Overview: Create an alignment for a new terrace from survey shots taken. Create and stakeout a parallel alignment based on the terrace alignment that was surveyed in the field.
Equipment: Trimble T10/TSC7, Total station or GNSS R10, R12, R12i receiver, Trimble Access v2022.01
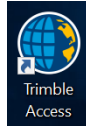
Survey and Stakeout the Terrace Flaglines

Start a New Job on the Data Collector for the Receiver
(This can be done prior to setting up the survey equipment.)
1. Turn the TSC7 or T10 controller on by <u>pressing</u> the:
    a. TSC7 – press the **green** button
    b. T10 – press the **black** power button (bottom left corner of collector).
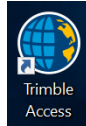
2. <u>Double Tap</u> the **Trimble Access** button or <u>Tap</u> *Windows Icon … Trimble Access*.
3. <u>Tap</u> *New* to create a project
4. <u>Tap</u> *Name*
5. <u>Input</u> the *County name,* <u>Tap</u> *Create*
    a. If your county has already been created, <u>Double Tap</u> on to the name
    b. <u>Tap</u> *New*
6. <u>Input</u> the *Job name*

7. Set Template as ***NRCS-GPS***
8. Verify Coordinate system and Units are set properly (see example above).
9. <u>Tap</u> *Linked Files* if you want to select coordinate files that have existing points to be referenced into this project.
10. <u>Tap</u> Accept.

Begin Survey

1. Tap ☰ … *Measure*
   a. For total station Tap … *VX & S Series...*
   a. For GPS Tap … *IARTN_R10/12/12i*
2. Continue with normal setup of survey and set a temporary benchmark.

Layout the key terrace line without storing any points
(Use **Stakeout .csv Points** and stake to any point to have it display elevations for layout purposes)

Survey the key terrace flagline and store points
3. Once you have the flags laid out and you feel the key line terrace won't change then proceed to survey each flag using **Measure Topo.**
   Survey each flag for the terrace line using the appropriate point series
   a. Point Name suggestions: 1000 for top terrace, 2000 for second terrace, 3000 for 3rd terrace, etc. Code suggestions: by appropriate terrace (T1, T2, T3)
      The point series makes it easy to re-establish flags if necessary
      The T1, T2, T3 label for point code make it for easy filtering in TDT
      (If it is a big terrace job you could bring your laptop to the field to design this key terrace so you know that terrace design works)
   b. Use the Map Screen to view the points surveyed, which end you started on, etc.

Create a polyline from surveyed flagline

4. Once you have surveyed the key line terrace – Tap ☰ … *Key In... Polylines...*
5. In *Key in Polylines- Polyline name* = T1 (for terrace 1), *Code = TT (terrace toe), Start Station* = **0**, *Station Interval* = **50**, *Point range* = ____-____
   Tap *Store…*
6. In the Map... Tap on the highlighted polyline, then Tap and hold.
7. A box should appear indicating Tap … *Offset polyline …*
   a. **If the box does not have *Offset polyline*, you have multiple things highlighted on the screen and you need to *Clear selection* and try again.
8. Input desired offset length (e.g. 120ift)
   a. ** Tap the arrow in the *Horizontal offset* column to indicate *Left* or *Right*.
9. Key in *Polyline name* = T2_Offset__ft_R (for terrace 2, indicate direction of offset using R or L), *Code = TT (terrace toe), Start Station* = **0**, *Station Interval* = **50**, *Point range* = ____-____
10. Tap *Store…*
11. You can select the new offset line and continue offsetting as many times as needed if you work back through the steps provided.
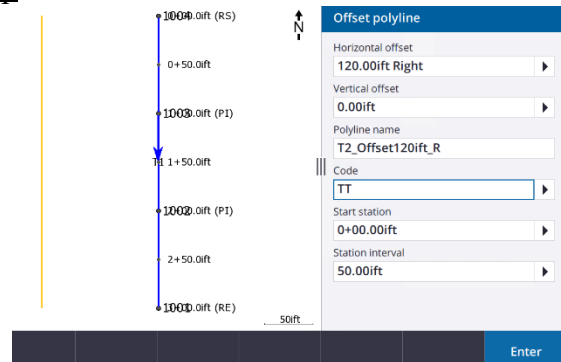
Layout the offset terrace alignment using a keyed in polyline.

12. Click *Stakeout…Polylines…*
13. Select the name of the offset polyline you just created (e.g., T2_Offset120ift_R)
14. In the *Stake* dropdown, choose *Distance along polyline*
15. Input your desired distance interval (e.g., 50.000ift). Stations along polyline are instantly created.
16. Tap *Start* to navigate to your newly created stations.
17. Place station flags along the polyline. Use the *Dist+* or *Dist–* to toggle through stations along your new polyline using the distance interval you determined in step 15.
18. Review and adjust the flag line to make sure the structure will work (use *Stakeout…Points* and reference your benchmark point to have it display elevations for layout purposes).
19. Once satisfied with the proposed terrace alignment, proceed to survey each flag using *General Survey…Measure…Measure Points*. Survey each flag for the terrace line using the appropriate point name and code:
    a. Example Point Names: 1000 for top terrace, 2000 for second terrace, 3000 for 3rd terrace, etc.
    b. Example Point Codes: AT1 for top terrace, AT2 for second terrace, AT3 for third terrace, etc.
20. When done with Stakeout Tap ESC.

Finish & Quit out of Survey

21. Switch to General Survey to take a topo shot on a known benchmark or control point as a final check.
22. When survey is completed, Escape to main menu, & click *Survey… End Survey*
23. Click Yes to Power down Instrument. Click Ok & Disconnect the power.
24. Click Exit. Click Yes to Power Off.