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## Chapter 12: Printing

Printing changes, or enhancements, have been release with MicroStation version V8i. These changes include: plot file migration from .plt to .pltcfg, Print Definition files, Print Organizer (replaces Batch Print), Print Dialog revisions, and more. This chapter will discuss the printing files & procedures used for CFLHD projects as well as how CFLHD has incorporated the V8i printing changes.

### CFLHD Print Files

#### Print Drivers

Print Drivers have many properties that can be set. The main functions are to define features such as: default printer, default Pen Table, paper sizes (including defaults), weight maps, default line style patterns. There are new features within the V8i .pltcfg files, and existing .plt files are still supported. However, new drivers (.pltcfg) have been created for CFLHD use to improve printing performance.

*Note that there are no longer specific drivers for print orientation (landscape or portrait). These are not needed as the software can automatically determine the orientation of a fence or plot shape/cell.*

#### Pen Tables

Pen tables are files that contain directions for resymbolizing the printed output of design or sheet files. The updated V8i pen tables have created sections where there are input and output actions for specific selection criteria.

CFLHD uses three standard pen tables for MicroStation printing. Pen tables are automatically loaded with a specific plot driver. If settings of the same feature are different in both the print driver and pen table, the pen table will govern over the print driver. CFLHD uses the resymbolizing function for specific element shading or to disable the plot function of specific elements. Additionally, the Text Substitutions feature is used in the pen tables to print files specific information such as file name & path, date, and user. The three pen tables used at CFL are:

- CFL\_GrayScale.tbl
- CFL\_Color.tbl
- CFL\_ROW.tbl

Pen Tables are located at:

**N:\V8i\_resource\CFL\_Local\MicroStation\Print\PenTables\**

At CFL there are several combinations of plot drivers and pen tables for both 11x17 and 8 ½ x 11, and for both color and black & white. Listed in the tables below are the plot drivers (.pltcfg), the pen tables (.tbl) that are automatically attached, and the output produced for each combination.

Plot Drivers are located at:

**N:\V8i\_resource\CFL\_Local\MicroStation\Print\PlotDrivers**



| Plot Driver  | Pen Table (Attached Automatically) |
|--|------------------------------------|
| <b>Description</b>   |                                    |
| Adobe_PDF.pltcfgr  | CFL_GrayScale.tbl                  |
| <p><u>Printer/Location:</u> <b>No Physical Printer</b><br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b>, ANSI C-22x17, ANSI D-34x22, ANSI E-44x34<br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Basic Adobe output <b>in black and white</b>. Fades the P&amp;P and XS sheet grid, and everything on levels E_*. All other elements are plotted with color = black. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods.</p>  |                                    |
| Adobe_PDF_color.pltcfgr  | CFL_Color.tbl                      |
| <p><u>Printer/Location:</u> <b>No Physical Printer</b><br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b>, ANSI C-22x17, ANSI D-34x22, ANSI E-44x34<br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Basic Adobe output <b>in color</b>. Plots all elements with color shown on screen except black screen background changed to white background in plot. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods.</p>  |                                    |
| CFL_AD1_HP.pltcfgr   | CFL_GrayScale.tbl                  |
| <p><u>Printer/Location:</u> <b>CFLAD1AP</b> on cflprnt1.cflhd.local (HP LaserJet 5200 PCL 5e) - Located in Design Area 1<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Black &amp; White, and GrayScale prints. Fades the P&amp;P and XS sheet grid, and everything on levels E_*. All other elements are plotted with color = black. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods.</p>   |                                    |
| CFL_AD2HP.pltcfgr  | CFL_GrayScale.tbl                  |
| <p><u>Printer/Location:</u> <b>CFLAD2</b> on cflprnt1.cflhd.local (HP LaserJet 700 M712 PCL 6) - Located in Design Area 2<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Black &amp; White, and GrayScale prints. Existing elements and grids are shaded. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods.</p>  |                                    |
| CFL_Canon_820.pltcfgr  | CFL_GrayScale.tbl                  |
| <p><u>Printer/Location:</u> <b>CFICanon820</b> on cflprnt1.cflhd.local (Canon iPF820, large format color roll) - Located in 2nd Floor Plot Room<br/> <u>Paper Sizes:</u> ANSI B-17x11, ANSI C-22x17, <b>ANSI D-34x22(default)</b>, ANSI E-44x34<br/> <u>Orientation:</u> Landscape or Portrait - 36" roll (standard), 42" roll (optional)<br/> <u>Output:</u> Black &amp; White, and GrayScale prints. Fades the P&amp;P and XS sheet grid, and everything on levels E_*. All other elements are plotted with color = black. <b>Typically used for full-size plan sheets. Must modify printer settings for roll plots.</b></p> |                                    |
| CFL_Canon_820_color.pltcfgr  | CFL_Color.tbl                      |
| <p><u>Printer/Location:</u> <b>CFICanon820</b> on cflprnt1.cflhd.local (Canon iPF820, large format color roll) - Located in 2nd Floor Plot Room<br/> <u>Paper Sizes:</u> ANSI B-17x11, ANSI C-22x17, <b>ANSI D-34x22(default)</b>, ANSI E-44x34<br/> <u>Orientation:</u> Landscape or Portrait - 36" roll (standard), 42" roll (optional)<br/> <u>Output:</u> Full-color large format/roll prints. Plots all elements with color shown on screen except black screen background changed to white background in plot. <b>Typically used for full-size plan sheets. Must modify printer settings for roll plots.</b></p>         |                                    |
| CFL_Design_Konica.pltcfgr  | CFL_GrayScale.tbl                  |



|   |                          |
|---|--------------------------|
| <p><u>Printer/Location:</u> <b>CFIDesignKonica</b> on cflprnt1.cflhd.local (KONICA MINOLTA C554SeriesPCL) - Located in 2nd Floor Plot Room<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Black &amp; White, and GrayScale prints. Fades the P&amp;P and XS sheet grid, and everything on levels E_*. All other elements are plotted with color = black. <b>Adds file name/date/time stamp at lower left edge of sheet border.</b> Can be used with single or multiple sheet printing methods.</p>   |                          |
| <b>CFL_Design_Konica_Color.pltcfg</b>   | <b>CFL_Color.tbl</b>     |
| <p><u>Printer/Location:</u> <b>CFIDesignKonica</b> on cflprnt1.cflhd.local (KONICA MINOLTA C554SeriesPCL) - Located in 2nd Floor Plot Room<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Plots all elements with color shown on screen except black screen background changed to white background in plot. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods. <b>Printer default is set to black &amp; white. Must change the printer settings to get color output.</b></p>           |                          |
| <b>CFL_AD1_Konica.pltcfg</b>  | <b>CFL_GrayScale.tbl</b> |
| <p><u>Printer/Location:</u> <b>CFLAD1Konica</b> on cflprnt1.cflhd.local (KONICA MINOLTA C364SeriesPCL) - Located in Design Area 1/Survey common area<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Black &amp; White, and GrayScale prints. Existing elements and grids are shaded. <b>Adds file name/date/time stamp at lower left edge of sheet border.</b> Can be used with single or multiple sheet printing methods.</p>   |                          |
| <b>CFL_AD1_Konica_Color.pltcfg</b>  | <b>CFL_Color.tbl</b>     |
| <p><u>Printer/Location:</u> <b>CFLAD1Konica</b> on cflprnt1.cflhd.local (KONICA MINOLTA C364SeriesPCL) - Located in Design Area 1/Survey common area<br/> <u>Paper Sizes:</u> ANSI A - 11x8.5, <b>ANSI B-17x11(default)</b><br/> <u>Orientation:</u> Landscape or Portrait<br/> <u>Output:</u> Plots all elements with color shown on screen except black screen background changed to white background in plot. Adds file name/date/time stamp at lower left edge of sheet border. Can be used with single or multiple sheet printing methods. <b>Printer default is set to black &amp; white. Must change the printer settings to get color output.</b></p> |                          |

Table 12-1: Driver/Pen Table Descriptions

## CFLHD Print Methods

### MicroStation Print (Print Dialog)

The MicroStation Print Dialog continues to be a common way to print single or multiple plan sheets. The typical practice is to place a fence including the area desired to be printed. In most cases, this is the plot shape within the CFLHD border sheet. Once the Print Dialog is invoked, the previous print session's driver is loaded. The user must browse for and select the desired driver. (The MicroStation workspace environment has been developed to automatically open the location for standard drivers.) All other plot parameters should then be verified and/or set in the print dialog, and then the print function is selected.

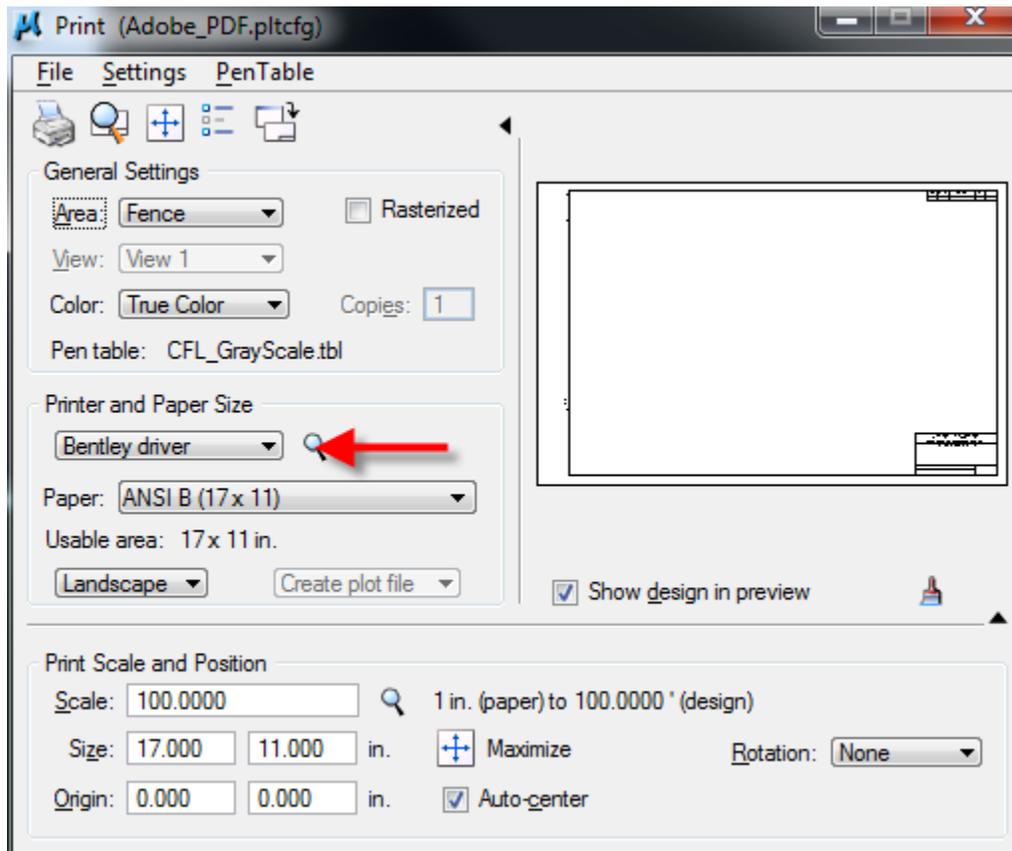


Figure 12-1: Print Dialog (Adobe.pltcf example)

### Print Organizer

Print Organizer is a new utility in V8i that is used for creating, managing, and publishing project plan sheets. This new utility replaces the Batch Print utility used in MicroStation V8.

#### Print Set Files

Similar to Batch Print “print jobs” with a .job extension, Print Organizer stores project print jobs in a “print set” file with a .pset extension. CFL has a number of sample Print Set files that can be copied and modified for project specific needs. The sample files contain the Roadway group’s plan set structure for organization. The CFL MicroStation environments automatically point to the location of the sample Print Set

files when File>Open is selected. Or, they can be found at:  
**N:\V8i\_resource\CFL\_Local\MicroStation\Print\PrintSetFiles\**

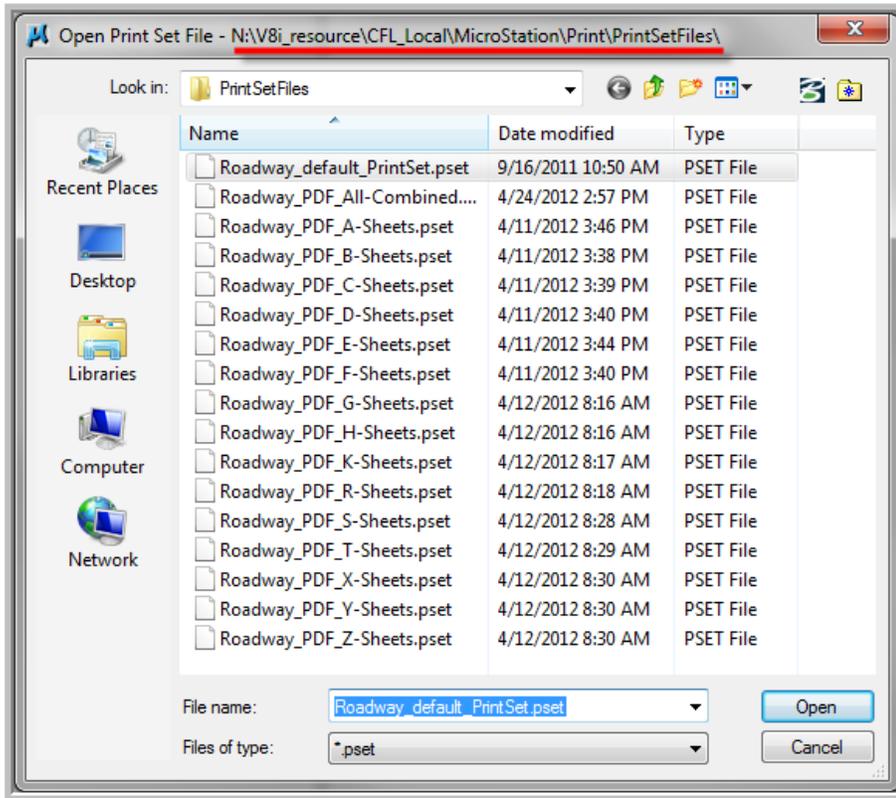


Figure 12-2: CFL Print Set Files

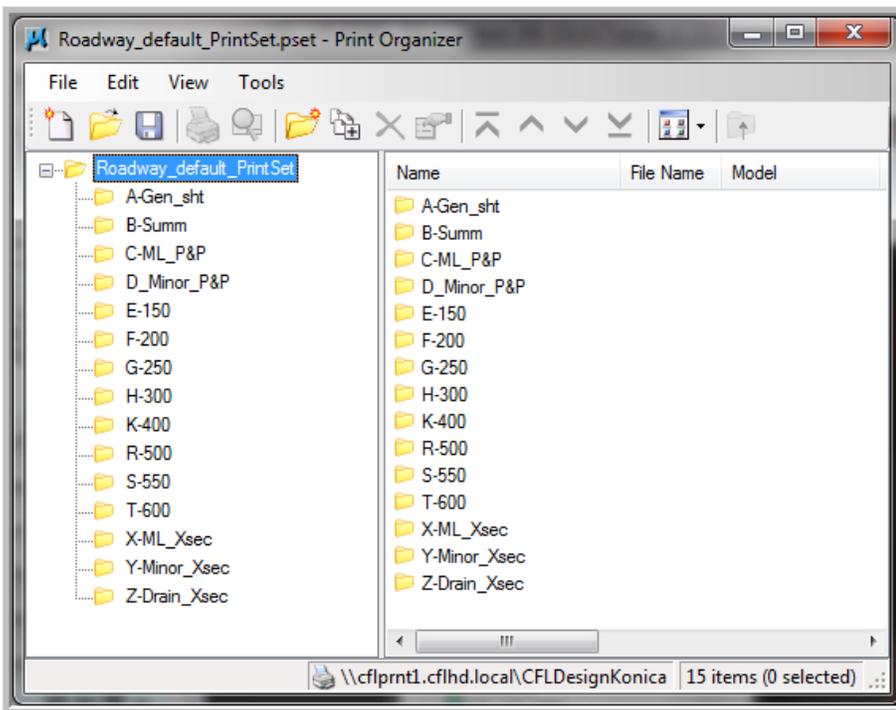


Figure 12-3: CFL “sample” .pset Folders

## Print Definitions

Print Organizer allows you to individually set print preferences per item as opposed to Batch Print's existing per set attributes. Each print definition consists of a reference to a DGN file to be published, like a sheet model in a DGN file, along with properties, like size, scale, and form name that determine how the DGN file will be published within the print set. Having per print definition print settings allows you to specify a different pen table or print area for each print definition in the print set.

## Print Styles

Print Styles allow you to define and reuse named collections of print definition properties. Print Styles are created using Print Organizer's Define Print Styles option on the Tools menu, and are stored in the open DGN file or in the configured DGN libraries. CFL stores Print Styles within a DGN library (.dgnlib) located at:

**N:\V8i\_resource\CFL\_Local\MicroStation\Library\_Files\CFL\_Print\_Styles.dgnlib.** Print Styles are applied using Print Organizer or the Print dialog.

Print Styles are similar to the Batch Print specification (.spc) files, and are useful if you frequently use the same print definition properties every time you print. For example, if you always print at a particular size with a specific pen table, you can define those print definition properties in a Print Style and have them automatically applied to a print set. This is accomplished by identifying a print style as a default print style or by assigning a print style to a printer driver configuration file. CFL's Print Styles are shown below:

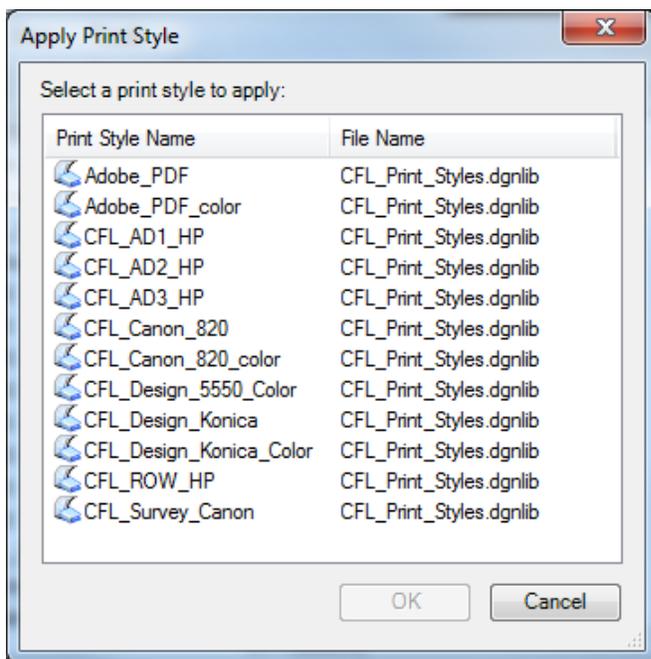
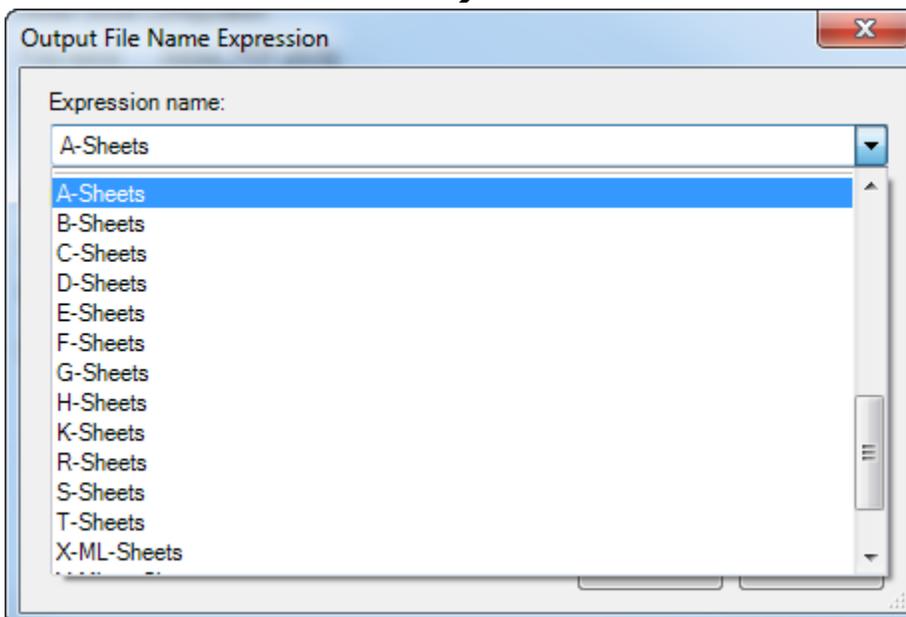
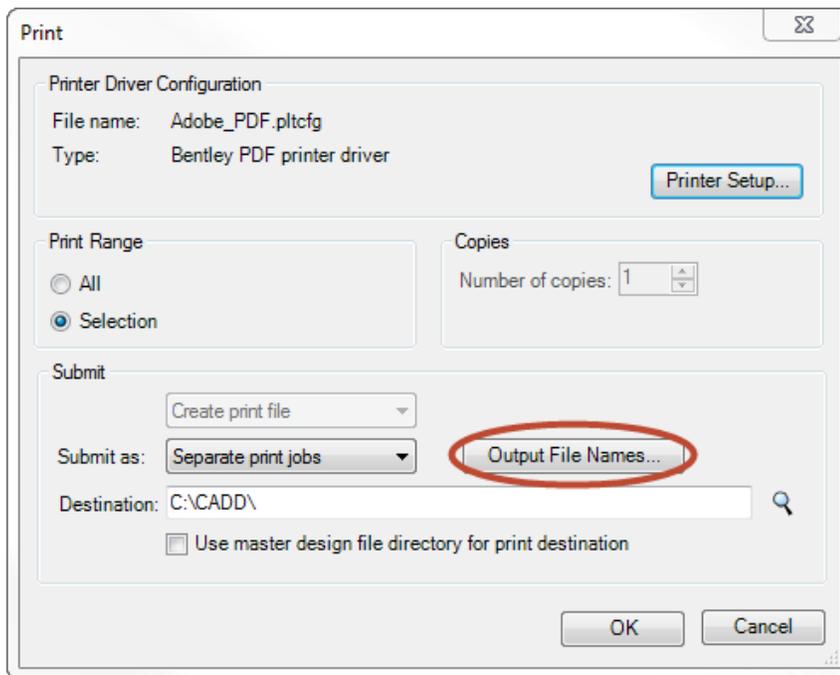


Figure 12-4: CFL Print Styles

### Named Expressions options with printing

Print Organizer supports named expressions for print definition and output file names. Named expressions are created using the product's Named Expressions dialog and are stored in the configured DGN libraries. Once the named expressions are defined, they are visible in the appropriate Print Organizer dialogs.

CFL has created some Named Expressions to help aid the production of final plans that are submitted to the Acquisitions office. PDF file names delivered to contracting must be names as the sheet number in the upper right corner of each sheet.



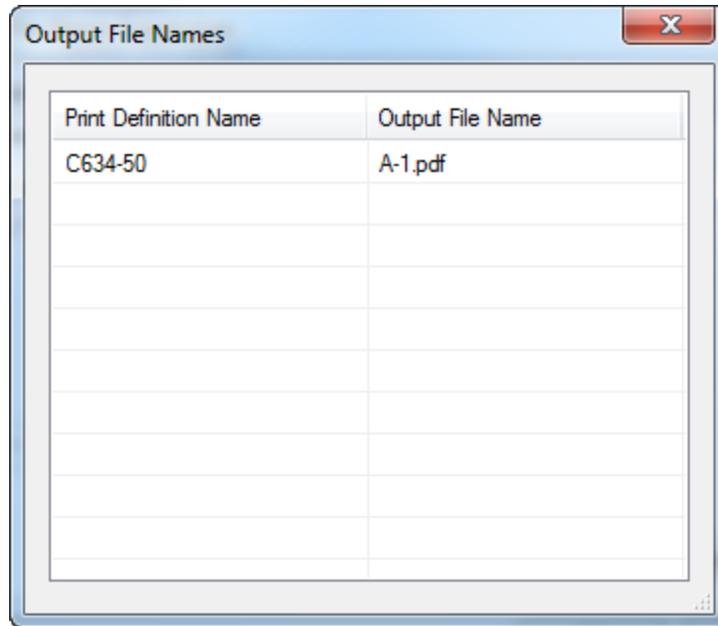


Figure 12-5: Named Expressions (PDF output file names)

## Workflow 1: Using Print Organizer

To access this workflow, follow this link:

[http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow\\_12.1m\\_v8i.pdf](http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_12.1m_v8i.pdf)

### CFL Plot Utility

To automate CFL's printing processes and preferences, a MicroStation Visual Basic Application (.mvba) was developed. In addition, the Batch Print utility is continued through this application. Print Organizer has not yet been included.

The standard MicroStation environments automatically load the cflplot.mvba. Once loaded, the utility can be invoked by key-in: "vba run cflplot". If this application needs to be loaded/run manually, it can be found at:

**N:\V8i\_resource\CFL\_Local\MicroStation\MVBA\cflplot.mvba.**

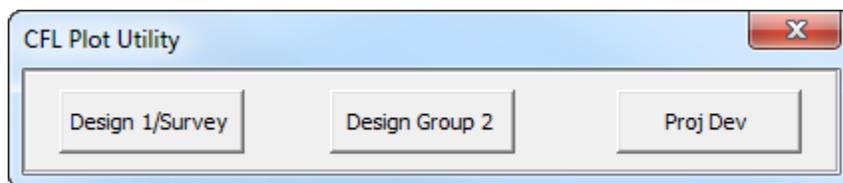


Figure 12-6: CFL Plot Utility (cflplot.mvba)