# Cross Sections for Quantities

When creating cross sections to calculate average end-area volume quantities, it will be important to create cross section drawings at the same stations that the corridor processes templates. Understanding what affects the corridor processing stations is critical. The corridor feature definition uses a group of properties named Corridor Processing & Critical Sections to modify the template drop interval that was used; the corridor will also process from a list of Key Stations in the Corridor Objects. Additionally, the corridor will process the currently active dynamic section, if one is open! The caution here is to not leave the dynamic section set at an odd station value, otherwise, it will process a template at that location.

The Named Boundary command for creating cross sections allows an interval to be specified and allows you to Include Control Points. Beware - "Include Control Points" means only the *Horizontal* Control Points – this will not include vertical control points. A third option (Event Point List) allows you to select *one* named list from the alignment Event Points List. The Event Point List is stored in the Path Element (geometry) that is identified to run the cross section. Prior preparation in the GEOM file by the designer is necessary.

The Processing & Critical Sections, as well as the Key Stations and the one dynamic station, are associated with the *corridor*. The Event Points are associated with the *alignment*. An Event Point List should be created by the designer in the GEOM file, so downstream users can use this list if creating cross sections for quantities. In the document below, we will explore ways to make the cross section stations match the corridor processing stations.

Corridor Results Report – Use with Different Style Sheets

The Corridor Results Report can be generated from a reference to the corridor or when the CORR file is the active DGN. It is fastest to select the **Results Report (paperclip with an i glyph)** from the hover menu when hovering over a selected corridor handle. If the hover menus are difficult for you, the right-press menu may be used on a corridor handle to select Corridor Reports>Results Report.
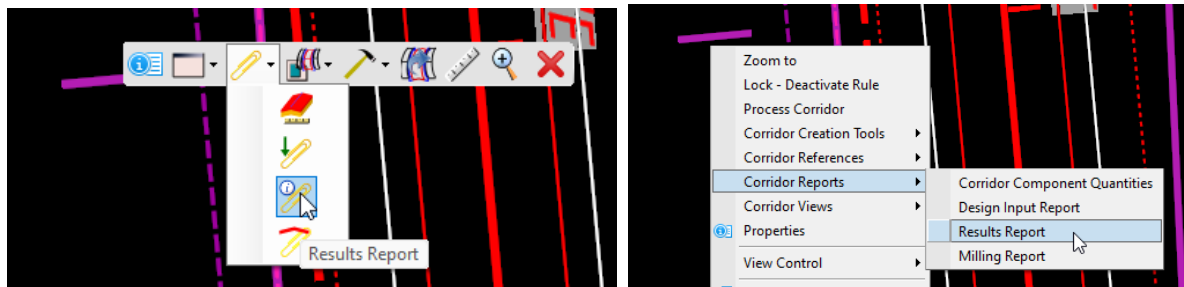
Otherwise, select **Home>Model Analysis & Reporting>Corridor Reports>Results Report** and click on a corridor handle when prompted to Locate Corridor. The Civil Report Browser will open.

Template Drops Report

The default style sheet for the Corridor Results Report is CorridorModeling**TemplateDrops.xsl**. **This view of the corridor data shows all the actual station values that the corridor uses to calculate end area volumes.** Remember, the corridor feature definition reduces stations by applying a template drop interval multiplier but then adds stations by densifying horizontal and vertical curves. The vertices of point control lines may be added, as well as the displayed dynamic

section value. The corridor also adds stations from the Key Stations List. **The TemplateDrop.xsl style sheet displays every station that is processed from beginning to end.** If you are not seeing stations at the expected interval, look for a Template Drop Interval Multiplier in the Processing & Critical Sections group of the assigned corridor feature definition. If you are seeing stations that do not correspond to horizontal or vertical cardinal stations, look at the Densify Horizontal and Densify Vertical values in the corridor feature definition. *The designer should add any corridor densification stations to an alignment event point list for downstream users to use when creating cross sections.*

Save the Template Drops Report as (*.html) for a record of all stations processed by the corridor or for use in creating Event Point Lists.

The picture above shows an example Template Drop Report. Two cardinal points are highlighted yellow and three key stations are highlighted red to draw your attention to the fact that the Template Drops Report shows all processed stations in one list.

Roadway Setup Report for Key Stations

In the Civil Report Browser, change the style sheet to CorridorModeling**RoadwaySetup.xsl** – this report displays the key stations in a separate section just above the template drops. The Key Stations are outlined in red in the picture below. Copy the Key Stations paragraph to the clipboard and paste it into a .txt file or an Excel spreadsheet. *A list of the corridor key stations is useful in creating Event Point Lists in the geometry.*
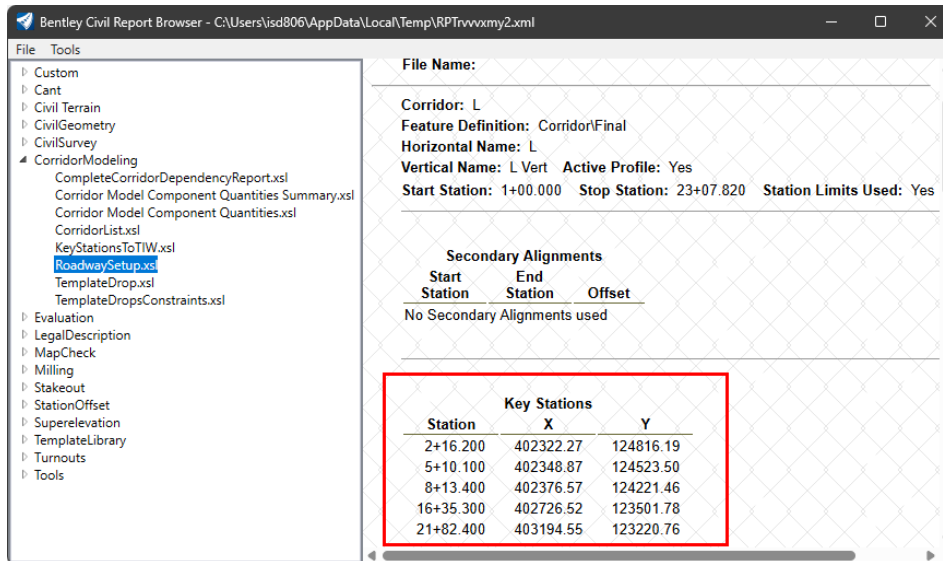
Horizontal Geometry Report – Use with Different Style Sheets

The horizontal geometry is the parent of the vertical geometry (profile) and is also the parent of the geometry event point lists. Generating a horizontal alignment report is the best way to load all the civil data related to the geometry. It is fastest to select the **Horizontal Geometry Report** paperclip icon from the hover menu when hovering over a selected alignment; you can also select Horizontal Geometry Report from the right-press menu. The default style sheet for the Horizontal Geometry Report is CivilGeometry\HorizontalAlignmentReview.xsl. In this format, the Horizontal Alignment Review Report is useful for verifying your alignment.

Horizontal Alignment Event Point List Report

In the Civil Report Browser, change the style sheet to CivilGeometry**HorizontalAlignmentEventPointList.xsl** – this report displays all the event point lists that have been created for the selected geometry and allows you to see the contents of each list. In the picture below, the designer has created an event point list that includes the Vertical Cardinal Points and all the Key Stations (outlined in red), specifically for use in generating cross sections for quantities.

Any given geometry can have any number of named event point lists. When creating cross sections, you can use only one event point list and can include the horizontal control points with a check box. *It is useful to downstream users for the designer to create a named event point list that contains vertical cardinal points, all densification stations and the corridor key stations.*

Creating Cross Sections with Stations that Match the Corridor Results Report

1. Prepare a new XSEC_bas (Design) or XSEC_## (Construction) DGN according to the instructions found in The OpenRoads Designer Cross Sections Base File, with reference attachments to the terrain (don't forget to set it as the active terrain model), geometries, corridors, etc.
2. View the Corridor Results Report and the Horizontal Alignment Event Point List Report to identify the template drop interval to use and the Event Point List to expect.
3. Run the **Drawing Production>Named Boundaries>Place Named Boundary Civil Cross Section** command.
4. Select a Drawing Seed - "XS Inch 20 Stacked" may work well for quantities.
5. Identify the Path Element – left-click on the complex element in the plan view that is the alignment for the quantities.
6. Check the box to "Include Control Points" to include the horizontal cardinal points.
7. Select the named Event Point List from the geometry that provides all the special stations reported in the results report – If there were no densification stations, this might be "VCardPts_KeyStations".
8. Set the start and stop locations to match the first and last station from the results report.
9. Set the Interval to the interval seen in the results report.

Place Named Boundary Civil Cross Section

Drawing Seed: XS Inch 20 Stacked

Detail Scale: 1"=20'

Group: (New)

Name: L

Description: 100 ft int. + hz/vt card pts + key stations

☑ Start Location: 1+00.000

☑ Stop Location: 23+07.820

Left Offset: -140.000000

Right Offset: 140.000000

Interval: 100.000000

Vertical Exaggeration: 1.000000

☑ Top Clearance: 20.000000

☑ Bottom Clearance: 10.000000

Elevation Datum Spacing: 5.000000

Event Point List: VCardPts_KeyStations

☐ Include Event Points Only

☑ Include Control Points

☐ Backward Facing

☐ Create Drawing

☐ Show Dialog