

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 .ttm CAD files.

- Export the surface model as a .ttm file from C3D using the Trimble Link tools.
- Export the surface model as a .xml file from C3D
- Export the linework as a .shp file from C3D
- Export staking points as a .csv file from C3D
- 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 TSC7/T10, Total Station or GNSS receiver, Trimble Access v2022.01, AutoCAD Civil 3D 2020

Exporting a .ttm Surface Model from AutoCAD C3D

In AutoCAD Civil 3D:

1. From Civil 3D Click *Trimble Link...Export to Trimble Survey Controller...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 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 Trimble Access Folder...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.

Exporting a .xml Surface Model from AutoCAD C3D

Follow the instructions on the AutoCAD C3D **HowTo - Export LandXML Data** to export your points, planned surfaces, alignments, profiles, or corridors as a LandXML file.

Use the **HowTo - Transfer Files Between Windows Devices 2023** instructions to transfer the Surface file to the controller. Save the file under - *\Trimble Data\projects\(\workingjob)*

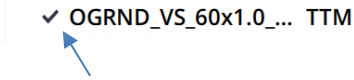

Optional: Use AutoCAD C3D “How To” instruction sheet **CAD-GIS Data Exchange** to create a shapefile of the CAD linework. Use the **HowTo - Transfer Files Between Windows Devices**

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2023 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

Setting up Job for Stakeout of a Surface Model

Link Uploaded text file to Job on TSC7/T10 controller

1. Power on TSC7/T10 and tap the **Trimble Access** icon
2. Tap the name of *Project* folder you are wanting to upload to... *Open*
3. Tap *Properties...Layers Manager...Map files*
4. Tap along the left side of the folder type you wish to import...*Accept...Accept...Open*

5. If you do not see your project tap,  icon


Begin Survey

6. Tap on 
 - a. For total station click *VX & S Series...*
 - b. For GPS click *IaRTN...*
7. *Measure... IaRTN_R10, R12, or R12i*
8. Continue with normal setup of survey and set a TBM or control point or check an existing one.


Stakeout Surface Model

9. In Trimble Access click *Stakeout... IaRTN_R12... DTMs...*
10. As-Staked Name: Enter a "Point Name" that will be given to the as-staked survey shot
11. *DTM*: Tap the down arrow to select the name of the surface model exported from C3D or EFT.
12. A Vertical Offset can be entered if desired (used for staking sub-grade, etc)
13. Tap *Start*
 - a. Use the shapefile in the Map to navigate to the linework of the surface
 - b. Use the points in the Map to navigate the stations of the surface
 - c. Use the surface in the Map to provide instantaneous cut/fill information anywhere on the surface
14. Once the Target is at acceptable location Tap *Measure*.
15. Input a Point name (e.g. *SO1004*) and a Code (e.g. *SR*).
16. Tap *Measure*
17. Tap *Store*
18. When done with Stakeout Press *ESC*.

Quit out of Survey

19. Tap on  ... *Measure... Measure Points* to take a topo shot on a known benchmark or turning point as a final check.

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20. When survey is completed, tap on  ... *Measure ... End GNSS Survey*
21. Tap *Yes* to Power down Instrument.
22. Tap on  ... *Exit... Yes*