Overview: Stakeout a waterway corridor from an AutoCAD Civil 3D design.

- The waterway corridor is exported from CAD.
- 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.
- A waterway profile cut sheet can be printed from CAD to provide profile grade breaks.
- The alignment is staked from the Roading component of Trimble Access.

Equipment: Trimble TSC3, Total station or GNSS receiver, Trimble Access v2015.22, AutoCAD Civil 3D.

Exporting Waterway Corridor from AutoCAD C3D

In AutoCAD C3D:

1. From Civil 3D Click *Trimble Link…Export Road*
2. Select the Waterway surface that you want to export…Under corridor details make sure the correct alignment is selected….Coordinate Units are International Feet
3. Press OK to close out of Export Road
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. Under Road Export Options - Checkmark "Left of road" and Checkmark "Right of road" – leave Side slope tolerance at 0.200% - Press OK
6. 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….
7. Select your storage location "device" and Press *Open*
8. Save As…Enter a file name (ex. landowner name & project – it is saved separately from the trimble job file)….Press Save to create a .rxl file for the Roads 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*

Setting up Job for Stakeout of Waterway

Link Uploaded text file to Job On TSC3 controller

9. Power on TSC3 and press the **Trimble** button to launch Trimble Access.
10. *Roads…Jobs… New Job….*
11. Input a job name for this waterway stakeout survey.
12. Select the template for NRCS-GPS or Total Station.

13. Click *Linked Files: None...*
14. Checkmark the file or job with your control points. E.g. ***Smith Control.txt***.
15. Click *Accept*.
16. Click *Accept*.

Review Waterway Alignment with Elevations

17. Click *Define…*
18. Select the AutoCAD C3D road file of your waterway. E.g. ***Smith WW IFoot.rxl.***
19. Click *Edit…*
20. Highlight **Horizontal Alignment**… Click *Edit…*
21. To review the highlighted starting point coordinates Click *Edit*
22. Press *Next* to see more horizontal positions or Press *ESC*
23. Press *ESC* to stop reviewing the horizontal elements
24. Highlight **Vertical Alignment**… Click *Edit…*
25. To review the highlighted starting point station and elevation Click *Edit.*
26. Press *Next* to see more stations and elevations or Press *ESC*
27. Press *ESC..ESC* to stop reviewing the vertical elements
28. Highlight **Template positions**… Click *Edit.*
29. For template positions that show "<None>" you will need to either delete the station, or change the template to the correct one or to <Interpolate> and then click *Store*.
30. When done editing templates click *Accept.*
31. Click *Store…*to return to the Roads menu
32. Close out of Trimble Access and power down the controller

Stakeout the Waterway

Set up Instrument and open job

33. Set up total station or GPS for surveying as normal.
34. Power on TSC3 and press the **Trimble** button to launch Trimble Access.
35. *General Survey…Jobs… Open Job….*
36. Select the job name for this waterway stakeout survey.
37. Click OK.

Begin Survey

38. Click on *Measure…*
    a. For total station click *VX & S Series…*
    b. For GPS click *IaRTN…*
39. *Measure Topo*
40. Continue with normal setup of survey and set a TBM or control point or check an existing one.

Stakeout Waterway in Roads

41. Press the **Trimble** Button
42. Click *Trimble Access…*Click *Roads…*
43. Click *Survey…Survey Roads…*
44. Highlight the Road from the list. E.g. ***Smith WW1.rxl.*** Click *Next*
45. Pulldown *Stake* = ***Station & offset***.
46. Press Sta+….Right Arrow Click on the *Station* to select stationing that you are wanting to stake from the ***List*** option. Offset….Right Arrow Click….List will allow you to change staking location on the cross section (ex. CL, 1/4pts, etc)
    The station location can be manually input.
47. Screen 2 of 2 shows the planned elevation. The station interval can also be changed.
48. Click Start and Move the target to the correct staking location
49. Once Target is at acceptable location click accept.
50. Input As-staked Name E.g {*SO1004* } for StakeOut and a Code (e.g. CL WW).
51. Click Enter
52. Click Store
53. Select next station or offset from list and repeat.
54. When done with Stakeout Press ESC.

Quit out of Survey

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