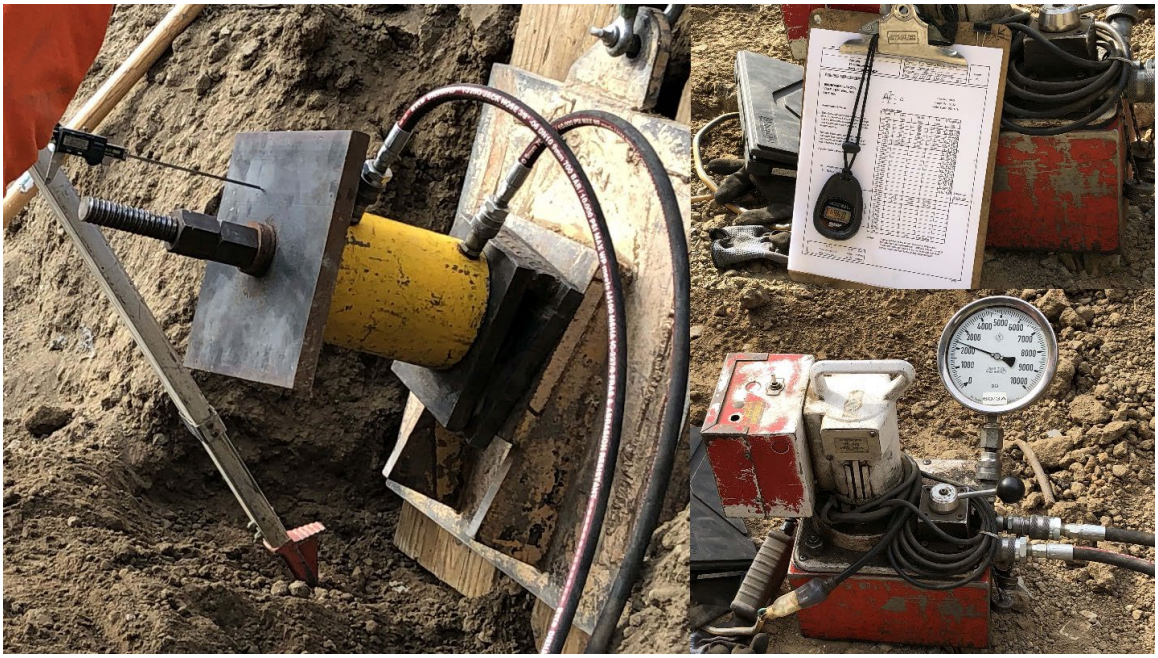
Quail User Guide



Division of Engineering Services/Geotechnical Services
California Department of Transportation

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1. Introduction

The Quail Windows app is a geotechnical engineering software developed and maintained by Geotechnical Services, Division of Engineering Services, California Department of Transportation (Caltrans). This software is developed to facilitate and ensure consistent collection of Caltrans geotechnical construction quality assurance test data in digital format and assist in evaluating the test results.

Quail includes the following features:

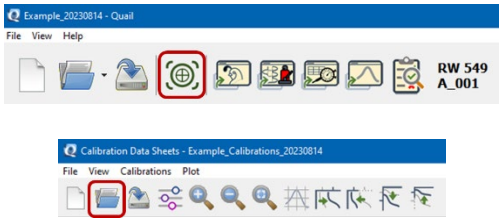
- Allow consistent data entry.
- Provide options for all load schedules under Caltrans Standard Specifications.
- Display graphs of the test.
- Provide test summary with evaluations of pullout, elongation, and creep.
- Save data in a database format so that the data can be transmitted and upload into Caltrans Quail database server.
- Save certified calibration data of multiple test equipment in the Quail calibration data file. The file can be shared with your colleagues so that calibration data of the test equipment used for a subsequent project can be retrieved and used.

The software runs under the Windows native operating system. The software will not function on a computer running Windows through virtual machine software. You may download Quail installation file from the link provided below.

2. Getting Started

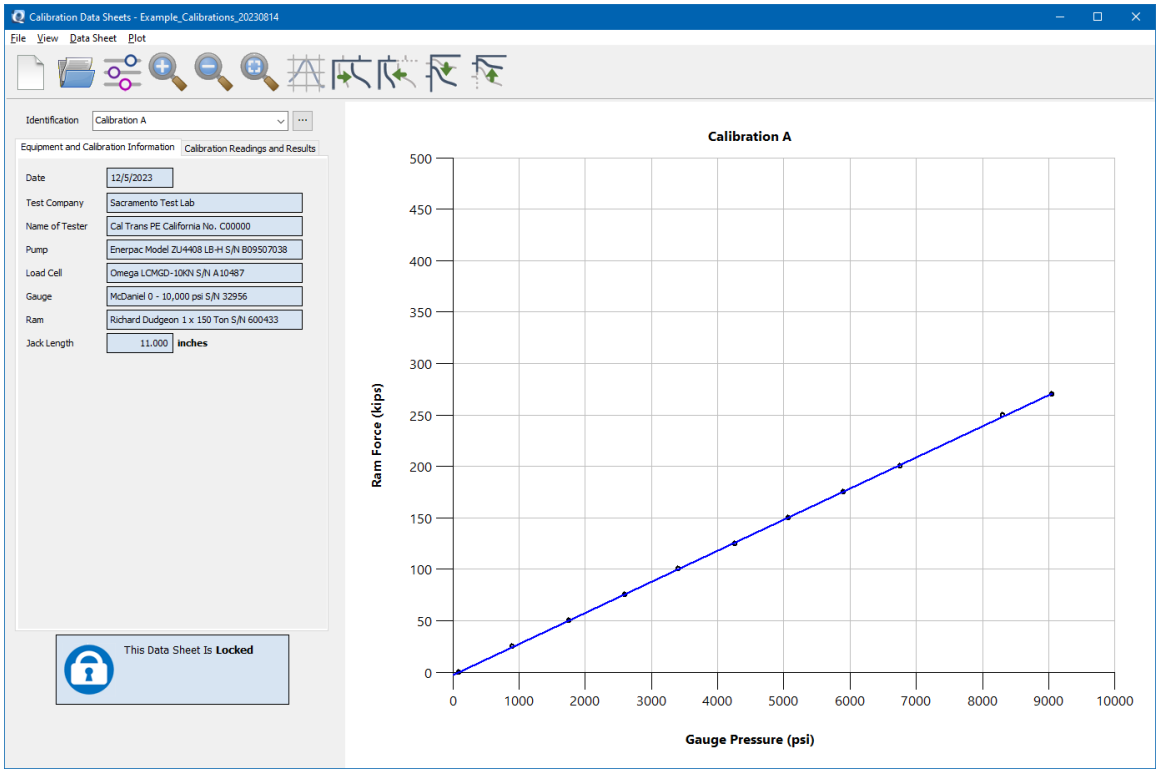
To get started with Quail, open the example calibration file and the example data file.

To open the example calibration file (.quailc), click on the ***Calibration Data Sheets*** icon in the first screenshot below, and the ***Open*** icon in the second screenshot below.

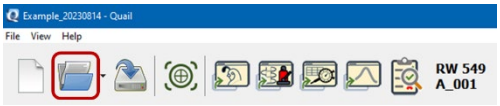


After you open the example calibration data file or a file with data properly entered and locked, Quail will display the following ***Calibration Data Sheets*** panel, which includes two tabs:

- ***Equipment and Calibration Information***, and
- ***Calibration Readings and Results***.

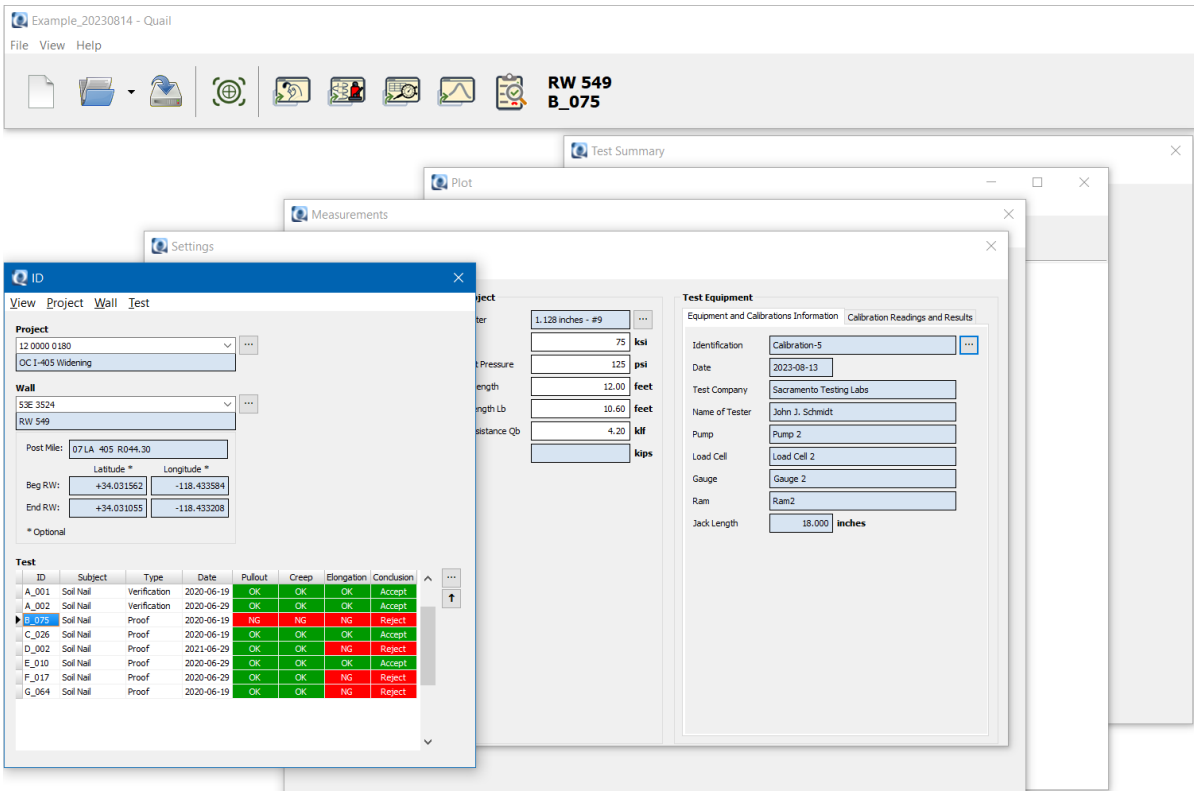


To open the example data file (.quail), click on the ***Open***  icon in the following screenshot.



After you open the example data file or a file with data properly entered, Quail will display the Quail toolbar and a cascade of 5 viewing panels, ***ID***, ***Settings***, ***Measurements***, ***Plot***, and ***Test Summary***. You may navigate through the panels by clicking on each panel.

If you want the display to return to default cascaded-panels arrangement, select ***View*** → ***All Data Panels*** or use the ***F6*** key.



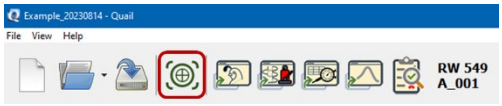
3. Features

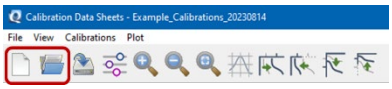
Calibration Data Sheets

At beginning of a construction project, you must enter certified calibration data of the test equipment to be used for the project into the Quail Calibration Data Sheets or retrieve the calibration data from the Quail calibration data file (.quailc).

Enter certified calibration data using the ***Calibration Data Sheets*** panel. You may save the data in the calibration data file. The calibration data file with valid certified calibration data can be shared and used for subsequent projects using the same test equipment.

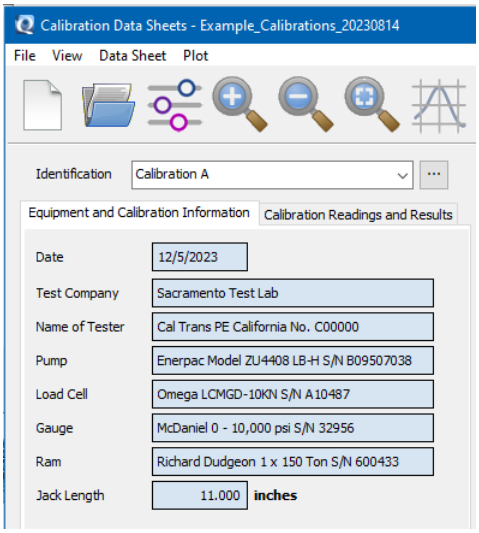
To enter or select a calibration data sheet click on the ***Calibration Data Sheets*** icon in the first screenshot below, and the ***New*** or ***Open*** icon in the second screenshot below.





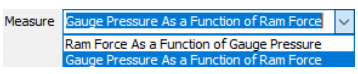
To enter a new set of calibration data, proceed with the following steps:

Step 1. Click on the ***Equipment and Calibration Information*** tab.
Step 2. Enter data in the fields.

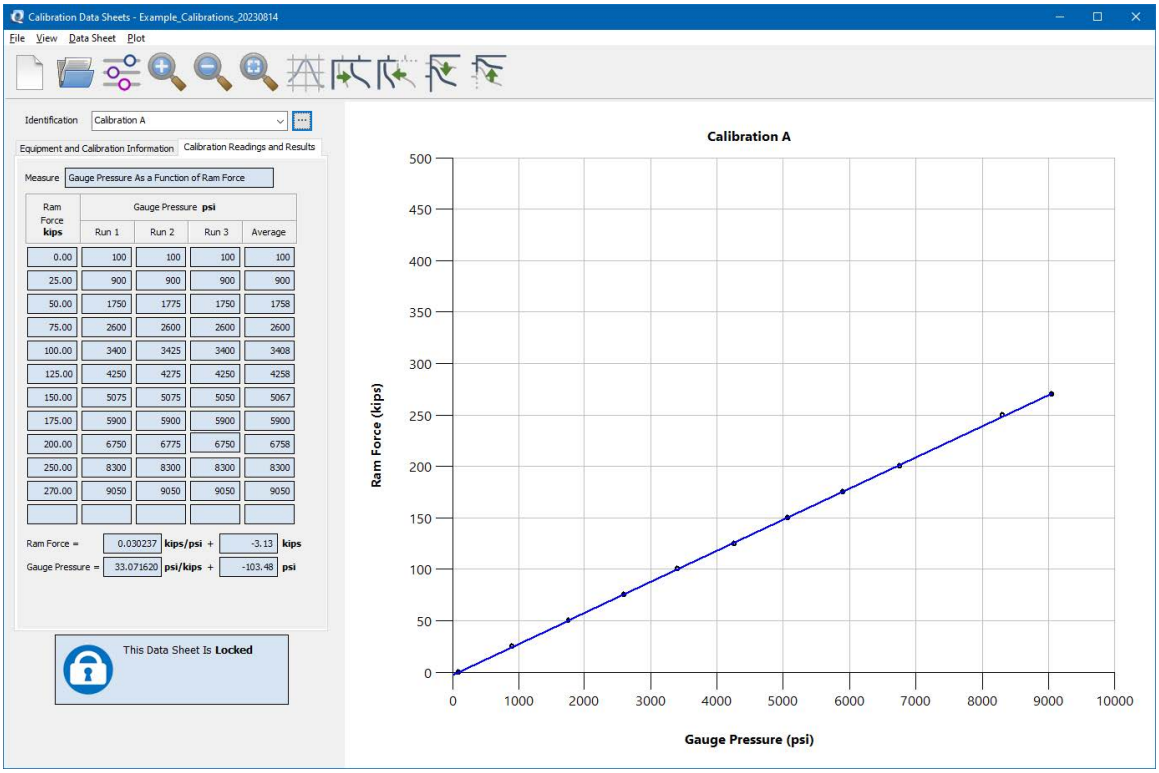


Step 3. Click on the ***Calibration Readings and Results*** tab.
Step 4. Select the ***Measure*** option:

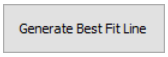
- ***Ram Force as a Function of Gauge Pressure***, or
- ***Gauge Pressure as a Function of Ram Force***



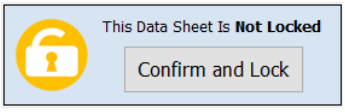
Step 5. Enter data in the fields.



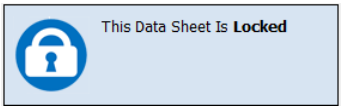
Step 6. Check and ensure entered information and data are consistent with the certified calibration sheet.

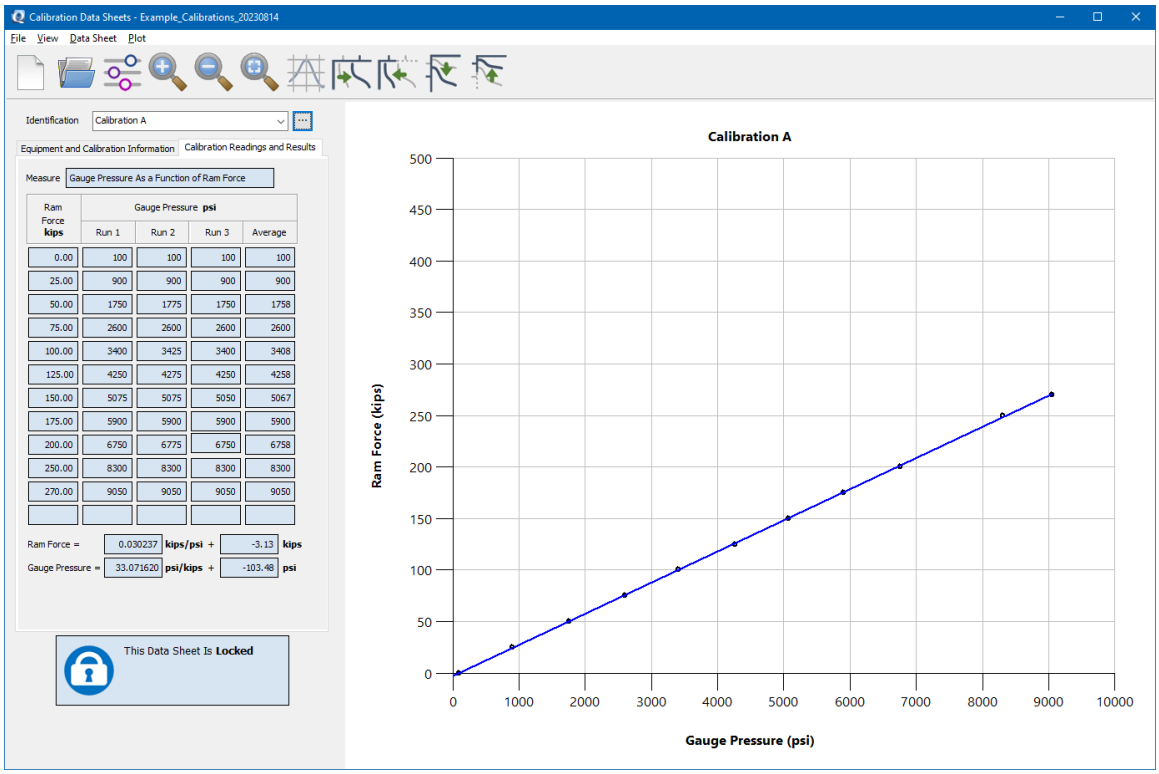
Step 7. Click on the ***Generate Best Fit Line*** button. 

Step 8. Click on the "Confirm and Lock" button to lock the data sheet. A data sheet that is not locked will not be saved in the calibration file (.quailc).

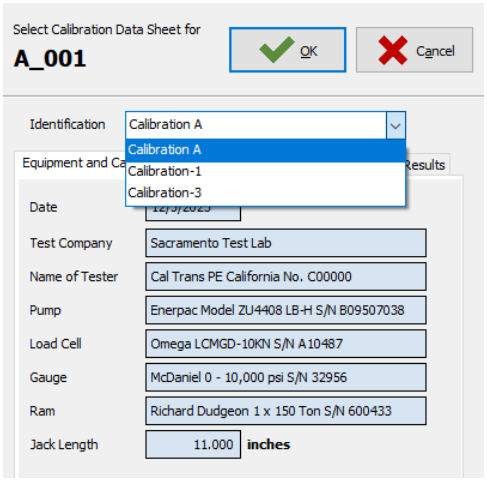


Only data sheets that are locked will be saved in the calibration file (.quailc) and the calibration formula can be use by Quail for test data conversion from ramp force to pump pressure gauge.



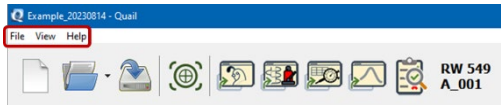


Step 9. To apply an existing calibration data sheet from a calibration data file, select the Calibration Data Sheet from the calibration ***Identification*** pulldown menu.



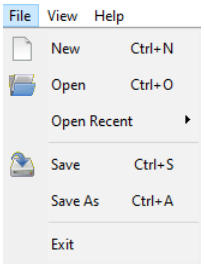
Quail Test Data

Quail has three main menus: ***File***, ***View***, and ***Help***.



➢ *File*

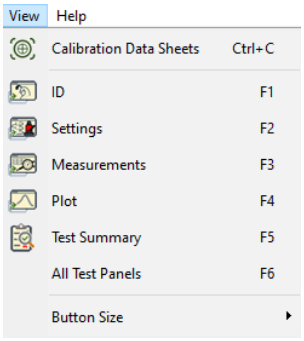
The ***File*** menu includes ***New, Open, Open Recent, Save, Save As***, and ***Exit*** (Figure 2).



➢ *View*

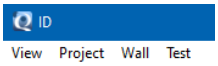
The ***View*** includes options of viewing ***ID, Settings, Measurements, Plot, Test Summary, All Test Panels,*** and selecting ***Calibrations Manager***, and ***Button Size***.

You may open a panel by clicking on the selection in the ***View*** menu or clicking one of the icons in the Quail toolbar.



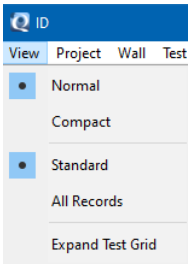
➢ *ID*

The ***ID*** panel includes ***View***, ***Project***, ***Wall***, and ***Test*** tabs.

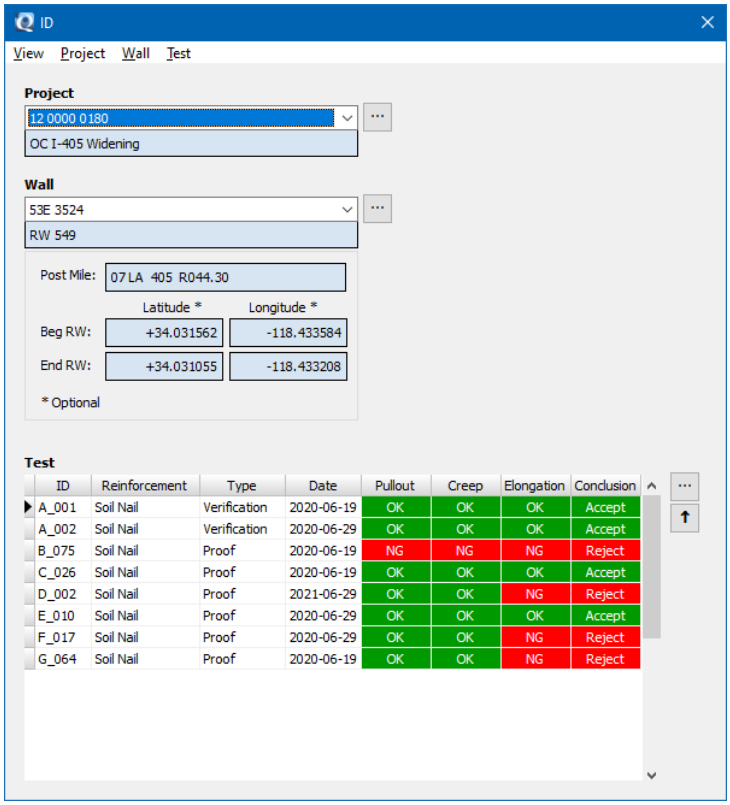


View

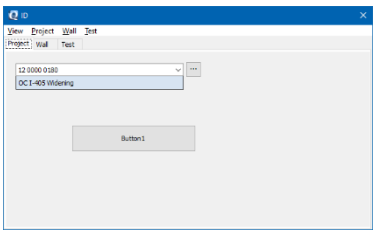
The *View* tab includes ***Normal***, ***Compact***, ***Standard***, ***All Records***, and ***Expand Test Grid*** options.

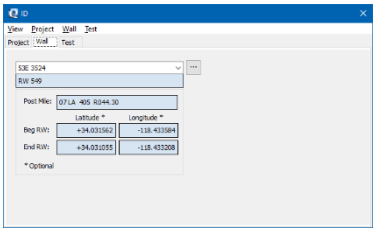


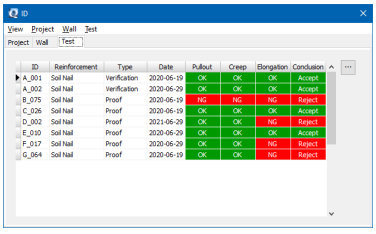
With ***Normal*** view, you can view all the three sections, Project, Wall, and Test, in a single panel.



To save screen real estate, you may select ***Compact*** view mode, which display only one section at a time, either Project, Wall, or Test.





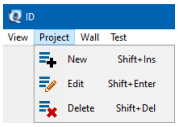


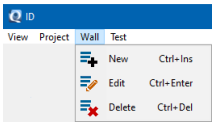
Select ***Standard*** to view test records of the project you are in. Select ***All Records*** to view wall test records in the file.

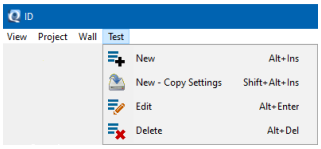
Create, Edit, Delete Records

There are three options to create, edit, and delete a project, wall, or test record.

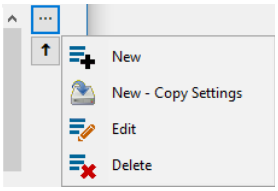
Option 1. On the ***ID*** toolbar, click on ***Project***, ***Wall***, or ***Test*** to create new, edit, or delete a project, wall, or test record.



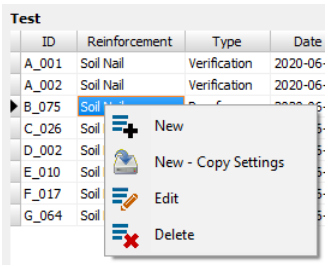




Option 2. Click on the three-dots icon ⋯ at the upper-right corner of each of the section to create new, edit, or delete the Project, Wall, and Test record.

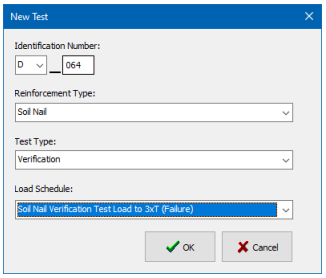


Option 3. Right click on the selected record

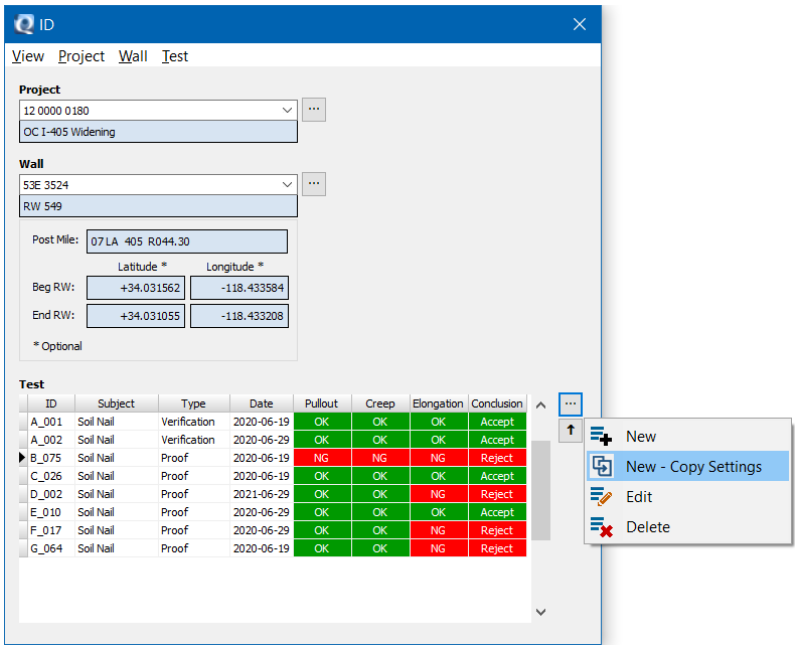


To enter a new test record, select ***New*** tab and enter *Test ID*, *Test Subject* (Soil Nail or Ground Anchor), *Test Type* (Verification, Proof for soil nail, and Verification, Proof, Performance for ground anchor), and *Load Schedule*.

Please note that Custom option of *Load Schedule is currently not available.*

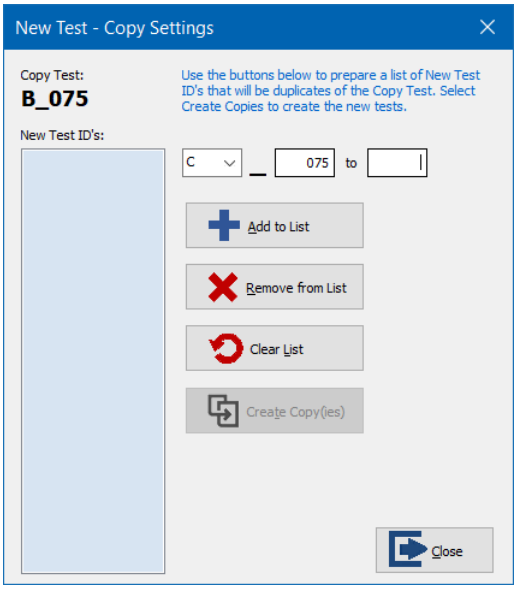


Most of the information required in the *Settings* panel may be the same for a structure. To avoid unnecessarily repeated data entries, you may use the ***New – Copy Settings*** tab to copy settings of a test already performed or entered and create copies to the new tests.



From the test ID list, select the test that you want to copy the settings from. In the example shown, test *B_075* was selected. Then, right-click or click the ⋯ icon → *New – Copy Settings*.

The ***New Test – Copy Settings*** panel will appear.



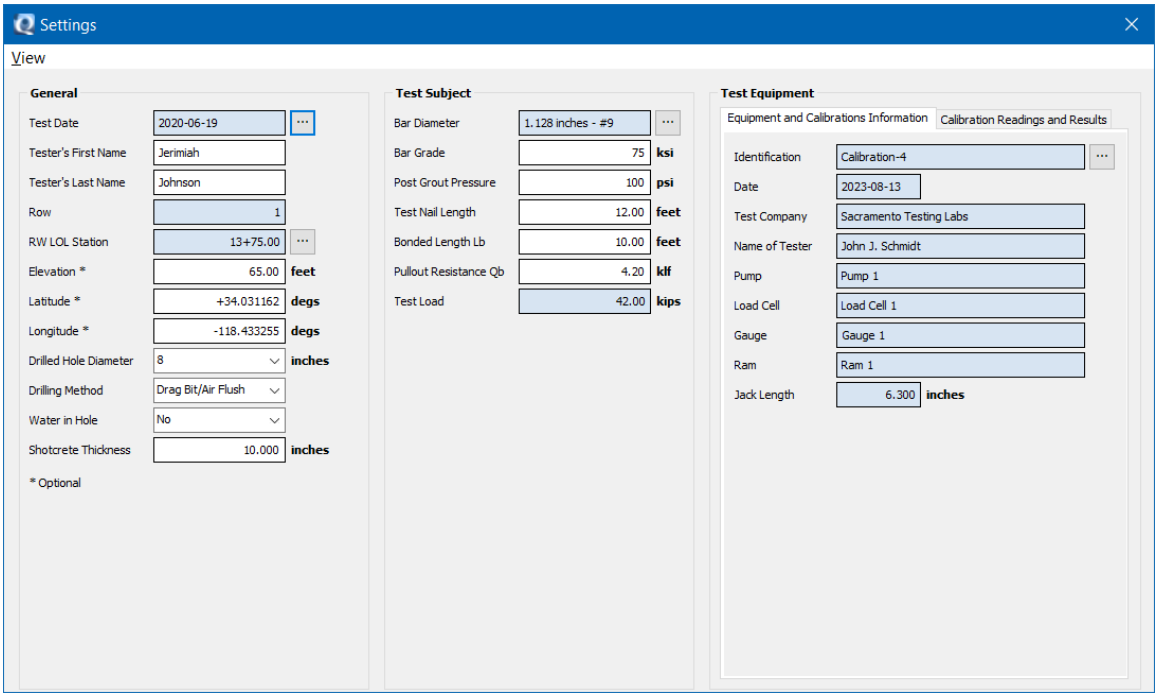
Enter the list of new test IDs that you want to have the settings from *B_075* to be copied to and click *Add to List*. You may select and *Remove* the tests from the list. You may also *Clear* the list.

When you finish entering the New Test IDs, click on the *Create Copies* button. The new tests will be populated in the *Test* list and the fields in the ***Settings*** panel will also be populated.

Warning: Double check the values in the ***Settings*** fields of each test that have been pre-populated using this feature. Some tests may have some settings different from the test you copied from. Be diligent. Correct the settings values when needed.

➢ *Setting*

Enter information in the fields in the ***Setting*** panel. The panel is divided into *General*, *Test Subject*, and *Test Equipment* sections.



The *General* section records information such as the test date, tester, geospatial information, and preparation of the test. This information can be used to reference to geotechnical condition of the location provide by the geotechnical reports.

The *Test Subject* section records data of the test subject.

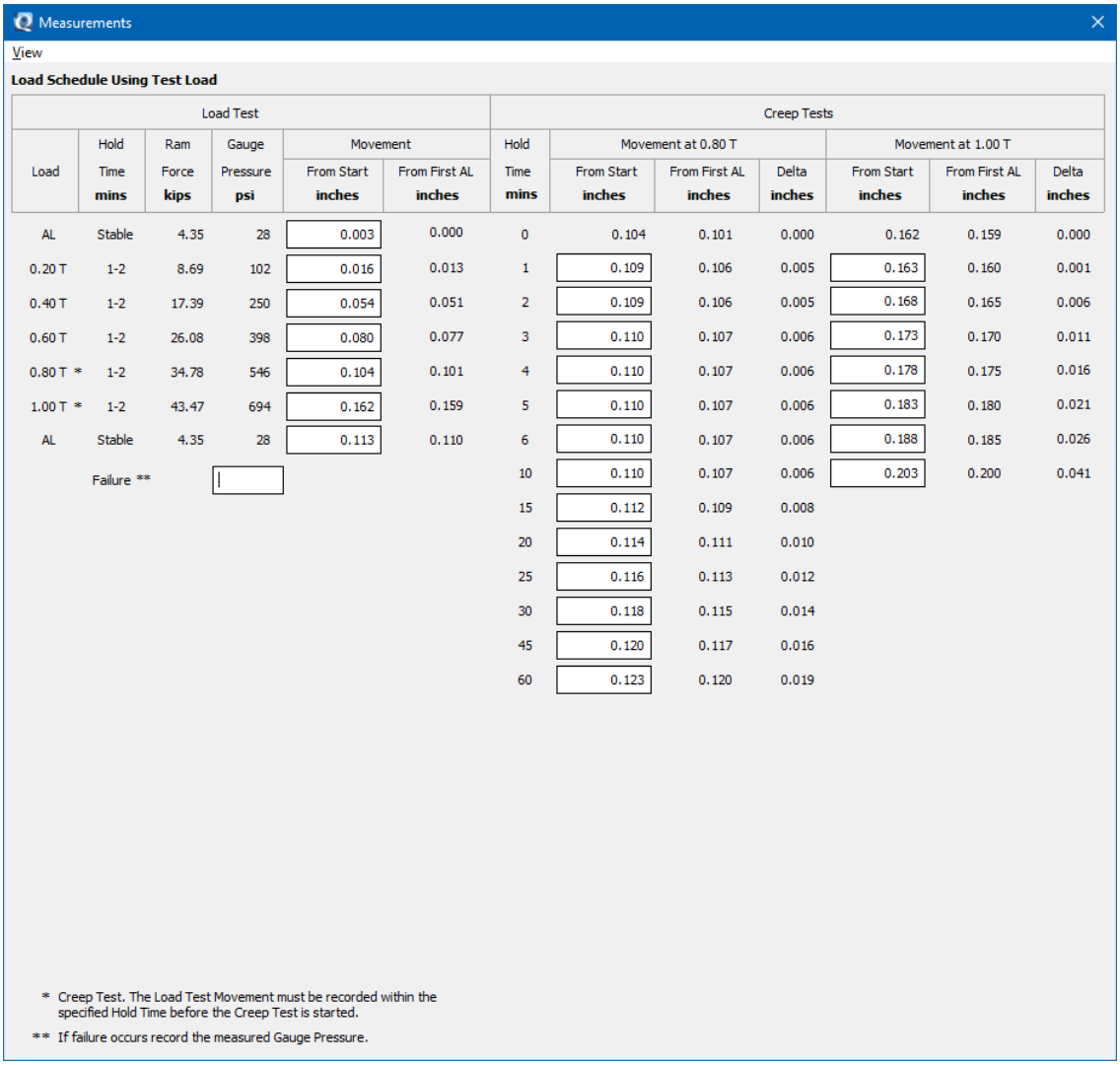
The *Test Equipment* section records test equipment used. The information is transferred from the Calibration Data Sheet.

➢ *Measurements*

Enter test readings in the ***Measurements*** panel.

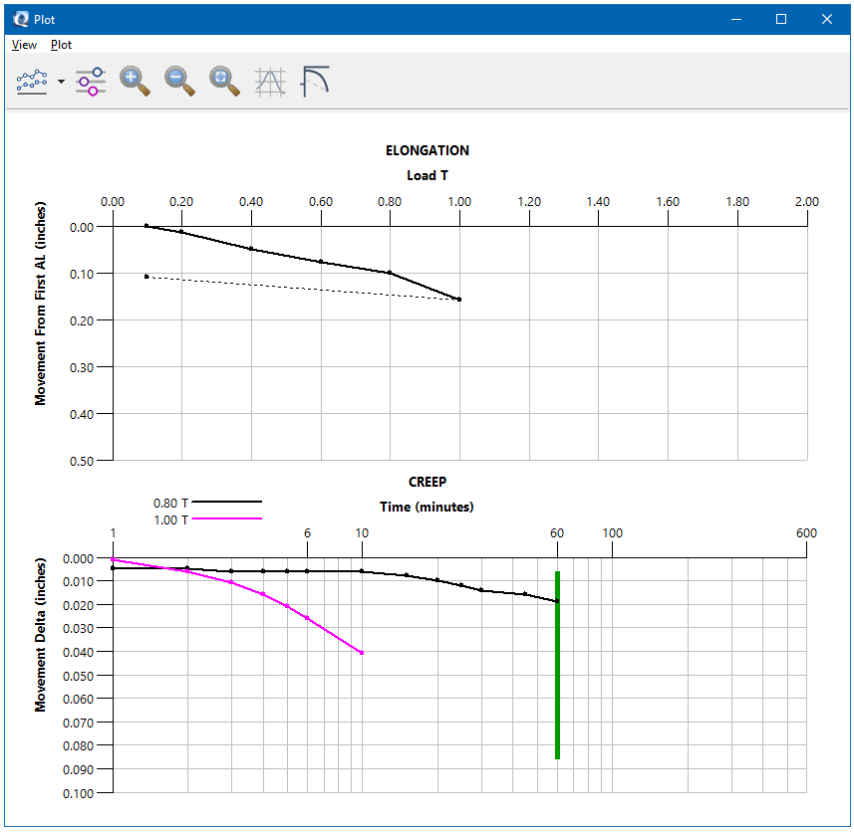
The panel display the load schedule and measurement fields that require data entry according to the load schedule selected in the ***ID*** panel.

If the test failed before the completion of a load test, enter the gauge pressure reading in the *Failure* field.

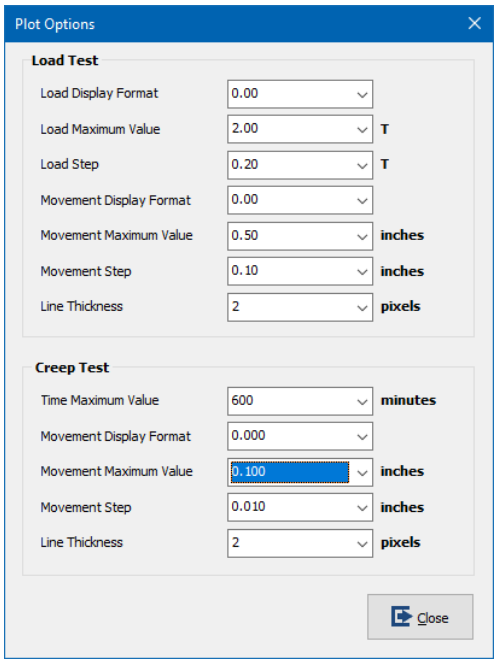


➢ *Plot*

The Plot panel display plots of load test and creep test. You may select display options of elongation, creep, or both elongation and creep plots.



Select ***Options*** from the pull-down menu or the ***Option***  icon to adjust the display.



➢ *Test Summary*

Test Summary panel displays the summary of the test, including pullout resistance, creep, and elastic elongation.

The summary may show color coded OK, NG, or Warning. The evaluation of OK and NG are based on the criteria described in the Standard Specifications.

The display of Warning suggests the test and test data need detailed evaluation even though the test may not be rejected according to the contract.

You may enter comments on the test in the *Comments* field.