LAB III

Objective: To determine the Volume of Lab II using AutoCAD Civil 3D.

Equipment: AutoCAD Civil 3D

Procedure:

1. Double click on the AutoCAD Civil 3D icon on the desktop. This will open Civil 3D.
2. Select the workspace “Civil 3D Complete” and click OK.
3. Save “Document 1.dwg” as Lab3-Volumes” or a similar name.
4. Using the line command, draw the 20’x20’ box broken into 5’x5’ squares that we laid out on the ground in the previous lab (use offset command).
5. From the “Points” menu, choose “Create Points”. This will open the Create Points toolbar.
6. Select the first icon on the toolbar for “Manual Create”.
7. Snap to one of the main corners of the box. Enter the description of “Proposed1” and the elevation “670.00”.
8. Repeat step 7 for the other three main box corners (name “Proposed2, Proposed3..”).
9. Snap to the location of point A1 on the box. Enter the description as “A1” and the elevation of point A1 from your field notes. (Name the points and give elevation as you laid out your grid on the field this will give exact volume as you calculated by hand).
10. Repeat step 9 for all points through E5.
11. In the drawing prospector on the left side of the screen, right click on Point Groups and click new. Name the point group “Proposed”. On the include tab, select number matching and enter 1-4.
12. Repeat step 11 but this time create the point group “Existing” using points 5-29.
13. From the “Surfaces” menu, select “Create Surface”. Then in the pop up table make sure in the upper left corner the drop down menu is selected at TIN Surface and then press OK.
14. In the drawing prospector on the left side of the screen, select the plus sign next to “Surfaces”. Right click on Surface1 and go to properties. Rename the surface to “Proposed”.
15. In the drawing prospector, click the plus sign next to the “Proposed” surface. Click the plus sign next to Definition. Right click on Point Groups and click Add. Select the Proposed point group and click OK.
16. Repeat steps 14 and 15 to create the Existing surface.
17. Right click on each of the two surfaces and select “Rebuild”.
18. From the “Surfaces” menu, select “Create Surface”. Change surface type to TIN volume surface. Select the Existing surface as the base surface and select the Proposed surface as the comparison surface.
19. Right click on Surface3 and select Surface Properties. Rename the surface to Volume and select the Statistics tab to see the volume quantity by Clicking the Plus Button next to Volume.