LaserSoft®

Face Profiler

User's Guide

1.303.649.1000

ServiceCenter@LaserTech.com

6912 S. Quentin St, Suite A
Centennial, CO 80112

@LaserTechnologyInc

@LaserTechnologyInc

@LaserTechInc_

@LaserTechPro

@Laser-Technology

LTI LaserSoft Face Profiler
User's Guide 3rd Edition for Android
Part Number 3210015-E

First Edition: March 2019
Second Edition: February 2022
Third Edition: March 2025

LTI Contact Information:

Customer Support / Service:
Phone: 1.303.649.1000
1.877.696.2584 (North America)
Fax: 1.303.649.9710
Email: servicecenter@lasertech.com

Corporate Address:
Laser Technology, Inc.
6912 South Quentin Street, Suite A
Centennial, CO 80112 USA

Support, FAQ & Tech Documents:
https://lasertech.com/software-solutions

RMA Request:
www.lasertech.com/customer-service

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Section 1 - Introducing Face Profiler for Android

Thank you for purchasing LaserSoft® Face Profiler for Android from Laser Technology, Inc. (LTI). Combine Laser Technology's highly accurate surveying instruments with Face Profiler for a complete profile measurement and burden analysis solution. LTI measurement tools can automatically enter data into Face Profiler, which creates two-dimensional (2D) profile maps. Face Profiler Reports for Windows is accompanying free software that allows for adjusting, calculating and printing profile data at the office.

Blast design has never been simpler or more efficient than now with the release of Face Profiler for Android. In addition to keeping people safe and staying in compliance with mining regulatory agencies, profiling blasts with Face Profiler helps to:

- Create quick profiles for safe and effective blast designs.
- Control blast costs by getting it right the first time.
- Manage inventory effectively with burden results that satisfy demand exactly.

For the current and potential customers who do not print field reports, Face Profiler Reports for Windows provides the ability to calculate, adjust, and print reports from the desk with a larger view of the profile. The interactive screen has been enhanced for better "tap to delete" and depth and burden display functionality at any point along a profile. No other field profiling software can accommodate for bench corners by allowing the measurement of multiple profiles per drill hole. Formatted reports can be printed to a PDF file, making them more secure for sending to stakeholders.

Technical Specifications

LaserSoft Face Profiler has been designed to run on Android operating platforms for use in conjunction with Laser Technology surveying instruments.

Specification	Description
Operating Systems	Android version 10+
Connectivity	Bluetooth
Compatible Lasers	• TruPulse 200X • TruPulse 360B***** • TruPulse 360R***** • TruPulse 200B*****
Hardware	• **Optional** MapStar TruAngle for use with TruPulse models • **Recommended:** X-Grip & Mounting Claw for phones/tablets if using with a tripod, 7" version available via LTI, other sizes available here: http://www.rammount.com/search?search_type=search&query=xgrip
Supported Languages	English; template is available for translation

***** Only TruPulse 360B, 360R, and 200B lasers displaying the Bluetooth option "BT_Enc" in the heads-up display are compatible for use with a TruAngle. Older models of these lasers may not display this option and are not compatible for use with a TruAngle.

Warranty Information

For purchases including lasers, a copy of the LTI Limited Warranty should have shipped with the order. If needed, please contact LTI to obtain a copy of the LTI Limited Warranty. See the inside front cover for LTI contact information.

NOTE The tablet package includes the associated product literature, such as manuals and warranties. It is your responsibility to contact the manufacturing company to register the tablet.

Instrument Configurations

Face Profiler Android is designed to work with various hardware configurations:

- TruPulse 200X without TruAngle (Figure 1A)
- TruPulse 200X with TruAngle (Figure 1B)
- TruPulse 360B/R (Figure 1C)
- TruPulse 200B (not pictured)

(A) (B) (C)

Figure 1

NOTE Since Face Profiler for Android requires a connection over Bluetooth; Impulse model lasers are not compatible.

Section 2 - Get Started with Face Profiler

This section describes the download and installation procedure necessary to get started with Face Profiler. It explains how to get the app from Google Play and then launch it. Once the application has been successfully launched, follow the instructions in this section to understand the main menu and configure the settings.

Get Face Profiler from Google Play

Face Profiler downloads free from the Google Play Store, but requires a license key purchased from Laser Technology to access full functionality. Face Profiler will work unlicensed for a 14-day trial period from the date of initial download. To get the Face Profiler app from Google Play:

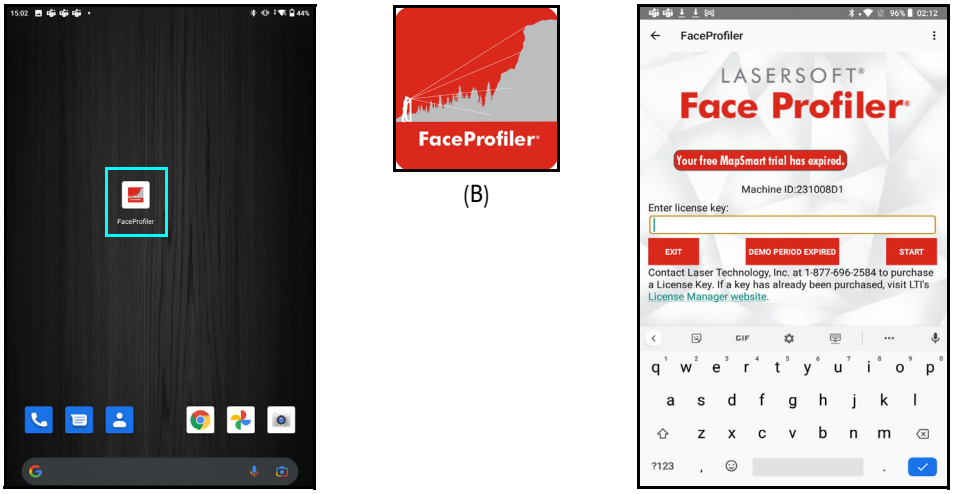
1. Use the Google Play search function to find "LaserSoft Face Profiler".
2. Tap the Face Profiler icon to install the app as you would any other Google Play application (Figure 2).

Figure 2

Launch Face Profiler

To launch the Face Profiler app:

1. Find the Face Profiler icon on the smart device (Figure 3A).
2. Tap the Face Profiler icon (Figure 3B). The licensing screen will display (Figure 3C).



(A) (B) (C)

Figure 3

Program Licensing

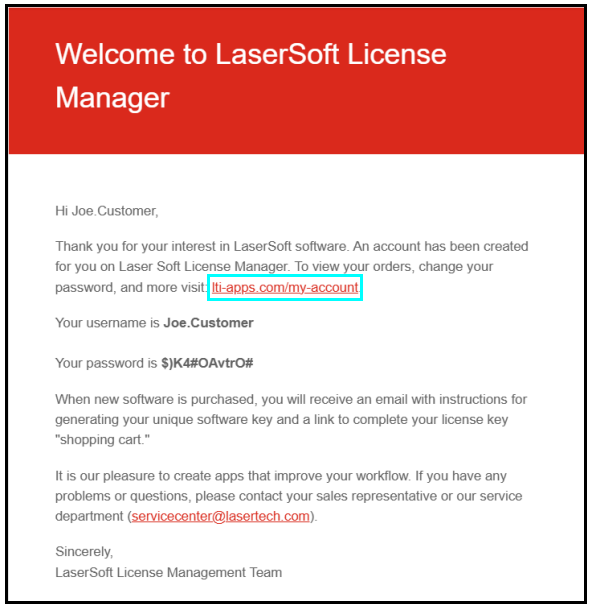
Upon any purchase of Face Profiler, Laser Technology generates a customer account on its License Manager website (https://lti-apps.com/) that allows you to generate license keys. Face Profiler can be used for 30 days from the date of download before a license key is required (Figure 4A). Tap the Demo button to proceed past the licensing screen and use the program. At the end of 30 days, Face Profiler cannot be used without a license key.

About the 30-day Trial:

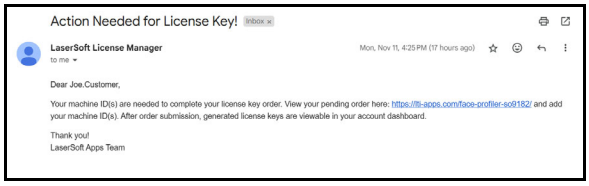
- The Demo Status button is located in the box below the App title. The status changes depending on how may days are left in the trial. In Figure 4A the status is "You have 30 days remaining in your free Face Profiler trial."
- Face Profiler is fully functional during the trial period. Jobs worked during this time are accessible during the trial and can be re-accessed when the program is licensed.
- Contact an authorized dealer near you to purchase a license key or call LTI for more information (1-800-790-7364 or 1-303-649-1000).

To generate a license key:

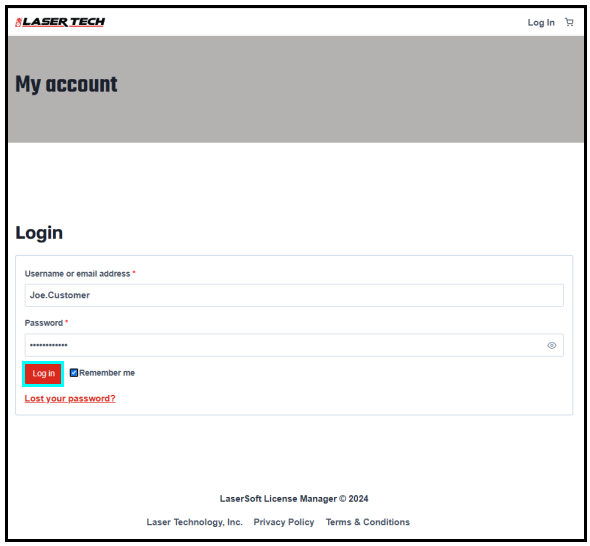
1. As a new customer, you will receive two emails from lasersoft@lti-apps.com.
   - The first email will contain your login and temporary password to the License Manager site https://lti-apps.com (Figure 4A).
   - The second email is a notification that there is an order pending in your License Manager site (Figure 4B).
     NOTE if you do not receive these emails, make sure to check your Spam/Junk folder.
     If you can't find them, contact servicecenter@lasertech.com to confirm your email address is correct.
2. Click on the link in the first email and log in to your account on the License Manager site (Figure 4C).
   Your dashboard will display (Figure 4D)



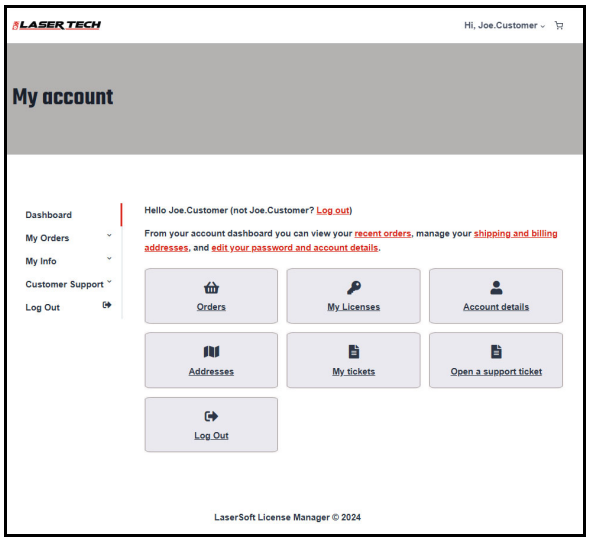
(A)



(B)



(C)

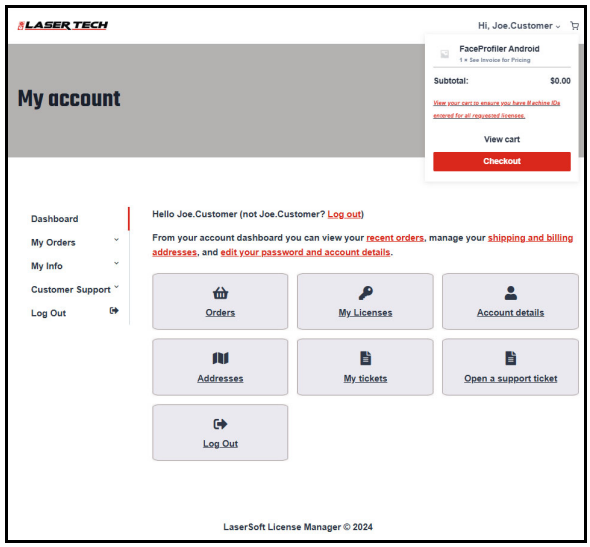


(D)

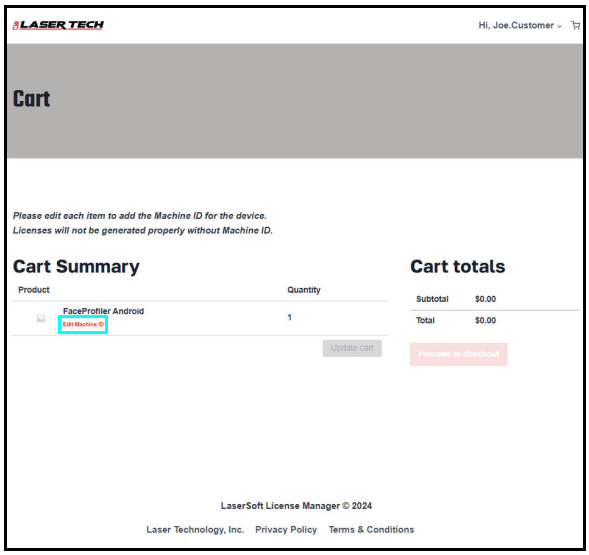
Figure 4

Continued on Next Page

3. Click on the Cart symbol in the upper right corner to display the contents (Figure 5A).
   NOTE Tap on View Cart (do not proceed to checkout yet).
4. From the Cart Summary page (Figure 5B), tap on the "Edit Machine ID" text below the product name.
5. On the Edit Machine ID screen, enter your Machine ID and tap Update (Figure 5C).
   NOTE you can swap back to the MapSmart app, tap on the Machine ID, copy it to the clipboard and then paste it here on this screen (Figure 5D).

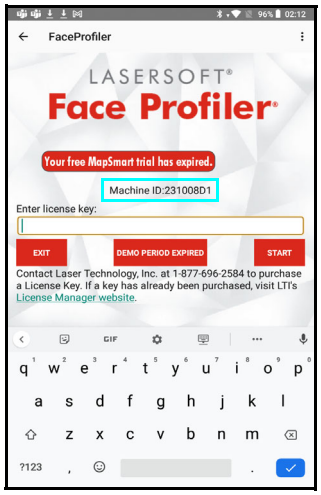


(A)



(B)

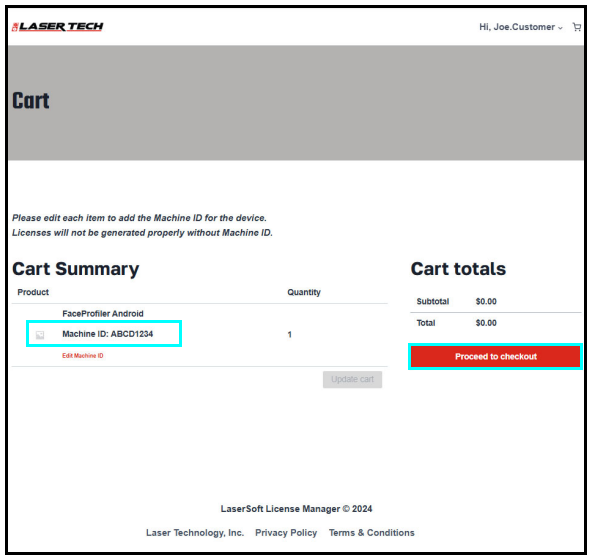
(C)



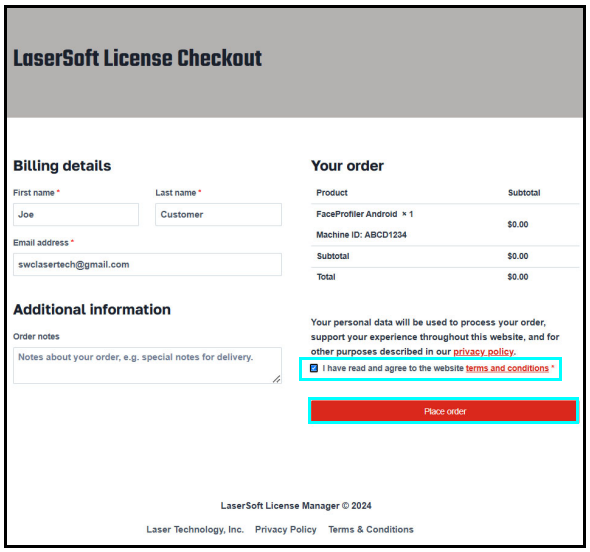
(D)

Figure 5

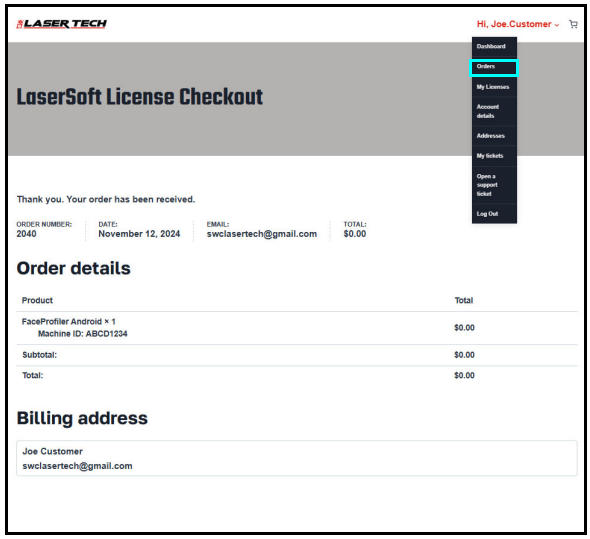
6. Verify your Machine ID is correct on the Cart Summary page and tap Proceed to Checkout (Figure 6A).
7. From the Checkout page, confirm your details are good, check the Agree to terms box and tap Place Order (Figure 6B).
8. From the Checkout Confirmation screen, hover over your name in the top right corner and choose Order from the menu (Figure 6C).
9. On the Orders page, tap the View button (Figure 6D).



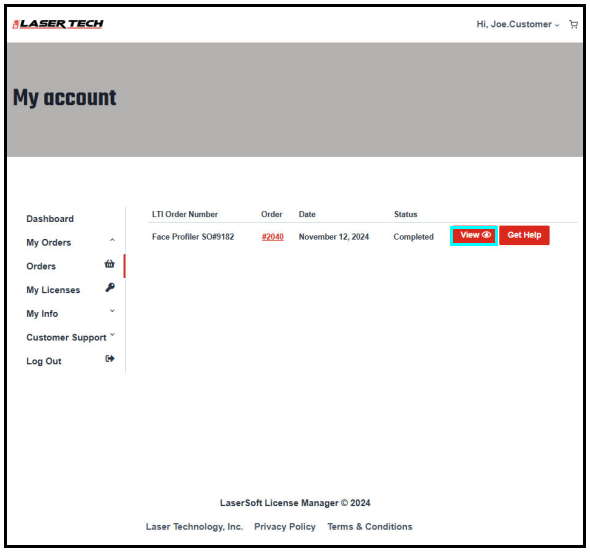
(A)



(B)



(C)

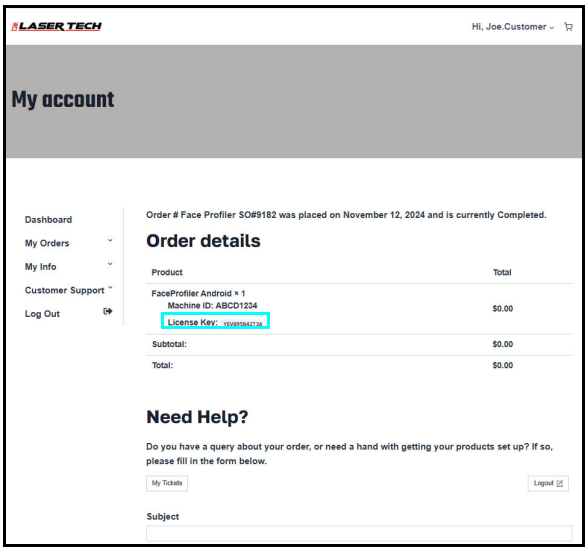


(D)

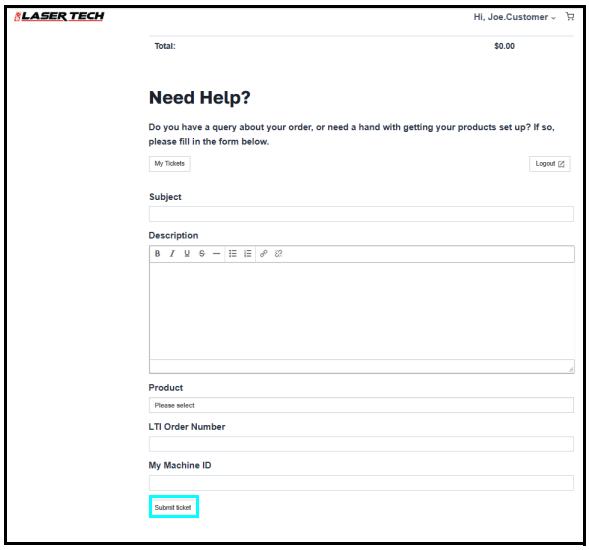
Figure 6

10. On the Order Details screen, hover over the license key and tap it to copy to the clipboard (Figure 7A). **NOTE** if you need Help, please fill out the form on this page, submit the Ticket and we will respond to your questions (Figure 7B).
11. Open the MapSmart app, tap inside the License Key cell and select paste to enter your key. Tap [Start] (Figure 7C).

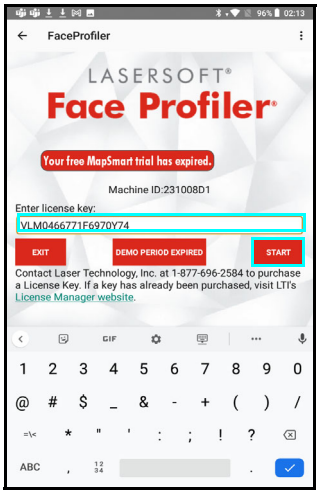
The Main Menu will display (Figure 7D).



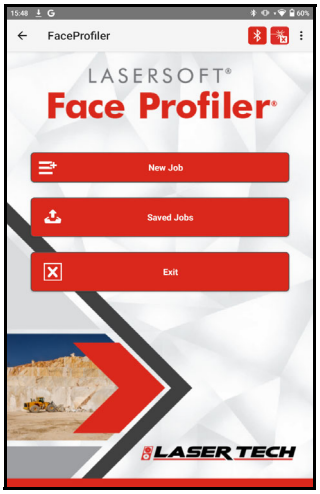
(A)



(B)



(C)



(D)

Figure 7

If an incorrect key is entered, the Main Menu will not be displayed.
Instead, the display will remain at the Licensing screen.

For assistance contact: servicecenter@lasertech.com or call 1-877-696-2584.

Please provide your name, company name, as well as the Machine ID displayed on the About page.

About the Main Menu

Face Profiler Main Menu (Figure 8).

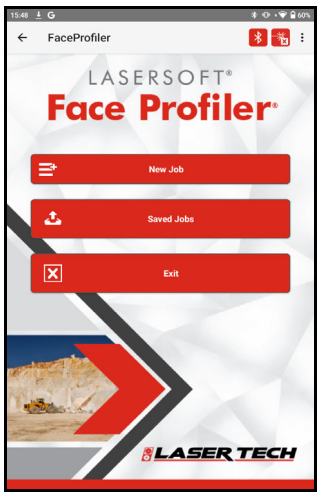


Figure 8

- Tap the back arrow at the top of the screen to leave Face Profiler.
- Tap the Menu button in the upper right corner of the screen to access:
  - Help
  - Face Profiler Options
  - About Face Profiler
- Tap [New Job] to begin a new job.
- Tap [Saved Jobs] to select an existing job and:
  - Open
  - Delete
  - Send Face Profiler proprietary file to support if there is a problem with the job.
- Tap [Exit] to close Face Profiler and return to the Android device main screen.

Help

MapSmart Help includes information about the mapping methods, meanings of icons, how to traverse, and how to correct any errors that might have been made during the mapping process. Help is located as a menu option in the upper right corner of the MapSmart screen at any time the program is open.

Tap [Help] from the menu to display the MapSmart Help Menu (Figure 9).

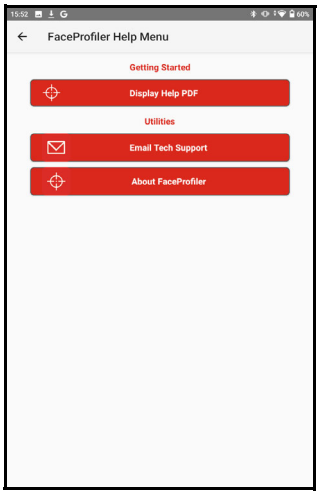


Figure 9

Help Menu Options:

Getting Started

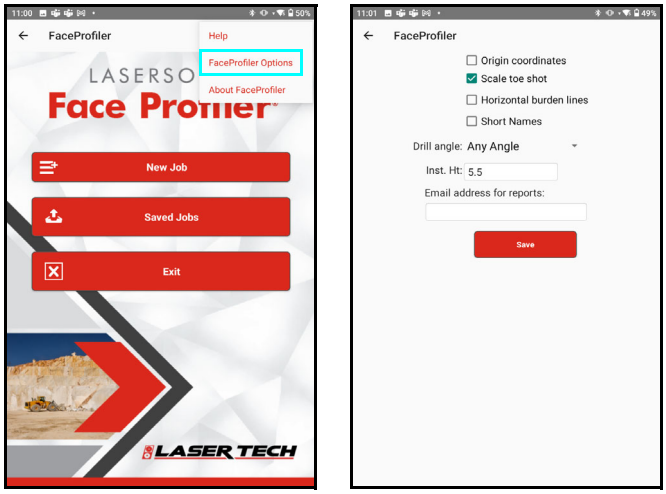
- **Display Help PDF:** opens a PDF of this presentation with complete training.

Utilities

- **Email Tech Support:** use this option to send a diagnostic file if a crash happens, or to send a Job file to support for analysis.
- **About FaceProfiler:** find the software version number, Laser Tech contact info, Machine ID and a link to our Privacy Statement.

Face Profiler Options

Face Profiler Options can be accessed by tapping the Menu button  , then tap [Face Profiler Options] (Figure 10A) to display the current selected options and edit them (Figure 10B).



(A) (B)

Figure 10

Origin coordinates — Check this box to enter origin coordinates for profiles. If unchecked, Face Profiler will skip over the Origin Coordinate screens and assume the XYZ to be 0,0,0.

Scale toe shot — Check this box to scale the toe shot in the profile plot.

Horizontal burden lines — Display horizontal burden lines in profile plot and reports that include plots.

Short Names — Display abbreviated names for Drill Hole and Profile numbers.

Drill angle — Select a desired angle option from the drop-down menu:

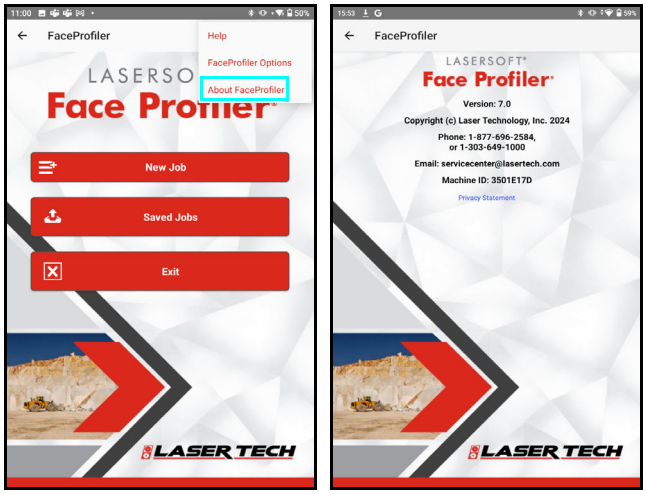
Any Angle — Calculated results of drill hole angles are unrestricted.
Positive Angles Only — Calculated results will include drill holes with positive angles only.
Vertical Angle Only — Calculated results will include vertically angled drill holes only.

Instrument Height (Inst. Ht) — Measured from the ground to the center of the spotting scope if using the origin coordinates option.

Email address for reports — Enter an email address that will automatically be used when emailing Face Profiler reports.

About Face Profiler

Face Profiler version information can be found by tapping the Menu button ⋮ at any time. Then select About Face Profiler (Figure 11A) to see the current version information (Figure 11B).



(A) (B)

Figure 11

Section 3 - Start Profiling

Face Profiler lets you organize your work into jobs, each of these jobs may contain one or more drill holes. Suppose that you're working at the C&M Quarry, and today you wish to survey two faces as shown in Figure 12.

In this example the day is organized into two jobs. Each job has its own name, drill angle, drill offset and burden values. The first job will be the "North Wall", and the other job will be the "SE Wall".

Drill Holes are numbered 1, 2, 3, etc. Each Drill Hole may have one or more Profiles associated with it; i.e. for profiling around bench corners. Profiles are numbered 1, 2, 3, etc. Each Profile can have its own Origin value, if there are known coordinates for the position of the equipment when the Profile is measured. If Origin coordinates are used, they may be entered by hand or determined by a laser shot from the current instrument position to the next one.

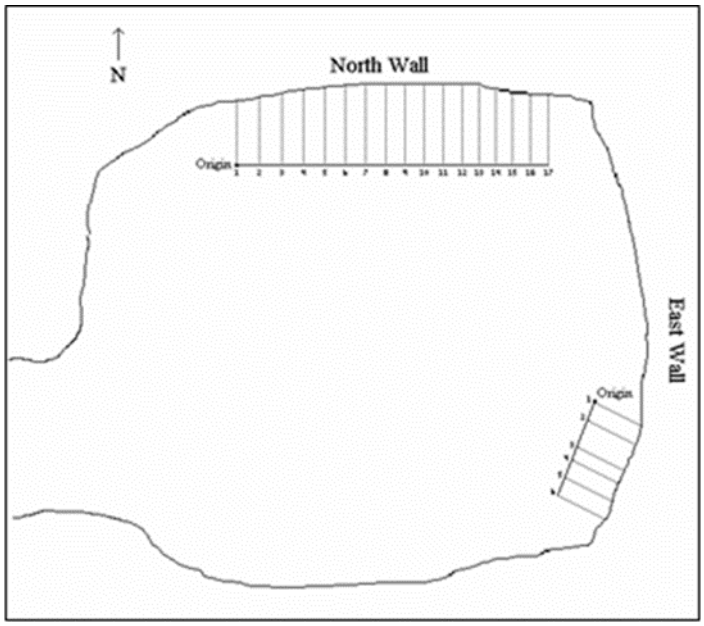


Figure 12

NOTE An easy way to establish relative coordinates for a series of profiles is to start at one end of the face, put a target in the ground, and then follow a straight line parallel with the face, shooting each profile's Origin relative to the target.

As a profile is measured, Face Profiler records the coordinate values of each shot and updates the drawing in the Android device's display. At any time, it is possible to navigate away from the Shoot Profile screen, go back and add values to a previous profile, calculate drill hole parameters, or calculate Depth vs. Burden data.

Face Profiler does not limit the number of Jobs, Drill Holes, or Profiles that may be stored on an Android device. The only storage limit is the total capacity of the Android device itself.

Hardware Setup Note

TruPulse 200X

Ensure that the laser's measurement mode is set to HD (Horizontal Distance) or SD (Slope Distance). When using a reflector, ensure the electronic filter is turned on AND that the mechanical foliage filter is affixed to the laser lens. The laser Bluetooth function needs to be turned on with "BT_Enc" selected if using a TruAngle, and "BT_On" selected if not. Set the desired measurement units in the laser to feet/in or meter/cm. Refer to the TruPulse 200X manual for further instruction.

TruPulse 200B/360B/R

Ensure that the laser's measurement mode is set to HD (Horizontal Distance) or SD (Slope Distance). When using a reflector, ensure the electronic filter is turned on AND that the mechanical foliage filter is affixed to the laser lens. The laser Bluetooth function needs to be turned on with "BT_On" selected. If using a TruAngle, select the Bluetooth options "BT_Enc" instead. Set the desired measurement units in the laser to feet or meter. Refer to the TruPulse 200B, 360B or TruPulse 360R manual for further instruction.

TruPulse 200i/360i

Ensure that the laser's measurement mode is set to HD (Horizontal Distance) or SD (Slope Distance). When using a reflector, ensure the electronic filter is turned on AND that the mechanical foliage filter is affixed to the laser lens. The laser Bluetooth function needs to be turned on with either Classic (ON) or BLE (BLE) selected. Set the desired measurement units to Feet or Meters. Refer to the TruPulse 200i/360i manual for further instructions.

MapStar TruAngle

The MapStar TruAngle provides the horizontal angle necessary for 3D mapping from one position using the Radial with Angle mapping method. A user-defined zero is set and all angle measurements from that specific position are based upon that zero. In order to operate this device:

- Connect the laser to the TruAngle with the 4-pin cable included in the mapping package.
- Ensure the laser Bluetooth option is set for BT_Enc.
- Refer to the hardware user's guide for operation instructions.

Quick Start for TruPulse 200X + TruAngle System

1. Connect laser to TruAngle with 4-pin to 4-pin cable.
2. Power on the TruAngle, screen displays "ind" (index) (Figure 13A).
3. Rotate the TruAngle until screen displays flashing "0.00."
4. Turn on Bluetooth (BT_ENC) in the laser and pair it to the Android device (see Page 5 for further explanation).
5. Aim the laser at desired reference (0°) point, tighten down the TruAngle so it cannot rotate or move off target, use the fine adjust if necessary and press the left-hand button (or fire the laser) to zero. The "0.00" will stop flashing (Figure 13B).

   Press fire on the laser a second time to add the reference target as a point in your survey.

(A) (B)

Figure 13

Quick Start for TruAngle II

1. Power ON the TruAngle II (battery symbol will show red and blue light will flash).
2. Connect the TruAngle II to the device via BLE (blue light will stop flashing).
3. The TruAngle II is ready to measure.

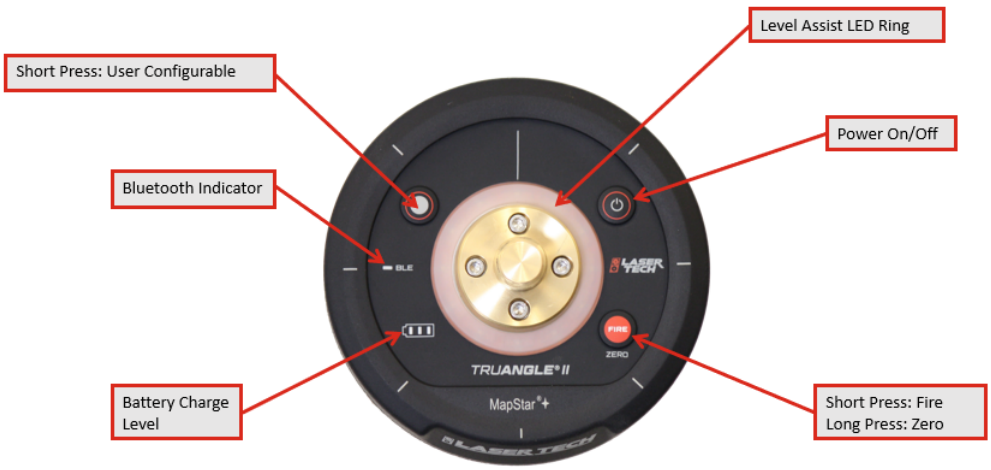


Figure 14

Pair a Laser with an Android Device

In order for data to be received from the laser to an Android device, the two must be paired via Bluetooth. Once the laser has been paired to a Android device via Bluetooth, the pairing process described here does not have to be done again unless the laser is intentionally unpaired or the Android device is reformatted.

Bluetooth Setup - TruPulse 200X, 360B, 360R, & 200B

1. Find and tap the Settings icon on the Android device (Figure 15).
2. Tap [Bluetooth] on the Settings list (Figure 16A).
   If Bluetooth is listed as "OFF" toggle it to "ON".
3. Tap the laser device's serial number which should be listed in the AVAILABLE DEVICES section (Figure 16B). If it is not listed, tap search (or scan) for devices and/or ensure that the laser's Bluetooth is set to "BT_Enc" if using a TruAngle and "BT_On" if not.

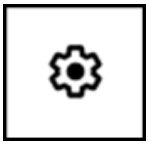
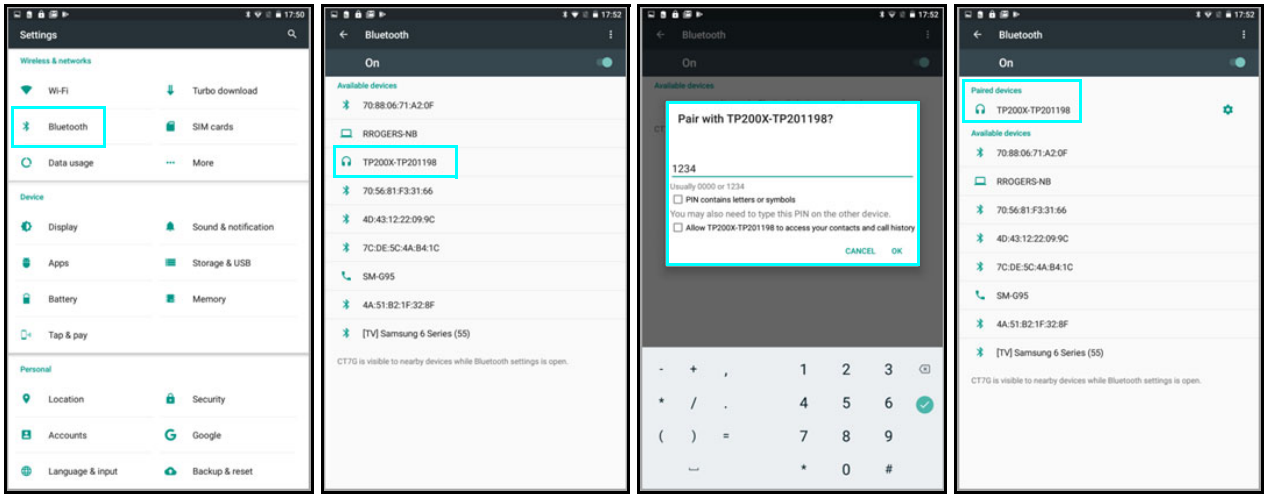


Figure 15

Bluetooth PIN Information:		
	TruPulse 200X PIN =	1234
	TruPulse 200B/360B/360R PIN =	1111
	TruPulse 200i/360i =	No PIN Required

4. Accept any Passkey by tapping [Pair] if prompted (Figure 16C).
5. Once successfully paired, the laser serial number will display in the Paired Devices section (Figure 16D).



(A) (B) (C) (D)

Figure 16

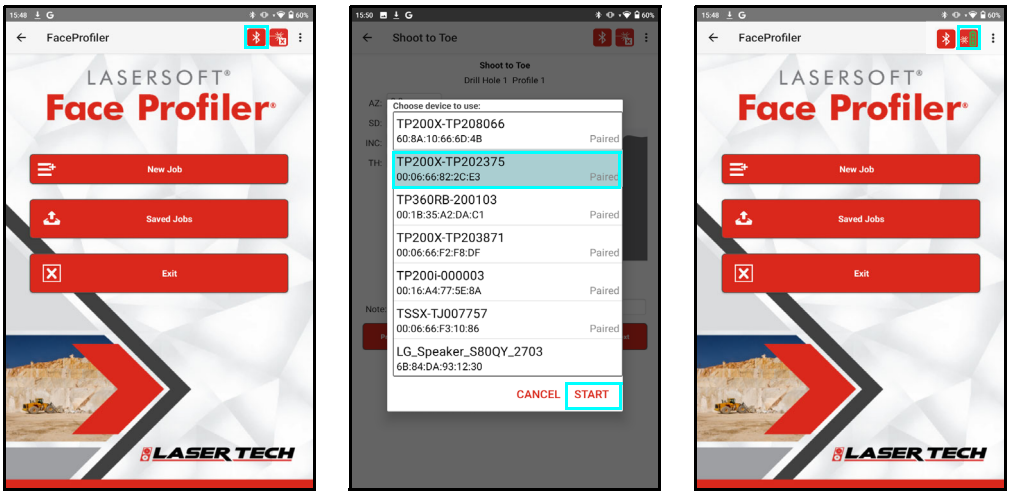
NOTE If the laser is powered off when viewing the current or available Bluetooth devices in range of the Android device, the laser may be described as "Not Connected" even if the two have already been paired. Power the laser on and the device should then display as a paired device.

Bluetooth Low Energy (BLE) Setup - TruPulse 200i, 360i and MapStar TruAngle II

1. Pairing with the Android device is not required.
2. Simply set the 200i/360i BT option to BLE and turn on the TruAngle II. They are ready to connect to the MapSmart app.

Connect to the Laser

1. Tap the BT icon at the top of the Main Menu (Figure 17A).
2. Select your laser by tapping on it (Figure 17B).
3. Press START (Figure 17C).
4. The laser connection icon (battery symbol) will turn green (Figure 17D).



(A) (B) (C)

Figure 17

Start a New Job

Ensure the laser is set to the desired units of measurement prior to beginning. Face Profiler will adopt the laser's setting. Refer to the instructions below to begin a new job from the Main Menu.

1. Tap the [New Job] button (Figure 18).
2. Enter the Job Name (Figure 19):
   - Job names are limited to 20 characters, and may not contain a blank space, ampersand character (&), or period character (.).
   - Tap  in the upper left corner of the screen to return to the Main Menu.
3. <optional> Enter a Note for the Job.
4. Device: Tap the drop-down menu and select the laser model to be used for the Job.
5. <optional> Enter a Drill angle, Drill Offset (setback from crest), Stem depth, Minimum burden value and/or Subdrill to create default values for each profile in the job. As each new profile is created, it will inherit these values. Later on, when doing calculations for individual profiles, the new calculated values for each profile will be saved with the profile, superseding the job's default values.
6. The Origin Coordinates box displays only when the following devices are selected: TruPulse 200X with TruAngle, TruPulse 360B or TruPulse 360R. If XYZ coordinates are desired for the job, the Origin Coordinates box must be checked so a prompt will appear allowing for entry of the first position coordinate and then all subsequent positions in the job. Otherwise, uncheck this box to skip the prompts for coordinates.
7. Tap the [Start] button to begin the job's first drill hole and profile - options are presented for changing the drill hole or profile names as well as adding a description for each.
8. <optional> Change the default drill hole name and/or enter a description of the drill hole or tap [Next] to skip. There are no limitations on characters (Figure 20A).
9. <optional> Change the default profile name and/or enter a description of the profile or tap [Next] to skip. There are no limitations on characters (Figure 20B).
   - Tap [Cancel] on either of these description screens to return to the Job menu.

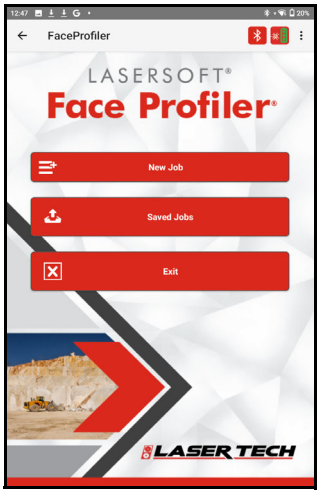


Figure 18

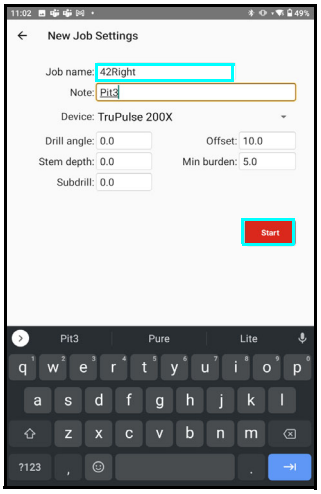
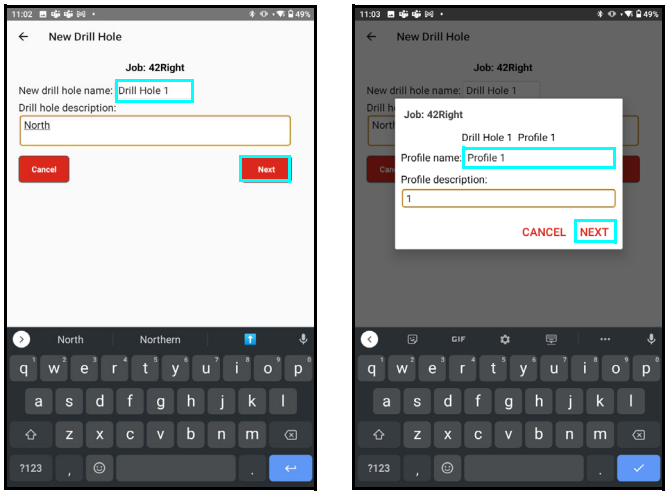


Figure 19



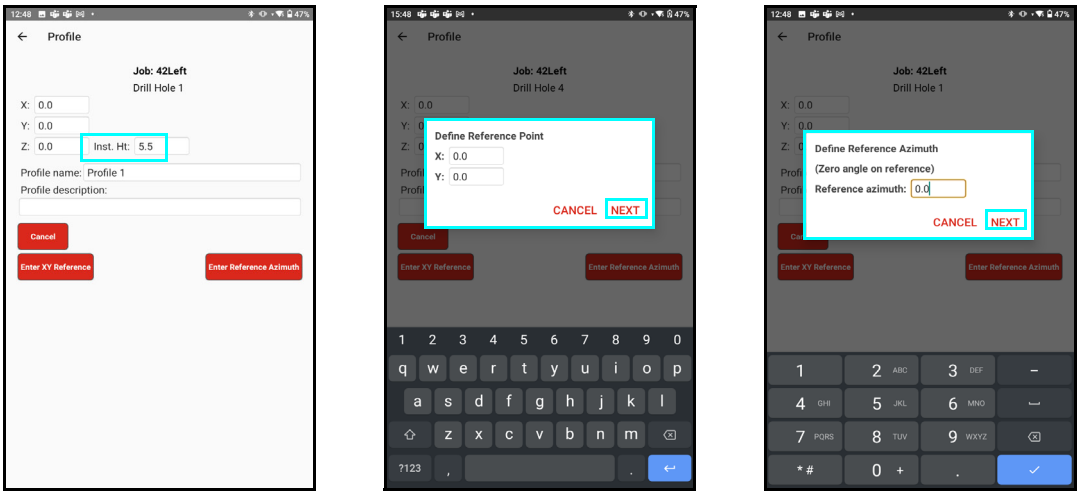
(A) (B)

Figure 20

NOTE The Glossary includes a list of terms and definitions used within Face Profiler (Page 60).

10. If the Origin Coordinates box was checked during initial file setup (Page 17), enter the XYZ values for the starting Origin point. Be sure to enter an accurate value for the Instrument Height. This value is important for calculating profile coordinates to the greatest possible accuracy (Figure 21A).

    - The Origin Coordinates checkbox only displays if the equipment in use is a TruPulse model with a TruAngle or a TruPulse 360 with Bluetooth/TruPulse 360R model.
    - If a TruAngle device is in use, the Set Reference buttons will appear at the bottom.
    - To enter known XY coordinates, tap [Enter XY Reference].
      The Define Reference Point screen displayed (Figure 21B).
    - To enter a reference Azimuth, tap [Enter Reference Azimuth].
      The Define Reference Azimuth screen is displayed (Figure 21C).



(A) (B) (C)

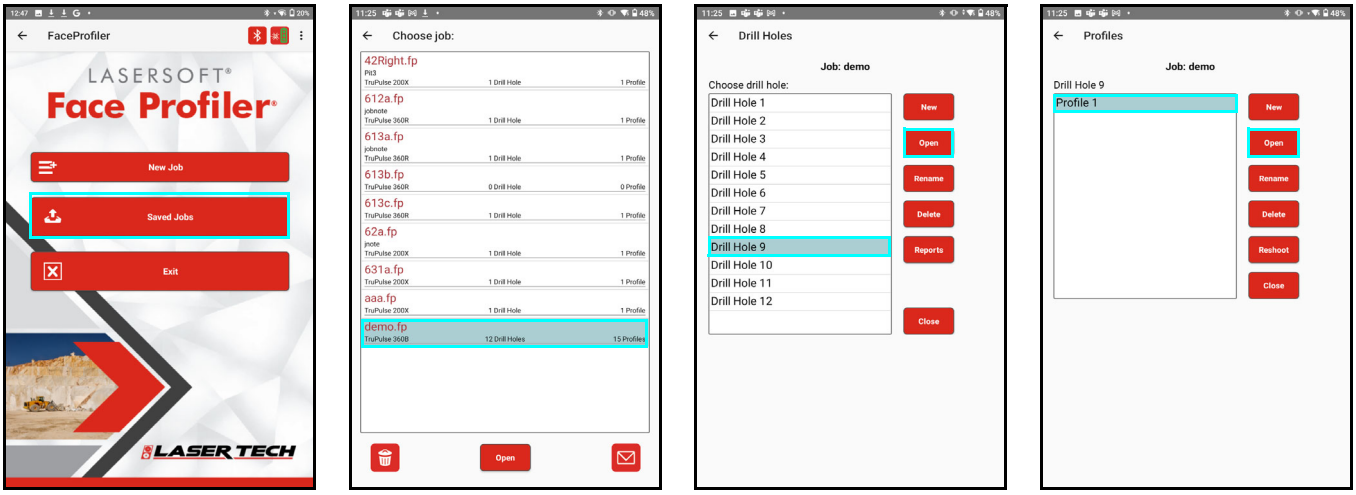
Figure 21

11. Tap [Next] to accept the default values (or the values you entered) and the Shoot to Toe screen is displayed. For more information about shooting a profile, see Page 19.

Access an Existing Job

To access an existing job:

1. Open Face Profiler and tap [Saved Jobs] (Figure 22A).
2. Tap the Job Name to select it, then tap [Open] (Figure 22B).
3. Tap the Drill Hole to select it, then tap [Open] (Figure 22C).
4. If the Drill Hole has more than one profile associated with it, tap the Profile to select it, then tap [Open] (Figure 22D). This screen only displays when the selected Drill Hole has more than one Profile.



(A) (B) (C) (D)

Figure 22

About the Drill Hole and Profile List screens (Figure 22C and Figure 22D):

- **[New]** — Begin a new drill hole and profile that will be added to the selected job.
- **[Open]** — Open the selected drill hole. If the drill hole has only one profile associated with it, the shoot profile screen will display. If it has more than one profile associated with it, the Profile list will display so a profile may be chosen.
- **[Rename]** — Rename a Drill Hole or Profile.
- **[Delete]**: Delete the selected drill hole and the profile(s) associated with it. For more information about deleting the selected profile, see Page 42.
- **[Reports]** — Generate Face Profiler reports. For more information about generating reports, see Page 44.
- **[Reshoot]** — Reshoot the toe, crest or floor shots of the selected profile.
- **[XY Map]** — View the XY Map for any Job. This is only an option for Jobs that were shot in using a TruPulse model with a TruAngle or a TruPulse 360 model.
- **[Close]** — Return to the Face Profiler Main screen.

Shoot a Profile

Each profile has its own Origin (the position of the laser system at the time the Profile is measured). The Origin for the first profile in a job is established manually by entering X, Y, and Z coordinate values and the Instrument Height as shown in Figure 21A, Page 18. If the Origin coordinate option is left unchecked during job setup, the Origin coordinate for the instrument position of all profiles in a Job are assumed as "0."

Equipment Setup and Field Measurement Notes

- For optimum screen display and accuracy, choose a location in front of the face that is equal distance from the face as the crest is high.
- All shots to the Floor, Toe, Crest, and Face should be taken in a vertical plane that is perpendicular to the face.
- TruPulse laser settings: The Measurement Mode should be set to Horizontal Distance (HD) the default startup mode or Slope Distance (SD). Bluetooth must be set to Bluetooth_ON. Laser units should be set appropriately. **NOTE** the laser default units setting is Meters and not Feet.

Take the Toe Shot

If the Origin coordinate box was checked during Job setup, the Shoot to Toe screen will display after entering Origin coordinate information. If the Origin coordinate box was not checked during Job setup, the Shoot to Toe screen will display after the Profile Description screen (Figure 23).

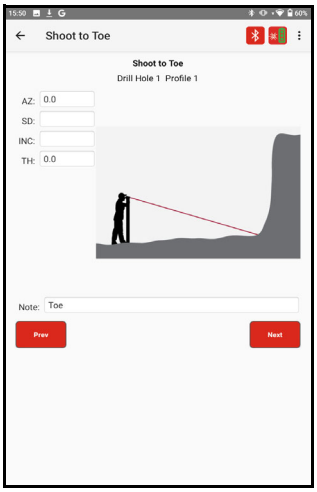


Figure 23

NOTE The Note field near the center of the screen may be edited before taking the Toe shot. The default description is the word "Toe."

- **[Prev]** — Return to the Set Origin screen if the Origin option was selected during Job setup OR return to the Profile Description Screen.
- **[Next]** — save manually entered data (azimuth, slope distance and inclination) for the Toe shot.

To take the Toe shot:

1. Aim the laser at the location where the face meets the floor (or the toe).
2. <optional> Enter a Target Height in the TH field if a target is being used. Face Profiler will subtract the height of the target from the measurement so that the measurement will be on the ground. This feature is useful if debris or anything else is in the way of the Toe Shot.
3. Press the laser's FIRE button. The Android device will beep when data arrives from the laser. The data will be stored; and screen will automatically advance to the Shoot to Crest screen (Figure 24A, Page 21).

    - If there is muck at the bottom of the face, shoot the spot out in front of the face where the muck meets the floor. This material can be removed from the Calculations later (Page 33).
    - Once the Toe of the face has been defined, any shot with an inclination less than the inclination of the Toe shot will be interpreted as a Floor shot.

Take the Crest Shot

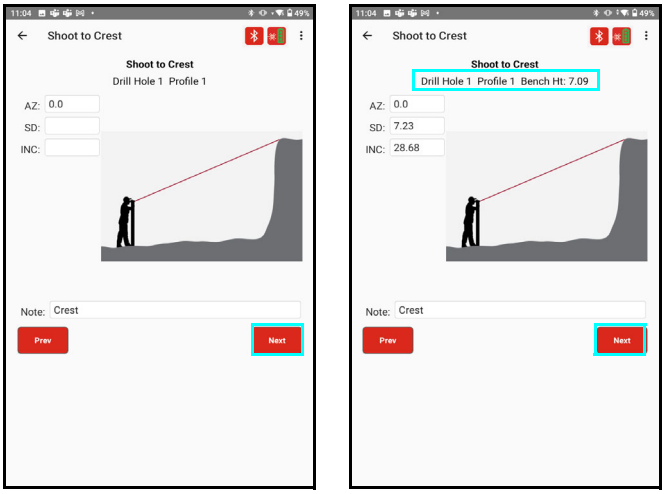
The Crest Shot screen (Figure 24A) is automatically displayed after the Toe shot is taken.

NOTE The Note field near the center of the screen may be edited before taking the Crest shot. The default description is the word "Crest".

To take the Crest shot:

1. Aim the laser at the crest of the profile.
2. Press the laser's FIRE button (Figure 24A). You will hear a shot sound from the Android device and measurement data displays including the bench height for the profile (Figure 24B).
3. If the bench height displayed is acceptable, tap [Next] to accept the bench height and continue.
4. If the bench height displayed is unacceptable, continue to fire the laser until an acceptable bench height displays. For example, if the crest was missed on the first shot and hit the wall of the next bench up by accident. Tap [Prev] to return to the Toe Shot screen and reshoot the Toe.

   NOTE Profile Shots above this Crest point will not be accepted.



(A) (B)

Figure 24

Take the Floor Shot

The Floor Shot screen is automatically displayed after taking the Crest shot and tapping [Next] (Figure 25).

NOTE The Note field near the center of the screen may be edited before taking the Floor shot. The default description is the word "Floor."

- **[Prev]** — return to the Crest Shot screen.
- **[Next]** — skip the Floor shot or save manually entered data (slope and inclination) as the Floor shot.

To take the Floor shot:

1. Aim the laser at a location on the floor directly in front of the toe.
2. <optional> Enter a Target Height in the TH field if a target is being used. Face Profiler will subtract the height of the target from the measurement so that the measurement will be on the ground. This feature is useful if debris or anything else is in the way of the Floor shot.
3. Press the laser's FIRE button. The Android device will beep when data arrives from the laser. The data will be stored; and the Shoot Profile screen will display (Figure 27, Page 22).

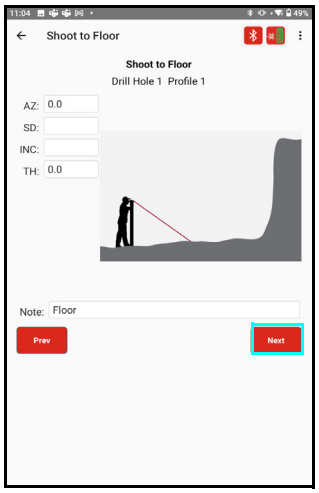


Figure 25

Reshoot Profile Shots

At any time while a Profile is open, the Toe, Crest and Floor shots may be retaken.

To reshoot Floor, Toe, or Crest shots, tap R and choose "Reshoot Toe," "Reshoot Crest," or "Reshoot Floor" from the available options (Figure 26).

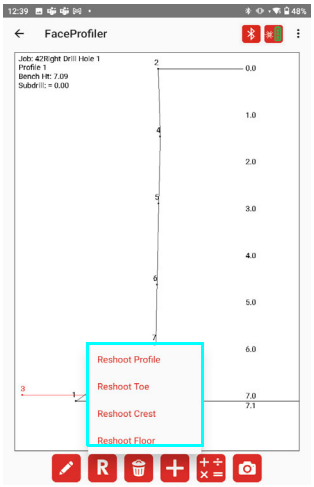


Figure 26

Reshoot Profile — Software is directed back to the Shoot to Toe screen where all profile shots can be retaken in succession.

Reshoot Toe — Software is redirected back to the Shoot Toe screen where the Toe shot can be retaken. Once the shot it taken, the display advances to the Shoot Crest screen (the normal succession of screens when setting up a new profile). If the Crest shot does not need to be retaken, tap [Next] to advance to the Floor shot screen, and [Next] again if the Floor shot does not need to be retaken (or if it was skipped originally).

Reshoot Crest — Software is redirected back to the Shoot Crest screen where the Crest shot can be taken and retaken as many times as desired before tapping [Next] to move to the Floor shot screen. If the Floor shot does not need to be retaken, tap [Next] again to return to the Shoot Profile screen.

Reshoot Floor — Software is redirected back to the Shoot to Floor screen where the Floor shot can be retaken. Tap [Next] to return to the Shoot Profile screen.

Shoot in the Profile

After the Floor Shot is taken or skipped, the Shoot Profile screen is displayed (Figure 27). This example shows the initial plot, with a straight line from the Toe to the Crest. Remember that the toe, crest and floor shots may be retaken at any point in time while that profile is open.

Initial Plot Screen Overview:

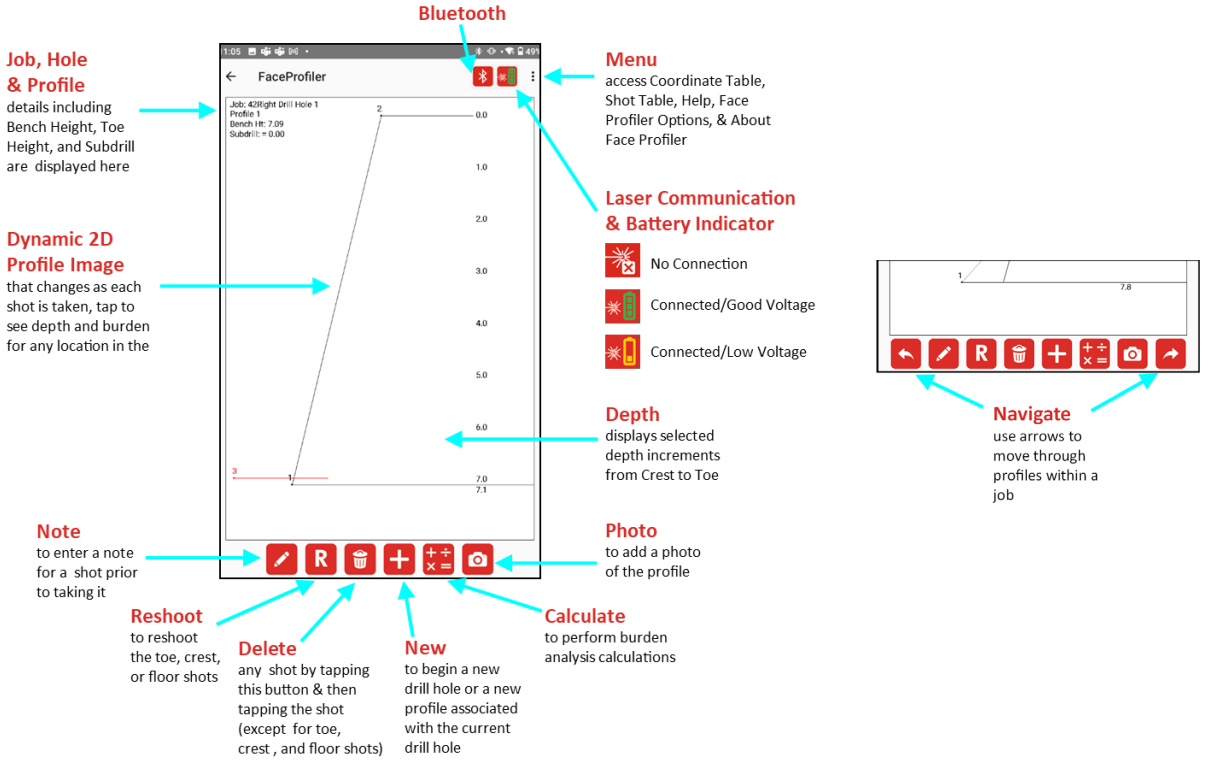


Figure 27

To take Profile shots:

1. Aim the laser at the face of the profile. Profile shots may be taken in any order and should be below the Crest and above the Toe.
2. Press the laser's FIRE button. The Android device will beep when data is received from the laser. The data will be stored and the plot will be updated with each new shot. Figure 28 is an example of how a profiled face may appear.

   - Move the laser in a vertical motion from the point that was the Crest shot to the point that was the Toe shot.
   - When finished measuring with the laser, tap:
     -  to add the next profile.
     -  to exit.
     -  to pull up the Calculate menu and make calculations (Page 33).

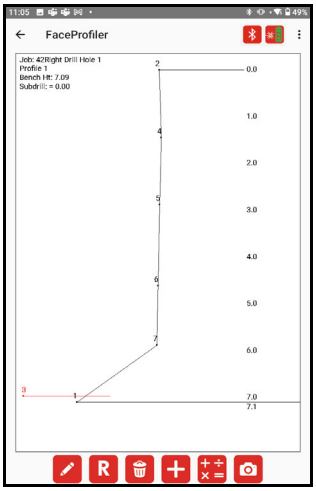


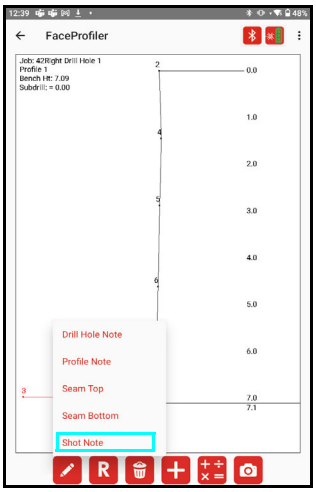
Figure 28

Notes

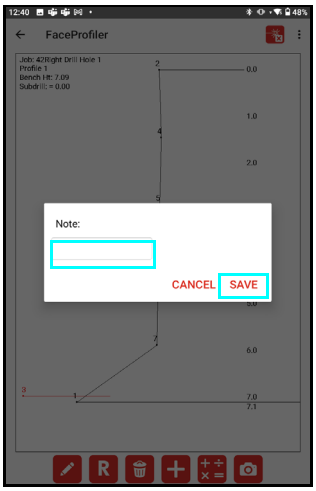
Add a Note with a Shot:

1. Tap  (Figure 29A), before taking the shot. Select Shot Note and enter the note (Figure 29B), and then tap [SAVE].
2. Press FIRE on the laser device and the note will be associated with the shot new shot.

   Shot notes will display in the note column in tables and printed reports.



(A)



(B)

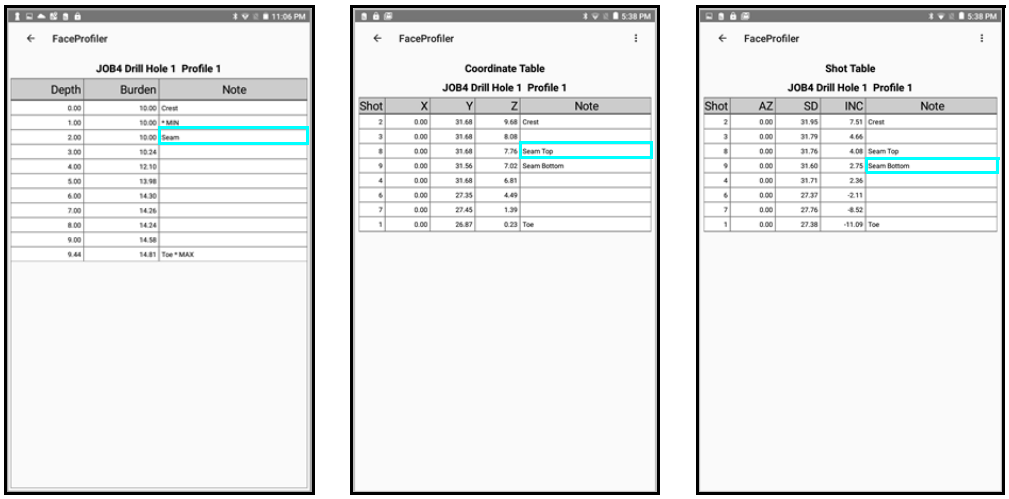
Figure 29

Add Seam Note with a Shot

To automatically add the Note "SEAM" to each of the depth increments between the points where the seam top and seam bottom were specified, tap [Seam Top] and [Seam Bottom] (Figure 29A Page 23) prior to shooting in the location of each.

In this example, there was only 1 foot of separation between where seam top and seam bottom were specified; therefore, "SEAM" only appears at one depth increment in the burden table (Figure 30A) and the printed reports.

On the Coordinate Table (Page 27) and Shot Table (Page 28), the "Seam Top" and "Seam Bottom" notes will show up with the values for the measured point (Figure 30B and Figure 30C).



(A) (B) (C)

Figure 30

Add a Note After a Measurement is Taken

Notes (including seam notes) can be added at any time while a profile is open and after a measurement has already been taken. To add a note to an existing measurement, access the Depth/Burden table, Coordinate Table, or Shot Table then tap the Note cell and enter the desired note.
Tap [SAVE] to accept the changes (Figure 31).

Edit a Note

A note (including seam, toe, crest, and floor notes) can be edited at any time while a profile is open. To edit a note, access the Depth/Burden table, Coordinate Table, or Shot Table then tap the Note cell and edit the note.
Tap SAVE to accept the changes.

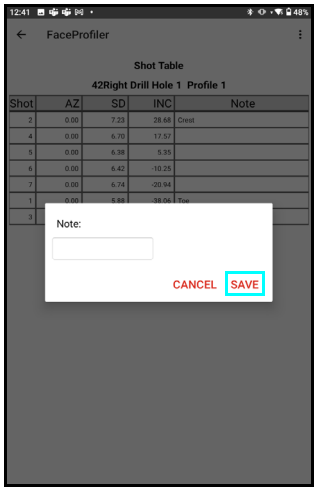


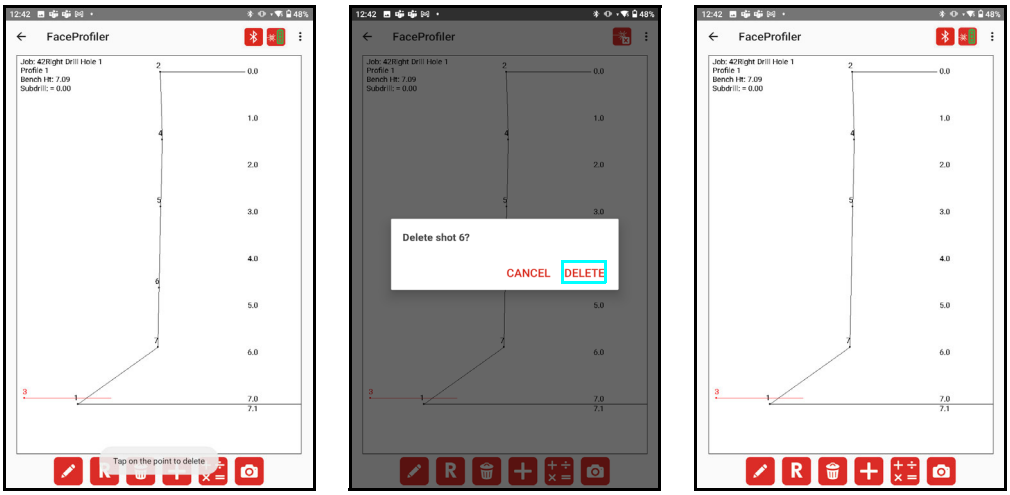
Figure 31

Delete a Measurement

Measurement points can be deleted at any time while a profile is open. Measurements can be deleted by tapping them on the Shoot Profile screen and also by tapping them from the Coordinate and/or Shot Tables.

Delete from the Shoot Profile screen:

1. Tap  and then tap the point to be deleted (Figure 32A).
2. A confirmation message will display. Tap [DELETE] to confirm the deletion, or [CANCEL] to abandon the operation (Figure 32B).
3. Upon tapping Delete, the point is removed from the screen (Figure 32C).

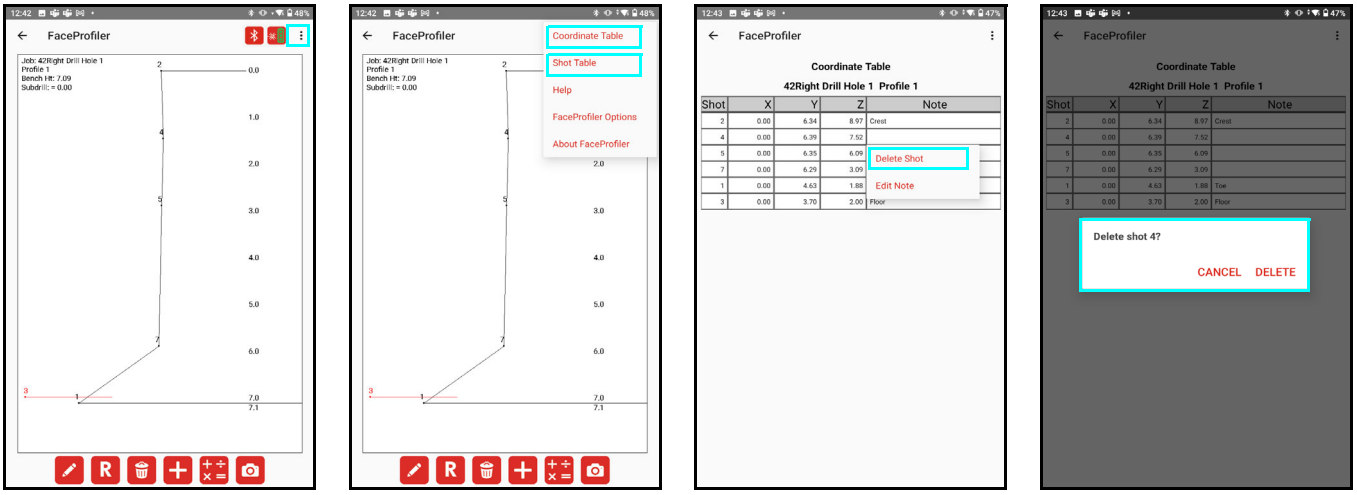


(A) (B) (C)

Figure 32

Delete from the Coordinate or Shot Table:

1. Tap  in the upper right corner of the screen (Figure 33A).
2. Select Coordinate Table or Shot Table from the menu (Figure 33B).
3. Tap the line for the shot to be deleted, in this example, Shot 4 was tapped. Select Delete Shot from the options (Figure 33C).
4. Tap [DELETE] to confirm the deletion or [CANCEL] to abandon the operation (Figure 33D).



(A) (B) (C) (D)

Figure 33

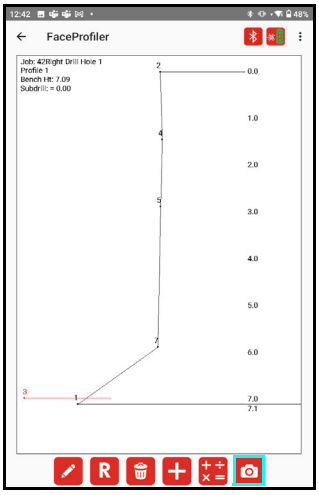
NOTE To leave this area with or without making changes to the notes, tap  in the upper left corner of the screen to return to the Shoot Profile screen (Page 19).

Add a Profile Photo

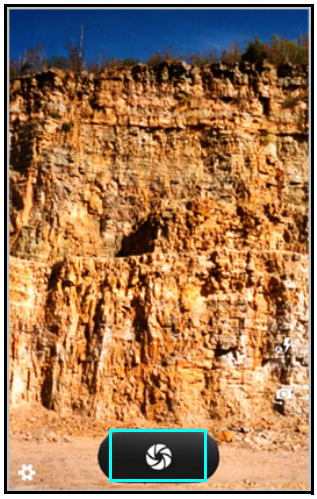
Quickly and easily add a photo to a Profile:

1. Tap  (Figure 34A).
2. The camera screen will display (Figure 34B). Each Android device with camera capability has a button that takes the image. Press the button when ready. Refer to the device manual to find the camera button, if necessary.
3. Tap  to keep the image or tap the "X" to try again (Figure 34C).
4. The image will be saved with a filename that matches the open Job, drill hole and profile number.

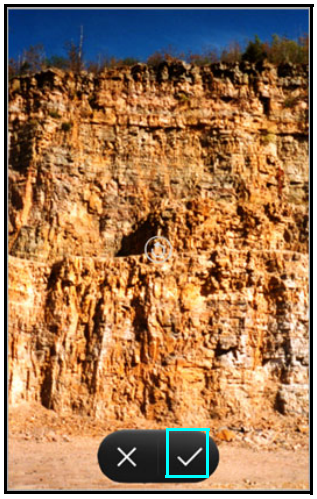
NOTE All saved Profile data, including images, can be found in: Device Storage/Android/data/com.lasertech.faceprofiler/files/'Job Name'/.



(A)



(B)



(C)

Figure 34

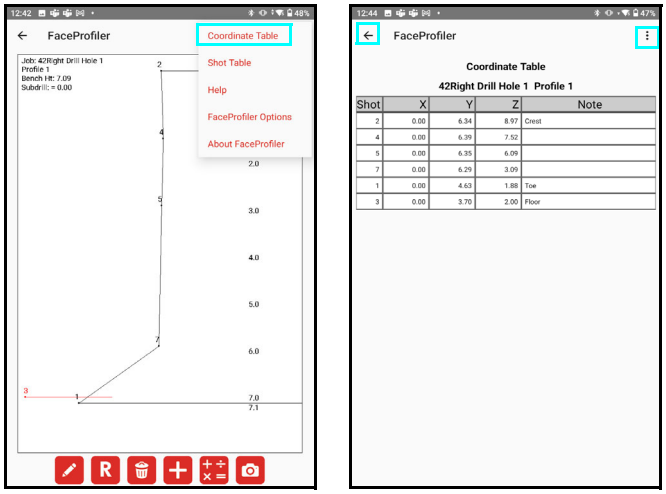
Review Profile Data

Profile data may be reviewed at any time while a profile is open. Use the Coordinate Table, Shot Table, or XY Map to review profile measurements.

Coordinate Table

1. Tap Menu ⋮.
2. Tap [Coordinate Table] from the list of options (Figure 35A) and the Coordinate Table will display (Figure 35B).

- Origin data, Instrument Height and shot data are converted to XYZ coordinates and are displayed in the first three columns of the Coordinate Table. Depending upon the equipment used, the X field may or may not have data.
- Any individual shot notes display in the Note column.
  Tap any Note field to edit existing note or to add a new one.
- To return to the Shoot Profile screen, tap ←.
- To review profile data as a Shot Table or XY Map, tap Menu ⋮ and choose one of those options. Remember, XY Map only displays as an options for Profiles shot using a TruPulse 360 model laser or a TruPulse model with a TruAngle.



(A) (B)

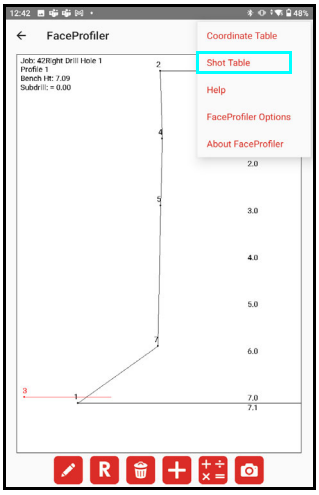
Figure 35

NOTE Different profiles in the same job may have different values for the X coordinate depending on how the Origin is set.

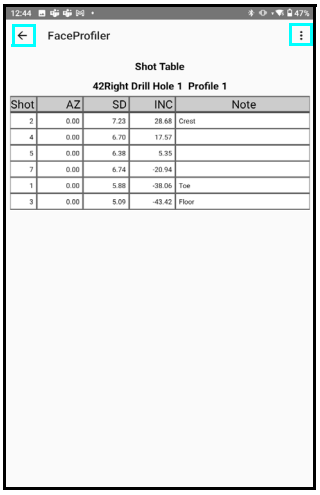
Shot Table

1. Tap ⋮ Menu.
2. Tap [Shot Table] from the list of options (Figure 36A) and the Shot Table will display (Figure 36B).

- The first three columns display the azimuth, slope distance, and inclination values received from the laser for each shot. Because some laser models have a compass and some do not, the azimuth field may or may not contain data.
- Any notes entered about individual shots are displayed in the fourth column. Tap the any Note field to edit existing notes or to add new ones.
- To return to the Shoot Profile screen, tap ←.
- To review profile data in as a Coordinate Table or XY Map, tap ⋮ Menu and choose one of those options.
- Do not return to a profile to add additional shots unless the exact instrument was marked. If there is no marked reference to the position, re-shoot the profile in its entirety.



(A)



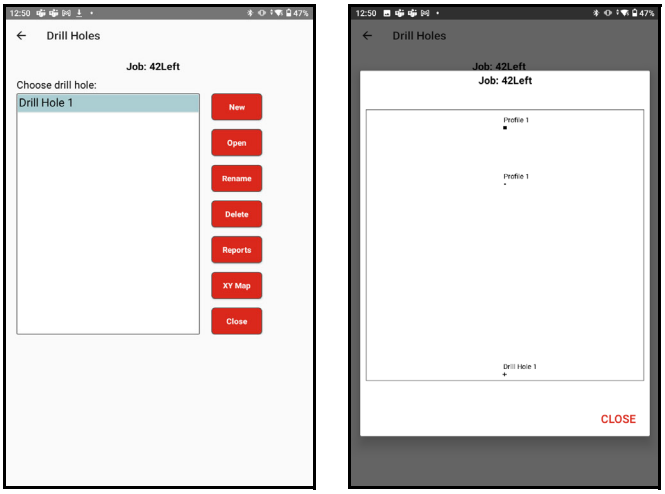
(B)

Figure 36

XY Map

The XY Map will be accurate if the Origin coordinates box was checked during Job setup and new instrument positions were measured in with a TruPulse 360 or a TruPulse and TruAngle equipment setup.

1. Navigate to the Drill Hole menu (Figure 37A).
2. Tap the XY Map option. The display should look similar to Figure 37B.
   - **Drill Hole 1x** — the Origin point(s) for the profiles at Drill Hole 1; the position of the equipment setup at the time of measurement. The number will correspond to the Drill Hole number measured.
   - **Profile 1[]** — the Crest of Profile 1. The number will change and correspond to the Profile number measured.
   - **Profile 1.** — the Toe of Profile 1. The number will change and correspond to the Profile number measured.
   - To return to the Drill Hole menu, tap  .
   - To review profile data in as a Coordinate Table or a Shot Table, open a Profile and select it from the  Menu.



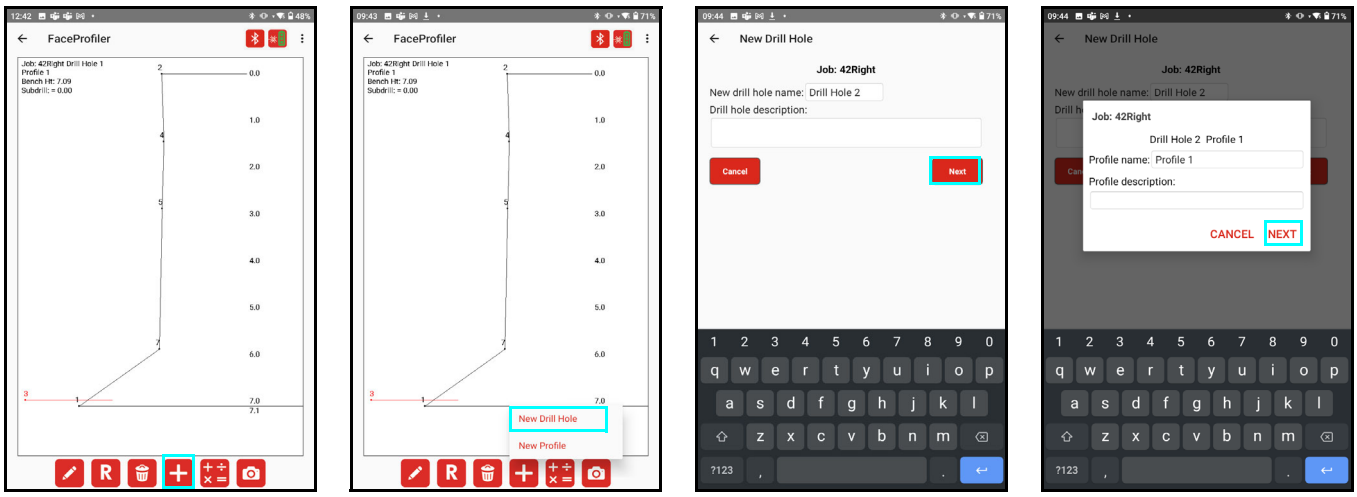
(A) (B)

Figure 37

Add the Next Drill Hole/Profile

While the Shoot Profile screen is displayed, tapping  will add the next Drill Hole or additional Profiles under the current drill hole.

1. Tap  from the Shoot Profile screen (Figure 38A).
2. Tap [New Drill Hole] (Figure 38B).
   If [New Profile] is selected to add an additional profile measurement to the same drill hole, skip Step #3.
3. <optional> Edit the Drill Hole name and/or enter a description for the new drill hole.
4. Tap [Next] (Figure 38C); or tap [Cancel] to abandon the operation.
5. <optional> Edit the Profile name and/or enter a description for the new profile.
6. Tap [Next] (Figure 38D); or tap [Cancel] to abandon the operation.
   The Shoot to Toe screen is displayed.



(A) (B) (C) (D)

Figure 38

If the Origin Coordinates option was checked when setting up the Job, Set Origin options will be presented (Figure 39):

- SHOOT
- CANCEL
- MANUAL

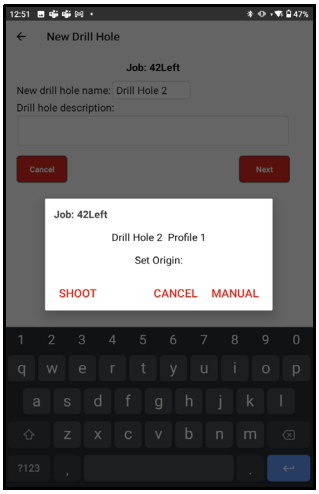


Figure 39

Shoot Origin Coordinates

To establish a profile's Origin relative to the Origin of another profile with a laser measurement, tap the [Shoot] button. Face Profiler will display the Shoot Origin screen.
NOTE The screen's appearance depends on the Laser device selected on the New Job screen:

TruPulse200X/TruAngle

TruPulse200X/TruAngle displays the Reference azimuth that will be used (Figure 40).

1. Tap [Shoot] and select which Reference Origin point you are occupying.
    - Specify the Reference azimuth or accept the value displayed.
    - Fire the laser at the next instrument position and the raw data fields will populate with values.
    - Measure Instrument and Target height and enter them in the fields. The values from the previous profile will carry over but can be updated.
    - Confirm the next Profile name and enter a Description if needed.
2. Tap [Next] to move to the Shoot to Toe screen.
    - Move up to the new location you just shot in.
    - Zero the TruAngle back to the old location.
    - Begin a new Profile by taking the Toe shot.

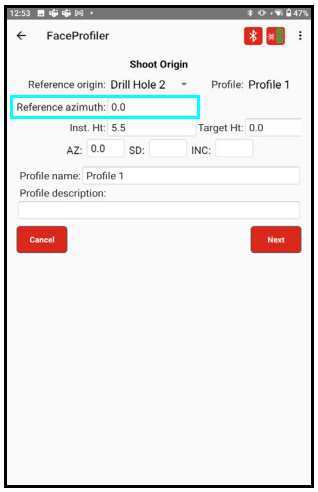


Figure 40

TruPulse 360/R

TruPulse 360/R displays the Shot type option (Figure 41).

1. Tap [Shoot] and select which Origin point you are occupying.
    - Select the Shot type named Foreshot if you have placed a target at the next location, select Backshot if you have moved ahead and occupied the next location.
    - Fire the laser at the target and the raw data fields will populate with values.
    - Measure Instrument and Target height and enter them in the fields. The values from the previous profile will carry over but can be updated.
    - Confirm the next Profile name and enter a Description if needed.
2. Tap [Next] to move to the Shoot to Toe screen.
    - Occupy the new location you just shot in.
    - Begin a new Profile by taking the Toe shot.

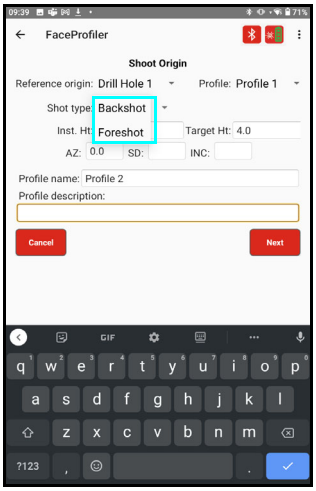


Figure 41

Manual Origin Coordinates

To manually enter the Origin coordinates, tap the [Manual] button and proceed the same way as the first profile. Face Profiler will display the Set Origin screen (Figure 21 Page 18).

1. Enter a description for the new profile if desired.
2. Tap [Manual] to manually enter XYZ coordinate values for the new Origin.
    - Tap [Cancel] to abandon the operation.

Refer to the instructions below to shoot from (or to) an Origin that has already been stored in the current job.

1. Tap the arrow in the Reference Origin field and select the Drill Hole number from the drop-down list.
2. Tap the arrow in the Profile field and select the Profile number from the drop-down list.
3. Choose the applicable angle device and enter details. If an angle device is not used as a part of the hardware configuration, the X coordinates will assume a 90° angle from the previous Origin location.
4. Verify that the Reference azimuth (or Shot type), Instrument Height and Target Height are set properly.
5. Occupy the new profile Origin if the azimuth backsight method is used. Occupy the reference Origin if the azimuth foresight or angle method is used.
6. Fire the laser at the target and the AZ, SD, and INC fields will fill in.
    - Tap [Next] after the Origin offset is shot in properly and ready to advance to the Floor shot screen, see Page 21.
    - Tap [Cancel] to return to the previous screen.

Section 4 - Adjustments and Calculations

When a profile is open, Face Profiler allows the user to make certain adjustments before performing any calculations. Results from some calculations are displayed on the screen, others can be displayed in a tabular report or as a graphic plot. The [Calculate] menu accesses four basic functions:

Adjustments

- Adjust
- Burden

Calculations

- Drill Hole
- Fixed Angle Increment

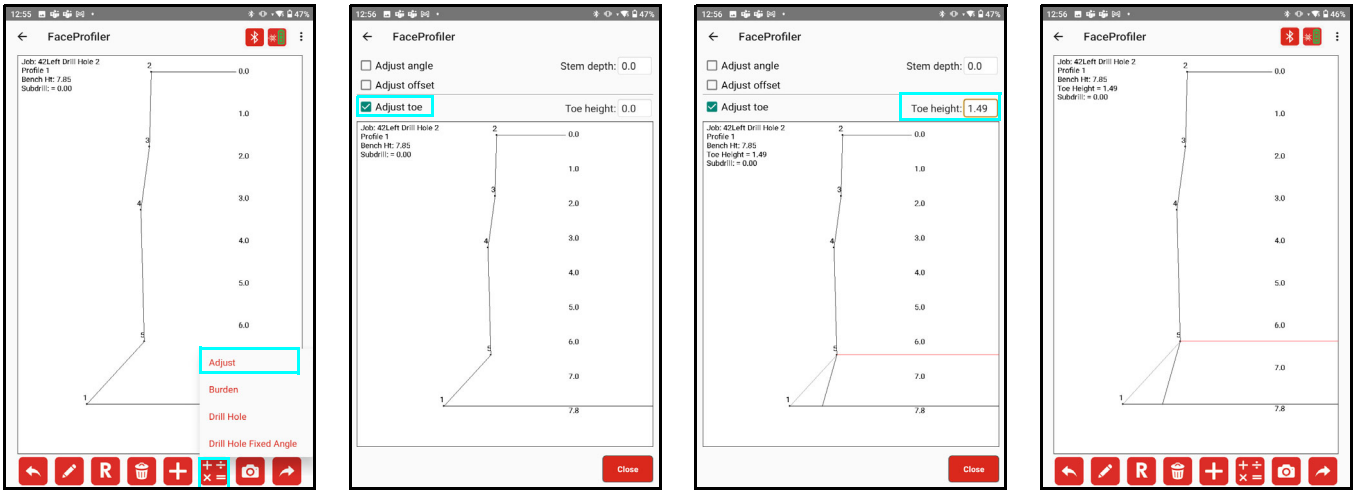
Each of the calculations screens will be described separately. You are free to navigate seamlessly between them, reviewing results and making adjustments until satisfied.

Adjust the Profile

Remove Slough Material from the Toe

Slough (or muck) material at the bottom of a profile face can be removed from calculations so it does not show a larger burden value in that area than is actually there. Slough should be profiled in with the rest of the face and then removed with this procedure. Face Profiler will assume a straight line to the floor from the spot where the slough material meets the face so burden values will not extend beyond that point.

1. Tap  and then tap [Adjust] (Figure 42A).
2. Tap the checkbox next to "Adjust toe" (Figure 42B).
3. Tap to place cursor in the "Toe height" field (Figure 42B).
4. Tap the screen at the location where the slough material meets the profile face and a line will display at that position (Figure 42C).
5. Tap [Close] to return to the Shoot Profile and see the new toe location behind the slough (Figure 42D).



(A) (B) (C) (D)

Figure 42

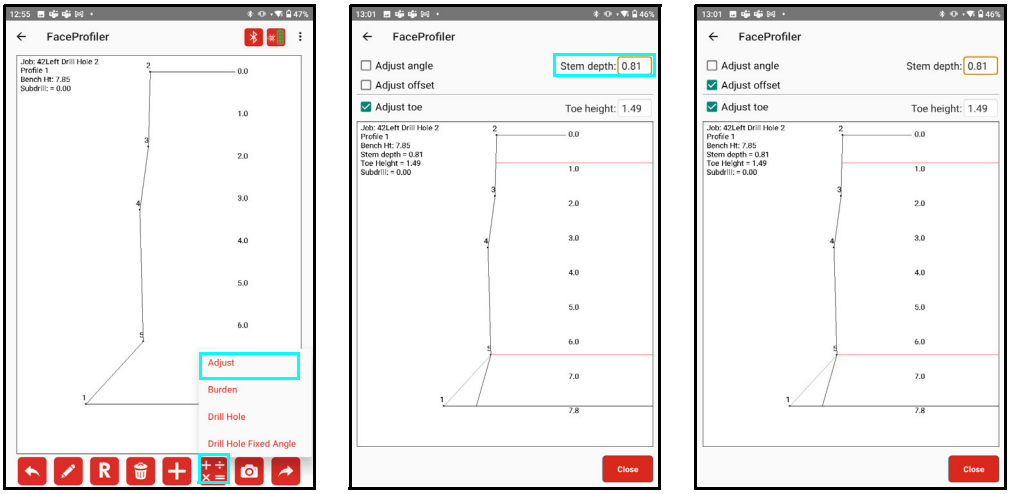
- If the wrong spot was tapped accidentally, simply tap the correct spot and the display will be updated.
- If a Toe height is entered, but Adjust Toe remains unchecked, a description will be placed for depths up to this height, but the calculations will not remove this material when determining burden values.
- Instead of tapping the position of the line placement, a toe height value may be manually entered using the device keyboard.

The adjusted toe value will be used in any subsequent calculation.

Add a Stem Depth

To add a stem depth:

1. Access the [Calculate] menu, and select [Adjust] (Figure 43A).
2. Tap to place cursor in the Stem depth field (Figure 43B).
3. Tap the screen at the desired depth. The value displays in the Stem depth field and a horizontal line displays from the selected point to the drill hole (Figure 43C).



(A) (B) (C)

Figure 43

NOTE If the wrong spot was tapped accidentally, simply tap the correct spot and the display will be updated.

4. In order to:
   - Adjust the calculated hole offset using this data, tap the box next to Adjust offset. A check mark will appear in the box.
   - Exclude the data above this point from the hole angle calculation, by tapping the box next to Adjust angle. A check mark will appear in the box.

     NOTE The Adjusted offset and/or the Adjusted angle value will be used in the subsequent calculation.

Calculate Drill Hole Parameters

There are four ways to calculate Burden values and Drill Hole parameters:

- **Burden/Enter Hole Offset** — Manually enter the distance from Crest and Drill angle values.
- **Burden/Shoot Hole Location** — Shoot in the Hole Location to calculate the distance from Crest.
- **Drill Hole** — Optimize the Burden for an angled face and calculate the distance from crest and Drill Angle.
- **Drill Hole Fixed Angle** — Optimize the Burden for an angled face and calculate the distance from crest and Drill Angle at a Fixed Angle Increment.

Calculate Burden - Enter Hole Offset

A distance from crest value can be entered for a profile to calculate burden results with specific parameters in mind.

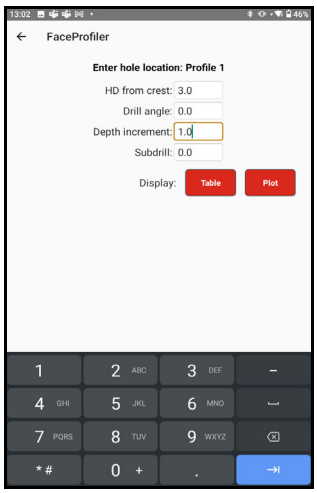


Figure 44

About Enter Hole Offset Parameters (Figure 44):

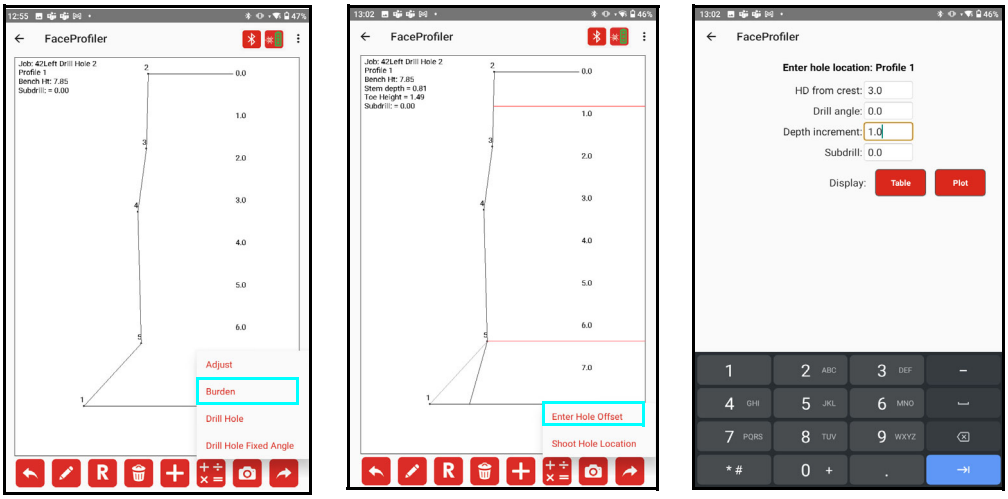
- **HD from crest** — Enter the Hole Offset or the setback distance in the field labeled HD from crest.
- **Drill Angle** — Enter zero if the drill angle is perfectly vertical.
  - Enter a positive value if the hole angles toward the face.
  - Enter a negative value if the hole angles away from the face.
  - This entry may be restricted depending on the Drill Angle setting in Face Profiler Options (Page 11).
- **Depth increment** — Enter the number of feet (or meters) from the crest down the face at which data will be displayed in tables and reports; for example, every 3 feet or 1 meter.
- **Subdrill** — If the drill hole should extend below the floor of the profile, enter that value in the Subdrill field

Procedure for Enter Hole Offset:

1. Tap  and select [Burden] (Figure 45A).
2. Tap the [Enter Hole Offset] option (Figure 45B).
3. Enter the Hole Offset, Drill angle, Depth increment and/or Subdrill in their relative fields (Figure 45C).

   NOTE The values entered here will be saved for this profile, and will over-ride the values entered during initial job setup.

   - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 46, Page 40).
   - Tap [Plot] to view the calculated data as a graphic plot (Figure 52, Page 40).



(A) (B) (C)

Figure 45

Calculate Burden - Shoot Hole Location

Values for distance from Crest and the height above or below it can be measured by shooting in the hole location with the laser.

About Shoot hole location parameters (Figure 46):

- **SD and INC fields —** Will fill in with a shot from the laser.
- **TH field —** Enter in a Target Height if a target is in use.
- **Offset —** Distance from Crest is automatically calculated from the laser shot.
- **Above/below Crest —** Height is automatically calculated from the laser shot.
- **Drill angle —** Enter zero if the drill angle is perfectly vertical.
    - Enter a positive value if the hole angles toward the face.
    - Enter a negative value if the hole angles away from the face.
    - This entry may be restricted depending on the Drill Angle setting in Face Profiler Options (Page 32).
- **Depth increment —** Enter the number of feet (or meters) from the crest down the face at which data will be displayed in tables and reports; for example, every 3 feet or every 1 meter.
- **Subdrill —** If the drill hole should extend below the floor of the profile, enter that value in the Subdrill field.

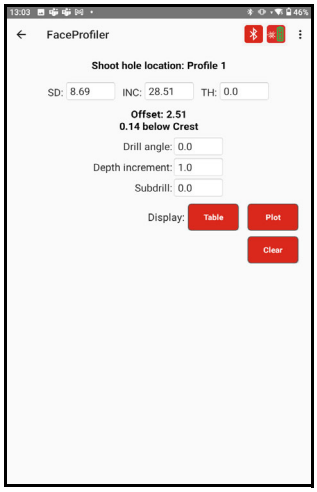


Figure 46

Procedure for Shoot Hole Location:

1. Tap  and tap [Burden] (Figure 47A).
2. Tap the [Shoot Hole Location] option (Figure 47B). Face Profiler will display an entry screen for the drill hole parameters similar to Figure 44, Page 35.
3. <optional> Enter a Target Height in the TH field (Figure 47C).
   This value is the height of the target set up at the drill hole location.
4. Press the laser's FIRE button to collect the raw data to the drill hole location.
   This will result in the automatic calculation of:
   - The drill hole Offset from the crest (Figure 47D).
   - The drill hole elevation change above/below the crest (Figure 47D).
   - The shot to the Drill Hole may be repeated if necessary, simply remeasure and overwrite the values.
5. <optional> Enter the desired drill angle in the Drill angle field.
6. Enter the depth increment down the hole to calculate burden values for.
   For example, every 2 feet or every 5 feet.
7. <optional> Enter a subdrill value.
   - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 46, Page 40).
   - Tap [Plot] to view the calculated data as a graphic plot (Figure 52, Page 40).
   - Tap [Clear] to clear out the raw data, offset and above/below values (Figure 47D).
     NOTE The values entered here will be saved for this profile, and will over-ride the job's default values for drill hole parameters. The value above or below the Crest will be added to the original Bench Height and a new value is calculated (Figure 47E).

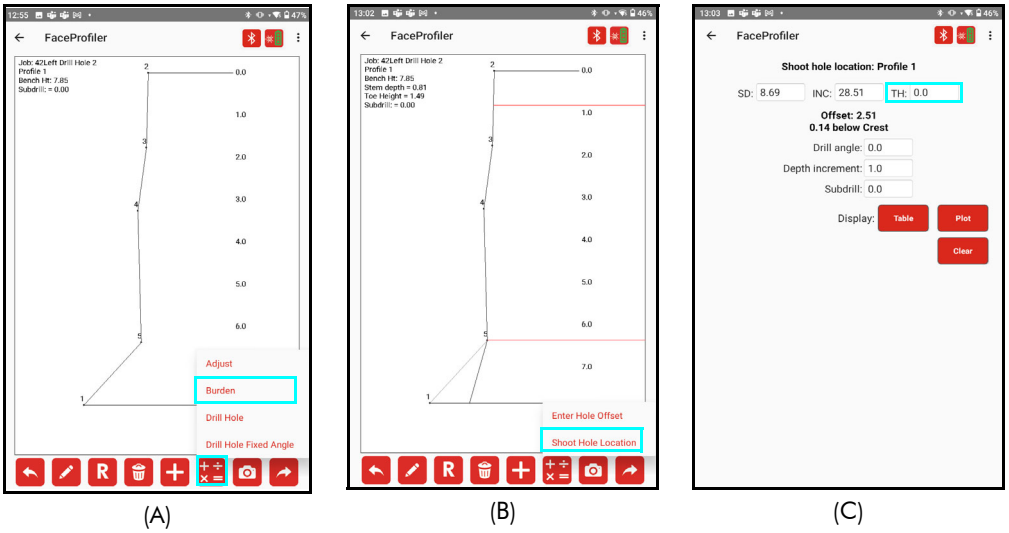


Figure 47

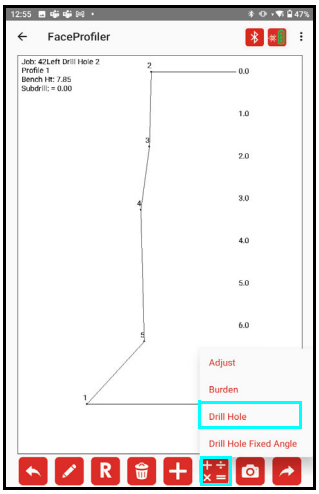
Calculate Drill Hole Parameters for a Specified Burden

Refer to the instructions below to calculate drill hole parameters for a specified minimum or optimum burden. This routine will calculate the drill angle to 0.01 of a degree. Use the Fixed Angle routine (Page 39) for drill with a specific increment.

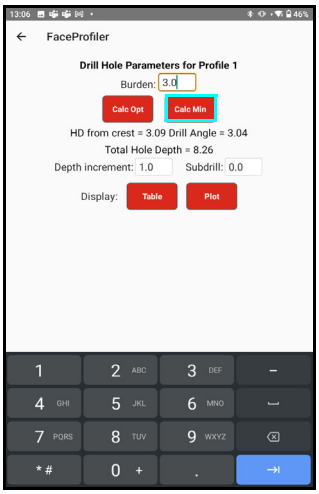
1. Tap  (Figure 48A).
2. Tap the [Drill Hole] option. Face Profiler will display the Drill Hole Calculation screen. The [Table] and [Plot] buttons will be available after the minimum or optimum burden value has been calculated.

To calculate drill hole parameters for a minimum burden:

1. Enter the desired minimum burden in the Burden field.
2. Tap the [Calc Min] button to calculate and display the HD from crest, drill angle, and the Total Hole Depth (Figure 48B).
3. Enter any subdrill value if desired.
4. Enter the depth increment for which to calculate burden values (i.e. data displayed every 1 foot or every 3 feet down the drill hole).
    - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 51, Page 40).
    - Tap [Plot] to view the calculated data as a graphic plot (Figure 52, Page 40).



(A)

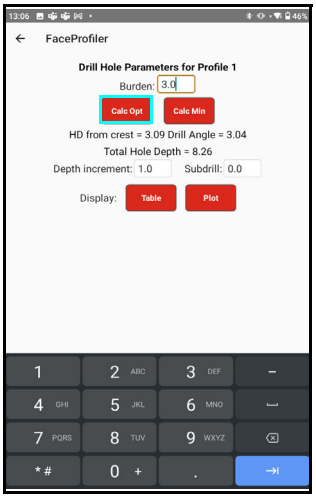


(B)

Figure 48

To calculate drill hole parameters for an optimum burden:

1. Enter the desired optimum burden in the Burden field.
2. Tap the [Calc Opt] button (Figure 49A) to calculate and display the HD from crest, drill angle, and the Total Hole Depth (Figure 48B).
3. Enter any subdrill value if desired.
4. Enter the depth increment for which burden values will be calculated (i.e. data displayed every 1 foot or every 3 feet down the drill hole).
    - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 51, Page 40).
    - Tap [Plot] to view the calculated data as a graphic plot (Figure 52, Page 40)



(A)

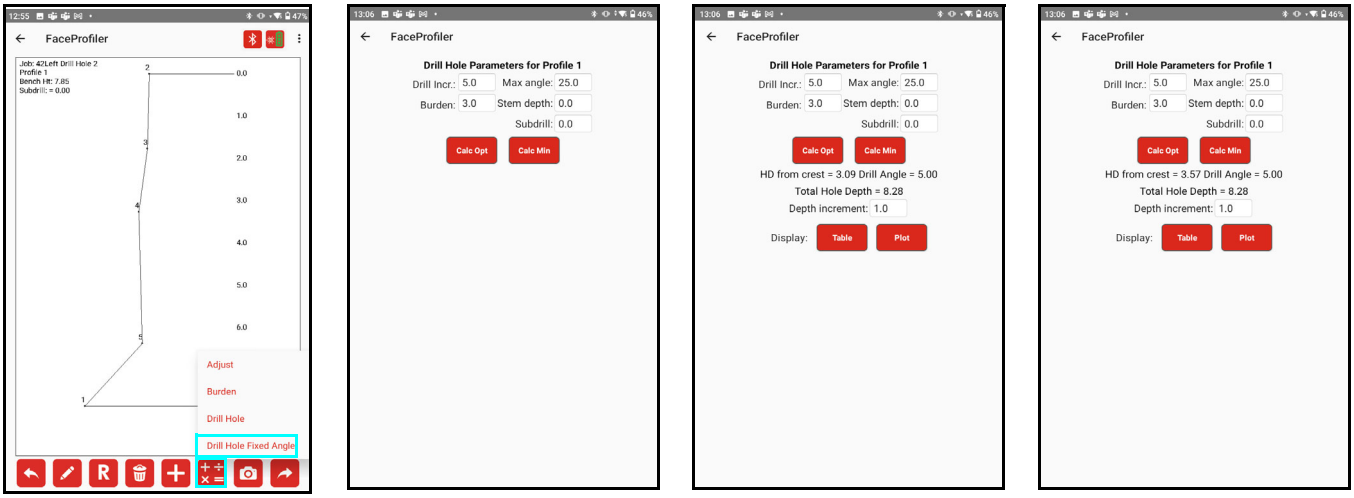
(B)

Figure 49

Calculate Drill Holes for Specified Burden at a Fixed Angle Increment

When the drill can only be setup to operate at fixed angle increments:

1. Tap  and then the [Drill Hole Fixed Angle] option (Figure 50A).



(A) (B) (C) (D)

Figure 50

2. Enter the parameters for the Profile (Figure 50B):
   - **Drill Increment** — The precision to which the angle may be set on the drill.
   - **Max angle field** — Enter the max angle achievable by the drilling equipment to be used.
   - a desired optimum burden, check the box next to the Opt burden field and enter a value.
   - **Stem Depth** — If a stem depth was added to the profile, that value will appear in the Stem field. If not, enter a Stem value now if desired.
   - **Subdrill** — Enter a subdrill value in the subdrill field, if desired. If a subdrill was previously entered while doing other calculations, it will carry over here.

3. Once the parameters have been entered, tap [Calc Opt] or [Calc Min] to view results: Distance from crest to hole, drill angle, and total hole depth. Choose to keep or change the depth increment for the table/plot.

   - Tap [Table] to view Depth vs. Burden data in tabular form (Figure 51, Page 40).
   - Tap [Plot] to view the calculated data as a graphic plot (Figure 52, Page 40).

   NOTE Some values will carry over from previous calculations, but the value fields are editable and can be changed at any time.

Display Tabular Results

Refer to the instructions below to generate a tabular report.

1. Enter the information required and perform the actions needed to complete the desired calculation.
   For more information about the calculations, see Page 35.
2. Tap the [Table] button to display the tabular depth/burden data (Figure 51).
   The depths, burden values, and notes are displayed in a scrollable grid.
   NOTE If necessary, swipe up to view the rest of the table.
3. Tap [←] to return to the Calculation screen.

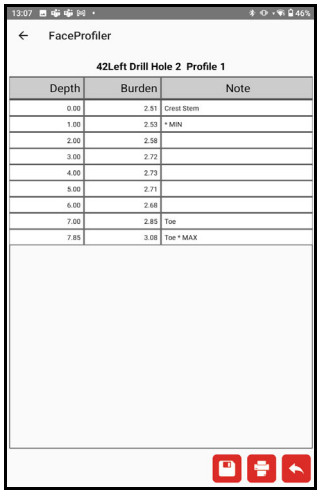


Figure 51

Display the Burden Plot

Refer to the instructions below to generate and display a plot from the profile and drill hole data.

1. Enter the information required and perform the actions needed to complete the desired calculation. For more information about the calculations, see Page 35.
2. Tap the [Plot] button. Figure 52 shows a sample plot.
3. Tap to return to the calculation screen.

   - Burden lines are always drawn perpendicular to the drill hole by default. Horizontal lines may be drawn by checking the box in Face Profiler Options (Page 32).
   - When either a Table or Plot view is open, swipe Left/Right to view Table and Plot views.

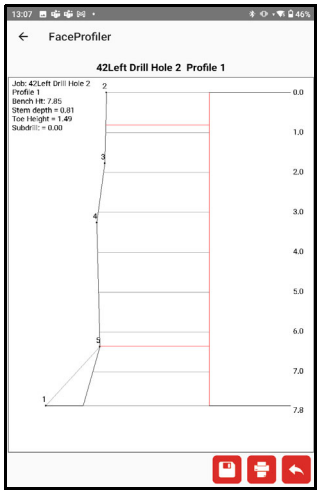


Figure 52

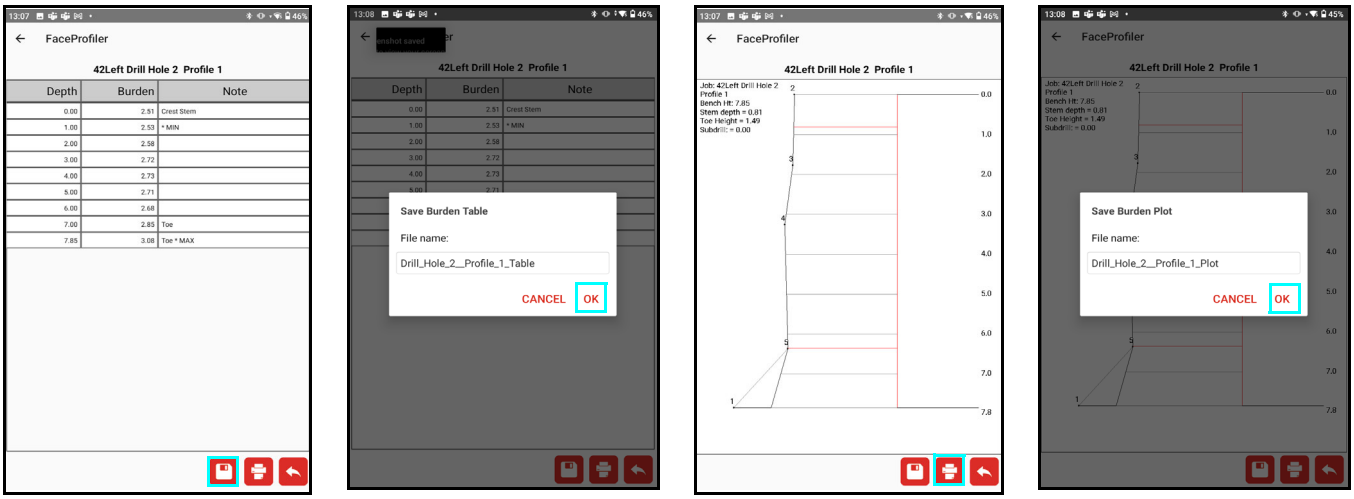
Generate Profile Burden Reports

To save a Profile Burden Report:

1. Tap  (Figure 53A).
2. Edit the filename or accept the default (Figure 53B).
3. Tap [OK] to save the file and store it in the Report folder (Page 46).
    - Tap [Cancel] to quit.

To print a Profile Burden Report:

1. Tap  (Figure 53C).
2. Follow the prompts to specify the printer and print parameters (Figure 53D).
    - Tap [Cancel] at any time to quit the operation.



(A) (B) (C) (D)

Figure 53

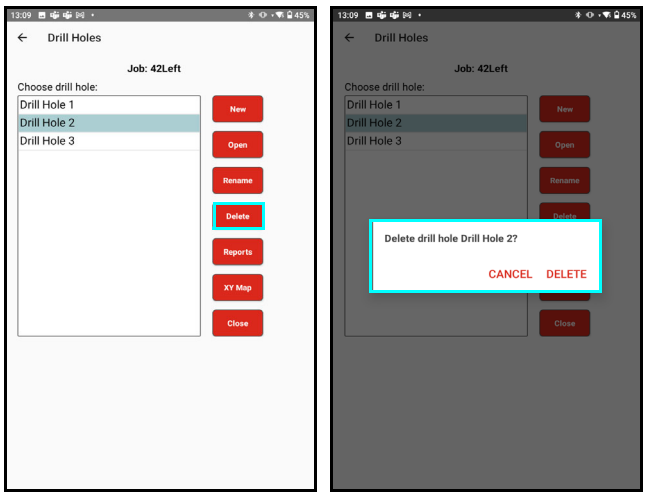
Delete a Drill Hole or Profile

Refer to the instructions below to display a list of the Drill Holes associated with a particular job.

NOTE The Drill Hole menu is displayed when an existing job is opened.

For more information about the buttons that appear on the Job, Drill Hole or Profile Menus, see Page 19.

1. Access the Drill Hole menu (Figure 54A).
2. Tap to highlight the name of the Drill Hole to be deleted.
3. Tap [Delete]. Face Profiler will require confirmation to delete the selected Drill Hole (Figure 54B).
    - [DELETE] — delete the drill hole.
    - [CANCEL] — abandon the operation.



(A) (B)

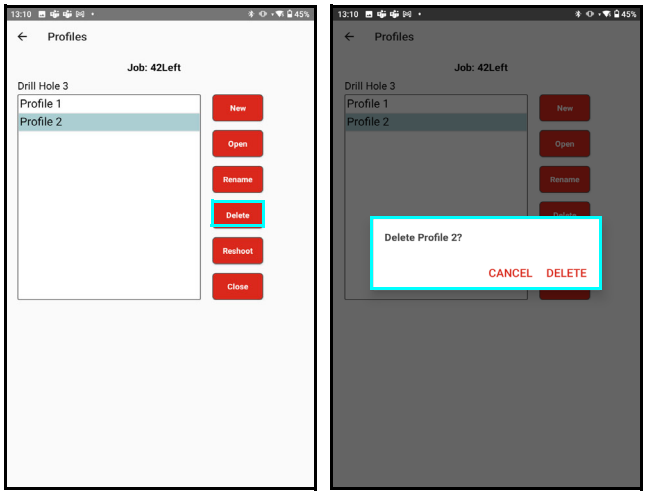
Figure 54

Drill Holes can have one or more Profiles nested within them. To delete a Profile within a Drill Hole, do the following:

NOTE The Profile menu is displayed when an existing Drill Hole is open.

For more information about the buttons that appear on the Drill Hole or Profile Menus, see Page 19.

1. Access the Profile menu (Figure 55A).
2. Tap to highlight the name of the Profile to be deleted.
3. Tap [Delete]. Face Profiler will require confirmation to delete the selected Drill Hole (Figure 55B).
    - [DELETE] — delete the profile.
    - [CANCEL] — abandon the operation.



(A) (B)

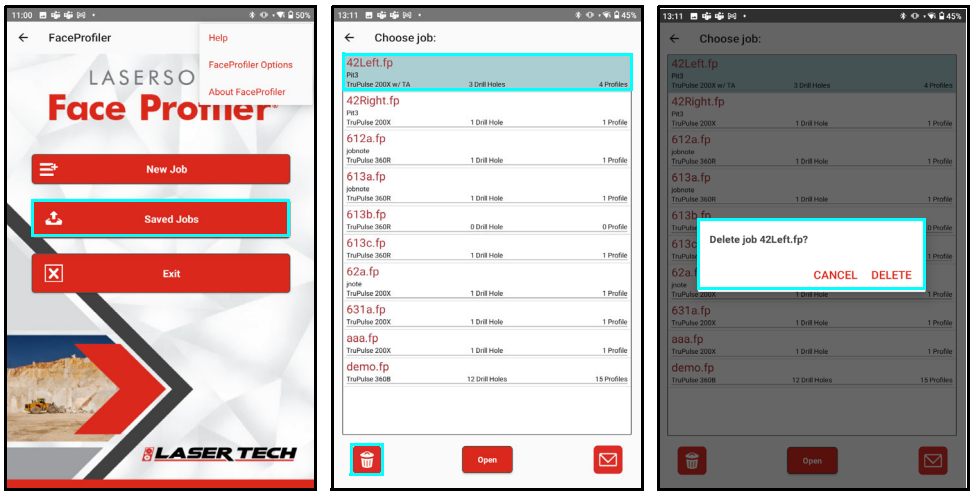
Figure 55

Delete an Entire Job

Refer to the instructions below to display a list of the Face Profiler jobs stored on the Android device that may be chosen for deletion.

1. Access the Face Profiler Main screen and select [Saved Jobs] (Figure 56A).
2. Tap to highlight the Job to be deleted (Figure 56B).
3. Tap the  . Face Profiler will require confirmation to delete the selected Job (Figure 56C).

    - [DELETE] — delete the Job.
    - [CANCEL] — abandon the operation.



(A) (B) (C)

Figure 56

Section 5 - Reports

Face Profiler can generate reports for survey data that are saved on the Android device and are transferable to a PC via cable connection or email. Saved reports can be created in a variety of different formats and can include various options.

NOTES Report files may also be generated for a single profile while displaying a Table or Plot from any of the calculation screens.

Report Formats

Face Profiler can generate reports for survey data that are saved on the Android device and are transferable to a PC via cable connection or email. Saved reports can be created in a variety of different formats and can include various options.

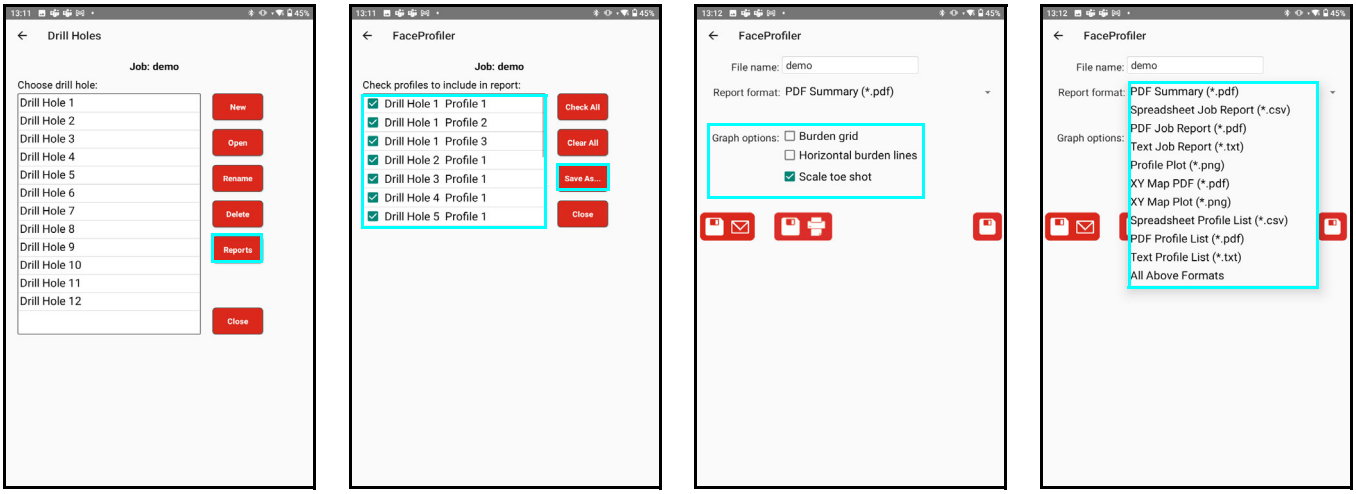
- PDF Summary: *.PDF file.
- Job Reports:
    - PDF: *.PDF file.
    - Spreadsheet: *.CSV file
    - Text: *.TXT file.
- XY Map:
    - PNG: *.PNG file.
    - PDF: *.PDF file.
- Profile Lists:
    - Spreadsheet: *.CSV file.
    - PDF: *.PDF file.
    - Text: *.TXT file.
- All Above Formats

Save a Report

To save a Face Profiler report for a job:

1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 57A).

   If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.
2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 57B).
   - Tap to select individual drill holes.
   - Tap [Check All] to select all drill holes.
   - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 57C):
   - Choose to keep the filename used when the survey was created or enter a new one.
   - Tap the Report Format drop down list to select the report format or select [All Above Formats] to get them all (Figure 57D).
   - <optional> Edit the depth increment value.
   - <optional> Tap to select your graph options:
     - Burden grid - Include a burden grid on Profile Plots
     - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
     - Scale toe shot - Include toe shot in Profile Plot scaling.
     - Include shot table - Tap to include shot table.



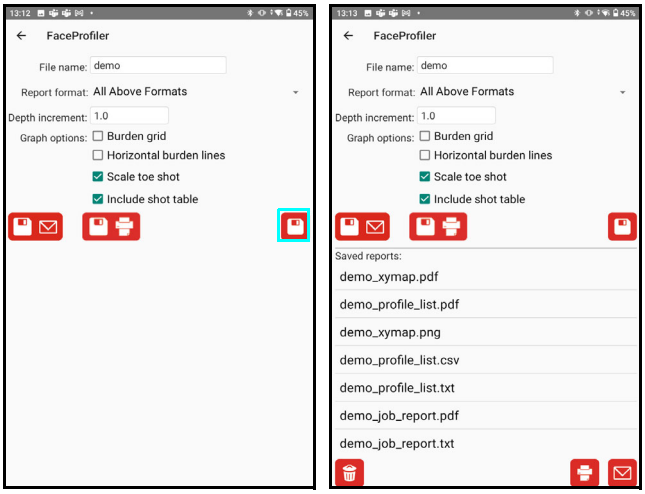
(A) (B) (C) (D)

Figure 57

4. Tap  to save the Reports (Figure 58A).
5. The saved reports will display in a scrolling menu in the bottom half of the screen (Figure 58B).

   Tap to highlight any report in the list and tap:

   -  to print.
   -  to email.
   -  to delete.
   - Long press a PDF report to open it in the reader app.
   - Long press a JPG file to view the photo.



(A) (B)

Figure 58

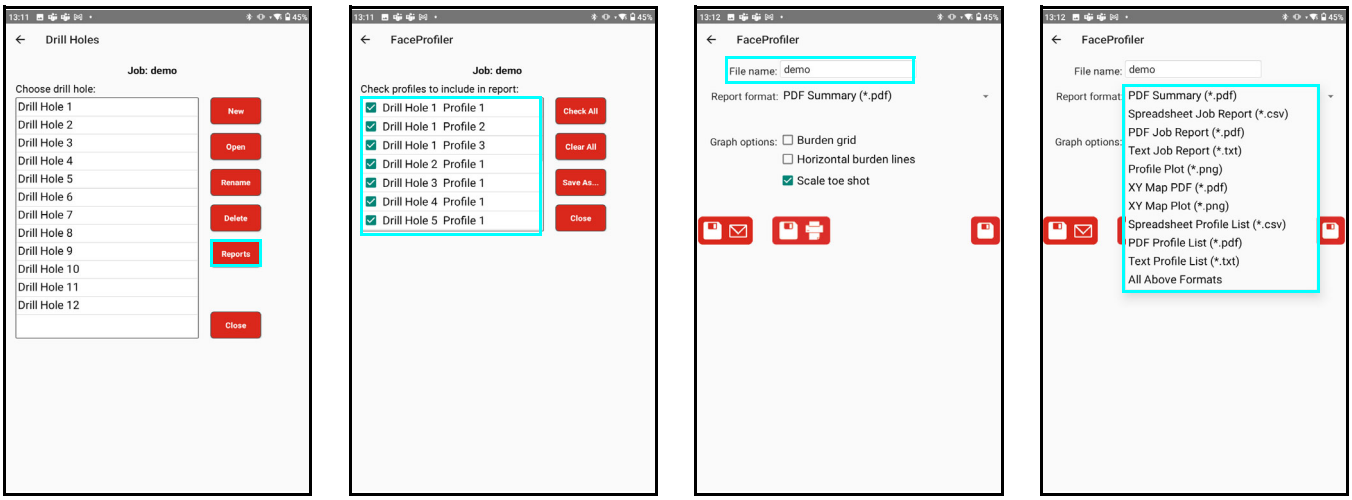
NOTE If using a cable to transfer saved reports to a PC see Page 52 for more information. The reports can be found here: Device Storage/Android/data/com.lasertech.faceprofiler/files/. Within this folder, a folder is automatically created and named after the Job. All reports and photos saved for a Job can be found in that folder (Figure 59).

Figure 59

Save and Send a Report

To save and send Face Profiler reports for a Job:

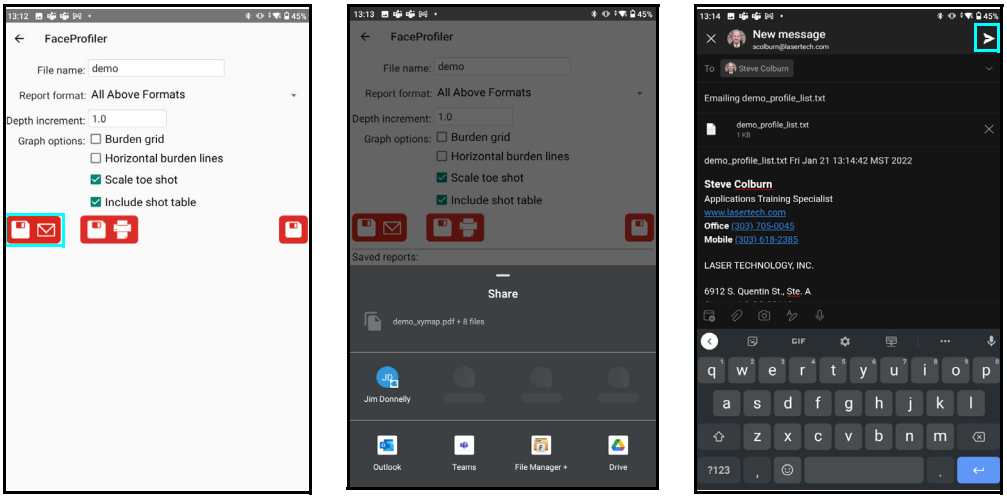
1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 60A). If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.
2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 60B).
    - Tap to select individual drill holes.
    - Tap [Check All] to select all drill holes.
    - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 60C):
    - Choose to keep the filename used when the survey was created or enter a new one.
    - Tap the Report Format drop down list to select the report format (or select All Above Formats to get them all) (Figure 60D).
    - <optional> Edit the depth increment value.
    - <optional> Tap to select your graph options:
        - Burden grid - Include a burden grid on Profile Plots.
        - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
        - Scale toe shot - Include toe shot in Profile Plot scaling.
        - Include shot table - Tap to include shot table.



(A) (B) (C) (D)

Figure 60

4. Tap  to save and send via email (Figure 61A).
5. The email options on the Android device will display. In this example, Outlook will be used to send the reports (Figure 61B).
6. The report(s) is automatically attached to the email (Figure 61C) and:
    - Sends from the default email address set up on the Android device.
    - Sends to the email address(es) assigned in Face Profiler Options (Page 32). - or email addresses can be entered.
    - Includes the Report file name as the email subject line.
7. Tap  (Figure 61C).



(A) (B) (C)

Figure 61

Save and Print a Report

To save and print Face Profiler reports for a Job:

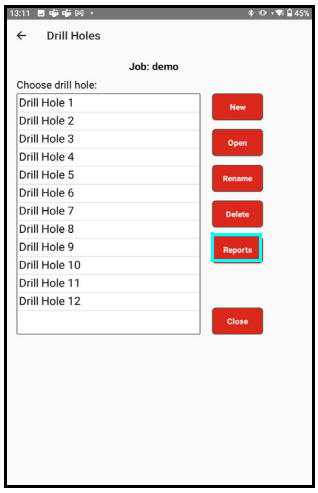
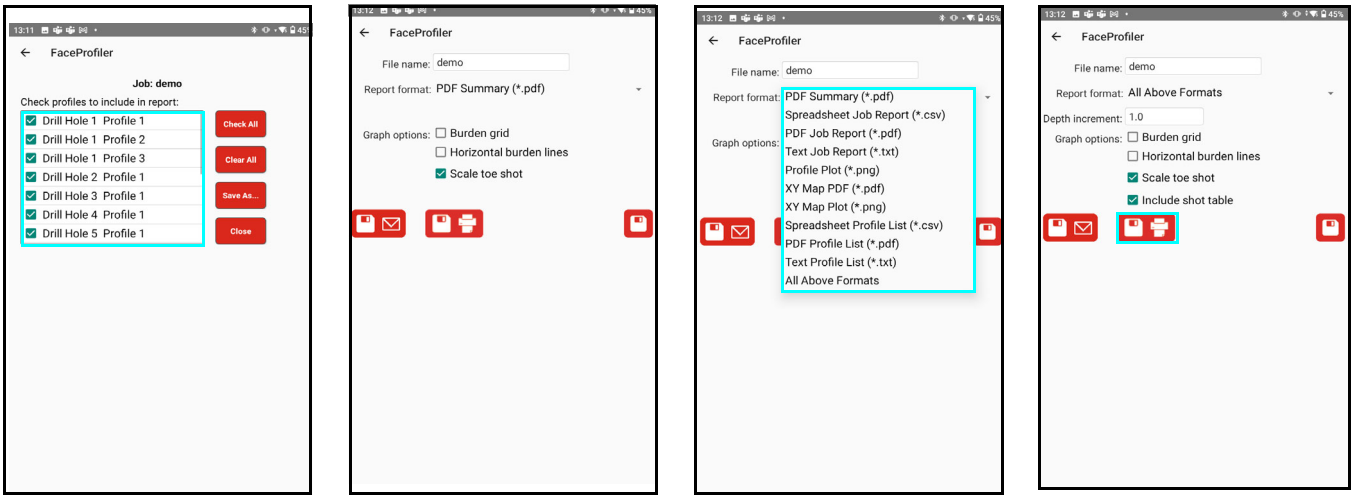


Figure 62

1. Open a Job to access the Drill Hole menu and tap [Reports] (Figure 62).

   If the Job is already open, use  in the upper left corner of the screen to navigate to the Drill Hole menu.
2. Tap to check the boxes for the Drill Holes/Profiles to be included in the report and tap [Save As] (Figure 63A).
   - Tap to select individual drill holes.
   - Tap [Check All] to select all drill holes.
   - Tap [Clear All] to deselect all drill holes.
3. Edit the report options (Figure 63B):
   - Choose to keep the filename used when the survey was created or enter a new one.
   - Tap the Report Format drop down list to select the report format (or select All Above Formats to get them all) (Figure 63C)
   - <optional> Edit the depth increment value.
   - <optional> Tap to select your graph options:
     - Burden grid - Include a burden grid on Profile Plots
     - Horizontal burden lines - Burden lines will display horizontal whether the drill hole is angled or not.
     - Scale toe shot - Include toe shot in Profile Plot scaling.
     - Include shot table - Tap to include shot table.
4. Tap  to save and print (Figure 63D).
5. The Android print setup screen will display. Select the printer that will be used and then tap Print. The printer in use must be compatible with Android device and the printer driver for the printer must be installed on the Android device in order to use this feature.



(A) (B) (C) (D)

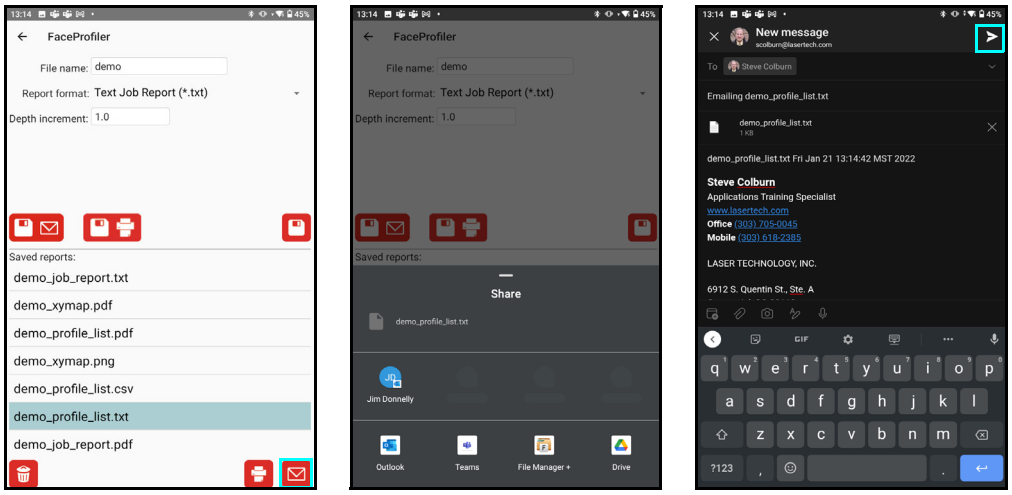
Figure 63

Manage Saved Reports

Reports saved on an Android device can be sent, printed, or deleted from within Face Profiler. They can also be copied as a group to a PC using a cable connection. In order to manage saved reports for any Job, the Job must first be opened in Face Profiler.

Send a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 45) to access the list of saved reports for any Job. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 64A).
2. The email options on the Android device will display. In this example, Outlook will be used to send the reports (Figure 64B).
3. The report(s) is automatically attached to the email (Figure 64C) and:
   - Sends from the default email address set up on the Android device.
   - Sends to the email address(es) assigned in Face Profiler Options (Page 32) - or email addresses can be entered.
   - Includes the Report file name as the email subject line.
4. Tap  (Figure 64C).



(A) (B) (C)

Figure 64

Print a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 45) to access the list of saved reports for any Job.
2. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 65).
3. The Android print setup screen will display. Select the printer that will be used and then tap Print. The printer in use must be compatible with Android device and the printer driver for the printer must be installed on the Android device in order to use this feature.

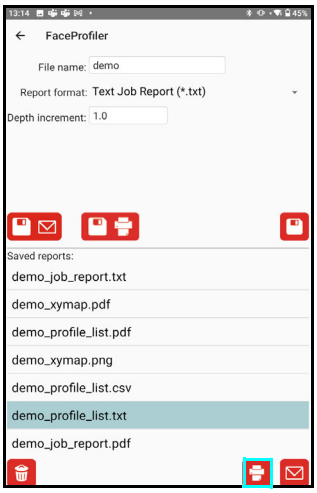
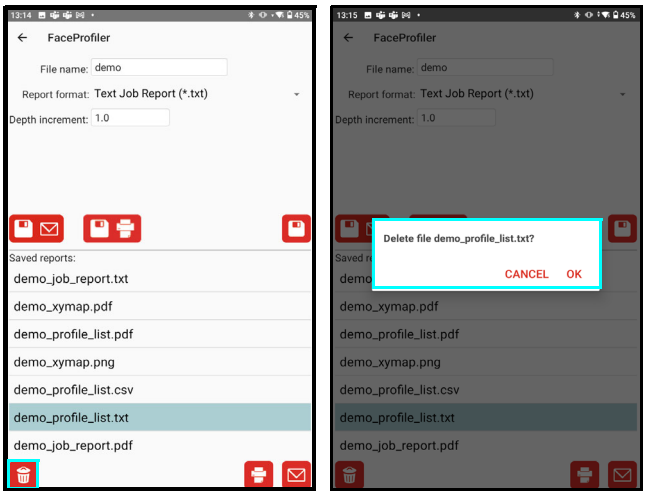


Figure 65

Delete a Saved Report

1. Follow steps 1-3 from the Save a Report section (Page 45) to access the list of saved reports for any Job.
2. Tap to select the Report in the scrolling list of saved reports (at the bottom half of the page) and tap  (Figure 66A).
3. Tap [OK] to confirm the deletion of the report (Figure 66B).
    - Tap [Cancel] to abandon the operation.



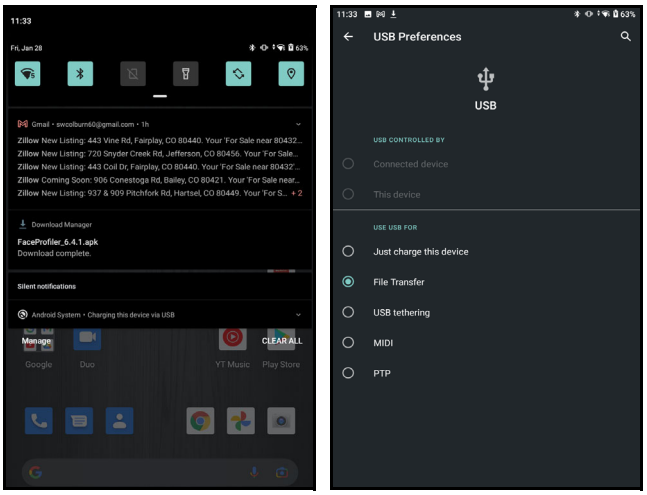
(A) (B)

Figure 66

Transfer Reports/Data to a PC

In addition to email, saved reports can also be transferred to a PC via the USB cable that accompanies the Android device. When Face Profiler is installed on a Android device, it creates a folder called Face Profiler for storing program settings, reports, and *.FP format Job files. The *.FP survey files can only be opened within Face Profiler and are located in a sub-folder called "Data". In addition to transferring survey reports to a PC, it is also a good idea to copy *.FP files over as well once all edits and changes to the survey are complete. An *.FP file can always be copied back over to the Android device if it becomes necessary to add more data points to a survey or make any other changes - and then reports can be re-created based on the updated file.

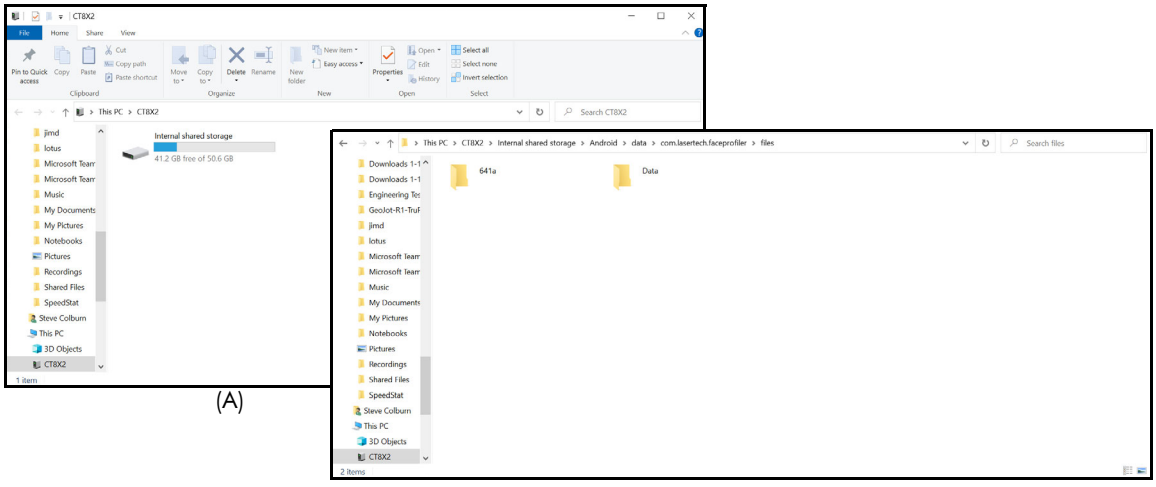
1. Connect the Android device to a PC with the USB cable that accompanies the device. Android devices typically connect as the Device Name or external hard drive. If you are not using a tablet purchased through LTI, your device may connect differently. Please refer to the manual that shipped with your device to understand how it connects to a PC.
2. Swipe down from the top of the Android device screen to display the connection options for the Android device (Figure 67 A).
3. Tap the USB options and select File Transfer. If the connection is set to charge the device only, the files will not show up on the PC (Figure 67 B).



(A) (B)

Figure 67

4. On the PC, open File Explorer and select the item that coincides with the Device Name . In this example, it is "CT8X2" When the drive is selected, its contents display on the right side of the File Explorer screen (Figure 68A).
5. Navigate to the Internal Storage/Android/data/com.lasertech.faceprofiler/files folder and you will see your Data folder and any Report folders you've created (Figure 68B).

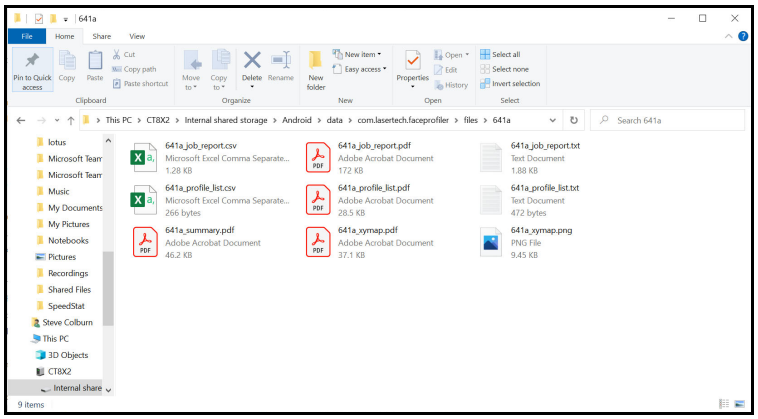


(A)

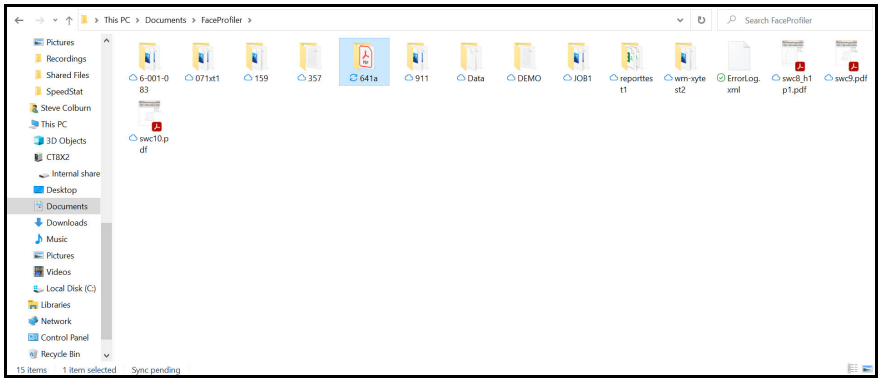
(B)

Figure 68

6. Double-click the folder that coincides with the Job name and the saved Job reports will display (Figure 69A). Copy any of the individual reports, or copy the entire folder to transfer all the reports for the survey by highlighting them and then right-click/copy with your mouse.
7. If you have installed Face Profiler PC on your computer, navigate to the Documents/FaceProfiler folder and paste your report files here. Make sure all *.fp data files are placed in the Data sub-folder for use with Face Profiler PC (Figure 69B).



(A)



(B)

Figure 69

Sample Reports

Job Reports (*.CSV, *.TXT, *.PDF)
Job reports include each of the items below. Please see Sample PDF Job Report (Figure 70):

- Job Name
- Drill Hole Number
- Drill Hole Description (if any)
- Profile Number
- Profile Description (if any)
- Date Created
- Date Modified
- Origin Coordinates
- Bench Height
- Stem Depth (if any)
- Toe Height (if any)
- Drill Offset
- Drill Angle (if any)
- Hole Depth
- Calculated Sub Drill (if any)
- Total Hole Depth
- Burden Plot (*.PDF only)
    - Floor Shots, Burden Grid and Horizontal Burden lines - can be displayed if the boxes are checked (Figure 57C, Page 45).
- Depth/Burden Table with Notes
- Shot Table - Displayed in all formats but can be turned off PDF Job Report if needed.

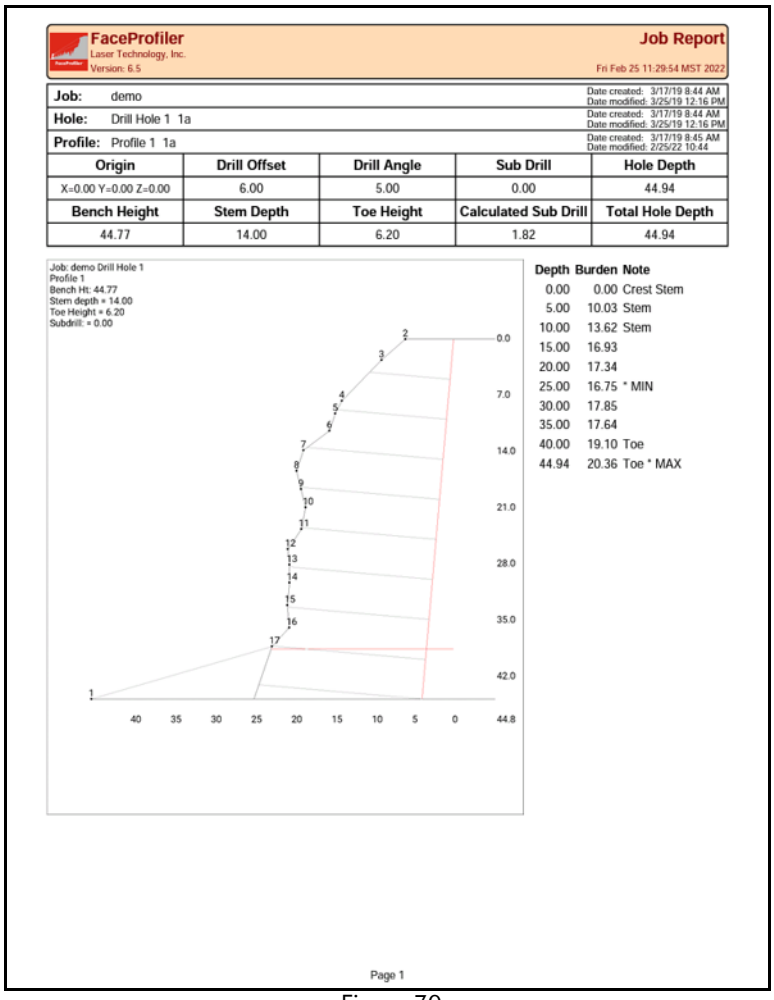
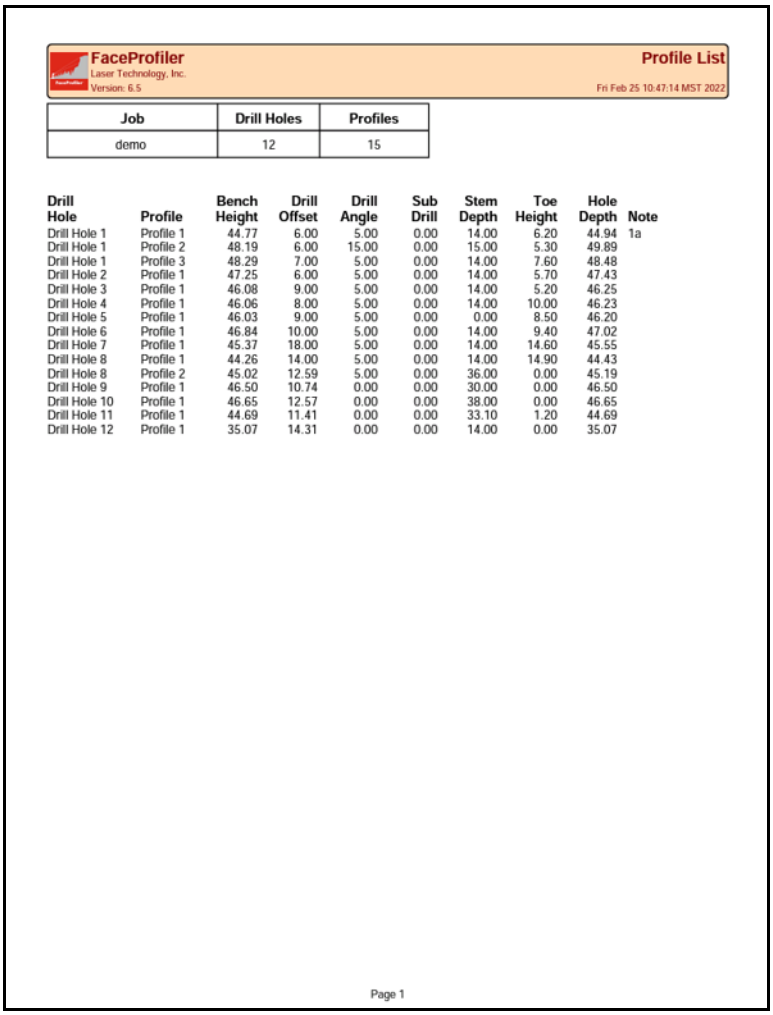


Figure 70

Profile List Reports (*.CSV, *.TXT, *.PDF)
The Profile List report consists of a list of all the profiles in a job and includes the items listed below. See sample PDF Profile List report (Figure 71):

- Job Name
- Total Number of Drill Holes in the Job (PDF only)
- Total Number of Profiles in the Job (PDF only)
- Drill Hole Number
- Profile Number
- Bench Height
- Drill Offset
- Drill Angle (if any)
- Sub Drill (if any)
- Stem Depth (if any)
- Toe Height (if any)
- Total Hole Depth
- Profile Note



FaceProfiler
Laser Technology, Inc.
Version: 6.5

Profile List
Fri Feb 25 10:47:14 MST 2022

Job	Drill Holes	Profiles
demo	12	15

Drill Hole	Profile	Bench Height	Drill Offset	Drill Angle	Sub Drill	Stem Depth	Toe Height	Hole Depth	Note
Drill Hole 1	Profile 1	44.77	6.00	5.00	0.00	14.00	6.20	44.94	1a
Drill Hole 1	Profile 2	48.19	6.00	15.00	0.00	15.00	5.30	49.89	
Drill Hole 1	Profile 3	48.29	7.00	5.00	0.00	14.00	7.60	48.48	
Drill Hole 2	Profile 1	47.25	6.00	5.00	0.00	14.00	5.70	47.43	
Drill Hole 3	Profile 1	46.08	9.00	5.00	0.00	14.00	5.20	46.25	
Drill Hole 4	Profile 1	46.06	8.00	5.00	0.00	14.00	10.00	46.23	
Drill Hole 5	Profile 1	46.03	9.00	5.00	0.00	0.00	8.50	46.20	
Drill Hole 6	Profile 1	46.84	10.00	5.00	0.00	14.00	9.40	47.02	
Drill Hole 7	Profile 1	45.37	18.00	5.00	0.00	14.00	14.60	45.55	
Drill Hole 8	Profile 1	44.26	14.00	5.00	0.00	14.00	14.90	44.43	
Drill Hole 8	Profile 2	45.02	12.59	5.00	0.00	36.00	0.00	45.19	
Drill Hole 9	Profile 1	46.50	10.74	0.00	0.00	30.00	0.00	46.50	
Drill Hole 10	Profile 1	46.65	12.57	0.00	0.00	38.00	0.00	46.65	
Drill Hole 11	Profile 1	44.69	11.41	0.00	0.00	33.10	1.20	44.69	
Drill Hole 12	Profile 1	35.07	14.31	0.00	0.00	14.00	0.00	35.07	

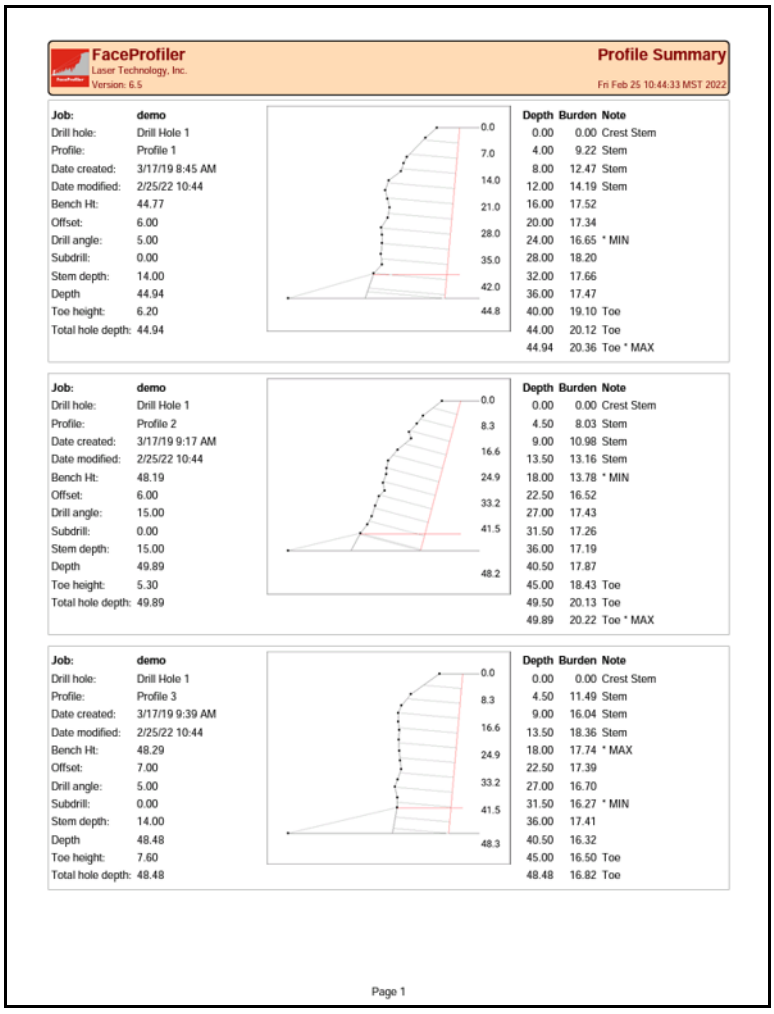
Page 1

Figure 71

Profile Summary Report (*.PDF)

The Profile Summary report consists of up to three profiles per page (depending on the size of the depth/burden table) and includes the items listed below. See sample PDF Profile Summary report (Figure 72):

- Job Name
- Hole Number
- Profile Number
- Profile Description (if any)
- Date Created
- Date Modified
- Origin Coordinates (if any)
- Bench Height
- Drill Offset
- Drill Angle (if any)
- Sub Drill (if any)
- Hole Depth
- Stem Depth (if any)
- Toe Height (if any)
- Calculated Sub Drill (if any)
- Total Hole Depth
- Burden Plot
- Depth/Burden Table with Notes



FaceProfiler
Laser Technology, Inc.
Version: 6.5

Profile Summary
Fri Feb 25 10:44:33 MST 2022

Job:	demo
Drill hole:	Drill Hole 1
Profile:	Profile 1
Date created:	3/17/19 8:45 AM
Date modified:	2/25/22 10:44
Bench Ht:	44.77
Offset:	6.00
Drill angle:	5.00
Subdrill:	0.00
Stem depth:	14.00
Depth	44.94
Toe height:	6.20
Total hole depth:	44.94

Depth	Burden	Note
0.00	0.00	Crest Stem
4.00	9.22	Stem
8.00	12.47	Stem
12.00	14.19	Stem
16.00	17.52	
20.00	17.34	
24.00	16.65	* MIN
28.00	18.20	
32.00	17.66	
36.00	17.47	
40.00	19.10	Toe
44.00	20.12	Toe
44.94	20.36	Toe * MAX

Job:	demo
Drill hole:	Drill Hole 1
Profile:	Profile 2
Date created:	3/17/19 9:17 AM
Date modified:	2/25/22 10:44
Bench Ht:	48.19
Offset:	6.00
Drill angle:	15.00
Subdrill:	0.00
Stem depth:	15.00
Depth	49.89
Toe height:	5.30
Total hole depth:	49.89

Depth	Burden	Note
0.00	0.00	Crest Stem
4.50	8.03	Stem
9.00	10.98	Stem
13.50	13.16	Stem
18.00	13.78	* MIN
22.50	16.52	
27.00	17.43	
31.50	17.26	
36.00	17.19	
40.50	17.87	
45.00	18.43	Toe
49.50	20.13	Toe
49.89	20.22	Toe * MAX

Job:	demo
Drill hole:	Drill Hole 1
Profile:	Profile 3
Date created:	3/17/19 9:39 AM
Date modified:	2/25/22 10:44
Bench Ht:	48.29
Offset:	7.00
Drill angle:	5.00
Subdrill:	0.00
Stem depth:	14.00
Depth	48.48
Toe height:	7.60
Total hole depth:	48.48

Depth	Burden	Note
0.00	0.00	Crest Stem
4.50	11.49	Stem
9.00	16.04	Stem
13.50	18.36	Stem
18.00	17.74	* MAX
22.50	17.39	
27.00	16.70	
31.50	16.27	* MIN
36.00	17.41	
40.50	16.32	
45.00	16.50	Toe
48.48	16.82	Toe

Page 1

Figure 72

Section 6 - Face Profiler Reports for Windows

Face Profiler Reports installs on Windows PCs for use in adjusting, calculating, and creating reports for profiles measured in the field with Face Profiler. This software works exactly the same as Face Profiler (Windows Mobile) for these functions, except that it installs on a PC and can print to any network printer.

NOTE Any files created using previous versions of Face Profiler (before version 5.0) are not compatible with Face Profiler Reports. Only files measured with versions 5.x or newer can be viewed and edited with this free reporting program.

Install PC Reports

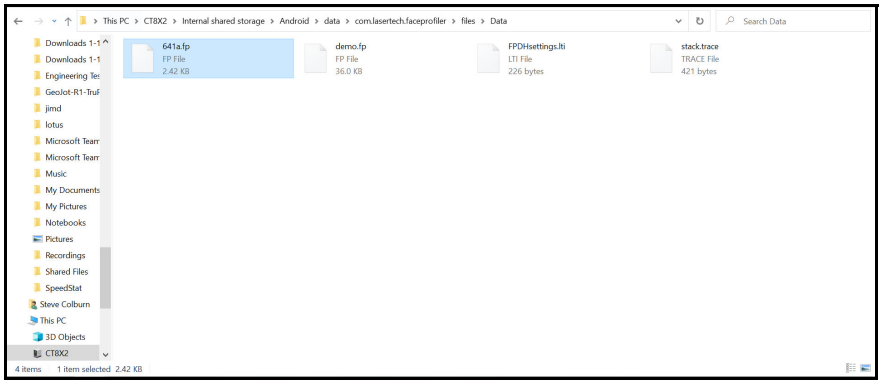
1. Navigate to the folder PC Reports on the CD that shipped with the equipment. This software may be downloaded for free from: https://www.lasertech.com/Face-Profiler.aspx
2. Double-click the FaceProfilerReports1.0.msi file to install. Click through the prompts to complete installation.
3. Click the Face Profiler Reports desktop icon to launch the program (Figure 73).

Figure 73

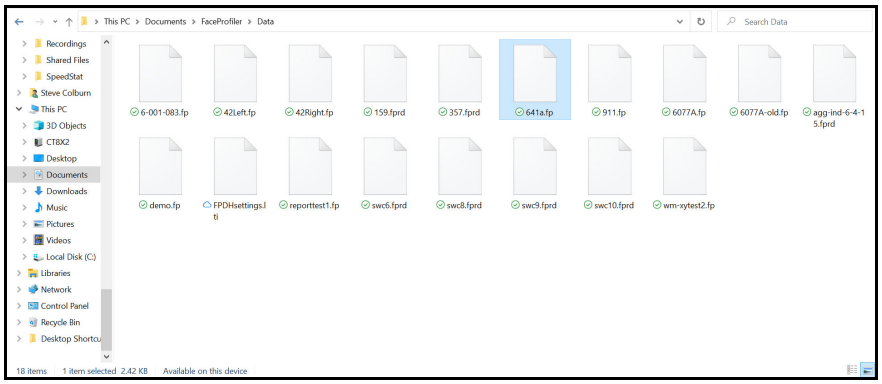
Transfer Job Files to the Office PC

Moving Job files to the Office PC is very similar to the steps used to transfer reports to the Office PC (Page 52). The only difference is file location, both on the Android device and the Office PC.

- Job file location on the Android device: My Documents/Face Profiler/Data. (Figure 74A).
- The Job files must be pasted to this location on the Office PC: Device Storage/Android/data/com.lasertech.faceprofiler/files/Data. (Figure 74B).



(A)



(B)

Figure 74

Main Screen Overview

This section includes a detailed description of the Face Profiler Reports interface icons. All of these functions are available through the menus at the top of the screen. These menus are a mirror image of the choices on the Face Profiler for Android version v1.x. Also, like many Windows programs, descriptions of each icon appear when the mouse is rested on that icon. Depending on whether a Job is currently open, some icons may be inactive.

Figure 75

Icon	Description	How to
	Open an existing Job.	Page 19
	Delete an entire Job (including all Profiles contained within the Job).	Page 43
	Generate reports from profile data.	Page 45
	Return to the profile screen from table and calculations screens.	Page 27
	Make adjustments for stem depth and toe height.	Page 33
	Manually enter drill hole offset (measured or anticipated).	Page 35
	Calculate offset and drill hole angle for Minimum or Optimum burden.	Page 38
	Calculate offset and drill hole angle for drills with a fixed angle increment.	Page 39
	Display coordinate table for open profile (Point #, X, Y, Z, and Note).	Page 27
	Display the burden plot for the open profile.	Page 40
	Display the burden table for the open profile (Depth, Burden, and Note).	Page 40
	Display shot table for open profile (Point #, Azimuth, Slope Distance, Inclination, and Note).	Page 28
	Display the XY Map of profiles and instrument positions for an open Job.	Page 29
	Display the next profile within the Job.	N/A
	Display the previous profile within the Job.	N/A
	Exit the PC Reports program.	N/A

Printing

1. When a profile is open, click on the  button (Figure 76A).
2. Check the Drill Holes to be printed and then click [Print] (Figure 76B).
3. Select Print Options and click [Print] (Figure 76C).

    - **Report Type** — Choose Profile Details, Profile List or Profile Summary.
    - **Burden Interval** — Enter a value for desired depth and burden data to display down the profile (i.e. every 1 foot or 1 meter).
    - **Burden Grid** — Check to show horizontal and vertical lines on profile plots.
    - **Horizontal Burden Lines** — Check to make burden lines stay horizontal for angled holes.
    - **Print Shot Table** — Check to include a table of shot measurements with depth and burden data.

4. Select Printer and then click [OK] (Figure 76D).

    NOTE If Adobe Acrobat is installed on the PC, the option for Adobe PDF will display in the list of available printers. Select this option to print to PDF if desired.

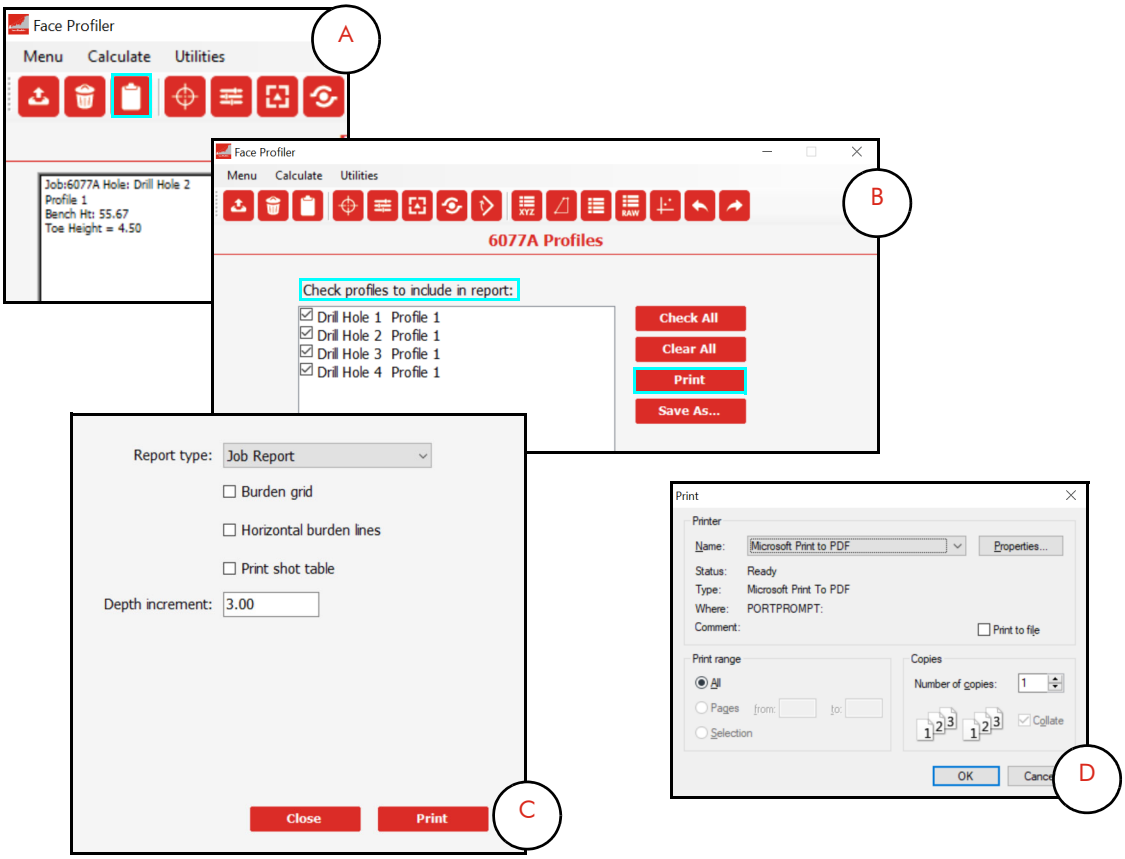


Figure 76

Appendix A - Glossary

Term	Definition as Used Within Face Profiler	See Figure 77 on Page 61
Bench	A horizontal ledge from which holes are drilled vertically, or at a slight inclination, down into the material to be blasted.	G
Bench Height	The vertical distance from the top of the bench to the floor or to the top of the next lower bench.	N
Best Fit Line	Mathematical representation of the free face. The slope of which will be the optimum drill hole angle; and the position of which will be used as a reference for calculating the drill hole offset.	D
Burden	The distance between the bore hole and the nearest free face or the distance between bore holes measured perpendicular to the spacing. Also the total amount of material to be blasted by a given hole, usually measured in cubic yards, cubic meters, or tons.	C
Crest	The intersection point created by the top of a bench and the free face.	F
Depth Increment	User-defined spacing along the drill hole depth at which to calculate burden values for the tabular reports and plot views.	L
Drill Hole	Hole drilled vertically from the bench, behind the free face, in which explosives are placed for blasting.	I
Drill Hole Angle	The angle of the drill hole with respect to the vertical. Measured in positive degrees towards the face and negative degrees away from the face.	O
Drill Hole Depth	Distance down the drill hole starting from the bench to where the hole intersects the plane projected from the floor into the face.	J
Drill Hole Offset	The distance a given drill hole is located back from the crest. Measured along the top of the bench.	H
Floor	The surface that establishes working elevation out in front of the free face.	A
Free Face or Face	A rock surface exposed to air or water, which provides room for expansion upon fragmentation; sometimes called an open face.	E
Minimum Burden	The minimum amount of material to be blasted by a given bore hole or the minimum amount of burden between a given hole and the free face that should not be exceeded.	M
Optimum Burden	The burden that is calculated based upon the amount of material that can be blasted by a given bore hole, which produces the best overall results.	K
Seam	Layer of loose or unconsolidated material within the face.	Q
Stem Depth	Depth down to the bottom of an overlying layer of loose or unconsolidated material. Stemming: The practice of placing inert material in the drill hole corresponding to depths of seams or other loose material.	R
Subdrill	The practice of drilling boreholes below floor level or working elevation to insure breakage of rock to working elevation. Calculated Subdrill: In the case of an angled hole, this is the depth below the floor which is needed to position the bottom of the hole perpendicular to the Toe	P
Toe	The intersection point created by the floor and the free face.	B
Toe Height	The vertical distance from the floor to the point where the top of the slough material meets the face.	S
Total Hole Depth	The sum of the Drill Hole Depth plus the Subdrill Depth.	J P

[1]Some of these definitions are from the Society of Explosives Engineers, Inc. ISEE Blaster's Handbook, 17th Edition (International Society of Explosives Engineers, Cleveland, OH, 1998, second printing 2000).

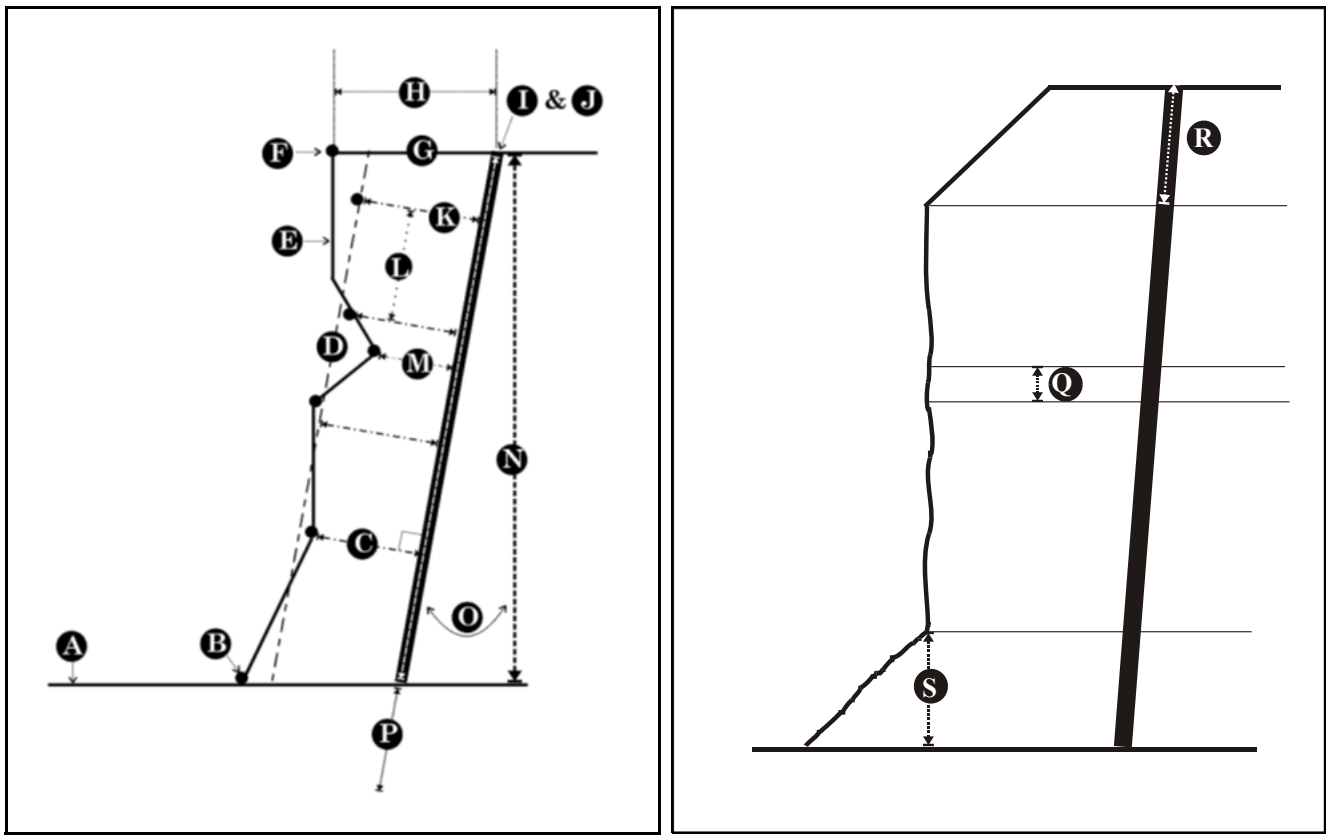


Figure 77

Appendix B - Additional Information

Localization

English is the default language for most Android devices; however, it can be changed.

To change the language:

1. Power on the Android device.
2. Tap the Settings icon on the device home screen.
3. Tap [Language & Input]
4. From the list of languages displayed, select the language to use for the text display on the device.
5. Press the Home button on the Android device to return to the Home screen.

Serial Data Format

The Face Profiler app accepts data from LTI instruments that use a data format which is based on the NMEA 0183 Standard for Marine Electronic Navigational Devices, Revision 2.0. For more detailed information about serial data format, refer to the user's manual that shipped with the LTI instrument.

Appendix C - Uninstall Face Profiler

Uninstall Face Profiler and then delete all Jobs and Reports to completely remove the app and all related files. The steps shown here are derived using a device running Android 6. Other devices running newer Android operating systems will require similar steps, but may not be exactly the same.

Uninstall Face Profiler

1. Locate and tap the Settings icon on the Android device.
2. Tap [Apps] on the Settings list.
3. Tap Face Profiler.
4. Tap [Uninstall].
5. Check the box to save your data, if desired.
6. Tap [OK] to confirm.
    - Tap [Cancel] to abandon the operation.

Delete All Jobs and Reports

Access Jobs and Reports files using the instructions from Transfer Reports/Data to a PC (Page 52).
Right click on the Face Profiler folder and select [Delete].

Appendix D - Troubleshooting Tips

NOTE Face Profiler for Android supports Android devices running Android operating systems version 8+. To check the version of the operating system of the Android device, navigate to "Settings" and then "About." Remedy steps may vary slightly depending on the specific Android device used.

Problem	Remedy
No communication between the laser and the Android device.	• Make sure the laser and device batteries have adequate power and replace/recharge if necessary. • Tap the Laser Connection Indicator icon at the top of the data collection screen and try to take another measurement. • Verify that the Bluetooth feature in the laser is set to BT_Enc (when using a TruAngle) or BT_On (without a TruAngle). • Ensure that the laser is paired to the Android device via Bluetooth (Page 5). Lasers can only be paired to one device at a time. • If using a TruAngle: ensure that the 4pin to 4pin cable connecting the laser to the TruAngle laser connector is securely in place. Also verify that the TruAngle firmware is version 1.17 or better. Refer to the TruAngle manual for more information.
The Android device locked up or doesn't seem to be working properly.	Power the Android device off and back on again. Press and hold the power button to see the options for resetting the device. No matter what, each measurement is saved as it is taken, and no data will be lost.
An error message was displayed while working in Face Profiler.	Error messages are often self-explanatory. Clear the message and correct the error before proceeding. If the error continues, restart Face Profiler. If the error persists, reset the Android device (see above). Go to Face Profiler Help and select Email Tech Support to send a diagnostic file to support@lasertech.com
A point was accidentally deleted.	Reshoot or manually re-add the data point. Point deletions cannot be undone.
Cannot see the Android device's name when connected to a PC with the USB cable.	When the Android device is connected with the USB cable, swipe down from the top of the Android device screen and check the USB connection options. Ensure that "Mount SD Card" is selected and ensure that USB debugging is enabled. USB debugging options can be found in Settings/Developer Options on most Android devices.
Cannot save reports when trying to transfer them to a PC using a cable.	The Android device cannot be connected to the computer when reports are being saved. Unplug the cable, save the reports, and then plug the cable back in to access saved reports.