Iowa Department of Transportation
Office of Design

Draw Cross Sections from Surfaces

Overview

This section explains how to draw existing ground line cross-sections (within a 2D MicroStation design file) utilizing a Geopak digital terrain modeling (DTM) file.

Prerequisites

Geopak coordinate geometry database (.gpk) file containing horizontal and vertical alignments
Geopak DTM file containing existing ground data, created through Corridor Modeler
Geopak DTM file created through Roadway Designer

For additional information on Geopak .gpk's, see Bentley help files.
For additional information on Geopak DTM's, see Bentley **DTM** help files.
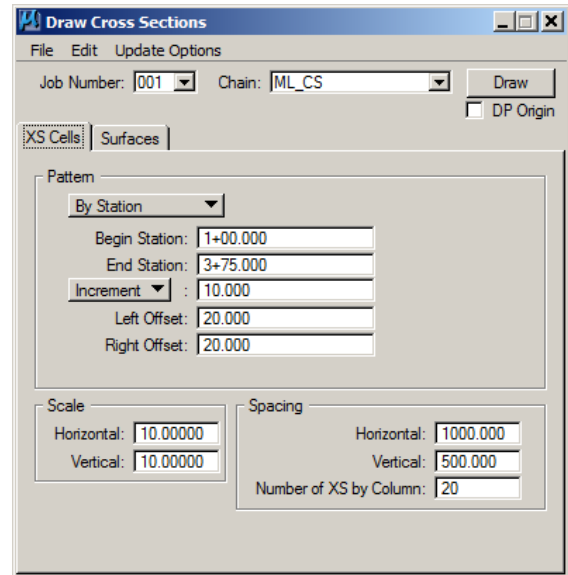
Process

Access the **Draw Cross Sections** dialog, using either of the following methods.

From the MicroStation menu bar:
Applications > Geopak > Road > Cross Sections > Draw Cross Sections from Surfaces

From the **Corridor Modeling** dialog "**Draw Cross Sections from Surface**" icon, as shown below:
Applications > Geopak > Road > Cooridor Modeling > Draw Cross Sections from Surface
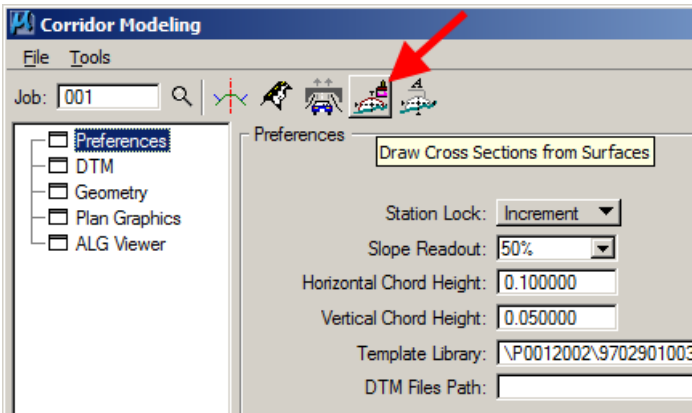
Either of the above two described methods should produce the **Draw Cross Sections** dialog, as shown at the right.

The **XS Cells** tab, **Pattern** area: Three options are supported, as shown at the right, and described below.

> **By Station**: This allows the option of selecting a station range along the chain to process cross sections, and key in fields to define the increment and cross section cell length.
> **By DGN File**: This option specifies a design file that has symbology representing the locations of the cross sections along a chain.
> **By Existing Only**: This draws cross sections based on existing cells in the active cross section file.
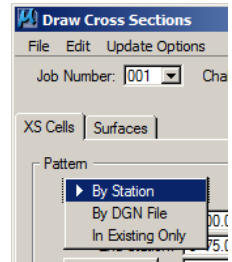
Generally the best option is to pre-define cross section locations by symbology created in a design file therefore picking "By DGN File". It's important when cutting cross sections that the sections match, or be divisible by the increment of the corridors template drops in Roadway Designer. This will come into affect when processing Earthwork.

The **Scale** settings, as shown above:
> **Horizontal**: Sets the horizontal scale of the cross section, generally this should be set to 1.
> **Vertical**: Sets the vertical scale of the cross section, generally this should be set to 1.

The **Spacing** settings, as shown above:
> **Horizontal**: Sets the horizontal distance between cross section cells.
> **Vertical**: Sets the vertical distance between cross section cells.
> **Number of XS by Column**: Sets the number of cross sections cells per column.

On the **Surfaces Tab**, **General** area:

Each Surface must be added to the list box via the action buttons to the right of the dialog, (as located by the red arrow).

When the **DP Origin** option is checked, (☑), (as located by the blue arrow), this provides the opportunity to select any location in the file to place the cross sections.

When the list box is populated, select the "**Draw**" button, as located by the green arrow.
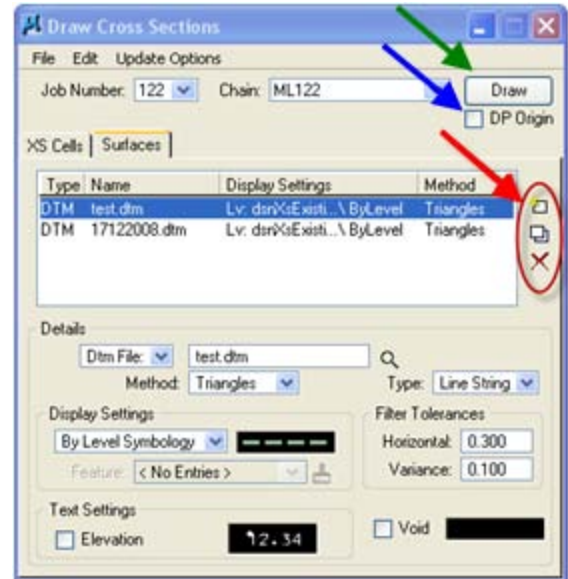
Details – select between **DTM File** and **Tin file**, as shown at the right.
    DTM file: This option will be used when generating cross sections with Corridor Modeler for both the existing ground and proposed surface created through Roadway Designer.
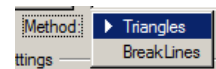   **Tin File**: This option is for generating surfaces for cross sections other then the use of Corridor Modeler surfaces.
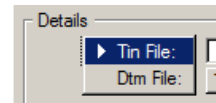
**Method** – select between **Triangles** and **Break Lines**, as shown at the right.
    When generating cross sections with a TIN or DTM file, **Triangles** will be selected to draw the cross sections.
    If a site model is being used, then **Break Lines** may be selected.

**Type** – select between **Line** and **Line String**, as shown at the right.
Cross Section lines can be drawn as **Lines** or **Line Strings.** The **Line Strings** option is the preferred.
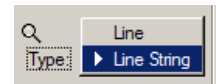
Display Settings – select between the two options shown at the right.
   **By Level Symbology**: Symbology may be specified for the surface.
    By Feature: Allows the use of selecting pre-defined symbology from the Design and Computation (D&C) Manager.
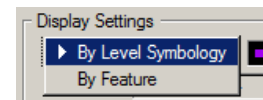
    When using Corridor Modeler, a DTM will be used for existing ground. The symbology will be controlled by using "**By Level Symbology**" or "**By Feature**".
    Proposed cross section symbology is controlled by **Roadway Designer.** The same symbology used to create the templates will be drawn in the cross sections. The **Symbology** setting must be "**By Level Symbology**", but when drawn the symbology will be ignored.

Text Settings - When cutting cross sections from DTM files, the component point names in the templates are placed in the cross section file. The **Text Settings** are directly related to the design file's active settings.
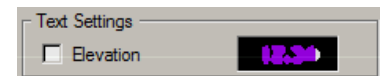
Chronology of Changes to Design Manual Section:

021b-250 Draw Cross Sections from Surfaces

6/30/2011	NEW
	New