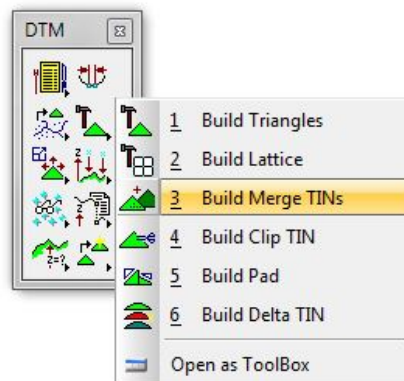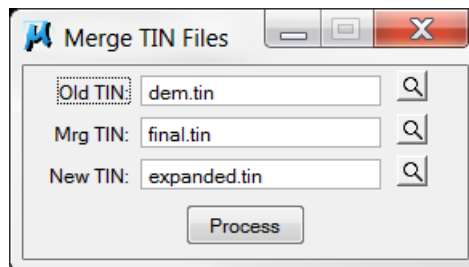# Completing Drainage Areas

This exercise shows options for the user to calculate drainage areas not included in the survey TIN file.

Step 1. Create a TIN Surface for areas outside the Survey TIN. Follow the processes outlined in the Creating Geopak TIN Surfaces from USGS DEM Data document available from the Roadway Design Division – CADD Standards and Downloads website.

Step 2. Merge the project Final TIN with the TIN surface created in Step 1.

    a. Open DTM Tools by clicking **Applications> GEOPAK> Road> DTM Tools**.

    b. Within the DTM Tools dialog select **Build Merge TINs**.

    c. Set **Old TIN:** to the TIN File created in Step 1. Set **Mrg TIN:** to the Final Project TIN file. Create a unique name for the **New TIN:** file.

    d. Click **Process**.

Step 3. Visualize contours for the New Merged TIN utilizing steps from the TDOT GEOPAK Road Course Guide, Exercise 22b.

Step 4. Use this process with DTM tools presented in this document in conjunction with MrSID images or other aerial photography to determine approximate flow paths and drainage areas.

    NOTE: MrSID images can be attached by following the process in the Using MrSID Image Files in MicroStation document.

Example image with expanded surface information: