Classic 3D transformations for adjusting UTM based coordinate systems.
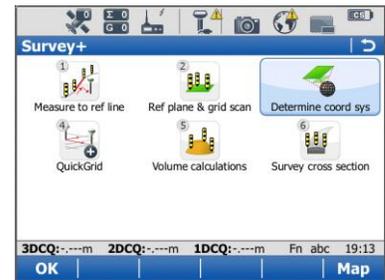
This helpsheet outlines the process of using the Classic 3D transformation to adjust a UTM coordinate system to agree with MASCOT or other coordinated survey marks. It may be necessary to use the transformation to account for differences between areas of published coordinates found on MASCOT, which may be seen because of geological disturbance, or differences between monument coordinates and the broadcast positions of the Spatial Technologies or MetroVan RTK reference stations.

It should be reiterated that good survey practices should be followed at all times when using the Pleiades network and/or 3D classic transformations on your project. Check into control marks before and after carrying out any survey work, and remember that any 3D classic transformation which fits well with MASCOT monuments in one area, may not show good agreement in another area within GVRD. It may be necessary to create several 3D classic transformations for different areas within the GVRD.
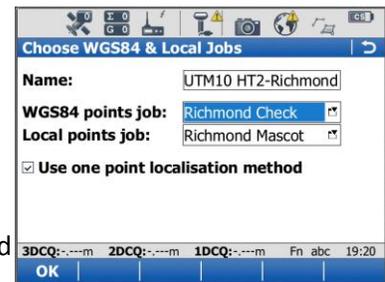
Leica Viva SmartWorx (all firmware versions)

1. **Enter the 'Determine Coordinate System' application**
   a. From the Main Menu, go to 'Go To Work'
   b. Select 'Survey +'
   c. Select 'Determine Coordinate Sys.'
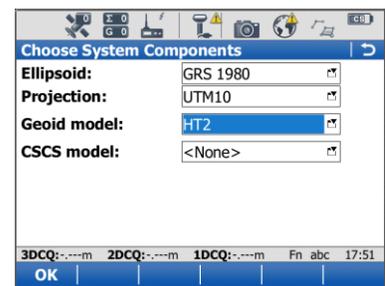
2. **Set the new coordinate system**
   a. Select Type: 'Classic 3D'
   b. Name the coordinate system.
   c. Create two new projects (or select existing projects)
      The WGS84 job will have a GPS observed point.
      The local job will have the correct UTM coordinates of the mark.
      The coordinate system for the local job must be UTM with a geoid model.
   d. Check the box (use one point localization).
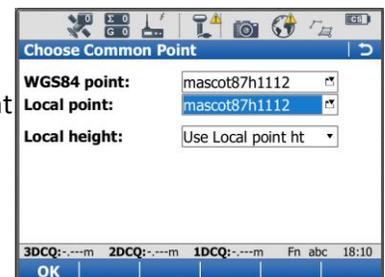   e. Press OK, then select 'orthometric' as the height mode.

3. **Set the parameters of the existing UTM coordinate system.**
   a. A GRS80 ellipsoid and geoid model must be used.

4. **Match the surveyed control mark with the actual coordinates**
   a. For the WGS84 point, select the point surveyed with the GPS, or press F5 to survey a new point.
   b. For the local point, select the point which contains the monument coordinates.
   c. Select 'use Local point ht'

5. **Check the magnitude of the coordinate system adjustment, then press OK to store the new coordinate system. You can now attach this new UTM coordinate system to any new or existing job.**