CEE 4020 - Computer Applications in CEE

Surfaces

October 4, 2010

Creating, 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:

- Import the *more_points.txt* file and develop a surface from it.

- 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.

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.

- Next add the blocked points using *Add Objects*

- Examine surface properties

Editing surfaces:

- Display triangles and remove any unnecessary triangles

- Use *Edit - Delete Line*

- Use the extract objects from surface feature to extract the boundary. Notice how you can grip edit the boundary.

- Add the new boundary to the surface and re-build the surface. Note changes.

- Surface smoothing