

Leica SurvCE Training

RTS Staking



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1.0 Introduction

Objectives

In this exercise you will learn how to stake points with a Robotic Total Station in Leica SurvCE.

At the end of the exercise you should be able to perform the following on Leica SurvCE:

- Setup over a control point and backsight another control point, comparing the measured distance to the stored distance.
- Stake points inside Leica SurvCE.
- Use the Elevation Difference function to report a Cut/Fill at any point on the job.

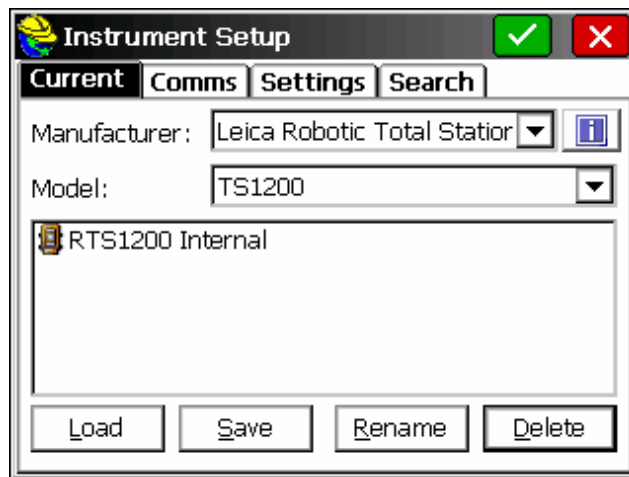
Tasks to complete

We need to set up the 1200 over a control point and reference another control point as our BS point. We can now stake the selected points using Stake Points and verify elevations throughout the job using Elevation Difference.

2.0 Staking in Leica SurvCE

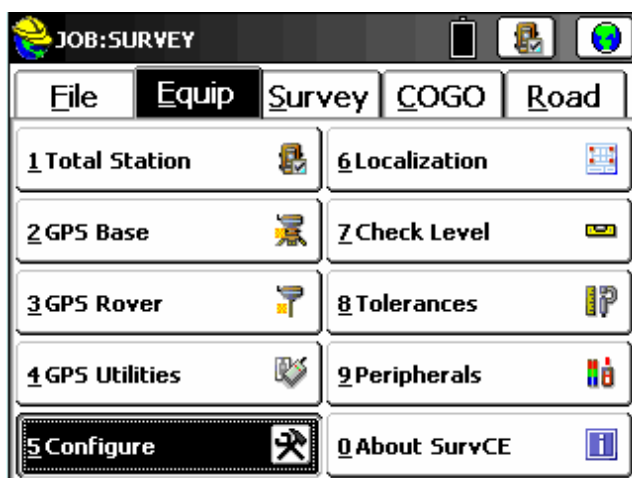
Objective Stake calculated points using Leica SurvCE

Getting started We need to use the Stake Points command in Leica SurvCE



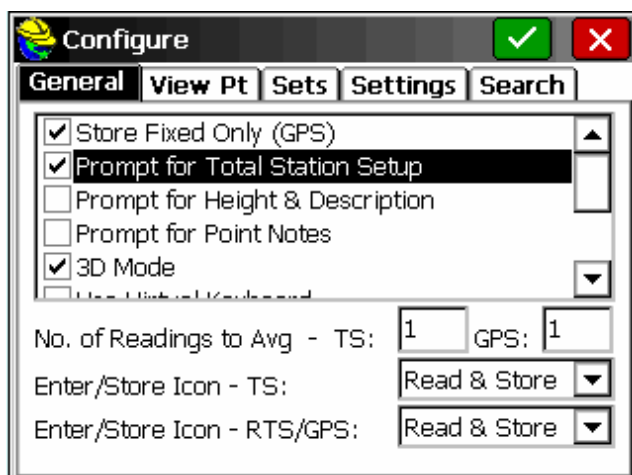
Select the **RTS1200** Internal configuration created in Exercise 11 and tap the Load button.

Press the  key on the RX1250 or tap the  on the screen to accept the selection.



In Exercise 11 we opted not to be prompted for Total Station Setup. In order to verify our BS we want to change that setting.

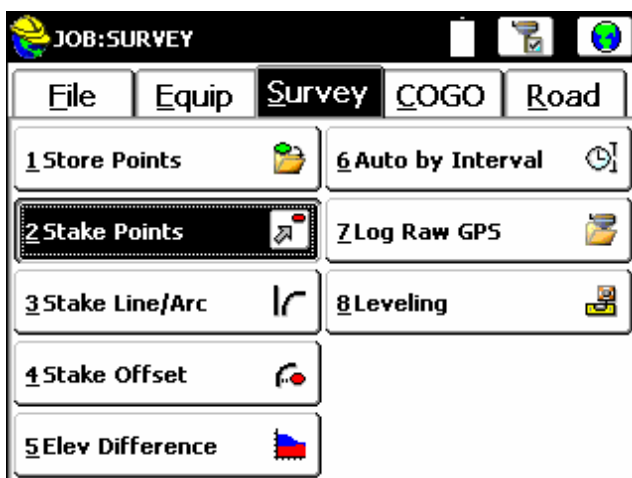
From the **Equip** tab tap the **Configure** button or press the 5 key.



Toggle on **Prompt for Total Station Setup**

Tap the  button.

Staking points



From the **Survey** menu tab tap **Stake Points** or press 2 on the keyboard.

Stakeout

Instrument Setup | Remote BM | Robotics

Occupy Point: 2

Instr. Height: 5.6627 ft

Backsight Point: 47

Backsight N Azi: 14°56'50"

Target Hgt: 5.6 ft

☒ Use Backsight HT for Foresights

Confirm NEZ | Configure | Backsight

Enter the appropriate values for **Occupy Point** and **Backsight Point**.

Make sure you are at your backsight and that the instrument is locked on the prism.

Tap the **Backsight** button.

Backsight

Set to Zero ▼ 0°00'00" | Turn to BS

Setup | Results

OC Point: 2 | BS Point: 47

BS AZI: 14°56'50" | BS Bearing: N14°56'50"E

Inst Hgt: 5.663 | Target Hgt: 5.600

Set Angle | Check Angle | Check

Set Angle and Read

Tap **Set Angle and Read**

Backsight

Set to Zero ▼ 0°00'00" | Turn to BS

Setup | Results

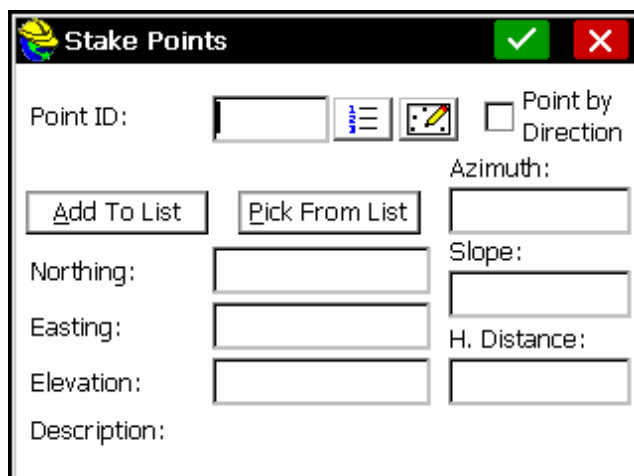
	Angle:	Dist:	Elv (Z):
Calculated:	0°00'00"	22.880	102.755
Measured:	0°00'00"	22.866	102.753
Delta:	0°00'00"	-0.014	-0.003

Set Angle | Check Angle | Check

Set Angle and Read

From this screen we can compare the measured distance to the calculated distance.

Tap the  button to accept the value and continue.



Stake Points [Checkmark] [X]

Point ID: [List Icon] [Draw Icon] ☐ Point by Direction

Northing:
 Azimuth:

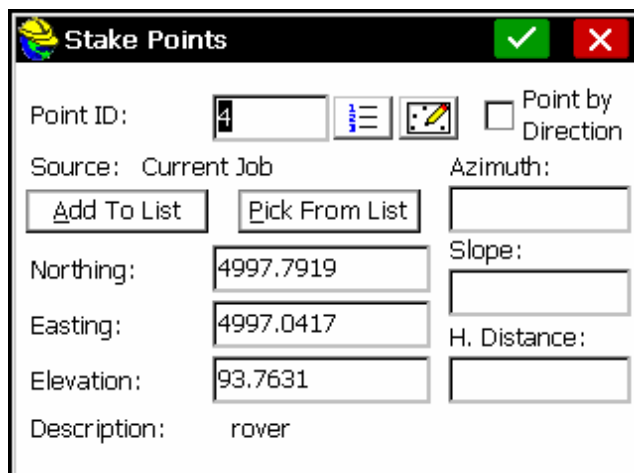
Easting:
 Slope:

Elevation:
 H. Distance:

Description:

There are three ways to select the point from our file. We can tap the  icon to select the point from a list, tap the  icon to select the point graphically, or simply enter the point number in the **Point From File** box.

Select the point you wish to stake.



Stake Points [Checkmark] [X]

Point ID: [List Icon] [Draw Icon] ☐ Point by Direction

Source: Current Job

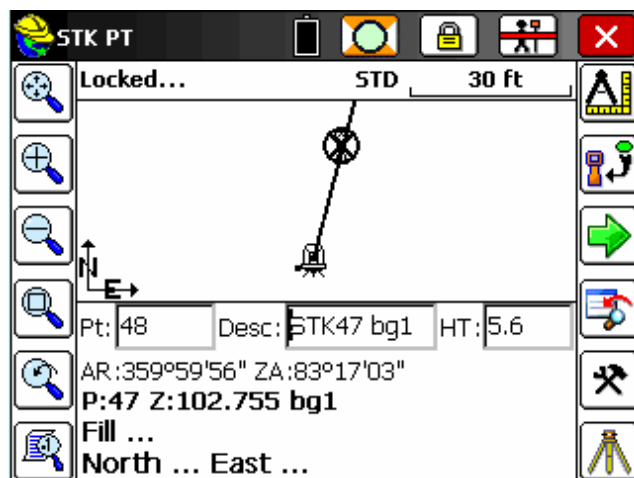
Northing:
 Azimuth:

Easting:
 Slope:

Elevation:
 H. Distance:

Description:

Tap the  on the screen to accept the point.



STK PT [Phone Icon] [Compass Icon] [Lock Icon] [Target Icon] [X]

Locked... STD 30 ft

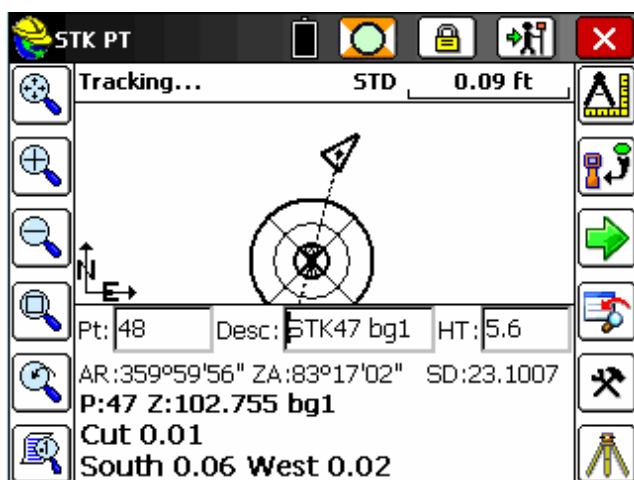
Pt: 48 Desc: STK47 bg1 HT: 5.6

AR: 359°59'56" ZA: 83°17'03"
 P: 47 Z: 102.755 bg1

Fill ...
 North ... East ...

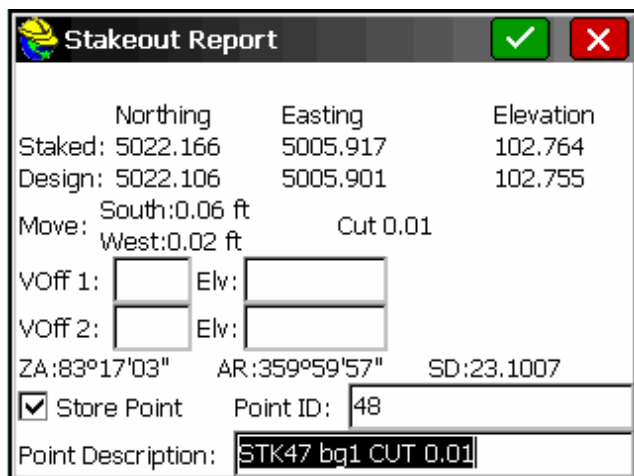
Notice that although we are locked on the target, we are not receiving continuous positional updates.

Tap the  button to put the instrument into tracking mode.



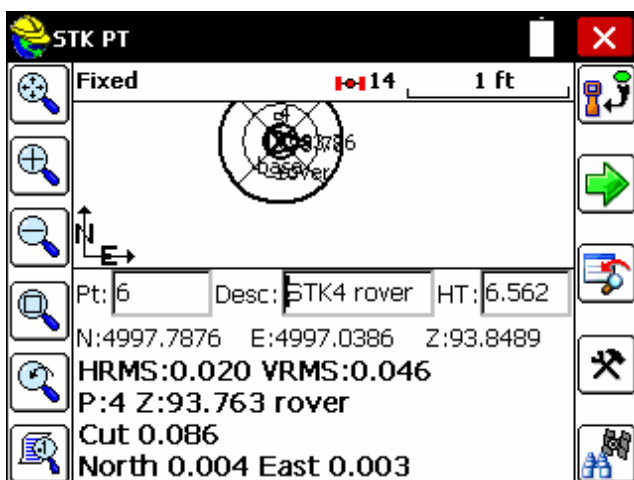
SurvCE will give you a graphic representation of your position relative to the point you are staking and will also guide you to the point via text at the bottom of the screen.

Tapping the  icon will allow you to save the staked position



A Stakeout Report is displayed.

Press the  key on the RX1250 or tap the  on the screen to finish storing the point.



Exit Stake Point by tapping the  on the screen.

3.0 Comparing Elevations in Leica SurvCE

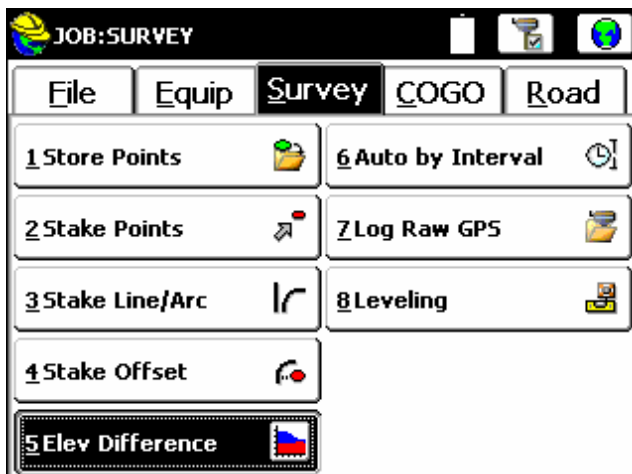
Objective

Compare our ground elevations to a stored surface

Getting started

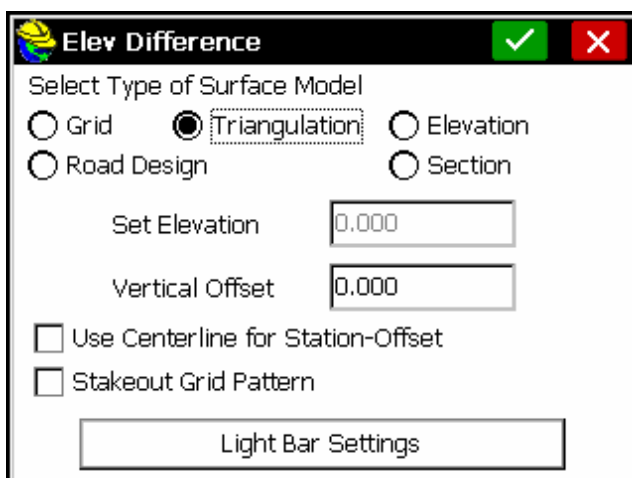
We need to use the Elev Difference command in Leica SurvCE

Elevation Difference



Let's go into Elevation Difference.

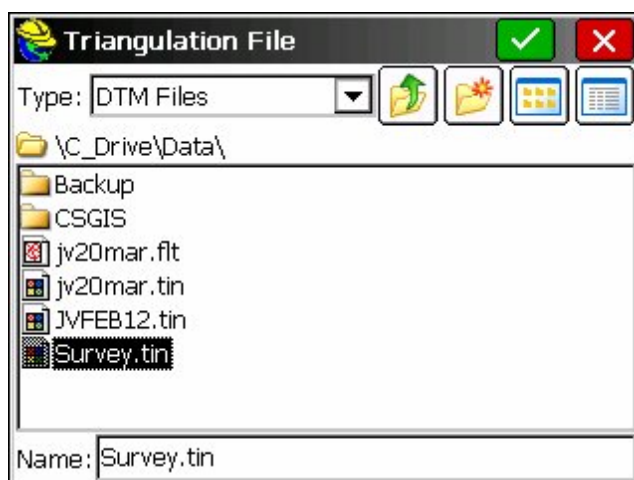
Tap the **Elev Difference** button on the screen or press **5** on the keyboard.



For this exercise we will use the triangulation file we created in Exercise 12.

Bullet Triangulation

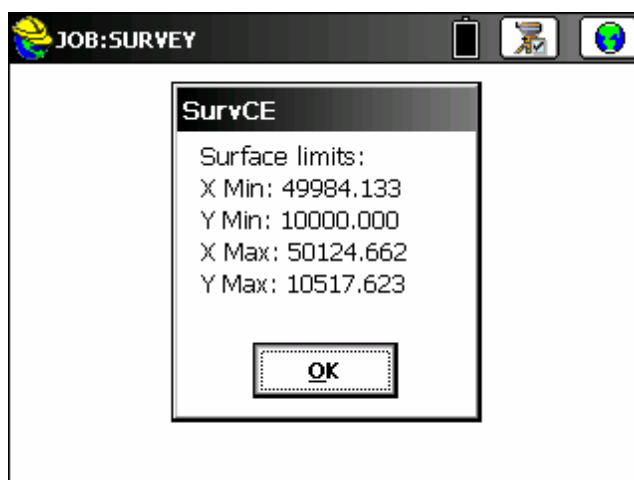
Press the  key on the RX1250 or tap the  on the screen to continue.



The file we created was **Survey.tin**

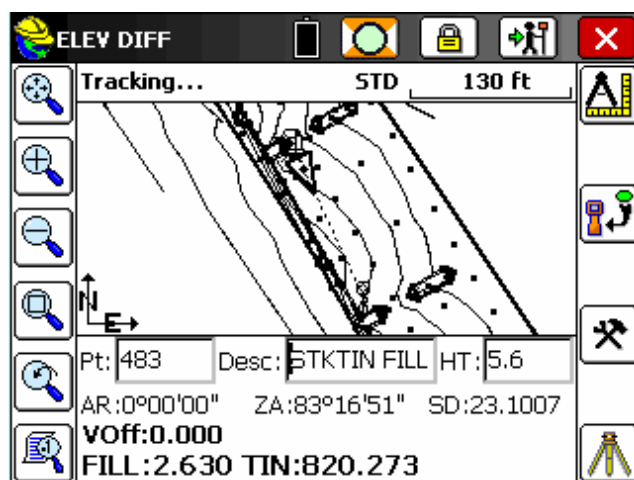
Highlight the file and press the

 key on the RX1250 or tap the  on the screen to select the file.



The horizontal and vertical limits of the surface will be displayed.

Tap the **OK** button to continue.



As you move around the job you can see the deviations from the surface file we just loaded.

Tapping the  icon will allow you to store a point at your current position.

Exit Elevation Difference by tapping the  on the screen.