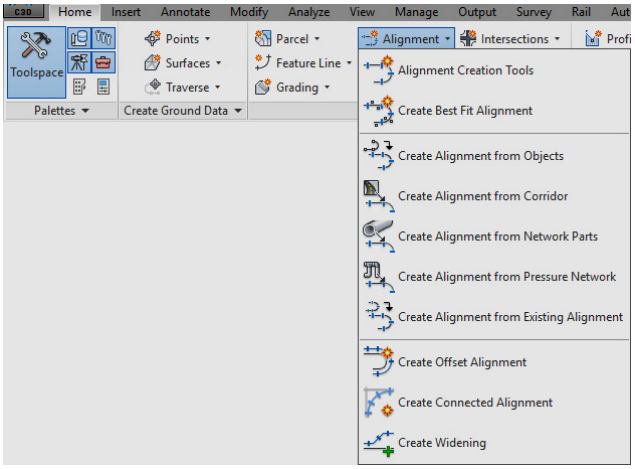
Corridors – 2020-2021

To create a corridor, you must have an alignment (baseline), a profile (existing or proposed), and an assembly. You can also use a feature line for the alignment and profile pairing.

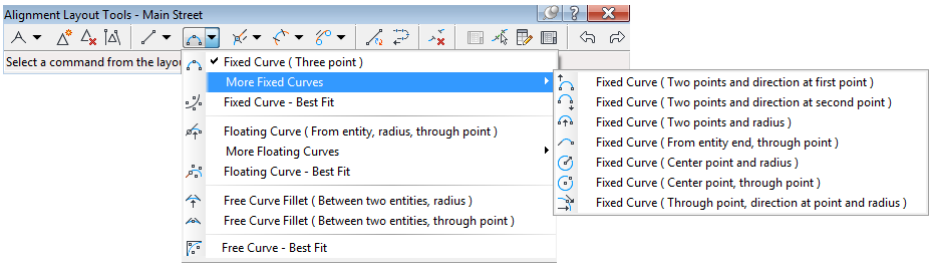
Alignments

You have 2 choices in defining an alignment from scratch: (1) Home tab > Create Design > Alignment > Alignment Creation Tools, or (2) Home Tab > Create Design > Alignment > Create Alignment From Objects.

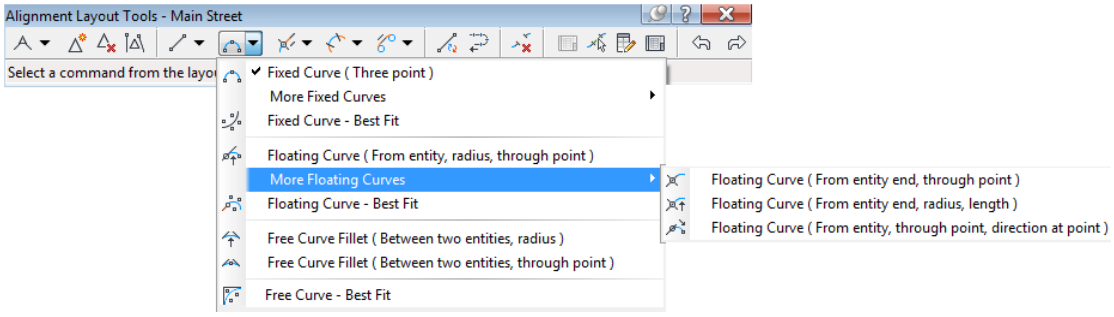


Alignment Creation Tools gives you the constrained based design options. Constrained based design will maintain tangency based on 3 choices:

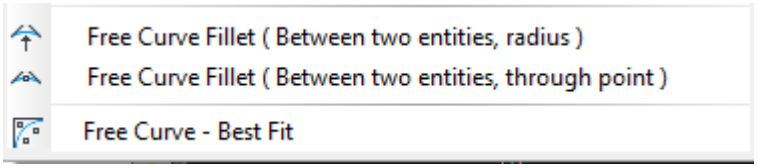
1. Fixed curve - These commands are similar to an AutoCAD arc, but have a third point along the arc.



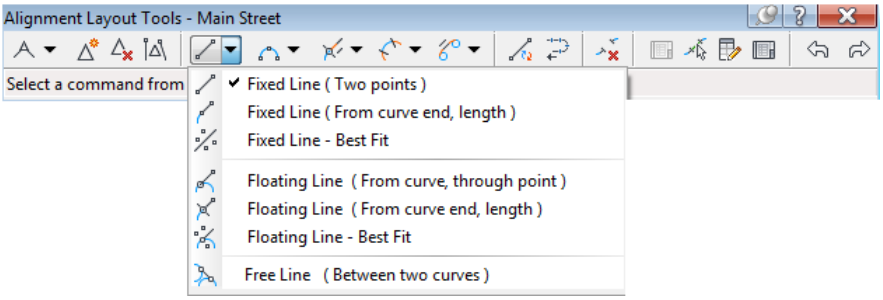
2. Floating Curve – Maintain tangency at the start, while one end is not connected to another object. For example, curves off the end of a line.



3. Free Curve - These entity types are very similar to the AutoCAD "fillet" command, but give you added control.

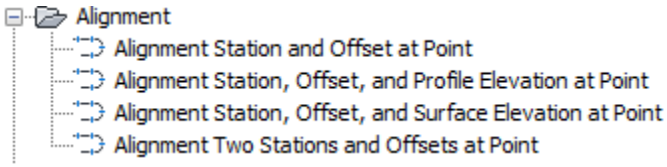


Fixed, free, and floating lines are also available (shown below). Many methods for producing spirals are available, but just not show in this document.

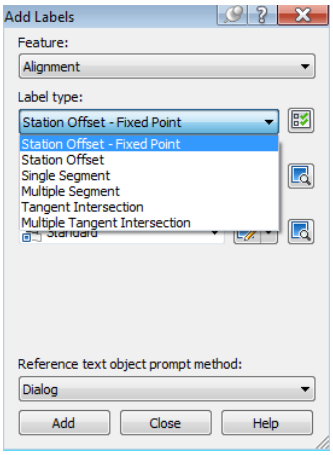


Listing and Labeling off an Alignment

- **"Analyze" ribbon tab > Inquiry Tool** – Once in the inquiry tool, there are 4 pre-defined listing commands to obtain information from an alignment.

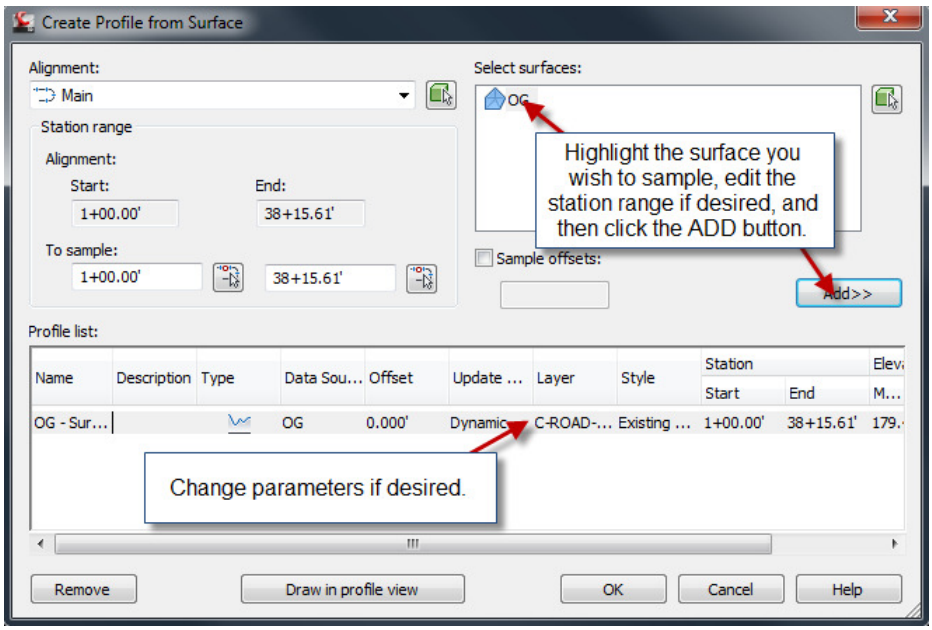


- **"Annotate" ribbon tab > Add Labels > Alignment > Add Alignment Labels** – This command may add labels to offset stations as well as alignment segments.

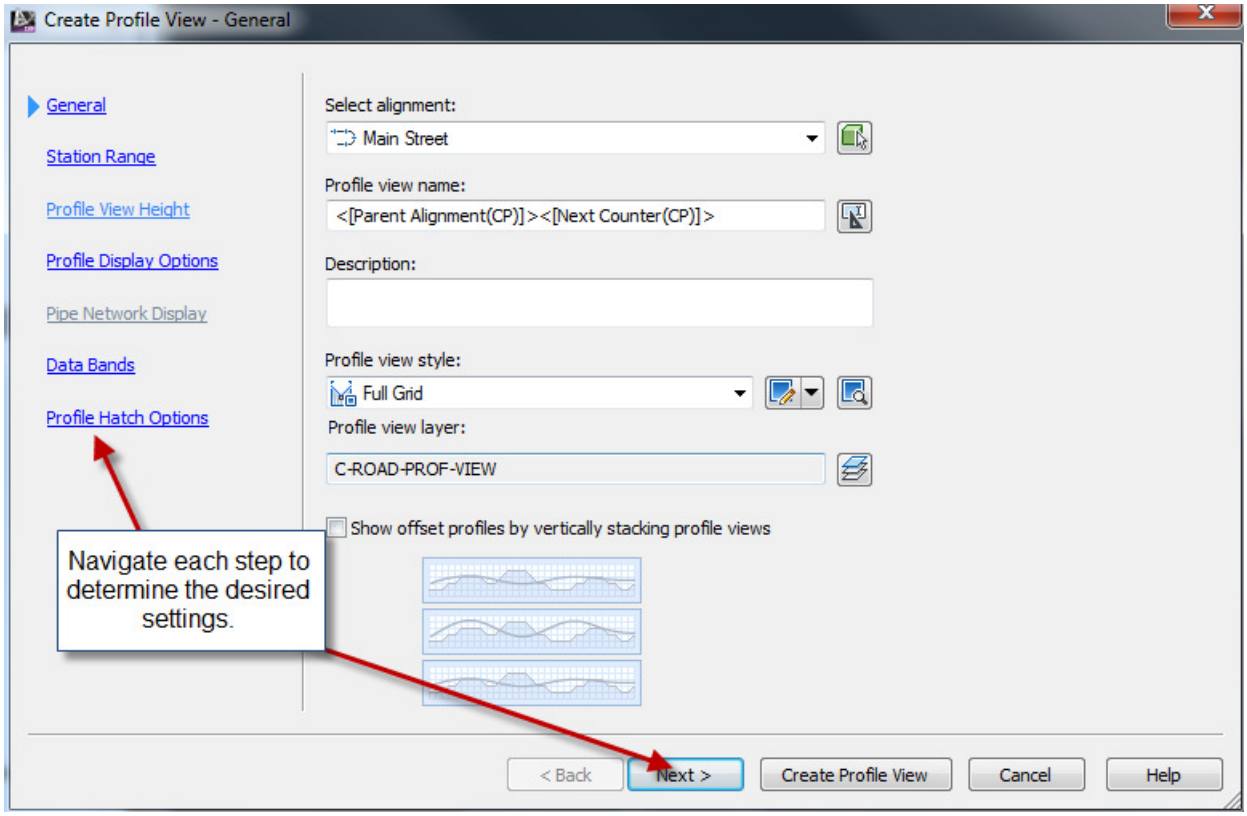


Existing/Proposed Profiles and Profile Views

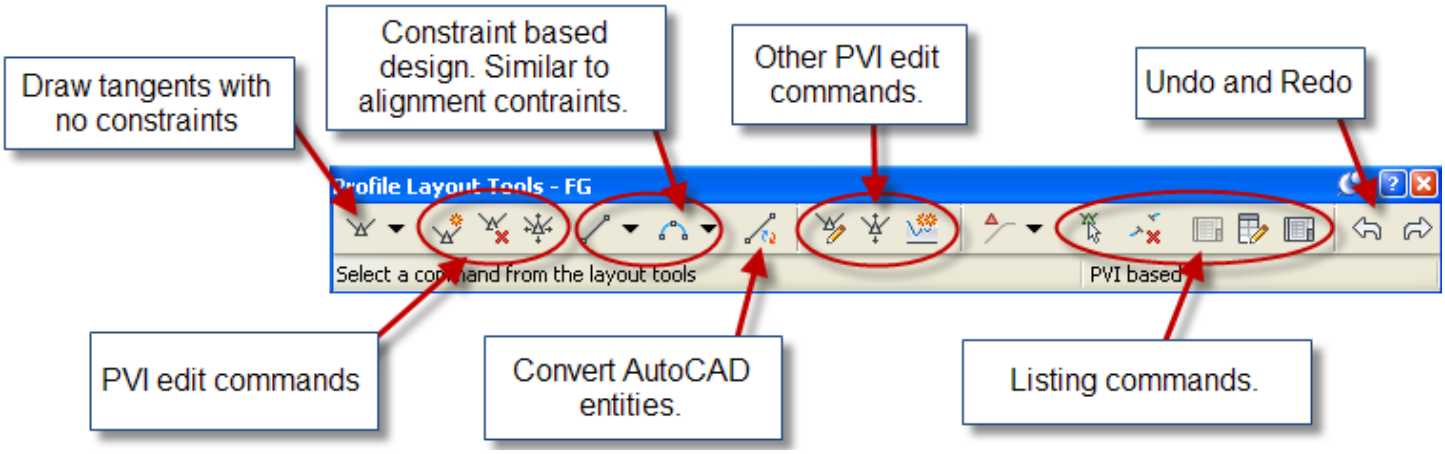
1. **"Home" ribbon tab > Profile > Create Surface Profile**



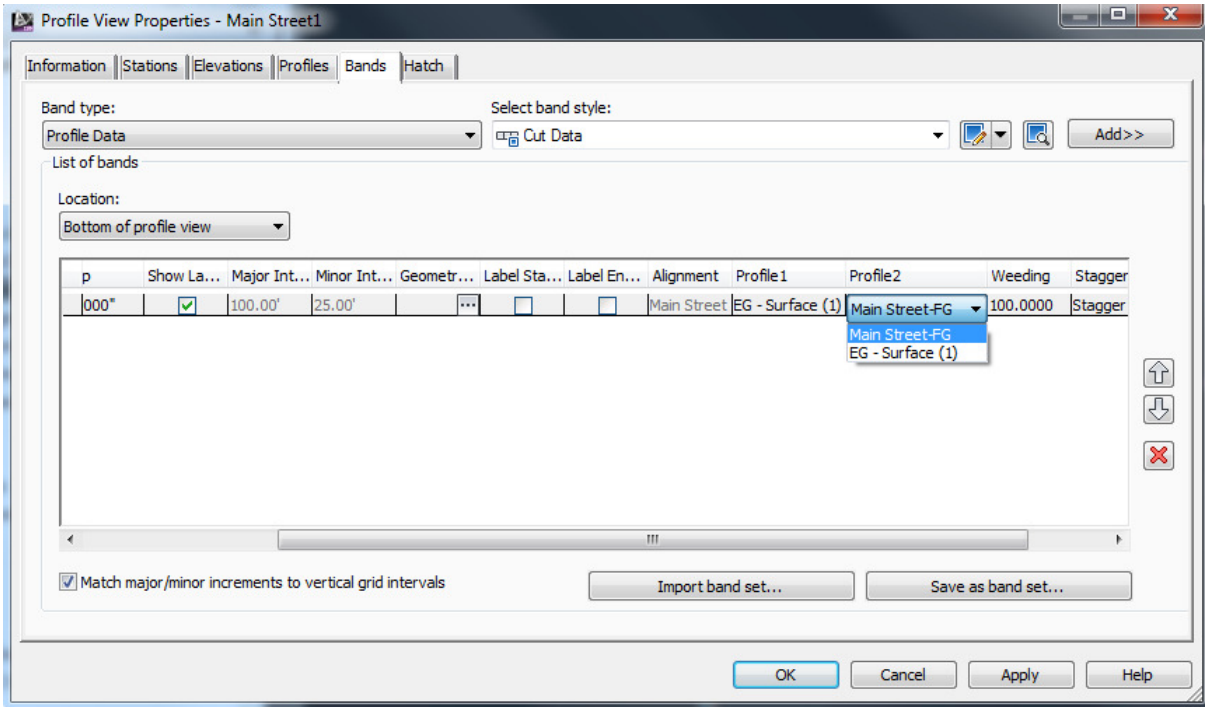
2. **"Home" ribbon tab > Profile View > Create Profile View**



3. **"Home" ribbon tab > Profile > Profile Creation Tools**

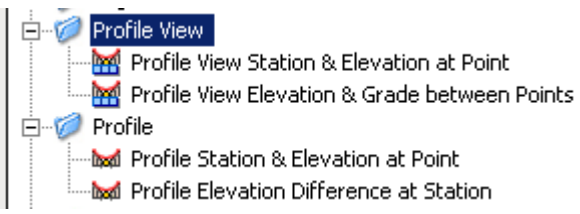


4. Profile View Properties, "Bands" tab, Set "Profile 2" to the design profile. (If you use a band style with FG and EG elevations.)



Listing and Labeling Profiles and Profile Views

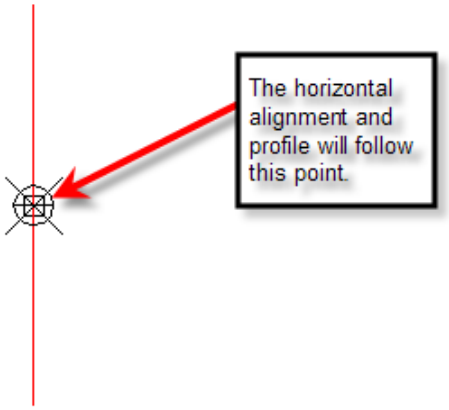
- **"Analyze" ribbon tab > Inquiry Tool** – There are several listing commands for profiles and profile views.



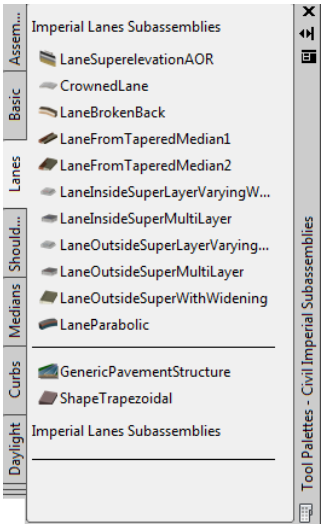
- **"Annotate" ribbon tab > All Labels > Profile View > Add Profile View Labels**

Create/Edit Assemblies

1. **"Home" ribbon tab > Assembly > Create Assembly** – Choose the appropriate styles and place the baseline somewhere in the drawing.

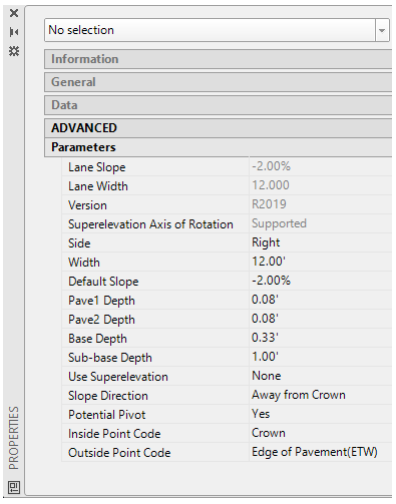


2. **Home tab > Palettes > Tool Palettes** – This displays the tool palettes that contain pre-defined sub-assemblies to be placed on the assembly.



a. Find the desired subassembly, left click the tool, fill out the properties, and then choose the attachment point on the assembly. You can also attach the subassembly and edit the parameters later as well.

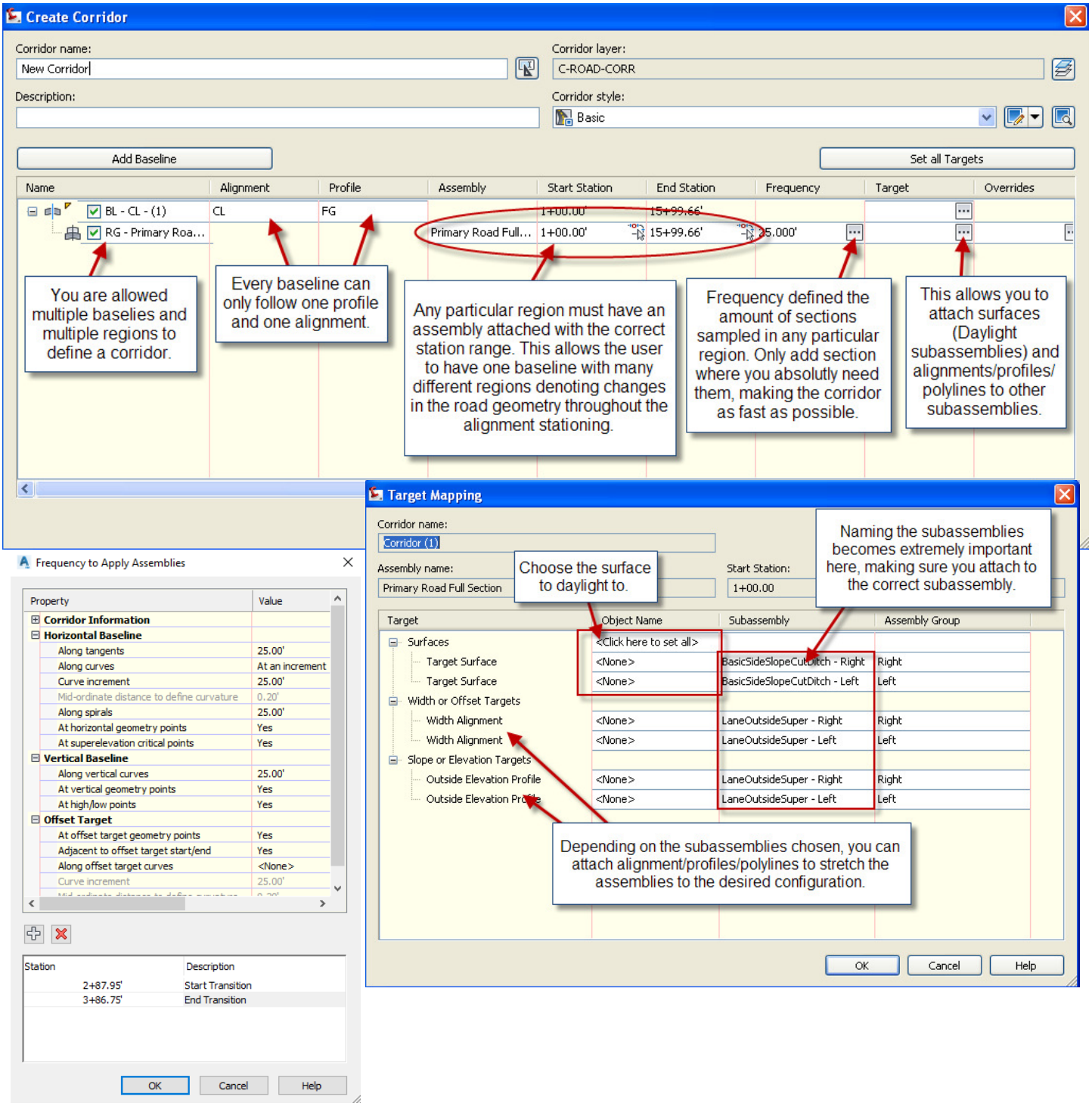
b. Rename the subassembly to an appropriate name. This will be important later in the definition of the corridor.



Create/Edit Corridors

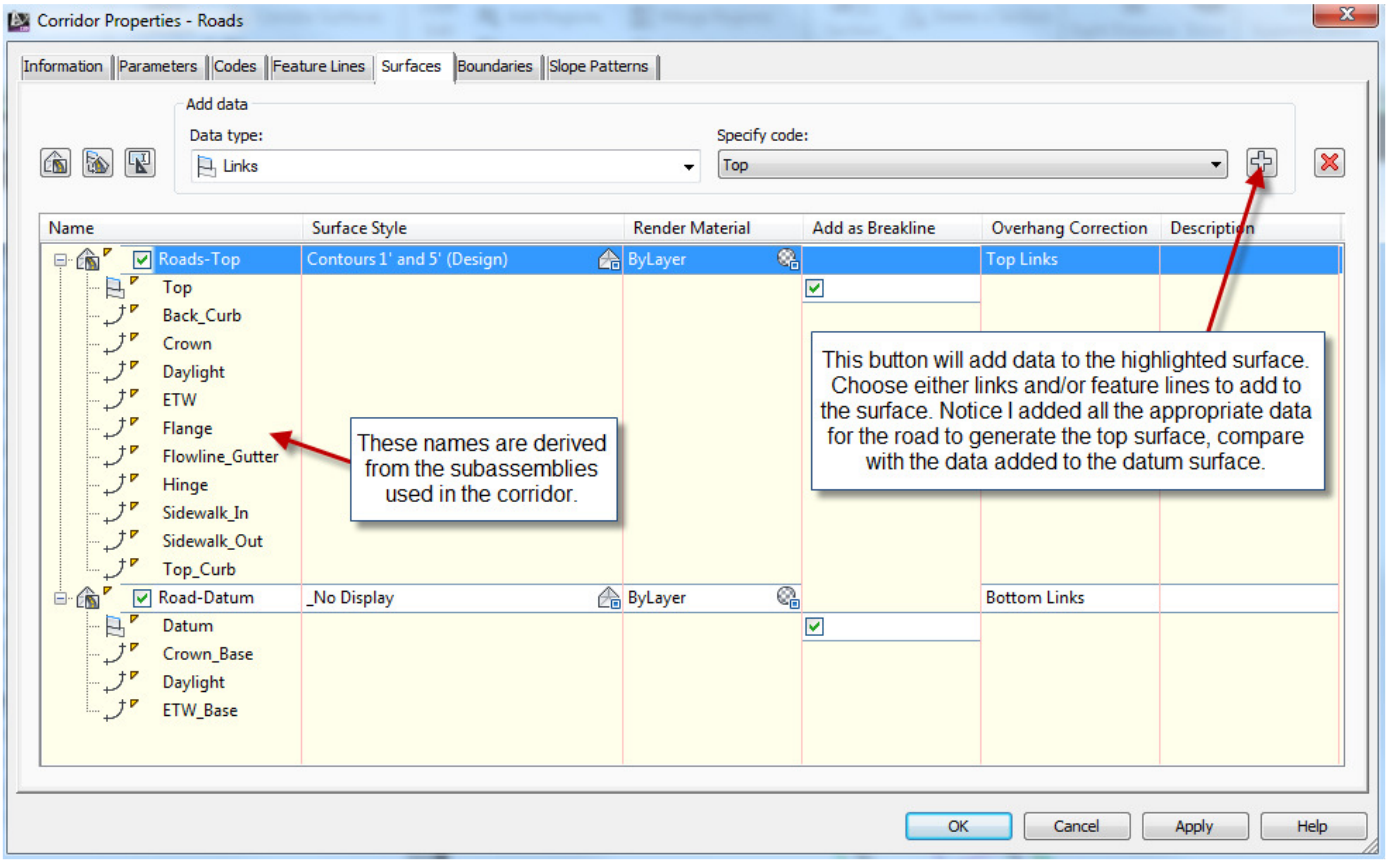
3. "Home" ribbon tab > Create Design > Corridor

a. Choose the horizontal alignment (baseline), then the profile, the assembly, and the target surface in the dialog box (not shown here).

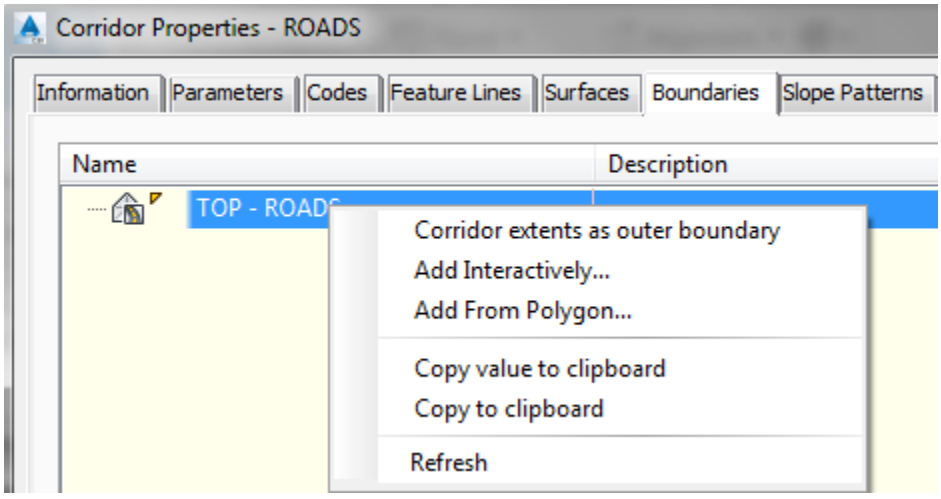


4. Create Corridor Surfaces (Within Corridor Properties)

Surfaces can be used to create the finished surface as well as calculate volumes. Typically, the top surface will become the finished ground surface while the datum surface will become the volume calculation surface. See the manual for further detail.



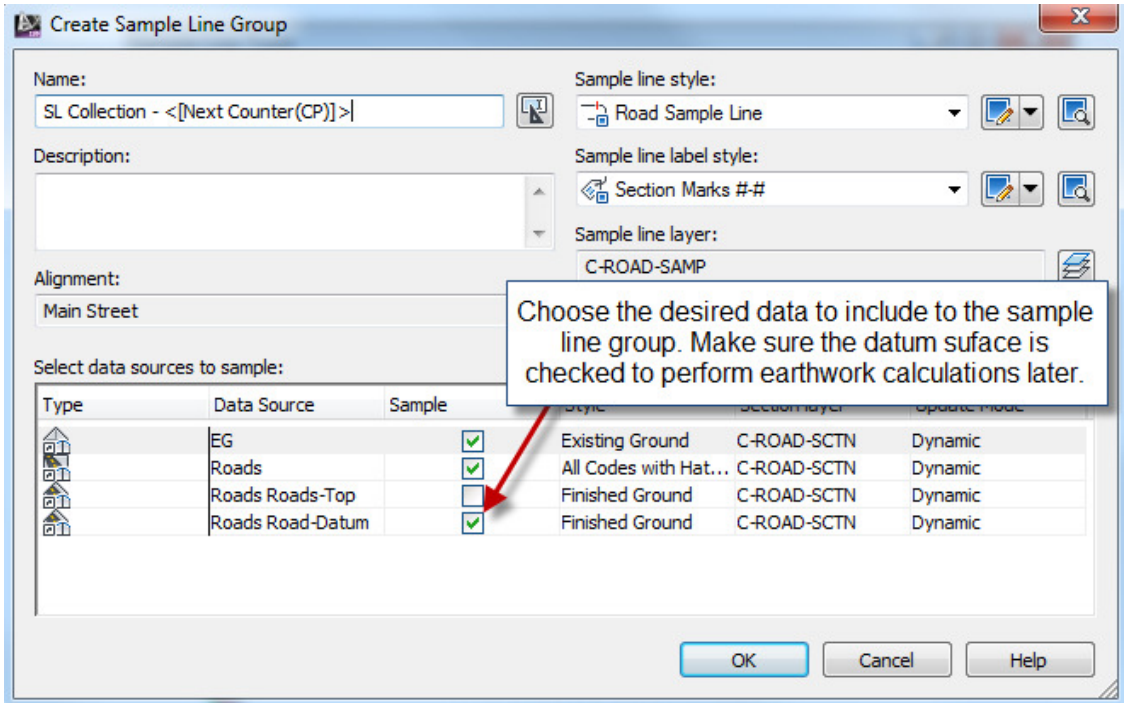
5. Add a Boundary to the Corridor Surface



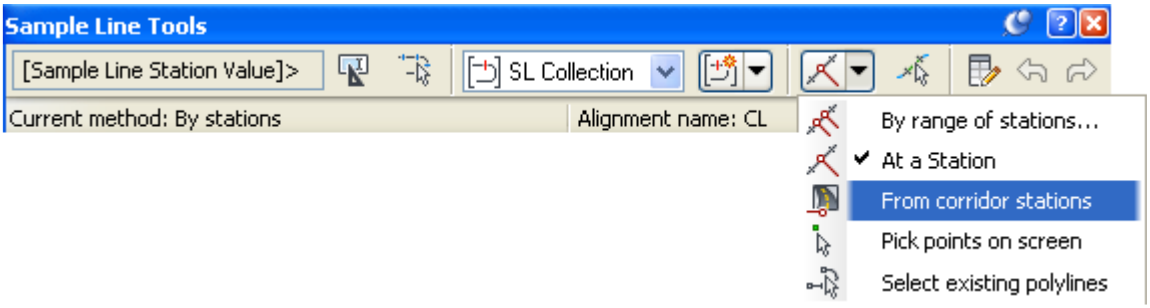
Sections

Sections are used for 2 things: (1) Plotting sections at desired stations, and (2) Calculating the volumes from a corridor. To accomplish the later, you must have added a corridor surface to represent the datum surface before sampling the sections.

1. **"Home" ribbon tab > Sample Lines**



Next to appear is the "Sample Line Tools" dialog box. See below for further explanation.



Calculate Volumes

There are two (2) types of volumes you can extract from a corridor: (1) cut and fill; (2) quantity of material.

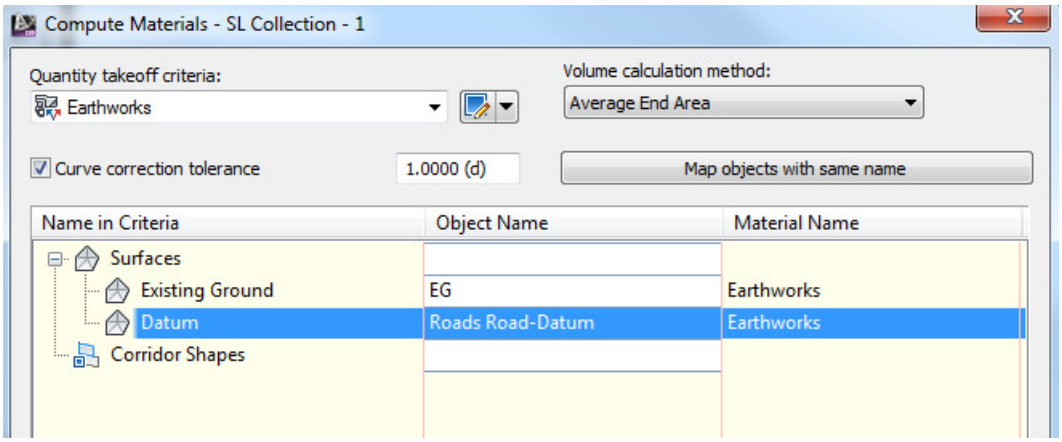
Cut and Fill

After creating the datum surface in corridor properties, you can simply use the volumes dashboard to see the volumes. This is further explained in the Grading cheat sheet.

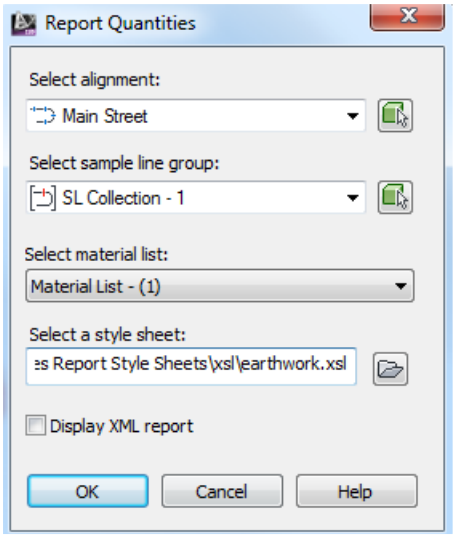
"Analyze" ribbon tab > Volumes Dashboard

Calculating volumes based on station ranges. (Cut and Fill)

1. **"Analyze" ribbon tab > Compute Materials**

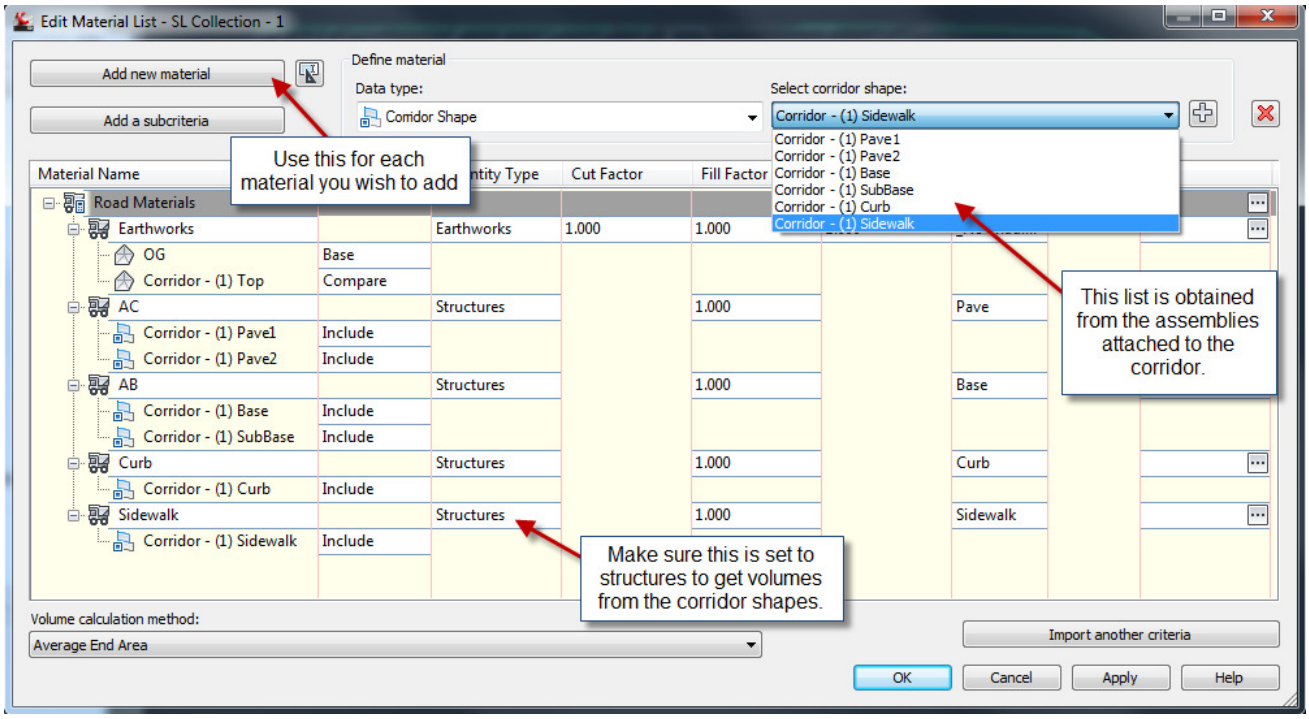


2. **"Analyze" ribbon tab > Volume Report**

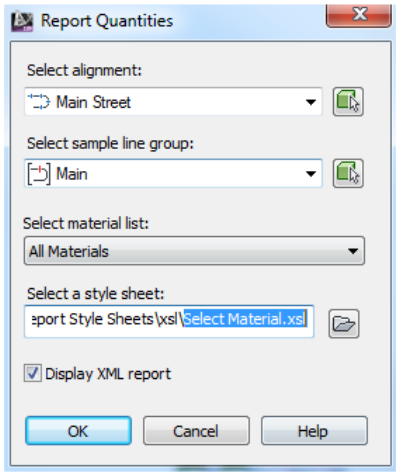


Calculating volumes based on station ranges. (Quantity of Material)

1. **"Analyze" ribbon tab > Compute Materials**



2. **"Analyze" ribbon tab > Volume Report**



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