

CHAPTER 2 – GEOLOGICAL SETTINGS AND SITE CONDITIONS

The geology under the roadbed in the surveyed area consists of two formations: the Eocene-age San Jose Formation and a Holocene-age Alluvium. The San Jose Formation consists of a sequence of interbedded sandstones, shales, and minor conglomerates. The Alluvium is predominantly composed of stream deposits ranging from clays, silts, sands, and gravels, generally positioned on valley floors and on the lowest terraces. The Alluvium includes some fan and colluvium (sheet wash) sediments. Figure 2 contains a windowed United States Geological Survey (USGS) geologic map of the area <sup>(1)</sup>.

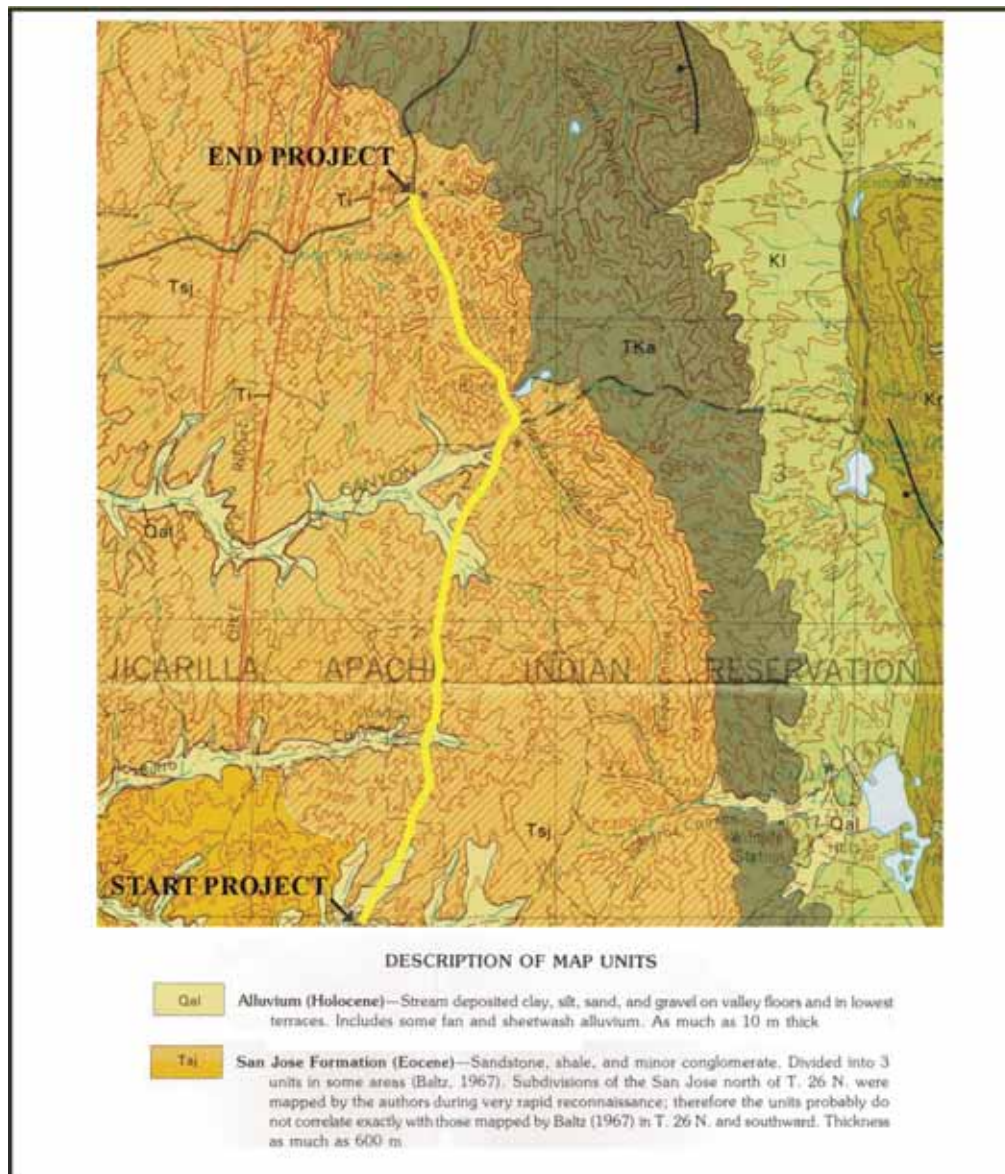


Figure 2. Map. Geological map of the Dulce survey area.

Four major soil formations, according to a draft report from the Bureau of Indian Affairs (BIA), are present in the survey area. These include the Orlic-Cement Lake Complex, the Vosburg-Millpaw Complex, the Losindios-Escrito-Parkelei Complex, and the Rock Outcrop-Vessilla-Menefee Complex<sup>(2)</sup>. The BIA is interested in our geophysical results in order to evaluate the potential for integration of geophysical measurements with their soil mapping activities in this area.

The site conditions can be generalized as open, relatively flat with some rolling hills for the majority of the survey area (e.g., between MP 45.5 and MP 53). Figure 3 is a representative picture of the open brush country in this area. Further north, steeper grades and heavily wooded areas were encountered (i.e., MP 53 to the intersection with U.S. 64). Figure 4 provides a picture that is representative of this terrain. Survey conditions during Phase III field effort were typically cold with snow and ice. Generally, the weather did not detract from the acquisition of quality conductivity data measured using the EMI methods.

Global positioning system (GPS) survey control point was tied into a local USGS control point (WELLS, PID GN0531) located near the Wells lookout tower during the September 2001 Phase I survey. The local control point used for the GPS base location was FHWA control point PT3500 located near MP 49. The GPS system used for these surveys is described in Chapter 3.0.



**Figure 3. Photo. Data collection in representative open area traveling north on SR537.**



**Figure 4. Photo. Representative wooded area traveling north on SR537.**

