2.5 SURFACE CONDITIONS

Based on the Land Study Plan prepared by Kier and Wright, the site topography generally varies across the site. Site grades range from elevation 23 feet to 19 feet (Datum not provided) with an existing detention basin to approximately elevation 15 feet.

We observed the following site features during our reconnaissance:

- Growth of grasses and weeds across the site.
- Varying amounts of concrete surface debris across site
- Multiple small trees across the site.
- Existing detention basin at the northwestern corner of the site with associated buildings.
- Gravel roadway for the Public Storm Drain Easement trending from Villa Tocino Drive along the western side of site, see reference 10.
- Recently mowed grasses for the Public Utility Easement trending from Villa Tocino Drive through the center of the site, see reference 10.
- Overgrowth of grasses along the Public Utility Easement at the eastern edge and northern edge of the site, see reference 10.
- Recycled aggregate base and rock stockpiles at the northeastern corner of the site.
- Existing Irrigation Canal along the western perimeter and the Union Pacific Railways along the western and northern perimeters of the site.

Please refer to the Site Plan, Figure 2, for more information on site features.

2.6 SUBSURFACE CONDITIONS

We encountered varying amounts of undocumented fill within the majority of our test pits and boring explorations. The approximate depths to native material varied from approximately 1 feet to 7 feet below existing grade. The native soils encountered in our explorations generally consisted of interbedded very stiff silt with sand and sandy silt within a relatively continuous layer of medium dense to very dense silty sand, clayey sand, poorly graded sand and poorly graded sand with silt within the upper 14 feet of our explorations. Beneath the stratum above we encountered interbedded layers of stiff to very stiff lean clay, sandy lean clay, silt with sand and sandy silt and medium dense to very dense silty sand, poorly graded sand and poorly graded sand with silt to the total depth explored.

Refer to Figure 2 and exploration logs included in Appendix A for specific subsurface conditions at each location. The logs graphically depict the subsurface conditions encountered at the time of the exploration. The boring logs contain the soil type, color, consistency, and visual classification in general accordance with the Unified Soil Classification System (USCS).

2.7 GROUNDWATER CONDITIONS

We observed static groundwater in several of our subsurface explorations. We summarize our observations of groundwater encountered at the end of drilling in the table below.

TABLE 2.7-1
Groundwater Observations

Exploration Location	Approximate Depth to Groundwater (feet)	Approximate Groundwater Elevation* (feet)
1-B1	13	5½
1-B2	20	0
1-B8	16	5½

* Elevations based Land Study Plan prepared by Kier and Wright.

Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.8 LABORATORY TESTING

We performed laboratory tests on selected soil samples to determine their engineering properties. For this project, we performed moisture content, plasticity index, gradation and resistance value. Corrosion testing was performed by Cerco Analytical. Selected soil properties are recorded on the boring logs in Appendix A. All laboratory data is included in Appendix B.

2.9 PERCOLATION TESTING

2.6.1 Test Preparation

We installed four percolation test holes at varying depths in the existing and proposed detention basins. Percolation holes P-1 and P-2 were installed in the existing basin (northwestern corner) and P-3 and P-4 were installed at the location of the proposed basin (northeastern corner). We drilled the percolation test holes using a 4-inch-diameter solid flight auger. Preparation of the percolation test holes began by placing a two-inch-thick layer of open-graded gravel in the bottom of the holes, then placing a 3-inch-diameter plastic pipe in the test holes and ¾-inch-diameter drain rock surrounding the pipe up to the ground surface. We presoaked the holes with municipal drinking water the day prior to performing the percolation test. It is our opinion that the percolation rate of drinking water should be similar to storm water.

2.6.2 Percolation Testing

ENGEO performed the percolation testing on July 16, 2015. With the exception of percolation test P-1, at the start of the test, we filled the holes with water to approximately 12 inches above the gravel placed at the bottom of the holes. When we arrived on July 16, 2015, the water level in test location P-1 did not subside, we believe this may be related to an isolated hardpan or confining layer. The water level in the other three percolation locations were then measured until the percolation rate stabilized. At the end of each interval, additional water was added, as needed, to reset the water level to approximately 12 inches above the gravel. The percolation rate in test location P-4 was much faster than location P-2 and P-3, we believe that this may be related to the existing undocumented fill on site.