

Staking C3D Surfaces


Overview: Stakeout a surface model exported from AutoCAD Civil 3D. Stake linework of the surface model by exporting that information as shapefiles or dxf CAD files.

- Export the surface model is exported from C3D using the Trimble Link tools.
- Export CAD linework to shapefiles or dxf CAD files.
- Determine the details of any Control Points that you will need. They can be linked from the original survey or a coordinate text file of control points can be uploaded to the Trimble unit.

Equipment: Trimble TSC3, Total Station or GNSS receiver, Trimble Access v2015.22,
AutoCAD Civil 3D 2014/2016

Exporting a Surface Model from AutoCAD C3D

In AutoCAD Civil 3D:

1. From Civil 3D Click *Trimble Link...Export Surface*
2. Select the Surface that you want to export...Coordinate units: **International Feet**
3. Press OK to continue
4. At the message : “Warning.... Trimble Survey Controller coordinate system data is not available for this project. The coordinate system can be set up later on the Trimble Survey Controller”....Press OK
5. Save As Select the device to save the exported file...
If you have not previously setup a “device” for file exporting, do steps a-d.
 - a. Use window explorer to create a folder called Trimble Link under the P: drive (P:\Eng Projects\Common\Trimble Link Export)
 - b. From Trimble Link click **Create New Device** button  ... Select Survey Data Card...Click OK.....
 - c. Browse to the P: Drive and select the Trimble Link Export folder you created earlier (P:\Eng Projects\Common\Trimble_Link_Export)... Press Next
 - d. Enter a name for the new device, e.g. “Trimble Link Export”...Press Finish....
6. Select your storage location “device” and Press Open
7. Save As...Enter a file name (ex. landowner name and project)...Press Save to create a .ttm file for the Stakeout program in the data collector

Use the **Trimble Access Upload** instructions to transfer the Surface file to the controller. Save the file under - \Trimble Data\nrcs

Optional: Use AutoCad C3D “How To” instruction sheet CAD-GIS Exchange Data to create a shapefile of the CAD linework. Use the Trimble Access Upload instructions to transfer the shapefiles (these include the .shp, .shx and .dbf files only). to the controller. AutoCAD dxf files are an option too.

Save the file under - \Trimble Data\nrcs

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Setting up Job for Stakeout of a Surface Model

Link Uploaded text file to Job on TSC3 controller

8. Power on TSC3 and press the **Trimble** button to launch Trimble Access.
9. *General Survey...Jobs... New Job...*
10. Input a job name for this surface model stakeout survey.
11. Select the template for NRCS-GPS or Total Station.
12. Click *Linked Files: None...*
13. Checkmark the file or job with your control points. E.g. *Smith Control.txt*.
14. Click Active Map:
15. Checkmark the shapefile you uploaded. E.g. Smith.shp
16. Checkmark the surface you uploaded to see it in the Map. E.g. *Smith Excavation.ttm*
17. Click it a 2nd time to make it an active map that shows cuts and fills.
18. Click *Accept*.
19. Click *Accept*.

Begin Survey

20. Click on *Measure...*
 - a. For total station click *VX & S Series...*
 - b. For GPS click *JaRTN...*
21. *Measure Topo*
22. Continue with normal setup of survey and set a TBM or control point or check an existing one.

Stakeout Surface Model

16. In Trimble Access click *Stakeout...DTMs...*
19. As-Staked Name: Enter a "Point Name" that will be given to the as-staked survey shot
20. *DTM*: Click the down arrow to select the name of the surface model exported from C3D
21. A Vertical Offset can be entered if desired (used for staking sub-grade, etc)
22. Click *Start*
23. Use the shapefile in the Map to navigate to the linework of the surface
24. Once Target is at acceptable location click *Accept*.
25. Input As-staked Name E.g {*SO1004* } for StakeOut and a Code.
26. Click *Enter*
27. Click *Store*
28. When done with Stakeout Press *ESC*.

Quit out of Survey

29. Switch to General Survey to take a topo shot on a known benchmark or turning point as a final check.
30. When survey is completed, Escape to main menu, & click *Survey... End Survey*
31. Click Yes to Power down Instrument. Click Ok & Disconnect the power.
32. Click Exit. Click Yes to Power Off.