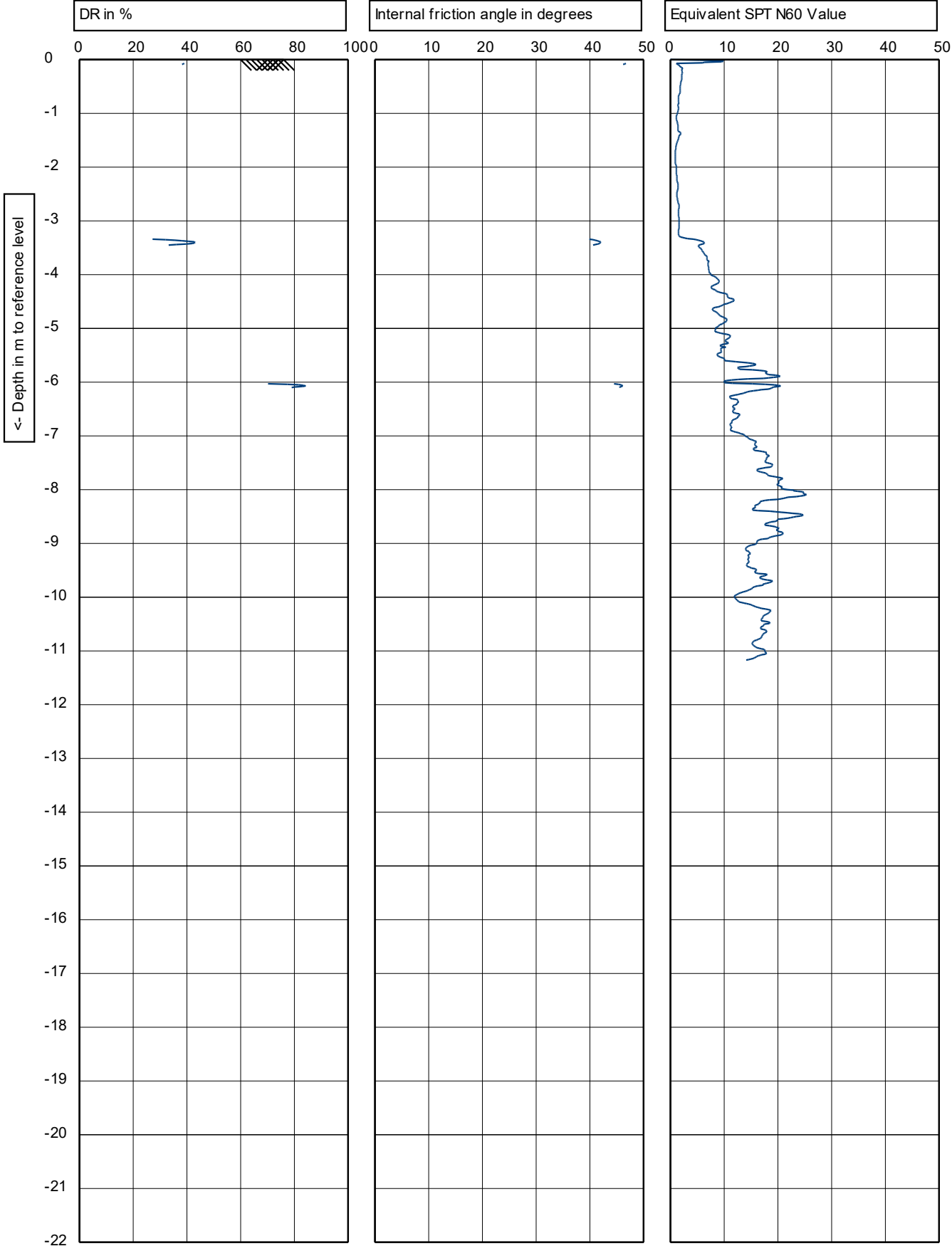
Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: 0.00 m MSL

Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727542, 6004168 NZTM**

Predrill: **0.00 m Predrilled**
Date: **29/09/2025**
Cone no.: **C10CFIIP.C21082**
Project no.: **1-C2466.16_HA15644**
CPT no.: **CPT2B-1108** **4/6**



Refusal 11t.

EOH - Dipped - Collapsed dry @ 0.8m



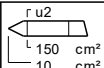
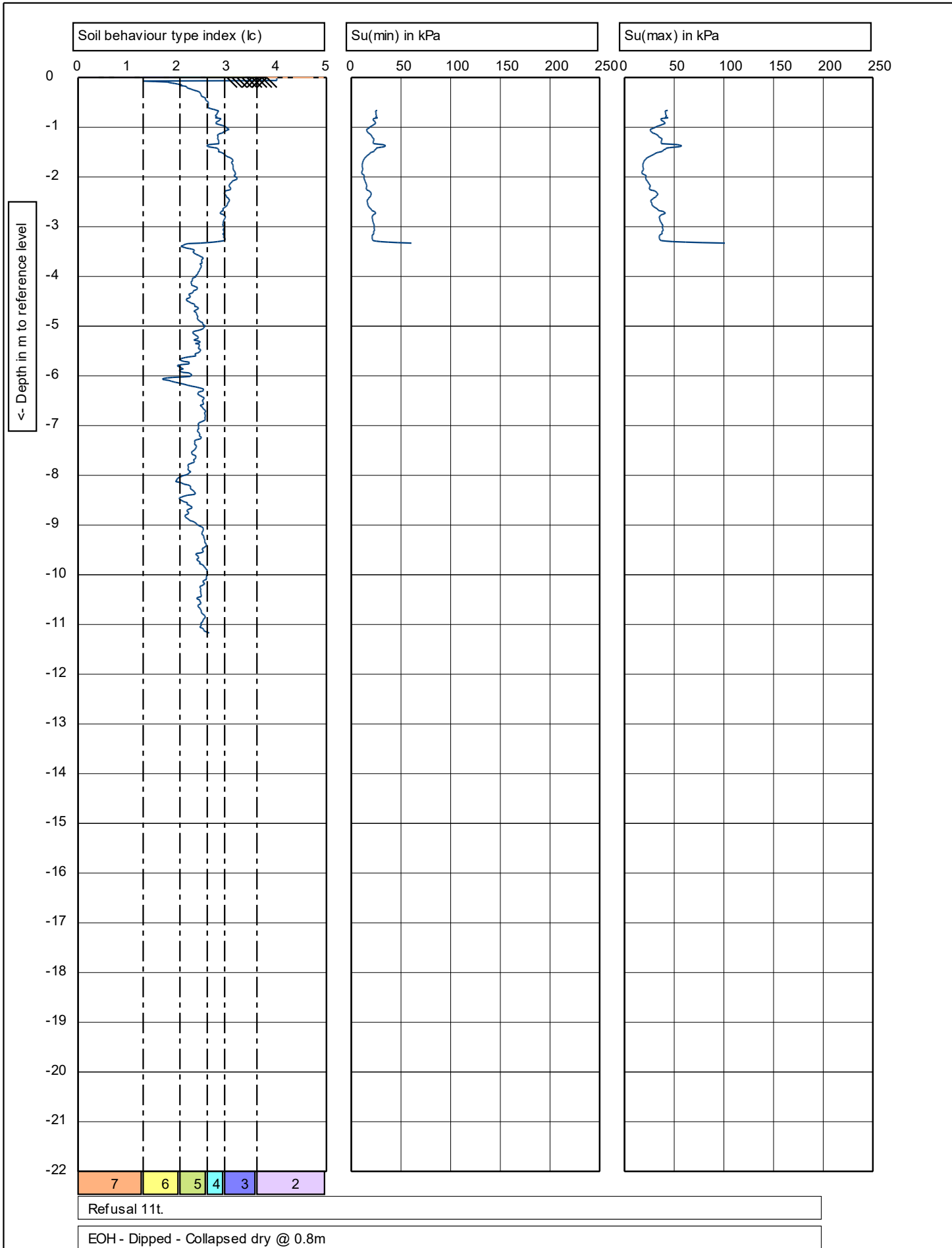
Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: 0.00 m MSL

Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727542, 6004168 NZTM**

Predrill: **0.00 m Predrilled**
Date: **29/09/2025**
Cone no.: **C10CFIIP.C21082**
Project no.: **1-C2466.16_HA15644**
CPT no.: **CPT2B-1108** 5/6



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013	Predrill: 0.00 m Predrilled
G.L.: 0.00 m MSL	Date: 29/09/2025
Project: Section 2B	Cone no.: C10CFIIP.C21082
Location: Northern Corridor	Project no.: 1-C2466.16_HA15644
Position: 1727542, 6004168 NZTM	CPT no.: CPT2B-1108 6/6

**CONE PENETRATION
TEST REPORT**



Client : **Waka Kotahi NZ Transport Agency**
Project : **Section 2B**
Location : **Northern Corridor**
Hole Number: **CPT2B-1108**
Tested by : **J Kavanaugh/ T Makasiale**
Date tested : **29/09/25**
Coordinates : **1727542 E**
6004168 N
Elevation : **42m**
Water level : **EOH - Dipped - Collapsed dry @ 0.8m**

Project No : **1-C2466.16**
Lab Ref No : **HA15644_CPT2B-1108**

Test Results

Start Time	4:33:00 pm
Time at penetration	4:42:44 pm
End Time	12:09:44 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	11.25
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	0

Test Methods: ASTM D5778-20
ISO 22476-1:2012 Cor. 2013

Date tested : 29/09/25
Date reported : 29/09/25

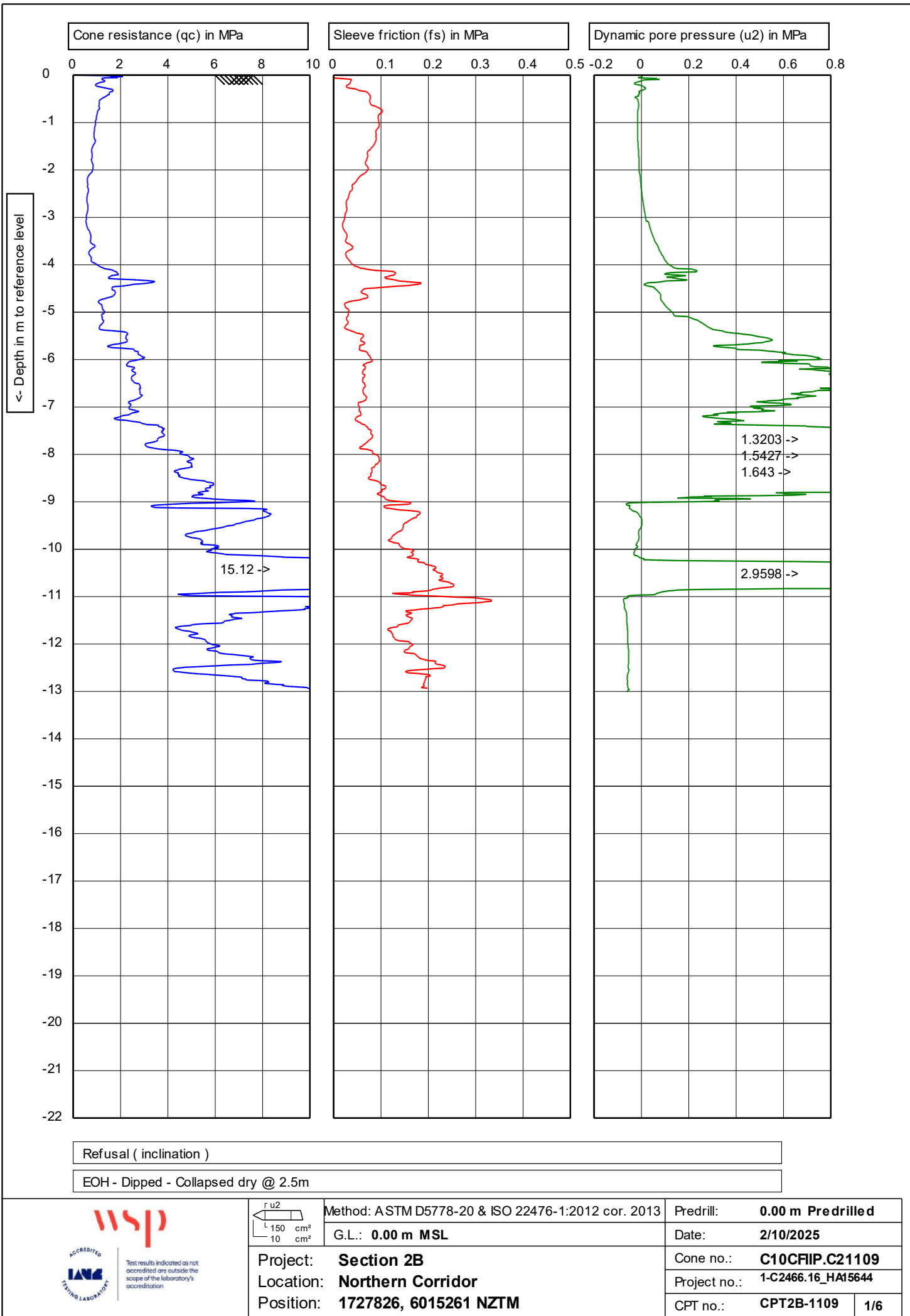
This report may only be reproduced in full, including
corresponding calibration data, daily logs, and CPT graphs.

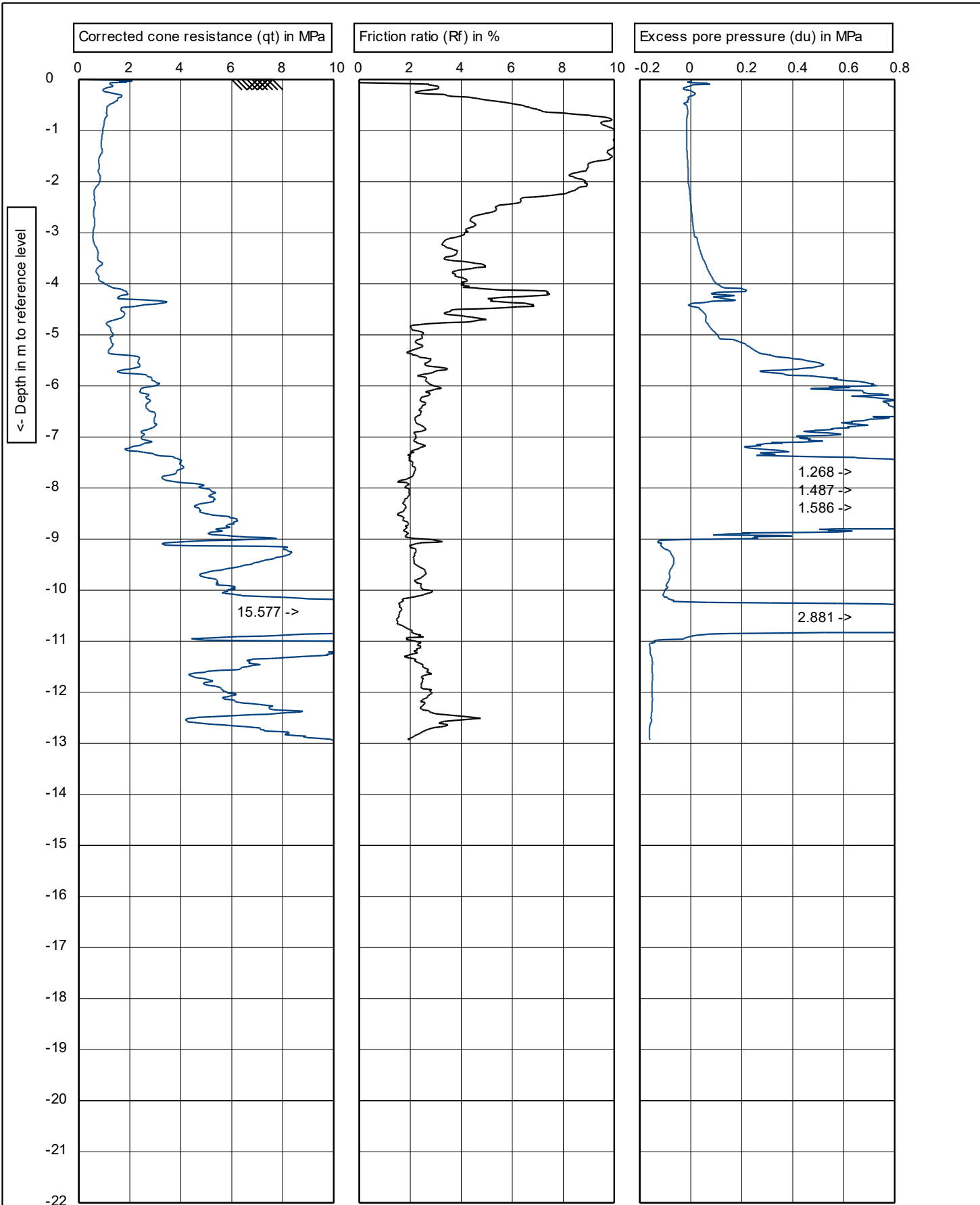
Approved Signatory

Designation : *CPT North Island Manager*
Date : 29/09/25



All tests reported herein
have been performed in
accordance with the
laboratory's scope of
accreditation



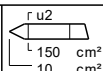


Refusal (inclination)

EOH - Dipped - Collapsed dry @ 2.5m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 2/10/2025

Cone no.: C10CFIP.C21109

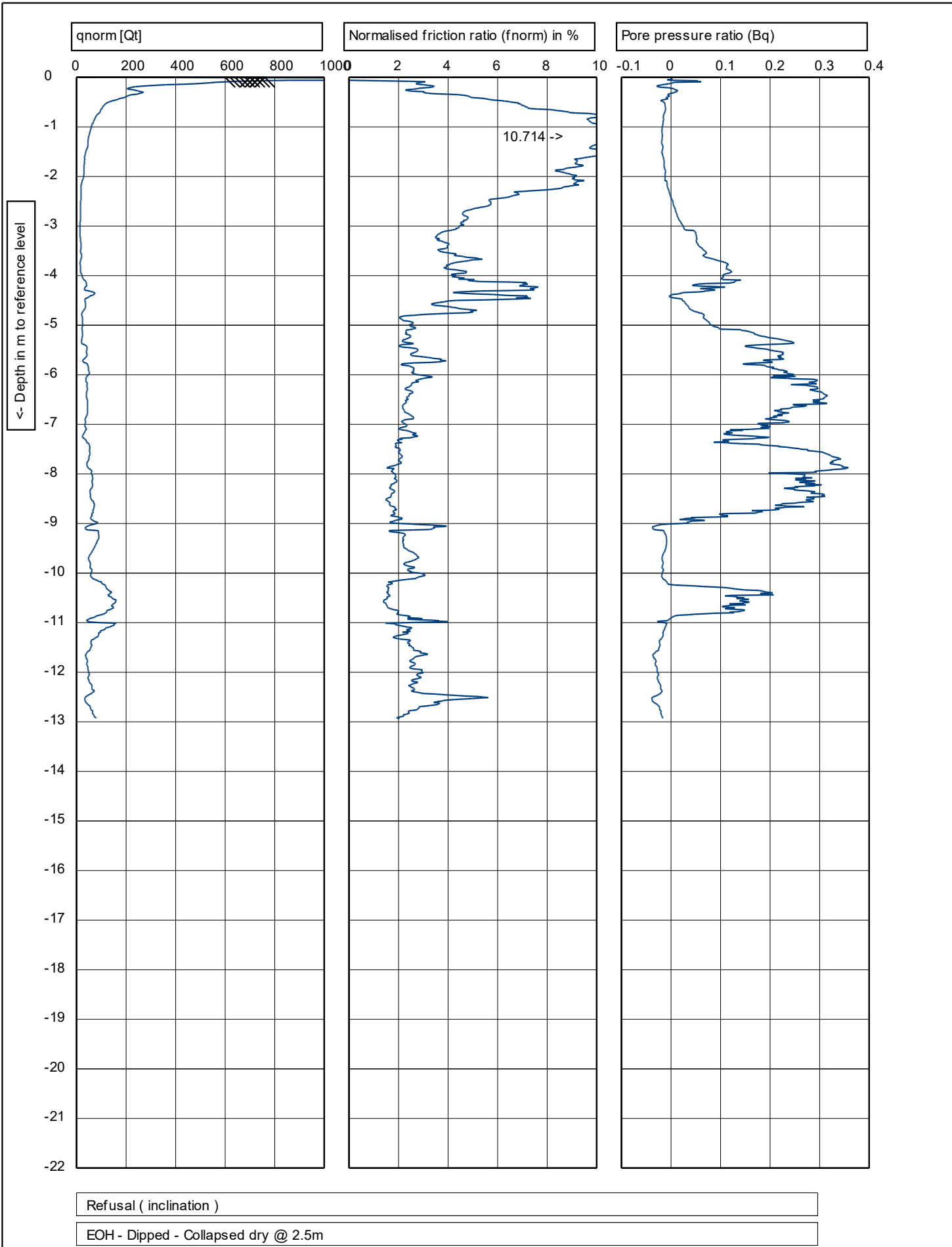
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1109 2/6

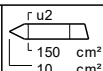
Project: Section 2B

Location: Northern Corridor

Position: 1727826, 6015261 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 2/10/2025

Cone no.: C10CFIIP.C21109

Project no.: 1-C2466.16_HA15644

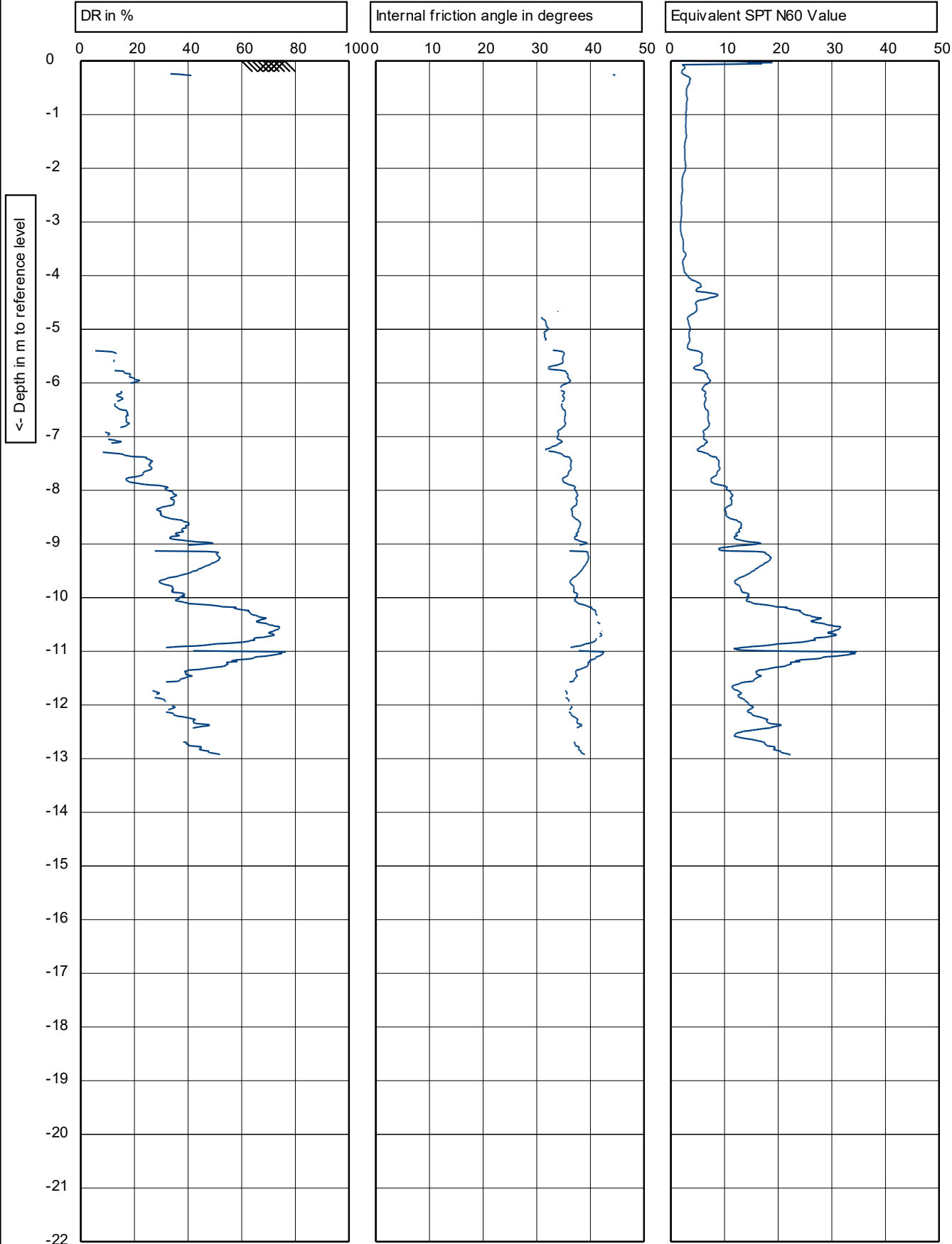
CPT no.: CPT2B-1109 3/6

Project: Section 2B

Location: Northern Corridor

Position: 1727826, 6015261 NZTM



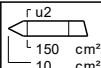


Refusal (inclination)

EOH - Dipped - Collapsed dry @ 2.5m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

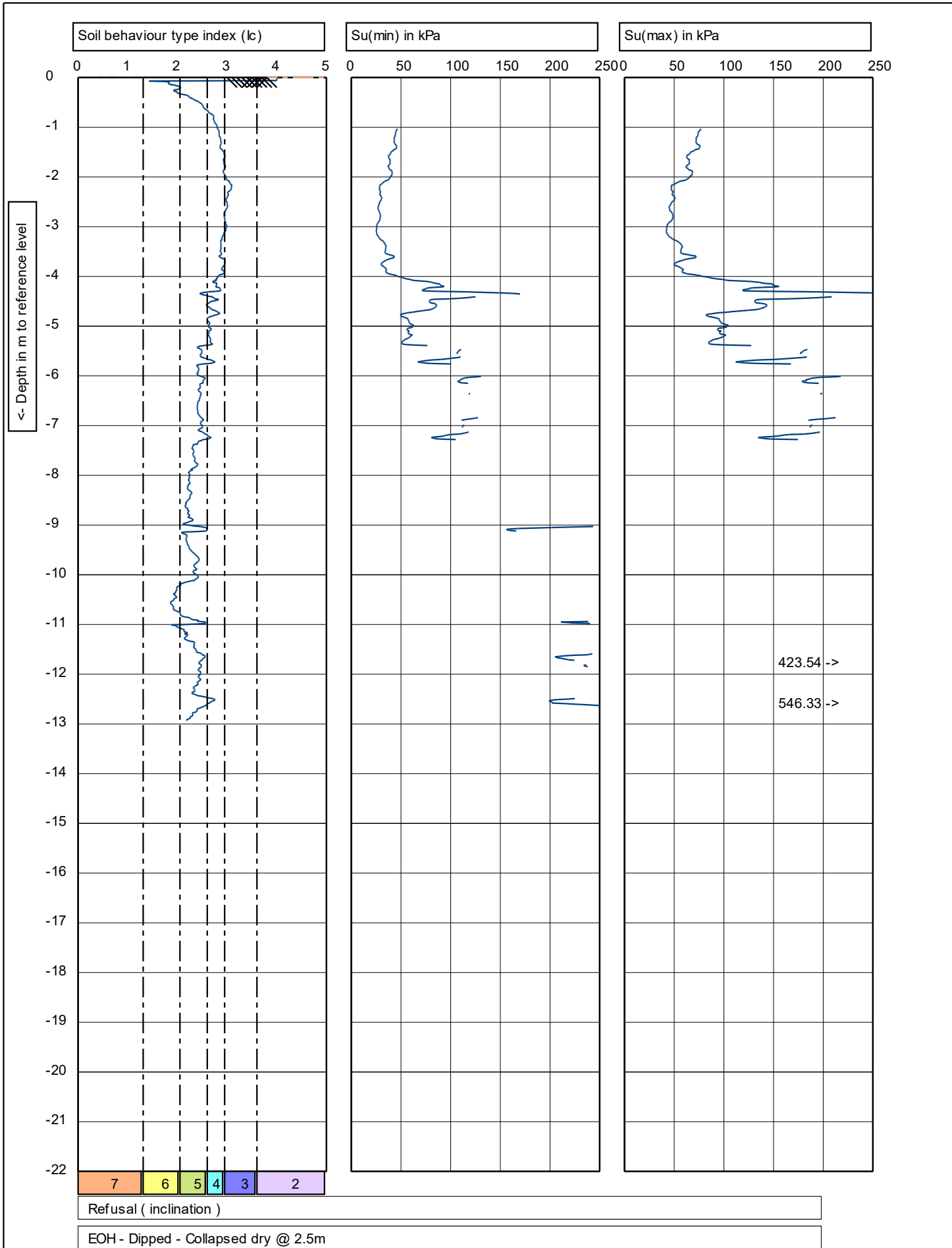
Date: 2/10/2025

Cone no.: C10CFIIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1109 5/6

Project: Section 2B
Location: Northern Corridor
Position: 1727826, 6015261 NZTM



CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number: CPT2B-1109
 Tested by : J Kavanaugh/ T Makasiale
 Date tested : 02/10/25
 Coordinates : 1727826 E
 6015261 N
 Elevation : 22m
 Water level : EOH - Dipped - Collapsed dry @ 2.5m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1109
 Client Ref No :

Test Results

Start Time	2:39:00 pm
Time at penetration	2:53:15 pm
End Time	12:14:15 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	13.01
Remarks	Refusal (inclination)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm2
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned north of CPT2B-1109D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 02/10/25
 Date reported : 03/10/25

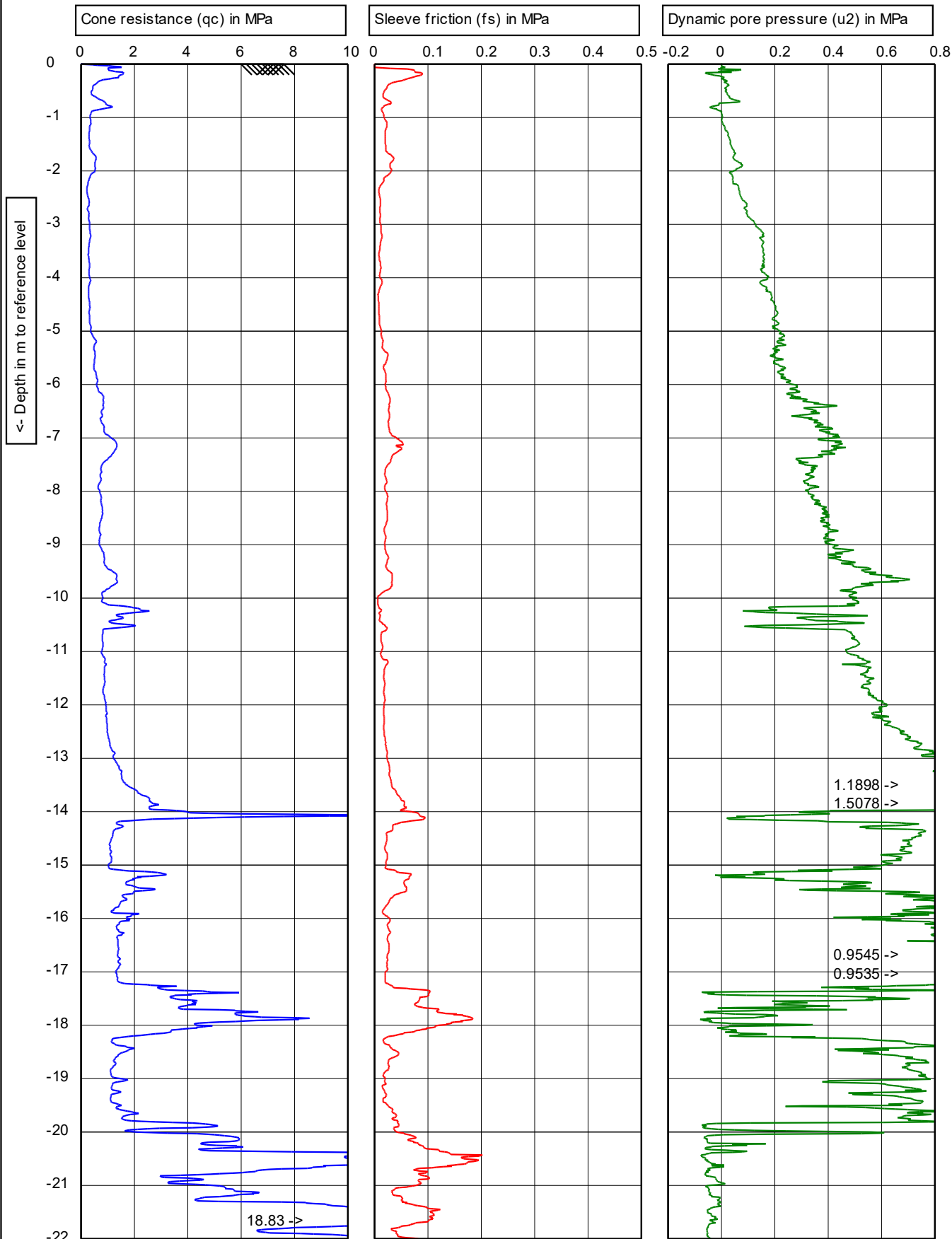
This report may only be reproduced in full, including
 corresponding calibration data, daily logs, and CPT graphs.

Approved Signatory

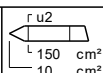
Designation : CPT North Island Manager
 Date : 03/10/25



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 3/10/2025

Project: Section 2B

Location: Northern Corridor

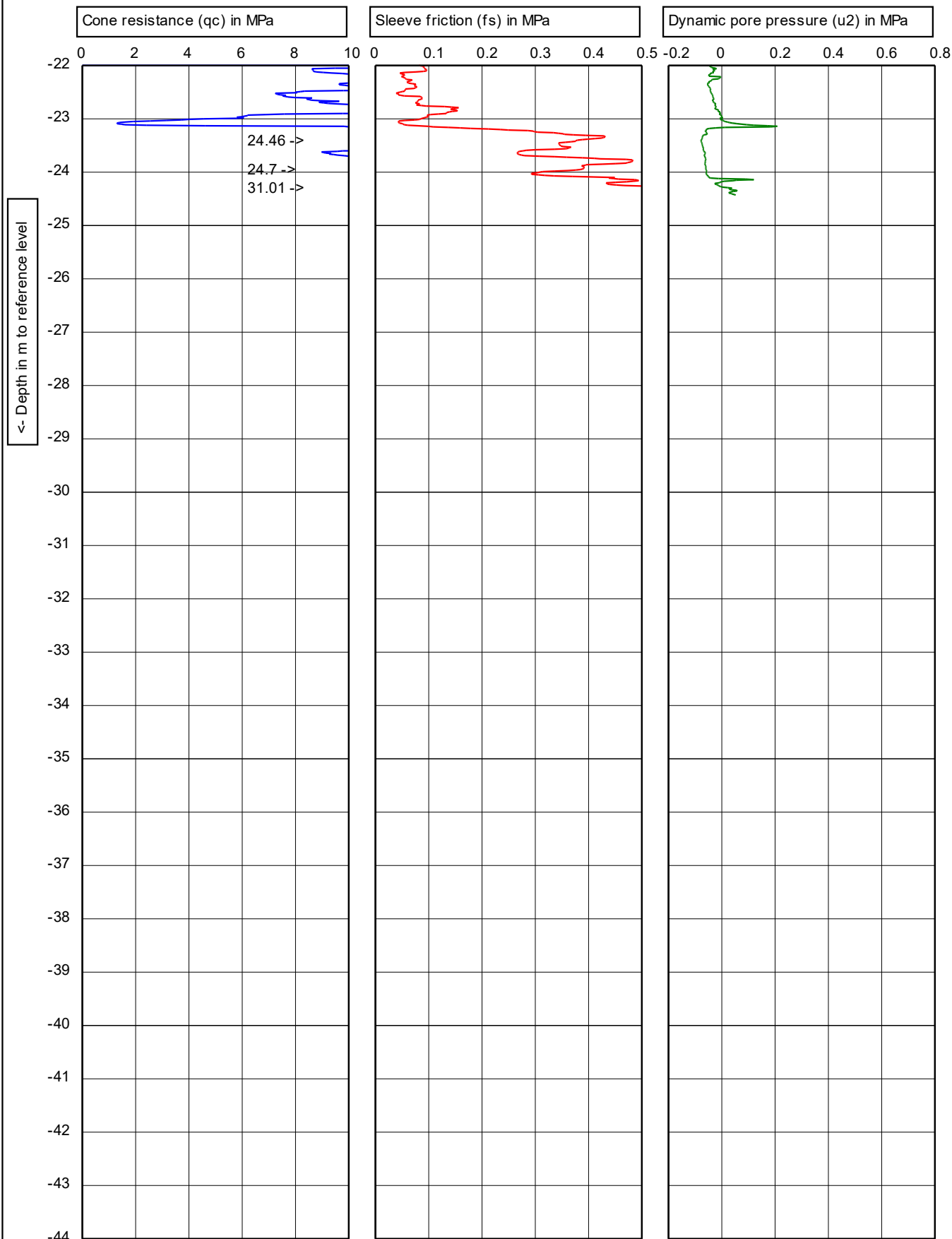
Position: 1728061, 6016492 NZTM

Cone no.: C10CFIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110

1/12



Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are not IANZ accredited

Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

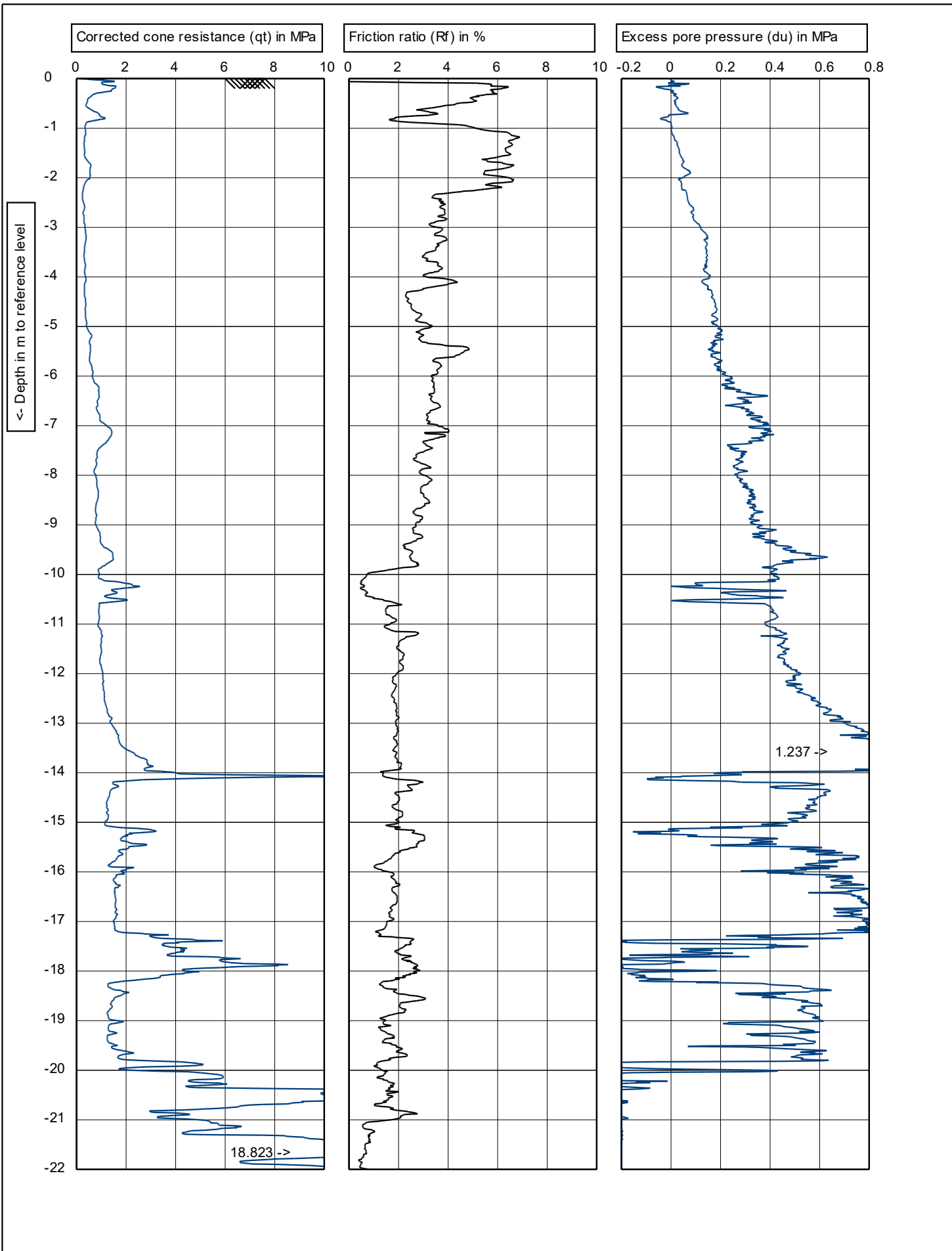
Predrill:	0.00 m	Predrilled
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Date: 3/10/2025

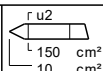
Cone no.: **C10CFIP.C21109**

Project no.:	1-C2466.16_HA15644
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CPT no.:	CPT2B-1110	2/12
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Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 3/10/2025

Cone no.: C10CFIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 3/12

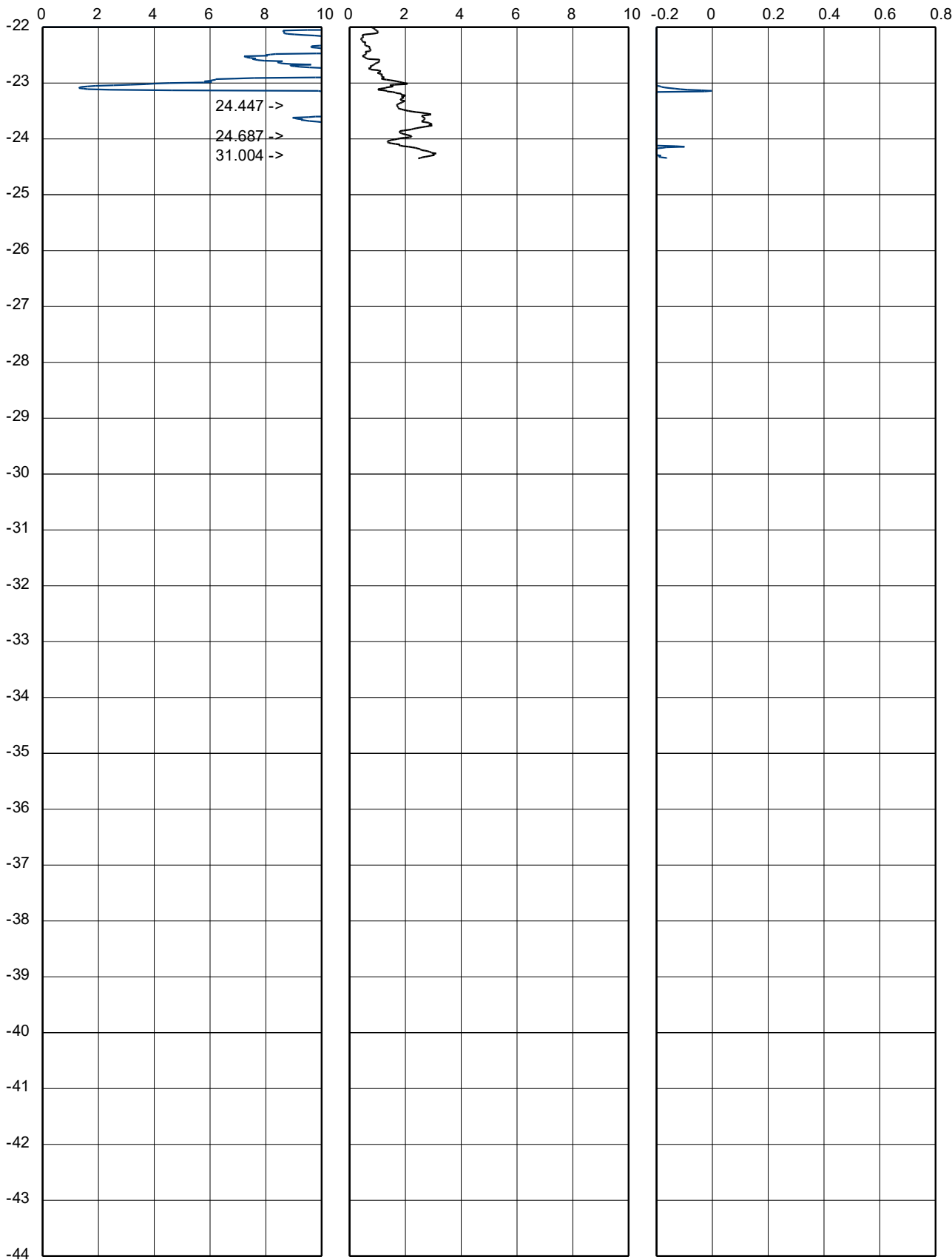
Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM

Depth in m to reference level

Corrected cone resistance (qt) in MPa

Friction ratio (Rf) in %

Excess pore pressure (du) in MPa

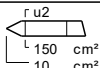


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

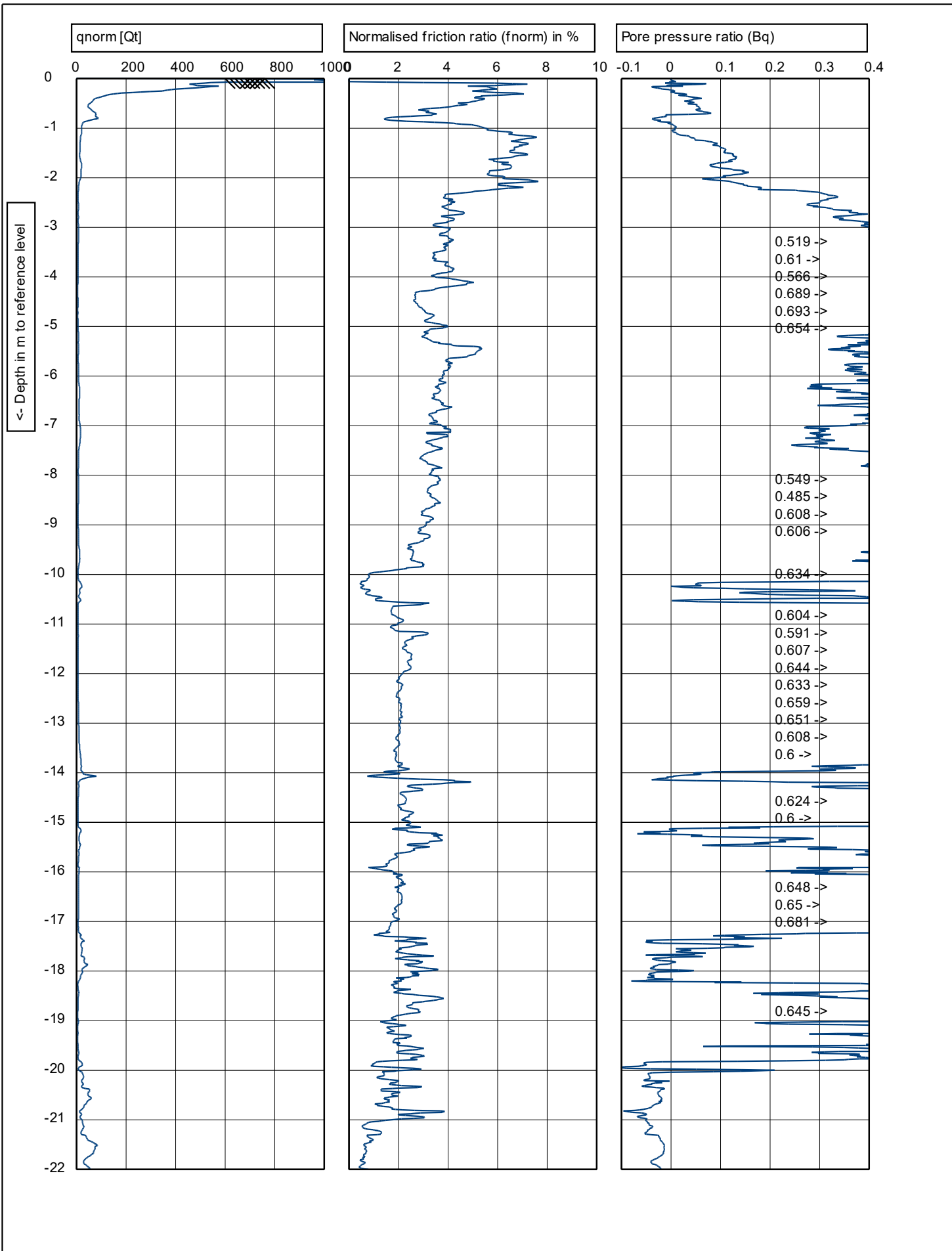
Date: 3/10/2025

Cone no.: C10CFIIP.C21109

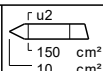
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 4/12

Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Project: **Section 2B**
Location: **Northern Corridor**
Position: **1728061, 6016492 NZTM**

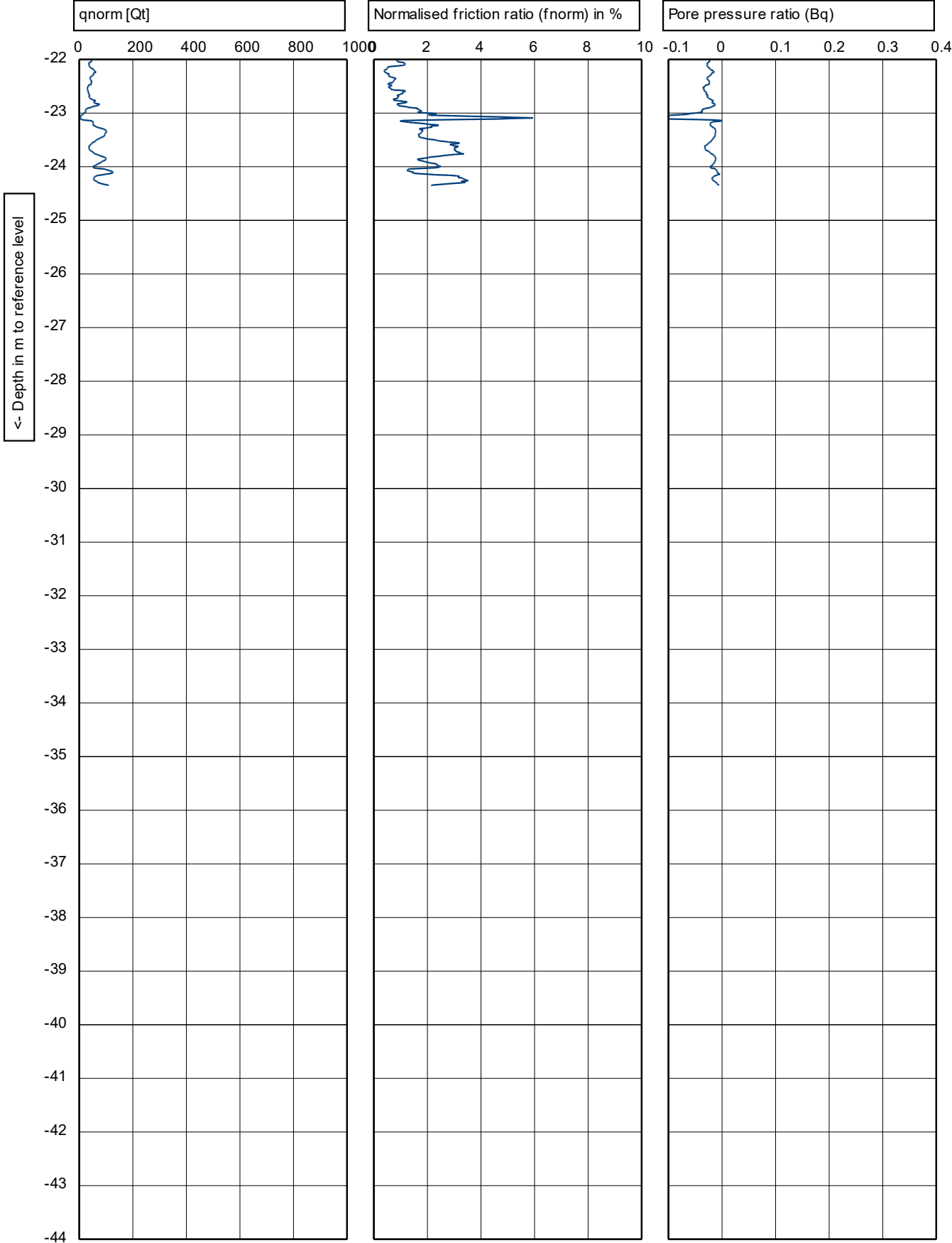
Predrill: **0.00 m Predrilled**

Date: **3/10/2025**

Cone no.: **C10CFIP.C21109**

Project no.: **1-C2466.16_HA15644**

CPT no.: **CPT2B-1110** 5/12

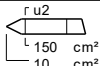


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 3/10/2025

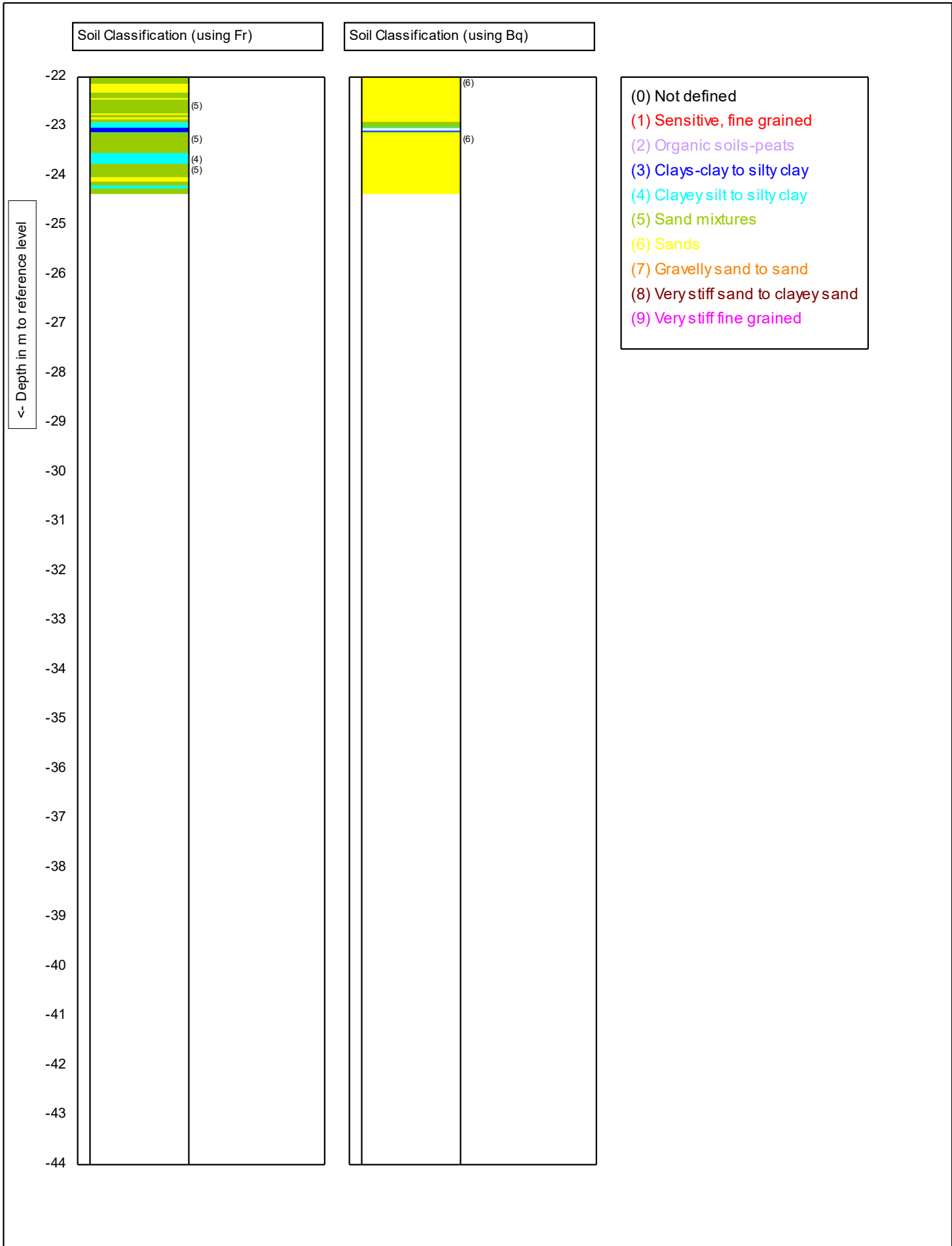
Project: **Section 2B**
Location: **Northern Corridor**
Position: **1728061, 6016492 NZTM**

Cone no.: **C10CFIIP.C21109**

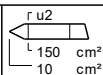
Project no.: **1-C2466.16_HA15644**

CPT no.: **CPT2B-1110** 6/12





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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

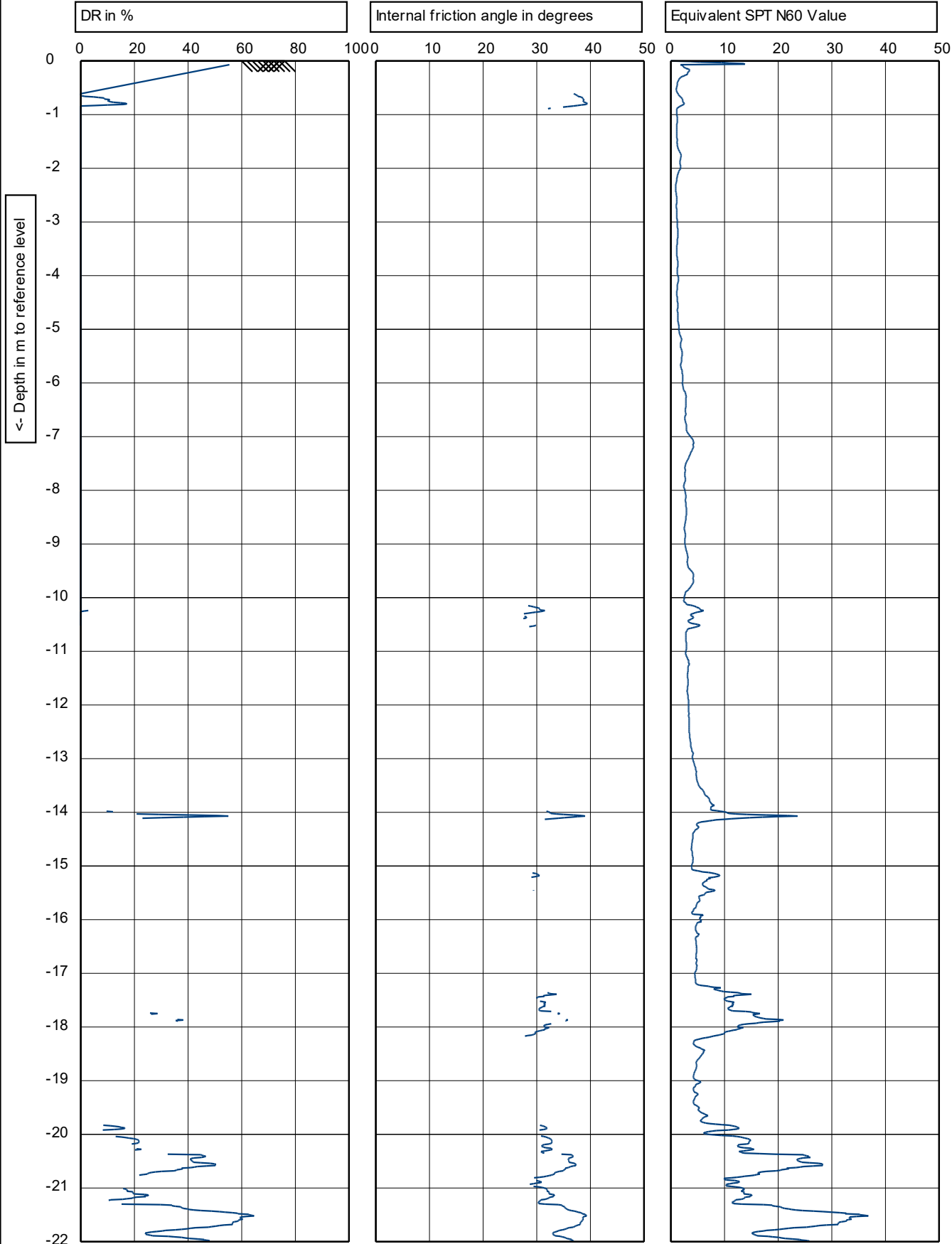
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Cone no.: C10CFIIP.C21109

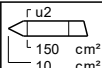
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 8/12

Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM



Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

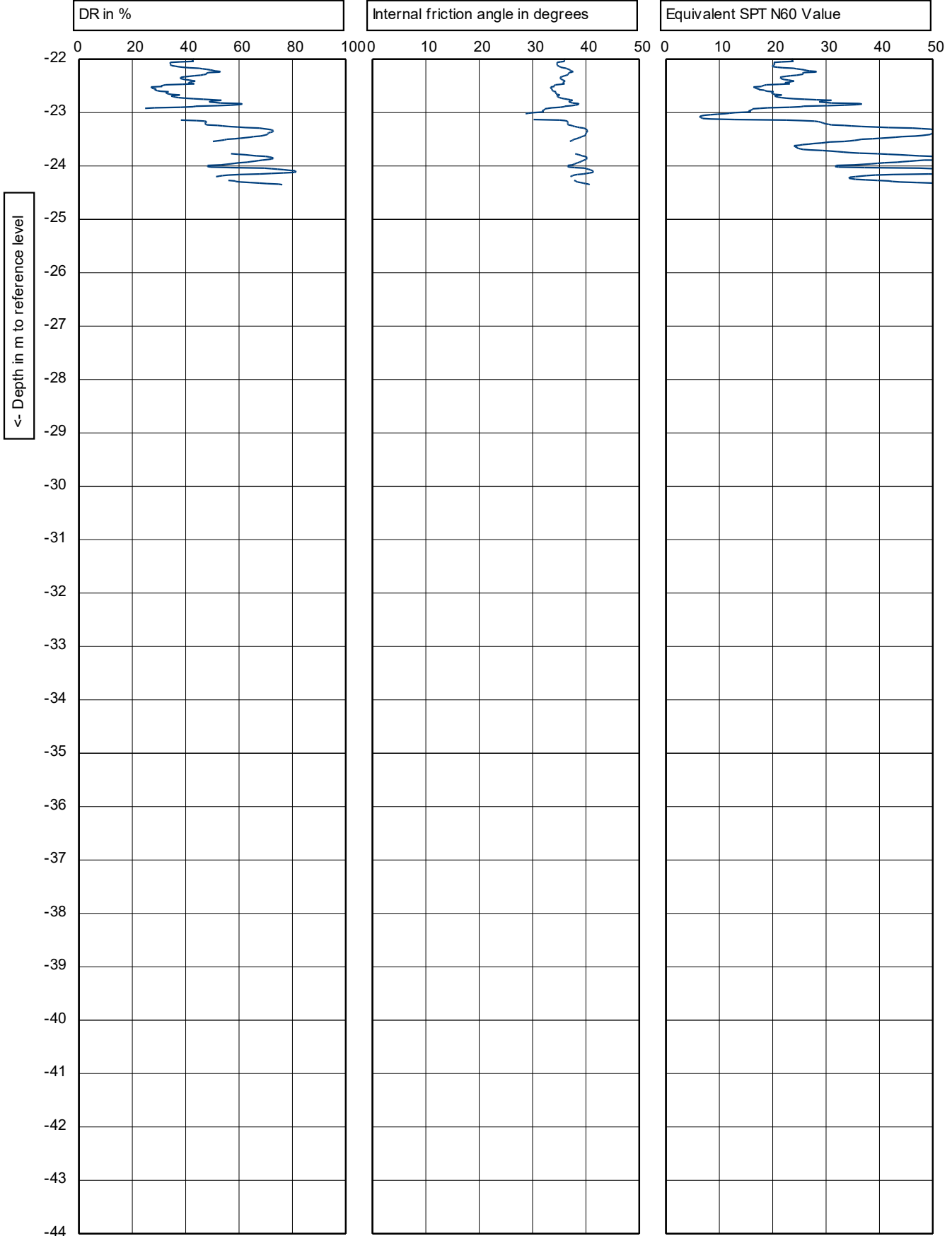
Date: 3/10/2025

Cone no.: C10CFIIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 9/12

Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM

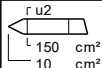


Refusal 11t.

EOH - Dipped - Collapsed dry @ 2.2m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

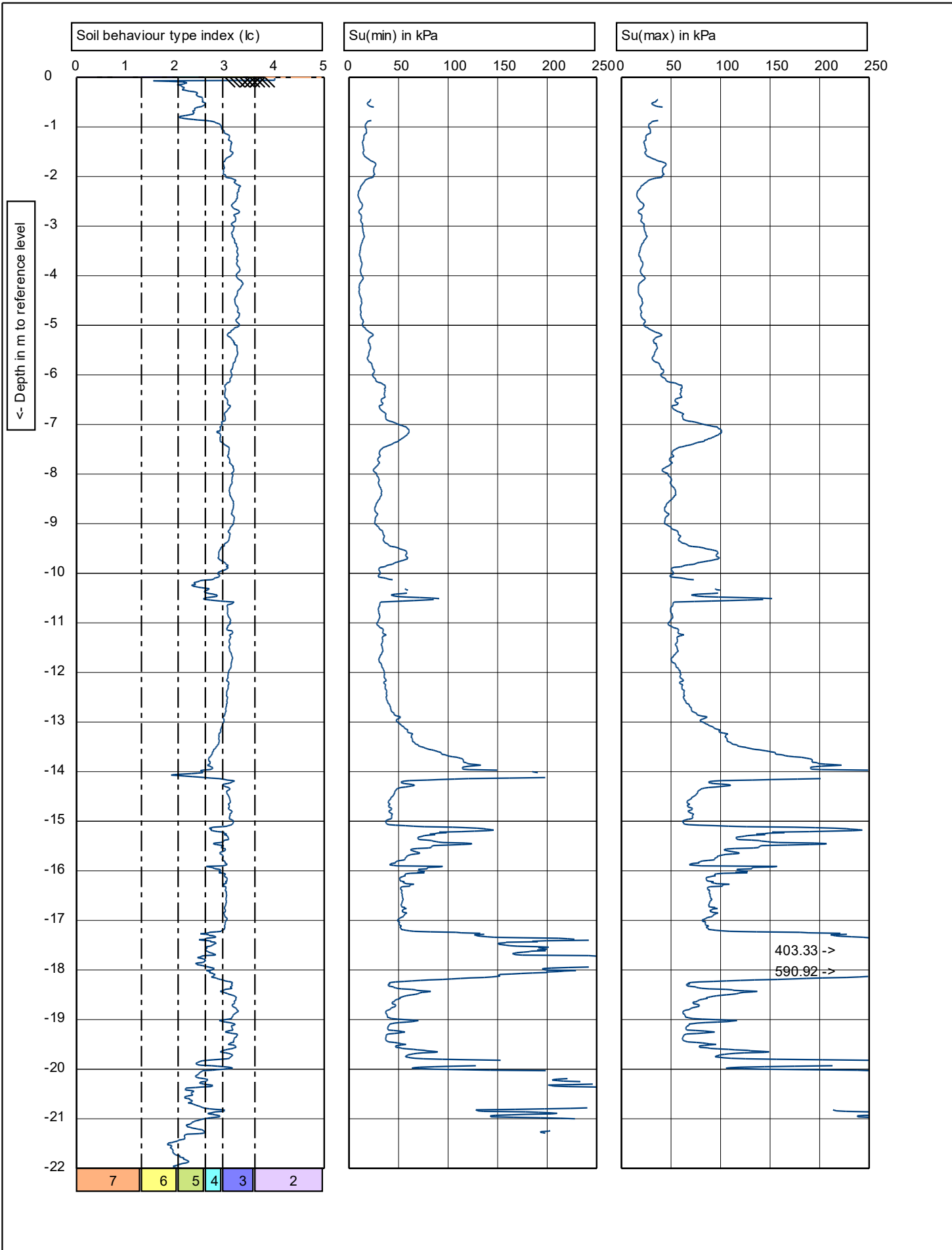
Date: 3/10/2025

Cone no.: C10CFIIP.C21109

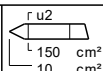
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 10/12

Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM



Graphs on this page are
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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

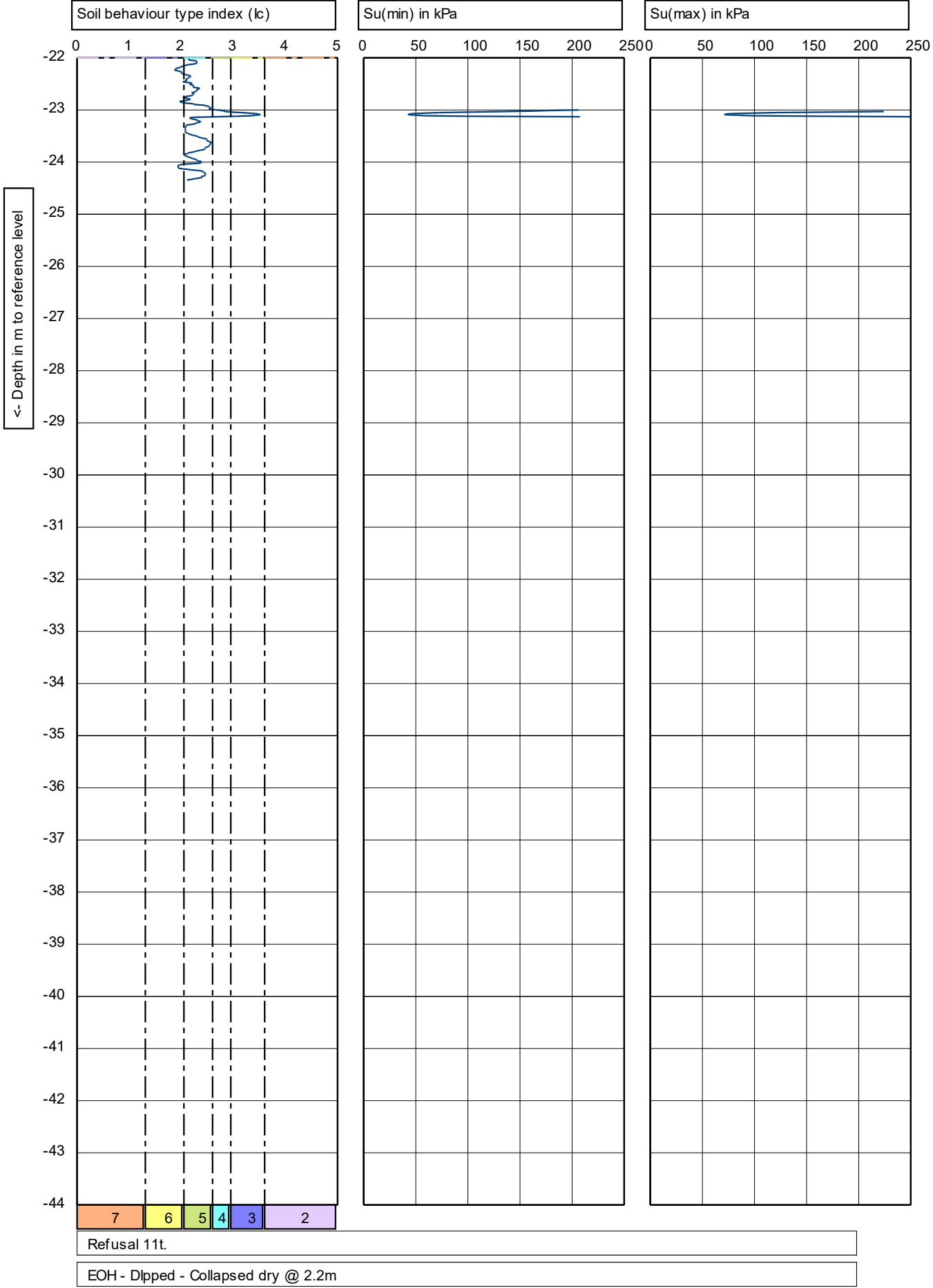
Date: 3/10/2025

Cone no.: C10CFIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1110 11/12

Project: Section 2B
Location: Northern Corridor
Position: 1728061, 6016492 NZTM



CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number: CPT2B-1110
 Tested by : J Kavanaugh/ T Makasiale
 Date tested : 03/10/25
 Coordinates : 1728061 E
 6016492 N
 Elevation : 17m
 Water level : EOH - Dipped - Collapsed dry @ 2.2m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B_1110
 Client Ref No :

Test Results

Start Time	10:48:00 am
Time at penetration	11:13:09 am
End Time	12:25:09 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	24.43
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTtest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm2
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned south of CPT2B-1110D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 03/10/25
 Date reported : 06/10/25

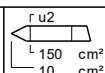
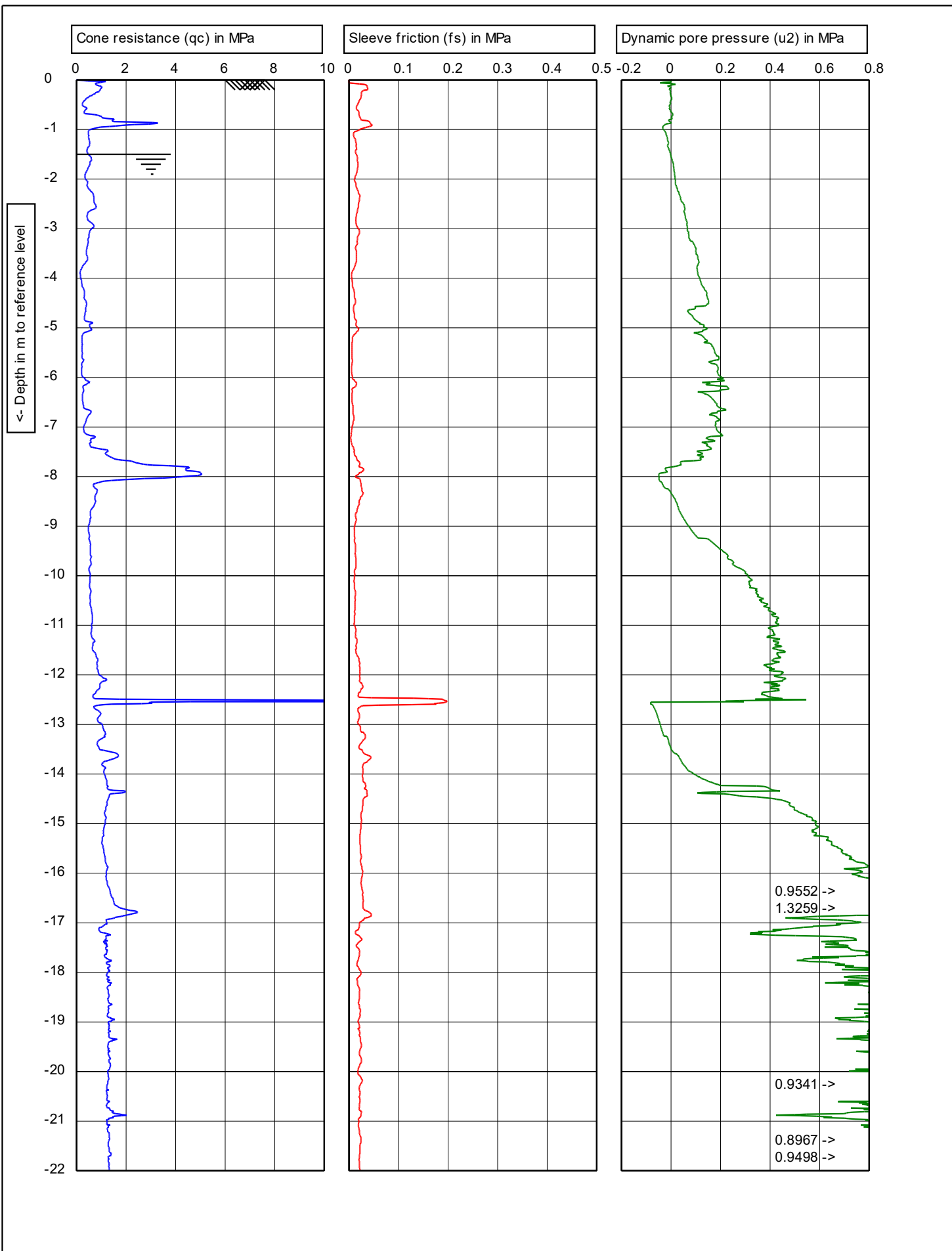
This report may only be reproduced in full, including
 corresponding calibration data, daily logs, and CPT graphs.

Approved Signatory

Designation : CPT North Island Manager
 Date : 06/10/25



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

Project: Section 2B

Location: Northern Corridor

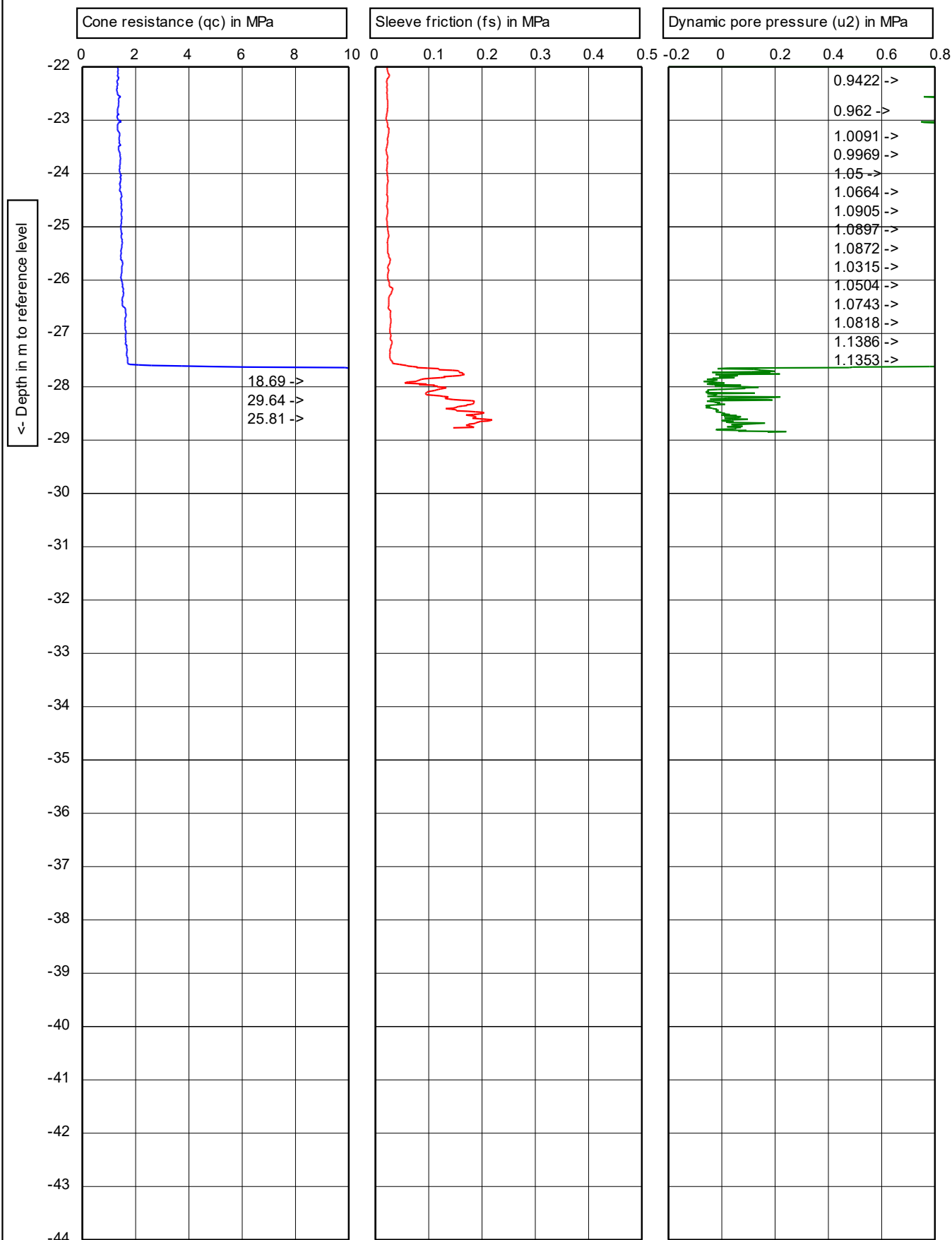
Position: 1727767, 6016031 NZTM

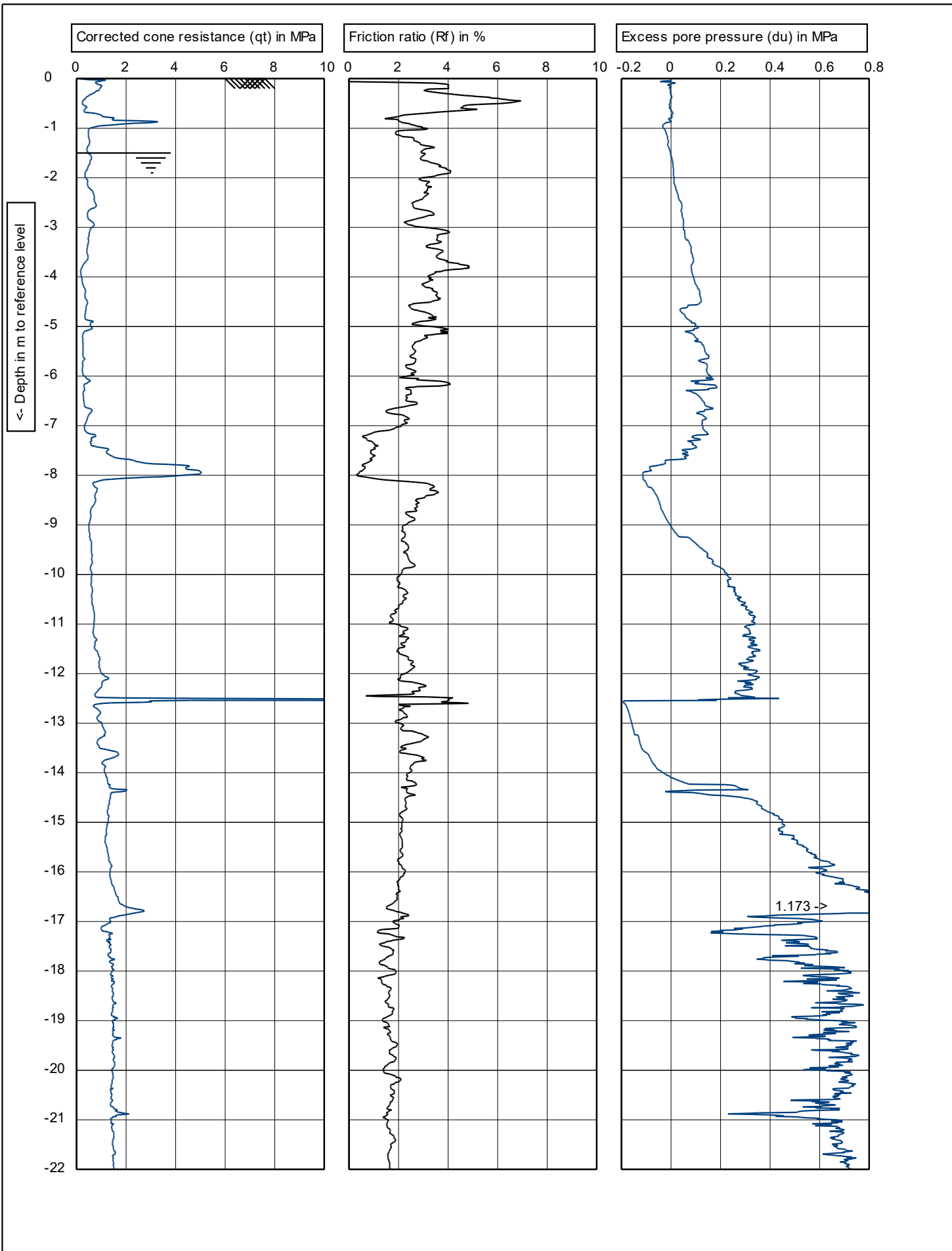
Cone no.: C10CFIP.C21082

Project no.: 1-C2466.16_HA15644

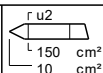
CPT no.: CPT2B-1111

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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

Cone no.: C10CFIP.C21082

Project no.: 1-C2466.16_HA15644

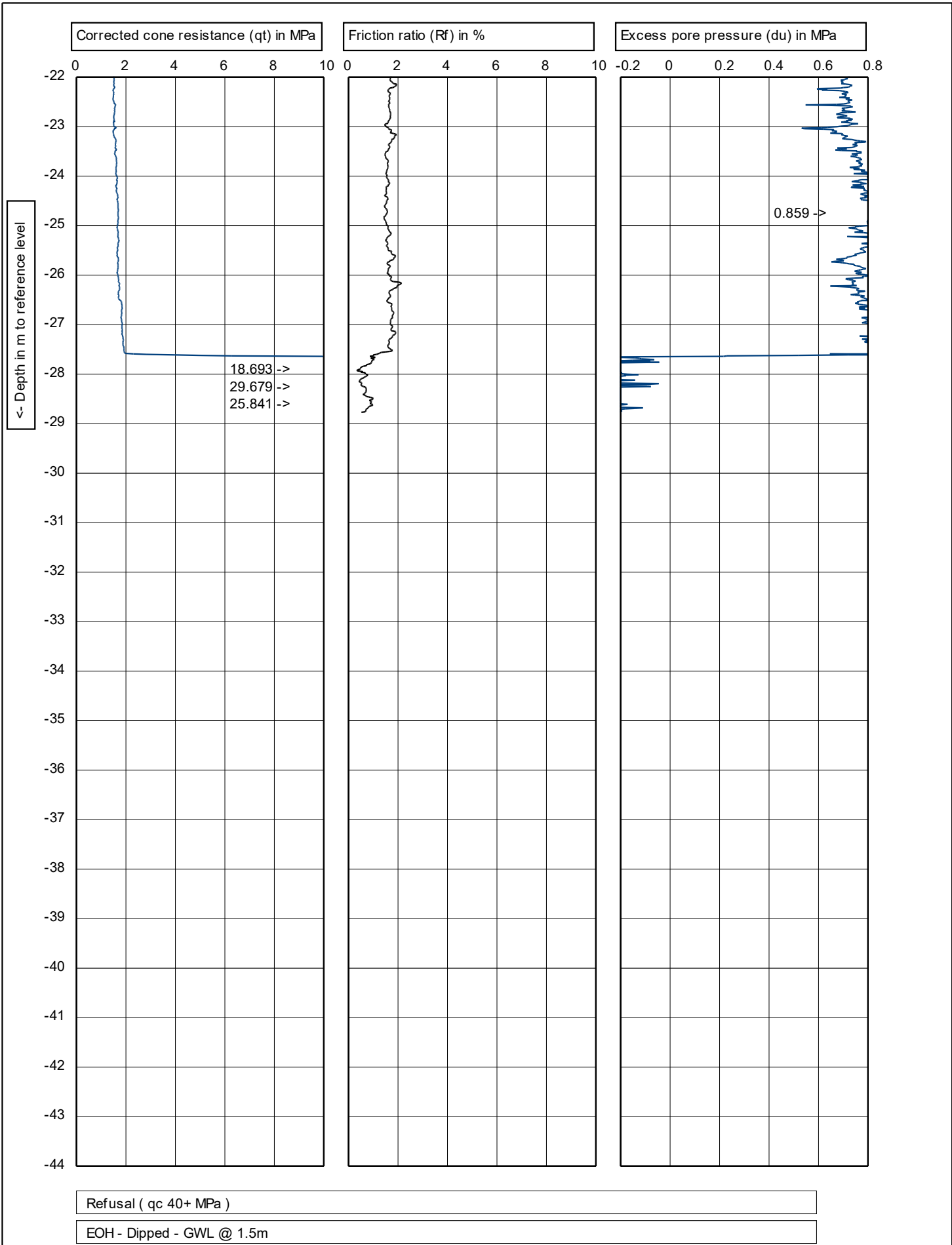
CPT no.: CPT2B-1111

3/12

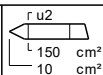
Project: Section 2B

Location: Northern Corridor

Position: 1727767, 6016031 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

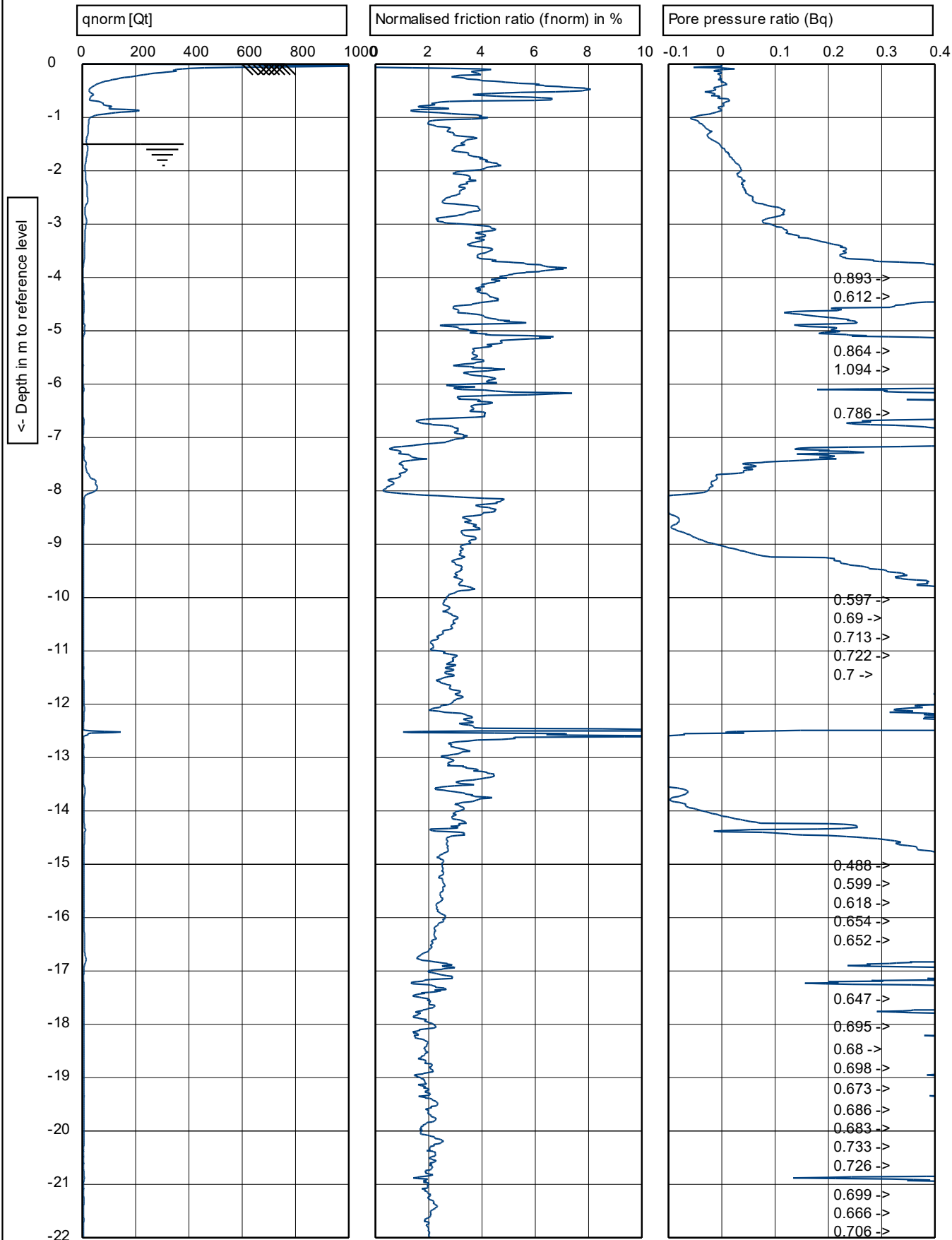
Date: 19/11/2025

Cone no.: C10CFIIP.C21082

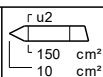
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1111

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Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

Project: Section 2B

Location: Northern Corridor

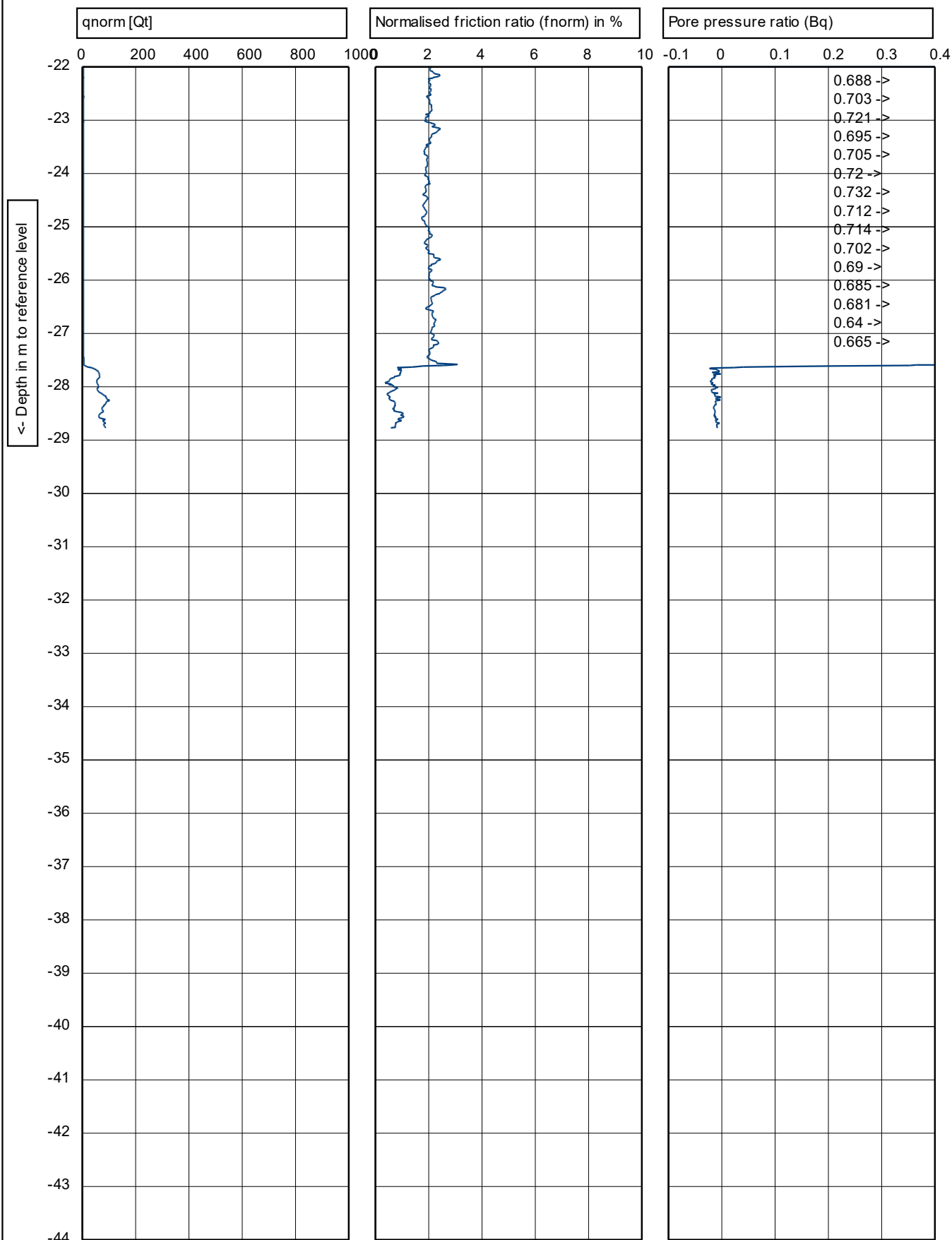
Position: 1727767, 6016031 NZTM

Cone no.: C10CFIIP.C21082

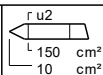
Project no.: 1-C2466.16_HA15644

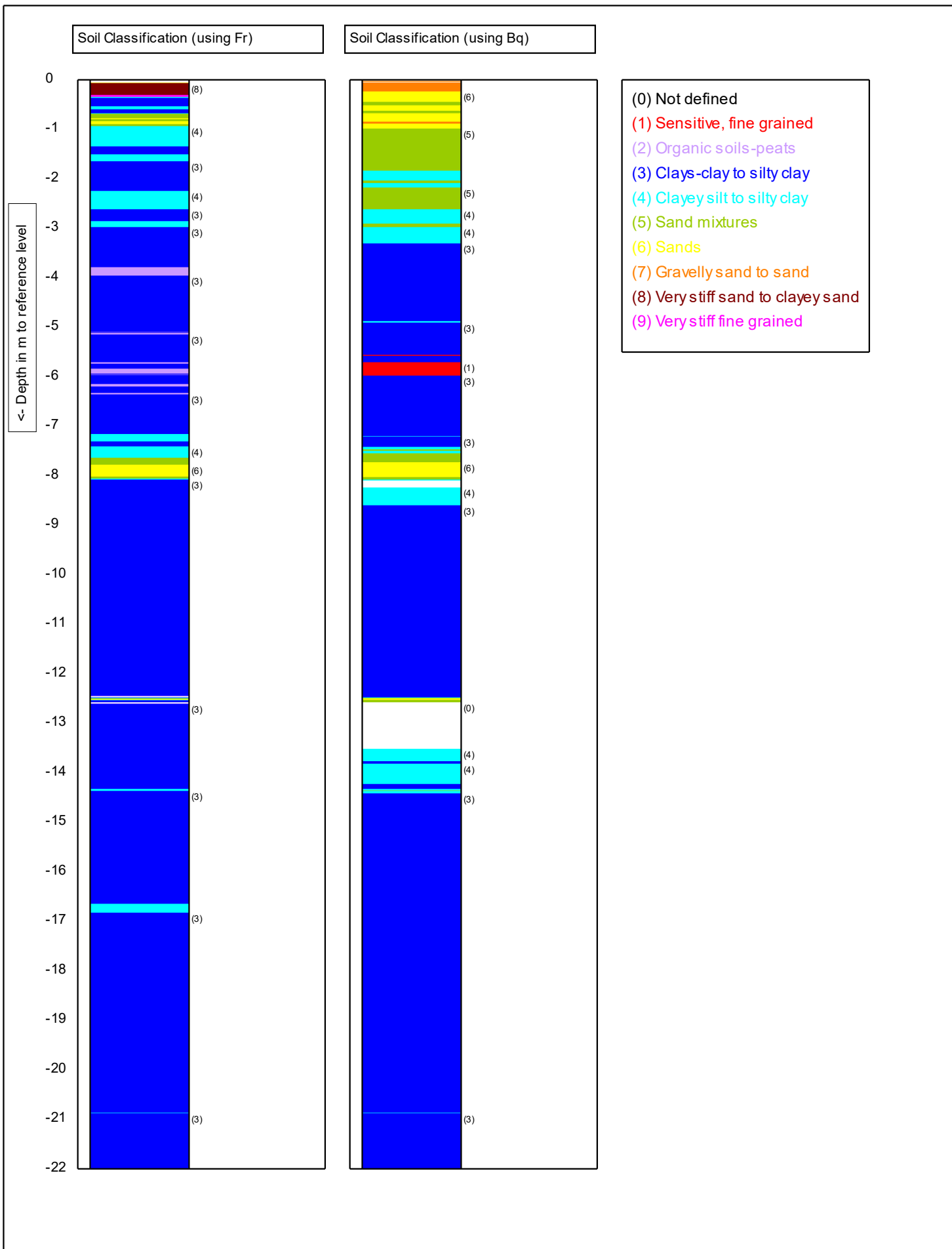
CPT no.: CPT2B-1111

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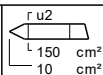


Refusal (qc 40+ MPa)





Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Pre drilled

Date: 19/11/2025

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

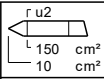
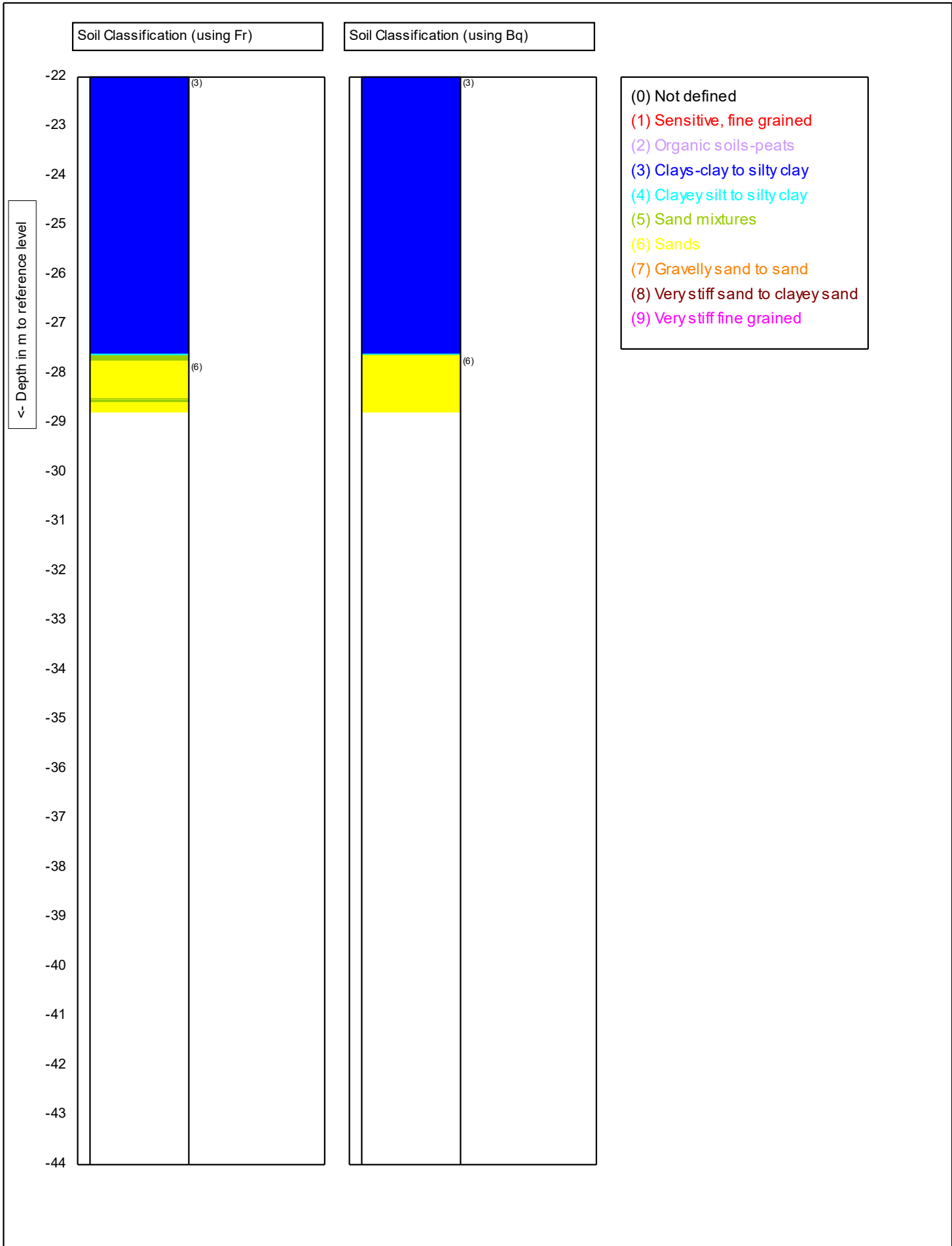
CPT no.: CPT2B-1111

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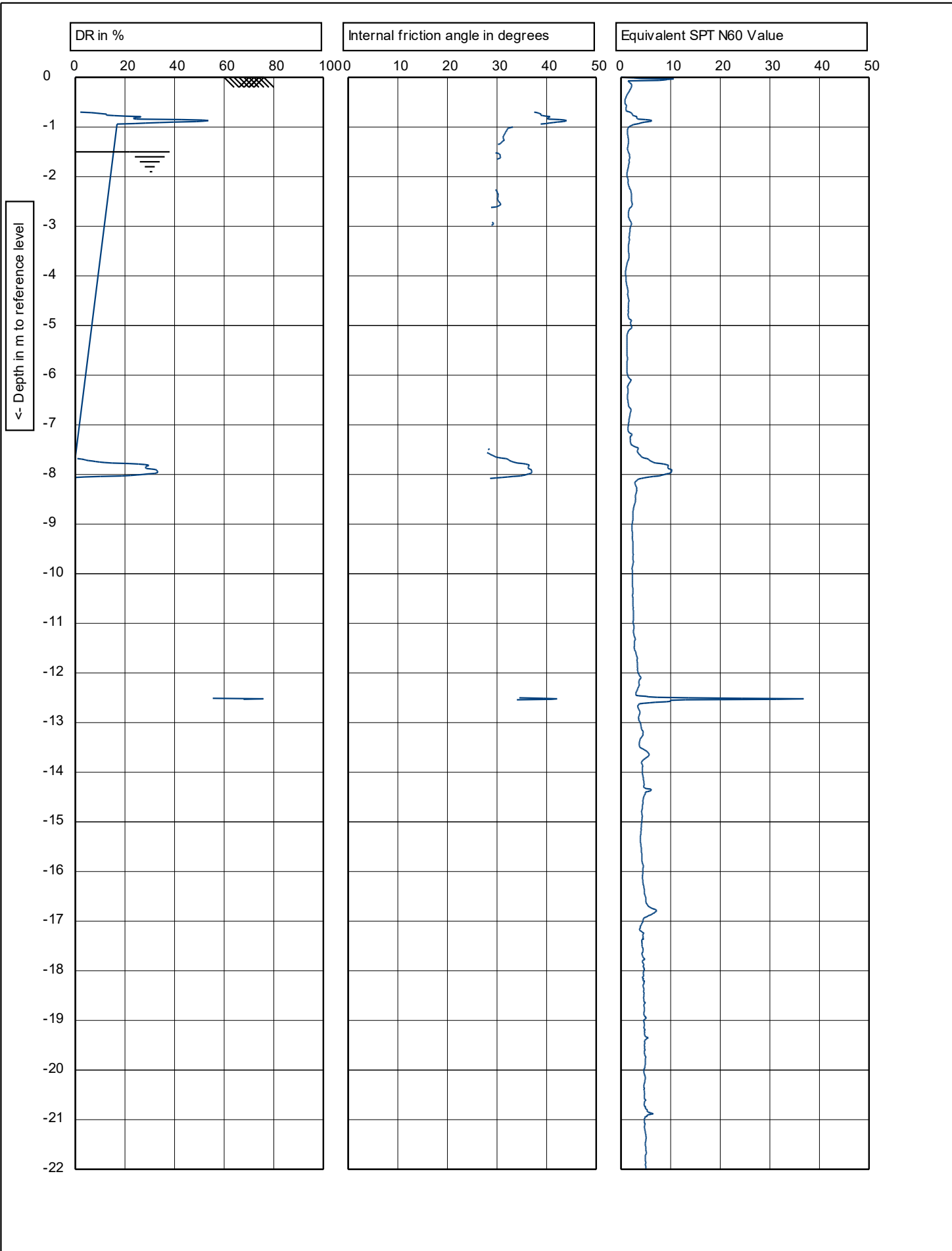
Project: Section 2B

Location: Northern Corridor

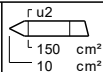
Position: 1727767, 6016031 NZTM



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013		Predrill: 0.00 m Predrilled	
G.L.: 0.00 m MSL	W.L.: -1.50 m	Date:	19/11/2025
Project: Section 2B		Cone no.:	C10CFIIP.C21082
Location: Northern Corridor		Project no.:	1-C2466.16_HA15644
Position: 1727767, 6016031 NZTM		CPT no.:	CPT2B-1111 8/12



Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

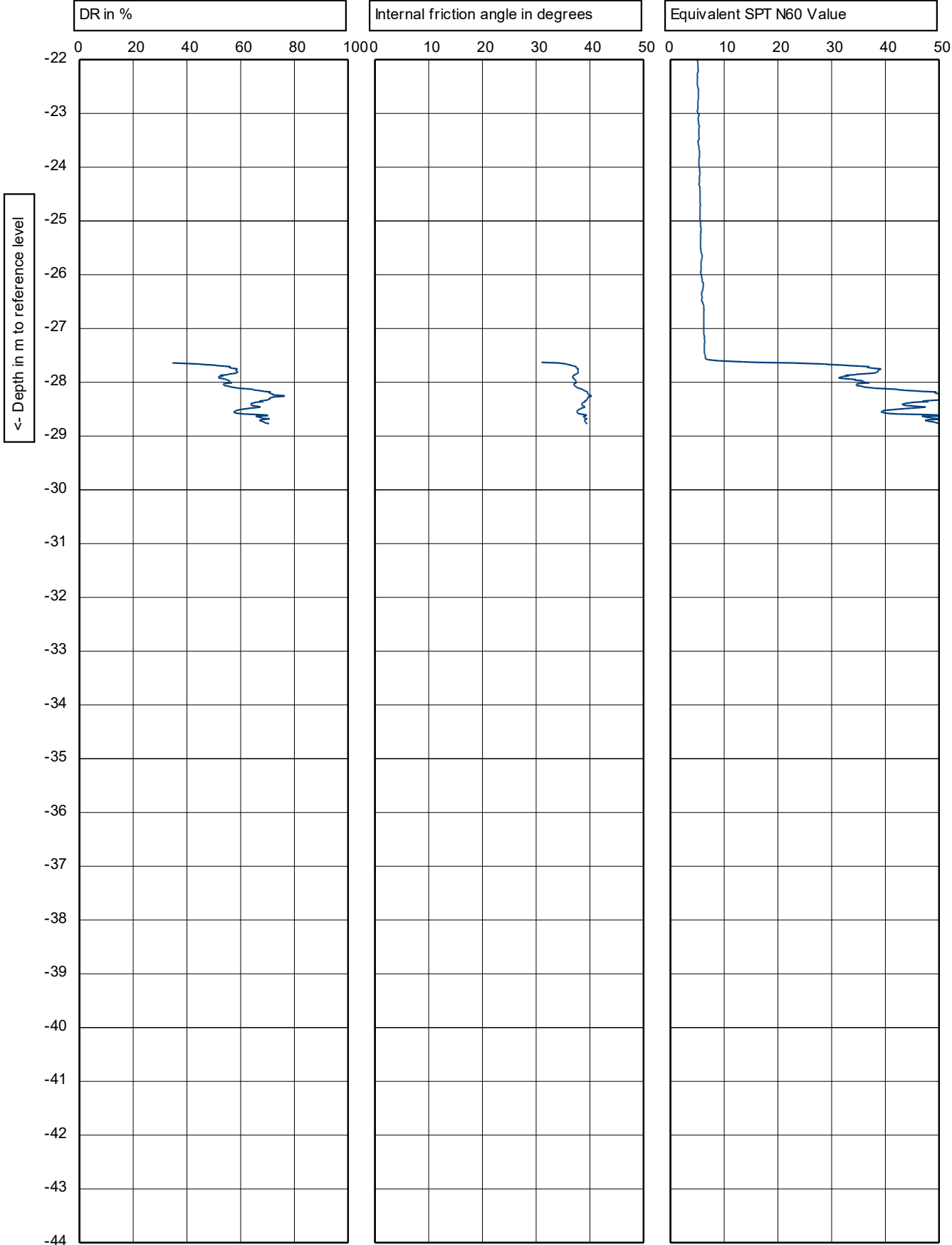
Date: 19/11/2025

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1111 9/12

Project: Section 2B
Location: Northern Corridor
Position: 1727767, 6016031 NZTM



Refusal (qc 40+ MPa)

EOH - Dipped - GWL @ 1.5m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

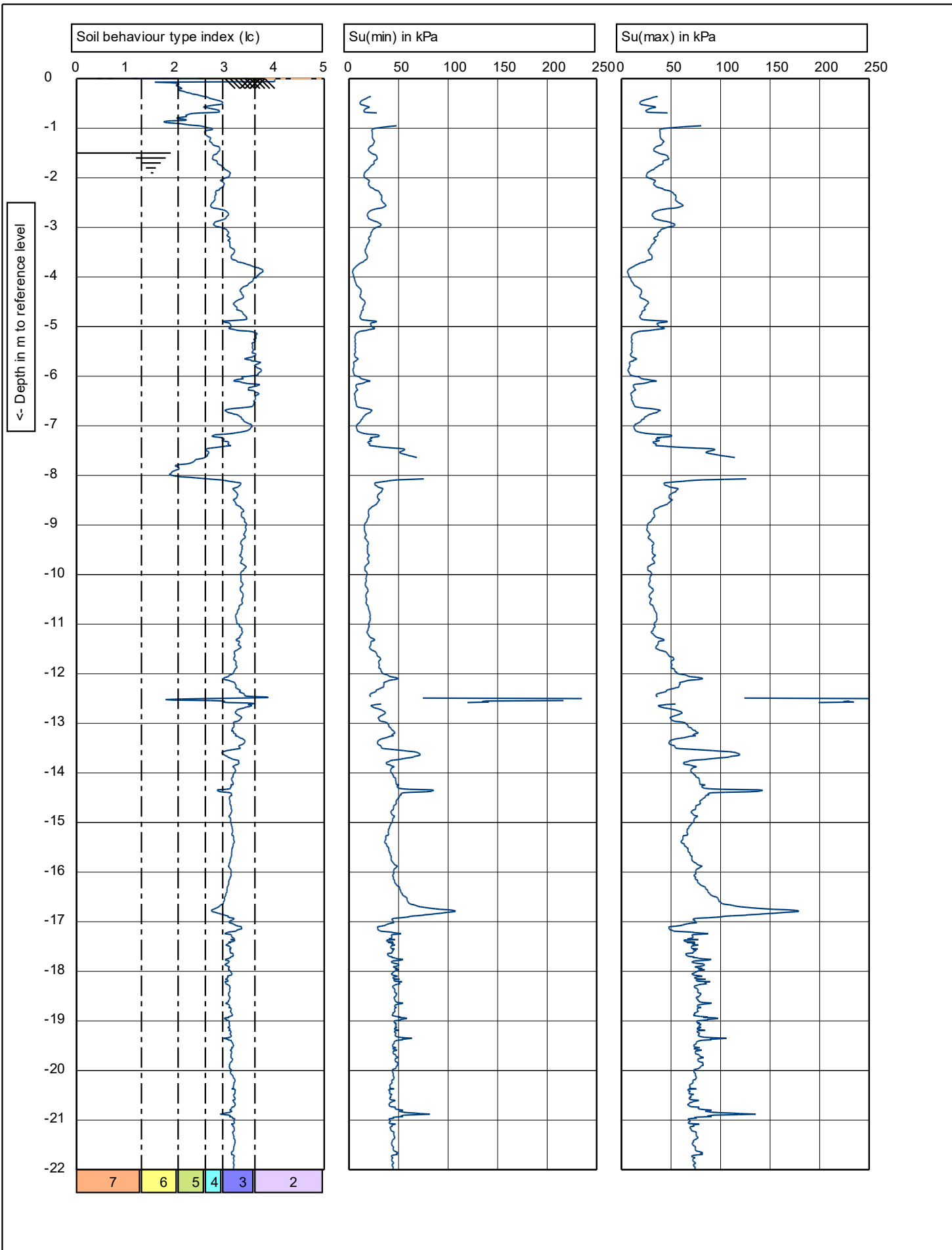
Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

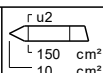
CPT no.: CPT2B-1111

10/12

Project: Section 2B
Location: Northern Corridor
Position: 1727767, 6016031 NZTM



Graphs on this page are
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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

Project: Section 2B

Location: Northern Corridor

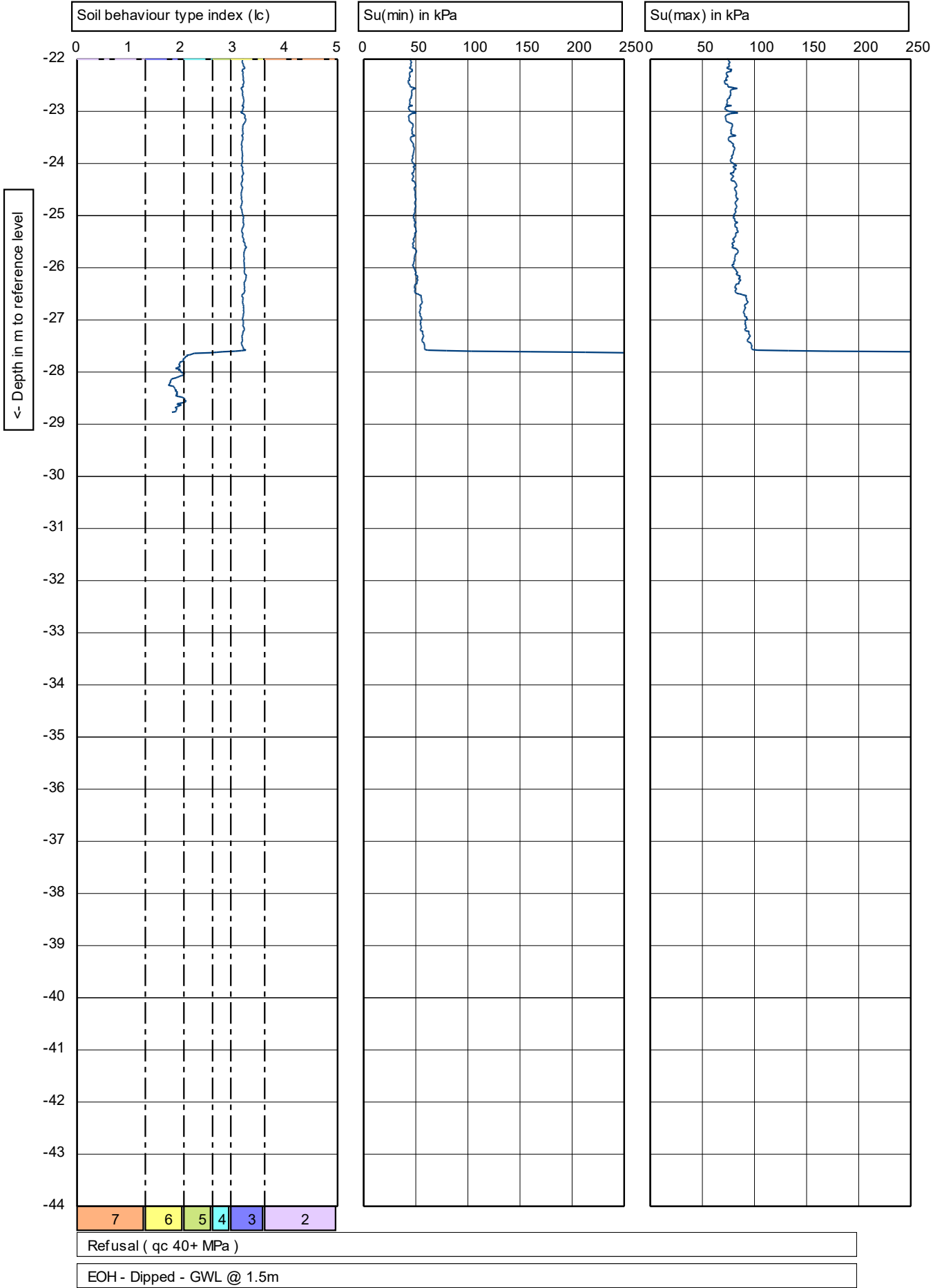
Position: 1727767, 6016031 NZTM

Cone no.: C10CFIIP.C21082

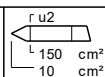
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1111

11/12



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.50 m

Predrill: 0.00 m Predrilled

Date: 19/11/2025

Project: Section 2B

Location: Northern Corridor

Position: 1727767, 6016031 NZTM

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1111

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CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number: CPT2B-1111
 Tested by : J Kavanaugh
 Date tested : 19/11/25
 Coordinates : 1727767 E
 6016031 N
 Elevation : 19m
 Water level : EOH - Dipped - GWL @ 1.5m

Project No : 1-IC2466.16
 Lab Ref No : HA15644_CPT2B-1111
 Client Ref No :

Test Results

Start Time	1:34:00 pm
Time at penetration	2:03:09 pm
End Time	12:29:09 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	28.85
Remarks	Refusal (qc 40+ MPa)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole postioned east of CPT2B-1111D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 19/11/25
 Date reported : 20/11/25

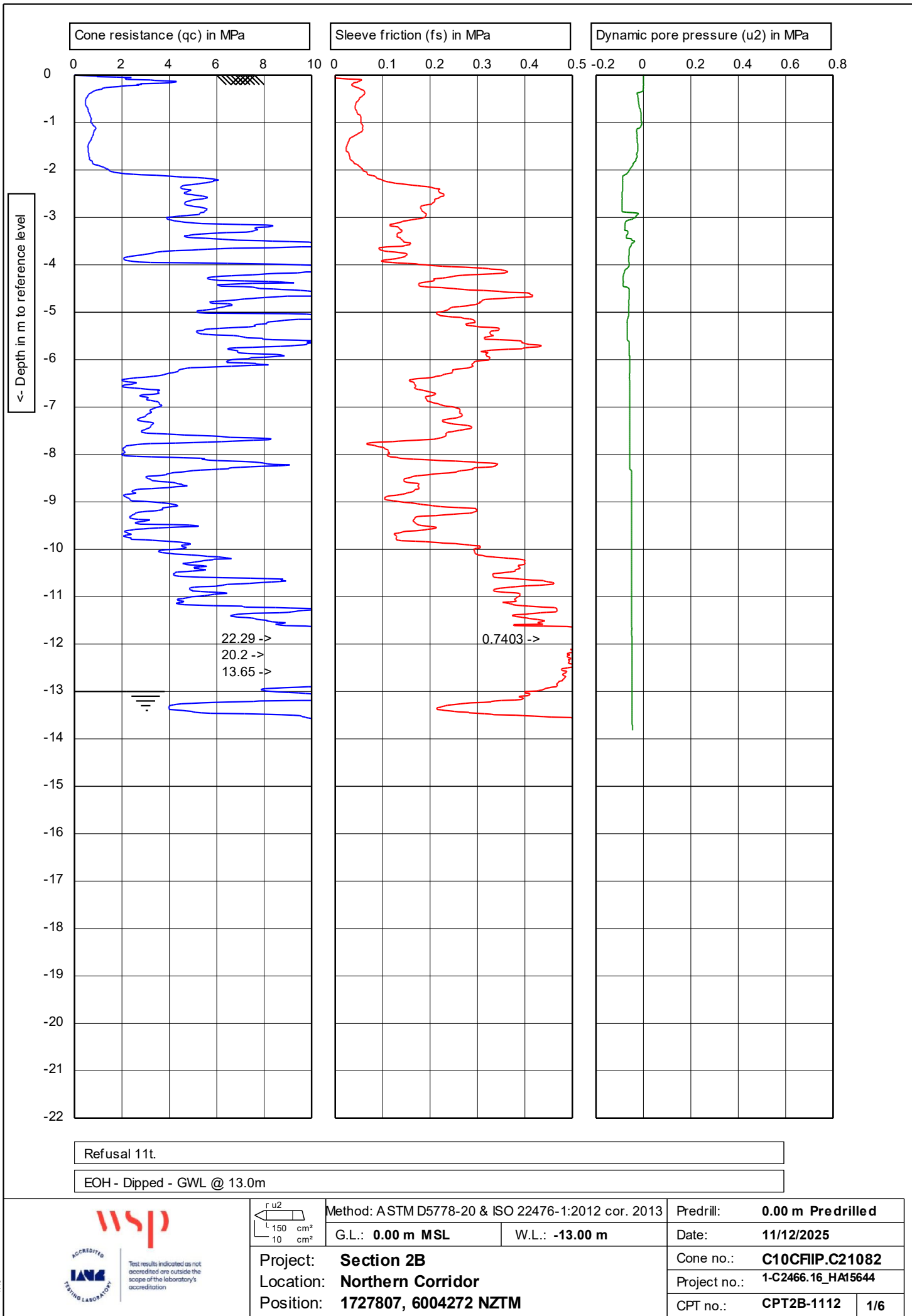
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 corresponding calibration data, daily logs, and CPT graphs.

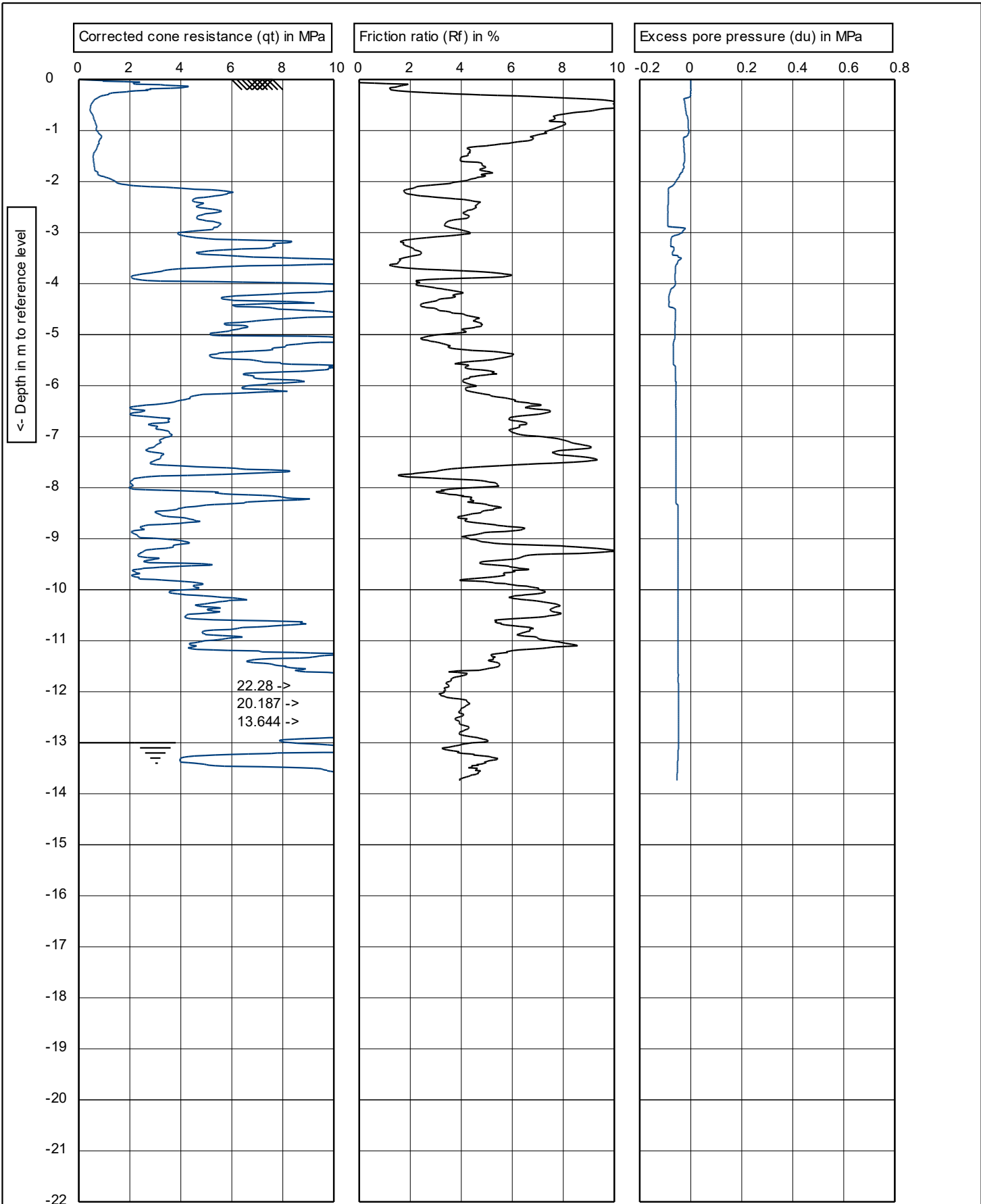
Approved Signatory

Designation : CPT North Island Manager
 Date : 20/11/25



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 laboratory's scope of
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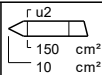


Refusal 11t.

EOH - Dipped - GWL @ 13.0m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -13.00 m

Predrill: 0.00 m Predrilled

Date: 11/12/2025

Cone no.: C10CFIIP.C21082

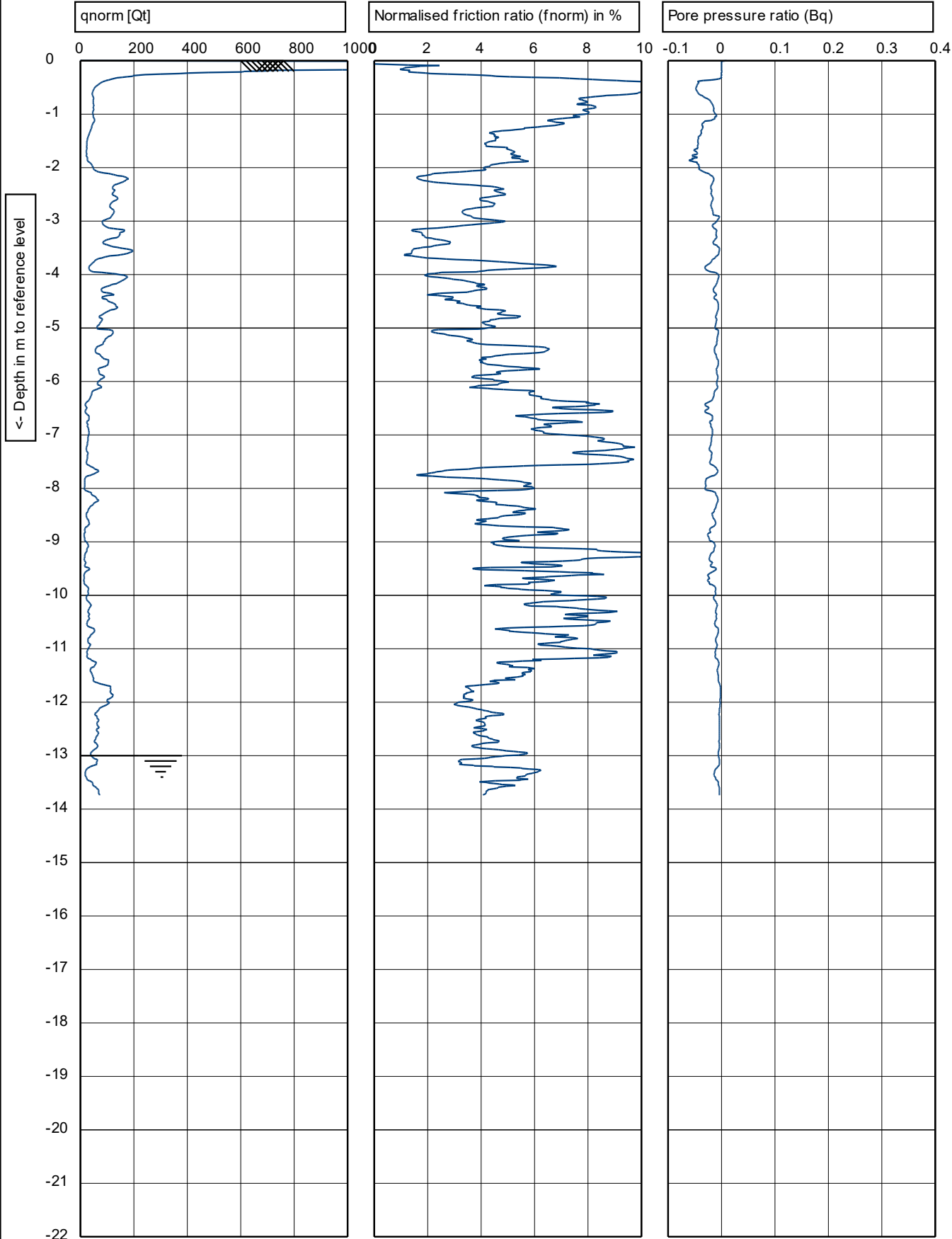
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1112 2/6

Project: Section 2B

Location: Northern Corridor

Position: 1727807, 6004272 NZTM

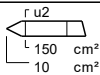


Refusal 11t.

EOH - Dipped - GWL @ 13.0m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -13.00 m

Predrill: 0.00 m Predrilled

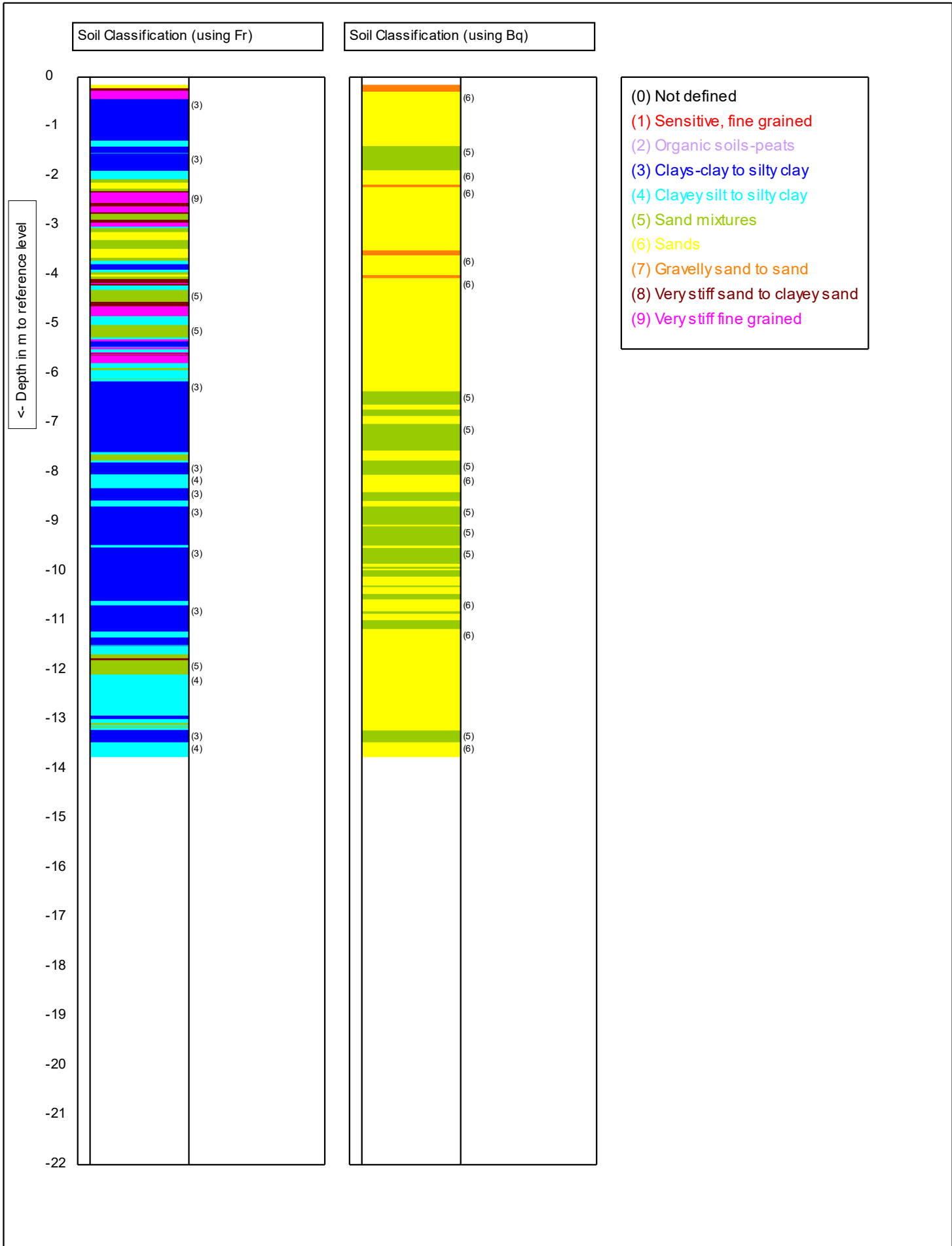
Date: 11/12/2025

Cone no.: C10CFIIP.C21082

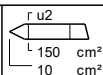
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1112 3/6

Project: Section 2B
Location: Northern Corridor
Position: 1727807, 6004272 NZTM



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -13.00 m

Predrill: 0.00 m Predrilled

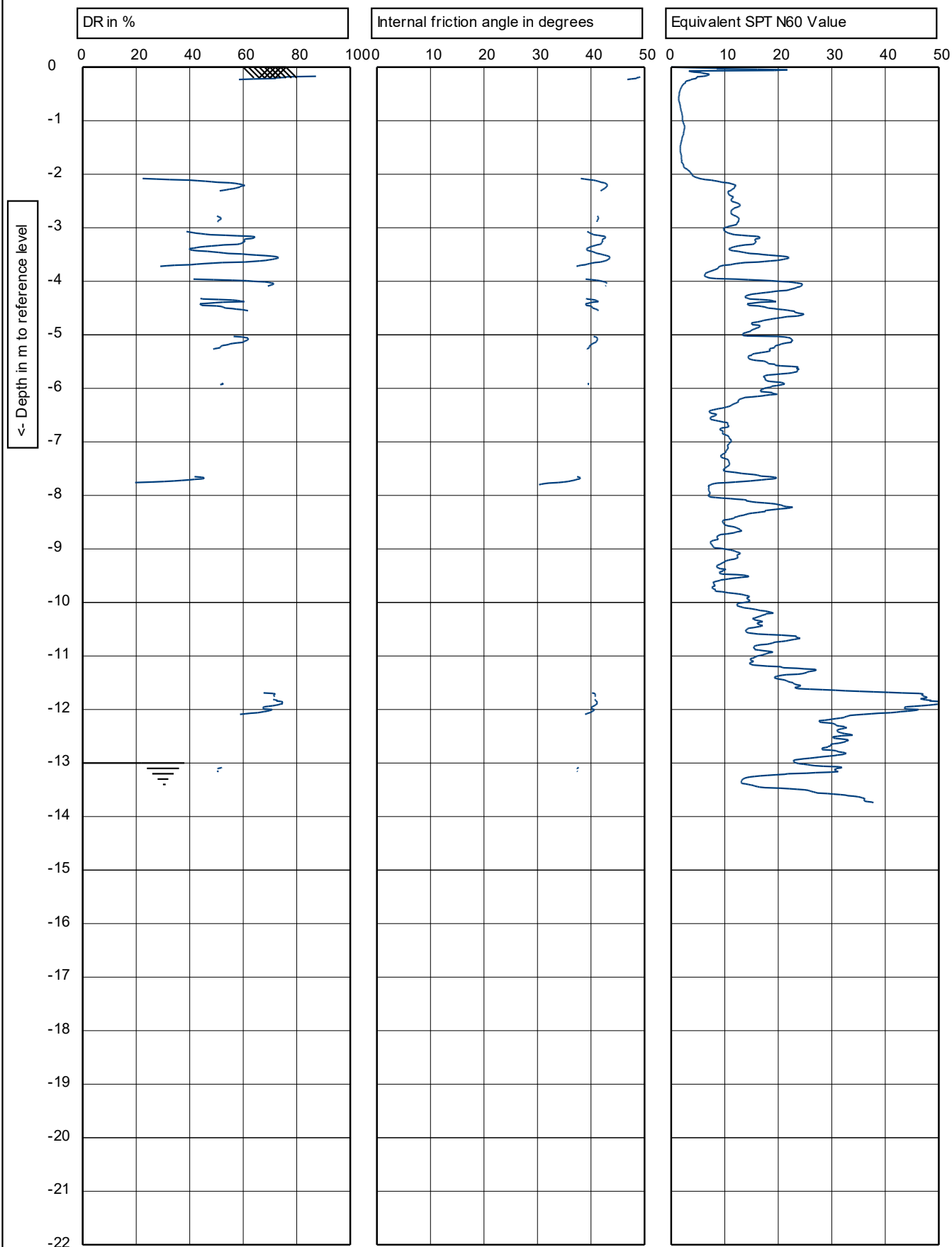
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Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1112 4/6

Project: Section 2B
Location: Northern Corridor
Position: 1727807, 6004272 NZTM



Refusal 11t.

EOH - Dipped - GWL @ 13.0m



Graphs on this page are not IANZ accredited

Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -13.00 m

Predrill:	0.00 m	Predrilled
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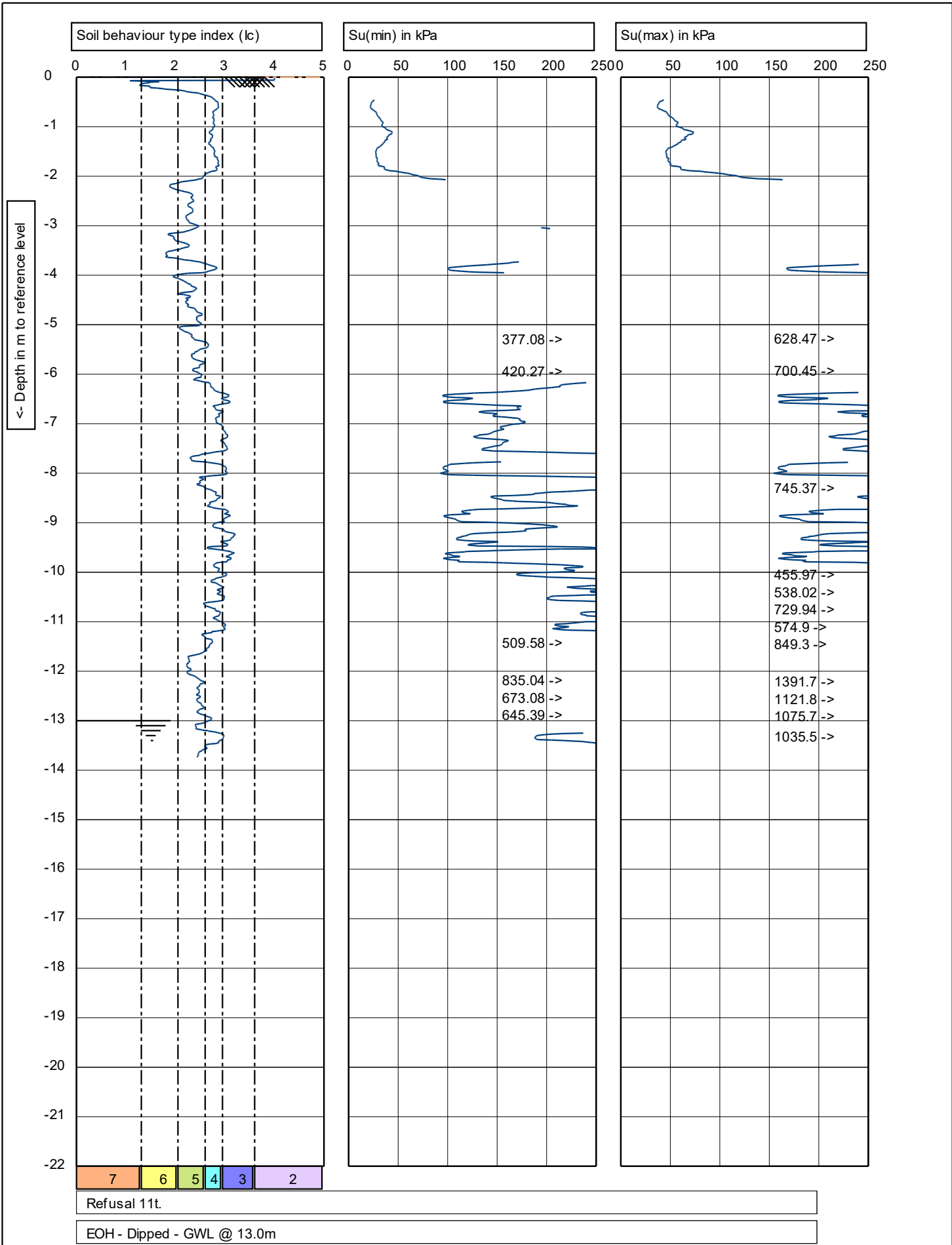
Date:	11/12/2025
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Cone no.: **C10CFIP.C21082**

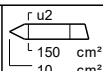
Project no.:	1-C2466.16_HA15644
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CPT no.:	CPT2B-1112	5/6
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Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727807, 6004272 NZTM**



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not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -13.00 m

Predrill: 0.00 m Predrilled

Date: 11/12/2025

Project: Section 2B

Location: Northern Corridor

Position: 1727807, 6004272 NZTM

Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1112 6/6

CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number CPT2B-1112
 Tested by : J Kavanaugh
 Date tested : 11/12/25
 Coordinates : 1727807 E
 6004272 N
 Elevation : 58m
 Water level : EOH - Dipped - GWL @ 13.0m

Project No : 1-1C2466.16
 Lab Ref No : HA15644_CPT2B-1112
 Client Ref No :

Test Results

Start Time	8:52:00 am
Time at penetration	9:03:56 am
End Time	12:11:56 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	13.82
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTtest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned north-west of CPT2B-1112D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 11/12/25
 Date reported : 12/12/25

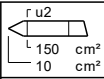
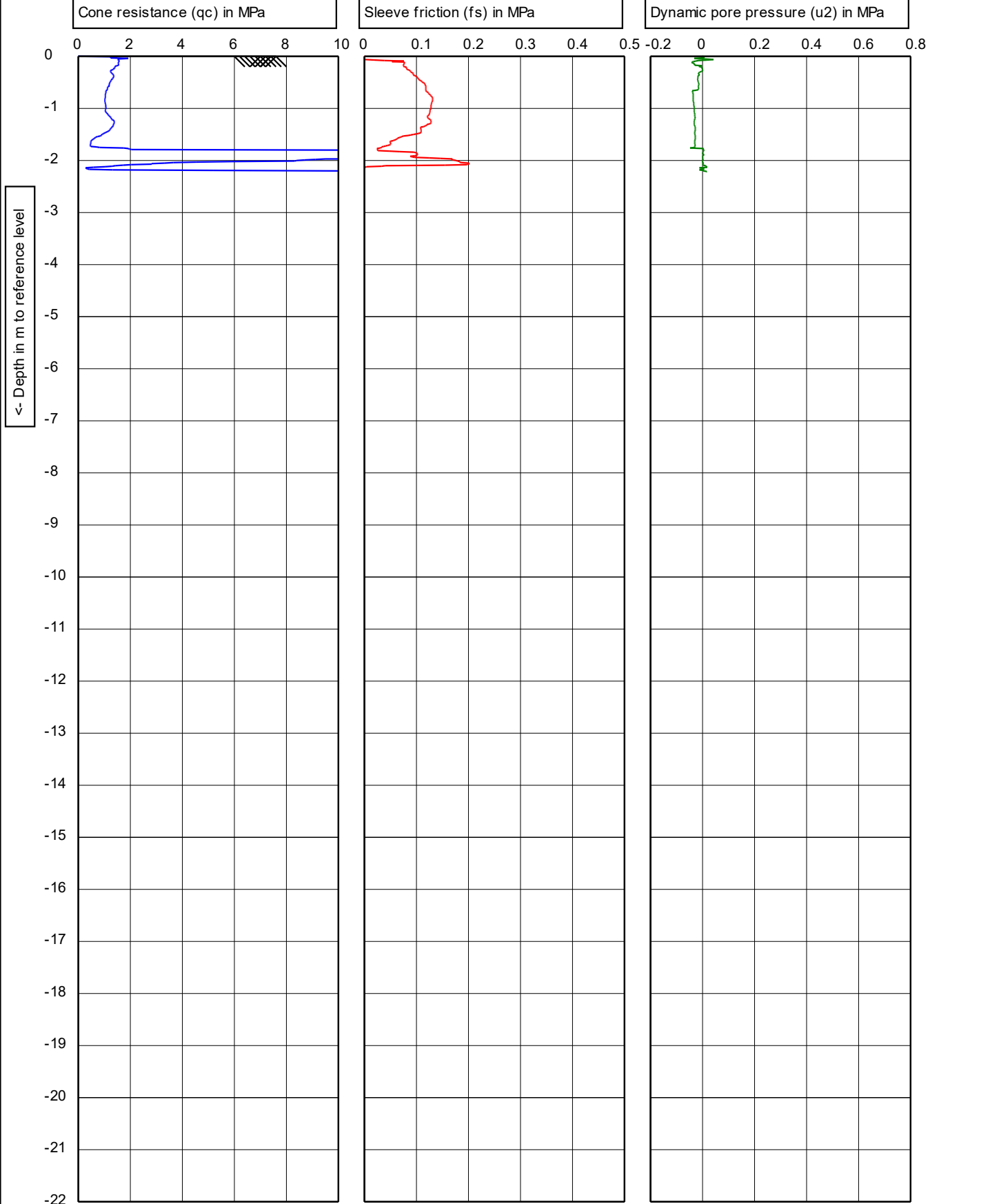
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 corresponding calibration data, daily logs, and CPT graphs.

Approved Signatory

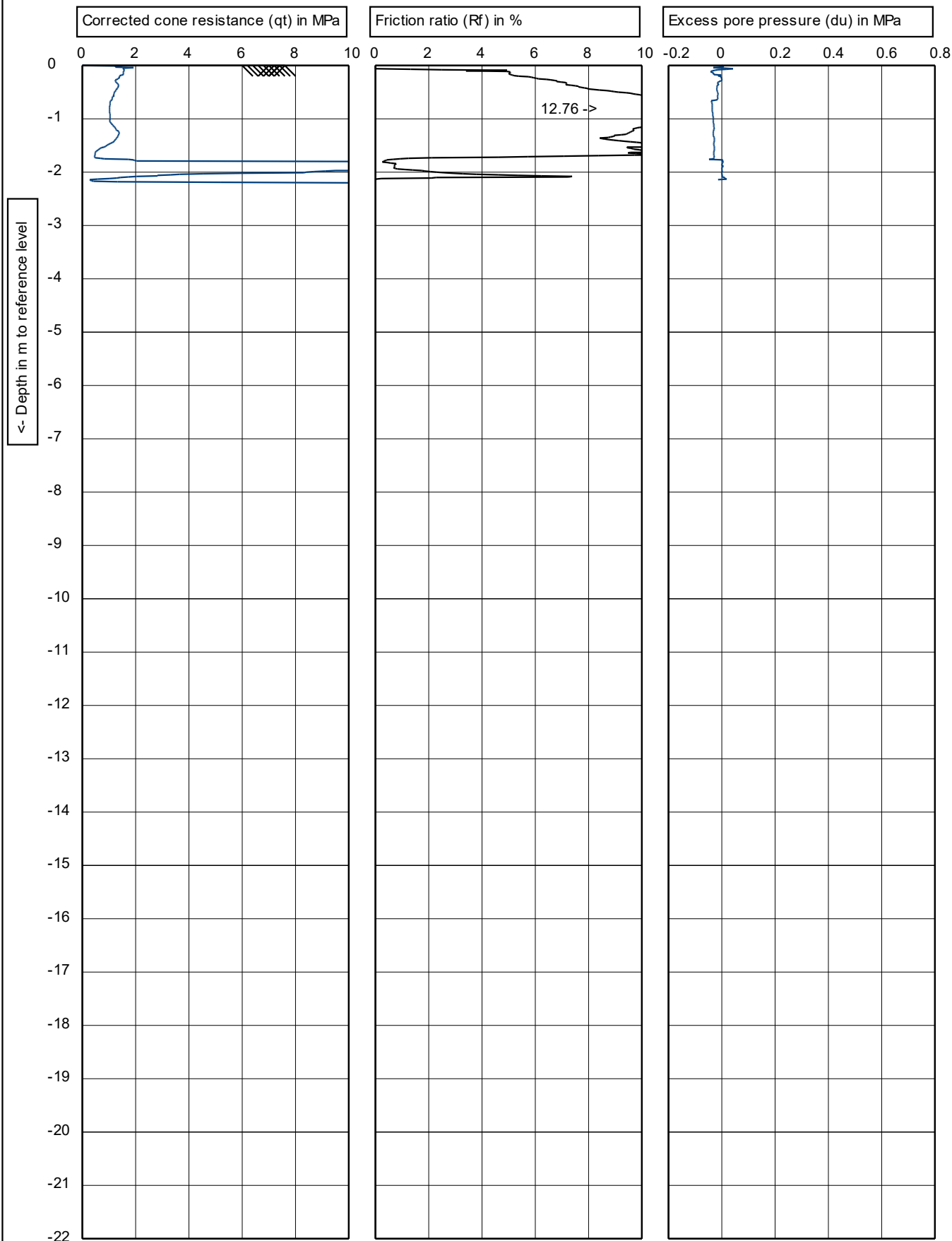
Designation : CPT North Island Manager
 Date : 12/12/25



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013	Predrill: 0.00 m Predrilled
G.L.: 0.00 m MSL	Date: 20/10/2025
Project: Northern Corridor	Cone no.: C10CFIIP.C21109
Location: Section 2B	Project no.: 1-C2466.16_HA15644
Position: 1728080, 6003026 NZTM	CPT no.: CPT2B-1113
	1/6

Refusal (inclination $>5\text{m/m}$)

EOH - Dipped - Collapsed dry @ 2.0m



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Diagram of a pencil with dimensions: length 150 cm, width 10 cm, and a label "r u2".

Method: A STM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

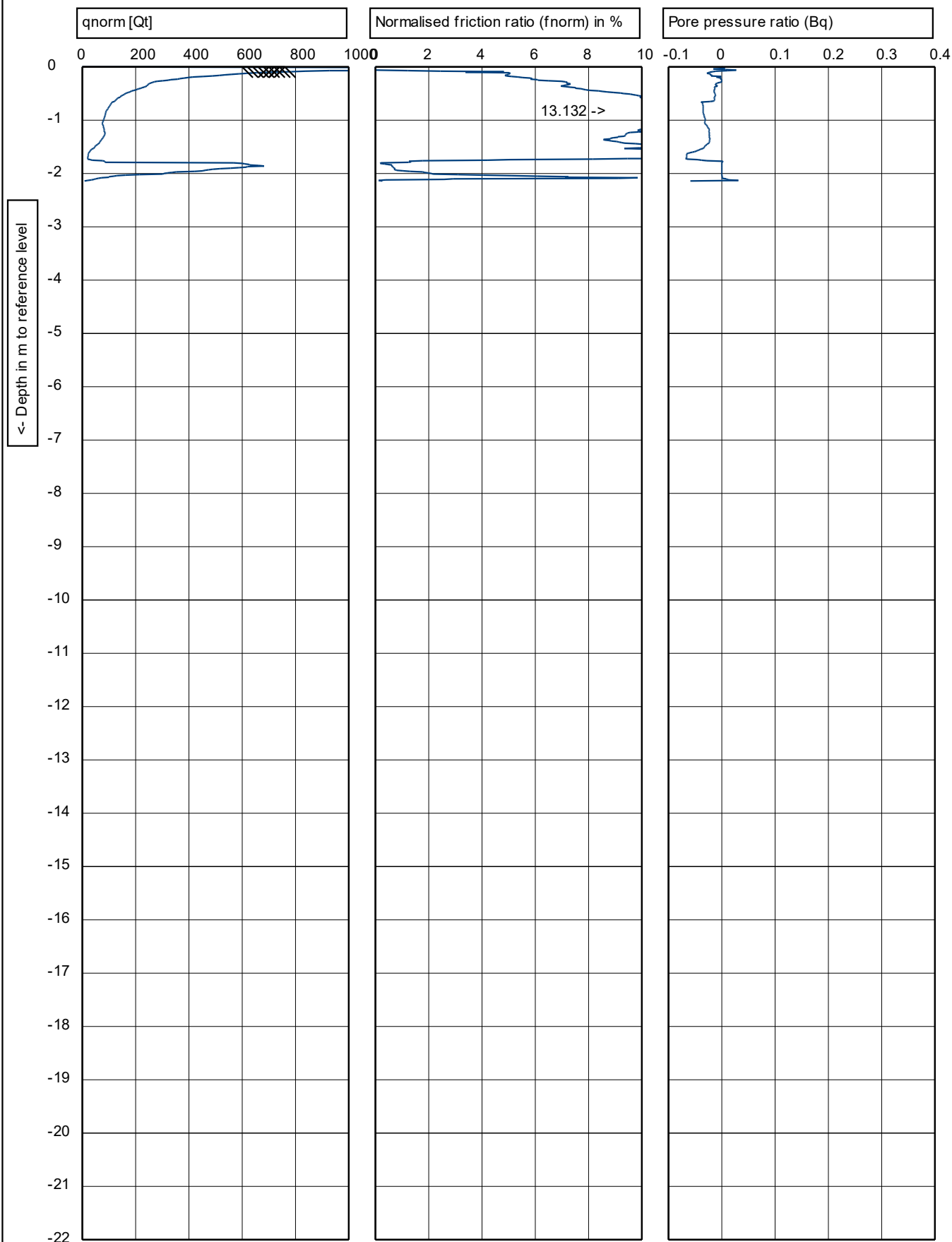
Predrill:	0.00 m	Predrilled
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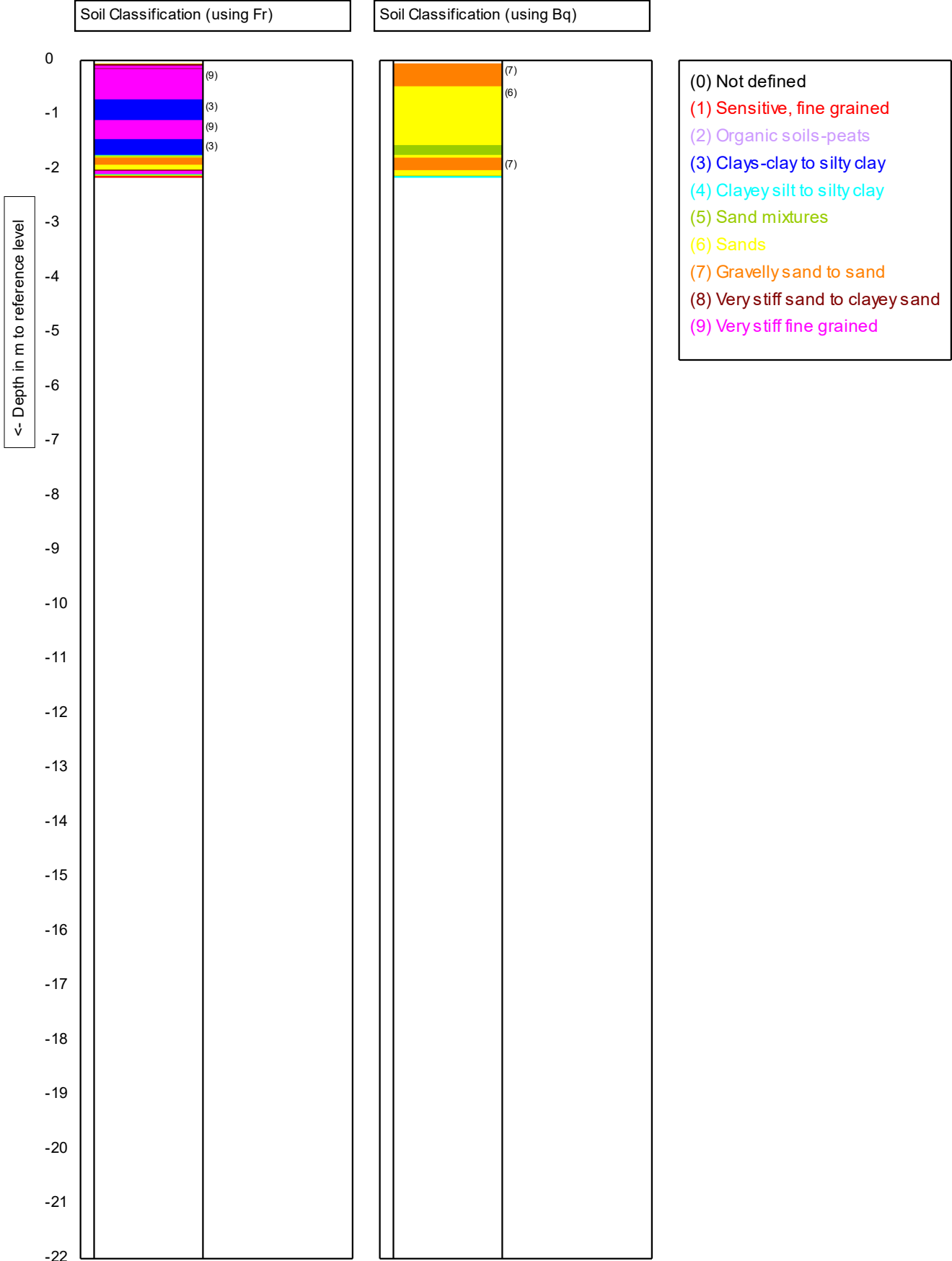
Date: 20/10/2025

Cone no.: **C10CFIP.C21109**

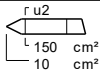
Project no.: 1-C2466.16_HA15644

CPT no.:	CPT2B-1113	2/6
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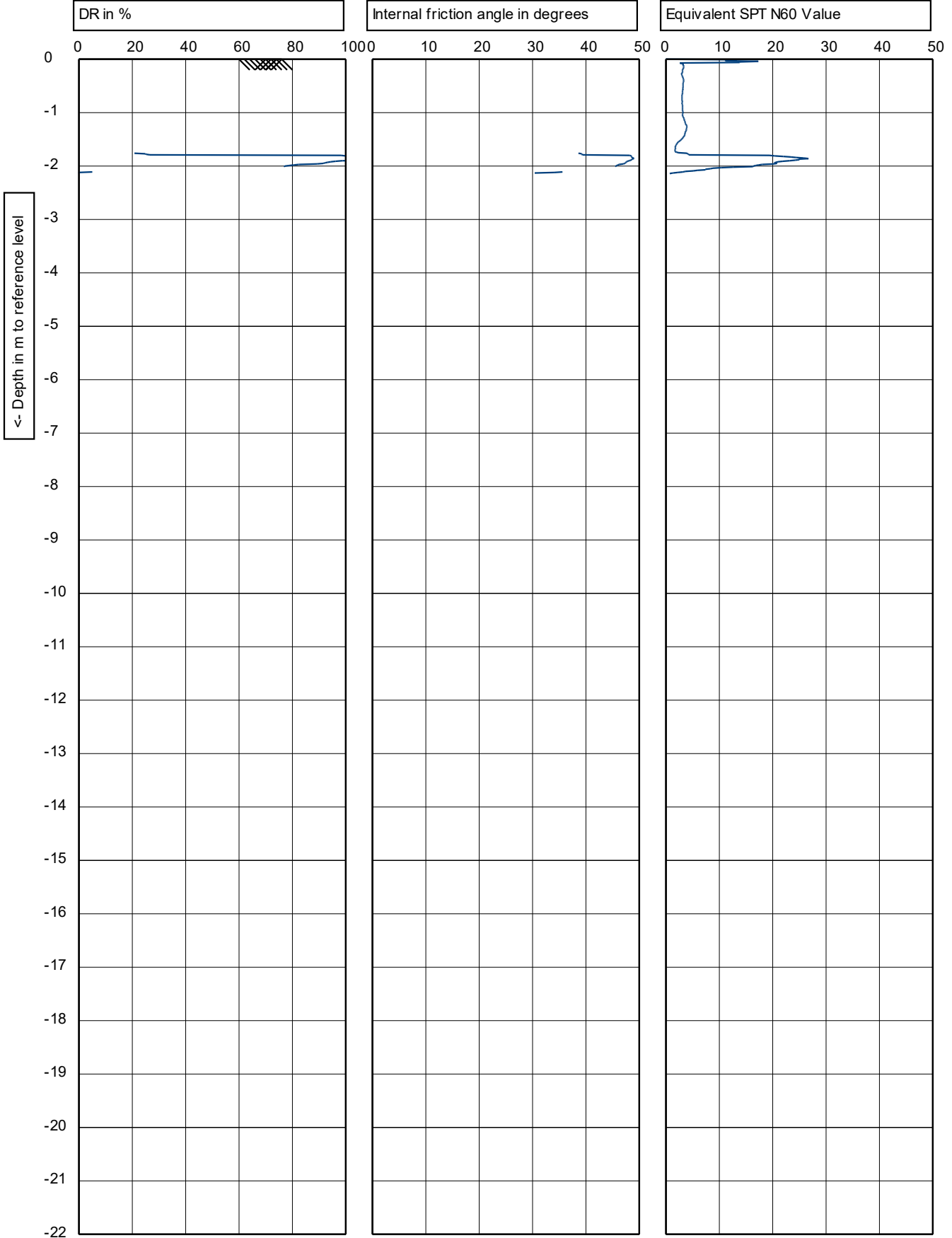


Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: 0.00 m MSL
Project: Northern Corridor
Location: Section 2B
Position: 1728080, 6003026 NZTM

Predrill: 0.00 m Predrilled
Date: 20/10/2025
Cone no.: C10CFIIP.C21109
Project no.: 1-C2466.16_HA15644
CPT no.: CPT2B-1113 4/6

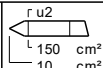


Refusal (inclination >5m/m)

EOH - Dipped - Collapsed dry @ 2.0m



Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Project: Northern Corridor

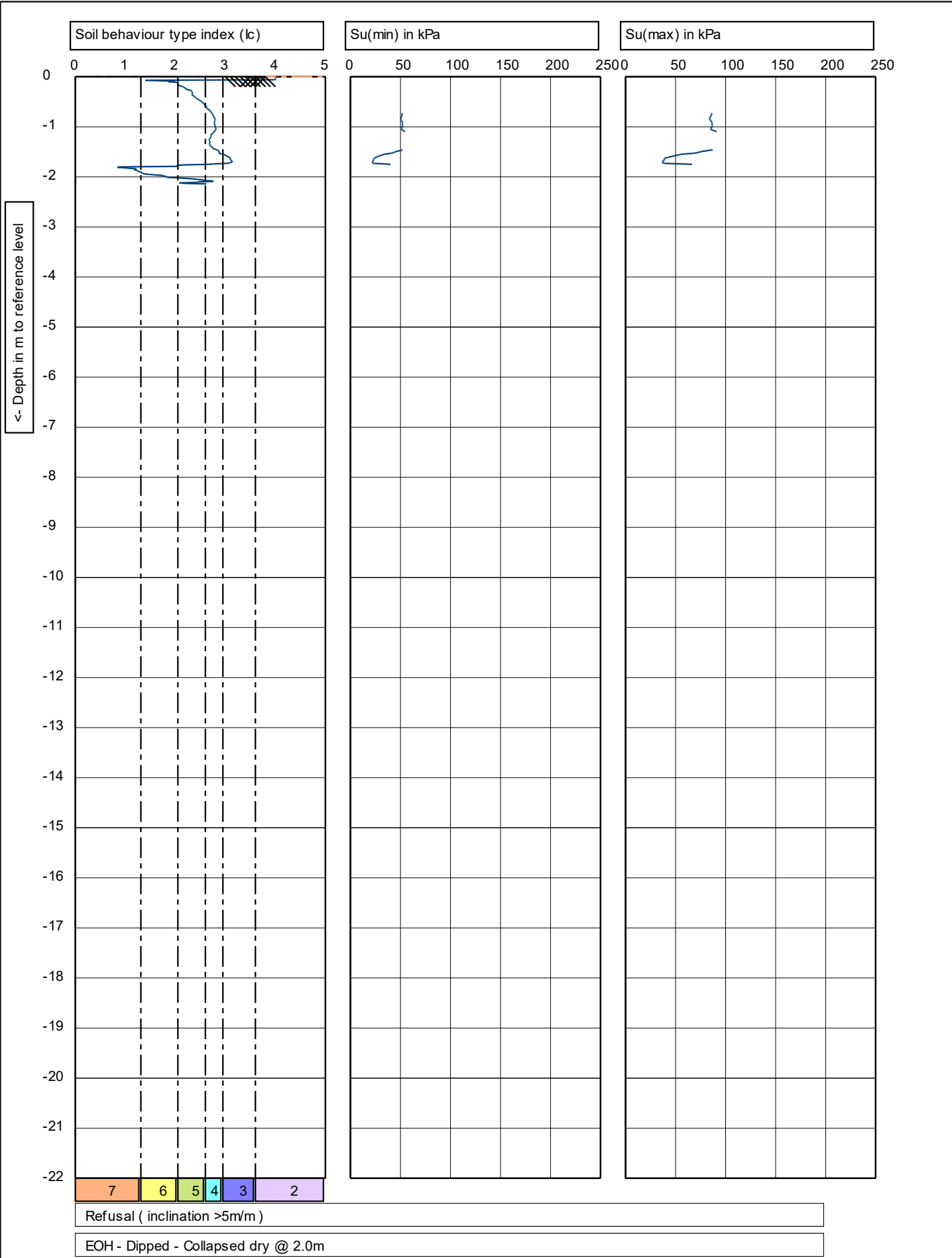
Location: Section 2B

Position: 1728080, 6003026 NZTM

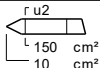
Cone no.: C10CFIIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1113 5/6



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: 0.00 m MSL
Project: Northern Corridor
Location: Section 2B
Position: 1728080, 6003026 NZTM

Predrill: 0.00 m Predrilled
Date: 20/10/2025
Cone no.: C10CFIIP.C21109
Project no.: 1-C2466.16_HA15644
CPT no.: CPT2B-1113 6/6

CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Northern Corridor
 Location : Section 2B
 Hole Number: CPT2B-1113
 Tested by : J Kavanaugh/ T Dimmock
 Date tested : 20/10/25
 Coordinates : 1728080 E
 6003026 N
 Elevation : 83m
 Water level : EOH - Dipped - Collapsed dry @ 2.0m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1113
 Client Ref No :

Test Results

Start Time	1:34:00 pm
Time at penetration	1:36:25 pm
End Time	12:02:25 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	2.22
Remarks	Refusal (inclination >5m/m)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned east of CPT2B-1113A

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 20/10/25
 Date reported : 21/10/25

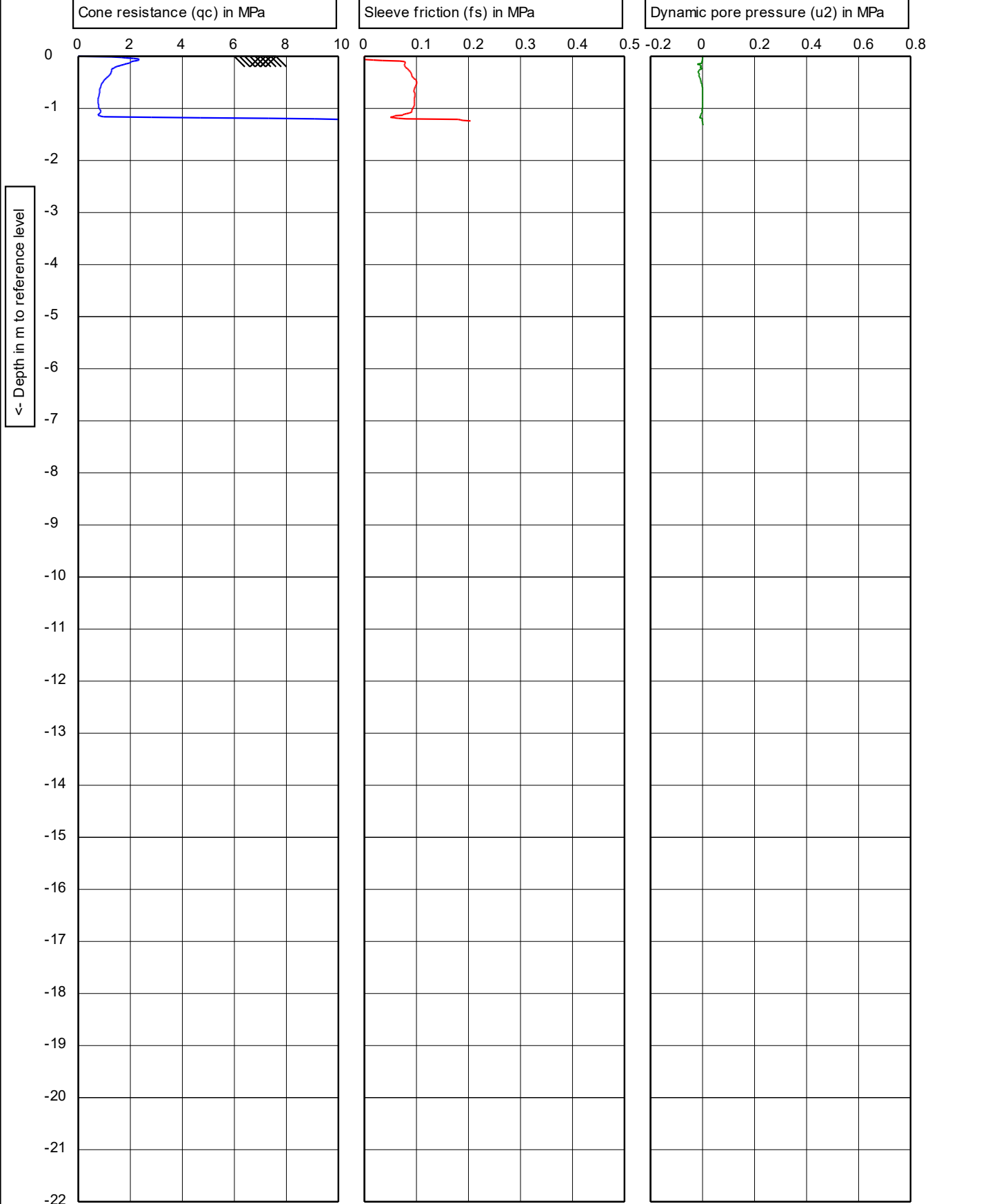
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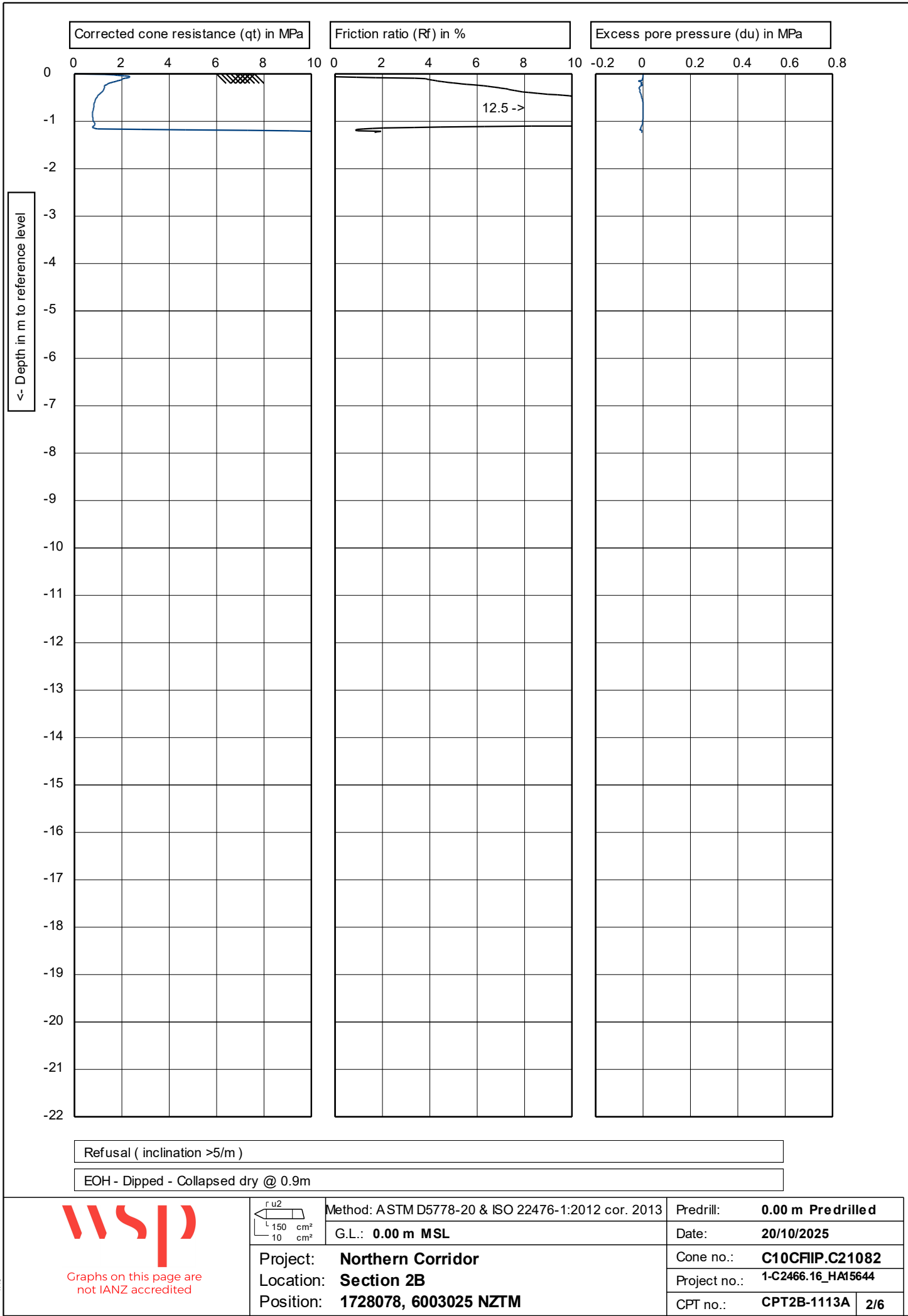
Approved Signatory

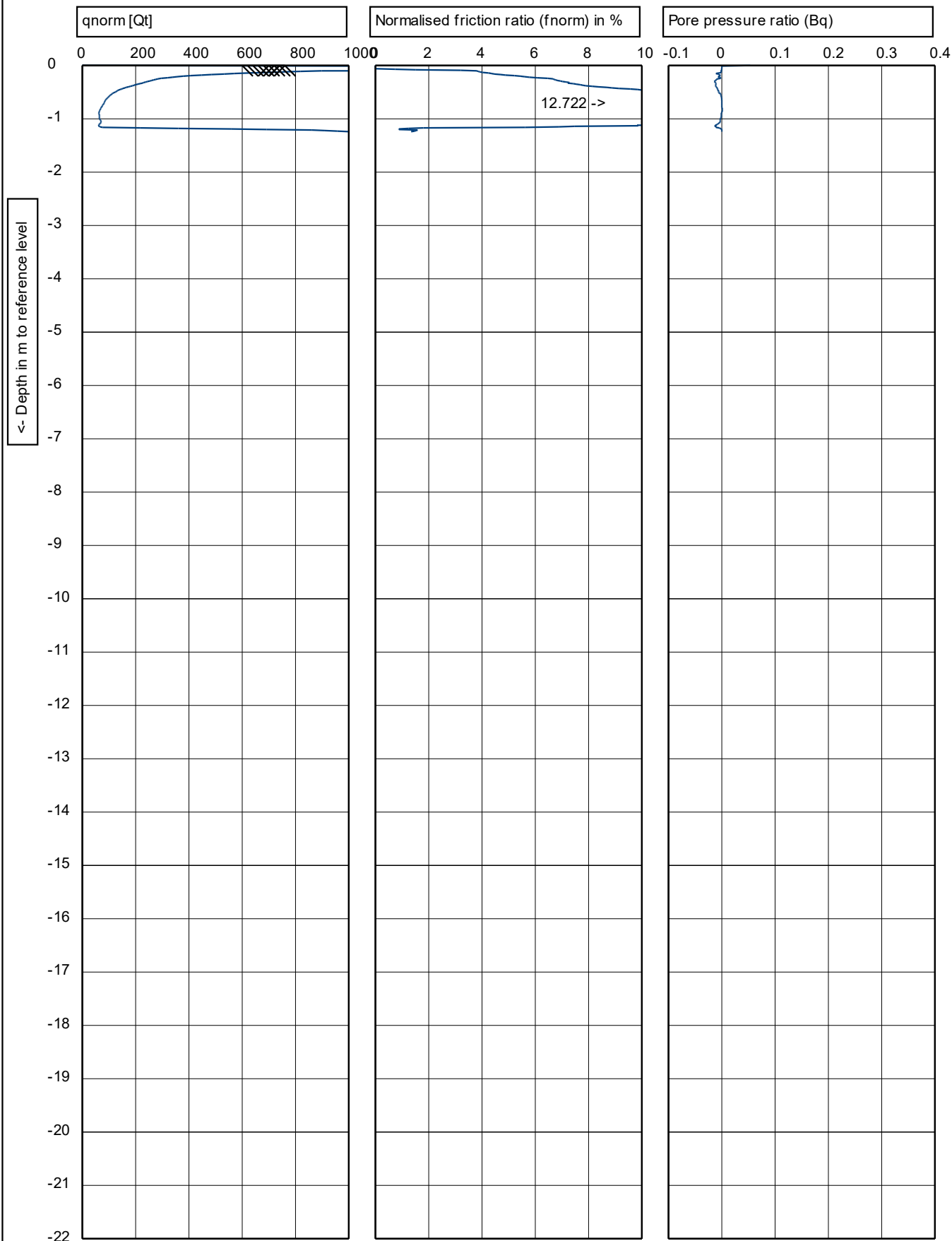
Designation : CPT North Island Manager
 Date : 21/10/25

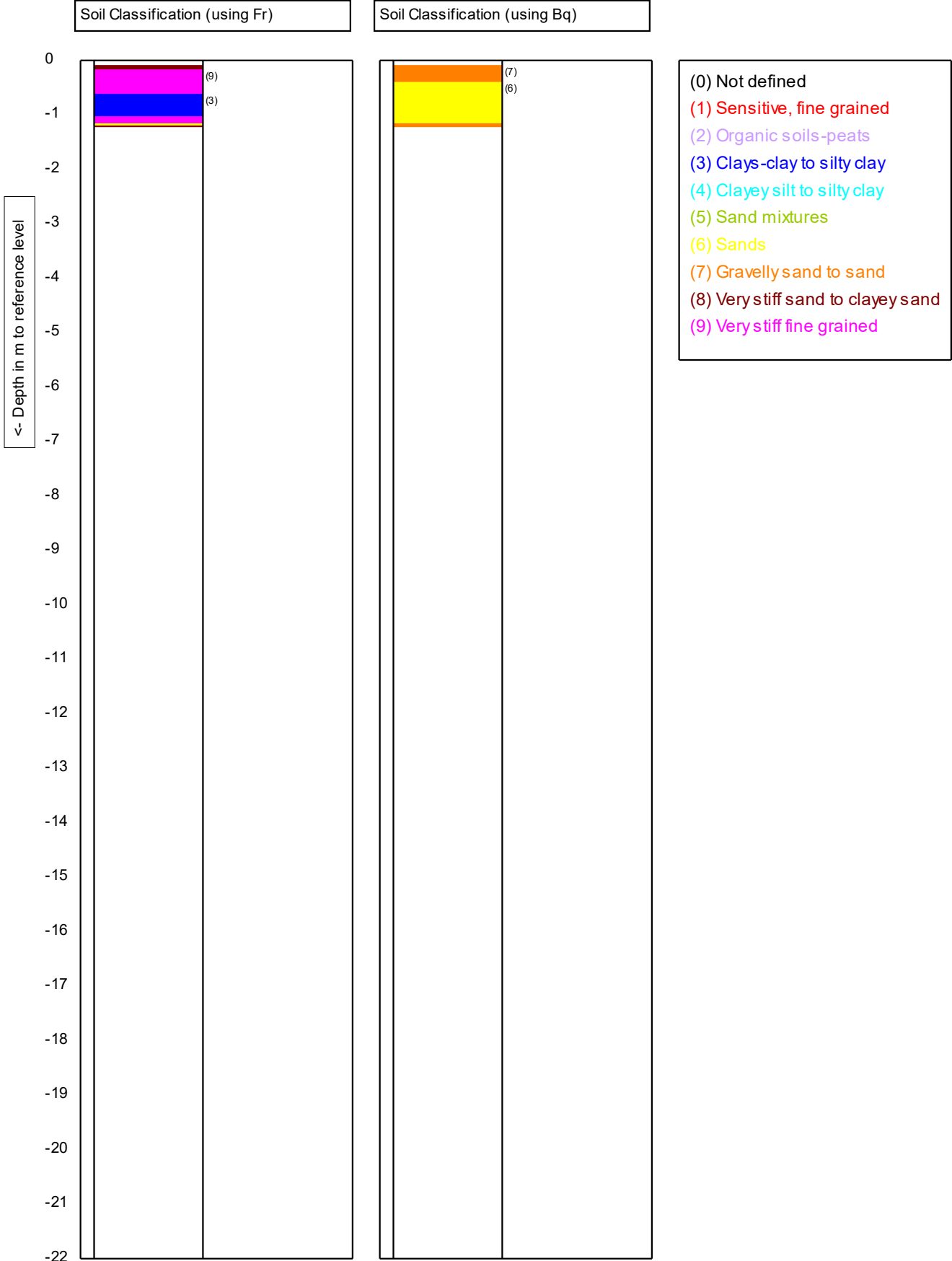


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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Project: Northern Corridor

Location: Section 2B

Position: 1728078, 6003025 NZTM

Predrill: 0.00 m Predrilled

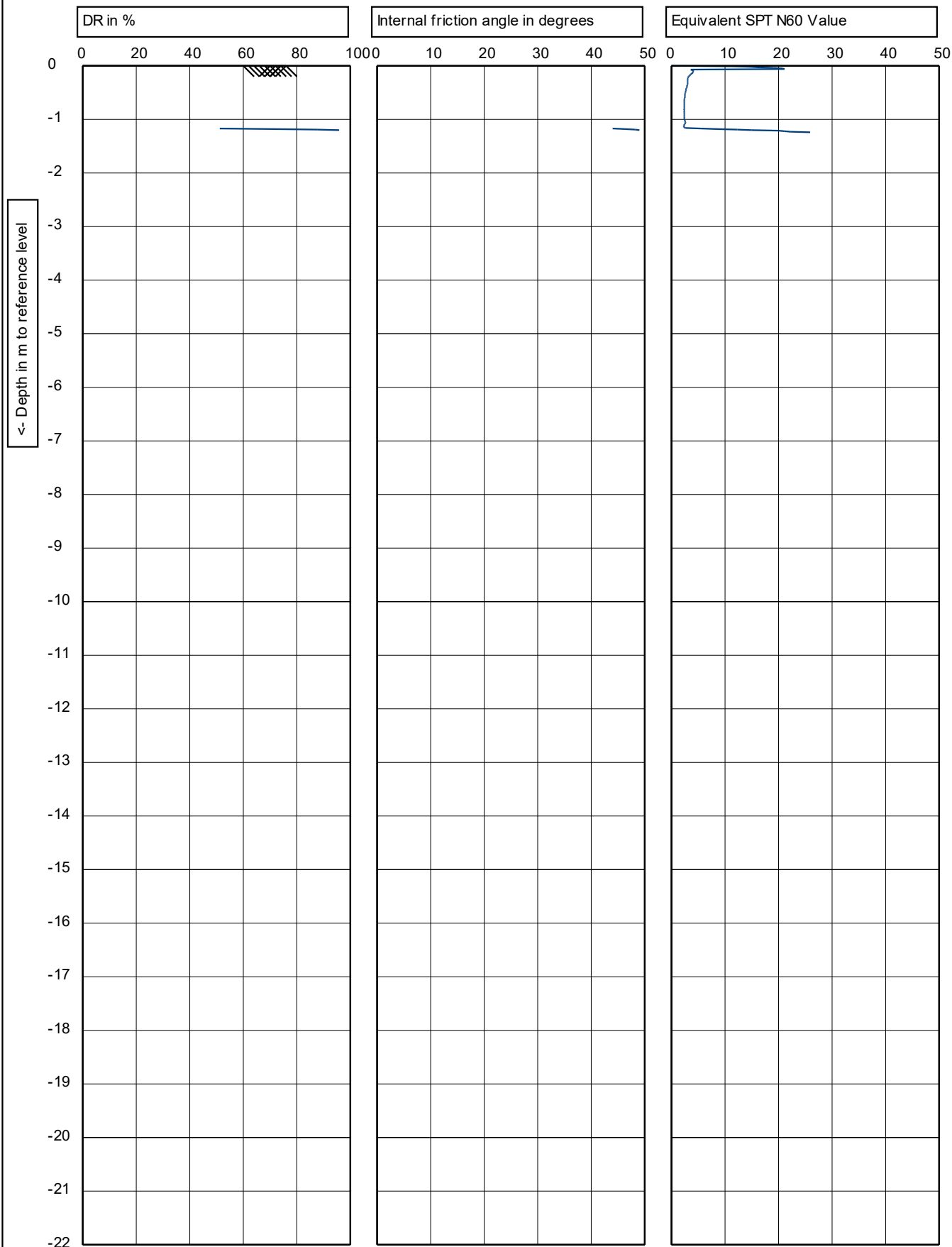
Date: 20/10/2025

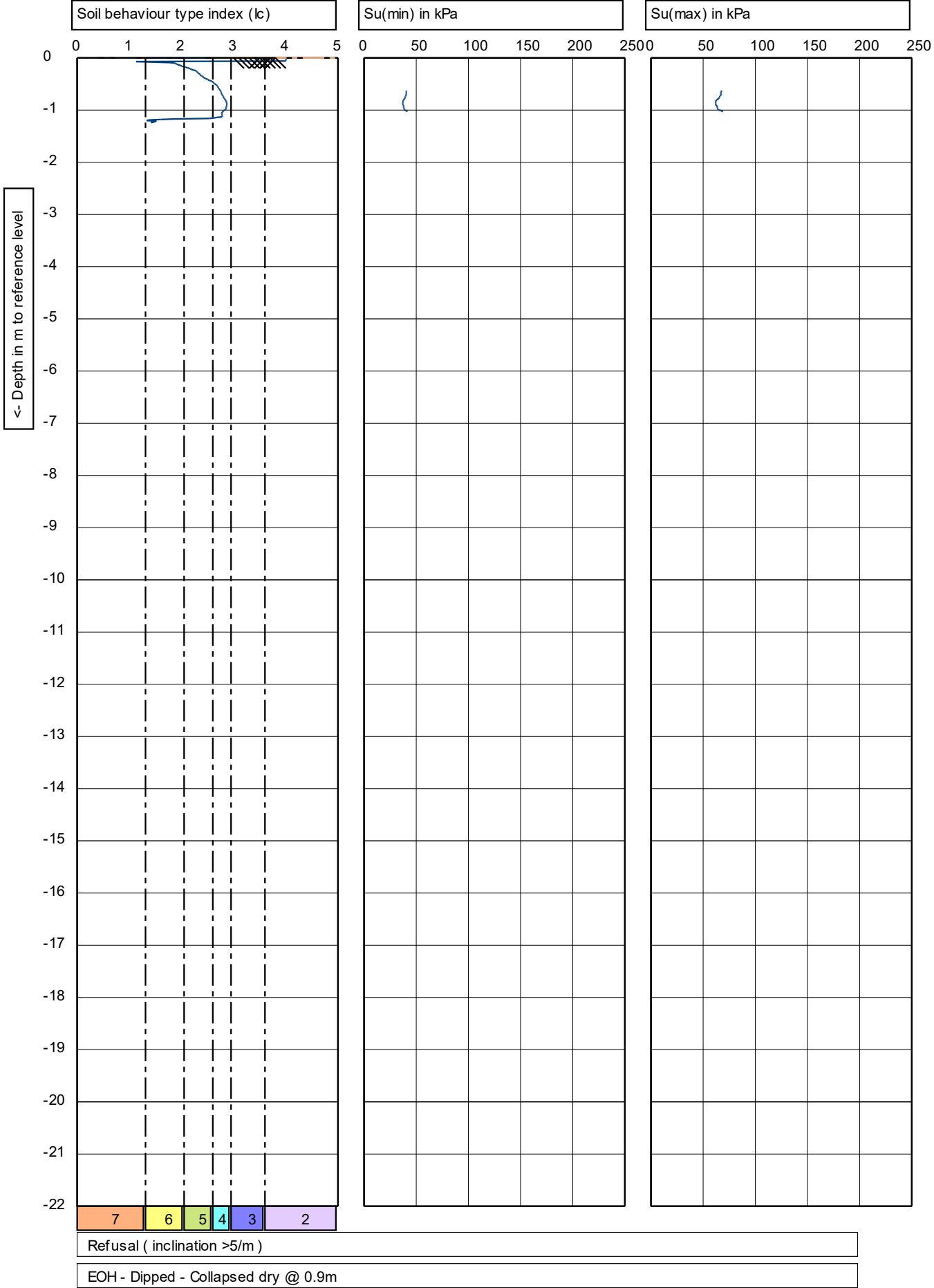
Cone no.: C10CFIIP.C21082

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1113A

4/6





CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Northern Corridor
 Location : Section 2B
 Hole Number: CPT2B-1113A
 Tested by : J Kavanaugh/ T Dimmock
 Date tested : 20/10/25
 Coordinates : 1728078 E
 6003025 N
 Elevation : 80m
 Water level : EOH - Dipped - Collapsed dry @ 0.9m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1113A
 Client Ref No :

Test Results

Start Time	1:47:00 pm
Time at penetration	1:48:19 pm
End Time	12:01:19 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	1.32
Remarks	Refusal (inclination >5/m)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned west of CPT2B-1113

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 20/10/25
 Date reported : 21/10/25

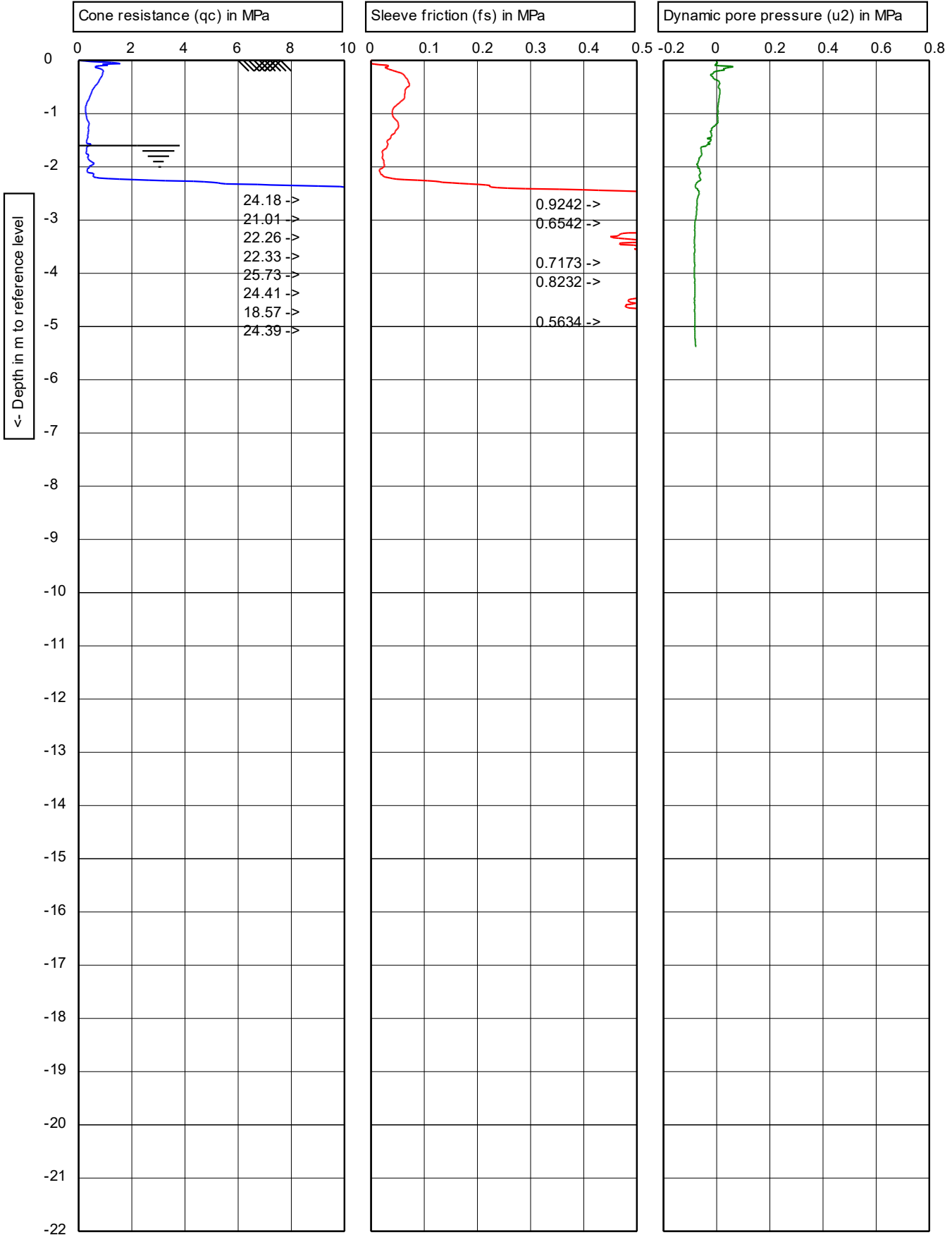
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Approved Signatory

Designation : CPT North Island Manager
 Date : 21/10/25



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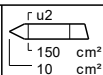


Refusal 11t.

EOH - Dipped - GWL @ 1.6m



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.60 m

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Project: Northern Corridor

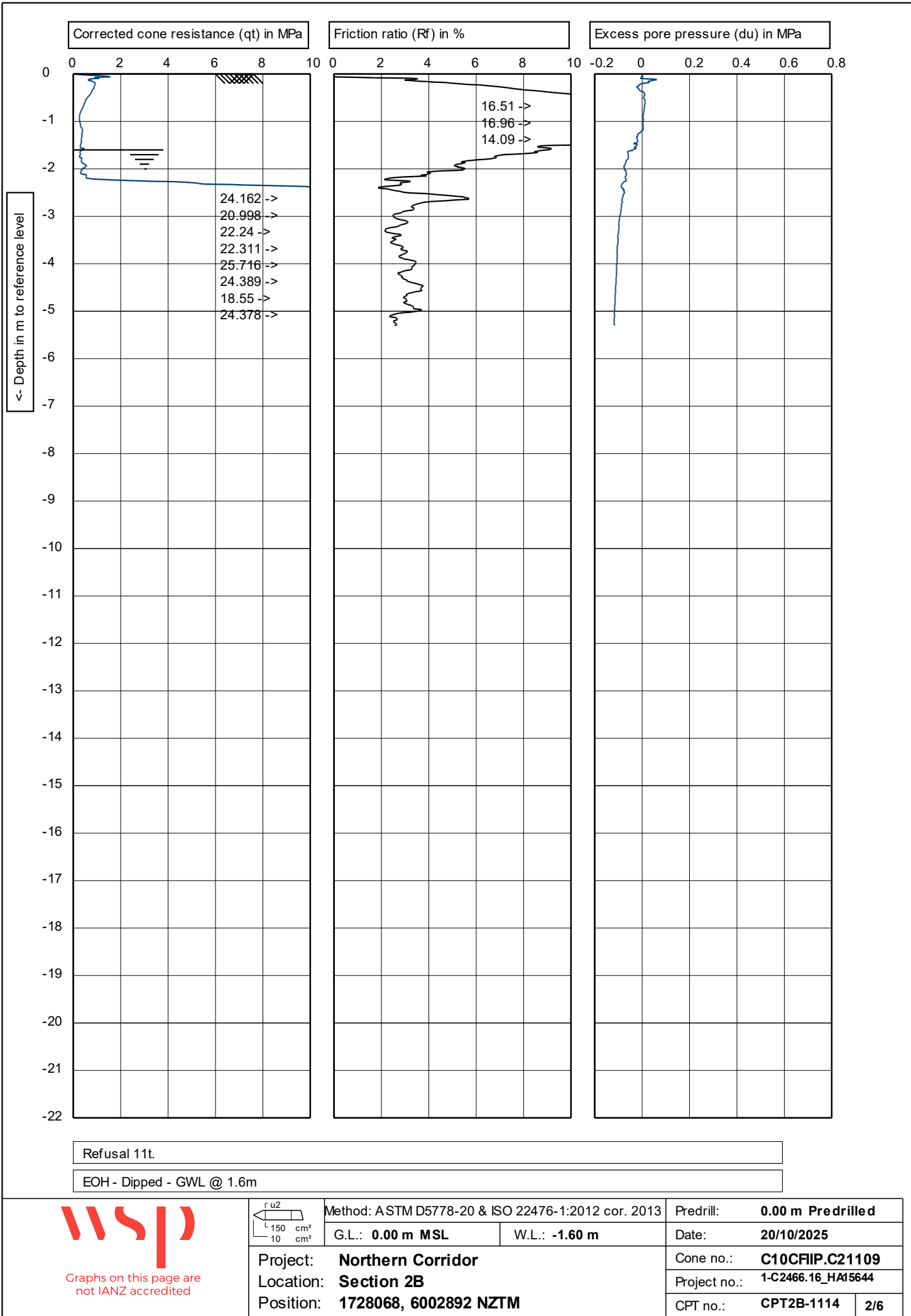
Location: Section 2B

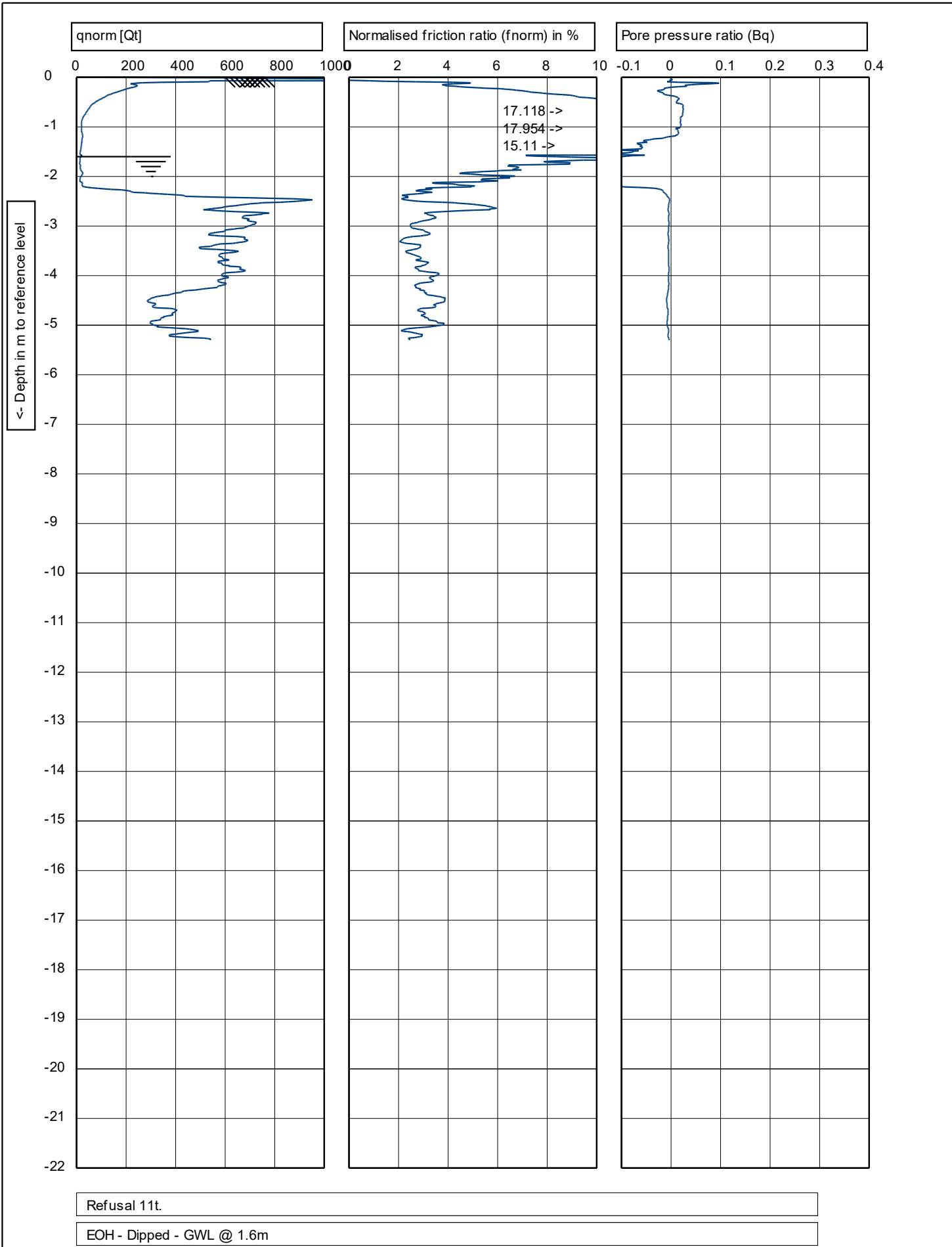
Position: 1728068, 6002892 NZTM

Cone no.: C10CFIIP.C21109

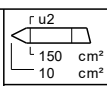
Project no.: 1-C2466.16_HA15644

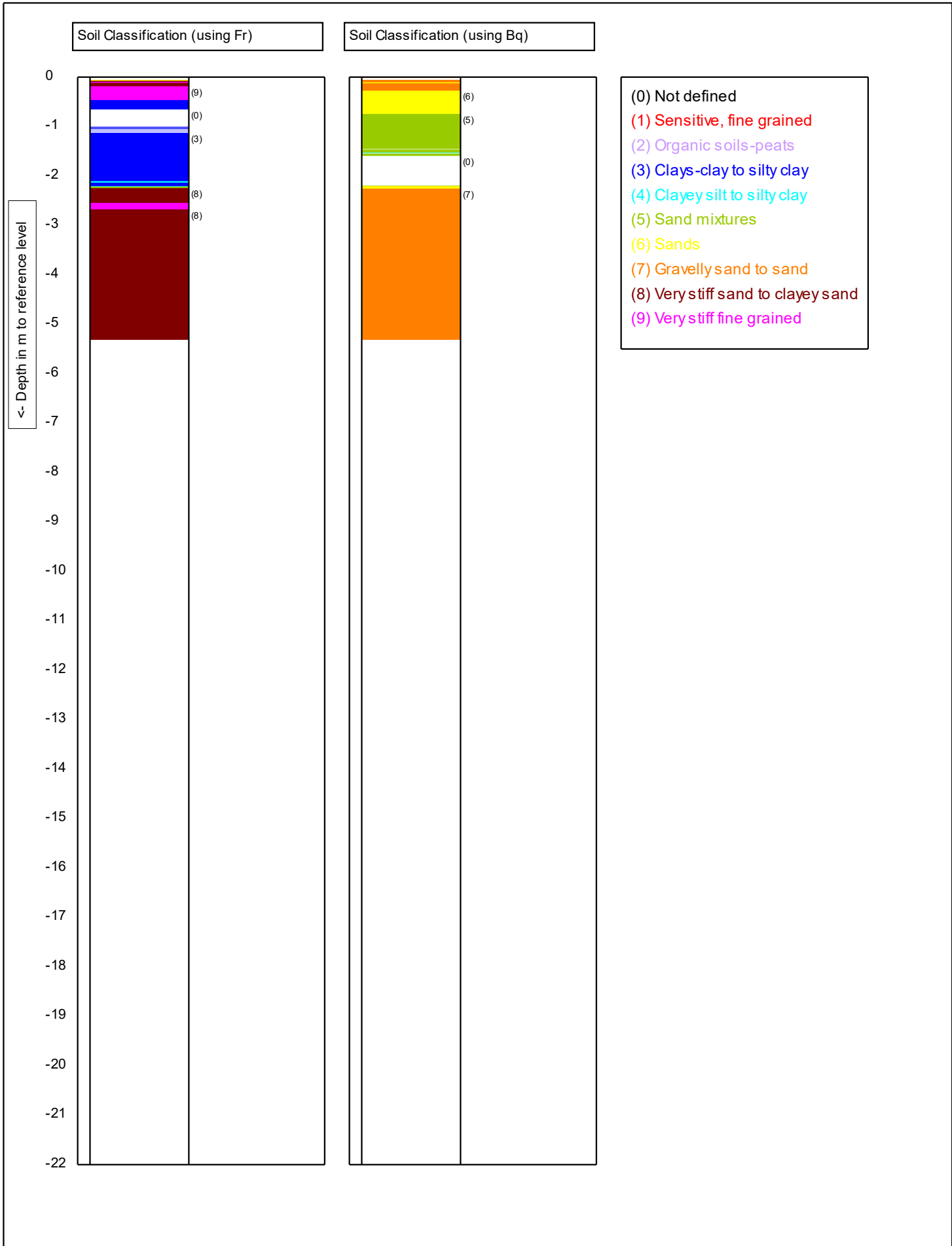
CPT no.: CPT2B-1114 1/6



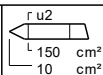


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	Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013		Predrill: 0.00 m Predrilled	
	G.L.: 0.00 m MSL	W.L.: -1.60 m	Date:	20/10/2025
	Project: Northern Corridor		Cone no.:	C10CFIIP.C21109
	Location: Section 2B		Project no.:	1-C2466.16_HA15644
	Position: 1728068, 6002892 NZTM		CPT no.:	CPT2B-1114 3/6



Graphs on this page are
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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.60 m

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Cone no.: C10CFIIP.C21109

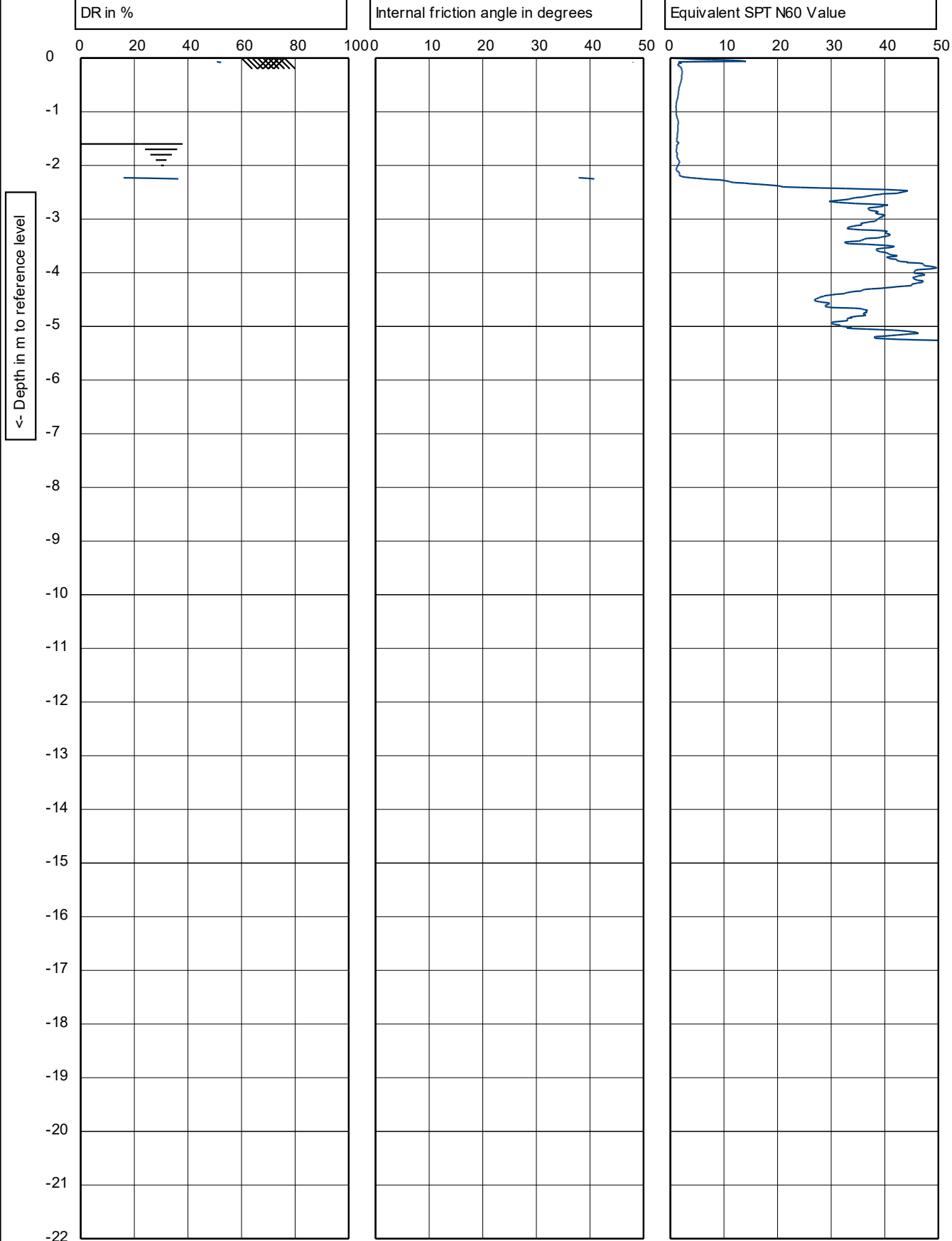
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1114 4/6

Project: Northern Corridor

Location: Section 2B

Position: 1728068, 6002892 NZTM

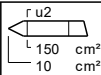


Refusal 11t.

EOH - Dipped - GWL @ 1.6m



Graphs on this page are not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.60 m

Predrill: 0.00 m Predrilled

Date: 20/10/2025

Cone no.: C10CFIIP.C21109

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1114 5/6

Project: Northern Corridor
Location: Section 2B
Position: 1728068, 6002892 NZTM

CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Northern Corridor
 Location : Section 2B
 Hole Number: CPT2B-1114
 Tested by : J Kavanaugh/ T Dimmock
 Date tested : 20/10/25
 Coordinates : 1728068 E
 6002892 N
 Elevation : 95m
 Water level : EOH - Dipped - GWL @ 1.6m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1114
 Client Ref No :

Test Results

Start Time	2:17:00 pm
Time at penetration	2:21:46 pm
End Time	12:04:46 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	5.38
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	0

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 20/10/25
 Date reported : 21/10/25

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 corresponding calibration data, daily logs, and CPT graphs.

Approved Signatory

Designation : CPT North Island Manager
 Date : 21/10/25



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 laboratory's scope of
 accreditation

**CONE PENETRATION
TEST REPORT**



Client : **Waka Kotahi NZ Transport Agency**
Project : **Section 2B**
Location : **Northern Corridor**
Hole Number: **CPT2B-1102**
Tested by : **J Kavanaugh/ T Makasiale**
Date tested : **30/09/25**
Coordinates : **1727748 E**
6011860 N
Elevation : **35m**
Water level : **EOH - Dipped - GWL @ 2.9m**

Project No : **1-C2466.16**
Lab Ref No : **HA15644_CPT2B-1102**

Test Results

Start Time	7:44:00 am
Time at penetration	7:55:11 am
End Time	12:11:11 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	12.75
Remarks	Refusal (qc 40+ MPa)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned west of CPT2B-1102D

Test Methods: ASTM D5778-20
ISO 22476-1:2012 Cor. 2013

Date tested : 30/09/25
Date reported : 01/10/25

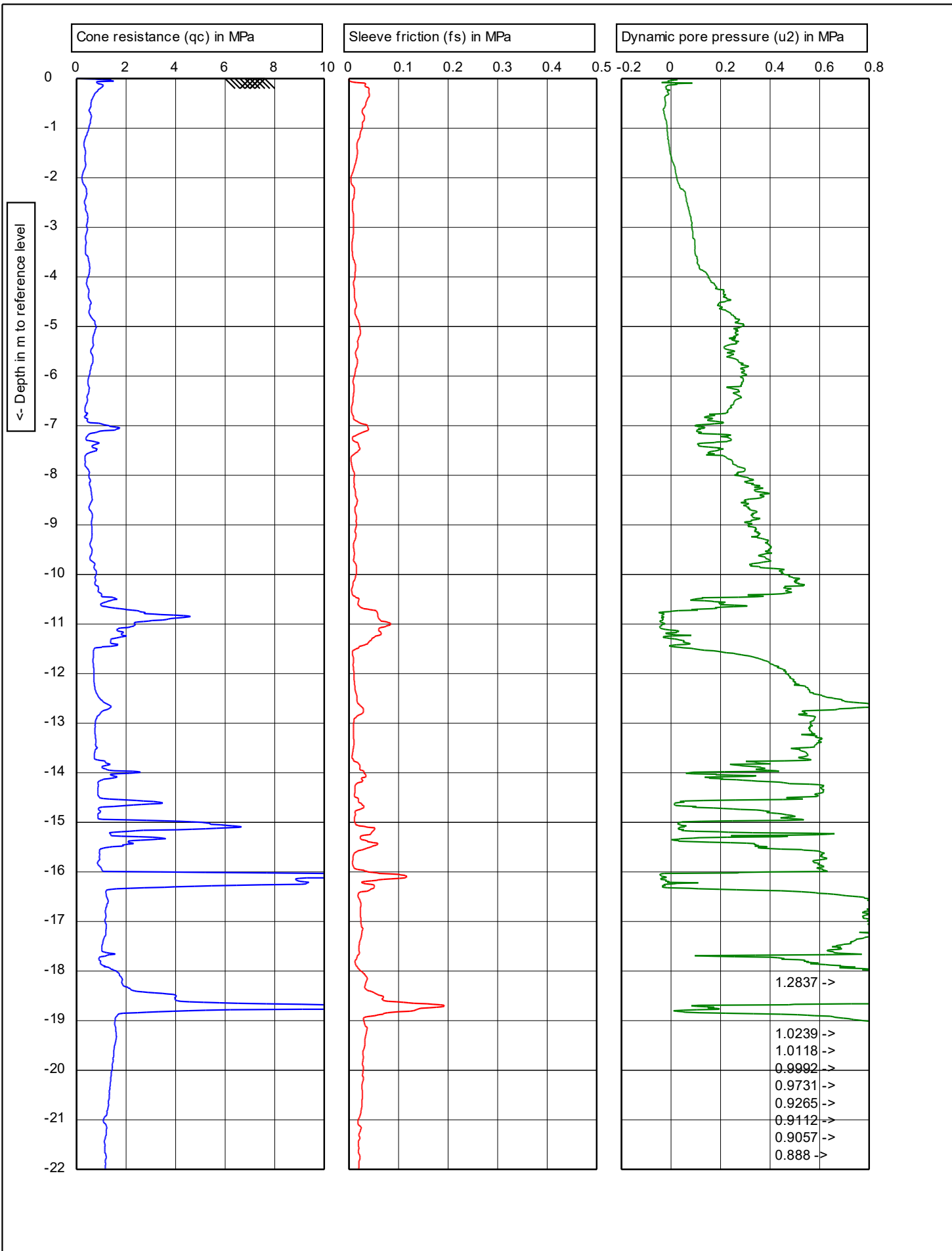
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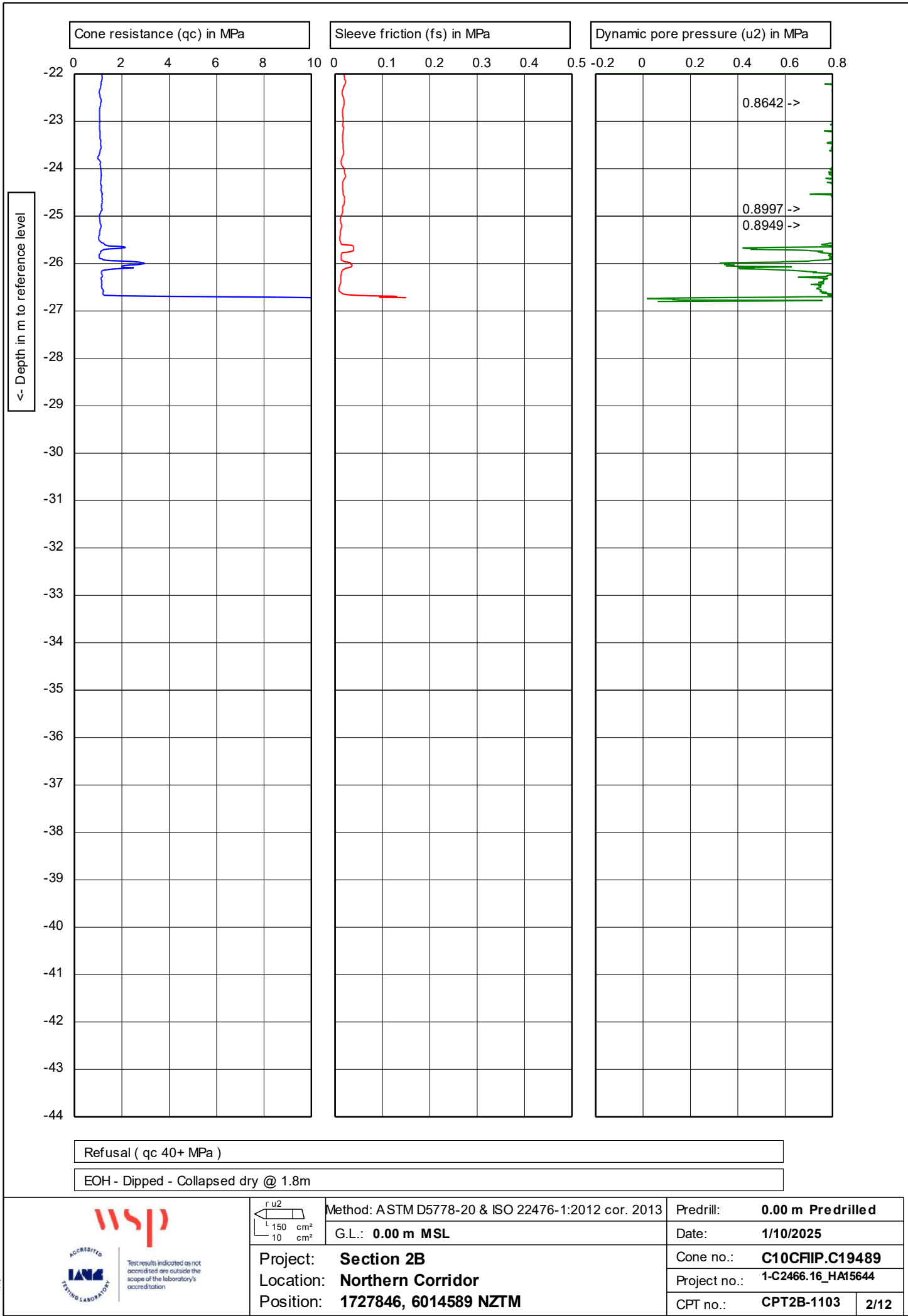
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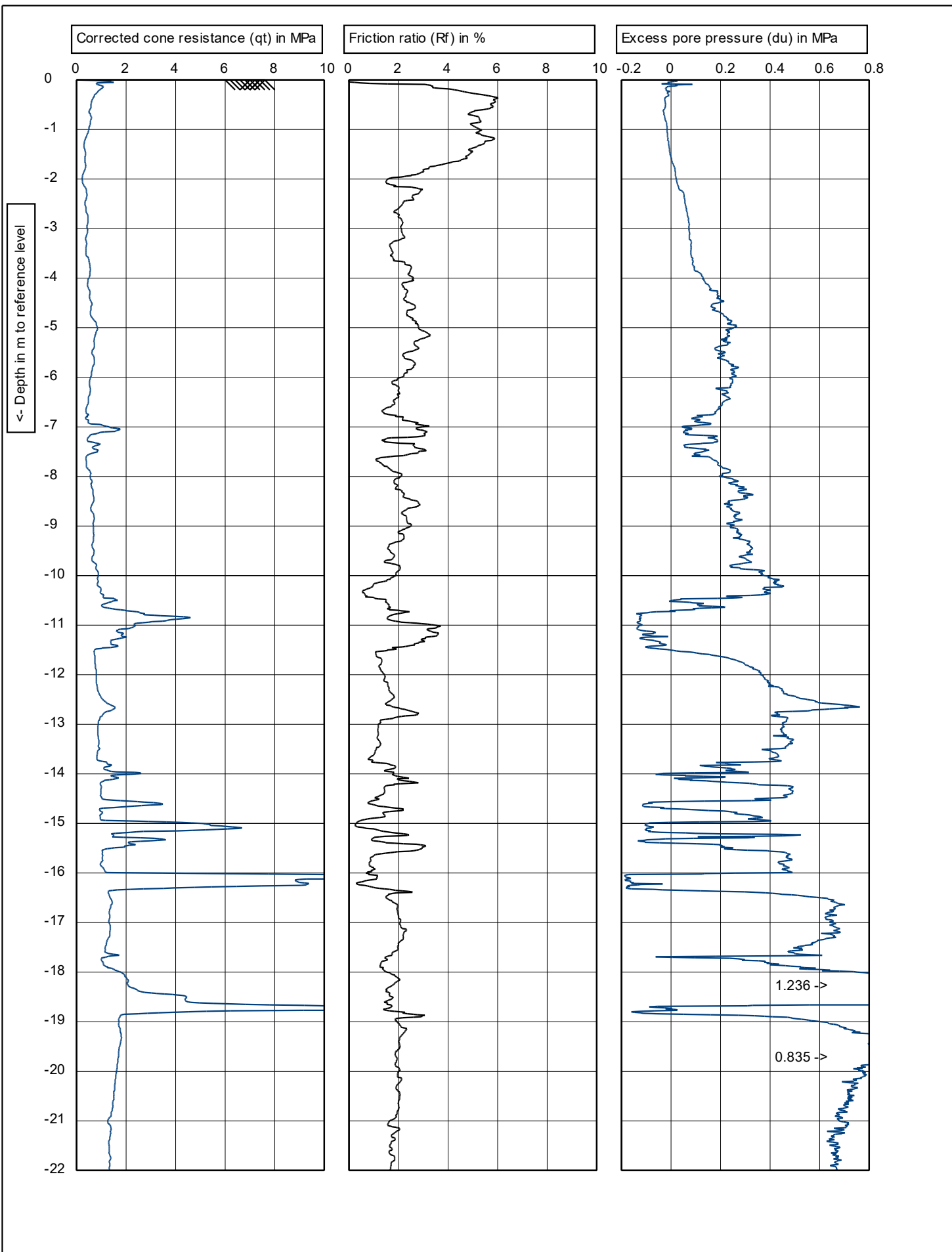
Designation : *CPT North Island Manager*
Date : 01/10/25



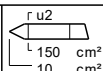
All tests reported herein
have been performed in
accordance with the
laboratory's scope of
accreditation







Graphs on this page are
not IANZ accredited



Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

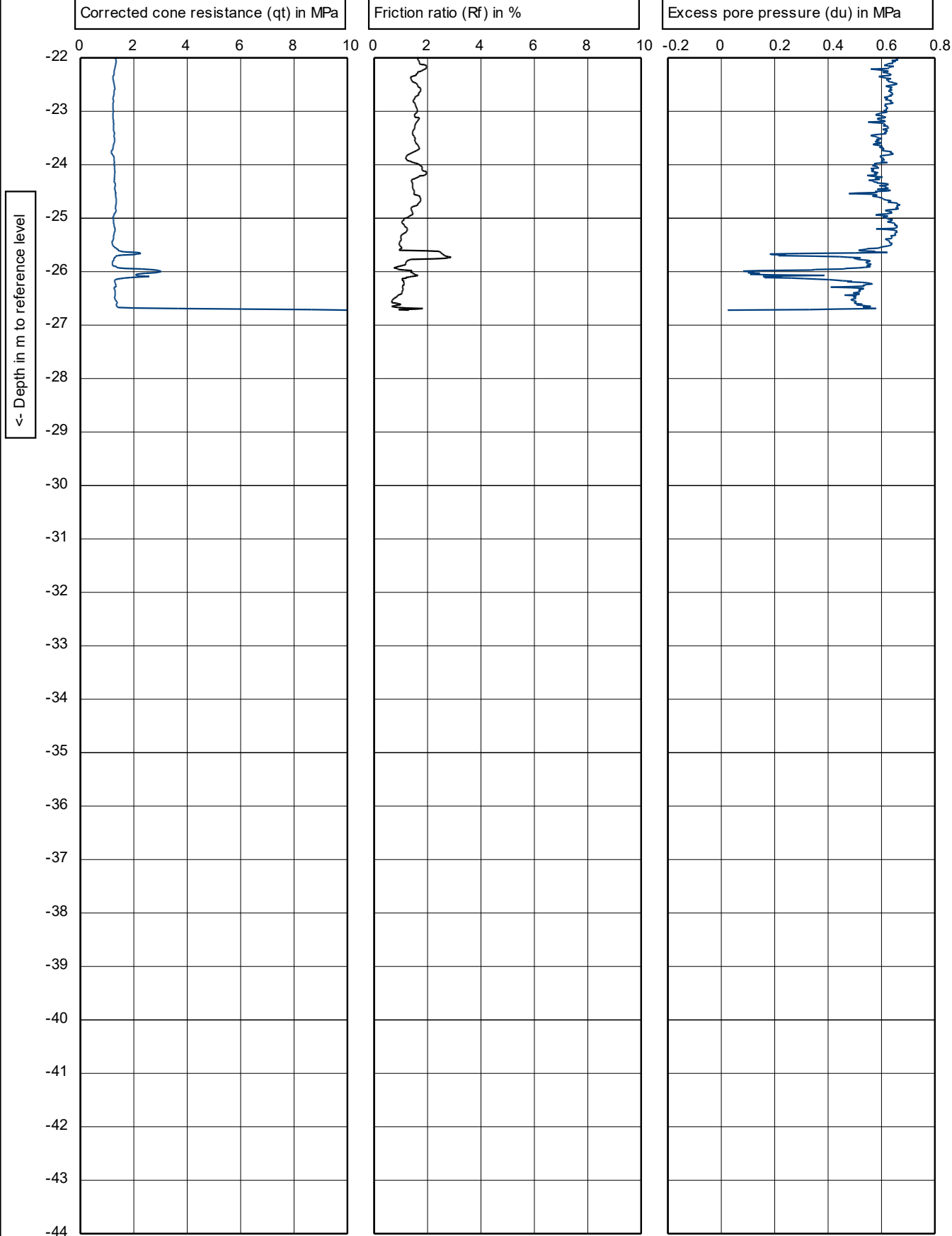
Date: 1/10/2025

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1103 3/12

Project: Section 2B
Location: Northern Corridor
Position: 1727846, 6014589 NZTM

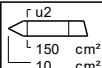


Refusal (qc 40+ MPa)

EOH - Dipped - Collapsed dry @ 1.8m



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

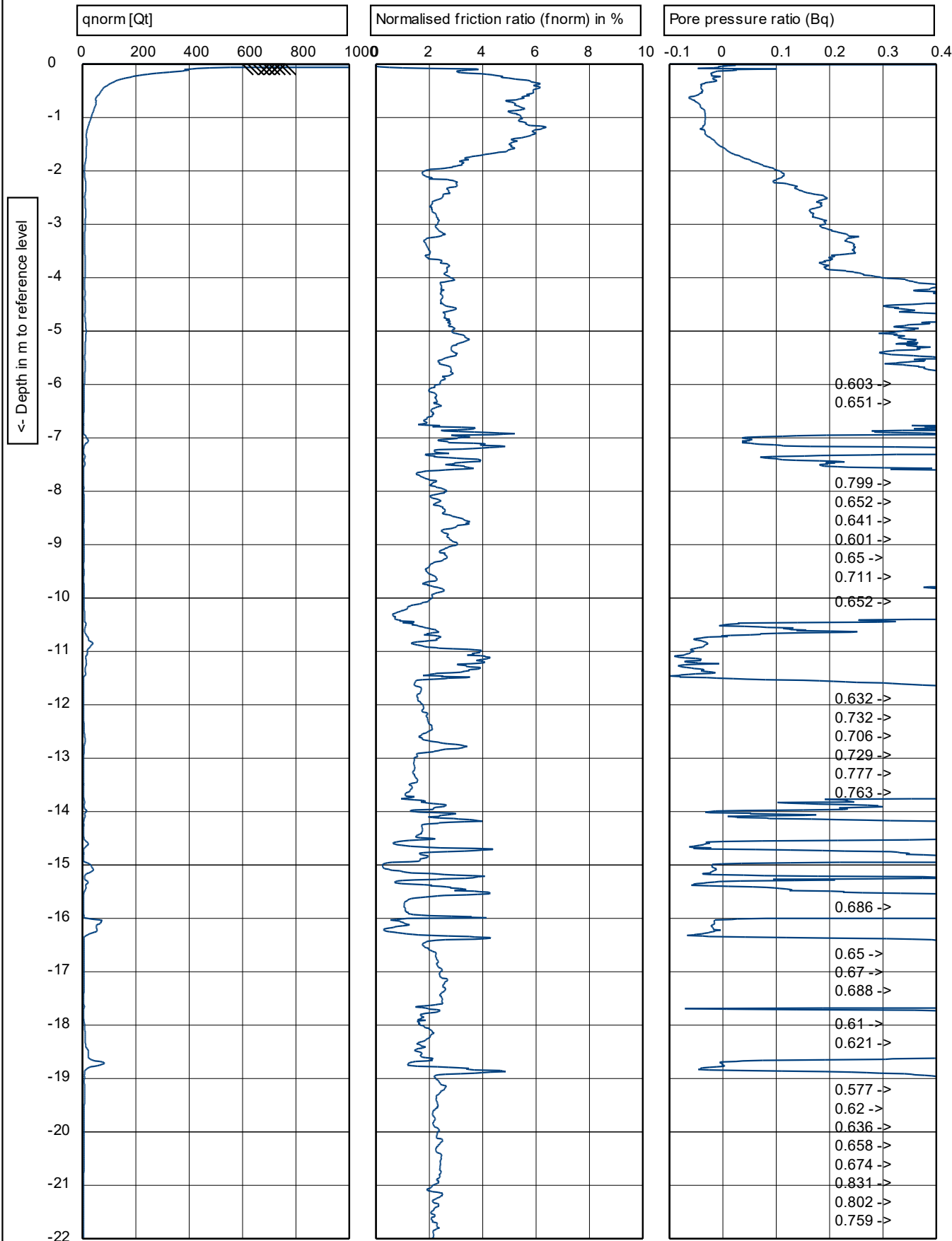
G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

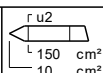
Date: 1/10/2025

Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727846, 6014589 NZTM**

Cone no.: **C10CFIIP.C19489**
Project no.: **1-C2466.16_HA15644**
CPT no.: **CPT2B-1103** 4/12



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 1/10/2025

Project: Section 2B

Location: Northern Corridor

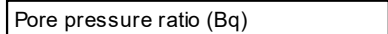
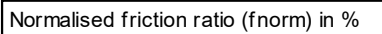
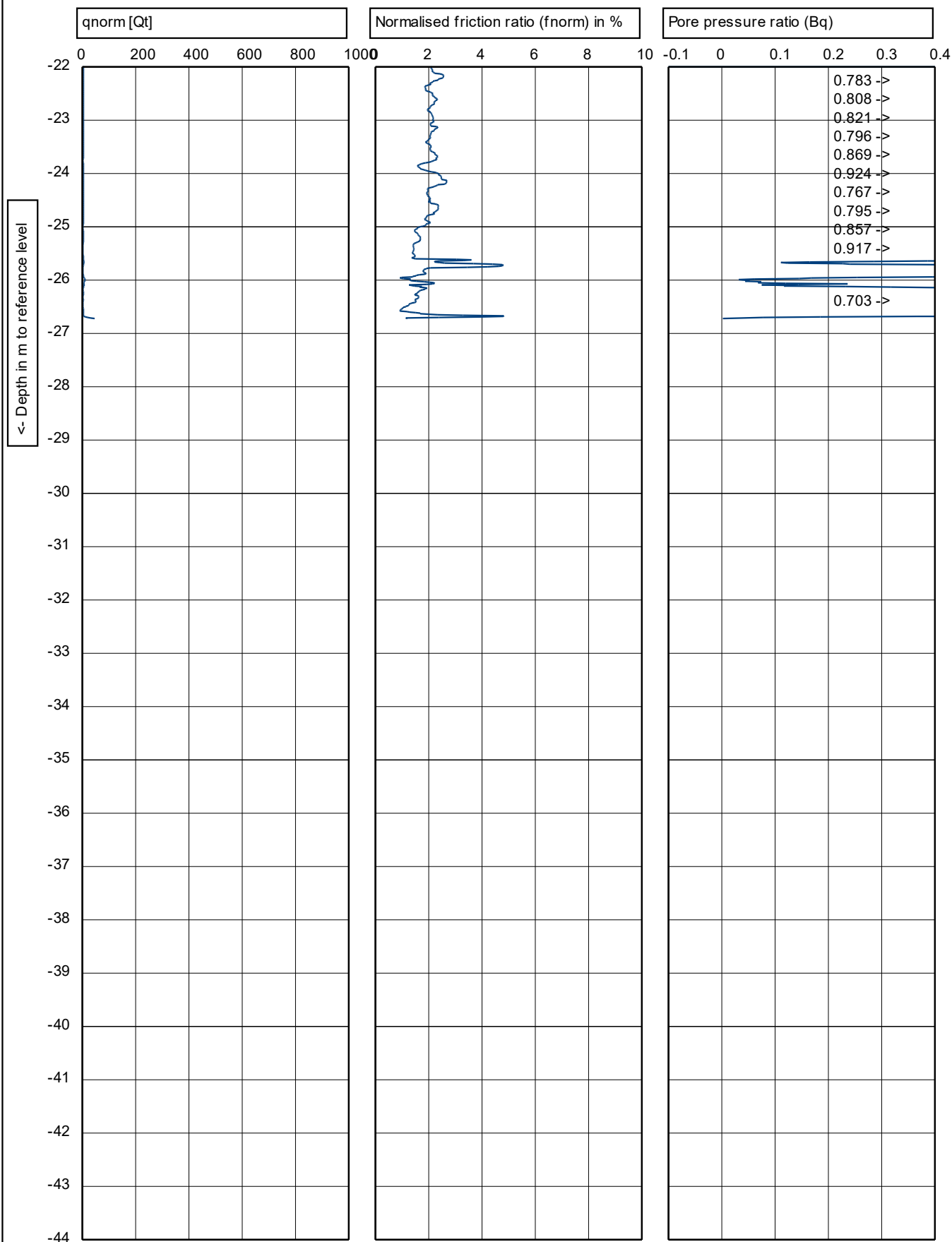
Position: 1727846, 6014589 NZTM

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1103

5/12



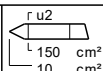
<- Depth in m to reference level

Refusal (qc 40+ MPa)

EOH - Dipped - Collapsed dry @ 1.8m



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

Predrill:	0.00 m	Predrilled
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G.L.: 0.00 m MSL

Date: 1/10/2025

Project: **Section 2B**Cone no.: **C10CFIP.C19489**

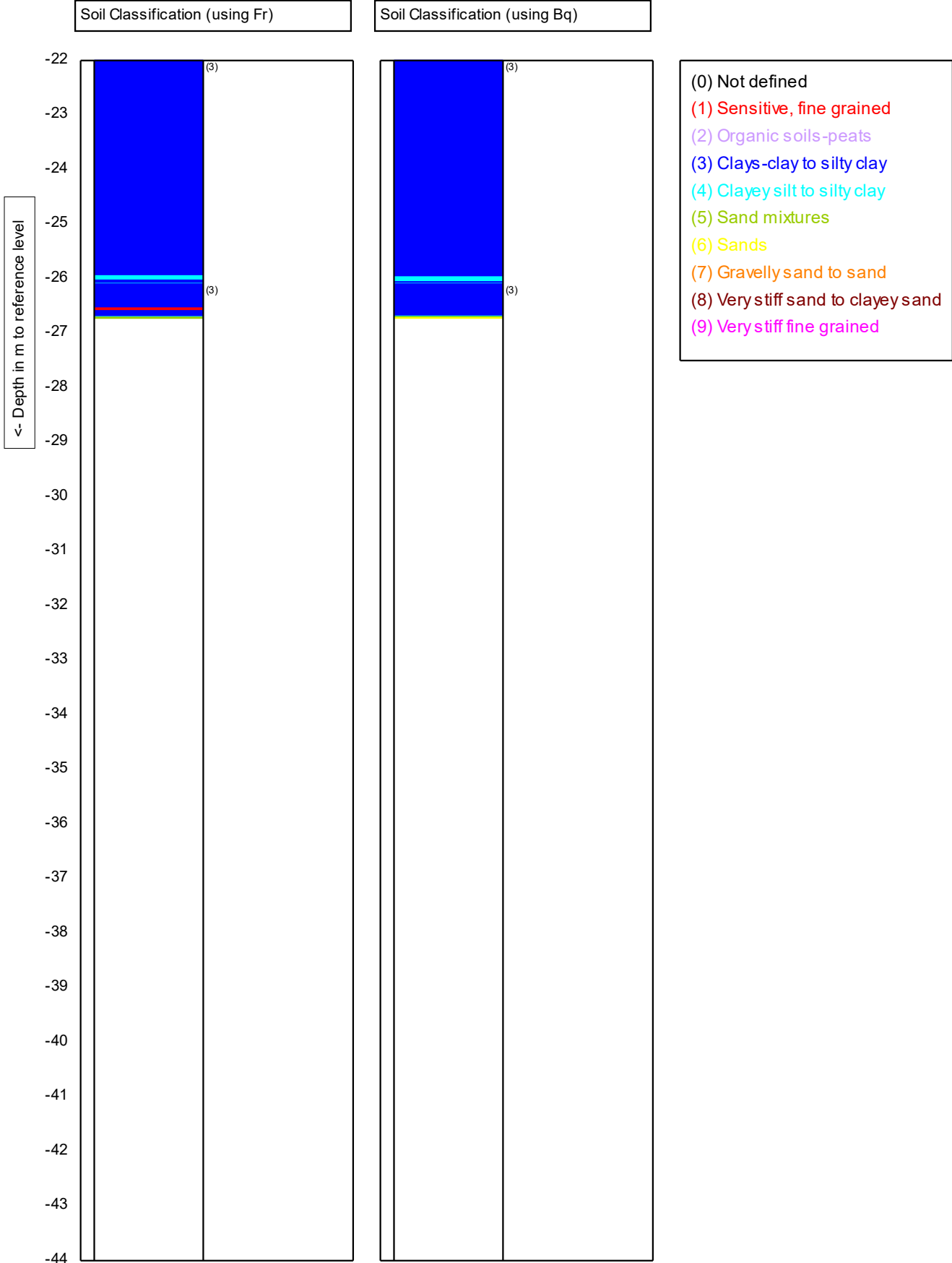
Location: **Northern Corridor**

Project no.: 1-C2466.16_HA15644

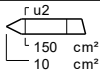
Position: **1727846, 6014589 NZTM**

CPT no.:	CPT2B-1103	6/12
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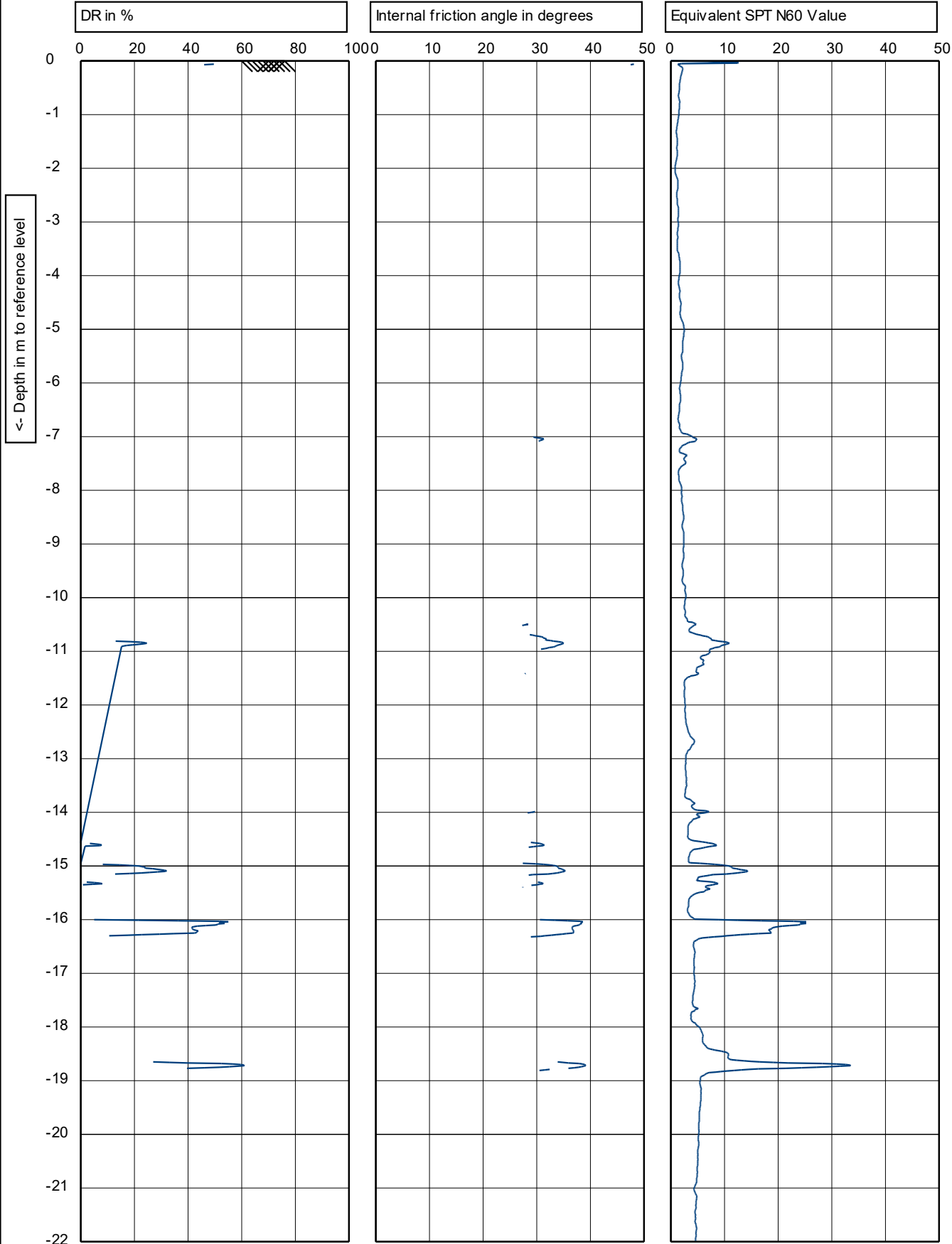
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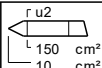
Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727846, 6014589 NZTM**

Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: **0.00 m MSL**

Predrill:	0.00 m Pre drilled
Date:	1/10/2025
Cone no.:	C10CFIIP.C19489
Project no.:	1-C2466.16_HA15644
CPT no.:	CPT2B-1103



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

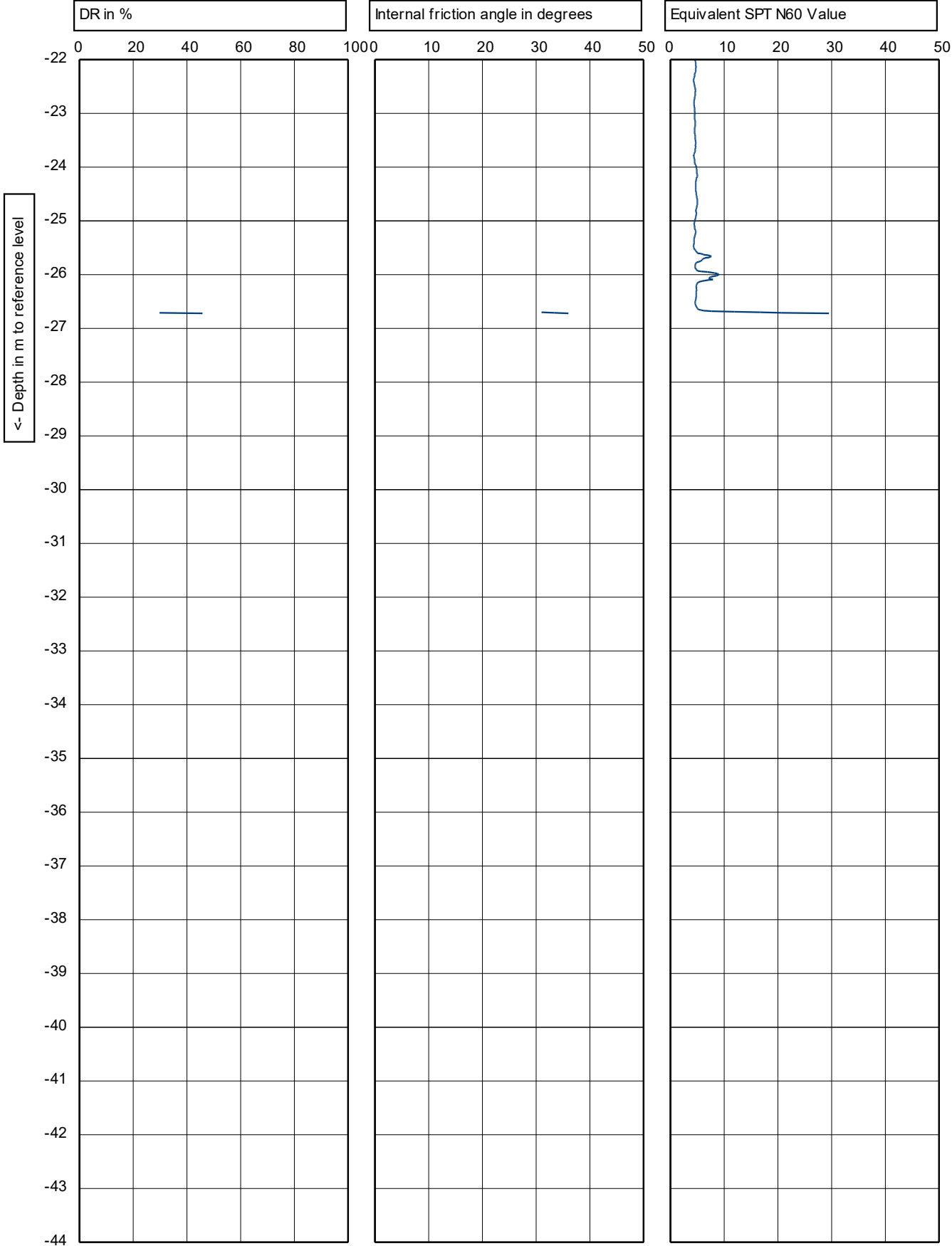
Date: 1/10/2025

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1103 9/12

Project: Section 2B
Location: Northern Corridor
Position: 1727846, 6014589 NZTM



Refusal (qc 40+ MPa)

EOH - Dipped - Collapsed dry @ 1.8m



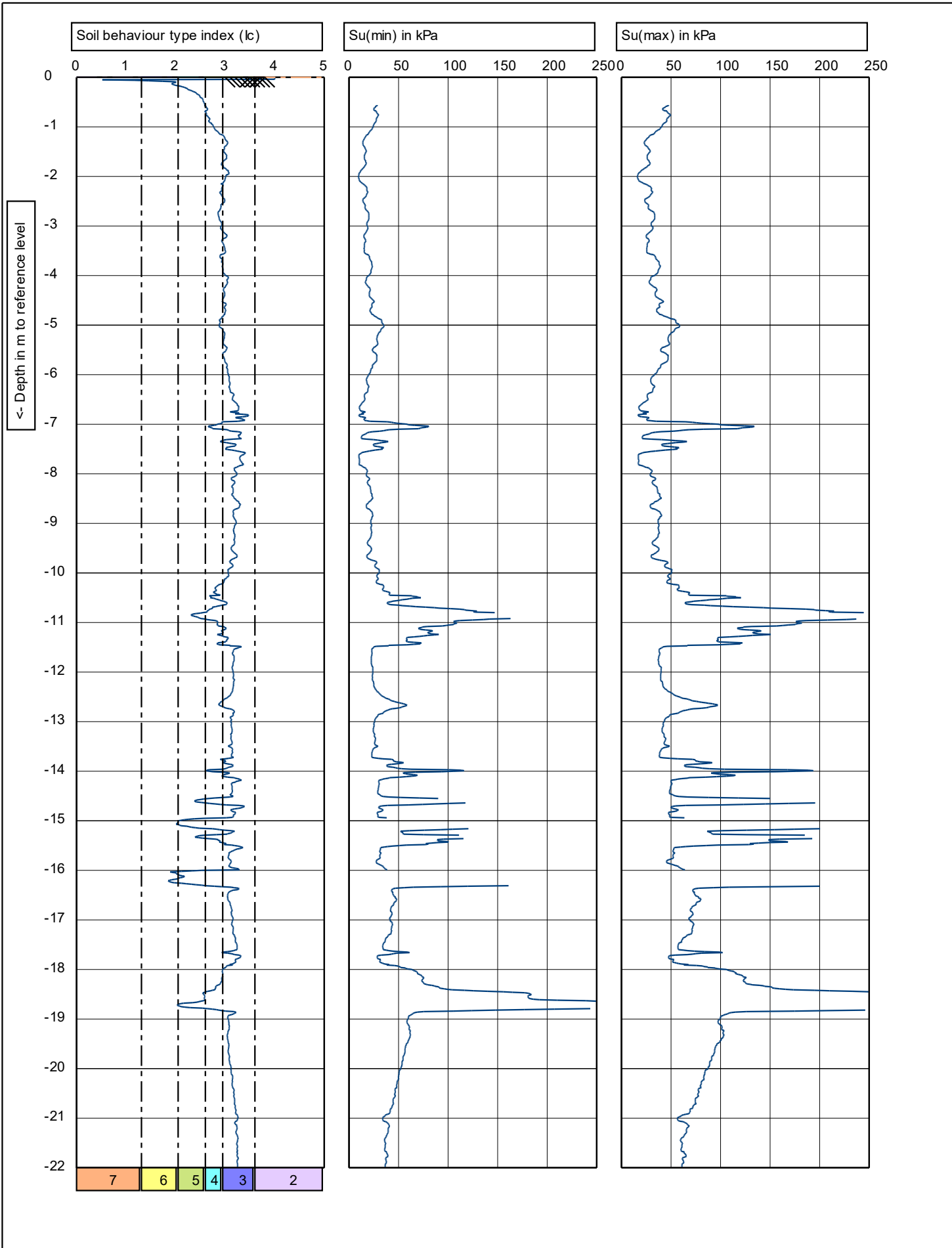
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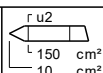
Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013
G.L.: 0.00 m MSL

Project: **Section 2B**
Location: **Northern Corridor**
Position: **1727846, 6014589 NZTM**

Predrill: **0.00 m Predrilled**
Date: **1/10/2025**
Cone no.: **C10CFIIP.C19489**
Project no.: **1-C2466.16_HA15644**
CPT no.: **CPT2B-1103** 10/12



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

Predrill: 0.00 m Predrilled

Date: 1/10/2025

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

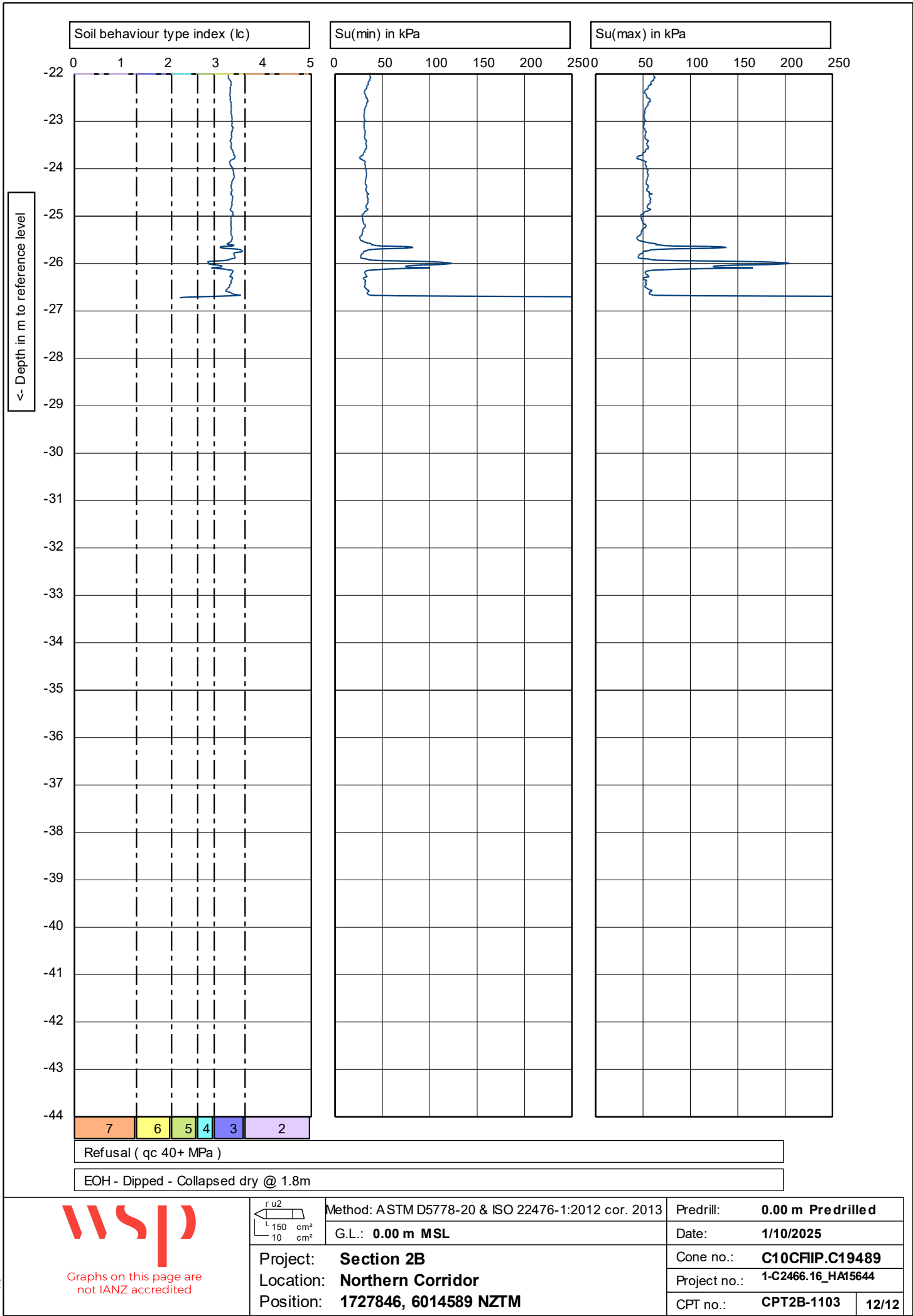
CPT no.: CPT2B-1103

11/12

Project: Section 2B

Location: Northern Corridor

Position: 1727846, 6014589 NZTM



CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number: CPT2B-1103
 Tested by : J Kavanaugh/ T Makasiale
 Date tested : 01/10/25
 Coordinates : 1727846 E
 6014589 N
 Elevation : 20m
 Water level : EOH - Dipped - Collapsed dry @ 1.8m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1103

Test Results

Start Time	1:41:00 pm
Time at penetration	2:11:00 pm
End Time	12:30:00 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	26.8
Remarks	Refusal (qc 40+ MPa)
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned east of CPT2B-1103D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 01/10/25
 Date reported : 02/10/25

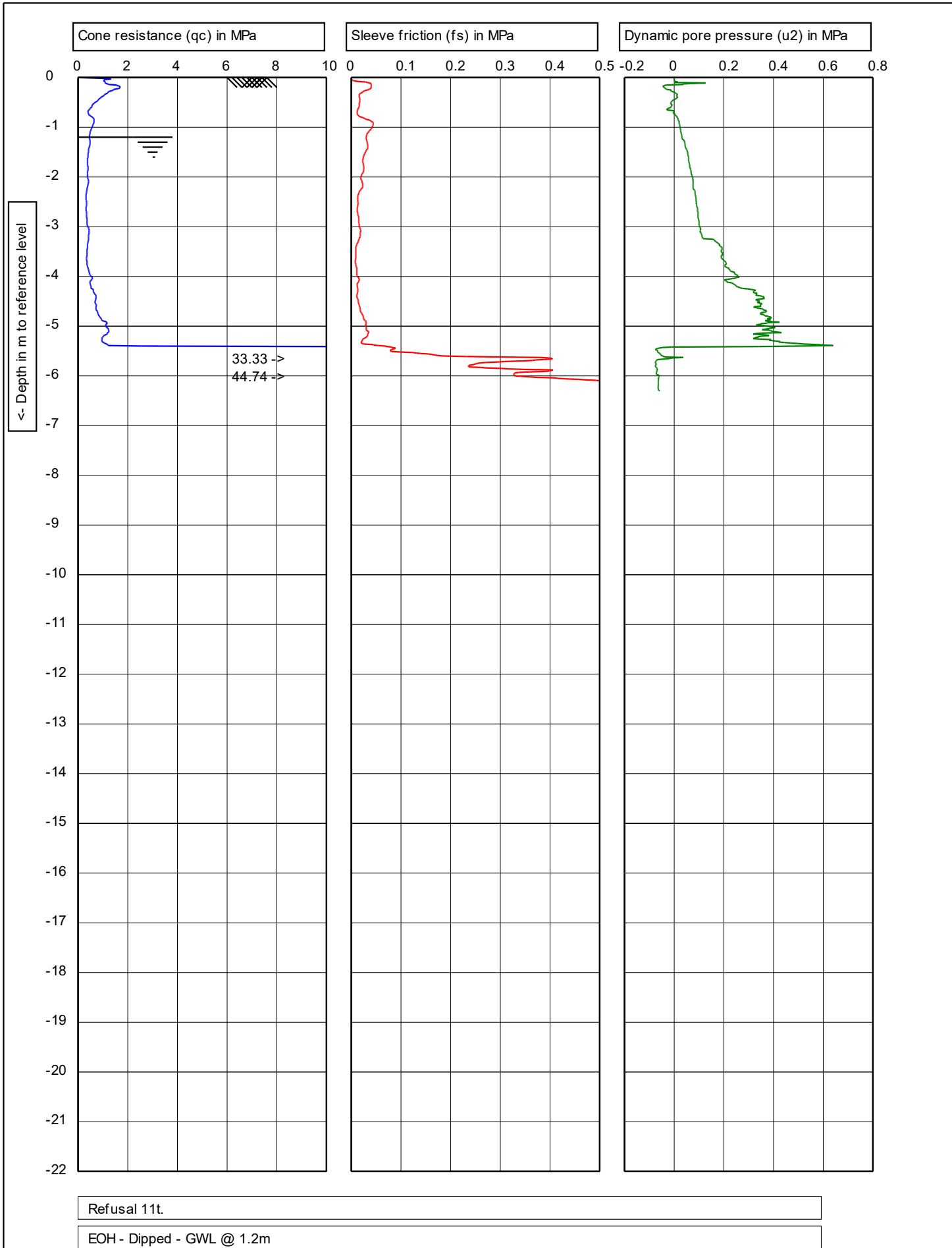
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Approved Signatory

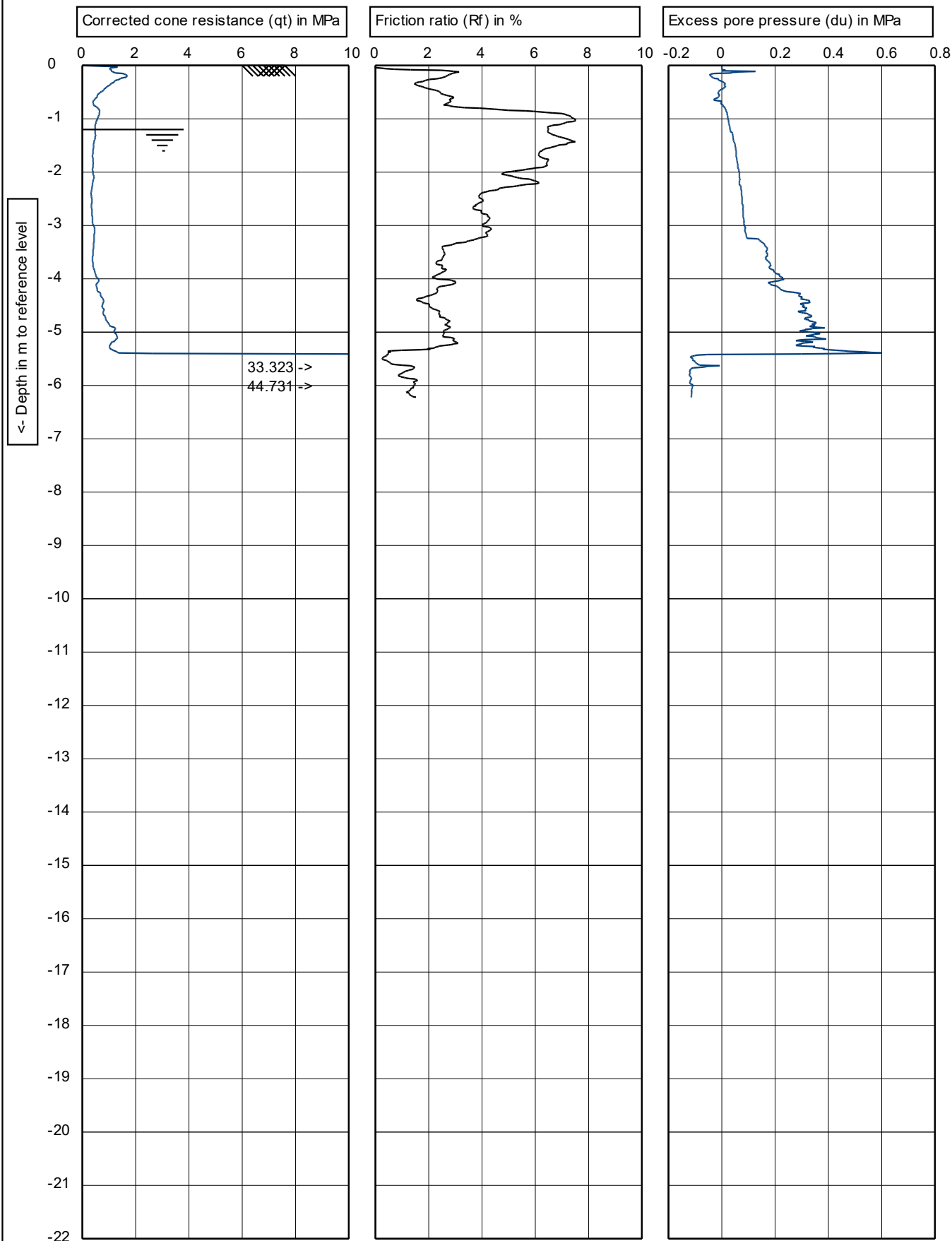
Designation : CPT North Island Manager
 Date : 02/10/25

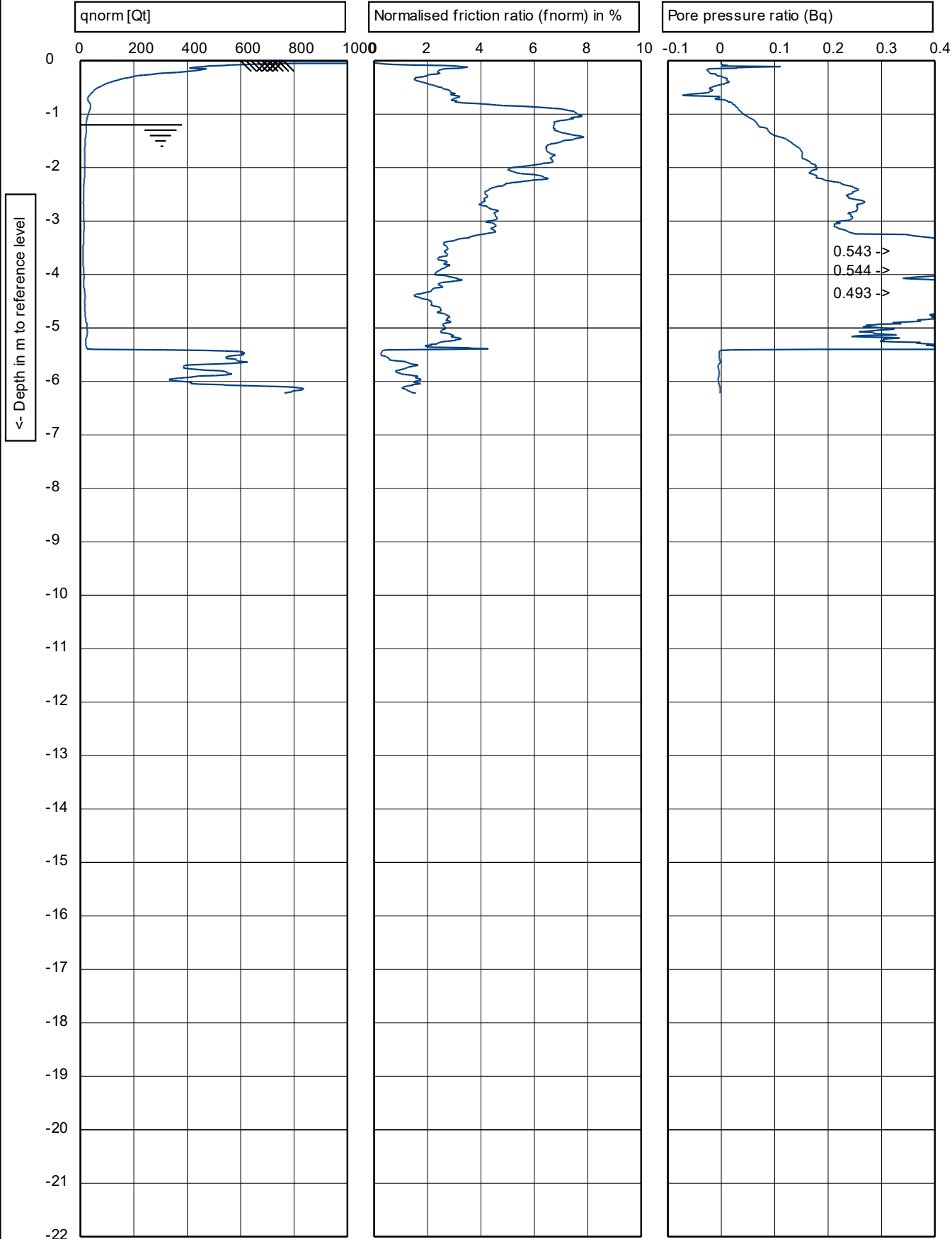


All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation



149 WSP ACCREDITED IANZ TESTING LABORATORY Test results indicated as not accredited are outside the scope of the laboratory's accreditation	r u2 150 10 cm² cm² Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013		Predrill: 0.00 m Pre drilled	
	G.L.: 0.00 m MSL		W.L.: -1.20 m	
	Project: Section 2B		Date: 1/10/2025	
	Location: Northern Corridor		Cone no.: C10CFIIP.C19489	
	Position: 1727723, 6011391 NZTM		Project no.: 1-C2466.16_HA15644	
CPT no.: CPT2B-1105			1/6	



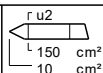


Refusal 11t.

EOH - Dipped - GWL @ 1.2m



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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.20 m

Predrill: 0.00 m Predrilled

Date: 1/10/2025

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

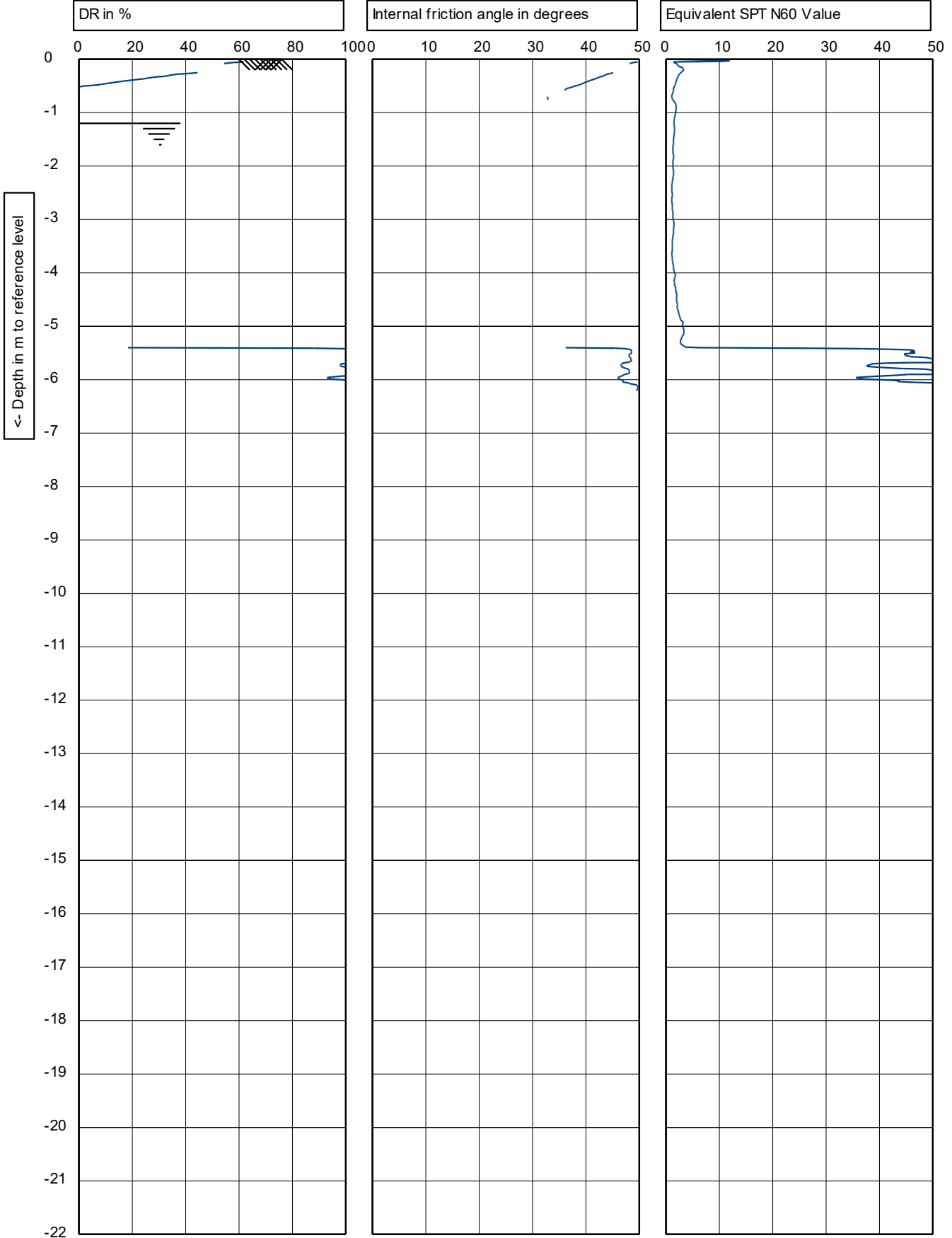
CPT no.: CPT2B-1105 3/6

Project: Section 2B

Location: Northern Corridor

Position: 1727723, 6011391 NZTM



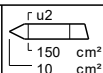


Refusal 11t.

EOH - Dipped - GWL @ 1.2m



Graphs on this page are
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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.20 m

Predrill: 0.00 m Predrilled

Date: 1/10/2025

Cone no.: C10CFIIP.C19489

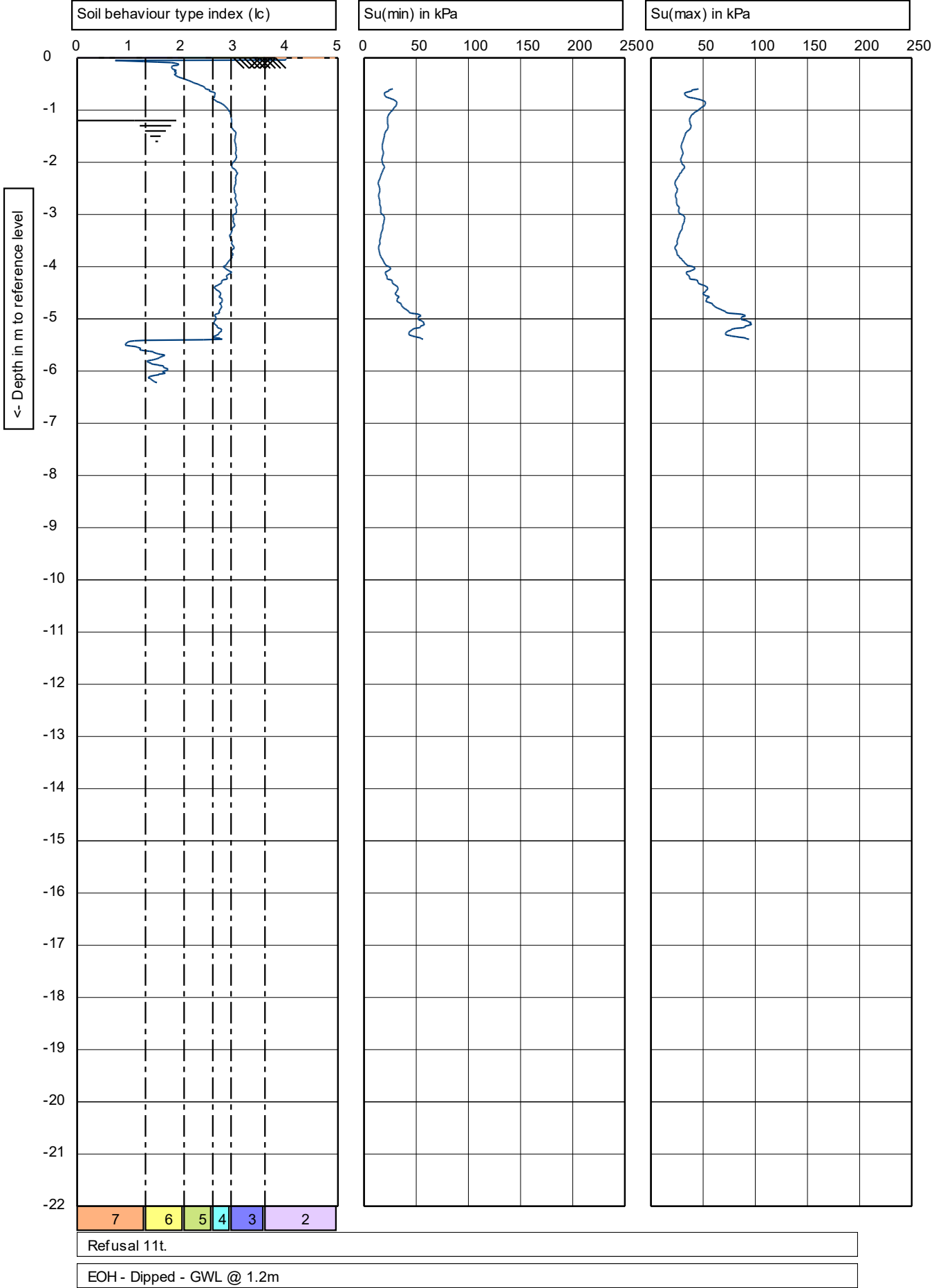
Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1105 5/6

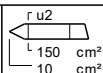
Project: Section 2B

Location: Northern Corridor

Position: 1727723, 6011391 NZTM



Graphs on this page are
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Method: ASTM D5778-20 & ISO 22476-1:2012 cor. 2013

G.L.: 0.00 m MSL

W.L.: -1.20 m

Predrill: 0.00 m Predrilled

Date: 1/10/2025

Cone no.: C10CFIIP.C19489

Project no.: 1-C2466.16_HA15644

CPT no.: CPT2B-1105 6/6

Project: Section 2B

Location: Northern Corridor

Position: 1727723, 6011391 NZTM

CONE PENETRATION TEST REPORT



Client : Waka Kotahi NZ Transport Agency
 Project : Section 2B
 Location : Northern Corridor
 Hole Number: CPT2B-1105
 Tested by : J Kavanaugh/ T Makasiale
 Date tested : 01/10/25
 Coordinates : 1727723 E
 6011391 N
 Elevation : 34m
 Water level : EOH - Dipped - GWL @ 1.2m

Project No : 1-C2466.16
 Lab Ref No : HA15644_CPT2B-1105

Test Results

Start Time	7:52:00 am
Time at penetration	7:57:43 am
End Time	12:05:43 am
Reference level	0
Ground level	0
Predrill	0
Penetration Depth	6.3
Remarks	Refusal 11t.
GPS Type	Garmin eTrex 20
GPS Accuracy	+ / - 3m
GPS Reference Grid	NZTM
GPS Datum	MSL
Rig Type	Geomil Panther 100
Rig ID	CPT05
Reaction Force	Dead weight 13.1 tonnes
Data Acquisition (Digitizer)	GeoMil GME500
Acquisition Program	GeoMil CPTest
Reporting Program	GeoMil CPTask
Cone Type	C10 (10 Tonne Compression)
Cross Sectional Area	10cm ²
Cone Area Ratio	0.8
Fluid Type	Silicone Fluid
Friction Reducer	>400mm behind base of cone
Application Class (ISO 22476-1)	3
Test Type (ISO 22476-1)	TE2 (Measured Cone and Sleeve)
Back Fill Method	Bentonite
Observations During Testing	Hole positioned east of CPT2B-1105D

Test Methods: ASTM D5778-20
 ISO 22476-1:2012 Cor. 2013

Date tested : 01/10/25
 Date reported : 02/10/25

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 corresponding calibration data, daily logs, and CPT graphs.

Approved Signatory

Designation : CPT North Island Manager
 Date : 02/10/25



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 accordance with the
 laboratory's scope of
 accreditation