

Boretrak2

Borehole deviation survey system

Quick start operational guide

v.02



1 Preparation

- You are running the most recent release of **Carlson Boretrak**, available from Carlson's website.
- The Bluetooth function on your tablet is turned ON and the Boretrak2 probe is paired with your tablet.
- The supplied, rechargeable Boretrak2 batteries are fully charged.
- The probe, thread, batteries and deployment device are all inspected and found to be in good condition and free from damage.

Load the batteries into the Boretrak2 nose cone and screw the nose cone securely onto the probe. The Boretrak2 is now ON.

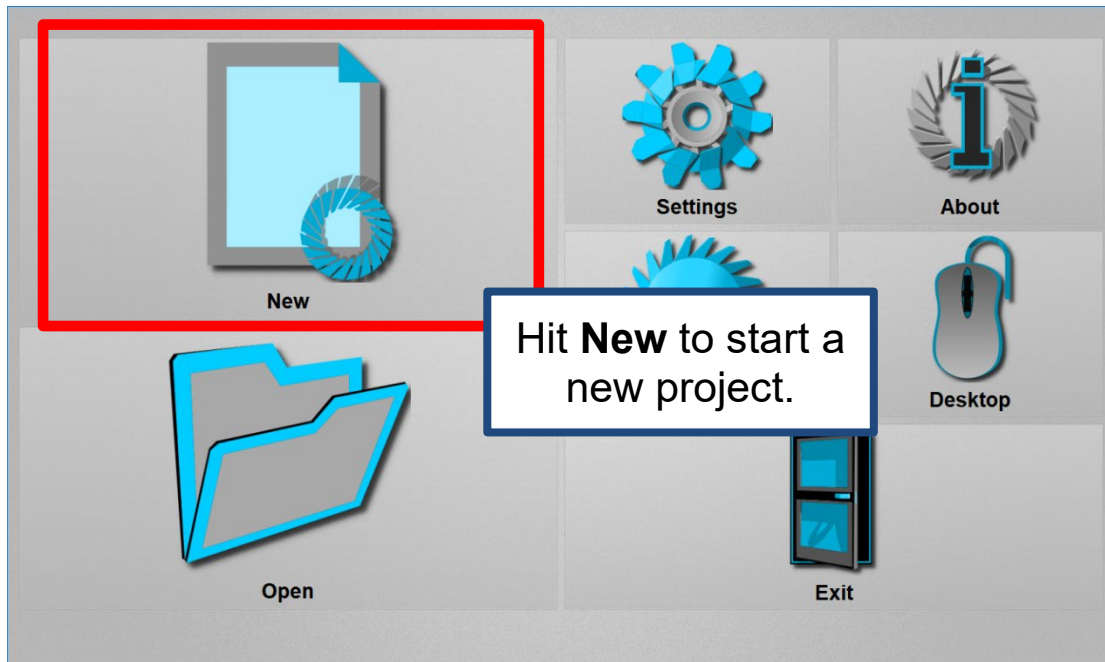
The probe LEDs start by showing solid yellow while the power is stabilising. They progress to flashing blue if there has been no Bluetooth connection, or flashing red if there has been a Bluetooth connection.

Set out the alignment jig in a known heading and in a position that will be convenient for your deployment. The accuracy of the alignment heading determines the accuracy of the whole survey until the next alignment, so take great care when setting out the jig.

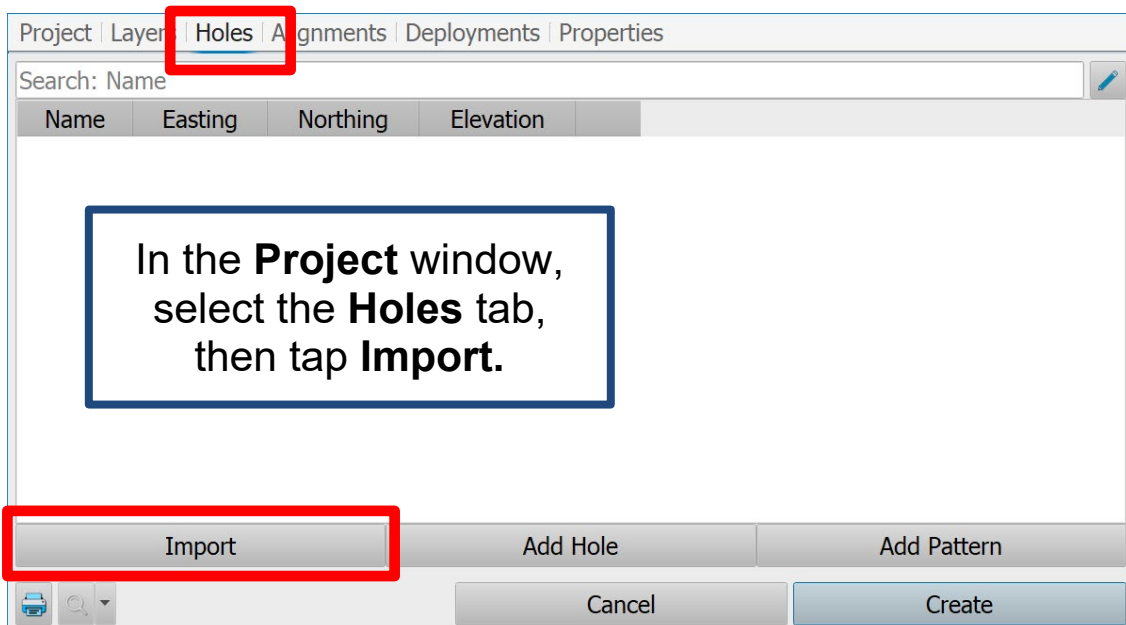


Open **Carlson Boretrak**.

2 New project



The **Project** window appears. At this stage you can import pre-surveyed and pre-designed holes into **Carlson Boretrak**. This allows you to plan your field operations better and to see in near real-time the deviation and layout of your drilled holes.



Select a CSV file containing hole data. Then define the fields within the file.

Hole ASCII Import Properties [X]

Ascii Settings | Quick Settings | Advanced | Import Log

Hole ASCII: Data Ignored Use Entire File

Save Template: Default Default Value

Open Template:

Hole Name	Easting	Northing	Elevation	Ignore	Ignore	
1	2005	3000.09	50	25.5	315	1
2	2009.02	3				1
3	2013.04	3				1
4	2017.06	3				1
5	2021.08	3				1

File Settings: Show On Each Import

Select the column header, then select the correct field from the drop-down **Data** list.

Hole ASCII Import Properties [X]

Ascii Settings | Quick Settings | Advanced | Import Log

Hole ASCII: Data Inclination Use Entire File

Save Template: Default Default Value

Open Template:

Row Name	Hole Name	Easting	Northing	Elevation	Length	Heading	Inclination
1	1	2005	3000.09	50	25.5	315	15.5
2	2	20					.5
3	3	20					.5
4	4	20					.5
5	5	2021.08	3015.89	50.14	25.5	315	15.5

File Settings: Show On Each Import

After the last column header, tap **Confirm**. Then tap **Import**.

Project | Layers | **Holes** | Alignments | Deployments | Properties

Search: Name

Name	Easting	Northing	Elevation	
1	2015.00m	2990.09m	50.00m	D
1	2010.00m	2995.09m	50.00m	D
1	2005.00m	3000.09m	50.00m	D
2	2019.02m	2994.01m	50.05m	Deploy BT
2	2014.02m	2999.09m	50.05m	Deploy BT
2	2009.02m	3004.04m		
3	2023.04m	2997.94m		

Import Add Hole Add Pattern

Cancel **Create**

The holes are imported into the **Holes** list.

Tap **Create** to start the new project.

3 Connection

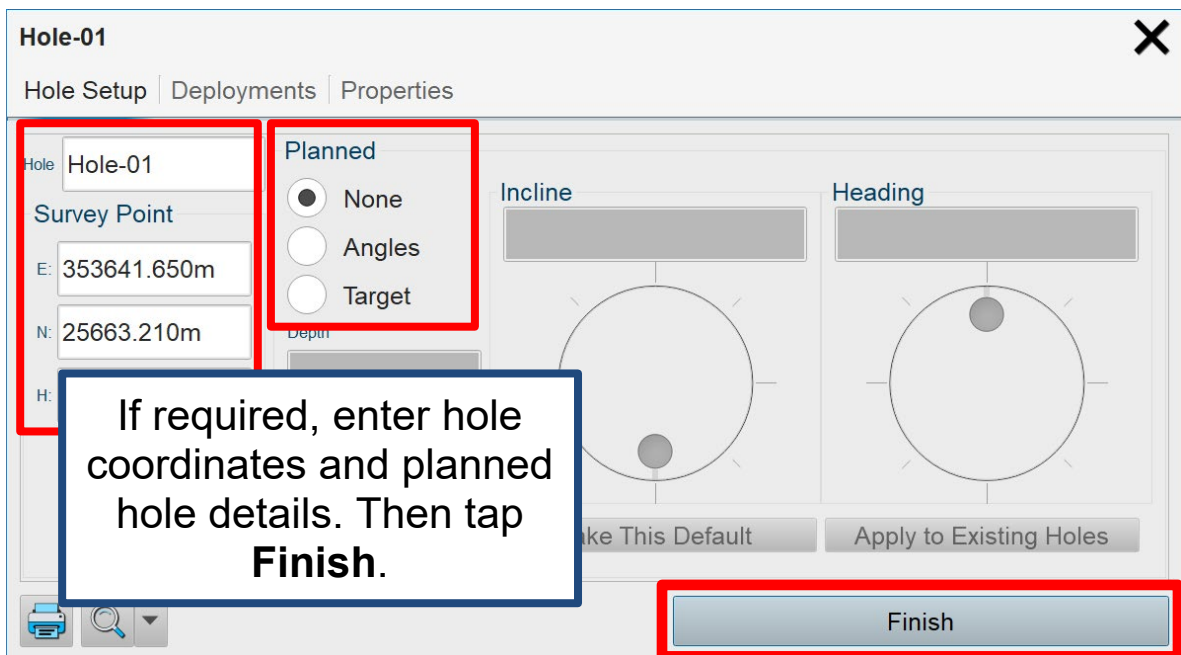
Carlson Boretrak automatically starts searching for your probe.

If no connection is made, check:

- The Boretrak2 probe is powered ON and flashing red or blue.
- The Boretrak2 is paired to your tablet.
- Bluetooth on your tablet is switched ON.
- No other devices are connected to the same Boretrak2 probe.

Tap **Find Boretraks** to reattempt a connection.

If you have not imported any holes into the project, a **Hole Setup** dialog appears.



Hole-01

Hole Setup | Deployments | Properties

Hole: Hole-01

Survey Point

E: 353641.650m

N: 25663.210m

H:

Planned

None

Angles

Target

Incline

Heading

Make This Default

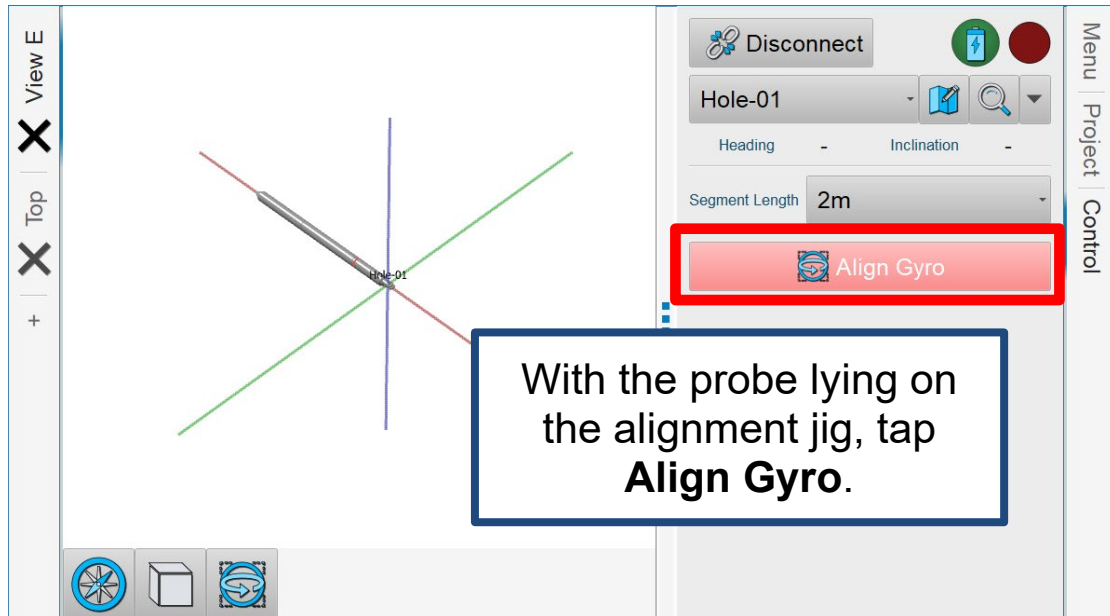
Apply to Existing Holes

Finish

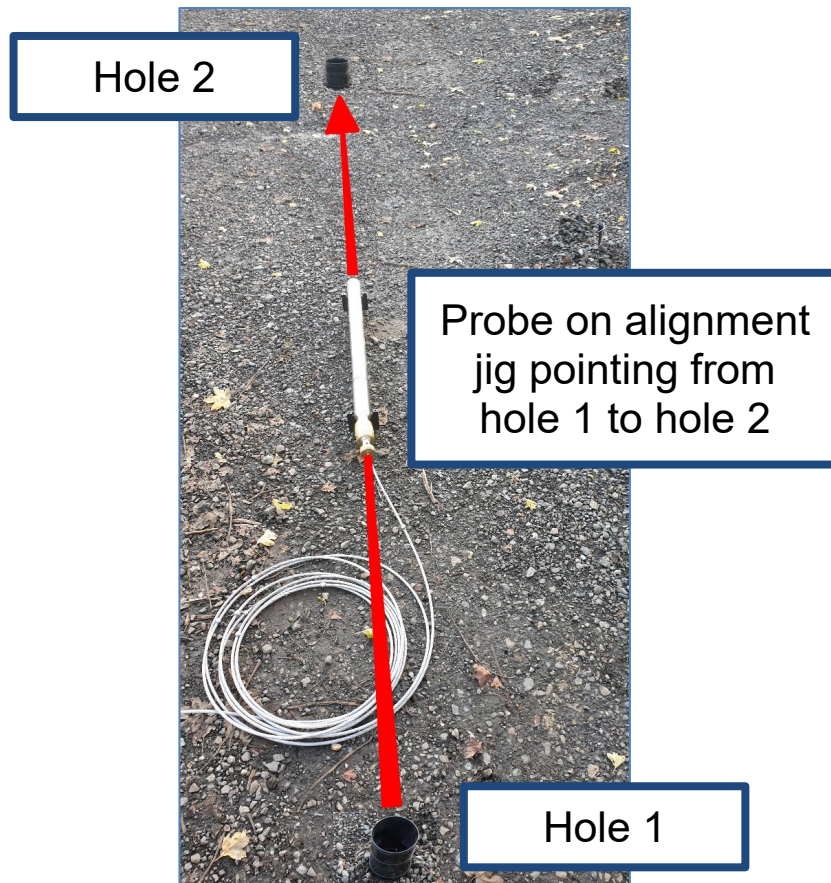
If required, enter hole coordinates and planned hole details. Then tap **Finish**.

4 Alignment

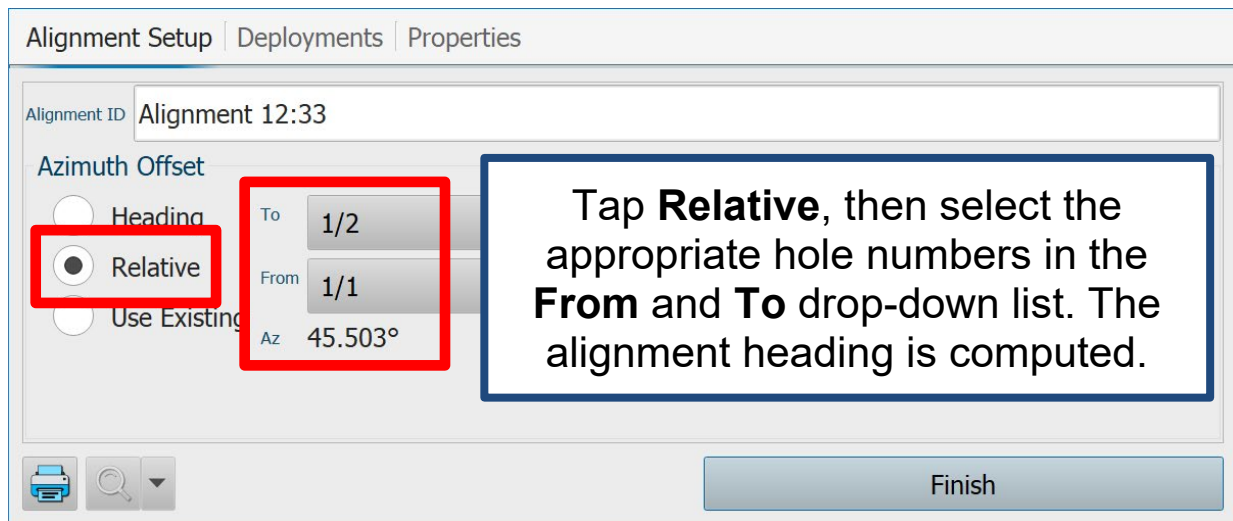
Position the probe on the alignment jig.



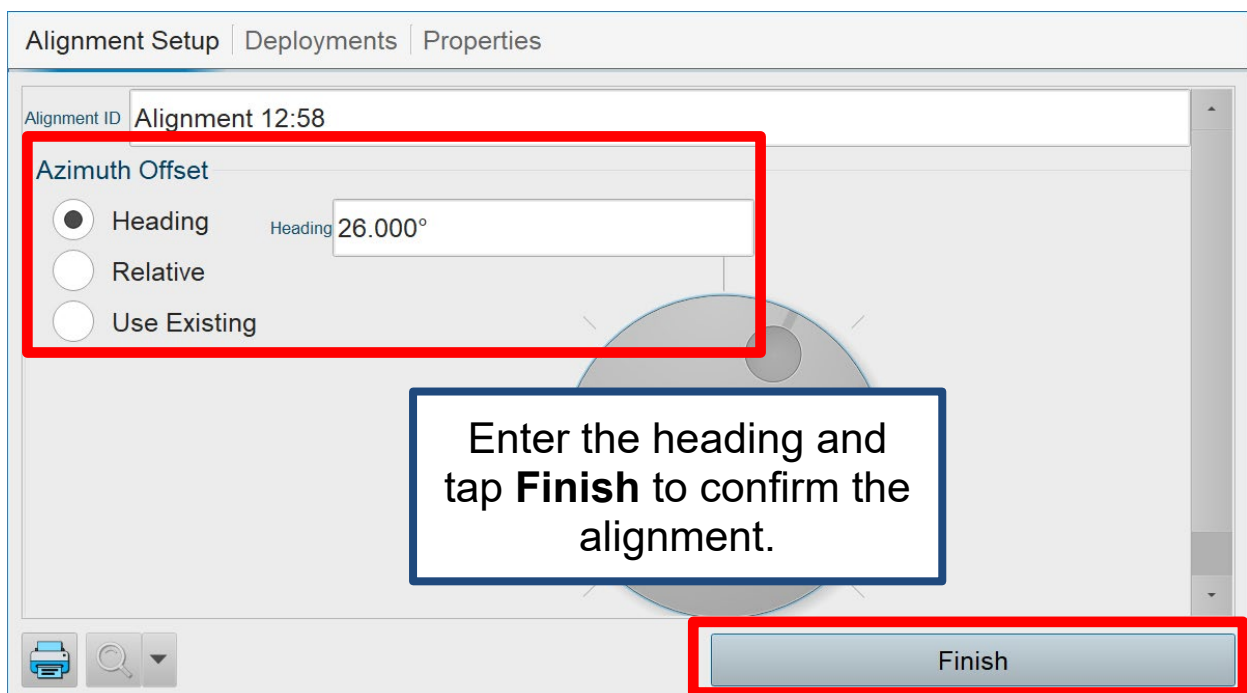
If you have pre-existing holes in the project with real-world coordinates, you can use these to align the gyro.



When you carry out an alignment, the **Alignment Details** window appears.

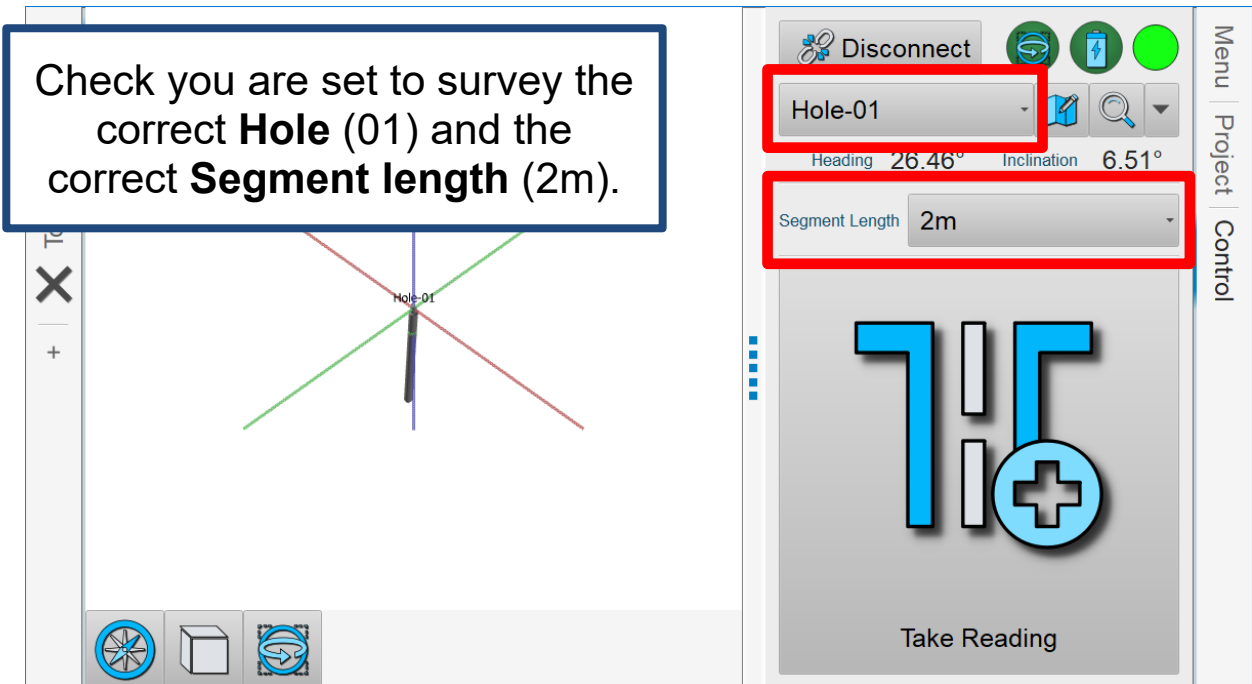


Alternatively, you can just enter a known heading. The required heading is always that pointing along the probe towards the nose cone.



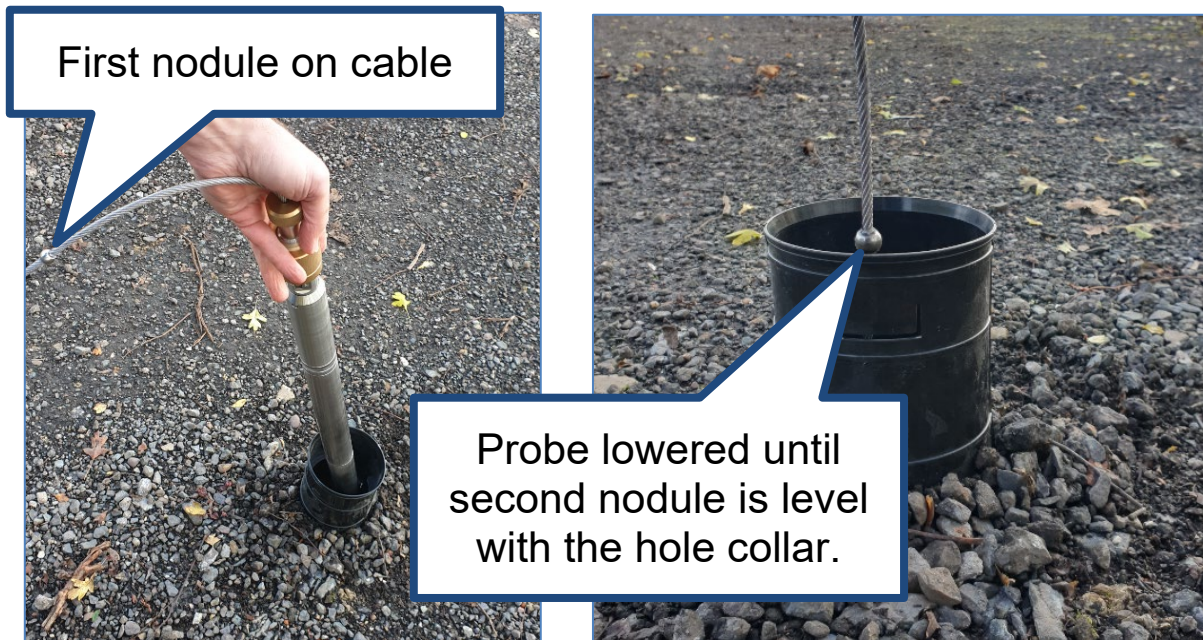
After an alignment is complete, handle the probe with care to ensure the gyro can keep track of the changing heading and to avoid exceeding the rotation rate threshold of the gyro.

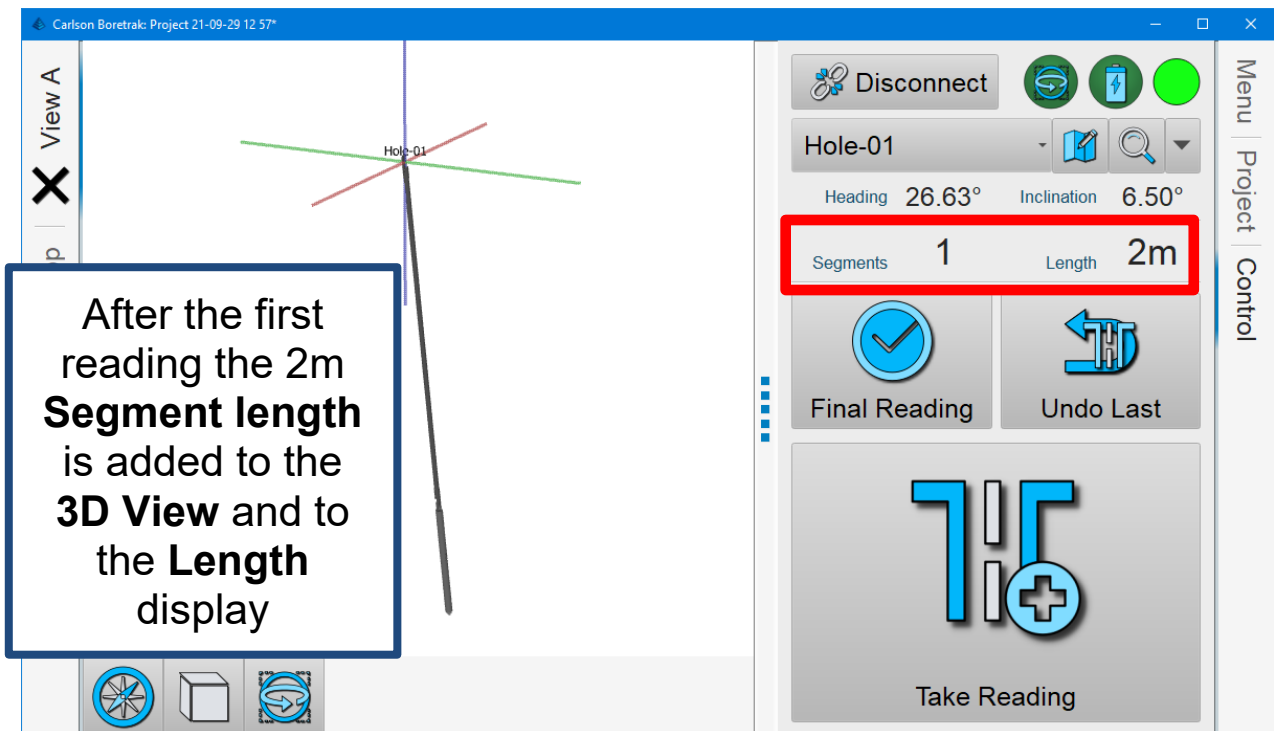
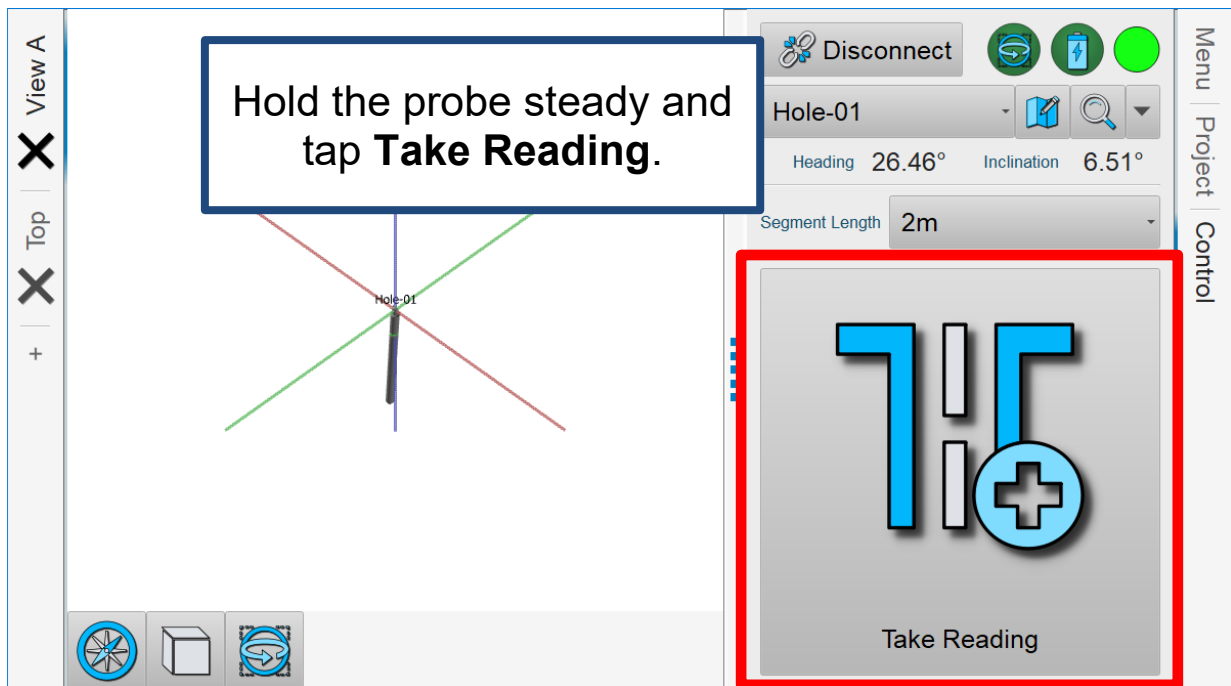
5 Deployment



Now you are connected and ready to survey.

Deploy the probe so the tip of the nose cone is 2m past the collar.

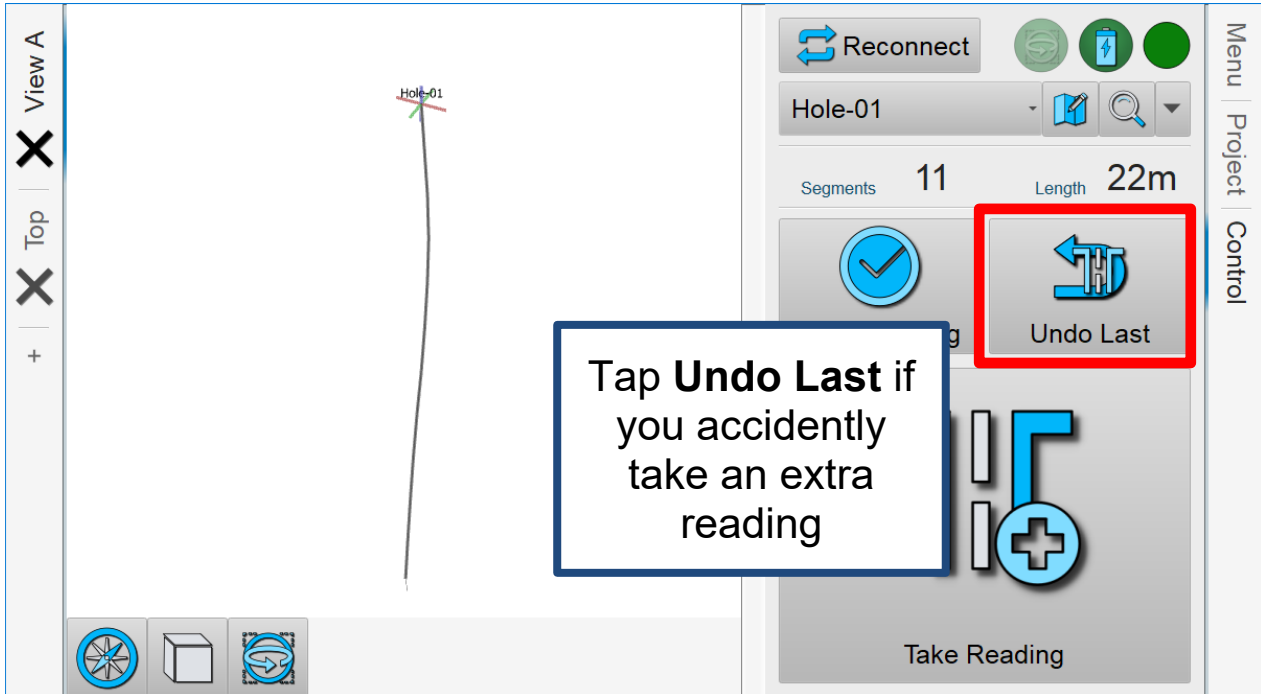




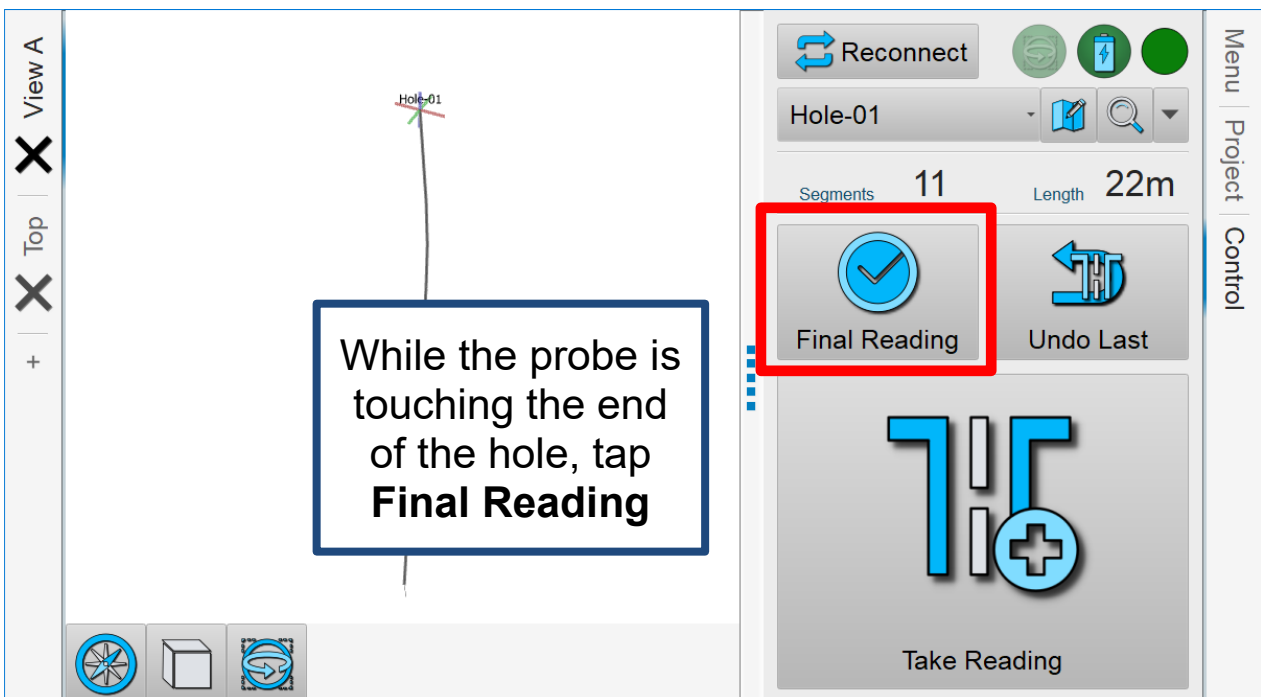
The process of collecting Boretrak readings during the deployment is entirely manual.

- Don't forget to take a reading at every segment length (in this case, 2m)
- Don't take more than one reading at a segment length
- Only deploy by the selected segment length

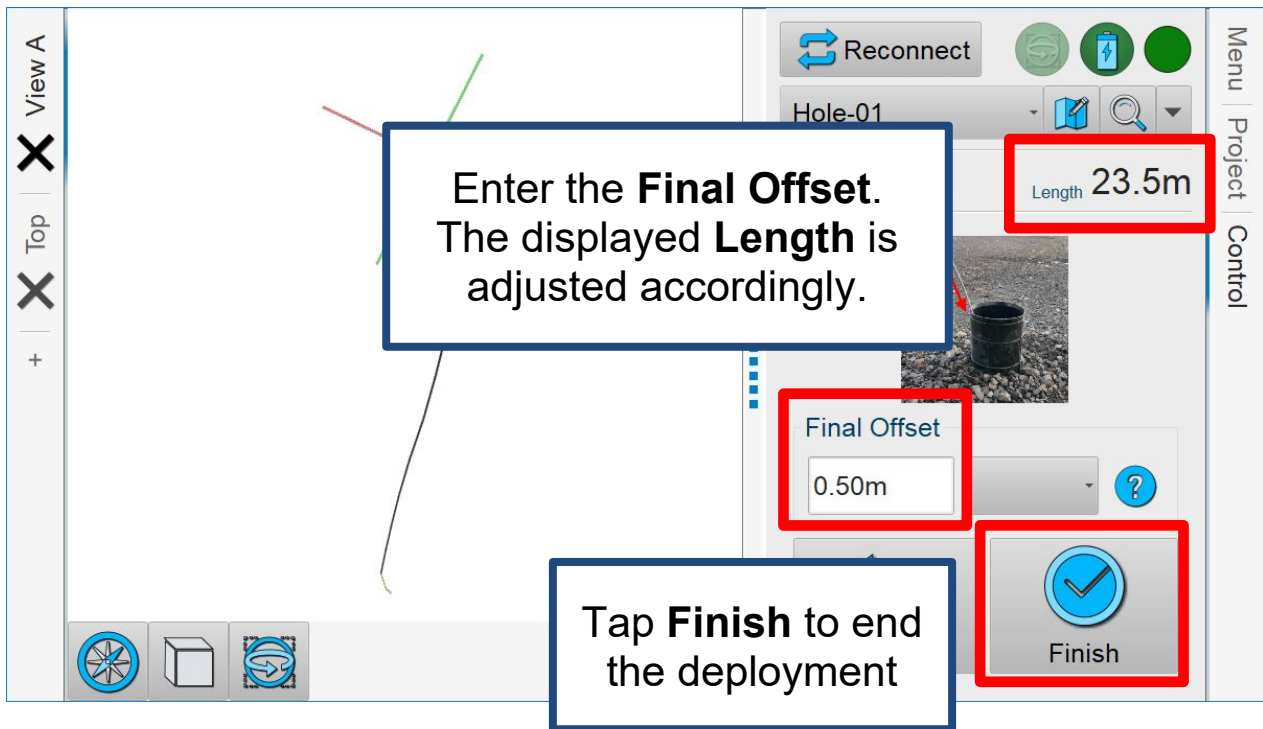
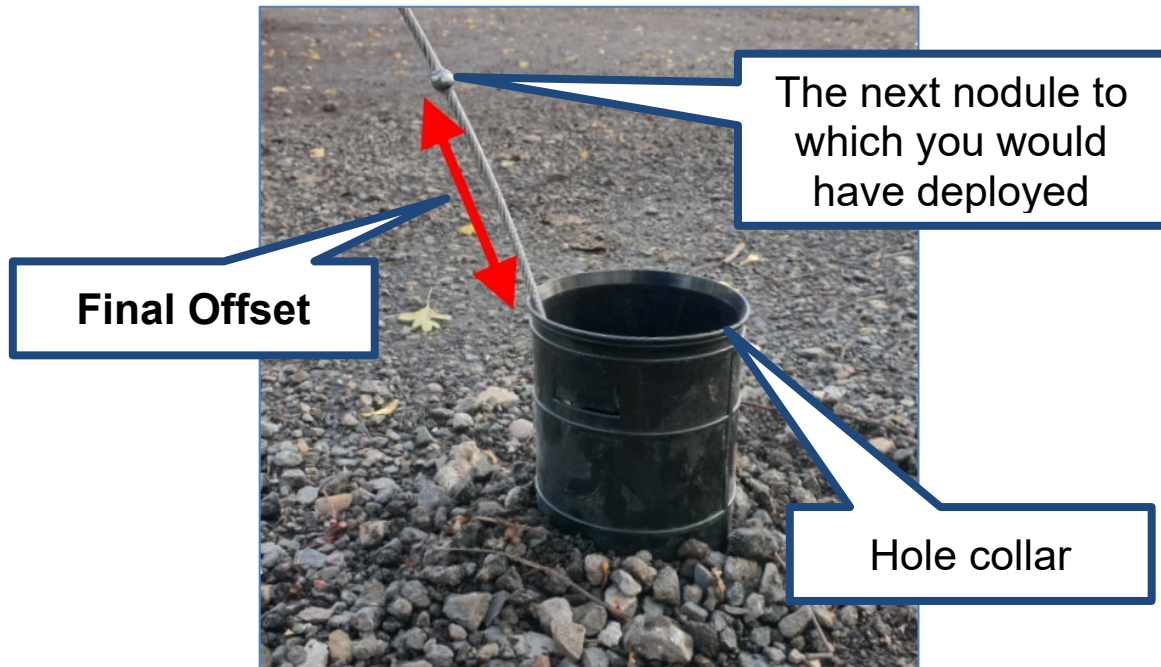
As the probe descends, the Bluetooth link will cut out. **Carlson Boretrak** manages this link automatically and will re-establish the link when the probe is recovered. The live read out disappears while the Bluetooth link is broken.



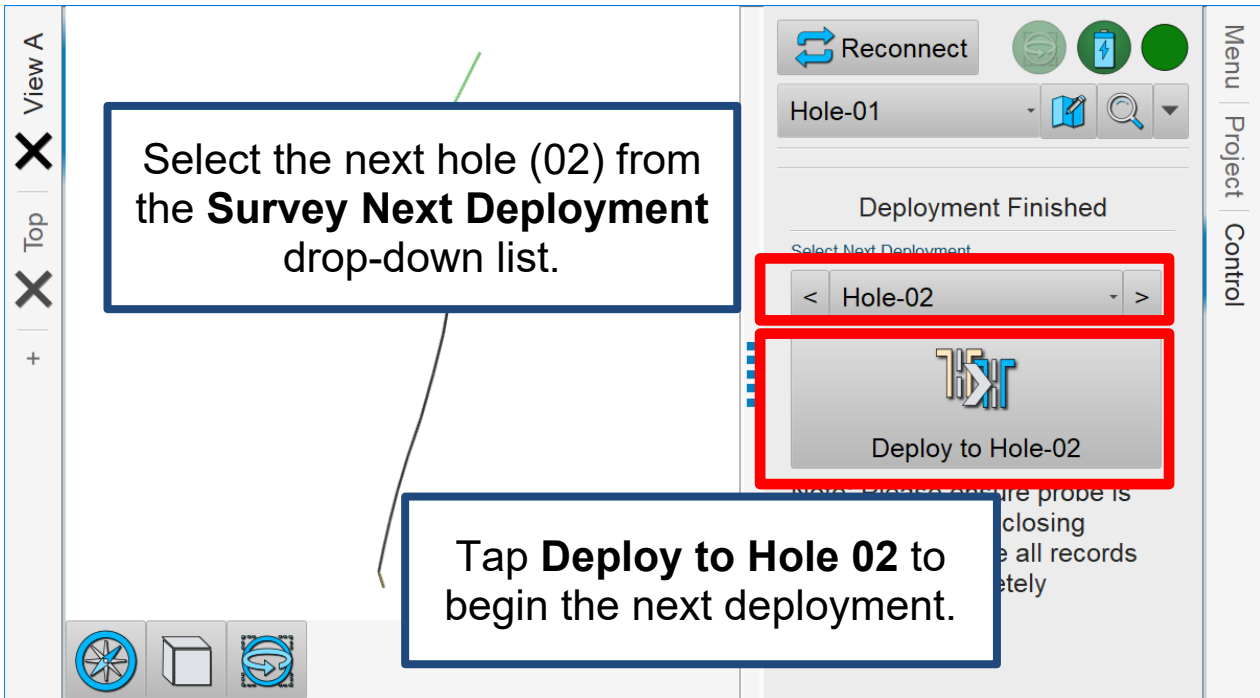
When you feel the probe touch the end of the hole, keep the cable taut so the probe is parallel with respect to the hole.



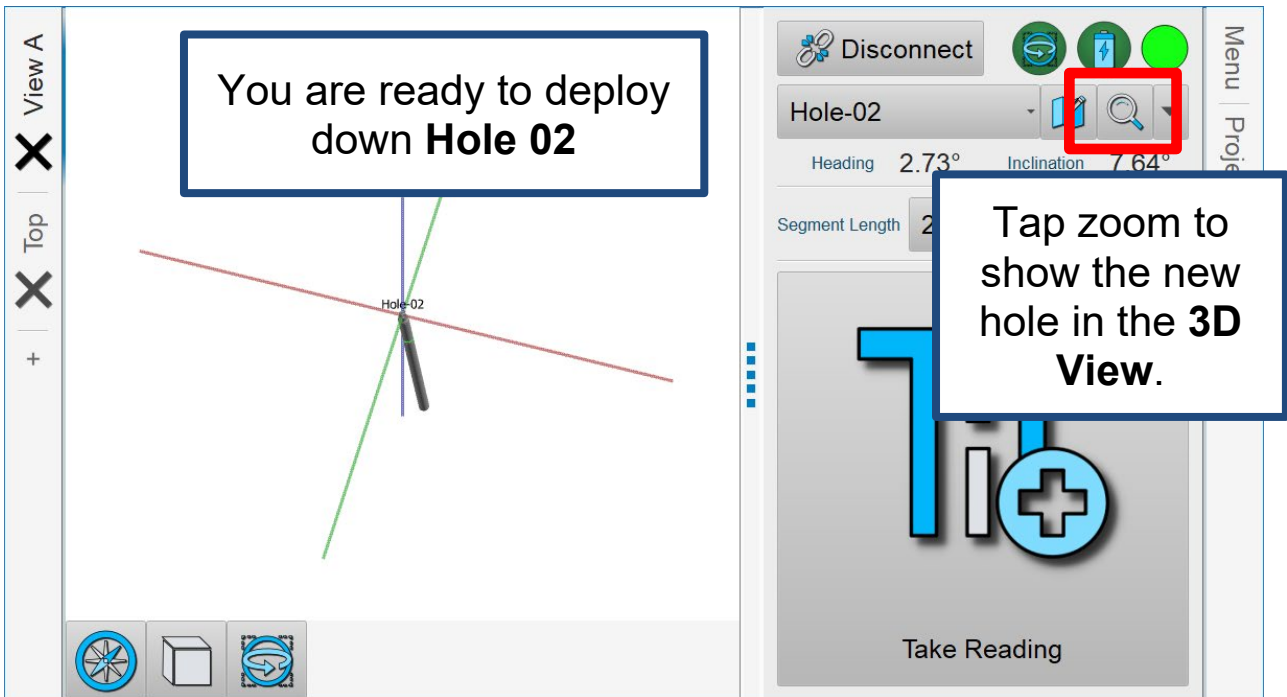
When the probe reaches the end of the hole, the last deployment interval will rarely equal the full, user-defined **Segment length**. In this case, while the probe is at the end of the hole, measure the distance from the hole collar back along the cable to the next measurement point, i.e. the next interval / nodule / rod joint to which you would deploy if the hole were longer.



Recover the probe from the hole. A Bluetooth link is automatically re-established when the probe is within range of the tablet. You may see some data being downloaded from the probe to **Carlson Boretrak**.



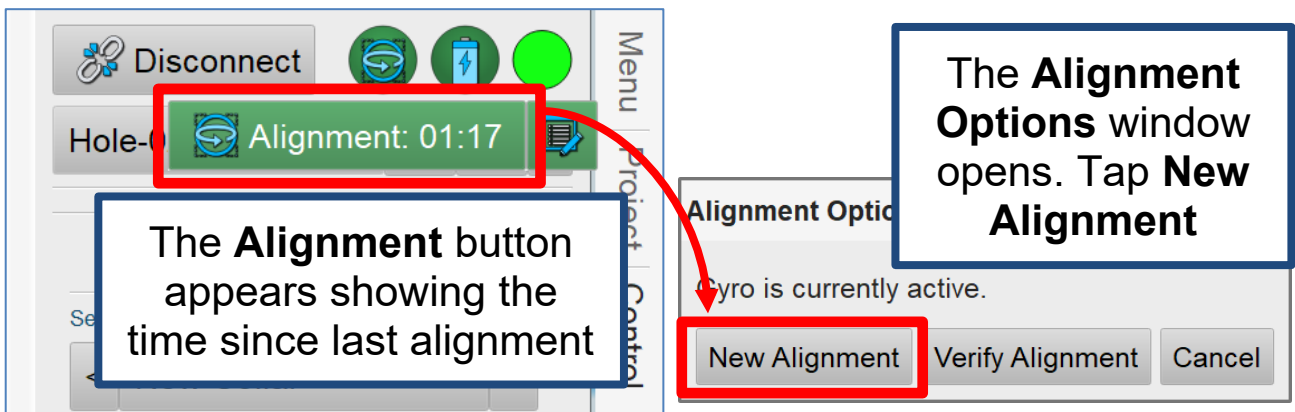
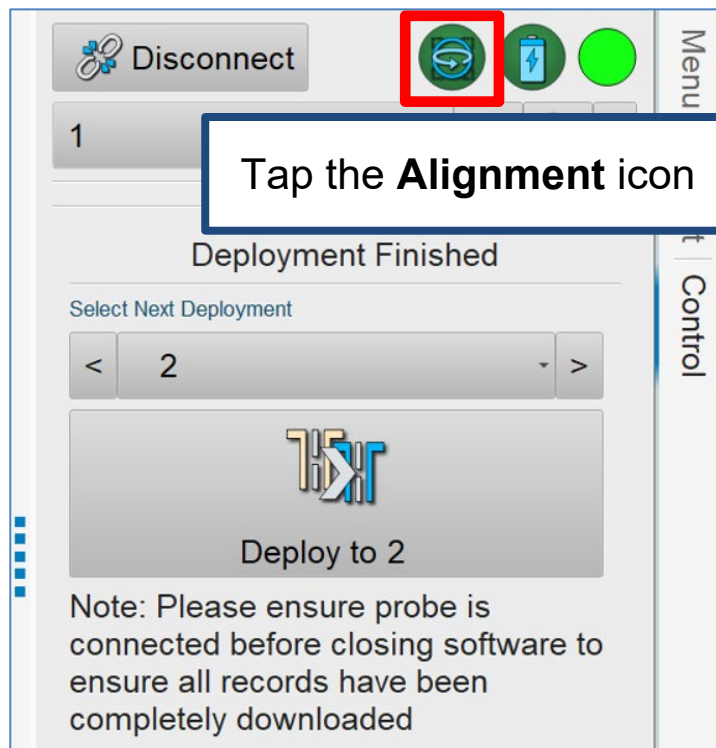
Take the probe and deployment device to the next hole.



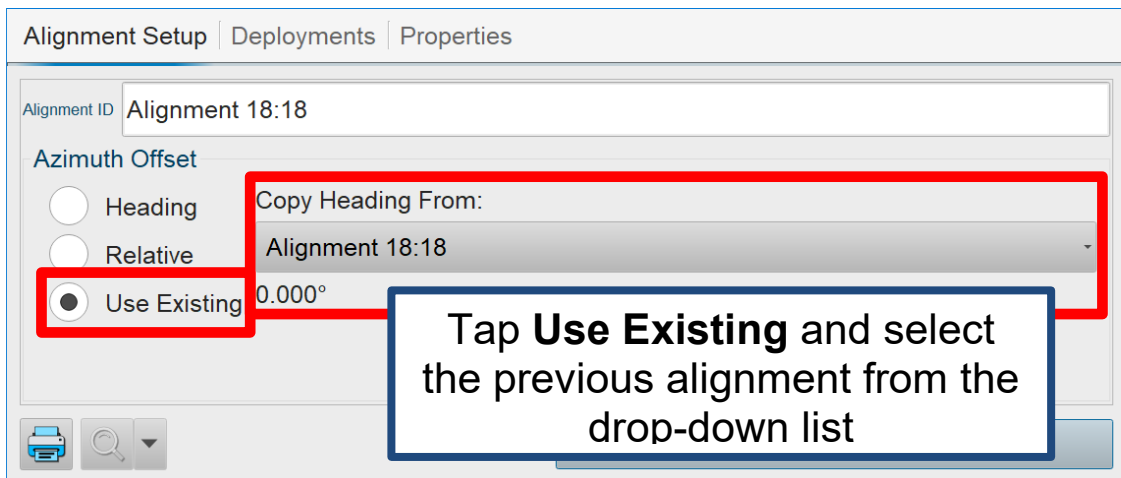
6 Re-aligning

The gyro accuracy degrades over time after an alignment. You should carry out a re-alignment as often as possible. For the very best accuracy, realign before each hole. A reasonable target would be to align every three or four holes, but this will depend on the length of each deployment, the required accuracy for your project and the practical realities of positioning the alignment jig on your site.

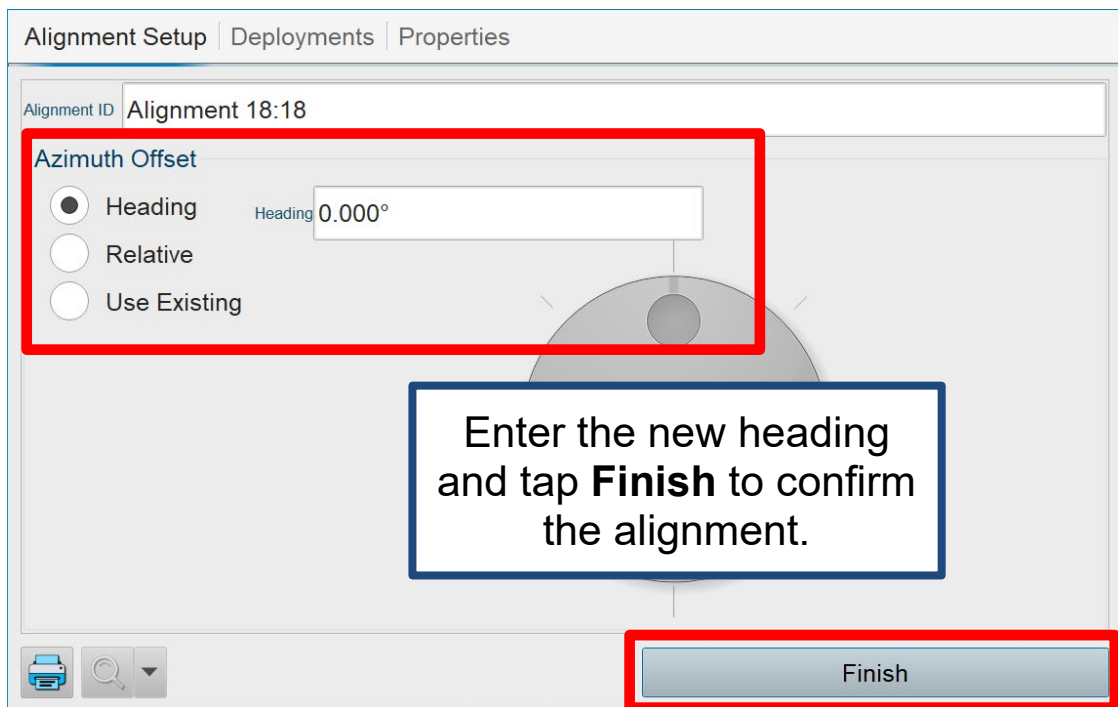
Carry out a realignment between deployments, while you can see the **Select next deployment** controls.



If you have not moved the alignment jig since the previous alignment, you can use the same heading as before.



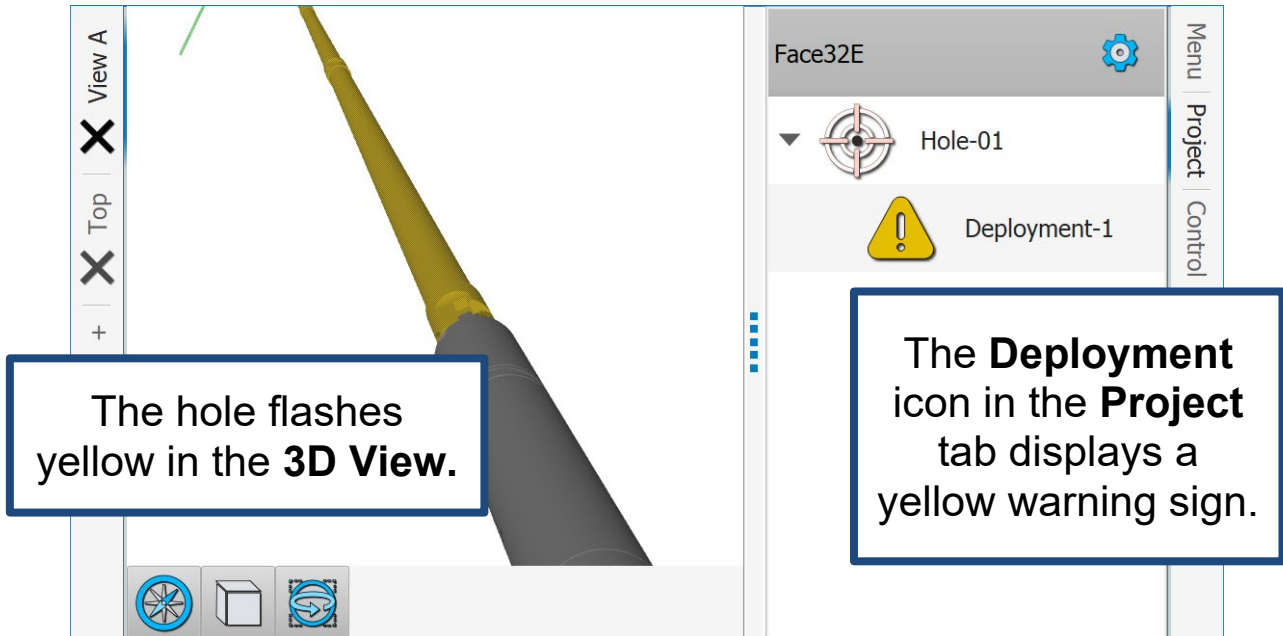
Otherwise, re-position the alignment jig along a new line of known heading.



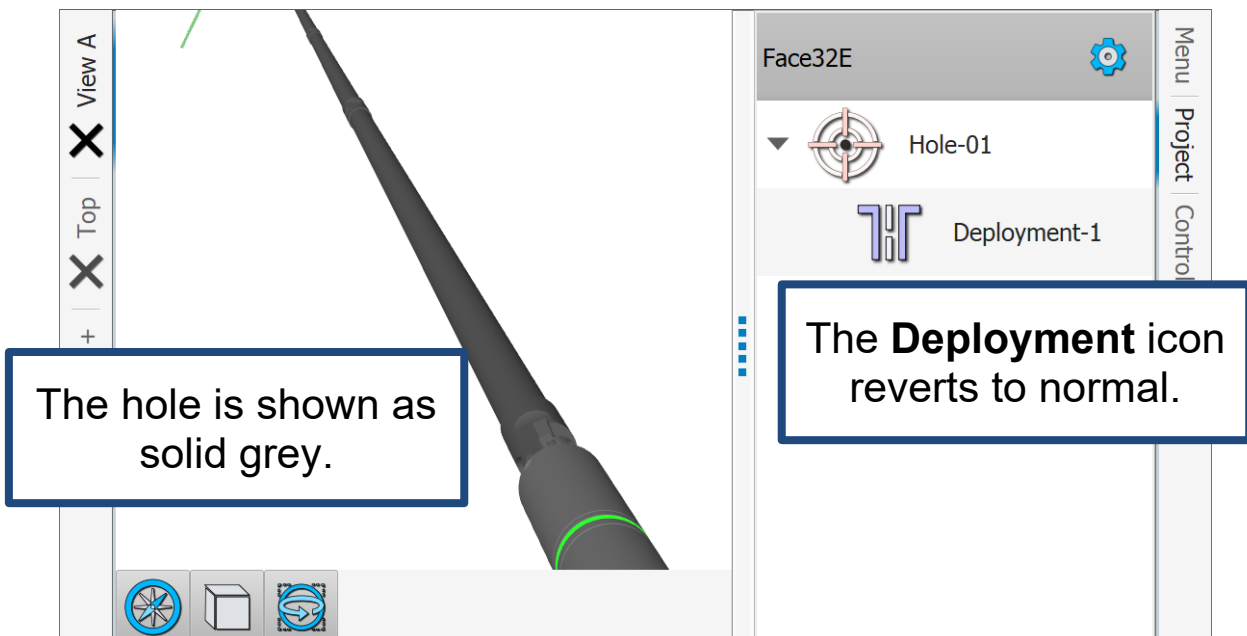
Now continue to the next deployment.

7 Check data

When readings are taken while the probe is inside the hole there will usually be no Bluetooth link between the probe and the tablet. During this time, the hole readings represented in the **3D View** are just 'placeholders', which will be overwritten when Bluetooth connection is re-established.



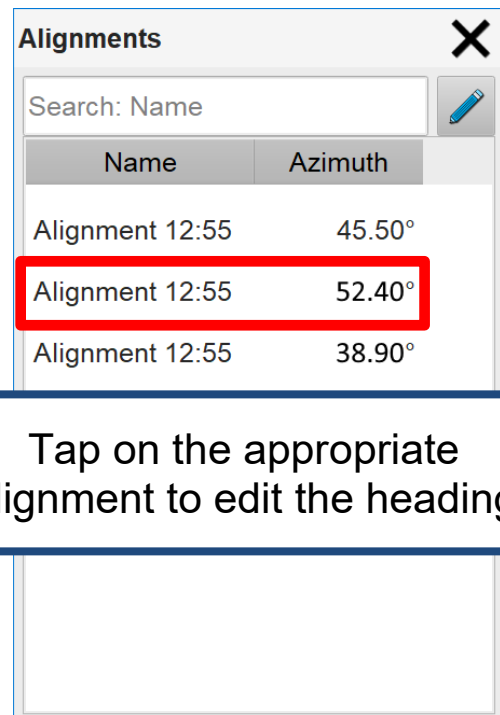
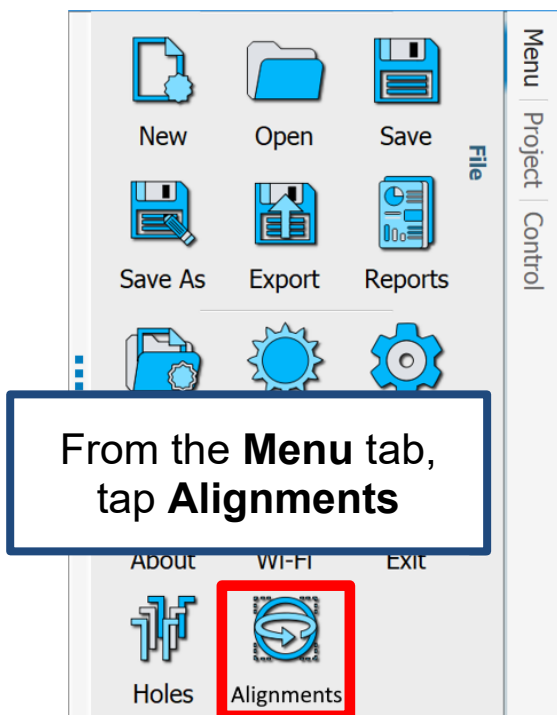
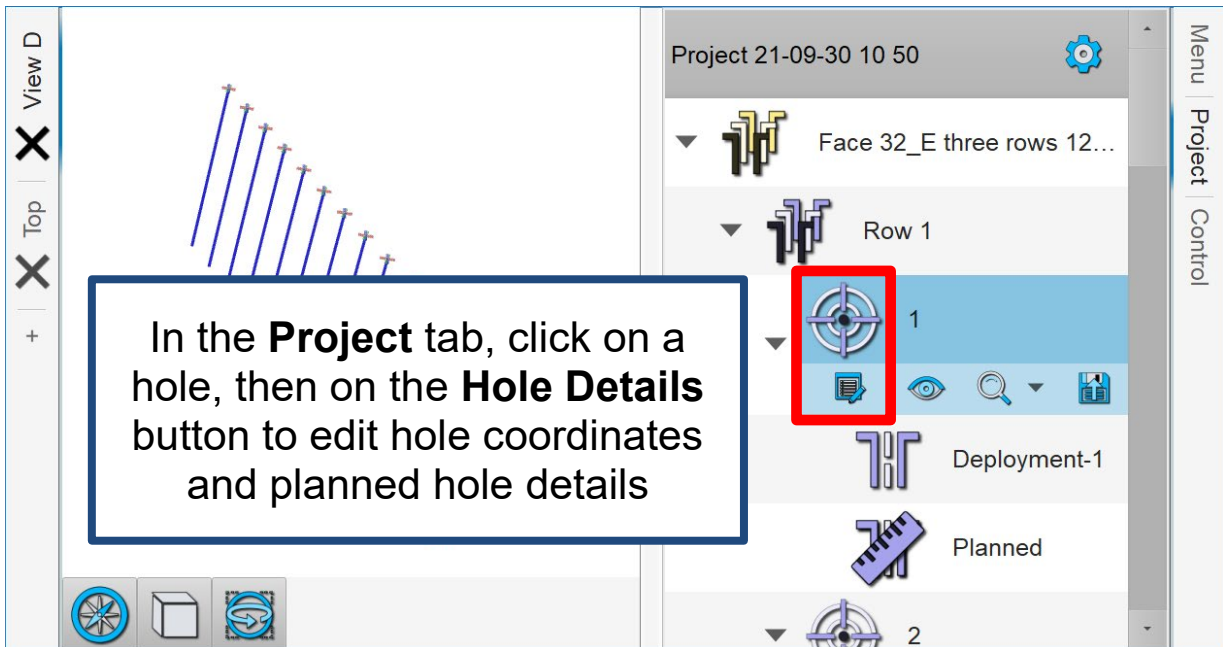
Once the Bluetooth link has been re-established and data has downloaded from the probe...



After the probe is recovered for the last time, always ensure that you allow the probe time to connect to the tablet to download the final set of stored data. In the **Project** tab there must be no **Deployments** left showing a yellow warning triangle.

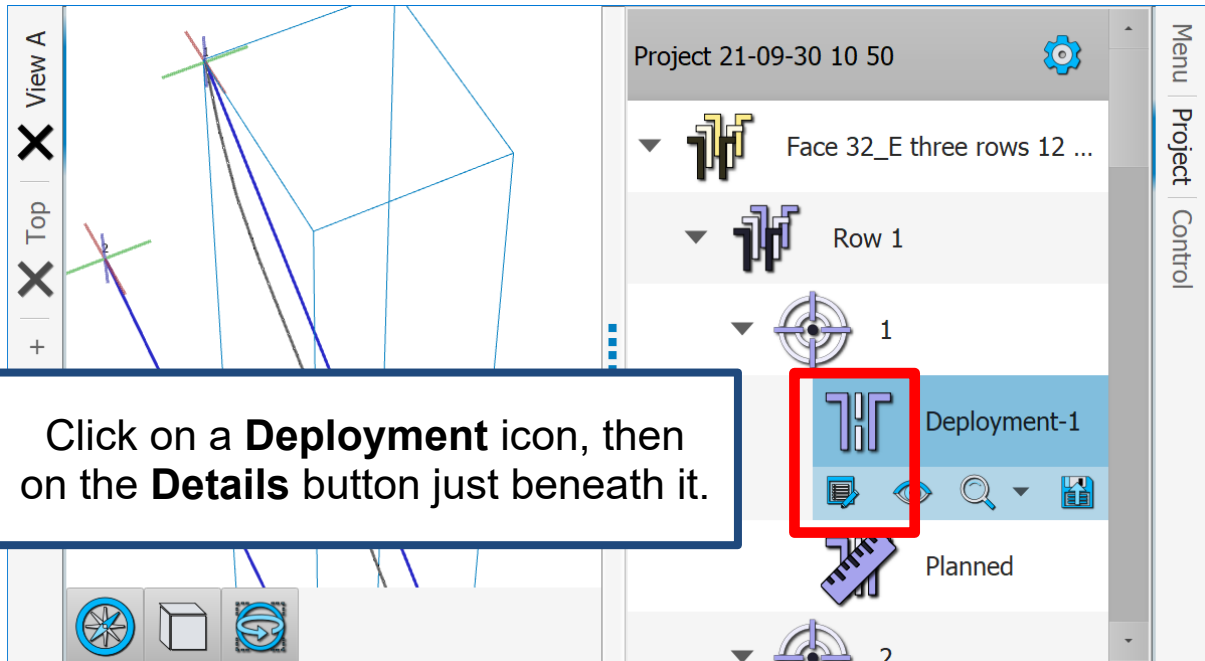
8 Post processing

All hole coordinates and alignment headings can be entered retrospectively.



9 Analysis and Deliverables

Click on any item in the **Project** tab to view details.



Deployment-1 Deployment | Properties

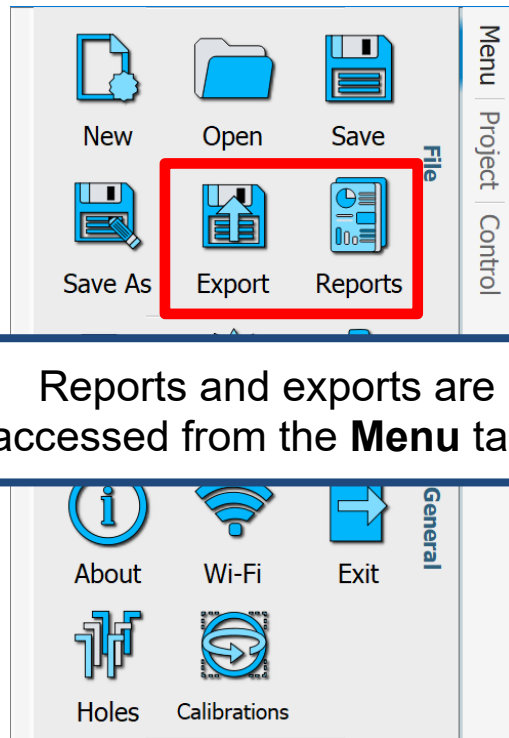
Results | Editor | Visuals Plan View | Front View | Side View

	Az	Inc	Length	Dev	Time	Delete	Straighten
●	335.0°	8.5°	2.00m	0.28m	13:20:21	🗑️	↕️
●	329.0°	10.7°	4.00m	0.48m	13:20:34	🗑️	↕️
●	318.9°	13.4°	6.00m	0.56m	13:20:41	🗑️	↕️
●	313.2°	14.2°	8.00m	0.60m	13:20:47	🗑️	↕️
●	312.6°	14.4°	10.00m	0.63m	13:20:52	🗑️	↕️
●	314.6°	14.3°	12.00m	0.67m	13:21:01	🗑️	↕️
●	315.9°	14.2°	14.00m	0.71m	13:21:11	🗑️	↕️
●	317.5°	14.3°	16.00m	0.76m	13:21:18	🗑️	↕️

Deployment-1 Plan

Close

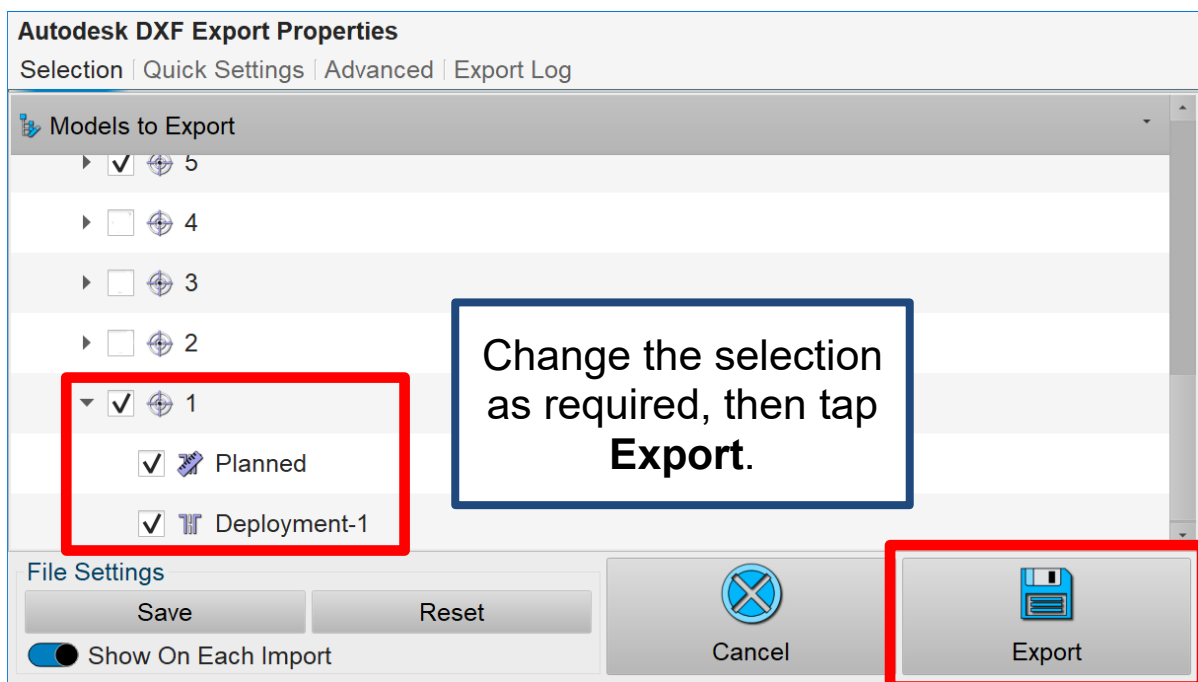
The **Deployment Details** window opens. You can access views of the deployment, details of each reading, and a comparison with the design.



Reports and exports both allow you to select the holes and deployments which are included in the deliverable.

By default, only surveyed holes are included.

For exports, select the required export file type, and then select the data required.



For reports just select the required data.

