Chapter 7 - Consultants

TABLE OF CONTENTS

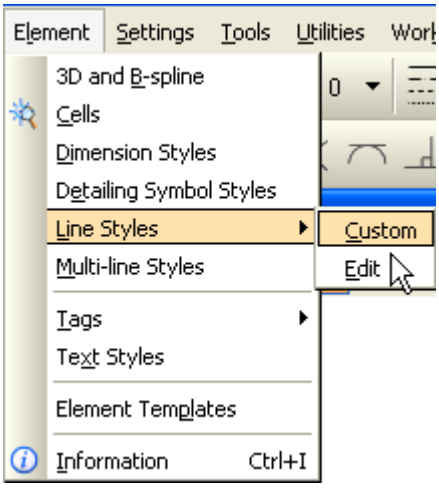
Chapter 7

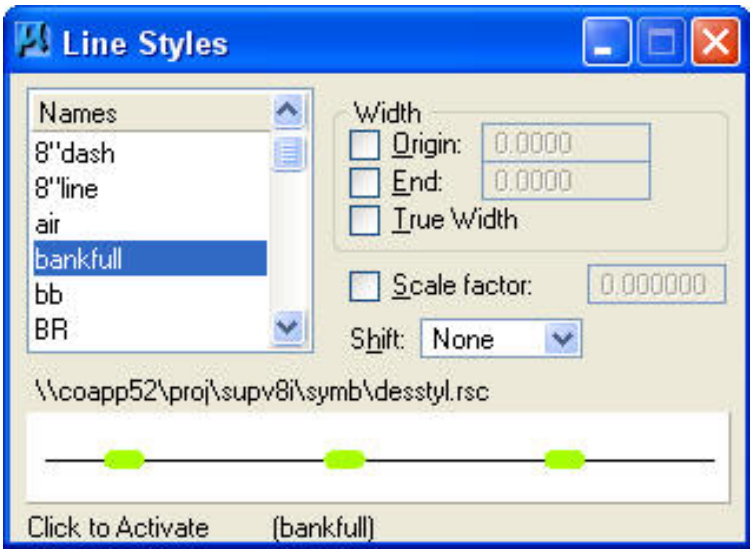
7.1 Using Custom Line Styles

This section is to help the consultants in the process of developing a set of highway plans.

Please use Custom Line Styles instead of linear patterning. Linear patterning uses more disk space than Custom Line Styles. A Custom Line Style is easier to manipulate than a linear pattern. It can be modified like any other line.

To use Custom Line Styles select Element from the Command Window, then Line Styles, then Custom. A dialog box will appear.





Activate Show Details and the dialog box will expand to show a picture of the selected Custom Line Style. (Set the active color to something other than white or gray to make it possible to see the picture of the line style against the background).

The Custom Line Style may be selected from the list in the box on the left.

Click on the box which contains the picture of the Custom Line Style to activate it.

The Custom Line Style may then be placed using the Place Line command (just as you would place any other line).

NOTE: Do not copy connected chains and change symbology to a custom line style. The custom line style will not print/plot.

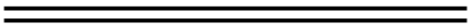
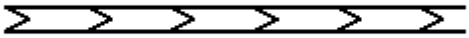
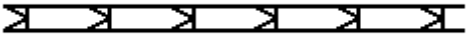
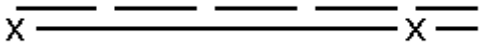
7.1.1 Line Weights and Thickness

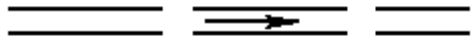
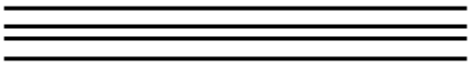
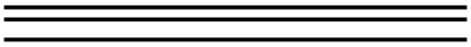
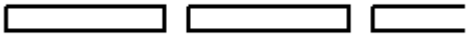
MicroStation Line Weight	Plotter Line Thickness
WT = 0	0.0075 inches
WT = 1	0.0125 inches
WT = 2	0.0150 inches
WT = 3	0.0175 inches
WT = 4	0.0200 inches
WT = 5	0.0225 inches
WT = 6	0.0275 inches
WT = 7	0.0325 inches
WT = 8	0.0375 inches
WT = 9	0.0450 inches
WT = 10	0.0500 inches
WT = 11	0.0525 inches
WT = 12	0.0550 inches
WT = 13	0.0575 inches
WT = 14	0.0600 inches
WT = 15	0.0625 inches
WT = 16	0.0650 inches

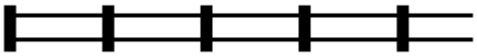
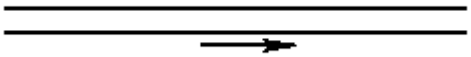
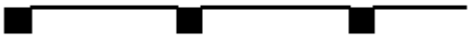
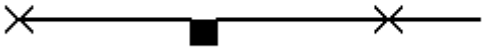
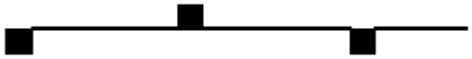
7.1.2 Default Line Styles

Line Style	Name	Description
	LC = 0	Solid
	LC = 1	Dotted
	LC = 2	Medium Dash
	LC = 3	Long Dash
	LC = 4	Dot Dash
	LC = 5	Short Dash
	LC = 6	Dash Dot Dot
	LC = 7	Long Dash/Short Dash

7.1.3 Standard Custom Line Styles for Proposed Plans

Custom Line Style	Line Style Name	Line Style Description	Line Style Scale	Line Weight
	bb	Brush Barrier	job	4
	cg2-s	Curb St'd. CG - 2	Off	4
	cg3-s	Mountable Curb St'd. CG - 3	Off	4
	cg6-s	Curb & Gutter St'd. CG - 6	Off	4
	cg7-s	Mountable Curb & Gutter St'd. CG - 7	Off	4
	ec2-s	Erosion Control Treatment St'd. EC - 2	**	4
	ec3-s	Erosion Control Treatment St'd. EC - 3	**	4
	fcfen	Filter Cloth on Exist. or Prop. Fence	job	4
	fen	Fence(all types)	job	4

Custom Line Style	Line Style Name	Line Style Description	Line Style Scale	Line Weight
	gfbd	Graded Flat Bottom Ditch	job	4
	gvd	Graded "V" Ditch	job	4
	mb3-s	Median Barrier St'd. MB - 3	job	4
	mb7a-s	Median Barrier St'd. MB - 7A	Off	4
	mb7c-s	Median Barrier St'd. MB - 7C	Off	4
	pc*	Prop. Pipe Culverts(42" and Smaller)	Off	0
	pc*	Prop. Pipe Culverts(48" and Larger)	Off	10
	pcud4	Pipe for St'd. UD - 4	Off	0

Custom Line Style	Line Style Name	Line Style Description	Line Style Scale	Line Weight
	pcud6	Pipe for Std. UD - 6	Off	0
	pgr	Prop. Guard Rail	job	4
	ptrac	Prop. Rail Road Track	Off	4
	pvfbd	Paved "V" or Flat Bottom Ditch	Off	4
	tfb	Temp. Filter Barrier	job	4
	tsf	Temp. Silt Fence	job	4
	turctn	Turbidity Curtain	job	4
	vepcop	Prop. Underground Power Cable	job	4

Metric line code names are the same, except they end in "-m".

* = Denotes Pipe Culvert size (i.e. PC18 = 18"pipe)

Line Style Scale has three settings as follows:

job = scale factor is ***'on'*** and value field should be set to **.25** for 25/250 scale or **.50** for 50/500 scale.

Off = Turn toggle switch ***'off'***.

** = Scale factor controls width of treatment material.

4' width = scale factor ***'off'***

6' width = scale factor ***'on'***, value field = 1.5

8' width = scale factor ***'on'***, value field = 2

7.2 Stippling and Cross-Hatching

Since the method of drafting plans has shifted from manual to Computer Aided (CADD), we have tried to eliminate stippling and cross-hatching as much as possible. However, it is a requirement that cross-hatching is used to delineate demolition of existing pavement. Also many designers still like the stippling to delineate new construction and re-surfacing of existing pavement. If you place stippling on the plans, you **must** use the method described below.

Hatching, Cross hatching, Resurfacing, Stippling, Concrete, and Erosion Control will be placed in a reference file. The **filename** for this reference file will be **Division + UPC# pat.dgn.**

The **levels** that may be used in this reference file are:

Level 1	for hatching	**Level 2**	for cross hatching	**Level 3**	for resurfacing
Level 4	for stippling	**Level 5**	for concrete	**Level 6**	for erosion control
Levels 31 thru 36		for descriptive text			

Set proper level. Place shape to be patterned. Set line weight to 1, line style to 0 (LC=0). For resurfacing line style will be 4 (LC=4). See data below for other attributes. The cell for stippling is in dsymgeo.cel, and mdsymg.cel.

Select ***Tools***, then ***Main***, then ***Patterning*** from the MicroStation Menu Bar. See Appendix D for additional information.

For **Hatching** select hatch area Set spacing Set pattern angle	For **Cross-hatching** select xhatching Set spacing Set pattern angle
For **Resurfacing** set line style to LC=4 (dot-dash) Set spacing Set pattern angle	For **Stippling** select pattern area Select cell – stip Set pattern scale Set row spacing Set column spacing Set pattern angle **(Associative patterning must not be used.)**
For **Concrete** select pattern area Select cell - conc Set pattern scale Set row spacing Set column spacing Set pattern angle	For **Erosion Control** select pattern area Select cell rocky Set pattern scale Set pattern angle at 90° Set spacing to 0

7.2.1 Pattern Angle, Scale, Spacing, Row & Column Spacing

7.2.1.1 Metric Patterns

250 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 1.8
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 1.8
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 1.8
(XHATCH)	PA = 135°, 45°	PS = 1.0	SPACING = 1.6, 1.6
(STIPPLE)	PA = 45°	PS = 0.7	RS = 0.75, CS = 0.75
(CONC)	PA = 0°	PS = 0.1	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 1.0 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 1.0 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 0.2	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = .15	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 0.1	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS =0.06	SPACING = 0

500 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 3.6
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 3.6
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 3.6
(XHATCH)	PA = 135°, 45°	PS = 1.0	SPACING = 3.2, 3.2
(STIPPLE)	PA = 45°	PS = 1.4	RS = 1.5, CS = 1.5
(CONC)	PA = 0°	PS = 0.2	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 2.0 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 4.0 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 0.4	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = 0.3	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 0.2	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS = 0.12	SPACING = 0

1000 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 3.6
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 3.6
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 3.6
(XHATCH)	PA = 135°, 45°	PS = 1.0	SPACING = 3.2, 3.2
(STIPPLE)	PA = 45°	PS = 2.8	RS = 3, CS = 3
(CONC)	PA = 0°	PS = 0.2	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 2.0 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 4.0 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 0.4	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = 0.3	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 0.2	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS =0.12	SPACING = 0

7.2.1.2 Imperial Patterns

25 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 6.8
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 6.8
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 6.8
(XHATCH)	PA = 135°, 45°	PS = 1.0	SPACING = 6.25, 6.25
(STIPPLE)	PA = 45°	PS = 4.0	RS = 2.5, CS = 2.5
(CONC)	PA = 0°	PS = .25	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 3.75 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 3.75 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 0.75	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = 0.625	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 0.5	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS =0.25	SPACING = 0

50 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 13.6118
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 13.6118
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 13.6118
(XHATCH)	PA = 135°, 45°	PS = 1.0	SPACING = 12.5, 12.5
(STIPPLE)	PA = 45°	PS = 8.0	RS = 5, CS = 5
(CONC)	PA = 0°	PS = 0.5	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 7.5 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 7.5 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 1.5	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = 1.25	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 1.0	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS =0.5	SPACING = 0

100 Scale Pattern

Pattern Name	Angle	Scale	Spacing
(HATCHED)	PA = 135°	PS = 1.0	SPACING = 27.22
(HATCHED)	PA = 45°	PS = 1.0	SPACING = 27.22
(HATCHED)	PA = 90°	PS = 1.0	SPACING = 27.22
(XHATCH)	PA = 135, 45°°,	PS = 1.0	SPACING = 25, 25
(STIPPLE)	PA = 45°	PS = 16.0	RS = 10, CS = 10
(CONC)	PA = 0°	PS = 1.0	RS = 0, CS = 0
(RESURFACE135)	PA = 135°	PS = 1.0	SPACING = 15 LC = 4
(RESURFACE45)	PA = 45°	PS = 1.0	SPACING = 15 LC = 4
(ECS ROCKY209)	PA = 90°	PS = 3.0	SPACING = 0
(ECS ROCKY210)	PA = 90°	PS = 2.5	SPACING = 0
(ECS ROCKY211)	PA = 90°	PS = 2.0	SPACING = 0
(ECS ROCKY212)	PA = 90°	PS =1.0	SPACING = 0

7.3 Text Sizes and Level Structure

This section is to introduce the Level Structure to be used on projects completed after July 1, 1995.

7.3.1 Text Sizes

7.3.1.1 Imperial

Text Size	Scale	Text Size	Weight
A	1" = 100' 1" = 50' 1" = 25'	16' 8' 4'	5 5 5
B	1" = 100' 1" = 50' 1" = 25'	12' 6' 3'	5 5 5
C	1" = 100' 1" = 50' 1" = 25'	16' 8' 4'	7 7 7
D	1" = 100' 1" = 50' 1" = 25'	12' 6' 3'	7 7 7

NOTE: Text Size for other scales may be computed by dividing the desired drawing scale by 100 and multiplying the value for 1" = 100'.

EXAMPLE: For a desired scale of 1" = 10' for type A text

Compute: 10/100 = 0.10

0.10 X 16 = 1.6'

SCALE	Text Size	Weight
1" = 10'	1.6'	5

7.3.1.2 Metric

Text Size	Scale	Text Size	Weight
A	1 : 250 1 : 500	1.0m 2.0m	5 5
B	1 : 250 1 : 500	0.75m 1.5m	5 5
C	1 : 250 1 : 500	1.0m 2.0m	7 7
D	1 : 250 1 : 500	0.75m 1.5m	7 7

7.3.2 Level Structure

7.3.2.1 Standard Levels

FOR DESIGN PROJECTS WITH SURVEYS COMPLETED AFTER JULY 1, 1995

Level	Alignment Information
Level 1	Baselines: (25 & 250 Scale) WT = 10, LC = 0 (50 & 500 Scale) WT = 8, LC = 0 Sub-tangents WT = 3, LC = 0
Level 2	Bridges WT = 6, LC = 0
Level 3	Edge of Pavement WT = 6, LC = 0, Text Size = B Private Entrances WT = 4, LC = 0, Text Size = B * Bicycle Trail WT = 4, LC = 0, Text Size = B
Level 4	Curb and Gutter WT = 4, Text Size = B (Custom Line Style)
Level 5	Curb WT = 4, Text Size = B (Custom Line Style)

Level	Alignment Information
Level 6	Paved Shoulder WT = 4, LC = 0, Text Size = B
Level 7	Sidewalk WT = 4, LC = 0, Text Size = B * Bicycle Trail WT = 4, LC = 0, Text Size = B
Level 8 - 9	Not Assigned
Level 10	Steps WT = 4, LC = 0, Text Size = B
Level 11	Fences WT = 4, Text Size = B (Custom Line Styles)
Level 12	Directional Arrows (Cells), Pavement Striping, and Flush Median Delineation WT = 0, LC = 0, Text Size = B
Level 13	Retaining Walls WT = 4, LC = 0, Text Size = B
Level 14	Concrete Slabs, Columns, Signs, & Posts WT = 4, LC = 0, Text Size = B
Level 15	Not Assigned
Level 16	Guardrail & Jersey Barrier WT = 4, Text Size = B (Custom Line Style)
Level 17	Not Assigned
Level 18	Paved Ditches WT = 4, LC = 0, Text Size = B
Level 19	Miscellaneous Drainage Items Placed by Road Designers WT = 4, Text Size = B
Level 20	Railroads, Etc. WT = 4, LC = 0, Text Size = B
Level 21	Not Assigned

Level	Alignment Information
Level 22	Limits of Construction WT = 5 Cut Lines LC = 5, CO = 2 Fill Lines LC = 3, CO = 3
Level 23	Right of Way WT = 6, LC = 0, Text Size = B Temp. Easements WT = 6, LC = 6, Text Size = B Perm. Easements WT = 6, LC = 4, Text Size = B
Level 24 - 30	Not Assigned
Level 31 - 54	Annotation for Levels 1 - 24 Construction Baseline Text, Sta. - Text Size A Sta. & Baseline Labels, Equality - Text Size A P.I. Intersection Labels & Curve Data - Text Size B Begin & End Construction - Text Size C
Level 55 - 60	Not Assigned
Level 61	Base Plan Sheet, Scale Bar North Arrow, Match Lines WT = 5, LC = 0
Level 62 - 63	Not Assigned

* Note: Bicycle Trail will be shown on Pavement level unless it is being built as sidewalk.

7.3.2.2 Standard Levels for Earlier Projects

DESIGN PROJECTS WITH SURVEYS COMPLETED BEFORE JULY 1, 1995

Level	Alignment Information
Level 21	Baselines: (25 & 250 Scale) WT = 10, LC = 0 (50 & 500 Scale) WT = 8, LC = 0 Sub-tangents WT = 3, LC = 3
Level 22	Bridges WT = 6, LC = 0 Edge of Pavement WT = 6, LC = 0 Private Entrances WT = 4, LC = 0 Curb and Gutter WT = 4 Sidewalk WT = 4, LC = 0
Level 23	Fences, Guard Rail, Etc. Retaining Walls WT = 4, LC = 0 (Custom Line Styles)
Level 24	Drainage, Storm Sewers, Drop Inlets Erosion Control, and Ditches WT = 4 (Custom Line Style)
Level 25	Rail Road Work WT = 4 (Custom Line Style)
Level 26	Utility Adjustments
Level 27	Right of Way WT = 6, LC = 0 Temp. Easements WT = 6, LC = 6 Perm. Easements WT = 6, LC = 4
Level 28	Utility Easements WT = 6, LC = 4
Level 29	Wetlands Mitigation WT = 0
Level 30	Limits of Construction WT = 5 Cut Lines LC = 5, CO = 2 Fill Lines LC = 3, CO = 3

Level	Alignment Information
Level 31	Construction Baseline Text, Sta. - Text Size A Sta. & Baseline Labels, Equality - Text Size A P.I. Intersection Labels & Curve Data - Text Size B Begin & End Construction - Text Size C
Level 32	Edge of Pavement and Entrance Labels - Text Size B Curb and Gutter and Sidewalk Labels - Text Size B
Level 33	Fence, Guardrail, and Retaining Wall Labels - Text Size B
Level 34	Drainage, Drop Inlet, Etc. Labels - Text Size B
Level 35	Rail Road Work Labels - Text Size B
Level 36	Utility Adjustment Labels - Text Size B
Level 37	Proposed Right of Way and Easement Labels - Text Size B
Level 38	Utility Easement Pluses - Text Size B
Level 39	Wetland Labels - Text Size A
Level 40	Construction Limit Labels - Text Size B
Level 41	Not Assigned
Level 42	Directional Arrows(Cells), Pavement Striping, and Flush Median Delineation WT = 0, LC = 0
Level 43 - 50	Not Assigned
Level 51	Clip Boundary Border WT = 3, LC = 0
Level 52 - 59	Not Assigned

Level	Alignment Information
Level 60	Base Plan Sheet, Scale Bar North Arrow, Match Lines WT = 5, LC = 0 - Text Size B
Level 61 - 63	Not Assigned

7.3.2.3 Standard Levels Hydraulics Projects

HYDRAULICS PROJECTS WITH SURVEYS COMPLETED AFTER JULY 1, 1995

Level	Description
Level 1	Pipes from 4" to 42" (Custom Line Style)
Level 2	Pipes 48" and Larger (Custom Line Style)
Level 3	Standard Box Culverts LC = 0, WT = 10
Level 4	Endwalls (Cells)
Level 5	End Sections (Cells)
Level 6	Ditches and Flumes WT = 4, LC = 0 (Custom Line Style)
Level 7	Energy Dissipaters, Pipe Spillout and Spring Boxes (Cells)
Level 8	Manholes and Junction Boxes (Cells)
Level 9	Drop Inlets DI - 1, DI - 5, and DI - 9 Series (Cells)
Level 10	Drop Inlets DI - 2 Series (Cells)

Level	Description
Level 11	Drop Inlets DI - 3 Series (Cells)
Level 12	Drop Inlets DI - 4 Series (Cells)
Level 13	Drop Inlets DI - 7 Series (Cells)
Level 14	Drop Inlets DI - 10 Series (Cells)
Level 15	Drop Inlets DI - 11 and DI - 13 Series (Cells)
Level 16	Drop Inlets DI - 12 Series (Cells)
Level 17	Drop Inlets DI - 14 Series (Cells)
Level 18	Special Design Items (Endwalls, Inlets, etc.)
Level 19	Underdrains (CD-1 & 2, UD-1 & 2, etc.) (Custom Line Style)
Level 20	Underdrain Outlet Pipe and EW-12 Endsections (Custom Line Style & Cells)
Level 21	Stone & Outlet Protection (EC-1, RipRap Channel, etc.)(Cells)
Level 22	SWM Basin Items (Basin, Risers, Weirs, Etc.)
Level 23	SWM Basin (Baseline/Alignment)
Level 24	SWM Basin (Plan View/Contours)
Level 25	SWM Basin (Miscellaneous Items)
Level 26	SWM Basin (Descriptions/Notes)

Level	Description
Level 27	Typical Ditch Details
Level 28 - 30	Not Assigned
Level 31 - 60	Annotation for Levels 1 – 30 Note: All Drainage Structure Labels on Level 31 Text Size = B, Unless Noted Otherwise
Level 61	Base Plan Sheet, Scale Bar North Arrow, Match Lines WT = 5, LC = 0
Level 62	Not Assigned
Level 63	Project Notes

7.3.3 Profile Sheet Attributes

7.3.3.1 Level Structure

Level	Description
Level 1	Alignment (Design Profile), Tangent Lines, VPI's
Level 11	Original profile
Level 31	Reference Line, Annotation, Station/Elevation Points

7.3.3.2 Text Scales

Imperial

25 Scale	50 Scale	100 Scale
Reference Line Text = 3.0	Reference Line Text = 6.0	Reference Line Text = 12.0
Vert. Align. Annotation = 3.0	Vert. Align. Annotation = 6.0	Vert. Align. Annotation = 12.0
VPI Data = 3.0	VPI Data = 6.0	VPI Data = 12.0
Profile Elevations = 3.0	Profile Elevations = 6.0	Profile Elevations = 12.0
Stations = 3.0	Stations = 6.0	Stations = 12.0
Elevations = 3.0	Elevations = 6.0	Elevations = 12.0

Metric

1 :250	1 : 500	1 : 1000
Reference Line Text = 1.0	Reference Line Text = 2.0	Reference Line Text = 4.0
Vert. Align. Annotation = 1.0	Vert. Align. Annotation = 2.0	Vert. Align. Annotation = 4.0
VPI Data = 1.0	VPI Data = 2.0	VPI Data = 4.0
Profile Elevations = 1.0	Profile Elevations = 2.0	Profile Elevations = 4.0
Stations = 1.0	Stations = 2.0	Stations = 4.0
Elevations = 1.0	Elevations = 2.0	Elevations = 4.0

7.3.3.3 Line Weights

Reference Lines	3
Vertical Alignment	8
Tangent Lines	2
Original Profiles	5

7.3.3.4 Line Codes

Reference Lines	0
Vertical Alignment	0
Tangent Lines	0
Original Profiles	3

7.4 Plots

Plots of Survey data included in the plan assembly will be done in accordance with the CADD Manual.

Logical Names are now being used to change the line weights, subdue the survey and screen reference files. See section 3.11.2.1 of the CADD manual for details.

New instructions on setting up batch plotting are now available. These instructions must be applied to all sheet files to be plotted. See section 3.11.3 (Print Organizer (Batch Plotting) document for details.

7.5 PDFs

7.5.1 Naming of PDF files

PDF file naming convention shall be the project number, underscore, plus the sheet number. If the sheet number is 1 thru 9 place a zero in front of the sheet number. (For example if the sheet number is 1c the Document # should be 01c.) Design File naming convention for plan sheets is the project number_sheet number (example: 0123-025-102 c501_01.pdf). In the two series, if you have double letters put 02z in front of the sheet number (example: 0123-025-102 c501_02z 2aa.pdf).

Design File naming convention for cross section sheets is the project number_xsheet number (Example: 0123-025-102 c501_x001.pdf).

Bridge File naming convention for plan sheets is the plan number and sheet number (Example: 278-14_01.pdf).

File naming convention for R/W plats is "s" project number and parcel number (Example: s0123-025-102 m501_parcel001.pdf**).** ***Plats are no longer used. This is to show how they were named when being used.***

File naming convention for R/W revisions is the project number_sheet number plus_r1, _r2, _r3, etc. for the revision number to each sheet. For example, sheet #3_r4 and #5_r4 means that sheets 3 and 5 are a part of R4 (revision no. 4) as denoted on the Revision Data Sheet* (Example: 0123-025-102 c501_03_r4.pdf). See Chapter 5 of this manual for more information on R/W revisions.

Files overall dimension should be 23 inches by 35 inches.

Notify the Project Manager and the CADD Support Group that files are on the FTP Server or on the FALCON site by either e-mail (CADDSupport@VDOT.Virginia.gov) or call toll free (888) 683-0345 or local (804) 786-1280.

* Rev 3/17

7.5.2 PDF Software

As of July 1, 2009 the required file format will be PDF files for all electronic submissions to VDOT due to sealing and signing requirements see Appendix F for additional information.

PDF version should be 1.6 or later. PDF images should be at least 400 dpi. However, 600dpi is preferable. Only single layer PDF files are accepted at this time.

MicroStation Print can be used to create PDF files. The Print Driver configuration files are provided by VDOT CADD Support Section. These files are available on the VDOT FTP server as part of VDOT's CADD Package Software Downloads once you are awarded contract. For instructions for creating PDF files using MicroStation Print, see Chapter 8, Section 8.8.

Bridge Plans: Bridge PDF File Generator.pltcfg

Roadway Plans: LD PDF File Generator.pltcfg

Traffic Plans: Traffic PDF File Generator.pltcfg

7.6 Availability of Electronic Files to Contractors

Electronic files are available to contractors through the Falcon Advertised Electronic Plans external web page. These files can be viewed via the web page or copied down to the contractor's PC. The link to the Falcon Advertised Electronic Files web page is http://www.virginiadot.org/business/const/electronic-plans.asp. For instructions for using Falcon Web see Section 7.7.1. For any project not accessible on Falcon web page, see "Policy for Providing Electronic Files" below.

The electronic PDF* version of the plans as advertised becomes the official plan assembly and will be available through the Falcon Advertised Electronic Files external web page and Plan File Room internal Falcon web page.

For instructions on creating PDF files, see Chapter 8, Section 8.8.

The Project Manager is to ensure that the final electronic project files are made accessible through Falcon at the "Advertise Submission Stage" to the Scheduling and Contract Division. The following files in accordance with VDOT's Electronic Deliverable specifications as noted below and specified in Chapter 8 are required.

1) MicroStation DGN Files
2) Reports
3) Index of Files
4) PDF Files
5) GEOPAK Files (when applicable)

*Consultants will need to provide VDOT with PDF Files. VDOT staff will continue to generate PDF Files using MicroStation Print. However, a process in the background will convert the DGN to PDF before the files are added to Falcon.

7.6.1 Policy for Providing Electronic Files

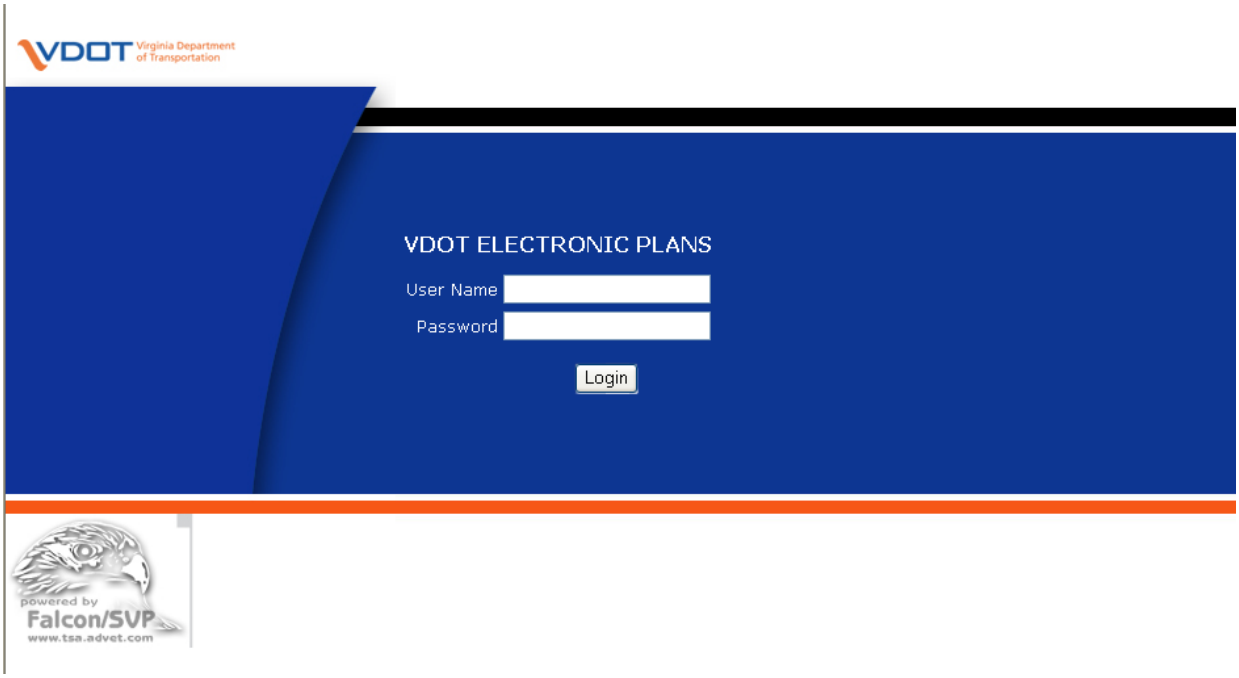
The contractor may submit a written request for electronic files to the Project Engineer. The Project Engineer will forward the request to the Project Manager/Coordinator. The Project Manager/Coordinator will forward the request to the Location and Design CADD Support Section.

7.7 Accessing Projects thru FALCON

7.7.1 Falcon Access for Consultants

All projects must be stored in the Central Office Consultant Environment before Consultants are given access. The Consultant must fill out the Falcon Access Request Form and the LD-443 form then fax both forms to 804-786-5157 or email them to CADDSupport@Vdot.virginia.gov. . A log-in and password will be assigned that will give you access to the project or projects you are working on via your firm. This information will be sent to you by e-mail. When the consultant logs on to the Falcon Web they will get the screen below. Make sure you have JAVA loaded on your computer and that the settings are set as in the attached file. Falcon only works with Internet Explorer.

7.7.1.1 Login Screen

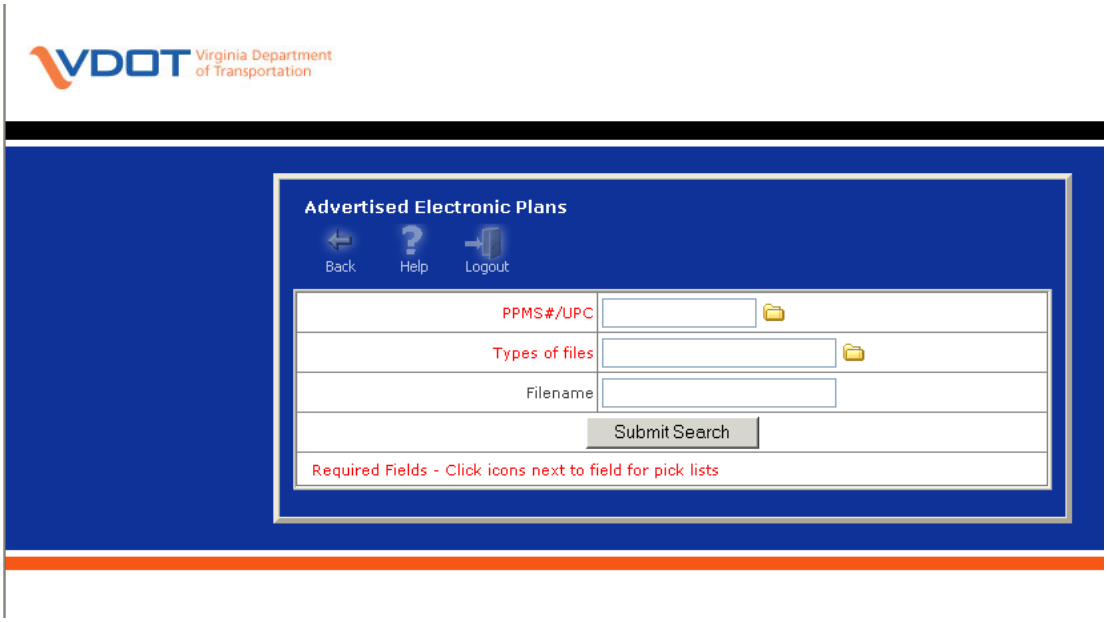


Enter your User Name and Password when logging on. Next a window will appear with a list of your firm's name, e-plans, CII or current drawings. Choose one.

1. Select your company's name or the appropriate category that you need to access. (Not shown)

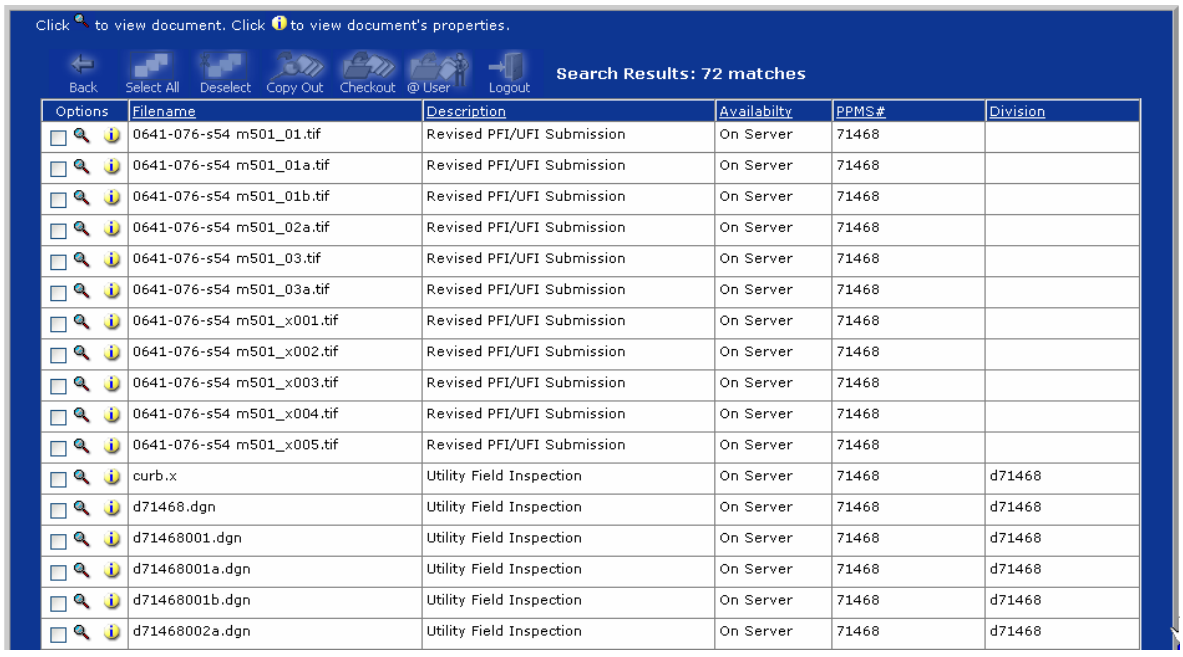
7.7.1.2 Select UPC# and type of File

The program will put the files in a folder named DMSWEB and will keep the same folder structure as VDOT.



7.7.1.3 Select Files you wish to checkout

Check box or boxes for files to be checked out

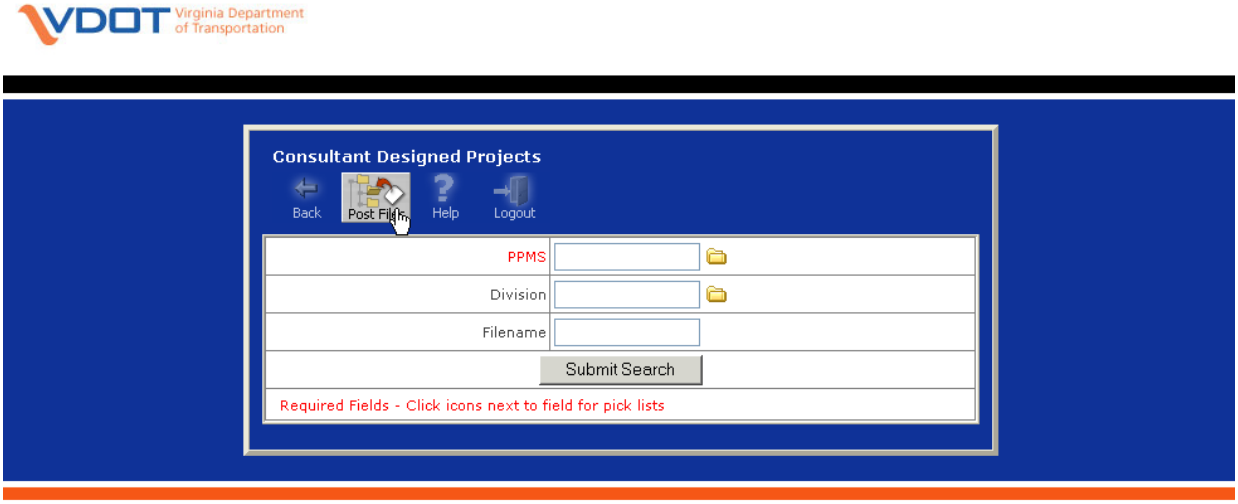


Options	Filename	Description	Availabilty	PPMS#	Division
	0641-076-s54 m501_01.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_01a.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_01b.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_02a.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_03.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_03a.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_x001.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_x002.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_x003.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_x004.tif	Revised PFI/UFI Submission	On Server	71468	
	0641-076-s54 m501_x005.tif	Revised PFI/UFI Submission	On Server	71468	
	curb.x	Utility Field Inspection	On Server	71468	d71468
	d71468.dgn	Utility Field Inspection	On Server	71468	d71468
	d71468001.dgn	Utility Field Inspection	On Server	71468	d71468
	d71468001a.dgn	Utility Field Inspection	On Server	71468	d71468
	d71468001b.dgn	Utility Field Inspection	On Server	71468	d71468
	d71468002a.dgn	Utility Field Inspection	On Server	71468	d71468

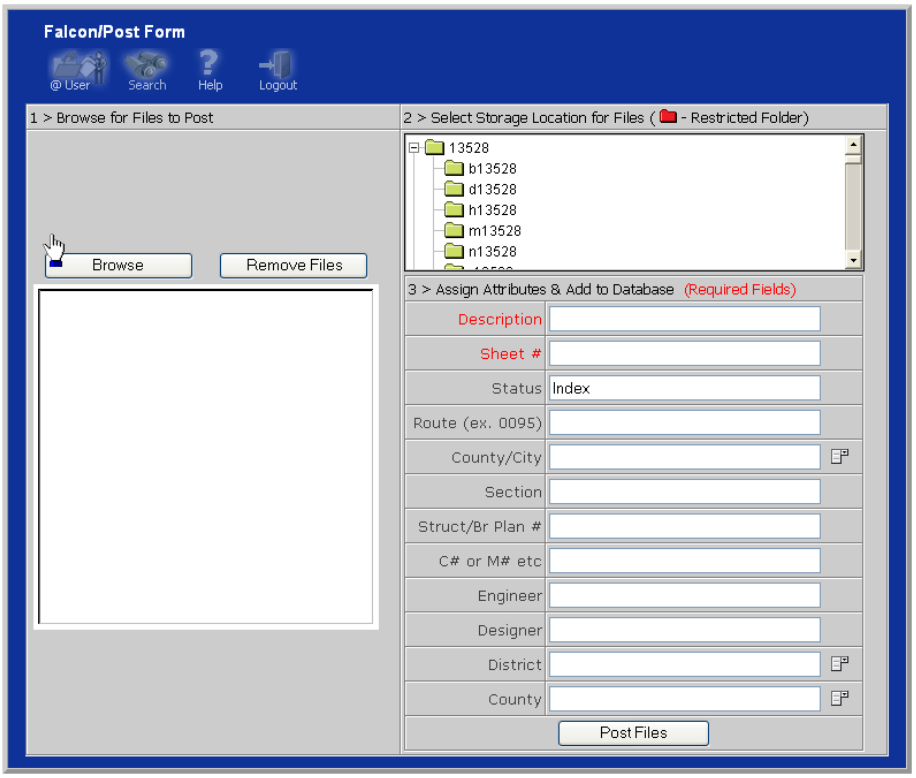
Once you have completed your changes, click on USER and a list of all the files you have checked out will appear. Select the files you want to check in.

7.7.1.4 Post updated Files

If you create a new dgn file that you want to add to Falcon click on POST FILES.



Click run and then browse to find the new file you want to add to the project.



7.8 Accessing Projects thru the FTP Server

7.8.1 Consultant access to the VDOT ftp server

VDOT has a new secure server beginning in June 2010. All previous log on and passwords used before that date is now invalid. Since this is a secure server, each individual in a company outside of VDOT should ask for their own access by completing the security agreement ITD-36E and providing the 8 pieces of information below:

1. First Name
2. Last Name
3. User Telephone
4. Consultant Company Name
5. Work Address, City, State, Zip
6. Expiration date of the VDOT contract that requires use of the VDOT FTP
7. VDOT Project Manager or VDOT Contract Manager
8. Email address assigned by the consultant company

Please fax all the forms to Attn: CADD Support Helpdesk at # (804) 786-5157 or attach to an email and send to CADDSupport@vdot.virginia.gov.

7.8.2 FTP Instructions

For external users the Internet Explorer or any web browser will not work because the FTP server is a secure site. VDOT uses WS_FTP Pro version 12 or higher. You may choose any software that supports SFTP-SSH File Transfer Protocol.

After you have been notified by L&D CADD Support that your application has been approved (approximately 10 days), you have to call the VITA helpdesk at (866) 637-8482 to obtain a user name (logon) and password. Follow the steps below to begin accessing your FTP software:

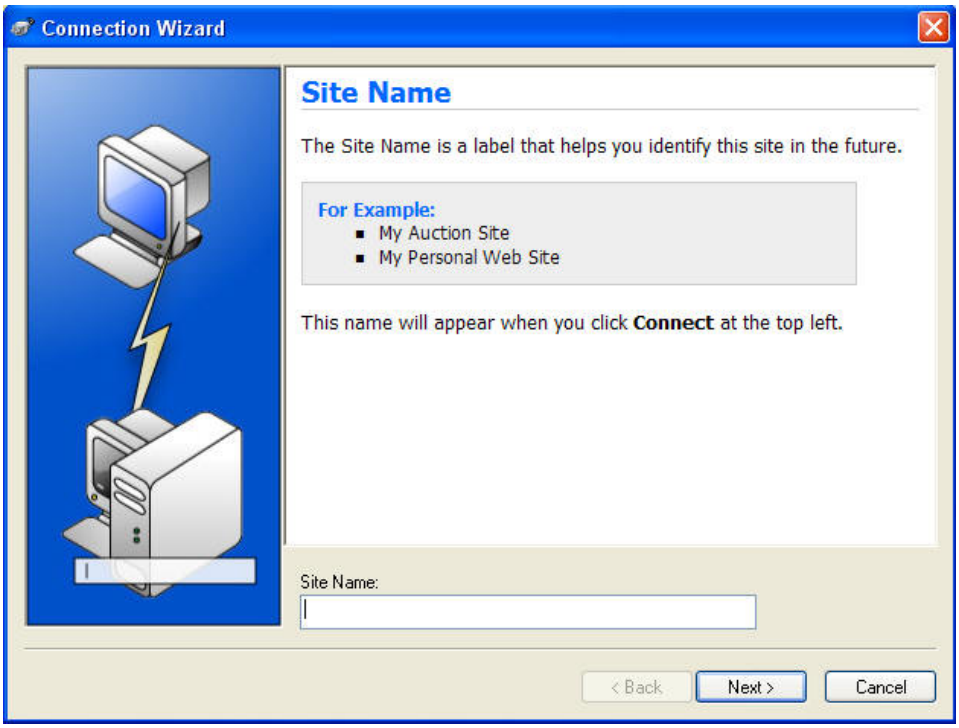
Open FTP software, go to File – Site Manager and create a New Site

Site name: (Whatever you want the folder to be named)

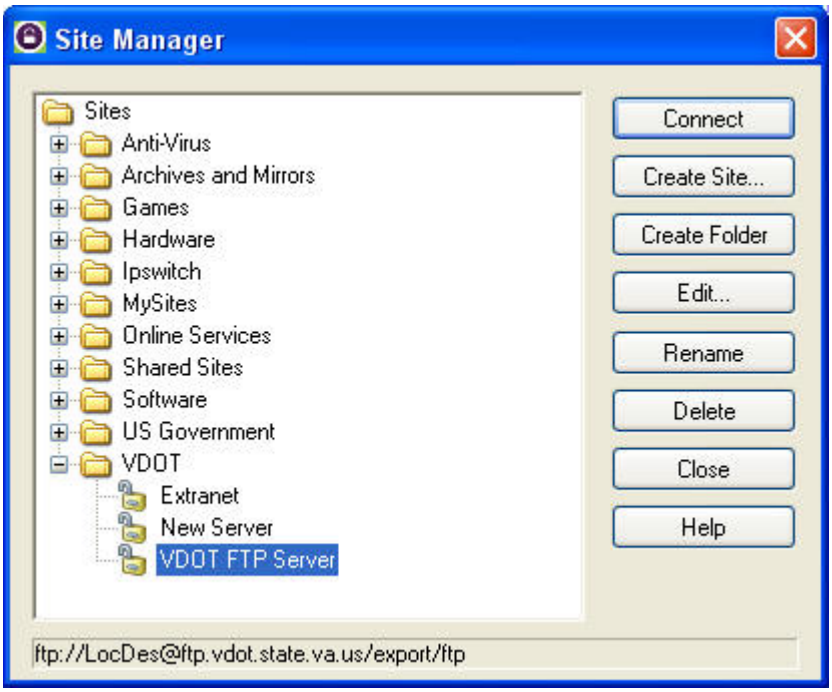
Host Name or IP Address: ftp.vdot.virginia.gov

User Name: (your assigned logon)

Password: (e-mailed to you by ITD)



7.8.3 FTP Connection Site



Once you log into the VDOT FTP site the “download” folder should have all of the folders with the necessary VDOT information. Use the green arrow buttons in the middle of the palette to copy files from the server to your hard drive.