

How To Create A Wireframe Of Your Design, Create B-Spline Surfaces and Prepare Your Design For Rendering

USING MICROSTATION V8

Prepared By:

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Open Project Manager

The screenshot displays the MicroStation V8 2004 Edition software interface. The main window shows a dark 3D view area with a toolbar on the left. A red arrow points to the Project Manager icon in the toolbar. The Project Manager dialog box is open, showing a hierarchical tree structure of project components. The dialog box has a menu bar with 'File', 'Remember', and 'Options'. Below the menu bar, it shows 'Working Directory: c:\Training', 'User: Rich', and 'Job #: 261'. There are checkboxes for 'Working Alignment Influence Runs' and 'Working Alignment Mainline'. The tree structure includes:

- Existing Ground
 - Draw Pattern
 - Existing Ground Cross Sections
 - Existing Ground Profile
 - Vertical Alignment
- Coordinate Geometry
 - Calculate Superelevation
 - Superelevation Shapes
 - Proposed Cross Sections
 - 3D Models
- Horizontal Alignment
 - Earthwork
 - Cross Section Sheets
- Plan View Design
 - Plan View Quantities
 - Tabular Summaries
 - Limits of Construction
 - Reports & XS Quantities
- Plan & Profile Sheets

The bottom of the interface shows the Windows taskbar with the Start button, open applications (xs3D.dgn (3D - V8 DGN), Outlook Today - Microsof...), and system tray icons (Desktop, My Documents, My Computer, My Network Places, Type to search, 3:13 PM).

Click And Open 3D Model

The screenshot displays the MicroStation V8 2004 Edition software interface. The main window is titled "View 1" and shows a dark 3D model area. Two dialog boxes are open:

- 3D Modeling Tools**: Located in the top-left corner, it has a "File" menu and a search field for "Job: 261". Below the search field is a dropdown menu for "Chain: MAIN". The dialog lists several options: "3D Alignment", "3D Cross Sections", "Interpolate Between Sections", and "3D Pavement Markings". A red arrow points to the "3D Modeling Tools" dialog.
- Road Project: Training.pr**: A larger dialog box in the center-right. It has a "File" menu, "Remember", and "Options" buttons. The "Working Directory" is set to "c:\Training". It includes a "Working Alignment Influence Runs" section with a "Select" button and a "Working Alignment" dropdown set to "Mainline". The dialog contains a hierarchical tree of options: "Existing Ground", "Coordinate Geometry", "Horizontal Alignment", "Plan View Design", "Plan & Profile Sheets", "Draw Pattern", "Calculate Superelevation", "Existing Ground Cross Sections", "Superelevation Shapes", "Existing Ground Profile", "Proposed Cross Sections", "Earthwork", "Limits of Construction", "Vertical Alignment", "3D Models", "Cross Section Sheets", "Tabular Summaries", and "Reports & XS Quantities". A red arrow points to the "3D Models" option in this tree.

The bottom of the screen shows the Windows taskbar with the Start button, open applications (xs3D.dgn, Inbox - Microsoft Outlook), and system tray (Desktop, My Documents, My Computer, My Network Places, search bar, and system clock showing 3:23 PM).

Open 3D Cross Sections

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D view of a road project. Two red arrows point to the '3D Cross Sections' option in the '3D Modeling Tools' menu and the '3D Cross Sections' dialog box.

3D Modeling Tools Menu:

- File
- Job: 261
- Chain: MAIN
- 3D Alignment
- 3D Cross Sections**
- Interpolate Between Sections
- 3D Pavement Markings

3D Cross Sections Dialog Box:

- XS DGN File: c:\Training\3dexist.dgn
- Current Station: 50+840.00 R 1
- Begin Station: 50+020.00 R 1 | 50+840.00 R 1
- End Station: 52+800.00 R 1 | 52+180.00 R 1
- Level Symbology Search Criteria
- Existing Ground Line: [Preview]
- Proposed Finish Grade: [Preview]
- Apply

Fit View Dialog Box:

- Files: All
- Expand Clipping Planes
- Center Active Depth
- Center Camera

Road Project: Training.prj Dialog Box:

- File Remember Options
- Working Directory: c:\Training
- Working Alignment Influence Runs
- Working Alignment: Mainline
- User: Rich Job #: 261
- Select Define Post Viewer

The Windows taskbar at the bottom shows the Start button, open applications (xs3D.dgn, Inbox - Microsoft Outlook), and system tray (3:22 PM).

Click And Open Existing Ground Line

The screenshot displays the MicroStation V8 2004 Edition software interface. The main window shows a 3D view of a terrain model. Several dialog boxes are open:

- 3D Modeling Tools:** A panel on the left with options for 3D Alignment, 3D Cross Sections, Interpolate Between Sections, and 3D Pavement Markings.
- Fit View:** A dialog box with options for Expand Clipping Planes, Center Active Depth, and Center Camera.
- 3D Cross Sections:** A dialog box for defining cross-section parameters. It includes fields for XS DGN File, Current Station, Begin Station, and End Station. The 'Existing Ground Line' field is highlighted with a red arrow.
- Existing Ground Line:** A dialog box for defining the existing ground line. It includes fields for Lv Names, Lv Numbers, Colors, Styles, and Weights. The 'Existing Ground Line' field is highlighted with a red arrow.

The Windows taskbar at the bottom shows the Start button, the current application (xs3D.dgn), and other open applications like Microsoft Outlook. The system tray shows the time as 3:24 PM.

Click And Open Proposed Finished Grade

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D view of a terrain model. Several dialog boxes are open, and red arrows point to specific elements:

- 3D Modeling Tools**: A panel on the left with options like 3D Alignment, 3D Cross Sections, Interpolate Between Sections, and 3D Pavement Markings.
- Fit View**: A dialog box with options: Files: All, Expand Clipping Planes, Center Active Depth, and Center Camera.
- 3D Cross Sections**: A dialog box showing:
 - XS DGN File: c:\Training\3dexist.dgn
 - Current Station: 50+840.00 R 1
 - Begin Station: 50+020.00 R 1 (50+840.00 R 1)
 - End Station: 52+800.00 R 1 (52+180.00 R 1)
 - Level Symbology Search Criteria:
 - Existing Ground Line: [Symbol]
 - Proposed Finish Grade: [Symbol]
 - Apply button
- Proposed Finish Grade**: A dialog box with options:
 - Lv Names: [Field]
 - Lv Numbers: [Field]
 - Colors: [Field]
 - Styles: [Field]
 - Weights: [Field]
 - Reset button

Red arrows point to the "Proposed Finish Grade" symbol in the "3D Cross Sections" dialog and the "Proposed Finish Grade" dialog box.

The Windows taskbar at the bottom shows the Start button, open applications (xs3D.dgn, Inbox - Microsoft Outlook), and system tray (3:24 PM).

Click And Open Lv Names Button

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D view of a terrain model. Several dialog boxes are open:

- 3D Modeling Tools:** Located in the top-left corner, it contains options for File, Job (261), Chain (MAIN), 3D Alignment, 3D Cross Sections, Interpolate Between Sections, and 3D Pavement Markings.
- Fit View:** Located in the top-right corner, it has options for Files (All), Expand Clipping Planes (checked), Center Active Depth (unchecked), and Center Camera (checked).
- 3D Cross Sections:** Located in the center-right, it shows the XS DGN File (c:\Training\3dexist.dgn), Current Station (50+840.00 R 1), Begin Station (50+020.00 R 1), and End Station (52+800.00 R 1). It also includes Level Symbology Search Criteria and an Apply button.
- Proposed Finish Grade:** Located in the center-left, it has checkboxes for Lv Names (checked), Lv Numbers (unchecked), Colors (checked), Styles (checked), and Weights (checked). A red arrow points to the 'Lv Names' checkbox.
- Level Name Search Filter:** Located in the bottom-center, it contains a list of level names: AUX_01, AUX_02, AUX_03, AUX_04, AUX_05, AUX_06, AUX_07, AUX_08, and AUX_09. A red arrow points to the 'OK' button.

The Windows taskbar at the bottom shows the Start button, the current application (xs3D.dgn (3D - V8 DG...)), and other open applications (Inbox - Microsoft Outlook). The system tray shows the time as 3:25 PM.

Populate The Lv Names With Level Name Search Filter

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D cross-section of a road with a vertical centerline and a dashed green line representing the 'Excavation Limits'. The road profile is shown with a proposed finish grade and existing ground line. The road has a 6.0000% grade and a 1:4 slope. A vertical curve is shown with a stationing of 50+840.00 R 1. The subgrade is 1794.4216 and the original ground is 1799.7250. The road is shown with a 1:4 slope on both sides and a 1:3 slope on the right side. A vertical excavation is shown on the right side of the road.

Several tool windows are open:

- 3D Modeling Tools:** File, Job: 1261, Chain: MAIN, 3D Alignment, 3D Cross Sections, Interpolate Between Sections, 3D Pavement Markings.
- Window Area:** Apply to Window: 1.
- 3D Cross Sections:** XS DGN File: c:\Training\3dexist.dgn, Current Station: 50+840.00 R 1, Begin Station: 50+020.00 R 1 | 50+840.00 R 1, End Station: 52+800.00 R 1 | 52+180.00 R 1, Level Symbology Search Criteria: Existing Ground Line, Proposed Finish Grade.
- Proposed Finish Grade:** Lv Names, Lv Numbers, Colors, Styles, Weights, Reset.
- Level Name Search Filter:** A list of level names: AUX_01, AUX_02, AUX_03, AUX_04, AUX_05, AUX_06, AUX_07, AUX_08, AUX_09.

Red arrows point to the 'Lv Names' checkbox in the 'Proposed Finish Grade' window, the 'Level Name Search Filter' window, and the 'Excavation Limits' label in the main view.

Metric_2D Views | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Gpk.DlgSym>Select Select > Define first corner point | Fence contents - Inside | Default

Start | 3dexist.dgn (2D - V8 ... | Inbox - Microsoft Outlook | Desktop | My Documents | My Computer | My Network Places | Type to search | 3:27 PM

Populate The Lv Names With Level Name Search Filter

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a road design project with a vertical curve. The curve data is as follows:

Station	Designation	Des. Grade	Subgrade	Orig. Grnd.
50+840.00	R 1	1.7944216	1.7940466	1.7997250

The Level Name Search Filter dialog box is open on the right side of the screen, listing various level names. Red arrows point to the following checked items:

- X_P_Conc_Wall_Above
- X_P_Conc_Wall_Backfill
- X_P_Conc_Wall_Backfill12
- X_P_Conc_Wall_Below
- X_P_Conc_Wall_SS_Notes
- X_P_Conc_Wall_Str_Exc
- X_P_Curb_Back
- X_P_Curb_Bottom
- X_P_Curb_Top
- X_P_Cutslope
- X_P_Ditchslope
- X_P_Exc_Limit
- X_P_Exc_Limit_Text
- X_P_Fillslope
- X_P_Foreslope
- X_P_GD_Wall_Above
- X_P_GD_Wall_Backfill1
- X_P_GD_Wall_Backfill12
- X_P_GD_Wall_Below
- X_P_GD_Wall_SS_Notes
- X_P_GD_Wall_Str_Exc
- X_P_GFMSE_Wall_Backfill1
- X_P_GFMSE_Wall_Backfill12
- X_P_GFMSE_Wall_Backfill13
- X_P_GFMSE_Wall_Embedment_Slope
- X_P_GFMSE_Wall_Excav
- X_P_GFMSE_Wall_Gabion
- X_P_GFMSE_Wall_Grid
- X_P_GFMSE_Wall_PFC
- X_P_GFMSE_Wall_Tooslope
- X_P_Guardrail
- X_P_Jerseybarrier
- X_P_Milling_Backfill
- X_P_Milling_Exc
- X_P_MSE_Wall_Backfill1
- X_P_MSE_Wall_Backfill12
- X_P_MSE_Wall_Backfill13
- X_P_MSE_Wall_Exc
- X_P_MSE_Wall_Reinforce
- X_P_MSE_Wall_Tooslope
- X_P_Parkway_Top
- X_P_Pave_Ditch_Layer_1
- X_P_Pave_Layer_1
- X_P_Pave_Layer_2
- X_P_Pave_Layer_3
- X_P_Pave_Layer_4
- X_P_Pave_Layer_5
- X_P_Pave_Layer_Top
- X_P_Pave_Rehab
- X_P_Pave_Shd_Backfill
- X_P_Paved_Ditch_1
- X_P_Rehab_Prelevel
- X_P_RK_Foundation_Backfill
- X_P_RK_Wall_Back
- X_P_RK_Wall_Backfill
- X_P_RK_Wall_Face
- X_P_RK_Wall_SS_Notes

The dialog box also has OK and Cancel buttons at the bottom right.

Populate The Color With Color Search Filter

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D road model with excavation limits. The Color Search Filter dialog is open on the right, showing a list of station numbers from 199 to 255. The dialog has checkboxes next to station numbers 233, 234, 235, 247, and 248. Red arrows point from the Color Search Filter dialog to the 3D model, indicating the application of the color filter to the excavation limits.

Color Search Filter Dialog:

Station Number	Color	Checked
199	Green	
200	Pink	
201	Purple	
202	Pink	
203	Purple	
204	Purple	
205	Purple	
206	Black	
207	Black	
208	Yellow	
209	Yellow	
210	Yellow	
211	Yellow	
212	Yellow	
213	Yellow	
214	Yellow	
215	Yellow	
216	Yellow	
217	Yellow	
218	Yellow	
219	Yellow	
220	Yellow	
221	Yellow	
222	Yellow	
223	Yellow	
224	Yellow	
225	Yellow	
226	Yellow	
227	Yellow	
228	Yellow	
229	Yellow	
230	Yellow	
231	Yellow	
232	Yellow	
233	Yellow	<input checked="" type="checkbox"/>
234	Yellow	<input checked="" type="checkbox"/>
235	Yellow	<input checked="" type="checkbox"/>
236	Yellow	
237	Yellow	
238	Yellow	
239	Yellow	
240	Yellow	
241	Yellow	
242	Yellow	
243	Yellow	
244	Yellow	
245	Yellow	
246	Yellow	
247	Yellow	<input checked="" type="checkbox"/>
248	Yellow	<input checked="" type="checkbox"/>
249	Yellow	
250	Yellow	
251	Yellow	
252	Yellow	
253	Yellow	
254	Yellow	
255	Yellow	

3D Model Data:

Sta. 50+840.00 R 1
Des. Grade = 1.7944216
Subgrade = 1.7940466
Orig. Grnd. = 1.7997250

Excavation Limits

Metric_2D Views | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

GpkDlgSymSelect Select > Define first corner point | XSNV unloaded.

Start | 3dexist.dgn (2D - V8 ... | Microsoft PowerPoint - [... | wire9 - Paint | Outlook Today - Microsof... | Desktop | My Documents | My Computer | My Network Places | Type to search | 7:13 AM

Press Apply To Process the 3d Cross Sections

3dexist.dgn (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help

214746.5435 214747.9961

View 1

3D Modeling Tools

File Job: 261 Chain: MAIN

3D Alignment
3D Cross Sections
Interpolate Between Sections
3D Pavement Markings

Element Selection

3D Cross Sections

XS DGN File: c:\Training\3dexist.dgn

Current Station: 51+440.00 R 1

Begin Station: 50+020.00 R 1 50+840.00 R 1

End Station: 52+800.00 R 1 52+180.00 R 1

Level Symbology Search Criteria

Existing Ground Line:

Proposed Finish Grade:

Apply

Road Project: Training.prj

File Remember Options

Working Directory: c:\Training User: Rich Job #: 261

Working Alignment Influence Runs

Working Alignment: Mainline

Select Define Port Viewer

Metric_2D Views 1 2 3 4 5 6 7 8

Display complete XSNV unloaded

Start 3dexist.dgn (2D - V8 ... Microsoft PowerPoint - [... Outlook Today - Microsof... wire12 - Paint

Desktop My Documents My Computer My Network Places

Type to search

7:20 AM

3D Cross Sections in Top View

3D Modeling Tools

File: [Job: 261] [Chain: MAIN]

- 3D Alignment
- 3D Cross Sections
- Interpolate Between Sections
- 3D Pavement Markings

3D Cross Sections

XS DGN File: [c:\Training\3dexist.dgn] [Files...]

Current Station: 52+200.00 R 1

Begin Station: 50+840.00 R 1 [50+840.00 R 1]

End Station: 52+800.00 R 1 [52+180.00 R 1]

Level Symbology Search Criteria

Existing Ground Line: [Symbol]

Proposed Finish Grade: [Symbol]

[Apply]

Fit View

Files: All

- Expand Clipping Planes
- Center Active Depth
- Center Camera

Road Project: Training.prj

File Remember Options

Working Directory: c:\Training

Working Alignment Influence Runs:

Working Alignment: Mainline

User: Rich Job #: 261

[Select] [Define] [Post Viewer]

Metric_3D Views [1] [2] [3] [4] [5] [6] [7] [8]

Display complete XSNV unloaded

Start [xs3D.dgn (3D - V8 DG...)] [Microsoft PowerPoint - [...]] [Outlook Today - Microsof...] [wire13 - Paint]

Desktop [My Documents] [My Computer] [My Network Places] [Type to search] [7:22 AM]

3D Cross Sections in Isometric View

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D model of a road cross-section in isometric view, rendered in green and white lines. A red arrow points to a specific cross-section. The interface includes a menu bar (File, Edit, Element, Settings, Tools, Utilities, Workspace, Applications, Window, Help), a toolbar, and a command line. A 'Fit View' dialog box is open, showing options: 'Files: All', 'Expand Clipping Planes' (checked), 'Center Active Depth' (unchecked), and 'Center Camera' (checked). A 'Road Project: Training.prj' dialog box is also open, showing 'Working Directory: c:\Training', 'Working Alignment: Mainline', and 'User: Rich Job #: 261'. The taskbar at the bottom shows the Start button and several open applications: xs3D.dgn (3D - V8 DGN), Microsoft PowerPoint, Outlook Today - Microsoft..., and wire14 - Paint. The system tray shows the time as 7:24 AM.

Applying The 3D Alignment To The 3D Cross Sections

The screenshot displays the MicroStation V8 2004 Edition interface. The main workspace shows a 3D view of a road alignment with a red curve and numerous green dashed cross-section lines. Three red arrows point to key elements: the '3D Alignment' option in the '3D Modeling Tools' menu, the '3D Alignments' dialog box, and the alignment curve in the 3D view.

3D Modeling Tools

- File
- Job: 261
- Chain: MAIN
- 3D Alignment
- 3D Cross Sections
- Interpolate Between Sections
- 3D Pavement Markings

3D Alignments

- Chain: MAIN
- Profile: VERTMAIN
- Offset: 0.0000
- Horizontal Scale: 10
- Vertical Scale: 10
- Symbology
- Apply

Road Project: Training.prj

- File Remember Options
- Working Directory: c:\Training
- Working Alignment Influence Runs:
- Working Alignment: Mainline
- User: Rich Job #: 261
- Select Define Port Viewer

Windows taskbar: Start, xs3D.dgn (3D - V8 DG...), Microsoft PowerPoint - [...], Outlook Today - Microsof..., wire15 - Paint, Desktop, My Documents, My Computer, My Network Places, Type to search, 7:29 AM

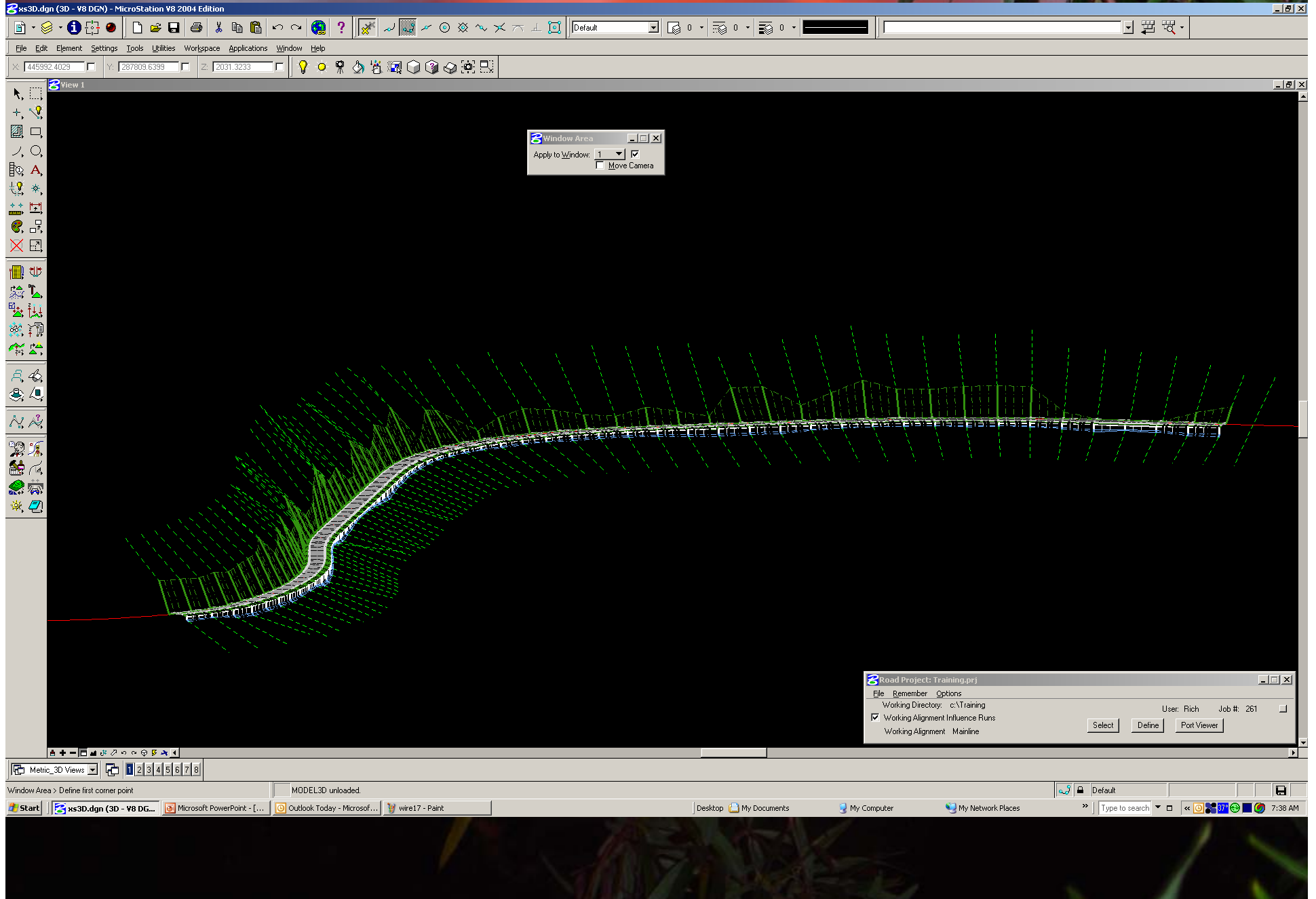
Interpolate Between Cross Sections

The screenshot displays the MicroStation V8 2004 Edition interface. The main window shows a 3D model of a road alignment with cross-sections. The '3D Modeling Tools' palette is open, and the 'Interpolate Between Sections' option is selected. The 'Interpolation Between 3D Cross Sections' dialog box is open, showing the following settings:

- Method: Longitudinal
- Begin Station: Station 50+840.00 R 1, DP, Offset -50.000006
- End Station: Station 51+040.00 R 1, DP, Offset -49.999972
- Options: Highlight Applied BreakLines, Forced Color: 0
- Buttons: Draw Surfaces

An 'Information' dialog box is also open, displaying the message: 'Color Mismatch Was Found'. The 'Road Project: Training.prj' dialog box is visible in the bottom right corner, showing the working directory as 'c:\Training' and the user as 'Rich'.

Completed Interpolation Between Cross Sections



Quick Rendered Cross Sections

xs3D.dgn (3D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help

X: 446165.5646 Y: 287685.8407 Z: 1765.3620

View 1

Ray Traced Shading Display contrast: 2.8

Start xs3D.dgn (3D - V8 DG... Microsoft PowerPoint - [Outlook Today - Microsof... wire18 - Paint Desktop My Documents My Computer My Network Places Type to search 7:42 AM

Road Project: Training.prj

File Remember Options

Working Directory: c:\Training User: Rich Job #: 261

Working Alignment Influence Runs

Working Alignment Mainline