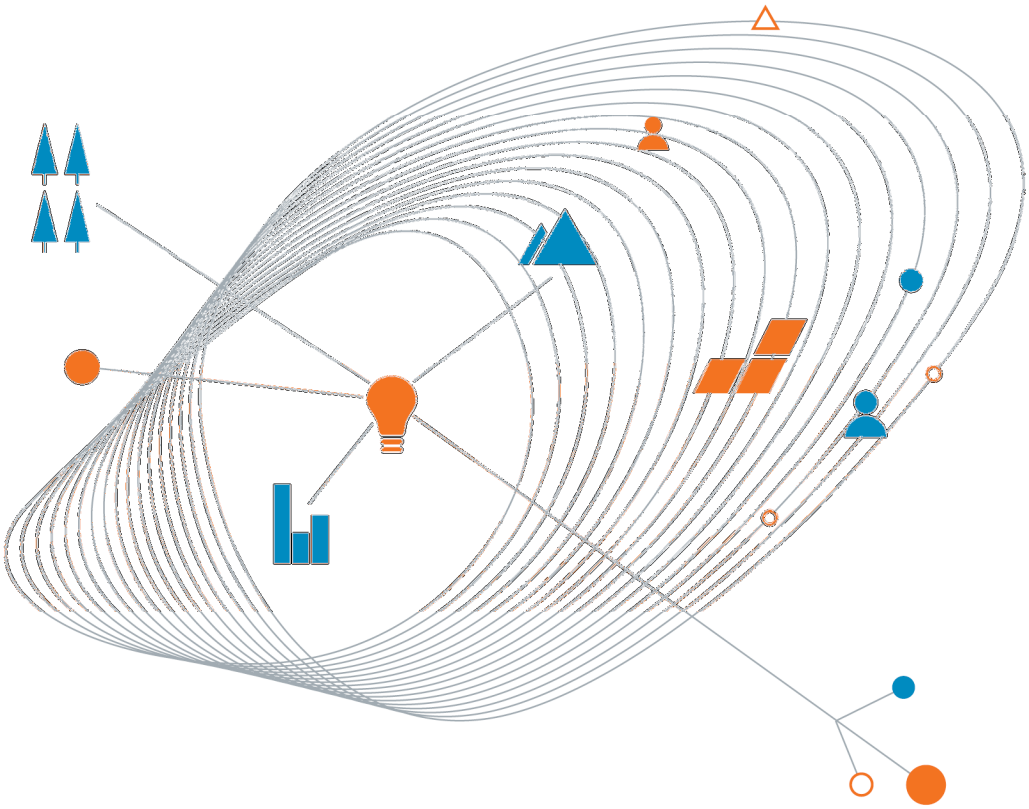
T7 Properties Limited

Proposed Residential Subdivision - Southwest T7 Cell, Swarbrick Drive, Te Awamutu

Geotechnical Completion Report
GENZHAMI14651AD

16 May 2016



Innovation is
finding answers
to questions
no one has
asked

Proposed Residential Subdivision - Southwest T7 Cell, Swarbrick Drive, Te Awamutu

Prepared for
T7 Properties Limited
PO Box 579
Te Awamutu

Attention: Andrew Fladgate

Prepared by
Coffey Geotechnics (NZ) Ltd
Level 1, 96 Cameron Road
Tauranga, 3010 New Zealand
t: +64 7 571 6081

16 May 2016

Document authorisation

Our ref: GENZHAMI14651AD

This report presents all supporting geotechnical data and our Suitability Statement in relation to land development works undertaken at the above location.

It has been prepared in accordance with instructions received from T7 Properties Limited and forms part of the documentation required by Waipa District Council, following recent earthworks to form the planned Southwest T7 Cell subdivision.

If you have any queries or you require any further clarification on any aspects of this report, please do not hesitate to contact the undersigned.

For and on behalf of Coffey

Lawrence Charles
Senior Geotechnical Engineer

Quality information

Revision history

Revision	Description	Date	Author	Reviewer	Signatory
0	GCR for the Southwest T7 Cell Subdivision	16/05/2016	L Charles	D Sullivan	L Charles

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Final	01	PDF	T7 Properties Ltd	16/05/2016

Table of contents

Appendices

1. Introduction

This Geotechnical Completion Report (GCR) has been prepared by Coffey Geotechnics (NZ) Limited (Coffey) for T7 Properties Limited as part of the documentation required to be submitted to the Waipa District Council following residential subdivisional development.

This report contains our Suitability Statement (in Appendix A), relevant test data and RAD Surveying Limited (RAD Surveying) as-built plans relating to the building platforms and road reserves of the Southwest T7 Cell Residential Subdivision as follows:

Table 1.1: RAD Surveying Limited As-Built Plans Schedule

Title	Reference No.	Date
Scheme Plan	14/014, Sheet 1, Version 7	December 2015
Cut Fill Model	14/014, Sheet 1, Version 1	April 2016
Engineering Plan – Roading Layout	14/014, Sheet RD1, Version 3	March 2016

These as-built plans are included for reference in Appendix B.

This report covers the recent building platforms preparation for the new subdivision. The lots covered for this GCR are the entire subdivision, except Lots 21 and 100 (that is, Lots 1 through 20, Lots 22 through 80, and Lots 82 through 86), as depicted on the appended RAD Surveying scheme plan dated December 2015. Additional analysis is still to be completed on Lot 21, a GCR has already been completed for the Rest Home on Lot 100, and the road reserve lots are included as noted in Section 6.5 below.

This report is intended to be used for subdivision resource consent and pertains to earthworks observation and testing of the afore-mentioned lots.

2. Description of Subdivision

The Highfield Country Estate, Southwest T7 Cell Subdivision is located on Swarbrick Drive in Te Awamutu. The area is located between State Highway 3 (SH3) to the southwest, agricultural land to the southeast, and developed subdivisions to the north as indicated in Figure 2.1 and 2.2 below.

This stage of the subdivision is located at Swarbrick Drive and is formed by both cut and fill as can be seen in the cut/fill contour as-built plan in Appendix B. The subdivision site has been cut and filled to maximum depths of about 8m and 4m, respectively.

Figure 2.1 – Site Location (Google Earth 2016)

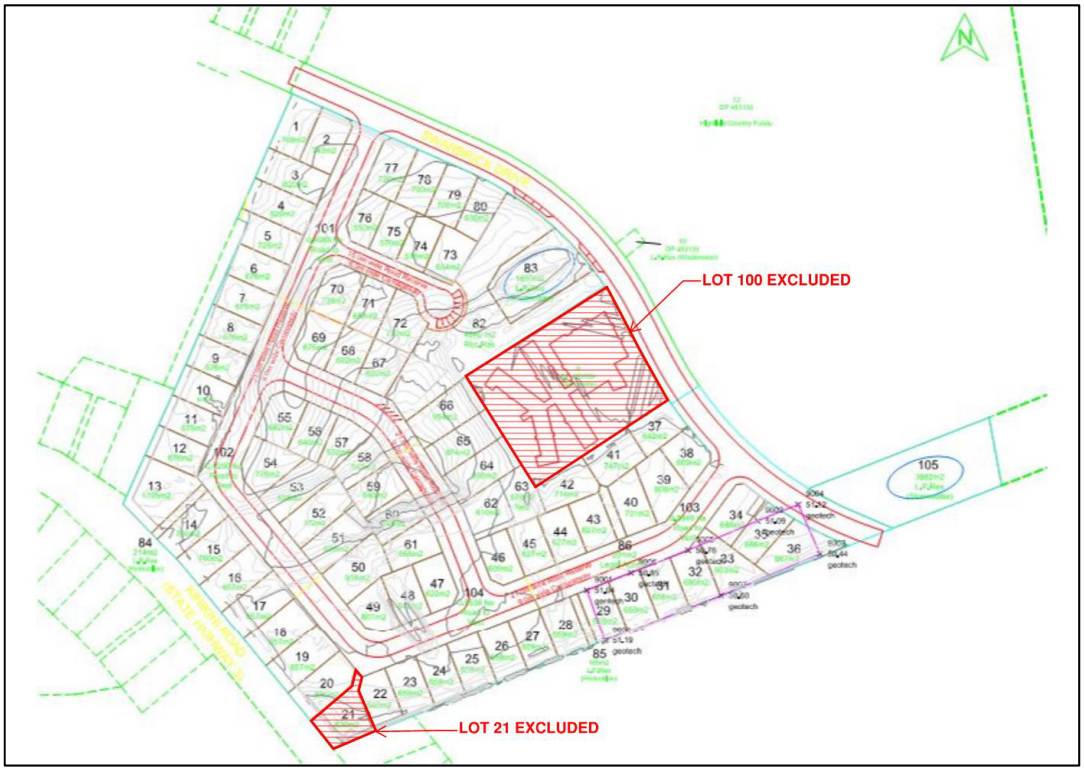


Figure 2.2 – Southwest T7 Cell Subdivision (from RAD Surveying, as edited by Coffey)

3. Related Reports

A Preliminary Geotechnical Assessment Report (PGAR) on the subject land was prepared by Coffey, reference GENZHAMI14651AD-AB dated 4 November 2014. The conclusions and recommendations of that report have been reviewed during the preparation of this document. The Site Plan (GENZHAMI14651AD, Figure 01) for this PGAR is included in Appendix B for reference. The site plan indicates original contours, lot layout, and numbering for the subdivision. It also includes locations of test pits and cone penetration tests (CPTs) from both the 2010 and 2014 investigations.

An Earthworks Specification Memorandum regarding the subject land was prepared by Coffey, reference GENZHAMI14651AD-AB dated 10 February 2015. The conclusions and recommendations of that report have been reviewed during the preparation of this document.

A specific GCR for the Rest Home on Lot 100 was prepared by Coffey, reference GENZHAMI14651AD-AG dated 24 June 2015. Construction for the Rest Home has recently commenced.

4. Earthworks Operations

4.1. Plant

The main items of plant used by the Contractor, Parkes Contracting Limited, were:

- 2 x Tractor with towed elevating scrapers;
- 1 x Tractor with towed 8 Tonne Sheepsfoot compactor;
- 1 x Hitachi excavator; and,
- 1 x Sumitomo excavator.

4.2. Construction Programme

Site earthworks operations for the subdivision commenced January 2015 and involved stripping of topsoil and removal from site. The natural subgrage soils were observed by Coffey and tested using shear vane and dynamic cone penetration (DCP) methods. The elevated ridge was cut up to a maximum depth of about 8m, as depicted on the appended RAD Surveying as-built plan titled ‘Cut Fill Model’ (reference 14/014, Sheet 1, Rev 1 dated May 2016). Materials generated by the cut were incorporated into fills within the southern and eastern portions of the site.

The majority of the subdivisional bulk earthworks within the vicinity of the proposed lots were completed in January 2016.

More recently, the majority of the services in the road reserves have been installed. The installation of services continues and Coffey can report on these items in an addendum report.

5. Quality Assurance and Controls

5.1. Site Observations and Testing

During the earthworks engineering observations and testing were undertaken on a regular basis to assess compliance with NZS 4431, and our project specific recommendations and specifications. Project specific observations were required on this stage of the development for:

- Assessment of cut materials for proposed fills;
- Filling compaction control; and,
- Post-earthworks construction testing to asses subsoils beneath the proposed lot building platforms.

5.2. Quality Control Criteria

Due to the varying soil types being used as fill, the compaction control criteria of minimum allowable shear strength and maximum allowable air voids were mainly used for quality assurances purposes.

Specification details were as follows:

Table 5.1: Minimum Shear Strength and Maximum Air Voids Method Requirements

(a)	Air Voids Percentage	
	(As defined in NZS 4402)	
	General Fill	
	Average value less than	10%
	Maximum single value	12%
(b)	Undrained Shear Strength	
	(Measured by Pilcon shear vane - calibrated using NZGS 2001 method)	
	General fill	
	Average value not less than	140 kPa
	Minimum single value	120 kPa

Note: The average value shall be determined over any ten consecutive tests

5.3. Quality Assurance Testing

5.3.1. Compaction

In-situ density monitoring was carried out as for the general fill areas. Regular in-situ density, strength and water content tests were carried out on all areas of the fill at or in excess of the frequency recommended by NZS 4431. A summary of the testing carried out during the placement of fill materials based on the original lot layout is summarised in Appendix C.

In-situ density Tests 8, 21 and 26 to 31 relating to the fill control testing carried out within Lot 21 and the Rest Home area (Lot 100) should be ignored.

Control tests carried out on the fill materials showed that on three occasions the required compaction standards were not achieved. Results of the test failures were relayed to the site foreman and/or his

staff, and the affected areas of fill were re-worked as necessary. Further testing was then carried out until compliance with the standards was achieved.

6. Project Evaluation

6.1. Bearing Capacity of Building Foundations

Following the staged completion of earthworks operations within the subdivision, we returned to site numerous times between October 2015 and March 2016 and carried out a series of post-construction CPTs and drilled hand auger boreholes within the approximate building footprints. These investigations generally varied between 1.5m and 3m below planned building platform levels and were completed to confirm bearing capacity for the lots. A total of 28 hand augers and 47 CPTs were carried out during this phase. The locations and results of the post-construction investigations are included in Appendix D.

It should be noted that there was a soft area that spanned across Lots 29 through 36. Woven geotextile fabric was placed in this area to provide additional support. Approximately 1m of fill materials were compacted and tested above this level. The approximate extent of this area is indicated on the marked up Scheme Plan included in Appendix D.

Based on the post-construction site investigation results and observations, at current platform levels, both the compacted fill material and undisturbed natural ground have a geotechnical ultimate bearing capacity of 300kPa within the depth of influence of conventional shallow residential building foundations.

Where any building platforms have been rutted by heavy machinery, or softened due to ponded rainwater, they should be trimmed back to competent ground and reinstated with compacted hardfill to design subgrade level prior to the commencement of building construction, or, alternatively, a lower bearing capacity used in the foundation design (e.g. use of Rib-Raft or similar foundations).

6.2. Land Drainage

Before work began on the subdivision, there was a pond on-site near the road reserve and Lots 70 and 71. The pond drained through a gully swale across some lots, but mainly on Lot 83, which is now a reserve area.

When construction began, this pond was emptied and the soft saturated soils were removed down to firm soil. Non-woven geotextile fabric was placed at the bottom of the exposed firm soil in the lower areas of Lot 83. Drainage rock was then placed prior to another layer of separating non-woven geotextile fabric to create an underfill drain (drainage blanket). Fill materials were then compacted above this level to form the existing contours. This drainage blanket was intended to intercept localised groundwater seepages during earthworks and to help general control over local groundwater levels and was installed as a precautionary measure, not as remedial works for any existing instability and it needs no specific maintenance. The approximate extents of these areas are indicated on the marked up Scheme Plan included in Appendix D.

6.3. Settlement

6.3.1. Liquefaction-Induced Settlement

Liquefaction assessments were carried out by Coffey in 2016 on the deeper CPT data results along the southeastern edge of the subdivision (i.e. CPT101 through CPT103). Liquefaction potential under

ultimate limit state (ULS) analysis indicates free-field settlement under these conditions to be less than 100mm. Serviceability limit state (SLS) indicates negligible free-field settlement. The settlements under liquefaction are anticipated to be relatively uniform and assessed to be acceptable.

6.3.2. Fill-Induced Settlement

Two settlement markers were installed at the approximate locations shown on the appended plan in Appendix E. It was attempted to undertake regular surveying to establish settlement trends in these areas. Unfortunately, Settlement Marker SM02 was destroyed in February 2015 after one week of operation and showed 1mm of settlement where about 2m of fill was placed. SM01, positioned where about 3m of fill was placed, was monitored for two full months and indicated about 5mm of settlement. Based on these results, we are satisfied that the majority of settlement has occurred.

As a result of our pre-fill inspections, quality control testing and the duration since the placement of the fill materials, we are of the opinion that induced differential settlements beneath or within the observed and tested fill materials due to its imposed weight should be insignificant with respect to conventional NZS 3604 or AS 2870 residential building development.

It should be noted that NZS 3604 only allows a maximum new fill depth of 600mm across the footprint of a building unless an Engineering design solution is proposed, on account of the risk of additional induced settlement of the subsoils caused by the weight of the new fill.

6.4. Service Trenches

As is normal on all subdivisions, building developments involving foundations within a 45 degree zone of influence from pipe inverts will require specific design by Coffey or other qualified chartered professional engineer with a view to extending foundation loads below this zone.

6.5. Road Subgrades

Road subgrade preparation, observations, and testing were carried out by Coffey. Initially, Coffey tested the exposed subgrade on the entire subdivision. Coffey used the DCP method per Waipa District Council as a guide, but due to the fine-grained nature of the subgrade soils this method may not be the most appropriate to test the subgrade. Regardless, Coffey used criteria of a minimum average of 3 blows per 100mm (ignoring the upper 100mm). Coffey retested in the immediate vicinity to gauge compliance with the criteria in areas that failed.

Subsequent to the above testing, utility services were installed in the roadway areas in the northwestern portion of the subdivision as these are the only roadways that will be developed at this time. The contractor then prepared these roadway subgrades, where possible. On 5 May 2016 Coffey field personnel observed proof rolling along the majority of these roadway subgrades and carried out a few additional tests. The proof rolling was carried out with a 12 tonne flat roller and indicated no discernible deflections. Coffey judges that the roadway subgrade, where indicated on the marked up Engineering Plan – Roading Layout that is included in Appendix F, is satisfactory for paving. The remaining area that was not observed and passed should be proof rolled and tested once utility services are installed and the subgrade soils have been prepared.

6.6. Topsoil

Topsoil had not been respread across the lots. However, there is some topsoil growth on Lots 1 through 13 at the time of preparing this report. Topsoil should be removed in the building areas prior to construction.

6.7. Contractor's Work

We have relied on the Contractor's diligence and construction observations to ensure that the works have been carried out in general accordance with NZS4431 and NZS4404, and with:

(i) The approved Contract drawings and design details;
(ii) The approved Contract specifications;
(iii) Authorised Variations and Memorandums regarding particular earthworks details during the execution of the works;
(iv) The conditions of Resource, Earthworks and Building Consents where applicable;
(v) The relevant geotechnical investigation reports, recommendations and site instructions,

and that all as-built information, and other details provided to the Client and/or Coffey Geotechnics (NZ) Limited are accurate and correct in all respects.

6.8. Suitability Statement

A copy of our statement of professional opinion as to the geotechnical suitability of the land for development in accordance with Waipa District Council requirements is attached.

7. Future Work

Lot owners should satisfy themselves that the bearing strength of subsoils within the building footprints have been preserved in lieu of the presence of topsoil and the exposed subgrade surfaces due to weather in the future.

8. Limitation

This report has been prepared on behalf of our client, T7 Properties Limited, its professional advisers and the relevant Territorial Authorities in relation to the specific project described herein. It is designed to give the local authority (Council) the foundation requirements needed for each section. No liability is accepted in respect of its use for any other purpose or by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its on-going suitability for their intended use.

The opinions, recommendations and comments given in this report result from the application of normal methods of site investigation. As factual evidence has been obtained solely from visual observations and some shallow boreholes which by their nature only provide information about a relatively small volume of subsoils, there may be special conditions pertaining to this site which have not been disclosed by the investigation and which have not been taken into account in the report.

If variations in the subsoils occur from those described or assumed to exist then the matter should be referred back to us immediately.

For and on behalf of Coffey

Prepared By:

Lawrence Charles
Senior Geotechnical Engineer

Reviewed and Authorised By:

David Sullivan
Principal Geotechnical Engineer

Important information about your Coffey Report

As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples.

These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

Rely on Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

Appendix A – Statement of Professional Opinion

STATEMENT OF PROFESSIONAL OPINION AS TO THE GEOTECHNICAL SUITABILITY OF LAND FOR DEVELOPMENT

ISSUED BY: Coffey Geotechnics (NZ) Limited
(Construction Review Firm)

TO: T7 Properties Limited
(Owner / Developer)

TO BE SUPPLIED TO: Waipa District Council
(Local Authority)

IN RESPECT OF: Geotechnical Completion Report – Southwest T7 Cell Subdivision (Lots 1 to 20, 22 to 80, and 82 to 86)
(Description of Relevant Development)

AT: Swarbrick Drive, Te Awamutu
(Location)

COUNCIL FILE NUMBER BC/RC No: LU/0049/45

I … David Sullivan, Principal Geotechnical Engineer of Coffey Geotechnics (NZ) Limited
(Full Name) (Qualifications) (Name & Address of Firm)

Hereby confirm that;

1. I am a professional person appropriately qualified in geomechanics to ascertain the suitability of the land for building development and was retained as the geotechnical consultant for the above development.

2. An appropriate level of site investigation has been carried out under my direction and is described in the report titled, "*Geotechnical Completion Report for Proposed Residential Subdivision – Southwest T7 Cell, Swarbrick Drive, Te Awamutu, reference GENZHAMI14651AD, dated 16 May 2016*".

3. I am aware of the details of the proposed plan of development and of the general nature of the proposed engineering works as shown on the following drawings:

- Scheme Plan, reference number 14/014, dated December 2015;
- Cut Fill Model, reference number 14/014, dated April 2016; and,
- Engineering Plan – Roading Layout, reference number 14/014, dated March 2016.

4. Lots 1 to 20 and 22 to 80 have reached compaction requirements that are suitable for standard NZS 3604 and AS 2870 concrete floor foundations.

5. In my professional opinion, not to be construed as a guarantee, I consider that the proposed works give due regard to land slope and foundation stability considerations and that the land is suitable for the proposed development provided that the recommendations of the above referenced report are adhered to.

6. This professional opinion is furnished to the Council, the owner, and future owner(s) for their purpose alone on the express condition that it will not be relied upon by any other person.

Signed Date 16 May 2016

For and on behalf of Coffey Geotechnics (NZ) Ltd

Appendix B – RAD Surveying Limited As Built Plans and Coffey Site Plan from 2014 Report

NOTE:

1) LAYOUT, AREAS AND DIMENSIONS SUBJECT TO FINAL SURVEY AND APPROVAL FROM THE WAIPA DISTRICT COUNCIL

2) LEGAL DESCRIPTION:
LOT 13 DP 483139 (CT.)

3) TOTAL AREA: 9.0196 ha.

4) ZONE: RESIDENTIAL (PDP)

AREAS SHOWN J AND K ON LOT 10 AND AREAS L AND M ON LOT 11 ARE SUBJECT TO LAND COVENANTS

MEMORANDUM OF EASEMENTS

PURPOSE	SERV. TENE.	SHOWN	DOM. TENE
RIGHT OF WAY RIGHT TO CONVEY WATER, SEWAGE, STORMWATER, ELECTRICITY, TELECOMMUNICATIONS AND COMPUTER MEDIA,	LOT 86 HEREON	Y	LOTS 41 and 42 HEREON

SCHEDULE OF EXISTING EASEMENTS IN GROSS

PURPOSE	SERV. TENE.	SHOWN	DOC.
RIGHT TO CONVEY NATURAL GAS	LOT 1 HEREON	A	H.798697
	LOT 3 HEREON	B	
	LOT 4 HEREON	C	
	LOT 5 HEREON	D	
	LOT 5 HEREON	E	
	LOT 6 HEREON	F	
	LOT 7 HEREON	G	
	LOT 8 HEREON	H	
	LOT 9 HEREON	I	
	LOT 10 HEREON	J	
	LOT 11 HEREON	L	
	LOT 12 HEREON	N	
	LOT 13 HEREON	O	
	LOT 14 HEREON	Q	
	LOT 15 HEREON	R	
	LOT 16 HEREON	S	
	LOT 17 HEREON	T	
	LOT 18 HEREON	U	
	LOT 19 HEREON	V	
	LOT 20 HEREON	W	
	LOT 21 HEREON	X	

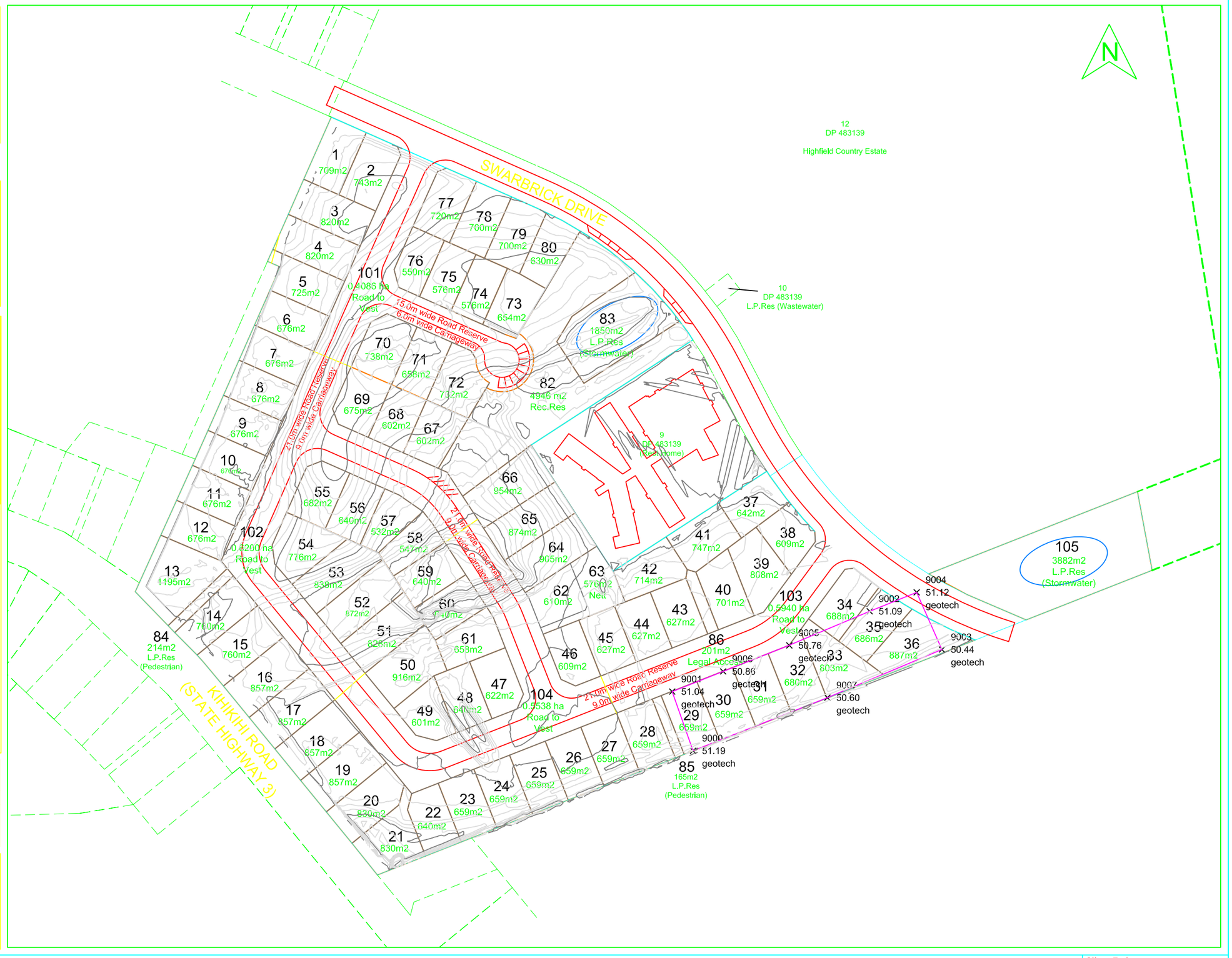
SCHEDULE OF EXISTING EASEMENTS IN GROSS TO BE SURRENDERED

PURPOSE	SERV. TENE.	SHOWN	DOC.
RIGHT TO CONVEY NATURAL GAS	LOT 84 HEREON	P	H.798697

AMALGAMATION CONDITION

PURSUANT TO SECTION 220 1)b)iv) RMA 1991

THAT LOT 86 (LEGAL ACCESS) HEREON BE HELD AS TO TWO UNDIVIDED ONE-HALF SHARES BY THE OWNERS OF LOTS 41 AND 42 HEREON AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE THEREWITH



RAD SURVEYING LIMITED

07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

SCHEME PLAN
PROPOSED T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14/014

Sheet: 1 Version: 7

PREPARED FOR: T7 PROPERTIES LTD

SCALE: 1:2000 @ A3

DATE: DECEMBER 2015

Designed. TDR 29 June 2014

File: COFFEY T7 CONCEPT 121815 AREA OF SOFT GROUND.DWG

RAD SURVEYING LIMITED
07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

CUT FILL MODEL
T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14/014

Sheet: 1 | Version: 1

PREPARED FOR: OAKRIDGE DEVELOPMENTS LTD | SCALE: 1:2000 @ A3 | DATE: APRIL 2016

Designed. TDR 29 June 2014

File: SCHEME COPY.DWG

N

SWARBRICK DRIVE

KIHIKIHI ROAD (STATE HIGHWAY 3)

12
DP 483139

Highfield Country Estate

10
DP 483139
L.P.Res (Wastewater)

400

LOCAL ROAD

SEAL LENGTH = 557.6m
ROAD RESERVE = 21.0 WIDE
CARRIAGEWAY WIDTH = 9.0m
LEFT BERM 1 = 2.0m WIDE 4%
LEFT FOOTPATH = 2.0m WIDE 1.5%
LEFT BERM 2 = 2.0m WIDE 4%
RIGHT BERM 1 = 2.0m WIDE 4%
FOOTPATH = 2.0m WIDE 1.5%
RIGHT BERM 2 = 2.0m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

LOCAL ROAD (CULDESAC)

SEAL LENGTH = 254.7m
ROAD RESERVE = 15.0 WIDE
CARRIAGEWAY WIDTH = 6.0m
LEFT BERM 1 = 1.5m WIDE 4%
LEFT FOOTPATH = 1.5m WIDE 1.5%
LEFT BERM 2 = 1.5m WIDE 4%
RIGHT BERM 1 = 1.5m WIDE 4%
FOOTPATH = 1.5m WIDE 1.5%
RIGHT BERM 2 = 1.5m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

LOCAL ROAD

SEAL LENGTH = 557.6m
ROAD RESERVE = 21.0 WIDE
CARRIAGEWAY WIDTH = 9.0m
LEFT BERM 1 = 2.0m WIDE 4%
LEFT FOOTPATH = 2.0m WIDE 1.5%
LEFT BERM 2 = 2.0m WIDE 4%
RIGHT BERM 1 = 2.0m WIDE 4%
FOOTPATH = 2.0m WIDE 1.5%
RIGHT BERM 2 = 2.0m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

RAD SURVEYING LIMITED

07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

ENGINEERING PLAN - ROADING LAYOUT
PROPOSED T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14014

Sheet: RD1

Version: 3

PREPARED FOR: T7 PROPERTIES LTD

SCALE: 1:2000 @ A3

DATE: MARCH 2016

Designed. TDR 29 June 2014

File: T7 ENG ROAD 031016 STAGES 1 AND 2.DWG

LEGEND

- Approximate Trial Pit Locations (2014)
- Approximate Trial Pit Locations (2010)
- Approximate CPT Locations (2010)
- [3.8] Depth to groundwater (m) where encountered
- (5.9) Depth to base of soft organic soils (m)
- Overland Flowpath / Open Drain
- T7 Stage Boundary
- Approximate Offal Pit Locations

N

SWARBRICK DRIVE

KIHIKIHI ROAD (STATE HIGHWAY 3)

CPT02
TP01
TP03
CPT03
TP20 [2.9]
TP05 [1.2] (1.6)
TP21 [1.8]
TP08
TP09
TP04 [3.8] (5.2)
CPT01 [3.8] (5.9)
TP13 [4.5]
TP11
CPT07
TP22
TP19 [1.4]
CPT12 [3.5]
TP18 [1.1] (1.1)
CPT10 [2.8]
TP17 [1.4] (2.2)
TP16 [1.0] (1.9)
TP12 [1.5]
CPT08 [1.5]
CPT09
TP14

Existing pond

3800m2 Drainage Res

Culvert

Possible spring (to be inspected during earthworks)

8000m2 (Rest Home)

Possible slump debris lobe (to be inspected during earthworks)

Existing House

Existing drain

Notes

1. Subdivision Scheme Plan & Topographic contours provided by RAD Surveying Limited, drawing titled "T7 Engv3 092314 copy for Coffey" ref. 14/014 version 2 and dated 23/09/2014.
2. Contours shown are of existing ground surface surveyed in July 2014 andare shown at 0.5m vertical intervals. Contour elevations are based on the Moturiki Datum 1953.
3. Drawing coordinates are in terms of horizontal datum NZGD 2000, circuit Mt Eden 2000.

revision	rev	description	drawn	approved	date

0 30.0 60.0 90.0 120.0
Horizontal Scale (metres)
0 30.0 60.0 90.0 120.0
Vertical Scale (metres)

drawn	KRM
approved	KAL
date	23/10/2014
scale	1:2000
original size	A3

coffey

client: T7 PROPERTIES LIMITED

project: PROPOSED RETIREMENT VILLAGE
T7 PROPERTIES LIMITED
T7 CELL, 1195 STATE HIGHWAY 3, TE AWAMUTU

title: SITE PLAN

project no: GENZHAMI14651AD | figure no: 01 | rev: -

3/10/2014F:\GENZ\20 HAMI PROJECTS\14651AD HIGHFIELD COUNTRY ESTATE T7 & T8\DRAWINGS\CGL DRAWINGS\WORKING\14651AD SITE PLAN 2014.10.21.DWG

Appendix C – Field Density Test Summary Sheets

Coffey Geotechnics NZ Ltd
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PO Box 58 877, Botany, Manukau 2163, New Zealand
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EARTHWORKS FILL REPORT

Test Methods : Shear Strength (using field Shear vane in accordance with NZGS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:1991 Test 4.2.1): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1): Density Calculations (in accordance with NZS 4402:1986 Tests 4.1.1.5(b))

Project No: GENZETAM00989AD-00

Client: Coffey Geotechnics NZ Ltd
PO Box 19062,
Hamilton 3244

Principal: Daniel Vincent

c.c. to: -

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Project Location: T7 and T8 Cell
-

IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Approved Signatory: Hong Huang

Approved Signatory Signature:

Date of Issue: 18/06/2015

IANZ Accredited Laboratory Number:105

Date	Work Order :	Tested By	Test No.	Wet Density (t/m³)	Oven Water Content (%)	Dry Density (t/m³)	Solid Density (t/m³)	Air Voids %	Field Shear Strength in kPa (NT = Not tested, UTP = Unable to penetrate)				Test Location	GPS	Locations (Client Coordinates supplied)	RL (m)	Material Tested	Comments
27/01/2015	ETAM15W00347	DV	1	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.33205	38.02291	-	Silty SAND	~0.5m of fill. Refer to Scala 1.
27/01/2015	ETAM15W00347	DV	2	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.33211	38.02308	-	Silty SAND	~0.5m of fill. Refer to Scala 2.
27/01/2015	ETAM15W00347	DV	3	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.33223	38.02335	-	Silty SAND	~0.7m of fill. Refer to Scala 3.
27/01/2015	ETAM15W00347	DV	4	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.33197	38.02337	-	Silty SAND	~0.7m of fill. Refer to Scala 4.
27/01/2015	ETAM15W00347	DV	5	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.3318	38.02323	-	Silty SAND	~0.5m of fill. Refer to Scala 5.
27/01/2015	ETAM15W00347	DV	6	Not tested	Not tested	Not tested	-	Not tested	-	-	-	-	T7 Cell	175.33168	38.02304	-	Silty SAND	~0.4m of fill. Refer to Scala 6.
29/01/2015	ETAM15W00347	DV	7	1.54	52.9	1.01	2.7	9.2	147	140	152	157	LOT 30	175.33230	38.02337	-	Clayey SILT / Silty CLAY	0.5m above original. Retest of No. 3
29/01/2015	ETAM15W00347	DV	8	Not tested	Not tested	Not tested	-	Not tested	NT	NT	NT	NT	LOT 29	175.33205	38.02340	-	SILT	0.5m above original.
29/01/2015	ETAM15W00347	DV	9	1.51	54.1	0.98	2.7	11	168	215+	UTP	UTP	LOT 24	175.33202	38.02321	-	Clayey SILT	1.3m above original
29/01/2015	ETAM15W00347	DV	10	1.36	52.8	0.89	2.7	20	-	-	-	-	LOT 25	175.33228	38.02302	-	Clayey SILT	1.0m above original
4/02/2015	ETAM15W00436	AWDC	11	1.55	74.1	0.89	2.7	1.2	152	192	144	155	LOT 24	1804694	5789043	-	Clayey SILT	1.3m above original. Retest of No.9
4/02/2015	ETAM15W00436	AWDC	12	1.66	33.8	1.24	2.7	12	163	157	152	195	LOT 25	1804718	5789064	-	Clayey SILT	1.0m above original. Retest of No.10
10/02/2015	ETAM15W00501	AWDC	13	1.75	39.3	1.26	2.74	4.8	UTP	UTP	UTP	179	LOT 29	1804696	5789022	-	Silty CLAY	~1.0m above original ground
10/02/2015	ETAM15W00501	AWDC	14	1.63	40.4	1.16	2.74	11	UTP	UTP	225	176	LOT 30	1804711	5789029	-	Silty CLAY	~1.0m above original ground
10/02/2015	ETAM15W00501	AWDC	15	1.45	55.6	0.93	2.74	14	167	172	196	182	LOT 31	1804725	5789028	-	Silty CLAY	~0.9m above original ground
11/02/2015	ETAM15W00505	AWDC	16	1.59	54.4	1.03	2.74	6.7	204+	204+	204+	204+	LOT 31	1804725	5789028	-	Silty CLAY	~0.9m of fill
11/02/2015	ETAM15W00505	AWDC	17	1.59	57.7	1.01	2.74	5.3	154	198	159	186	LOT 26	1804692	5789041	-	Silty CLAY	~1.0m of fill
11/02/2015	ETAM15W00505	AWDC	18	1.55	55.8	0.99	2.74	8.3	163	204+	146	178	LOT 24	1804667	5789039	-	Silty CLAY	~1.0m of fill
11/02/2015	ETAM15W00505	AWDC	19	1.49	38.0	1.08	2.74	20	204+	204+	UTP	186	LOT 22	1804683	5789062	-	Silty CLAY	~1.0m of fill
11/02/2015	ETAM15W00505	AWDC	20	1.58	51.7	1.04	2.74	8.0	170	204	204	204	LOT 20	1804658	5789059	-	Silty CLAY	1.0m below FL
12/02/2015	ETAM15W00539	AWDC	21	1.81	60.8	1.13	2.74	0.0	154	169	150	179	Northern corner	1804825	5879265	-	Silty CLAY	~ 1.0m of fill
12/02/2015	ETAM15W00539	AWDC	22	1.66	40.3	1.18	2.74	9.0	204	223+	163	UTP	LOT 24 / LOT 25	1804679	5789073	-	Silty CLAY	~ 1.6m of fill
12/02/2015	ETAM15W00539	AWDC	23	1.64	52.8	1.07	2.74	4.3	223+	215	187	UTP	LOT 20 / LOT 21	1804695	5789044	-	Silty CLAY	~ 1.6m of fill
16/02/2015	ETAM15W00603	LPM	24	1.65	52.7	1.08	2.74	3.9	223+	223+	223+	223+	See plan	1804696	5789043	-	Silty CLAY	~ 2.6m of fill
16/02/2015	ETAM15W00603	LPM	25	1.59	58.4	1.01	2.74	4.6	223+	206	223+	215	See plan	1804678	5789073	-	Silty CLAY	~ 2.6m of fill
16/02/2015	ETAM15W00603	LPM	26	1.60	44.5	1.11	2.74	10.2	223+	223+	223+	223+	Northern corner	1804827	5879265	-	Silty CLAY	~ 2.0m of fill
18/02/2015	ETAM15W00634	AWDC	27	1.65	75.0	0.94	2.74	0.0	195	139	156	177	Northern corner	1804830	5789256	-	Silty CLAY	~3.0m of fill

(Please note that Air Void calculations are not IANZ endorsed as part of this report)

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EARTHWORKS FILL REPORT

Test Methods : Shear Strength (using field Shear vane in accordance with NZGS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:1991 Test 4.2.1): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1): Density Calculations (in accordance with NZS 4402:1986 Tests 4.1.1.5(b))

Project No: GENZETAM00989AD-00

Client:	Coffey Geotechnics NZ Ltd PO Box 19062, Hamilton 3244
Principal:	Daniel Vincent
c.c. to:	-
Project:	GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8
Project Location:	T7 and T8 Cell -

IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Approved Signatory: Hong Huang

Approved Signatory Signature:

Date of Issue: 18/06/2015

IANZ Accredited Laboratory Number:105

Date	Work Order :	Tested By	Test No.	Wet Density (t/m^3)	Oven Water Content (%)	Dry Density (t/m^3)	Solid Density (t/m^3)	Air Voids %	Field Shear Strength in kPa (NT = Not tested, UTP = Unable to penetrate)				Test Location	GPS	Locations	RL (m)	Material Tested	Comments
														Client Coordinates supplied				
23/02/2015	ETAM15W00739	LPM	**28**	1.63	48.4	1.10	2.74	6.6	223+	223+	223+	167	Northern corner	1804832	5789260	-	Silty CLAY	4.0m fill
25/02/2015	ETAM15W00803	AWDC	**29**	1.57	68.2	0.93	2.74	2.6	151	151	208	195	Northern corner	1804830	5789251	-	Silty CLAY	~4.0m above original ground
25/02/2015	ETAM15W00803	AWDC	**30**	Not tested	Not tested	Not tested	-	Not tested	87	116	131	125	Northern corner	1804800	5789244	-	Silty CLAY	
26/02/2015	ETAM15W00853	AWDC	**31**	1.64	57.4	1.04	2.74	1.9	244+	164	190	171	Northern middle area	1804803	5789242	-	Silty CLAY	4.0m fill. Retest of No.30
26/03/2015	ETAM15W01294	AWDC	**32**	1.68	57.7	1.06	2.74	0.0	205	153	172	165	SW Corner of T7	1804743	5789097	-	Silty CLAY	~0.8m fill
26/03/2015	ETAM15W01294	AWDC	**33**	1.71	51.0	1.14	2.74	0.7	183	210	199	160	SW Corner of T7	1804752	5789068	-	Silty CLAY	~0.8m fill

(Please note that Air Void calculations are not IANZ endorsed as part of this report)

East Tamaki Laboratory

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Facsimile: +614 9 272 3378

DETERMINATION OF THE PENETRATION OF A SOIL

Project No: GENZETAM00989AD-00
Work Order: ETAM15W00347
Sample No: ETAM15S-00657

Client: Coffey Geotechnics NZ Ltd
Address: PO Box 19062, Hamilton 3244

Principal: Daniel Vincent
c.c.: -
Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: T7 Cell

Material: Silty SAND
Tested by: DV **Date:** 27/01/2015

IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Approved Signatory: Hong Huang

Date of Issue: 18/06/2015

IANZ Accredited Laboratory Number:105

Sample Details

Test method: NZS 4402 : 1988 Test 6.5.2 - Hand method using a dynamic cone penetrometer

Equivalent CBR values are reported to Austroads 2012. Conversion to CBR values are not IANZ endorsed as part of this report

DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR
No. 1 : ~0.5m of fill			No. 2 : ~0.5m of fill			No. 3 : ~0.7m of fill			No. 4 : ~ 0.7m of fill		
175.33205 : 38.02291			175.33211 : 38.02308			175.33223 : 38.02335			175.33197 : 38.02337		
100	3	5.5	100	7	15	100	3	5.5	100	3	5.5
200	5	10	200	7	15	200	3	5.5	200	5	10
300	9	20	300	6	13	300	3	5.5	300	5	10
400	7	15	400	6	13	400	3	5.5	400	5	10
500	6	13	500	6	13	500	3	5.5	500	4	8
600	5	10	600	4	8	600	4	8	600	6	13
700	5	10	700	4	8	700	3	5.5	700	7	15
800	4	8	800	3	5.5	800	6	13	800	5	10
900	3	5.5	900	2	3.5	900	5	10	900	2	3.5
No. 5 : ~0.5m of fill			No. 6 : ~0.4m of fill								
175.33180 : 38.02323			175.33168 : 38.02304								
100	6	13	100	3	5.5						
200	5	10	200	9	20						
300	5	10	300	5	10						
400	4	8	400	4	8						
500	3	5.5	500	8	18						
600	3	5.5	600	8	18						
700	4	8	700	5	10						
800	3	5.5	800	5	10						
900	3	5.5	900	4	8						

Comments

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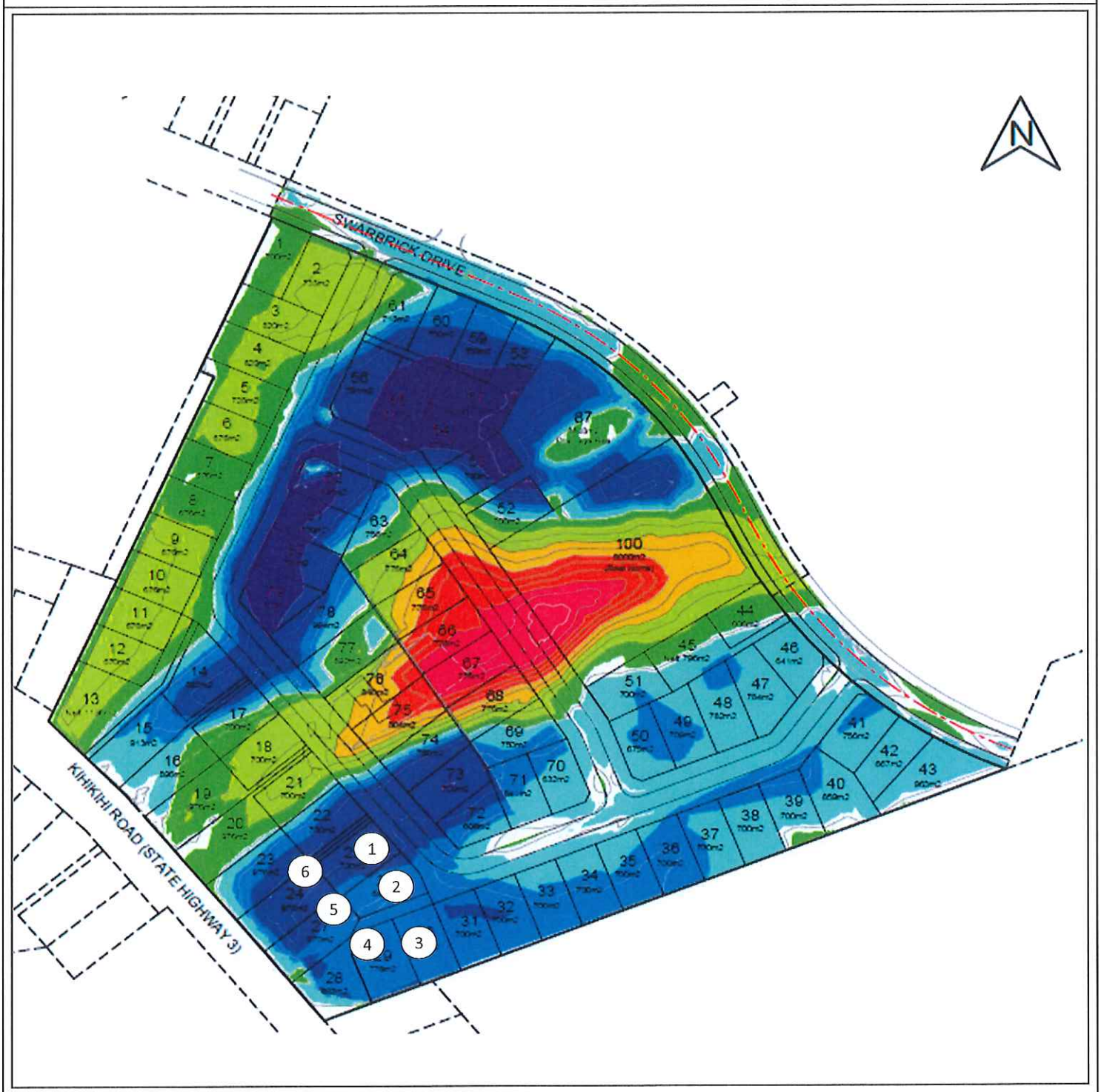
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00347

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: T7 Cell



Tested By :	DV	Date :	27/01/2015
Checked By :	EP	Date :	3/02/2015

East Tamaki Laboratory
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DETERMINATION OF THE PENETRATION OF A SOIL

Project No: GENZETAM00989AD-00
Work Order: ETAM15W00347
Sample No: ETAM15S-00792

Client: Coffey Geotechnics NZ Ltd
Address: PO Box 19062, Hamilton 3244

Principal: Daniel Vincent
c.c.: -
Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: T7 Cell

Material: Silty SAND
Tested by: DV **Date:** 29/01/2015

IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Approved Signatory: Hong Huang

Date of Issue: 18/06/2015

IANZ Accredited Laboratory Number:105

Sample Details

Test method: NZS 4402 : 1988 Test 6.5.2 - Hand method using a dynamic cone penetrometer

Equivalent CBR values are reported to Austroads 2012. Conversion to CBR values are not IANZ endorsed as part of this report

DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR	DEPTH	NO. OF BLOWS	EQUIV CBR
	No. 8			No. 10							
175533205 : 38.02340			175.33228 : 38.02302								
100	5	10	100	4	8						
200	3	5.5	200	8	18						
300	3	5.5	300	5	10						
400	4	8	400	6	13						
500	4	8	500	5	10						
600	4	8	600	6	13						
700	4	8	700	5	10						
800	4	8	800	5	10						
900	4	8	900	4	8						

Comments

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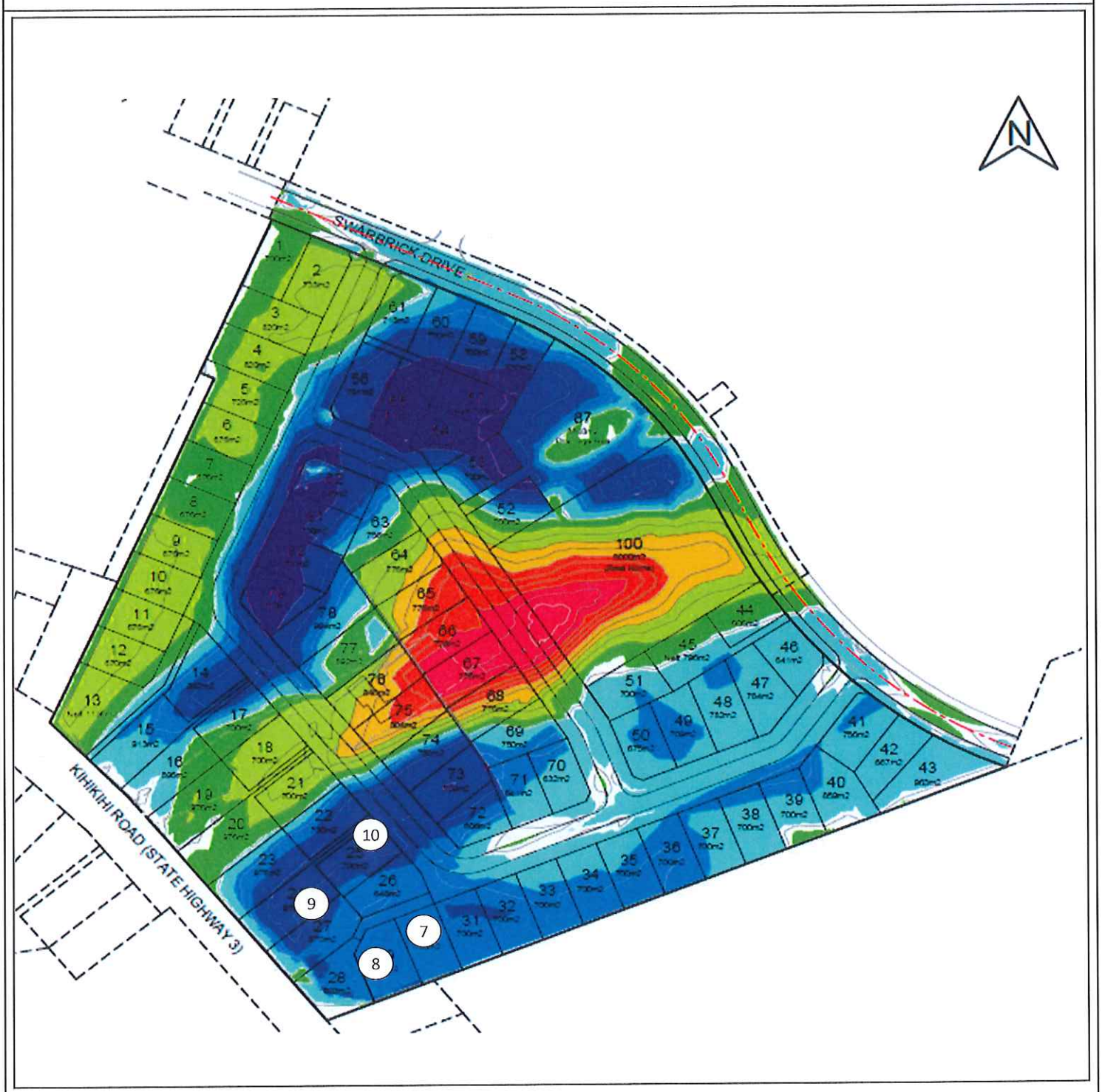
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00347
Page: 6 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: T7 Cell



Tested By :	DV	Date :	29/01/2015
Checked By :	JM	Date :	4/02/2015

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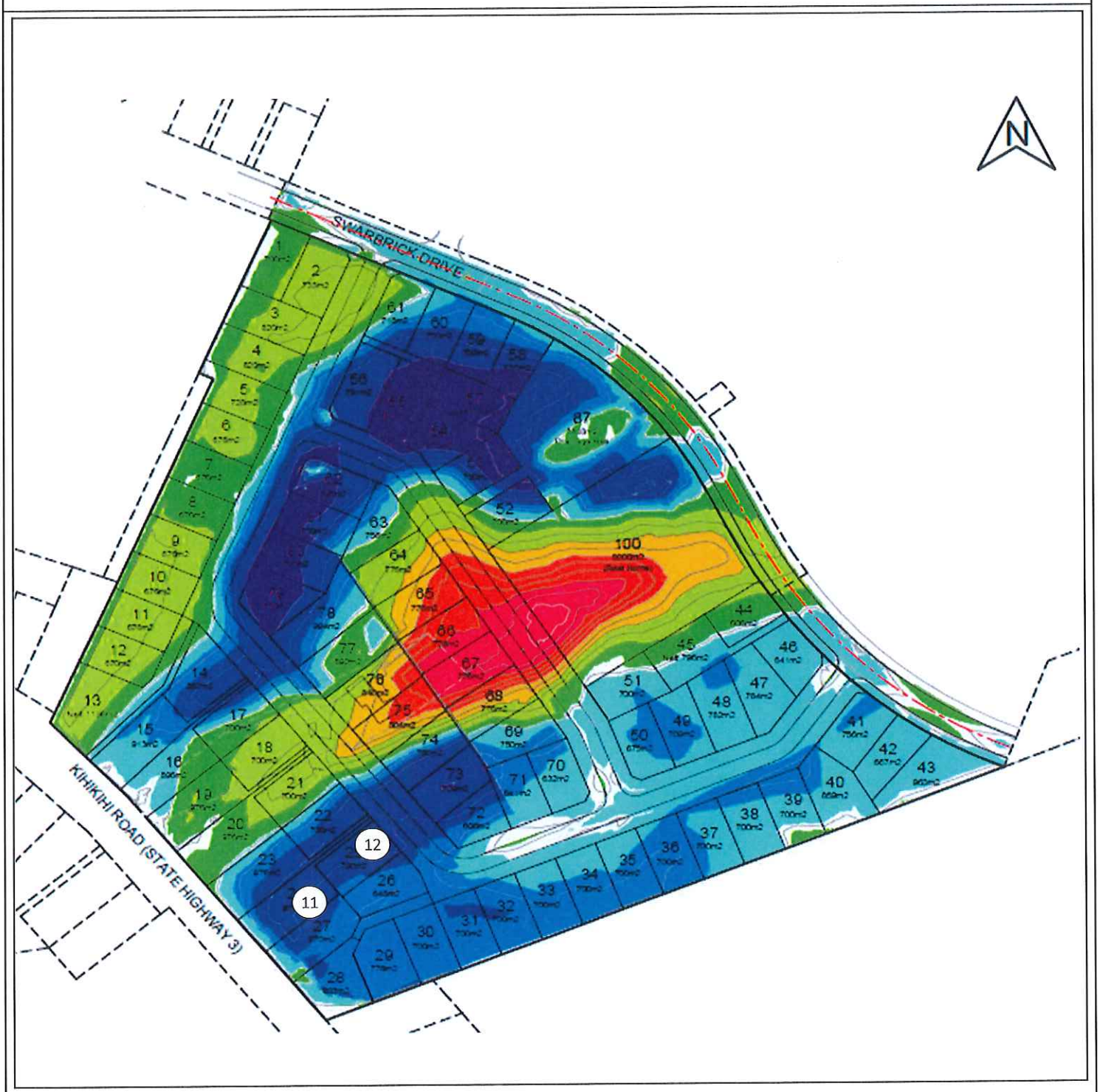
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00436
Page: 7 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: Lot 24 and Lot 25



Tested By :	AWDC	Date :	4/02/2015
Checked By :	CP	Date :	11/02/2015

Coffey Geotechnics NZ Ltd
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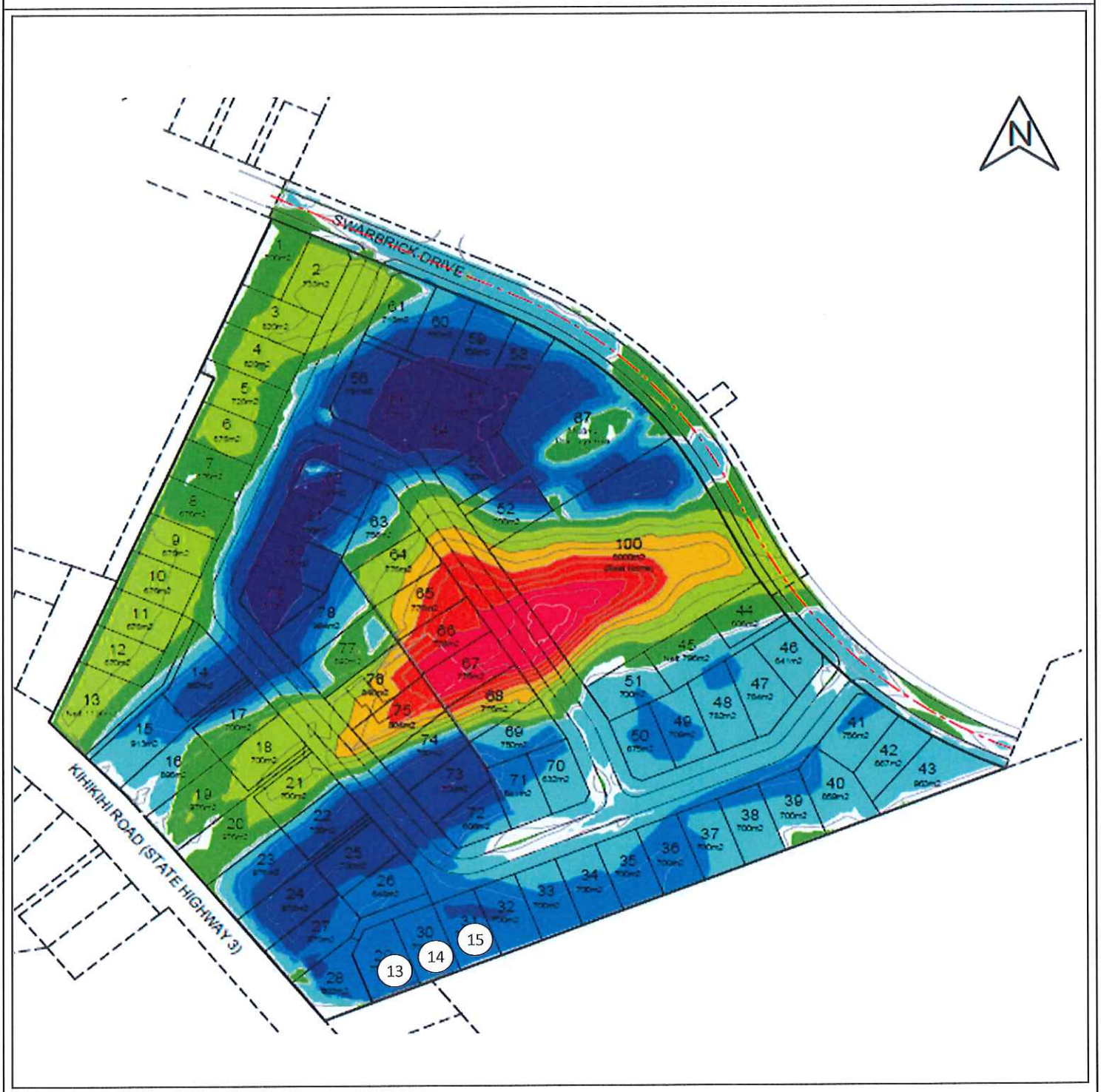
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00501
Page: 8 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: LOT 29, LOT 30 and LOT 31



Tested By :	AWDC	Date :	10/02/2015
Checked By :	EP	Date :	13/02/2015

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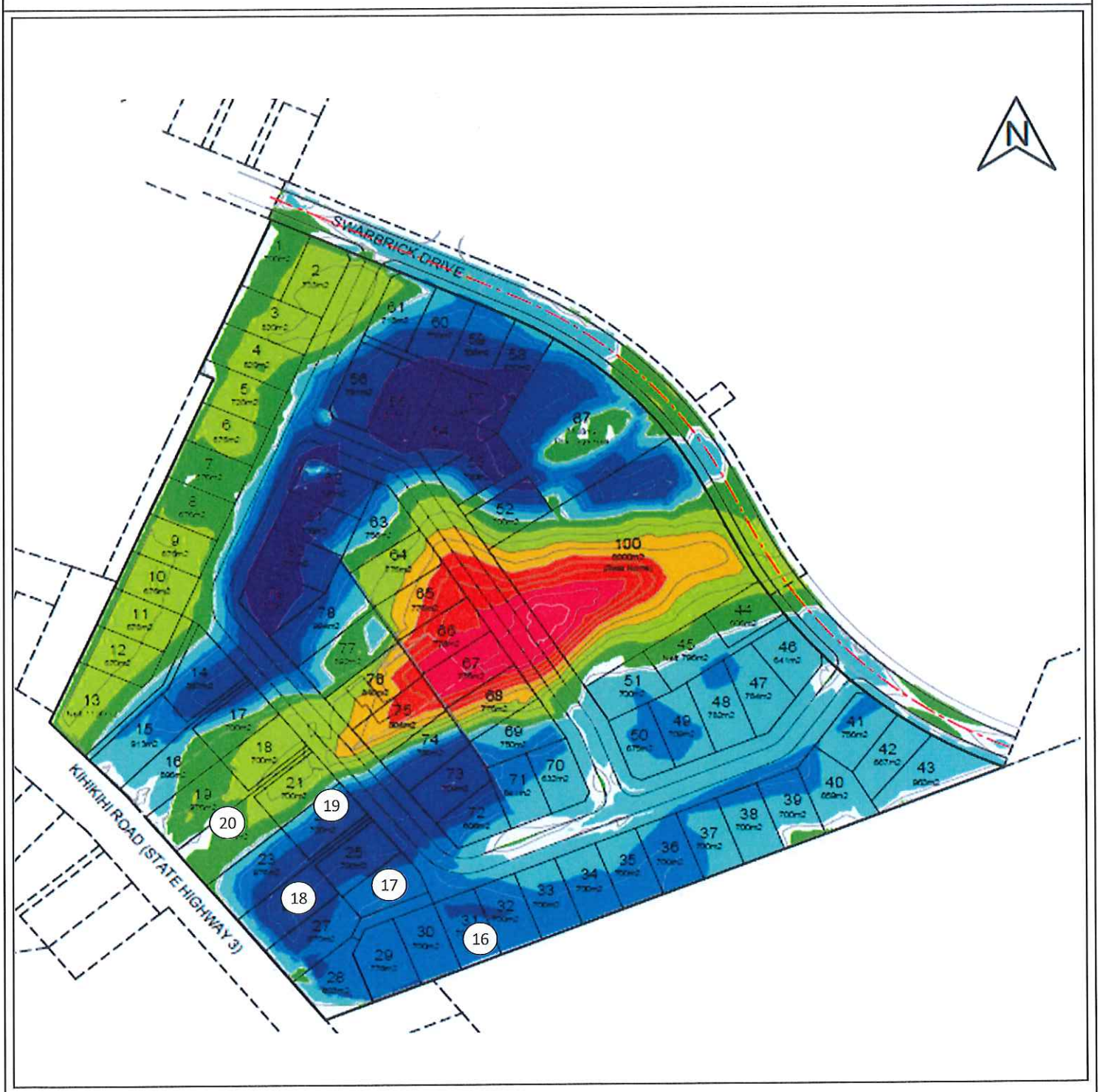
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00505
Page: 9 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: LOT 20, LOT 22, LOT 24, LOT 26 and LOT 31



Tested By :	AWDC	Date :	11/02/2015
Checked By :	JM	Date :	25/02/2015

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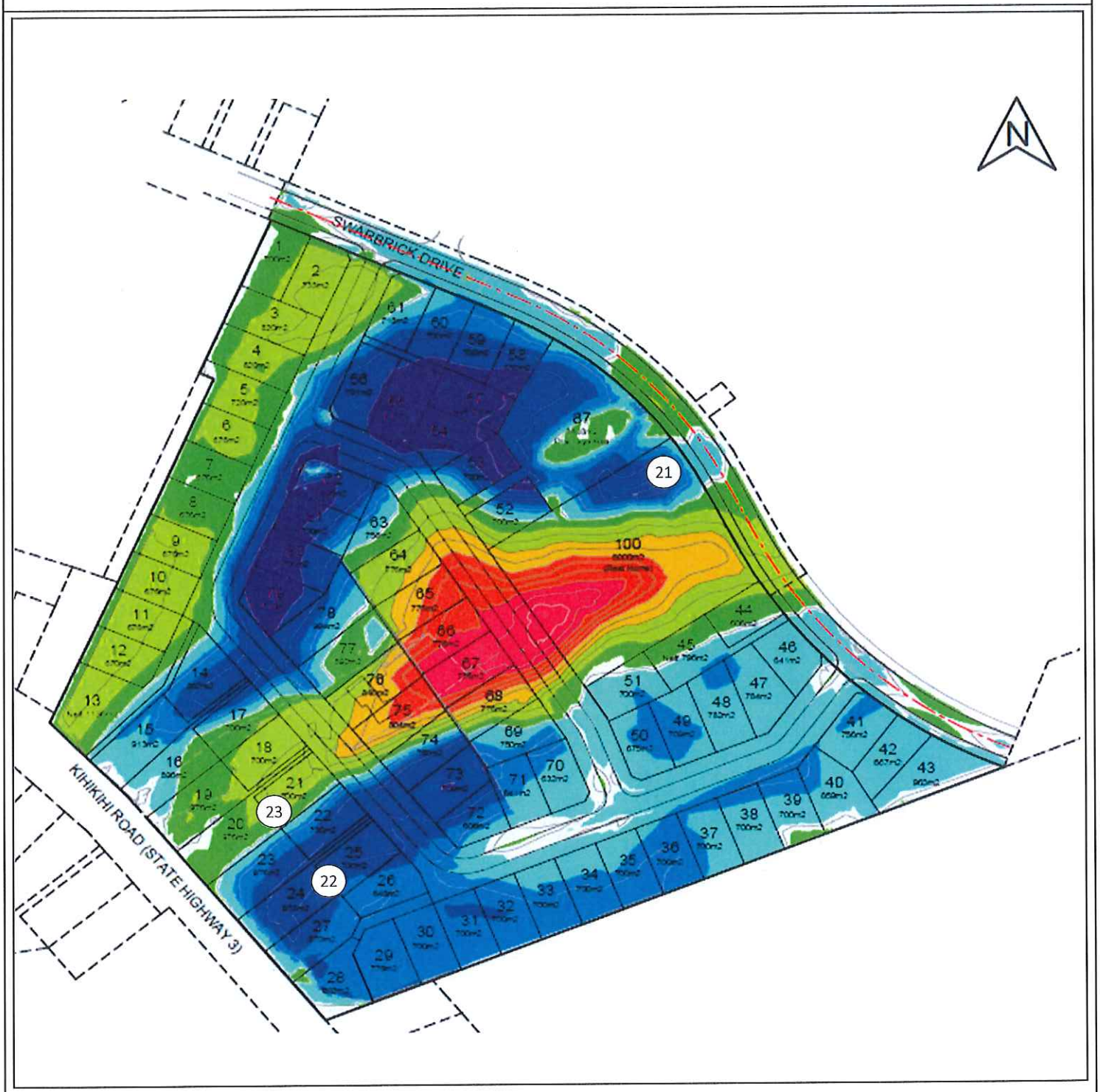
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00539

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: Northern corner



Tested By :	AWDC	Date :	12/02/2015
Checked By :	EP	Date :	19/02/2015

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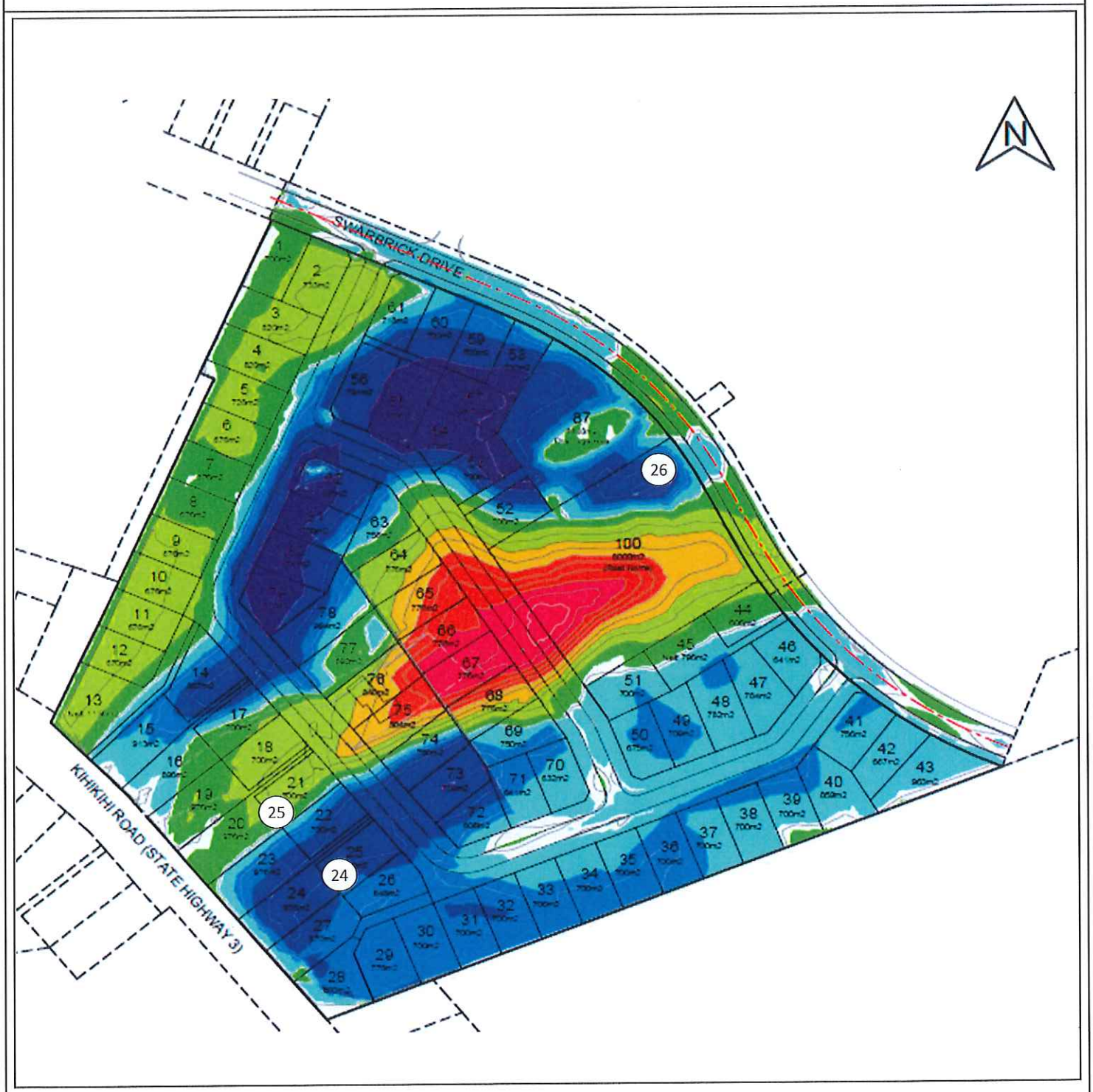
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00603

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: As below, Northern corner



Tested By :	LPM	Date :	16/02/2015
Checked By :	CP	Date :	25/02/2015

Coffey Geotechnics NZ Ltd
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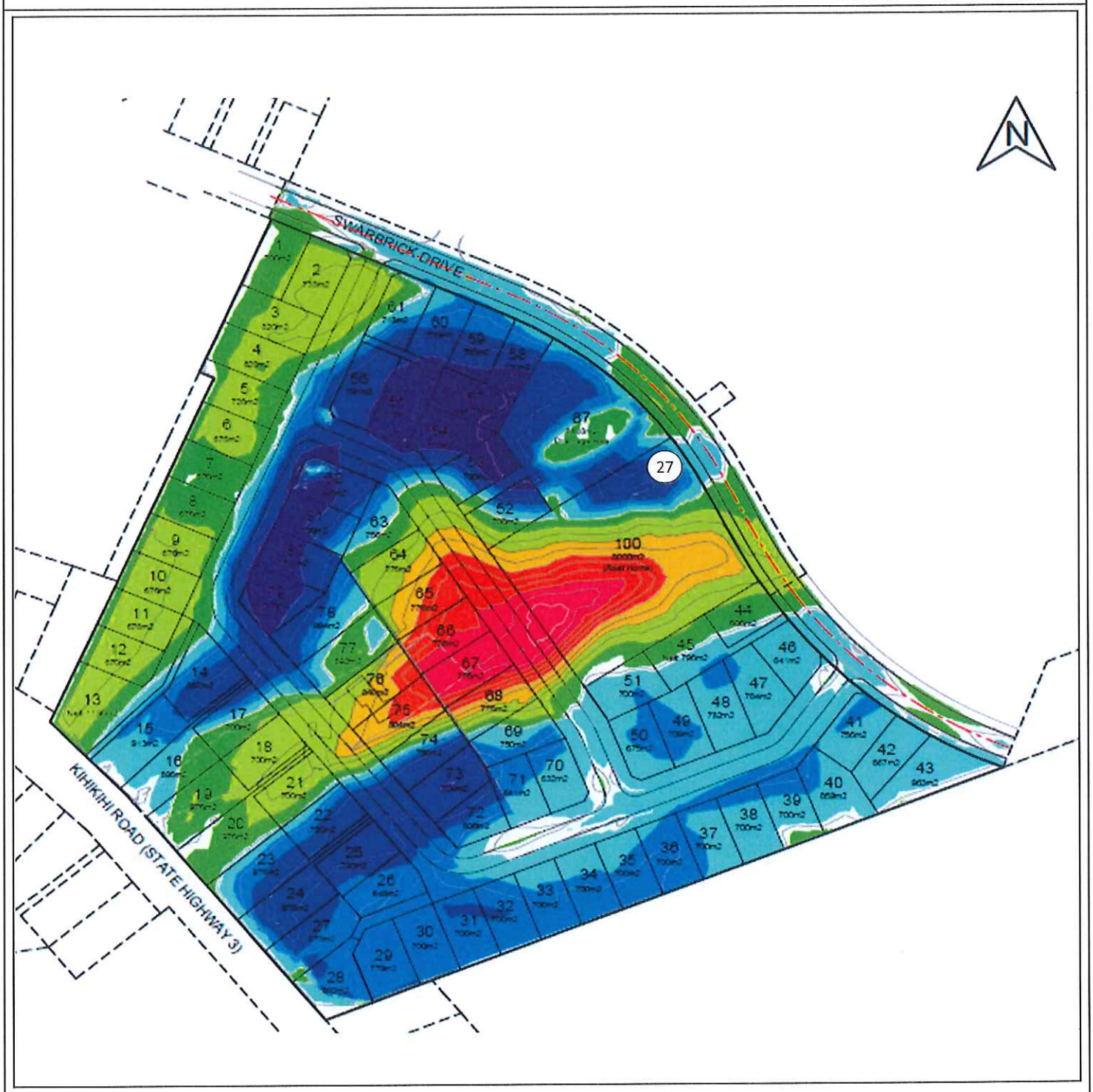
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00634

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: As below, Northern corner



Tested By :	AWDC	Date :	18/02/2015
Checked By :	CP	Date :	3/03/2015

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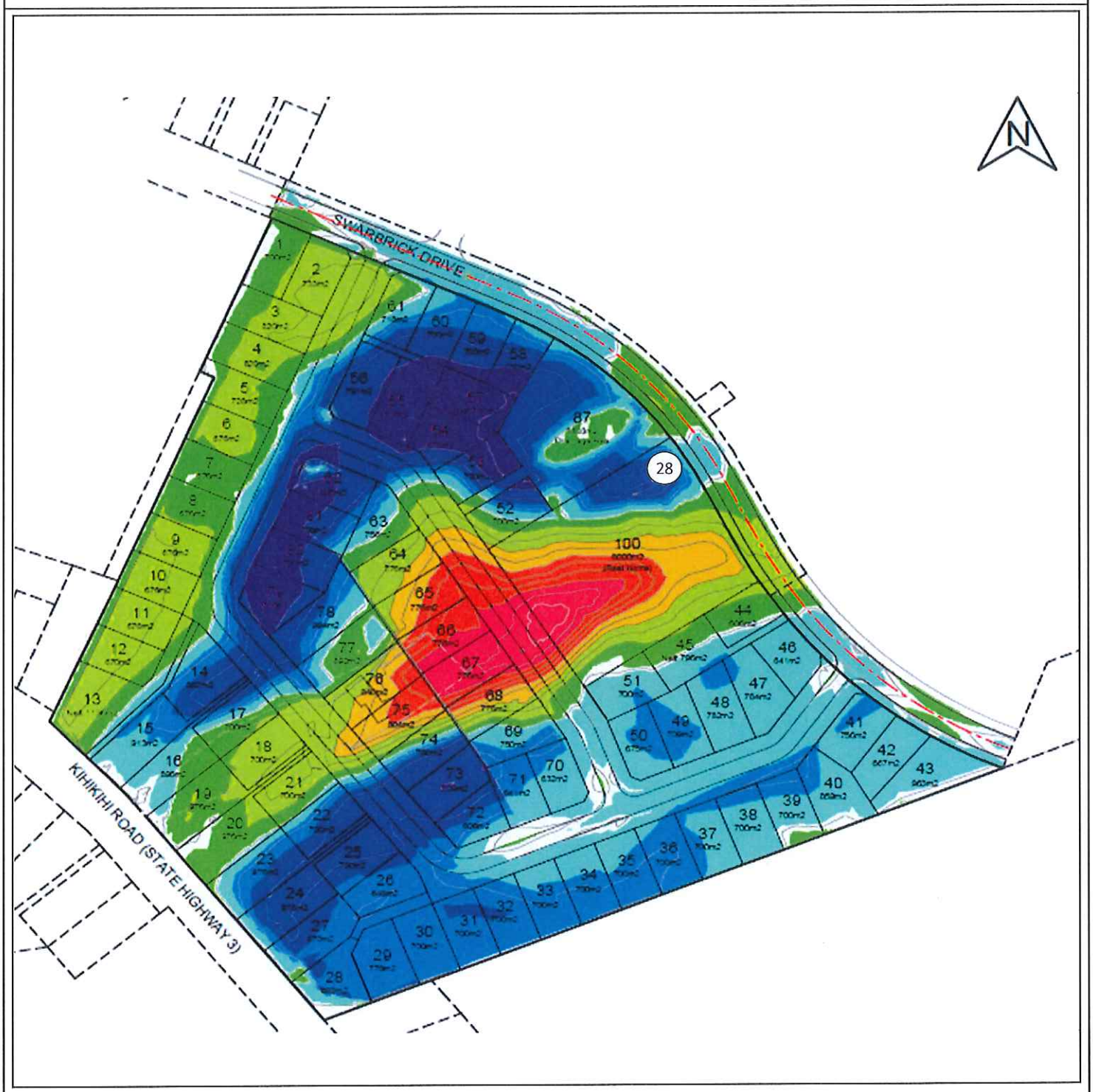
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00739

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: As below, Northern and South Eastern corner



Tested By :	LPM	Date :	23/02/2015
Checked By :	CP	Date :	2/03/2015

Coffey Geotechnics NZ Ltd
144A Cryers Road, East Tamaki, Auckland 2103, New Zealand
PO Box 58 877, Botany, Manukau 2163, New Zealand
t+64 9 272 3375 f+64 9 272 3378 www.coffey.com

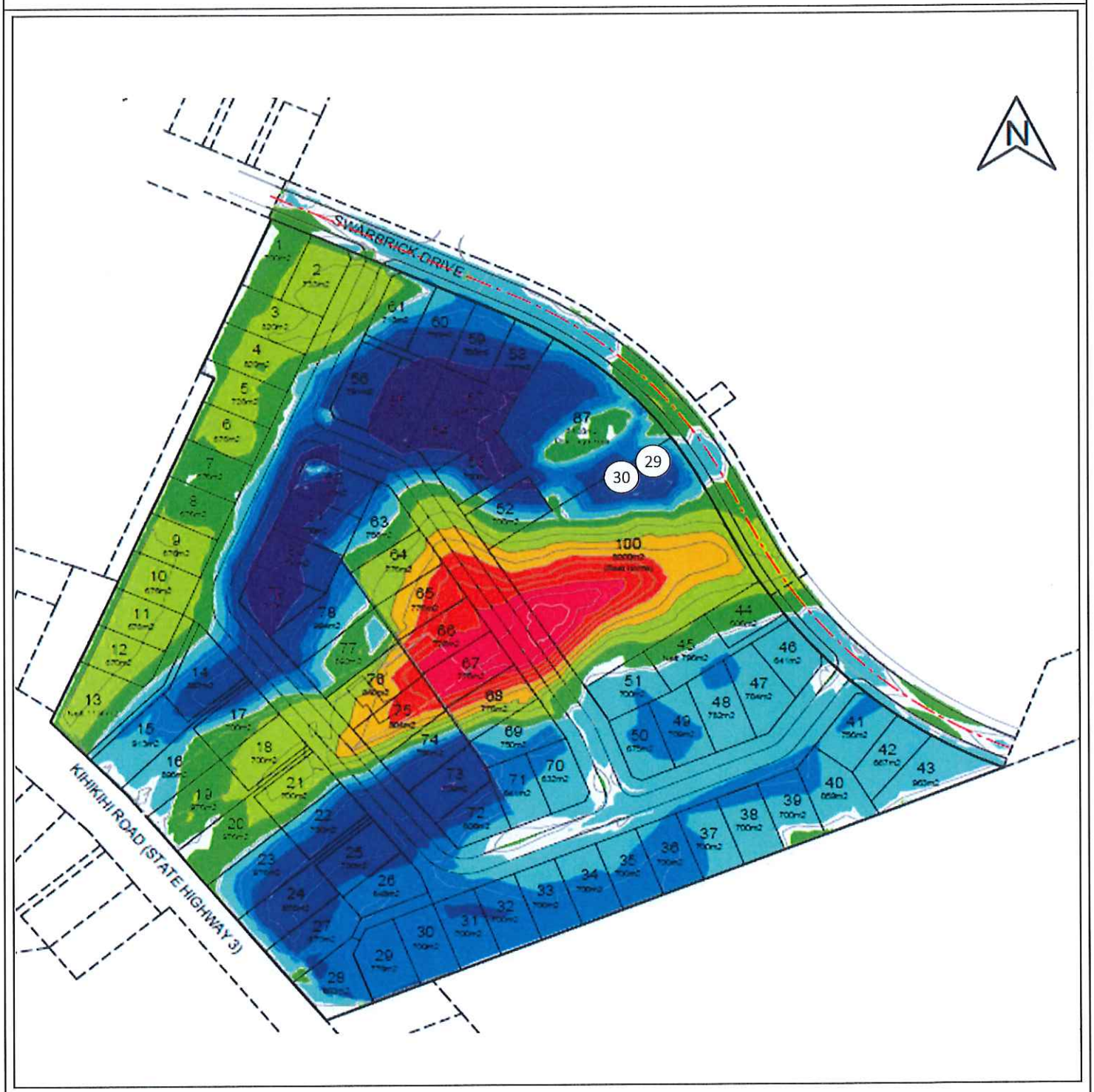
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00803
Page: 14 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: Northern corner and Northern middle of rest home



Tested By :	LPM	Date :	25/02/2015
Checked By :	HH	Date :	6/03/2015

Coffey Geotechnics NZ Ltd
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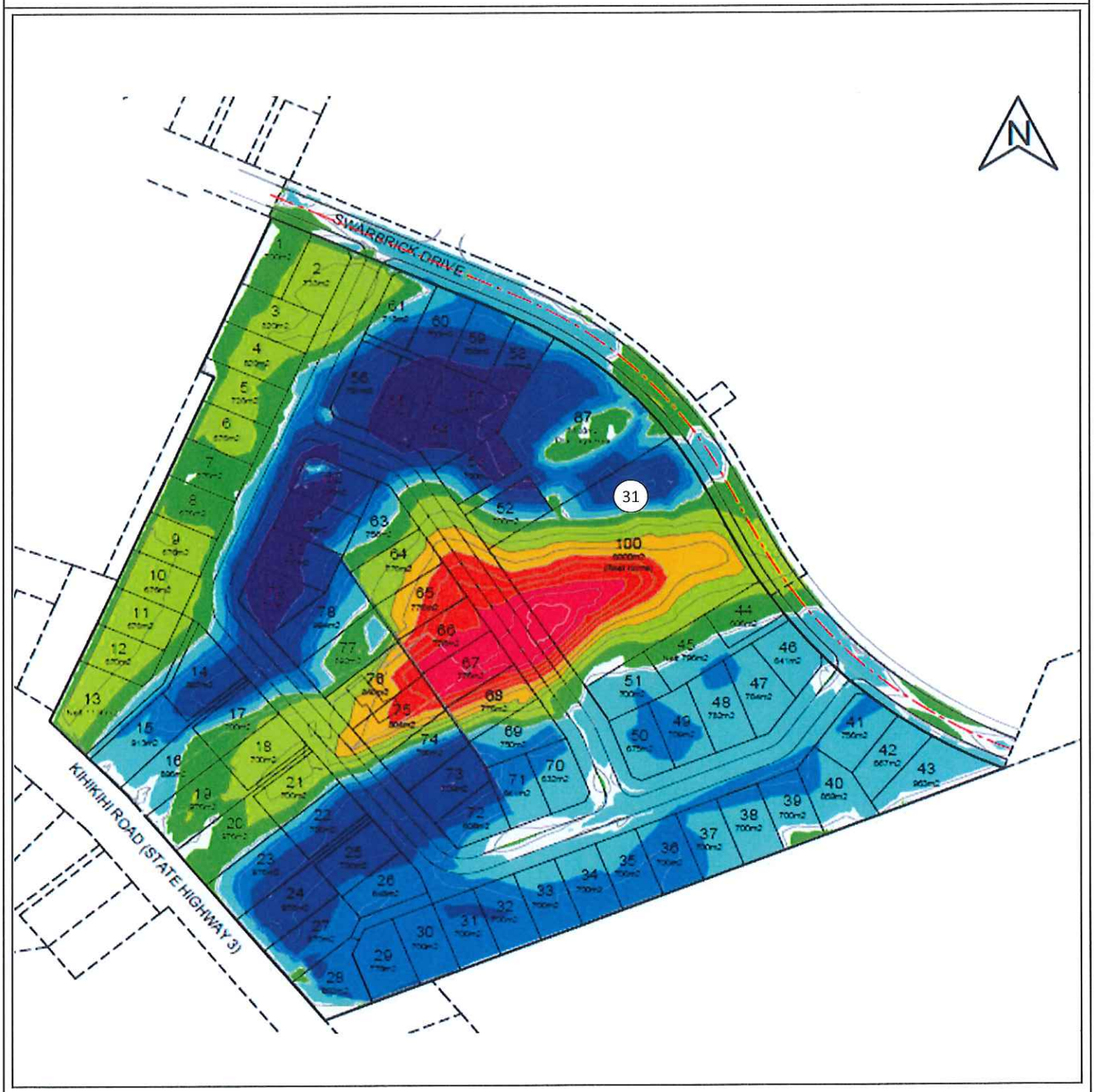
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W00853
Page: 15 of 16

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: Mid-North area of rest home



Tested By :	AWDC	Date :	26/02/2015
Checked By :	CP	Date :	6/03/2015

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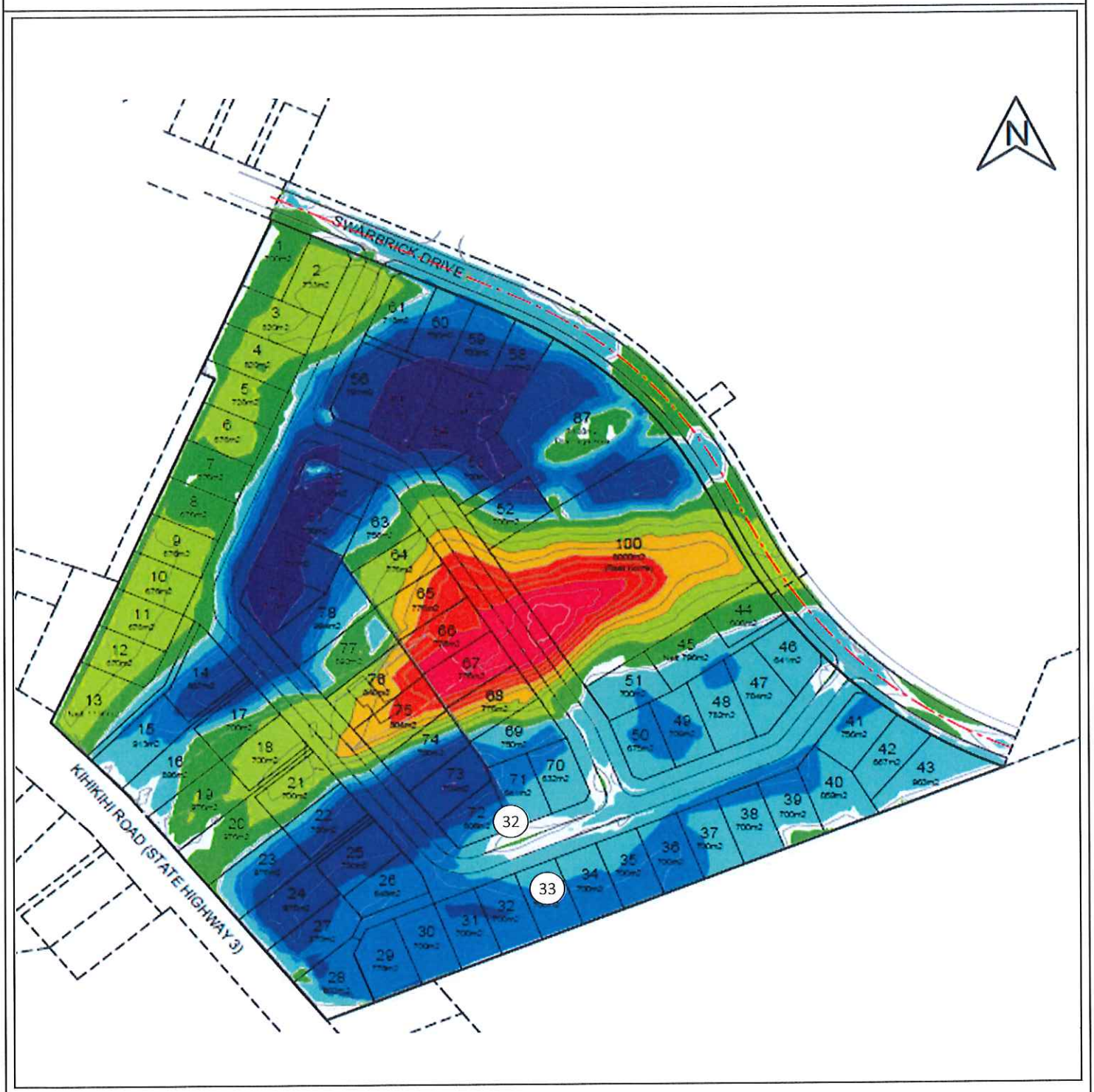
SITE PLAN

NOT TO SCALE

Project No: GENZETAM00989AD-00
Work Order No: ETAM15W01294

Project: GENZHAMI14651AD - HIGHFIELD COUNTRY ESTATE T7 AND T8

Location: SW Corner of T7



Tested By :	AWDC	Date :	26/03/2015
Checked By :	CP	Date :	8/04/2015

Appendix D – Post-Construction Test Locations and Data

LEGEND

05 POST-CONSTRUCTION CPT LOCATION

POST-CONSTRUCTION HAND AUGER LOCATION

AREA COVERED BY THIS GCR

*Edited by Coffey

RAD SURVEYING LIMITED

07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

CUT FILL MODEL
T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14/014

Sheet: 1

Version: 1

PREPARED FOR: OAKRIDGE DEVELOPMENTS LTD

SCALE: 1:2000 @ A3

DATE: APRIL 2016

Designed. TDR 29 June 2014

File: SCHEME COPY.DWG

NOTE:

1) LAYOUT, AREAS AND DIMENSIONS SUBJECT TO FINAL SURVEY AND APPROVAL FROM THE WAIPA DISTRICT COUNCIL

2) LEGAL DESCRIPTION:
LOT 13 DP 483139 (CT.)

3) TOTAL AREA: 9.0196 ha.

4) ZONE: RESIDENTIAL (PDP)

AREAS SHOWN J AND K ON LOT 10 AND AREAS L AND M ON LOT 11 ARE SUBJECT TO LAND COVENANTS

MEMORANDUM OF EASEMENTS

PURPOSE	SERV. TENE.	SHOWN	DOM. TENE
RIGHT OF WAY RIGHT TO CONVEY WATER, SEWAGE, STORMWATER, ELECTRICITY, TELECOMMUNICATIONS AND COMPUTER MEDIA,	LOT 86 HEREON	Y	LOTS 41 and 42 HEREON

SCHEDULE OF EXISTING EASEMENTS IN GROSS

PURPOSE	SERV. TENE.	SHOWN	DOC.
RIGHT TO CONVEY NATURAL GAS	LOT 1 HEREON	A	H.798697
	LOT 3 HEREON	B	
	LOT 4 HEREON	C	
	LOT 5 HEREON	D	
	LOT 5 HEREON	E	
	LOT 6 HEREON	F	
	LOT 7 HEREON	G	
	LOT 8 HEREON	H	
	LOT 9 HEREON	I	
	LOT 10 HEREON	J	
	LOT 11 HEREON	L	
	LOT 12 HEREON	N	
	LOT 13 HEREON	O	
	LOT 14 HEREON	Q	
	LOT 15 HEREON	R	
	LOT 16 HEREON	S	
	LOT 17 HEREON	T	
	LOT 18 HEREON	U	
	LOT 19 HEREON	V	
	LOT 20 HEREON	W	
	LOT 21 HEREON	X	

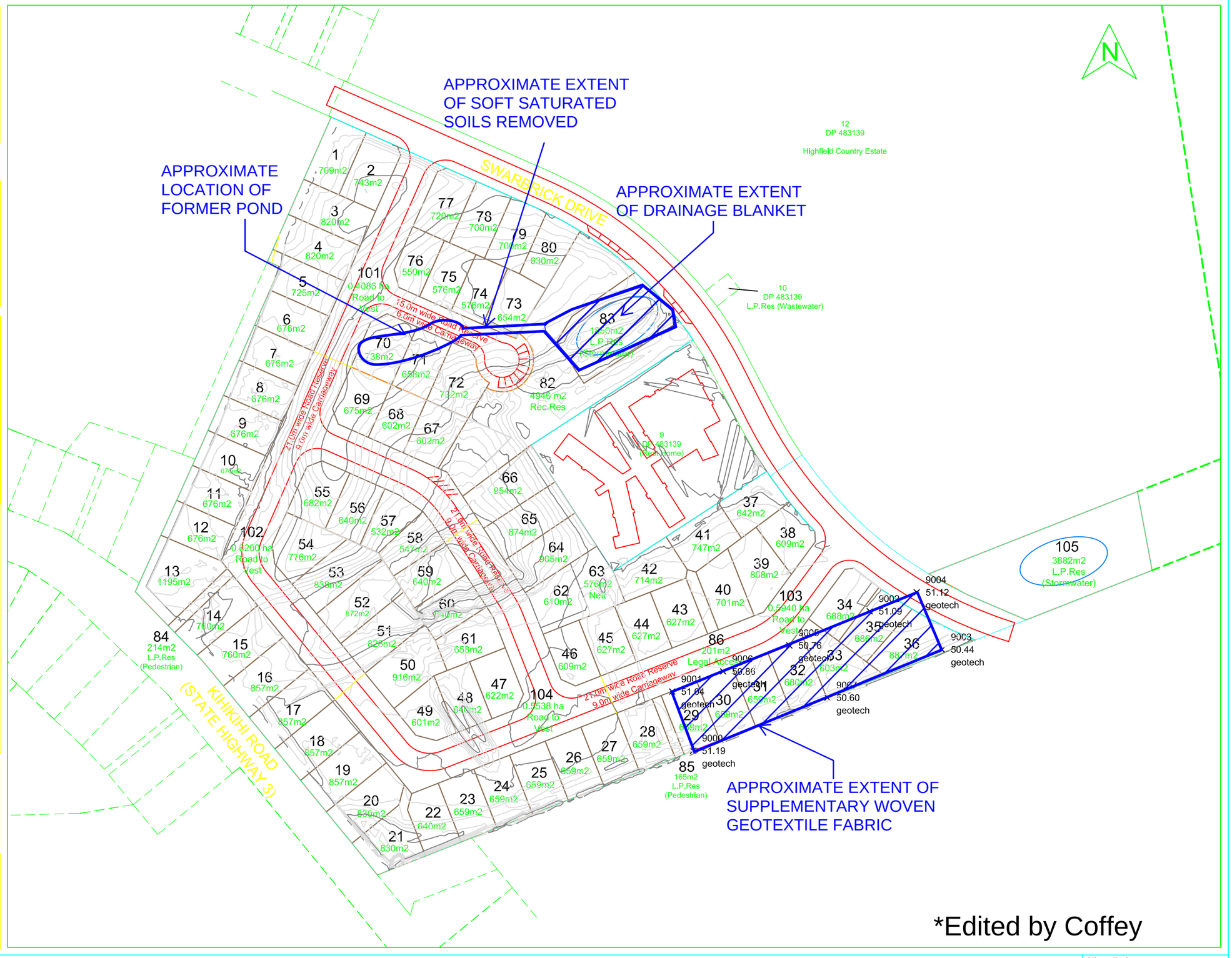
SCHEDULE OF EXISTING EASEMENTS IN GROSS TO BE SURRENDERED

PURPOSE	SERV. TENE.	SHOWN	DOC.
RIGHT TO CONVEY NATURAL GAS	LOT 84 HEREON	P	H.798697

AMALGAMATION CONDITION

PURSUANT TO SECTION 220 1)b)iv) RMA 1991

THAT LOT 86 (LEGAL ACCESS) HEREON BE HELD AS TO TWO UNDIVIDED ONE-HALF SHARES BY THE OWNERS OF LOTS 41 AND 42 HEREON AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE THEREWITH



RAD SURVEYING LIMITED

07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

SCHEME PLAN
PROPOSED T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14/014

Sheet: 1 Version: 7

PREPARED FOR: T7 PROPERTIES LTD

SCALE: 1:2000 @ A3

DATE: DECEMBER 2015

Designed. TDR 29 June 2014

File: COFFEY T7 CONCEPT 121815 AREA OF SOFT GROUND.DWG

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

		Borehole ID.	***HA11***
		sheet:	1 of 1
		project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***	date started:	***30 Oct 2015***
principal:	***-***	date completed:	***30 Oct 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***	logged by:	***SLC***
location:	***Lot 80***	checked by:	***RBT***

position: E: 449921; N: 673217 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 1447

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 171/ 46 kPa VS 151/ 35 kPa		0.5			**Silty CLAY**: low to medium plasticity, brown mottled pale brown.	M	VSt		**FILL**
			VS 164/ 25 kPa VS 145/ 27 kPa		1.0			**SILT**: non plastic, orange brown, with minor fine grained sand.		VSt		**RESIDUAL SOIL**
					1.5			Hand Auger HA11 terminated at 1.0 m Target depth				
					2.0							
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA12***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Oct 2015***
principal:	***-***
date completed:	***30 Oct 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 74***
checked by:	***RBT***

position: E: 449888; N: 673199 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 1447

drilling information | **material substance**

method & support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (**SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (remoulded ⊕ peak ⊙) (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 129/ 28 kPa VS 181/ 54 kPa VS 175/ 52 kPa		0.5 1.0			**Silty CLAY**: low to medium plasticity, brown mottled pale brown.	M		⊕ ⊙ ⊕ ⊙ ⊕ ⊙	**FILL**
					1.5 2.0 2.5 3.0 3.5			Hand Auger HA12 terminated at 1.2 m Target depth				

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA13***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Oct 2015***
principal:	***-***
date completed:	***30 Oct 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 75***
checked by:	***RBT***

position: E: 449863; N: 673206 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 1447

drilling information | **material substance**

method & support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (remoulded ⊕ peak ⊙) (kPa) 50 100 150 200	structure and additional observations
HA / N		Not Encountered	VS 155/ 21 kPa					**Silty CLAY**: low to medium plasticity, brown mottled pale brown.	M	VSt	⊕ ⊙	**FILL**
			VS 102/ 18 kPa		0.5			**SILT**: non plastic, orange brown, with minor fine grained sand.			⊕ ⊙	**RESIDUAL SOIL**
								Hand Auger HA13 terminated at 0.6 m Target depth				
					1.0							
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA14***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Oct 2015***
principal:	***-***
date completed:	***30 Oct 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 78***
checked by:	***RBT***

position: E: 449876; N: 673226 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 1447

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 168/ 44 kPa VS 142/ 28 kPa VS 184/ 48 kPa VS 96/ 21 kPa		0.5 1.0			**Silty CLAY**: low to medium plasticity, brown mottled pale brown.	M	VSt	⊕ 50 kPa, ⊙ 100 kPa	**FILL**
								SILT: non plastic, orange brown, with minor fine grained sand.			⊕ 100 kPa, ⊙ 150 kPa	**RESIDUAL SOIL**
								Hand Auger HA14 terminated at 1.0 m Target depth			⊕ 150 kPa, ⊙ 200 kPa	

2.0 2.5 3.0 3.5

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA15***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***06 Nov 2015***
principal:	***-***
date completed:	***06 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 70***
checked by:	***RBT***

position: E: 449842; N: 673165 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: SL588

drilling information | **material substance**

method & support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (⊕ remoulded ⊙ peak) (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 117/ 28 kPa VS 132/ 42 kPa VS 141/ 26 kPa		0.5			**Clayey SILT**: low plasticity, brown.	M	VSt	⊕ 28 ⊙ 42 ⊕ 26 ⊙	**FILL**
					1.0			Hand Auger HA15 terminated at 1.0 m Target depth				
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA16***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***06 Nov 2015***
principal:	***-***
date completed:	***06 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 70***
checked by:	***RBT***

position: E: 449831; N: 673161 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: SL588

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA — N		Not Encountered	VS 115/ 15 kPa VS 177/ 59 kPa		0.5			**Clayey SILT**: low plasticity, brown.	M	VSt		**FILL**
								Hand Auger HA16 terminated at 0.55 m Target depth				
					1.0							
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:52

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA17***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Nov 2015***
principal:	***-***
date completed:	***30 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 55***
checked by:	***RBT***

position: E: 449811; N: 673088 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >181 kPa		0.0			**Clayey SILT**: non plastic, brown.	D - M	VSt		**FILL**
			VS 167/ 45 kPa		0.5			**SILT**: non plastic, pale brown with mottled brown.				
			VS 122/ 31 kPa									
			VS >181 kPa		1.0							
			VS >181 kPa									
			VS >181 kPa		1.5							
			VS >181 kPa									
			VS >181 kPa		2.0							
			VS >181 kPa					**SILT**: non plastic, brown to pale brown.				**RESIDUAL SOIL**
					2.5			Hand Auger HA17 terminated at 2.5 m Target depth				
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix, e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA18***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Nov 2015***
principal:	***-***
date completed:	***30 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 69***
checked by:	***RBT***

position: E: 449827; N: 673132 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >181 kPa VS 150/ 38 kPa VS 174/ 52 kPa VS >181 kPa VS >181 kPa		0.5 1.0			**Clayey SILT**: non plastic, brown.	D - M	VSt		**FILL**
					1.5			**SILT**: non plastic, brown to pale brown. Hand Auger HA18 terminated at 1.5 m Target depth				**RESIDUAL SOIL**
					2.0 2.5 3.0 3.5							

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

		Borehole ID.	***HA19***
		sheet:	1 of 1
		project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***	date started:	***30 Nov 2015***
principal:	***-***	date completed:	***30 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***	logged by:	***SLC***
location:	***Lot 70***	checked by:	***RBT***

position: E: 449850; N: 673178 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA / N		Not Encountered	VS 135/ 34 kPa VS >181 kPa VS >181 kPa VS 150/ 52 kPa		0.5 1.0			**Clayey SILT**: brown.	M D - M	VSt		**FILL**
								Hand Auger HA19 terminated at 1.0 m Target depth				
					1.5 2.0 2.5 3.0 3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA20***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***30 Nov 2015***
principal:	***-***
date completed:	***30 Nov 2015***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC***
location:	***Lot 74***
checked by:	***RBT***

position: E: 449892; N: 673192 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >181 kPa VS 167/ 65 kPa VS 150/ 50 kPa VS >181 kPa		0.5			**Clayey SILT**: brown.	M	VSt		**FILL**
					1.0			Hand Auger HA20 terminated at 1.0 m Target depth				
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

client:	***T7 Properties Limited***	Borehole ID.	***HA21***
principal:	***-***	sheet:	1 of 1
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***	project no.	***GENZHAMI14651AD***
location:	***Lot 29 / Lot 30***	date started:	***13 Jan 2016***
		date completed:	***13 Jan 2016***
		logged by:	***SLC***
		checked by:	***RBT***

position: E: 450010; N: 672968 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA — N		13/01/16	VS 135/ 31 kPa		0.5			**Sandy SILT**: non plastic - low plasticity, pale grey, sand is fine to medium grained.		VSt	⊕ ⊙	**TAURANGA GROUP ALLUVIUM**
								PEAT: fibrous. 0.5 m: becoming wet				
			VS 119/ 19 kPa		1.0			**Sandy SILT**: non plastic - low plasticity, pale grey, sand is fine to medium grained. **Clayey SILT**: medium plasticity, pale grey, limonite staining. 1.1 m: becoming grey green with pale brown mottles and some limonite staining			⊕ ⊙	
			VS 150/ 37 kPa								⊕ ⊙	
					1.5			Hand Auger HA21 terminated at 1.3 m Flooding				
					2.0							
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Engineering Log - Hand Auger

Borehole ID.	**HA22**		
sheet:	1 of 1		
project no.	**GENZHAMI14651AD**		
client:	***T7 Properties Limited***	date started:	***13 Jan 2016***
principal:	**-**	date completed:	***13 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***	logged by:	***SLC***
location:	***Lot 28***	checked by:	***RBT***

position: E: 449981; N: 672960 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (kPa) remoulded ⊕ peak ⊙ 50 100 150 200	structure and additional observations
HA N		13/01/16 ▽	VS >180 kPa		0.0			**SILT**: non plastic - low plasticity, pale grey, limonite staining. Trace of fine grained sand.	D - M	VSt	⊕ ⊙	**TAURANGA GROUP ALLUVIUM**
			VS 88/ 23 kPa		0.5			0.3 m: minor clay becomes present				
			VS 52/ 14 kPa		1.0			**Clayey SILT**: medium plasticity, pale grey, limonite staining.	M	St	⊕ ⊙	
								1.0 m: becomes wet	W			
					1.5			**Gravelly SILT**: low plasticity, pale grey, limonite staining. Gravels are fine to medium grained. Minor sand. Moderatly weathered. 1.3 m: becoming grey green				
								1.75 m: poor recovery				
					2.0			Hand Auger HA22 terminated at 2.0 m Flooding				
					2.5							
					3.0							
					3.5							

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

		Borehole ID.	**HA23**
		sheet:	1 of 1
		project no.	**GENZHAMI14651AD**
client:	**T7 Properties Limited**	date started:	**28 Jan 2016**
principal:	**-**	date completed:	**28 Jan 2016**
project:	**Southwest T7 Cell, Swarbrick Drive, Te Awamutu**	logged by:	**SLC & ODS**
location:	**Lot 23**	checked by:	**RBT**

position: E: 449,905; N: 673,197 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 160/ 43 kPa		0.0			**Clayey SILT**: non plastic - low plasticity, brown and pale brown, minor fine mica flecks.	D	VSt		**TAURANGA GROUP ALLUVIUM**
			VS >181 kPa		0.5				D - M			
			VS >181 kPa									
			VS >181 kPa		1.0							
			VS 142/ 68 kPa					1.3 m: minor dark brown mottles become present				
			VS 143/ 36 kPa		1.5							
			VS >181 kPa									
			VS >181 kPa		2.0			Hand Auger HA23 terminated at 2.0 m Target depth				
					2.5							
					3.0							
					3.5							

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA24***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 80***
checked by:	***RBT***

position: E: 449,919; N: 673,210 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (remoulded ⊕ peak ⊙) (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS 154/ 22 kPa VS >183 kPa VS 149/ 68 kPa VS 156/ 44 kPa VS >183 kPa		0.5 1.0 1.5			**Clayey SILT**: non plastic - low plasticity, brown and pale brown, minor fine mica flecks.	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
								Hand Auger HA24 terminated at 1.5 m Target depth				
					2.0 2.5 3.0 3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

Borehole ID.	**HA25**
sheet:	1 of 1
project no.	**GENZHAMI14651AD**
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	**-**
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 74***
checked by:	***RBT***

position: E: 449,892; N: 673,207 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS 149/ 47 kPa VS 147/ 51 kPa VS 130/ 28 kPa		0.5 1.0			**Clayey SILT**: non plastic, orange brown mottled brown, minor fine grained sand.	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
								Hand Auger HA25 terminated at 1.0 m Target depth				

1.5 2.0 2.5 3.0 3.5

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

coffey
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Engineering Log - Hand Auger

Borehole ID.	***HA26***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 74***
checked by:	***RBT***

position: E: 449,880; N: 673,193 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS >183 kPa VS 176/ 49 kPa VS >183 kPa		0.5 1.0			**Clayey SILT**: non plastic, orange brown mottled brown, minor fine grained sand.	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
								Hand Auger HA26 terminated at 1.0 m Target depth				

1.5 2.0 2.5 3.0 3.5

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

coffey
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Engineering Log - Hand Auger

Borehole ID.	***HA27***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 20***
checked by:	***RBT***

position: E: 449,829; N: 672,916 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa		0.0			**Clayey SILT**: non plastic, orange brown mottled brown, minor fine grained sand.	D - M	VSt	⊙	**TAURANGA GROUP ALLUVIUM**
			VS >183 kPa								⊙	
			VS >183 kPa		0.5			0.4 m: 50mm pockets of clay, orange, low-medium plasticity.			⊙	
			VS >183 kPa					0.7 m: No more clay pockets			⊙	
			VS >183 kPa		1.0						⊙	
			VS >183 kPa								⊙	
			VS >183 kPa		1.5						⊙	
			VS >183 kPa								⊙	
			VS >183 kPa		2.0			Hand Auger HA27 terminated at 2.0 m Target depth			⊙	
					2.5							
					3.0							
					3.5							

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA28***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 19***
checked by:	***RBT***

position: E: 449,808; N: 672,941 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa		0.0			**SILT**: non plastic, orange brown with mottled brown, minor fine grained sand.	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
			VS >183 kPa									
			VS >183 kPa		0.5			0.4 m: mottling becoming pale brown and brown				
			VS >183 kPa									
			VS >183 kPa		1.0							
			VS 176/ 28 kPa									
			VS >183 kPa		1.5							
			VS >183 kPa									
			VS 169/ 74 kPa		2.0			Possibly old filling from road construction.				**FILL**
			VS >183 kPa									
			VS 151/ 19 kPa		2.5			Hand Auger HA28 terminated at 2.5 m Target depth				
					3.0							
					3.5							

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method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA29***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 18***
checked by:	***RBT***

position: E: 449,790; N: 672,966 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA / N		Not Encountered	VS >183 kPa		0.0			**SILT**: non plastic, orange brown with mottled brown, minor fine grained sand.	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
			VS >183 kPa									
			VS 149/ 27 kPa		0.5						⊕	
			VS >183 kPa		1.0			1.25 m: plasticity becomes low. Brown mottled pale brown				
			VS >183 kPa									
			VS >183 kPa		1.5							
			VS >183 kPa					Hand Auger HA29 terminated at 1.75 m Target depth				
					2.0							
					2.5							
					3.0							
					3.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:53

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

		Borehole ID.	**HA30**
		sheet:	1 of 1
		project no.	**GENZHAMI14651AD**
client:	**T7 Properties Limited**	date started:	**28 Jan 2016**
principal:	**-**	date completed:	**28 Jan 2016**
project:	**Southwest T7 Cell, Swarbrick Drive, Te Awamutu**	logged by:	**SLC & ODS**
location:	**Lot 42**	checked by:	**RBT**

position: E: 449,956; N: 673,035 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 152/ 21 kPa VS >183 kPa VS 149/ 37 kPa VS 151/ 55 kPa VS 138/ 49 kPa VS 151/ 64 kPa		0.5 1.0 1.5			**SILT**: non plastic, orange brown with mottled brown, minor fine grained sand. 0.8 m: some clay	D - M	VSt		**TAURANGA GROUP ALLUVIUM**
								Hand Auger HA30 terminated at 1.5 m Target depth				
					2.0 2.5 3.0 3.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:53

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

Borehole ID.	**HA31**
sheet:	1 of 1
project no.	**GENZHAMI14651AD**
client:	***T7 Properties Limited***
date started:	**28 Jan 2016**
principal:	**-**
date completed:	**28 Jan 2016**
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	**SLC & ODS**
location:	***Lot 42***
checked by:	**RBT**

position: E: 449,979; N: 673,048 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS >183 kPa VS >183 kPa VS >183 kPa VS 149/ 49 kPa VS 154/ 61 kPa		0.5 1.0 1.5			**SILT**: non plastic, orange brown with mottled brown, minor fine grained sand. **Clayey SILT**: low plasticity, brown and dark brown. Hand Auger HA31 terminated at 1.5 m Target depth	D - M M	VSt	⊕ 50 kPa ⊙ 100 kPa ⊙ 150 kPa ⊙ 200 kPa	**TAURANGA GROUP ALLUVIUM**

2.0
2.5
3.0
3.5

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:53

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
HA hand auger

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Hand Auger

Borehole ID.	***HA32***
sheet:	1 of 1
project no.	***GENZHAMI14651AD***
client:	***T7 Properties Limited***
date started:	***28 Jan 2016***
principal:	***-***
date completed:	***28 Jan 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SLC & ODS***
location:	***Lot 41***
checked by:	***RBT***

position: E: 450,003; N: 673,066 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS >183 kPa VS 151/ 55 kPa VS >183 kPa VS 140/ 45 kPa VS >183 kPa		0.5 1.0 1.5			**SILT**: low plasticity, brown with mottled orange brown, trace of fine grained sand. Some clay.	M	VSt		**TAURANGA GROUP ALLUVIUM**
								Hand Auger HA32 terminated at 1.5 m Target depth				
					2.0 2.5 3.0 3.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:53

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Hand Auger

		Borehole ID.	**HA33**
		sheet:	1 of 1
		project no.	**GENZHAMI14651AD**
client:	**T7 Properties Limited**	date started:	**28 Jan 2016**
principal:	**-**	date completed:	**28 Jan 2016**
project:	**Southwest T7 Cell, Swarbrick Drive, Te Awamutu**	logged by:	**SLC & ODS**
location:	**Lot 37**	checked by:	**RBT**

position: E: 450,022; N: 673,077 (NZTM) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.: 2244/01

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >183 kPa VS 136/ 41 kPa VS 147/ 39 kPa VS 147/ 48 kPa VS >183 kPa VS 125/ 42 kPa		0.5 1.0 1.5			**SILT**: low plasticity, brown with mottled orange brown, trace of fine grained sand. Some clay. **Clayey SILT**: low plasticity, orange brown with mottled brown. **SILT**: non plastic, brown, minor fine sand. Hand Auger HA33 terminated at 1.5 m Target depth	D - M M	VSt		**TAURANGA GROUP ALLUVIUM**
					2.0 2.5 3.0 3.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED 14651AD.GPJ <<DrawingFile>> 10/05/2016 13:53

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
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Engineering Log - Hand Auger

Borehole ID.	***HA34***
sheet:	1 of 1
project no.	***GENZTHAMI14651AD***
client:	***T7 Properties Ltd***
date started:	***09 Mar 2016***
principal:	***-***
date completed:	***09 Mar 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SWH***
location:	***Lot 32***
checked by:	***LC***

position: E: 450,091; N: 673,017 (Mount Eden Circuit) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.:

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 156/ 49 kPa		0.0		ML	**SILT**: non plastic to low liquid limit, dark grey.	D	VSt	⊕ ⊙	**FILL**
			VS >202 kPa		0.5			0.5 m: becoming brown		H	⊙	
			VS UTP				ML	**SILT**: low liquid limit, pale brown.			VS UTP	**TAURANGA GROUP ALLUVIUM**
			VS UTP		1.0						VS UTP	
					1.5			Hand Auger HA34 terminated at 1.4 m Refusal				
					2.0							
					2.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED LOT HAND AUGERS SWH 9-3-16.GPJ <<DrawingFile>> 12/05/2016 15:36

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
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Engineering Log - Hand Auger

Borehole ID.	***HA35***
sheet:	1 of 1
project no.	***GENZTHAMI14651AD***
client:	***T7 Properties Ltd***
date started:	***09 Mar 2016***
principal:	***-***
date completed:	***09 Mar 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SWH***
location:	***Lot 63***
checked by:	***LC***

position: E: 449,957; N: 673,030 (Mount Eden Circuit) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.:

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (remoulded ⊕ peak ⊙) (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS >202 kPa		0.0		ML	**SILT**: non plastic to low liquid limit, dark grey-brown.	D	H	⊙	**FILL**
			VS >202 kPa		0.5			0.4 m: becoming brown			⊙	
			VS 125/ 46 kPa		1.0					VSt	⊕ ⊙	
			VS >202 kPa				ML	**SILT**: low liquid limit, brown-orange.		H	⊙	**TAURANGA GROUP ALLUVIUM**
			VS 177/ 63 kPa		1.5			1.6 m: becoming dark brown		VSt	⊕ ⊙	
			VS 130/ 46 kPa								⊕ ⊙	
					2.0			Hand Auger HA35 terminated at 2.0 m Target depth				
					2.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED LOT HAND AUGERS SWH 9-3-16.GPJ <<DrawingFile>> 12/05/2016 15:36

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA37***
sheet:	1 of 1
project no.	***GENZTHAMI14651AD***
client:	***T7 Properties Ltd***
date started:	***09 Mar 2016***
principal:	***-***
date completed:	***09 Mar 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SWH***
location:	***Lot 56***
checked by:	***LC***

position: E: 449,818; N: 673,086 (Mount Eden Circuit) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.:

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS UTP		0.0		ML	**SILT**: non plastic to low liquid limit, grey-brown.	D	H	VS UTP	**FILL**
			VS 202/ 66 kPa		0.5		ML	**SILT**: low liquid limit, dark brown-orange.				**TAURANGA GROUP ALLUVIUM**
			VS >202 kPa		1.0							
			VS 170/ 52 kPa							VSt		
			VS >202 kPa		1.5			1.6 m: becoming dark brown		H		
			VS >202 kPa		2.0			Hand Auger HA37 terminated at 2.0 m Target depth				
					2.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED LOT HAND AUGERS SWH 9-3-16.GPJ <<DrawingFile>> 12/05/2016 15:36

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA38***
sheet:	1 of 1
project no.	***GENZTHAMI14651AD***
client:	***T7 Properties Ltd***
date started:	***09 Mar 2016***
principal:	***-***
date completed:	***09 Mar 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SWH***
location:	***Lot 13***
checked by:	***LC***

position: E: 449,725; N: 673,046 (Mount Eden Circuit) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.:

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA N		Not Encountered	VS 177/ 66 kPa		0.0		ML	**SILT**: low liquid limit, brown-orange.	D	VSt		**TAURANGA GROUP ALLUVIUM**
			VS 142/ 44 kPa		0.5							
			VS 170/ 49 kPa		1.0							
			VS 156/ 52 kPa									
			VS 163/ 55 kPa		1.5			1.6 m: becoming brown				
			VS 133/ 44 kPa									
					2.0			Hand Auger HA38 terminated at 2.0 m Target depth				
					2.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED LOT HAND AUGERS SWH 9-3-16.GPJ <<DrawingFile>> 12/05/2016 15:36

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey
A TETRA TECH COMPANY

Engineering Log - Hand Auger

Borehole ID.	***HA39***
sheet:	1 of 1
project no.	***GENZTHAMI14651AD***
client:	***T7 Properties Ltd***
date started:	***09 Mar 2016***
principal:	***-***
date completed:	***09 Mar 2016***
project:	***Southwest T7 Cell, Swarbrick Drive, Te Awamutu***
logged by:	***SWH***
location:	***Lot 5***
checked by:	***LC***

position: E: 449,816; N: 673,211 (Mount Eden Circuit) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Hand Auger | drilling fluid: | hole diameter : 40 mm | vane id.:

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊙ peak (kPa) 50 100 150 200	structure and additional observations
HA, N		Not Encountered	VS >202 kPa		0.0		ML	**SILT**: low liquid limit, brown-orange.	D	H		**TAURANGA GROUP ALLUVIUM**
			VS >202 kPa		0.5			0.5 m: becoming orange-brown				
			VS >202 kPa		1.0							
			VS 184/ 69 kPa					1.2 m: trace of fine grained sand		VSt		
			VS 166/ 66 kPa		1.5			1.6 m: becoming brown, sand absent				
			VS 142/ 52 kPa		2.0			Hand Auger HA39 terminated at 2.0 m Target depth				
					2.5							

CDF_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED LOT HAND AUGERS SWH 9-3-16.GPJ <<DrawingFile>> 12/05/2016 15:36

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

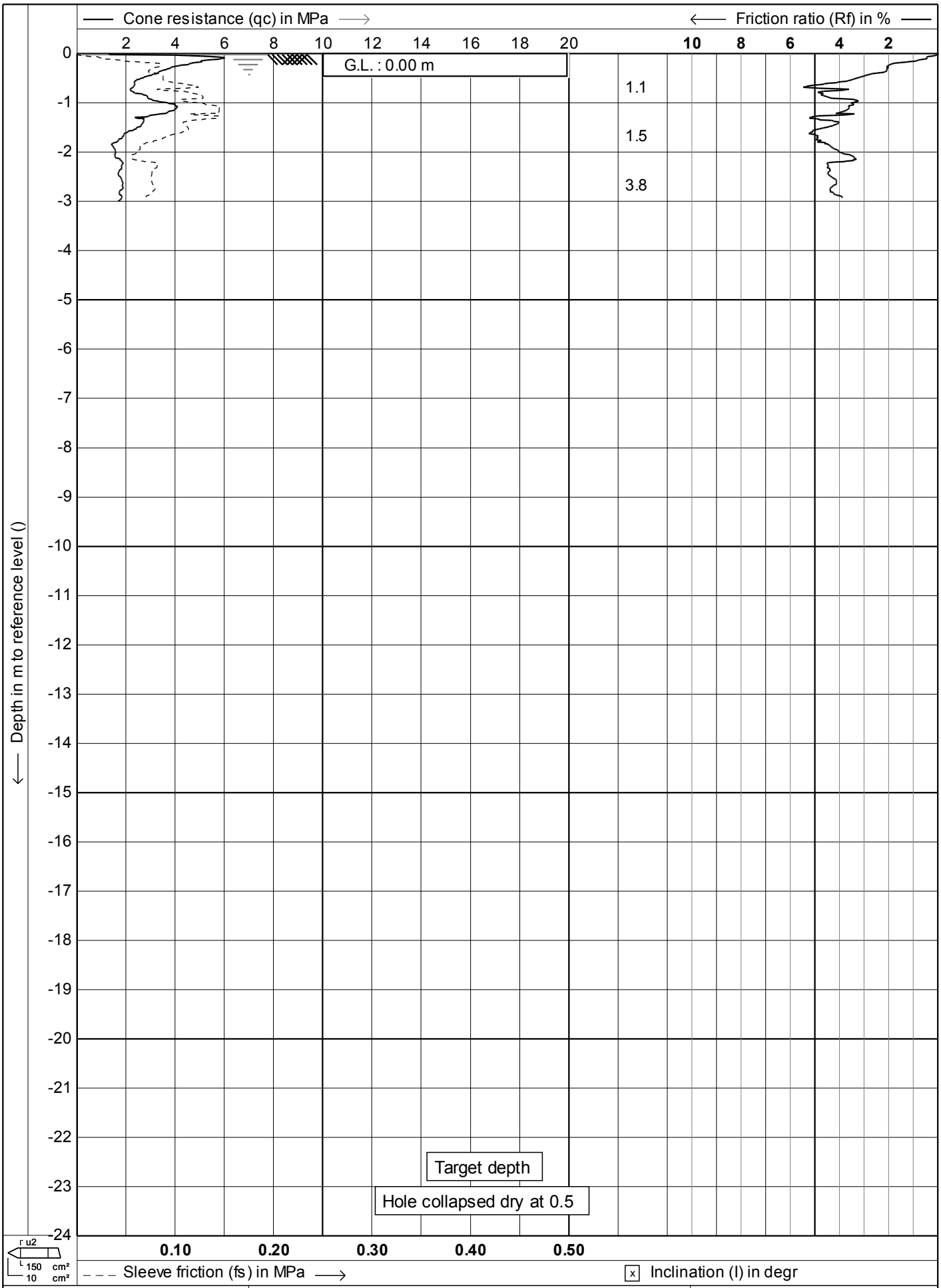
samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

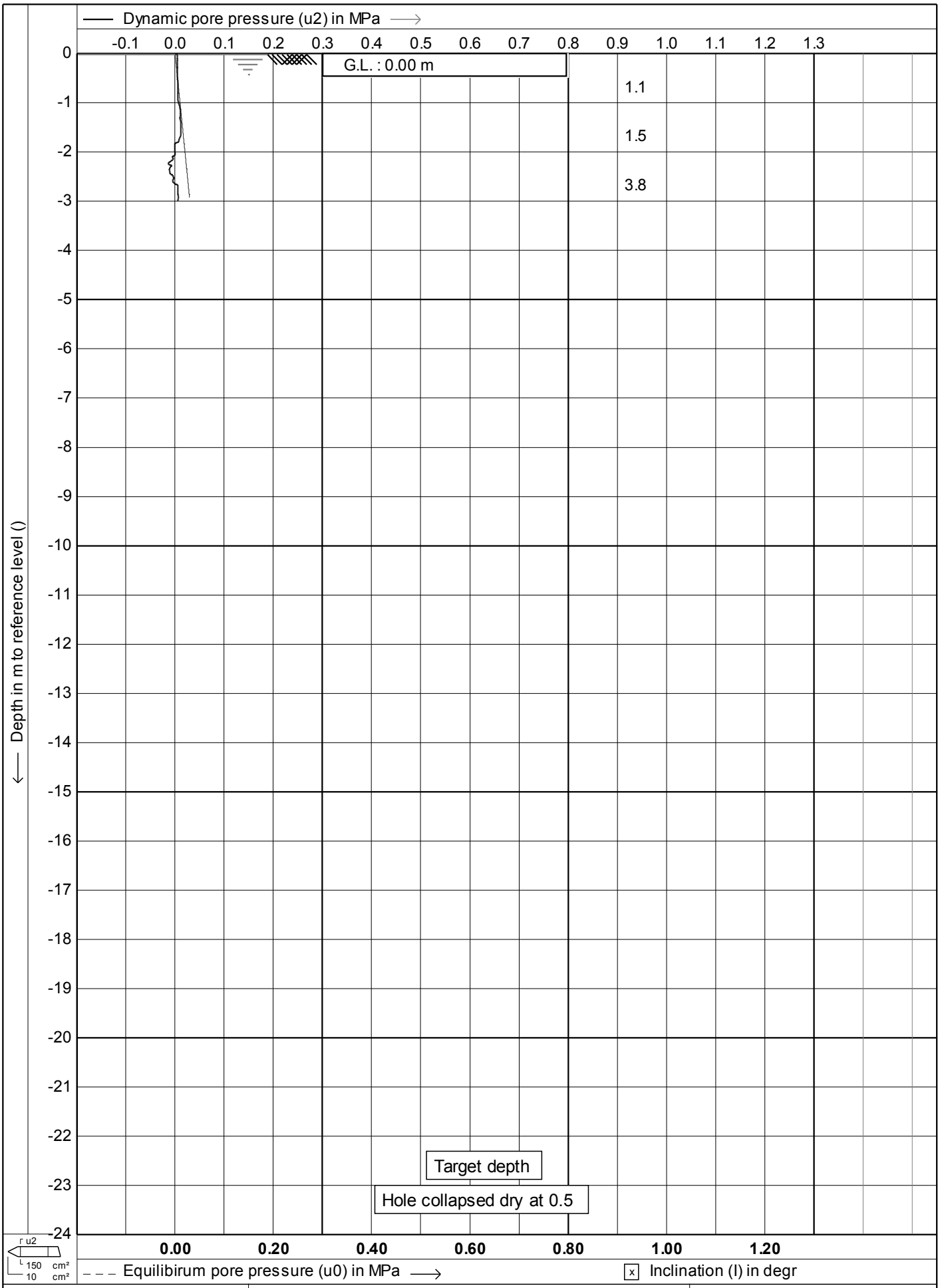
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **01**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

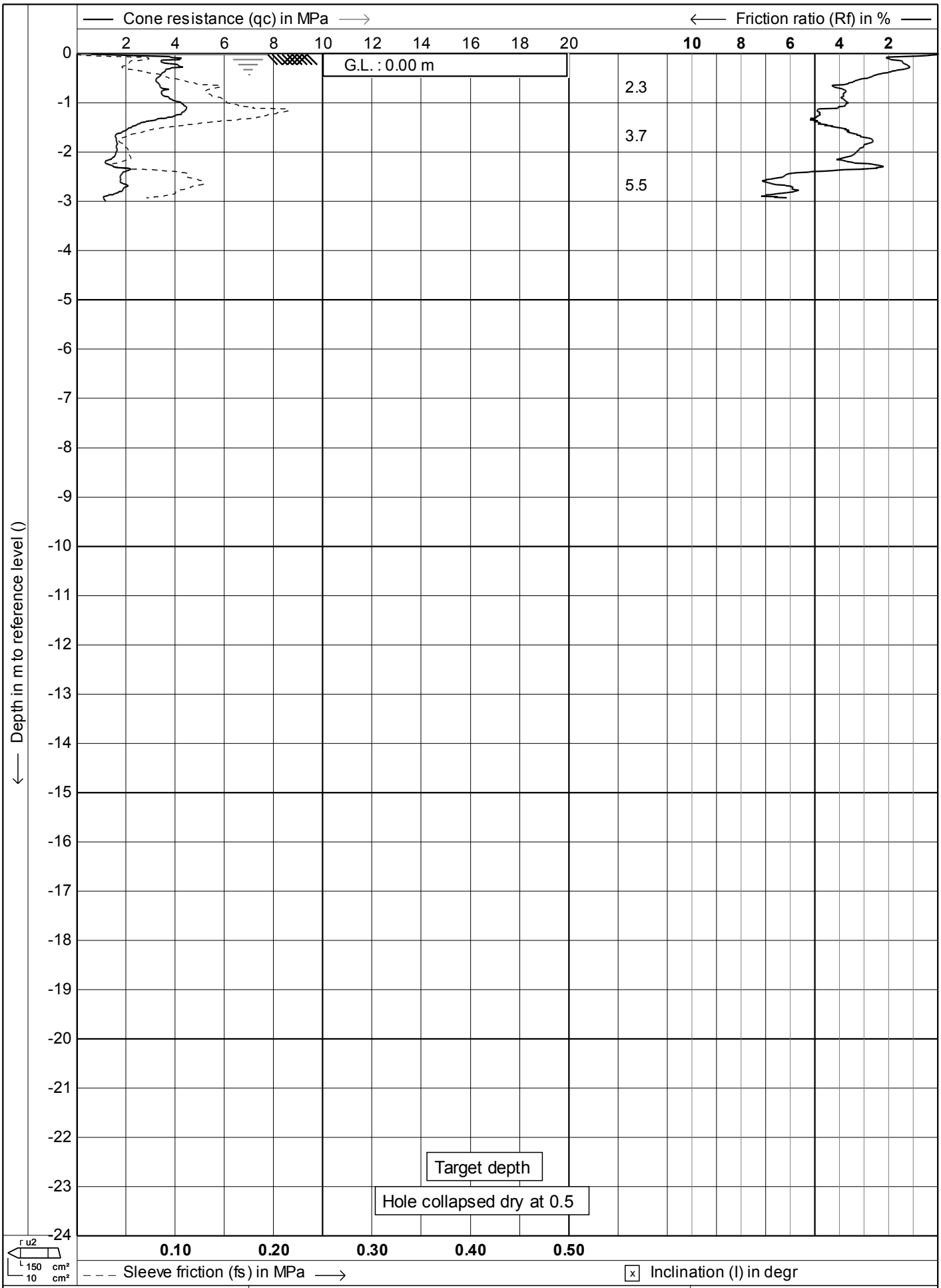
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **01**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

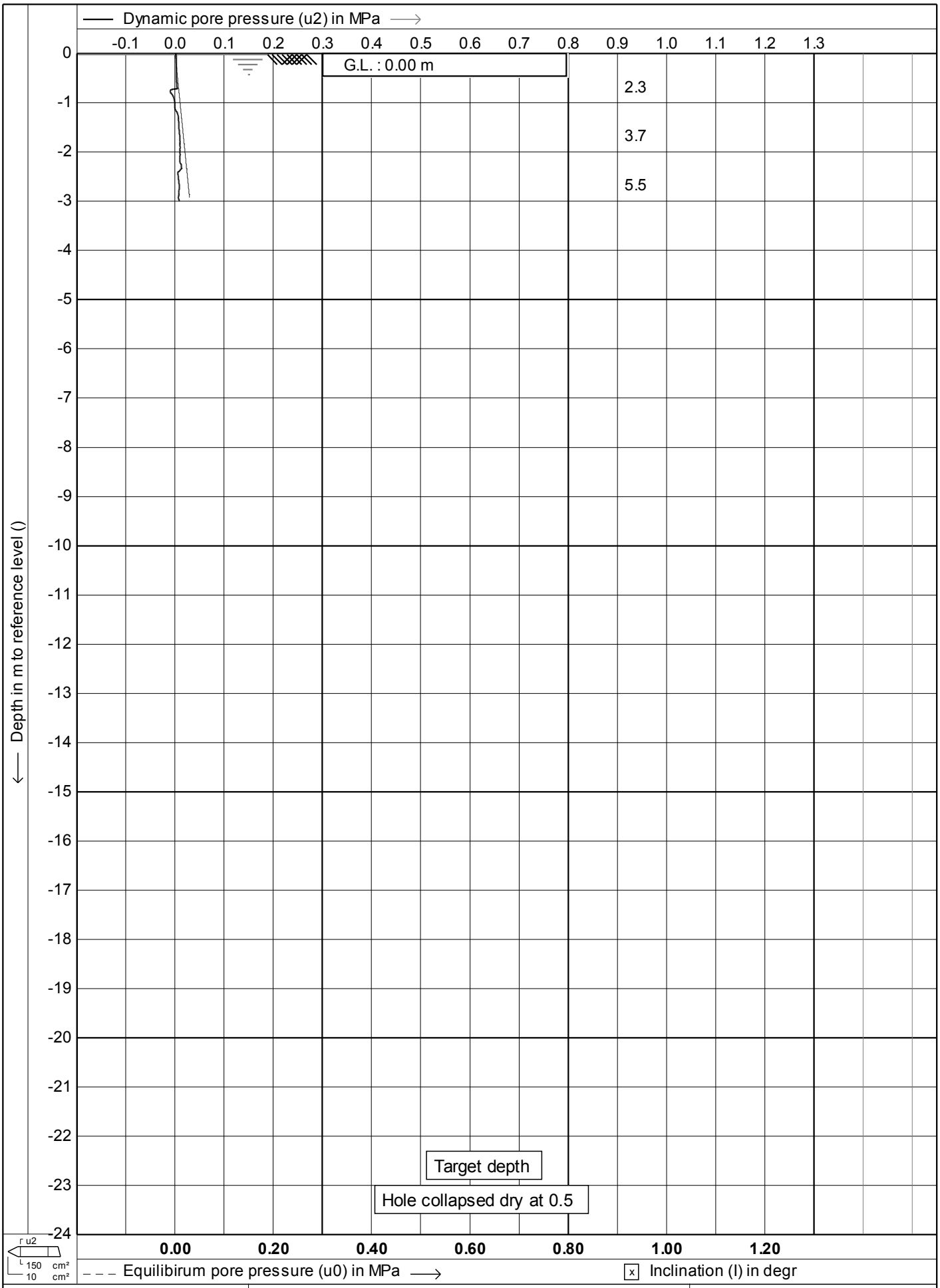
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **03**

1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

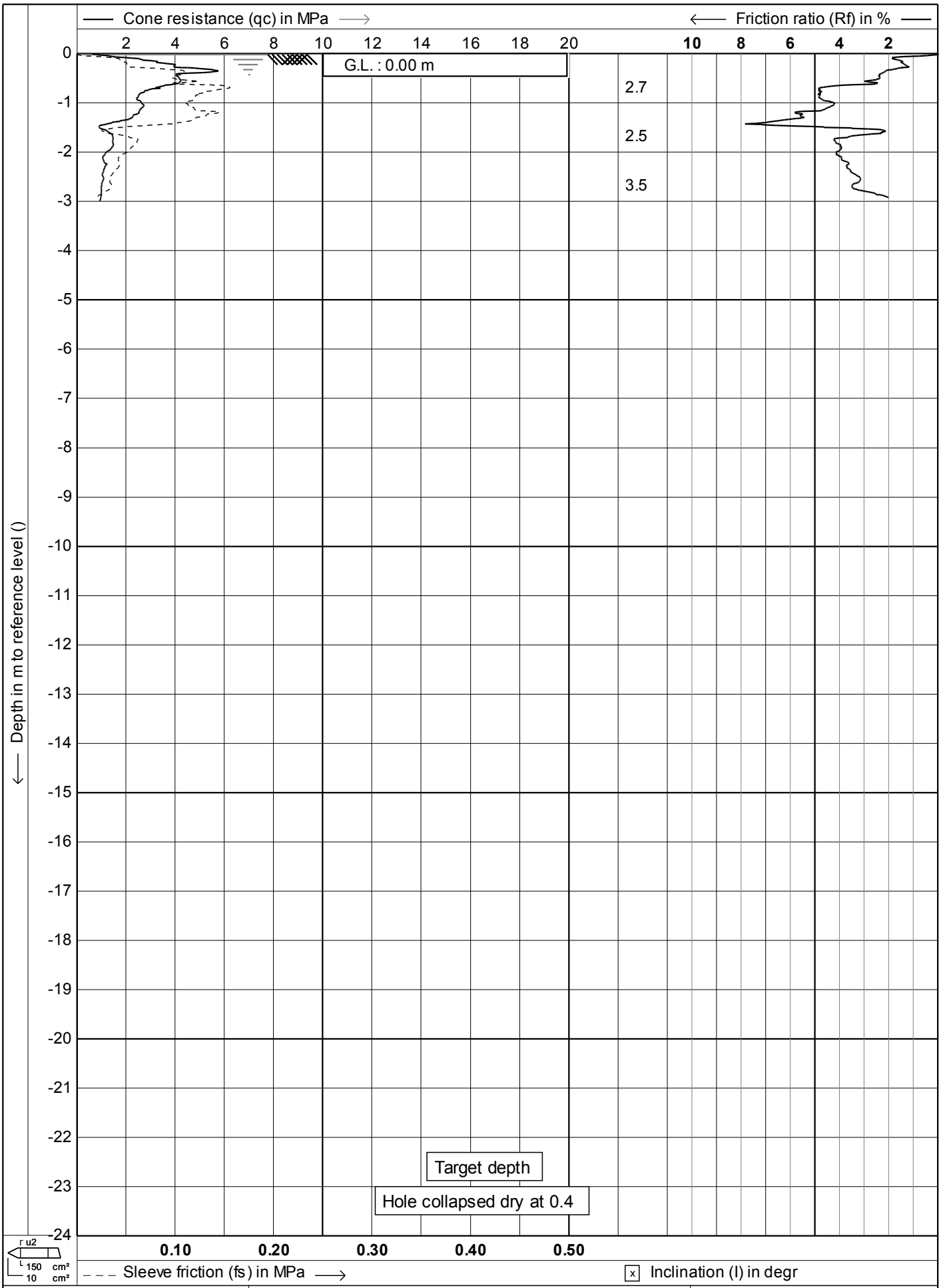
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **03**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

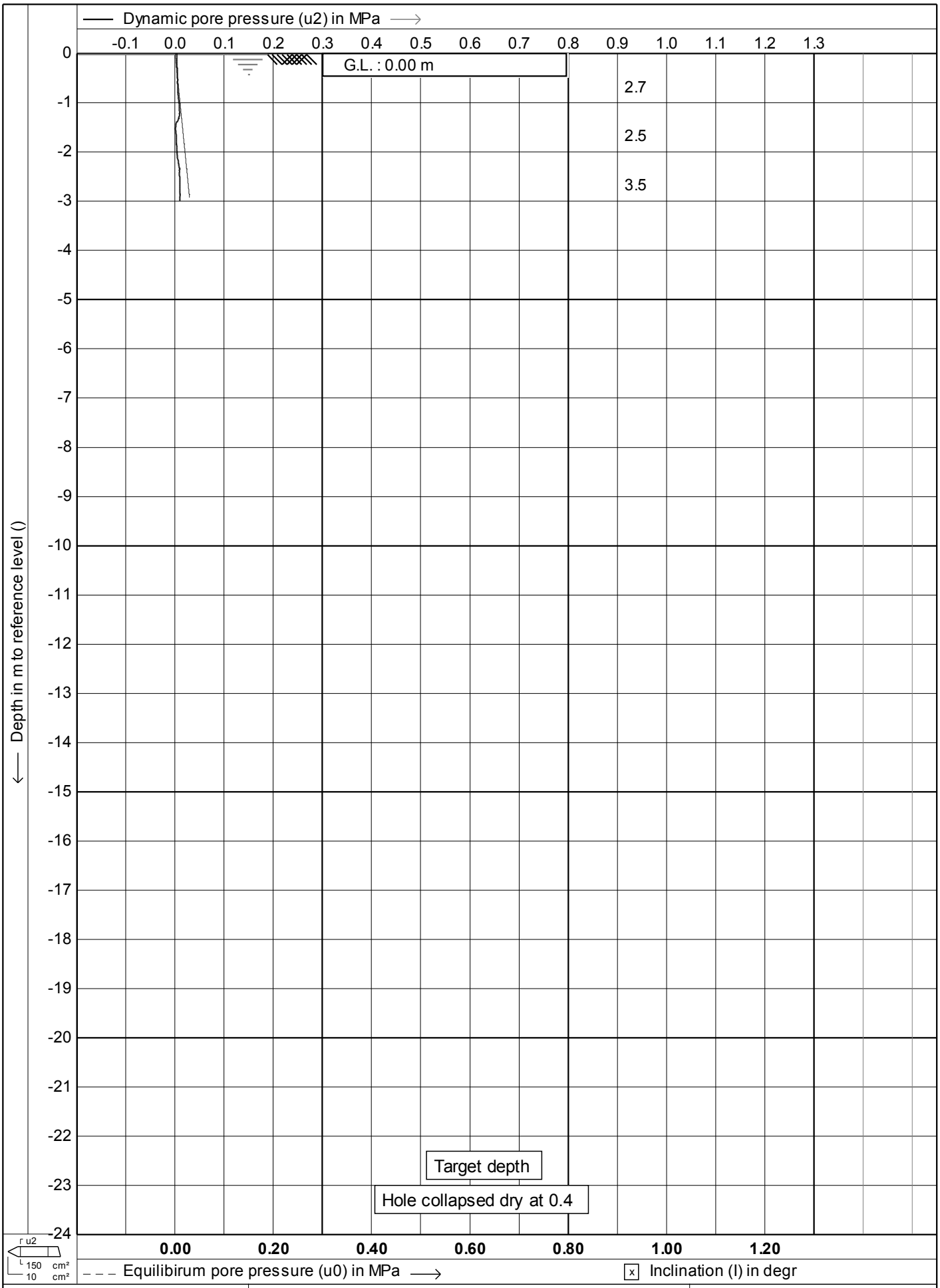
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **05**

CPTask V1.33



CPTask V1.33

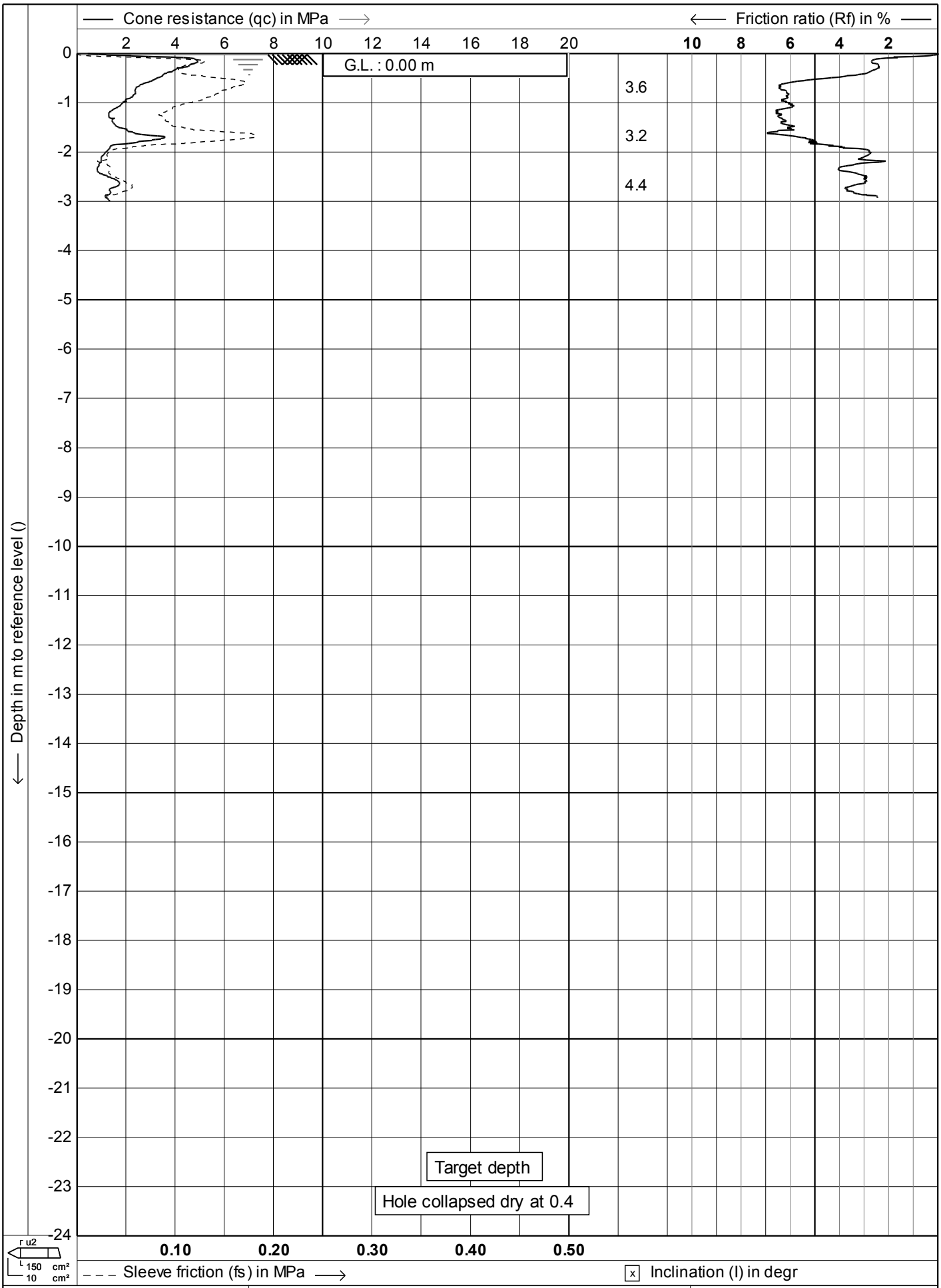
PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date	: **9-3-2016**
Cone no.	: **C10CFIIP.C14123**
Project no.	: **02COFFEY2**
CPT no.	: **05**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

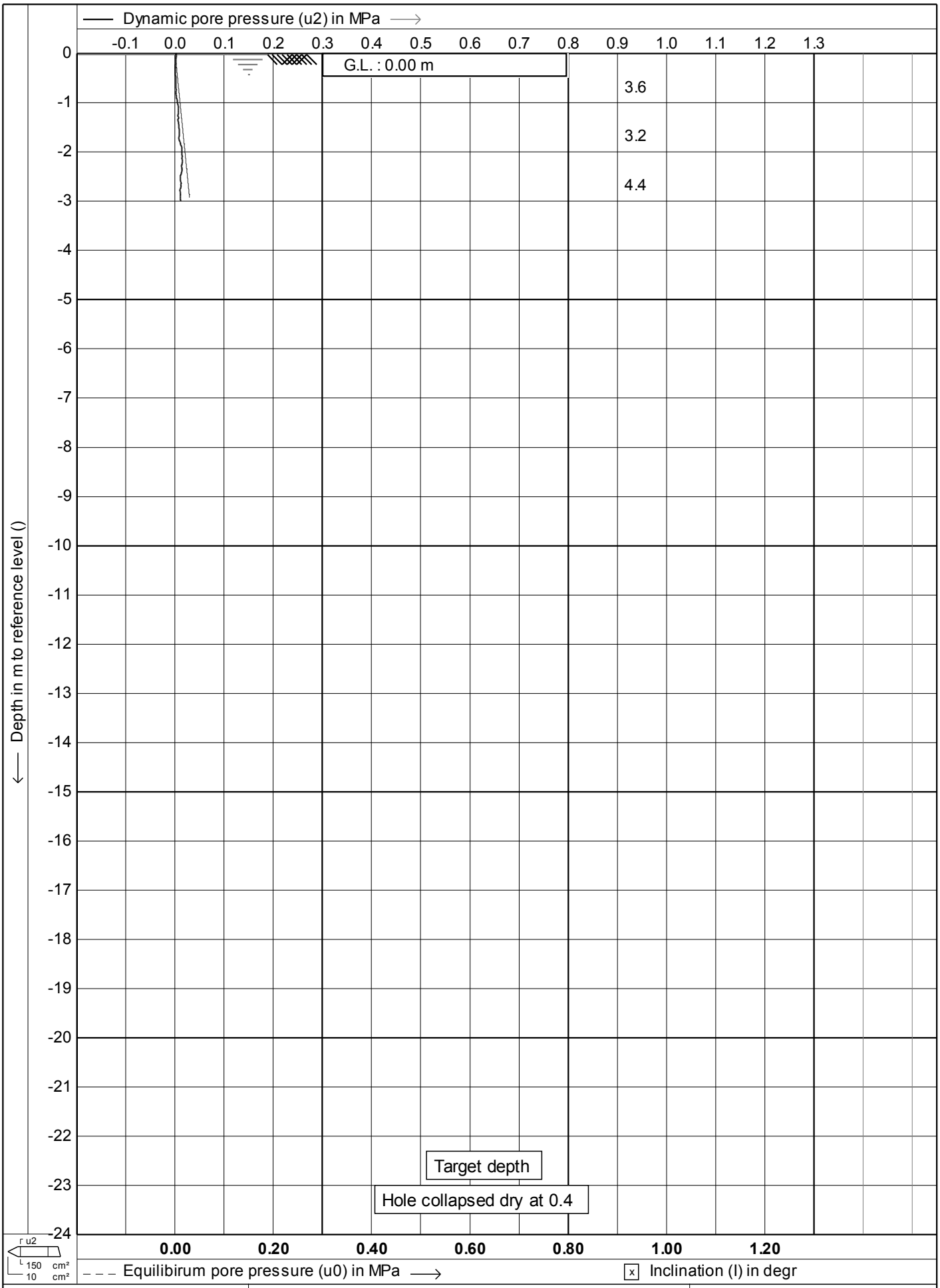
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **07**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

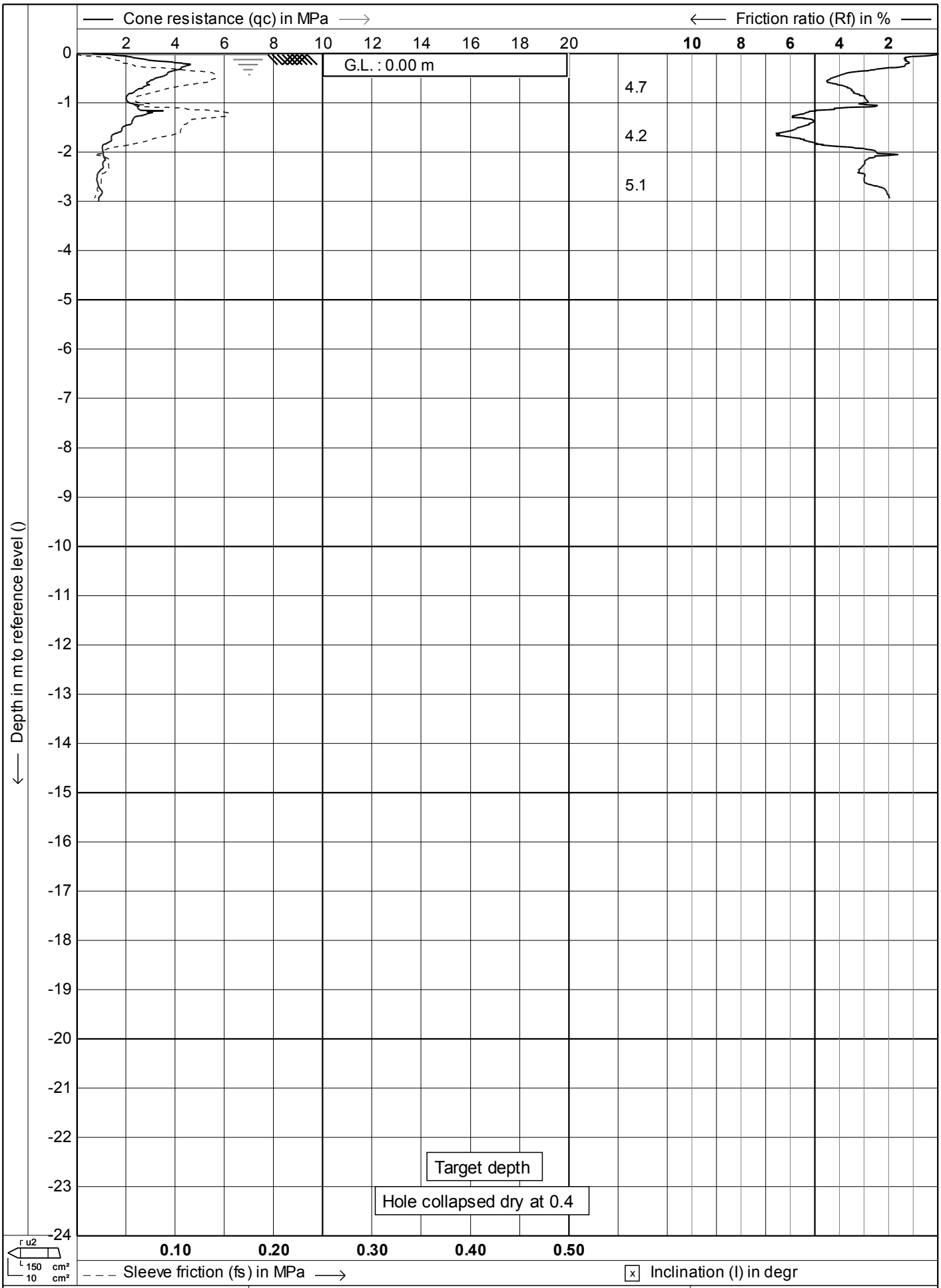
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **07**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

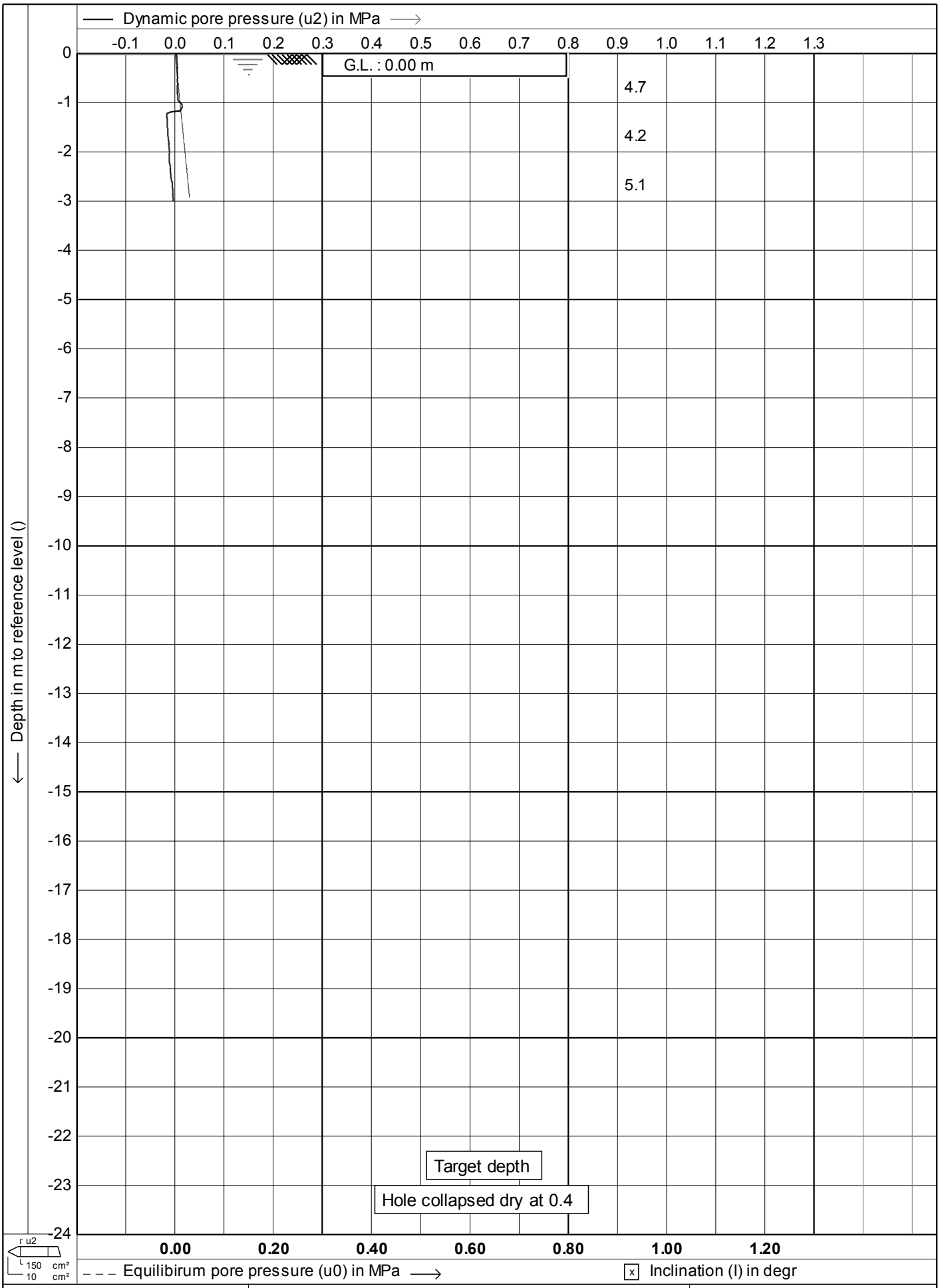
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **09**

1/14



CPTask V1.33

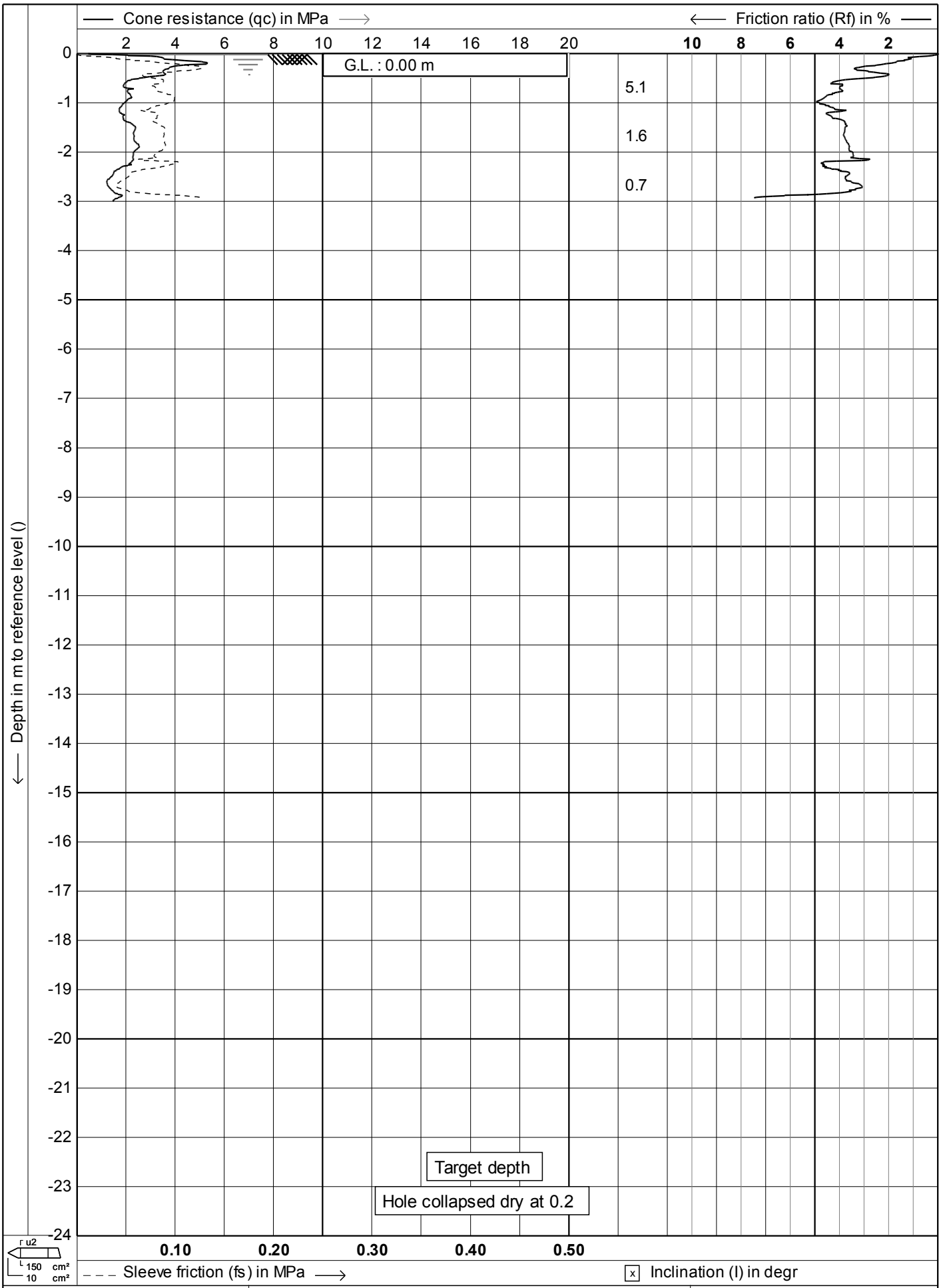
PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date	: **9-3-2016**
Cone no.	: **C10CFIIP.C14123**
Project no.	: **02COFFEY2**
CPT no.	: **09**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

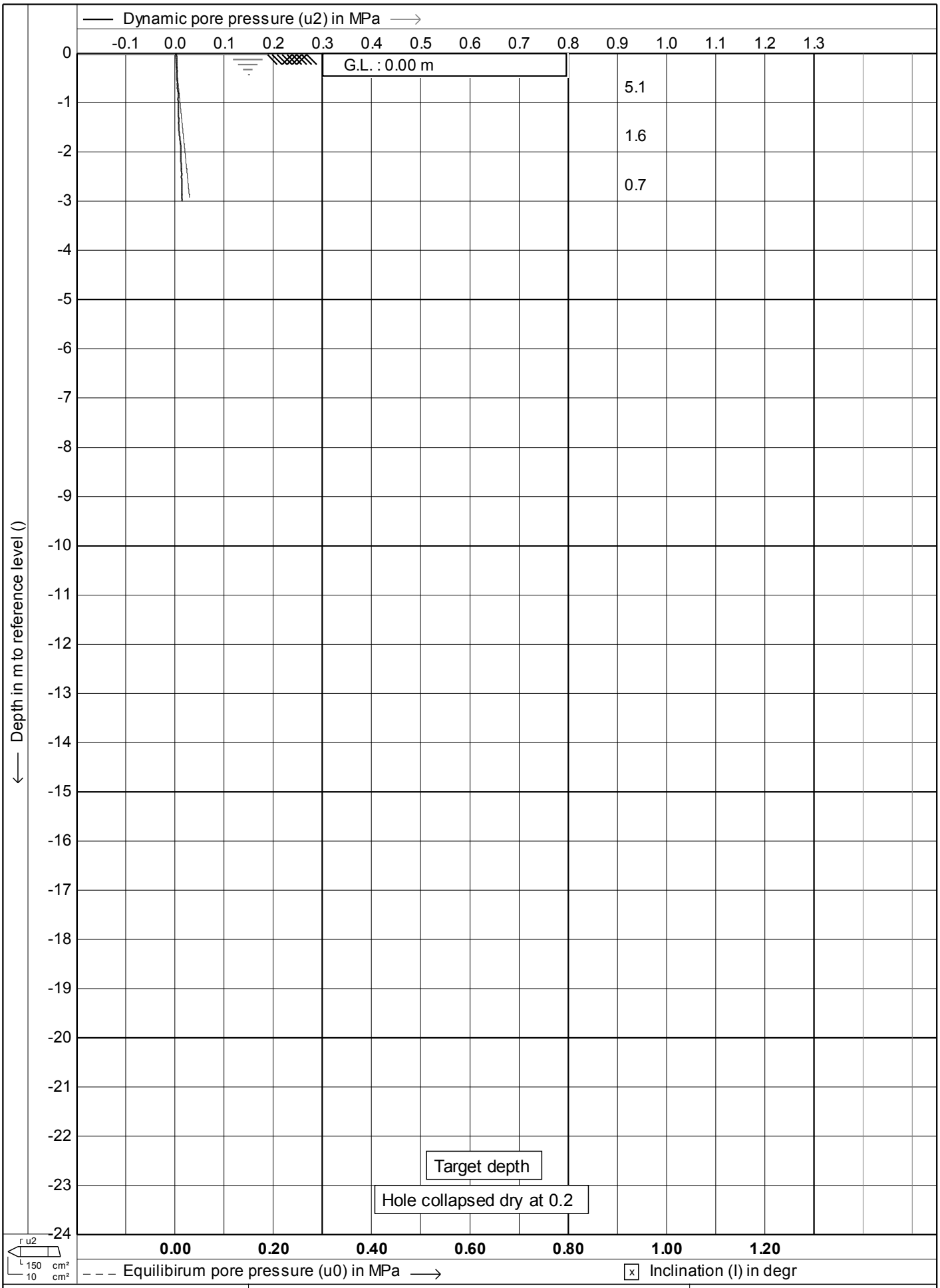
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **11**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

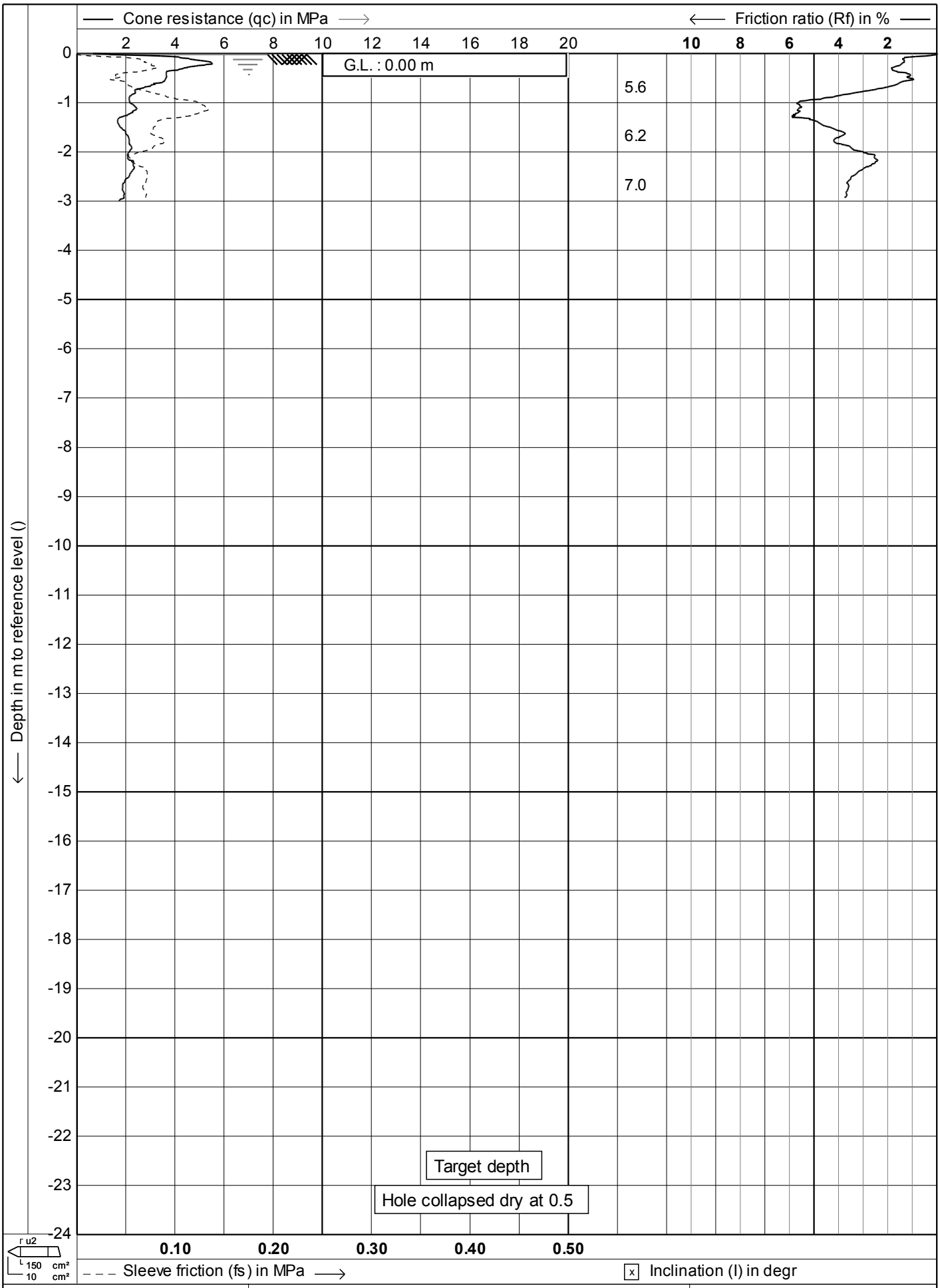
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **11**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

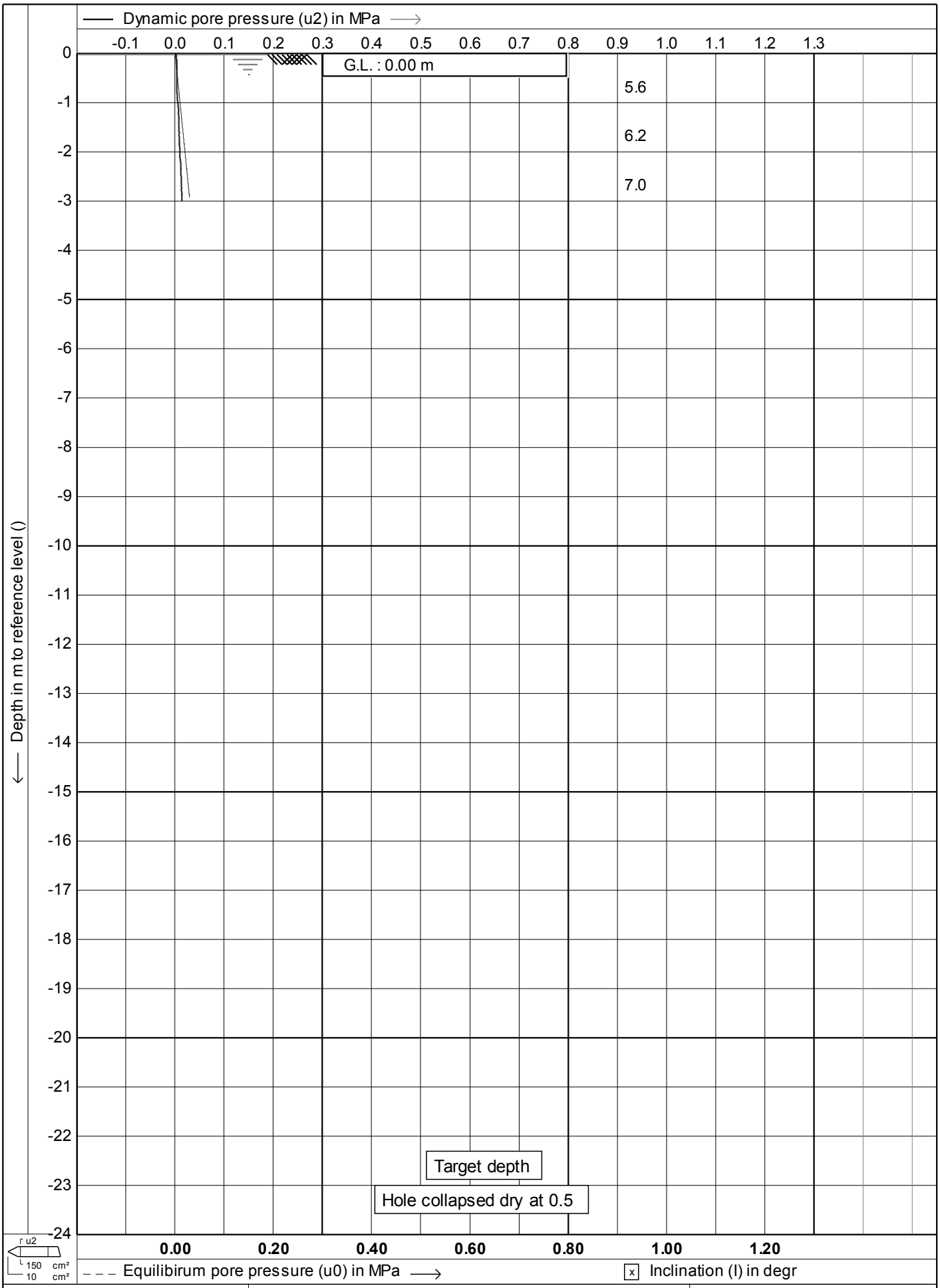
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **13**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

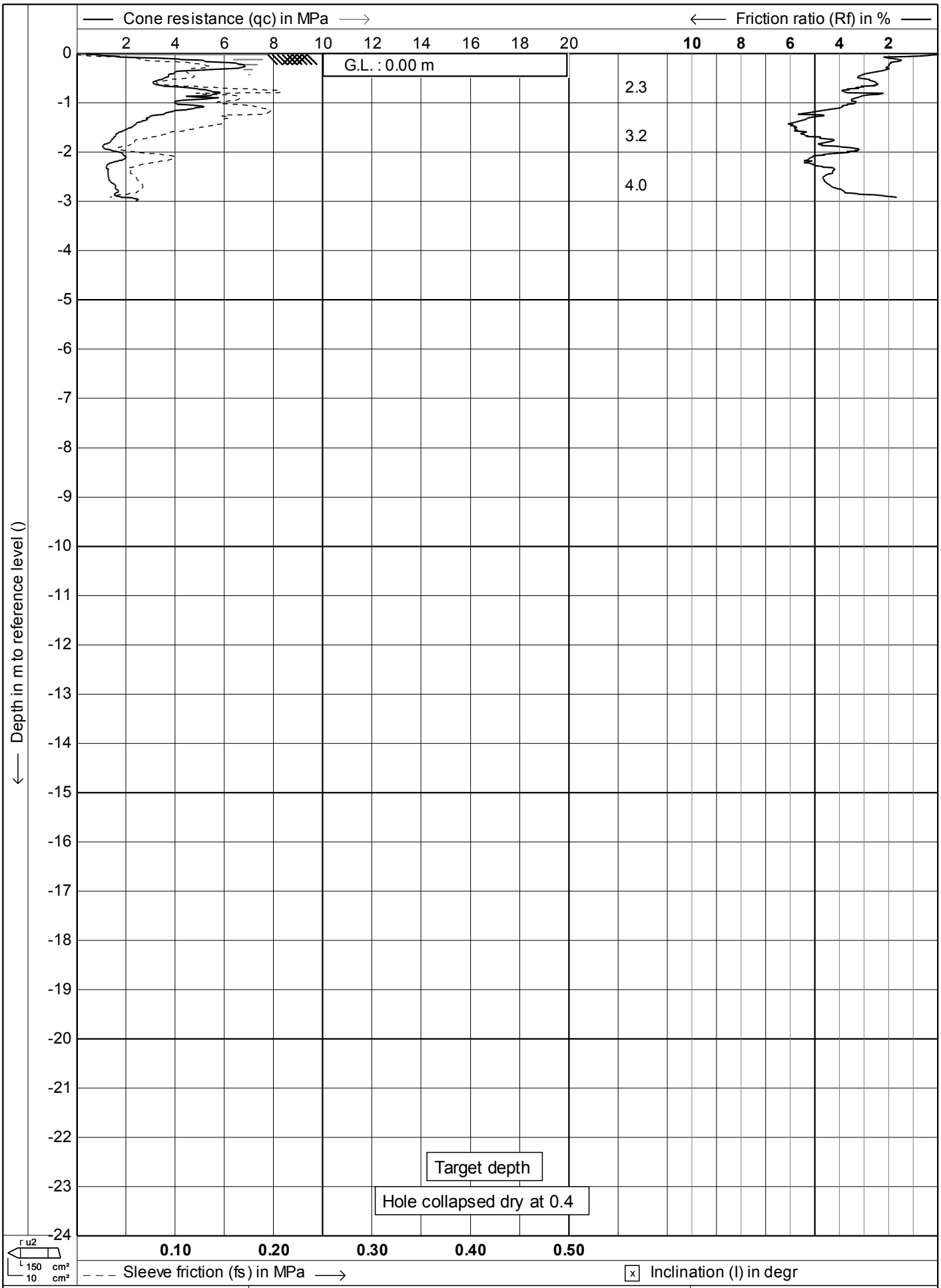
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **13**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

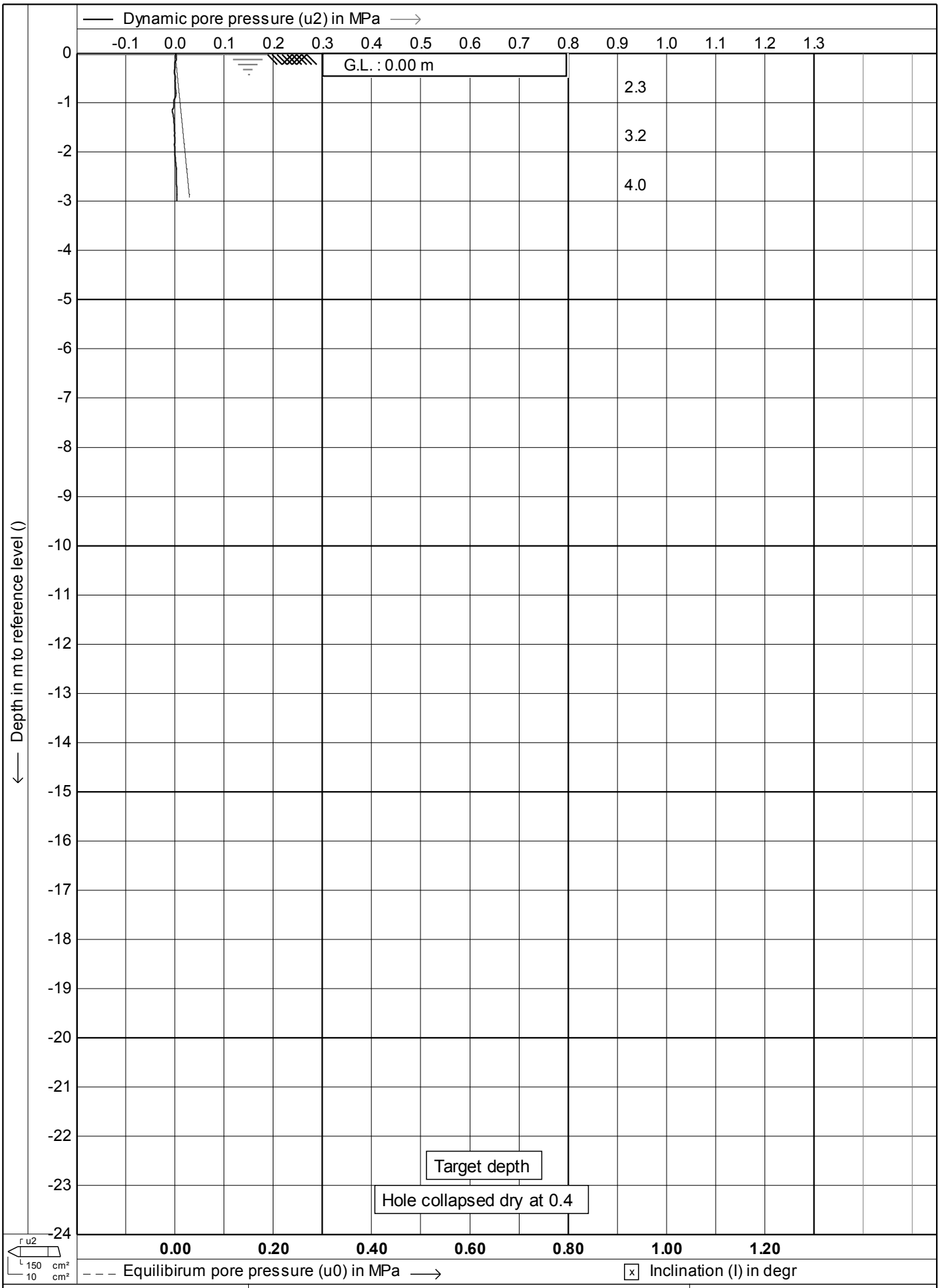
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **14** 1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

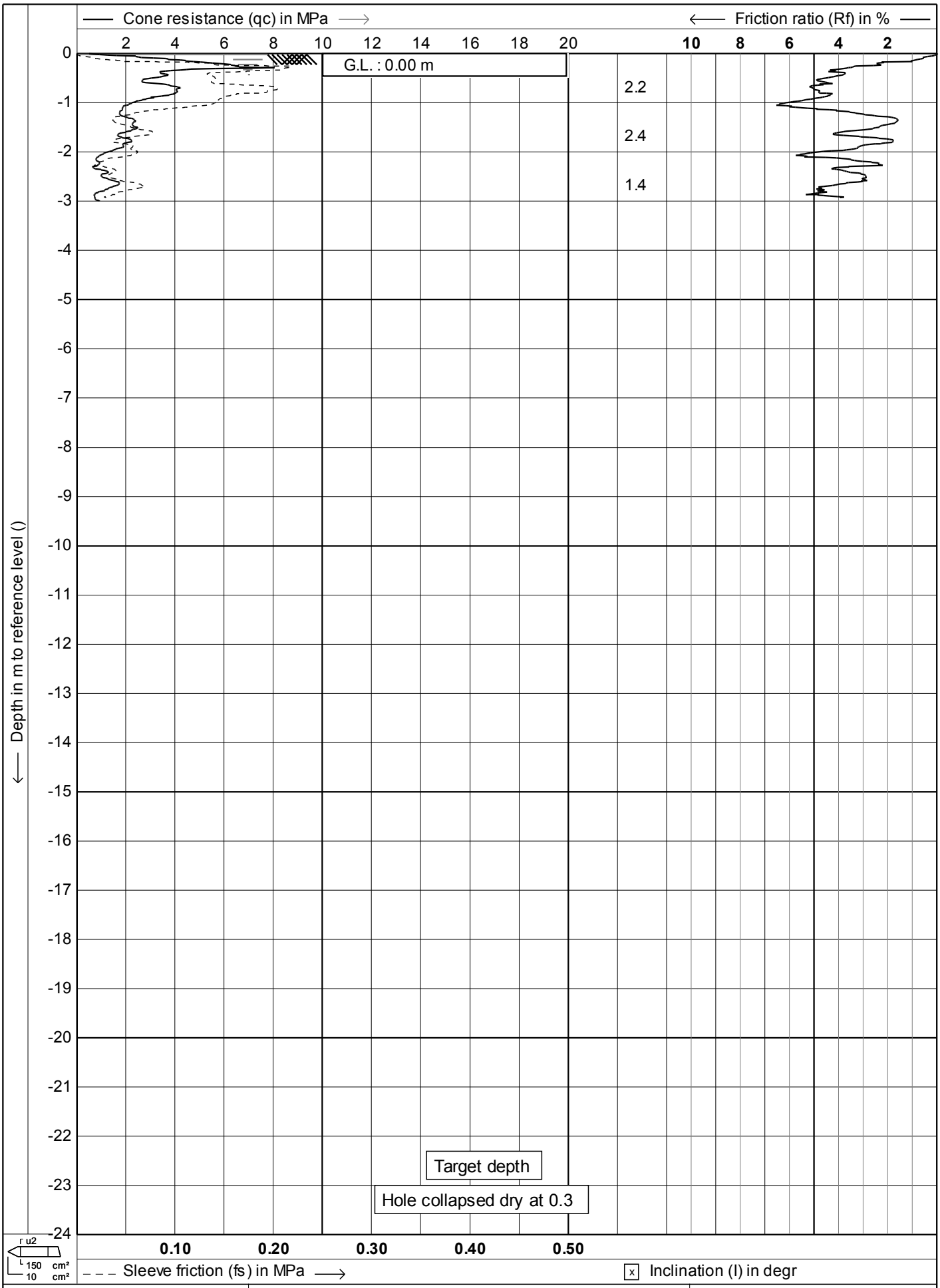
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **14**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

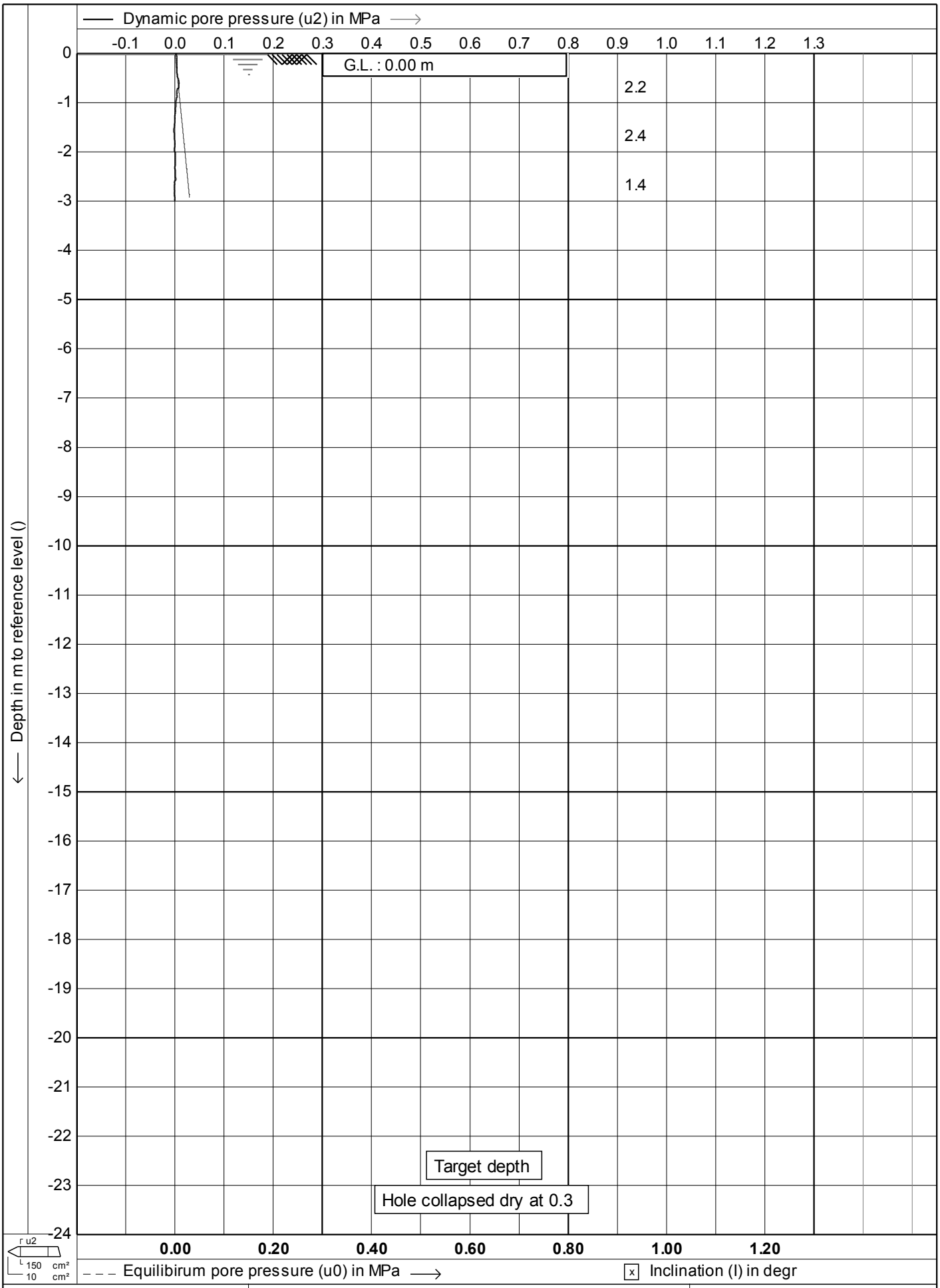
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **16**

1/14



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

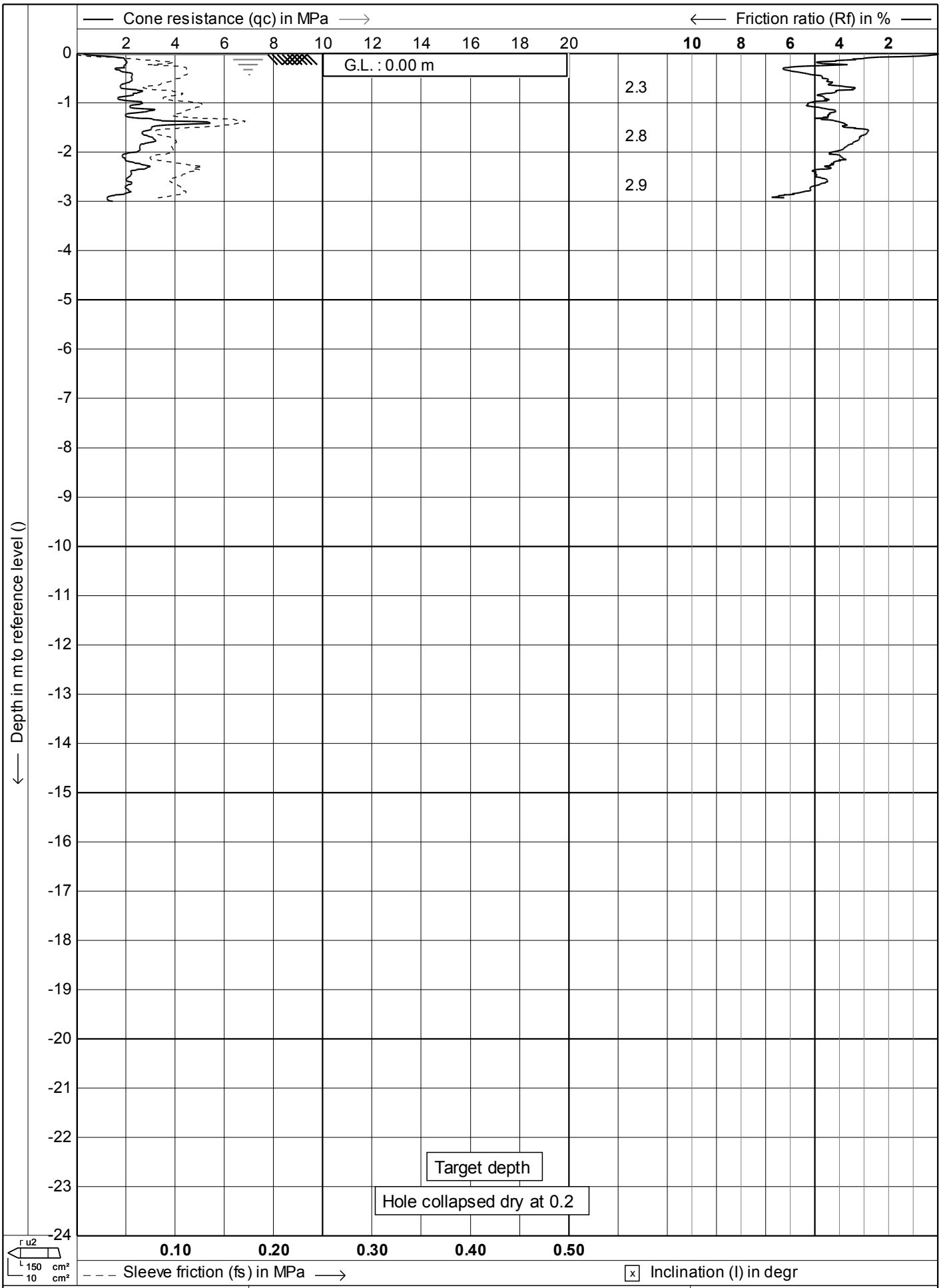
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **16**

2/14



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

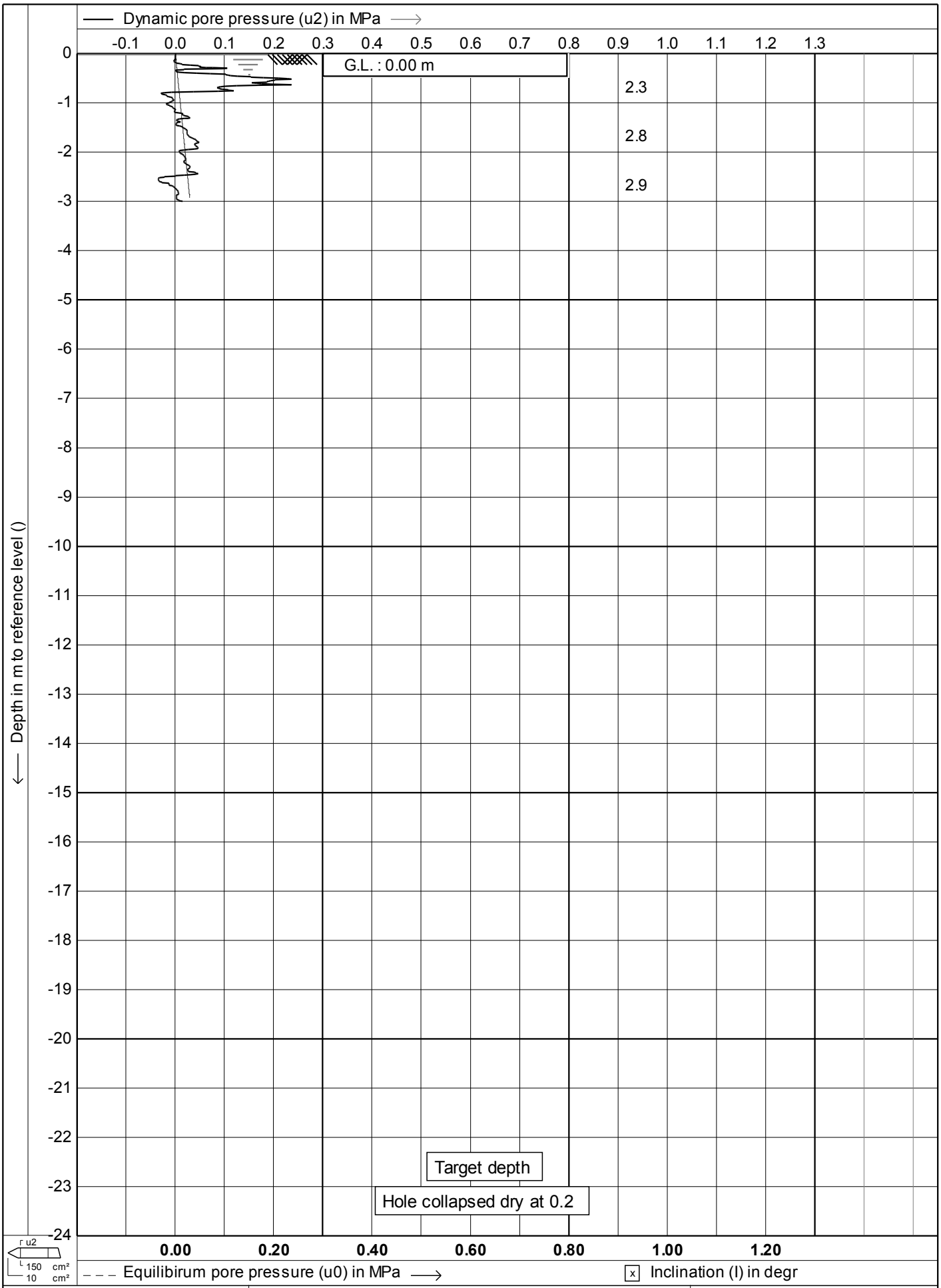
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **22**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

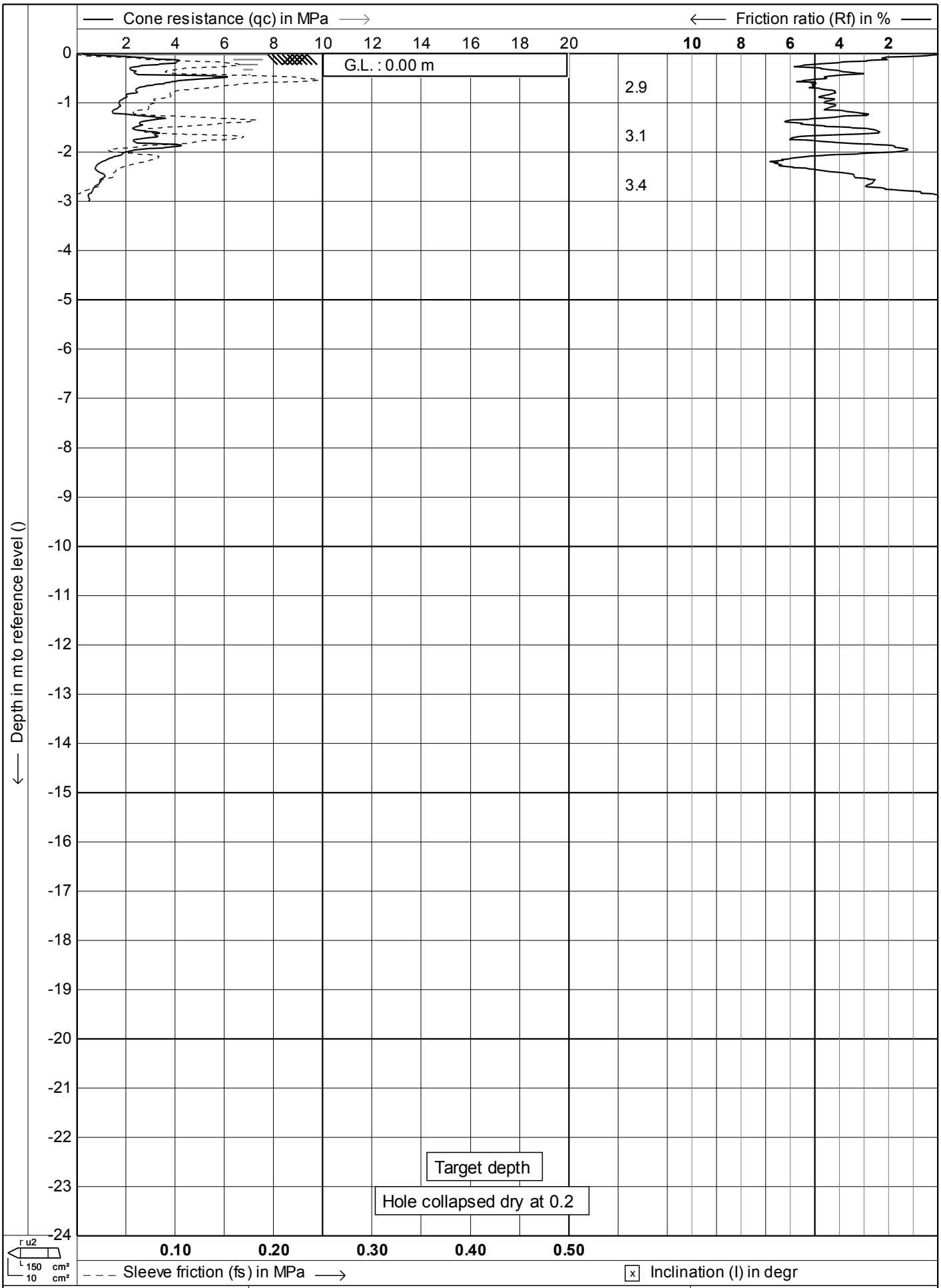
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **22**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

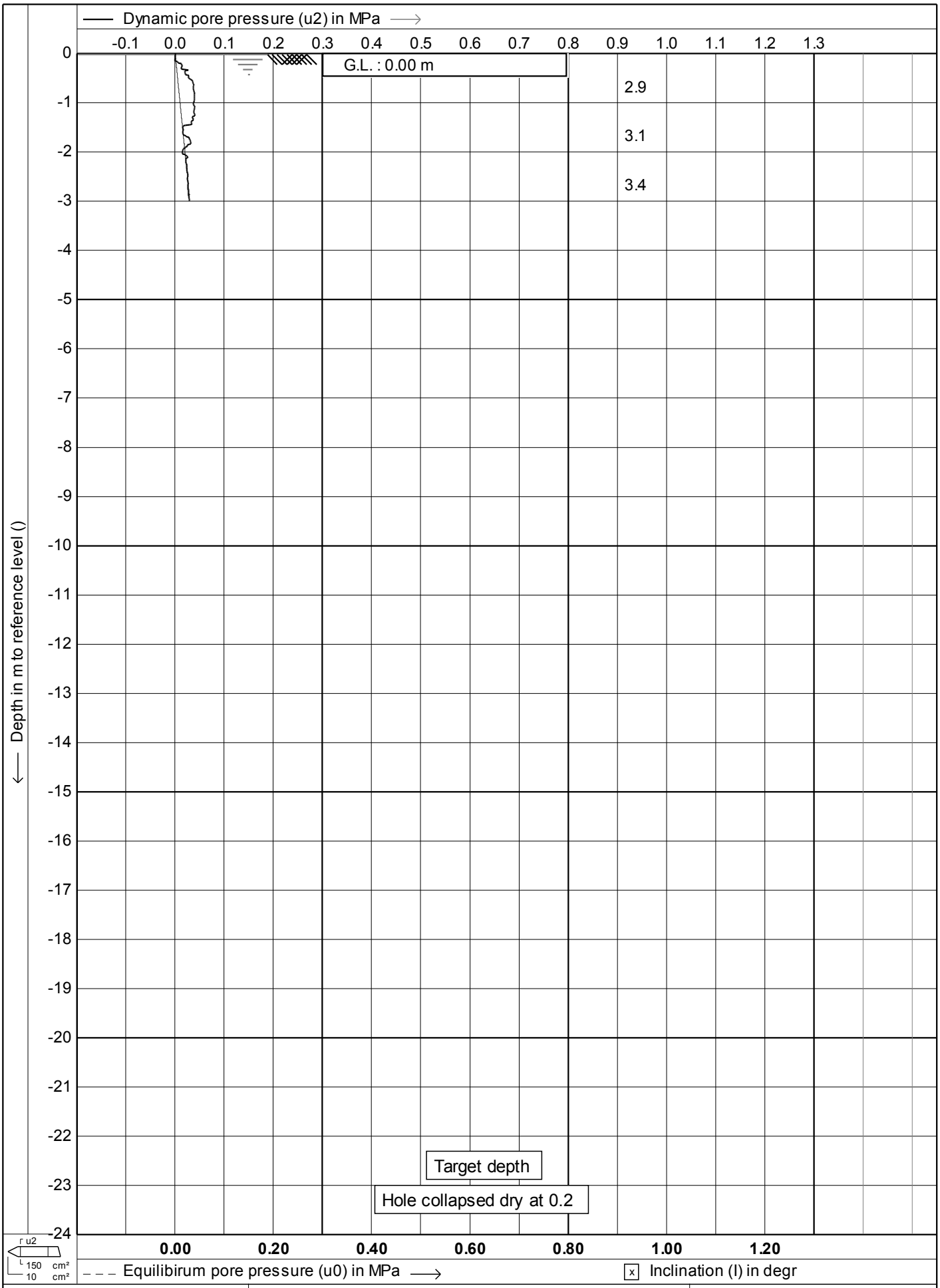
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **24** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

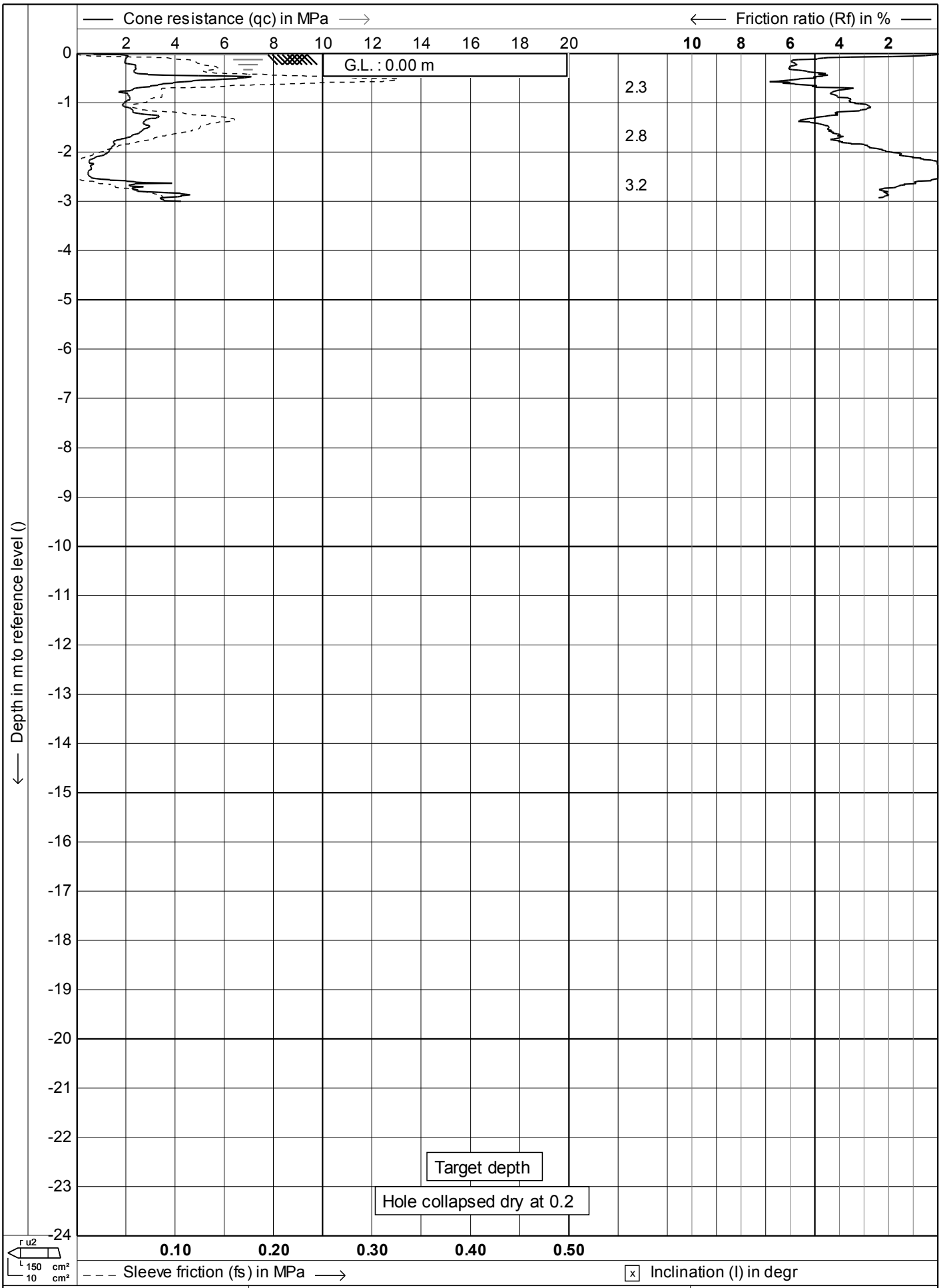
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **24**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

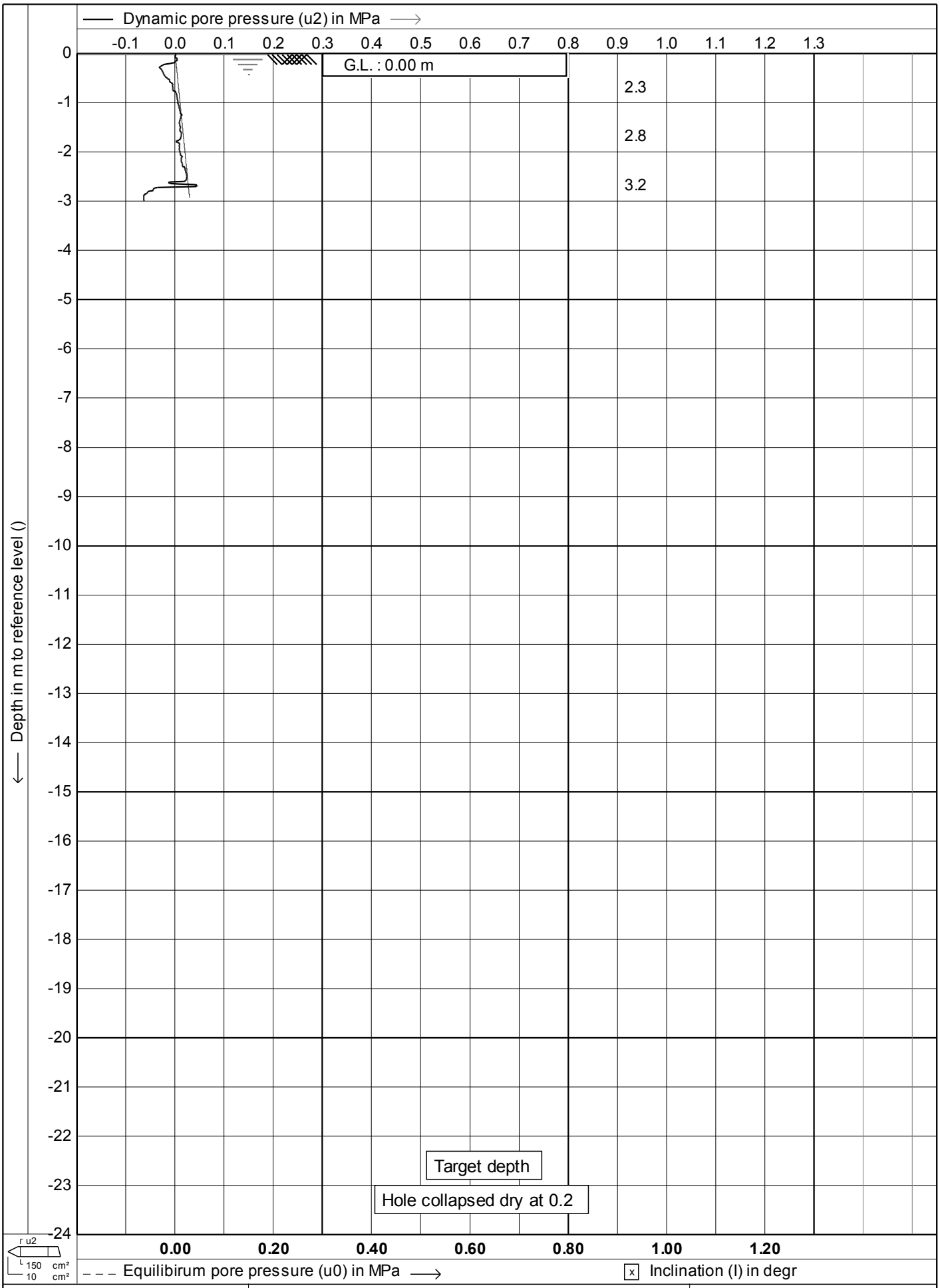
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **26**

1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

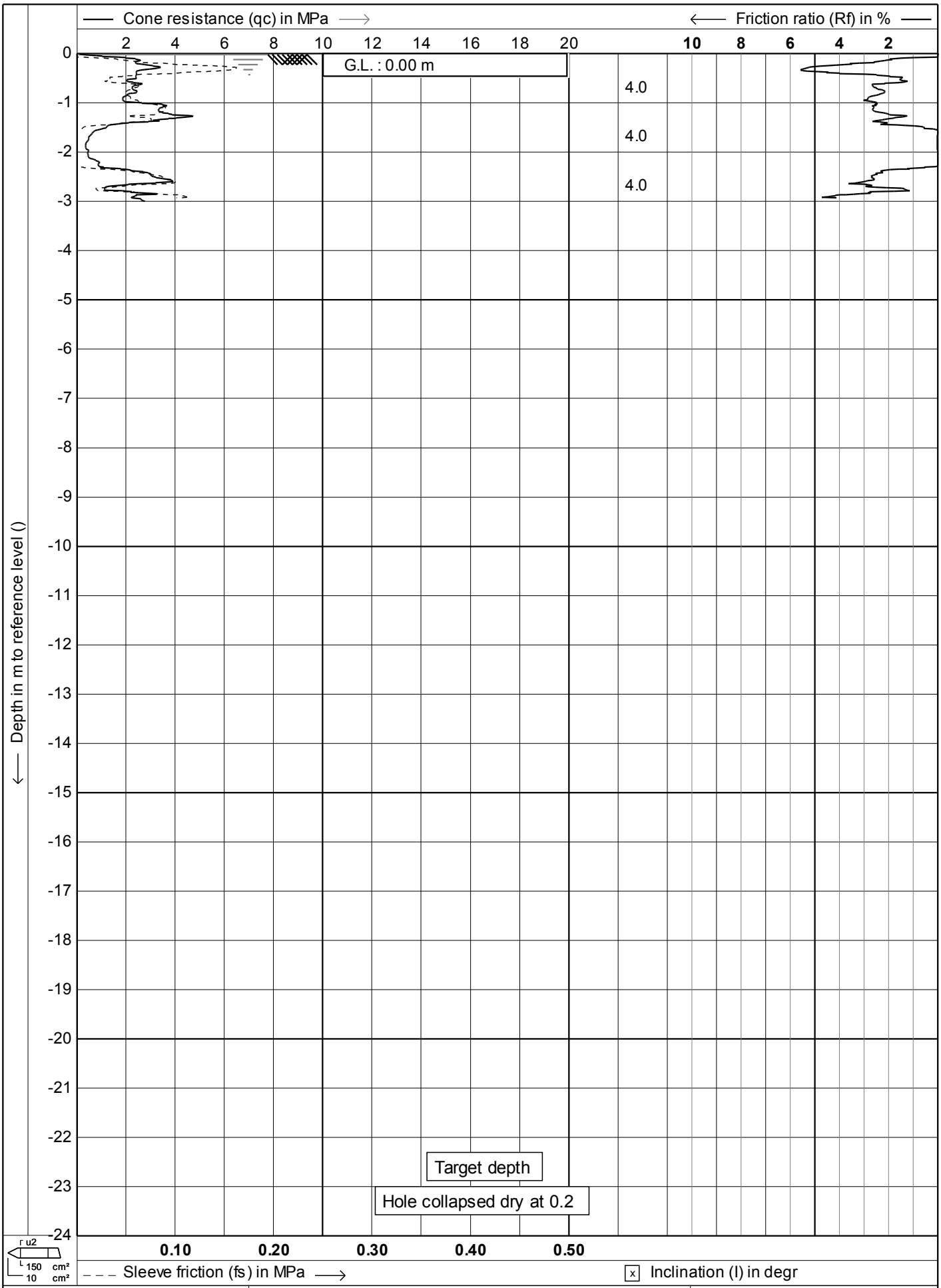
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **26**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

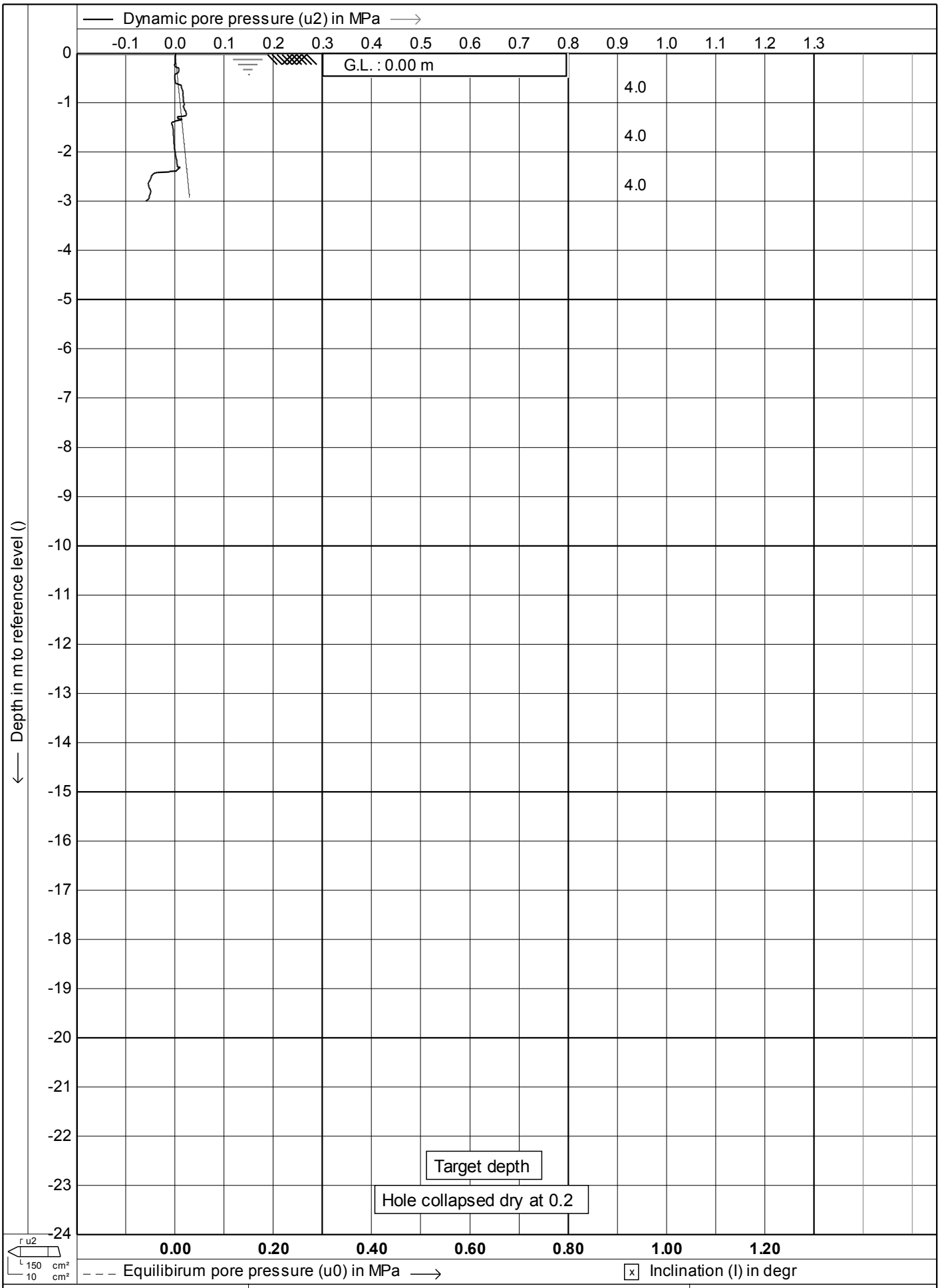
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **27**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

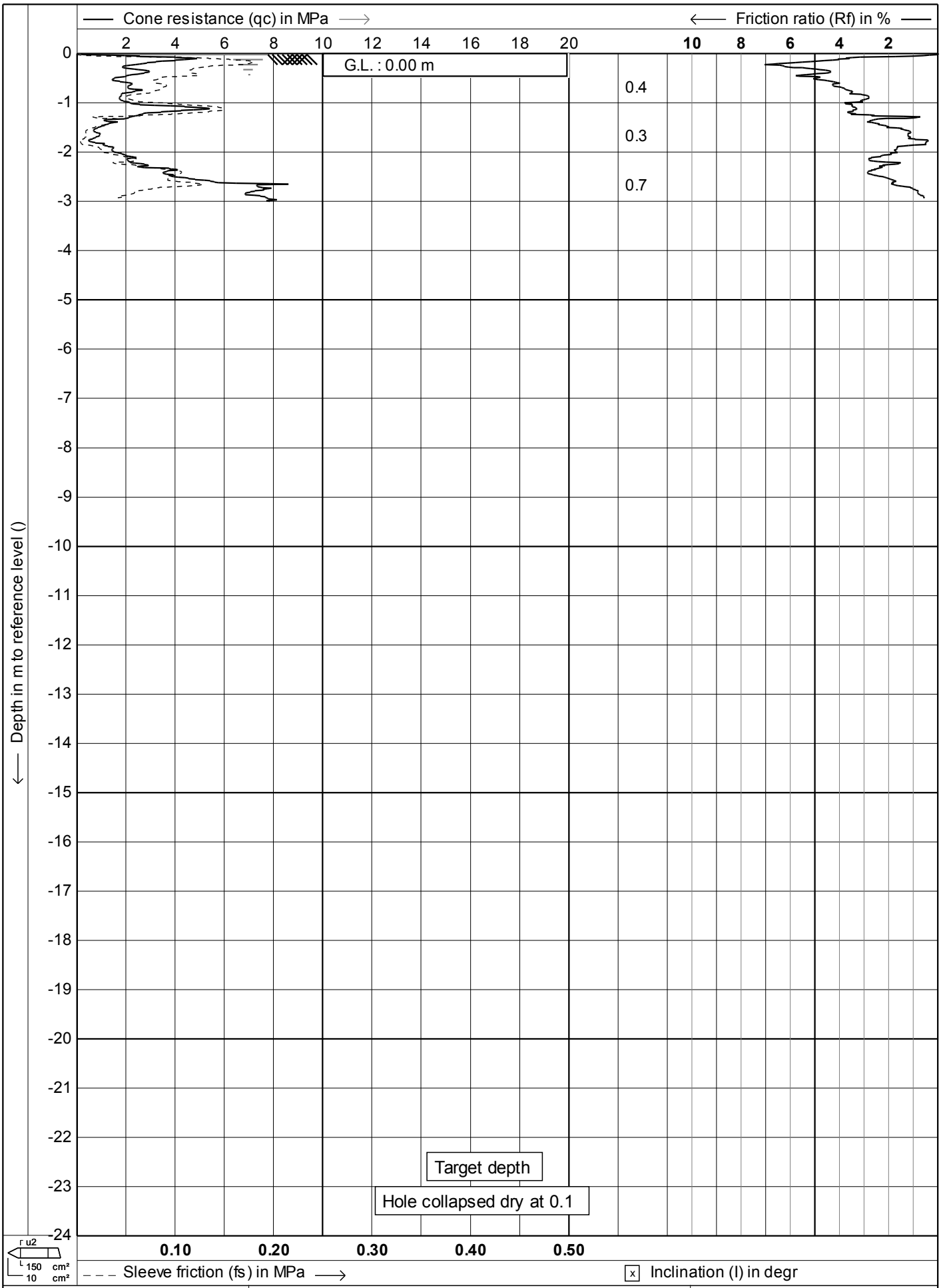
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **27**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

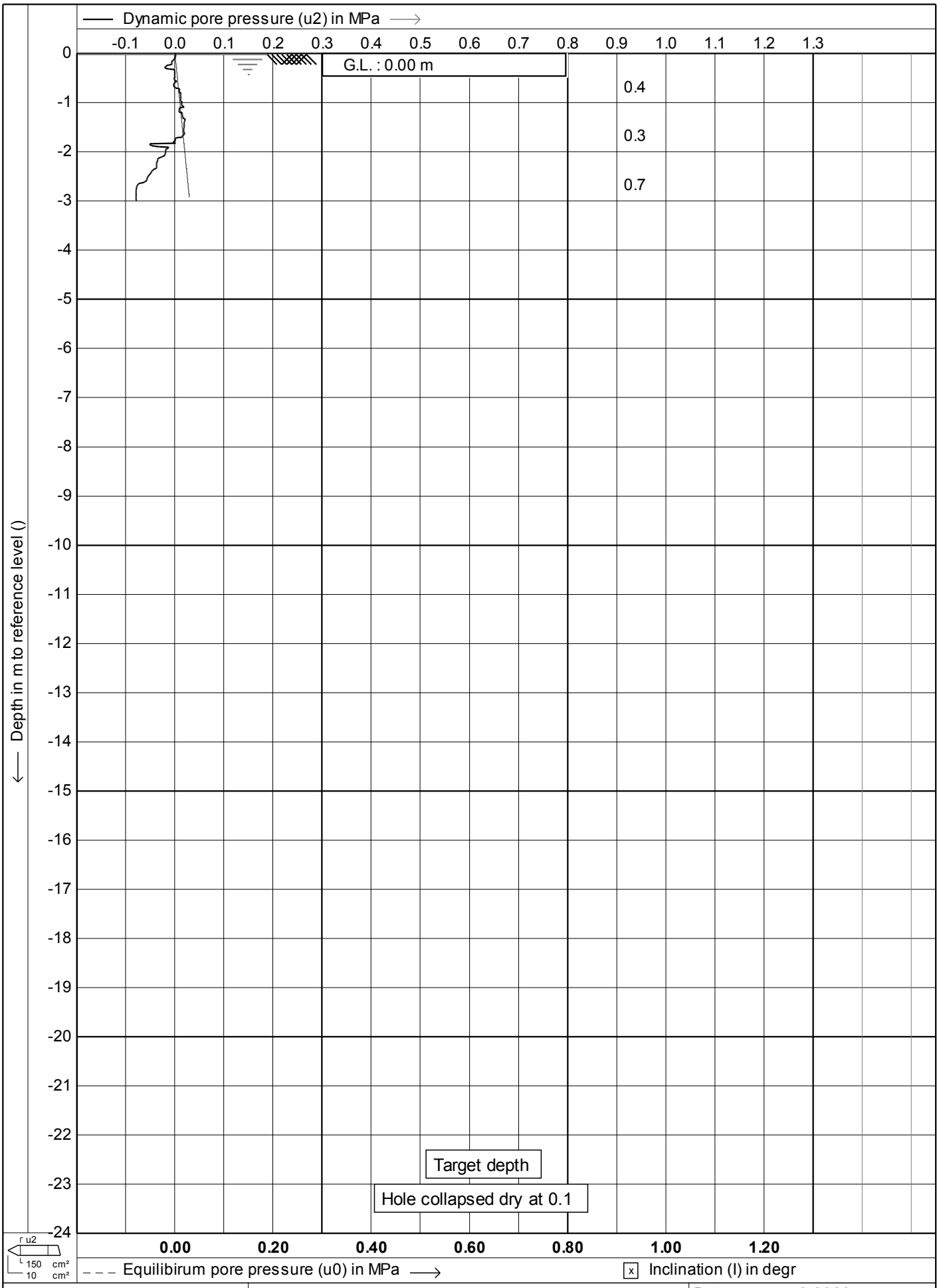
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **28** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

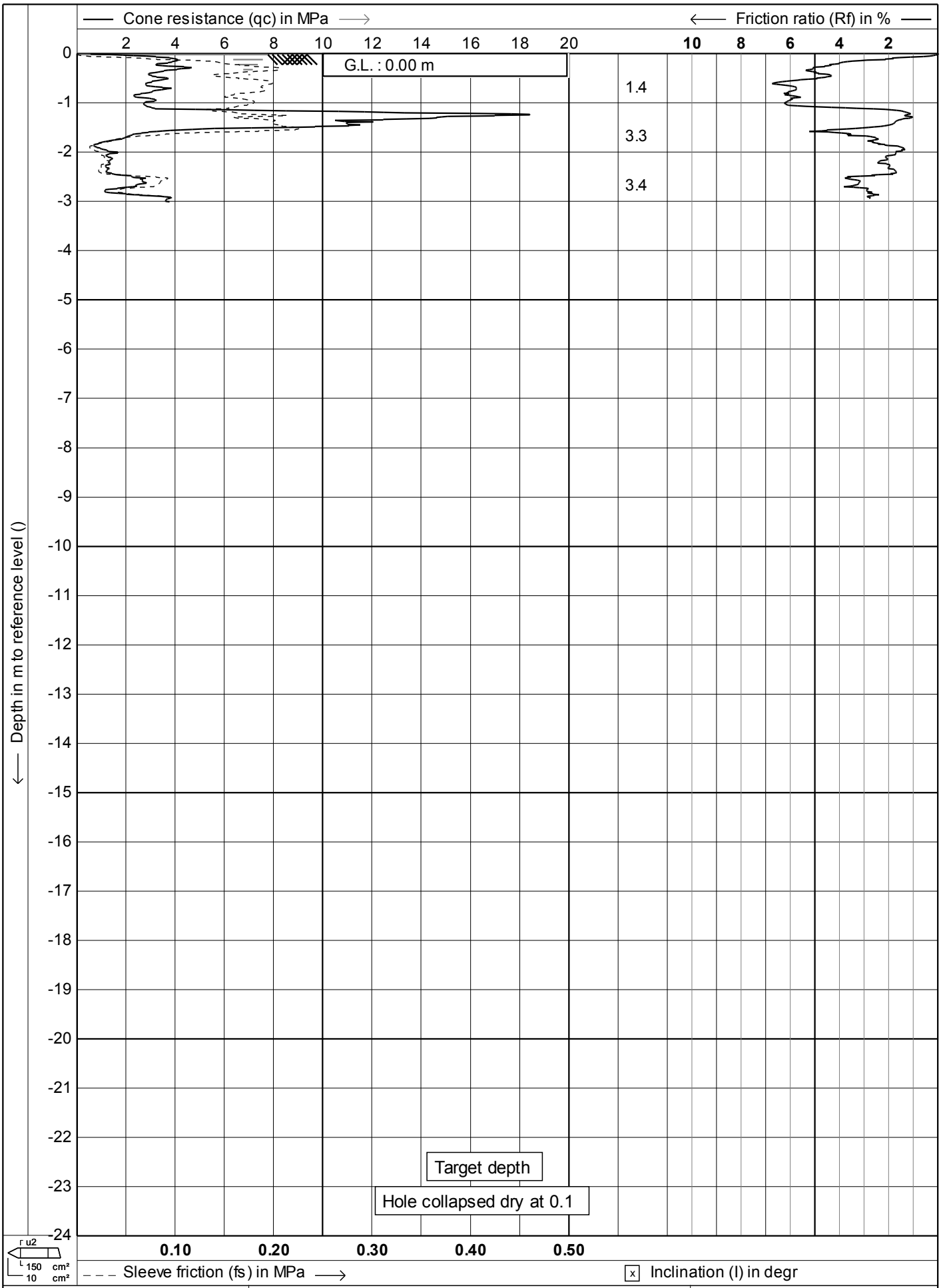
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **28**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

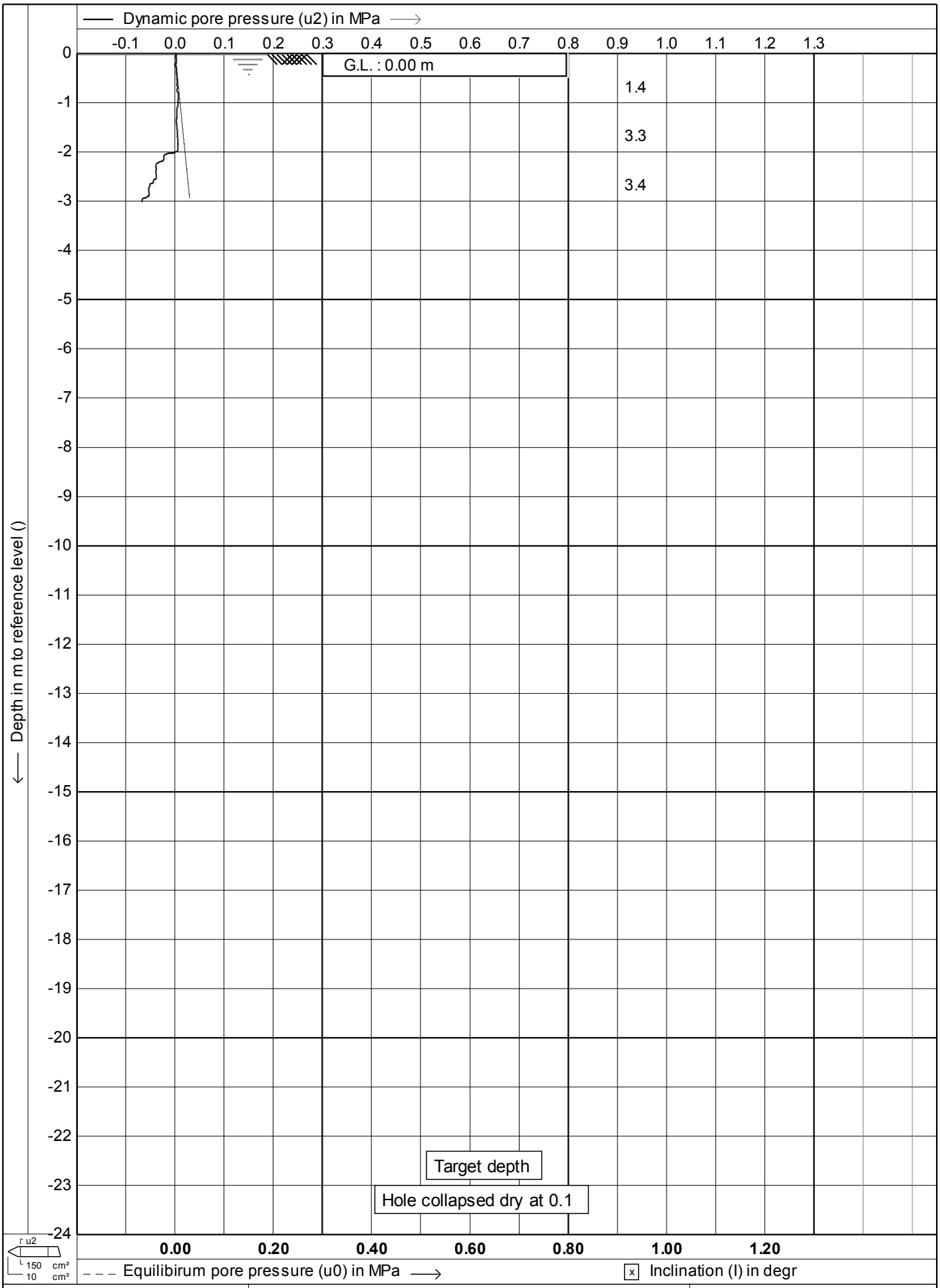
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **29** 1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

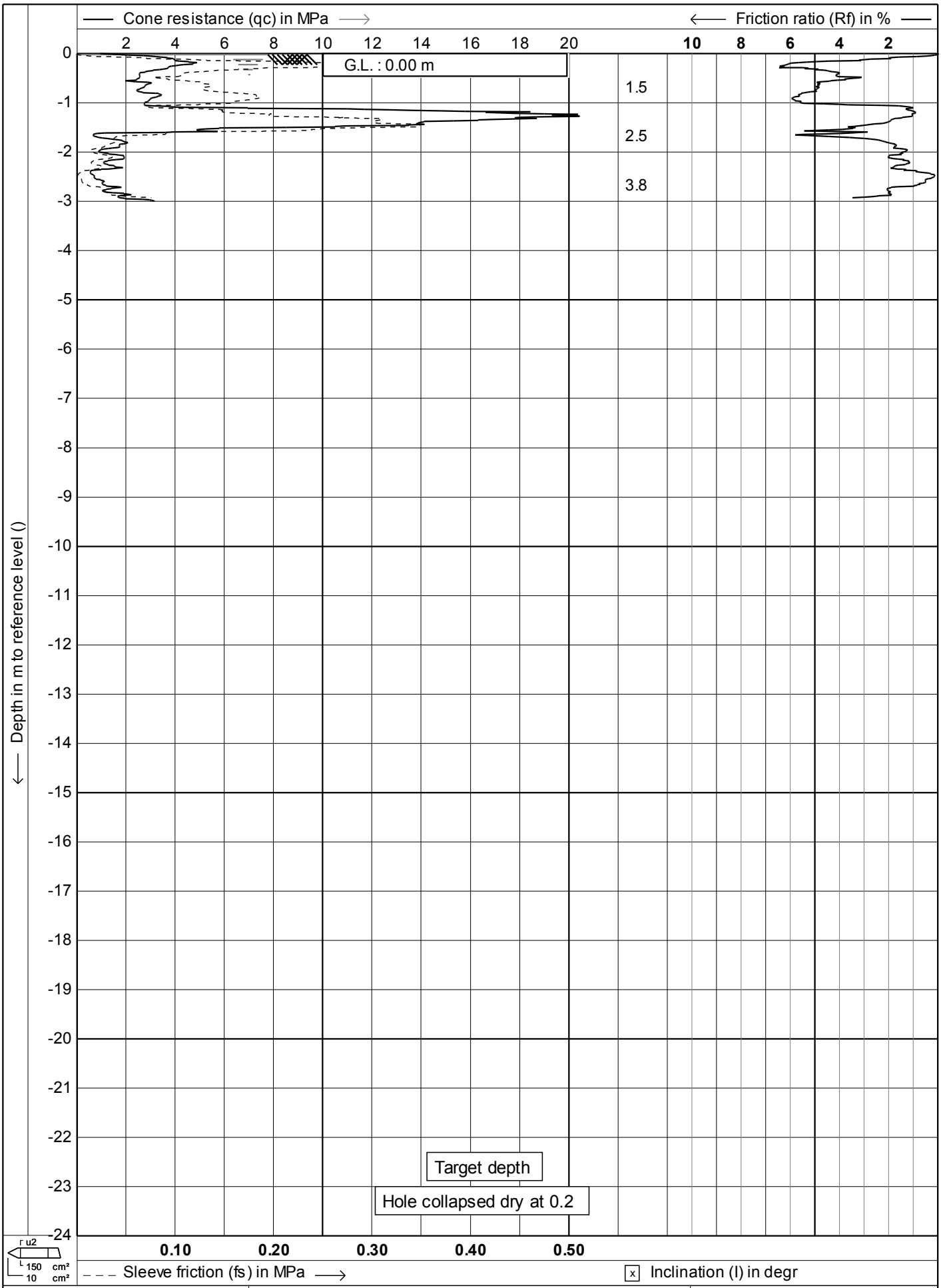
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **29**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

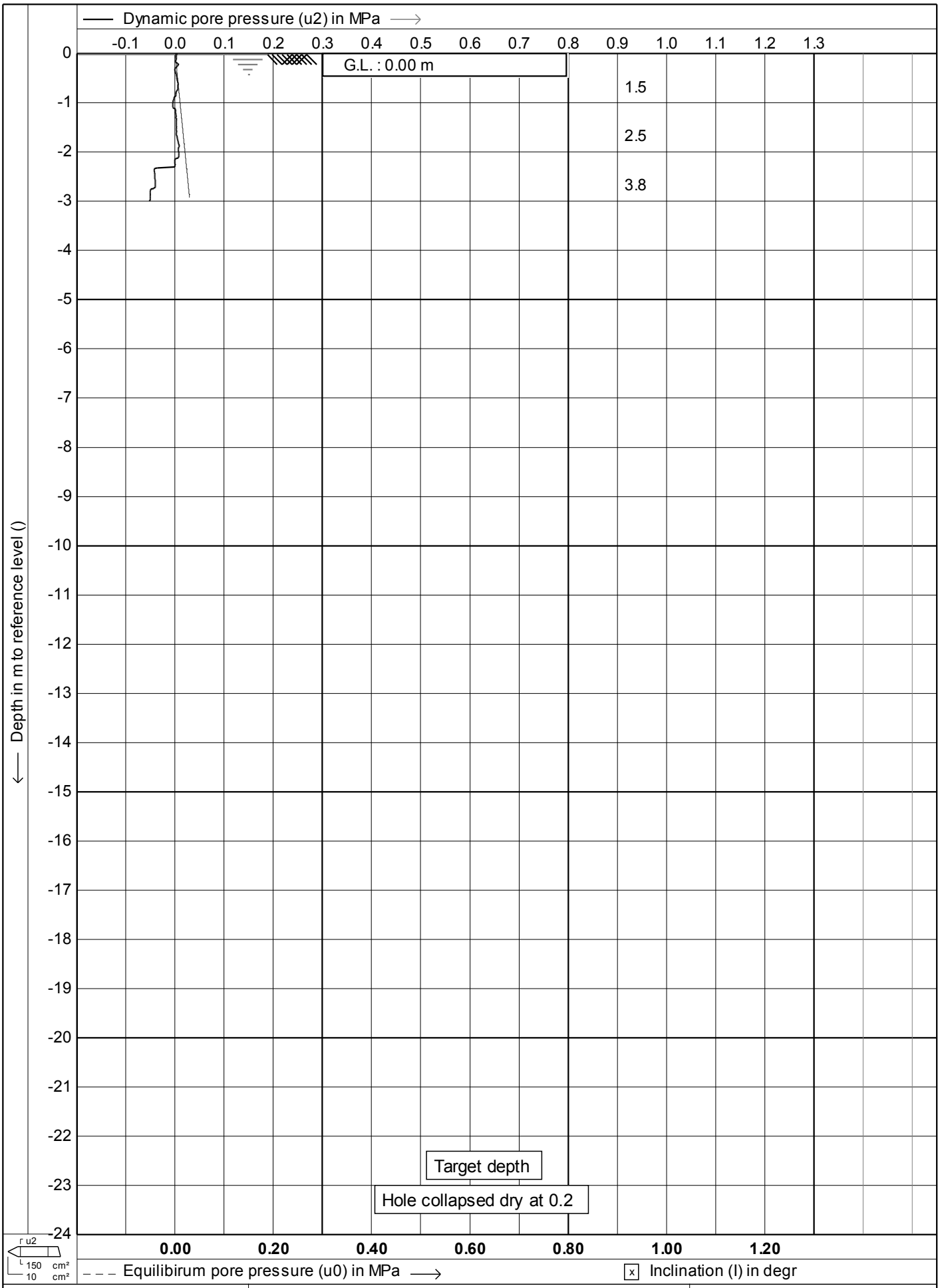
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **30** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

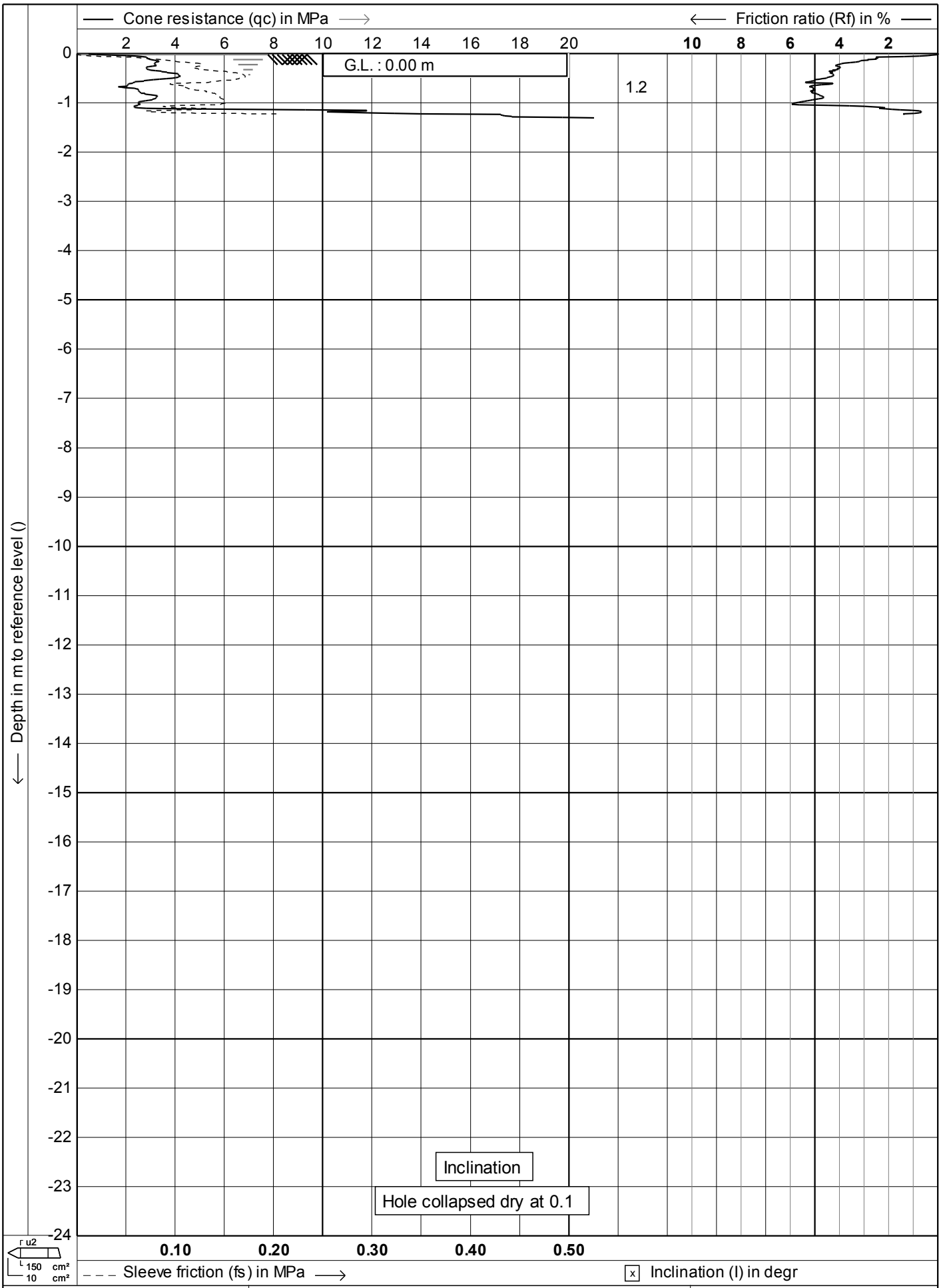
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **30**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

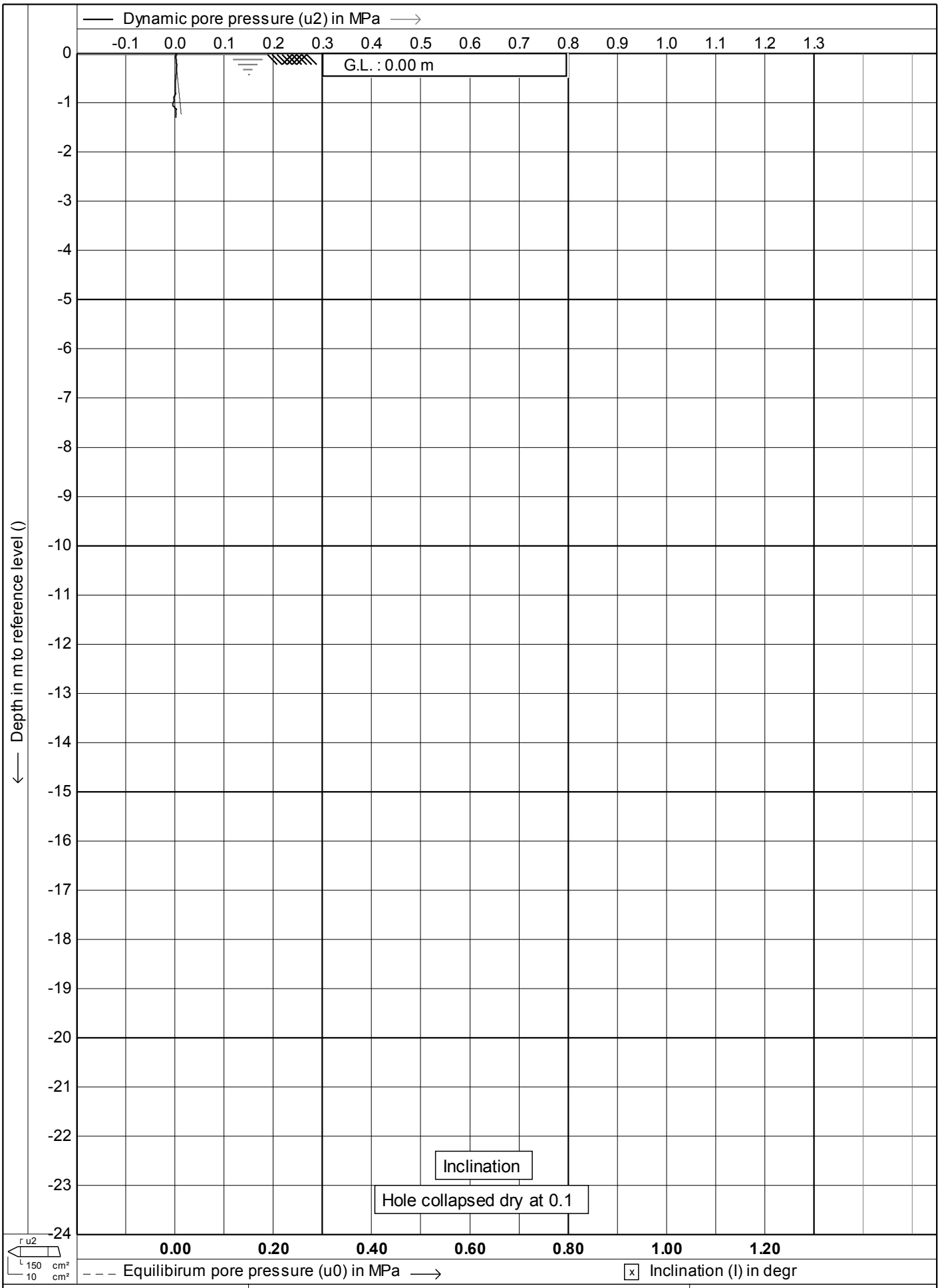
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **31**

1/14

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

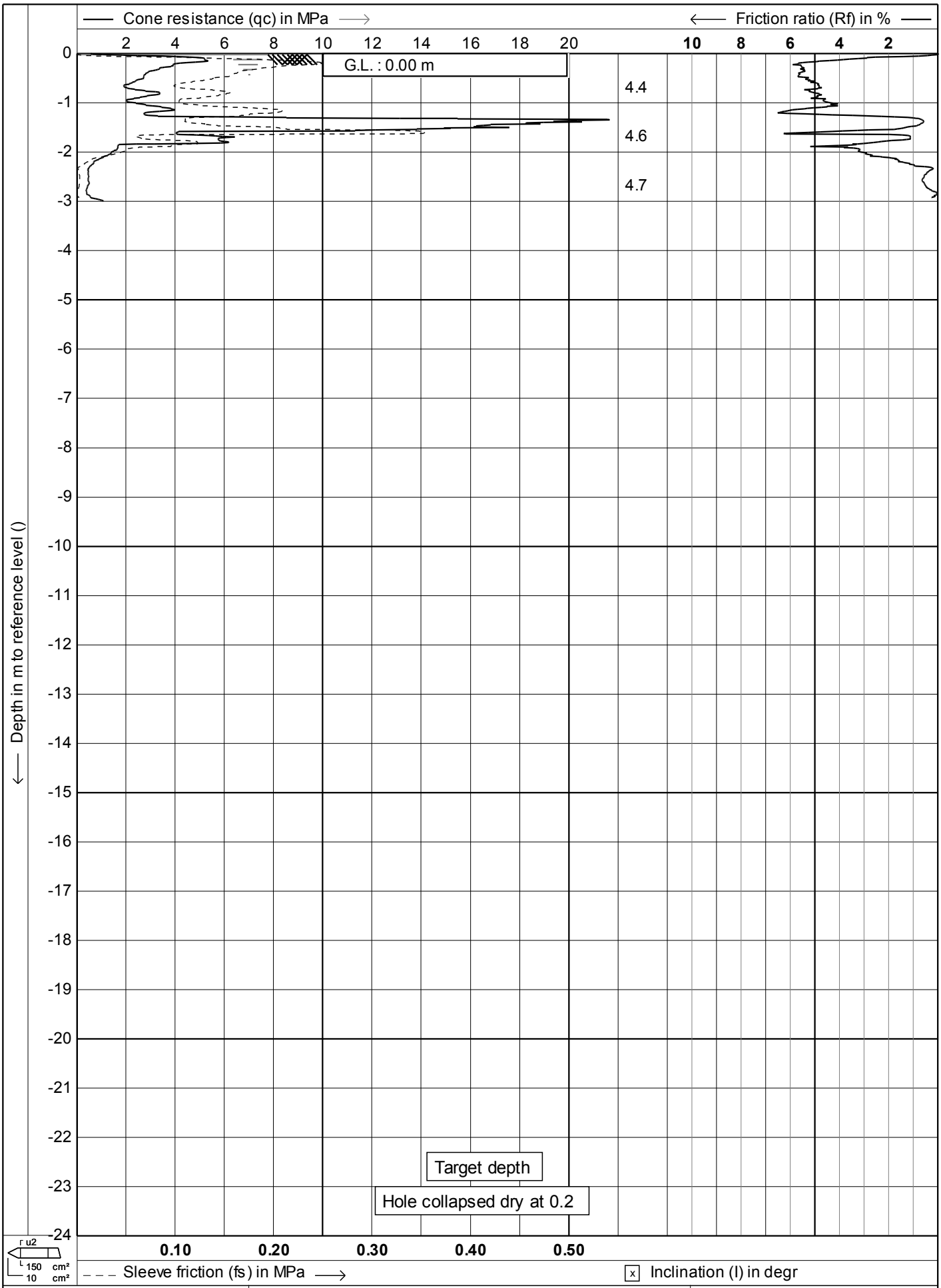
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **31**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

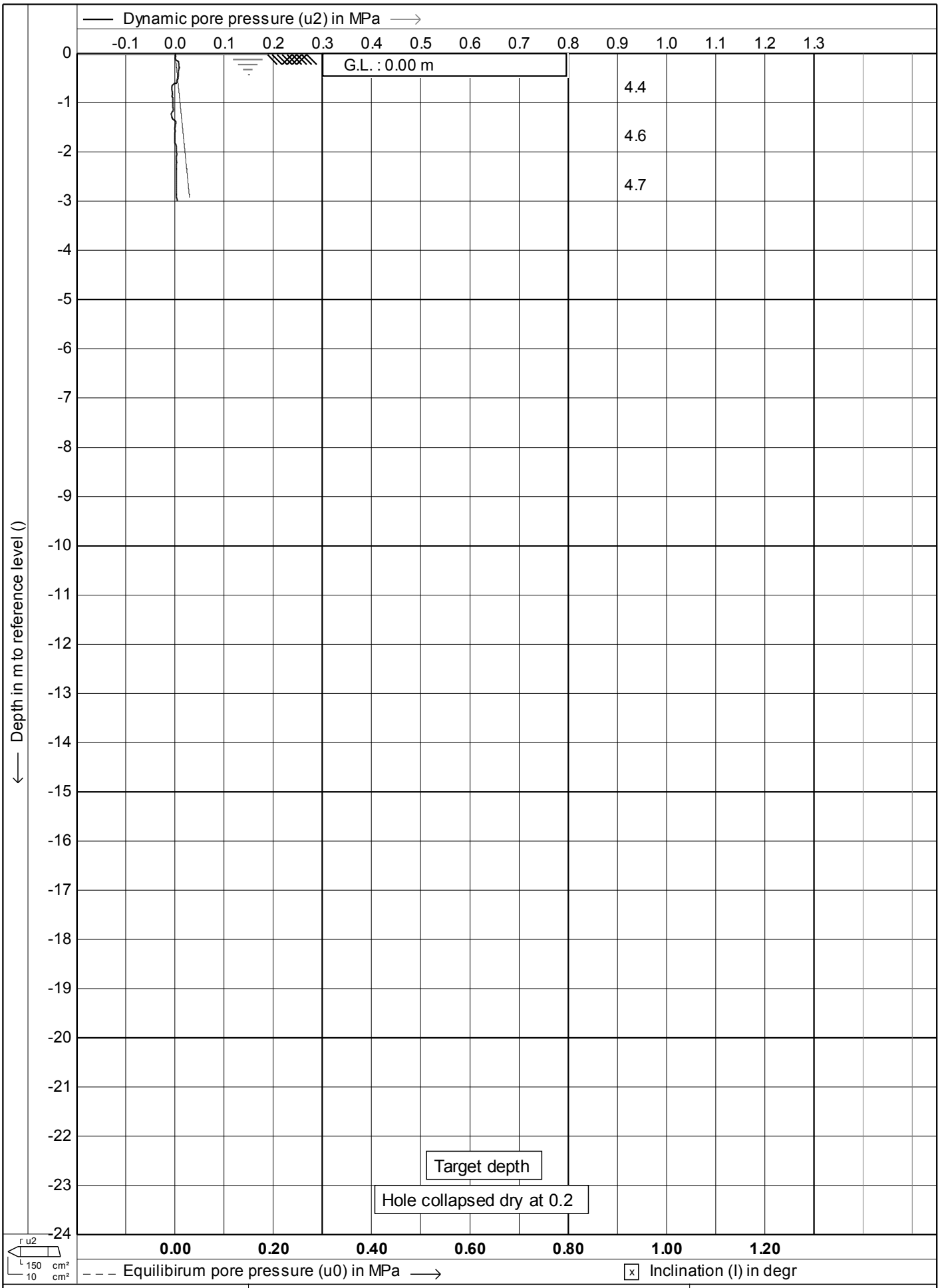
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **32**

1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

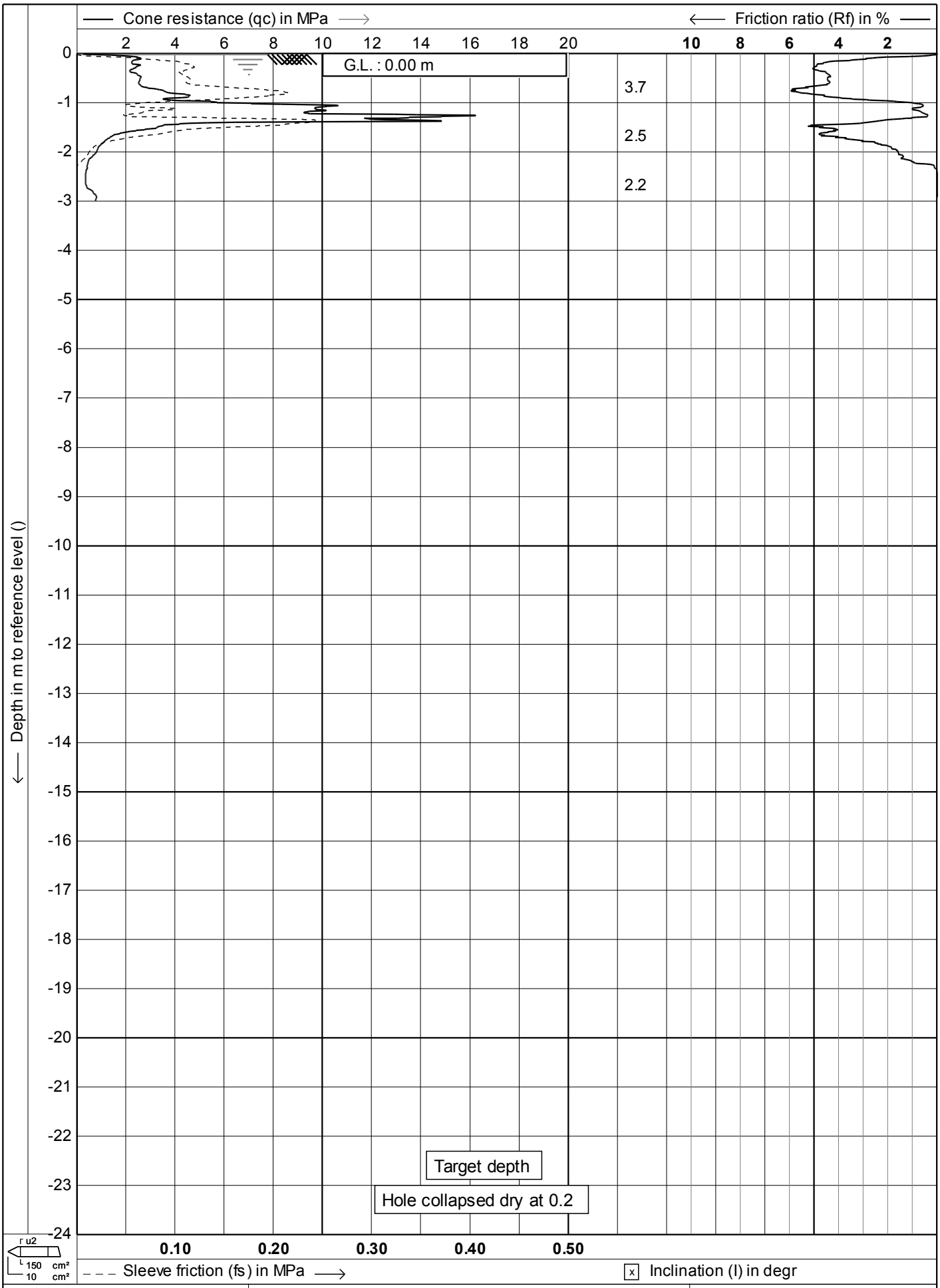
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **32**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

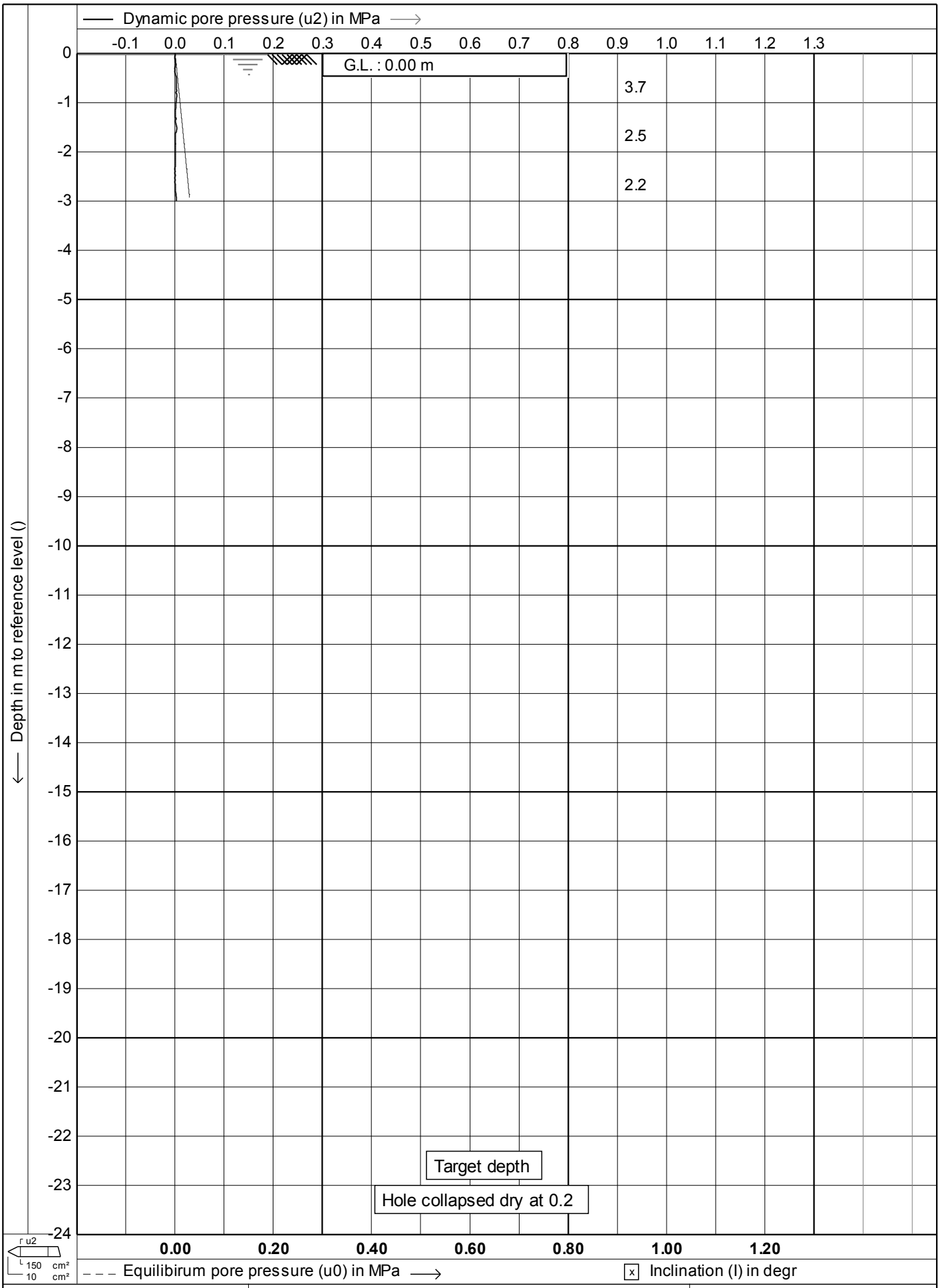
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **33**

1/14

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

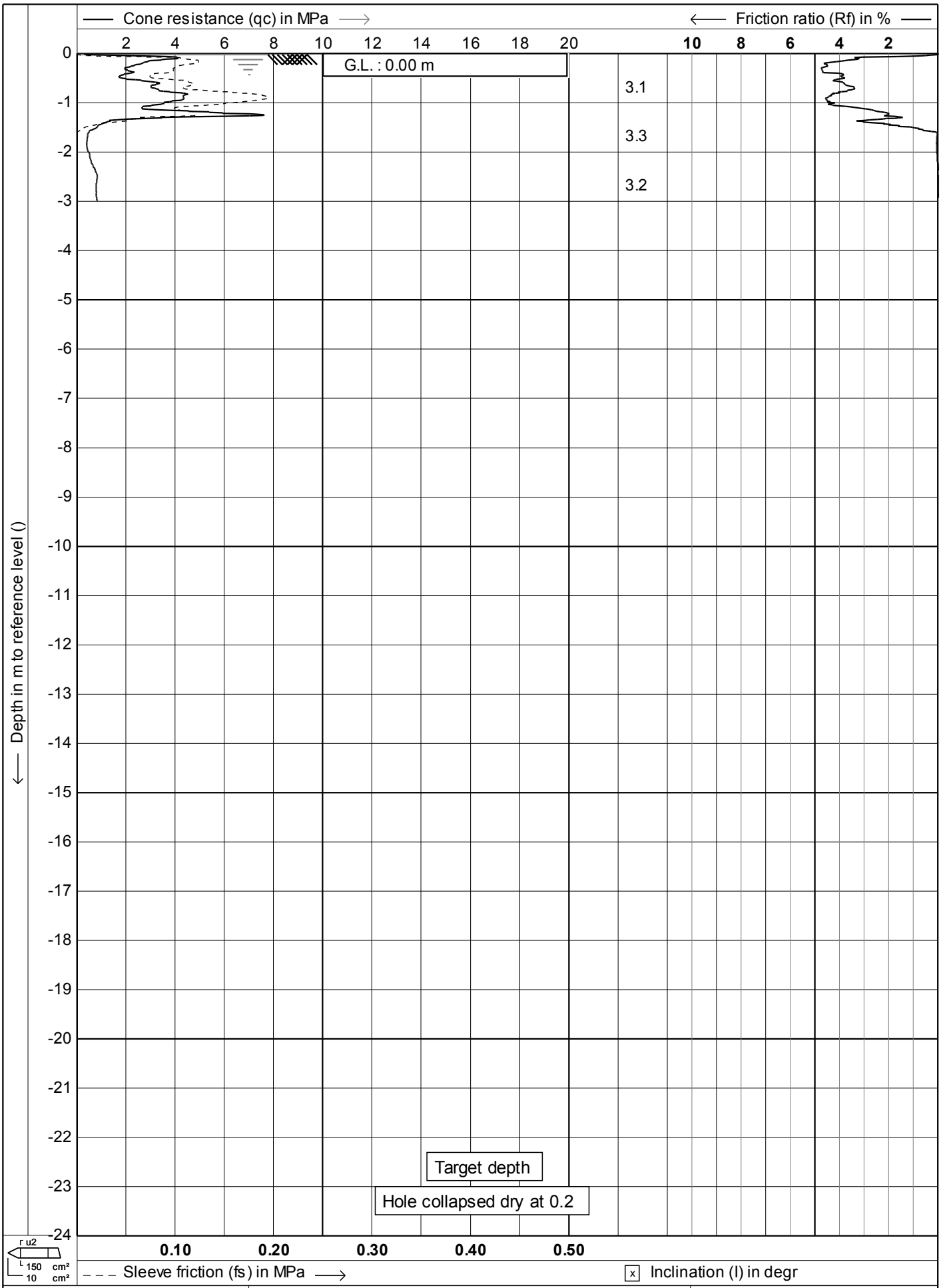
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **33**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

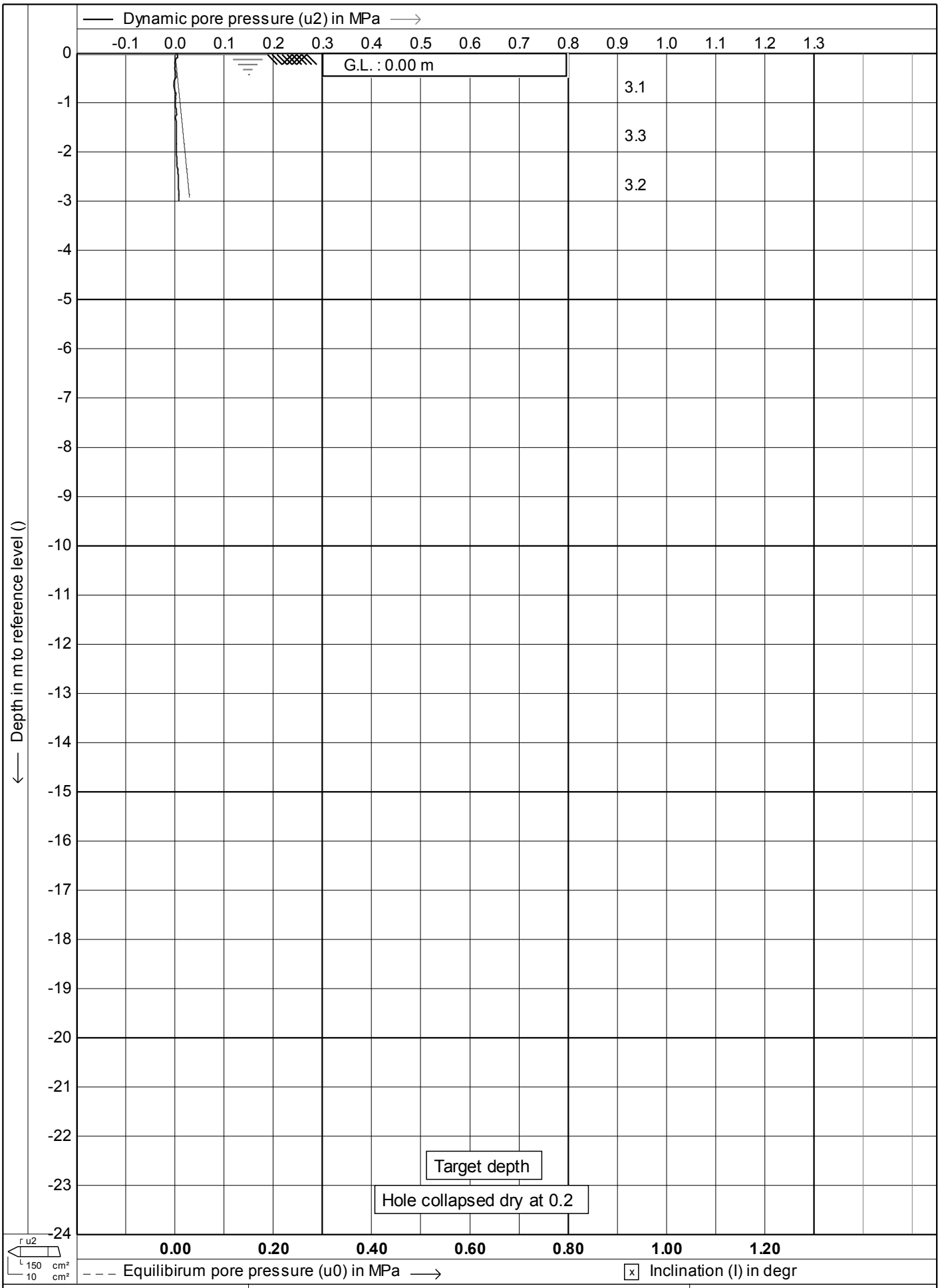
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **34** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

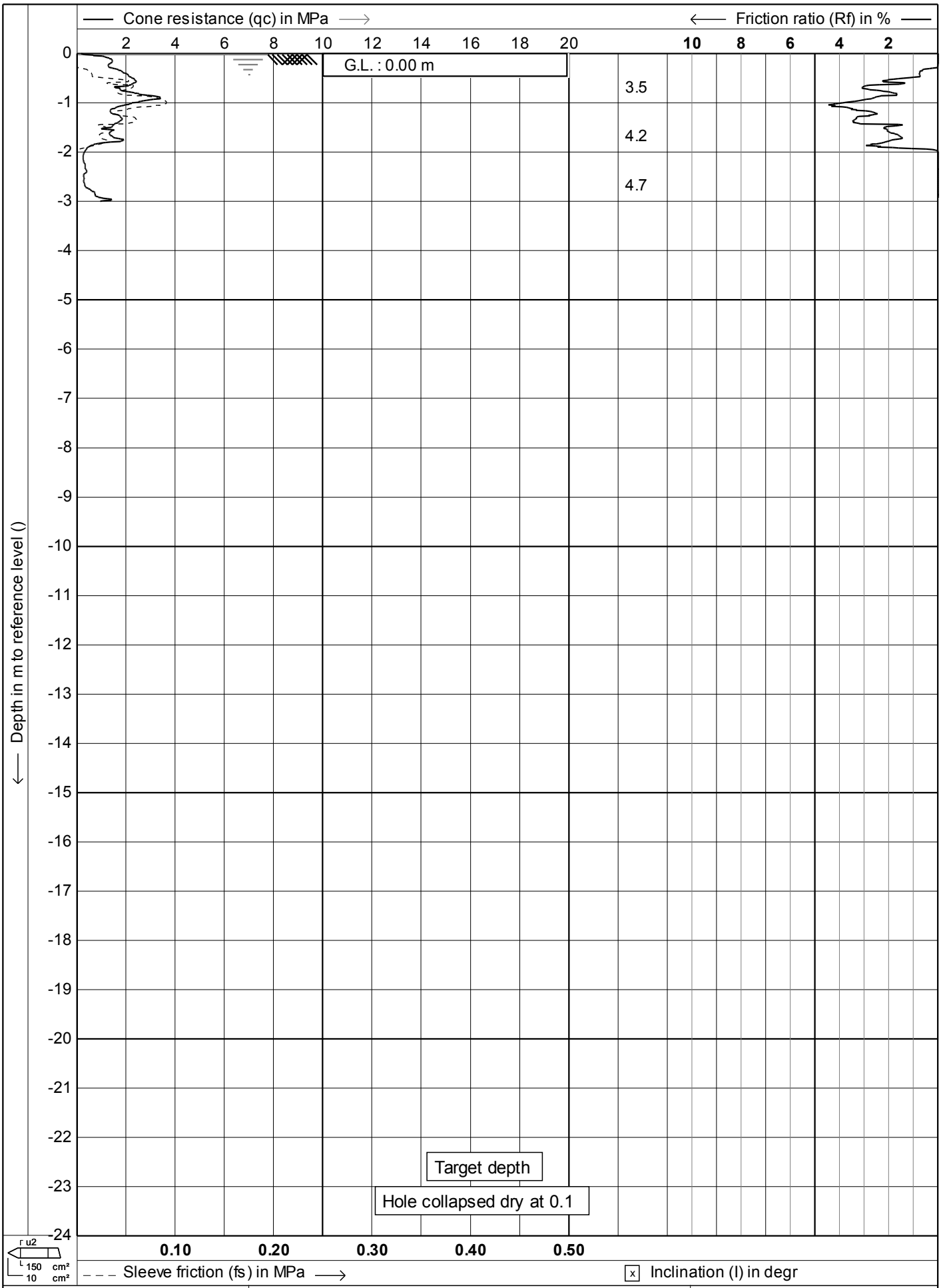
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **34**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

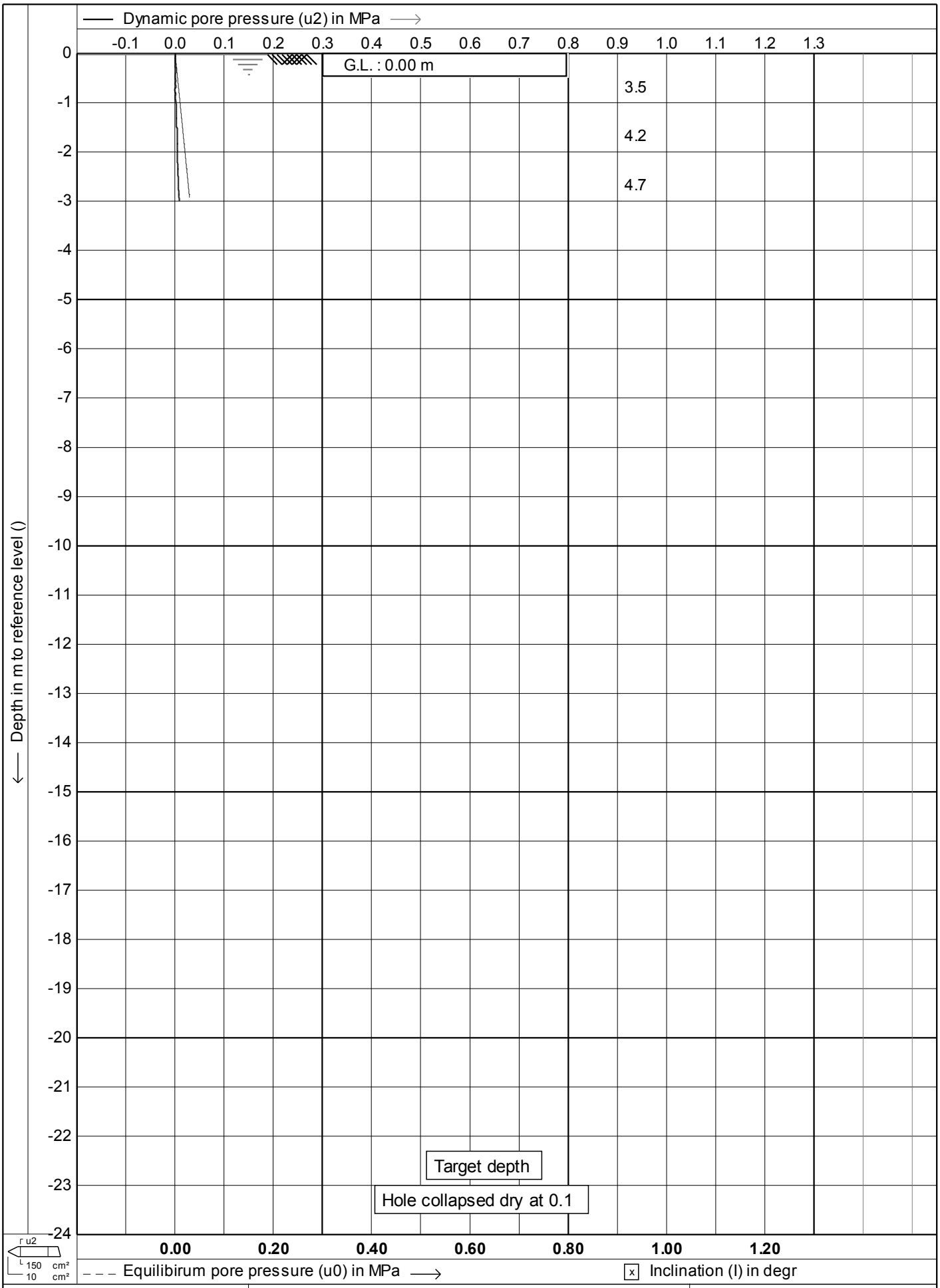
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **35** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

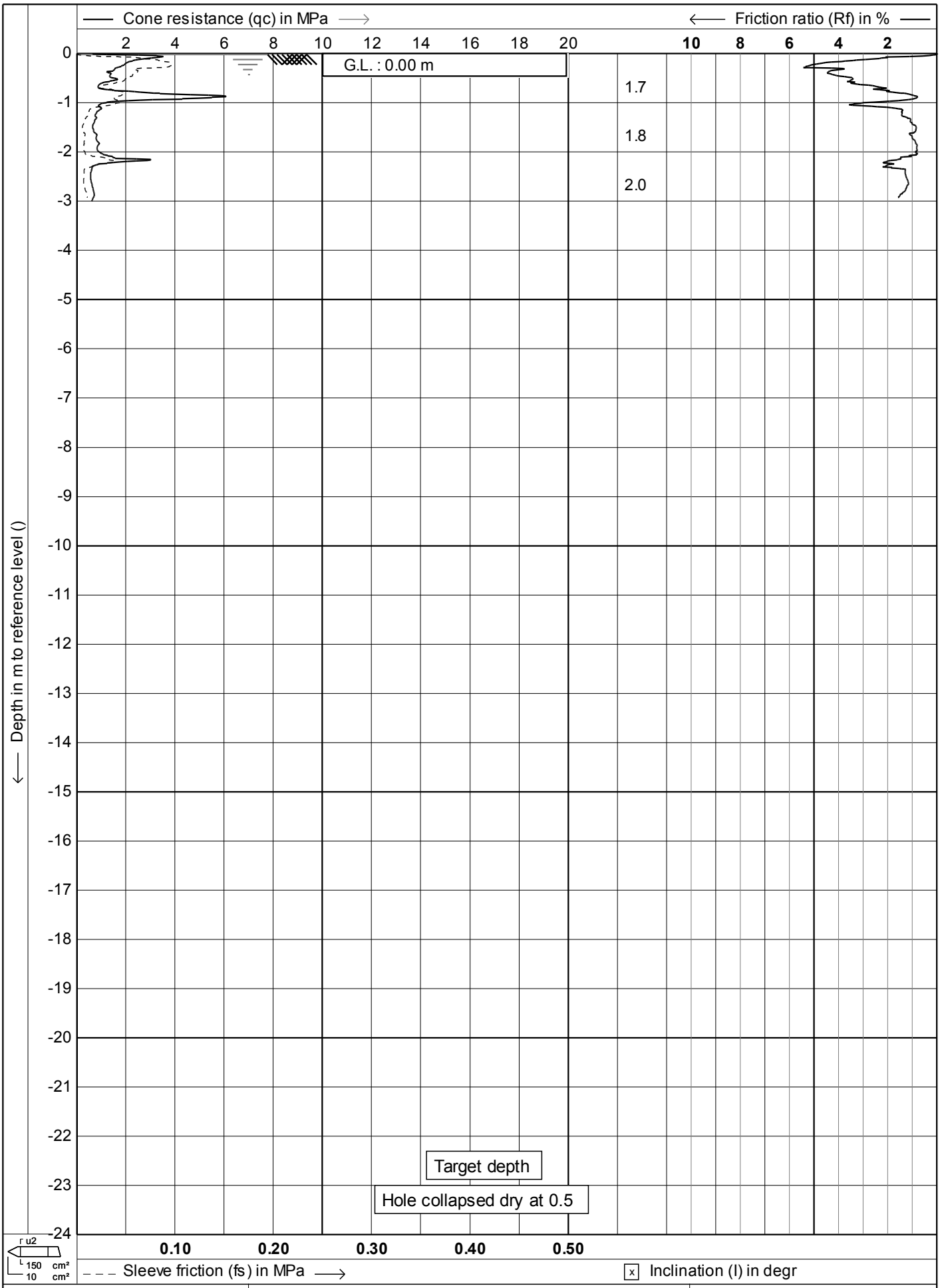
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **35**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

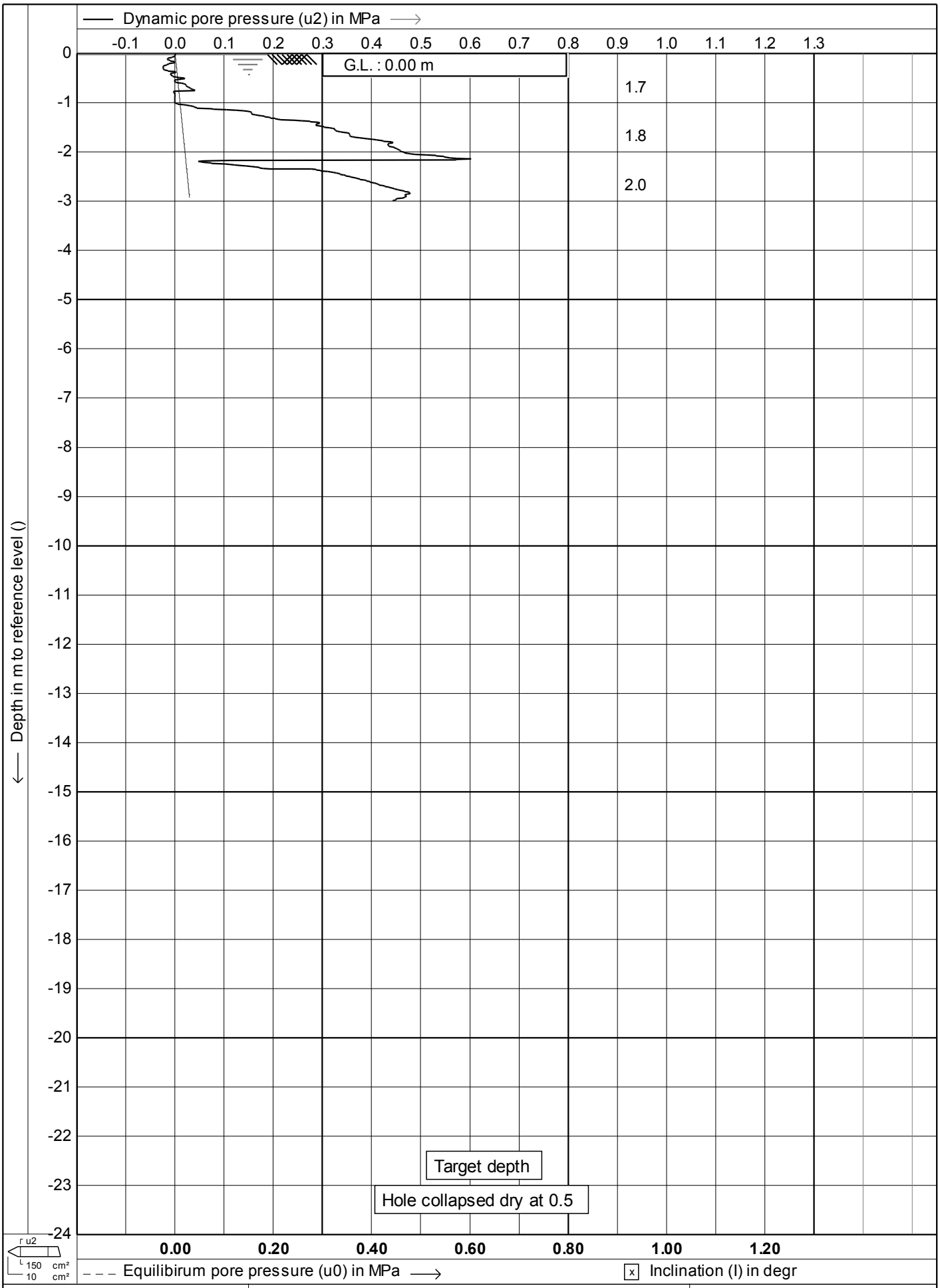
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **36** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

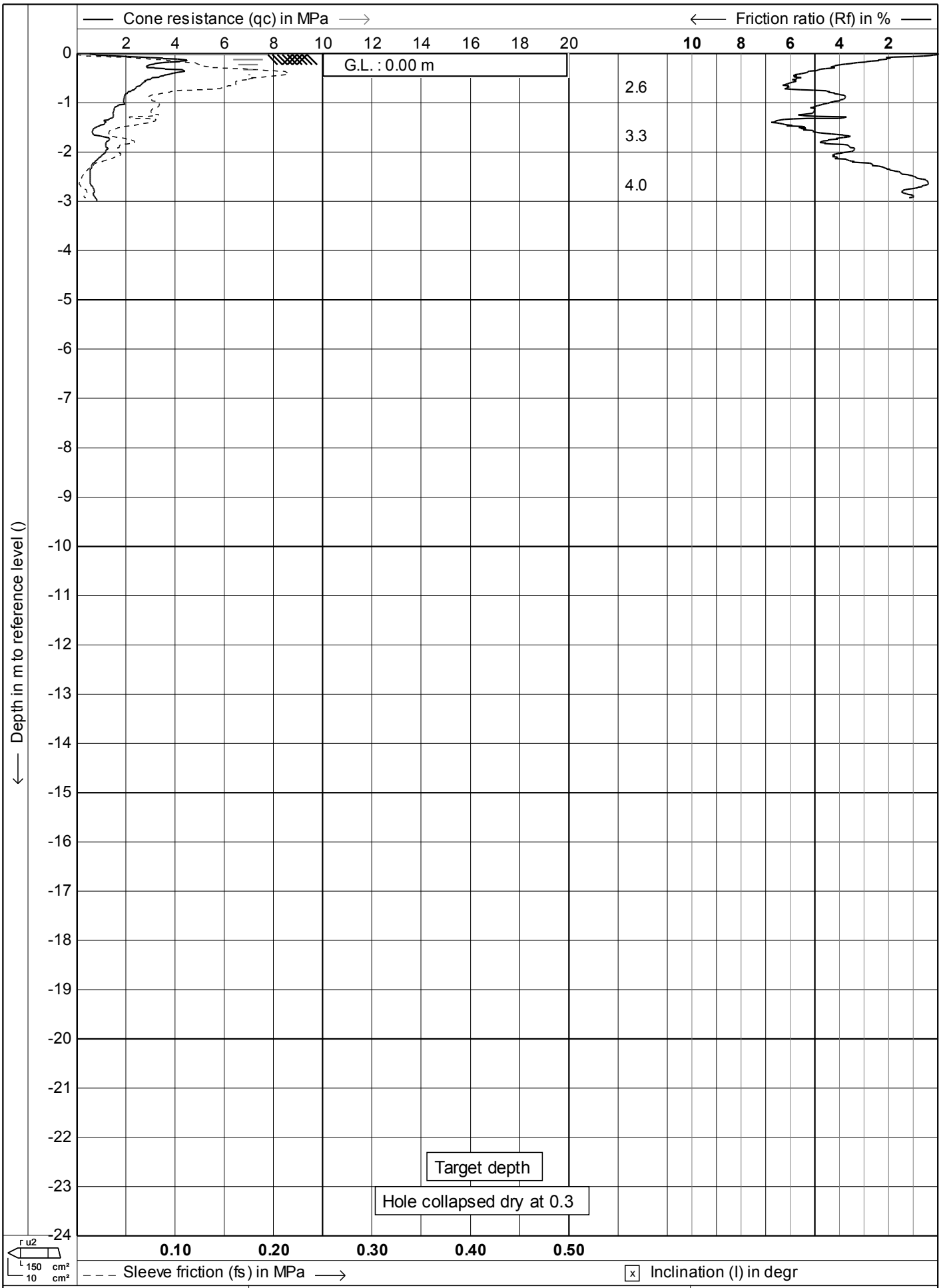
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **36**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

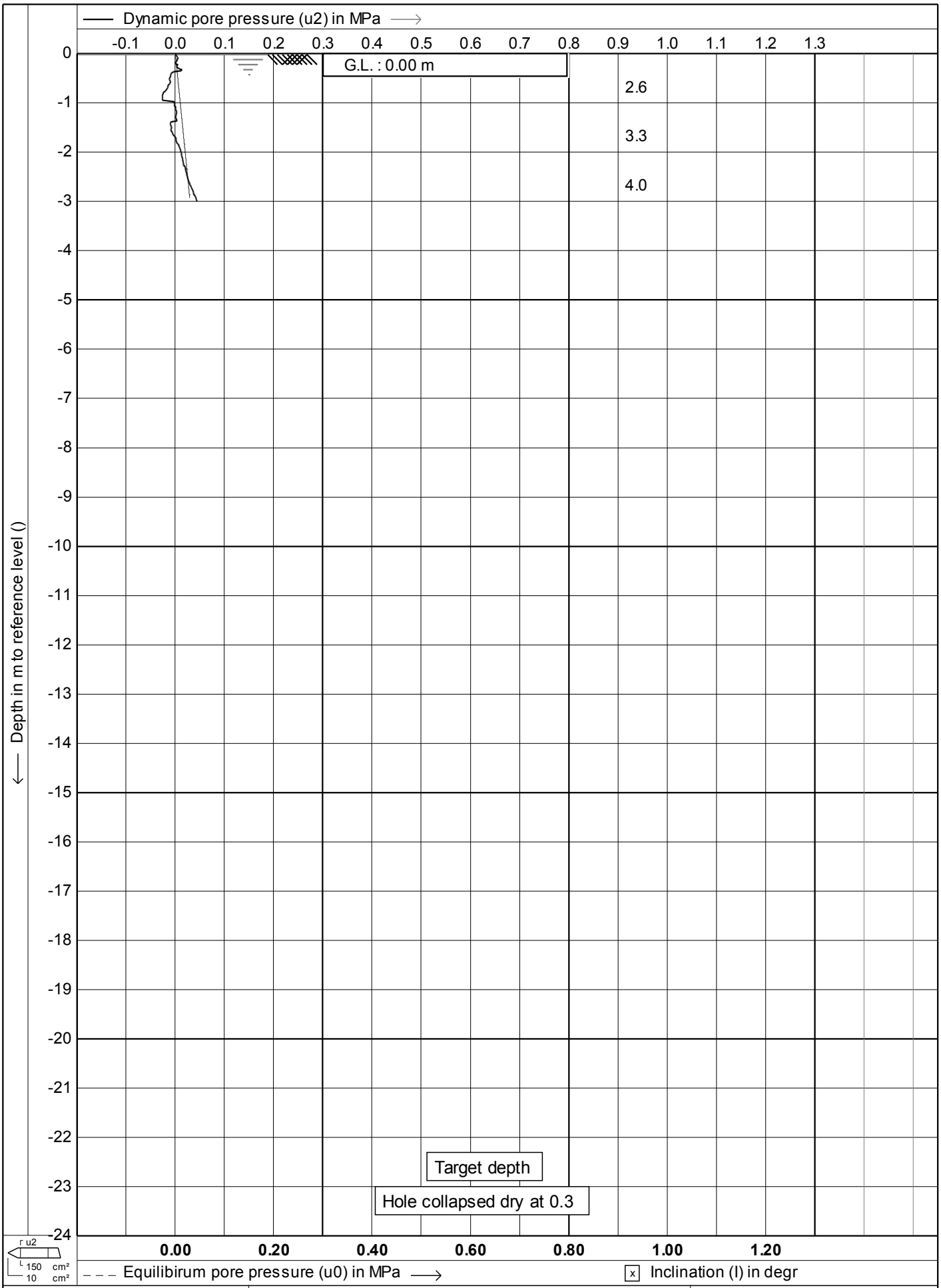
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **38** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

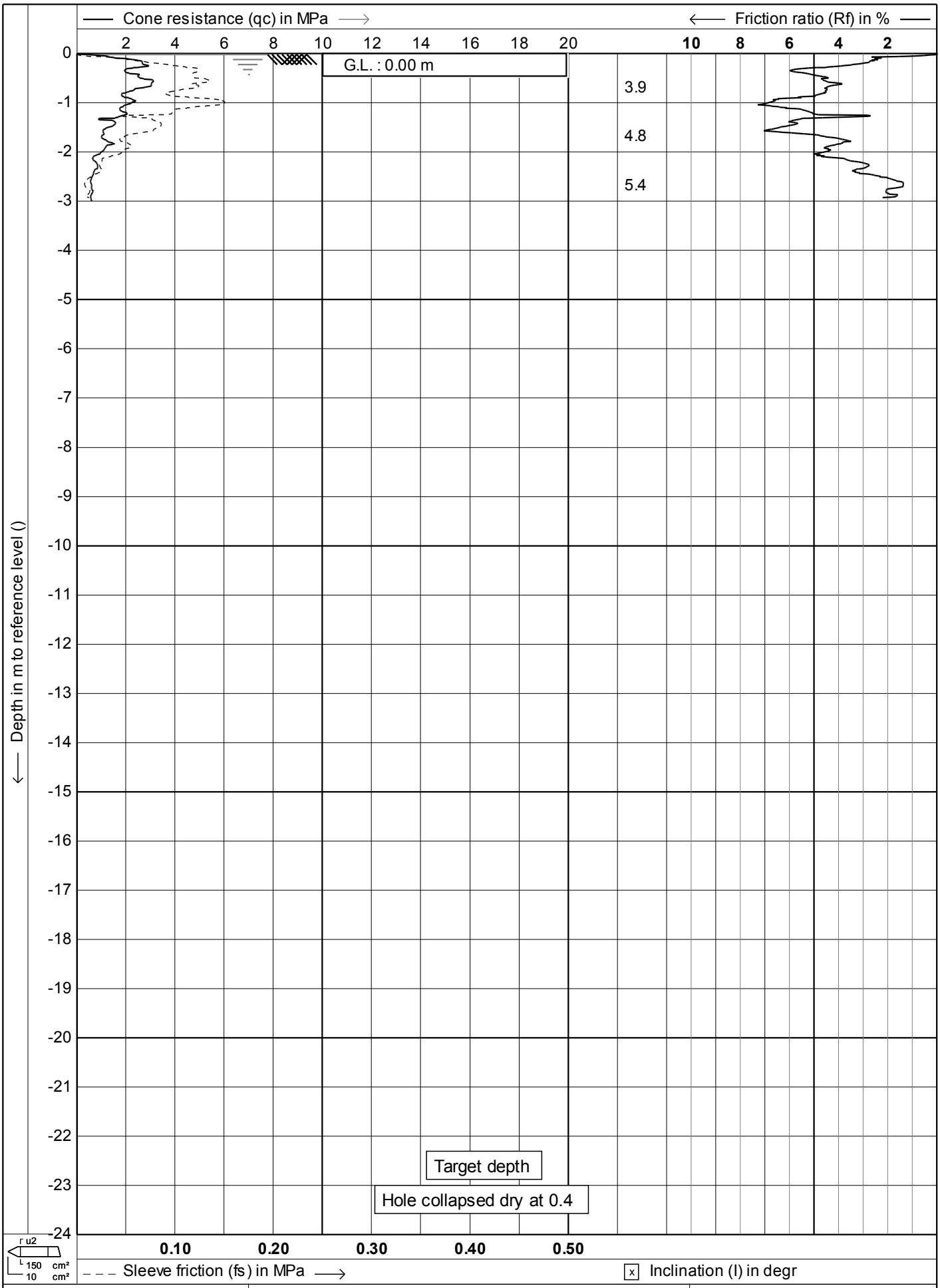
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **38**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

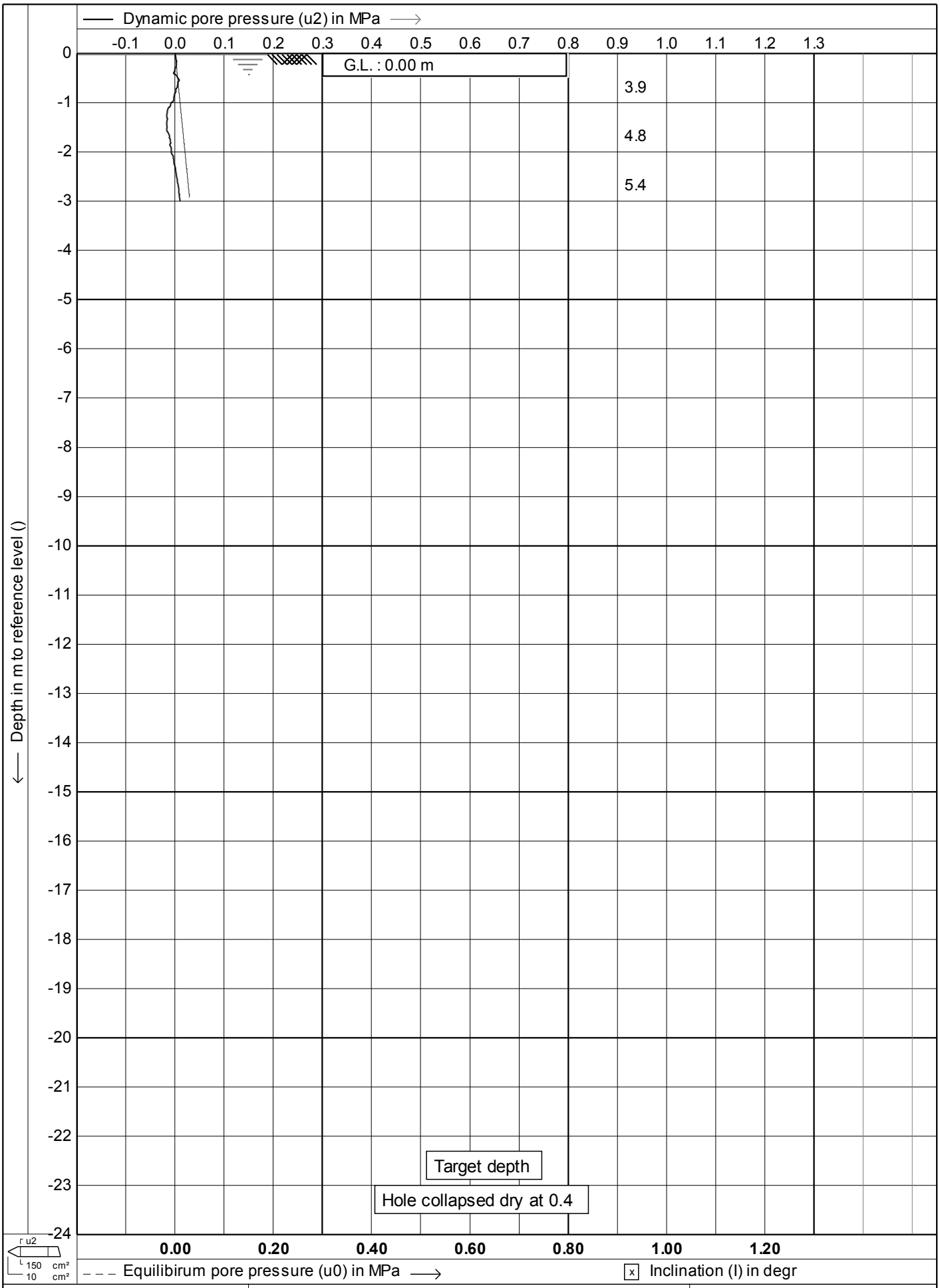
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **39** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

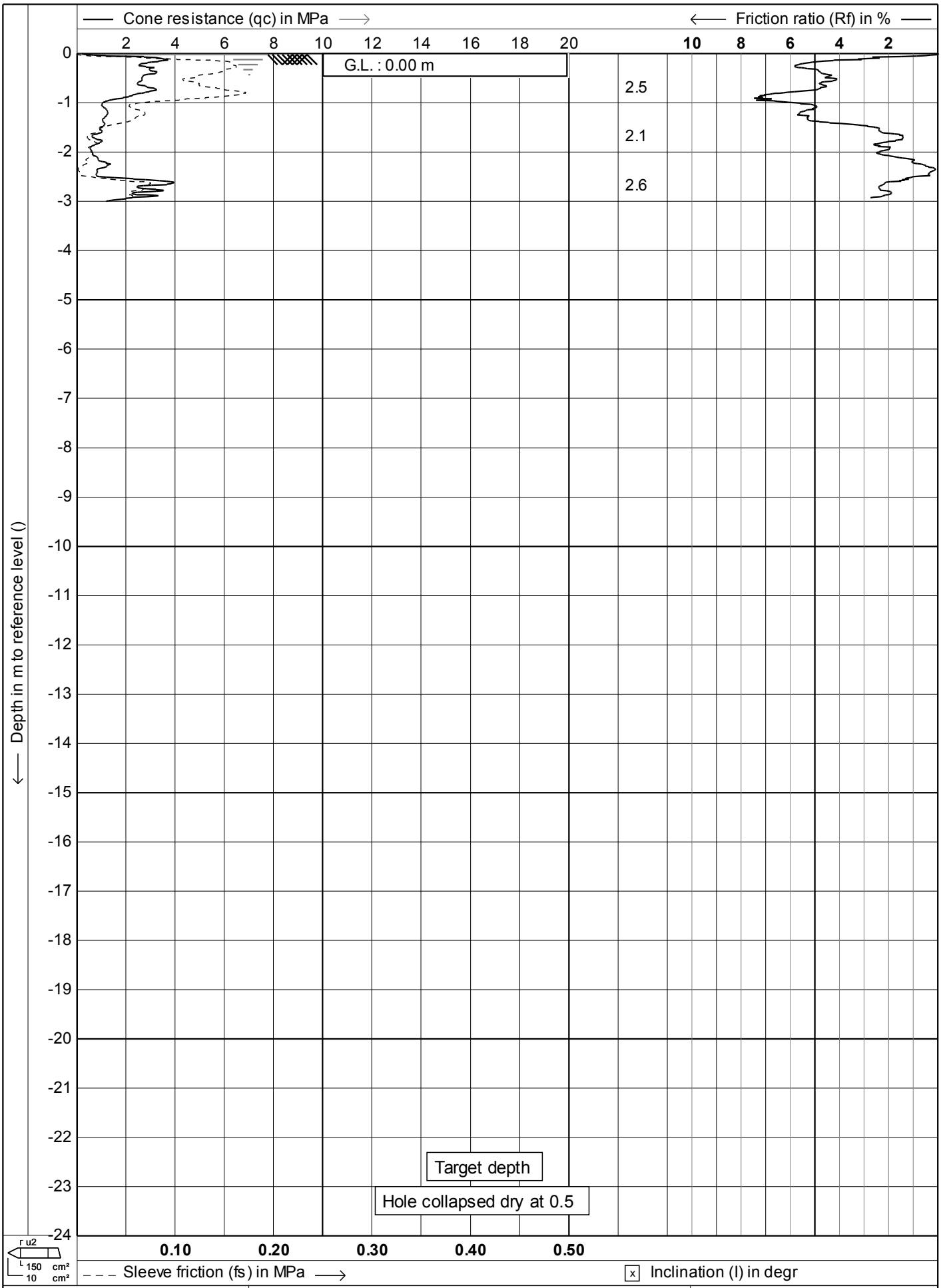
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **39**

2/14



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

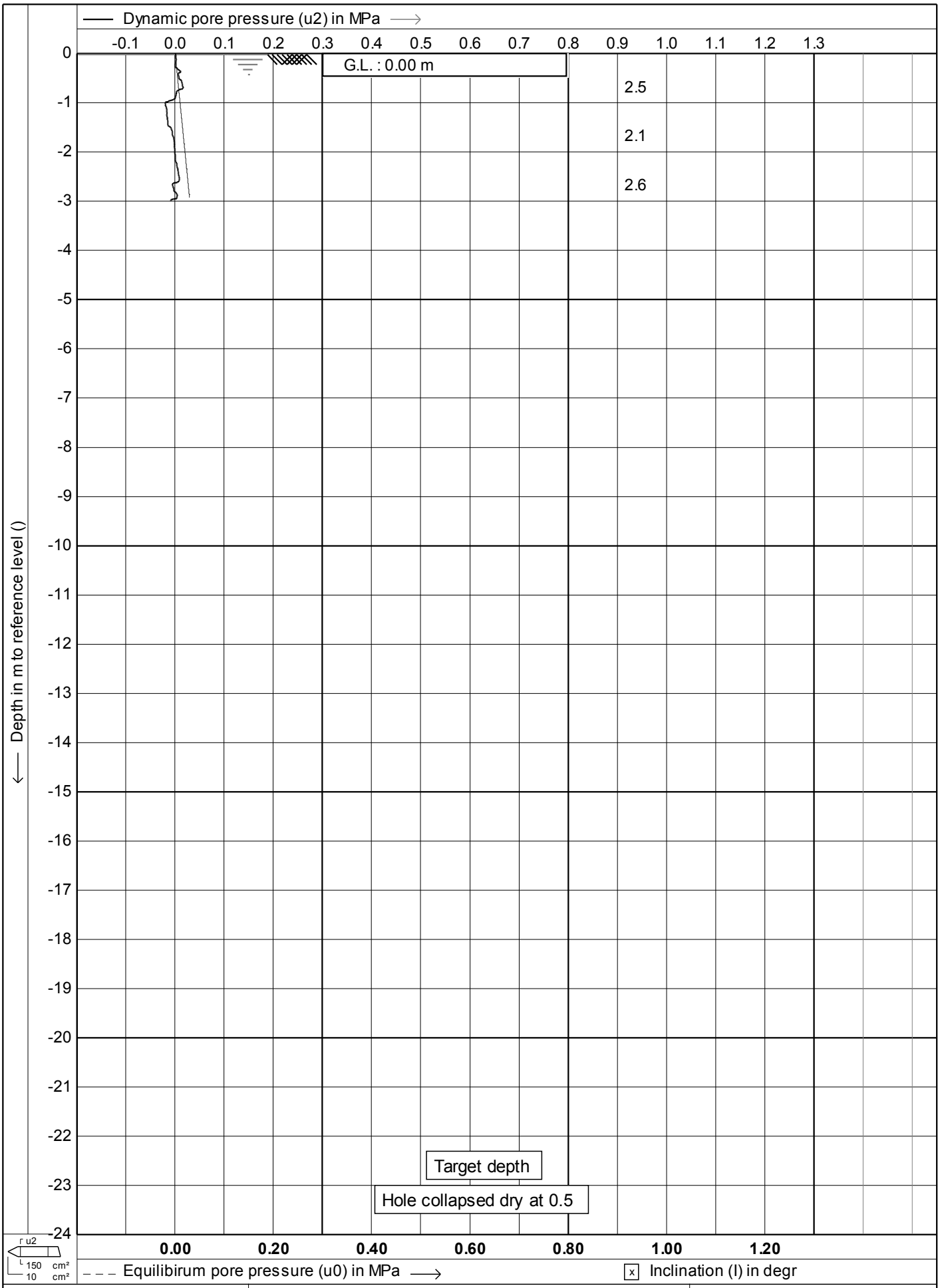
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **40** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

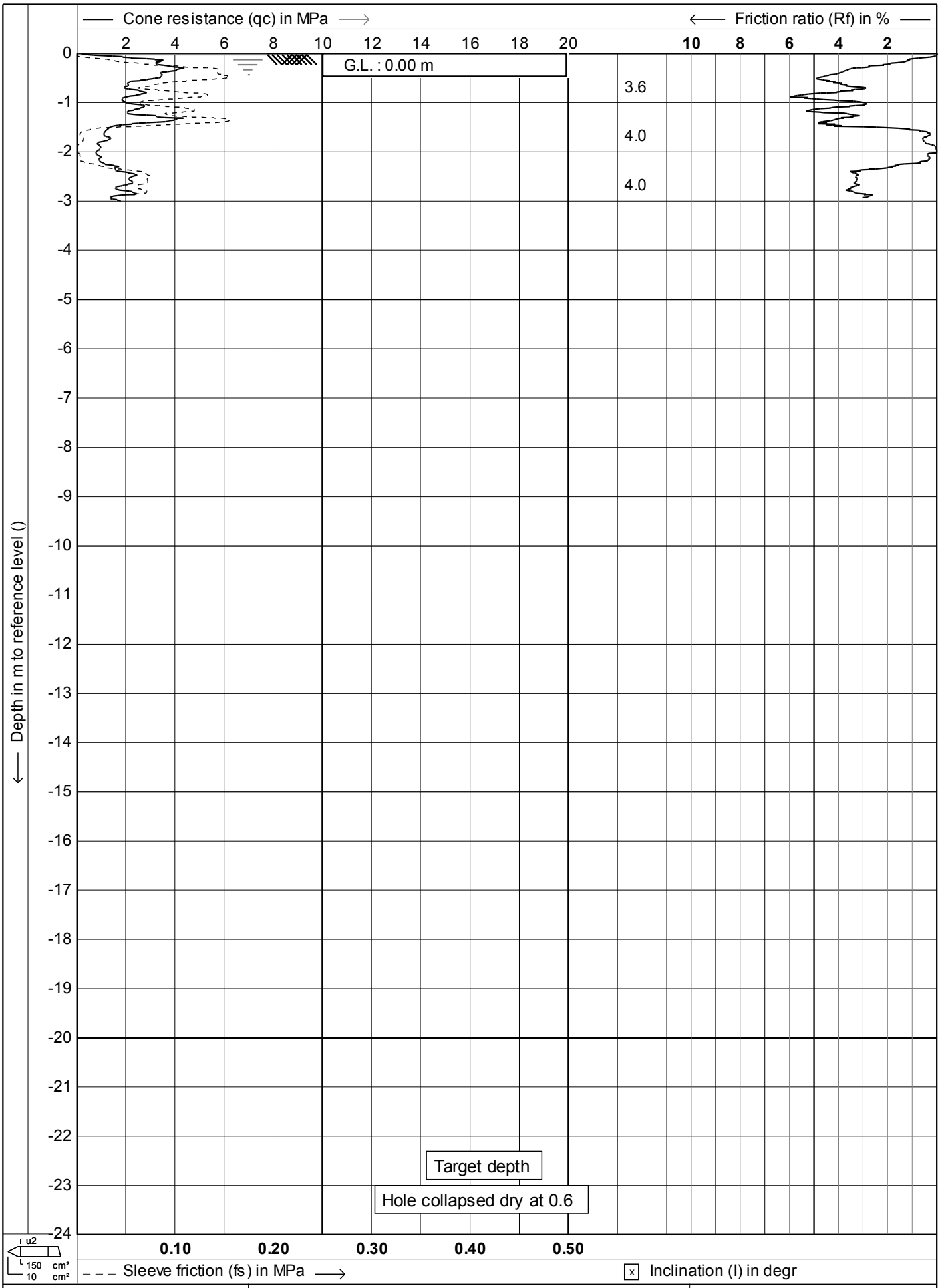
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **40**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

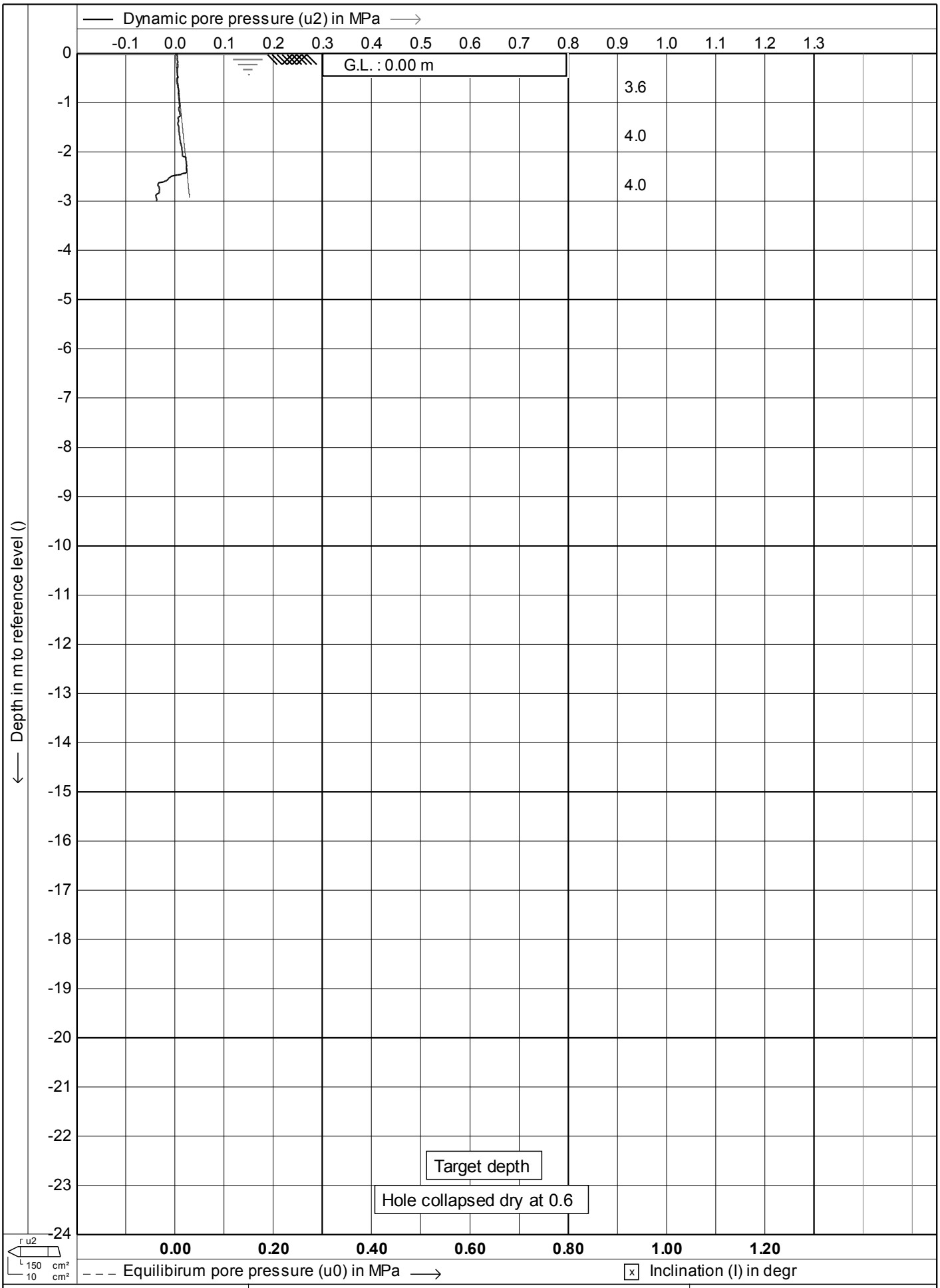
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **43**

1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

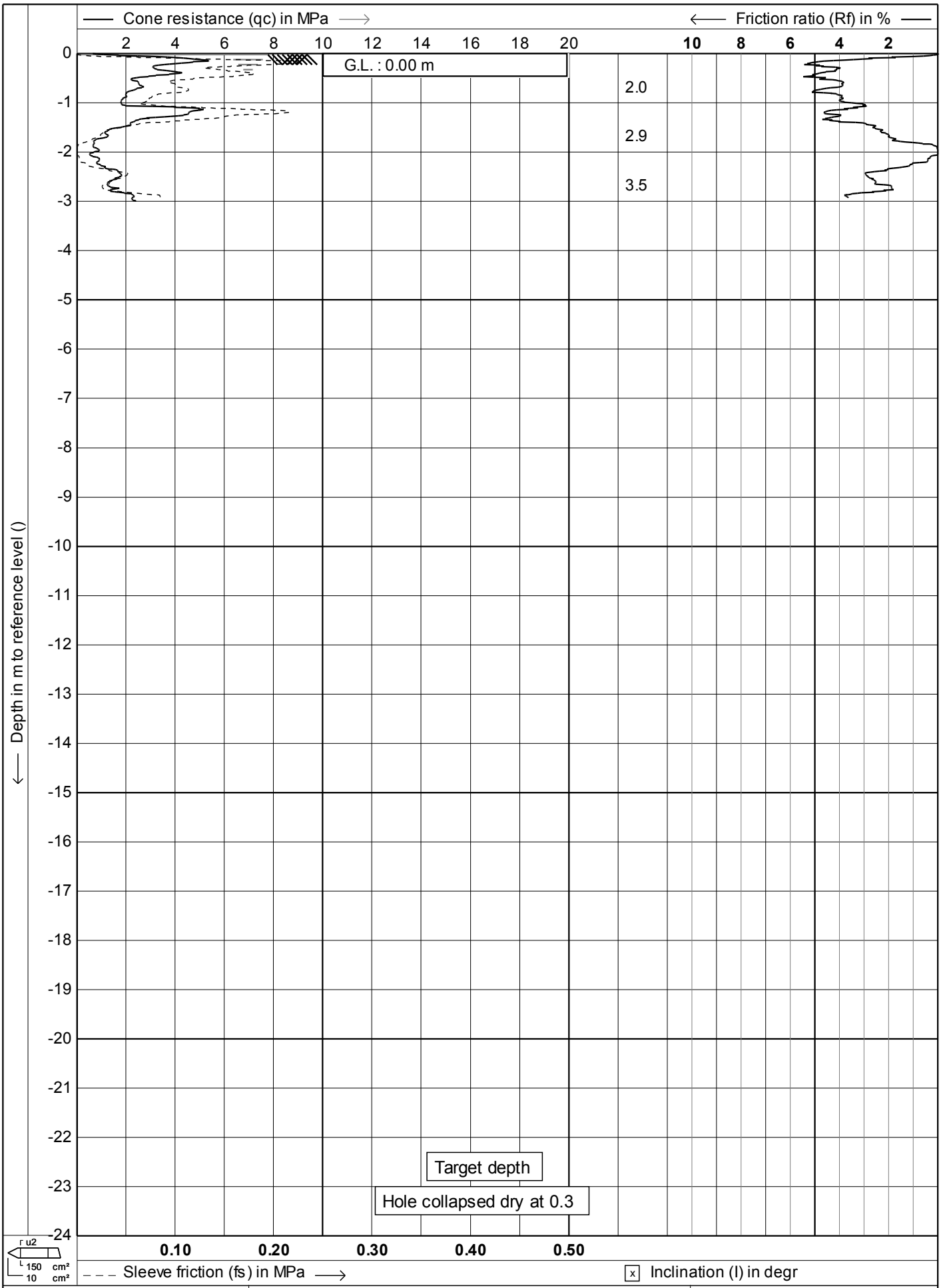
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **43**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

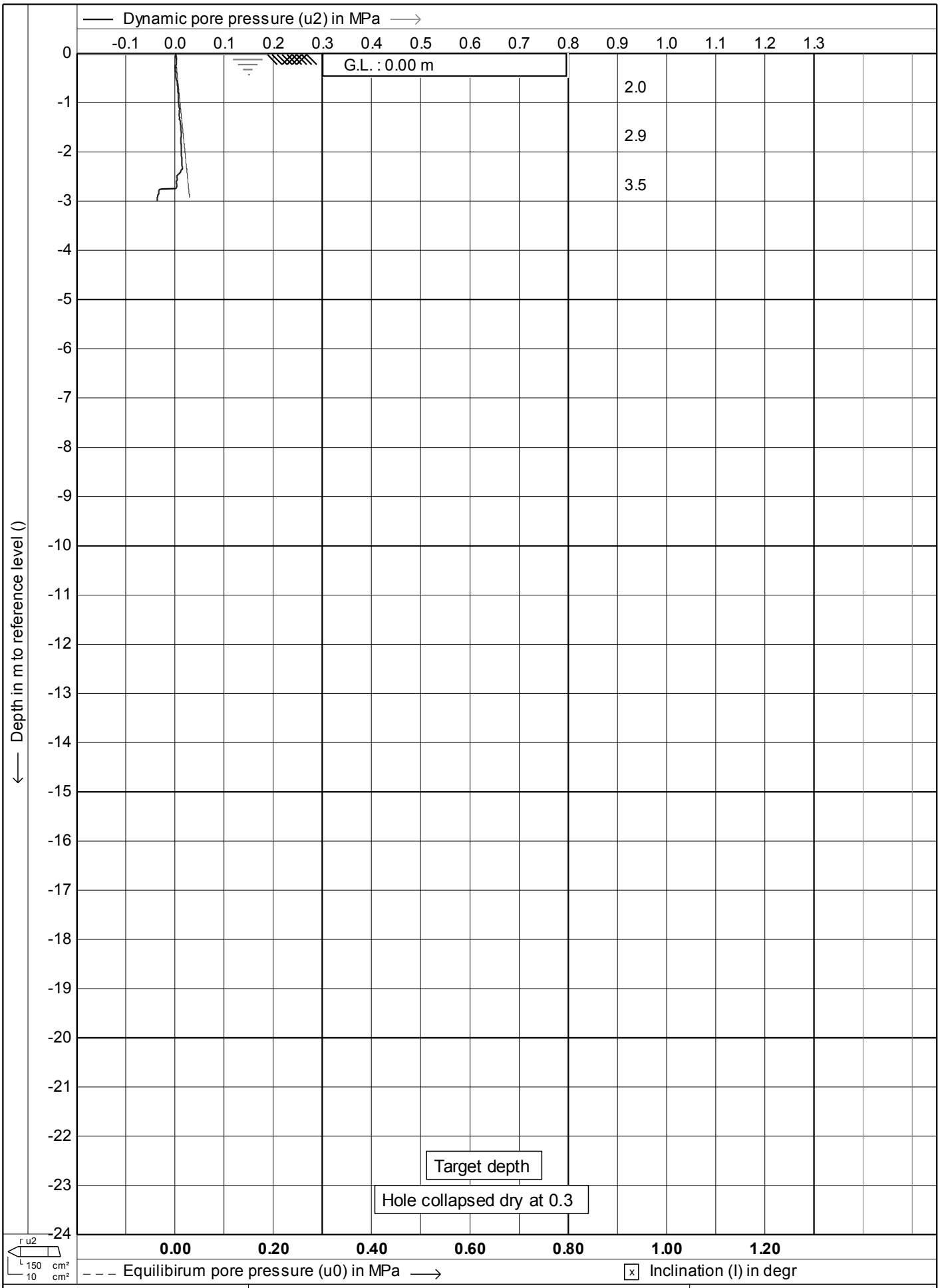
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **44** **1/14**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

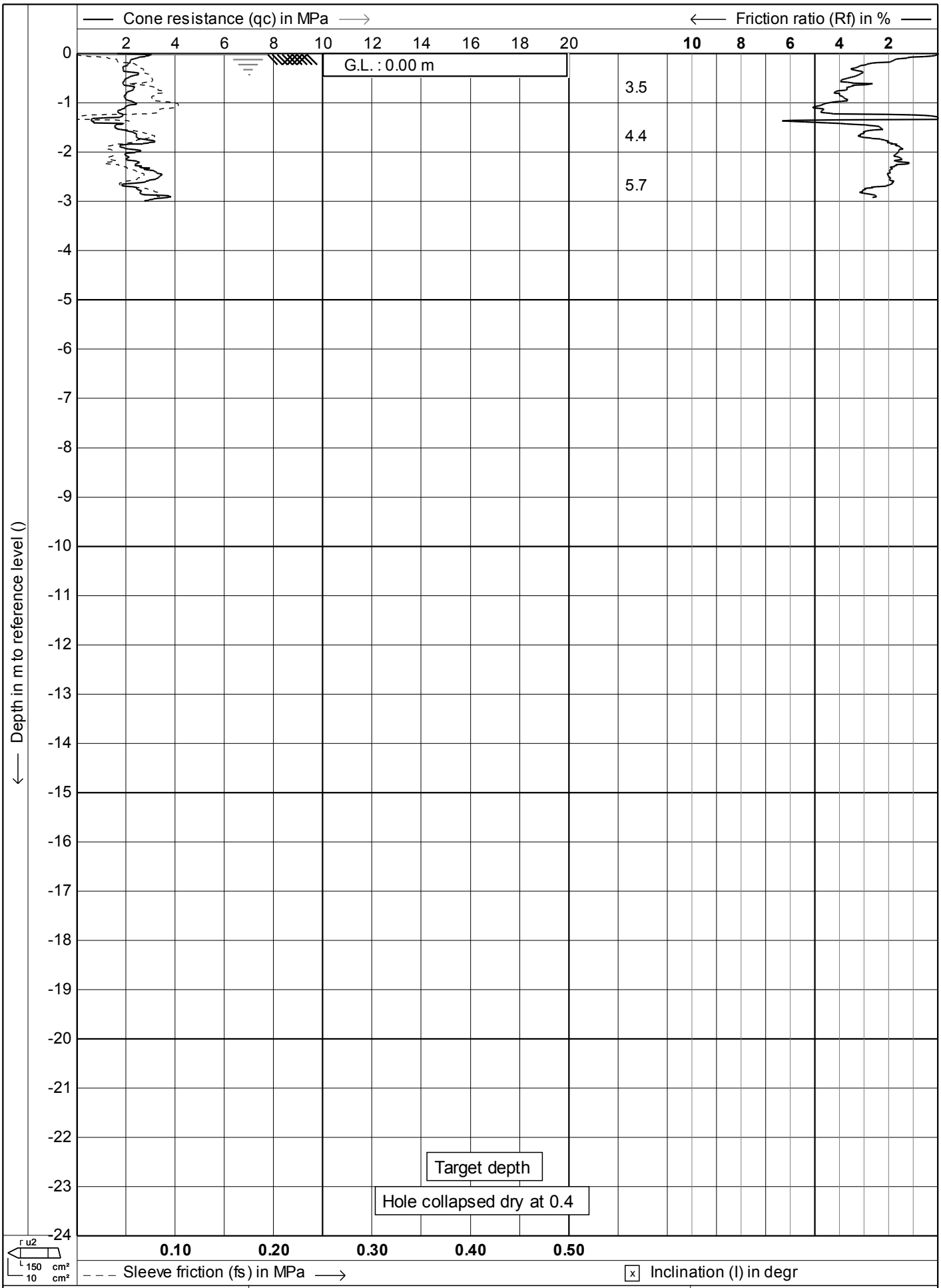
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **44**



Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

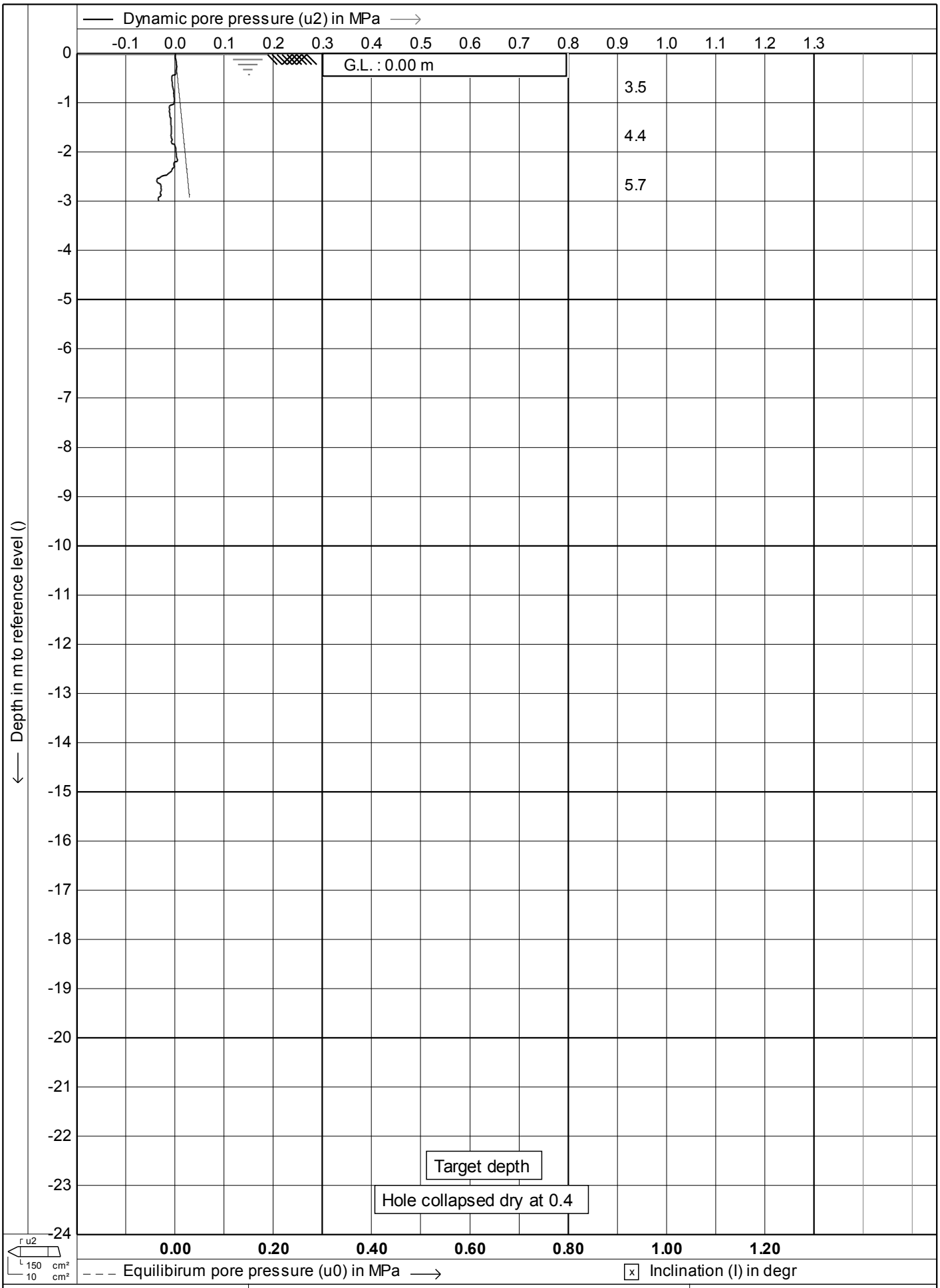
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **46**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

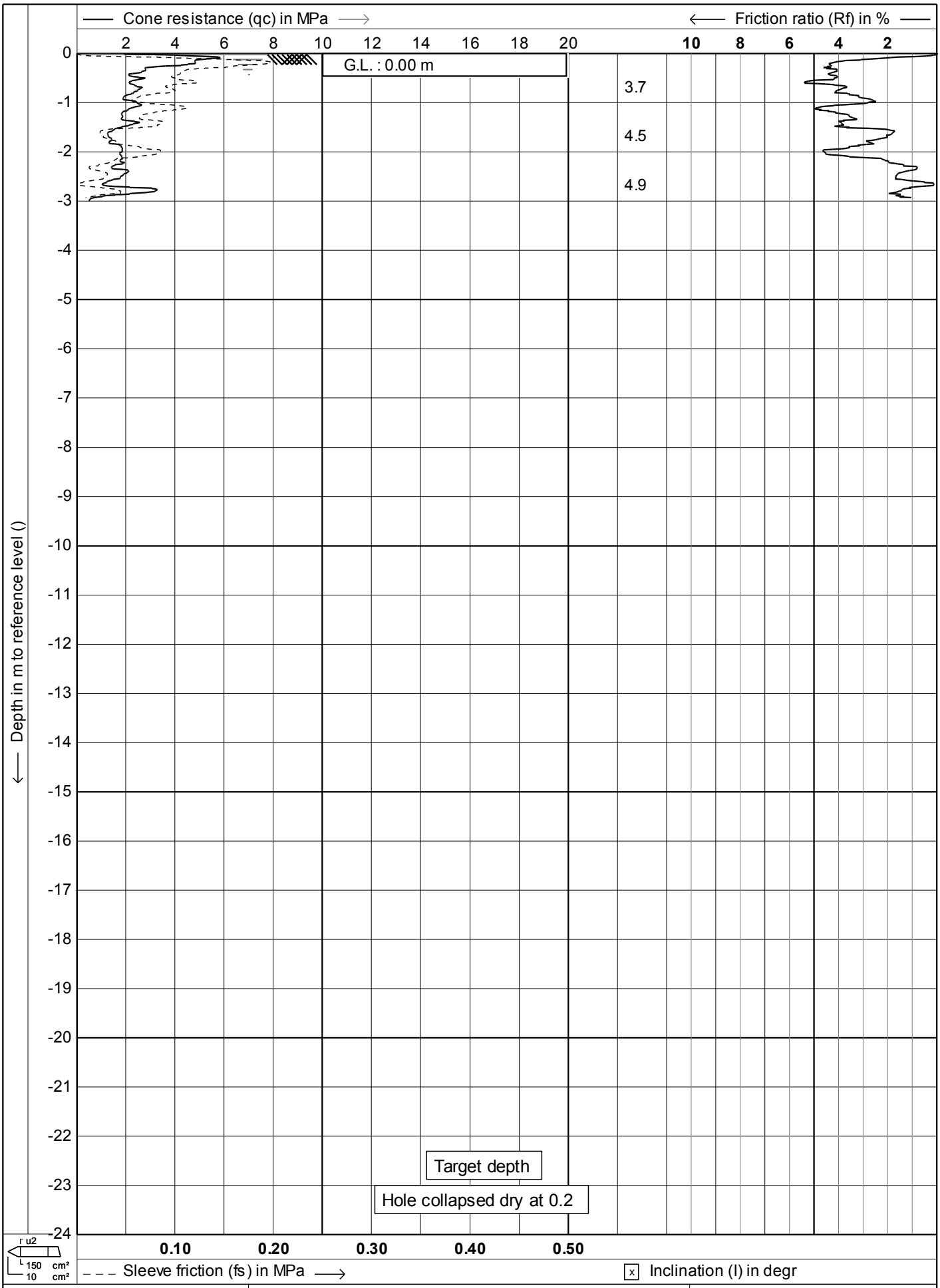
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **46**

CPTask V1.33



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

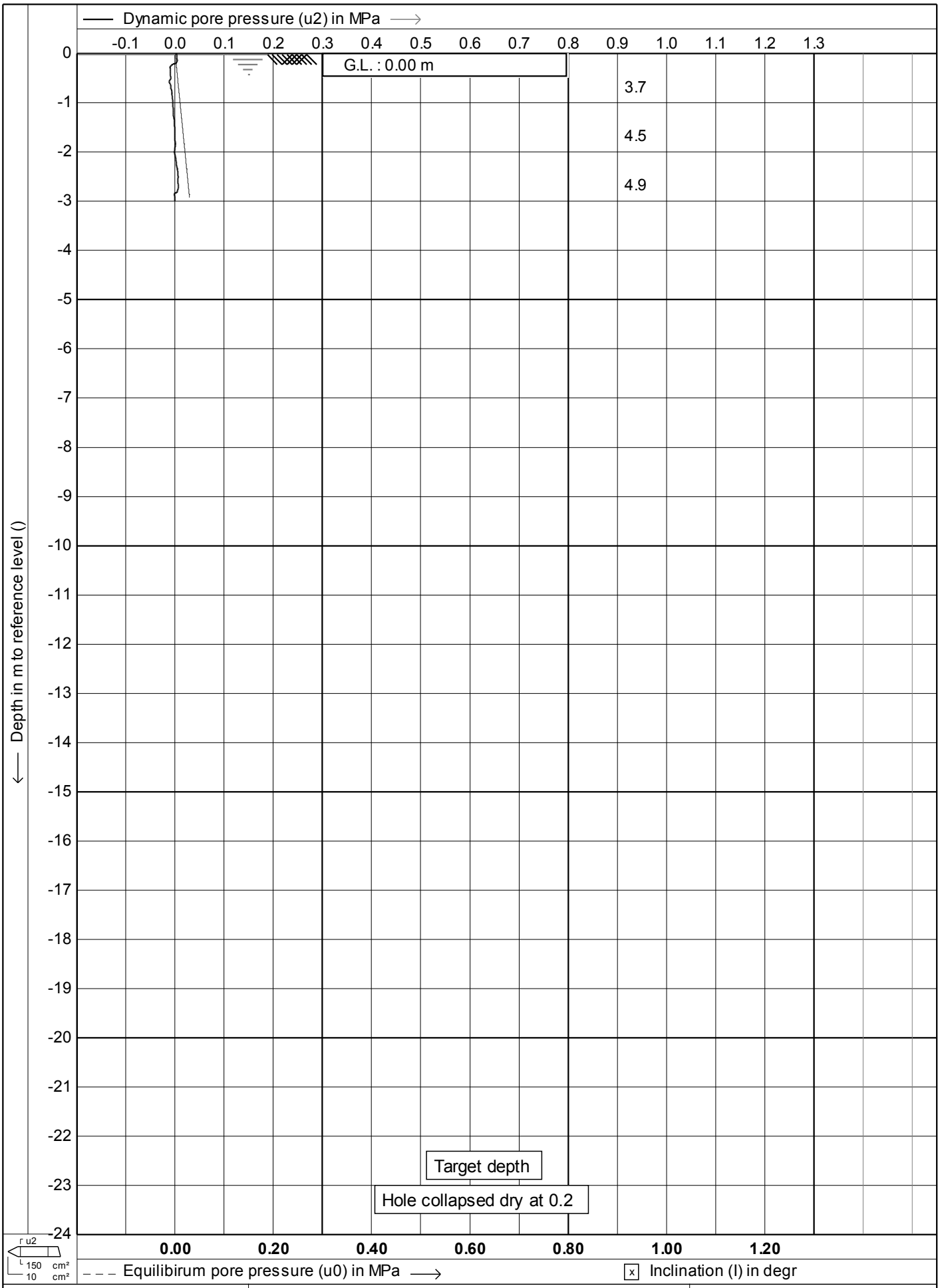
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **47** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

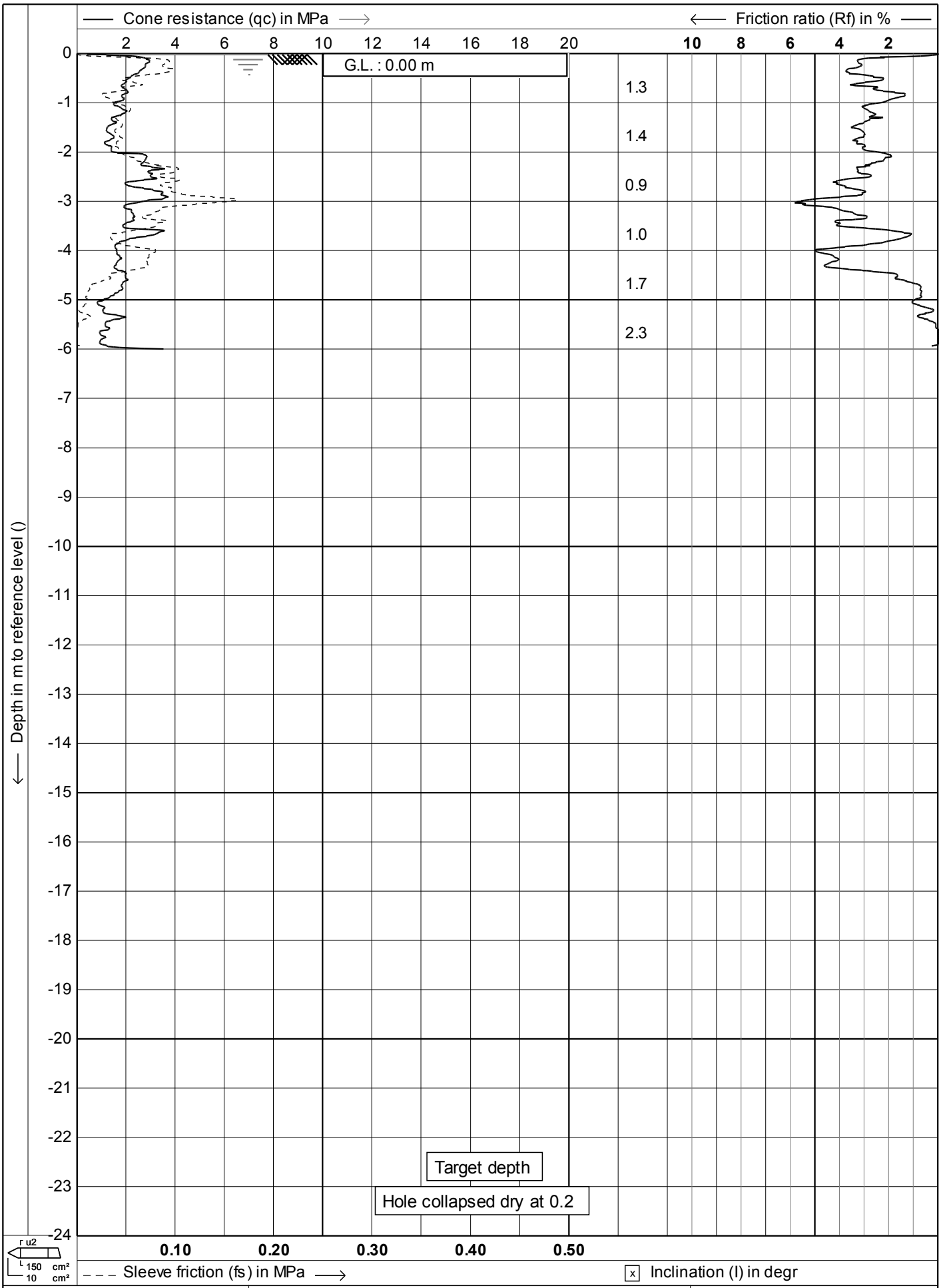
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **47**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

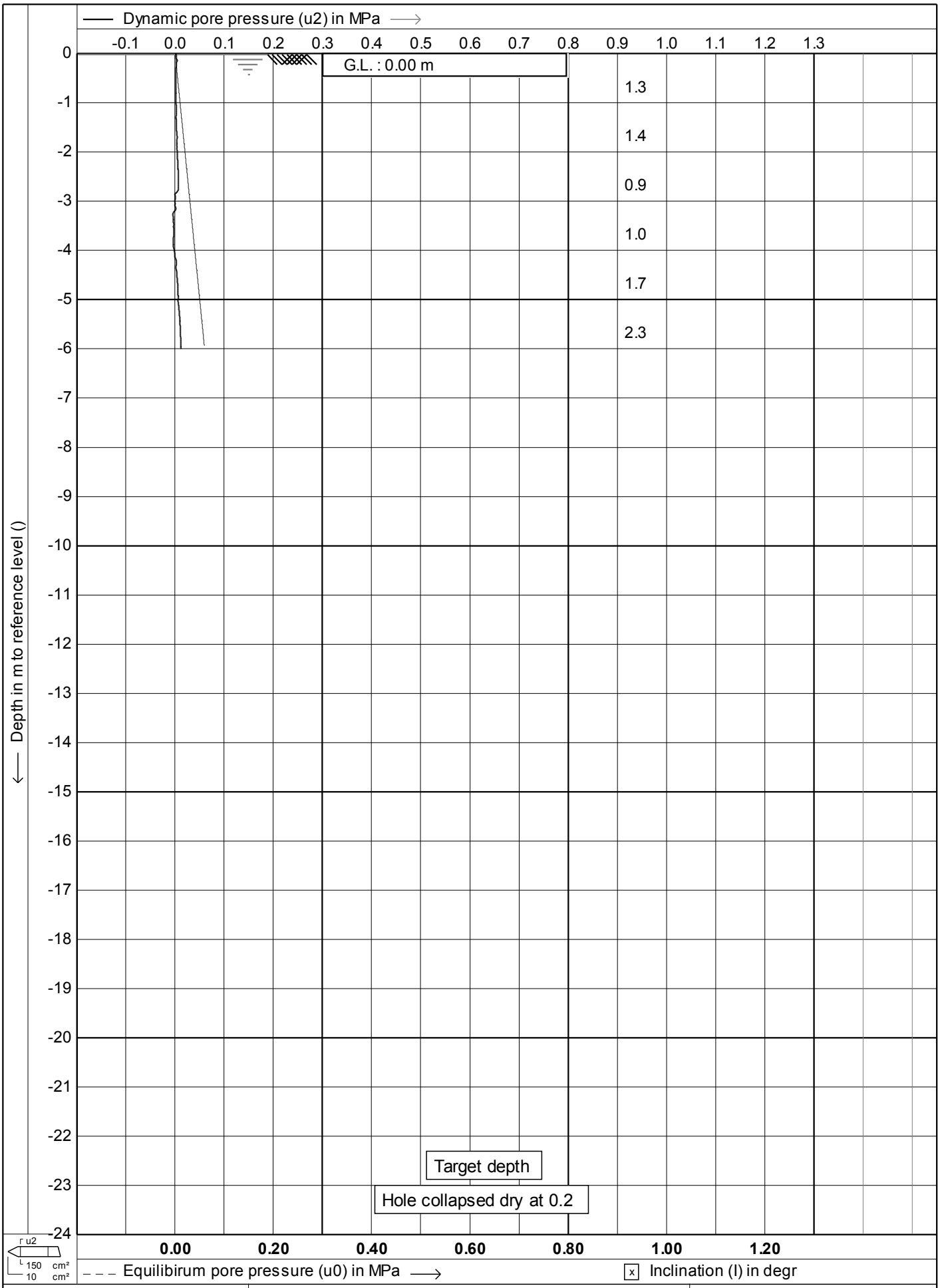
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **48** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

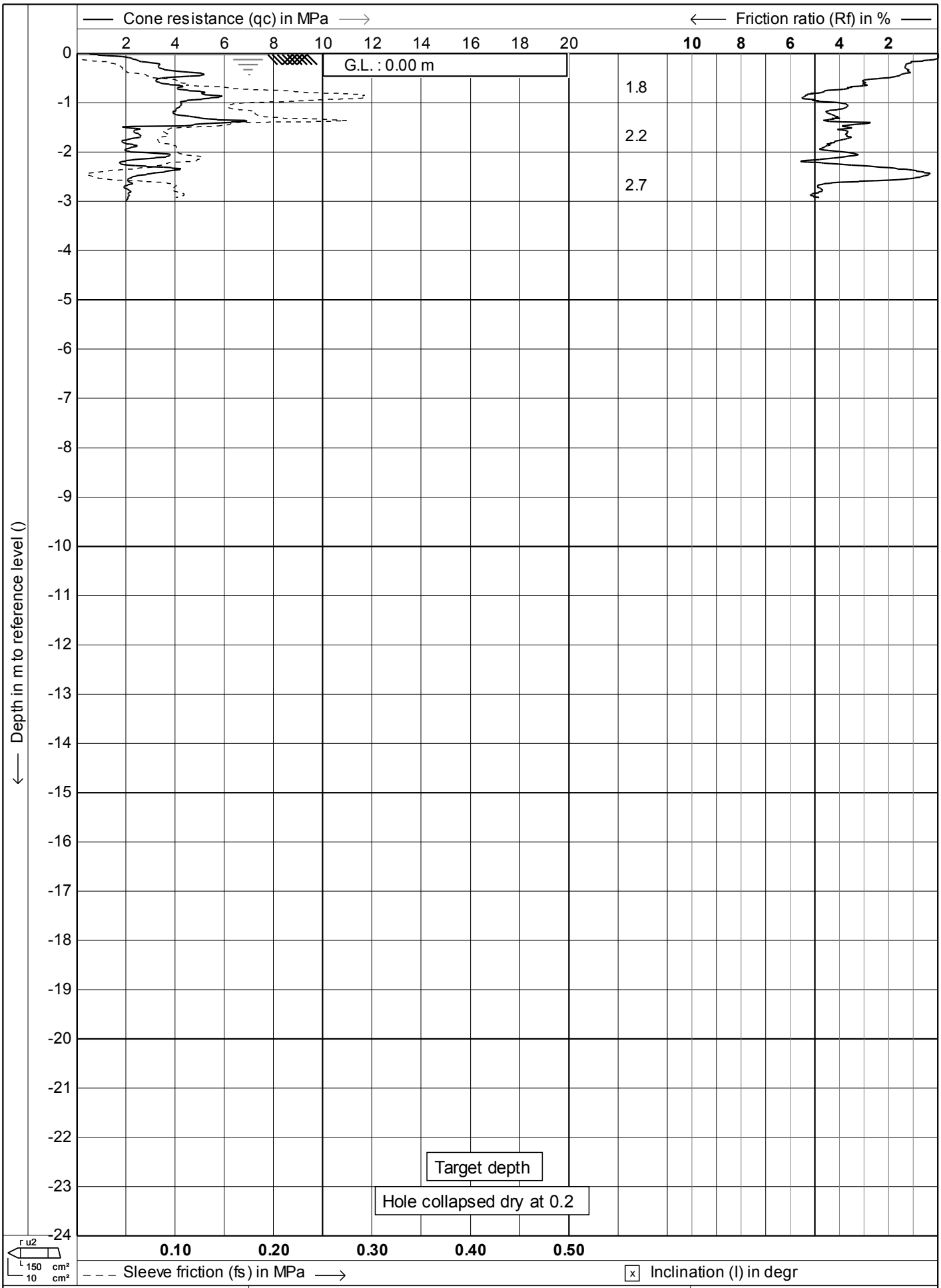
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **48**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

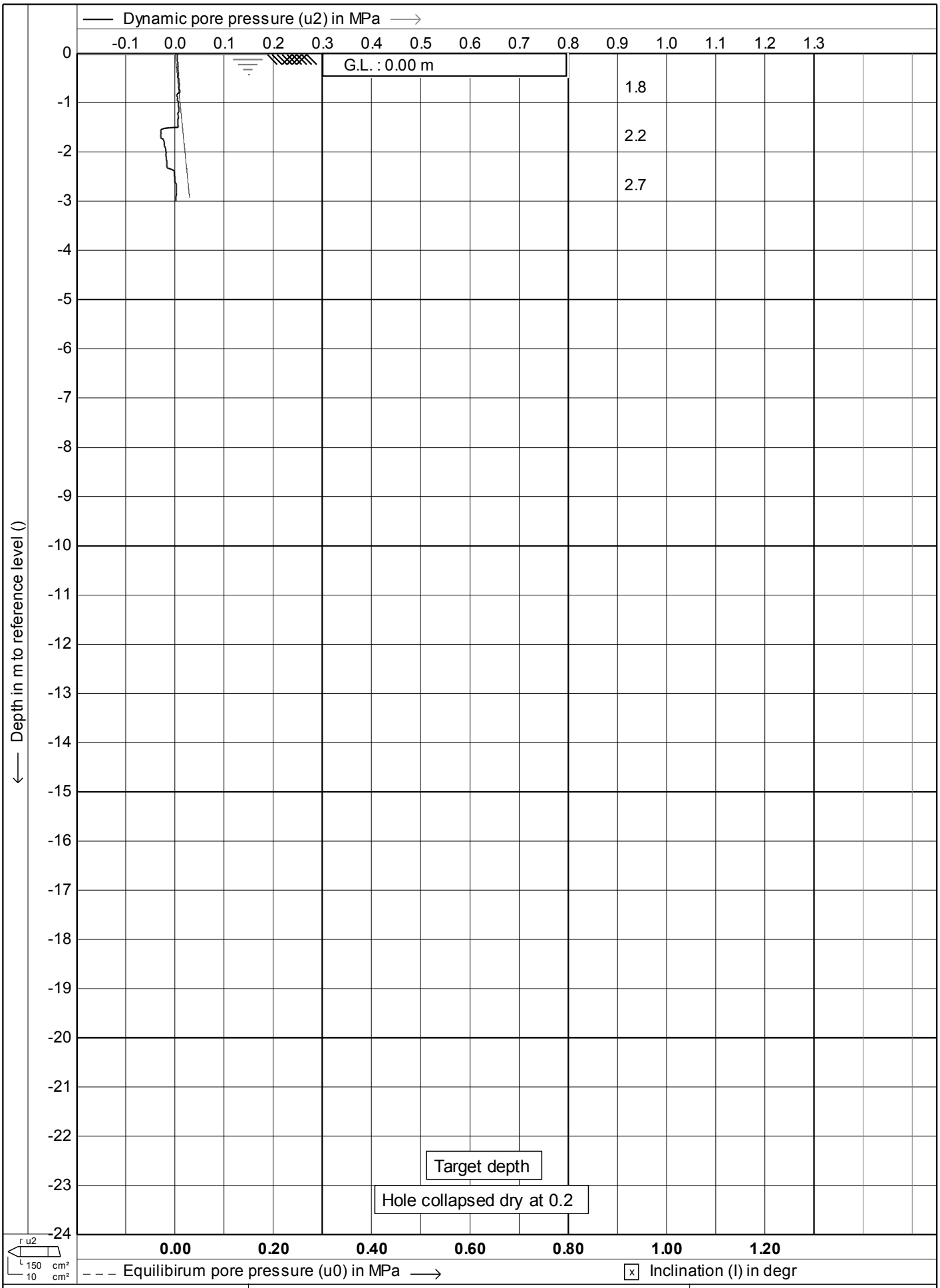
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **49**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

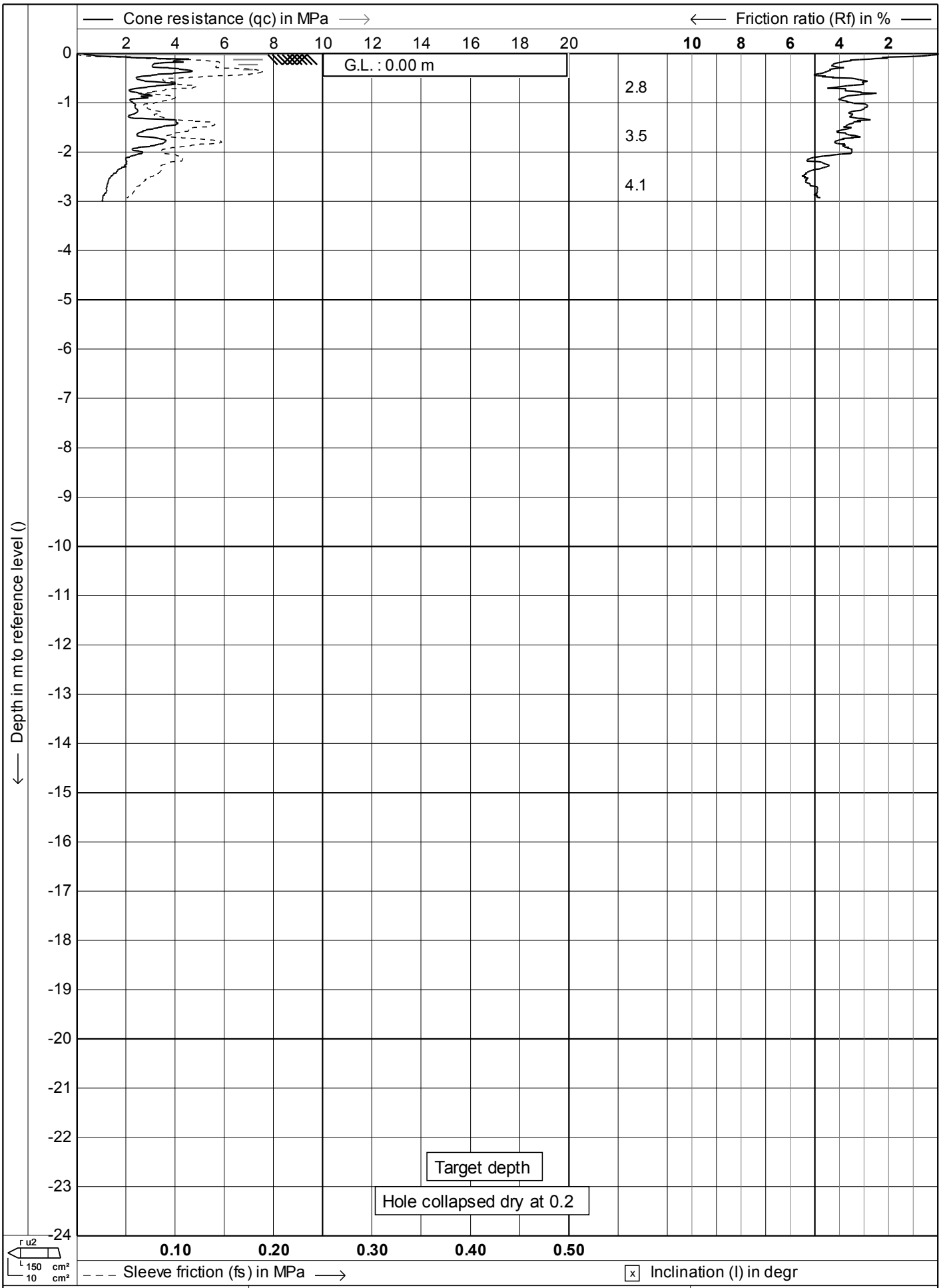
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **49**



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

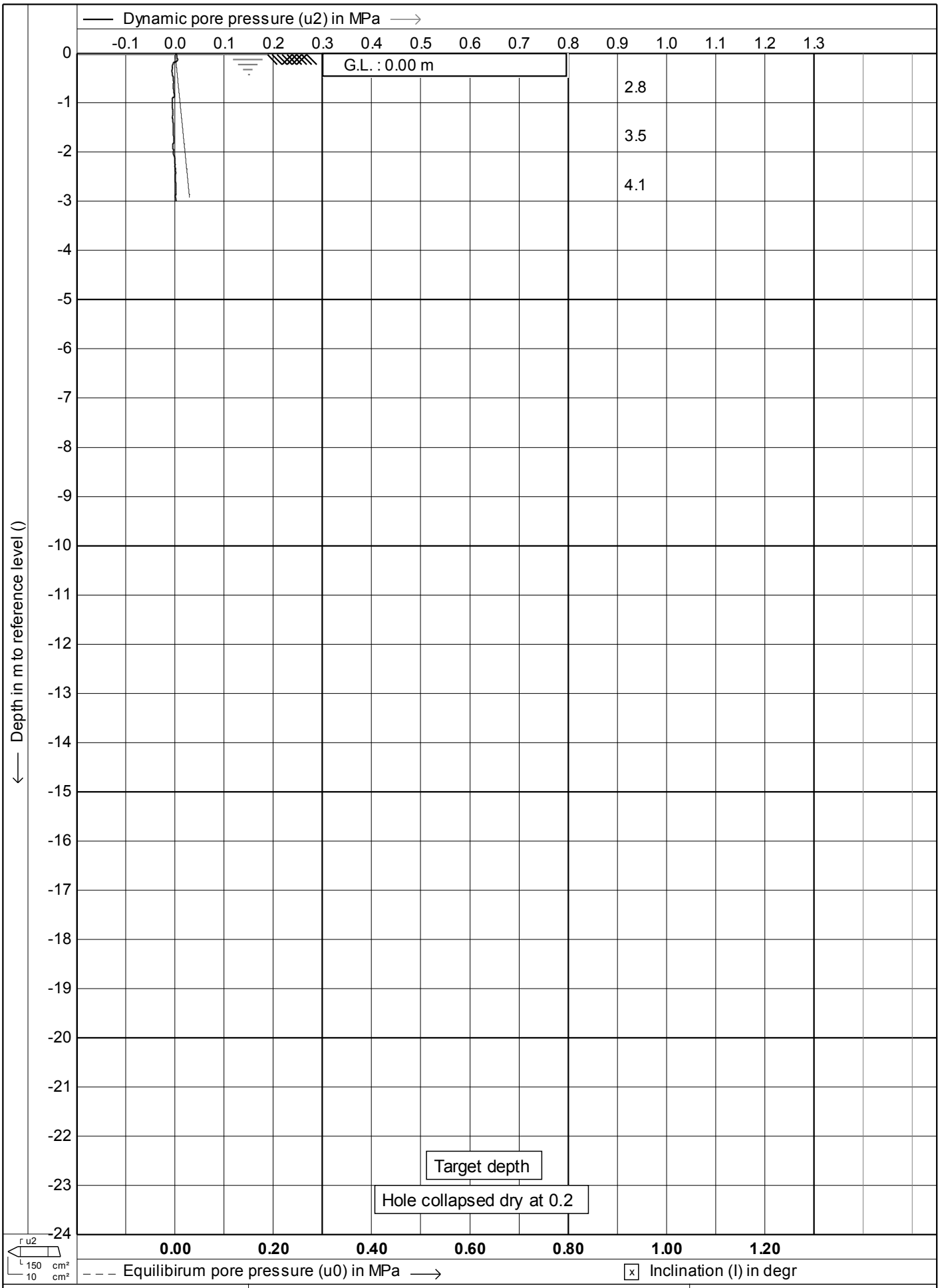
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **50** **1/14**



CPTask V1.33

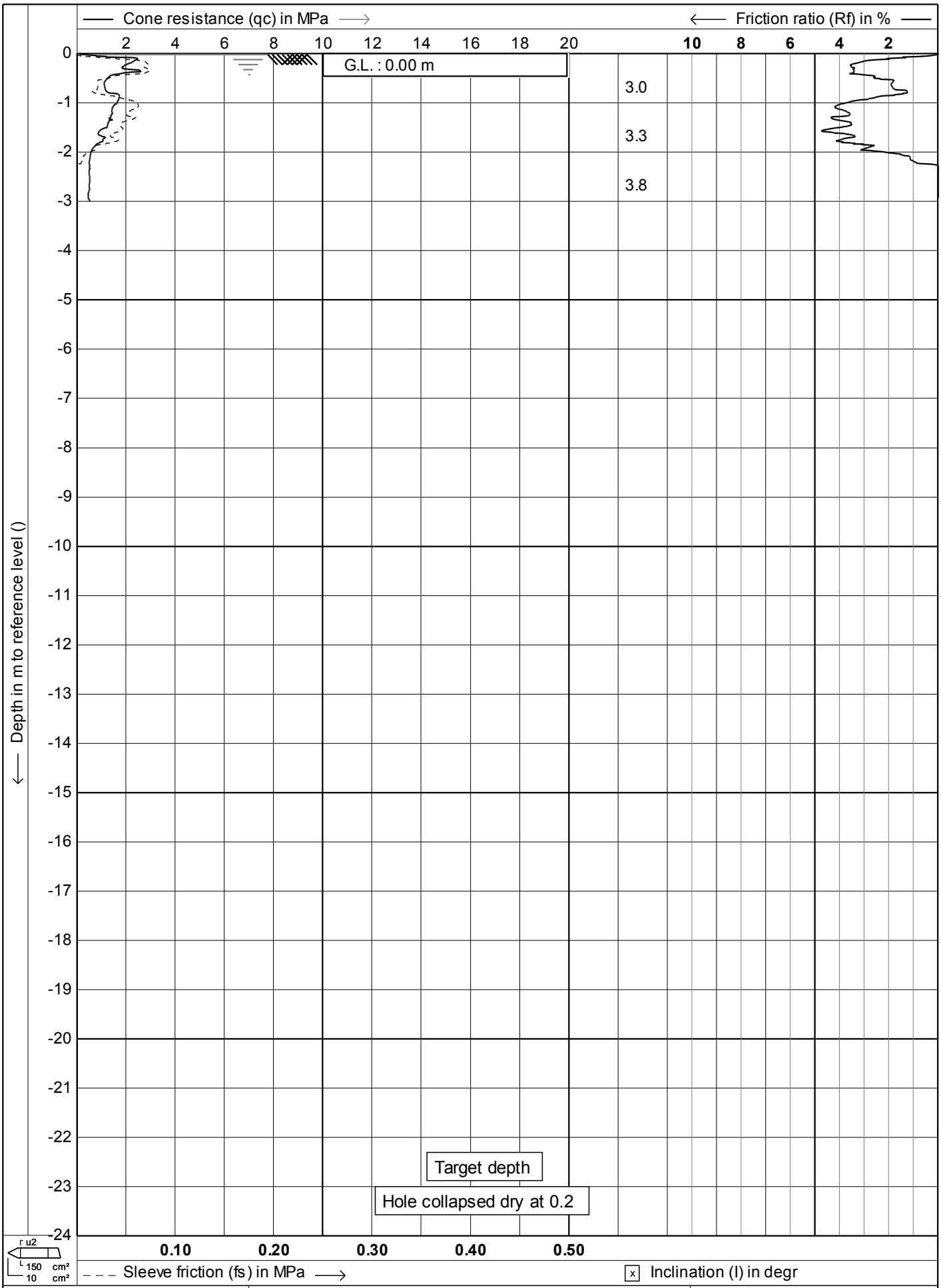
PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date	: **9-3-2016**
Cone no.	: **C10CFIIP.C14123**
Project no.	: **02COFFEY2**
CPT no.	: **50**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

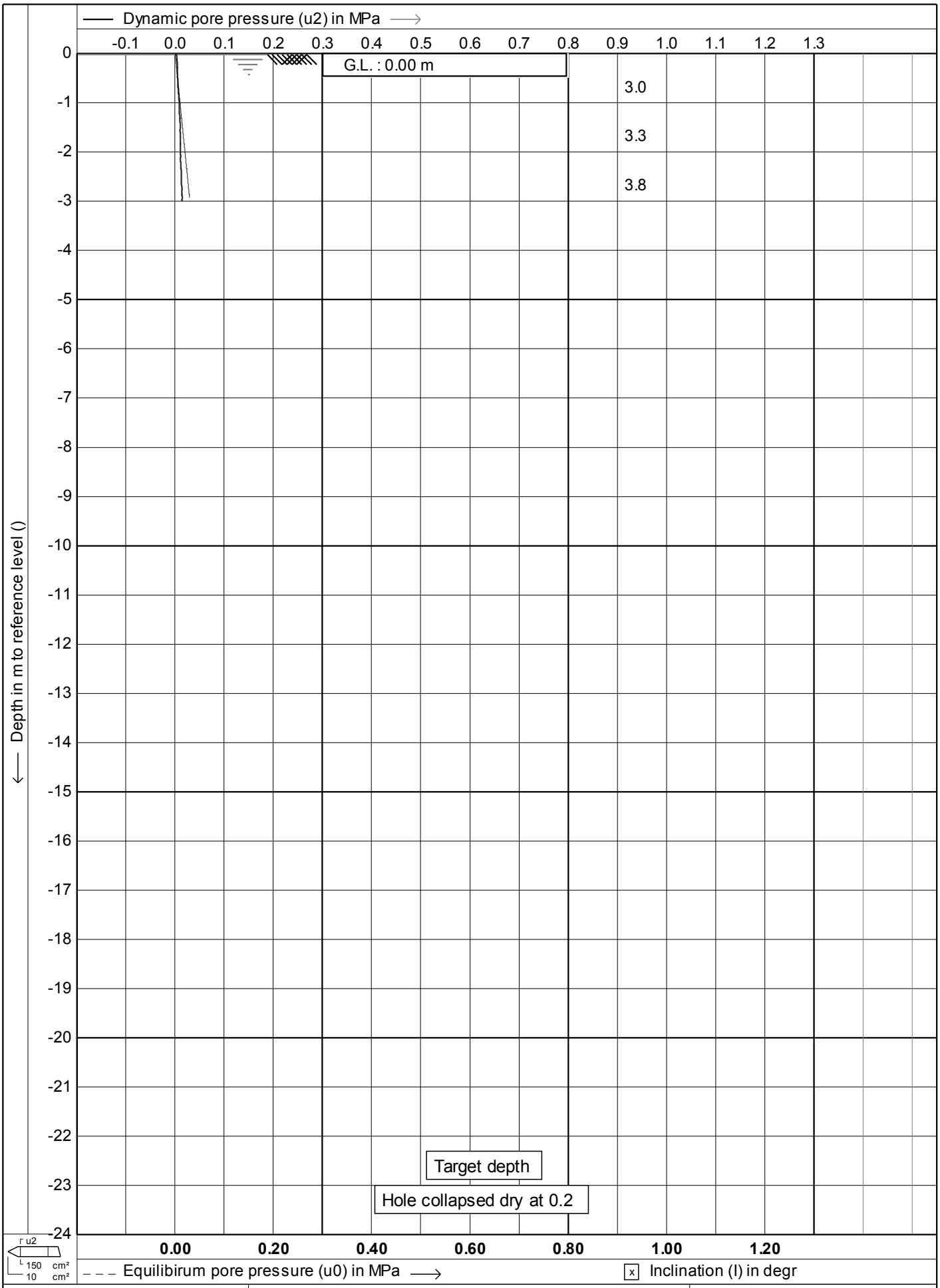
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **51** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

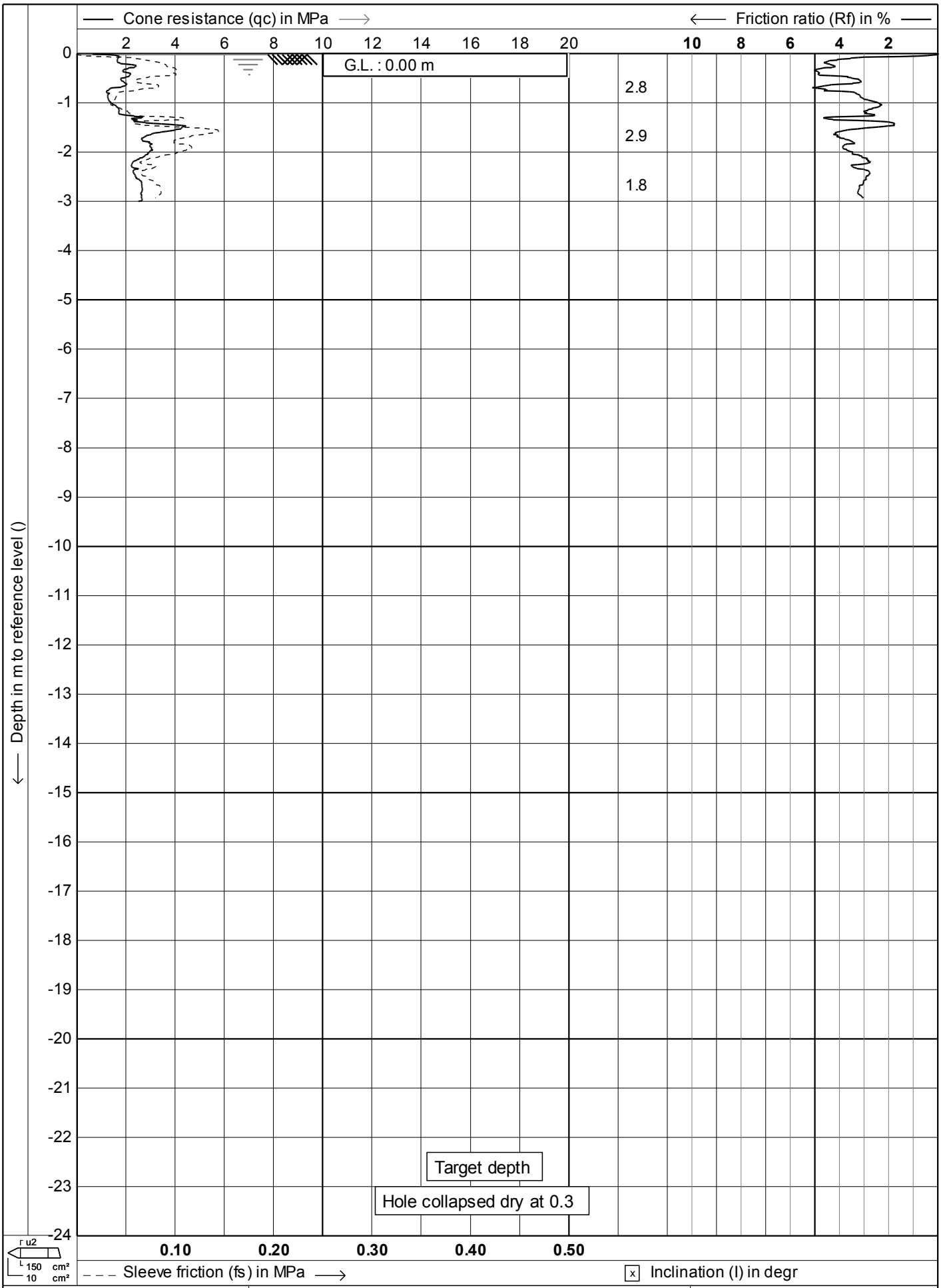
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **51**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

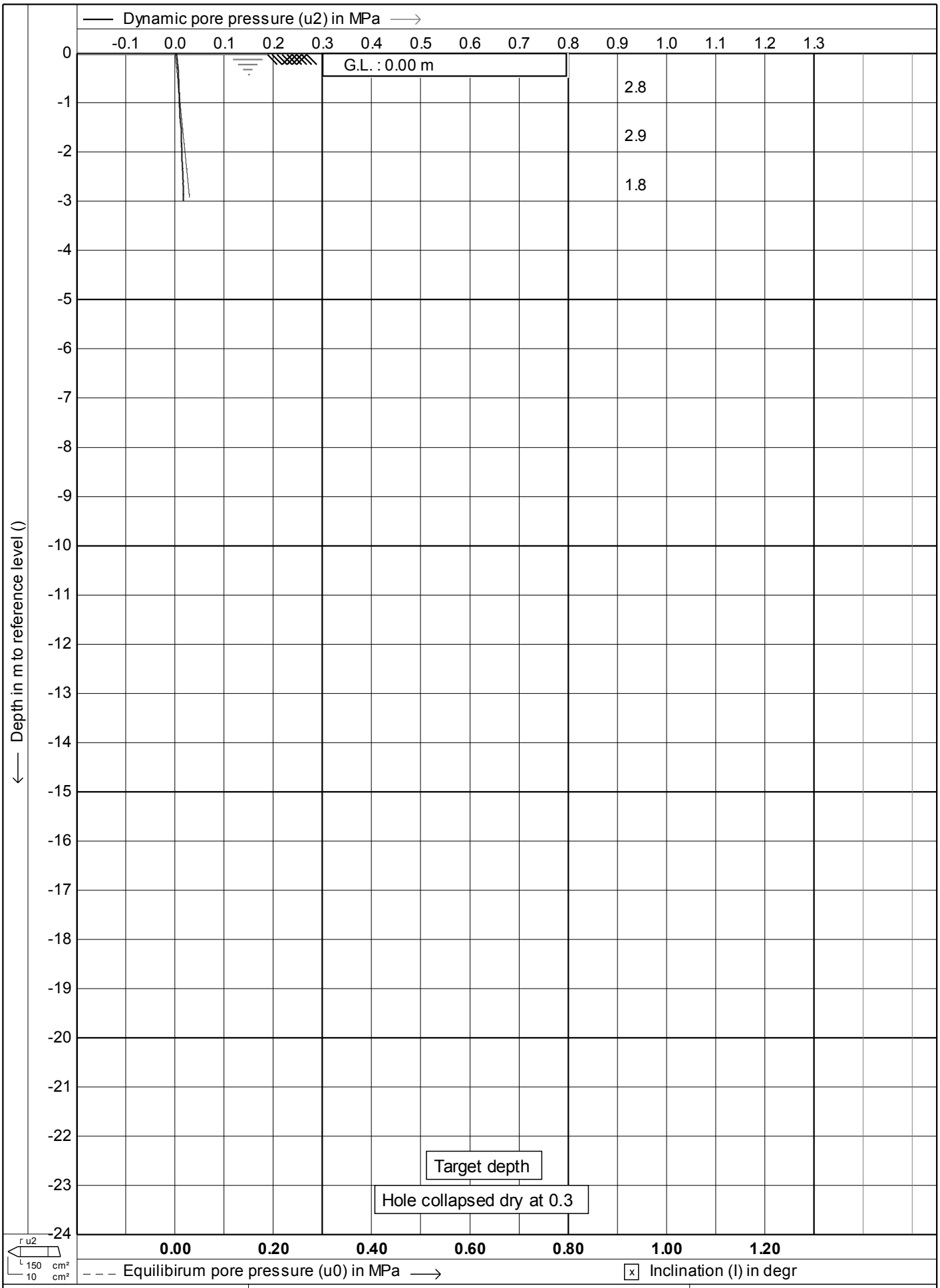
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **52** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

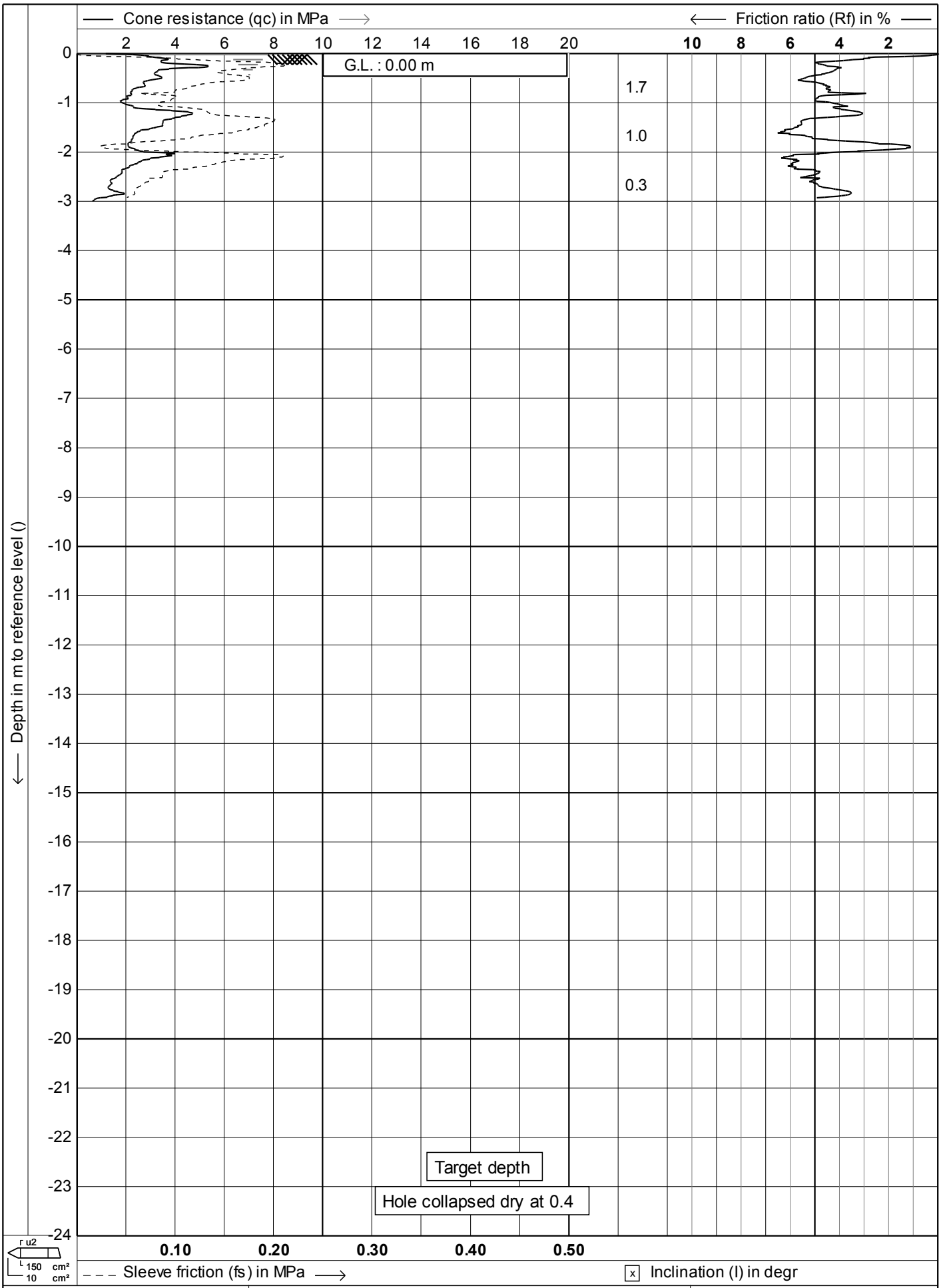
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **52**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

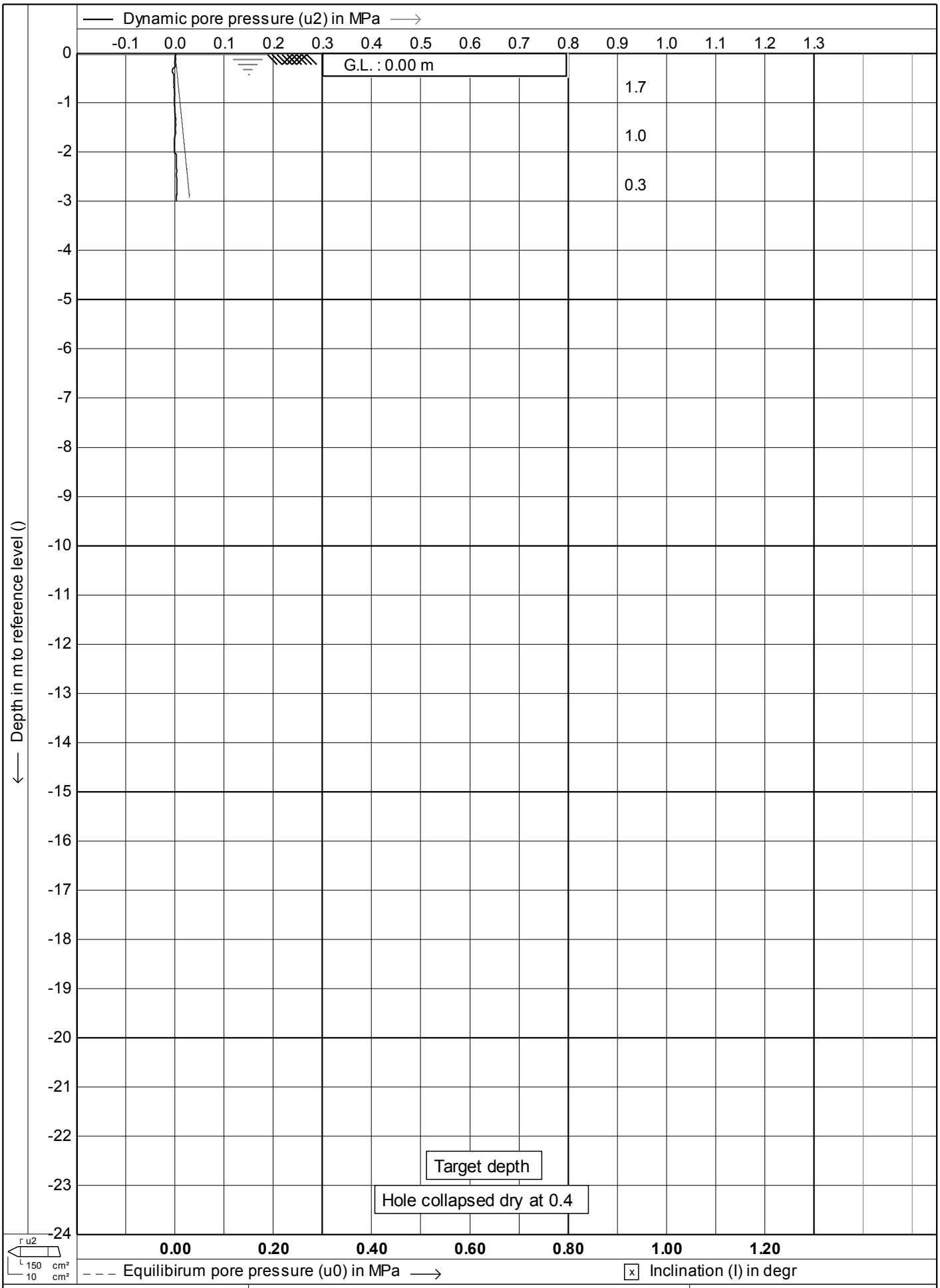
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **54** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

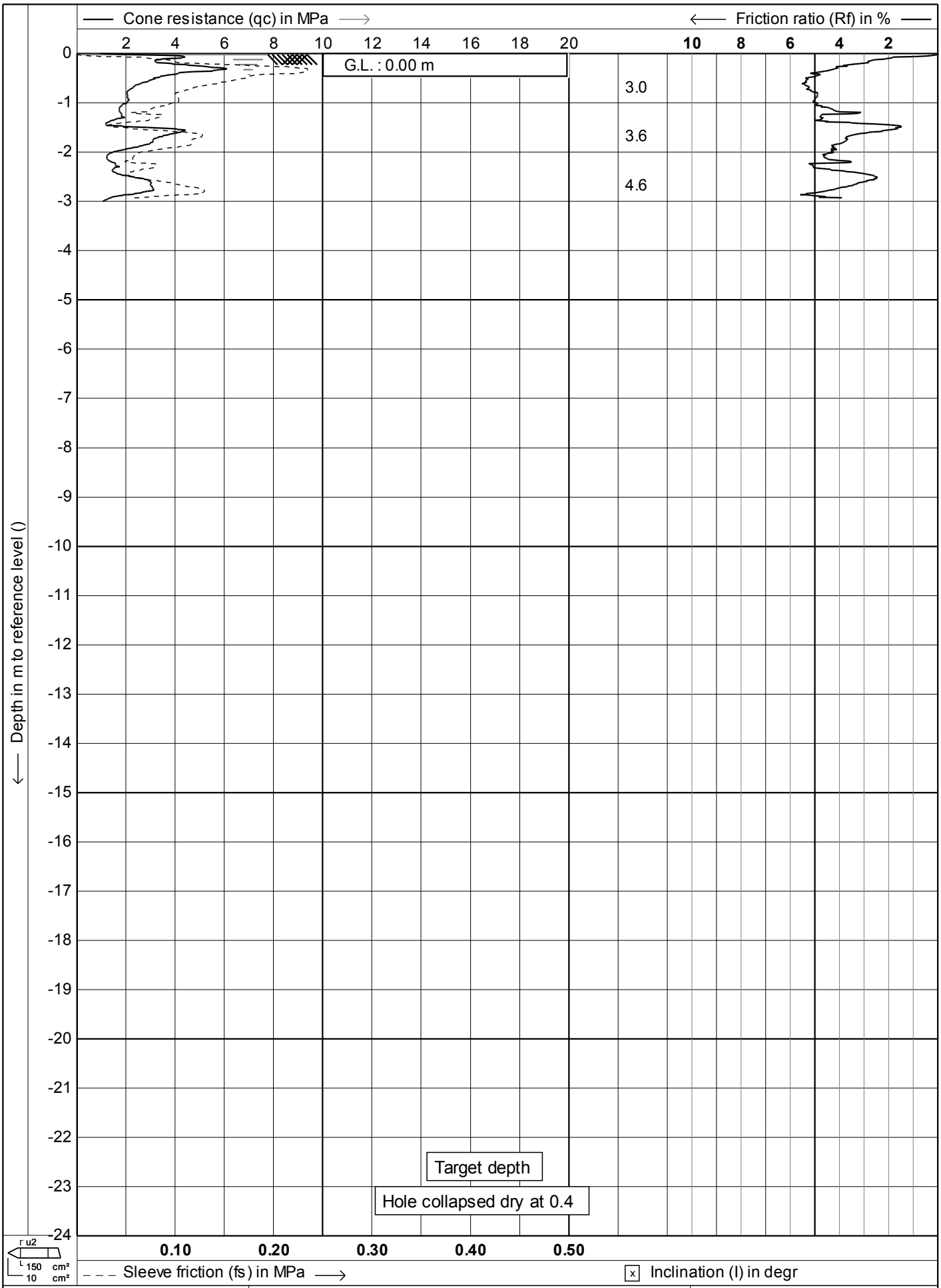
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **54** **2/14**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

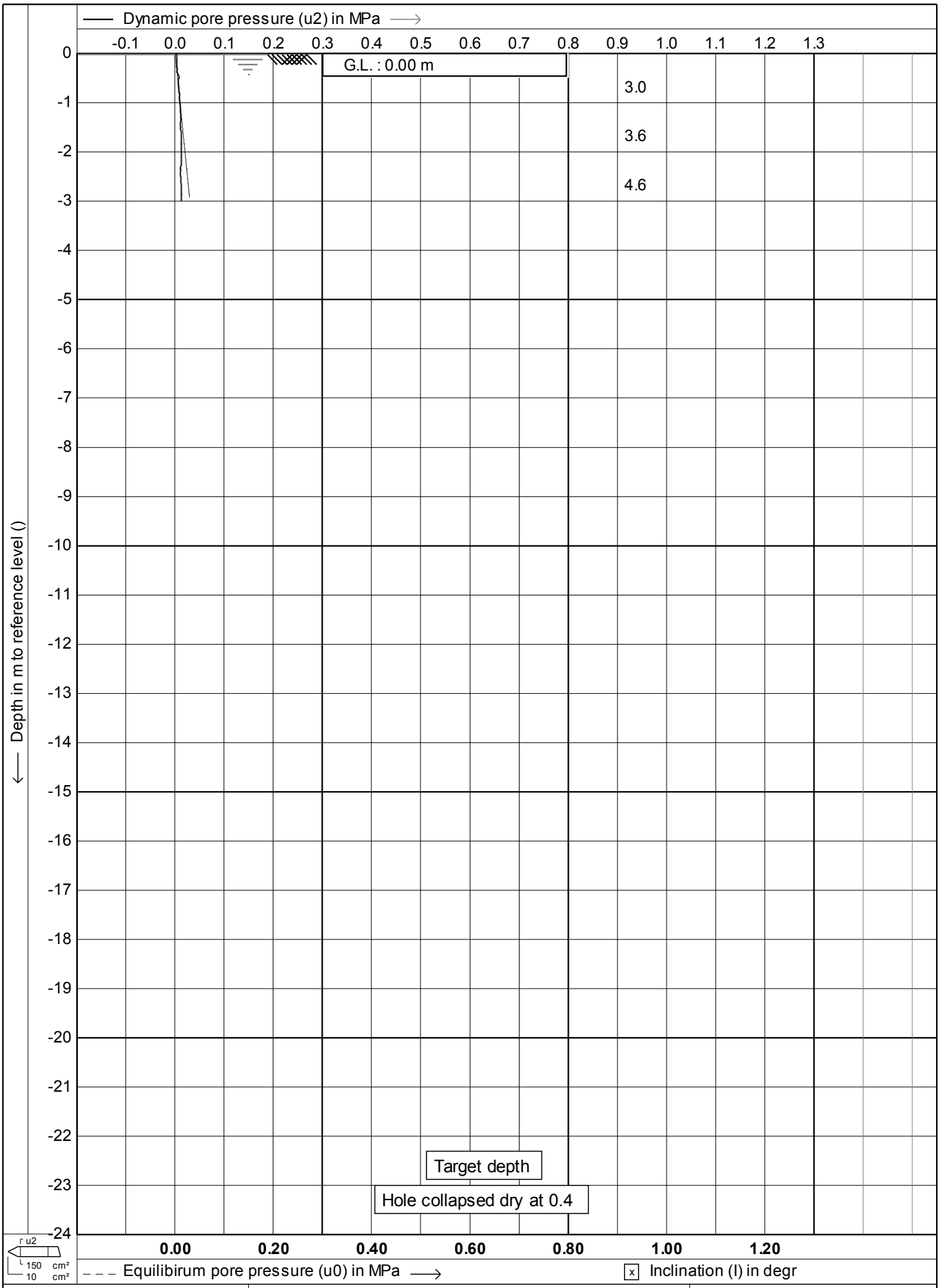
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **56** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

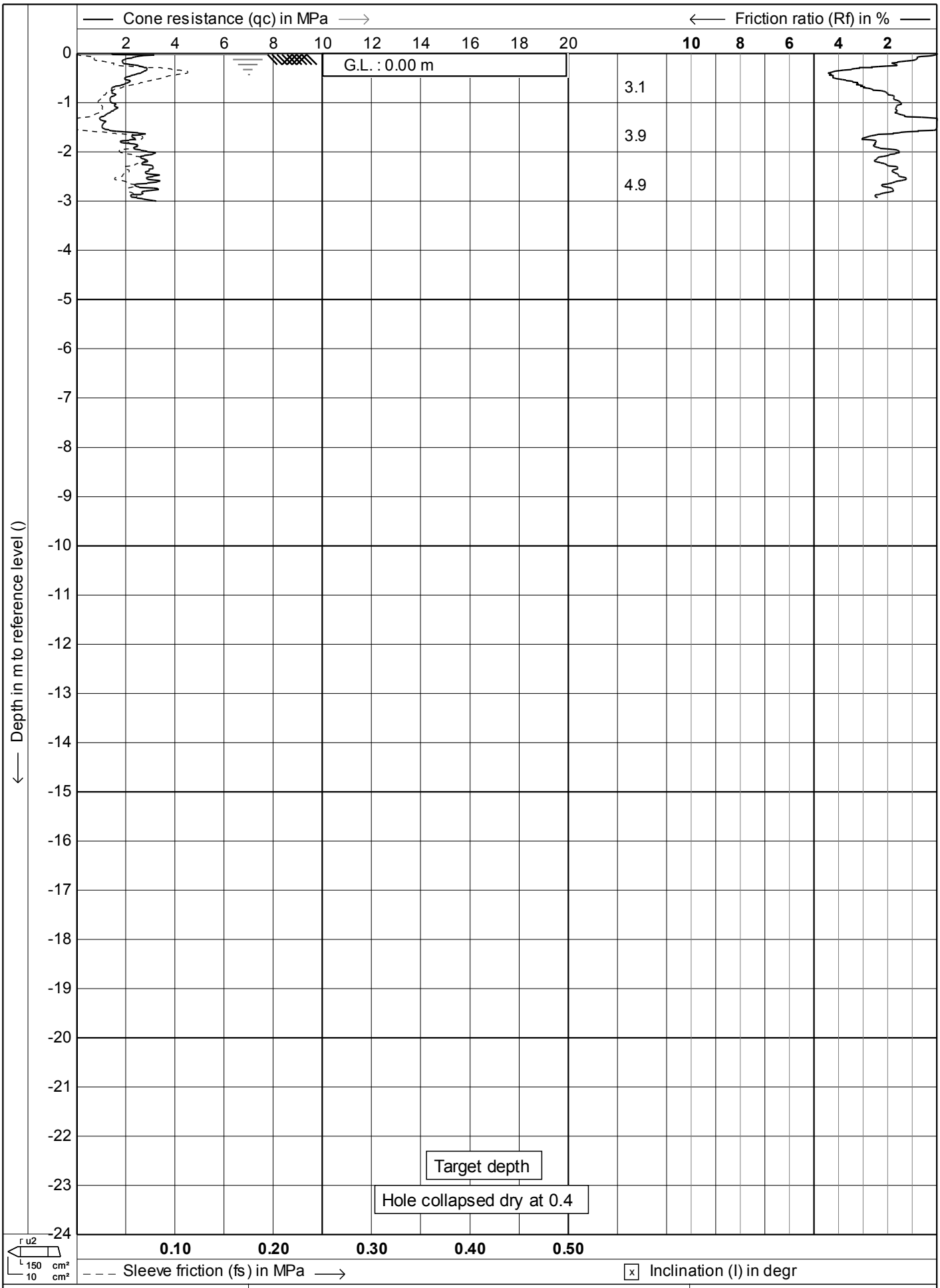
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **56**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

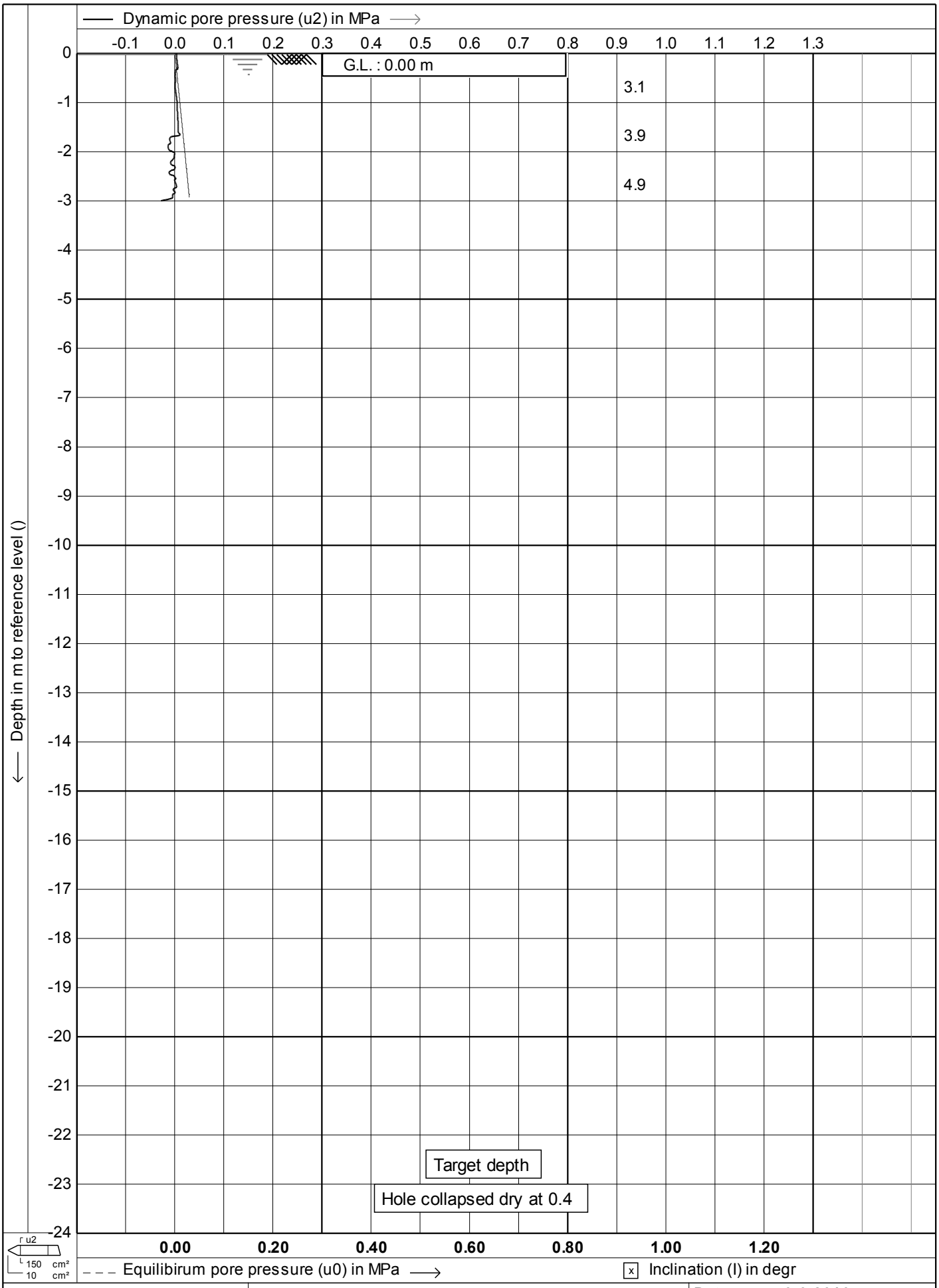
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **58** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

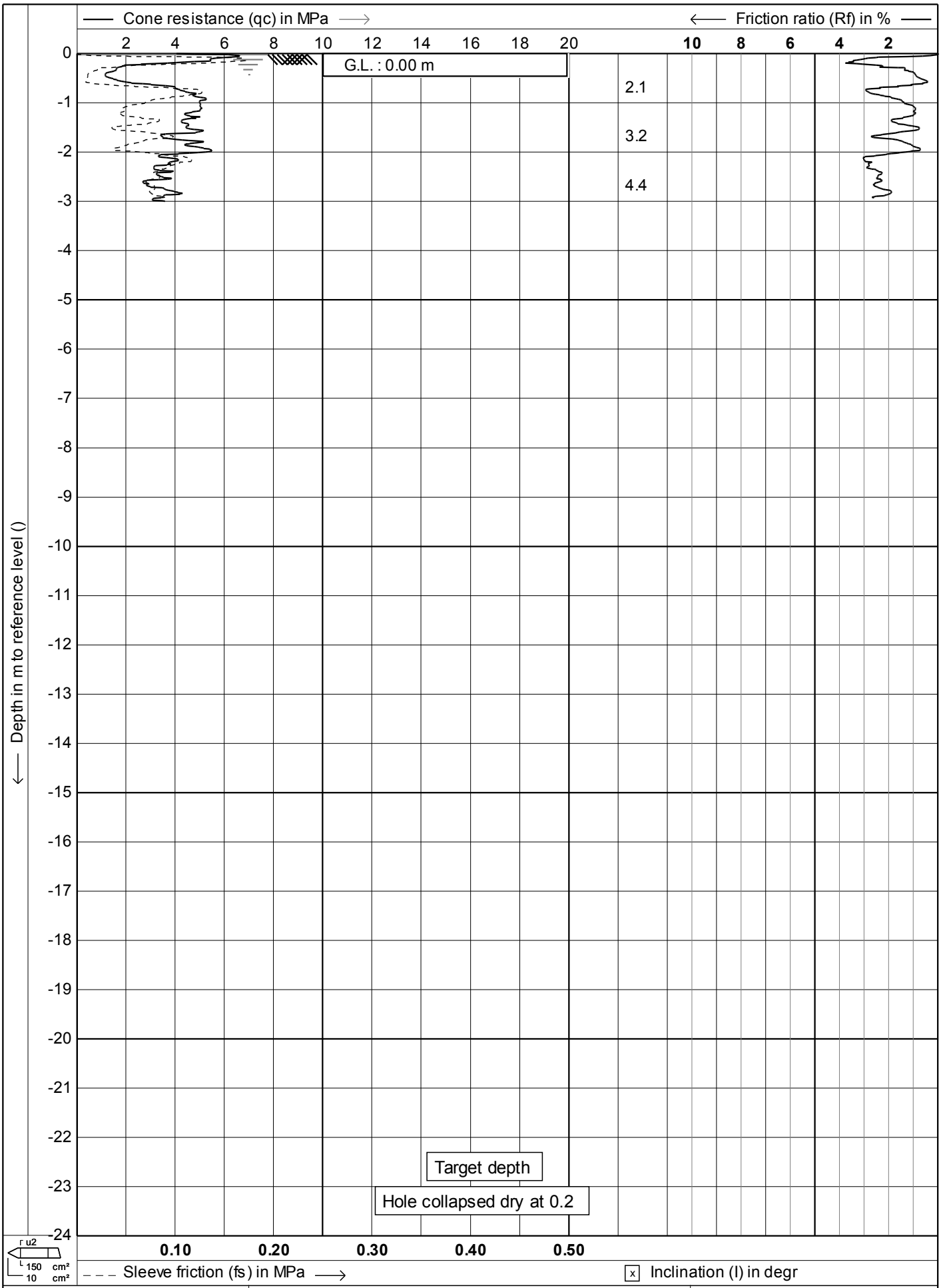
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **58**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

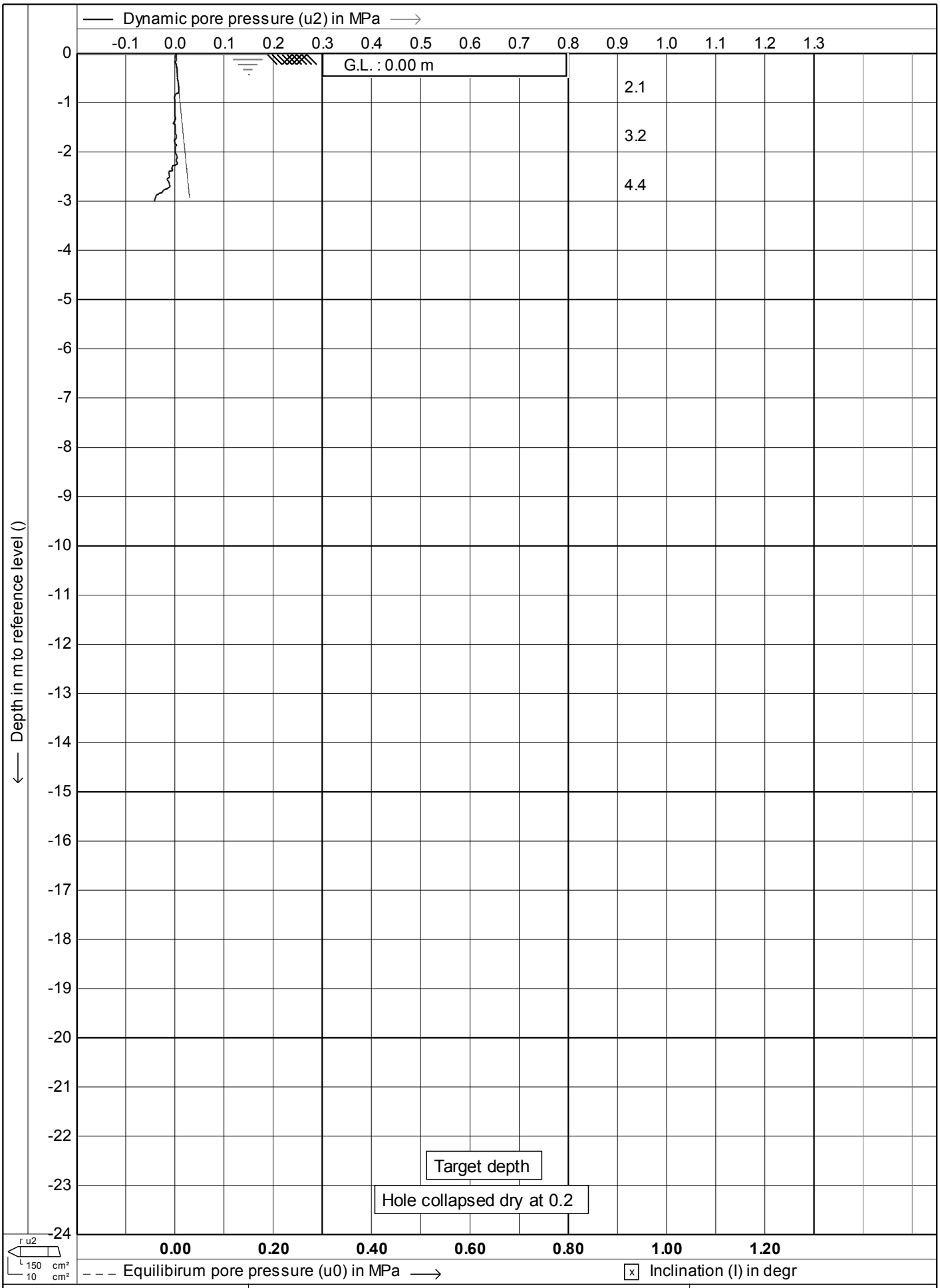
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **59** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

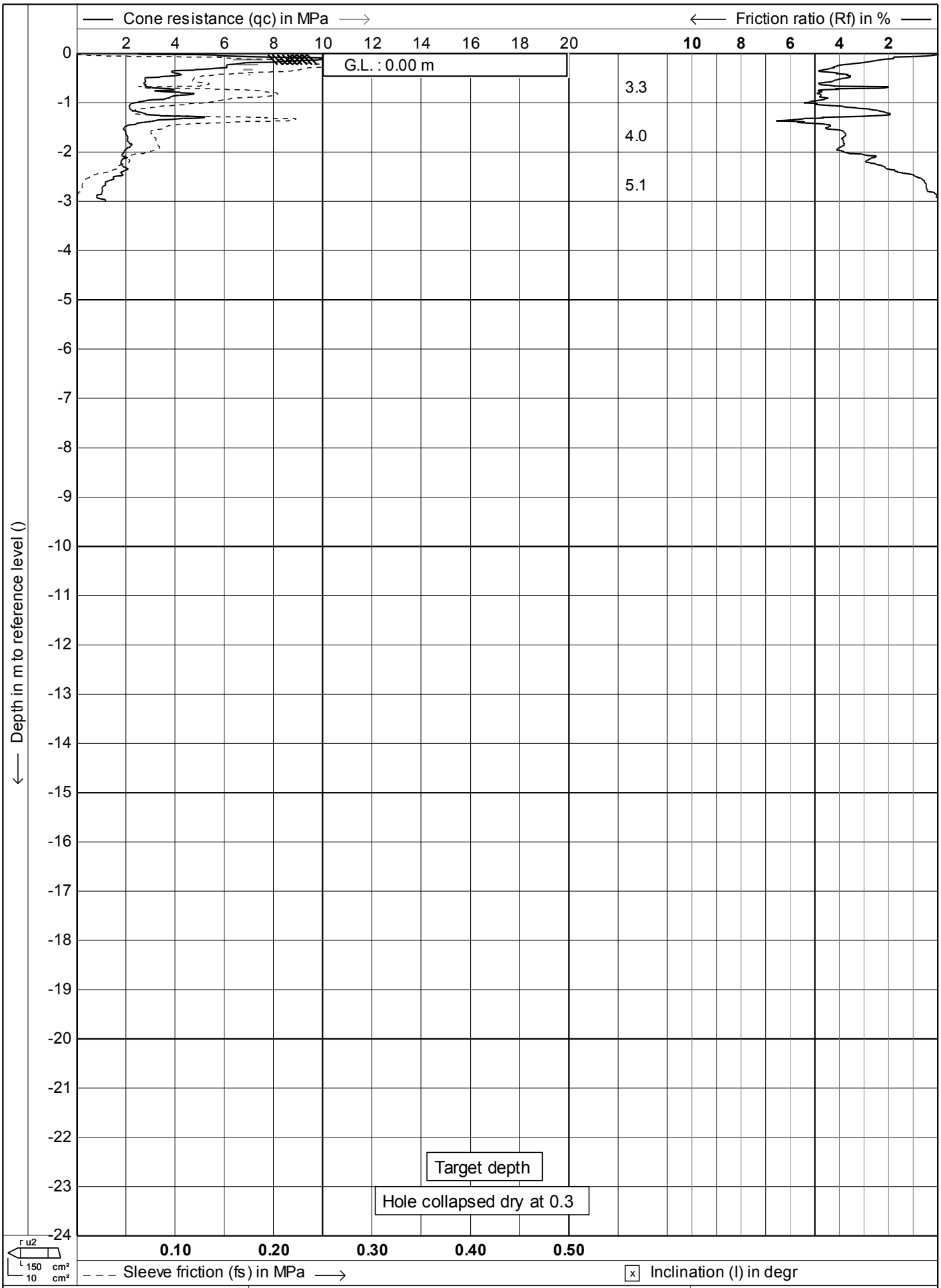
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **59**

2/14



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

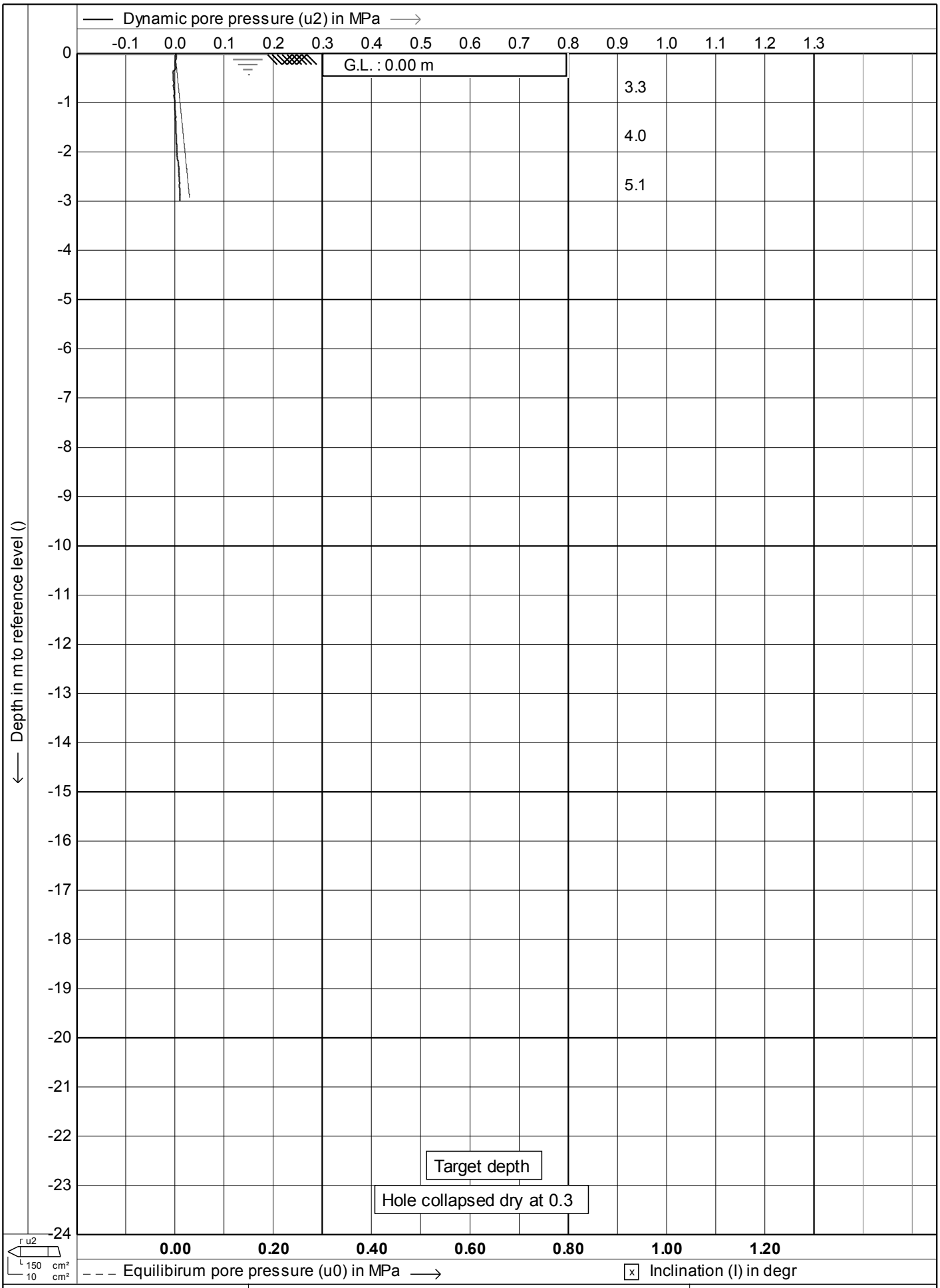
Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **61**

1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

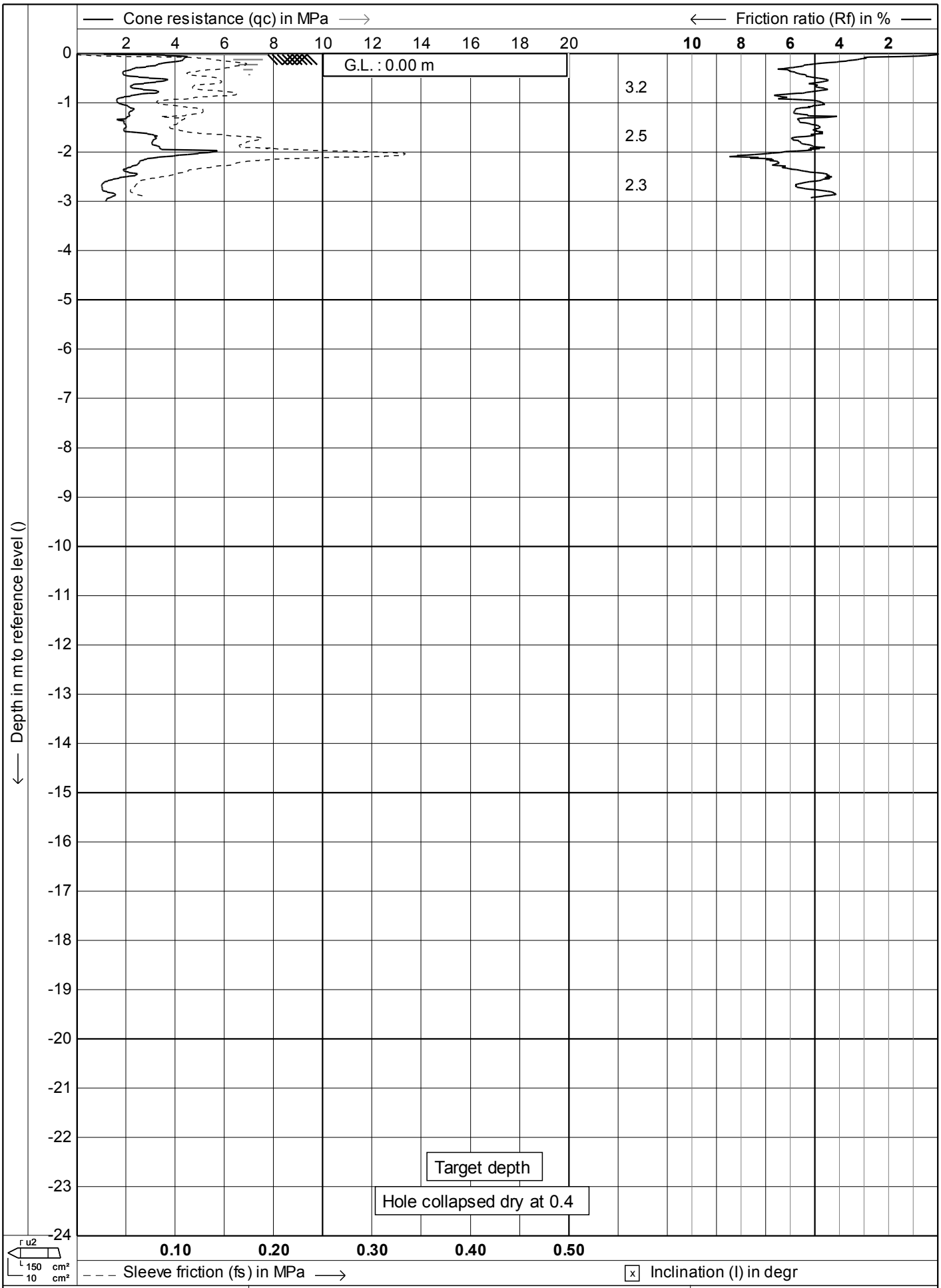
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **61**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

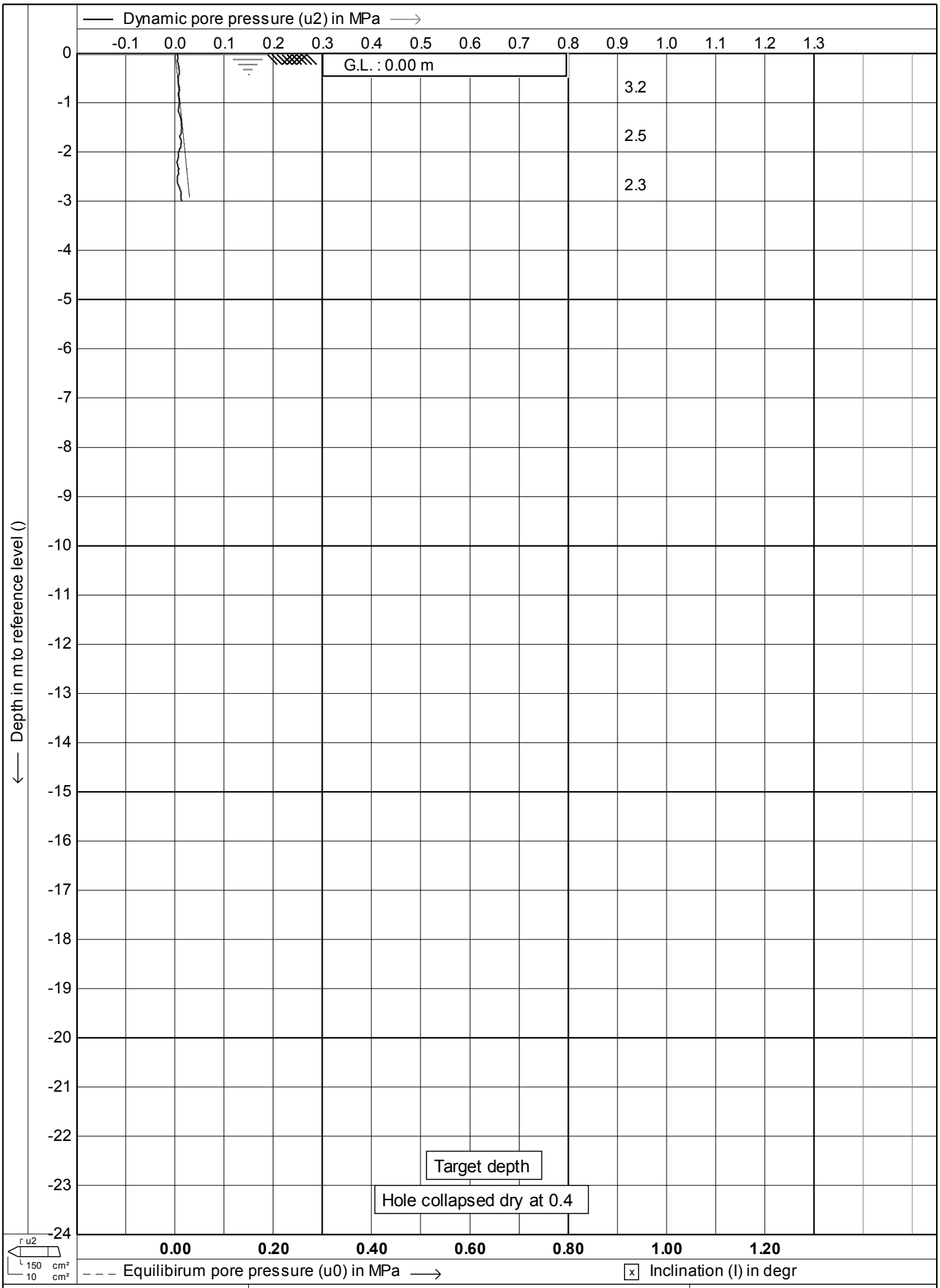
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **63** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

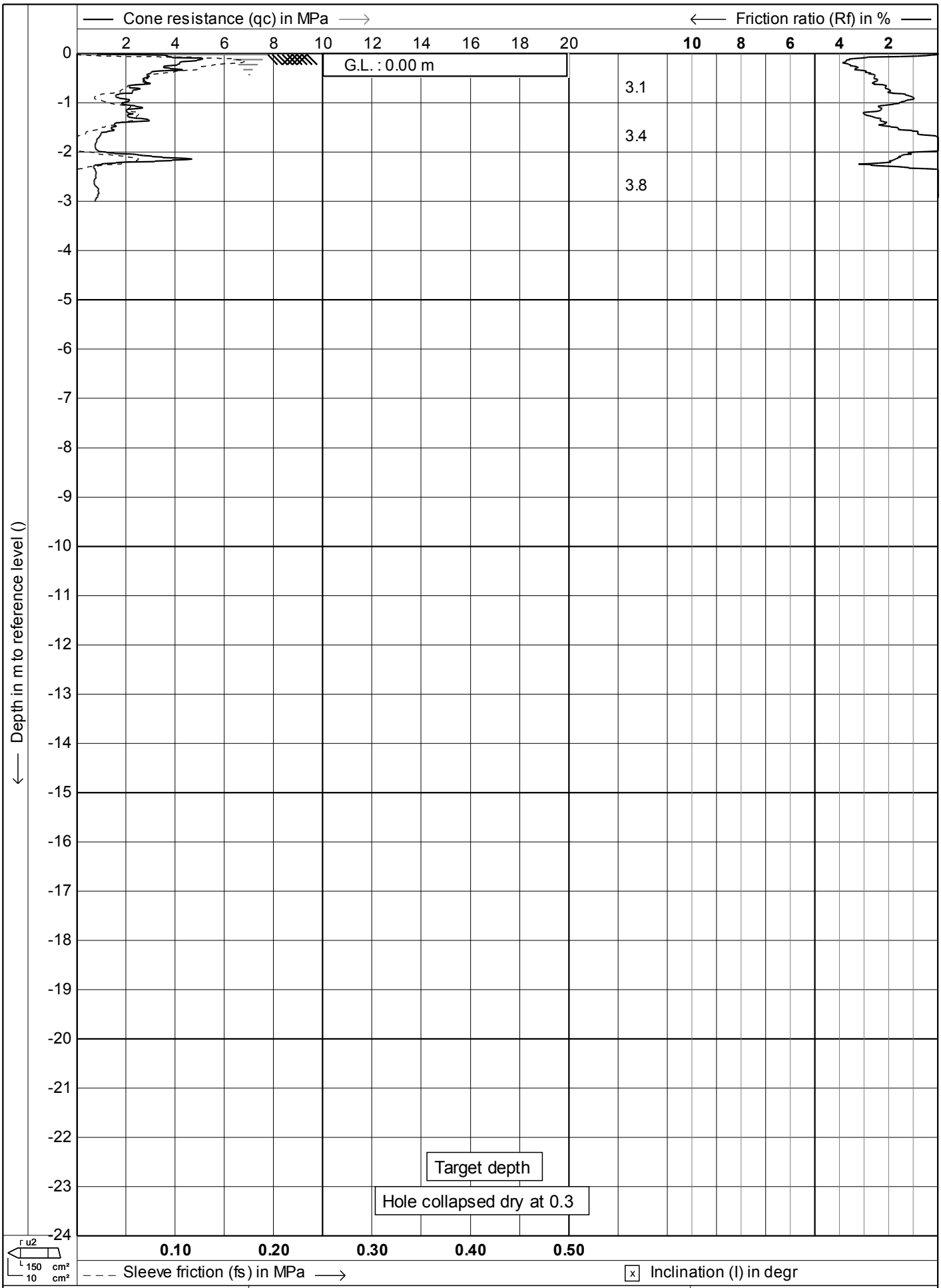
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **63**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

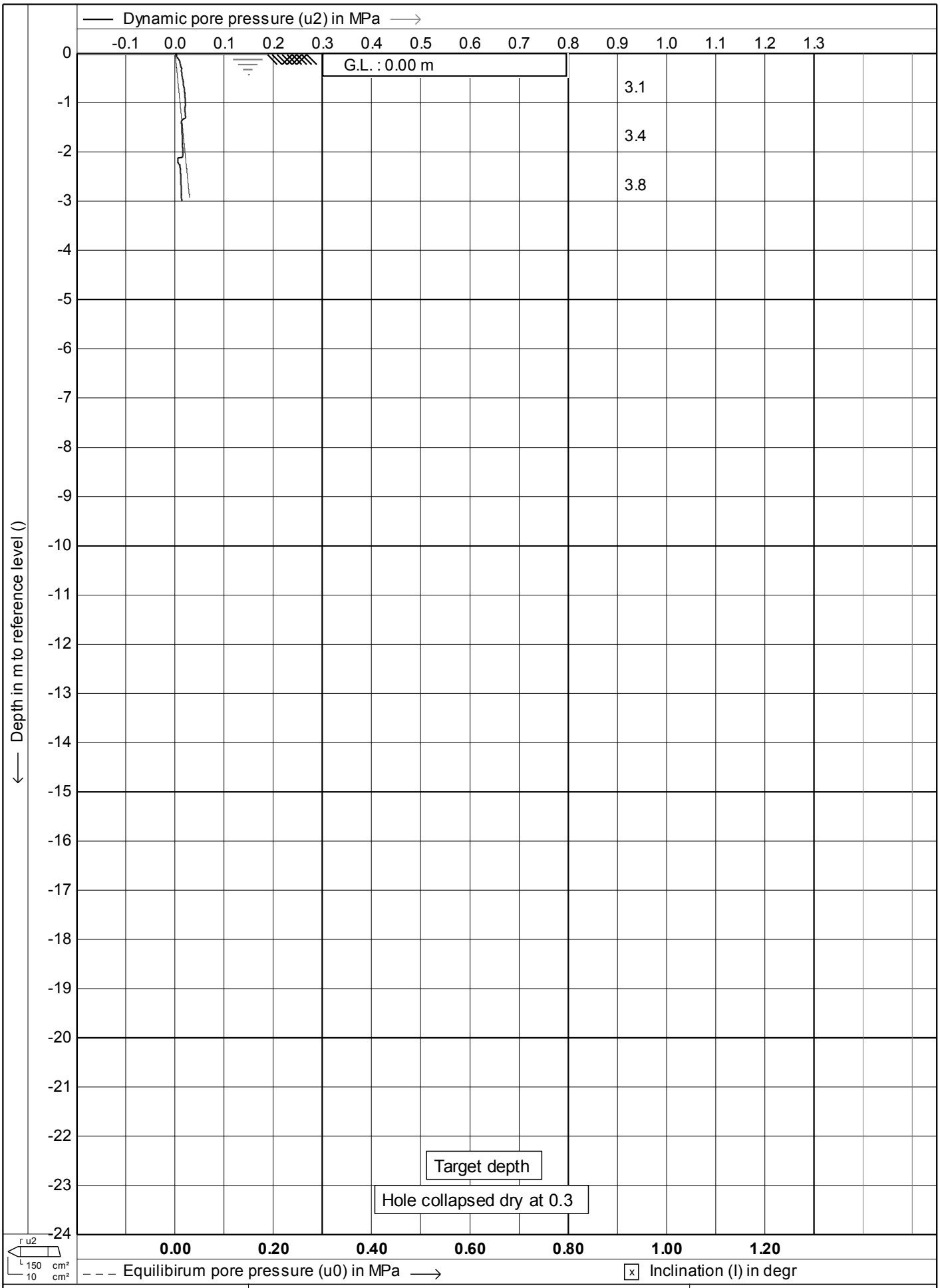
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **65** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

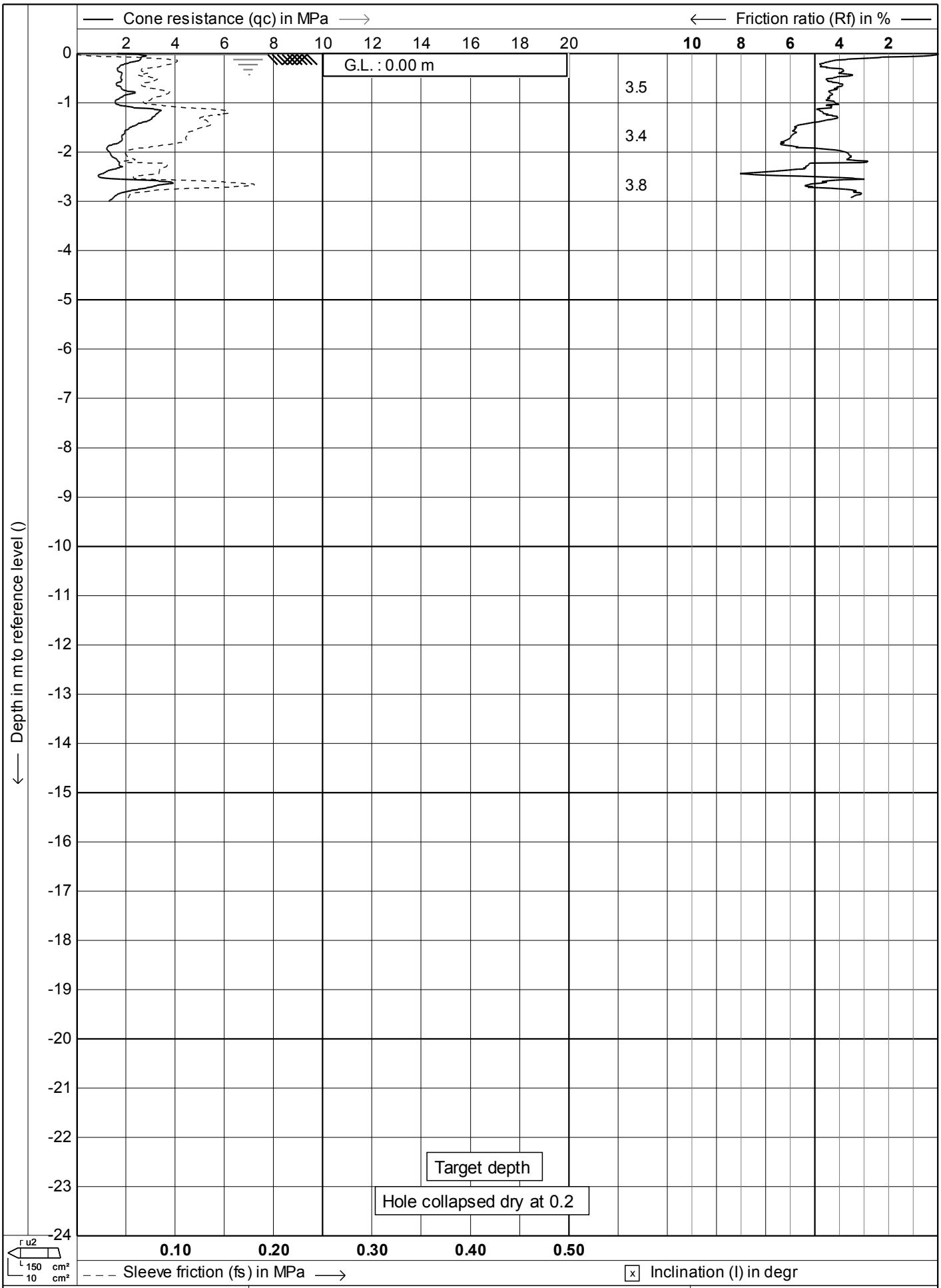
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **65**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

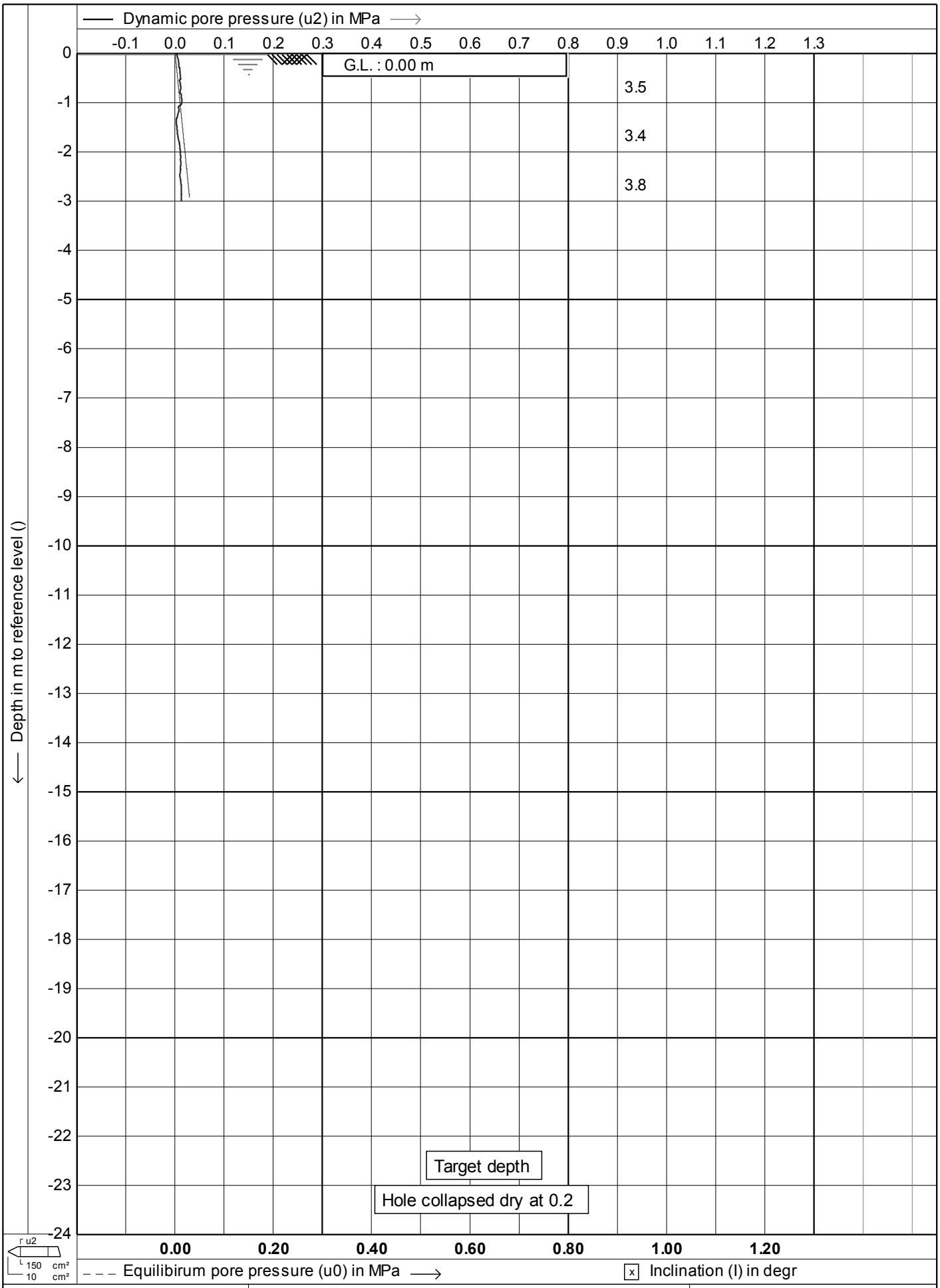
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **68** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

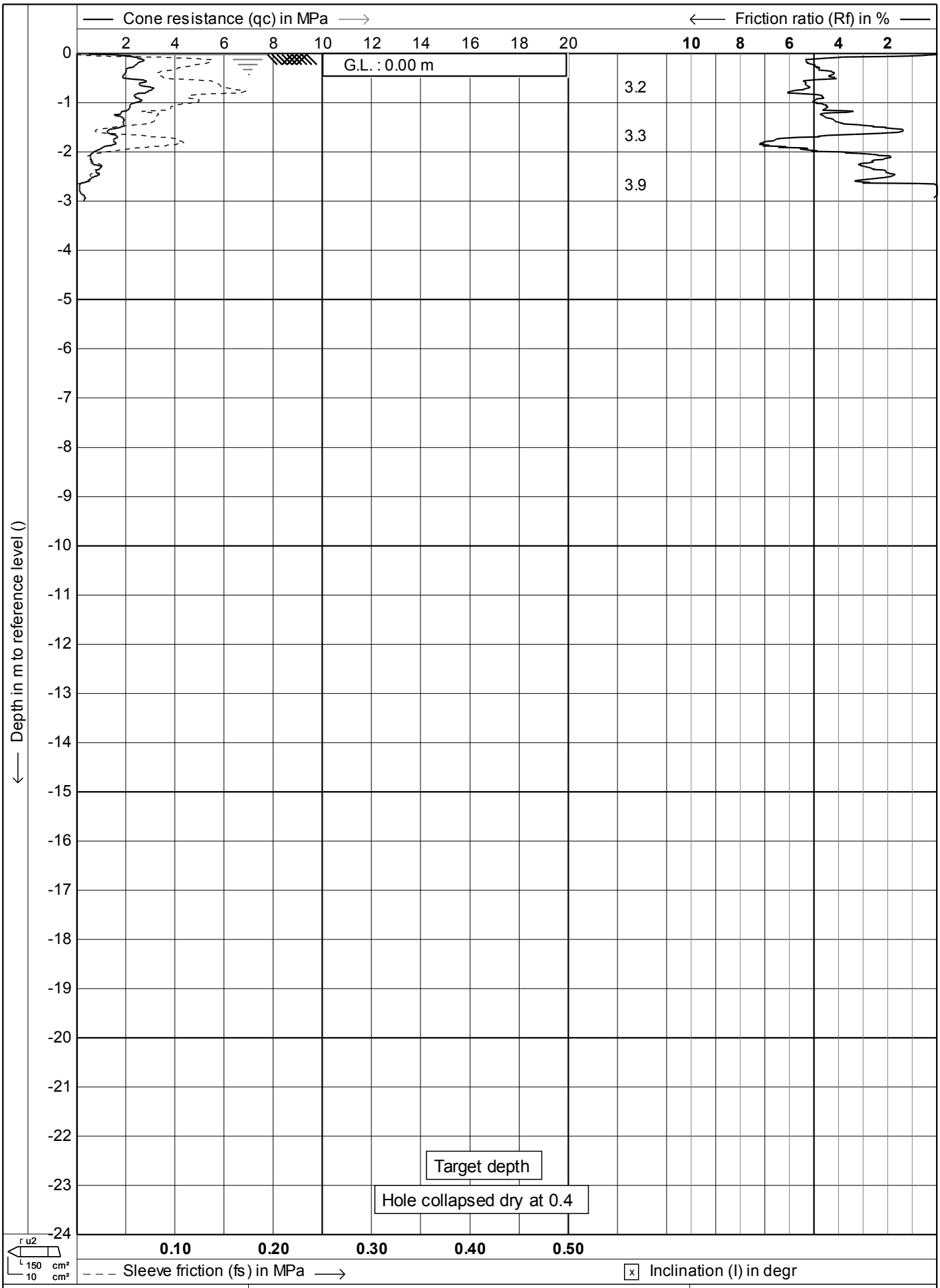
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **68**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

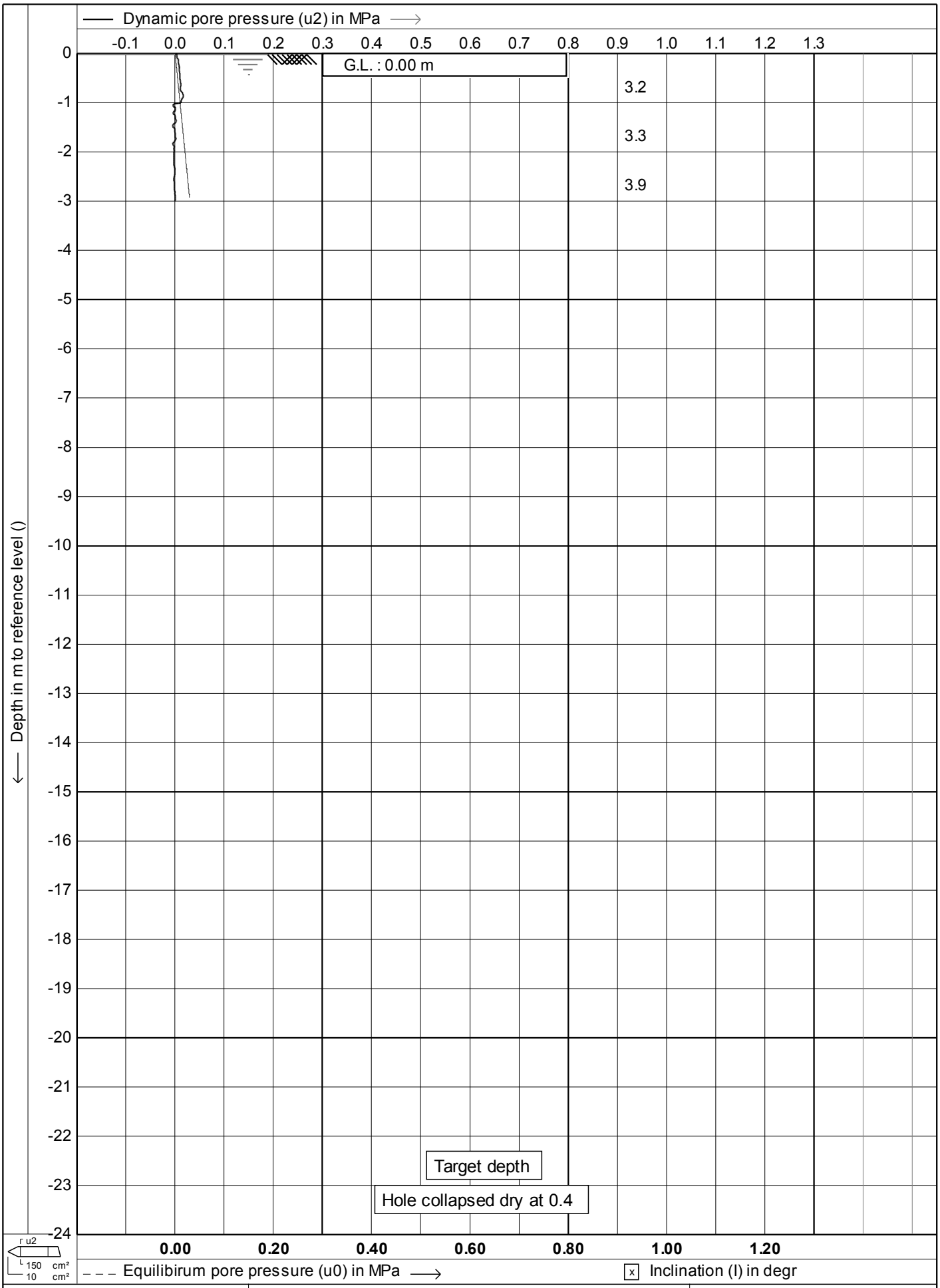
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **72** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

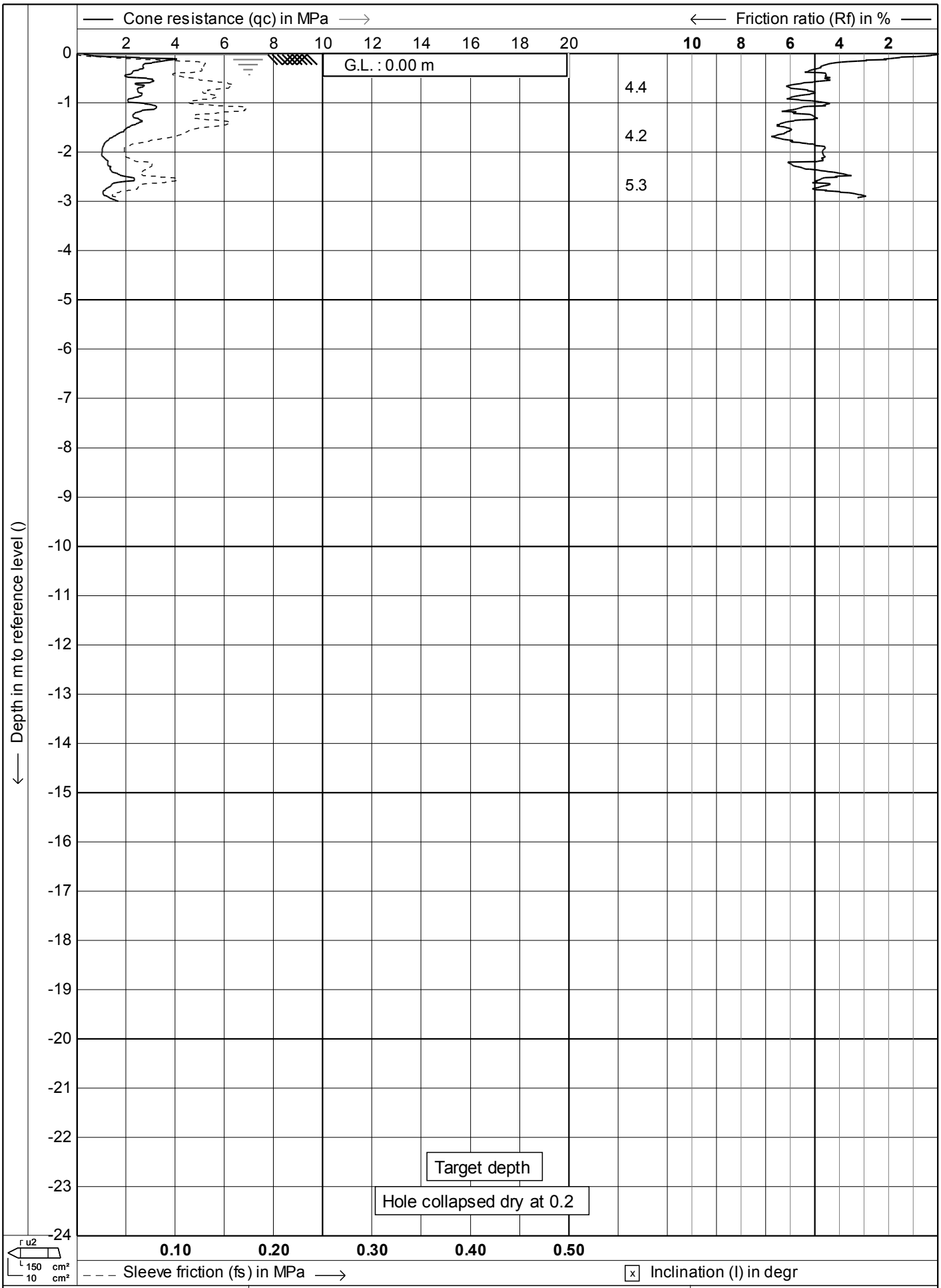
Location: **Swarbrick drive - Te Awamutu**

Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **72**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

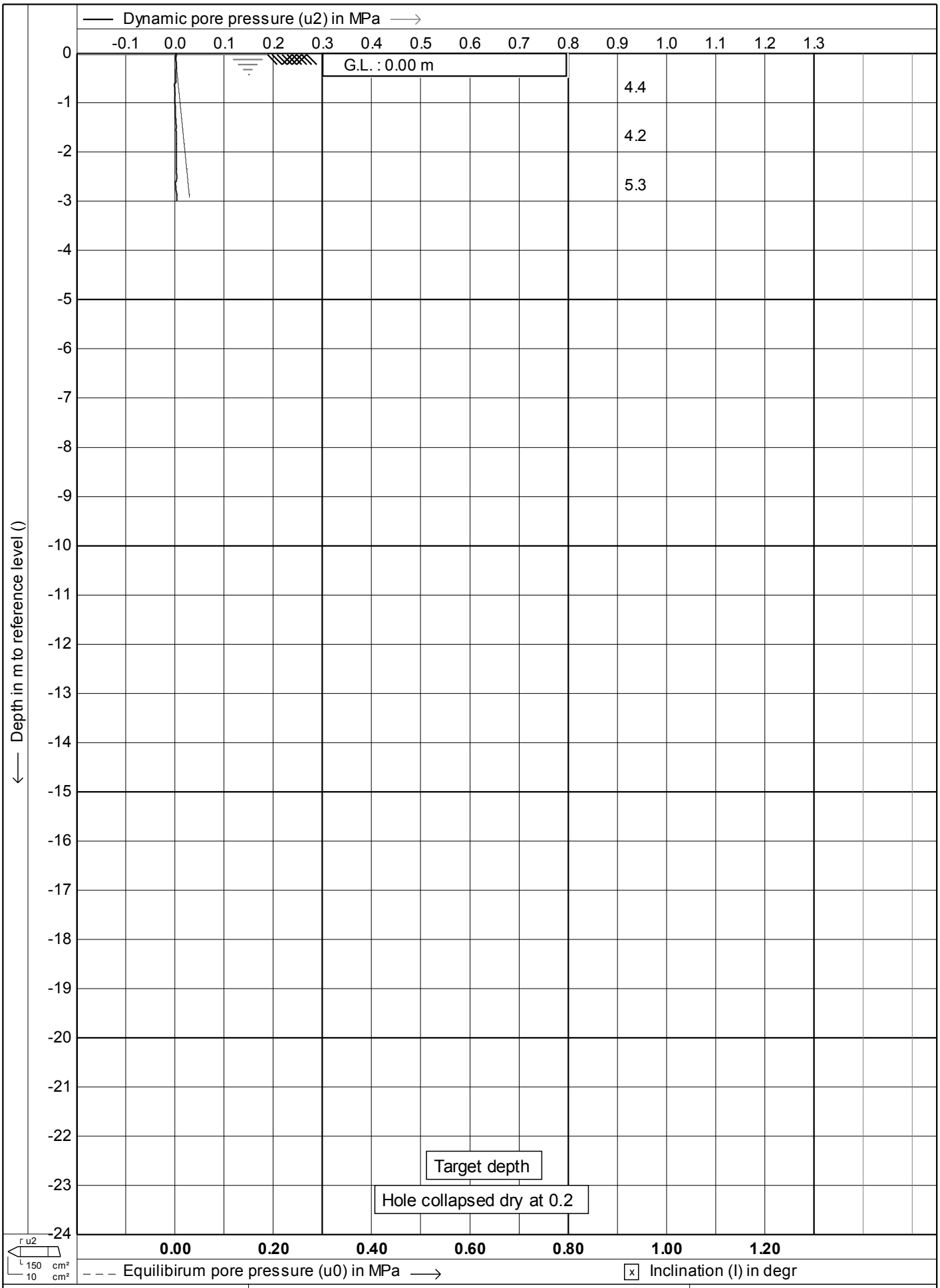
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **79** **1/14**

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick drive - Te Awamutu**

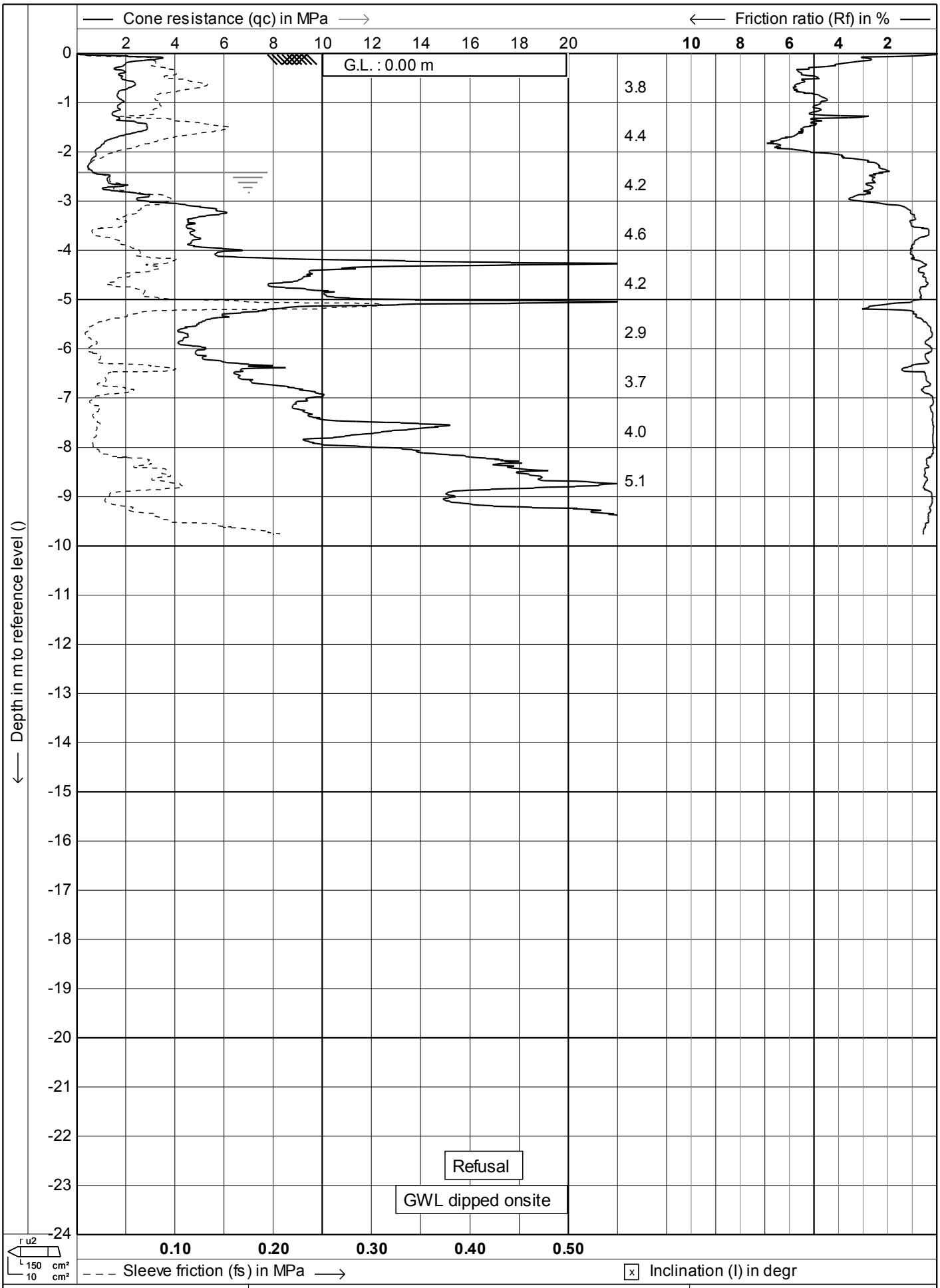
Date : **9-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY2**

CPT no. : **79**

2/14



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

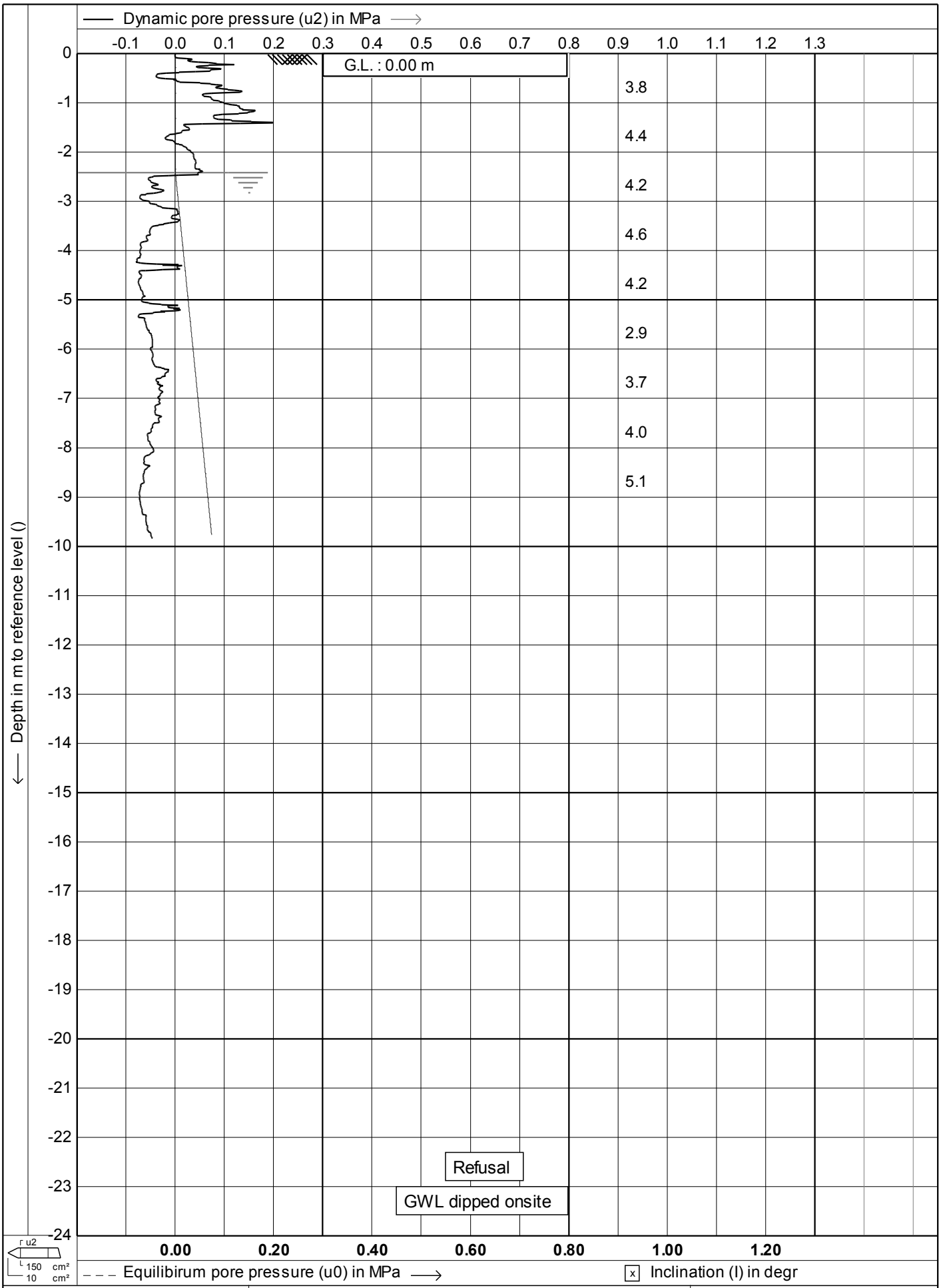
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **101** 1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

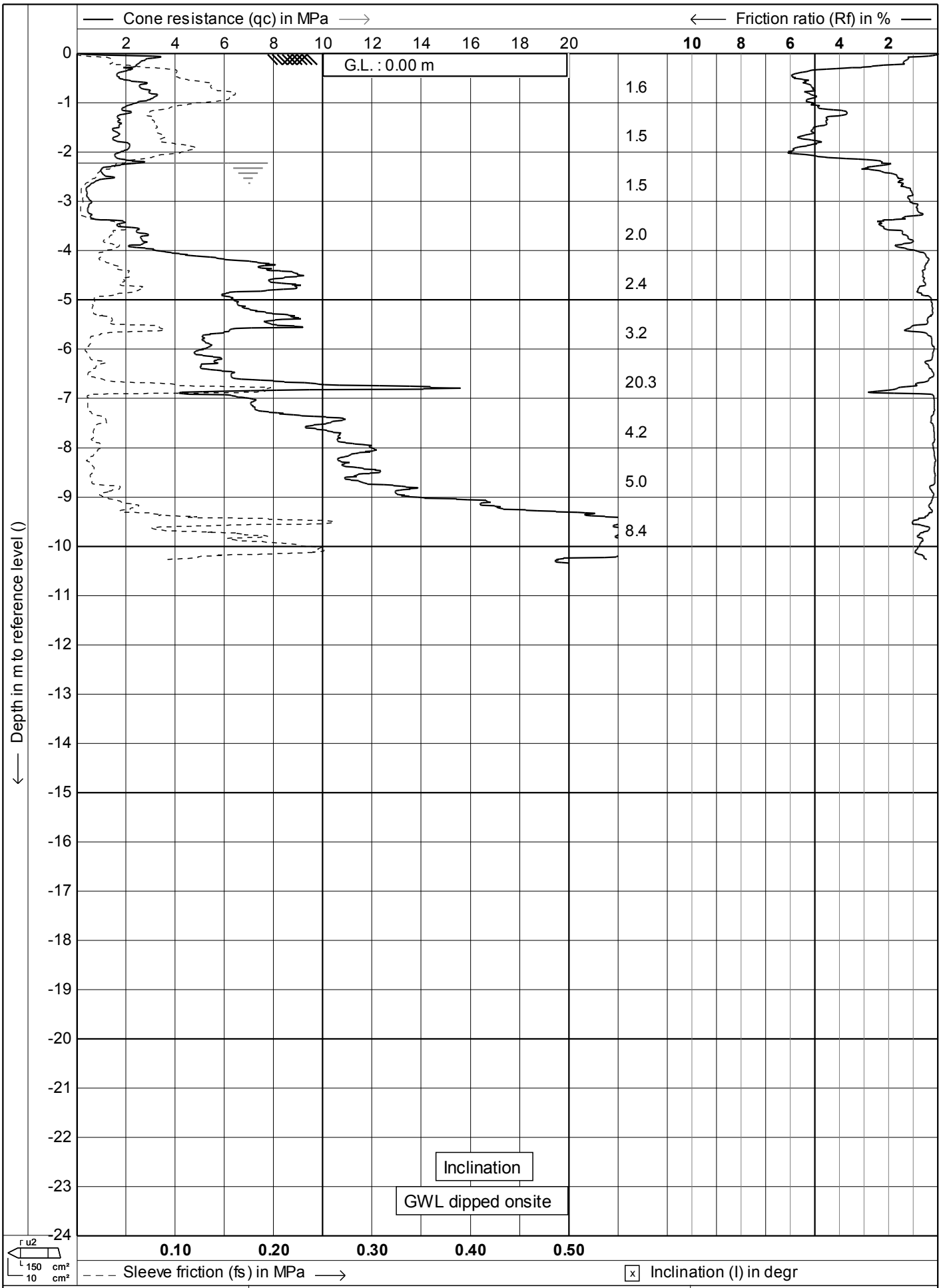
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **101**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

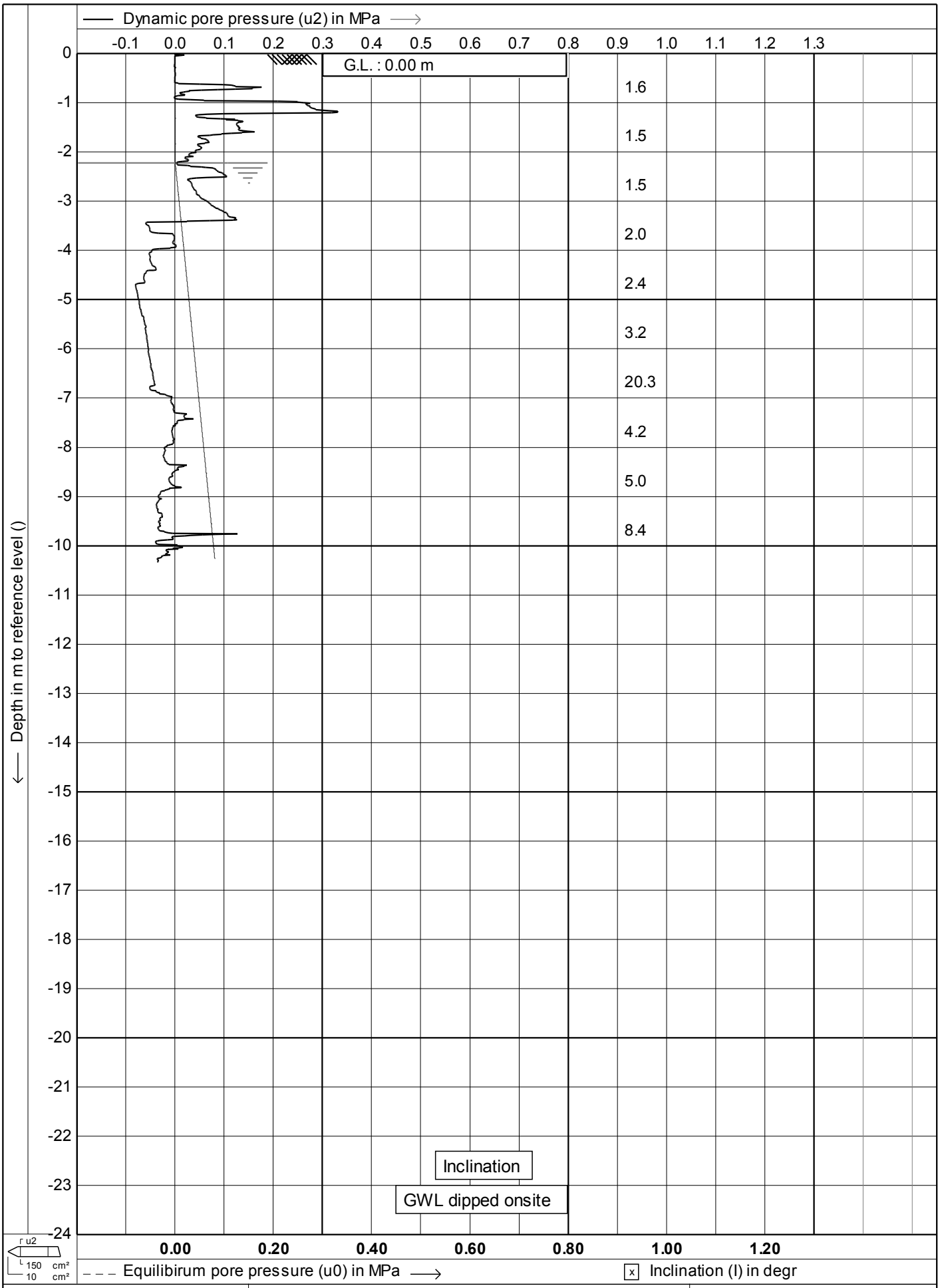
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **102** 1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

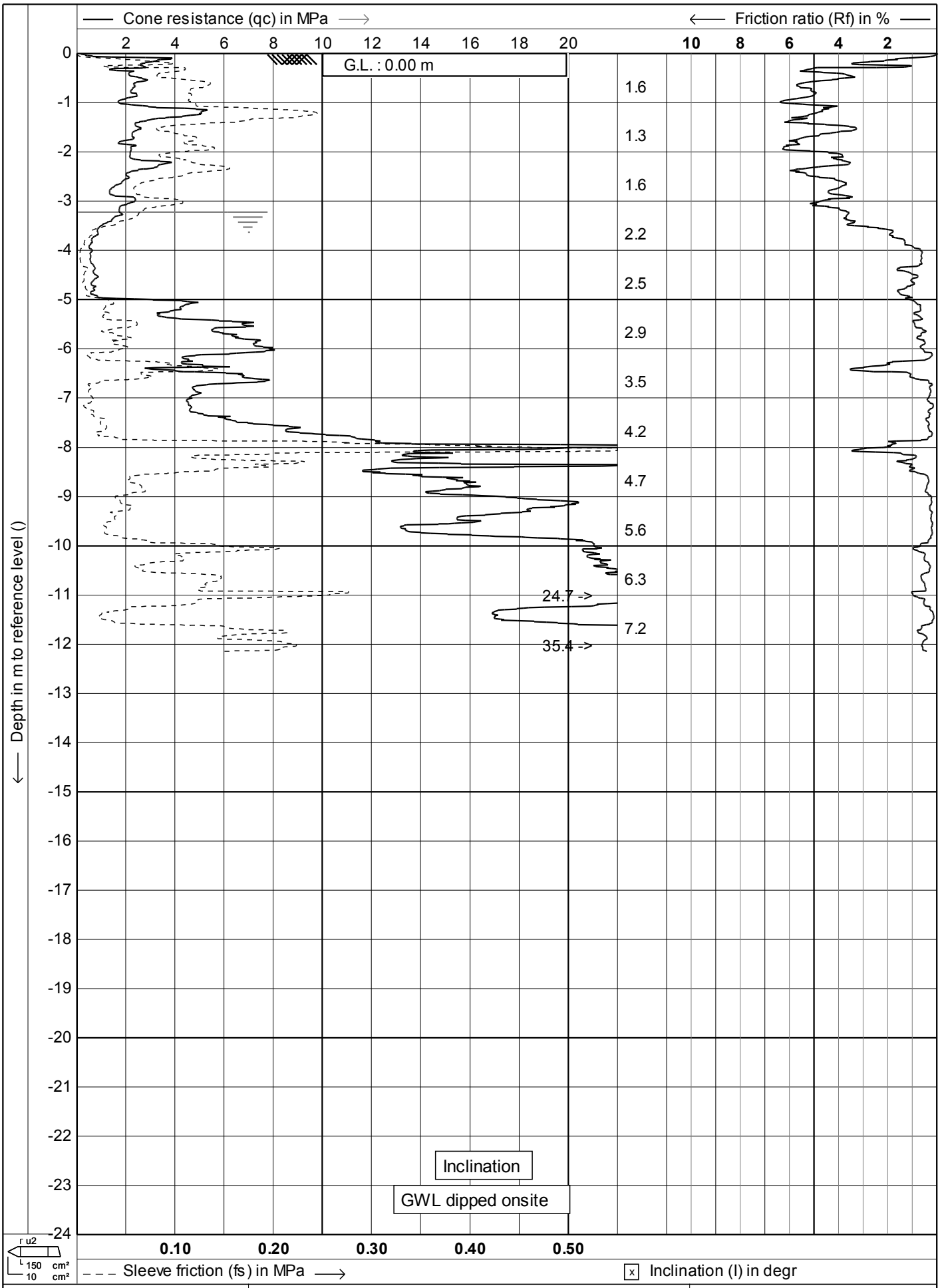
Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **102**



PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

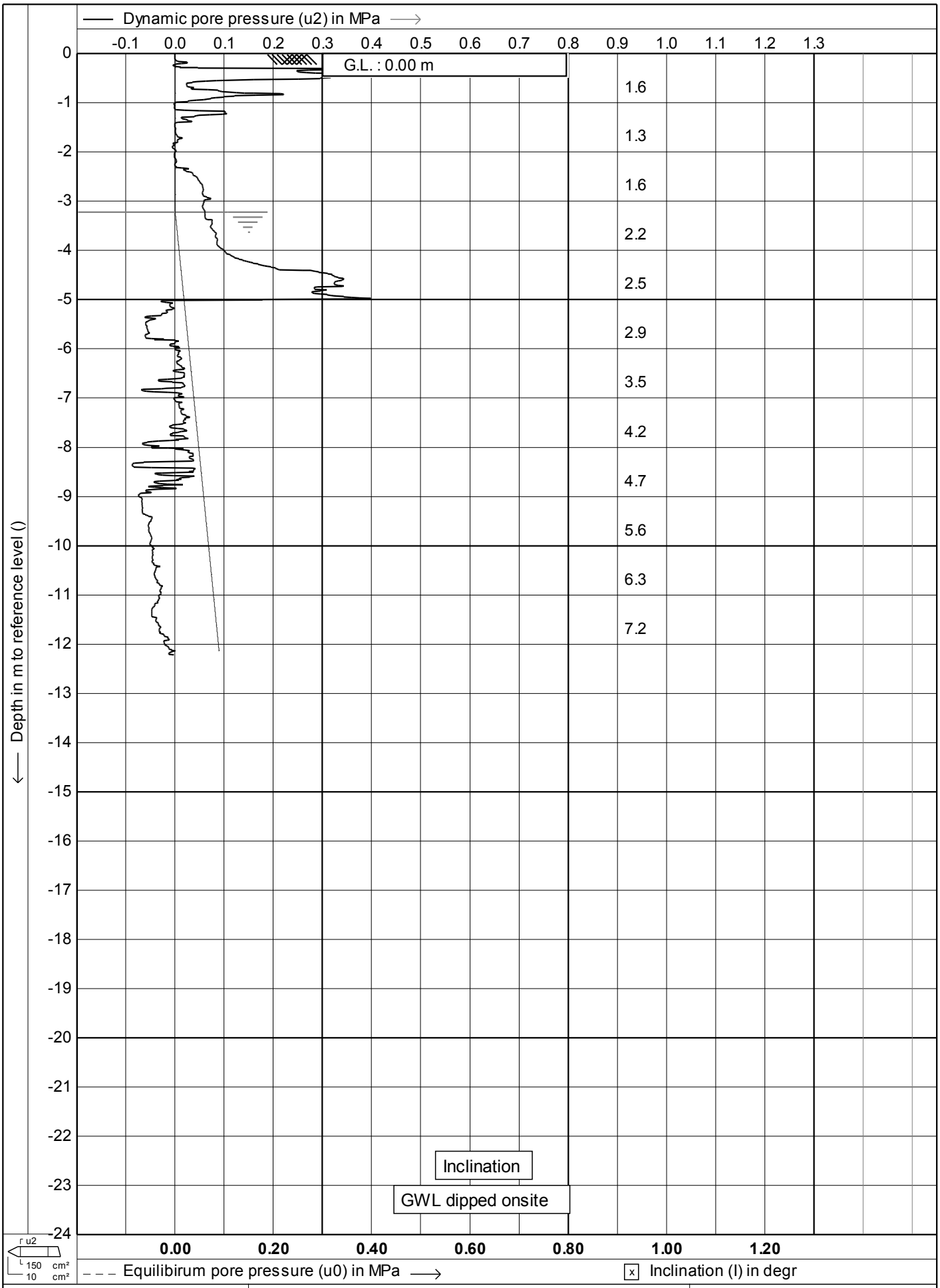
Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

Project no. : **02COFFEY1**

CPT no. : **103** 1/14

CPTask V1.33



CPTask V1.33

PERRY GEOTECH

Test according A.S.T.M. Standard D 5778-12

Project : **Site Investigation**

Location: **Swarbrick Drive - Te Awamutu**

Date : **4-3-2016**

Cone no. : **C10CFIIP.C14123**

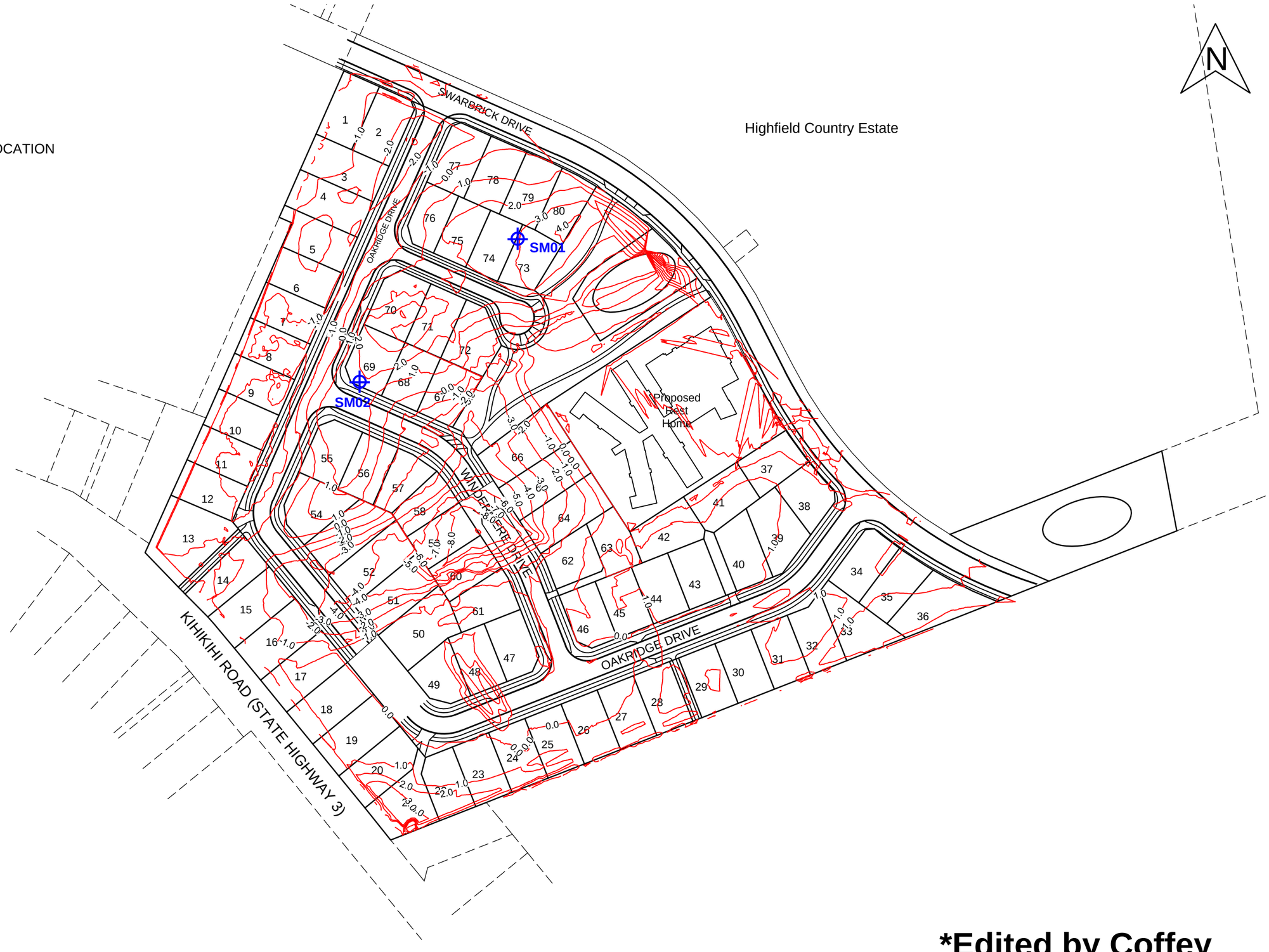
Project no. : **02COFFEY1**

CPT no. : **103**

Appendix E – Settlement Monitoring Locations

LEGEND

SM01 SETTLEMENT MARKER LOCATION



***Edited by Coffey**

RAD SURVEYING LIMITED

07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
troy@radsurveying.co.nz

CUT FILL MODEL
T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14/014

Sheet: 1 Version: 1

PREPARED FOR: OAKRIDGE DEVELOPMENTS LTD | SCALE: 1:2000 @ A3 | DATE: APRIL 2016

Designed. TDR 29 June 2014

File: SCHEME COPY.DWG

Appendix F – Approved Roadway Subgrade Locations and Test Data

LEGEND

SC01 DCP Test on Subgrade

SC15a DCP Re-Test on Subgrade

AREA OF ROADWAY SUBGRADE THAT HAS PASSED PROOF ROLL AND READY TO BE PAVED

AREA OF ROADWAY SUBGRADE THAT STILL NEEDS TO BE PROOF ROLLED AND RE-TESTED

LOCAL ROAD
SEAL LENGTH = 557.6m
ROAD RESERVE = 21.0 WIDE
CARRIAGEWAY WIDTH = 9.0m
LEFT BERM 1 = 2.0m WIDE 4%
LEFT FOOTPATH = 2.0m WIDE 1.5%
LEFT BERM 2 = 2.0m WIDE 4%
RIGHT BERM 1 = 2.0m WIDE 4%
FOOTPATH = 2.0m WIDE 1.5%
RIGHT BERM 2 = 2.0m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

AREA OF ROADWAY SUBGRADE THAT HAS PASSED PROOF ROLL AND READY TO BE PAVED

SWARBRICK DRIVE

KIHIKIHI ROAD (STATE HIGHWAY 3)

LOCAL ROAD (CULDESAC)
SEAL LENGTH = 254.7m
ROAD RESERVE = 15.0 WIDE
CARRIAGEWAY WIDTH = 6.0m
LEFT BERM 1 = 1.5m WIDE 4%
LEFT FOOTPATH = 1.5m WIDE 1.5%
LEFT BERM 2 = 1.5m WIDE 4%
RIGHT BERM 1 = 1.5m WIDE 4%
FOOTPATH = 1.5m WIDE 1.5%
RIGHT BERM 2 = 1.5m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

LOCAL ROAD
SEAL LENGTH = 557.6m
ROAD RESERVE = 21.0 WIDE
CARRIAGEWAY WIDTH = 9.0m
LEFT BERM 1 = 2.0m WIDE 4%
LEFT FOOTPATH = 2.0m WIDE 1.5%
LEFT BERM 2 = 2.0m WIDE 4%
RIGHT BERM 1 = 2.0m WIDE 4%
FOOTPATH = 2.0m WIDE 1.5%
RIGHT BERM 2 = 2.0m WIDE 4%
25mm HOT LAID ASPHALT WITH
VERTICAL KERB & CHANNEL BOTH SIDES
3% CROSSFALL

AREA OF ROADWAY SUBGRADE THAT STILL NEEDS TO BE PROOF ROLLED AND RE-TESTED

12
DP 483139

Highfield Country Estate

10
DP 483139
L.P.Res (Wastewater)

***Edited by Coffey**

RAD SURVEYING LIMITED
07 843 1587 027 411 8496
237 DIXON ROAD, RD 2 HAMILTON
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ENGINEERING PLAN - ROADING LAYOUT
PROPOSED T7 SUBDIVISION
SWARBRICK DRIVE, TE AWAMUTU

Client Reference: 14014

Sheet: RD1

Version: 3

PREPARED FOR: T7 PROPERTIES LTD

SCALE: 1:2000 @ A3

DATE: MARCH 2016

Designed. TDR 29 June 2014

File: T7 ENG ROAD 031016 STAGES 1 AND 2.DWG

PENETRATION RESISTANCE TEST RESULTS

NZS 4402:1988 TEST 6.5.2

Equivalent CBR Values using AUSTROADS Correlation

JOB NO	GENZHAMI14951AD
PROJECT	SWARBRICK DRIVE SUBDIVISION
CLIENT	T7 PROPERTIES LTD
MATERIAL / LAYER	ROAD SUBGRADE
DATE TESTED	14/03/2016 - 05/05/2016

Test No	SC01		SC02		SC03		SC03a		SC03b		SC03c	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	4	***8***	3	***6***	3	***6***	3	***6***	4	***8***	3	***6***
100 - 200	5	***10***	3	***6***	2	***4***	3	***6***	4	***8***	3	***6***
200 - 300	4	***8***	3	***6***	2	***4***	2	***4***	3	***6***	3	***6***
300 - 400	5	***10***	3	***6***	2	***4***	2	***4***	2	***4***	3	***6***
400 - 500	6	***13***	3	***6***	2	***4***	2	***4***	2	***4***	2	***4***
500 - 600	5	***10***	3	***6***	2	***4***	3	***6***	3	***6***	3	***6***
AVERAGE	5	***10***	3	***6***	2	***4***	2.4	***4***	2.8	***5***	2.8	***5***

Test No	SC03d		SC04		SC05		SC06		SC07		SC08	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	4	***8***	7	***15***	5	***10***	3	***6***	4	***8***	6	***13***
100 - 200	3	***6***	5	***10***	3	***6***	4	***8***	4	***8***	5	***10***
200 - 300	3	***6***	5	***10***	4	***8***	3	***6***	4	***8***	5	***10***
300 - 400	3	***6***	5	***10***	4	***8***	3	***6***	3	***6***	4	***8***
400 - 500	3	***6***	4	***8***	4	***8***	2	***4***	3	***6***	5	***10***
500 - 600	3	***6***	3	***6***	4	***8***	3	***6***	2	***4***	5	***10***
AVERAGE	3	***6***	4.4	***9***	3.8	***8***	3	***6***	3.2	***6***	4.8	***10***

coffey geotechnics

141 Cameron Road
Tauranga 3110

TESTED BY SC/SWH/NM

CHECKED LC

PENETRATION RESISTANCE TEST RESULTS

NZS 4402:1988 TEST 6.5.2

Equivalent CBR Values using AUSTROADS Correlation

JOB NO	GENZHAMI14951AD
PROJECT	SWARBRICK DRIVE SUBDIVISION
CLIENT	T7 PROPERTIES LTD
MATERIAL / LAYER	ROAD SUBGRADE
DATE TESTED	14/03/2016 - 05/05/2016

Test No	SC09		SC10		SC010a		SC10b		SC11		SC11a	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	6	***13***	3	***6***	7	***15***	2	***4***	2	***4***	3	***6***
100 - 200	3	***6***	3	***6***	4	***8***	3	***6***	2	***4***	4	***8***
200 - 300	2	***4***	2	***4***	3	***6***	4	***8***	2	***4***	2	***4***
300 - 400	3	***6***	3	***6***	3	***6***	4	***8***	3	***6***	3	***6***
400 - 500	2	***4***	2	***4***	4	***8***	4	***8***	3	***6***	3	***6***
500 - 600	2	***4***	3	***6***	4	***8***	4	***8***	2	***4***	4	***8***
AVERAGE	2.4	***4***	2.6	***5***	3.6	***7***	3.8	***8***	2.4	***4***	3.2	***6***

Test No	SC11b		SC11c		SC12		SC13		SC14		SC14a	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	3	***6***	2	***4***	3	***6***	5	***10***	2	***4***	9	***20***
100 - 200	2	***4***	3	***6***	4	***8***	6	***13***	2	***4***	6	***13***
200 - 300	3	***6***	3	***6***	4	***8***	4	***8***	2	***4***	5	***10***
300 - 400	3	***6***	3	***6***	4	***8***	3	***6***	2	***4***	4	***8***
400 - 500	3	***6***	3	***6***	2	***4***	3	***6***	3	***6***	4	***8***
500 - 600	4	***8***	3	***6***	2	***4***	2	***4***	2	***4***	3	***6***
AVERAGE	3	***6***	3	***6***	3.2	***6***	3.6	***7***	2.2	***4***	4.4	***9***

coffey geotechnics

141 Cameron Road
Tauranga 3110

TESTED BY SC/SWH/NM

CHECKED LC

PENETRATION RESISTANCE TEST RESULTS

NZS 4402:1988 TEST 6.5.2

Equivalent CBR Values using AUSTROADS Correlation

JOB NO	GENZHAMI14951AD
PROJECT	SWARBRICK DRIVE SUBDIVISION
CLIENT	T7 PROPERTIES LTD
MATERIAL / LAYER	ROAD SUBGRADE
DATE TESTED	14/03/2016 - 05/05/2016

Test No	SC14b		SC15		SC15a		SC15b		SC15c		SC16	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	7	***15***	2	***4***	3	***6***	3	***6***	2	***4***	2	***4***
100 - 200	7	***15***	2	***4***	2	***4***	3	***6***	3	***6***	2	***4***
200 - 300	4	***8***	3	***6***	2	***4***	3	***6***	3	***6***	1	***2***
300 - 400	4	***8***	3	***6***	3	***6***	3	***6***	3	***6***	2	***4***
400 - 500	3	***6***	3	***6***	2	***4***	3	***6***	3	***6***	2	***4***
500 - 600	3	***6***	4	***8***	2	***4***	3	***6***	3	***6***	3	***6***
AVERAGE	4.2	***8***	3	***6***	2.2	***4***	3	***6***	3	***6***	2	***4***

Test No	SC16a		SC16b		SC37		SC38		SC39		SC39a	
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	2	***4***	8	***17***	5	***10***	8	***17***	4	***8***	8	***17***
100 - 200	1	***2***	7	***15***	3	***6***	4	***8***	3	***6***	5	***10***
200 - 300	2	***4***	5	***10***	3	***6***	3	***6***	3	***6***	6	***13***
300 - 400	2	***4***	3	***6***	3	***6***	3	***6***	3	***6***	5	***10***
400 - 500	2	***4***	3	***6***	4	***8***	4	***8***	2	***4***	4	***8***
500 - 600	2	***4***	4	***8***	3	***6***	4	***8***	3	***6***	3	***6***
AVERAGE	1.8	***3***	4.4	***9***	3.2	***6***	3.6	***7***	2.8	***5***	4.6	***9***

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141 Cameron Road
Tauranga 3110

TESTED BY SC/SWH/NM

CHECKED LC

PENETRATION RESISTANCE TEST RESULTS

NZS 4402:1988 TEST 6.5.2

Equivalent CBR Values using AUSTROADS Correlation

JOB NO	GENZHAMI14951AD
PROJECT	SWARBRICK DRIVE SUBDIVISION
CLIENT	T7 PROPERTIES LTD
MATERIAL / LAYER	ROAD SUBGRADE
DATE TESTED	14/03/2016 - 05/05/2016

Test No	SC39b		SC40		SC41		SC42		SC43			
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100	3	***6***	10	***20+***	6	***13***	4	***8***	8	***17***		
100 - 200	3	***6***	8	***17***	8	***17***	5	***10***	6	***13***		
200 - 300	4	***8***	9	***20***	7	***15***	3	***6***	4	***8***		
300 - 400	3	***6***	5	***10***	5	***10***	3	***6***	4	***8***		
400 - 500	3	***6***	5	***10***	4	***8***	4	***8***	4	***8***		
500 - 600	3	***6***	6	***13***	4	***8***	4	***8***	4	***8***		
AVERAGE	3.2	***6***	6.6	***14***	5.6	***12***	3.8	***8***	4.4	***9***		

Test No												
Test Area	SWARBRICK DRIVE											
Test Location	ROAD SUBGRADE											
Test Depth	600mm											
Depth Range mm	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***	No of Blows	***Equiv CBR***
0 - 100												
100 - 200												
200 - 300												
300 - 400												
400 - 500												
500 - 600												
AVERAGE												

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Tauranga 3110

TESTED BY SC/SWH/NM
CHECKED LC

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