

CEE 4020 - Computer Applications in CEE

Summary

October 11, 2010

Generating Surfaces

Surfaces can be generated from

- Point files
- Points imported from Field book files
- Breaklines
- Objects
- DEM files

Make sure that the coordinate system is appropriately defined for all surfaces. Right click on the drawing name in the *Drawing Settings* tab to explicitly declare it.

Point Files

- Right click on Points - import points from a point file Remember to define a file type
 - PNEZ
 - How the inputs in each record is delimited ',' or 'space'
 - Define co-ordinate system
 - Load and parse to check for errors
- Import each point file into an individual point group.

Field book files

- Develop survey Database - this is a local DB
- Develop a Network in the survey DB
- Import a .fbk file into the DB
- Define Figure prefixes in Figure Prefix DB
- Ensure each figure prefix is associated with a Figure prefix style
- Insert points into drawing
- Insert figures into drawing - treat as Breaklines.

Breaklines

Download the file from the class website:

- Create new surface called *Existing ground* on a new layer called *C_Topo* with suffix option as *-**.
- Add breaklines with the standard option. Use the Proximity option when using 2D polylines that have points with elevation at each vertex in the pline. The Wall option is used to represent vertical components.
- Define Mid-ordinate distance as 1.000'. This defines the shortest chord length between 3D curve features.
- Check for errors - zoom to them and rectify if necessary.

Objects

- Add the blocked points using *Add Objects* by right clicking on Objects.

DEM Files

- Add a DEM File using *Add DEM* by right clicking on DEM.

Editing and Analyzing Surfaces

Objective: Building surfaces by importing and adding points, from breaklines and from blocks. Editing surfaces, conducting simple analysis and appropriately displaying all information.

Follow these steps to develop a surface from points:

- Conduct an elevation and contour analysis
- Ensure that all the surface analysis information, including contour, elevation, slopes and water shed information is displayed appropriately. Control settings to ensure appropriate surface information display.
- Create a layout using viewport and display the developed surface.