

Using RDCO Contour Data with Autodesk Civil 3D

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Introduction

The Regional District of Central Okanagan has posted mapping data for free on their website. The data includes lot lines, contours, zoning, and ortho photography (among others). The data comes mainly in the ESRI "shape" file (.shp) format. While this may have caused data interoperability issues in the past, those who currently own Autodesk Map 3D or Civil 3D (which is built upon Map 3D) have all the tools at their fingertips to use the data.

As is the case of most papers of this type, the way the information is imported and used is dependant on the functionality that is needed for whatever your end result is destined to be. We will look at two main ways of using the RDCO contour data in an Autodesk environment: a) viewing and labeling the data and b) using the data to create a TIN surface to use in Civil Engineering models. Each uses a different "import" method. AutoCAD users do not have the ability to import shp files so this paper will not deal with either AutoCAD or AutoCAD LT.

The examples that follow were done using Civil 3D 2009.

Option 1: Importing the Data for Viewing and Labeling

In this situation we have a shape file and only wish to see it in the background and label certain properties. Think of this as similar to an xref of contour information. While there is far more functionality available to us in Map 3D we will only be dealing with the basics of connecting to data.

Although the title for the current section uses the word “import” it is technically incorrect. There will not be any actual importing of data but simply a live connection to the native shp file, no translating required. The steps to connect to RDCO contour shp files are as follows:

Turn on Map Workspace and Connect to Data

In order to connect to the contour data we need to enable the Map Workspace which can be done by selecting the Map 3D for Geospatial workspace or by simply typing “mapworkspace” at the command line. The next step can be done from either the “Map Explorer” or the “Display Manager” tab.

Select data and then connect to data (see Figure 1).

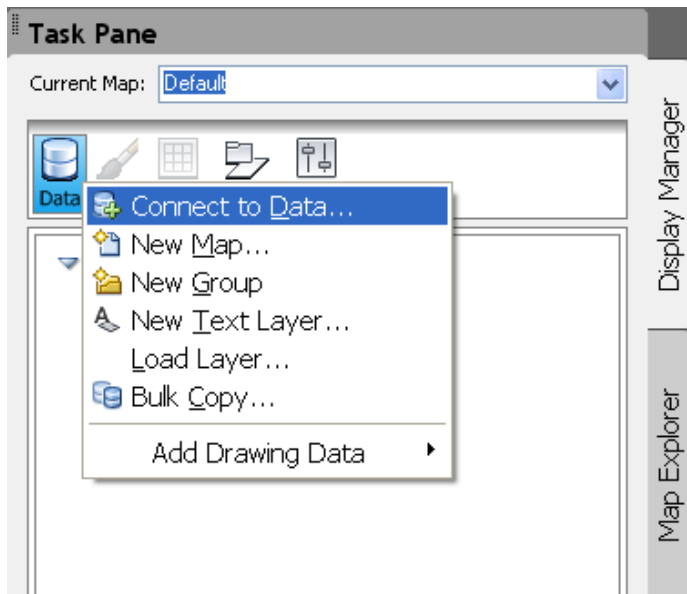


Figure 1: Connect to Data

The next step is to connect to the data in its native format. Here we follow the steps:

- 1) Select the Data type.
- 2) Give the connection a unique name.
- 3) Select the “select file” button

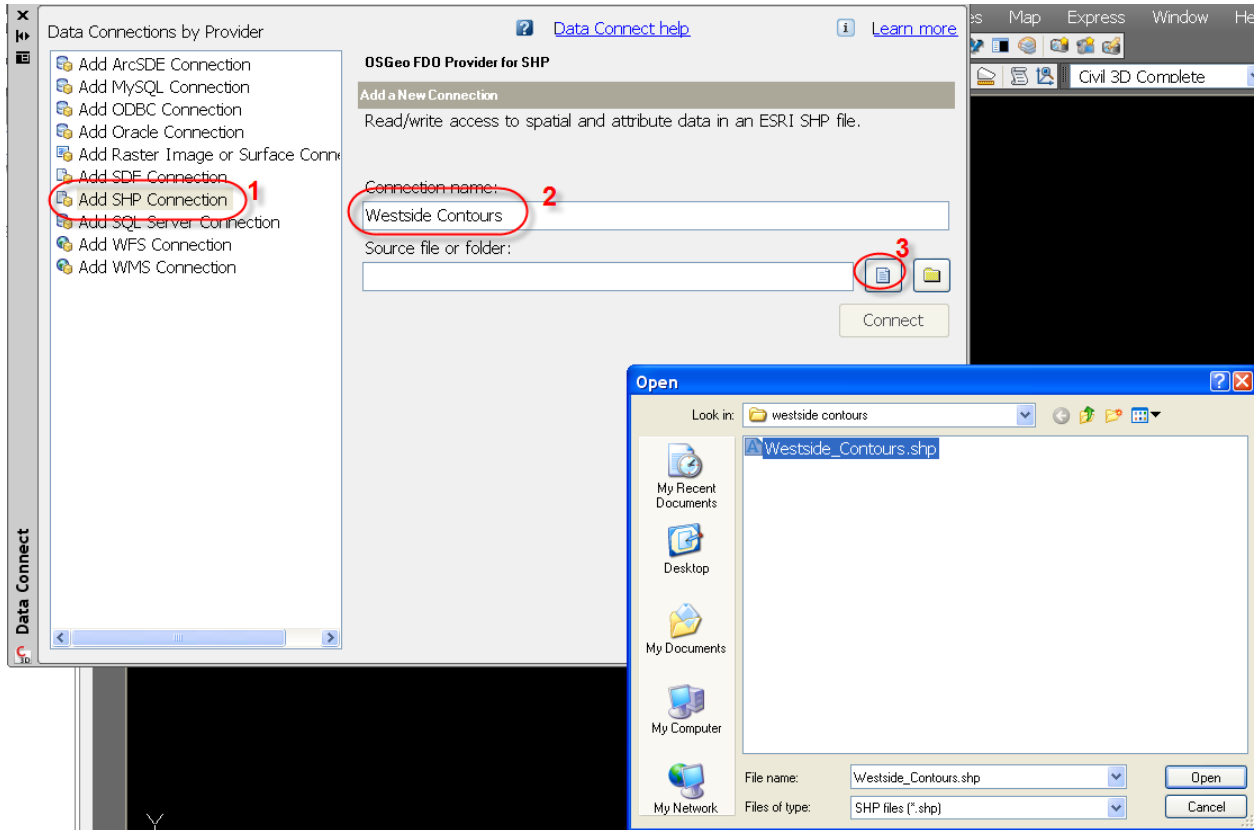


Figure 2: Select data to connect to

Once you have selected the file, simply choose “Open” and then “connect” and your connection will have been made.

Next we select the schema and select “add to Map” (Figure 3). The contour data is now in our current drawing, dynamically linked to the native shp file. If the shp file is changed it will be updated in our drawing, no data loss has occurred in this method.

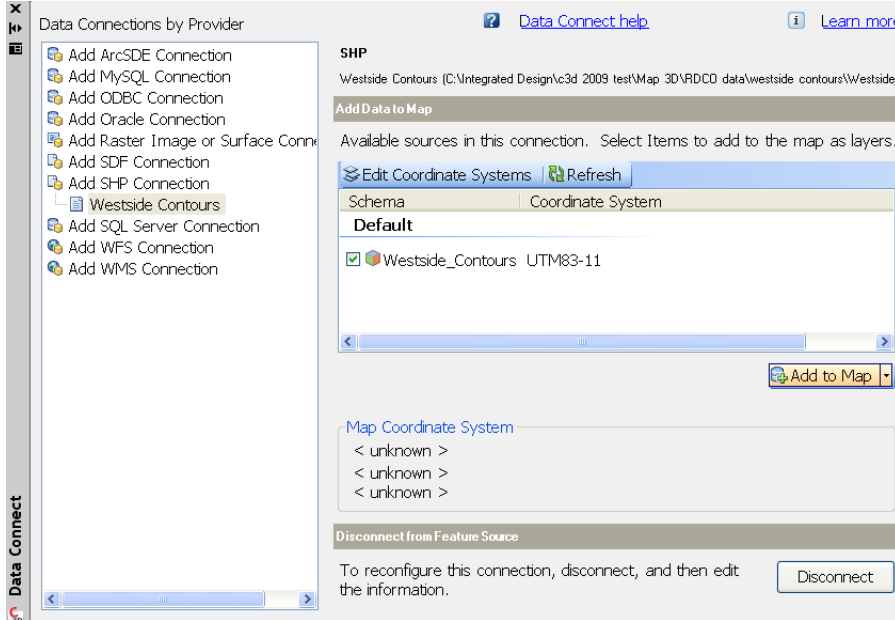
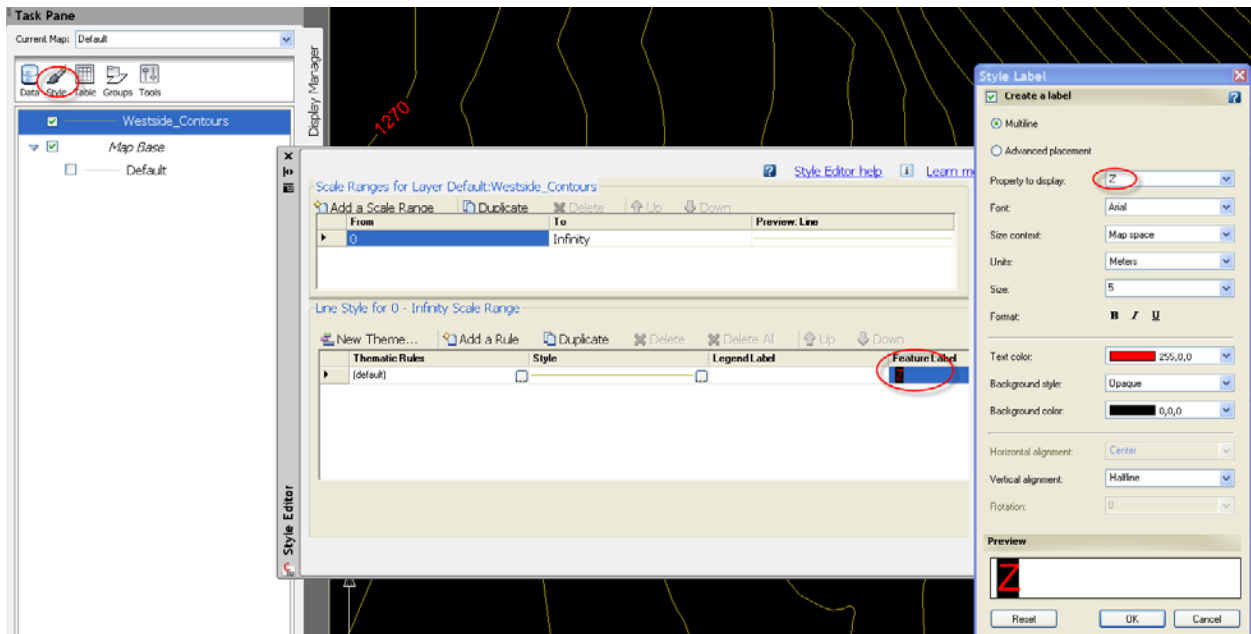


Figure 3: Add Data to Map

Stylize and Label Data

From the Display Manager Tab, select the data you wish to stylize (in this case Westside Contours) and select “Style”. Then go to feature label and select the property you wish to label (Z). The rest is up to your individual tastes for text height, colours, etc. These labels will dynamically redraw as you zoom and pan in your drawing. These aren’t individual, static labels that we are used to in our AutoCAD world.

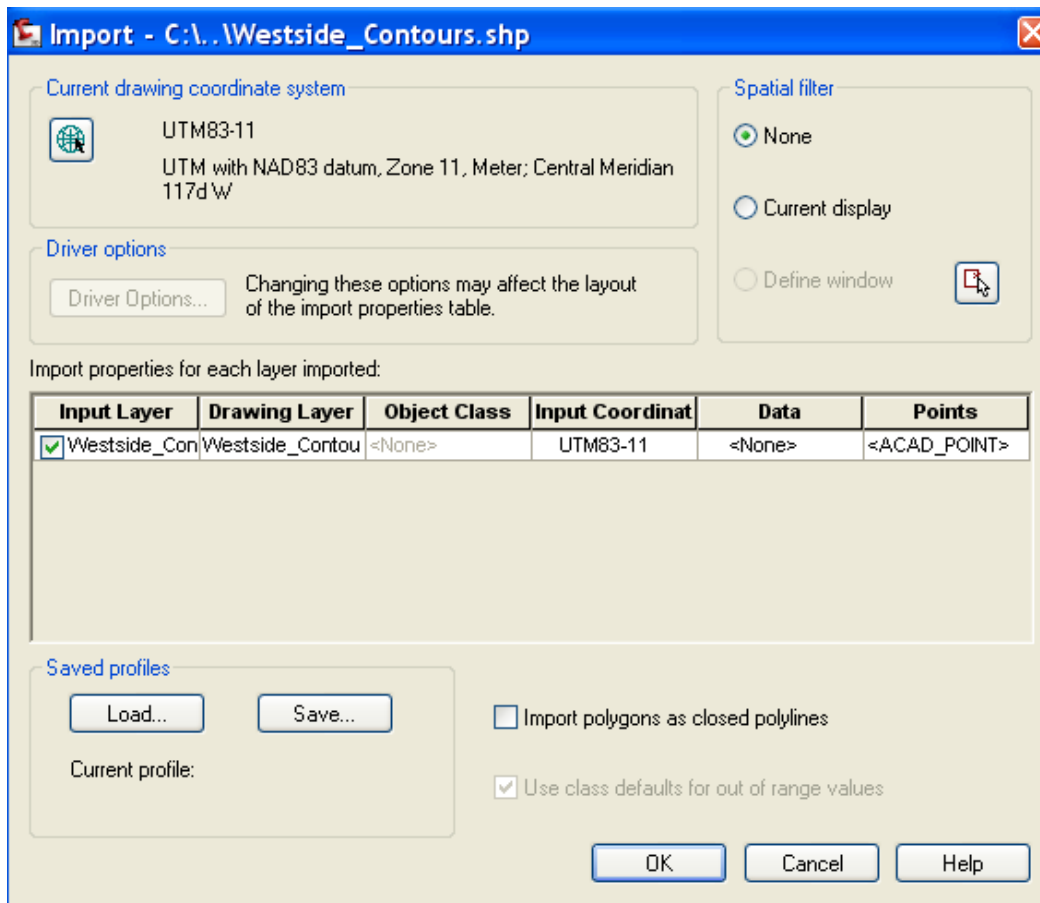


Option 2: Importing the Data for Surface Modeling

In the previous section we connected to the live shp file data. Now we will import the data for use in surface modeling with Civil 3D.

Import SHP file

To import the contour data we go to the Map menu and select Tools/Import. Then we select the type of file and the file itself. Once the data has been selected we can simply select OK or we can import object data. Notice Map recognizes the coordinate system from the shp file.



The resultant objects are lwpolylines with Z values that can then be added to surface data to use for surface modeling, volume calculations, grading, and other design functions.

Hopefully this paper helps end users with in dealing with ESRI files in a non-ESRI environment.