MEMORANDUM

To: Capital Programs

From: Karen Jordan

Date: May 22, 2013

Subject: Horizontal and Vertical Accuracy of Campus Spatial Data (GIS)

Last month an issue was identified regarding with the accuracy of the campus vertical data in relationship to the topography derived from the campus GIS data. Two different survey crews observed an approximate 2.5 foot difference between the current topography and survey points and the older survey points on plan maps for several campus infrastructure improvements. This memo is to explain both the horizontal and vertical accuracy of the campus spatial data. In order to create drawings that can easily be incorporated into the current campus GIS system, consultants are required to provide maps, plans and designs using the Geographic Coordinate System of State Plane Zone 6 EPOCH 2009 with the datum of NAD 83/NAVD 88, Zone 406, 2009 Epoch, California State Plane feet.

Historically (i.e. prior to the existence of the current GIS system), the campus used a modified coordinate system with the 0,0 starting point on campus in front of what is now Anderson Hall (formerly the Citrus Experiment Station) and utilized the vertical datum of NGVD (National Geodetic Vertical Datum) 1929 for all surveyed markers on campus. All campus design work was subsequently based on this coordinate system until the current GIS system was “launched” in 2007. The current the campus GIS system utilizes newer topographic and survey data based on a more up-to-date vertical datum of NAVD (North American Vertical Datum) 88. All current and future design work is required to be based upon this reference datum.

When new projects are being developed on campus the procedure is to provide consultants with either a GIS File Database or AutoCAD data that is a direct export from the campus GIS base data with this data residing in the more up-to-date datum (NGVD 88). Precaution needs to be taken when trying to match historic infrastructure and associated survey data that is in the older NGVD 1929 vertical datum as there is an approximate 2.5 foot differential between NGVD 1929 datum and the newer vertical NGVD 1988 datum. Awareness of this differential in the base datum (i.e. 1929 vs. 1988) on the part of the Capital Program’s planners, project managers, inspectors, can avoid inaccurate data use and interpretations by our consultants prior to final design work and integration of the new project into existing campus spatial data systems. For further information on adjustments between the two datum please refer to the following links listed below.

http://www.ngs.noaa.gov/PUBS_LIB/NAVD88/navd88report.htm

http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88

Before providing consultants with spatial data for design work, all Capital Programs staff is encouraged to check with me first to confirm that appropriate instructions for use of campus spatial data have been provided.