

Pipes and Breaks

Pipes and Breaks is a small collection of tools used to place break lines, pipe breaks and pipe section geometry in MicroStation and other Bentley products. The open-source application is written in VBA and has been made available to users of Bentley software.

Installation

The applet should be installed in a location defined by the MicroStation Variable MS_VBASEARCHDIRECTORIES, although any location where the user has read access will suffice.

Typical locations include:

```
C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\Organization\Macros
```

```
C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WorkspaceName\Standards\Macros
```

```
C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WorkspaceName\WorkSets\WorkSetName\Standards\Macros
```

To install, unzip the contents of the distribution file to a folder of your choice.

Startup

The applet may be started via the VBA Projects dialog:

1. From the Utilities tab of MicroStation's ribbon select the *VBA Manager*.
2. Select *Open VBA Project from Disk* and navigate to the installation location. Choose **PipesAndBreaks.mvba** and then select *Open*. The applet will automatically run upon load.
3. Unchecking and rechecking "Loaded" will re-launch the applet after it has been terminated.



Key-ins may also be used to launch the applet:

- If the applet is already loaded or installed in a directory defined by MS_VBASEARCHDIRECTORIES, use the key-in:

```
vba run [PipesAndBreaks]Main.StartPipesAndBreaks
```

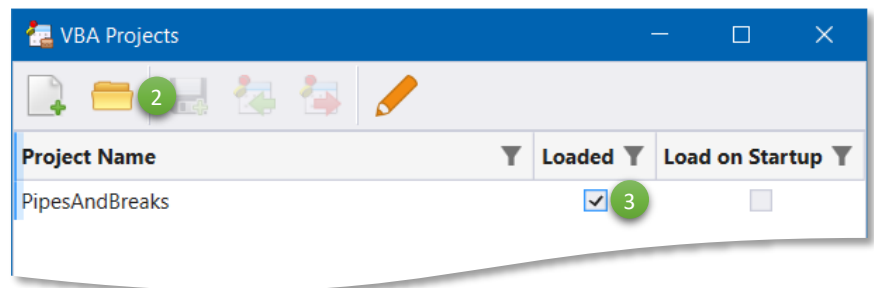
(recommended)

- To load and run the application from any location use the key-in:

```
vba load "C:\Path to File...\PipesAndBreaks.mvba"
```

Note: This key-in will not start the applet if it is already loaded.
- Use this concatenation of the preceding key-ins if you wish to load, launch (or re-launch if already loaded) the applet from a custom menu/tool and it is not installed in a directory defined by MS_VBASEARCHDIRECTORIES:

```
vba load "C:\Path to File...\PipesAndBreaks.mvba"; vba run [PipesAndBreaks]Main.StartPipesAndBreaks
```

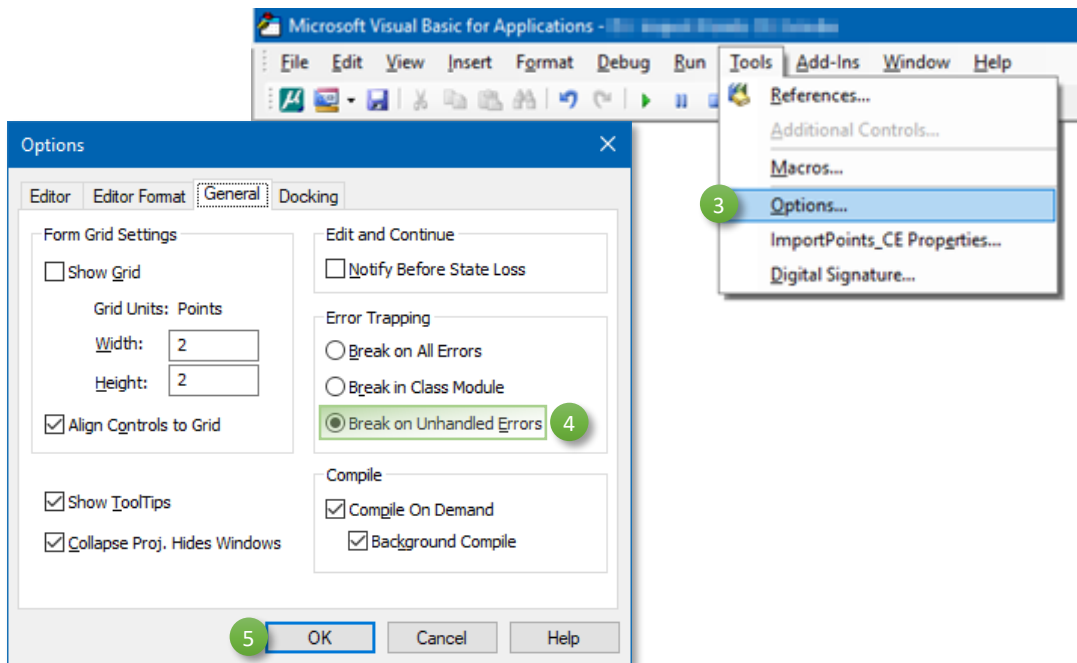
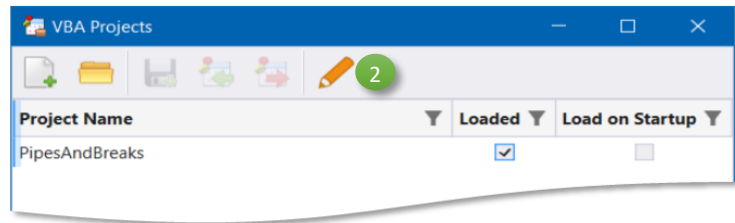


Environment Settings

Pipes and Breaks has “built-in” error detection. Consequently, *Error Trapping* in Microsoft’s Visual Basic for Applications integrated development environment should be set to *Break on Unhandled Errors*.

To adjust this setting:

- 1) Open the VBA Manager (VBA Projects) from the *Utilities* tab in the MicroStation ribbon.
- 2) From the VBA Projects dialog select the *Show the VBA Editor* icon. (This action requires a project is already loaded.)
- 3) Select *Options* from the *Tools* pull-down menu in the *Microsoft Visual Basic for Applications* window.
- 4) Under *Error Trapping* on the *General* tab of the Options dialog select *Break on Unhandled Errors*.
- 5) Select **OK**



Operation

The Pipes and Breaks primary form (below) consists of five placement tools, a symbology overrides toggle, and a button to access the settings and information about the software. The form will expand to display tool-specific settings after the tool has been selected.

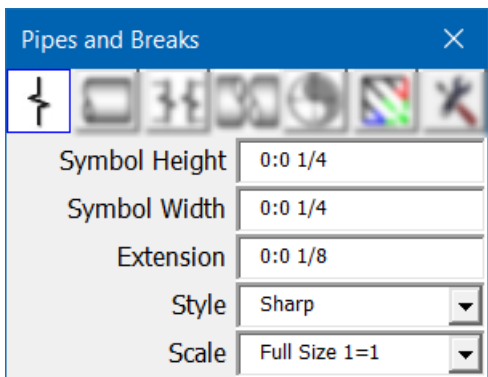


Pipes and Breaks primary toolbar/form

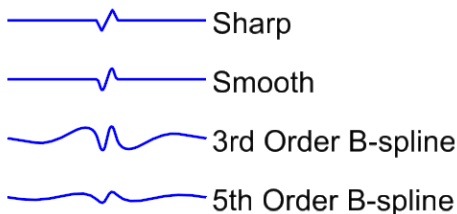


Place Break Line

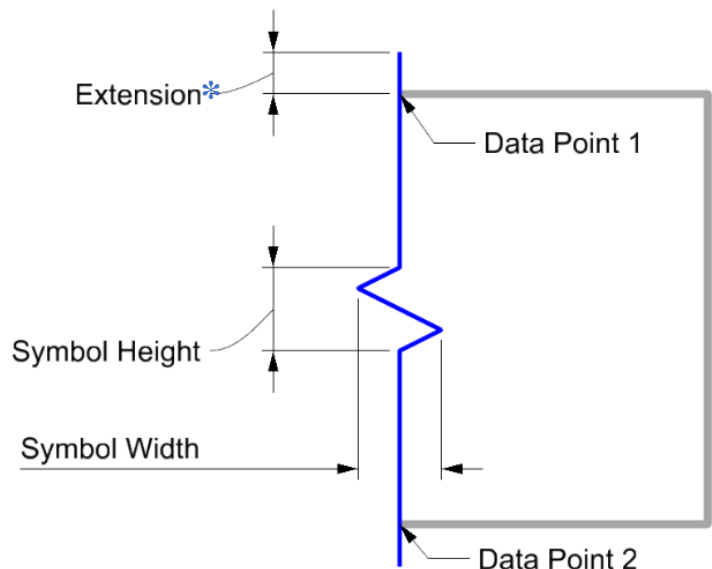
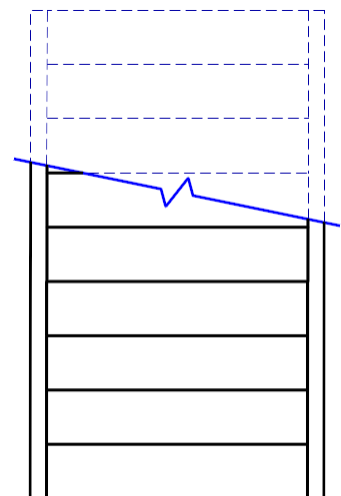
Place Break Line is a general break line tool which produces several styles of break geometry. Settings may be adjusted during placement and changes are immediately reflected in the placement dynamics. A particular scale may be selected, including the active annotation scale, however, break geometry will not respond to subsequent changes to the annotation scale.



Place Break Line Tool Settings



Break Line Styles



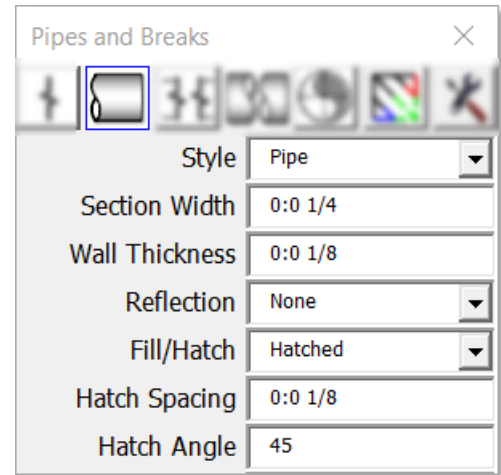
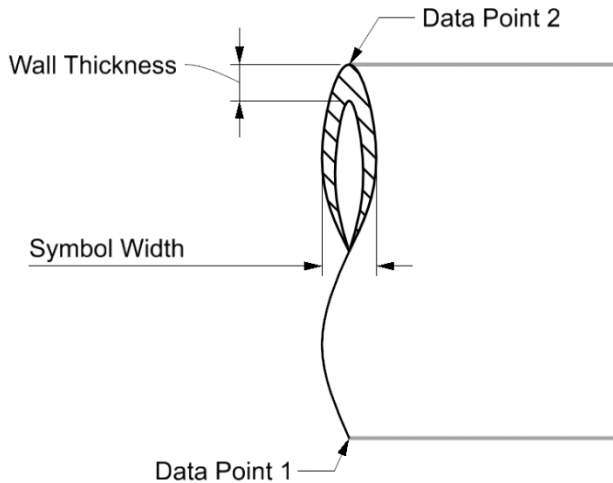
Dimensional components of the Break Line Symbol

* The Extension may be set to zero or a negative value.



Place Pipe Break

Place Pipe Break has three style settings: Simple, Solid and Pipe. The Solid and Pipe Settings include options for fill and hatching. Settings may be changed during placement; however, hatches and fills are not displayed dynamically but will appear upon completion of placement.

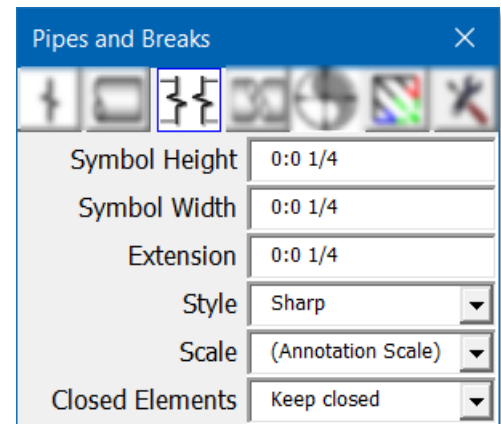


Place Pipe Break Tool Settings



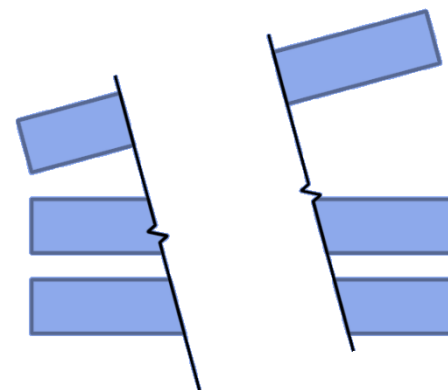
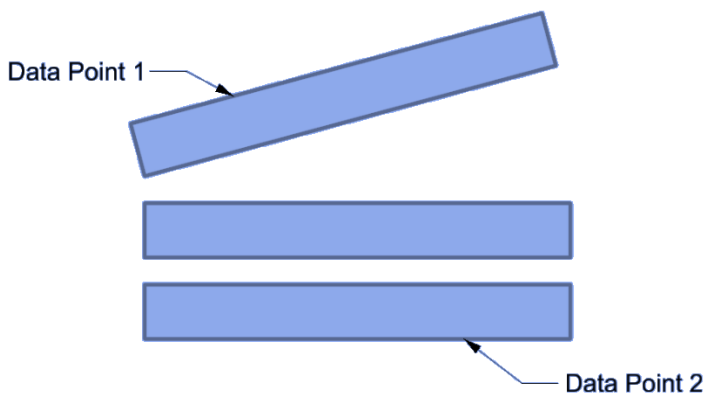
Place Double Break

Use *Place Double Break* to break and clear existing geometry. Break lines will be perpendicular to the first object selected. All geometry between the break lines will be removed.



Place Double Break Tool Settings

Start with three filled shapes...



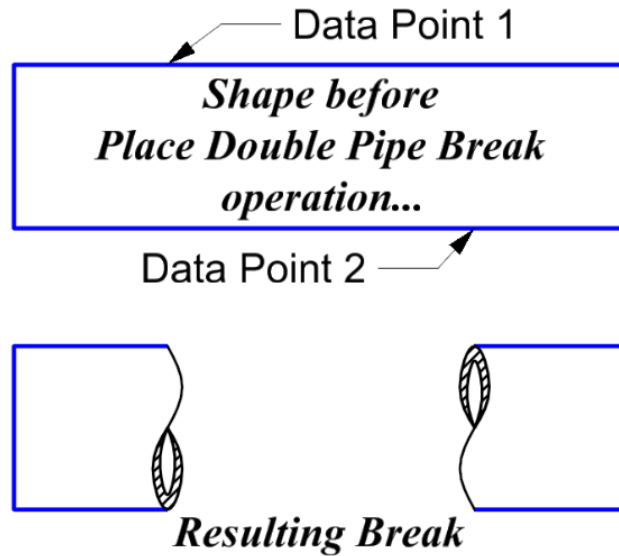
Finish with six filled shapes and break lines.



Place Double Pipe Break

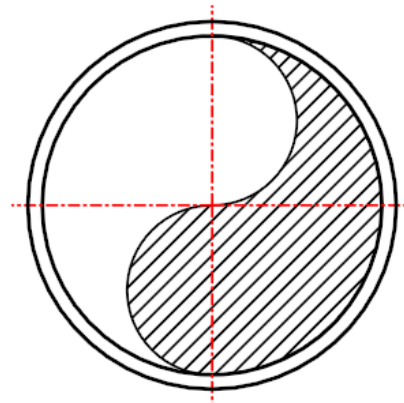
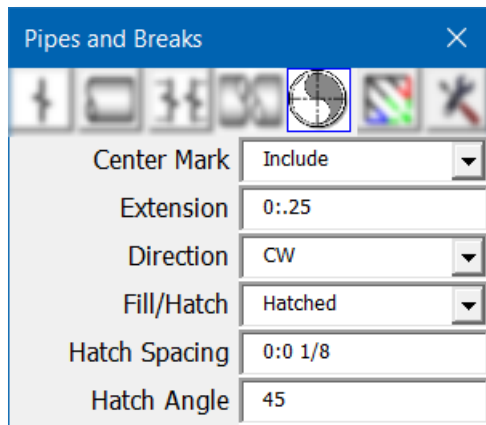
Use *Place Double Pipe Break* to create breaks on existing pipe geometry. Pipe Break geometry will be perpendicular to the first element selected. All geometry between the pipe breaks will be removed.

The tool settings for *Double Pipe Break* are identical to those found in *Place Pipe Break*.



Place Pipe Section

Place Pipe Section creates section geometry scaled to a selected circle (inside wall of pipe). The geometry may be dynamically rotated in 90-degree increments during placement. Fills and hatches will display after placement. This tool may also be used to place a center mark on any circle or arc by setting the *Center Mark* option to "Only."





Symbology Overrides

When the Symbology Overrides toggle is engaged, components will be placed using the override symbology as defined in the Settings/About dialog (see following).



Settings/About

In addition to several settings-related tools and important information about this software, the Settings/About dialog enables users to adjust symbology overrides for various components (break line geometry, hatches etc.) Symbology overrides are independent of the dgn file and will be preserved when MicroStation is re-opened.

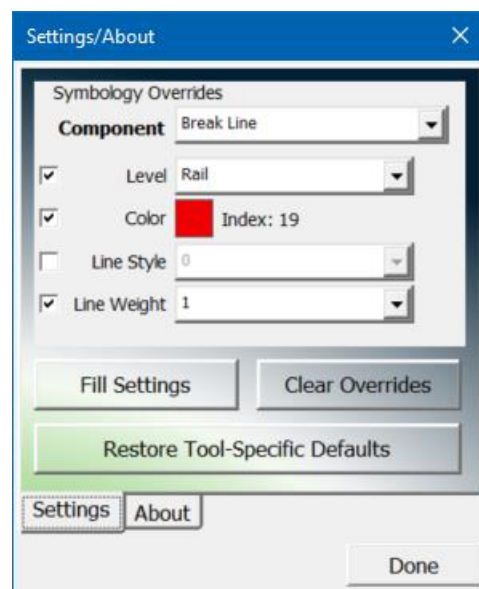
Symbology overrides may be set for these components:

- Break lines,
- Pipe Break Geometry
- Pipe Break Hatching
- Pipe Section Geometry
- Pipe Section Hatching
- Pipe Section Center Marks
-

Fill Settings opens the Change Element Fill tool settings.

Clear Overrides resets symbology overrides for all components.

Restore Tool-Specific Defaults resets the options and dimension settings for all the placement tools.



Notes:

- 1) This applet will work with any unit type (Metric or Imperial). Dimensional settings entered by the user are assumed to be in the units of the active model. Dimensional settings are stored as text and are measurement system agnostic. Consequently, moving between models with differing measurement systems or changing a model's working units will require adjustment to these settings.
- 2) These tools are designed to work in a 2D environment. Geometry placed in a 3D model will be aligned to the top view.

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