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Chapter 8: Cross Sections

Overview

Proposed Cross Sections are used to determine the limits of construction, earthwork, construction staking reports, and 3D modeling for plan packaging. It is very important that they are drawn consistently and to the standards outlined in this chapter.

In order to use Geopak to generate proposed cross sections, a **.gpk file, chain, profile, existing ground cross sections, pattern lines, superelevation shapes and plan view roadway features** are all needed. Cross section “criteria” are files that use these needed components, interpret the information and constructs proposed cross sections.

Creating Proposed Cross Sections

Typical Section Generator

Proposed cross sections are created through the Project Manager using the Typical Section Generator. Proper setup and use of the Project Manager is crucial in using the Typical Section Generator to create the proposed cross sections. Using both the Criteria and the Typical Section Generator automates the generation of proposed cross sections as much as possible, and standardizes the design and construction techniques used to build FLH projects.

There are many capabilities with the Typical Section Generator. One is to search for elements drawn in plan view that were drawn using Design and Computation Manager and Place Influence to act as a "horizontal" reference lines. These elements drawn in plan view may or may not have AdHocs associated with them. Also the placement of these elements may or may not represent the exact offset for the corresponding cell to be placed in the cross section file. Other times, these elements simply act as an "on/off switch" giving instructions to the criteria.

Federal Lands Highway have developed 6 Typical Sections for the use of developing cross sections. The 6 Typical Sections are Divided New Pavement **(DNpavt),** Existing Features **(ExFeat**), Existing and Proposed Right of Way **(ROW),** Rehabilitation Typical Section for 3R projects **(Rehab),** Undivided New Pavement **(Unpavt)** and Cross Section Labeling **(XS_Lab).**

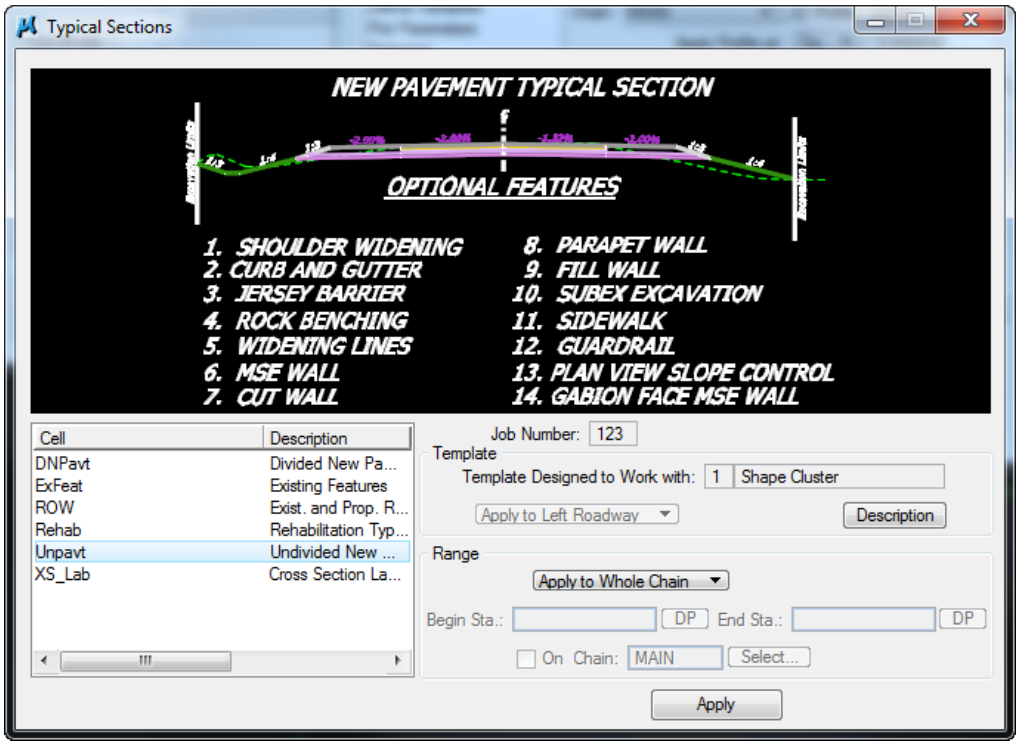

Figure 8-1: FLH Typical Sections

Typical Sections "write" (**.wri**) files are provided in the N:\V8i_resource\FLH_Common\GEOPAK\Typicals\English folders to help users. These files are tutorials and guides for the criteria files. They can also be accessed by clicking on the "Description" button shown above.

The Typical Section Generator Process

Prior to running proposed cross sections, the Project Manager needs to be setup as outlined in Chapter 3 of the GEOPAK V8i CADD Standards Manual. Once the Project Manager has been setup and the necessary design components have been developed as mentioned above, the process for generating proposed cross sections is run from the Project Manager.

Both a completed **Working Alignment** and a **Proposed Cross Section "Run"** are needed to generate proposed cross sections. Once the working alignment has been selected and defined, Proposed Cross Sections can be run through the Project Manager Workflow Dialog Box.

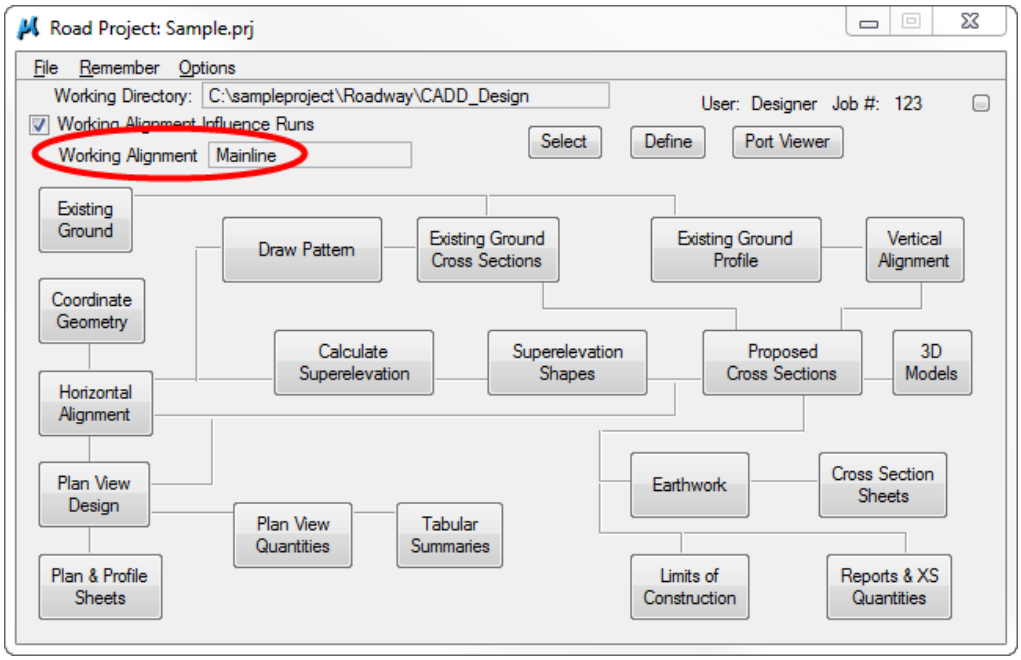

Figure 8-2: Project Manager Workflow Dialog

Workflow 1: Working Alignment Definition

To access this workflow, follow this link:

http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_8.1_v8i.pdf

Once the working alignment definitions are set for a working alignment, Proposed Cross Sections can be selected from the Project Manager Dialog Box. Workflow 2 will outline the steps required to create and process a "Run" for the Proposed Cross Sections.

Workflow 2: Generating Proposed Cross Sections

To access this workflow, follow this link:

http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_8.2_v8i.pdf

Viewing Cross Sections

Now that you have completed the proposed cross section run, you will want to view them. The cross section navigator is a tool that makes the viewing of cross sections much easier. Two types of Cross Section Navigators are available to review the cross sections; the Cross Section Navigator and the Super Cross Section Navigator. Workflow 3 and Workflow 4 will outline the two Cross Section Navigators.

Cross Section Navigator

The Super Cross Section Navigator prevents drifting of the cross sections and provides speed controlled cross section movie navigation.

Workflow 3: Cross Section Navigator

To access this workflow, follow this link:

http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_8.3_v8i.pdf

Super Cross Section Navigator

The Super Cross Section Navigator is a MicroStation Visual Basic Application (MVBA) which prevents drifting of the cross sections and provides speed controlled cross section movie navigation.

Workflow 4: Super Cross Section Navigator

To access this workflow, follow this link:

http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_8.4_v8i.pdf

Cross Section Sheet Composition

This section will describe the method used to create cross section sheets. The following workflow will show the user how to set up sheets using GEOPAK Cross Section Sheet Composition tool. This application supports the following scales and layout options.

Workflow 5: Cross Section Sheet Composition

To access this workflow, follow this link:

http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_8.5_v8i.pdf