04-0G1304
Information Handout

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State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MS. ARLISSA PANG
Design Branch Chief
Office of Special Projects

Date: March 12, 2012

Attention: Ben K. Huey

File: 04-SCL-82- PM 20.9
04-0G1301
E-FIS: 0400000311
Install New Signals and Upgrade Wheelchair Ramps

S.A

H. Nikoui

From: SUJA AHMED
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Geotechnical Services
Division of Engineering Services

HOOSHMAND NIKOUI
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Office of Geotechnical Design – West
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Subject : Foundation Recommendations for Signals and Lighting Standards.

1. INTRODUCTION

This memo provides foundation recommendations for the proposed Signals and Lighting Standards at eight different locations (location A through H) at Route 82 (W El Camino Real) and Clark Avenue junction, city of Mountain View. As per Project Plan submitted by your office, the project consists of four (4) different types of Lighting Standards. Standard Plans dated May 2006 is considered to develop this project plan.

2. PROJECT LOCATION

The proposed new Signals and Lighting Standards are located at Route 82 (W El Camino Real) and Clark Avenue junction, city of Mountain View in Santa Clara County (Figure 2).

3. SCOPE OF WORK

- Site Reconnaissance
- Review available Geotechnical Investigation Report around this project location
- Review Site Geology
- Foundation Recommendations

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

Topography

The project site is located in Santa Clara County in the western part of the Santa Clara Valley, within 3 miles of the Bay. It lies about a mile northwest of Permanente Creek. The project site lies on nearly flat ground, about 87.5 ft above mean sea level[1].

Climate

The climate of the job site is considered Mediterranean Climate. Santa Clara County has warm summers and cool winters. The warmest and coldest months are July and January, respectively. The average highest temperature is 84.3°F and average lowest temperature is 41°F. Rainfall averages a little over 15 inches annually. The rainy season begins about October, and ends about April, with the most rain falling in January (over 3 inches)[2].

Site Geology

The project site lies in the California Coast Ranges geomorphic province. The site lies on State Route 82, El Camino Real, in Mountain View. The site is mapped on Quaternary Alluvial fan deposits, which are generally unconsolidated stream and basin deposits, clay to boulder sized. The top meter of soil at the site is probably compacted fill and underneath that is likely to be sand and clay. A portion of the Quaternary geologic map[3] is included in Figure1.

Seismicity

The project is located in the San Francisco Bay Area, a highly active seismic region. Historic earthquakes have occurred in the region on the San Andreas Fault, in 1906 with a magnitude of 8 and in 1989, with a magnitude of 7, and also on the Hayward fault, 1868 with a magnitude of 6.8,

There are two faults near the project site, the Cascade and San Andreas Faults. The Cascade Fault lies 1.2 miles southwest from the site, and the San Andreas Fault lies 10.3 miles southwest from the site. The Caltrans ARS program gives the probabilistic PGA of 0.535g assuming Class D soil with the V_{s30} of 270m/s.

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[1] Mountain View Quadrangle, California (USGS, 1981)
[2] http://www.idcide.com/weather/ca/santa-clara.htm
[3] Witter, R.C., Knudsen, K.L., Sowers, J.M., Wentworth, C.M., Koehler, R.D., and Randoph, C.E., 2006, Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California, prepared in cooperation with the California Geological Survey, U.S. Geological Survey Open-File Report 2006-1037

The site is not located on an Alquist-Priolo map of fault zones. Therefore, surface rupture should not be an issue.

Liquefaction

The site is mapped as having low to moderate liquefaction susceptibility[4]. Liquefaction is likely to occur in areas mapped as low to moderate with PGAs of at least 0.1g. Liquefaction can occur where there are saturated unconsolidated sands.

Groundwater

No LOTBs were available near the project site, so the depth to groundwater is not known at this particular location. However, in the search of nearest available LOTBs, groundwater was encountered between 27 ft and 35 ft near EB Route 237 to NB Route 85 on-ramp, approximately 2.65 mile southwest of the proposed site. Seasonal fluctuations may occur as seasons are changed.

Landslides

The project site topography is flat, so landslides are not a hazard at this site.

5. FOUNDATION RECOMMENDATIONS

Based on the available Geologic and sub-surface information, we recommend to use the May 2006 Standard Plans as follows:

- Standard Type 29-5-100 use 36" diameter CIDH Pile @ 9'-2" depth (ES-7G)
- Standard Type 15TS use 30" diameter CIDH Pile @ 5 feet depth (ES-7A)
- Standard Type 17-3-100 use 36" diameter CIDH Pile @ 7 feet depth (ES-7E)
- Standard Type 1-B use Foundation Recommendation mentioned in Standard Plan ES-7B

6. CONSTRUCTION CONSIDERATIONS

- Nearest available groundwater was found between 27' and 35'. However, there is a possibility that groundwater may be encountered during construction of CIDH piles. The contractor should be prepared for dewatering during drilling holes for CIDH piles.

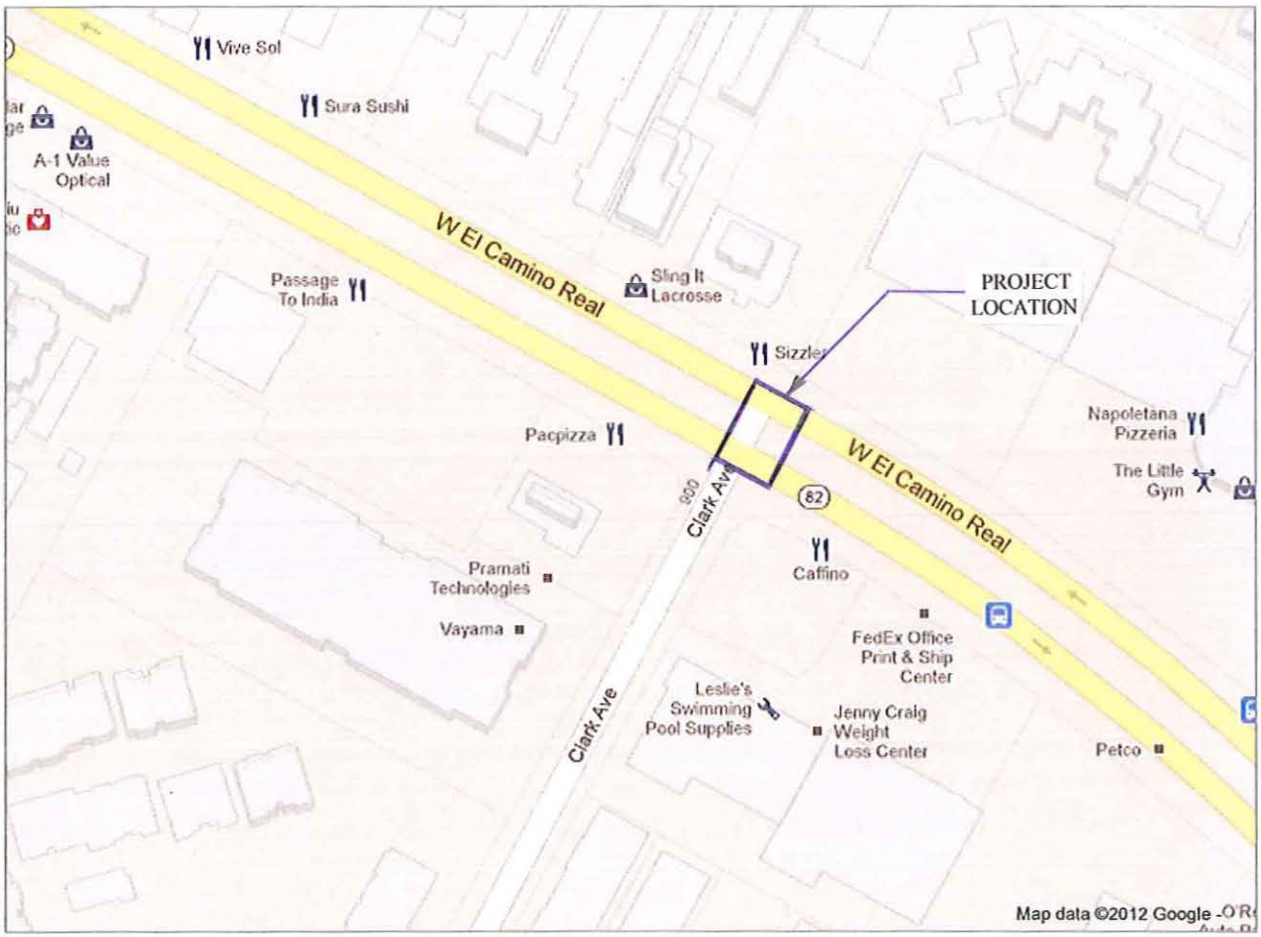
[4] http://geomaps.wr.usgs.gov/sfgeo/liquefaction/susceptibility.html (USGS, 2006)

- CIDH piling shall conform to the provision in Section 49-4 of May 2006 Standard Specifications.
- Difficult pile installation situation may encounter due to possible sand and clay layers.

If you have any questions, please contact Suja Ahmed at (510) 286-4752, Ben Nou at (510)-622-8821 or Hooshmand Nikoui at (510) 286-4811.

c: TJPokrywka, HNikoui, Daily File, Route File

SAhmed/mm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PROJECT LOCATION
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Pacpizza
The Little Gym
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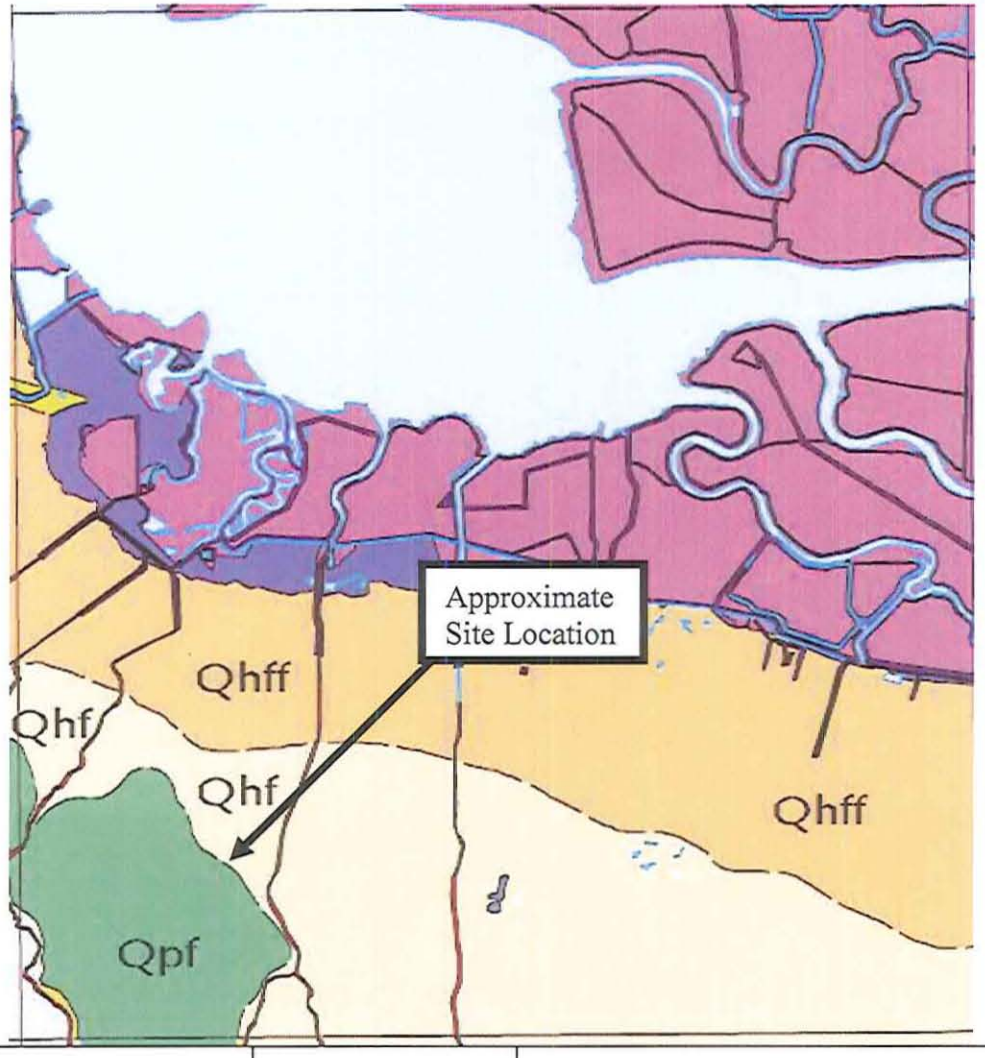
Clark Ave
82
W El Camino Real
Caffino
Pramati Technologies
Vayama
FedEx Office Print & Ship Center
Leslie's Swimming Pool Supplies
Jenny Craig Weight Loss Center
Clark Ave
Petco
Map data ©2012 Google

Figure-2

Figure1



KEY:

Quaternary

Qpf — Alluvial Fan Deposits

Qhf — Alluvial Fan Deposits

REFERENCE:

Witter, R.C., Knudsen, K.L., Sowers, J.M., Wentworth, C.M., Koehler, R.D., and Randoph, C.E., 2006, Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California, prepared in cooperation with the California Geological Survey, U.S. Geological Survey Open-File Report 2006-1037

			Geology Map
	Caltrans	**Engineering Service Center** DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B	04-SCL-082 EFIS 04000001104 PM 20.9 FEBRUARY 2012
Not to Scale			