



Manual Junction Creation in Civil 3D 2018

Updated Manual Junction Method for C3D 2018

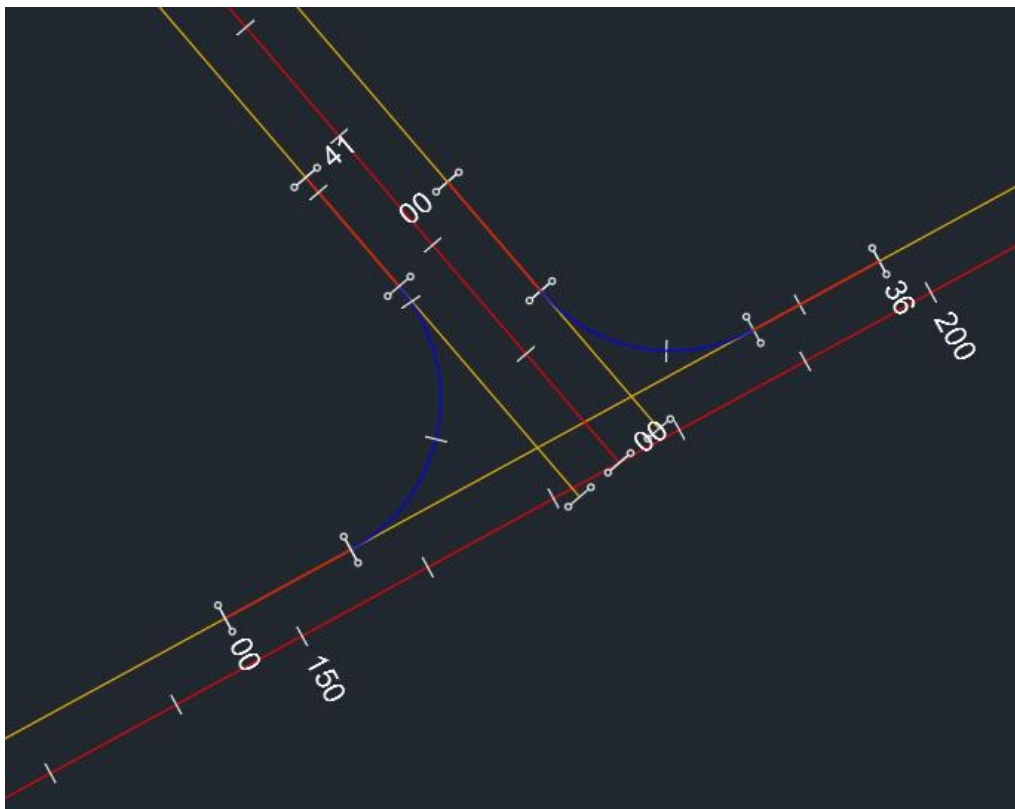
This method has been adapted from my original Manual Junction Technique to incorporate the new Connected Alignments and Offset Profile tools in Civil 3D 2018.

The Manual Junction will be made up from 5 Alignments: -

2 Parental Alignments, created in the usual way.

3 Offset Alignments, 1 from the Main Road Alignment to the side of the junction, 2 for either side of Side Road.

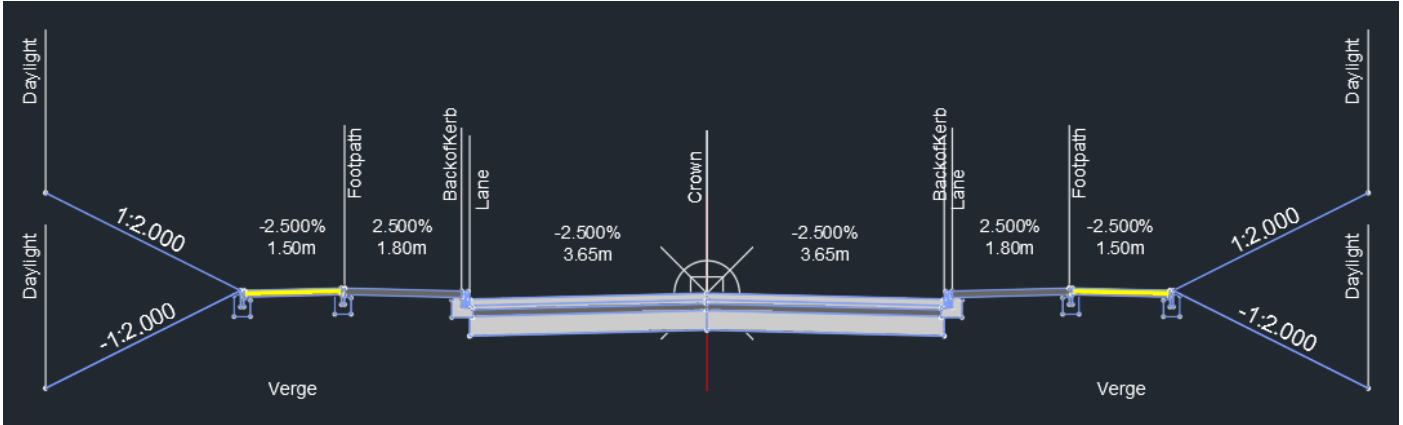
2 Connected Alignments to create the return Radius' of the junction.



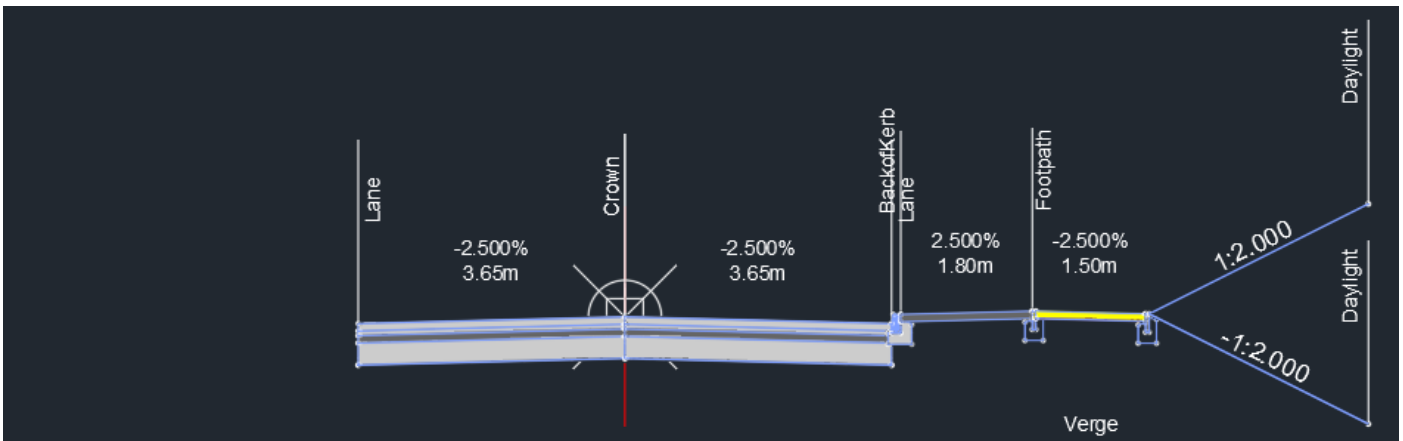


We will be using 3 Assemblies, a Main Road assembly with 2 variations for the junction.

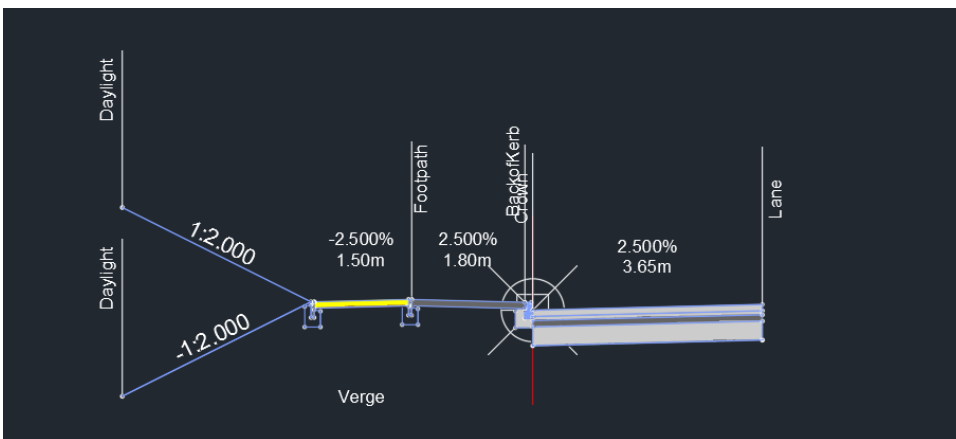
Main Road Assembly



Junction Assembly



Junction Radius

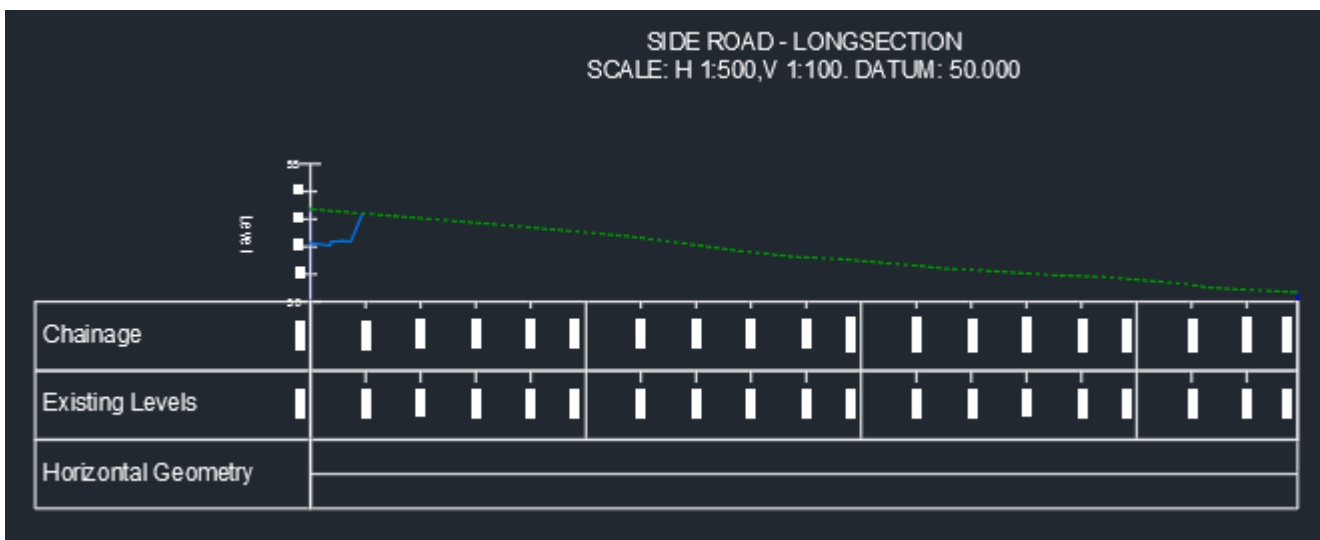




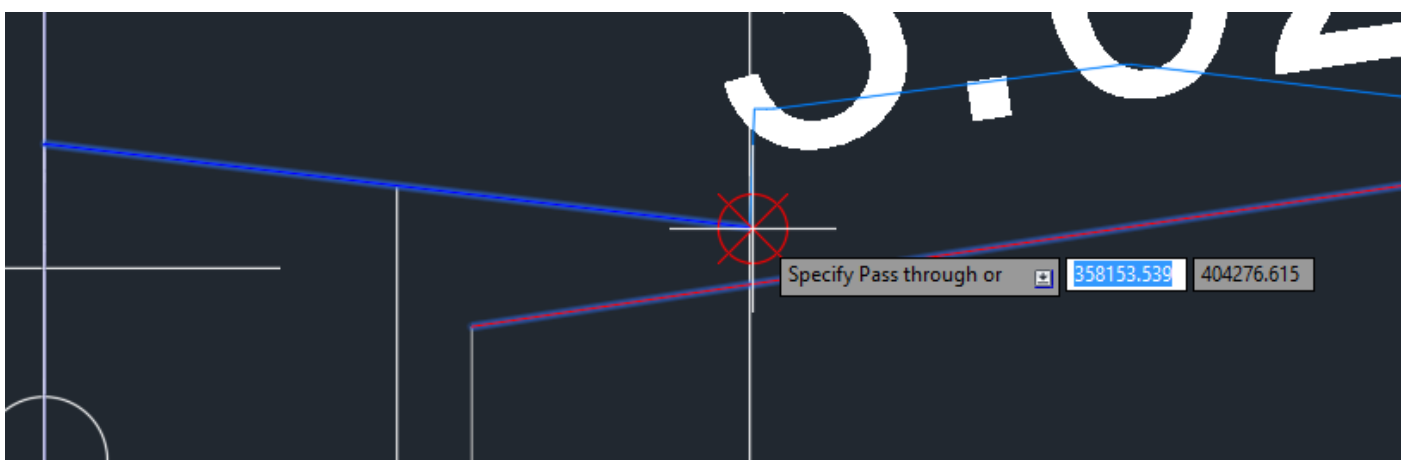
The Method

- Design the Main Road,
 - Create the Horizontal Alignment
 - Create the Surface Profile and the Vertical Design
 - Create Corridor using the Main Road Assembly
 - Create a Corridor Surface from the Top Link Codes

- Design the Side Road,
 - Create the Horizontal Alignment
 - Create the Surface Profile, add in the Main Road Corridor Surface
 - Create Vertical Design tie-ing into Main Road Surface

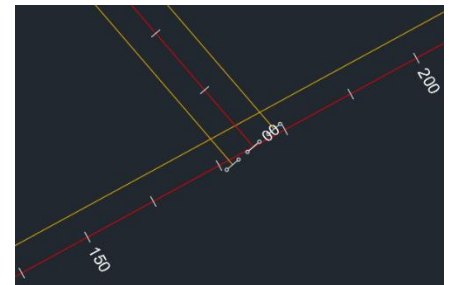


- Use the Free Vertical Parabola to connect the Side Road Design and Main Road Surface using the Pass-through option from the command line at the end of the Main Road Surface

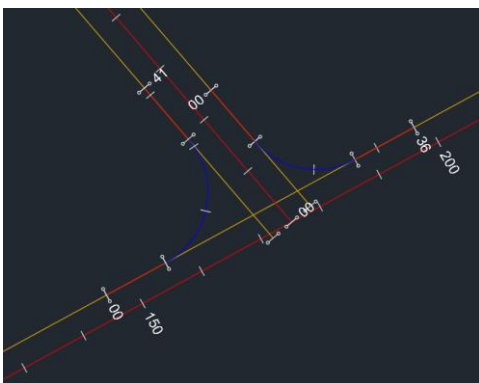
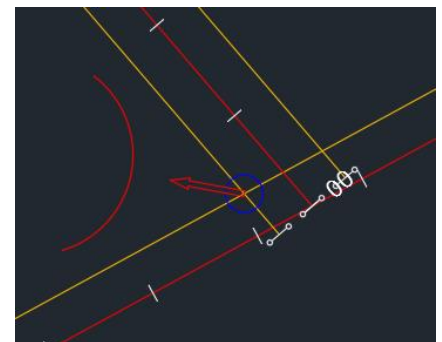




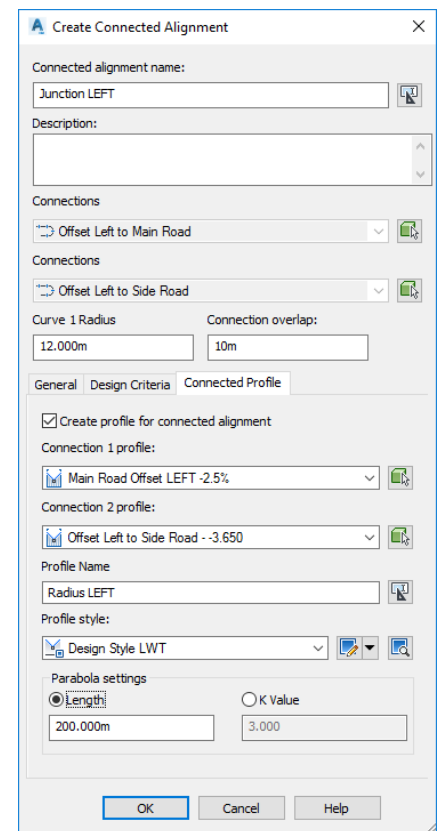
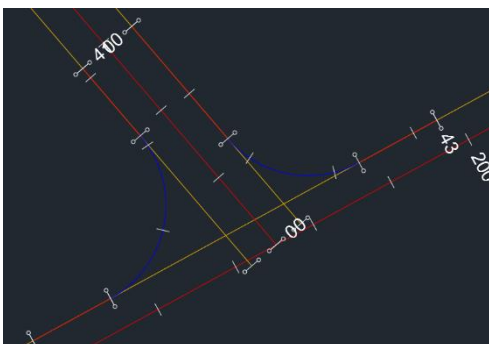
- Create Offset Alignments and Offset Profiles
 - Offset the Main Road in the direction of the Junction, set the Offset Profile gradient to match the assembly
 - Offset the Side Road both sides, again matching the assembly gradient.



- Create Connected Alignments
 - Select the Main Road Offset Alignment then the Side Road LEFT Offset Alignment
 - Select the Connection Side
 - Specify the Radius, Tie in Length, and Connected Profile Values
 - Repeat for the RIGHT Radius, Selecting the Side Road Offset first the Main Road Offset to get the chainage to follow the direction of traffic.



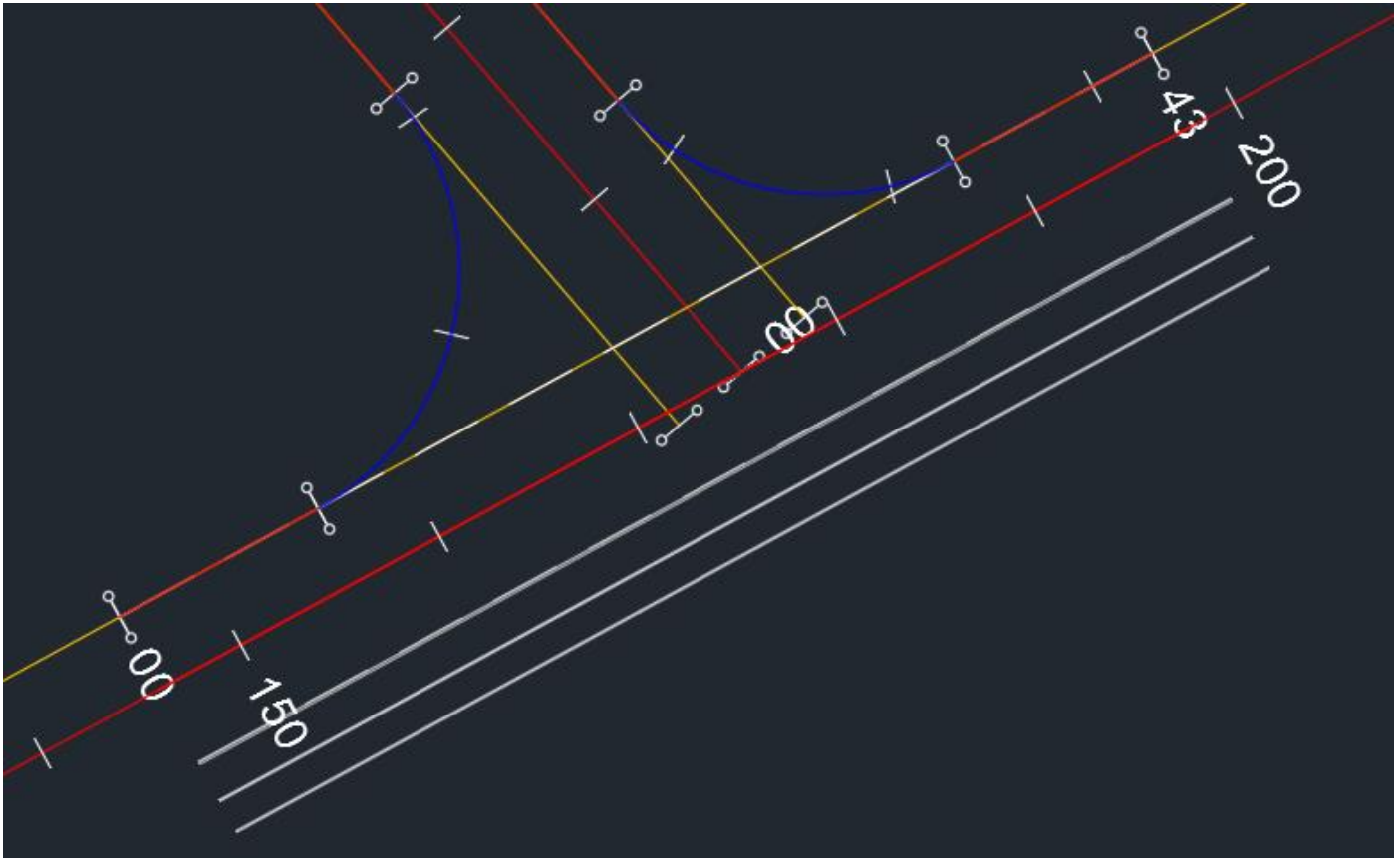
- Adjust the Tie ins so that they are parallel



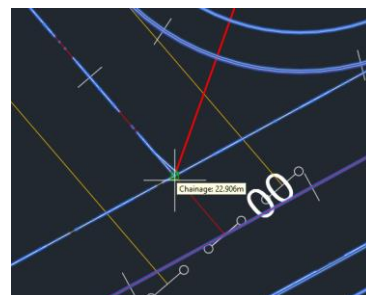


➤ Create the Junction Corridor

- Start the Corridor on the Main Road Alignment and add Both Junction Radius' as additional baselines
- Specify the Main Road Region between the junction overlap tie-ins

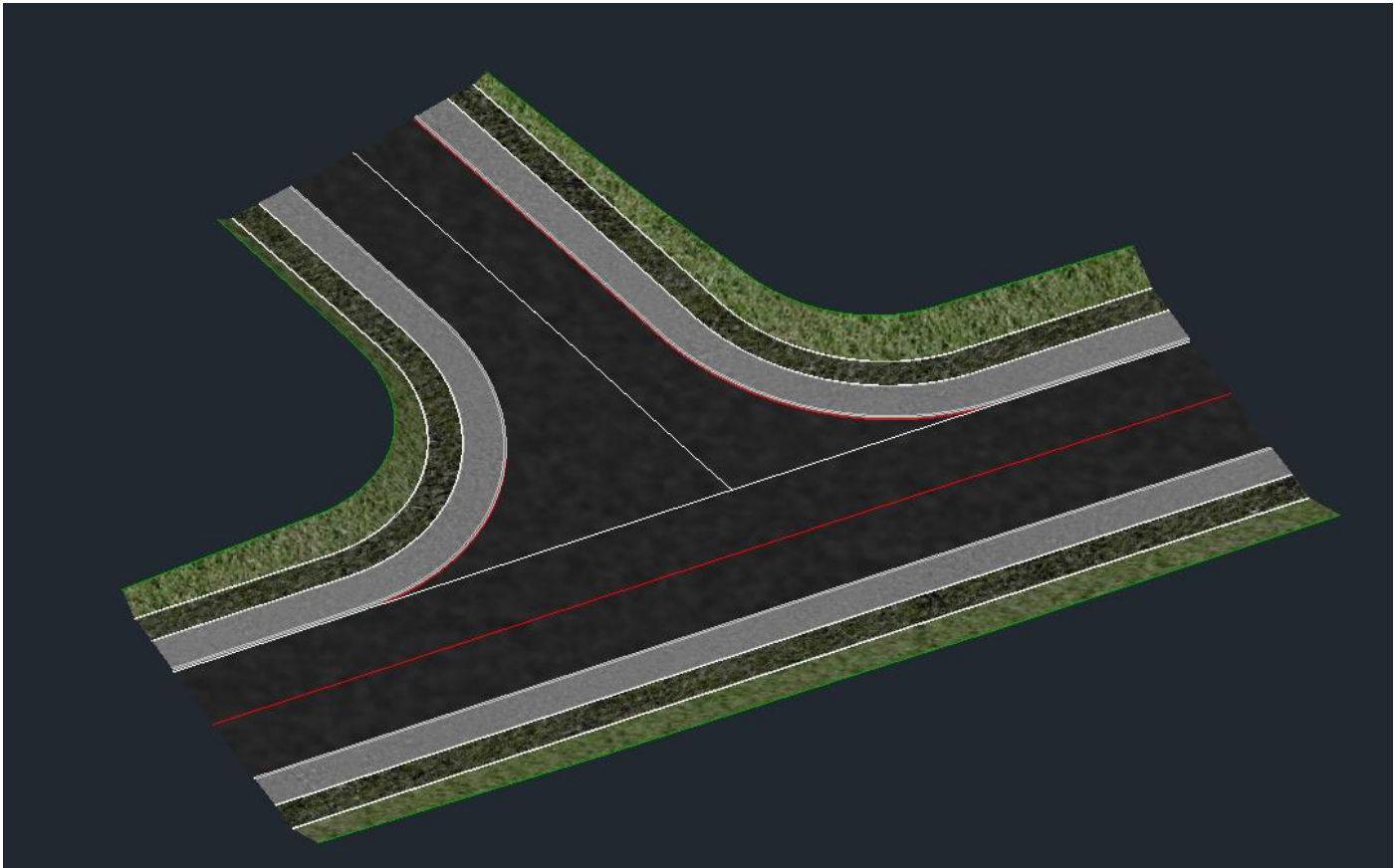


- Add Regions to both Junction Radius base lines and use the 'Fill' Command to apply the to the Full Chainage
- Set the Width and Vertical Targets for the Carriageway to Main Road Left Offset Alignment and the Parental Side Road Alignment. (Ensure that Target Nearest is Set)
- Set all Earthwork Targets to the Existing Ground Surface and Reduce the Frequencies to 1m.
- Add in an Additional Section on both Junction Radius; where the Main and Side Road Alignments intersect to remove and gaps at the centre of the bellmouth.





Select the Corridor and enter Object Viewer



From here we can create a surface and combine it with the Original Main Road Corridor Surface to generate or Final Surface.

