

Customizing XSLs for XML Reporting

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What Reports are available in InRoads?

- Reporting can be accomplished in several ways:
 - Review type reports
 - Presentation / formatting controlled by the product
 - XML / XSL reports
 - Presentation / formatting controlled by the user (as defined in a style sheet / XSL file)
 - InRoads produces the XML data
 - InRoads *Report Browser* utilizes XSL to transform the XML data to text or HTML

Understanding XML

- Extensible Markup Language (XML) composed of tags and attributes and XML is used for data exchange
- Extensible Stylesheet Language Transformation (XSLT) -
 - Defines the presentation of an XML document
- XML must be well formed
- One root element with a unique name
- Elements are properly nested -- no overlap.
- Tags must be closed.
- XML is case sensitive
- All element attributes are enclosed in quotation marks

What Can Style sheets Accomplish?

- Transform XML into HTML, text or another XML.
- Filter and sort XML data.
- Address parts of an XML document.
- Format XML data based on the data value, like displaying negative numbers in red.

XSL Elements

- `xsl:apply-templates`
- `xsl:attribute`
- `xsl:call-template`
- `xsl:choose`
- `xsl:comment`
- `xsl:copy`
- `xsl:copy-of`
- `xsl:element`
- `xsl:for-each`

XSL Elements Continued

- xsl:if
- xsl:include
- xsl:otherwise
- xsl:output
- xsl:param
- xsl:sort
- xsl:stylesheet
- xsl:template
- xsl:text

InRoads XML Report Tool

- To Access select InRoads > Tools > XML Report
- The Report Tool Extracts an XML file from the InRoads binary data structures based on the criteria submitted.
- The XML file is temporary and written to the location of the systems TEMP variable
- Save any files to be reused to alternate location.

Report Browser

- Manage “default” report style sheet for each type of report
- Style sheet “Help” documents what is required to use a specific style sheet
- Manage formatting with *Tools>Format Options*
 - Decimal precision
 - Formatting
 - Stationing
 - Angles
 - Directions
 - Slopes
- Allows *multiple* looks at the same data

Report Browser

Horizontal Alignment Review

Report Created: 10/11/2007
Time: 2:45pm

Project: Ramp E-287
Description:
File Name: D:\data\Ramp E287 - Prestressed Concrete
Last Revised: Richard Bradshaw 10/11/2007 2:28:40 PM
Input Grid Factor: 1.00000000 **Note:** All units in this report are

Alignment Name: Ramp E-287
Alignment Description:
Alignment Style: Default

	Station	Northing	Easting
Element: Linear			
POB (pi0)	6+50.00	392827.606	2055811.372
PC ()	8+69.27	392895.958	2056019.715
Tangential Direction:	N 71°50'12" E		
Tangential Length:	219.269		
Element: Circular			
PC ()	8+69.27	392895.958	2056019.715
PI ()	10+54.63	392953.740	2056195.840
CC ()		391534.937	2056466.231
PT ()	12+37.94	392964.786	2056380.872
Radius:	1432.394		
Delta:	14°44'49" Right		
Degree of Curvature (Arc):	4°00'00"		
Length:	368.674		
Tangent:	185.361		
Chord:	367.657		
Middle Ordinate:	11.845		
External:	11.944		

Format Options

Mode: 0.123 Precision: 0.123 Format: ddd^mm'ss.s" Close Help

Northing/Easting: 0.123

Elevation: 0.123

Angular: Degrees 0 ddd^mm'ss.s" Include Angular Suffix

Slope: 0.1234 50%

Use Alternate Slope if Slope Exceeds: 10.0000%

Alternate Slope: 0 2.0:1

Linear: 0.123

Station: 0.12 ss+ss.ss

Acres/Hectares: 0.123

Area Units: 0

Cubic Units: 0 Convert to Cubic Yards

Direction: Bearings 0 ddd^mm'ss.s"

Face: Right Face

Vertical Observation: Zenith

Geometry Report Types Available

- Geometry
- Station Base
- Station Offset
- Clearance
- Stakeout
- Legal Description
- Map Check
- Intersecting Alignment Stations
- Point Validation

Geometry Report

Horizontal and Vertical Alignment Review Report

Report Created: 10/11/2007
Time: 2:52pm

Project: Ramp E-287
Description:
File Name: D:\data\Ramp E287 - Prestressed Concrete\Ramp E-287.alg
Last Revised: Richard.Bradshaw 10/11/2007 2:43:19 PM
Input Grid Factor: 1.00000000 **Note:** All units in this report are in feet unless specified otherwise.

Horizontal Alignment: Ramp E-287
Horizontal Description:
Horizontal Style: Default

	Station	Northing	Easting
Element: Linear			
POB (pi0)	6+50.00	392827.606	2055811.372
PC ()	8+69.27	392895.958	2056019.715
Tangential Direction:	N 71°50'12" E		
Tangential Length:	219.269		
Element: Circular			
PC ()	8+69.27	392895.958	2056019.715
PI ()	10+54.63	392953.740	2056195.840
CC ()		391534.937	2056466.231
PT ()	12+37.94	392964.786	2056380.872
Radius:	1432.394		
Delta:	14°44'49" Right		
Degree of Curvature (Arc):	4°00'00"		
Length:	368.674		

	Station	Elevation	Northing	Easting
Element: Linear				
POB	6+50.00	628.140	392827.606	2055811.372
PVC	6+74.00	627.545	392835.087	2055834.176
Tangent Grade:	-2.4800%			
Tangent Length:	24.000			
Element: Symmetrical Parabola				
PVC	6+74.00	627.545	392835.087	2055834.176
PVI	8+48.00	623.230	392889.328	2055999.506
PVT	10+22.00	625.293	392935.749	2056167.097
VLOW	9+09.44	624.626		
Length:	348.000			
Entrance Grade:	-2.4800%			
Exit Grade:	1.1856%			

Geometry Report

Horizontal Alignments

Include: *

Selected:

Name	Style
PED298	pedestal
PED299	pedestal
PED300	pedestal
Ramp E-287	Default
SA1	slab
SA2	slab
SA3	slab
SA4	slab
SA5	slab

Include Vertical Alignments
 All Active

Include Cant Alignments
 All Active

Include Vertical Event Points

Include Horizontal Event Points

Cogo Points

Include:

Selected:

Name	Description	Style
------	-------------	-------

Interval: 50.00

Limits

Station

Start: 0+00.00

Stop: 0+00.00

Apply

Close

Filter...

Preferences...

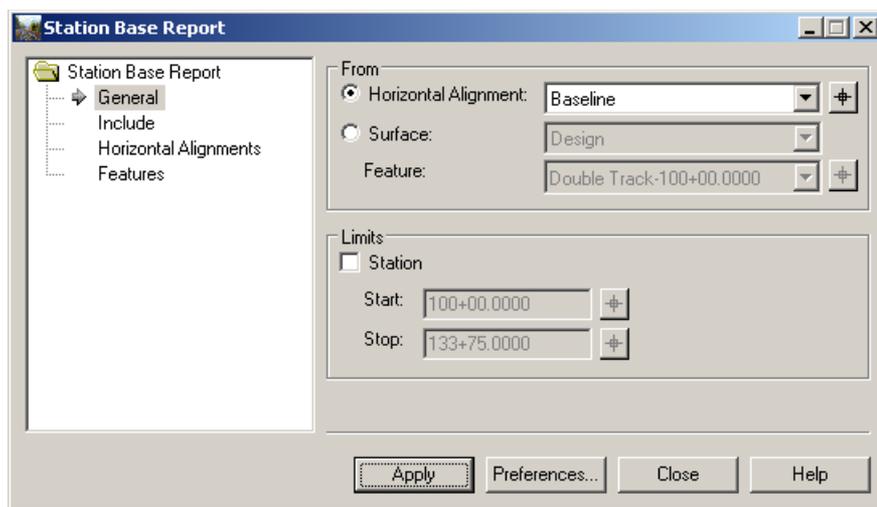
Help

Station and Offset

- Why two commands *Station Base* and *Station Offset*?
- What's the difference?
 - Primarily it has to do with whether you increment along the active alignment / feature or the selected alignments / features

Station Base Report

- Increments along the *From* object
- Allows you to define station limits



Transverse Feature Report

Report Created: 10/15/2007
Time: 11:38am

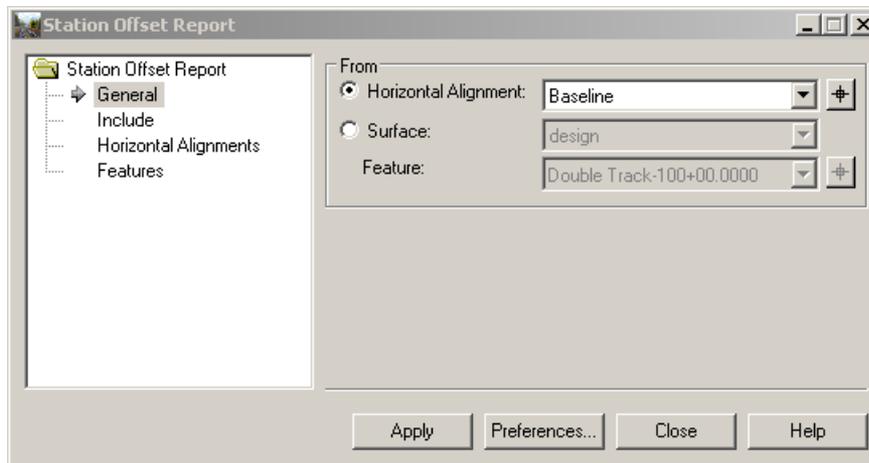
Rail Modeling\railway.alg
Bradshaw 10/15/2007 11:23:38 AM

Note: All units in this report are in feet unless specified otherwise.

Station	Offset	Elevation	Northing	Easting
100+00.00	-35.628	101.838	10344.231	4594.046
100+00.00	-33.583	100.816	10342.665	4592.731
100+00.00	-31.583	100.816	10341.133	4591.446
100+00.00	-27.583	102.816	10338.069	4588.875
100+00.00	-26.127	103.544	10336.954	4587.939
100+00.00	-24.386	103.616	10335.620	4586.820
100+00.00	-20.083	105.768	10332.323	4584.054
100+00.00	-14.750	104.018	10328.238	4580.625
100+00.00	-9.417	105.768	10324.152	4577.197
100+00.00	-7.375	104.747	10322.588	4575.885
100+00.00	-7.375	104.325	10322.588	4575.885
100+00.00	-7.375	103.658	10322.588	4575.885
100+00.00	-5.333	105.768	10321.024	4574.573
100+00.00	0.000	104.018	10316.020	4571.144

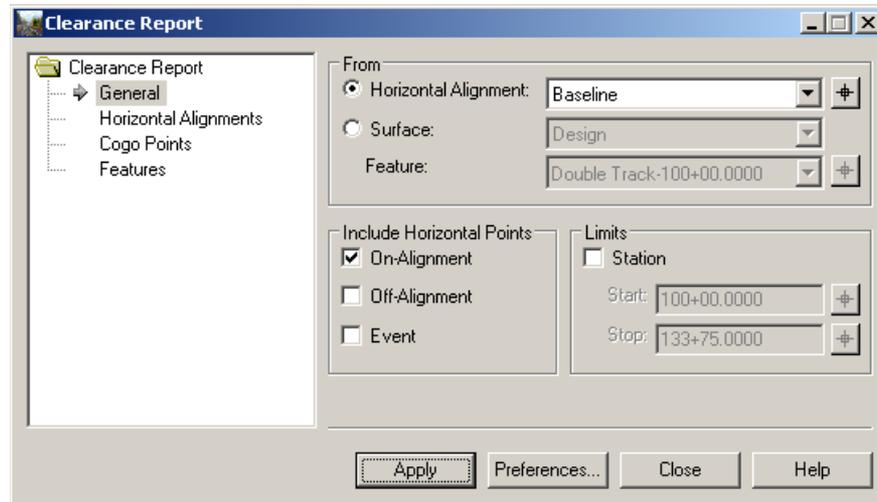
Station Offset Report

- Increments along the *Selected* object



Clearance Report

- Computes station and offset from actual data
 - Horizontal cardinal points
 - COGO points
 - Features



Stakeout Report

Centerline Stakeout Report

Report Created: 10/15/2007
Time: 12:25pm

File Modeling\railway.alg
adshaw 10/15/2007 12:24:09 PM

Note: All units in this report are in feet unless specified otherwise.

Offset From Centerline	BS	OC	FS Station	Angle Right	Distance
0.000	trv102	trv101	100+00.00	325°25'42"	133.880
0.000	trv102	trv101	102+00.00	359°20'37"	296.628
0.000	trv102	trv101	103+50.00	6°20'19"	439.986
0.000	trv101	trv102	111+75.00	194°34'32"	293.204
0.000	trv102	trv103	113+25.00	26°24'24"	270.616
0.000	trv103	trv104	120+25.00	30°37'32"	218.664
0.000	trv103	trv104	121+75.00	60°56'08"	87.178
0.000	trv104	trv105	127+75.00	301°11'14"	114.603
0.000	trv104	trv105	129+25.00	247°49'12"	186.858
0.000	trv105	trv106	133+75.00	32°23'50"	115.544
0.000	trv102	trv101	100+00.00	325°25'42"	133.880

Legal Description Report

- Simple boundary
 - Includes typical distances, bearings and curve data
 - Includes areas
 - Includes closures
- Right-of-way takes & easements
 - Include references (i.e. station & offsets) to multiple alignments

Legal Description Report

Legal Description Report

Alignments
Include:

Selected:

Name	Style
Parcel 101-Take	property_line
Parcel 102-Take	property_line
Parcel 103-Take	property_line

Closed Alignments Only
 Include Block Parent Alignment

Name:

Primary Reference Alignment
 Include
Name:
Bandwidth:

Secondary Reference Alignments
Include:
Selected:

Name	Description	Style
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Apply
Close
Filter...
Preferences...
Help

Alignment Description:

Beginning at a point 16.129 feet left of ASTH83_cl at Station 14+90.29 thence S 90°00'00" E a distance of 53.772 feet to a point 36.910 feet right of ASTH83_cl at Station 14+80.54 thence S 0°00'00" W a distance of 92.202 feet to a point 11.000 feet left of ASTH83_cl at Station 13+90.92 thence along an arc 53.627 feet to the right, having a radius of 153.700 feet, the chord of which is N 37°36'54" W for a distance of 53.356 feet, to a point 11.000 feet left of ASTH83_cl at Station 14+40.71 thence N 31°23'27" W a distance of 10.154 feet to a point 12.000 feet left of ASTH83_cl at Station 14+50.06 thence N 29°31'47" W a distance of 8.044 feet to a point 13.000 feet left of ASTH83_cl at Station 14+57.40 thence N 25°54'20" W a distance of 8.726 feet to a point 14.000 feet left of ASTH83_cl at Station 14+65.32 thence N 19°45'19" W a distance of 13.052 feet to a point 15.000 feet left of ASTH83_cl at Station 14+77.14 thence N 16°27'56" W a distance of 10.638 feet to a point 16.000 feet left of ASTH83_cl at Station 14+86.69 thence N 10°17'00" W a distance of 4.001 feet to a point 16.129 feet left of ASTH83_cl at Station 14+90.29 and the POINT OF BEGINNING.

The above described parcel contains ± 0.069 acres (3022 sq. ft.)

Alignment Name: Parcel 101-Take

Alignment Description:

Commencing at 32,
said point being the POINT OF BEGINNING;
thence S 90°00'00" E, 53.772 feet,
thence S 0°00'00" W, 92.202 feet,
to a point on a curve 36,
having a radius of 153.700 feet and a central angle of 19°59'27",
thence along the arc of said curve a distance of 53.627 feet,
said arc subtended by a chord bearing N 37°36'54" W, a distance of 53.356 feet.
thence N 31°23'27" W, 10.154 feet,
thence N 29°31'47" W, 8.044 feet,
thence N 25°54'20" W, 8.726 feet,
thence N 19°45'19" W, 13.052 feet,
thence N 16°27'56" W, 10.638 feet,
thence N 10°17'00" W, 4.001 feet,
and the POINT OF BEGINNING; Containing 0.069 acres, more or less.

Map Check Report

- Multiple parcels at one time
- Curvilinear & angular data is rounded

The screenshot displays two windows from Bentley software. The background window shows a data table for an alignment named 'Elite Center'. The foreground window is the 'Map Check Report' dialog box.

File Name: D:\program files\Bentley\InRoads Group V8.11\Sample Data\Site\Elite Center.alg
Last Revised: Richard.Bradshaw 10/11/2007 1:42:10 PM
Input Grid Factor: 1.00000000 **Note:** All units in this report are

Alignment Name: Elite Center
Alignment Description: Property Boundary

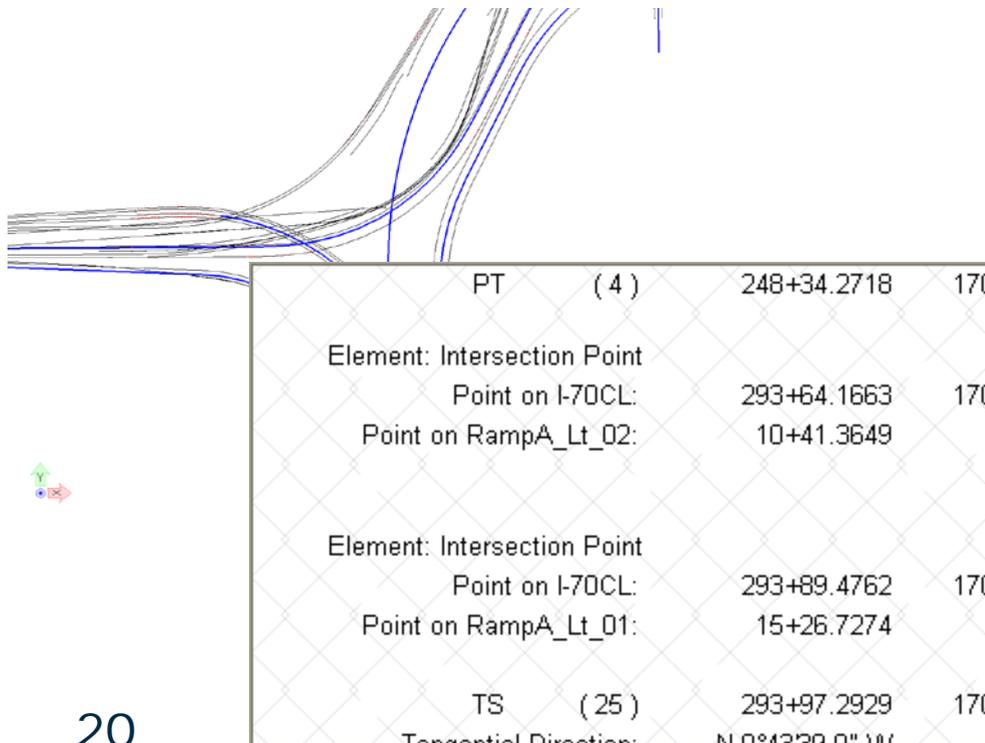
Point	Angle	Distance (ft)	X	Y
POB (1)			10038.683	9773.608
PI (2)	S 89°40'00" W	252.54	10037.214	9521.072
PI (3)	N 0°55'02" E	360.09	10397.254	9526.837
PI (4)	N 89°40'00" E	210.56	10398.479	9737.394
PI (5)	S 26°51'50" E	90.04	10318.152	9778.082
POE (1)	S 0°55'02" W	279.50	10038.683	9773.608

Summary:
Northing Error: 0.012 ft
Easting Error: -0.003 ft
Closing Direction: S 11°56'56" E
Closing Distance: 0.013 ft
Closed Area: 89223 sq ft 2 ac
Perimeter: 1192.735 ft
Precision: 94586.253

Map Check Report Dialog:
Alignments Include: []
Selected: [Elite Center | Property Bo... property_li...]
Output Precision: Linear: 0.12, Direction: 0
[x] Closed Alignments Only

Intersecting Alignment Stations Report

- Complements *Drafting > Intersecting Alignment Note*



Intersecting Alignment Stations Report

Horizontal Alignment: I-70CL

Intersecting Alignments

Include: *

Selected:

Name	Description
Ramp H	6/14/01 wcv
RampA_Lt_01	wcv7-12-02
RampA_Lt_02	wcv7-12-02
RampA_Rt_01	wcv7-12-02
RampH_LT_01	wcv7/18/02
RampH_RT_01	wcv7/18/02
ex ramp A asb 2	ex. ramp A (R...

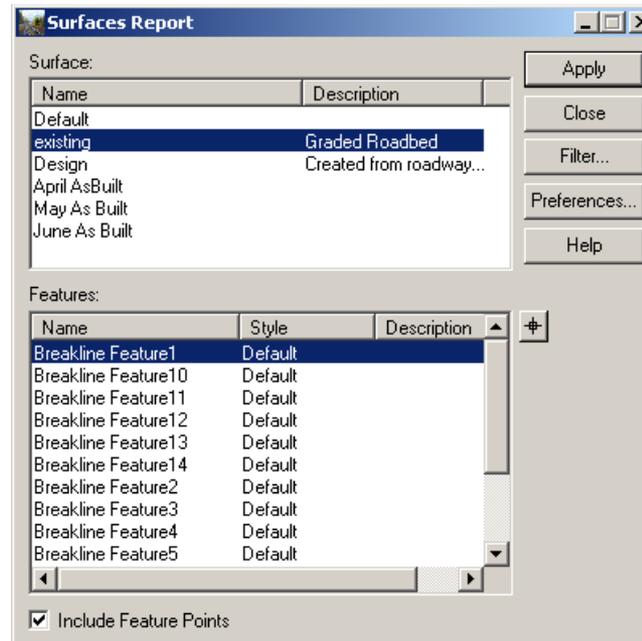
Buttons: Apply, Close, Filter..., Help

Surface Report Types Available

- Surfaces
- Surface Check

Surfaces Report

- Pretty basic reporting, since most surface data is related to cross-sections, volumes, etc.



Surface Check Report

- Quality checking of a surface to allowable tolerances
- Similar to *Compare Surface*

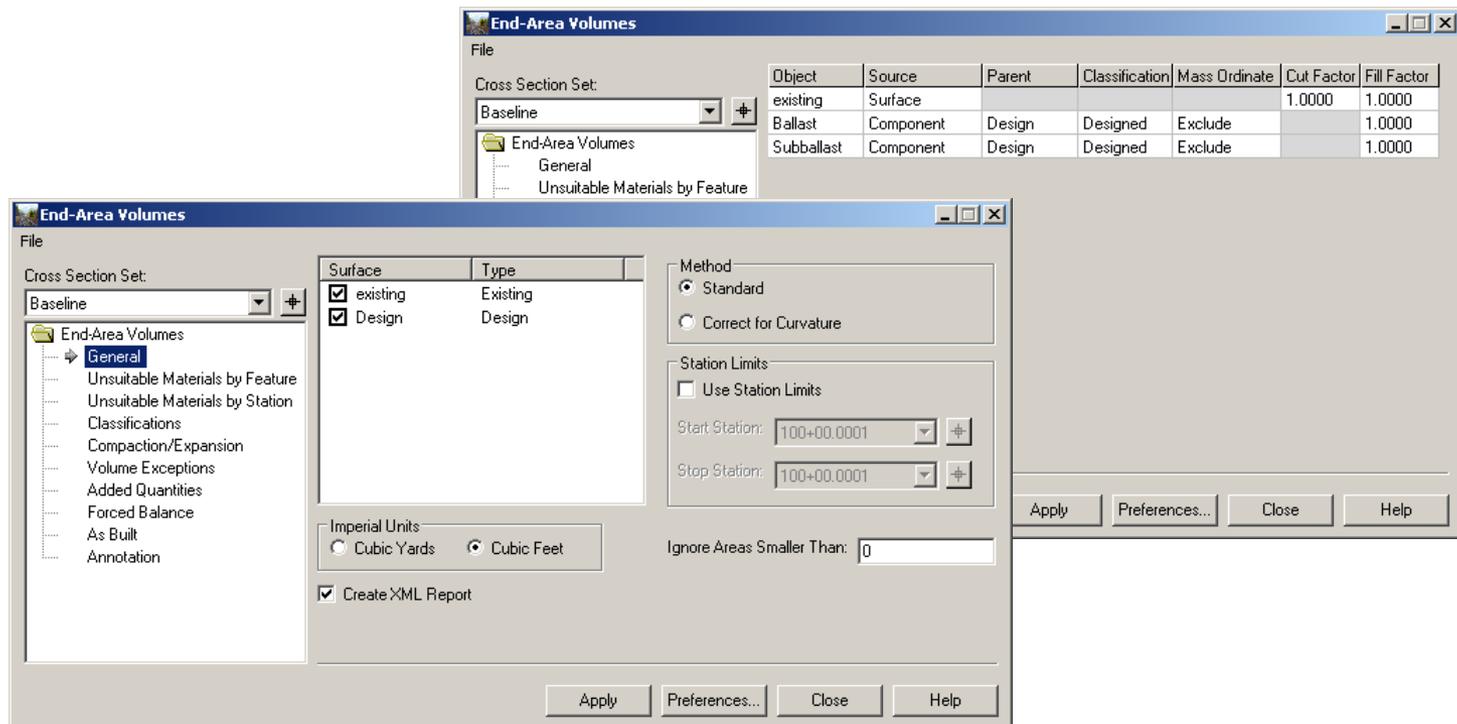
Surface	Area	Volume	Area	Volume	Area	Volume	Area	Volume	Area	Volume
Pavement 234	7648.007	9341.183	130.705	130.705	0.000	BELOW	0.000	IN	pavement	
Pavement 235	7669.436	9328.307	130.893	130.893	0.000	BELOW	0.000	IN	pavement	
Pavement 236	7690.866	9315.431	131.080	131.080	0.000	BELOW	0.000	IN	pavement	

Points Outside of DTM									
Total Points Outside	0								

Summary		
	Group 1	Group 2
Points	170	136
In Tol	170	136
Out of Tol	0	0
% In Tol	100%	100%
% Out Tol	0%	0%
Max Above	0.000	0.000
Max Below	0.000	0.000

End-Area Volumes

- Volumes from cross-section sets



Multiple *looks* at the data

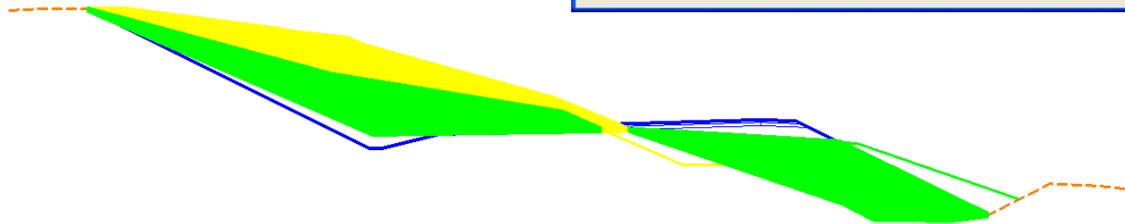
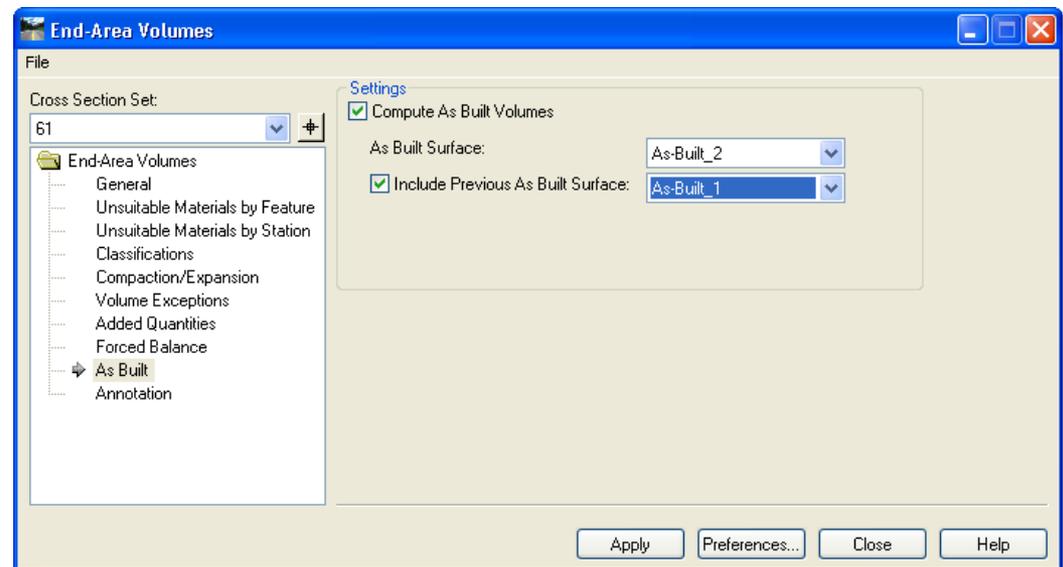
- Volumes
- Grade book
- Many style sheets!

Station	Type	Area	Volume	Factor	Adjusted Volume	Included in Mass Ordinate?	Mass Ordinate
100+00.00							
	Normal Cut:	133	0	1.000	0	Yes	0
	Normal Fill:	6	0	1.000	0	Yes	
	Added Cut:		0	1.000	0	Yes	
	Added Fill:		0	1.000	0	Yes	
	Ballast:	50	0	1.000	0	No	
	Subballast:	26	0	1.000	0	No	
101+00.00							
	Normal Cut:	79	393	1.000	393	Yes	278
	Normal Fill:	56	115	1.000	115	Yes	
	Added Cut:		0	1.000	0	Yes	
			0	1.000	0	Yes	
			184	1.000	184	No	
			96	1.000	96	No	

Baseline Station	Station Quantities								Mass Ordinate
	Cut				Fill				
Factor	Area	Volume	Adjusted	Factor	Area	Volume	Adjusted		
100+00.00	1.000	133	0	0	1.000	6	0	0	0
101+00.00	1.000	79	393	393	1.000	56	115	115	278
101+96.05	1.000		166	166	1.000		444	444	0
102+00.00	1.000	14	173	173	1.000	193	462	462	-11
103+00.00	1.000	6	37	37	1.000	141	618	618	-592
103+50.00	1.000	43	46	46	1.000	51	177	177	-724
104+00.00	1.000	67	102	102	1.000	34	78	78	-700
105+00.00	1.000	133	370	370	1.000	0	62	62	-393
105+77.91	1.000		393	393	1.000		0	0	0
106+00.00	1.000	140	504	504	1.000	0	0	0	111
107+00.00	1.000	23	301	301	1.000	29	54	54	359
107+64.53	1.000		27	27	1.000		386	386	0
108+00.00	1.000	0	43	43	1.000	294	598	598	-197
109+00.00	1.000	0	0	0	1.000	607	1669	1669	-1866
110+00.00	1.000	0	0	0	1.000	963	2907	2907	-4773
111+00.00	1.000	0	0	0	1.000	1044	3717	3717	-8490
111+75.00	1.000	0	0	0	1.000	800	2561	2561	-11051
112+00.00	1.000	0	0	0	1.000	688	689	689	-11740

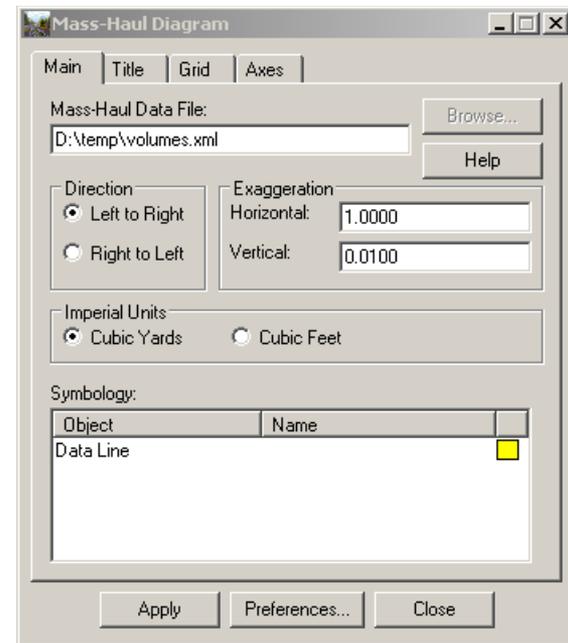
End-Area Volumes & As Builts

- 1st month (yellow)
- 2nd month (green)
 - Computed to design lines not over-constructed lines!



Mass-Haul Diagram

- Save the results of *End Area Volumes* in the **Report Browser** (as a .xml file)
- Load the XML file in *Mass-Haul Diagram* to display the diagram



Other XML files

- XIN
- ITL
- IRD
 - Which can be loaded into the Report Browser
 - Also now accessible through Roadway designer

Report Browser & .XIN

Missing Named Symbologies Report

Report Created: 10/15/2007
Time: 9:43am

Missing Named Symbology	Used By	Type
	Lane line	FeatureStyle

Named Symbologies Use Report

Report Created: 10/15/2007
Time: 9:44am

Named Symbology	Used By	Type
abutment	abutment	Geometry Line Feature Style
Aggregate	Aggregate	Surface Feature Style
Annotation-Plan	Default	ViewSurfaceElevations Preference
	Default	ViewSurfaceElevations Preference
	Default	ViewClosedArea Preference
	Default	StationBaseClearanceAnnotation Preference
	Default	StationBaseClearanceAnnotation Preference
	Default	GeneralTracking Preference
	Default	GeneralTracking Preference
Annotation-Profile		
Annotation-XCS		
Ballast	Ballast	Surface Feature Style
Base	Base	Surface Feature Style
BB	BB	Surface Feature Style
	BB	Survey Feature Style
BBERM	BBERM	Survey Feature Style
BBOARD	BBOARD	Survey Feature Style
BC	BC	Survey Feature Style

Report Browser & .IRD

- File > Open

File Name: D:\data\Rail Modeling\railway.ird

Corridor: Single Track

Template: Single Track - Tangent - Ballasted

Start Station: 100+00.00 Interval: 10.000000

Component: Ballast
Description:

Point Name	X	Y	Type	---- Constraints ----		Parent	Slope	Width	Delta Y
				Value					
B2	-5.250	-0.583	Horizontal Vector	-5.250	P&L	Left Rail	50.0000%	-4.296	-2.148
B3	-9.546	-2.731	Slope Slope	50.0000%	B2	SB1	4.1667%	9.546	0.398
SB1	0.000	-2.333	None None				-4.1667%	9.546	-0.398
B4	9.546	-2.731	Slope Slope	-4.1667%	SB1	B5	-50.0000%	-4.296	2.148
B5	5.250	-0.583	Horizontal Vector	5.250	P&L	Left Rail	0.0000%	10.500	0.000

Component: Subballast
Description:

Point Name	X	Y	Type	---- Constraints ----		Parent	Slope	Width	Delta Y
				Value					
SB1	0.000	-2.333	None None				4.1667%	11.546	-0.481
SB2	11.546	-2.814	Slope Slope	50.0000%	SB3	SB1	4.1667%		

Additional information in the XML Data directory

- ASCII output Style sheets
 - [Creating ASCII Output Style Sheets.pdf](#)
- Inclusion of an XML in an XML
 - [XML Lookup Table Style Sheets.pdf](#)

Supportive files

- [_Report element formatting](#)
 - [format.xsl](#)
 - [Raw-xml.xsl](#)
 - [ShowAll.xsl](#)

Style Sheet Modifications

- Look at the schema
 - *XML Datalen\Schemas*
 - *Only in English*
- Look at style sheets that are close to what you want!
 - It is always easier to start from something than nothing!
- Look at the Raw-xml.xsl to verify the data required is available in the similar report.
- Make a copy of close XSLT that contains the data.
- Open that copy in your preferred XML editor
 - Notepad ++ is great and free!
 - <http://notepad-plus-plus.org/>

What's next?

- Test your XSLT!!! Think of all the ways your users will run it.
- Edit the help so that end users of the report will be able to run it successfully
- If you want a special java script solution or HTML solution search the web for examples
- For XSLT help search Google
- Check out http://www.w3schools.com/xsl/xsl_summary.asp
a Great source!

Lets take a look