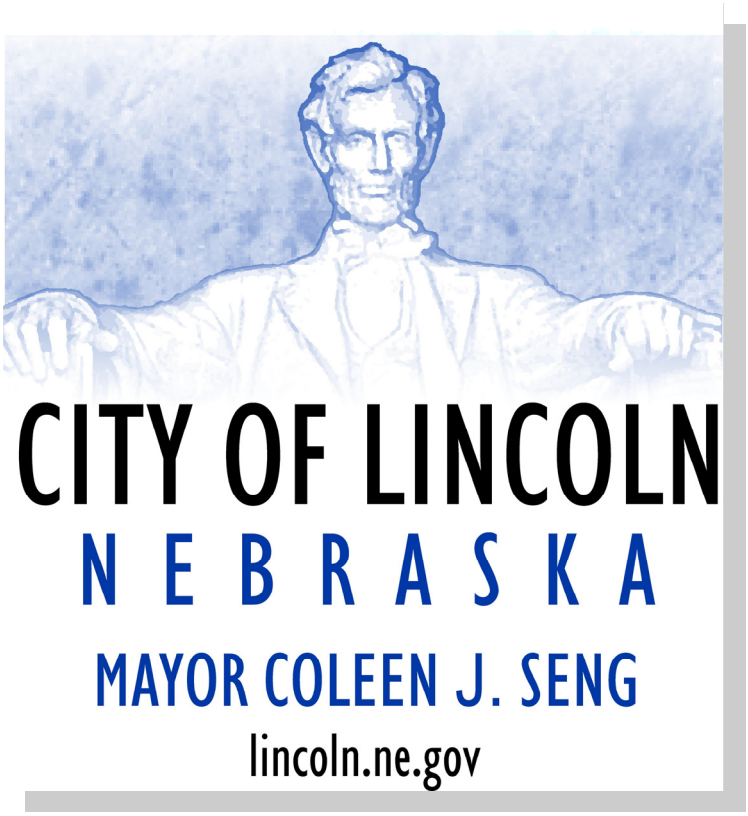
Print Production



City of Lincoln

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PUBLIC WORKS & UTILITIES

Working together to provide quality services to our community

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Print Production

Introduction

There has been a tremendous amount of intelligence add to MicroStation V8 Print command. Using System printers, Pentables and batch plotting are just a few. Public Works & Utilities has developed printing standards to take advantage of these items.

Plots can be produced using a MicroStation V8.5 plot configuration file (*.plt) to set and control the actual physical thickness of plotted information. A few plot files have been created for standard printers and are located in the following directory:

J:\Resources\CityWorkspace\Standards\plotdrv

These plot configuration files can be modified to fit the needs of the project. However, the plot must conform to the standard line weights. *See Table 5*

The only modification necessary to the plot driver, if used with the proper plotter, will be to change the **\\servername\printername** to direct the output to the proper device.

With the introduction of PDF support within MicroStation, LPW&U has begun taking advantage of the possibilities. The QA/QC Committee is currently developing standards for the usage of PDF files for plan review. The creation of a PDF document set creates an instant archival of any printed document. It will greatly reduce paper usage as well as saving a

Print Requirements

- Workspace
- Print Driver
- Pen Color Assignments
- Line Weights
- Pentables
- Borders
- Plotting Macros
- Printer Specifations
- Batch Plot
- Logical Naming
- PDF Composer

Workspace

Introduction

Plotting requirements are built into the LPW&U Workspace. The default printer is located Within the **Lincolnv851.cfg.** Along with preserving the Plot Scale and Resetting the Plot Dialog upon closing of the command. The **ProjNo.cfg** determines project specific details such as text substitution, output location and batch plotting. *See CADD Standards –Workspace XX Page for additional information.*

Lincolnv851.cfg

```
…
#----------------------------------------------------------------------
#   Standard City Plot Driver
#----------------------------------------------------------------------
MS_PLTR                                 =
        $(_CITY_STANDARD)Plotdrv/Konica_03.plt
MS_PLOTDLG_DEF_PLTFILE                  =
        (_CITY_STANDARD)Plotdrv/Konica_03.plt

#----------------------------------------------------------------------
#  Set Project BatchPlot
#----------------------------------------------------------------------
MS_BATCHPLT_SPECS                       =
$(_CITY_STANDARD)Data/batchplt.spc
…
#----------------------------------------------------------------------
#   Preserves Plot Scale - Plot
#----------------------------------------------------------------------
MS_PLT_ENABLE_PRESERVE_SCALE  = 1
MS_PLT_MAX_ON_NEW_AREA        = 1
…
#----------------------------------------------------------------------
#   Reset Plot Dialog upon close - Plot
#----------------------------------------------------------------------
MS_PLTDLG_UNLOADONCLOSE       = 1
MS_PLTFILE_EDITOR             = HIDE_MENU_ITEM
```

ProjNo.cfg

```
…
#----------------------------------------------------------------------
#   Set Project Text Substitution
#----------------------------------------------------------------------
PU_PROJECT                              =
        $(_USTN_PROJECTDESCR)
PU_NUMBER                               = Need A Number
Print_Date                              = GET A DATE
PU_SUBMITTAL                            = SUBMITTAL
…
#----------------------------------------------------------------------
#   Set Project Pentable and Output Directory
#----------------------------------------------------------------------
MS_PLTFILES                             = $(Plot)plotfiles/
…
#----------------------------------------------------------------------
#   Set Project BatchPlot
#----------------------------------------------------------------------
MS_BATCHPLT_SPECS                       = $(Plot)batchplt.spc
MS_BATCHPLT_JOBSET_DIR                  = $(Plot)
…
```


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Print Drivers

Customizing printer drivers

Not everyone wants the same default settings for printing as those in the delivered printer drivers. In these cases you can modify your printer driver to suit, using an ASCII text editor, such as Windows Notepad.

When you modify a sample printer driver, it is a good idea to retain the original file in its default location, and to save the modified file with a different name, in a separate directory. MicroStation provides you with a separate directory for this purpose — "…Workspace\standards\plotdrv". As well as customized printer drivers, you could use this directory to store copies of all printer drivers that you commonly use. This helps to ensure that your modified files are not over-written during a subsequent software update, or re-install.

Introduction

Creating one all-encompassing plot driver seems to be Bentley's goal with the introduction of the system printer in MicroStation V8. For the most part the **Printer.plt** does just fine, however there are just too many issues with all the variety of printers. Things like lineweight, margin size, halftoning and color output can and will create problems. We have found the most efficient way is to still individualize the **Printer.plt** to each specific system printer. Therefore we are able to specialize and conform to each printer to meet our standard. *See Table 1*

These printers look for a server printer. It is necessary to have standards for installing these printers. That way every person using the **Printer.plt** will be seeing and using the same printer.

Provided with MicroStation standard installation are the following MicroStation plot drivers.

Accessing specific Windows system printers

When you select Windows Printer, prints are sent to the printer specified by the "sysprinter" record. If no name is supplied, then the default Windows system printer is used. You can, however, configure this printer driver to send prints to other accessible printers on your network. The recommended way to do this is to create a copy of "printer.plt" in which the other printer is named in the sysprinter record.

MicroStation Plot Driver	RCSfile	Revision	Date
HP1050C sieip04 B&W.plt	hpglrtl.plt	7.25	08/12/2002 18:04
HP1050C sieip04 CO.plt	hpglrtl.plt	7.25	08/12/2002 18:04
Konica_03.plt	printer.plt	7.37	07/16/2002 19:42
Konica_05C.plt	printer.plt	7.37	07/16/2002 19:42
PDF B&W.plt	pdf.plt	1.1.2.21	12/23/2004 17:09
PDF Color.plt	pdf.plt	1.1.2.21	12/23/2004 17:09
EMF.plt	emf.plt	7.16.6.5	02/06/2004 20:55

Table 1

- **Printer.plt** **LINE 290:** sysprinter /name="\\DP\siecp03" /form='11" X 17"' /units=in /orientation=L ;/fullsheet /offset=(0.17,0.17)
- **Hpglrtl.Plt** **LINE 47:** default_outFile/auto_overwrite = \\CEIS\SIEIP04

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Pen Color Assignments

pen

Defines the parameters that determine which pens to use to draw individual elements and specify the velocity, force and acceleration of each pen (when possible).

Syntax: pen(pen_number)=(<colors, weights, or levels>)[options]

Introduction

Within each Print Driver, all pens are allowed to plot. **num_pens = 255** Setting the number of pens to equal 255 allows for assigning values to any pen color. This allows for more consistency with color and halftoning. *See Table 2 & 3*

Standard Pen Color assignments are described with each of the PW&U MicroStation Print drivers. Pen Color 250-254 are slated for specific halftones. The difference between Black & White plotter and Color plotters is the controlling of Pen 0-250. *See Table 4*

Black and White Plot Pen / RGB Assignments		
Pen Assignment	RGB Color	Description
pen(1)=(0-250)	/rgb=(0,0,0)	black
pen(251)=(251)	/rgb=(204,204,204)	fill - 20% Grey
pen(252)=(252)	/rgb=(179,179,179)	fill - 30% Grey
pen(253)=(253)	/rgb=(153,153,153)	fill - 40% Grey
pen(254)=(254)	pen(5)=(254)/rgb=(255,255,255)	white

Table 2

Color Plot Pen / RGB Assignments		
Pen Assignment	RGB Color	Description
pen(250)=(250)	/rgb=(0,0,0)	black
pen(251)=(251)	/rgb=(204,204,204)	fill - 20% Grey
pen(252)=(252)	/rgb=(179,179,179)	fill - 30% Grey
pen(253)=(253)	/rgb=(153,153,153)	fill - 40% Grey
pen(254)=(254)	pen(5)=(254)/rgb=(255,255,255)	white

Table 3

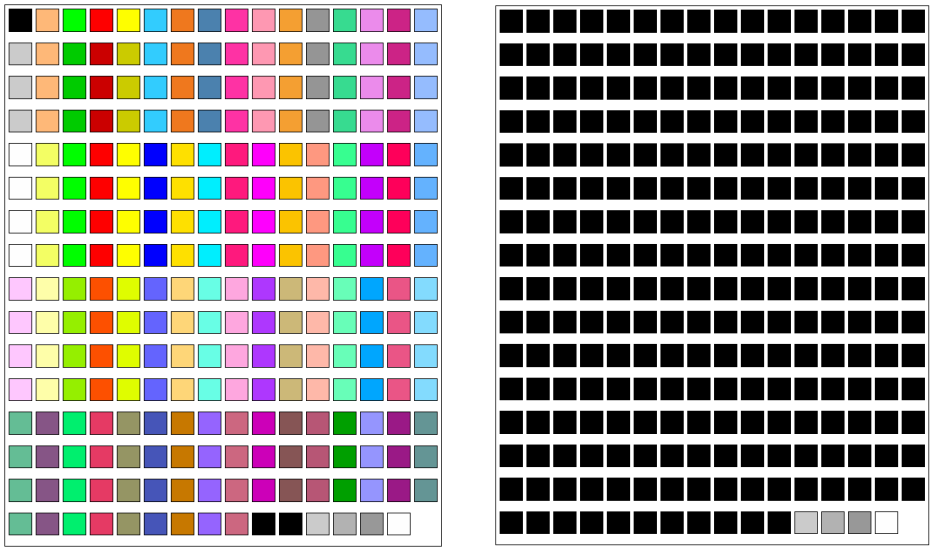

Table 4

Line Weight

weight_strokes

Specifies the mapping of MicroStation line weights to line thicknesses in the printed output.

Syntax: weight_strokes(units)=(list)

Introduction

Line Weight specifies the mapping of MicroStation line weights to line thicknesses in the printed output. Line weight is an index in the range 0 to 31 that designates the weight or thickness of the line used to draw or plot a graphic element. Each element has its own line weight. The standard line thickness or width of a plotted graphic element in inches or millimeters for Laser, Electrostatic, or Ink Jet plotters shall be as follows: *See Table 5*

Standard LPW&U Line Weights

Weight Strokes(mm)=															
0	0.125	**1**	0.187	**2**	0.250	**3**	0.310	**4**	0.375	**5**	0.437	**6**	0.500	**7**	0.563
8	0.625	**9**	0.688	**10**	0.750	**11**	0.813	**12**	0.875	**13**	0.938	**14**	1.000	**15**	1.063
16	1.125	**17**	1.188	**18**	1.250	**19**	1.313	**20**	1.375	**21**	1.438	**22**	1.500	**23**	1.563
24	1.625	**25**	1.688	**26**	1.750	**27**	1.813	**28**	1.875	**29**	1.938	**30**	2.000	**31**	2.063

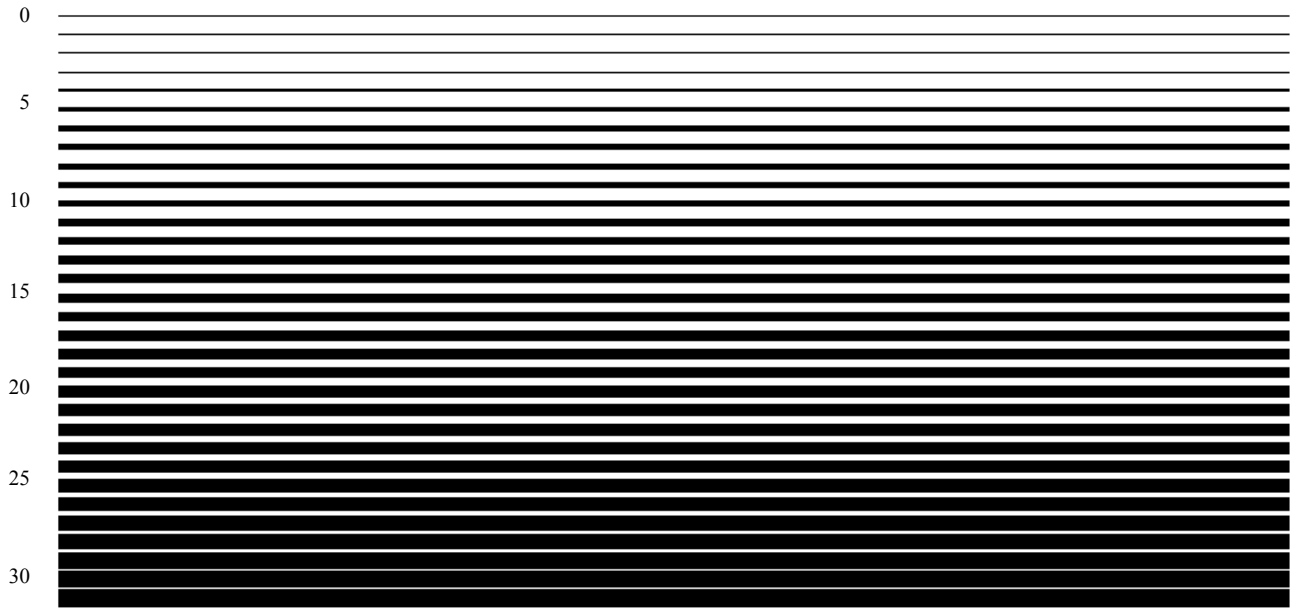

Table 5

Pentables

Pen tables

Pen tables are ASCII text files that are created automatically when you use the Pen Table dialog boxes to create or modify pen tables. They contain instructions for resymbolizing the printed output of design files. The instructions are contained in sections within the pen table.

For each pen table section, there are element evaluation criteria and a set of output actions. During creation of printed output, the pen table tests for the presence of specific types of elements and related element characteristics. If such elements are detected, the pen table will modify, enhance or eliminate these elements or their characteristics depending on the intended output. Criteria tested for include:

- *Element type*
- *Files*
- *Weight*
- *Level*
- *Color*
- *Fill Color*
- *Style*
- *Class*
- *MSLink number (in external database)*
- *Entity number (in external database)*

Introduction

Provided in the MicroStation workspace downloads are the PW&U plot drivers. *See Table 6* All printing requires one on the following Pentables. Each pentable controls print order, halftoning and text substitution. Discipline specific pentables enhance that specific discipline. Therefore it is necessary to use these specific pentables properly.

The City of Lincoln provides a PENTABLE.TBL file to be included with the standard plotters. This file is located: *J:\Resources\Bentley\Workspace\System\plotdrv/…*

…\Resources\CityWorkspace\Standards\tables\Pen

Sheet's Directory	Display	Pentable
\Construction and Removal	(CS Construction)	CR_Pentable.tbl
\Details	Standard	BW_Pentable.tbl
\General	Standard	BW_Pentable.tbl
\Geometrics	Standard	BW_Pentable.tbl
\Joints and Grades	(JG) Joints & Grades	JG_Pentable.tbl
\Pavement Markings	(PM) Pavement Markings	PM_Pentable.tbl
\Plan and Profile	Standard	BW_Pentable.tbl
\ROW	(RW) Right-of-Way	RW_Pentable.tbl
\Sediment and Erosion Control	(EC) Sediment & Erosion	EC_Pentable.tbl
\Storm Drainage	(SD) Storm Drainage	SD_Pentable.tbl
\Traffic Signal and Lighting	(TS) Traffic	TS_Pentable.tbl
\Waste Water	(WW) Waste Water	WW_Pentable.tbl
\Water Main	(WT) Water	WT_Pentable.tbl
\Xsection	Standard	BW_Pentable.tbl
	Standard COLOR	CO_Pentable.tbl

Table 6

The intention of the supplied pentables is to standardize the plotting output. BW_Pentable.tbl is the basis for all standard pentables. The difference between the BW_Pentable.tbl and the others is in the controlling that discipline specific output. Each discipline, when printed, should “stand out” from the rest of the sheet information.

BW_Pentable

#Halftone Border Grid

```
BEGIN Border
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    IN_LEVEL               =  BDR:Major Grid
    IN_LEVEL               =  BDR:Minor Grid
    LOGNAME                =  border.*
    MODELFORMAT            =  0
    OUT_COLOR              =  253
    PRIORITY               =  0
END
```

This forces the priority of the Plan&Profile and Cross Section border grid to print first and halftoning

#Halftone Existing Topo

```
BEGIN Existing
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    LOGNAME                =  topo.*
    MODELFORMAT            =  0
    OUT_COLOR              =  253
    OUT_WEIGHT             =  1
    PRIORITY               =  1
END
```

This forces the priority of the (EB) Existing Topo to print second and halftoning

#Halftone Existing ROW

```
BEGIN Ex_ROW
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    LOGNAME                =  erow.*
    MODELFORMAT            =  0
    OUT_COLOR              =  253
    PRIORITY               =  1
END
```

This forces the priority of the (ER) Existing ROW to print second and halftoning

#Prioritize Proposed Base files

```
BEGIN Proposed
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    LOGNAME                =  ppaving.*
    LOGNAME                =  prow.*
    LOGNAME                =  ppaving.*
    LOGNAME                =  pstorm.*
    LOGNAME                =  psan.*
    LOGNAME                =  pwater.*
    LOGNAME                =  ppmarking.*
    LOGNAME                =  pelec.*
    LOGNAME                =  pseed.*
    LOGNAME                =  geopak_xssheet_.*
    LOGNAME                =  horz.*
    LOGNAME                =  vert.*
    LOGNAME                =  pvwater.*
    MODELFORMAT            =  0
    PRIORITY               =  2
END
```

This forces the priority of ALL Proposed to print third

#Control Filled Shape halftone

```
BEGIN Location
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    IN_COLOR               =  5
    IN_FILLCOLOR           =  253
    FILE                   =  0
    LOGNAME                =  border.*
    TYPE                   =  6,14
    MODELFORMAT            =  0
    OUT_FILLSTATE          =  ON
    OUT_FILLCOLOR          =  253
    PRIORITY               =  3
END
```

This forces the priority of ALL filled shapes that need halftoning within a sheet to fourth and halftoning

#Control Text Masking

```
BEGIN Text_Mask
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    IN_COLOR               =  250
    FILE                   =  0
    TYPE                   =  6,14,15
    MODELFORMAT            =  0
    OUT_FILLSTATE          =  ON
    OUT_COLOR              =  1
    OUT_FILLCOLOR          =  254
    PRIORITY               =  4
END
```

This forces the priority of ALL text with Color = 250 in the sheet file

#Control Seal Masking

```
BEGIN SEAL_Mask
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    IN_LEVEL               =  BDR:Seal_Mask
    IN_LEVEL               =  SHT:Seal_Mask
    FILE                   =  0
    MODELFORMAT            =  0
    OUT_FILLSTATE          =  ON
    OUT_COLOR              =  254
    OUT_FILLCOLOR          =  254
    PRIORITY               =  5
END
```

This forces the priority of Seal masking

#Prioritize Text Plot Order

```
BEGIN Text
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    FILE                   =  0
    CLASS                  =  0
    TYPE                   =  7,17
    IN_STYLE               =  0
    MODELFORMAT            =  0
    PRIORITY               =  9
END
```

This forces the priority of Text Plot order

#Prioritize Seal Plot Order

```
BEGIN SEAL
    IN_DISABLESECTION      =  0
    IN_USESECTIONNAME      =  0
    IN_LEVEL               =  SHT:Seal
    FILE                   =  0
    MODELFORMAT            =  0
    PRIORITY               =  10
END
```

This forces the priority of Text Plot order

#Text Substitution

```
BEGIN_STRINGS
    $$PrntDate$$           =  $(Print_Date)
    $$--PU_PROJECT--$$     =  $(PU_PROJECT)
    $$--PU_NUMBER--$$      =  $(PU_NUMBER)
    $$--DESIGN-FILE-NAME--$$ =  _FILEA_
    $$--DATE--$$           =  _DATE_
    $$--USER--$$           =  $(USERNAME)
    $$--MODEL--$$          =  $(MS_PLTMODELNAME)
    $$--SCALE--$$          =  _SCALE_
    $PENTBLA$              =  _PENTBLA_
    $$PU-SUB$$             =  $(PU_SUBMITTAL)
    $PROJECT$              =  $(basename
                              (_USTN_PROJECTNAME)).
                              cfg
END_STRINGS
```

This sets the Text substitution.

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CR_Pentable

# Prioritize Proposed Base Files				This forces the priority of ALL Proposed Base to print third, with the exception of the Construction Base file
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	MODELFORMAT	=	0	
	PRIORITY	=	2	
END				
# Prioritze Proposed Construction Base Files				This forces the priority of the Proposed Construction Base file to print forth
BEGIN Construction				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_WEIGHT	=	31-Jan	
	LOGNAME	=	ppaving.*	
	CLASS	=	0	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	6	
	PRIORITY	=	3	
END				
# Prioritze Proposed Construction Pattern Base Files				This forces the priority of the Proposed Construction Base file PATTERNS to print forth
BEGIN Construction_Pattern				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	quantities.*	
	CLASS	=	1	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	15	
	PRIORITY	=	3	
END				

EC_Pentable

#Prioritize Proposed Base Files				This forces the priority of ALL Proposed Base to print third, with the exception of the Erosion Control Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	PRIORITY	=	2	
END				
#Prioritize Proposed PSEED Base Files				This forces the priority of Erosion Control Proposed Base to print Fourth
BEGIN Seed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pseed.*	
	CLASS	=	0	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	6	
	PRIORITY	=	6	
END				

JG_Pentable

#Prioritize Proposed Based files				This forces the priority of ALL Proposed Base to print third, with the exception of the JOINTS & GRADE Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	PRIORITY	=	2	
END				
#Prioritize Proposed JOINTS Based files				This forces the priority of JOINT Proposed Base to print Fourth
BEGIN Joints				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_LEVEL	=	PP:Jts	
	LOGNAME	=	ppaving.*	
	OUT_COLOR	=	253	
	OUT_WEIGHT	=	3	
	PRIORITY	=	3	
END				
#Prioritize Proposed GRADES Based files				This forces the priority of GRADES Proposed Base to print Fourth
BEGIN Grades				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_LEVEL	=	PP:Grades	
	LOGNAME	=	ppaving.*	
	OUT_WEIGHT	=	2	
	PRIORITY	=	3	
END				

PM_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Pavement Marking Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	PRIORITY	=	2	
END				
#Prioritize Proposed PPMarking Base files				This forces the priority of Pavement Marking Proposed Base to print Fourth
BEGIN Ppmarking				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppmarking.*	
	OUT_WEIGHT	=	6	
	PRIORITY	=	6	
END				

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RW_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Proposed ROW Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	MODELFORMAT	=	0	
	PRIORITY	=	2	
END				
#Prioritize Proposed Base PROW Linework files				This forces the priority of Proposed Proposed ROW Linework Base to print Fourth
BEGIN Prow				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_WEIGHT	=	31-Jan	
	IN_LEVEL	=	PR:ROW	
	IN_LEVEL	=	PR:ROW Tx	
	IN_LEVEL	=	PR:Control Access	
	IN_LEVEL	=	PR:TEMP Esmt	
	IN_LEVEL	=	PR:TEMP Esmt Tx	
	IN_LEVEL	=	PR:PERM Esmt Tx	
	IN_LEVEL	=	PR:PERM Esmt	
	IN_LEVEL	=	PR:Lot No	
	IN_LEVEL	=	PR:Tract No	
	LOGNAME	=	prow.*	
	CLASS	=	0,4	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	6	
	PRIORITY	=	3	
END				
#Prioritize Proposed Base PROW Pattern files				This forces the priority of Proposed Proposed ROW Pattern Base to print Fourth
BEGIN PROW_PATTERN				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	prow.*	
	CLASS	=	1,5	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	0	
	PRIORITY	=	3	
END				

SD_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Storm Drainage Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	MODELFORMAT	=	0	
	PRIORITY	=	2	
END				
#Prioritize Proposed Base PSTORM files				This forces the priority of Proposed Proposed Storm Drainage Base to print Fourth
BEGIN Drainage				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_WEIGHT	=	31-Jan	
	LOGNAME	=	pstorm.*	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	6	
	PRIORITY	=	3	
END				
#Prioritize Proposed Base PVSTORM files				Forces the priority of Proposed Storm Drainage Profile Base to print Fourth
BEGIN DrainageProfile				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pstorm.*	
	MODELFORMAT	=	0	
	PRIORITY	=	3	
END				

WW_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Waste Water Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow.*	
	LOGNAME	=	pwater.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	PRIORITY	=	2	
END				
#Prioritize Proposed SANITARY Base files				Forces the priority of Proposed Waste Water to print Fourth
BEGIN Sanitary				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	psan.*	
	OUT_WEIGHT	=	6	
	PRIORITY	=	6	
END				

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TS_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Traffic Signal Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	IN_WEIGHT	=	31-Jan	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow .*	
	LOGNAME	=	psan.*	
	LOGNAME	=	pw ater.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	OUT_WEIGHT	=	1	
	PRIORITY	=	2	
END				
#Prioritize Proposed Base PPMARKING files				This forces the priority of Proposed Pavement Marking Base to print Fourth
BEGIN PPMARKING				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppmarking.*	
	OUT_WEIGHT	=	6	
	PRIORITY	=	3	
END				
#Prioritize Proposed Base PELEC files				Forces the priority of Proposed Electric Base to print Fourth
BEGIN PELEC				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pelec.*	
	OUT_WEIGHT	=	6	
	PRIORITY	=	3	
END				

WT_Pentable

#Prioritize Proposed Base files				This forces the priority of ALL Proposed Base to print third, with the exception of the Water Line Base file
BEGIN Proposed				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	ppaving.*	
	LOGNAME	=	pstorm.*	
	LOGNAME	=	prow .*	
	LOGNAME	=	psan.*	
	LOGNAME	=	ppmarking.*	
	LOGNAME	=	pelec.*	
	LOGNAME	=	pseed.*	
	LOGNAME	=	geopak_xssheet_.*	
	LOGNAME	=	horz.*	
	LOGNAME	=	vert.*	
	LOGNAME	=	pvw ater.*	
	MODELFORMAT	=	0	
	PRIORITY	=	2	
END				
#Prioritize Proposed Base WATER PIPE files ONLY				This forces the priority of Proposed Water Line Base to print Fourth
BEGIN Waterline				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pw ater.*	
	IN_STYLE	=	10pipe	
	IN_STYLE	=	12pipe	
	IN_STYLE	=	15pipe	
	IN_STYLE	=	16pipe	
	IN_STYLE	=	18pipe	
	IN_STYLE	=	20pipe	
	IN_STYLE	=	21pipe	
	IN_STYLE	=	22pipe	
	IN_STYLE	=	24pipe	
	IN_STYLE	=	26pipe	
	IN_STYLE	=	27pipe	
	IN_STYLE	=	28pipe	
	IN_STYLE	=	30pipe	
	IN_STYLE	=	36pipe	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	4	
	PRIORITY	=	3	
	RETURN	=	3	
END				
#Prioritize Proposed Base WATER files				Forces the priority of Proposed Water Line to print Fourth
BEGIN Water				
	IN_DISABLESECTION	=	0	
	IN_USESECTIONNAME	=	0	
	LOGNAME	=	pw ater.*	
	MODELFORMAT	=	0	
	OUT_WEIGHT	=	1	
	PRIORITY	=	3	
END				

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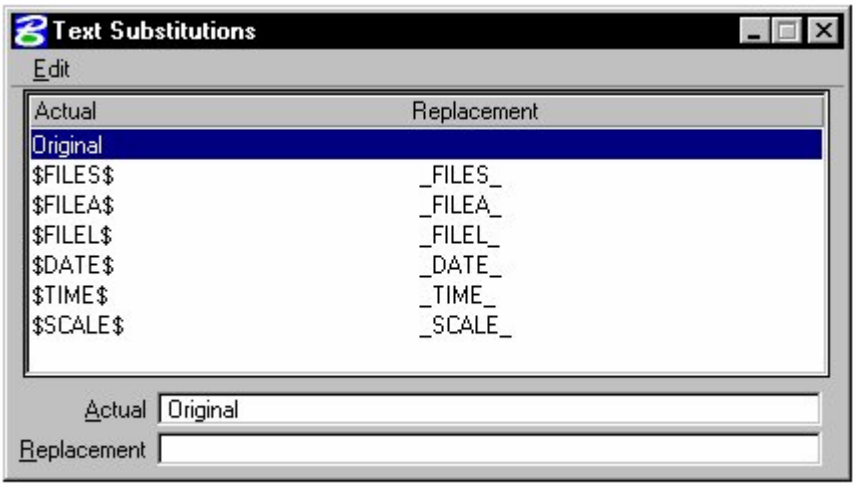
Borders

Text Substitutions

Used to generate substitution string pairs; each pair consists of an Actual string and a Replacement string. Opens when the Text Substitutions button is clicked in the Modify Pen Table dialog box.



Text Substitutions dialog box

You can use the text substitution feature to replace text in your design file for the printed output. This can be with standard text string variables for text items such as the date, time or filename. Proposed replacement strings for the date, time, filename (full and abbreviated) are special strings that are converted to the required information during processing for printing. When specifying these text substitutions, the system provides a suggested actual string. You can place an identical text string in the design file at the position that you want the text substitution. Alternatively, you can amend the actual string to match an existing text string in the design.

In addition, you can replace original "generic" text (text that is not standard design file information, such as date, time and filename) with replacement text strings.

Introduction

There has been a tremendous amount of intelligence add to MicroStation Print command. Using System printers, Pentables and batch plotting are just a few. We developed our borders to take advantages of all of these items. *See Figure 1*

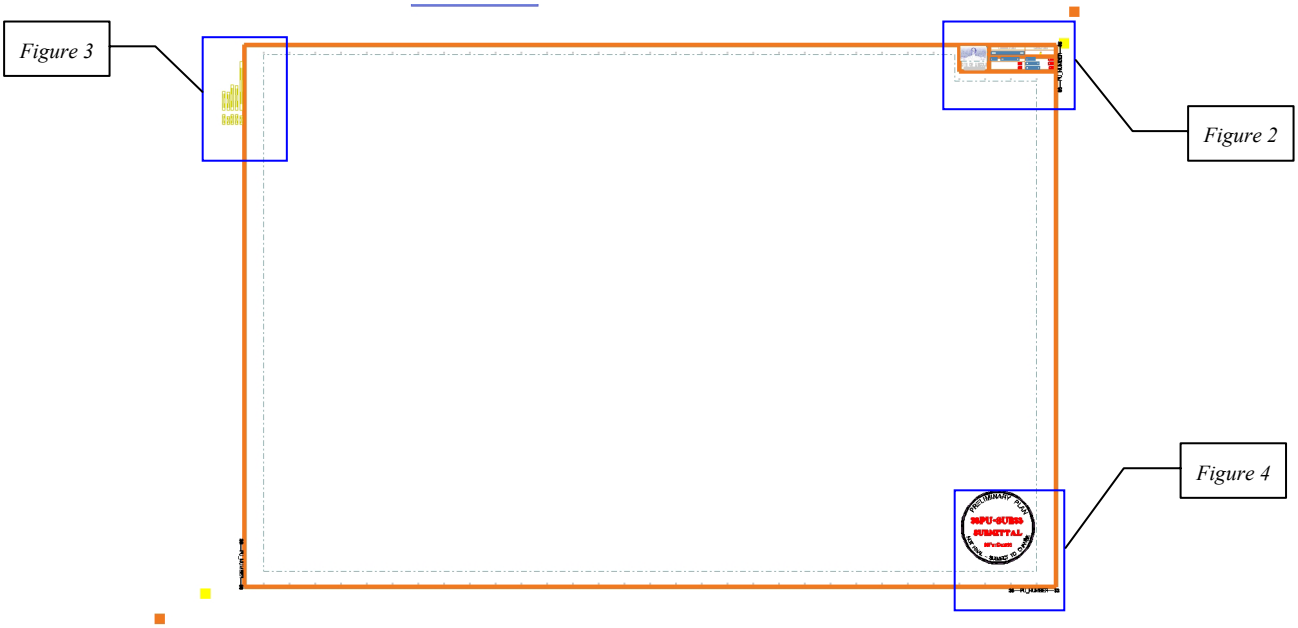


Figure 1

TOC

It is required to use the border files, listed below, as a reference attachment. These borders are provided through the BORDERS_V8.CEL library. The reason we supply the border files in both, is because of the **GEOPAK Sheet Layout** tool needs both to function properly. By using the borders as a reference file, whole projects can be updated rather quickly. Along with Text Substitution and halftoning, pentables will search each and every file for border references. When attaching a border file or afterwards, make certain the Logical Name is set appropriately

- **BORDER_PGBK**
- **BORDER_PLN**
- **BORDER_PNP**
- **BORDER_XSEC**

During the creation of sheet files, the mentioned borders are referenced to the active file. If creating sheets within GEOPAK, the **GEOPAK Sheet Layout** tool will assign the appropriate border as needed. *See **User Guide – GEOPAK Sheet Generation*** for further information.

Reference

Manually creating a sheet file requires standardization. Begin by picking the Reference > Tool > Attach command. Select the appropriate file located under the standard directory location, *…\Design\Sheets*. Logical Name should contain the word "BORDER". Use the Default model and set the scale appropriately.

No sheet file should be "rotated". Use the MicroStation command **Rotate View**. This allows the user to modify their view of the sheet file. This way the sheet file will always be viewed properly and users do not develop knots in their neck. A quick check would be the City of Lincoln image in the upper right-hand corner. If this appears rotated, then there are problems.

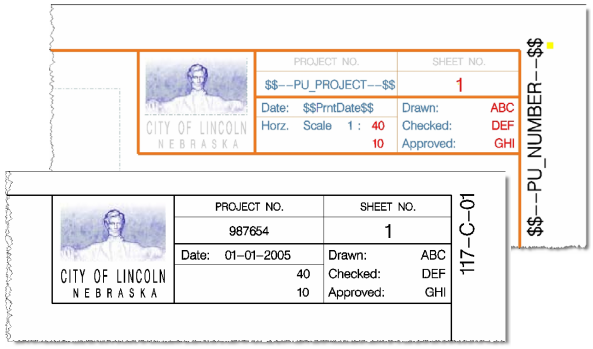
Enhancements

- Each border will have two Yellow points and two Orange points. One of each will be located in the lower-left and upper-right corners of the border. These are used for placing fences and getting the correct scale. *See Table 7*

	Piggy Back	*Plan*	*Plan & Profile*	*Cross Section*
Yellow	40:01:00	40:01:00	40:01:00	20:1H/10:1V
Orange	20:01	20:01	20:01	10:1H/5:1V

Table 7

- Also within each sheet that correlate with the yellow and orange points are two shape set to a construction element. Batch printing will read and find the appropriate shape within each sheet and print these accordingly.
- Through out each border are MicroStation points. The most prevalent is the BORDER_PNP. These are to assist the user with placement of text, from Stationing to elevations to Sheet Numbers.
- The **Title block** has gone through significant changes. Each border will have these text items that include ***$$ --$$***. By using the **ProjNo.PCF** file and the appropriate Pentable, there will be added intelligence to the borders. What may appear as gibberish in active view will print entirely different. *See Figure 2*



- Project Numbers
- Milestone Dates
- Horizontal Scale
- Drawing Number

Figure 2

- Printing data such as the Project CFG, Pentable, User, Date printed and file name will also be printed through the standard printer. *See Figure 3*

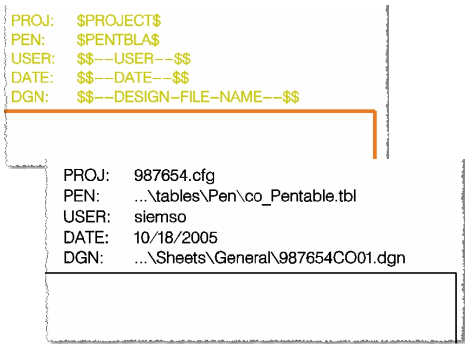


Figure 3

- Lastly, in each sheet should be a preliminary stamp. This cell should be placed within the provided location near the lower right corner. The **ProjNo.pcf** controls the text substitution for the $$PU_SUB$$. When the Engineer's seal is to be used, simple replace the preliminary stamp. *See Figure 4*

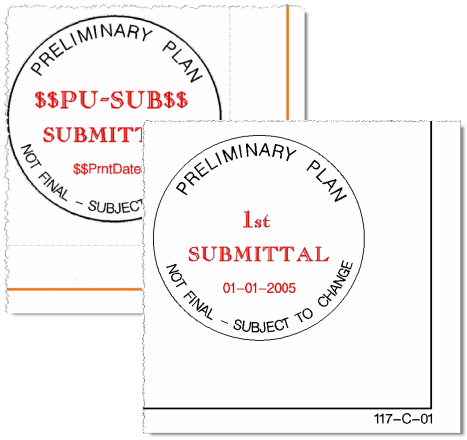


Figure 4

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Plotting Macro

Introduction

Provided in the MicroStation downloads are the various macros listed below. *See Table 8* These macros are intended to give a user a straight forward command to get what they need.

Description

These macros are rather simple key in commands disguised as MicroStation programming. Simply put, these commands request the user to "Place a Fence". Upon placing a fence, the macro loads everything needed to complete the printing process. Next, loads the appropriate Print Drive. Followed by Attaching the necessary discipline specific Pentable. Finally, the macro opens the Print Dialog box ready to print.

Macro	Print Driver	Pentable
HP1050c_BW.bas	Hp1050C sieip04 B&W.plt	BW_pentable.tbl
HP1050c_CO.bas	Hp1050C sieip04 CO.plt	CO_pentable.tbl
Konica03_BW.bas	KONICA_03.plt	CW_pentable.tbl
Konica03_CR.bas	KONICA_03.plt	CR_pentable.tbl
Konica03_EC.bas	KONICA_03.plt	EC_pentable.tbl
Konica03_JG.bas	KONICA_03.plt	JG_pentable.tbl
Konica03_PH.bas	KONICA_03.plt	PH_pentable.tbl
Konica03_PM.bas	KONICA_03.plt	PM_pentable.tbl
Konica03_PZ.bas	KONICA_03.plt	BW_pentable.tbl
Konica03_RW.bas	KONICA_03.plt	RW_pentable.tbl
Konica03_SD.bas	KONICA_03.plt	SD_pentable.tbl
Konica03_TS.bas	KONICA_03.plt	TS_pentable.tbl
Konica03_WT.bas	KONICA_03.plt	WT_pentable.tbl
Konica03_WW.bas	KONICA_03.plt	WW_pentable.tbl
Konica05_STD.bas	KONICA_05c.plt	CO_pentable.tbl
PDF_BW.bas	PDF B&W.plt	CW_pentable.tbl
PDF_CO.bas	PDF Color.plt	CO_pentable.tbl
PDF_CR.bas	PDF B&W.plt	CR_pentable.tbl
PDF_EC.bas	PDF B&W.plt	EC_pentable.tbl
PDF_JG.bas	PDF B&W.plt	JG_pentable.tbl
PDF_PH.bas	PDF B&W.plt	PH_pentable.tbl
PDF_PM.bas	PDF B&W.plt	PM_pentable.tbl
PDF_PZ.bas	PDF B&W.plt	BW_pentable.tbl
PDF_RW.bas	PDF B&W.plt	RW_pentable.tbl
PDF_SD.bas	PDF B&W.plt	SD_pentable.tbl
PDF_TS.bas	KONICA_03.plt	TS_pentable.tbl
PDF_WT.bas	KONICA_03.plt	WT_pentable.tbl
PDF_WW.bas	KONICA_03.plt	WW_pentable.tbl

Table 8

Batch Plot

Batch printing

Batch Print is a utility for printing and re-printing related sets of design files and models by means of Job Sets and Print Specifications.

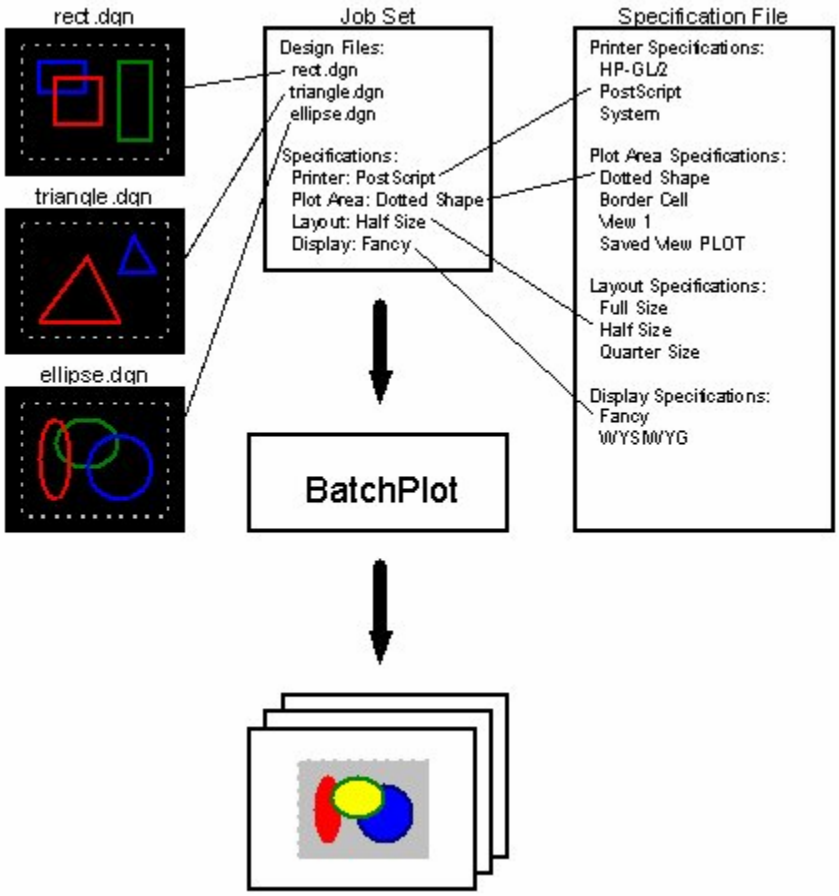
- *Job sets are used to identify, save, recall, and print related sets of design files and models. See Job Sets.*
- *Print specifications describe what to print and how it should be printed. See Print specifications.*

Using the Batch Print utility you can set up groups of design files and models in Job Sets in order to print automatically. Printing specifications also are saved in the Job Sets. These let you define the Printer, Print Area, Layout, and Display parameters. When batch printing, these specifications are applied to each design file in the list. Batch Print lets you use sheet definitions shapes, cells or Views (including Saved Views) to define the area that should be printed in each design file.

Overview

Batch Print is a utility for printing and reprinting related sets of models in reusable ways. Print specifications are the mechanism for describing these reusable ways. Job sets are used to identify, save, recall and print related sets of models.

Each job set prints at a selected scale, so it is important to consider this when setting up your drawings in the first place. If all related drawings can be printed at one scale, Batch Print can create a full set of drawings in one step. A simple method for setting up your drawings to do this is described in Using a 1:1 scale border.



Introduction

Provided in the MicroStation downloads is the Specification File for the PW&U Batchplot. Included with the Project download are the project specific Job Sets. When used together, the supplied batch plot configuration will quickly enhance the plotting process.

Printer Specification

Using Print Specifications

Print specifications control the following aspects of printing:

- *Printer (see Printer Specifications)*
- *Print Area (see Print Area specifications)*
- *Layout (see Layout specifications)*
- *Display (see Display specifications)*

Using print specifications you can set up a system for printing the drawings for a particular project. Once set up, you do not need to enter the drawing file to create a print of it. You can produce a print of one or more drawings via Batch Print.

Managing Print Specifications

Using the Batch Print Specification Manager dialog box, you can create, copy, rename, and delete print specifications.

Introduction

A Printer specification selects a MicroStation printer driver, a paper size, a paper orientation and specifies post-processing options

***LINCOLNV851.CFG**: Line 135* MS_BATCHPLT_SPECS= $(_CITY_STANDARD)Data/batchplt.spc

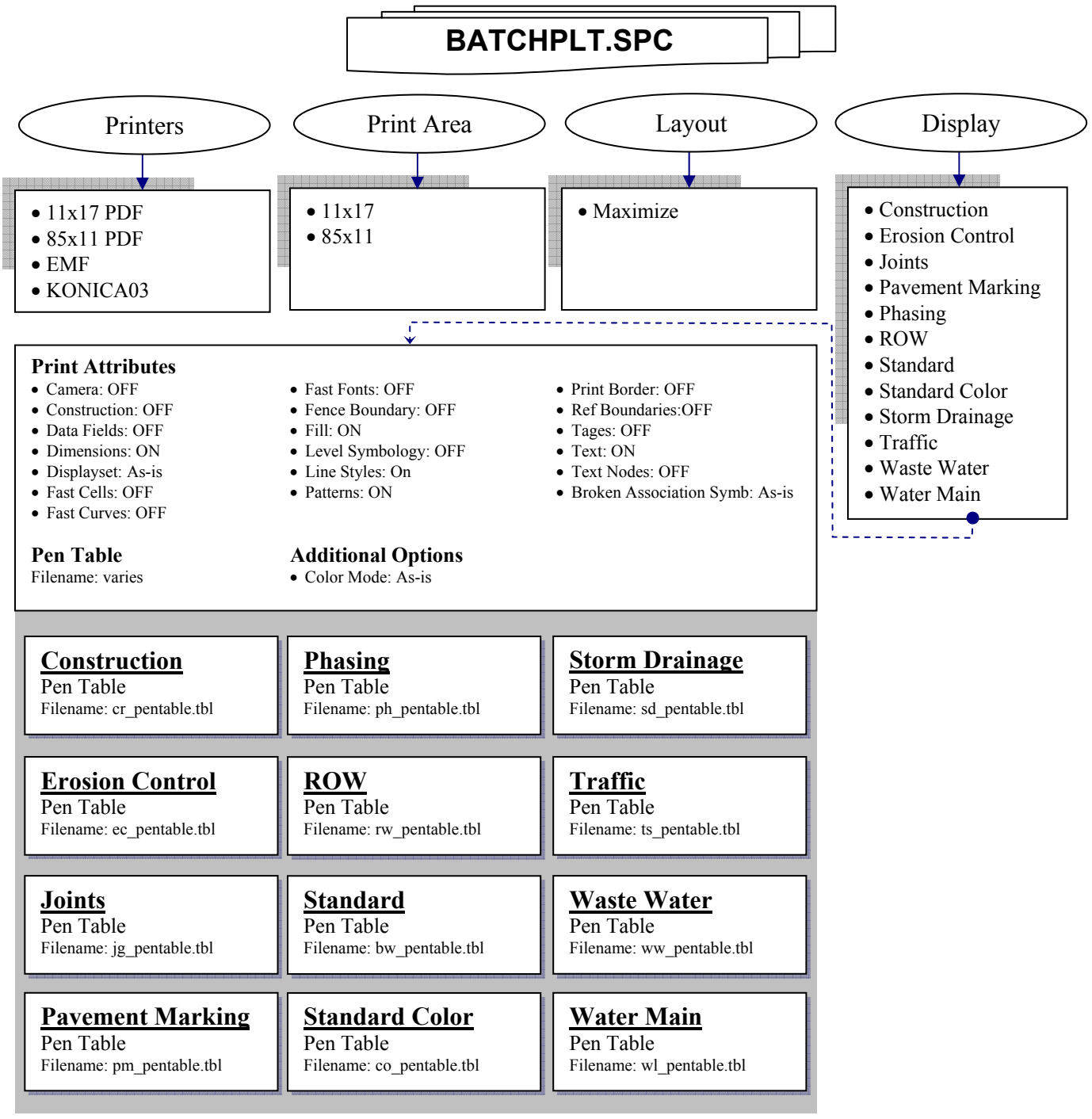

BATCHPLT.SPC
Printers
Print Area
Layout
Display
• 11x17 PDF
• 85x11 PDF
• EMF
• KONICA03
• 11x17
• 85x11
• Maximize
• Construction
• Erosion Control
• Joints
• Pavement Marking
• Phasing
• ROW
• Standard
• Standard Color
• Storm Drainage
• Traffic
• Waste Water
• Water Main
Print Attributes
• Camera: OFF
• Construction: OFF
• Data Fields: OFF
• Dimensions: ON
• Displayset: As-is
• Fast Cells: OFF
• Fast Curves: OFF
• Fast Fonts: OFF
• Fence Boundary: OFF
• Fill: ON
• Level Symbology: OFF
• Line Styles: On
• Patterns: ON
• Print Border: OFF
• Ref Boundaries:OFF
• Tages: OFF
• Text: ON
• Text Nodes: OFF
• Broken Association Symb: As-is
Pen Table
Filename: varies
Additional Options
• Color Mode: As-is
Construction
Pen Table
Filename: cr_pentable.tbl
Phasing
Pen Table
Filename: ph_pentable.tbl
Storm Drainage
Pen Table
Filename: sd_pentable.tbl
Erosion Control
Pen Table
Filename: ec_pentable.tbl
ROW
Pen Table
Filename: rw_pentable.tbl
Traffic
Pen Table
Filename: ts_pentable.tbl
Joints
Pen Table
Filename: jg_pentable.tbl
Standard
Pen Table
Filename: bw_pentable.tbl
Waste Water
Pen Table
Filename: ww_pentable.tbl
Pavement Marking
Pen Table
Filename: pm_pentable.tbl
Standard Color
Pen Table
Filename: co_pentable.tbl
Water Main
Pen Table
Filename: wl_pentable.tbl

Figure 5

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Batch Job Set

Job Sets

A job set is an ordered list of design files to be printed, along with references to the print specifications that control how they are printed. Job sets are stored in job set files (.job) with arbitrary names and locations. For example, a job set file named "myhouse.job" might represent the set of plans, elevations and detail sheets for a particular house. It lists all the master design files representing those plans, elevations and detail sheets, as well as the names of the specifications describing how they should be printed.

Batch Print lets you reassign the specifications assigned to a job set at any time, making it easy to print variations of the set. Files can be added, deleted or moved up or down within the job set.

Introduction

Batch Print lets you reassign the specifications assigned to a job set at any time, making it easy to print variations of the set. Files can be added, deleted or moved up or down within the job set.

***ProjNo.PCF**: Line 49* MS_BATCHPLT_JOBSET_DIR = $(Plot)

OUTPUT FORMAT		
Direct Print	PDF Print	
aConstruction.job	PDF Construction.job	...\Sheets\Construction and Removal*.dgn
aErosion.job	PDF Erosion.job	...\Sheets\Sediment and Erosion Control*.dgn
aGeometrics.job	PDF Geometrics.job	...\Sheets\Geometrics*.dgn
aJoints.job	PDF Joints.job	...\Sheets\Joints and Grades*.dgn
aMisc.job	PDF Misc.job	...\Sheets\Details*.dgn & ...\Sheets\General*.dgn
aPavtMarking.job	PDF PavtMarking.job	...\Sheets\Pavement Marking*.dgn
aPhasing.job	PDF Phasing.job	...\Sheets\General*.dgn
aPlan&Profile.job	PDF Plan&Profile.job	...\Sheets\Plan&Profile*.dgn
aROW.job	PDF ROW.job	...\Sheets\ROW*.dgn
aStorm.job	PDF Storm.job	...\Sheets\Storm Drainage*.dgn
aStorm.job	PDF Traffic Signal.job	...\Sheets\Traffic Signals and Lighting*.dgn
aWasteWater.job	PDF WasteWater.job	...\Sheets\Waste Water*.dgn
aWater.job	PDF Water.job	...\Sheets\Water Main*.dgn
aXsection.job	PDF Xsection.job	...\Sheets\XSection*.dgn

Table 9

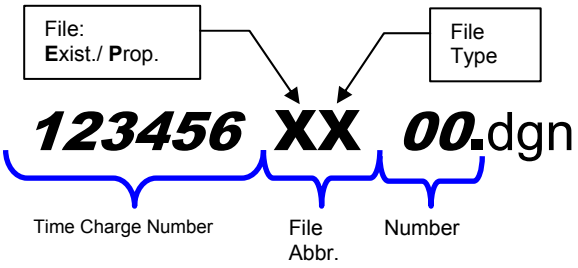
Logical Naming

Introduction

A single MicroStation model or AutoCAD file can be attached to the current active model several times. MicroStation V8.5 distinguishes the different attachment instances by using a "logical name." LPW&U also uses the logical name of a reference file to control plotting parameters such as gray scaling specific information of a sheet file that is in a reference file. Use the Logical Name Prefix listed in Table 10 as a prefix to the Logical Name defined in the "Attach Reference Settings" dialog box.

Standard Base File Naming Convention

Each of the file names will follow a consistent naming convention following this example:



NOTE:
For archiving purpose, use progressive numbering from 00 to 99, keeping 00 the most current.

Exception would be the Cross Section base file. The major roadway will be 00 and smaller, lesser roadways will follow.

Base Files	Description	Logical Name
123456 **ER** *00.dgn*	**E**XIST. **R**IGHT-OF-WAY	**EROW**
123456 **PR** *00.dgn*	**P**ROP. **R**IGHT-OF-WAY	**PROW**
123456 **PP** *00.dgn*	**P**ROP. **P**AVING	**PPAVING**
123456 **PD** *00.dgn*	**P**ROP. STORM **D**RAINAGE	**PSTORM**
123456 **VD** *00.dgn*	PROP. STORM **D**RAINAGE – **V**ERTICAL	**PvSTORM**
123456 **PS** *00.dgn*	**P**ROP. WASTE WATER	**PSAN**
123456 **VS** *00.dgn*	PROP. WASTE WATER-**V**ERTICAL	**PvSAN**
123456 **PW** *00.dgn*	**P**ROP. **W**ATER	**PWATER**
123456 **VW** *00.dgn*	PROP. **W**ATER – **V**ERTICAL	**PvWATER**
123456 **PM** *00.dgn*	**P**ROP. PAVEMENT **M**ARKINGS AND SIGNS	**PPMARKING**
123456 **PE** *00.dgn*	**P**ROP. **E**LECTRICAL	**PELEC**
123456 **PH** *00.dgn*	**P**ROP. **H**ORIZONTAL ALIGNMENT	**HORZ**
123456 **VH** *00.dgn*	PROP./EXIST. **V**ERTICAL ALIGNMENT	**VERT**
123456 **PG** *00.dgn*	**P**ROP. **G**EOPAK	**PATTERN**
123456 **PX** *00.dgn*	**P**ROP **X**-SECTION *(BASE)*	
123456 **PZ** *00.dgn*	REMOVAL QUANTITIES	**REMOVAL**
123456 **PQ** *00.dgn*	**P**ROP. **Q**UANTITIES	
123456 **PC** *00.dgn*	**P**ROP. SEDIMENT AND EROSION **C**ONTROL	**PSEED**
123456 **EB** *00.dgn*	**E**XIST. TOPO *(SURVEY BASE)*	**TOPO**
123456 **PT** *00.dgn*	PROP. **T**RAFFIC CONTROL	**PTRAFFIC**
123456 **PF** *00.dgn*	PROP. CONSTRUCTION PHASING	**PPHASING**
123456 **WK**_2D.*dgn*	Working File 2D - NOT USED FOR PRODUCTION	
123456 **WK**_3D.*dgn*	Working File 3D - NOT USED FOR PRODUCTION	

Table 10

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PDF Composer

Introduction to MicroStation PDF Composer

MicroStation PDF Composer is a Windows application for publishing PDF documents from plots and plot sets. MicroStation PDF Composer can publish PDF documents from drawing sets in a single step.

Using PDF Composer's Design Script extensions, you can publish PDF documents that contain audio or video instructions, bookmarks, internal PDF document links, Web URL Links, and attachments that contain project specifications. PDF Composer's configuration command enables you to publish PDF documents that contain Engineering Links, Searchable text, and Levels/Files (Optional Content). Including Levels/Files (Optional Content) in the PDF file enables users to turn on/off levels and references when viewing the file.

Introduction

The City is currently looking into and developing procedures for the PDF Composer software. There will be more information in the future.

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