

Glenn Highway Chickaloon Grade Section MP 77-79
IRIS No. Z559670000

TIN Certification

I hereby certify that the existing ground survey was performed under my supervision to obtain data for the electronic Triangular Irregular Network (TIN) surface models as defined in the following files:

- AutoCAD Civil 3D 2014 Surface Data Ref File: **Chickaloon_Grade_Section.dwg**
File Size: **3,696 KB**
Save Date/Time: **9/21/2015 1:33 P.M.**

Surface Name: Chickaloon EG

Number of Points: 4477

Number of Triangles: 8323

The files are in AutoCAD Civil 3D 2014 format and was produced by Lounsbury & Associates from a ground survey conducted during August 2015.

The ground survey used a combination of conventional and Real Time Kinematic (RTK) GPS techniques. The conventional survey was performed using a Topcon ES-105L total station with three dimensional backsight checks performed before and after each group of topo points collected at each setup and at regular intervals throughout the day. RTK measurements were obtained with Topcon GR-5 units. RTK control checks and initialization checks were performed regularly by re-shooting previously surveyed control points with different on-the-fly initializations. Topographic measurements were recorded in Tesla data collectors running Magnet Field v. 3.1 software. Processing, adjustments, and QC analysis were performed in Topcon Magnet v.3.1 software.

The topographic survey drawings were developed using the DOT CR C3D template, which ensured that layering and symbols meet current DOT&PF standards. The DTMs were created in Civil 3D, reflecting existing ground and hard surface areas, using polyline breaklines generated from the survey points as appropriate.

The TIN files listed above represent existing topographic conditions at the time of survey. The TIN files are suitable to create two foot contours and have been checked for bad data through analysis of the data by the certifying Surveyor, and from the party chief who performed the survey.

Brianna C. Steffler, LS-13016.

