Storage Volume Only

Storage Volume Calculation

Overview: Determine the total storage volume of a surface at a specific elevation by comparing the base surface and a flat elevation surface.

Software: AutoCAD Civil 3D 2014, Civil 3D Workspace, NRCS C3D 2014 template V1.1 (1/29/2015)

Prerequisite: Create a base surface for the volume comparison. E.g. Follow the instructions for Original Ground Contours or LiDAR.

Notation: Button to Press Displayed Text Icon Action {Text to Enter} Menu Item...

Create a Surface at the Defined Elevation for the Volume Calculation
1. Tool Palette>NRCS 11x17B… Click Breaklines and Boundaries…Boundary Line…
   (Ctrl + 3 to toggle on/off)
2. Draw a border that will represent an outer limit for the volume calculation area. Typically this would extend downstream to the dam and upstream around the entire contours. To close the line cleanly, type {C} and press {Enter}.
3. Select this boundary and Right-click Properties…
4. In the Properties box input the elevation of the storage computation and press {Enter}.
5. Toolspace> Prospector… Right-click Surfaces… Create Surface…
6. Input a name for the TIN surface. E.g. {Storage Elevation} Click {Ok}.
7. Toolspace> Prospector… Surfaces… Storage Elevation … Definition…Right-click Breaklines…
8. Click Add…
9. In the Add Breaklines Box set the Type = Standard, Uncheck Weeding factors, Uncheck Supplementing: Distance
10. Click {Ok} and select the previously drawn boundary line object.

Calculate the Storage Volume at the Defined Elevation
11. Click Analyze… Volumes and Materials… Volumes Dashboard
12. In Panorama click Create new Volume Entry
13. Input Name E.g. {V Storage Volume}
14. Set the Style = _<off> Click {Ok}
15. Set the Base Surface = Ognd
16. Set the Comparison Surface = Storage Elevation
17. Click {Ok}
18. A volume surface gets created and the Fill Volume column will be the total storage at your defined elevation.
Modify the Storage Elevation Surface and Recompute

19. Select the boundary drawn for the Storage Elev surface and Right-click Properties...
   (Use Shift + Space to help find overlapping objects)
20. In Properties, input an updated elevation for storage computation and press Enter
21. Toolspace> Prospector… Surfaces… Right-click Storage Elevation … Rebuild… (2x)
22. In Panorama click **Recompute Volumes**

Create a Volume Report

23. To create a report click Generate Cut/Fill Report
24. When done click the Checkmark to dismiss the Composite Volumes panorama.