2_52 FIXING TRACING ERRORS IN WEDGING

Question 1:
Sometimes after creating cross-sections, the lowest applicable wedging layer traces the existing groundline. Sometimes it does not. The file "..CM_L_OLD.dgn" shows a wedging layer tracing existing ground, so wedging calcs were easy to calculate. I updated the model recently, and now that layer is not tracing existing ground (..CM_L.dgn). Can you explain this?

Question 2:
What might be happening (in the above question) is the XSC is using the TIN to create the existing ground vs using the DTM existing. Is the TIN OK to use now?

Answer 1:
Mentioned in our delta training is the trace existing ground element, which traces the existing pavement for cross section earthwork. Older templates were built using the overlay/stripping component (stripping/milling) with a component depth of 0.01'. It did not trace the existing ground correctly and there was a 0.01' gap. When the component depth was set to 0, it did not show up when cutting cross sections. The solution was just use a simple constrained component type (line) with the two end points "Projecting to Surface". When a line element is constrained in this matter, the whole line element "traces" the existing ground. The templates are fixed.

The current C&G templates still have this issue.
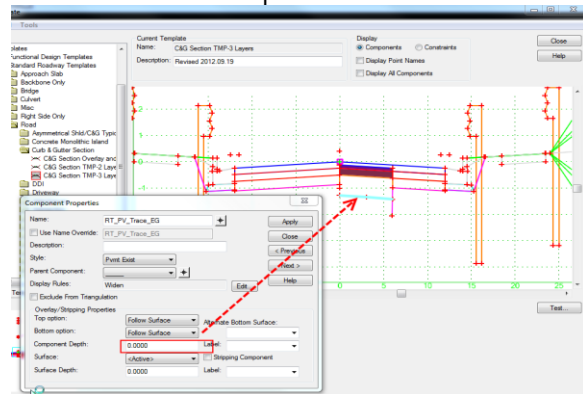
Trace is using a C&G template from 2011. The trace existing ground component is a line element, but it has an intermediate test point(s) in the middle which may cause it to not fully trace the existing correctly.
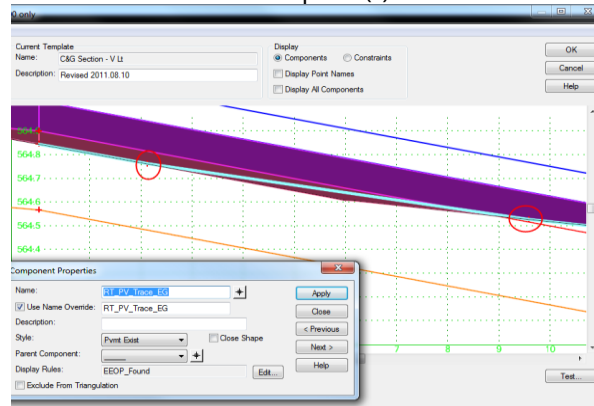
The fix is delete the three intermediate test points in the templates so all that is left is the two end points projecting to the active surface.
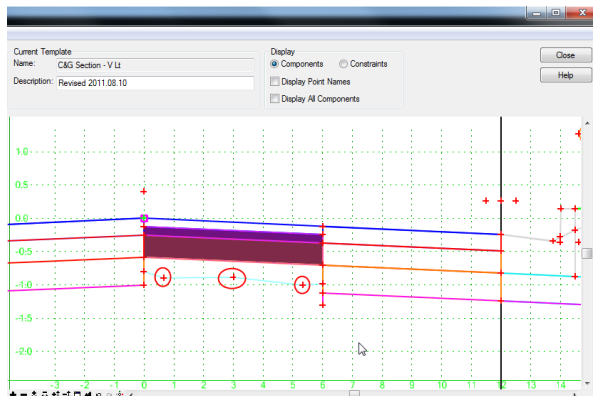
Two factors affecting our development:

1. The use of Terrain Model in future release (avoid the TIN to DTM conversion issue).
2. When we migrate the Department out of cross sectional earthwork to the component model base (and then ultimately the prismoidal surface-to-surface) earthwork, this will be better. Note cross sections sheets are still very important to us as a business/design Unit. However, there are more accurate and efficient ways to compute quantities besides using cross sections.

Answer:2
As mentioned in delta training (bonus exercise page 6) **TIN to DTM Conversion**, the TIN is good for most cases. Remember all end conditions are tied to the converted DTM once you are in Corridor Modeling. For mostly mountain jobs, it is problematic because of the abrupt change in terrain (TIN to DTM conversion not exact). However, if you use the existing ground DTM to cut cross sections, you will not be able to place the existing ground elevation at the centerline automatically.

The Q&A with the existing TIN vs. DTM is here...

https://connect.ncdot.gov/projects/Roadway/_layouts/listform.aspx?PageType=4&ListId={AD2C6DA1-8ACC-48B6-A916-1D5BDD8D4037}&ID=260&ContentTypeID=0x01006ECB22049A9D7849911AA92D334B7B4D