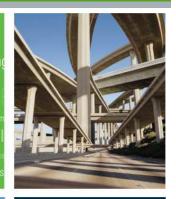


Roads Metals Buildings Cadastre Uses Roads Mining Power Generation s Gas Oil evelopment Mining Oil Factories Unities Roads Mining Buildings Water Water Communication Bridges Metals



Mining Hai Bridges

Roads Metals Building ilities Cadastre Factories Campuses Mining Transit Power Generation nications Wastewater Com nd Development Mining Buil Factories Wastewater Metals Factories Wastewater





Roads Metalls Buildings Cadastre USES Roads Mining Oil Power Generation evelopment Mining Oil Factories United Roads Mining Buildings Water Wastewater Commun

BUII



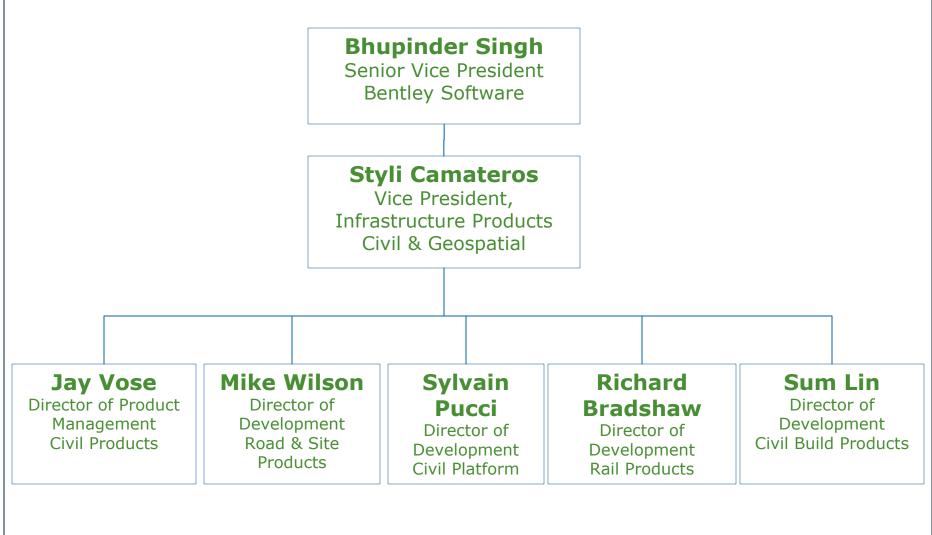
www.bentley.com

InRoads XM Update

Mike Wilson



Bentley Software Organization

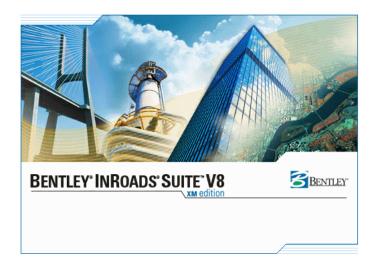




InRoads Release Update

•InRoads XM Family of Products

- Released December, 2006
- SP1 released in May, 2007
- SP2 released February, 2008
- SP3 being discussed for later this year





InRoads XM SP1

•Initial release allowed support for ...

- MicroStation XM with ProjectWise XM or
- MicroStation 2004 with ProjectWise 2004 or

•SP1 adds support for ...

- MicroStation 2004 with ProjectWise XM
- AutoCAD 2007 and 2008
- Quantities Enhancements
- Fixes



InRoads XM SP2

•SP2 contains...

- Survey Enhancements
- Small number of minor fixes



InRoads XM SP3

•SP3 contains...

- ?
- And we always come away from the conferences and meetings like this one with ideas, suggestions and other items from YOU that need to be addressed.



"Peaceful Coexistence"

- Mike's definition: The ability for multiple versions of InRoads to reside on the same machine and work peacefully without interfering with the other version(s).
- Bottom line: The ability for you to begin moving to the next version of InRoads and keep using the previous version for your "projects in the pipeline".



InRoads 8.5 SP7

•Continue our "Peaceful Coexistence" effort

•Added support for ProjectWise XM

- Stay on MicroStation 2004 and InRoads 8.5
- •Allows for incremental XM deployment
 - Move up to ProjectWise XM first
 - Then move to MicroStation XM and InRoads XM

•Released April 24th, 2007

•Complete details in the README



InRoads Family of Products

- •"Peaceful Coexistence"
 - Multiple InRoads Versions
 - InRoads 8.5 February 2004
 - InRoads 8.7 June 2005
 - InRoads 8.8 June 2006
 - InRoads 8.9 December 2006

	InRoads				
	8.5	8.7	8.8	8.9	
MicroStation 2004	X	X	X	X	
ProjectWise 2004	X	X	X	X	
MicroStation XM				X	
ProjectWise XM	X			X	

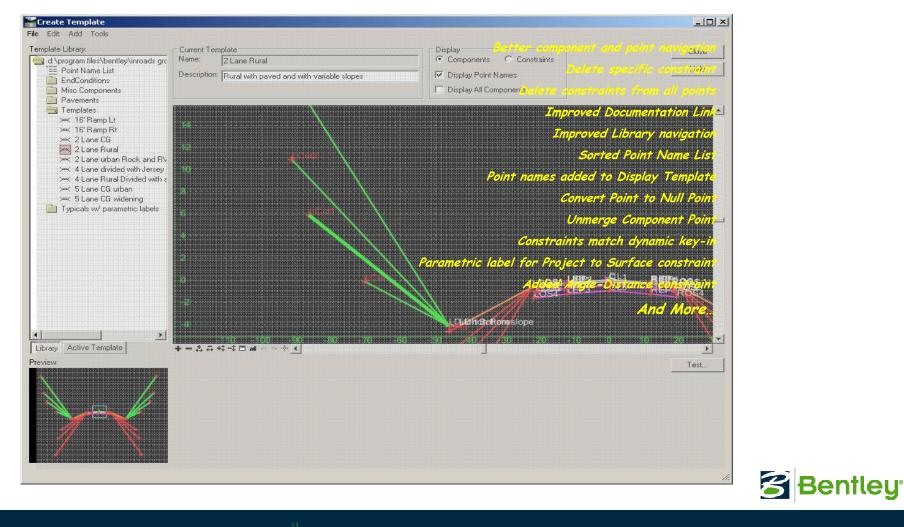


Improved ProjectWise Integration in SP1

Set Project Defaults			×	
Configuration Name:	QM for BE		Apply	
Default Preferences			Close	
	F	Read Only	New	
Preferences (*.xin):	C:\QM for BE\civil.xin		Сору	🚔 Select Folder
Turnouts (*.txt):			Rename	Select
Drainage Structures (*.dat):			Delete	Folders
Rainfall Data (*.idf):			Browse	Barry.Mathews
Bridge Sections (*.txt):			Import	Carlos Mariews David Croom
Drafting Notes (*.dft):			Export	🗄 🍓 Dawn.Clark
Pay Items (*.mdb):	C:\QM for BE\QM.mdb			ia - 🐣 Florrie. Rose ia - 🖓 Jason. Smithey
Default Directory Paths			Help	🗓 🕘 Jeff.Hannan
ProjectWise Directory:	pw:\\PWXMCIVIL:PWXMCIVIL\Documents\Florrie.Rose\data\			∰ Keep Out Jason and Kevin ⊕∰ kelly
Project Default Directory:	C:\Documents and Settings\Mike.Wilson\My Documents\QM for BE	ν		iar
Report Directory:	C:\Documents and Settings\Mike.Wilson\My Documents\QM for BE	Υ.		🖻 🍓 Mike Wilson
Projects (*.rwk):	pw:\\PWXMCIVIL:PWXMCIVIL:Documents\Mike Wilson\InRoads>	KM VKS		ia
Surfaces (*.dtm):	pw:\\EwxMCIVIL:PWXMCIVIL\Documents\Mike Wilson\InRoads >	<mvxs< td=""><td>S\dtm\</td><td></td></mvxs<>	S\dtm\	
Geometry Projects (*.alg):	pv:\\PWXMCIVIL:PWXMCIVIL\Documents\Mike Wilson\InRoads >	<mvxs< td=""><td>i\alg\</td><td>→ ∰ dtm → ∰ Mike. Cavanaugh</td></mvxs<>	i\alg\	→ ∰ dtm → ∰ Mike. Cavanaugh
Template Libraries (*.itl):				Tim.Langham
Roadway Design (*.ird):				
Survey Data (*.fwd):				pw:\\PWXMCIVIL:PWXMCIVIL\Documents\Mike Wilson\
Drainage (*.sdb):				
Style Sheet (*.xsl):				
Quantity Manager (*.mdb):	C:\Documents and Settings\Mike.Wilson\My Documents\QM for BE	V.		OK Cancel
Default Grid Factor	Export			
Grid Factor: 1.0000	Active Only			_
				31

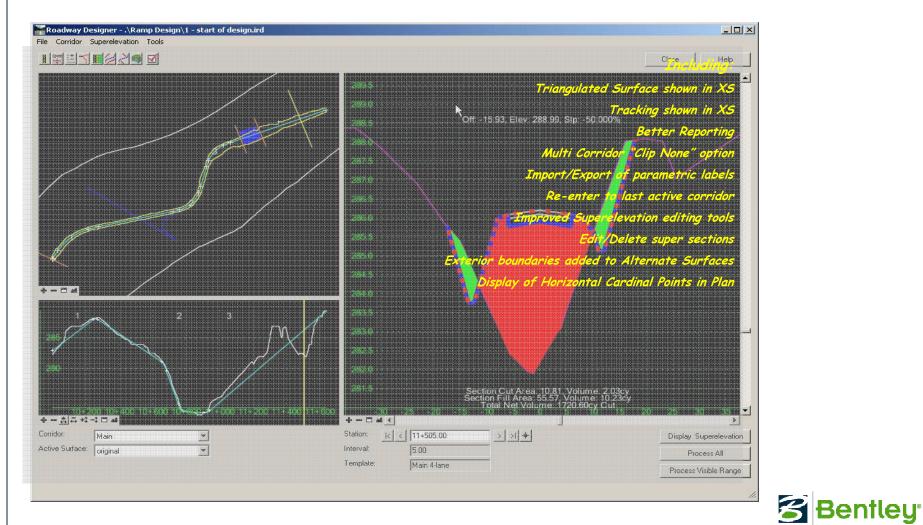
Create Template

 Continued enhancements for productivity and workflow



Roadway Designer

• Again, continued enhancements



Quantities Enhancements

Quantities from Graphic Elements

- Pay Items can be assigned to graphic elements.
- Graphic elements are quantified like features.
- Names can be associated with graphic elements.
- An element's measurement can be overridden.

Automated Sheet Quantities

- New Sheet mode produces quantities by sheet.
- Sheet mode takes VDF files as input.



New Pay Item Commands

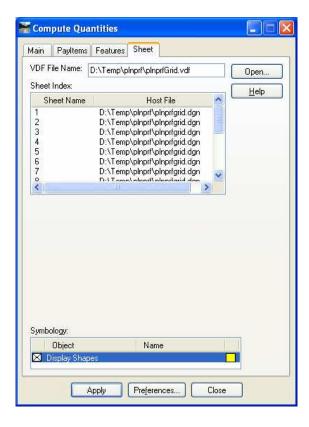
Assign Pay Items and Review/Edit Pay Items provide the ability to assign and manage pay items on graphic elements and DTM features.

Kan Assign Pay Items	×
Name: Grass Ares Apply	,
Pay Items Close	
Name Description Measurem 🔚 💳	\equiv
610.0101 APPLYING SOIL AMEND 612.01 SODDING INCLUDING T	
Override Measurement: 0.00	

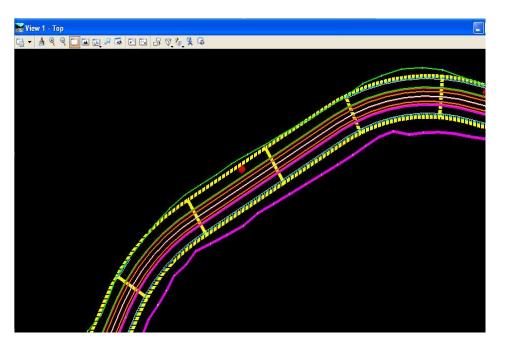
Review/I	dit Pay Items	
Graphic Eleme D/Name Grass Area Guard Rail Manholes Manholes Manholes Manholes Manholes Manholes Manholes	Level/Style Cell Name Type Level 15 Comple Level 15 Line St MH Cell MH Cell MH Cell MH Cell MH Cell	ex Shape Close
Name	Description	From Style 🛛 🏀
610.0101 612.01	APPLYING SOIL AMENDMENTS SODDING INCLUDING TOP SOIL BI	No 🔣
<		>
Override	Measurement: 0.00	



Automated Sheet Quantities



Sheet names and boundaries are extracted from the selected VDF file.





Quantity Manager

Sheet quantities are separated by sheet.

Quantities from graphic elements report Element Id, DGN Filename, and other MicroStation specific information.

Payitem	Run Name	Boundary	Net Value	Measurement Basis	Measurement	tValue Cor	mputed Value	Rounded Value
604.5	By Sheet	Sheet:1	1.000	Each		1.000	1.000	1.00
604.5	By Sheet	Sheet : 2	1.000	Each		1.000	1.000	1.00
604.5	By Sheet	Sheet : 4	1.000	Each		1.000	1.000	1.00
604.5	By Sheet	Sheet : 5	1.000	Each		1.000	1.000	1.00
604.5	By Sheet	Sheet:6	1.000	Each		1.000	1.000) 1.0
<								
鴙 Eleme	触 Elements 🚳 Adhoc Attributes 🕪 Payer Participation 🕪 Funding Participation 🏽 🕸 Funding Rules							
Name	Туре	Native Id	Document		Begin X	Begin Y	Begin Stati	Begin Reg Forma
Manholes	Cell	23283	D-\Temp\plppr	fWodelCenterline.dgn	11,737.440	11,800.804	100.000	1 1+00.00



Importing Data

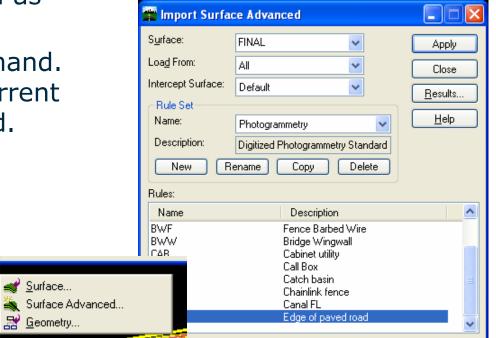
😫 Text Import <u>W</u>izard...

Import

Export

Translators

- Import -> Surface Advanced
 - The tool for photogrammetry data
 - Bulk imports graphic surface data
 - Reusable standards stored as Rule Sets
 - This is an additional command.
 We did not remove the current Import Graphics command.





Importing Data

- Import -> Surface Advanced
 - User definable rules filter elements by graphic properties (type, level, color, weight, style).

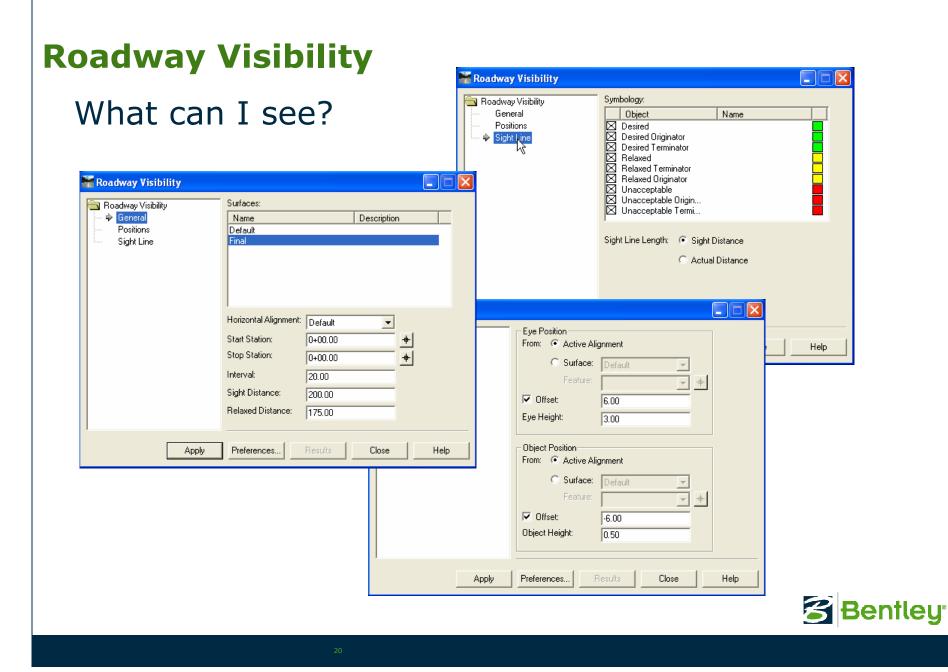
	🚰 Edit Import Rule			Press and the second Data			
I chartor flue I speci I chartor flue I speci <td< th=""><th></th><th></th><th></th><th></th><th>Available:</th><th></th><th></th></td<>					Available:		
Verdet Unside	Edit Import Rule						
Cel Name: Process Settings						5	
• Upper • Order • Upper • Order • Mach Elemen Properter • Order • Process Settings • Order • Ed Inport Rule • Order • Order							
Una Syles Weights Cell Names Inters Syles Cell Names Process Settings Inters Syles Cell Names Process Settings Inters Syles Cell Names Process Settings Inters Syles Cell Names Process Settings Process Settings Inters Syles Setchor Creates F Inters Syles Setchor Creates Inters Syles Setchor Creates	Types						
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Proces Setings Proces Proces Setings Proces Pr		+ Match Element Properties		🜩 Colors			
Name: Availabile: C el Names By Level Image: Image: Image: By Level Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image: Image:		🚰 Edit Import	Rule				
Image: Selection Cherical Selection Che							
Image: Section Citeria Image: Section Citeria General Image: Section Citeria				Process Settings	Remove		
Selection Circleia Selection Circleia Select							
General Gen			- Critoria				
Image: Types 10 Image: Colors 12 Image: Colors 14 Image: Colors 14 <td></td> <td>Ger</td> <td>eral 6</td> <td></td> <td>None</td> <td></td> <td></td>		Ger	eral 6		None		
Lune Styles Line Styles Cell Names 30 31 40 40 40 40 40 40 40 40 40 40			10		Apply	Close <u>H</u> elp	
Weights 20 Cell Names 30 31 40 40 43 51 52 60 Close Apply Close Help Eleptical			rs 11 12				
49 51 52 Apply Close Help Bentley			styles 14 ghts 20				
49 51 52 Apply Close Help Bentley			Names 26 Sottings 30				
43 52 60 Apply Close Help Bentley		Process	31				
52 Image: None Apply Close Help Bentley			49	All ->			
			52				
Bentley							
Bentley				Apply Close H	qle		
							Pontlou
							Denney

Importing Data

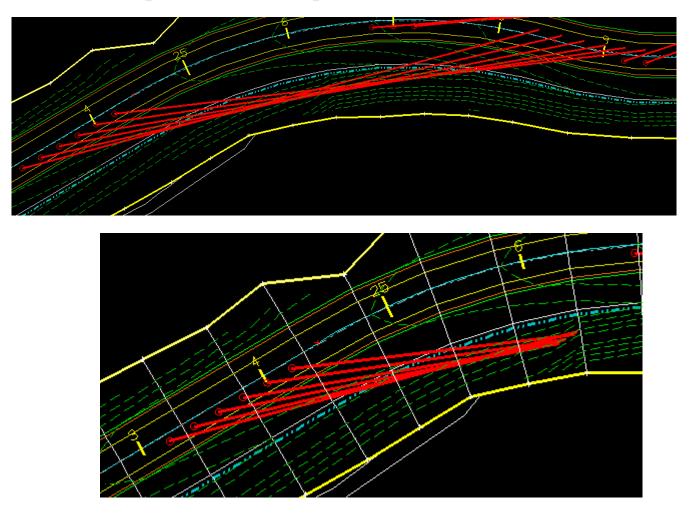
- Import -> Surface Advanced
 - Rules determine the feature properties of imported elements. (Name, Type, Style, etc.)

🚰 Edit Import Rule		
Name:	Rule Description: Ec	dge of paved road
C EP >	Seed Name: Description: Parent: Feature Style: Point Type: Point Density Inter Exclude from Trian Target Surface: A Random Points Single Feature One Point Per Fe	Active O FINAL
		Apply Close Help



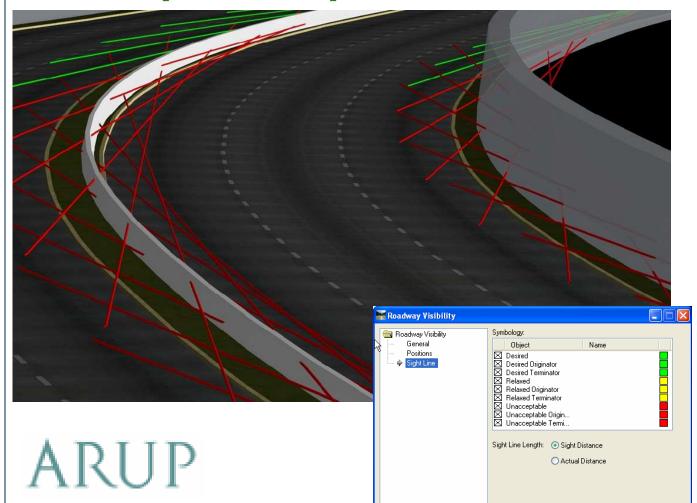


Roadway Visibility





Roadway Visibility





Preferences...

Results

Close

Help

Apply

Surface Visibility

New tools for visibility analysis of DTMs.

Three modes of operation:

Surface Points

Displays all DTM points and distinguishes those that are visible from those that are <u>not</u> visible; from a given eye position.

Surface Regions

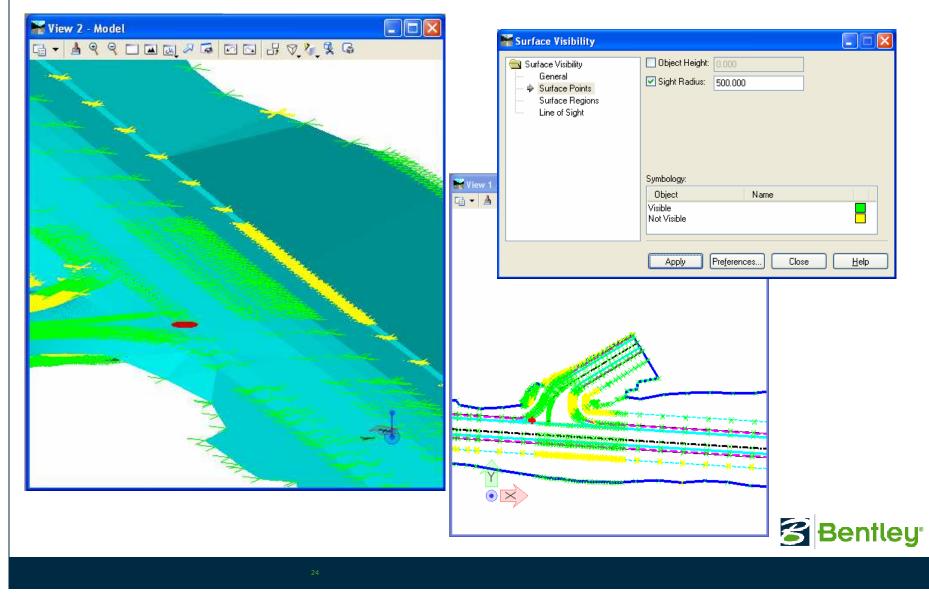
Generates and drapes lines of sight that radiate outward from an eye position. Distinguishes between visible and <u>not</u> visible portions of the lines of sight.

Line of Sight

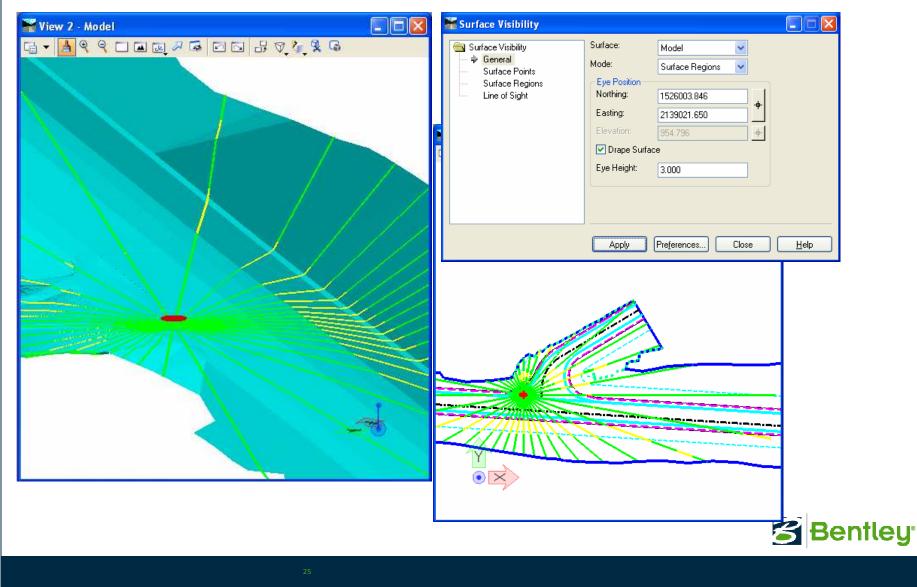
Determines if an object position is visible from an eye position. Then distinguishes between portions of the line of sight that are above ground and below ground.



Surface Points



Surface Regions



Line	of Sight		
Surface Visibility Surface Visibility General Surface Points Surface Regions Line of Sight	Object Position Northing: 13448.82 Easting: 14067.47 Elevation: 970.00 Image Surface Object Height: 20.00		
	Symbology: Object Name Above Ground	Le Contra	
	A Maria		
	76		Bentley [.]

Annotate Slope Direction

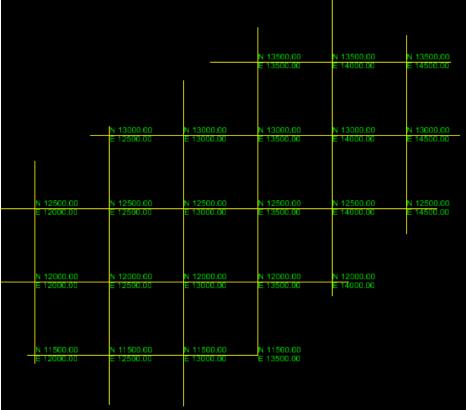
- This command allows the user to place flow arrowheads on a feature at a certain interval and offset.
- It places the cells oriented along the feature to show the slope (flow) of the feature.

Main Points	⊄ _ine Segments Slope Directio	on
Cell:	~	
Offset:	0.0000	
Annotate	See	
Every Segmination	ent	
🔘 At Interval:	0.0000	



Place Coordinate Grid

- Places coordinates and grid-lines at user specified intervals.
- Part of the drafting tools.

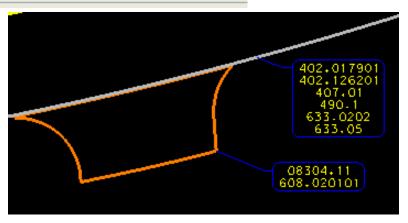




Quantities in Drafting Notes

- Added keywords for pay item name, code, description, and unit.
- Also added keywords for pay item block and end block so multiple pay items on a single feature can be annotated.

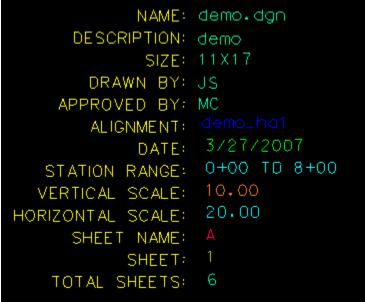
- Pay Items		
Name	Description	Fr
402.017901 50mm average	TRUE & LEVELING F9, SUPERPAVE HMA, 70 SERIES COMPACTION	No
402.126201 40mm	12.5MM F2 SUPERPAVE HMA, 60 SERIES COMPACTION	No
407.01 Milled Surfaces	TACK COAT 😽	No
490.1	PRODUCTION COLD MILLING BITUMINOUS CONCRETE	No
633.0202	CLEANING EXISTING PAVEMENT AND/OR SHOULDERS	No





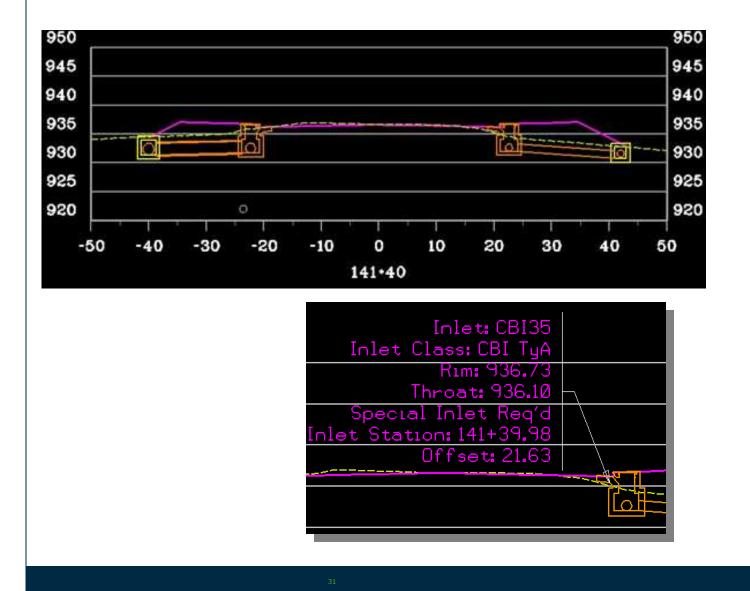
ProjectWise Title Block Integration with Cross Sections

- Two methods:
 - Tagged attributes can be placed directly within border cell
 - Title block cell can be attached by InRoads when using reference file as border



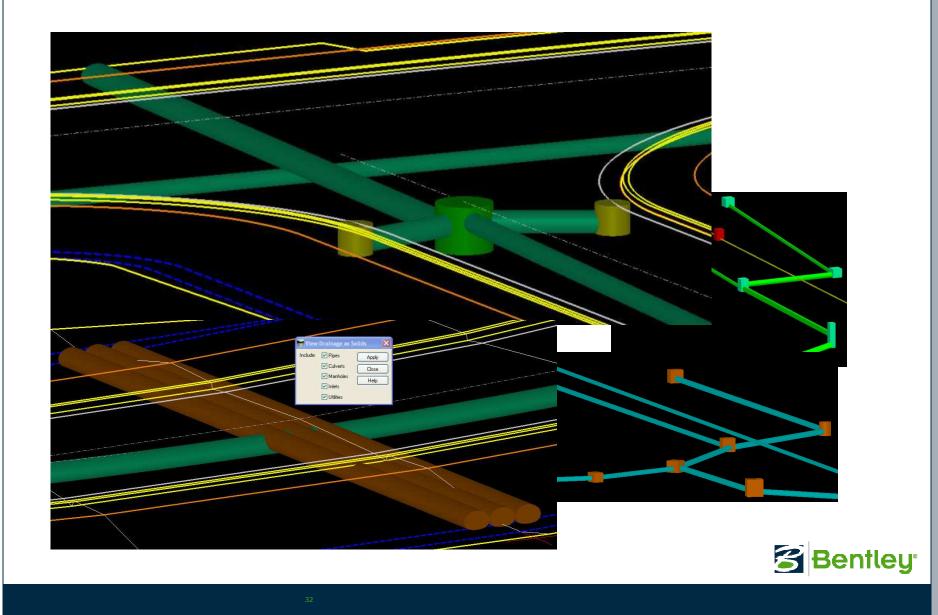


Drainage Cross Sections





Solids for S&S Networks in SP1



XML Reporting

- Reorganized into multiple commands
- Fewer steps
- XML file is transient

Station Base Report Station B	■ From Horizontal Alignment: Mainline ■ Surface: Existing ground ♥ Feature: BOC ♥ Limits Station Start: 0+00.0000 + Stop: 71+00.7494 +	Cogo Points Include: Selected:	
Legal Description Report Alignments Include: Selected: Name Description Style Closed Alignments Only	Reference Alignments Include: Selected: Name Description Style Filter Preferences Help		nces



Bentley InRoads Report Browser - C:\DOCUME~1\RICHAR~1.BRA\LOCALS~1\Temp\RPT10B.xml

File Tools Help

D:\program files\Bentley\InRoads Group V8.8\XM ^ Point Point Delta / Rotation 📄 Bridge Element Number Station Northing Easting Radius Length ĸ P Type Theta Direction Cant Clearance Aligment Name: Mainline Custom Description: DataCollection Evaluation Style: designroad a Geometry POB Tangent Style Sheet Help A] Area.xsl Tangent TS A ControlLineData.xsl FigureNameDescription.xsl TS Clothoid Notes A HorizontalAlignmentAndEvents.xsl SPI Clothoid ight 99.9852 1.1109 A HorizontalAlignmentCurveSetReview.x: Clothoid SC You must include at least one horizontal alignment in the Include field on the A HorizontalAlignmentData.xsl Tools > XML Reports > Geometry command to get results from this report. A HorizontalAlignmentLengths.xsl SC Arc A HorizontalAlignmentReview.xsl PI © 2006 Bentley Systems, Inc Arc ight A HorizontalAlignmentReviewASCII.xsl CC A HorizontalAlignmentSuperelevationRev Arc A HorizontalAndVerticalAlignmentReview CS Arc Style Sheet Help HorizontalElementsTable.xsl CS **Compound Clothoid** HorizontalElementsXYZ.xsl A A HorizontalEvents.xsl Compound Clothoid SPI Notes A ICSAuditTrail.xsl SC Compound Clothoid A ListCoordinates.xsl You must include at least one horizontal alignment or one Cogo point on the A) ListCoor SC Style Sheet Help Main tab of the Geometry > View Geometry > Horizontal Annotation command. A) LocateD PI A) ProfileStati Set As Default Surfaces You must select Assigned or Active in the Apply Style group and the selected CC A) ProfileStati Set As Default Geometry style, whether it is the assigned style or the active, must have the Allow Tabling A) ProjectAlia CS Set As Default Station and Offset option toggled on for the element type you wish to table. For example, if you A) ProjectAlig wish to table spirals, select the Tools > Style Manager command and find your CS Set As Default Clearance A) SettingOut style. Select the Edit button and navigate to the Geometry Feature > Spirals > Set As Default Stakeout SPI A) SlewDiagr Alternate leaf and toggle on the Allow Tabling option. Do this for each element A) SlewDiagr Set As Default Legal Description ST type in each feature style that you plan to table. A) Traverse.x Set As Default Turnouts ST 30+40.5714 A] TraverseP Set As Default Horizontal Slew You must select either Basic Element Information or All Element Information A) VerticalAlic PC 42+93.8886 on the Tabling tab of the Geometry > View Geometry > Horizontal Annotation Set As Default Vertical Slew A VerticalAlic command to get results from this report. Set As Default Horizontal Annotation Tabling PC 42+93.8886 A VerticalAlic Set As Default Light Rail Manufacturing PI 46+96.7450 A VerticalAlig Tìps Set As Default Bridge A) VerticalAlic CC Set As Default Cross Section DT I 50,00 7707 4 You can place the results of your report into your MicroStation design file by Set As Default End Area Volume highlighting the text you wish to copy in the Report Browser, keying in CTRL+C, Set As Default Triangle Volume and then keying in CTRL+V in your design file. Set As Default Survey Set As Default Roadway Design Bentley Set As Default Superelevation Set As Default Template Library

Design to Construction

- In the delivery directory look for the <u>Exporting InRoads Data for</u> <u>Construction.pdf</u> document.
- It defines steps for exporting design data to either field instruments or machine control equipment.



Thank You!

