KTF software
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Ground Modelling, Road Design and Land Survey software for Civil Engineering, Environmental and Landscape applications working within CAD.

Quarry and landfill hints

Note that Landfill cell floor design is documented in the menu item *3D utilities, Draw cell floor*

Edge of extraction to base or benching

Starting with a ground model representing the existing site and a 2D Polyline representing the edge of extraction.

Step 1

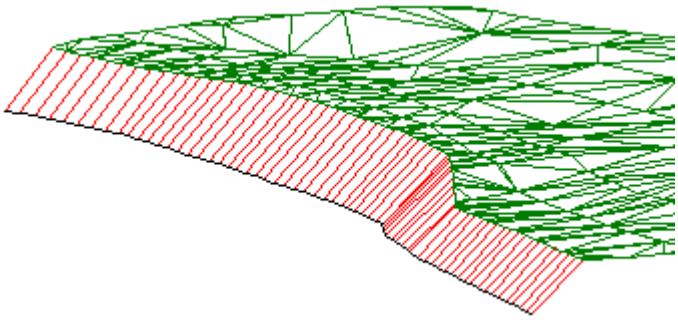
Ground Modelling, Drape, Drape entities to convert the 2D Polyline into a 3D Polyline.

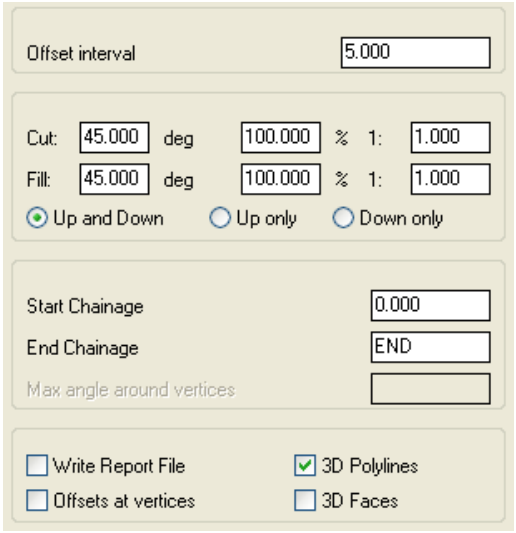
Step 2

A base or benching surface needs to be defined as a ground model for the embankment program to "look down to". Use menu item *Ground Modelling, Create model, Uniform surface*. If this is horizontal just pick any point, enter the level, Return and enter a model name. If the benching surface is not horizontal use menu item *3D utilities, Enquire and define Slope* before creating the uniform surface to fix two or three points that the uniform surface will be made from.

Step 3

Ground Modelling, Embankments to draw embankments from the edge of extraction 3D Polyline to the surface created in step 2 above. Typical settings are shown here :-





Step 4

By using *3D Polylines, Offset* to fix the other benching edge from the initial one defined in item 3 above. The process can now be repeated going down to further benching surfaces. Confirm that that the results look OK by creating a section from the model suitably located by a 2D Polyline and one from the design (the 3D Polylines representing tops and bottoms of the embankments and benching edges) etc. Draw the existing section and superimpose the design one :-

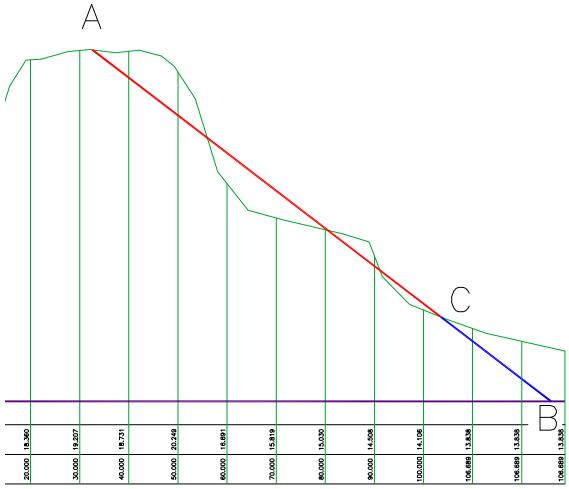
Step 5

Volume calculation

The design or “hole in the ground” model needs to be created from the 3D Polyline representing the edge of extraction and any 3D Polylines representing the base and benching etc. In some cases an improved triangulation will be achieved by adding vertices to the 3D Polylines (menu item *Polyline utilities, Additional vertices*). The edge of extraction 3D Polyline will often need to be used to define active and passive triangles. To illustrate areas with different thickness (depth of fill for example) use *Ground Modelling, Analysis and Colour mapping*.

“Force embankment to lower cut”

Menu item *Ground Modelling, Embankments* will intersect with the first cut into the model. On some occasions it is necessary to define a lower (or higher) cut. In the section below location “A” represents the new edge of extraction – this will be a 3D Polyline created by draping a 2D Polyline over the model or it could be a 2D Polyline representing a length of contour from the model. In typical use the *Embankments* program will find the first intersection with the model but in this case we need to define a new base intersection at location “C”.



Step 1

Create a “lower” model

Decide on an elevation that is say a metre or two below the level at “C”. Use menu item *Ground Modelling, Create Model, Uniform surface* to make a horizontal model at this “lower” level.

Step 2

Draw embankments to the “lower” model

Menu item *Ground Modelling, Embankments* to draw embankments from the edge of extraction “A” to the lower model created in stage 1 - this is location “B” on the section.

Step 3

Draw embankments to the “lower cut” on the original model

Menu item *Ground Modelling, Embankments* to draw embankments from the 3D Polyline interface drawn in stage 2 to cut the original model. This calculation is shown as the blue line from “B” to “C”. This interface 3D Polyline (location “C”) now defines the “lower cut” and should be included when making the model to represent the “hole in the ground”.