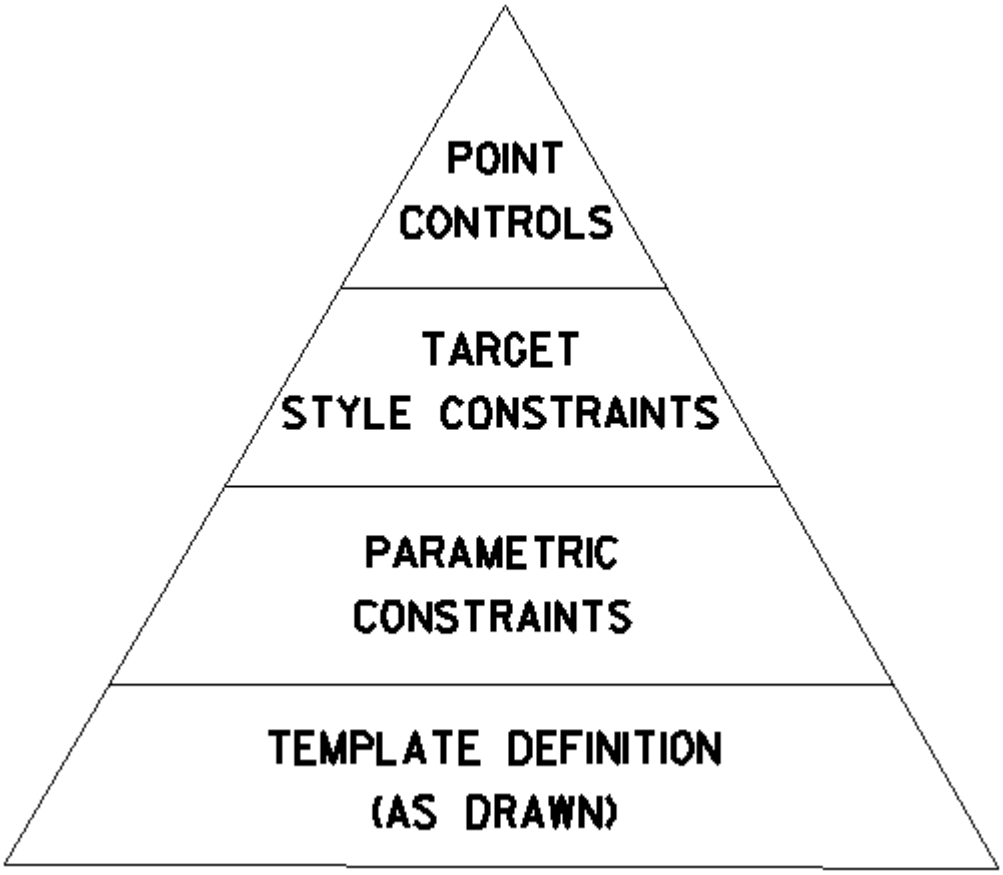
3_15 ROADWAY DESIGNER POINT CONTROLS

Question:

Please elaborate on the benefits of using point controls in Roadway Designer.

Answer:

For simplicity, Point Controls is a procedure in Roadway Designer where the user selects a point in the template and moves it any anywhere on a 2D plane (horizontally or vertically) or 3D plane (both horizontally and vertically). Since Pont Controls has the highest priority, it can be used to override the other methods of controlling template points locations. Below is a sketch of the order (priority) in which points in a typical template are usually processed or moved from their default location.

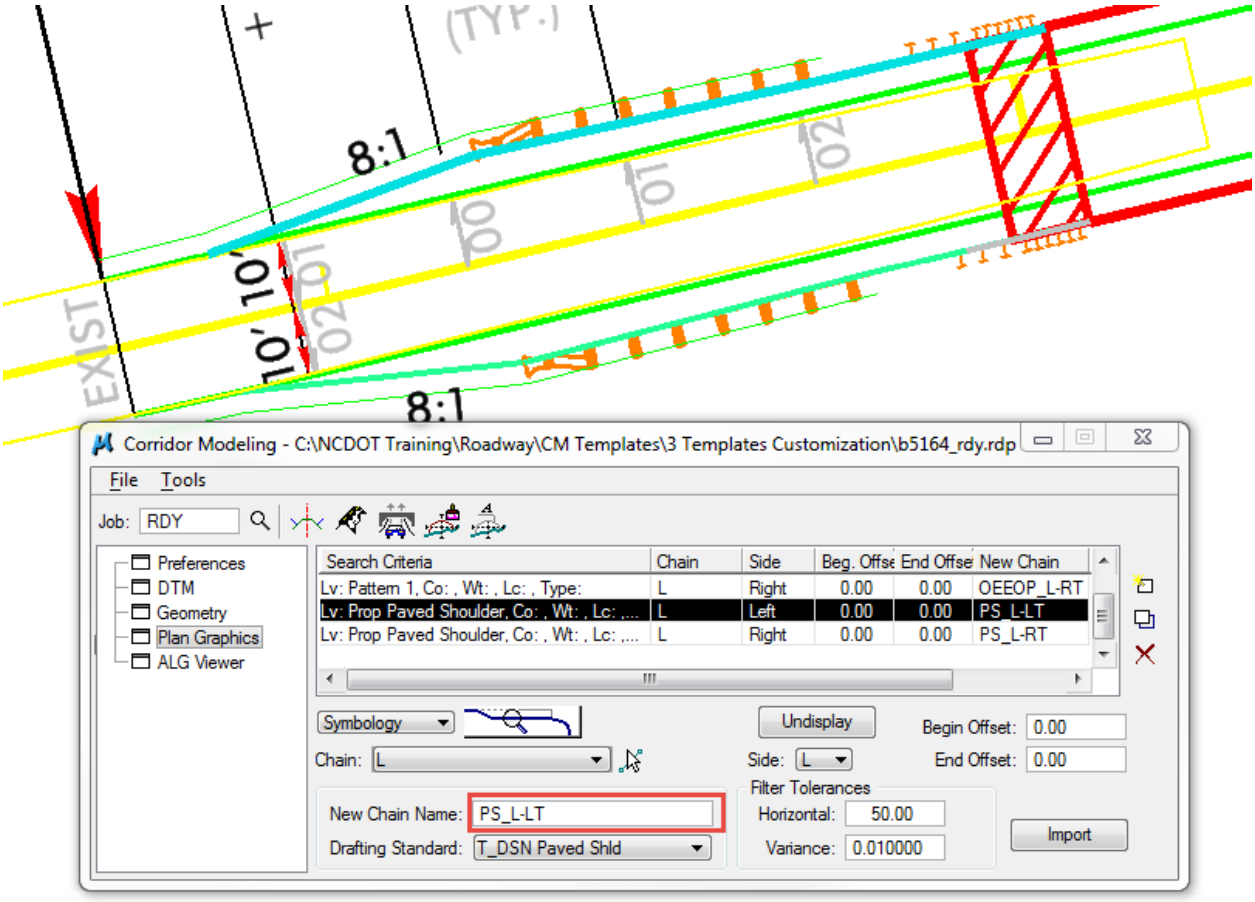


Point Controls – Horizontal Mode

Control Type:

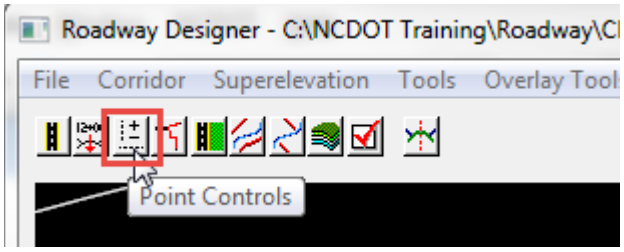
- **Alignment** - use the ***New Chain Name*** in plan graphics.
- **Feature** - use the horizontal location of the DTM feature. 3D features are generated from corridor template points when the DTM is created.
- **Style** - use the ***Drafting Standard*** in plan graphics.
- **Corridor Point** - use the horizontal point location from another corridor in the same IRD.

The most common procedure of Point Controls in horizontal mode is to move a template point to the horizontal location of where a plan graphics is stored. For example, a chain name ***PS_L-LT*** was stored as the left side paved shoulder in the Corridor Modeling Plan Graphics dialog box.

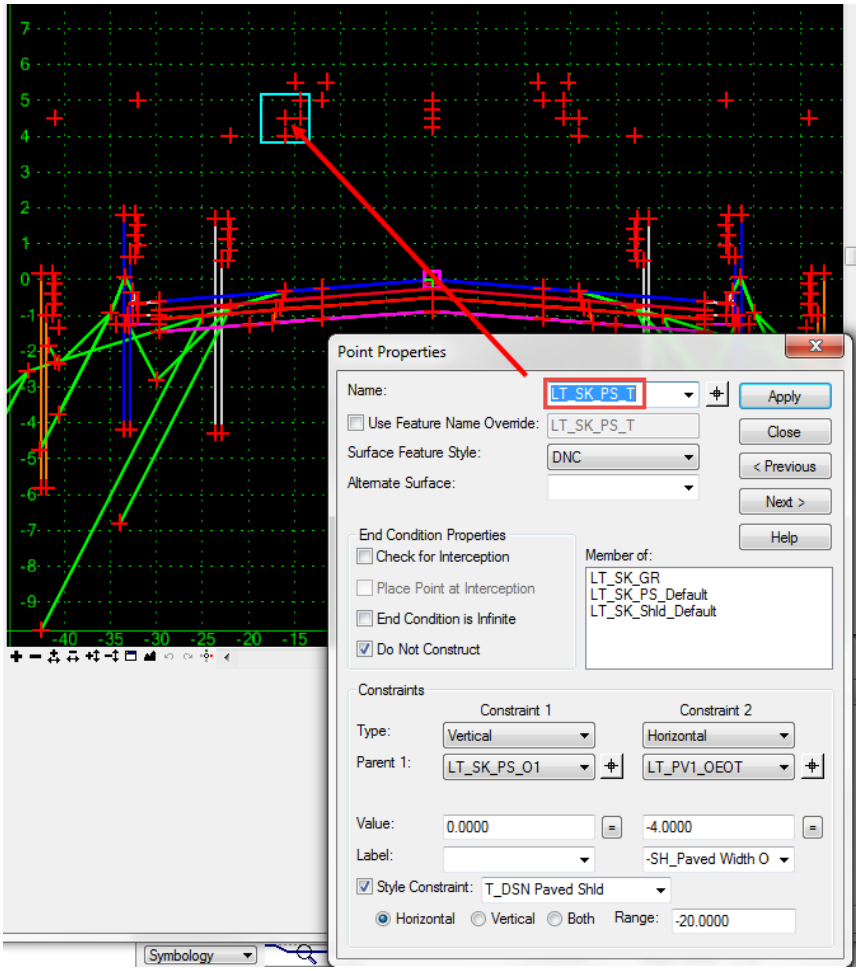


Note that the **Drafting Standard** selection only applies to the targeted style constraints. Usually this is how the paved shoulder location is defined. For purpose of this demo, Point Controls, along with the New Chain Name, will be used instead.

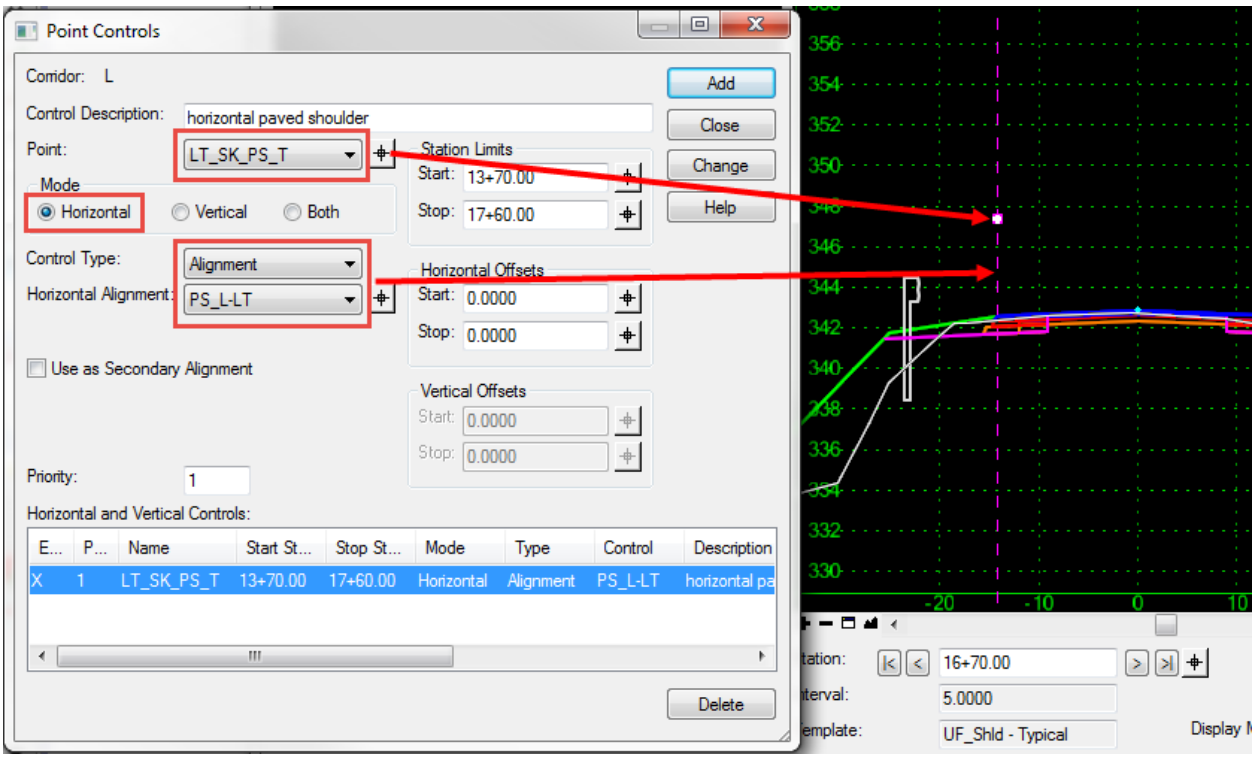
Point controls is the third toolbox in Roadway Designer.



In a typical roadway template, the point **SK_PS_T** is used to determine the paved shoulder width.



In Point Controls select this template point and move it horizontally to the location of the **PS_L-LT** chain name.

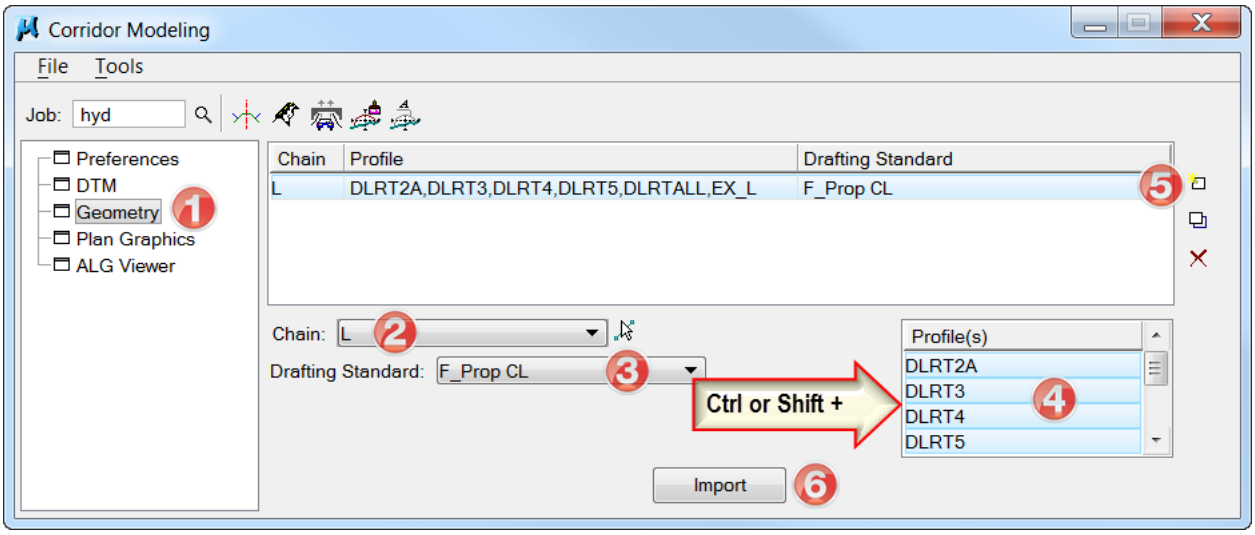


Point Controls – Vertical Mode

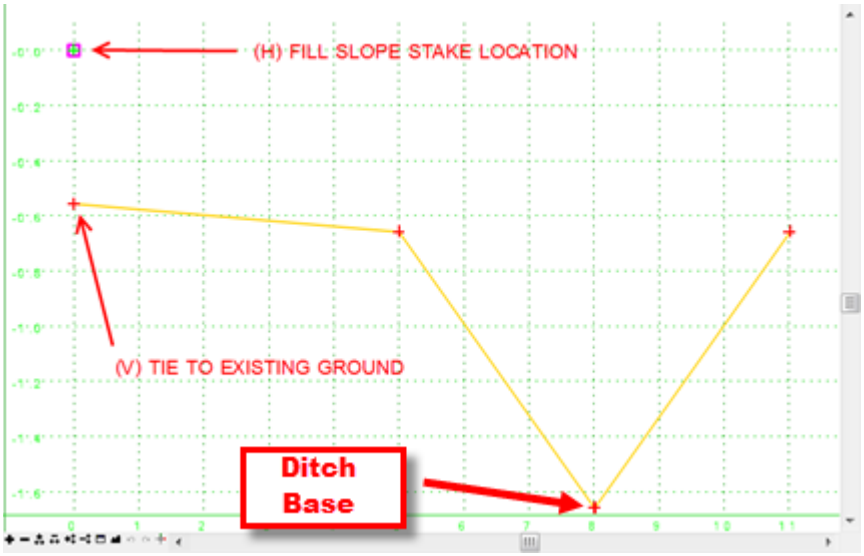
Control Type:

- **Alignment** - use ***Profile(s)*** in Corridor Modeling Geometry.
- **Feature** - use the vertical location of the DTM feature. 3D features are generated from corridor template points when the DTM is created.
- **Style** - use the ***Drafting Standard*** in plan graphics.
- **Corridor Point** - use the vertical point location from another corridor in the same IRD.
- **Superelevation** - usually automatic via input or RD Superelevation Wizard.
- **Elevation Difference** - adjust by adding the elevation of a profile to the current point elevation.
- **Elevation and Grade** - determine the elevation and grade (station range) of a point, e.g. ditch grade.

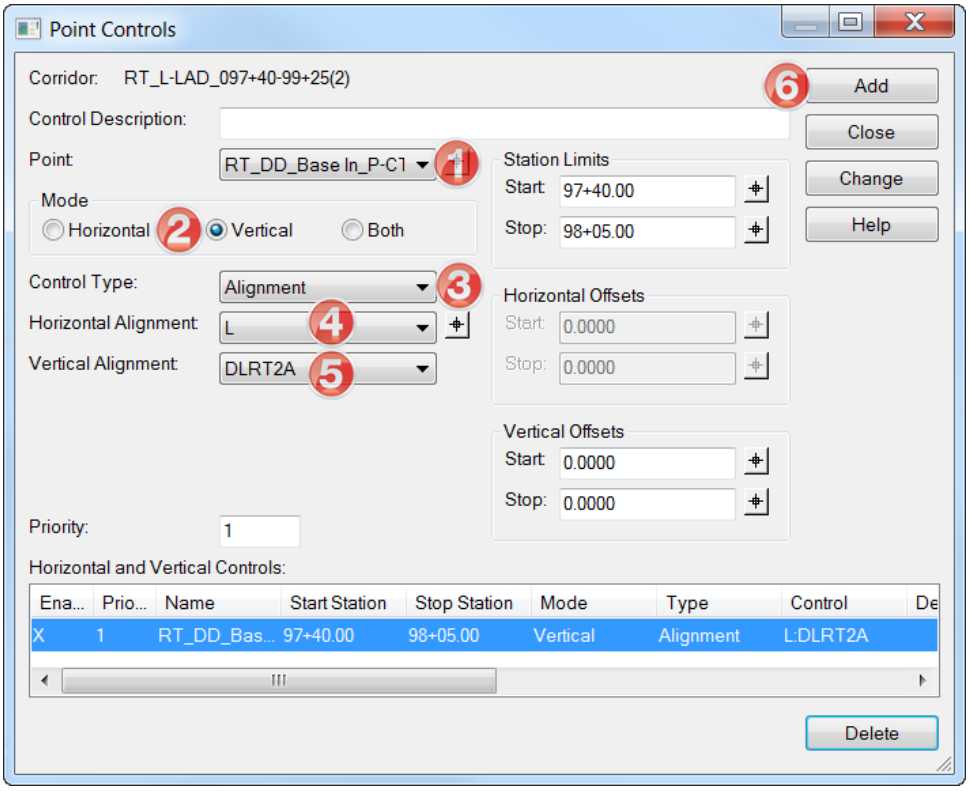
The most common procedure of Point Controls in vertical mode is to move a template point to a ditch grade. For example, when storing the geometry (converting the GPK or ALG) both the horizontal and vertical alignments are defined. The following are example usages from the Hydro Ditch Delta Training Manual.



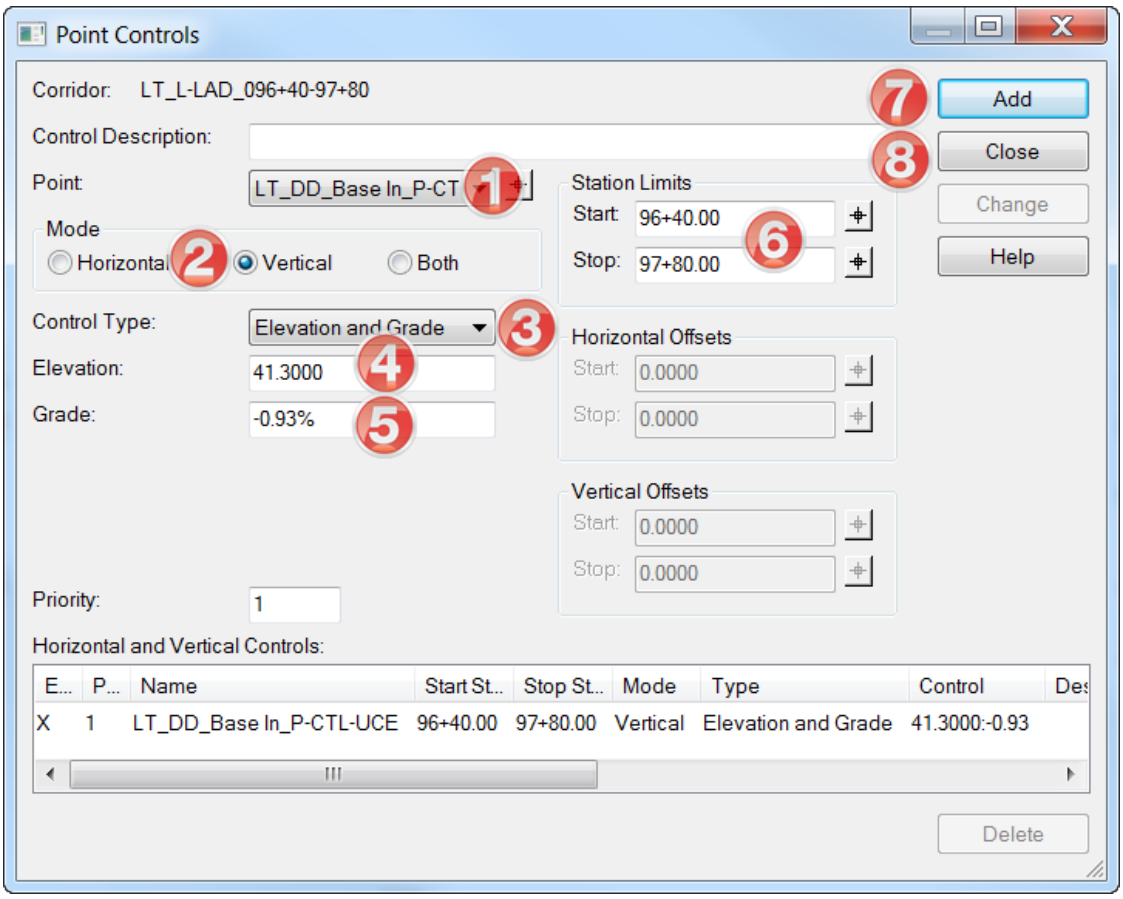
Most ditch templates, the ditch base point **DD_Base In_P-CTL** can be used for the ditch grade.



Use Point Controls in vertical mode to move the ditch base point vertically to the ditch grade elevation.



For projects without ditch grades stored in the GPK/Geometry, use the **Elevation and Grade** (with station ranges) option as the control type.

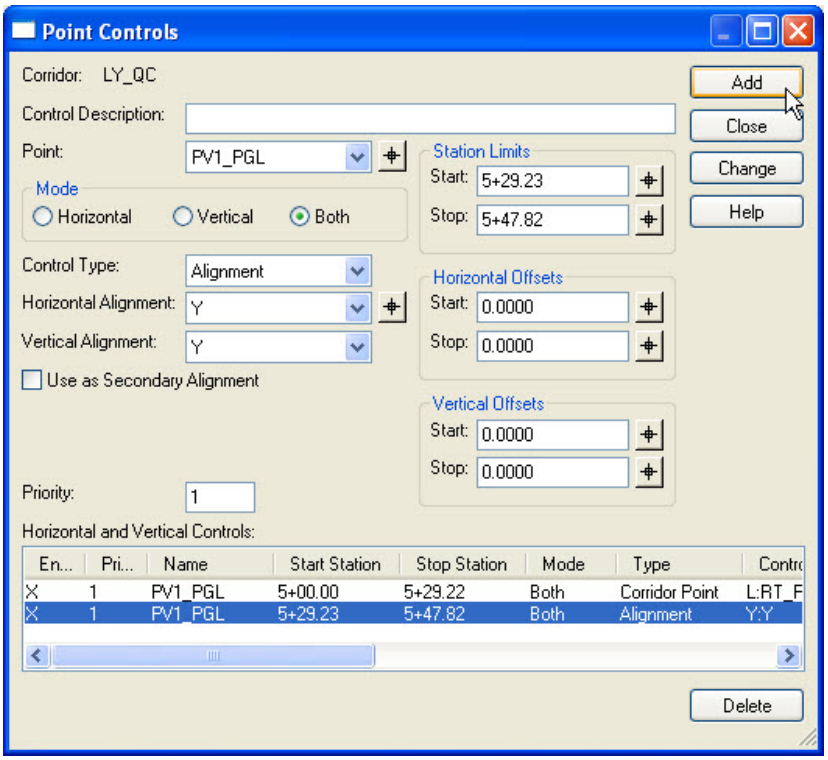


<u>Point Controls – Both Mode</u> (Horizontal and Vertical)

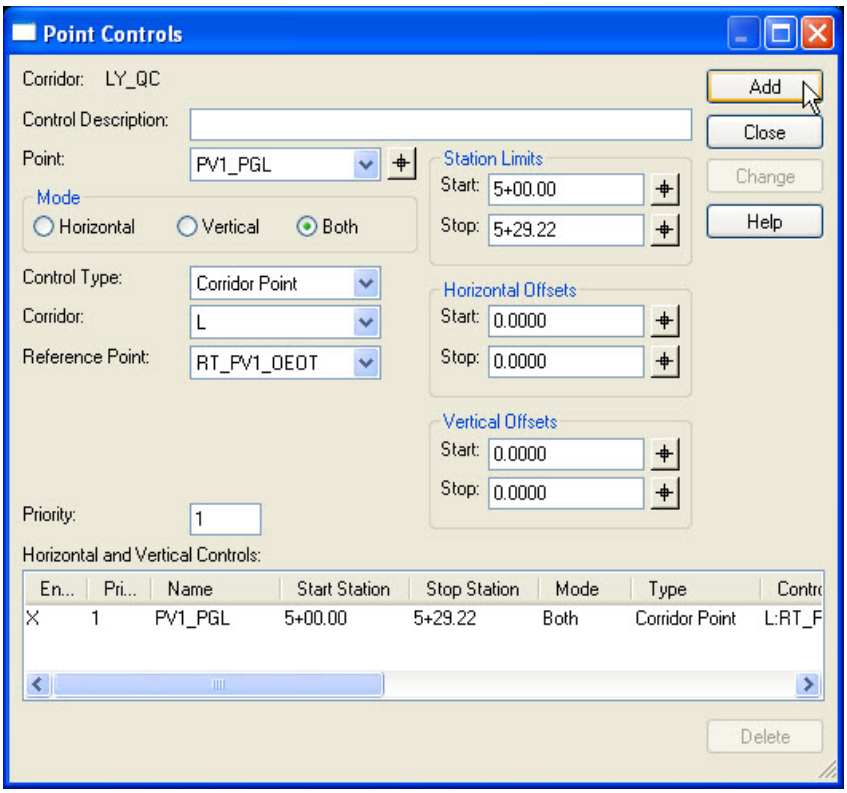
Control Type:

- **Alignment** - use the ***Chain*** and ***Profile(s)*** stored in Geometry.
- **Feature** - use the horizontal and vertical location of the DTM feature. 3D features are generated from corridor template points when the DTM is created.
- **Style** - use the **Drafting Standard** in plan graphics.
- **Corridor Point** - use the horizontal and vertical point location from another corridor in the same IRD.

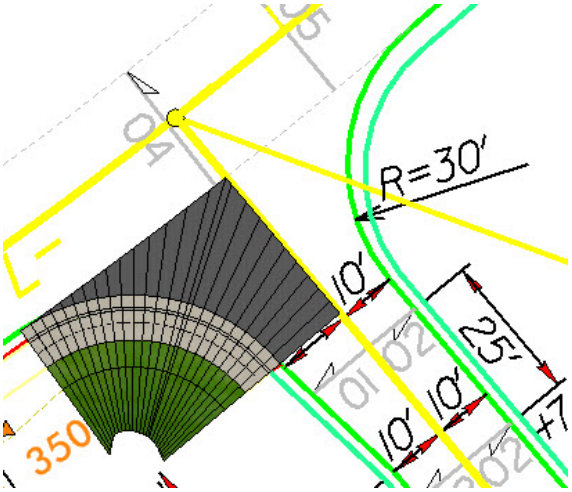
An example of Point Controls using the Alignment option is moving the centerline point of an at-grade intersection quadrant template (and corridor) to a -Y- Line horizontal chain and vertical profile location.

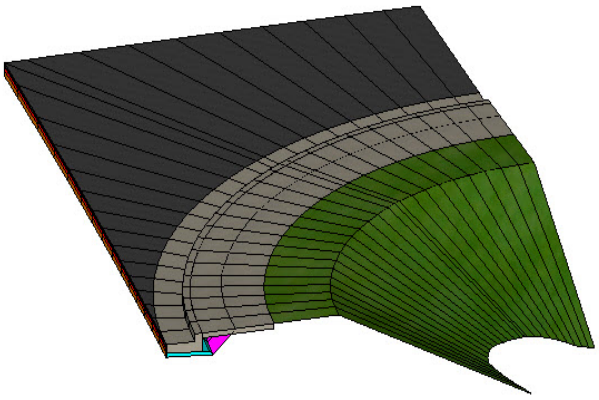


Corridor Points can also be used such as locating the EOT point of the mainline corridor.

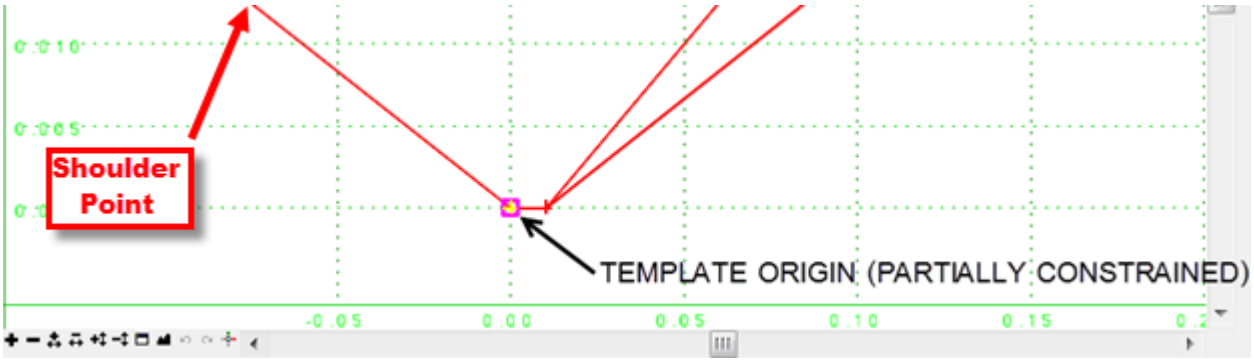


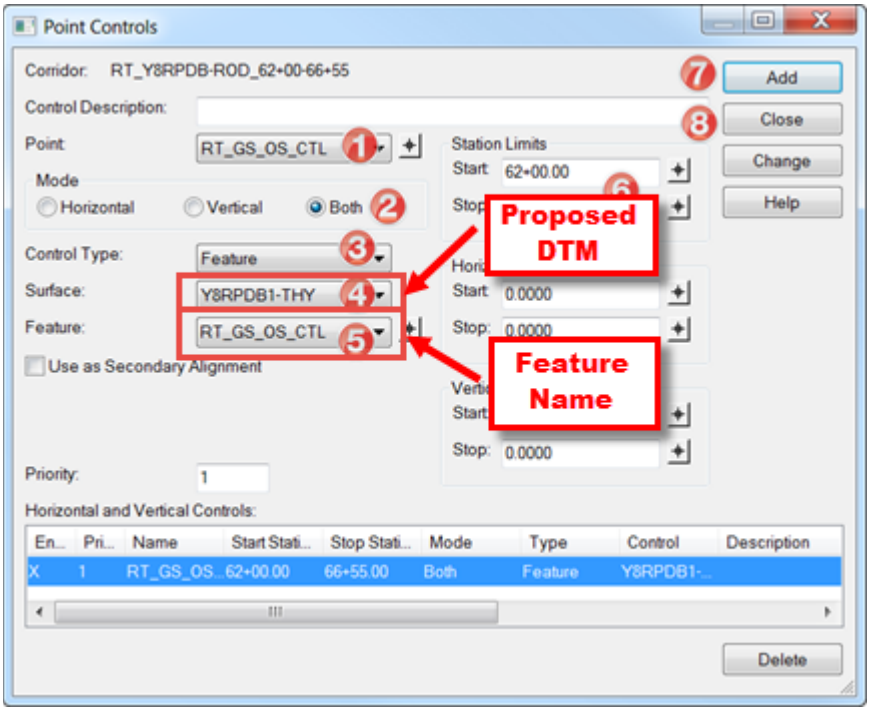
Using this combination for at-grade intersections would produce a 3D model like this.

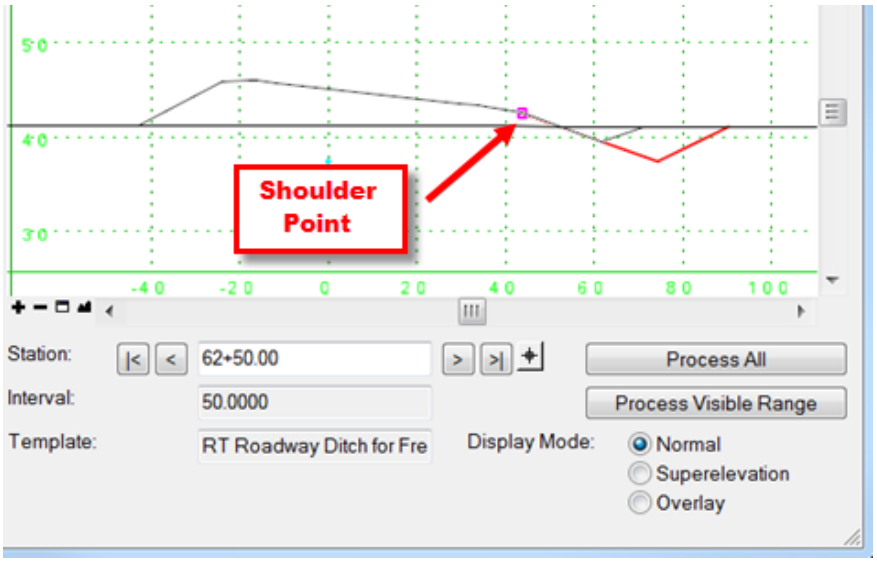




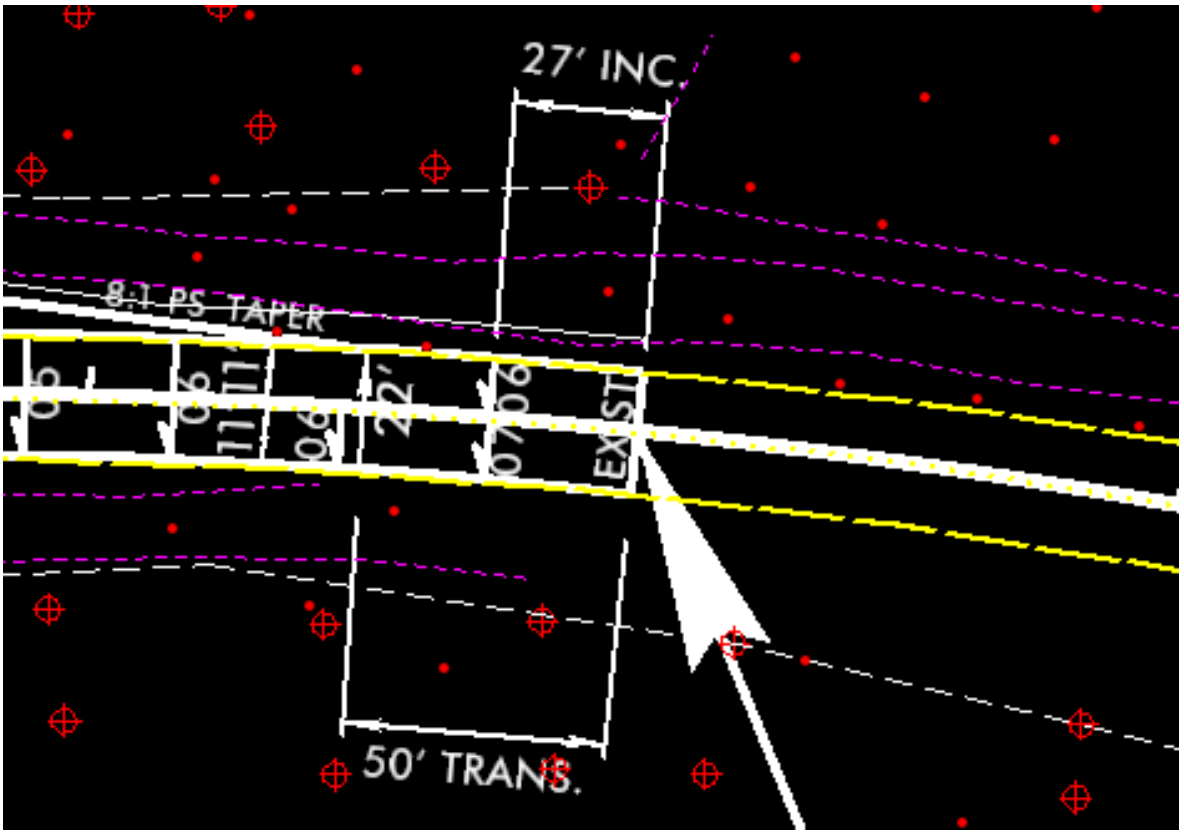
Similar to Corridor Points, the 3D features generated when the DTM was created can be used as Point Controls. The following is from the Hydro Ditch Delta Training. The objective was to move the template shoulder point **RT_GS_OS_CTL** to the horizontal and vertical location of the same roadway feature name **RT_GS_OS_CTL** (shoulder point).



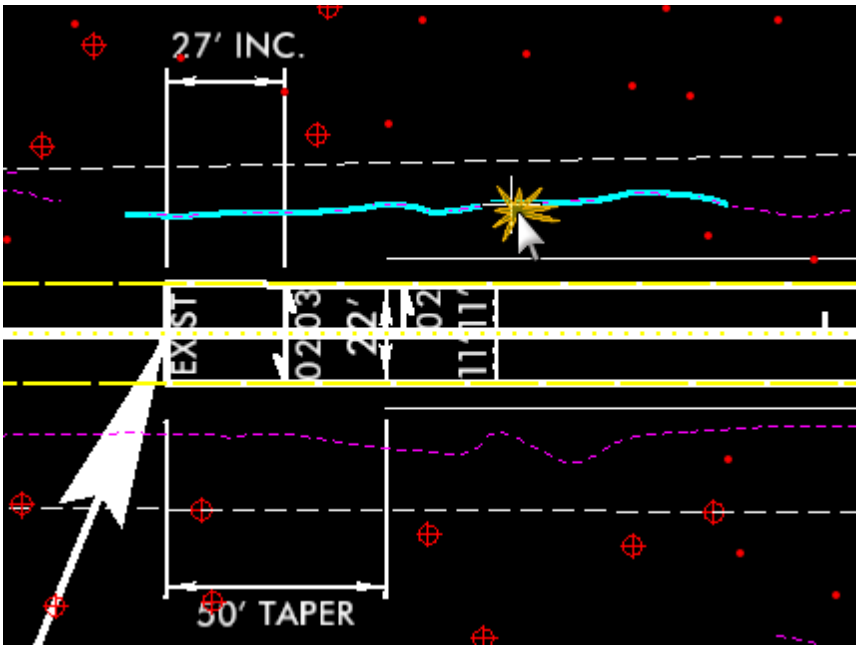


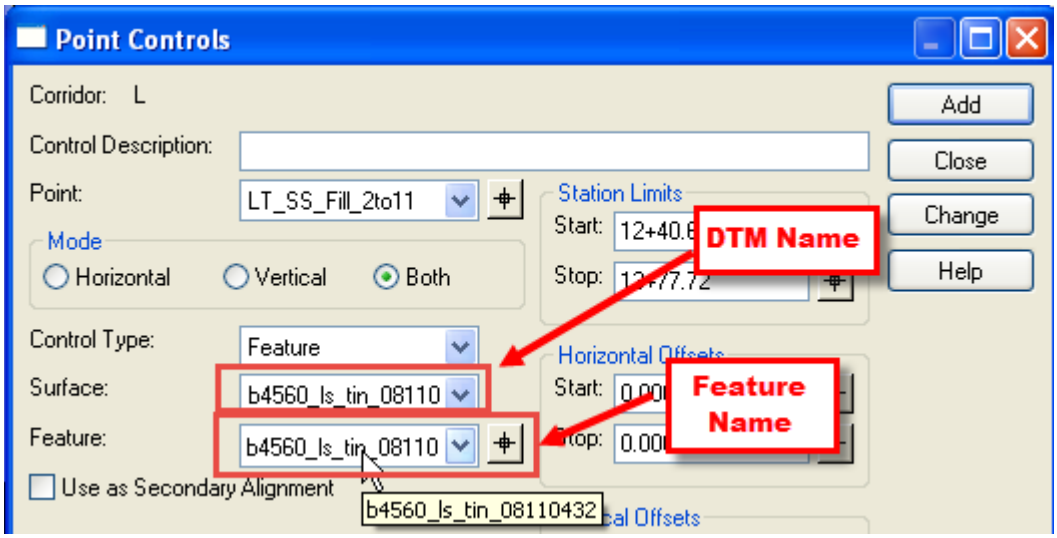


Note that the 3D features can be either proposed or existing. For example, when the Geopak existing ground TIN was converted to an inRoads DTM, they contained some feature information as breaklines.



Although the existing feature names are not known (unassignable by the user) during the TIN to DTM conversion, users can select each breakline graphically in the DTM DGN file and it will automatically populate the Feature name field.





With this approach, Point Controls can be used to tie the fill slope to an existing feature (breakline in the DTM).