Appendix E: Instrumentation Information

Instrumentation Photo Exhibit

A: Standard distal end of SAAV

B: Typical 2-foot pipe extension used at LT-1, LT-2, LT-3, and LT-6

A: Typical PVC casing installation prior to SAAV installation

B: Installation verification of SAAV

A: SAAV fully installed in PVC casing

B: Protractor to determine offset of x-mark from expected direction of movement

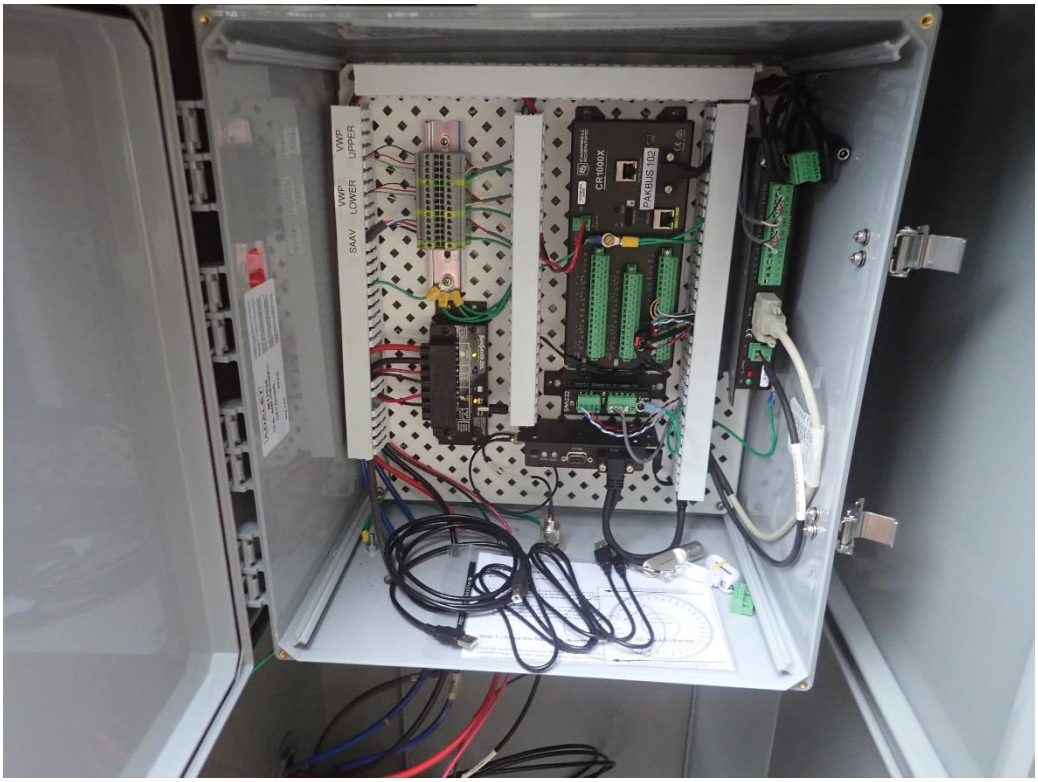
A: Typical monument completion with instrument cables routed

B: Typical monument completion housing SAAV and VWP cables

A: Typical instrumentation installation: free-standing enclosure with solar panel (LT-9)

B: Typical instrumentation installation (LT-9)

A: Typical free-standing enclosure installation with batteries and secondary enclosure

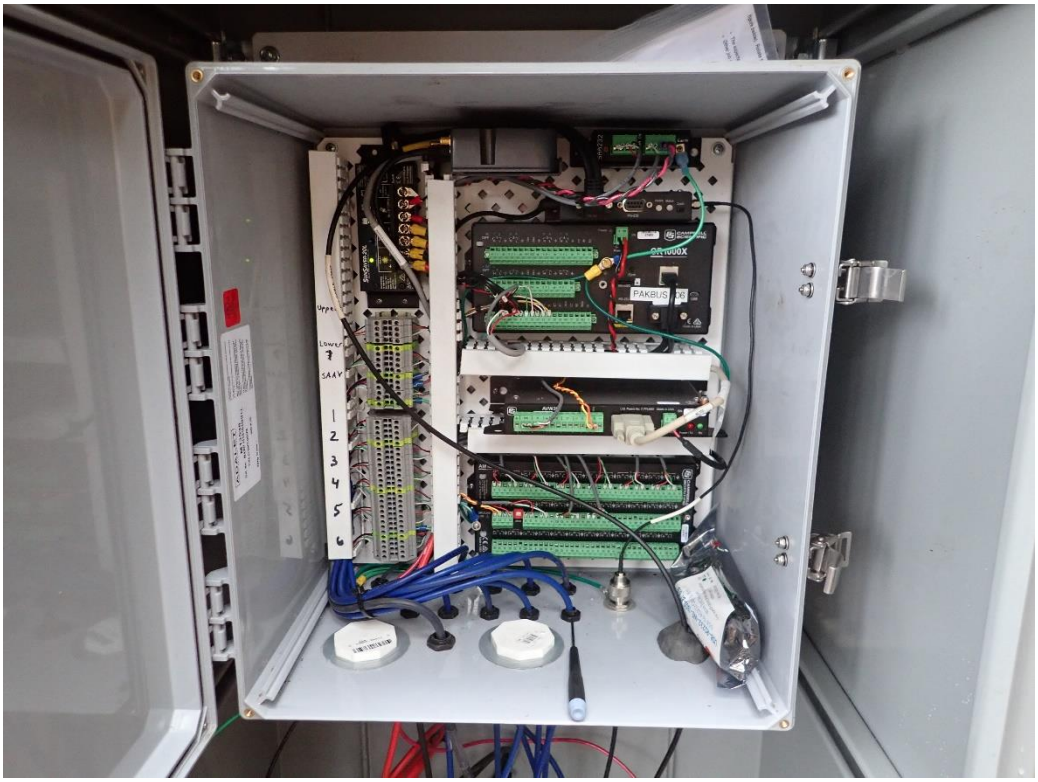


B: Typical secondary enclosure with data logging hardware

A: Base station installation at LT-6 (view looking east)

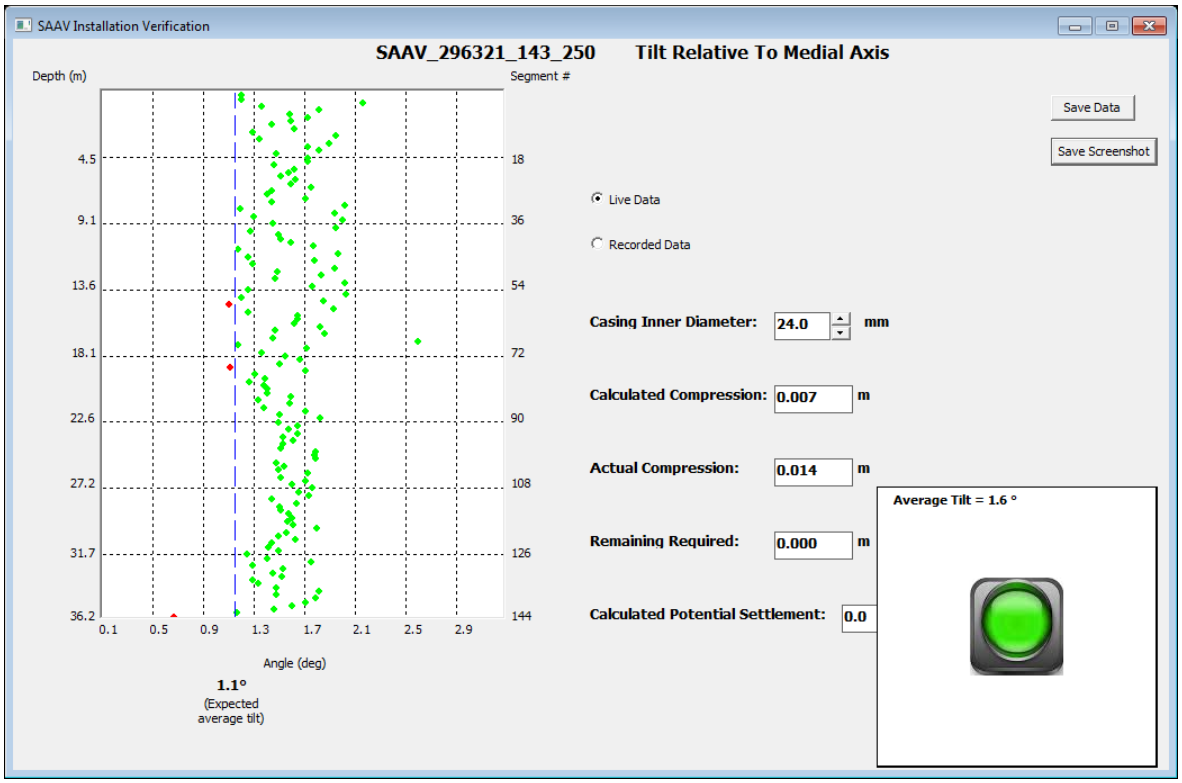
B: Base station installation at LT-6 (view looking west)

A: Inside free-standing enclosure of base station installation at LT-6

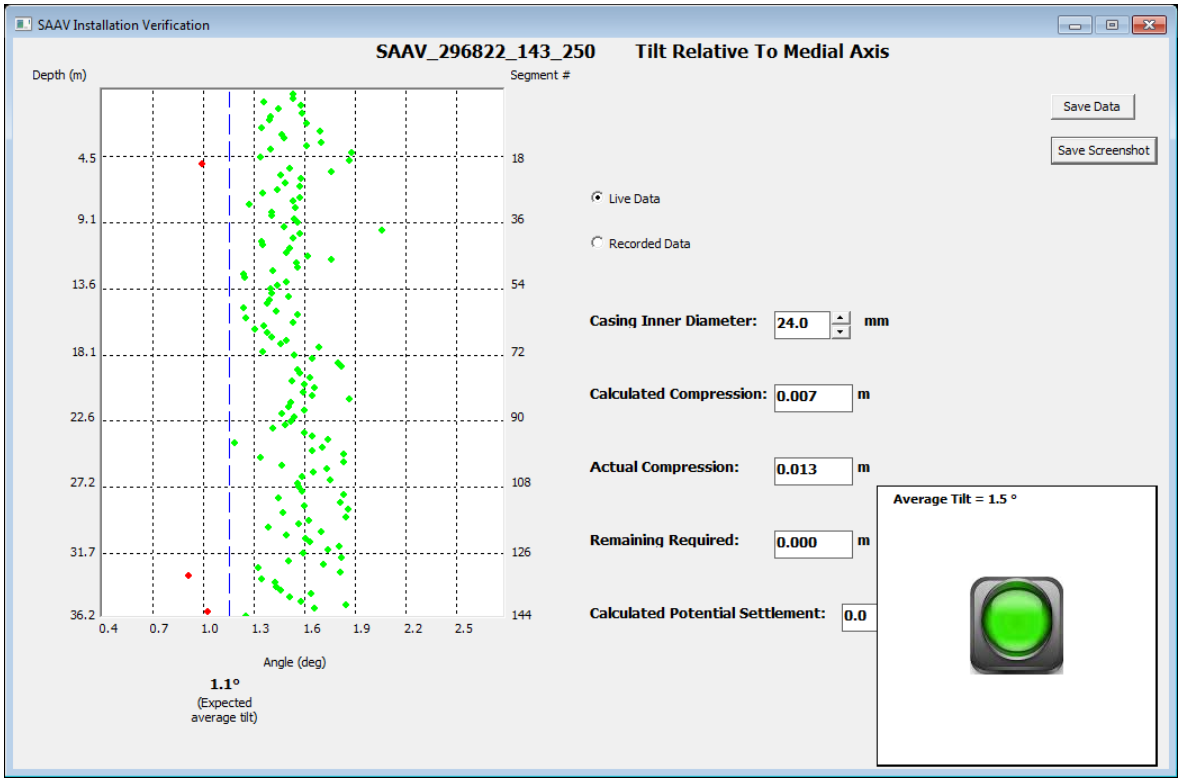


B: Base station secondary enclosure with data logging hardware

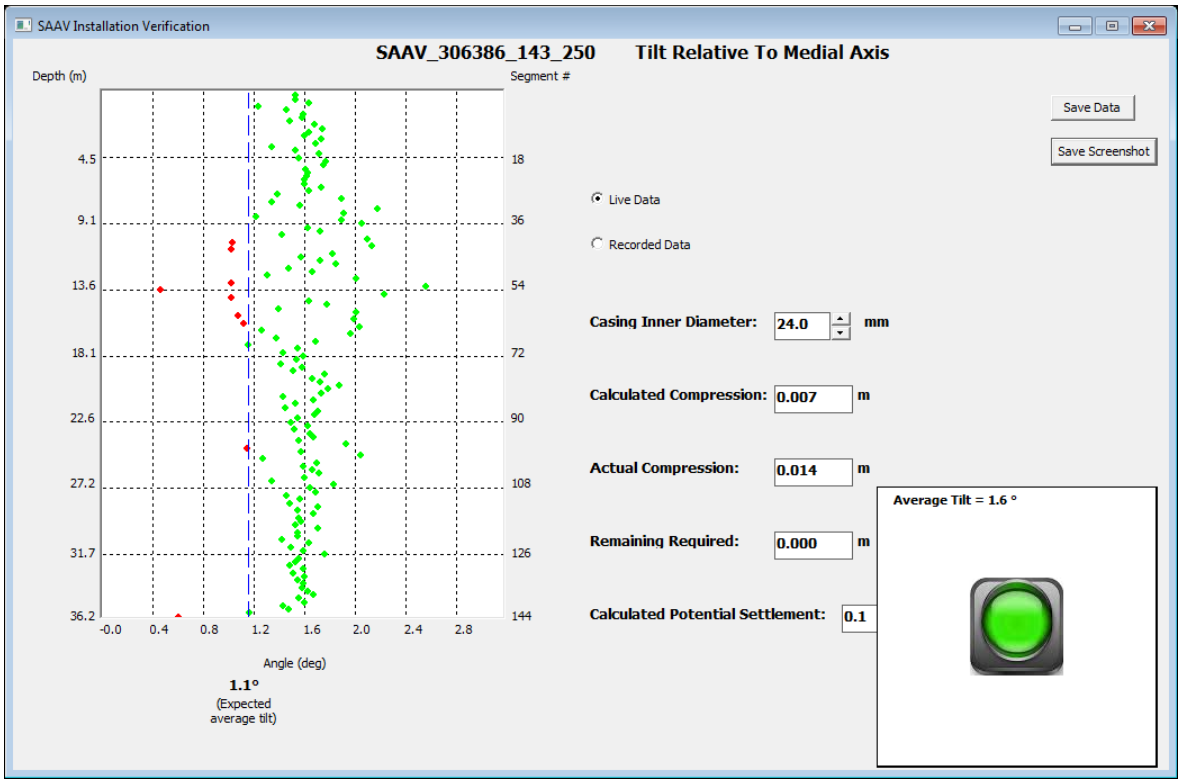
ShapeArray Installation Verification



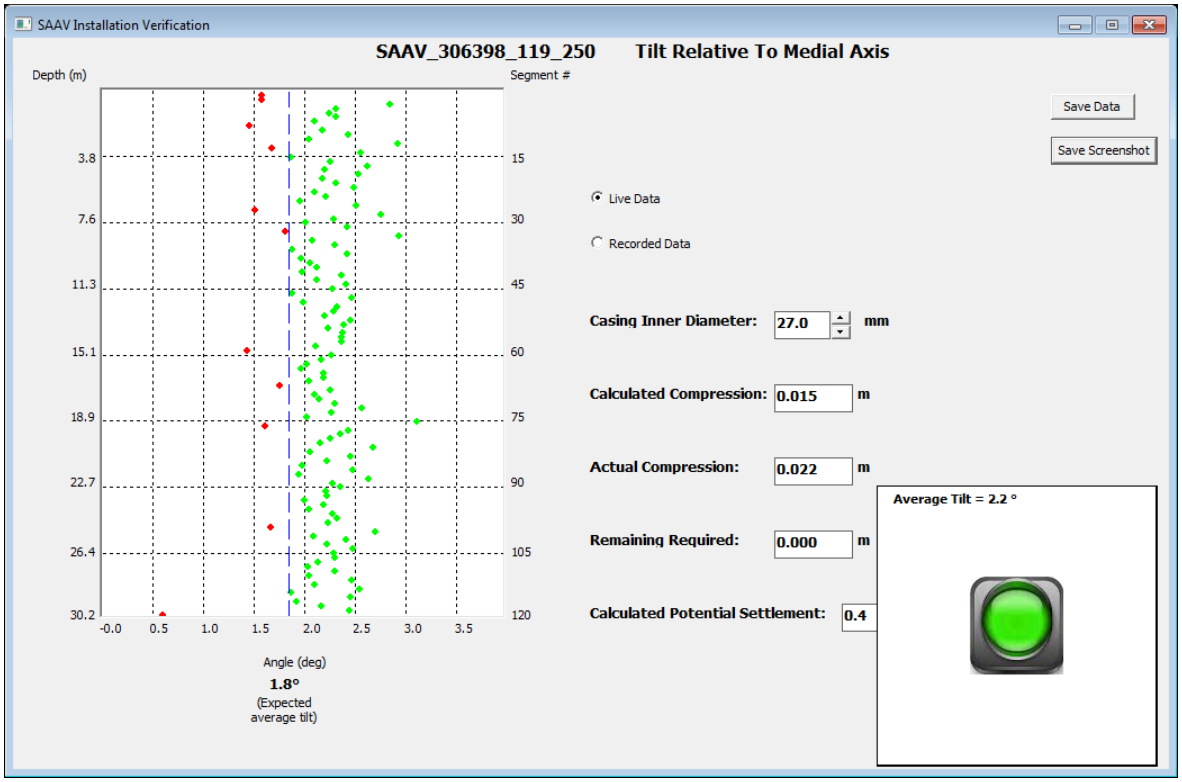
A: LT-1 SAAV installation verification



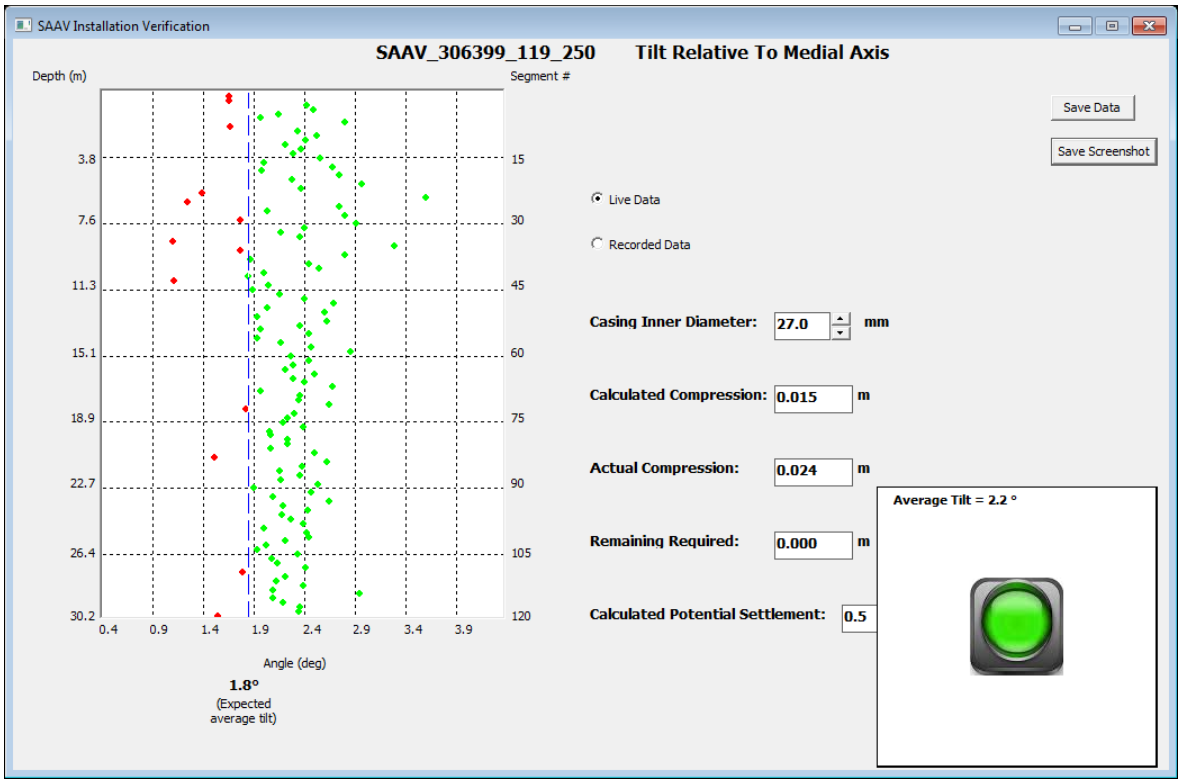
B: LT-2 SAAV installation verification



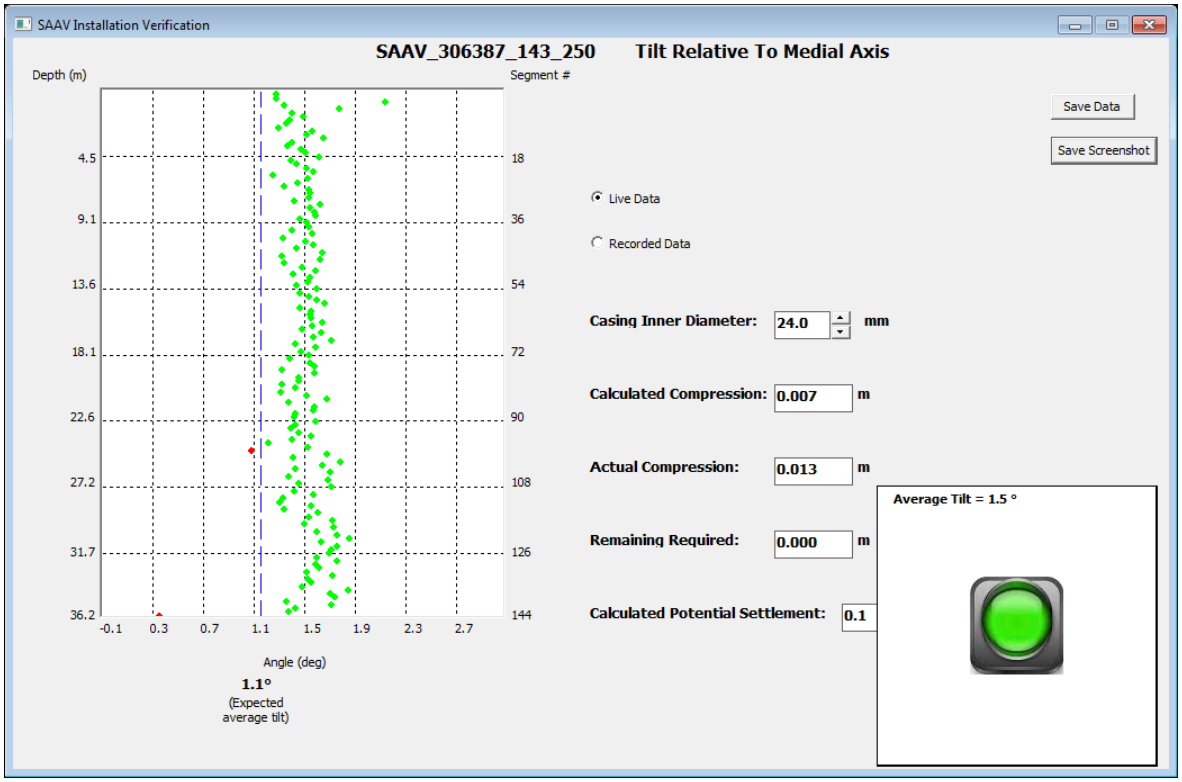
A: LT-3 SAAV installation verification



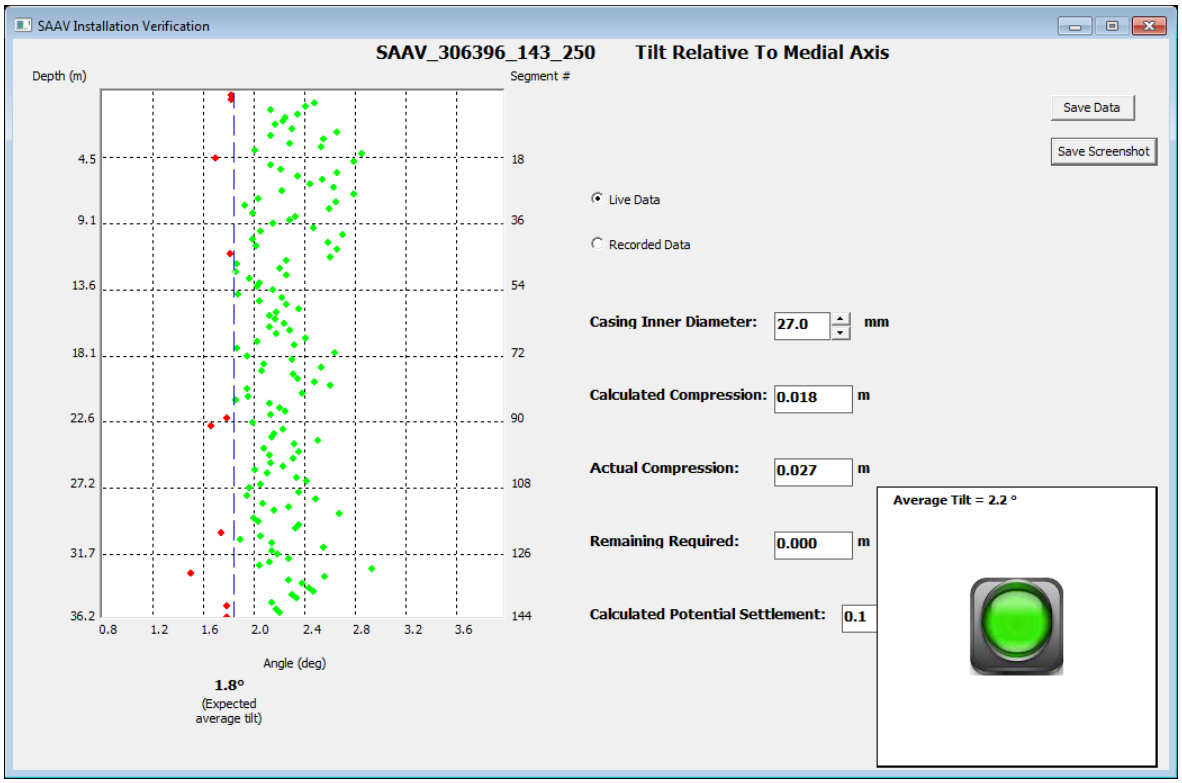
B: LT-4 SAAV installation verification



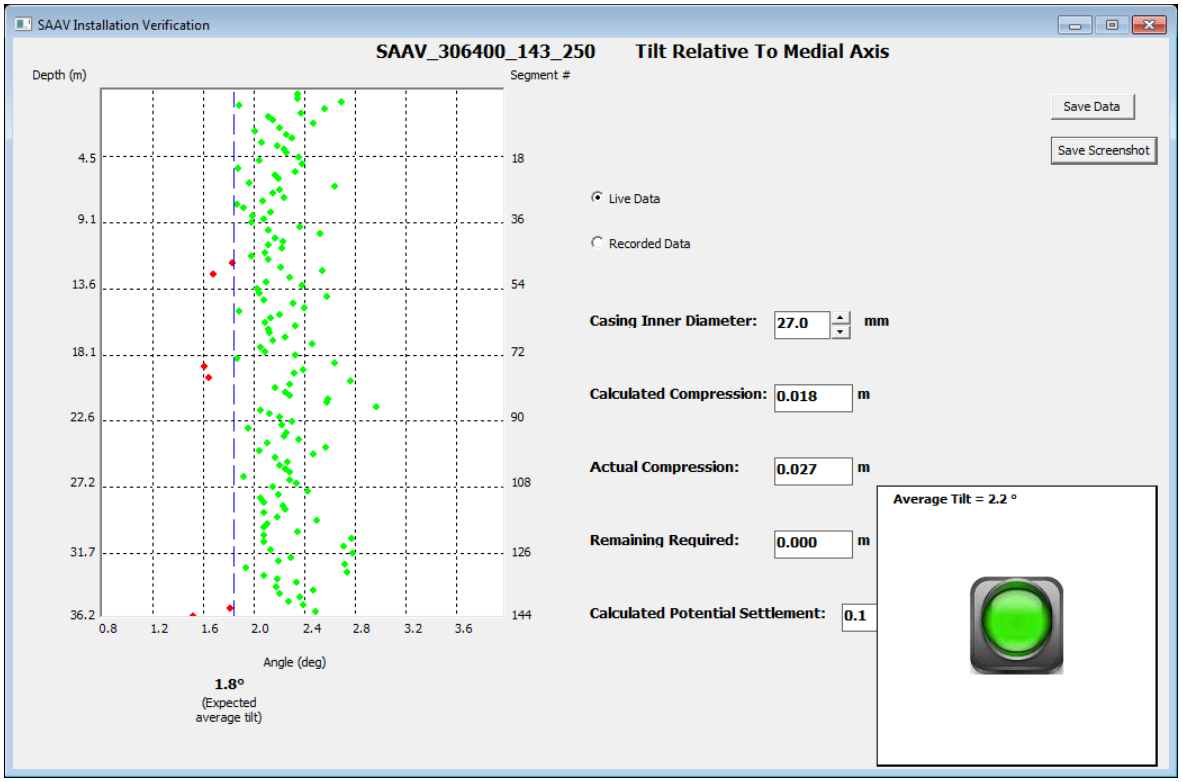
A: LT-5 SAAV installation verification



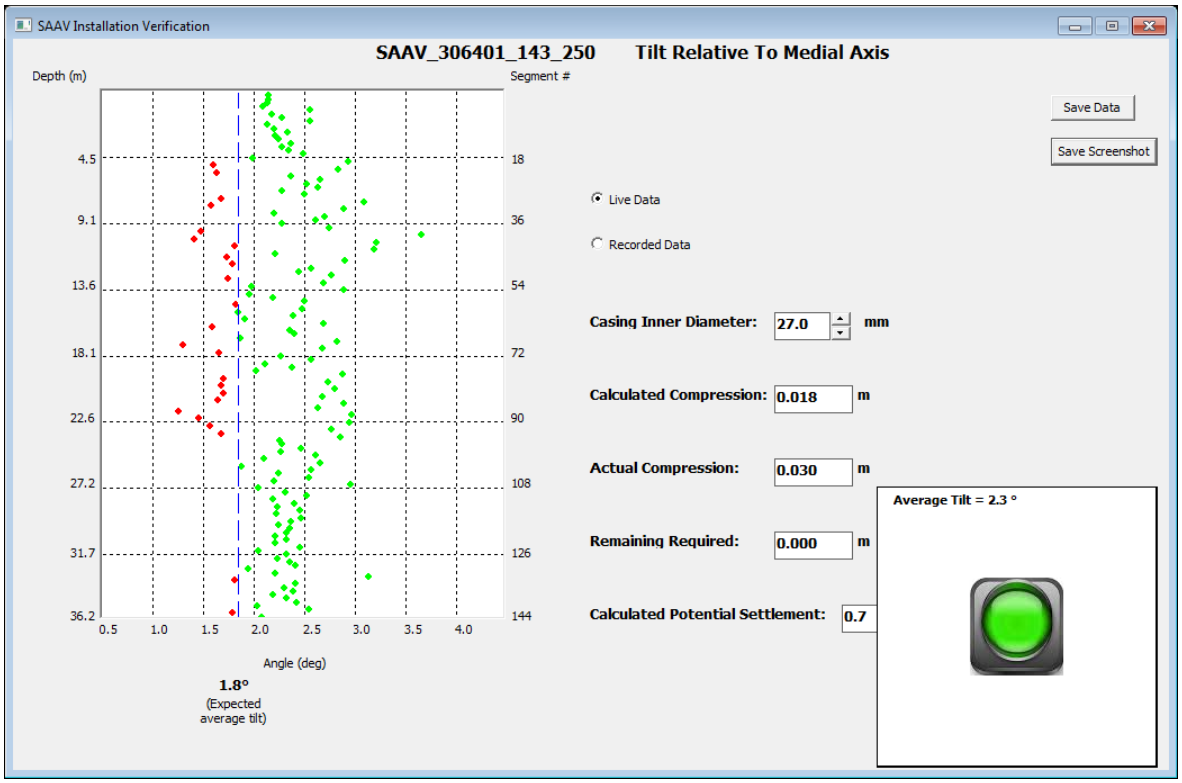
B: LT-6 SAAV installation verification



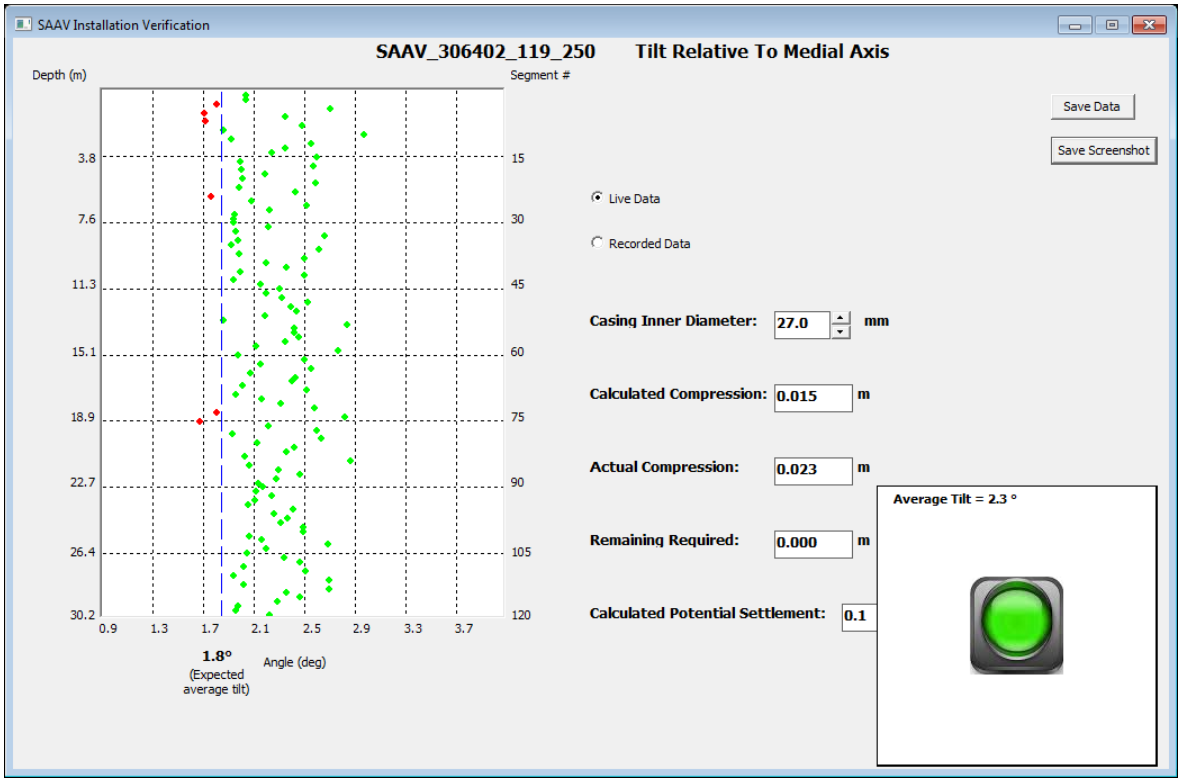
A: LT-7 SAAV installation verification



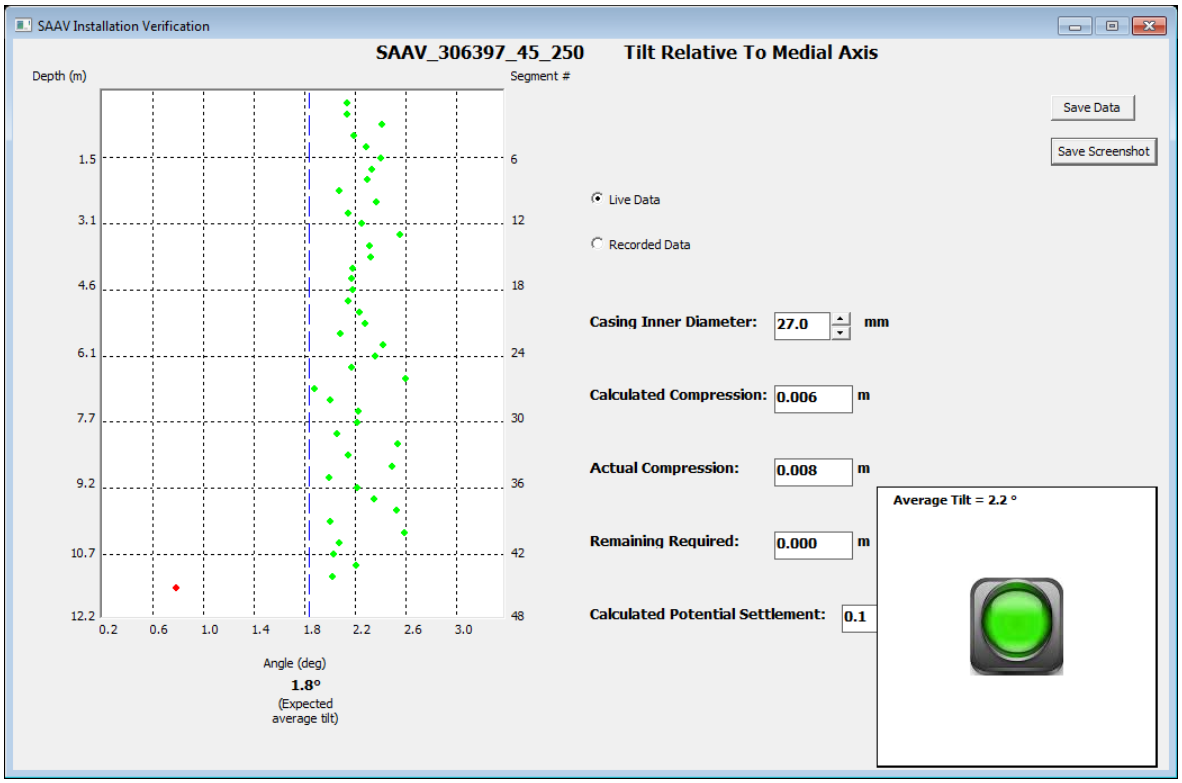
B: LT-8 SAAV installation verification



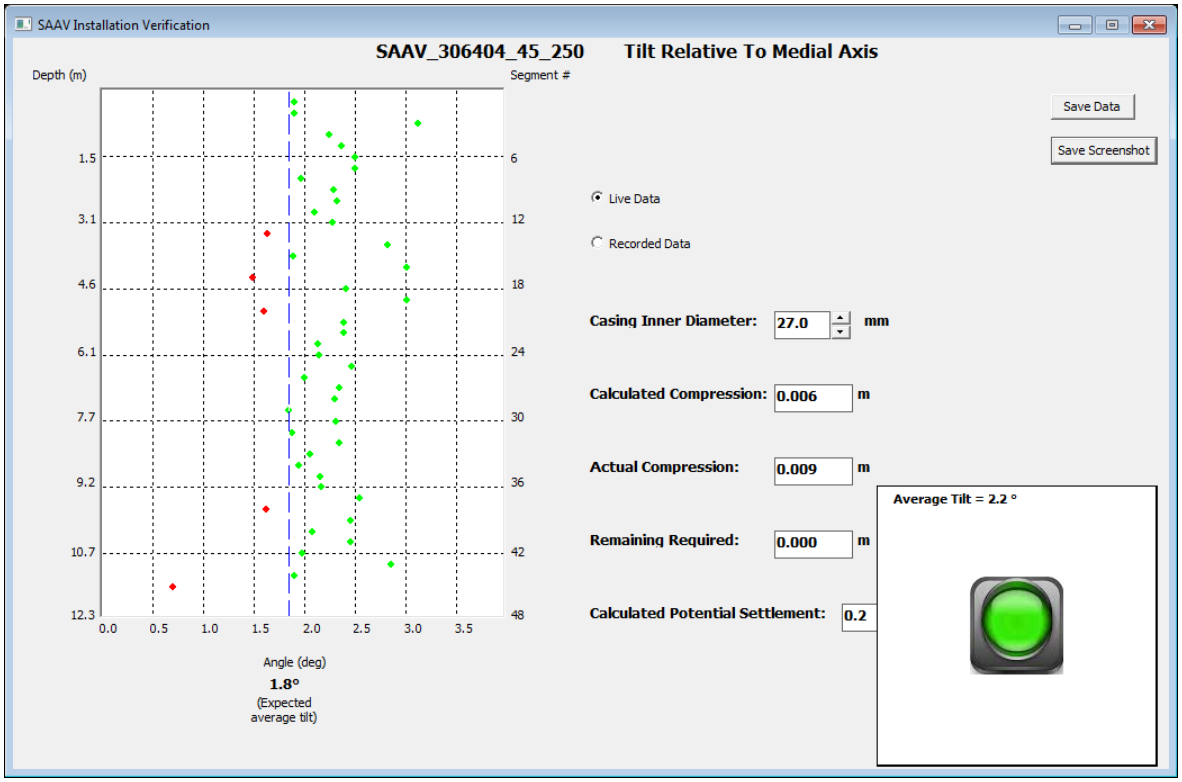
A: LT-9 SAAV installation verification



B: LT-10 SAAV installation verification



A: LT-11 SAAV installation verification



B: LT-12 SAAV installation verification

ShapeArray Installation Logs

Client BH ID: AKDoT
Project: Beach Road Landslide
Project Number: 2930
Structure ID: LT-1

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allender **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 296321

ShapeArray Length 117.3 ft **Borehole Length** 123.5 ft

Casing Inner Diameter 24.0 mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC (SAA + pre-installed PVC) SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 2.6 ft

Overall Cable Length 45 feet

Azimuth obtained through SAA Protractor (degrees) 16°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 9/16/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instunat Install Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source Solar **Size of Battery** 75 amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: CT-2

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kozlofsky / Logan Allender **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 29822

ShapeArray Length 117.3 **Borehole Length** 122.5 ft

Casing Inner Diameter 24.0

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, SAA + pre-installed PVC, SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 3.6ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 0°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 9/1/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Inst. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000x

Power Source **Size of Battery** 75 amp x 2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-3

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allen **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306386

ShapeArray Length 117.3 **Borehole Length** 122.5 ft

Casing Inner Diameter 2in

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 2.3ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 20°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 9/8/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Inst. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000x

Power Source **Size of Battery** 75 amp x 2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Brack Rd Landslide
Project Number: 2930
Structure ID: CT-4

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kostolitsky / Logan Allard **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306398

ShapeArray Length 97.6 ft **Borehole Length** 102 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, SAA + pre-installed PVC, SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 3.55 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 0°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 10/11/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instr. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source Solar **Size of Battery** 75 amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AK DoT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-5

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kosfofsky / Logan Allender **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306399

ShapeArray Length 97.6 ft **Borehole Length** 101 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC (SAA + pre-installed PVC) SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 2.75ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 337°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☐ Other photos

Grouting Date 10/22/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Stadard Inst. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000x

Power Source **Size of Battery** 75amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-6

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kozlofsky / Logan Allader **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306387

ShapeArray Length 117.3 **Borehole Length** 123 ft

Casing Inner Diameter 2 7mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 3.55 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 90

Take photos of the installation showing

☑ Top of borehole and how it was finished ☐ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 9/25/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Stadard Instr. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source **Size of Battery** 75 amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AUDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-7

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kostolsky / Logan Allade **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306396

ShapeArray Length 117.3 ft **Borehole Length** 123.6 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 3.75 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 350°

Take photos of the installation showing

- ☑ Top of borehole and how it was finished
- ☑ Protective covers for ShapeArray
- ☐ Earth Station wiring and global set-up
- ☑ Other photos

Grouting Date 9/29/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instr. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source **Size of Battery** 75 amp x 2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd LS
Project Number: 2930
Structure ID: LT-8

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allader **Contact:**

Driller: Discovery / Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306400

ShapeArray Length 117.3 ft **Borehole Length** 123.5 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 3.7 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 0°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 10/6/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instra Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source **Size of Battery** 75 amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-9

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Kozlofsky / Logan Allen Contact:

Driller: Discovery Drilling Contact:

DETAILS

ShapeArray Serial Number 306401

ShapeArray Length 117.3 ft Borehole Length 123.0 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 4.8 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 262°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 10/17/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instr. Mix Grout Top Up Needed? ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific Model CR1000X

Power Source Size of Battery 75 amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No Solar Panel ☑ Mains Power ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-10

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allade **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306402

ShapeArray Length 97.6 ft **Borehole Length** 103.8 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 5 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 30°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 10/19/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instr. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000x

Power Source **Size of Battery** 75amp x2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-4

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allen **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306397

ShapeArray Length 36.9 ft **Borehole Length** 43.4 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 2.85 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 5°

Take photos of the installation showing

- ☑ Top of borehole and how it was finished
- ☐ Protective covers for ShapeArray
- ☐ Earth Station wiring and global set-up
- ☑ Other photos

Grouting Date 10/23/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Stadad Instr. Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000X

Power Source **Size of Battery** 75amp x 2

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Client BH ID: AKDOT
Project: Beach Rd Landslide
Project Number: 2930
Structure ID: LT-12

MEASURAND

SHAPEARRAY INSTALLATION LOG

Complete for each ShapeArray installed. Please scan and send to **installation@measurand.com** to activate your warranty.

WHO INSTALLED THE SHAPEARRAY?

Name: Adam Koslofsky / Logan Allader **Contact:**

Driller: Discovery Drilling **Contact:**

DETAILS

ShapeArray Serial Number 306404

ShapeArray Length 36.9 ft **Borehole Length** 42.6 ft

Casing Inner Diameter 27mm

ShapeArray Orientation (vertical, horizontal, convergence, inclined *(approximate angle)*) Vertical

Installation Method Used (SAA+PVC, (SAA + pre-installed PVC), SAA + centralizers in SI casing, cyclical)

Was the supplied installation kit used? ☑ Yes ☐ No*

If no: How was the ShapeArray secured inside the casing? Take photo.

Were SAASPDs used? ☐ Yes ☑ No

Final length of PEX or Extension Rod 4.35 ft

Overall Cable Length 45 ft

Azimuth obtained through SAA Protractor (degrees) 0°

Take photos of the installation showing

☑ Top of borehole and how it was finished ☑ Protective covers for ShapeArray

☐ Earth Station wiring and global set-up ☑ Other photos

Grouting Date 10/21/21

Grout Method used (e.g. Tremie, Displacement) Tremie

Grout Mix used Standard Instant Mix **Grout Top Up Needed?** ☑ Yes ☐ No

General Notes

INFORMATION ABOUT THE DATA ACQUISITION SYSTEM

Supplier Campbell Scientific **Model** CR1000x

Power Source **Size of Battery** 75 amp x 3

Is the Data Acquisition System Grounded? ☑ Yes ☐ No **Solar Panel** ☑ **Mains Power** ☐

Measurand ShapeArray Calibration Sheets

MEASURAND

ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**296321**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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Measurand Instruments Inc.
2111 Hanwell Road, Fredericton, NB Canada. E3C 1M7
Phone: 506-462-9119 Fax: 506-462-9095 www.Measurand.com

MEASURAND

ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**296822**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306386**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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Part No:	**Serial No:**
SAAV250-001	**306387**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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ShapeArray

Certificate of Calibration

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Part No:	**Serial No:**
SAAV250-001	**306396**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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2111 Hanwell Road, Fredericton, NB Canada. E3C 1M7
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Form QCP403.1.c

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306397**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 10, 2021
MM/DD/YYYY

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306398**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 10, 2021
MM/DD/YYYY

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306399**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____ Date: Aug 10, 2021

Manager of Quality or, Quality Management Representative — MM/DD/YYYY

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306400**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____ Date: Aug 9, 2021

Manager of Quality or, Quality Management Representative

MM/DD/YYYY

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ShapeArray

Certificate of Calibration

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Part No:	Serial No:
SAAV250-001	306401

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____
Manager of Quality or, Quality Management Representative

Date: Aug 9, 2021
MM/DD/YYYY

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ShapeArray

Certificate of Calibration

This document certifies that the equipment referenced below meets specifications of accuracy and resolution (reference SAA Specifications Document)

Part No:	**Serial No:**
SAAV250-001	**306402**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____ Date: Aug 10, 2021

Manager of Quality or, Quality Management Representative — MM/DD/YYYY

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ShapeArray

Certificate of Calibration

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Part No:	**Serial No:**
SAAV250-001	**306404**

Product: ShapeAccelArray

Description: MEMS Sensors arranged in an array in order to capture 3D shape.

Certified by: _____ Date: Aug 9, 2021

Manager of Quality or, Quality Management Representative

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Form QCP403.1.c

Vibrating Wire Piezometer Installation Sheets

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location: Haines, AK		Boring No.: LT-1	
Field Observer: JCM	Drill Contractor: Discovery	Date: 09/16/21	
Total Drilled Depth: 123.5'	Drilling Method: HQ wireline	Drilling Fluid: H_2O	
Total Sampling Depth: 123.5'	Boring Diameter: 3.78"	Ground Elev.	

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

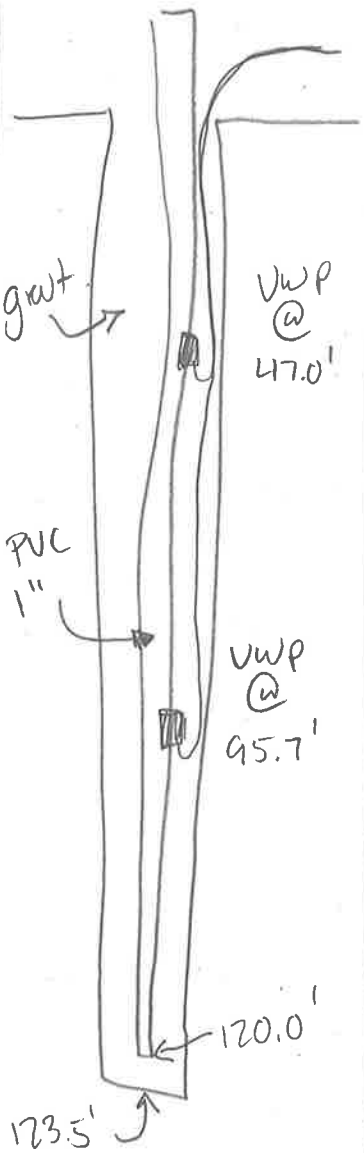
Installation Date	09/16/21	Gage Factor (G, positive #)	0.01730
Serial Number	212317	Bucket Test Water Depth (ft)	0.95
kPa Rating	350	Bucket Test, Digits (R1)	8815.3
Manufacturer Model	4500S-350 kPA	Bucket Test (PSI) (G x (R0-R1))	0.417
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.959
Sensor Depth (0.1-foot)	47.0'	Difference from actual (ft)	0.01
Unsat. Digits (surface, R0)	8839.4	Reading right after	8628.4
Unsat. Temp. (surface, T0)	8.0	install/grouting (R1 & T1)	5.4

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero readlng while submerged in water or where anything but atmospheric pressure is actin on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd Slide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-1

Field Observer: JM — Drill Contractor: Discovery — Date: 09/16/21

Total Drilled Depth: 123.5 — Drilling Method: HQ wireline — Drilling Fluid: H_2O

Total Sampling Depth: 123.5 — Boring Diameter: 3.78" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date	9/16/21	Gage Factor (G, positive #)	0.01794
Serial Number	212312	Bucket Test Water Depth (ft)	9204.5
kPa Rating	350	Bucket Test, Digits (R1)	0.95
Manufacturer Model	4500S-350 kPa	Bucket Test (PSI) (G x (R0-R1))	0.423
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.97
Sensor Depth (0.1-foot)	95.7	Difference from actual (ft)	0.02
Unsat. Digits (surface, R0)	9228.1	Reading right after	9295.2
Unsat. Temp. (surface, T0)	8.7	install/grouting (R1 & T1)	4.7

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

See Previous page

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No: 2930

Boring Information

Location	Haines, AK		Boring No. LT-2
Field Observer	JCM	Drill Contractor	Discovery — Date 09/01/21
Total Drilled Depth	122.5'	Drilling Method	HQ Wireline — Drilling Fluid H_2O / poly
Total Sampling Depth	122.5'	Boring Diameter	3.78" — Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

Installation Date	09/01/21	Gage Factor (G, positive #)	.01736
Serial Number	2123115	Bucket Test Water Depth (ft)	1.10
kPa Rating	350	Bucket Test, Digits (R1)	9099.3
Manufacturer Model	4500S-350 KPA	Bucket Test (PSI) (G x (R0-R1))	0.47
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	1.08
Sensor Depth (0.1-foot)	24.0'	Difference from actual (ft)	0.02
Unsat. Digits (surface, R0)	9126.4	Reading right after	8760.4
Unsat. Temp. (surface, T0)	12.1	install/grouting (R1 & T1)	4.7

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is actin on the sensor.
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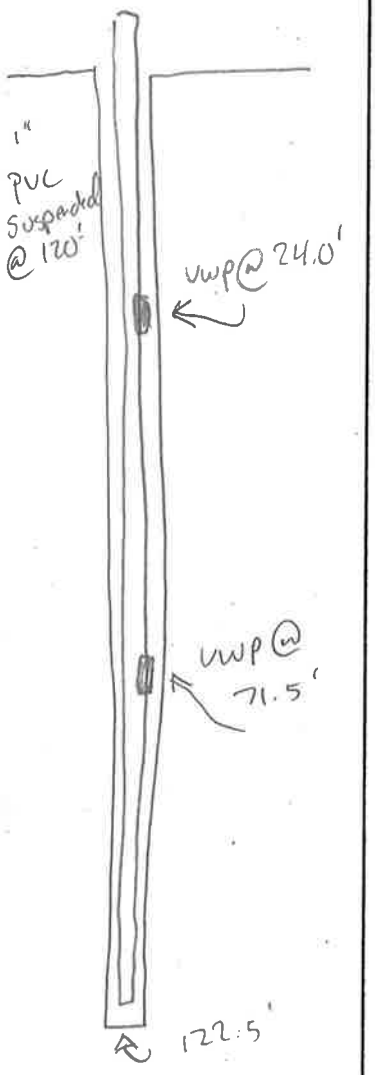
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2530

Boring Information

Location: Haines, AK		Boring No.: LT-3	
Field Observer: JCM	Drill Contractor: Discovery	Date: 09/08/21	
Total Drilled Depth: 122.5'	Drilling Method: HQ wireline	Drilling Fluid: H_2O	
Total Sampling Depth: 122.5'	Boring Diameter: 3.78"	Ground Elev.	

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

Installation Date	09/08/21	Gage Factor (G, positive #)	0.01694
Serial Number	2123114	Bucket Test Water Depth (ft)	1.0'
kPa Rating	350	Bucket Test, Digits (R1)	8824.3
Manufacturer Model	4500S-350kPa	Bucket Test (PSI) (G x (R0-R1))	0.48
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	1.11
Sensor Depth (0.1-foot)	52.8'	Difference from actual (ft)	0.11
Unsat. Digits (surface, R0)	8952.8	Reading right after	8895.7
Unsat. Temp. (surface, T0)	13.0	install/grouting (R1 & T1)	6.4

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
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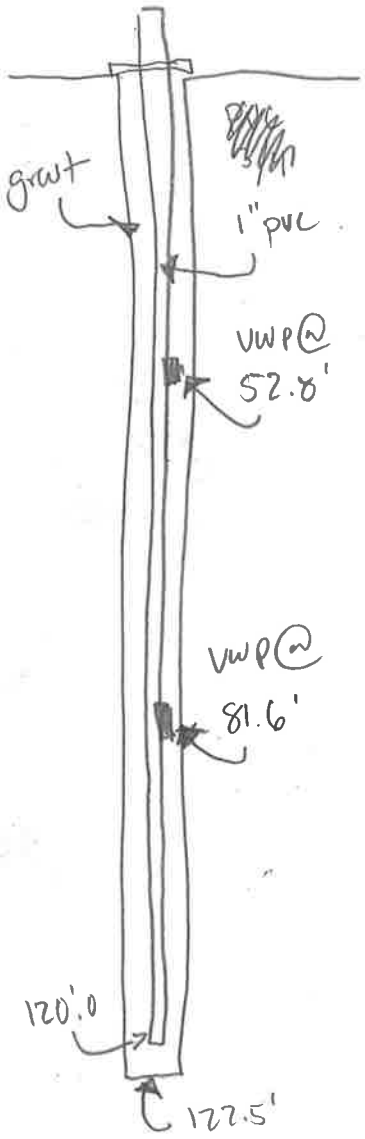
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

CORNFORTH CONSULTANTS

Revision: Feb-2012

LANDSLIDE TECHNOLOGY
A DIVISION OF CORNFORTH CONSULTANTS

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location	Haines, AK		Boring No. LT-2
Field Observer	JCM	Drill Contractor	Discovery — Date 09/01/21
Total Drilled Depth	122.5	Drilling Method	HQ wireline — Drilling Fluid H_2O/poly
Total Sampling Depth	122.5	Boring Diameter	3.78" — Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

See previous page

Vibrating Wire Piezometer Installation Details

Installation Date	9/01/21	Gage Factor (G, positive #)	0.01814
Serial Number	2123109	Bucket Test Water Depth (ft)	1.10
kPa Rating	350	Bucket Test, Digits (R1)	9136.6
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.469
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	1.08
Sensor Depth (0.1-foot)	71.5	Difference from actual (ft)	0.02
Unsat. Digits (surface, R0)	9162.5	Reading right after	7866.3
Unsat. Temp. (surface, T0)	11.7	install/grouting (R1 & T1)	4.5

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-3
Field Observer: JCM — Drill Contractor: Discovery — Date: 09/08/21
Total Drilled Depth: 122.5' — Drilling Method: HQ wireline — Drilling Fluid: H_2O
Total Sampling Depth: 122.5' — Boring Diameter: 3.78" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date: — Reamed/Overcored?:
SI Casing Diameter: — Casing Brand/Type:
Grout vol. expected/actual: — Connection Type:
Grouting Method: — Casing depth:
Inclinometer comments: — Azimuth:
Stickup (+/-):

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date: 09/08/21 — Gage Factor (G, positive #): 0.01657
Serial Number: 212311 — Bucket Test Water Depth (ft): 1.0'
kPa Rating: 350 kPa — Bucket Test, Digits (R1): 9027.8
Manufacturer Model: 4500S-350KPA — Bucket Test (PSI) (G x (R0-R1)): 0.46
Datalogger Model & s/n: GeoKon — Bucket Test ('H20) (psi x 2.3): 1.06
Sensor Depth (0.1-foot): 81.6' — Difference from actual (ft): 0.06
Unsat. Digits (surface, R0): 9077.3 — Reading right after install/grouting (R1 & T1): 9003.4
Unsat. Temp. (surface, T0): 13.8 — 6.5

See previous sheet

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø: — Screen Nom. Ø:
Schedule: — Slot Size:
Mat'l Type: — Mat'l Type:
Joint Type: — Screen Length:
Riser Length: — Screen Top and Bottom Depths:
Centralizers (Y/N): — Filter Pack Type:
Seal Type: — Filter Depth Range:
Stickup: — Backfill Below Filter Type:

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location	Haines, AK		Boring No. LT-4
Field Observer	JCM	Drill Contractor	Discovery — Date 10/11/21
Total Drilled Depth	102.0'	Drilling Method	HQ wireline — Drilling Fluid H_2O
Total Sampling Depth	102.0'	Boring Diameter	3-7/8" — Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

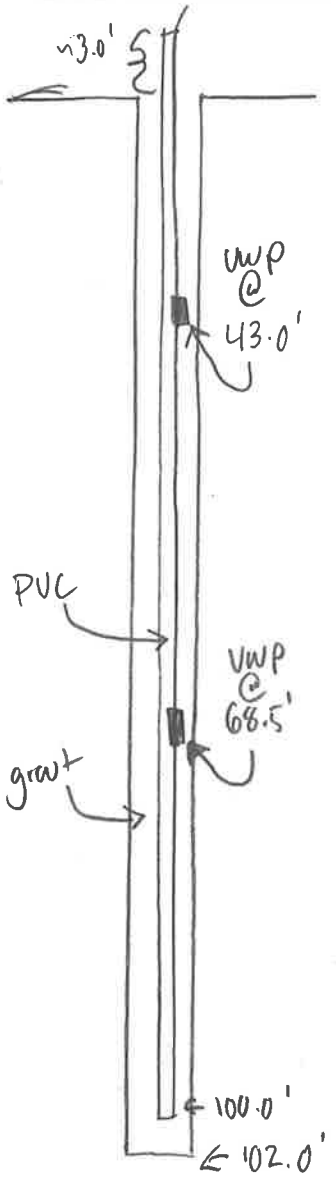
Installation Date	10/11/2021	Gage Factor (G, positive #)	0.01755
Serial Number	212102	Bucket Test Water Depth (ft)	0.85
kPa Rating	350	Bucket Test, Digits (R1)	9041.2
Manufacturer Model	4500S - 350KPA	Bucket Test (PSI) (G x (R0-R1))	0.36
Datalogger Model & s/n	Geokon	Bucket Test ('H20) (psi x 2.3)	0.83
Sensor Depth (0.1-foot)	68.5'	Difference from actual (ft)	0.02
Unsat. Digits (surface, R0)	9061.8	Reading right after	6893.6
Unsat. Temp. (surface, T0)	7.1°	install/grouting (R1 & T1)	6.9

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 7930

Boring Information

Location	Haines, AK	Boring No.	LT-4
Field Observer	JCM	Drill Contractor	Discovery
Total Drilled Depth	102.0'	Drilling Method	HQ wireline
Total Sampling Depth	102.0'	Boring Diameter	3.78"
		Date	10/11/21
		Drilling Fluid	H_2O
		Ground Elev.	

Slope Inclinometer Installation Details

Installation Date	10/11/2021	Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date	10/11/2021	Gage Factor (G, positive #)	0.01740
Serial Number	2173106	Bucket Test Water Depth (ft)	0.85
kPa Rating	350	Bucket Test, Digits (R1)	9053.3
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.35
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.80
Sensor Depth (0.1-foot)	43.0'	Difference from actual (ft)	0.05
Unsat. Digits (surface, R0)	9073.4	Reading right after	7709.4
Unsat. Temp. (surface, T0)	7.2	install/grouting (R1 & T1)	6.3

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Road Landslide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-5 SHALLOW

Field Observer: Sebastian Dirringer — Drill Contractor: Discovery Drilling (Dennis) — Date: 10/22/21

Total Drilled Depth: 101' — Drilling Method: HQ3 Wireline — Drilling Fluid: Water + Poly

Total Sampling Depth: 101' — Boring Diameter: — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

Installation Date	10/22/21	Gage Factor (G, positive #)	0.01811
Serial Number	2123047	Bucket Test Water Depth (ft)	0.75
kPa Rating	350	Bucket Test, Digits (R1)	8903.5
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.33
Datalogger Model & s/n	GRONTON	Bucket Test ('H20) (psi x 2.3)	0.76
Sensor Depth (0.1-foot)	33.0'	Difference from actual (ft)	0.01
Unsat. Digits (surface, R0)	8921.8	Reading right after	8083.6
Unsat. Temp. (surface, T0)	6.6	install/grouting (R1 & T1)	5.3

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.

2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.

3) Obtain a barometric pressure reading if baro corrections are going to be made.

4). Perform a change-in-head test (use water about the same as air temperature)

4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.

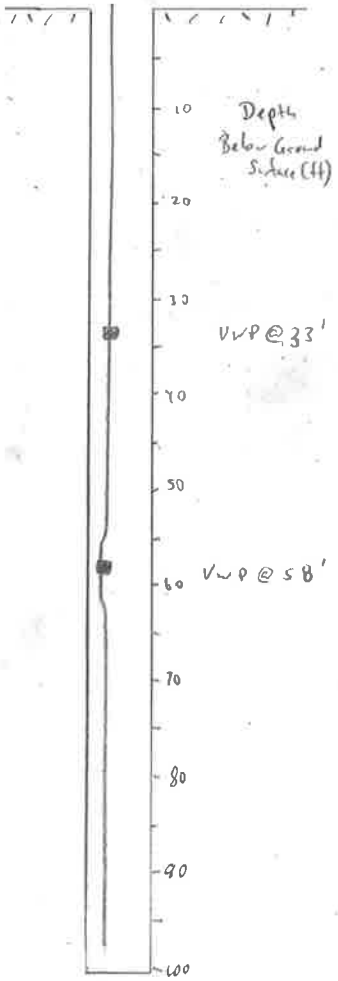
5). Saturate the stone

5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Road Landslide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-5 Deep

Field Observer: Sebastian Dirringer — Drill Contractor: Discovery Drilling (Darrin) — Date: 10/22/21

Total Drilled Depth: 101' — Drilling Method: HQ3 Wireline — Drilling Fluid: Water + Poly

Total Sampling Depth: 101' — Boring Diameter: — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

See LT-5 Install Sheet (Shallow)

Vibrating Wire Piezometer Installation Details

Installation Date	10/22/21	Gage Factor (G, positive #)	0.01730
Serial Number	~~2122~~ 3105	Bucket Test Water Depth (ft)	91.7
kPa Rating	350	Bucket Test, Digits (R1)	0.75
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.33
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.76
Sensor Depth (0.1-foot)	58 FT	Difference from actual (ft)	0.01
Unsat. Digits (surface, R0)	9128.8	Reading right after	~~8883.6~~ 7167.3
Unsat. Temp. (surface, T0)	6.6	install/grouting (R1 & T1)	~~5.3~~ 5.0'

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project BEACH RD SLIDE — Project No. 2930

Boring Information

Location HAINES, AK — Boring No. LT-6

Field Observer AMC — Drill Contractor DISCOVERY — Date 9/25/21

Total Drilled Depth 123 — Drilling Method HQ wireline — Drilling Fluid H_2O + POLY

Total Sampling Depth 123 — Boring Diameter 3.78 — Ground Elev.

Slope Inclinometer Installation Details

Installation Date — Reamed/Overcored?

SI Casing Diameter — Casing Brand/Type

Grout vol. expected/actual — Connection Type

Grouting Method — Casing depth

Inclinometer comments — Azimuth

Stickup (+/-)

Vibrating Wire Piezometer Installation Details

Installation Date	9/25	Gage Factor (G, positive #)	0.01794
Serial Number	2123108	Bucket Test Water Depth (ft)	0.98
kPa Rating	350	Bucket Test, Digits (R1)	8996.4
Manufacturer Model	45005	Bucket Test (PSI) (G x (R0-R1))	0.405
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.93
Sensor Depth (0.1-foot)	47.6	Difference from actual (ft)	0.05
Unsat. Digits (surface, R0)	9019.0	Reading right after	6325.0
Unsat. Temp. (surface, T0)	6.1	install/grouting (R1 & T1)	6.4

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.

2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.

3) Obtain a barometric pressure reading if baro corrections are going to be made.

4). Perform a change-in-head test (use water about the same as air temperature)

4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.

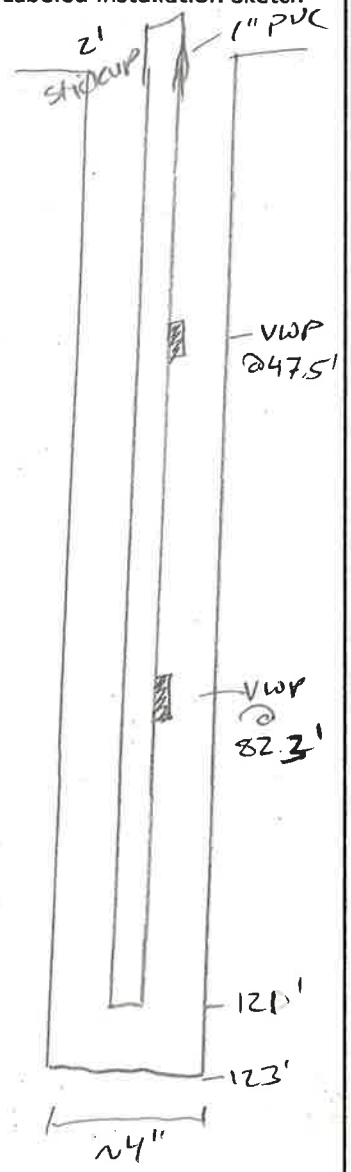
5). Saturate the stone

5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments 47' Depth w/120' VWP

$A = -1.283 \times 10^{-8}$ $B = -0.01774$ $K = -0.01828$

Has blue mark.

CORNFORTH CONSULTANTS

Revision: Feb-2012

LANDSLIDE TECHNOLOGY
A DIVISION OF CORNFORTH CONSULTANTS

Geotechnical and Hydrological Instrumentation Details

Project: BEACH RD. SLIDE — Project No.: 2930

Boring Information

Location: HAINES, AK — Boring No.: LT-6

Field Observer: AMC — Drill Contractor: DISCOVERY — Date: 9/25/21

Total Drilled Depth: 123 — Drilling Method: HQ + NW — Drilling Fluid: H2O + POLY

Total Sampling Depth: 123 — Boring Diameter: ~4" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

see page 1

Vibrating Wire Piezometer Installation Details

Installation Date	9/25	Gage Factor (G, positive #)	0.01704
Serial Number	2123095	Bucket Test Water Depth (ft)	0.98
kPa Rating	350	Bucket Test, Digits (R1)	8999.9
Manufacturer Model	4500S	Bucket Test (PSI) (G x (R0-R1))	0.417
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.96
Sensor Depth (0.1-foot)	81.7	Difference from actual (ft)	0.02
Unsat. Digits (surface, R0)	9024.4	Reading right after	7541.5
Unsat. Temp. (surface, T0)	6.4	install/grouting (R1 & T1)	5.3

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

81.7 → sensor depth w/ 140' PICO

A = -1.306 x 10^-8 B = -0.01685 K = 0.002865

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location: Haines, AK			Boring No.: LT-7
Field Observer: A. CASADY	Drill Contractor: DISCOVERY		Date: 9-29-21
Total Drilled Depth: 123.6	Drilling Method: HQ		Drilling Fluid: H_2O w/poly
Total Sampling Depth: 123.6	Boring Diameter: 3 7/8"		Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

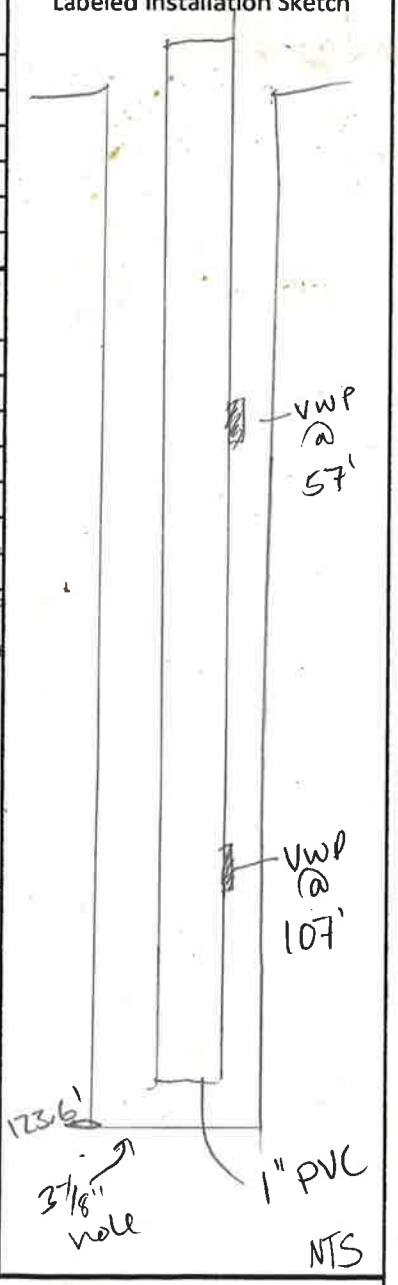
Installation Date	9-29-21	Gage Factor (G, positive #)	0.01726
Serial Number	2123104	Bucket Test Water Depth (ft)	0.85'
kPa Rating	4 350	Bucket Test, Digits (R1)	9302.3
Manufacturer Model	4500S	Bucket Test (PSI) (G x (R0-R1))	0.392
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.90
Sensor Depth (0.1-foot)	57'	Difference from actual (ft)	0.05
Unsat. Digits (surface, R0)	9325.0	Reading right after install/grouting (R1 & T1)	9852.3
Unsat. Temp. (surface, T0)	6.1		7.4

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments: $A = -2.338 \times 10^{-8}$ $B = -0.01689$ $K = -0.01737$

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. slide — Project No.: 2930

Boring Information

Location: Haines, AK		Boring No.: LT-7	
Field Observer: A. CASADY	Drill Contractor: DISCOVERY	Date: 9-29-21	
Total Drilled Depth: 123.6	Drilling Method: HQ	Drilling Fluid: Water w/PolY	
Total Sampling Depth: 123.6	Boring Diameter: 3 7/8"	Ground Elev.	

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch: see page 1

Vibrating Wire Piezometer Installation Details

Installation Date	9-29-21	Gage Factor (G, positive #)	0.01676
Serial Number	2123107	Bucket Test Water Depth (ft)	0.85
kPa Rating	350	Bucket Test, Digits (R1)	9199.8
Manufacturer Model	4500S	Bucket Test (PSI) (G x (R0-R1))	0.368
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.848
Sensor Depth (0.1-foot)	107'	Difference from actual (ft)	0.002
Unsat. Digits (surface, R0)	9221.8	Reading right after install/grouting (R1 & T1)	6407.5
Unsat. Temp. (surface, T0)	5.9		7.0

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments: $A = -7.481 \times 10^{-9}$ $B = -0.01665$ $K = -0.009863$

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd Slide — Project No.: 2930

Boring Information

Location	Haines, AK		Boring No. LT-8
Field Observer	AMC	Drill Contractor	Discovery — Date 10-6-21
Total Drilled Depth	123.5	Drilling Method	HQ — Drilling Fluid H_2O w/Poly
Total Sampling Depth	123.5	Boring Diameter	3 7/8 — Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date		Gage Factor (G, positive #)	D.01758
Serial Number	2123098	Bucket Test Water Depth (ft)	0.85
kPa Rating	350	Bucket Test, Digits (R1)	9153.0
Manufacturer Model	4500S	Bucket Test (PSI) (G x (R0-R1))	0.418
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.962
Sensor Depth (0.1-foot)	42.4'	Difference from actual (ft)	
Unsat. Digits (surface, R0)	9176.8	Reading right after	7809.7
Unsat. Temp. (surface, T0)	0.6	install/grouting (R1 & T1)	4.8

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments: $A = -2.949 \times 10^{-8}$ $B = -0.01713$ $K = -0.02063$

38.5'

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd Slide — Project No.: 2930

Boring Information

Location: Haines, AK			Boring No.: LT-8
Field Observer: A. CASADY	Drill Contractor: Discovery		Date: 10-6
Total Drilled Depth: 123.5	Drilling Method: HQ		Drilling Fluid: H_2O w/Poly
Total Sampling Depth: 123.5	Boring Diameter: 3 7/8"		Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date		Gage Factor (G, positive #)	0.01651
Serial Number	2123099	Bucket Test Water Depth (ft)	0.85
kPa Rating	350	Bucket Test, Digits (R1)	8534.0
Manufacturer Model	4500S	Bucket Test (PSI) (G x (R0-R1))	0.307
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.706
Sensor Depth (0.1-foot)	81.5'	Difference from actual (ft)	
Unsat. Digits (surface, R0)	8552.6	Reading right after	5759.9
Unsat. Temp. (surface, T0)	1.1	install/grouting (R1 & T1)	4.9

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments: $A = -1.101 \times 10^{-8}$ $B = -0.01635$ $K = -0.003528$

81.5'

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd Landslide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-9

Field Observer: Sebastian Dirringer — Drill Contractor: Discovery Drilling (Darrin) — Date: 10/17/21

Total Drilled Depth: 123.0 FT — Drilling Method: HQ3 Wireline — Drilling Fluid: Water + Poly

Total Sampling Depth: 123.0 FT — Boring Diameter: — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

SHALLOW

Installation Date	10/17/21	Gage Factor (G, positive #)	-0.01649
Serial Number	2123100	Bucket Test Water Depth (ft)	0.8FT
kPa Rating	350	Bucket Test, Digits (R1)	9124.0
Manufacturer Model	Geokon 4500S	Bucket Test (PSI) (G x (R0-R1))	0.27
Datalogger Model & s/n		Bucket Test ('H20) (psi x 2.3)	0.63
Sensor Depth (0.1-foot)	73.0 FT	Difference from actual (ft)	0.17 FT
Unsat. Digits (surface, R0)	9140.6	Reading right after install/grouting (R1 & T1)	7577.5 (59) (4.5°C)
Unsat. Temp. (surface, T0)	-1.0°C		

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.

2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.

3) Obtain a barometric pressure reading if baro corrections are going to be made.

4). Perform a change-in-head test (use water about the same as air temperature)

4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.

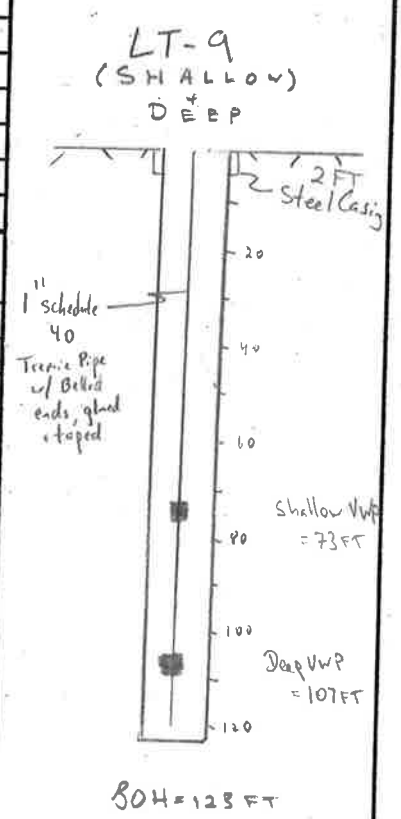
5). Saturate the stone

5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



BOH = 123 FT

Vertical Scale = 1:20'

Comments

- Poured 3 batches (of standard grout mix for SI install) in AM from bottom up using ½" PEX
- Poured ~½ batch in PM from Top of borehole, grout returns at surface
- Refer to IPI Installation Details for additional instrument details.

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd Landslide — Project No.: 2930

Boring Information

Location: Haines, AK — Boring No.: LT-9
Field Observer: Sebastian Dieringer — Drill Contractor: Discovery Drilling (Dave) — Date: 10/17/21
Total Drilled Depth: 123.0 FT — Drilling Method: HQ3 Wireline — Drilling Fluid: Water + Poly
Total Sampling Depth: 123.0 FT — Boring Diameter: — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date: — Reamed/Overcored?:
SI Casing Diameter: — Casing Brand/Type:
Grout vol. expected/actual: — Connection Type:
Grouting Method: — Casing depth:
Inclinometer comments: — Azimuth:
Stickup (+/-):

Labeled Installation Sketch

See LT-9 Shallow

Vibrating Wire Piezometer Installation Details

Deep

Installation Date: 10/17/21 — Gage Factor (G, positive #): -0.01734
Serial Number: 2123101 — Bucket Test Water Depth (ft): 0.8 FT
kPa Rating: 350 — Bucket Test, Digits (R1): 8921.4
Manufacturer Model: Geokon 4500S — Bucket Test (PSI) (G x (R0-R1)): 0.342
Datalogger Model & s/n: — Bucket Test ('H20) (psi x 2.3): 0.79 FT
Sensor Depth (0.1-foot): 107' — Difference from actual (ft): 0.01 FT
Unsat. Digits (surface, R0): 8941.1 — Reading right after install/grouting (R1 & T1): 8611.3 (13)
Unsat. Temp. (surface, T0): -0.9°C — 5.6°C

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø: — Screen Nom. Ø:
Schedule: — Slot Size:
Mat'l Type: — Mat'l Type:
Joint Type: — Screen Length:
Riser Length: — Screen Top and Bottom Depths:
Centralizers (Y/N): — Filter Pack Type:
Seal Type: — Filter Depth Range:
Stickup: — Backfill Below Filter Type:

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location	Haines, AK		Boring No. LT-1D
Field Observer	JCM	Drill Contractor	Discovery — Date 10/19/21
Total Drilled Depth	103.8'	Drilling Method	HQ wireline — Drilling Fluid H_2O w/poly
Total Sampling Depth	102.4'	Boring Diameter	3-7/8" — Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Vibrating Wire Piezometer Installation Details

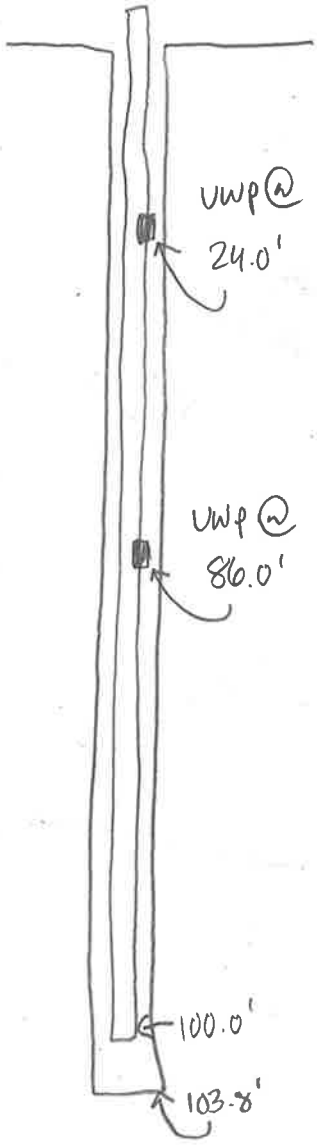
Installation Date	10/19/21	Gage Factor (G, positive #)	0.01684
Serial Number	2123096	Bucket Test Water Depth (ft)	0.95
kPa Rating	350 KPA	Bucket Test, Digits (R1)	8873.8
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.396
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.91
Sensor Depth (0.1-foot)	86'	Difference from actual (ft)	0.04
Unsat. Digits (surface, R0)	8897.3	Reading right after install/grouting (R1 & T1)	6030.0
Unsat. Temp. (surface, T0)	6.1		5.5

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location: Haines, AK		Boring No.: LT-10
Field Observer: JCM	Drill Contractor: Discovery	Date: 10/19/21
Total Drilled Depth: 103.8'	Drilling Method: HQ wireline	Drilling Fluid: H_2O w/ poly
Total Sampling Depth: 102.4'	Boring Diameter: 3.78"	Ground Elev.

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date	10/19/21	Gage Factor (G, positive #)	0.01808
Serial Number	2123116	Bucket Test Water Depth (ft)	0.55
kPa Rating	350 KPA	Bucket Test, Digits (R1)	9092.2
Manufacturer Model	Geokon	Bucket Test (PSI) (G x (R0-R1))	0.37
Datalogger Model & s/n	4500S - 350KPA	Bucket Test ('H20) (psi x 2.3)	0.84
Sensor Depth (0.1-foot)	24'	Difference from actual (ft)	0.11
Unsat. Digits (surface, R0)	9112.5	Reading right after	8331.2
Unsat. Temp. (surface, T0)	5.5	install/grouting (R1 & T1)	5.1

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

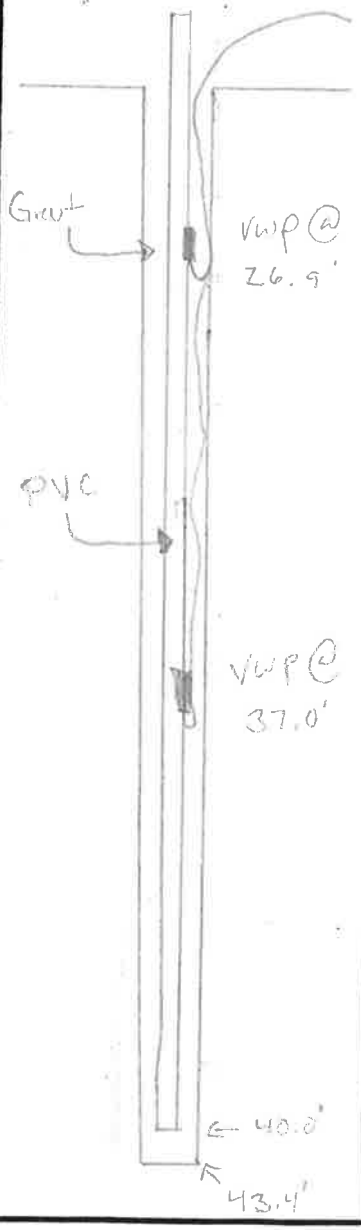
Boring Information

Location: Haines, AK — Boring No.: LT-11
Field Observer: JCM — Drill Contractor: Discovery — Date: 10/23/21
Total Drilled Depth: 43.4' — Drilling Method: HQ wireline — Drilling Fluid: H2O
Total Sampling Depth: 43.4' — Boring Diameter: 3.78" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch



Vibrating Wire Piezometer Installation Details

Installation Date	10/23/21	Gage Factor (G, positive #)	0.01820
Serial Number	2123103	Bucket Test Water Depth (ft)	1.10
kPa Rating	350	Bucket Test, Digits (R1)	9246.5
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.40
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	0.92
Sensor Depth (0.1-foot)	37.0'	Difference from actual (ft)	0.18
Unsat. Digits (surface, R0)	9268.5	Reading right after	8640.9
Unsat. Temp. (surface, T0)	8.7	install/grouting (R1 & T1)	5.5

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2930

Boring Information

Location: Haines, AK		Boring No.: LT-11	
Field Observer: JCM	Drill Contractor: Discovery	Date: 10/23/21	
Total Drilled Depth: 43.4'	Drilling Method: HQ wireline	Drilling Fluid: H_2O w/ poly	
Total Sampling Depth: 43.4'	Boring Diameter: 3.78"	Ground Elev.	

Slope Inclinometer Installation Details

Installation Date		Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date	10/23/21	Gage Factor (G, positive #)	0.01677
Serial Number	2123094	Bucket Test Water Depth (ft)	1.1
kPa Rating	350	Bucket Test, Digits (R1)	9035.9
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.47
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	1.07
Sensor Depth (0.1-foot)	26.9'	Difference from actual (ft)	0.03
Unsat. Digits (surface, R0)	9063.9	Reading right after	8578.4
Unsat. Temp. (surface, T0)	8.3	install/grouting (R1 & T1)	5.9

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Geotechnical and Hydrological Instrumentation Details

Project: Beach Rd. Slide — Project No.: 2430

Boring Information

Location: Haines, AK — Boring No.: LT-12
Field Observer: JCM — Drill Contractor: Discovery — Date: 10/21/21
Total Drilled Depth: 42.6' — Drilling Method: HQ wireline — Drilling Fluid: H_2O w/ poly
Total Sampling Depth: 42.6' — Boring Diameter: 3.78" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date: — Reamed/Overcored?:
SI Casing Diameter: — Casing Brand/Type:
Grout vol. expected/actual: — Connection Type:
Grouting Method: — Casing depth:
Inclinometer comments: — Azimuth:
Stickup (+/-):

Vibrating Wire Piezometer Installation Details

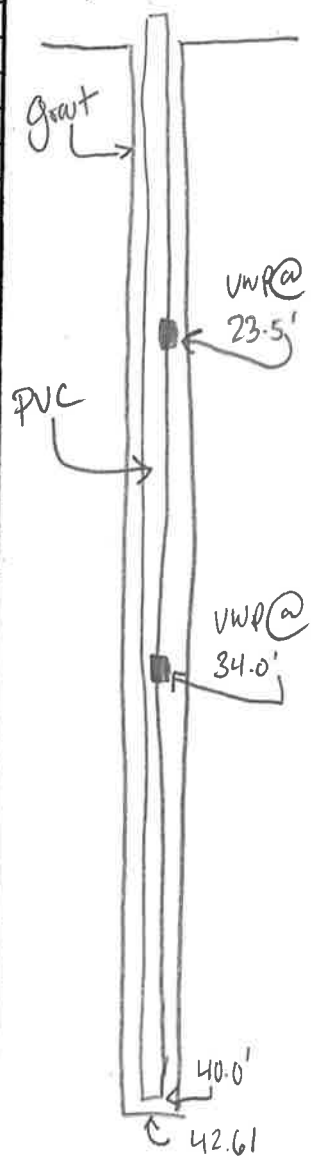
Installation Date	10/21/21	Gage Factor (G, positive #)	0.01667
Serial Number	2123110	Bucket Test Water Depth (ft)	1.15
kPa Rating	350	Bucket Test, Digits (R1)	9009.7
Manufacturer Model	4500S-350KPA	Bucket Test (PSI) (G x (R0-R1))	0.447
Datalogger Model & s/n	GeoKon	Bucket Test ('H20) (psi x 2.3)	1.02
Sensor Depth (0.1-foot)	34.0'	Difference from actual (ft)	0.12
Unsat. Digits (surface, R0)	9036.5	Reading right after	8053.7
Unsat. Temp. (surface, T0)	8.5	install/grouting (R1 & T1)	6.1

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø: — Screen Nom. Ø:
Schedule: — Slot Size:
Mat'l Type: — Mat'l Type:
Joint Type: — Screen Length:
Riser Length: — Screen Top and Bottom Depths:
Centralizers (Y/N): — Filter Pack Type:
Seal Type: — Filter Depth Range:
Stickup: — Backfill Below Filter Type:

Labeled Installation Sketch



Comments

Geotechnical and Hydrological Instrumentation Details

Project: Breach Rd. Slide — Project No.: 2130

Boring Information

Location: Haines, AK — Boring No.: LT-12

Field Observer: JCM — Drill Contractor: Discovery — Date: 10/21/21

Total Drilled Depth: 42.6' — Drilling Method: HQ wireline — Drilling Fluid: H_2O w/ poly

Total Sampling Depth: 42.6' — Boring Diameter: 3.78" — Ground Elev.:

Slope Inclinometer Installation Details

Installation Date	~~10/21/20~~	Reamed/Overcored?	
SI Casing Diameter		Casing Brand/Type	
Grout vol. expected/actual		Connection Type	
Grouting Method		Casing depth	
Inclinometer comments		Azimuth	
		Stickup (+/-)	

Labeled Installation Sketch

Vibrating Wire Piezometer Installation Details

Installation Date	10/21/21	Gage Factor (G, positive #)	0.01959
Serial Number	2123113	Bucket Test Water Depth (ft)	1.15
kPa Rating	350	Bucket Test, Digits (R1)	9092.4
Manufacturer Model	4500S - 350KPA	Bucket Test (PSI) (G x (R0-R1))	0.498
Datalogger Model & s/n	Geokon	Bucket Test ('H20) (psi x 2.3)	1.14
Sensor Depth (0.1-foot)	23.5	Difference from actual (ft)	0.01
Unsat. Digits (surface, R0)	9117.8	Reading right after	8588.2
Unsat. Temp. (surface, T0)	6.8	install/grouting (R1 & T1)	6.5

1) For about 15 minutes prior to obtaining a zero reading, keep the transducer in a shaded location and away from anything that would induce rapid thermal changes like the sun or your hand. The closer to the subsurface temperature, the better (i.e. 10 to 15 degrees C in our typical installations). Don't take the zero reading while submerged in water or where anything but atmospheric pressure is acting on the sensor.
2) Without handling or moving the VWP, hook the wires up to the readout box and record the zero reading and temperature above. Note the day and time.
3) Obtain a barometric pressure reading if baro corrections are going to be made.
4). Perform a change-in-head test (use water about the same as air temperature)
4.1) Remove the filter tip and place the transducer in a bucket of water to a known depth and record the reading. Perform a pressure calculation using the linear gage factor to confirm that the change in head is correctly registered within an inch or so. If the water is the same temp as the sensor, then the time to thermal equilibrium is short and better results will be achieved.
5). Saturate the stone
5.1) With the sensor still in water, place the filter tip back on and off then on back on again or until no bubbles exit the stone. Keep the stone saturated until installation by keeping it in water.

Standpipe Piezometer Installation Details

Riser Nom. Ø		Screen Nom. Ø	
Schedule		Slot Size	
Mat'l Type		Mat'l Type	
Joint Type		Screen Length	
Riser Length		Screen Top and Bottom Depths	
Centralizers (Y/N)		Filter Pack Type	
Seal Type		Filter Depth Range	
Stickup		Backfill Below Filter Type	

Comments

Vibrating Wire Piezometer Calibration Sheets

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123094

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dan O Conday

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9054	9055	9055	0.058	0.02	-0.015	0.00
70.0	8449	8449	8449	70.05	0.02	70.05	0.02
140.0	7845	7846	7846	139.8	-0.06	139.9	-0.05
210.0	7237	7238	7238	210.1	0.04	210.1	0.05
279.9	6634	6634	6634	279.8	-0.03	279.9	-0.03
350.0	6026	6026	6026	350.1	0.03	350.1	0.01

(kPa) Linear Gauge Factor (G): -0.1156 (kPa/ digit)

Polynomial Gauge factors: A: -5.45E-08 B: -0.1148 C:

Thermal Factor (K): 0.03033 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01677 (psi/ digit)

Polynomial Gauge Factors: A: -7.904E-09 B: -0.01665 C:

Thermal Factor (K): 0.004399 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$***

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9057 Temperature: 21.1 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123095

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Lindsey

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9001	9002	9002	0.176	0.05	0.016	0.00
70.0	8407	8407	8407	70.04	0.02	70.01	0.01
140.0	7813	7813	7813	139.8	-0.05	139.9	-0.04
210.0	7216	7216	7216	210.0	0.01	210.0	0.02
279.9	6620	6620	6620	280.0	0.03	280.0	0.02
350.0	6023	6024	6024	350.1	0.03	350.0	-0.01

(kPa) Linear Gauge Factor (G): -0.1175 (kPa/ digit)

Polynomial Gauge factors: A: -9.002E-08 B: -0.1162 C:

Thermal Factor (K): 0.01975 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01704 (psi/ digit)

Polynomial Gauge Factors: A: -1.306E-08 B: -0.01685 C:

Thermal Factor (K): 0.002865 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9009 Temperature: 21.5 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123096

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Landry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8891	8892	8892	0.175	0.05	-0.061	-0.02
70.0	8290	8290	8290	70.17	0.06	70.16	0.05
140.0	7691	7692	7692	139.8	-0.06	139.9	-0.03
210.0	7091	7092	7092	209.6	-0.09	209.7	-0.06
279.9	6485	6485	6485	280.2	0.08	280.2	0.08
350.0	5884	5884	5884	350.2	0.04	349.9	-0.03

(kPa) Linear Gauge Factor (G): -0.1164 (kPa/ digit)

Polynomial Gauge factors: A: -1.535E-07 B: -0.1141 C:

Thermal Factor (K): -0.009126 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01688 (psi/ digit)

Polynomial Gauge Factors: A: -2.226E-08 B: -0.01655 C:

Thermal Factor (K): -0.001324 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8894 Temperature: 21.1 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123097

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Gurley

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8884	8884	8884	0.250	0.07	-0.037	-0.01
70.0	8325	8326	8326	70.00	0.01	70.12	0.04
140.0	7768	7769	7769	139.6	-0.13	139.9	-0.04
210.0	7208	7208	7208	209.6	-0.11	209.9	-0.02
279.9	6644	6644	6644	280.0	0.01	280.1	0.05
350.0	6081	6082	6082	350.2	0.06	350.0	-0.02

(kPa) Linear Gauge Factor (G): -0.1249 (kPa/ digit)

Polynomial Gauge factors: A: -3.221E-07 B: -0.1201 C:

Thermal Factor (K): -0.09049 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01811 (psi/ digit)

Polynomial Gauge Factors: A: -4.672E-08 B: -0.01741 C:

Thermal Factor (K): -0.01312 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8884 Temperature: 21.3 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123098

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Cauley

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9139	9140	9140	0.182	0.05	0.008	0.00
70.0	8564	8564	8564	69.93	-0.01	70.03	0.02
140.0	7988	7989	7989	139.7	-0.10	139.9	-0.03
210.0	7411	7412	7412	209.6	-0.10	209.9	-0.03
279.9	6830	6830	6830	280.1	0.04	280.2	0.07
350.0	6252	6253	6253	350.1	0.02	349.9	-0.03

(kPa) Linear Gauge Factor (G): -0.1212 (kPa/ digit)

Polynomial Gauge factors: A: -2.033E-07 B: -0.1181 C:

Thermal Factor (K): -0.1422 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01758 (psi/ digit)

Polynomial Gauge Factors: A: -2.949E-08 B: -0.01713 C:

Thermal Factor (K): -0.02063 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9141 Temperature: 21.1 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123099

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Coudray

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8538	8539	8539	0.171	0.05	0.020	0.01
70.0	7924	7925	7925	70.04	0.02	70.01	0.01
140.0	7311	7311	7311	139.9	-0.05	139.9	-0.04
210.0	6695	6695	6695	210.0	0.00	210.0	0.01
279.9	6078	6079	6079	280.1	0.05	280.1	0.04
350.0	5463	5464	5464	350.1	0.02	350.0	-0.02

(kPa) Linear Gauge Factor (G): -0.1138 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -7.593E-08 **B:** -0.1127 **C:**

Thermal Factor (K): -0.02433 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01651 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -1.101E-08 **B:** -0.01635 **C:**

Thermal Factor (K): -0.003528 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8539 **Temperature:** 21.2 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123100

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean O Coudray

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9126	9127	9127	0.057	0.02	0.028	0.01
70.0	8511	8512	8512	69.96	0.00	69.96	0.00
140.0	7896	7896	7896	139.9	-0.03	139.9	-0.02
210.0	7279	7280	7280	210.0	0.01	210.0	0.01
279.9	6663	6664	6664	280.0	0.02	280.0	0.02
350.0	6047	6048	6048	350.0	0.00	350.0	-0.01

(kPa) Linear Gauge Factor (G): -0.1137 (kPa/ digit)

Polynomial Gauge factors: A: -2.21E-08 B: -0.1133 C:

Thermal Factor (K): 0.01121 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01649 (psi/ digit)

Polynomial Gauge Factors: A: -3.205E-09 B: -0.01644 C:

Thermal Factor (K): 0.001626 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9128 Temperature: 21.4 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123101

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean Goudy

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8927	8927	8927	0.359	0.10	0.064	0.02
70.0	8345	8345	8345	69.95	-0.01	69.96	0.00
140.0	7762	7763	7763	139.6	-0.12	139.8	-0.07
210.0	7174	7174	7174	210.0	0.00	210.1	0.05
279.9	6588	6588	6588	280.0	0.03	280.1	0.03
350.0	6001	6001	6001	350.2	0.06	349.9	-0.03

(kPa) Linear Gauge Factor (G): -0.1196 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -2.259E-07 **B:** -0.1162 **C:**

Thermal Factor (K): 0.08157 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01734 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -3.277E-08 **B:** -0.01685 **C:**

Thermal Factor (K): 0.01183 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8933 **Temperature:** 21.1 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123102

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean Gaudry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9052	9052	9052	0.242	0.07	-0.027	-0.01
70.0	8475	8475	8475	70.06	0.02	70.06	0.02
140.0	7898	7899	7899	139.8	-0.06	139.9	-0.02
210.0	7320	7320	7320	209.8	-0.04	209.9	0.00
279.9	6740	6740	6740	280.0	0.01	280.0	0.01
350.0	6159	6159	6159	350.3	0.07	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1210 (kPa/ digit)

Polynomial Gauge factors: A: -2.02E-07 B: -0.1179 C:

Thermal Factor (K): -0.01546 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01755 (psi/ digit)

Polynomial Gauge Factors: A: -2.93E-08 B: -0.01710 C:

Thermal Factor (K): -0.002242 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9053 Temperature: 21.3 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123103

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dan O Conley

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9252	9253	9253	0.314	0.09	0.021	0.01
70.0	8697	8698	8698	69.95	-0.01	70.00	0.01
140.0	8141	8142	8142	139.7	-0.09	139.9	-0.02
210.0	7584	7585	7585	209.6	-0.10	209.8	-0.04
279.9	7022	7022	7022	280.2	0.07	280.2	0.08
350.0	6464	6464	6464	350.2	0.05	349.9	-0.04

(kPa) Linear Gauge Factor (G): -0.1255 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -2.767E-07 **B:** -0.1211 **C:**

Thermal Factor (K): -0.1383 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01820 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -4.013E-08 **B:** -0.01757 **C:**

Thermal Factor (K): -0.02005 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9245 **Temperature:** 21.3 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123104

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Landry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9281	9281	9281	0.238	0.07	0.046	0.01
70.0	8695	8696	8696	69.89	-0.02	69.92	-0.01
140.0	8107	8108	8108	139.8	-0.05	140.0	-0.01
210.0	7520	7520	7520	209.7	-0.06	209.9	-0.02
279.9	6928	6929	6929	280.1	0.05	280.1	0.06
350.0	6340	6340	6340	350.1	0.03	349.9	-0.03

(kPa) Linear Gauge Factor (G): -0.1190 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -1.612E-07 **B:** -0.1165 **C:**

Thermal Factor (K): -0.1198 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01726 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -2.338E-08 **B:** -0.01689 **C:**

Thermal Factor (K): -0.01737 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9281 **Temperature:** 21.2 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123105

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Coulter

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9091	9092	9092	0.179	0.05	-0.018	-0.01
70.0	8505	8506	8506	70.07	0.03	70.06	0.02
140.0	7920	7921	7921	139.8	-0.05	139.9	-0.03
210.0	7333	7334	7334	209.9	-0.03	209.9	-0.01
279.9	6745	6745	6745	280.1	0.03	280.0	0.03
350.0	6157	6157	6157	350.2	0.04	350.0	-0.01

(kPa) Linear Gauge Factor (G): -0.1193 (kPa/ digit)

Polynomial Gauge factors: A: -1.315E-07 B: -0.1173 C:

Thermal Factor (K): -0.1322 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01730 (psi/ digit)

Polynomial Gauge Factors: A: -1.907E-08 B: -0.01701 C:

Thermal Factor (K): -0.01918 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9086 Temperature: 21.3 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123106

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean C Goudey

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9062	9062	9062	0.240	0.07	0.016	0.00
70.0	8480	8481	8481	70.00	0.01	69.97	0.00
140.0	7898	7898	7898	139.9	-0.04	140.0	-0.02
210.0	7314	7314	7314	209.9	-0.01	210.0	0.02
279.9	6730	6730	6730	280.0	0.01	280.0	0.01
350.0	6144	6145	6145	350.2	0.06	350.0	-0.01

(kPa) Linear Gauge Factor (G): -0.1200 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -1.464E-07 **B:** -0.1177 **C:**

Thermal Factor (K): -0.07130 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01740 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -2.124E-08 **B:** -0.01708 **C:**

Thermal Factor (K): -0.01034 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9063 **Temperature:** 20.7 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123107

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 140 feet

Technician: Dean O Couden

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9189	9189	9189	0.000	0.00	-0.009	0.00
70.0	8584	8584	8584	69.92	-0.02	69.98	0.00
140.0	7978	7978	7978	139.9	-0.02	140.1	0.01
210.0	7373	7374	7374	209.8	-0.04	209.9	-0.01
279.9	6767	6767	6767	279.9	-0.02	280.0	0.00
350.0	6160	6160	6160	350.0	0.00	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1156 (kPa/ digit)

Polynomial Gauge factors: A: -5.161E-08 B: -0.1148 C:

Thermal Factor (K): -0.06801 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01676 (psi/ digit)

Polynomial Gauge Factors: A: -7.486E-09 B: -0.01665 C:

Thermal Factor (K): -0.009863 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9187 Temperature: 20.7 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123108

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean C Courtney

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8988	8988	8988	0.247	0.07	0.112	0.03
70.0	8425	8426	8426	69.81	-0.05	69.78	-0.05
140.0	7858	7858	7858	140.0	-0.01	140.0	0.00
210.0	7292	7292	7292	210.0	0.00	210.0	0.01
279.9	6725	6725	6725	280.1	0.04	280.1	0.03
350.0	6159	6159	6159	350.1	0.01	349.9	-0.02

(kPa) Linear Gauge Factor (G): -0.1237 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -8.846E-08 **B:** -0.1223 **C:**

Thermal Factor (K): -0.1260 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01794 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -1.283E-08 **B:** -0.01774 **C:**

Thermal Factor (K): -0.01828 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8981 **Temperature:** 21.5 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123109

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean O Coudry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9151	9152	9152	0.313	0.09	0.082	0.02
70.0	8596	8596	8596	69.80	-0.05	69.78	-0.06
140.0	8035	8034	8035	140.0	0.00	140.1	0.03
210.0	7475	7477	7476	209.9	-0.02	210.0	0.01
279.9	6916	6916	6916	279.9	0.00	279.9	0.00
350.0	6354	6354	6354	350.2	0.06	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1251 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -1.702E-07 **B:** -0.1225 **C:**

Thermal Factor (K): -0.08703 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01814 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -2.468E-08 **B:** -0.01776 **C:**

Thermal Factor (K): -0.01262 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)^*$

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)^*$

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9146 **Temperature:** 21.3 **°C** **Barometer:** 992.1 **mbar**

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123110

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean C Landry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9030	9031	9031	0.287	0.08	0.094	0.03
70.0	8425	8425	8425	69.87	-0.03	69.86	-0.03
140.0	7816	7816	7816	139.9	-0.05	139.9	-0.02
210.0	7207	7206	7207	209.9	-0.02	210.0	0.01
279.9	6595	6595	6595	280.2	0.06	280.2	0.06
350.0	5986	5987	5987	350.1	0.02	349.9	-0.04

(kPa) Linear Gauge Factor (G): -0.1149 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -1.226E-07 **B:** -0.1131 **C:**

Thermal Factor (K): -0.06986 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01667 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -1.778E-08 **B:** -0.01640 **C:**

Thermal Factor (K): -0.01013 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures: **Linear,** $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9027 **Temperature:** 21.2 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123111

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean C Condry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9062	9062	9062	0.000	0.00	-0.034	-0.01
70.0	8449	8448	8449	70.08	0.03	70.04	0.02
140.0	7836	7836	7836	140.1	0.01	140.0	0.00
210.0	7224	7224	7224	210.0	0.00	209.9	-0.01
279.9	6611	6611	6611	280.0	0.01	279.9	0.00
350.0	5997	5998	5998	350.1	0.01	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1142 (kPa/ digit)

Polynomial Gauge factors: A: 4.647E-09 B: -0.1143 C:

Thermal Factor (K): -0.003019 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01657 (psi/ digit)

Polynomial Gauge Factors: A: 6.74E-10 B: -0.01658 C:

Thermal Factor (K): -0.0004379 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9060 Temperature: 21.2 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123112

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean C Cruddy

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9208	9209	9209	0.309	0.09	0.045	0.01
70.0	8646	8646	8646	69.90	-0.02	69.91	-0.02
140.0	8080	8081	8081	139.9	-0.05	140.0	0.00
210.0	7515	7516	7516	209.7	-0.06	209.9	-0.01
279.9	6947	6947	6947	280.1	0.04	280.1	0.04
350.0	6380	6380	6380	350.2	0.05	350.0	-0.02

(kPa) Linear Gauge Factor (G): -0.1237 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -2.198E-07 **B:** -0.1203 **C:**

Thermal Factor (K): -0.01840 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01794 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -3.188E-08 **B:** -0.01745 **C:**

Thermal Factor (K): -0.002669 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9210 **Temperature:** 21.6 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123113

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 120 feet

Technician: Dean C Coudray

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9118	9117	9118	0.203	0.06	-0.002	0.00
70.0	8601	8601	8601	69.97	0.00	69.99	0.00
140.0	8083	8084	8084	139.9	-0.05	140.0	-0.01
210.0	7565	7566	7566	209.8	-0.04	210.0	0.00
279.9	7046	7047	7047	279.9	-0.01	280.0	0.00
350.0	6526	6526	6526	350.2	0.06	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1351 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -2.117E-07 **B:** -0.1318 **C:**

Thermal Factor (K): -0.05059 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01959 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -3.071E-08 **B:** -0.01911 **C:**

Thermal Factor (K): -0.007338 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9112 **Temperature:** 21.3 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123114

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 60 feet

Technician: Dan C Conley

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8940	8940	8940	0.117	0.03	-0.003	0.00
70.0	8341	8342	8342	70.01	0.01	70.01	0.01
140.0	7743	7743	7743	139.9	-0.03	140.0	-0.02
210.0	7144	7144	7144	209.9	-0.03	209.9	-0.01
279.9	6543	6543	6543	280.0	0.03	280.0	0.03
350.0	5943	5943	5943	350.1	0.02	350.0	-0.01

(kPa) Linear Gauge Factor (G): -0.1168 (kPa/ digit)

Polynomial Gauge factors: A: -8.536E-08 B: -0.1155 C:

Thermal Factor (K): -0.05771 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01694 (psi/ digit)

Polynomial Gauge Factors: A: -1.238E-08 B: -0.01675 C:

Thermal Factor (K): -0.008370 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8933 Temperature: 21.4 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123115

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 60 feet

Technician: Dan C Cauley

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9117	9118	9118	0.299	0.09	0.121	0.03
70.0	8537	8537	8537	69.78	-0.06	69.79	-0.05
140.0	7951	7952	7952	139.9	-0.05	140.0	-0.02
210.0	7366	7366	7366	209.9	0.00	210.0	0.02
279.9	6780	6780	6780	280.1	0.04	280.1	0.04
350.0	6195	6195	6195	350.1	0.02	349.9	-0.03

(kPa) Linear Gauge Factor (G): -0.1197 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -1.359E-07 **B:** -0.1176 **C:**

Thermal Factor (K): -0.03753 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01736 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -1.971E-08 **B:** -0.01706 **C:**

Thermal Factor (K): -0.005443 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9115 **Temperature:** 21.3 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123116

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 60 feet

Technician: Dan C Landry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	9101	9098	9100	0.436	0.12	0.009	0.00
70.0	8542	8542	8542	69.95	-0.01	69.98	0.00
140.0	7982	7983	7983	139.7	-0.09	140.0	-0.01
210.0	7421	7421	7421	209.7	-0.06	210.0	0.01
279.9	6858	6858	6858	279.9	-0.01	280.0	0.00
350.0	6293	6292	6293	350.4	0.12	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1247 (kPa/ digit)

Polynomial Gauge factors: A: -3.629E-07 B: -0.1191 C:

Thermal Factor (K): -0.09602 (kPa/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01808 (psi/ digit)

Polynomial Gauge Factors: A: -5.264E-08 B: -0.01727 C:

Thermal Factor (K): -0.01393 (psi/ °C)

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 9099 Temperature: 21.4 °C Barometer: 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.

GEOKON®

Vibrating Wire Pressure Transducer Calibration Report

Model Number: 4500S-350 kPa

Date of Calibration: July 09, 2021

This calibration has been verified/validated as of 07/20/2021

Serial Number: 2123117

Temperature: 22.00 °C

Calibration Instruction: CI-Pressure Transducers 7 kPa~3.5 MPa

Barometric Pressure: 991.4 mbar

Cable Length: 60 feet

Technician: Dean C Condry

Applied Pressure (kPa)	Gauge Reading 1st Cycle	Gauge Reading 2nd Cycle	Average Gauge Reading	Calculated Pressure (Linear)	Error Linear (%FS)	Calculated Pressure (Polynomial)	Error Polynomial (%FS)
0.0	8838	8839	8839	0.298	0.09	-0.005	0.00
70.0	8255	8255	8255	69.91	-0.02	70.00	0.01
140.0	7670	7670	7670	139.7	-0.09	140.0	-0.01
210.0	7083	7084	7084	209.7	-0.08	210.0	0.00
279.9	6495	6495	6495	279.9	-0.02	280.0	0.01
350.0	5904	5905	5905	350.3	0.08	350.0	0.00

(kPa) Linear Gauge Factor (G): -0.1193 **(kPa/ digit)**

Polynomial Gauge factors: **A:** -2.862E-07 **B:** -0.1151 **C:**

Thermal Factor (K): 0.06505 **(kPa/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

(psi) Linear Gauge Factor (G): -0.01730 **(psi/ digit)**

Polynomial Gauge Factors: **A:** -4.151E-08 **B:** -0.01669 **C:**

Thermal Factor (K): 0.009435 **(psi/ °C)**

Calculate C by setting P=0 and R_1 = initial field zero reading into the polynomial equation

Calculated Pressures:

Linear, $P = G(R_1 - R_0) + K(T_1 - T_0) - (S_1 - S_0)$*

Polynomial, $P = AR_1^2 + BR_1 + C + K(T_1 - T_0) - (S_1 - S_0)$*

*Barometric pressures expressed in kPa or psi. Barometric compensation is not required with vented transducers.

Factory Zero Reading: 8831 **Temperature:** 21.2 °C **Barometer:** 992.1 mbar

The above instrument was found to be in tolerance in all operating ranges.
The above named instrument has been calibrated by comparison with standards traceable to the NIST, in compliance with ANSI Z540-1.