



Name:	ODOT_PlaceBoringGraphics.mvba
Tested MicroStation Version:	PowerGEOPAK v8i (Select Series 4)

Description

The ODOT_PlaceBoringGraphics.mvba is a Visual Basic Application developed to assist the plotting of Boring data to profiles and cross sections.

The file can be found in the following place:

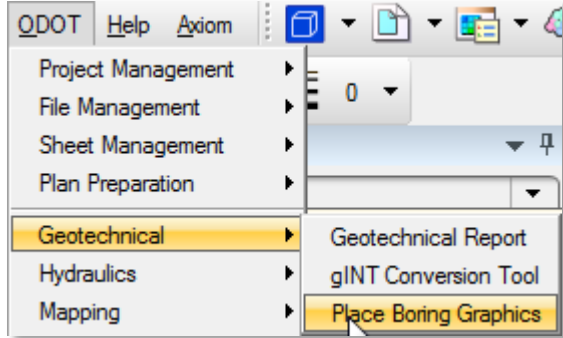
ODOTcadd Standards: ODOTcadd/Standards/vba

The main purpose of this documentation is to explain how to use this application.

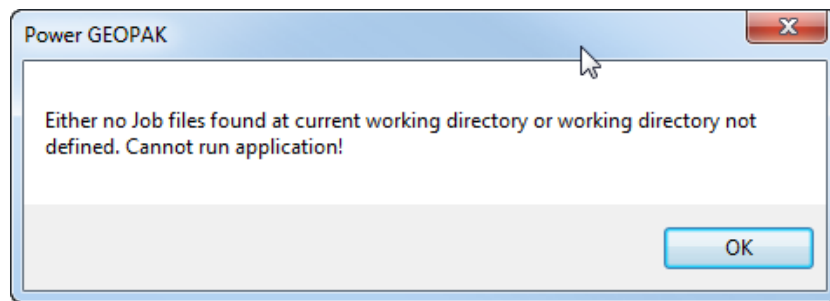
Loading the Application:

To load the ODOT_PlaceBoringGraphics.mvba open MicroStation and under the ODOT tab select Geotechnical then Plot Boring locations. Or by entering the following keyin command.

vba load ODOT_PlaceBoringGraphics.mvba; vba run StartPlaceBoring



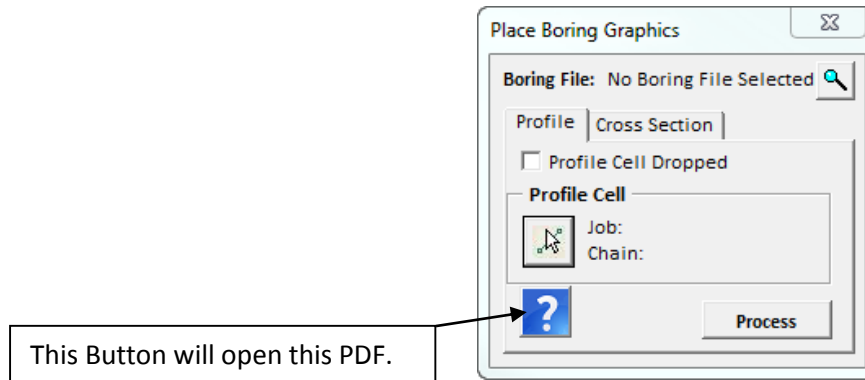
GEOPAK must be activated and a working directory must be set in order to use this application. If the working directory is not set or there are no Job files found in the working directory then the following message will appear and the application will not launch.






Application Operation

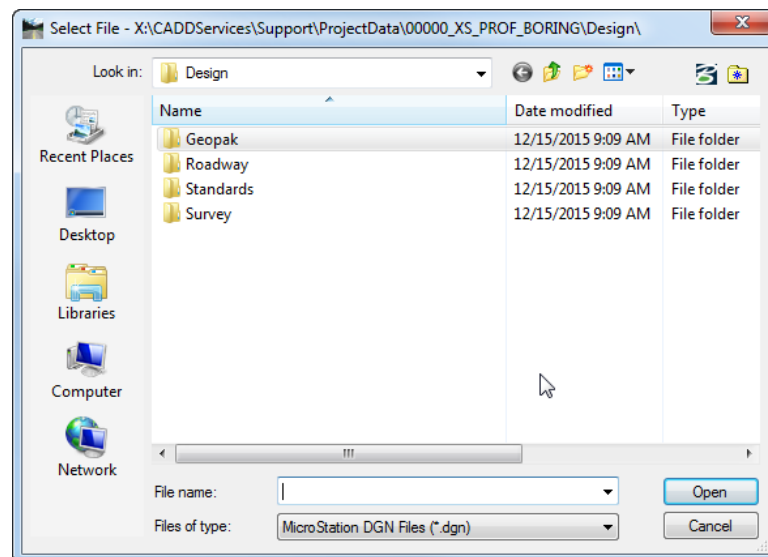
When loaded the dialog shown below will appear.




This application has three sections. Boring File, Profile Tab and Cross Section Tab.

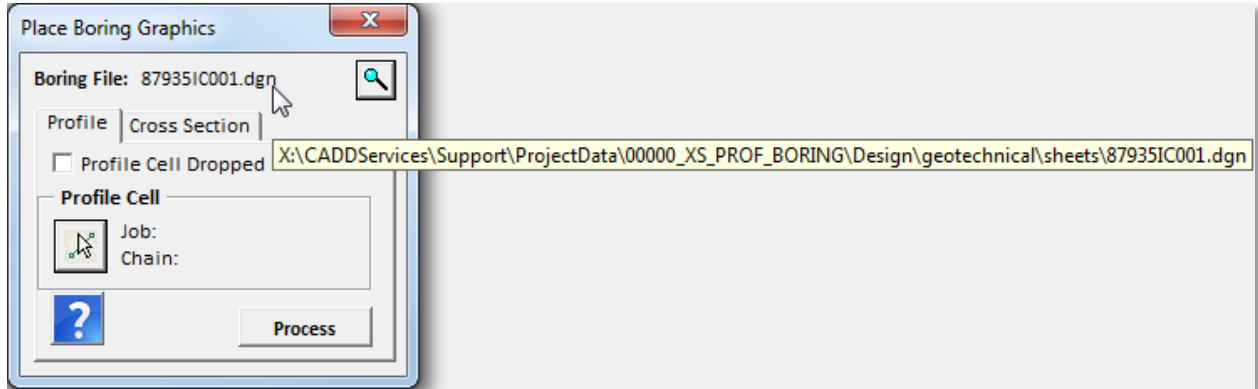
Boring File:

This section is where the user will select the dgn file that contains the borings graphics that were split into separate models using the gINT conversion tool. Note that the ODOT gINT Conversion Tool must be ran on the boring file before this application can be used. To select a boring file click on the  button. This will open the file browser dialog shown below. If the active design file was open with ODOTcadd standards and the project was set then the default location the search browser will start at will be the design folder for that project. If the application was opened with ODOTcadd standards and the project was set to 'No Project' or the application was opened with ODOTstd standards then the default location the search browser will start at will be the last selected location.





Only MicroStation files with the file extension of '.dgn' will be shown in the file browser. Select the appropriate file and hit Open in the file browser dialog. The selected file's name will be displayed in the boring file section as shown below. When the user hovers the cursor over the file name a tool tip will be displayed with the files full path. This is also shown in the image below. If the user hits the  button again the file browser will open to the location of the previously selected file.



Profile Tab:

This Section is used to add reference attachments of the boring graphics from the selected [Boring File](#) onto a GEOPAK profile cell. This section has two modes, Dropped Profile Cell and Un-dropped Profile cell.

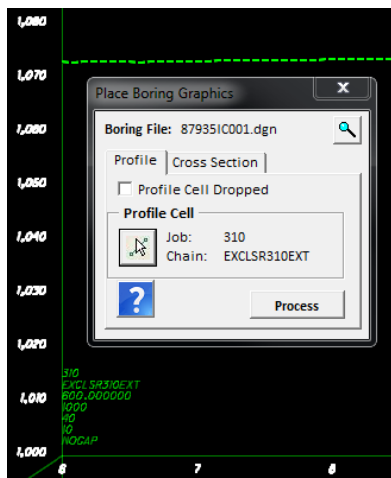
Profile Cell Dropped Checkbox:

This checkbox controls which mode to use. When it is not checked the undropped profile cell mode is used. This means that the needed data can be extracted from a profile cell. When the checkbox is checked the dialog will change to a dropped profile cell mode. This mode is used when the profile cell has been dropped and the necessary data cannot be extracted.

Un-dropped Profile Cell Mode:



This button is used to select a Profile cell in a MicroStation file. To select a profile cell the user needs to data point (left click) on a profile cell and then data point (left click) again to accept the selection or reset click (right click) to unselect the element. If the selection was a valid profile cell then the [Job](#) and [Chain](#) fields will be populated. In order of the profile cell to be selected it cannot be dropped and the working directory must be set to the correct location. See Image Below.





Job:

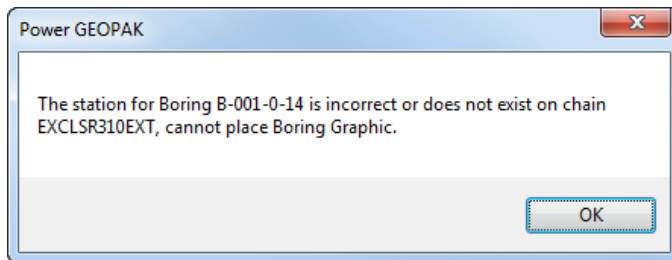
When a valid Profile cell is selected this field will be populated with the name of the job file associated with this profile cell.

Chain:

When a valid Profile cell is selected this field will be populated with the name of the chain associated with this profile cell.

Process Button:

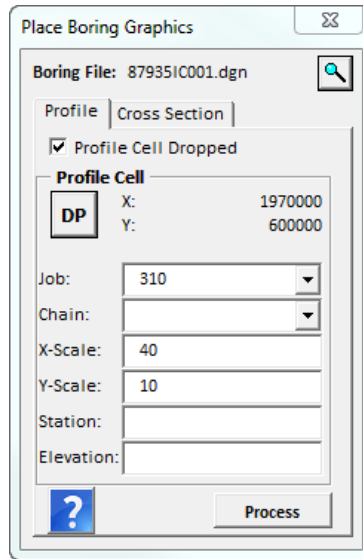
If this button is selected without a boring file set and Profile cell selected a message box will pop up telling the user to set these two things. If both are set then the [Boring File](#) is opened in the background and is searched for a tagset with the name ODOT_Boring_Prof_XS. This tagset was assigned to each boring location in the [Boring File](#) when the gINT Conversion Tool was used, more specifically the tags are added when the *Move to Models* button is selected in the gINT Conversion Tool application. This tagset contains one tag with the name of Data. The value for this tag contains the boring name, station, offset, and elevation. The application uses this information to add references at the correct location on the profile cell. Note that when the boring graphics are referenced to the profile cell, the application assumes a reference point on the reference file to be 0, 0. The 0, 0 point should be the location of the top center elevation of the boring graphic. The gINT Conversion Tool does this when the *Move to Models* button is selected. Each reference is attached with a description of 'Boring Profile Attachment' and Logical name of 'ODOT_Boring_Profile_Ref_X', where X is an incremental number to prevent duplicate logical names. The reference files scales are set by the scale the profile cell was placed at. Since the boring graphics contained in the [Boring File](#) do not have a chain associated with them the application cannot differentiate which boring graphics go with which chains. For this reason the workflow is to have a different [Boring File](#) for each alignment. So when using this application to place boring graphics on a profile cell the user will select the [Boring File](#) that contains the appropriate borings for that profile. This will insure that the selected profile cell will only get the appropriate boring graphics placed. If the boring's station is outside the range of the chain then the user will get the following message box.





Dropped Profile Cell Mode:

DP This button is used to set the base location of the dropped profile cell. This should be the lower right corner of the profile cell where the y-axis and x-axis meet. The user should select this button then data point (left click) on the desired location and the x and y location will be filled out in the dialog. The user can tentative snap (left and right click at same time) then data point (left click) to accept that snap as well. Note that the DP function will still be active so if the user data points again this will change the x and y values. See image below.



Job:

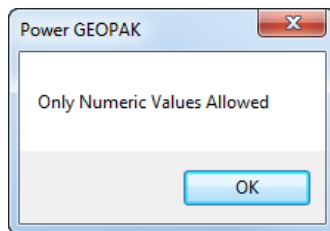
When the application is launched this drop down list is populated with all job files found at GEOPAK's working directory. It is important to set the working directory before launching this application. The only way to repopulate this dropdown is to close the application and re-launch it. By default this dropdown will be set to the first job file in the list.

Chain:

This dropdown list is populated with the names of all the chains found in the job file that's selected in the [Job](#) drop down list.

X-Scale:

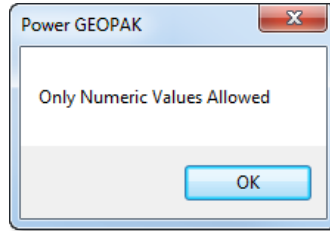
The user should set the x-scale the profile cell was drawn at. A default value of 40 is used. Only numeric values can be entered into this field. This value will be used to set the reference attachment scale. If a non-numeric value is entered the following message box will appear and the field will be cleared.





Y-Scale:

The user should set the y-scale the profile cell was drawn at. A default value of 10 is used. Only numeric values can be entered into this field. If a non-numeric value is entered the following message box will appear and the field will be cleared.

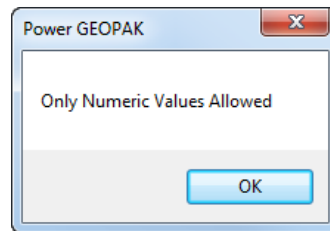


Station:

The user should enter the station of the base location of the profile cell (bottom left corner of profile cell where the x-axis and y-axis meet). If the station is after a station equation then the user must specify the region of the station. This is done by entering an R and then the region number after the station. For example STA. 104+42.04 R2 would be a station in region 2. If the entered station does not specify a region then it is assumed to be in region 1.

Elevation:

The user should enter the elevation of the base location of the profile cell (bottom left corner of profile cell where the x-axis and y-axis meet). Only numeric values can be entered into this field. If a non-numeric value is entered the following message box will appear and the field will be cleared.

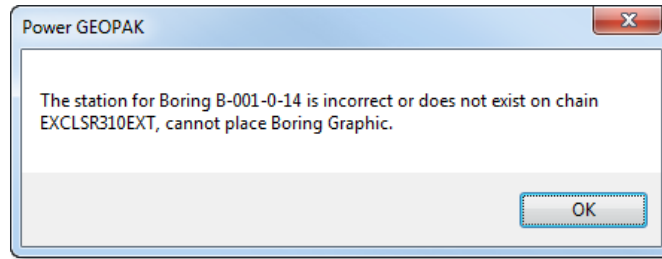


Process Button:

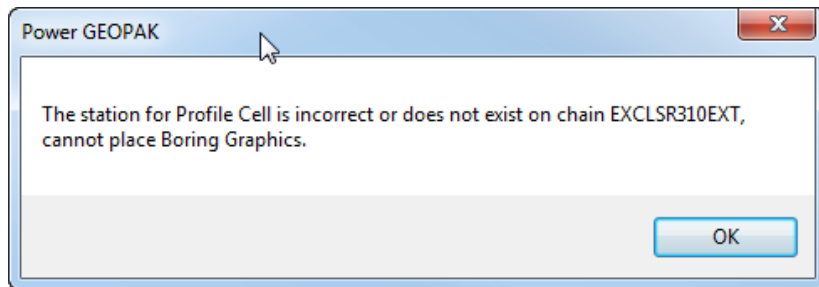
If this button is selected without a boring file set, X location, Y location, Job, Chain, X-Scale, T-Scale, Station, and Elevation then a message box will pop up telling the user to set these things. If all are set then the [Boring File](#) is opened in the background and is searched for a tagset with the name ODOT_Boring_Prof_XS. This tagset was assigned to each boring location in the [Boring File](#) when the gINT Conversion Tool was used, more specifically the tags are added when the *Move to Models* button is selected in the gINT Conversion Tool application. This tagset contains one tag with the name of Data. The value for this tag contains the boring name, station, offset, and elevation. The application uses this information to add references at the correct location on the profile cell. Note that when the boring graphics are referenced to the profile cell, the application assumes a reference point on the reference file to be 0, 0. The 0, 0 point should be the location of the top center elevation of the boring graphic. The gINT Conversion Tool does this when the *Move to Models* button is selected. Each reference is attached with a description of 'Boring Profile Attachment' and Logical name of 'ODOT_Boring_Profile_Ref_X', where X is an incremental number to prevent duplicate logical names. The reference files scales are set by the value entered in the [X-Scale](#) field. Since the boring graphics contained in the [Boring File](#) do not have a chain associated with them the application cannot differentiate which boring graphics go with which chains. For this reason the workflow is to have a different [Boring File](#) for each alignment. So when using this application to place boring graphics on a profile cell the user will select the [Boring File](#) that contains the appropriate borings for that profile. This will insure that



the selected profile cell will only get the appropriate boring graphics placed. If the boring's station is outside the range of the chain then the user will get the following message box.

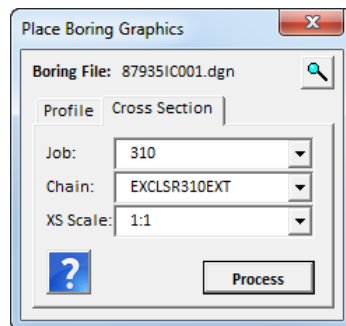


Since the profile cell is dropped the entered [Station](#) and [Elevation](#) are used to figure out the location to attach the boring graphic. The [X-Scale](#) is divided by the [Y-Scale](#) and used as the Y-axis exaggeration. This will insure that the boring graphics are placed at the correct elevation. If the [Station](#) entered does not exist on the selected [Chain](#) then the following message will appear and the processing will be canceled.



Cross Section Tab:

The cross section tab contains three dropdown boxes, [Job](#), [Chain](#), and [XS Scale](#). When the application is launched the active model in the active design file is searched for cross section cells. The chain associated with the first found cross section cell (if any) will be automatically selected in the [Chain](#) dropdown box. The user needs to make sure the working directory is correctly set. The working directory is using to populate the [Job](#) dropdown box. The working directory is searched for any files with a file extension of '.gpk', these files are added to the [Job](#) dropdown box when the application was launched. The first job file in the [Job](#) dropdown box is automatically selected when the application was launched. If a cross section cell was found in the active model of the active design file and the chain associated with that cross section cell is found in the automatically selected job file then the application will open with Cross Section tab activated. See image below.





Job:

When the application is launched this drop down list is populated with all job files found at GEOPAK's working directory. It is important to set the working directory before launching this application. The only way to repopulate this dropdown is to close the application and re-launch it. By default this dropdown will be set to the first job file in the list.

Chain:

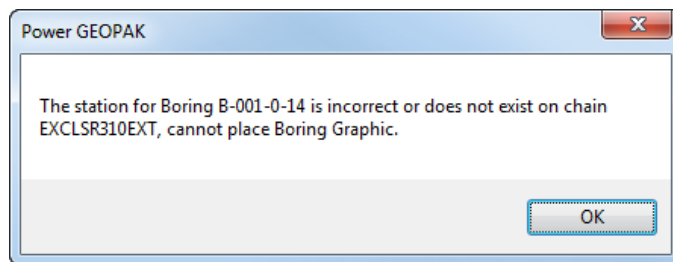
This dropdown list is populated with the names of all the chains found in the job file that's selected in the [Job](#) drop down list. When the application is launched the active design file is searched for GEOPAK cross sections. This dropdown list will be set to the first chain that is found that has cross sections in the dgn file. If not then by default it will be left blank.

XS Scale:

This dropdown list is populated with the following scales. 1:1, 1:5, 1:10, 1:20, 1:25, 1:30, 1:40, and 1:50. The user should select the scale that cross section sheets will be made in.

Process Button

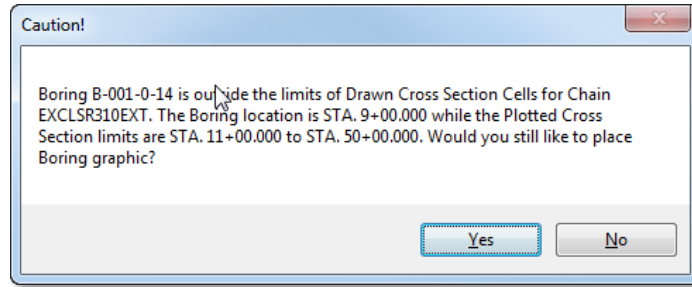
If this button is selected without a boring file, Job file and Chain set then a message box will pop up telling the user to set these things. If all are set then the boring file is opened in the background and is searched for a tagset with the name ODOT_Boring_Prof_XS. This tagset was assigned to each boring location in the boring file when the gINT Conversion Tool was used, more specifically the tags are added when the Move to Models button is selected in the gINT Conversion Tool application. This tagset contains one tag with the name of Data. The value for this tag contains the boring name, station, offset, and elevation. The application uses this information to figure out which cross section cell is closest to a given boring location and then adds a reference at the offset and elevation of the boring location on that cross section cell. Note that when the boring graphics are referenced to a cross section cell, the application assumes a reference point on the reference file to be 0, 0. The 0, 0 point should be the location of the top center elevation of the boring graphic. The gINT Conversion Tool does this when the *Move to Models* button is selected. Each reference is attached with a description of 'Boring XS Attachment' and Logical name of 'ODOT_Boring_XS_Ref_X', where X is an incremental number to prevent duplicate logical names. The reference files scales are set by the scale selected in the [XS Scale](#) dropdown list. Since the boring graphics contained in the [Boring File](#) do not have a chain associated with them the application cannot differentiate which boring graphics go with which chains. For this reason the workflow is to have a different [Boring File](#) for each alignment. So when using this application to place boring graphics on cross section cells the user will select the [Boring File](#) that contains the appropriate borings for that alignment. This will insure that the cross sections will only get the appropriate boring graphics placed. If the boring's station is outside the range of the chain then the user will get the following message box.





Cross Section Location Process:

Since Cross Sections will most likely be at different stations than the boring locations the following process is used to figure out what cross section cell the boring data should be referenced to. The Cross Section cell that has a station closest to the station of the boring is used. If the Station of the boring is before the lowest stationed cross section cell or after the highest stationed cross section cell then the user will get the following message. If the user selects Yes then the boring graphic will be referenced to the closest Cross Section cell, if the user selects No then the boring graphic will not be referenced.



Contacts

If you have any questions, suggestions, or problem with this application please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

<http://www.dot.state.oh.us/Divisions/Engineering/CaddMapping/CADD/Pages/Suggestions.aspx>
