Appendix A

Air Quality and Greenhouse Gas Calculations

Anacapa Courts Mixed-Use (2020)

Ventura County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings):

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	250	150
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2818	0.5925	0.5846	1.0500e-003	0.0166	0.0313	0.0479	4.6300e-003	0.0291	0.0337	0.0000	92.1004	92.1004	0.0223	0.0000	92.6590
Maximum	**0.2818**	**0.5925**	**0.5846**	**1.0500e-003**	**0.0166**	**0.0313**	**0.0479**	**4.6300e-003**	**0.0291**	**0.0337**	**0.0000**	**92.1004**	**92.1004**	**0.0223**	**0.0000**	**92.6590**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2818	0.5925	0.5846	1.0500e-003	0.0160	0.0313	0.0473	4.3800e-003	0.0291	0.0334	0.0000	92.1003	92.1003	0.0223	0.0000	92.6589
Maximum	**0.2818**	**0.5925**	**0.5846**	**1.0500e-003**	**0.0160**	**0.0313**	**0.0473**	**4.3800e-003**	**0.0291**	**0.0334**	**0.0000**	**92.1003**	**92.1003**	**0.0223**	**0.0000**	**92.6589**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**3.37**	**0.00**	**1.17**	**5.40**	**0.00**	**0.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.3033	0.3033
2	4-1-2021	6-30-2021	0.2833	0.2833
3	7-1-2021	9-30-2021	0.2864	0.2864
		Highest	0.3033	0.3033

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1720	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990
Energy	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	89.1065	89.1065	3.3500e-003	9.1000e-004	89.4609
Mobile	0.0709	0.2839	0.8108	2.7400e-003	0.2540	2.3400e-003	0.2564	0.0680	2.1800e-003	0.0701	0.0000	251.4143	251.4143	0.0107	0.0000	251.6811
Waste						0.0000	0.0000		0.0000	0.0000	3.0611	0.0000	3.0611	0.1809	0.0000	7.5838
Water						0.0000	0.0000		0.0000	0.0000	0.5866	11.7789	12.3655	0.0607	1.5200e-003	14.3377
Total	**0.2445**	**0.2990**	**0.9953**	**2.8300e-003**	**0.2540**	**4.3800e-003**	**0.2584**	**0.0680**	**4.2200e-003**	**0.0722**	**3.6477**	**352.5917**	**356.2393**	**0.2559**	**2.4300e-003**	**363.3624**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1691	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990
Energy	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	89.1065	89.1065	3.3500e-003	9.1000e-004	89.4609
Mobile	0.0648	0.2398	0.6367	1.9700e-003	0.1778	1.7500e-003	0.1796	0.0476	1.6300e-003	0.0492	0.0000	180.9128	180.9128	8.3200e-003	0.0000	181.1209
Waste						0.0000	0.0000		0.0000	0.0000	3.0611	0.0000	3.0611	0.1809	0.0000	7.5838
Water						0.0000	0.0000		0.0000	0.0000	0.5866	11.7789	12.3655	0.0607	1.5200e-003	14.3377
Total	**0.2354**	**0.2549**	**0.8212**	**2.0600e-003**	**0.1778**	**3.7900e-003**	**0.1816**	**0.0476**	**3.6700e-003**	**0.0512**	**3.6477**	**282.0902**	**285.7378**	**0.2536**	**2.4300e-003**	**292.8022**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.71**	**14.75**	**17.50**	**27.21**	**30.00**	**13.47**	**29.72**	**30.01**	**13.03**	**29.01**	**0.00**	**20.00**	**19.79**	**0.92**	**0.00**	**19.42**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0168	0.0168	0.0000	0.0000	0.0168
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0168**	**0.0168**	**0.0000**	**0.0000**	**0.0168**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**1.2000e-004**	**1.5000e-004**	**2.7000e-004**	**1.0000e-005**	**1.4000e-004**	**1.5000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0168	0.0168	0.0000	0.0000	0.0168
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0168**	**0.0168**	**0.0000**	**0.0000**	**0.0168**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**7.5000e-004**	**4.1000e-004**	**1.1600e-003**	**4.1000e-004**	**3.9000e-004**	**8.0000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0670	0.0670	0.0000	0.0000	0.0671
Total	**3.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0670**	**0.0670**	**0.0000**	**0.0000**	**0.0671**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4000e-004	0.0000	3.4000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**3.4000e-004**	**4.1000e-004**	**7.5000e-004**	**1.9000e-004**	**3.9000e-004**	**5.8000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0670	0.0670	0.0000	0.0000	0.0671
Total	**3.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0670**	**0.0670**	**0.0000**	**0.0000**	**0.0671**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6000e-004	0.0293	7.8800e-003	8.0000e-005	2.0000e-003	8.0000e-005	2.0800e-003	5.8000e-004	8.0000e-005	6.5000e-004	0.0000	7.4229	7.4229	5.9000e-004	0.0000	7.4377
Worker	4.3200e-003	2.8000e-003	0.0308	9.0000e-005	0.0101	7.0000e-005	0.0102	2.6800e-003	7.0000e-005	2.7400e-003	0.0000	8.3758	8.3758	2.1000e-004	0.0000	8.3811
Total	**5.1800e-003**	**0.0321**	**0.0387**	**1.7000e-004**	**0.0121**	**1.5000e-004**	**0.0122**	**3.2600e-003**	**1.5000e-004**	**3.3900e-003**	**0.0000**	**15.7988**	**15.7988**	**8.0000e-004**	**0.0000**	**15.8188**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6000e-004	0.0293	7.8800e-003	8.0000e-005	2.0000e-003	8.0000e-005	2.0800e-003	5.8000e-004	8.0000e-005	6.5000e-004	0.0000	7.4229	7.4229	5.9000e-004	0.0000	7.4377
Worker	4.3200e-003	2.8000e-003	0.0308	9.0000e-005	0.0101	7.0000e-005	0.0102	2.6800e-003	7.0000e-005	2.7400e-003	0.0000	8.3758	8.3758	2.1000e-004	0.0000	8.3811
Total	**5.1800e-003**	**0.0321**	**0.0387**	**1.7000e-004**	**0.0121**	**1.5000e-004**	**0.0122**	**3.2600e-003**	**1.5000e-004**	**3.3900e-003**	**0.0000**	**15.7988**	**15.7988**	**8.0000e-004**	**0.0000**	**15.8188**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1108	0.1170	1.9000e-004		5.8300e-003	5.8300e-003		5.4200e-003	5.4200e-003	0.0000	15.4976	15.4976	4.5100e-003	0.0000	15.6104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1108**	**0.1170**	**1.9000e-004**		**5.8300e-003**	**5.8300e-003**		**5.4200e-003**	**5.4200e-003**	**0.0000**	**15.4976**	**15.4976**	**4.5100e-003**	**0.0000**	**15.6104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.7000e-004	7.3200e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	1.9901	1.9901	5.0000e-005	0.0000	1.9914
Total	**1.0300e-003**	**6.7000e-004**	**7.3200e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.9901**	**1.9901**	**5.0000e-005**	**0.0000**	**1.9914**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1108	0.1170	1.9000e-004		5.8300e-003	5.8300e-003		5.4200e-003	5.4200e-003	0.0000	15.4976	15.4976	4.5100e-003	0.0000	15.6104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1108**	**0.1170**	**1.9000e-004**		**5.8300e-003**	**5.8300e-003**		**5.4200e-003**	**5.4200e-003**	**0.0000**	**15.4976**	**15.4976**	**4.5100e-003**	**0.0000**	**15.6104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.7000e-004	7.3200e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	1.9901	1.9901	5.0000e-005	0.0000	1.9914
Total	**1.0300e-003**	**6.7000e-004**	**7.3200e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.9901**	**1.9901**	**5.0000e-005**	**0.0000**	**1.9914**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4700e-003	0.0382	0.0454	7.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	6.3831	6.3831	4.4000e-004	0.0000	6.3941
Total	**0.2234**	**0.0382**	**0.0454**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**6.3831**	**6.3831**	**4.4000e-004**	**0.0000**	**6.3941**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.0800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8376	0.8376	2.0000e-005	0.0000	0.8381
Total	**4.3000e-004**	**2.8000e-004**	**3.0800e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8376**	**0.8376**	**2.0000e-005**	**0.0000**	**0.8381**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4700e-003	0.0382	0.0454	7.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	6.3831	6.3831	4.4000e-004	0.0000	6.3941
Total	**0.2234**	**0.0382**	**0.0454**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**6.3831**	**6.3831**	**4.4000e-004**	**0.0000**	**6.3941**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.0800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8376	0.8376	2.0000e-005	0.0000	0.8381
Total	**4.3000e-004**	**2.8000e-004**	**3.0800e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8376**	**0.8376**	**2.0000e-005**	**0.0000**	**0.8381**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0648	0.2398	0.6367	1.9700e-003	0.1778	1.7500e-003	0.1796	0.0476	1.6300e-003	0.0492	0.0000	180.9128	180.9128	8.3200e-003	0.0000	181.1209
Unmitigated	0.0709	0.2839	0.8108	2.7400e-003	0.2540	2.3400e-003	0.2564	0.0680	2.1800e-003	0.0701	0.0000	251.4143	251.4143	0.0107	0.0000	251.6811

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Enclosed Parking Structure	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Strip Mall	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.0601	74.0601	3.0600e-003	6.3000e-004	74.3251
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.0601	74.0601	3.0600e-003	6.3000e-004	74.3251
NaturalGas Mitigated	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	15.0464	15.0464	2.9000e-004	2.8000e-004	15.1358
NaturalGas Unmitigated	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	15.0464	15.0464	2.9000e-004	2.8000e-004	15.1358

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	274259	1.4800e-003	0.0126	5.3800e-003	8.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	14.6355	14.6355	2.8000e-004	2.7000e-004	14.7225
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	7700	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4109	0.4109	1.0000e-005	1.0000e-005	0.4133
Total		**1.5200e-003**	**0.0130**	**5.7000e-003**	**8.0000e-005**		**1.0500e-003**	**1.0500e-003**		**1.0500e-003**	**1.0500e-003**	**0.0000**	**15.0464**	**15.0464**	**2.9000e-004**	**2.8000e-004**	**15.1358**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	274259	1.4800e-003	0.0126	5.3800e-003	8.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	14.6355	14.6355	2.8000e-004	2.7000e-004	14.7225
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	7700	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4109	0.4109	1.0000e-005	1.0000e-005	0.4133
Total		**1.5200e-003**	**0.0130**	**5.7000e-003**	**8.0000e-005**		**1.0500e-003**	**1.0500e-003**		**1.0500e-003**	**1.0500e-003**	**0.0000**	**15.0464**	**15.0464**	**2.9000e-004**	**2.8000e-004**	**15.1358**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	95407.2	30.3988	1.2600e-003	2.6000e-004	30.5075
Enclosed Parking Structure	92988	29.6280	1.2200e-003	2.5000e-004	29.7340
Strip Mall	44044	14.0334	5.8000e-004	1.2000e-004	14.0836
Total		**74.0601**	**3.0600e-003**	**6.3000e-004**	**74.3251**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	95407.2	30.3988	1.2600e-003	2.6000e-004	30.5075
Enclosed Parking Structure	92988	29.6280	1.2200e-003	2.5000e-004	29.7340
Strip Mall	44044	14.0334	5.8000e-004	1.2000e-004	14.0836
Total		**74.0601**	**3.0600e-003**	**6.3000e-004**	**74.3251**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1691	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990
Unmitigated	0.1720	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4300e-003	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990
Total	**0.1720**	**2.0600e-003**	**0.1788**	**1.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**0.2919**	**0.2919**	**2.8000e-004**	**0.0000**	**0.2990**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0189					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4300e-003	2.0600e-003	0.1788	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2990
Total	**0.1691**	**2.0600e-003**	**0.1788**	**1.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**0.2919**	**0.2919**	**2.8000e-004**	**0.0000**	**0.2990**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.3655	0.0607	1.5200e-003	14.3377
Unmitigated	12.3655	0.0607	1.5200e-003	14.3377

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.285179 / 0.174787	1.8923	9.3700e-003	2.3000e-004	2.1965
Total		**12.3655**	**0.0607**	**1.5200e-003**	**14.3377**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.5637 / 0.985809	10.4732	0.0514	1.2900e-003	12.1412
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.285179 / 0.174787	1.8923	9.3700e-003	2.3000e-004	2.1965
Total		**12.3655**	**0.0607**	**1.5200e-003**	**14.3377**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.0611	0.1809	0.0000	7.5838
Unmitigated	3.0611	0.1809	0.0000	7.5838

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	11.04	2.2410	0.1324	0.0000	5.5520
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	4.04	0.8201	0.0485	0.0000	2.0317
Total		**3.0611**	**0.1809**	**0.0000**	**7.5838**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	11.04	2.2410	0.1324	0.0000	5.5520
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	4.04	0.8201	0.0485	0.0000	2.0317
Total		**3.0611**	**0.1809**	**0.0000**	**7.5838**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Anacapa Courts Mixed-Use (2020)

Ventura County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings):

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	250	150
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9513	8.6132	8.0505	0.0149	0.8349	0.4506	1.2428	0.4356	0.4146	0.8247	0.0000	1,461.0645	1,461.0645	0.3743	0.0000	1,470.4217
Maximum	**8.9513**	**8.6132**	**8.0505**	**0.0149**	**0.8349**	**0.4506**	**1.2428**	**0.4356**	**0.4146**	**0.8247**	**0.0000**	**1,461.0645**	**1,461.0645**	**0.3743**	**0.0000**	**1,470.4217**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9513	8.6132	8.0505	0.0149	0.4209	0.4506	0.8288	0.2080	0.4146	0.5971	0.0000	1,461.0645	1,461.0645	0.3743	0.0000	1,470.4217
Maximum	**8.9513**	**8.6132**	**8.0505**	**0.0149**	**0.4209**	**0.4506**	**0.8288**	**0.2080**	**0.4146**	**0.5971**	**0.0000**	**1,461.0645**	**1,461.0645**	**0.3743**	**0.0000**	**1,470.4217**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.59**	**0.00**	**33.31**	**52.25**	**0.00**	**27.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9732	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.4399	1.5836	4.6954	0.0163	1.4897	0.0134	1.5032	0.3979	0.0125	0.4104		1,653.2956	1,653.2956	0.0676		1,654.9856
Total	**1.4215**	**1.6778**	**6.7133**	**0.0169**	**1.4897**	**0.0302**	**1.5199**	**0.3979**	**0.0293**	**0.4271**	**0.0000**	**1,747.7519**	**1,747.7519**	**0.0728**	**1.6700e-003**	**1,750.0686**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9573	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.4040	1.3473	3.6231	0.0117	1.0428	0.0100	1.0528	0.2785	9.3400e-003	0.2878		1,189.8938	1,189.8938	0.0524		1,191.2029
Total	**1.3696**	**1.4415**	**5.6411**	**0.0123**	**1.0428**	**0.0268**	**1.0696**	**0.2785**	**0.0261**	**0.3046**	**0.0000**	**1,284.3501**	**1,284.3501**	**0.0576**	**1.6700e-003**	**1,286.2859**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	3.65	14.08	15.97	27.15	30.00	11.27	29.63	30.00	10.87	28.69	0.00	26.51	26.51	20.93	0.00	26.50

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.2386**	**0.2995**	**0.5381**	**0.0258**	**0.2755**	**0.3013**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.433 8	1,147.433 8	0.2138		1,152.779 7
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.433 8**	**1,147.433 8**	**0.2138**		**1,152.779 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0198	0.2554	7.7000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		76.9989	76.9989	1.9300e-003		77.0472
Total	**0.0343**	**0.0198**	**0.2554**	**7.7000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**76.9989**	**76.9989**	**1.9300e-003**		**77.0472**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0198	0.2554	7.7000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		76.9989	76.9989	1.9300e-003		77.0472
Total	**0.0343**	**0.0198**	**0.2554**	**7.7000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**76.9989**	**76.9989**	**1.9300e-003**		**77.0472**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.215 8	1,103.215 8	0.3568		1,112.135 8
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.215 8**	**1,103.215 8**	**0.3568**		**1,112.135 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0856	0.0494	0.6385	1.9300e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		192.4973	192.4973	4.8300e-003		192.6180
Total	**0.1025**	**0.6282**	**0.7868**	**3.4700e-003**	**0.2459**	**3.0300e-003**	**0.2490**	**0.0661**	**2.8500e-003**	**0.0690**		**357.8487**	**357.8487**	**0.0175**		**358.2859**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0856	0.0494	0.6385	1.9300e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		192.4973	192.4973	4.8300e-003		192.6180
Total	**0.1025**	**0.6282**	**0.7868**	**3.4700e-003**	**0.2459**	**3.0300e-003**	**0.2490**	**0.0661**	**2.8500e-003**	**0.0690**		**357.8487**	**357.8487**	**0.0175**		**358.2859**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0617	0.0356	0.4597	1.3900e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		138.5980	138.5980	3.4800e-003		138.6850
Total	**0.0617**	**0.0356**	**0.4597**	**1.3900e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**138.5980**	**138.5980**	**3.4800e-003**		**138.6850**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.342 5	1,035.342 5	0.3016		1,042.881 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.342 5**	**1,035.342 5**	**0.3016**		**1,042.881 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0617	0.0356	0.4597	1.3900e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		138.5980	138.5980	3.4800e-003		138.6850
Total	**0.0617**	**0.0356**	**0.4597**	**1.3900e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**138.5980**	**138.5980**	**3.4800e-003**		**138.6850**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.4040	1.3473	3.6231	0.0117	1.0428	0.0100	1.0528	0.2785	9.3400e-003	0.2878		1,189.8938	1,189.8938	0.0524		1,191.2029
Unmitigated	0.4399	1.5836	4.6954	0.0163	1.4897	0.0134	1.5032	0.3979	0.0125	0.4104		1,653.2956	1,653.2956	0.0676		1,654.9856

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Enclosed Parking Structure	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Strip Mall	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
NaturalGas Unmitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	751.395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	21.0959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.751395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0210959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9573	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Unmitigated	0.9732	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0603	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4700e-003		3.6617
Total	**0.9732**	**0.0229**	**1.9868**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4700e-003**	**0.0000**	**3.6617**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0603	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4700e-003		3.6617
Total	**0.9573**	**0.0229**	**1.9868**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4700e-003**	**0.0000**	**3.6617**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Anacapa Courts Mixed-Use (2020)

Ventura County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings):

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	250	150
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9536	8.6208	8.0533	0.0147	0.8349	0.4507	1.2428	0.4356	0.4147	0.8247	0.0000	1,447.6803	1,447.6803	0.3749	0.0000	1,457.0534
Maximum	**8.9536**	**8.6208**	**8.0533**	**0.0147**	**0.8349**	**0.4507**	**1.2428**	**0.4356**	**0.4147**	**0.8247**	**0.0000**	**1,447.6803**	**1,447.6803**	**0.3749**	**0.0000**	**1,457.0534**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9536	8.6208	8.0533	0.0147	0.4209	0.4507	0.8288	0.2080	0.4147	0.5971	0.0000	1,447.6802	1,447.6802	0.3749	0.0000	1,457.0534
Maximum	**8.9536**	**8.6208**	**8.0533**	**0.0147**	**0.4209**	**0.4507**	**0.8288**	**0.2080**	**0.4147**	**0.5971**	**0.0000**	**1,447.6802**	**1,447.6802**	**0.3749**	**0.0000**	**1,457.0534**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.59**	**0.00**	**33.31**	**52.25**	**0.00**	**27.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9732	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.4152	1.6434	4.8087	0.0156	1.4897	0.0136	1.5033	0.3979	0.0127	0.4105		1,583.9860	1,583.9860	0.0691		1,585.7137
Total	**1.3968**	**1.7376**	**6.8267**	**0.0162**	**1.4897**	**0.0303**	**1.5201**	**0.3979**	**0.0294**	**0.4273**	**0.0000**	**1,678.4423**	**1,678.4423**	**0.0743**	**1.6700e-003**	**1,680.7967**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9573	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.3798	1.3876	3.8119	0.0112	1.0428	0.0102	1.0530	0.2785	9.5100e-003	0.2880		1,138.9593	1,138.9593	0.0543		1,140.3160
Total	**1.3454**	**1.4818**	**5.8298**	**0.0118**	**1.0428**	**0.0269**	**1.0697**	**0.2785**	**0.0262**	**0.3047**	**0.0000**	**1,233.4156**	**1,233.4156**	**0.0595**	**1.6700e-003**	**1,235.3990**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.68**	**14.72**	**14.60**	**27.18**	**30.00**	**11.21**	**29.63**	**30.00**	**10.78**	**28.68**	**0.00**	**26.51**	**26.51**	**19.97**	**0.00**	**26.50**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.2386**	**0.2995**	**0.5381**	**0.0258**	**0.2755**	**0.3013**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0232	0.2488	7.4000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		73.2682	73.2682	1.8600e-003		73.3147
Total	**0.0389**	**0.0232**	**0.2488**	**7.4000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**73.2682**	**73.2682**	**1.8600e-003**		**73.3147**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0232	0.2488	7.4000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		73.2682	73.2682	1.8600e-003		73.3147
Total	**0.0389**	**0.0232**	**0.2488**	**7.4000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**73.2682**	**73.2682**	**1.8600e-003**		**73.3147**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0971	0.0579	0.6219	1.8400e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		183.1704	183.1704	4.6600e-003		183.2868
Total	**0.1151**	**0.6358**	**0.7896**	**3.3400e-003**	**0.2459**	**3.1200e-003**	**0.2491**	**0.0661**	**2.9400e-003**	**0.0691**		**344.4645**	**344.4645**	**0.0181**		**344.9175**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0971	0.0579	0.6219	1.8400e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		183.1704	183.1704	4.6600e-003		183.2868
Total	**0.1151**	**0.6358**	**0.7896**	**3.3400e-003**	**0.2459**	**3.1200e-003**	**0.2491**	**0.0661**	**2.9400e-003**	**0.0691**		**344.4645**	**344.4645**	**0.0181**		**344.9175**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0699	0.0417	0.4478	1.3200e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		131.8827	131.8827	3.3500e-003		131.9665
Total	**0.0699**	**0.0417**	**0.4478**	**1.3200e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**131.8827**	**131.8827**	**3.3500e-003**		**131.9665**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.342 5	1,035.342 5	0.3016		1,042.881 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.342 5**	**1,035.342 5**	**0.3016**		**1,042.881 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0699	0.0417	0.4478	1.3200e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		131.8827	131.8827	3.3500e-003		131.9665
Total	**0.0699**	**0.0417**	**0.4478**	**1.3200e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**131.8827**	**131.8827**	**3.3500e-003**		**131.9665**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3798	1.3876	3.8119	0.0112	1.0428	0.0102	1.0530	0.2785	9.5100e-003	0.2880		1,138.9593	1,138.9593	0.0543		1,140.3160
Unmitigated	0.4152	1.6434	4.8087	0.0156	1.4897	0.0136	1.5033	0.3979	0.0127	0.4105		1,583.9860	1,583.9860	0.0691		1,585.7137

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Enclosed Parking Structure	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490
Strip Mall	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
NaturalGas Unmitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	751.395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	21.0959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.751395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0210959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9573	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617
Unmitigated	0.9732	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4700e-003	0.0000	3.6617

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0603	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4700e-003		3.6617
Total	**0.9732**	**0.0229**	**1.9868**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4700e-003**	**0.0000**	**3.6617**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0603	0.0229	1.9868	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4700e-003		3.6617
Total	**0.9573**	**0.0229**	**1.9868**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4700e-003**	**0.0000**	**3.6617**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Anacapa Courts Mixed-Use (2030)

Ventura County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.65	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2030 intensity factors

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Energy Use -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings)

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingValue	250	100
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2818	0.5925	0.5846	1.0500e-003	0.0166	0.0313	0.0479	4.6300e-003	0.0291	0.0337	0.0000	92.1004	92.1004	0.0223	0.0000	92.6590
Maximum	**0.2818**	**0.5925**	**0.5846**	**1.0500e-003**	**0.0166**	**0.0313**	**0.0479**	**4.6300e-003**	**0.0291**	**0.0337**	**0.0000**	**92.1004**	**92.1004**	**0.0223**	**0.0000**	**92.6590**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2818	0.5925	0.5846	1.0500e-003	0.0160	0.0313	0.0473	4.3800e-003	0.0291	0.0334	0.0000	92.1003	92.1003	0.0223	0.0000	92.6589
Maximum	**0.2818**	**0.5925**	**0.5846**	**1.0500e-003**	**0.0160**	**0.0313**	**0.0473**	**4.3800e-003**	**0.0291**	**0.0334**	**0.0000**	**92.1003**	**92.1003**	**0.0223**	**0.0000**	**92.6589**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**3.37**	**0.00**	**1.17**	**5.40**	**0.00**	**0.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.3033	0.3033
2	4-1-2021	6-30-2021	0.2833	0.2833
3	7-1-2021	9-30-2021	0.2864	0.2864
		Highest	0.3033	0.3033

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1720	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989
Energy	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	52.3327	52.3327	1.8700e-003	5.9000e-004	52.5559
Mobile	0.0436	0.1802	0.4984	2.1500e-003	0.2539	1.4400e-003	0.2554	0.0679	1.3300e-003	0.0692	0.0000	199.0420	199.0420	7.1300e-003	0.0000	199.2203
Waste						0.0000	0.0000		0.0000	0.0000	3.0611	0.0000	3.0611	0.1809	0.0000	7.5838
Water						0.0000	0.0000		0.0000	0.0000	0.5866	5.9302	6.5168	0.0605	1.4700e-003	8.4681
Total	**0.2171**	**0.1953**	**0.6822**	**2.2400e-003**	**0.2539**	**3.4800e-003**	**0.2574**	**0.0679**	**3.3700e-003**	**0.0713**	**3.6477**	**257.5967**	**261.2444**	**0.2507**	**2.0600e-003**	**268.1269**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1720	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989
Energy	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	52.3327	52.3327	1.8700e-003	5.9000e-004	52.5559
Mobile	0.0397	0.1605	0.3875	1.5500e-003	0.1778	1.0800e-003	0.1788	0.0475	1.0000e-003	0.0485	0.0000	143.5494	143.5494	5.4500e-003	0.0000	143.6857
Waste						0.0000	0.0000		0.0000	0.0000	3.0611	0.0000	3.0611	0.1809	0.0000	7.5838
Water						0.0000	0.0000		0.0000	0.0000	0.5866	5.9302	6.5168	0.0605	1.4700e-003	8.4681
Total	**0.2131**	**0.1755**	**0.5713**	**1.6400e-003**	**0.1778**	**3.1200e-003**	**0.1809**	**0.0475**	**3.0400e-003**	**0.0506**	**3.6477**	**202.1041**	**205.7518**	**0.2490**	**2.0600e-003**	**212.5923**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**1.82**	**10.12**	**16.25**	**26.79**	**30.00**	**10.34**	**29.73**	**30.00**	**9.79**	**29.04**	**0.00**	**21.54**	**21.24**	**0.67**	**0.00**	**20.71**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0168	0.0168	0.0000	0.0000	0.0168
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0168**	**0.0168**	**0.0000**	**0.0000**	**0.0168**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**1.2000e-004**	**1.5000e-004**	**2.7000e-004**	**1.0000e-005**	**1.4000e-004**	**1.5000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0168	0.0168	0.0000	0.0000	0.0168
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0168**	**0.0168**	**0.0000**	**0.0000**	**0.0168**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**7.5000e-004**	**4.1000e-004**	**1.1600e-003**	**4.1000e-004**	**3.9000e-004**	**8.0000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0670	0.0670	0.0000	0.0000	0.0671
Total	**3.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0670**	**0.0670**	**0.0000**	**0.0000**	**0.0671**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4000e-004	0.0000	3.4000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**3.4000e-004**	**4.1000e-004**	**7.5000e-004**	**1.9000e-004**	**3.9000e-004**	**5.8000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0670	0.0670	0.0000	0.0000	0.0671
Total	**3.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0670**	**0.0670**	**0.0000**	**0.0000**	**0.0671**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6000e-004	0.0293	7.8800e-003	8.0000e-005	2.0000e-003	8.0000e-005	2.0800e-003	5.8000e-004	8.0000e-005	6.5000e-004	0.0000	7.4229	7.4229	5.9000e-004	0.0000	7.4377
Worker	4.3200e-003	2.8000e-003	0.0308	9.0000e-005	0.0101	7.0000e-005	0.0102	2.6800e-003	7.0000e-005	2.7400e-003	0.0000	8.3758	8.3758	2.1000e-004	0.0000	8.3811
Total	**5.1800e-003**	**0.0321**	**0.0387**	**1.7000e-004**	**0.0121**	**1.5000e-004**	**0.0122**	**3.2600e-003**	**1.5000e-004**	**3.3900e-003**	**0.0000**	**15.7988**	**15.7988**	**8.0000e-004**	**0.0000**	**15.8188**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0388	0.3993	0.3632	5.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	50.0410	50.0410	0.0162	0.0000	50.4456
Total	**0.0388**	**0.3993**	**0.3632**	**5.7000e-004**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**50.0410**	**50.0410**	**0.0162**	**0.0000**	**50.4456**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.6000e-004	0.0293	7.8800e-003	8.0000e-005	2.0000e-003	8.0000e-005	2.0800e-003	5.8000e-004	8.0000e-005	6.5000e-004	0.0000	7.4229	7.4229	5.9000e-004	0.0000	7.4377
Worker	4.3200e-003	2.8000e-003	0.0308	9.0000e-005	0.0101	7.0000e-005	0.0102	2.6800e-003	7.0000e-005	2.7400e-003	0.0000	8.3758	8.3758	2.1000e-004	0.0000	8.3811
Total	**5.1800e-003**	**0.0321**	**0.0387**	**1.7000e-004**	**0.0121**	**1.5000e-004**	**0.0122**	**3.2600e-003**	**1.5000e-004**	**3.3900e-003**	**0.0000**	**15.7988**	**15.7988**	**8.0000e-004**	**0.0000**	**15.8188**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1108	0.1170	1.9000e-004		5.8300e-003	5.8300e-003		5.4200e-003	5.4200e-003	0.0000	15.4976	15.4976	4.5100e-003	0.0000	15.6104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1108**	**0.1170**	**1.9000e-004**		**5.8300e-003**	**5.8300e-003**		**5.4200e-003**	**5.4200e-003**	**0.0000**	**15.4976**	**15.4976**	**4.5100e-003**	**0.0000**	**15.6104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.7000e-004	7.3200e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	1.9901	1.9901	5.0000e-005	0.0000	1.9914
Total	**1.0300e-003**	**6.7000e-004**	**7.3200e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.9901**	**1.9901**	**5.0000e-005**	**0.0000**	**1.9914**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1108	0.1170	1.9000e-004		5.8300e-003	5.8300e-003		5.4200e-003	5.4200e-003	0.0000	15.4976	15.4976	4.5100e-003	0.0000	15.6104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1108**	**0.1170**	**1.9000e-004**		**5.8300e-003**	**5.8300e-003**		**5.4200e-003**	**5.4200e-003**	**0.0000**	**15.4976**	**15.4976**	**4.5100e-003**	**0.0000**	**15.6104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.7000e-004	7.3200e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	1.9901	1.9901	5.0000e-005	0.0000	1.9914
Total	**1.0300e-003**	**6.7000e-004**	**7.3200e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**1.9901**	**1.9901**	**5.0000e-005**	**0.0000**	**1.9914**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4700e-003	0.0382	0.0454	7.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	6.3831	6.3831	4.4000e-004	0.0000	6.3941
Total	**0.2234**	**0.0382**	**0.0454**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**6.3831**	**6.3831**	**4.4000e-004**	**0.0000**	**6.3941**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.0800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8376	0.8376	2.0000e-005	0.0000	0.8381
Total	**4.3000e-004**	**2.8000e-004**	**3.0800e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8376**	**0.8376**	**2.0000e-005**	**0.0000**	**0.8381**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4700e-003	0.0382	0.0454	7.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	6.3831	6.3831	4.4000e-004	0.0000	6.3941
Total	**0.2234**	**0.0382**	**0.0454**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**6.3831**	**6.3831**	**4.4000e-004**	**0.0000**	**6.3941**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	3.0800e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8376	0.8376	2.0000e-005	0.0000	0.8381
Total	**4.3000e-004**	**2.8000e-004**	**3.0800e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8376**	**0.8376**	**2.0000e-005**	**0.0000**	**0.8381**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0397	0.1605	0.3875	1.5500e-003	0.1778	1.0800e-003	0.1788	0.0475	1.0000e-003	0.0485	0.0000	143.5494	143.5494	5.4500e-003	0.0000	143.6857
Unmitigated	0.0436	0.1802	0.4984	2.1500e-003	0.2539	1.4400e-003	0.2554	0.0679	1.3300e-003	0.0692	0.0000	199.0420	199.0420	7.1300e-003	0.0000	199.2203

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Enclosed Parking Structure	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Strip Mall	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	37.2863	37.2863	1.5800e-003	3.2000e-004	37.4201
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	37.2863	37.2863	1.5800e-003	3.2000e-004	37.4201
NaturalGas Mitigated	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	15.0464	15.0464	2.9000e-004	2.8000e-004	15.1358
NaturalGas Unmitigated	1.5200e-003	0.0130	5.6900e-003	8.0000e-005		1.0500e-003	1.0500e-003		1.0500e-003	1.0500e-003	0.0000	15.0464	15.0464	2.9000e-004	2.8000e-004	15.1358

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	274259	1.4800e-003	0.0126	5.3800e-003	8.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	14.6355	14.6355	2.8000e-004	2.7000e-004	14.7225
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	7700	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4109	0.4109	1.0000e-005	1.0000e-005	0.4133
Total		**1.5200e-003**	**0.0130**	**5.7000e-003**	**8.0000e-005**		**1.0500e-003**	**1.0500e-003**		**1.0500e-003**	**1.0500e-003**	**0.0000**	**15.0464**	**15.0464**	**2.9000e-004**	**2.8000e-004**	**15.1358**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	274259	1.4800e-003	0.0126	5.3800e-003	8.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	14.6355	14.6355	2.8000e-004	2.7000e-004	14.7225
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	7700	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4109	0.4109	1.0000e-005	1.0000e-005	0.4133
Total		**1.5200e-003**	**0.0130**	**5.7000e-003**	**8.0000e-005**		**1.0500e-003**	**1.0500e-003**		**1.0500e-003**	**1.0500e-003**	**0.0000**	**15.0464**	**15.0464**	**2.9000e-004**	**2.8000e-004**	**15.1358**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	95407.2	15.3046	6.5000e-004	1.3000e-004	15.3595
Enclosed Parking Structure	92988	14.9165	6.3000e-004	1.3000e-004	14.9700
Strip Mall	44044	7.0652	3.0000e-004	6.0000e-005	7.0906
Total		**37.2863**	**1.5800e-003**	**3.2000e-004**	**37.4201**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	95407.2	15.3046	6.5000e-004	1.3000e-004	15.3595
Enclosed Parking Structure	92988	14.9165	6.3000e-004	1.3000e-004	14.9700
Strip Mall	44044	7.0652	3.0000e-004	6.0000e-005	7.0906
Total		**37.2863**	**1.5800e-003**	**3.2000e-004**	**37.4201**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1720	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989
Unmitigated	0.1720	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3500e-003	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989
Total	**0.1720**	**2.0500e-003**	**0.1781**	**1.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**0.2919**	**0.2919**	**2.8000e-004**	**0.0000**	**0.2989**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3500e-003	2.0500e-003	0.1781	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2919	0.2919	2.8000e-004	0.0000	0.2989
Total	**0.1720**	**2.0500e-003**	**0.1781**	**1.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**0.2919**	**0.2919**	**2.8000e-004**	**0.0000**	**0.2989**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.5168	0.0605	1.4700e-003	8.4681
Unmitigated	6.5168	0.0605	1.4700e-003	8.4681

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.5637 / 0.985809	5.5191	0.0512	1.2500e-003	7.1695
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.285179 / 0.174787	0.9976	9.3300e-003	2.3000e-004	1.2986
Total		**6.5168**	**0.0605**	**1.4800e-003**	**8.4681**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.5637 / 0.985809	5.5191	0.0512	1.2500e-003	7.1695
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.285179 / 0.174787	0.9976	9.3300e-003	2.3000e-004	1.2986
Total		**6.5168**	**0.0605**	**1.4800e-003**	**8.4681**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.0611	0.1809	0.0000	7.5838
Unmitigated	3.0611	0.1809	0.0000	7.5838

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	11.04	2.2410	0.1324	0.0000	5.5520
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	4.04	0.8201	0.0485	0.0000	2.0317
Total		**3.0611**	**0.1809**	**0.0000**	**7.5838**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	11.04	2.2410	0.1324	0.0000	5.5520
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	4.04	0.8201	0.0485	0.0000	2.0317
Total		**3.0611**	**0.1809**	**0.0000**	**7.5838**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Anacapa Courts Mixed-Use (2030)

Ventura County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.65	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2030 intensity factors

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Energy Use -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings)

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingValue	250	100
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9513	8.6132	8.0505	0.0149	0.8349	0.4506	1.2428	0.4356	0.4146	0.8247	0.0000	1,461.0645	1,461.0645	0.3743	0.0000	1,470.4217
Maximum	**8.9513**	**8.6132**	**8.0505**	**0.0149**	**0.8349**	**0.4506**	**1.2428**	**0.4356**	**0.4146**	**0.8247**	**0.0000**	**1,461.0645**	**1,461.0645**	**0.3743**	**0.0000**	**1,470.4217**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9513	8.6132	8.0505	0.0149	0.4209	0.4506	0.8288	0.2080	0.4146	0.5971	0.0000	1,461.0645	1,461.0645	0.3743	0.0000	1,470.4217
Maximum	**8.9513**	**8.6132**	**8.0505**	**0.0149**	**0.4209**	**0.4506**	**0.8288**	**0.2080**	**0.4146**	**0.5971**	**0.0000**	**1,461.0645**	**1,461.0645**	**0.3743**	**0.0000**	**1,470.4217**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.59**	**0.00**	**33.31**	**52.25**	**0.00**	**27.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.2733	1.0180	2.9048	0.0128	1.4890	8.2900e-003	1.4973	0.3976	7.6900e-003	0.4052		1,307.4901	1,307.4901	0.0452		1,308.6196
Total	**1.2540**	**1.1121**	**4.9154**	**0.0134**	**1.4890**	**0.0251**	**1.5141**	**0.3976**	**0.0245**	**0.4220**	**0.0000**	**1,401.9464**	**1,401.9464**	**0.0503**	**1.6700e-003**	**1,403.7015**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.2503	0.9126	2.2237	9.2400e-003	1.0423	6.2300e-003	1.0486	0.2783	5.7700e-003	0.2841		943.2652	943.2652	0.0344		944.1242
Total	**1.2310**	**1.0067**	**4.2342**	**9.7900e-003**	**1.0423**	**0.0230**	**1.0653**	**0.2783**	**0.0225**	**0.3008**	**0.0000**	**1,037.7216**	**1,037.7216**	**0.0395**	**1.6700e-003**	**1,039.2061**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.83	9.48	13.86	26.78	30.00	8.22	29.64	30.00	7.85	28.72	0.00	25.98	25.98	21.49	0.00	25.97

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.2386**	**0.2995**	**0.5381**	**0.0258**	**0.2755**	**0.3013**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.433 8	1,147.433 8	0.2138		1,152.779 7
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.433 8**	**1,147.433 8**	**0.2138**		**1,152.779 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0198	0.2554	7.7000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		76.9989	76.9989	1.9300e-003		77.0472
Total	**0.0343**	**0.0198**	**0.2554**	**7.7000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**76.9989**	**76.9989**	**1.9300e-003**		**77.0472**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0343	0.0198	0.2554	7.7000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		76.9989	76.9989	1.9300e-003		77.0472
Total	**0.0343**	**0.0198**	**0.2554**	**7.7000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**76.9989**	**76.9989**	**1.9300e-003**		**77.0472**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0856	0.0494	0.6385	1.9300e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		192.4973	192.4973	4.8300e-003		192.6180
Total	**0.1025**	**0.6282**	**0.7868**	**3.4700e-003**	**0.2459**	**3.0300e-003**	**0.2490**	**0.0661**	**2.8500e-003**	**0.0690**		**357.8487**	**357.8487**	**0.0175**		**358.2859**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0856	0.0494	0.6385	1.9300e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		192.4973	192.4973	4.8300e-003		192.6180
Total	**0.1025**	**0.6282**	**0.7868**	**3.4700e-003**	**0.2459**	**3.0300e-003**	**0.2490**	**0.0661**	**2.8500e-003**	**0.0690**		**357.8487**	**357.8487**	**0.0175**		**358.2859**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0617	0.0356	0.4597	1.3900e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		138.5980	138.5980	3.4800e-003		138.6850
Total	**0.0617**	**0.0356**	**0.4597**	**1.3900e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**138.5980**	**138.5980**	**3.4800e-003**		**138.6850**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0617	0.0356	0.4597	1.3900e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		138.5980	138.5980	3.4800e-003		138.6850
Total	**0.0617**	**0.0356**	**0.4597**	**1.3900e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**138.5980**	**138.5980**	**3.4800e-003**		**138.6850**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0171	9.8900e-003	0.1277	3.9000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		38.4995	38.4995	9.7000e-004		38.5236
Total	**0.0171**	**9.8900e-003**	**0.1277**	**3.9000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**38.4995**	**38.4995**	**9.7000e-004**		**38.5236**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2503	0.9126	2.2237	9.2400e-003	1.0423	6.2300e-003	1.0486	0.2783	5.7700e-003	0.2841		943.2652	943.2652	0.0344		944.1242
Unmitigated	0.2733	1.0180	2.9048	0.0128	1.4890	8.2900e-003	1.4973	0.3976	7.6900e-003	0.4052		1,307.4901	1,307.4901	0.0452		1,308.6196

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Enclosed Parking Structure	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Strip Mall	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
NaturalGas Unmitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	751.395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	21.0959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.751395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0210959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Unmitigated	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0595	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4200e-003		3.6606
Total	**0.9724**	**0.0228**	**1.9794**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4200e-003**	**0.0000**	**3.6606**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0595	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4200e-003		3.6606
Total	**0.9724**	**0.0228**	**1.9794**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4200e-003**	**0.0000**	**3.6606**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Anacapa Courts Mixed-Use (2030)

Ventura County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	41.00	Space	0.00	16,400.00	0
Apartments Mid Rise	24.00	Dwelling Unit	0.45	32,960.00	73
Strip Mall	3.85	1000sqft	0.00	3,850.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.65	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2030 intensity factors

Land Use - from site plan

Construction Phase - no demo. extended paving/coating

Energy Use -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Rule 74.2 (Architectural Coatings)

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintParkingValue	250	100
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	5.00	33.00
tblLandUse	LandUseSquareFeet	24,000.00	32,960.00
tblLandUse	LotAcreage	0.37	0.00
tblLandUse	LotAcreage	0.63	0.45
tblLandUse	LotAcreage	0.09	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9536	8.6208	8.0533	0.0147	0.8349	0.4507	1.2428	0.4356	0.4147	0.8247	0.0000	1,447.6803	1,447.6803	0.3749	0.0000	1,457.0534
Maximum	**8.9536**	**8.6208**	**8.0533**	**0.0147**	**0.8349**	**0.4507**	**1.2428**	**0.4356**	**0.4147**	**0.8247**	**0.0000**	**1,447.6803**	**1,447.6803**	**0.3749**	**0.0000**	**1,457.0534**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	8.9536	8.6208	8.0533	0.0147	0.4209	0.4507	0.8288	0.2080	0.4147	0.5971	0.0000	1,447.6802	1,447.6802	0.3749	0.0000	1,457.0534
Maximum	**8.9536**	**8.6208**	**8.0533**	**0.0147**	**0.4209**	**0.4507**	**0.8288**	**0.2080**	**0.4147**	**0.5971**	**0.0000**	**1,447.6802**	**1,447.6802**	**0.3749**	**0.0000**	**1,457.0534**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.59**	**0.00**	**33.31**	**52.25**	**0.00**	**27.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.2543	1.0433	2.9440	0.0123	1.4890	8.3200e-003	1.4974	0.3976	7.7200e-003	0.4053		1,253.7527	1,253.7527	0.0461		1,254.9041
Total	**1.2350**	**1.1374**	**4.9545**	**0.0128**	**1.4890**	**0.0251**	**1.5141**	**0.3976**	**0.0245**	**0.4220**	**0.0000**	**1,348.2090**	**1,348.2090**	**0.0512**	**1.6700e-003**	**1,349.9861**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Energy	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
Mobile	0.2314	0.9285	2.3088	8.8500e-003	1.0423	6.2600e-003	1.0486	0.2783	5.8000e-003	0.2841		903.3676	903.3676	0.0354		904.2526
Total	**1.2122**	**1.0226**	**4.3193**	**9.4000e-003**	**1.0423**	**0.0230**	**1.0654**	**0.2783**	**0.0226**	**0.3009**	**0.0000**	**997.8239**	**997.8239**	**0.0406**	**1.6700e-003**	**999.3345**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.85	10.10	12.82	26.79	30.00	8.21	29.64	30.00	7.84	28.71	0.00	25.99	25.99	20.81	0.00	25.97

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2021	1/1/2021	5	1	
2	Grading	Grading	1/2/2021	1/5/2021	5	2	
3	Building Construction	Building Construction	1/6/2021	5/25/2021	5	100	
4	Paving	Paving	5/26/2021	7/9/2021	5	33	
5	Architectural Coating	Architectural Coating	7/10/2021	9/17/2021	5	50	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 66,744; Residential Outdoor: 22,248; Non-Residential Indoor: 5,775; Non-Residential Outdoor: 1,925; Striped Parking Area: 984 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	25.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5303**	**0.2995**	**0.8297**	**0.0573**	**0.2755**	**0.3328**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.2386**	**0.2995**	**0.5381**	**0.0258**	**0.2755**	**0.3013**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0232	0.2488	7.4000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		73.2682	73.2682	1.8600e-003		73.3147
Total	**0.0389**	**0.0232**	**0.2488**	**7.4000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**73.2682**	**73.2682**	**1.8600e-003**		**73.3147**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0389	0.0232	0.2488	7.4000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		73.2682	73.2682	1.8600e-003		73.3147
Total	**0.0389**	**0.0232**	**0.2488**	**7.4000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**73.2682**	**73.2682**	**1.8600e-003**		**73.3147**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0971	0.0579	0.6219	1.8400e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		183.1704	183.1704	4.6600e-003		183.2868
Total	**0.1151**	**0.6358**	**0.7896**	**3.3400e-003**	**0.2459**	**3.1200e-003**	**0.2491**	**0.0661**	**2.9400e-003**	**0.0691**		**344.4645**	**344.4645**	**0.0181**		**344.9175**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0971	0.0579	0.6219	1.8400e-003	0.2054	1.4200e-003	0.2068	0.0545	1.3100e-003	0.0558		183.1704	183.1704	4.6600e-003		183.2868
Total	**0.1151**	**0.6358**	**0.7896**	**3.3400e-003**	**0.2459**	**3.1200e-003**	**0.2491**	**0.0661**	**2.9400e-003**	**0.0691**		**344.4645**	**344.4645**	**0.0181**		**344.9175**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0699	0.0417	0.4478	1.3200e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		131.8827	131.8827	3.3500e-003		131.9665
Total	**0.0699**	**0.0417**	**0.4478**	**1.3200e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**131.8827**	**131.8827**	**3.3500e-003**		**131.9665**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0699	0.0417	0.4478	1.3200e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		131.8827	131.8827	3.3500e-003		131.9665
Total	**0.0699**	**0.0417**	**0.4478**	**1.3200e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**131.8827**	**131.8827**	**3.3500e-003**		**131.9665**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.9342**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0194	0.0116	0.1244	3.7000e-004	0.0411	2.8000e-004	0.0414	0.0109	2.6000e-004	0.0112		36.6341	36.6341	9.3000e-004		36.6574
Total	**0.0194**	**0.0116**	**0.1244**	**3.7000e-004**	**0.0411**	**2.8000e-004**	**0.0414**	**0.0109**	**2.6000e-004**	**0.0112**		**36.6341**	**36.6341**	**9.3000e-004**		**36.6574**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2314	0.9285	2.3088	8.8500e-003	1.0423	6.2600e-003	1.0486	0.2783	5.8000e-003	0.2841		903.3676	903.3676	0.0354		904.2526
Unmitigated	0.2543	1.0433	2.9440	0.0123	1.4890	8.3200e-003	1.4974	0.3976	7.7200e-003	0.4053		1,253.7527	1,253.7527	0.0461		1,254.9041

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	159.60	153.36	140.64	431,039	301,728
Enclosed Parking Structure	0.00	0.00	0.00		
Strip Mall	170.63	161.85	78.66	240,612	168,429
Total	330.23	315.21	219.30	671,652	470,156

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Enclosed Parking Structure	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914
Strip Mall	0.611155	0.038739	0.187677	0.096955	0.013383	0.005563	0.020646	0.018593	0.001209	0.001094	0.003654	0.000418	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213
NaturalGas Unmitigated	8.3300e-003	0.0713	0.0312	4.5000e-004		5.7600e-003	5.7600e-003		5.7600e-003	5.7600e-003		90.8812	90.8812	1.7400e-003	1.6700e-003	91.4213

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	751.395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	21.0959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.751395	8.1000e-003	0.0693	0.0295	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003		88.3994	88.3994	1.6900e-003	1.6200e-003	88.9247
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0210959	2.3000e-004	2.0700e-003	1.7400e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.4819	2.4819	5.0000e-005	5.0000e-005	2.4966
Total		**8.3300e-003**	**0.0713**	**0.0312**	**4.5000e-004**		**5.7600e-003**	**5.7600e-003**		**5.7600e-003**	**5.7600e-003**		**90.8812**	**90.8812**	**1.7400e-003**	**1.6700e-003**	**91.4213**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606
Unmitigated	0.9724	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.5751	3.5751	3.4200e-003	0.0000	3.6606

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0595	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4200e-003		3.6606
Total	**0.9724**	**0.0228**	**1.9794**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4200e-003**	**0.0000**	**3.6606**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0595	0.0228	1.9794	1.0000e-004		0.0110	0.0110		0.0110	0.0110		3.5751	3.5751	3.4200e-003		3.6606
Total	**0.9724**	**0.0228**	**1.9794**	**1.0000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**3.5751**	**3.5751**	**3.4200e-003**	**0.0000**	**3.6606**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

N2O Operational GHG Emission Mobile Calculations

Project Title: Anacapa Courts Mixed-Use

Vehicle Population Breakdown*		
516976	Gasoline vehicles	
26574	Diesel vehicles	
95.1%	Gasoline vehicle %	
4.9%	Diesel vehicle %	

VMT per Vehicle Type	
470156	Project VMT (CalEEMod output)
447170	Gasoline vehicle VMT
22986	Diesel vehicle VMT

Gasoline Vehicles	
95.1%	Gasoline vehicle %
0.16	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.15	Gasoline vehicle tons per year NOX emissions
0.0165	Tons per year N2O emissions for gasoline vehicles**
0.0149	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
194920.28	Diesel average miles per gallon*
0.00001	grams per mile N2O for diesel vehicles
0.2	grams per year N2O for diesel vehicles
0.0000002	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0149	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
4.5	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources

***Vehicle population source:**
EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: VENTURA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips,
tons/day for Emissions, 1000 gallons/day for
Fuel Consumption

****Methodology source:**
EMFAC2017 Volume III - Technical Documentation
https://www.arb.ca.gov/msei/emfac2011-faq.htm

*****GWP source:**
Intergovernmental Panel on Climate Change (IPCC). 2007.
AR4 Climate Change 2007: The Physical Science Basis.
Contrbution of Working Group I to the Fourth Assessment Report of the
Intergovernmental Panel on Climate Change.

Appendix B

Cultural Resources Supporting Documentation

Rincon Consultants, Inc.

180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 10, 2019
Project No: 18-06588

Maruja Clensay
Senior Planner
Community Development Department
City of Ventura
501 Poli Street, PO Box 99
Ventura, California 93002

Subject: Updated Historical Resource Assessment and Summary of Existing Studies for the Property Located at 297-299 East Main Street, Ventura, California 93002

Dear Ms. Clensay:

This memorandum was prepared by Rincon Consultants, Inc. (Rincon) for the City of Ventura (City) to update the historical resource assessment and summarize the existing studies prepared for the property located at 297-299 East Main Street in Ventura, California. Rincon understands this memorandum will be used to provide cultural resources data for the Anacapa Courts Mixed Use Project (project), located on an 0.50-acre parcel in the Urban Core (T6.1) zone district of the City's Downtown Specific Plan (DTSP). Rincon understands the project includes development of a four-story mixed-use building with approximately 3,850-square feet of street level commercial space, a 41 space ground level parking garage, and 24 residential condominium units, including 4 inclusionary units, arranged around a central courtyard and atrium space, over a podium.

The project site is vacant, save for a small, unoccupied roadside eatery, the Top Hat Restaurant (subject building). The Top Hat Restaurant was determined eligible for listing in the NRHP by the California Historical Resources Commission; it is therefore listed in the California Register of Historical Resources (CRHR) and is considered a historical resource for the purposes of the California Environmental Quality Act (CEQA). Located within the DTSP area, the project is also subject to the DTSP Historic Resource Design Guidelines, as defined in DTSP Article V, Section 5.20.000. The Top Hat Restaurant is also a contributor to Main Street Commercial Historic District and falls within the boundaries of the Mission Plaza Historical District, listed on the National Register of Historic Places (NRHP).

The project has also been previously reviewed by Rincon and the City of Ventura Historic Preservation Commission (HPC) for review and comment. In March 2017, the HPC directed staff and the project proponent to attempt to incorporate the Top Hat Restaurant into the project design and to rehabilitate the building and return it to use as a restaurant. In response to these recommendations, the project applicant revised the project plans in October 2017, which were subsequently reviewed by Rincon in 2018 to consider their compliance with the DTSP Historic Resource Design Guidelines and the Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards) (Rincon Consultants 2018). At that time, Rincon found that the project plans, while conceptual, either complied or could be brought into full or partial compliance with the Standards and the DTSP Historic Resources Design Guidelines. Rincon recommended project revisions to facilitate this compliance and the input of a qualified historic preservation professional to identify and implement project design elements that will facilitate compliance with the Secretary's Standards. The HPC reviewed the October 2017 project plans in September 2018 and provided comments confirming the project conceptually complied with the Secretary's Standards pending the retention and rehabilitation of the Top Hat building and design modifications relating to massing and materials.

Since this time, the project plans have again been revised. This memorandum serves to address cultural resources considerations through a California Historical Resources Information System (CHRIS) records search, Native American scoping, and a summary of existing cultural resources studies.

Methods

Rincon completed a review of the previous and current designs of the project to determine if the previous recommendations remained valid. Existing studies relating to the archaeological sensitivity of the project location were also reviewed and supplemented by completion of a search of the Native American Heritage Commission's (NAHC) Sacred Lands File (SLF) and a records search at the South Central Coastal Information Center (SCCIC). Rincon has not reviewed the proposed rehabilitation plan for the Top Hat Building as it was not yet completed at the time of this study. Rincon cultural resources staff also did not conduct a site visit or an analysis of archaeological resources.

Cultural Records Search Results

On November 6, 2019, Rincon conducted a records search of the California Historical Resources Information System (CHRIS) at the SCCIC at California State University, Fullerton. The search was conducted to identify all previously recorded cultural resources and previously conducted cultural resources studies within a 0.5-mile radius of the project site. The CHRIS search included a review of the NRHP, CRHR, the Archaeological Determination of Eligibility list, and the California State Historic Resources Inventory list. A complete list of the records search results is included as an attachment.

Rincon's cultural resources records search identified ninety-seven (97) previously conducted cultural resources studies within the 0.5-mile radius of the project site. The project site is within the study area of seven (7) of these prior studies, as shown in Table 1.

Table 1 Previous Cultural Resource Studies of the Project Site

Report Number	Author(s)	Year	Title
VN-00091	Bove, Frederick J.	1977	An Archaeological Assessment Report for the Proposed Central Business Redevelopment Project in the City of Ventura, California
VN-00709	Anonymous	1980	(Duplicate of VN-1732) Archival Study/historic Overview Downtown San Buenaventura Redevelopment Study Area
VN-01631	Anonymous	1978	Draft Environmental Impact Report Downtown Redevelopment Project City of San Buenaventura
VN-01732	Wlodarski, Robert J. and Hatheway, Roger G.	1980	Archival Study/historic Overview: Downtown San Buenaventura Redevelopment Study Area

Report Number	Author(s)	Year	Title
VN-02531	Greenwood, Roberta S. and Dana N. Slawson	2005	Phase I Cultural Resource Investigation, Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura
VN-02546	Whitley, David S.	2001	Phase I Archaeological Survey of the Mission Inn Study Area, City of San Buenaventura, Ventura County, California
VN-03297	Foster, John M., Roberta S. Greenwood, Michael Kay, and Jennifer Foster	2012	Archaeological Assessment and Recovery, E. Main Street and N. Palm Street, City of Ventura

The cultural resources records search identified 70 previously recorded cultural resources within the 0.5-mile search radius of the project site. Of these, three (3) resources were located within, or overlap the boundaries of, the project site. These resources are identified in Table 2.

Table 2 Previously Recorded Resources within the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)
P-56-000004	CA-VEN-000004	Prehistoric Site	N/A	1948 (Hoover, M.B. and H.E. & E.G. Rensch); 1951 (Eberhart)
P-56-150222	N/A	Protohistoric District	The Mission Historical District	1974 (Capito, James R., Robert Lopez, and Myrle Kirk, Historic Preservation Commission)
P-56-152835	N/A	Historic Building	Top Hat Burger Palace	2005 (S. Scafer, San Buenaventura Conservancy)

Native American Scoping

As part of the background research process of identifying cultural resources for this project, Rincon contacted the NAHC on November 12, 2019 and requested a SLF search of the project site and vicinity (Appendix B). Rincon received a response from the NAHC on November 19, 2019 which stated the SLF search had been completed with “negative” results. The City will conduct government-to-government consultation required under Assembly Bill (AB) 52 with interested Native Americans as a separate effort.

Historical Resources Impacts Analysis

Rincon previously concluded that the October 2017 project plans, though conceptual in nature, appeared capable of conforming to the Standards for Rehabilitation and therefore avoiding a significant adverse impact as defined by CEQA. Recommendations were presented at that time to retain an experienced historic preservation professional to provide ongoing Standards and DTSP compliance review. Since this time the project has been minimally modified through the following revisions:

- Redesign of door and window program
- Wood windows replaced by dark, anodized aluminum windows
- Masonry lintels replaced by dark anodized metal headers
- Enclosure of balconies
- Cementitious siding replaced with belden brick veneer
- Color of ceramic tile bulkhead changed from brown to teal
- Bulky bay removed and replaced with flush floor-to-ceiling windows
- Addition of copper finish cladding and colored feature glass to central projection
- Aluminum storefronts expanded and exposed steel I-beam frame and glazed tile added

Because the project appears largely as it did when previously analyzed by Rincon in 2018, there is no information to indicate the previous findings and recommendations would not longer be applicable. Further, Rincon understands a rehabilitation plan is being developed which will ensure that the project will comply with the Standards for Rehabilitation. The project will also require review and approval by the City for compliance with the DTSP Historic Resource Design Guidelines; thereby mitigating potential impacts to the Main Street Commercial Historic District. Incorporation of the rehabilitation plan and approval by the City for compliance with the DTSP Historic Resource Design Guidelines will ensure impacts to historical resources remain less than significant under CEQA.

Archaeological Resources Summary

Based on a review of the existing studies for the project site, the project site is considered archaeologically sensitive. Studies prepared in 2010 and 2012 by Greenwood and Associates document the results of subsurface investigations that identified archaeological deposits related to the Anacapa Hotel (circa 1890) and the Mission Plaza Historic District (circa 1809), including a Mission period Native American component. Although the studies are more than five years old (industry standard for reexamination), the studies provide a significant amount of information concerning the archaeological deposits within the project site. The Greenwood and Associates studies (2010 and 2012) identified the presence of intact archaeological elements within the project site. These elements include portions of the Mission's east wing, including an intact room with floor tiles and parts of the east wing's foundation present along the northern boundary of the project site. The Mission Plaza Historic District and archaeological remains associated with the District are listed on the NRHP (Number 75000496).

Greenwood and Associates provided recommendations for the project site as a result of their study in 2012. These recommendations include preservation in place of the area referred to as Area 1 (Greenwood and Associates 2012:46); which includes several intact elements of the San Buenaventura Mission. This area includes an intact room with floor tiles and foundations and the Mission Period Native American component identified during testing. Outside of Area 1, Greenwood and Associates state that the data potential within the project site has been exhausted and recommend archaeological monitoring and unique artifacts recovered from construction be curated. These measures developed by Greenwood and Associates (2012) are restated below in Mitigation Measure CUL-2.

Mitigation Measures

Greenwood and Associates made recommendations in 2012 to avoid impacts to archaeological resources, which as incorporated into CUL-2 and CUL-3 and approved by the City would mitigate impacts to archaeological resources to a less than significant level.

CUL-1 Preservation in Place and Archaeological Monitoring

As identified by Greenwood and Associates in 2012, Area 1 shall be preserved in place. For the remainder of the project site, initial project-related ground-disturbing activities shall be observed by a qualified archaeological monitor under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology (NPS 1983). Archaeological deposits outside of Area 1 shall be monitored to collect unique artifacts unearthed during construction, and any collected artifacts shall be curated at the Museum of Ventura County.

CUL-2 Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access. With adherence to existing regulations, impacts to human remains would be less than significant.

Conclusions

Rincon recommends a Rehabilitation Plan be developed to avoid impacts to historical resources. Rincon understands a rehabilitation plan is being developed which will ensure that the project will comply with the Standards for Rehabilitation. The project will also require review and approval by the City for compliance with the DTSP Historic Resource Design Guidelines; thereby mitigating potential impacts to the Main Street Commercial Historic District. Incorporation of the rehabilitation plan and approval by the City for compliance with the DTSP Historic Resource Design Guidelines will ensure impacts to historical resources remain less than significant under CEQA.

Further, a review of existing studies for the project site confirms the project site is archaeologically sensitive. Recommendations were proposed by Greenwood and Associates in 2012 to avoid impacts to archaeological resources, and these recommendations are reflected in mitigation measures CUL-1 and CUL-2. Implementation of these mitigation measures would reduce potential impacts to archaeological resources and human remains to a less than significant level.

Should you have any questions or comments regarding this report, please do not hesitate to contact at (510) 834-4455 x9984.

Sincerely,

Rincon Consultants, Inc.

Steven Treffers, MHP
Senior Architectural Historian

Mark Strother, MA
Associate Archaeologist

Attachments

Table 1 Previous Studies Conducted 0.5-Mile Radius of the Project Site

Table 2 Previously Recorded Resources within a 0.5-Mile Radius of the Project Site

References

Greenwood and Associates

2010 Archaeological Inventory E. Main Street and N. Palm Street, City of Ventura. Submitted to W. Watling, Santa Barbara.

2012 Archaeological Assessment and Recovery E. Main Street and N. Palm Street, City of Ventura. Submitted to W. Watling, Santa Barbara.

National Park Service (NPS)

1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at http://www.nps.gov/history/local-law/Arch_Standards.html

Rincon Consultants

2018 Anacapa Courts Project, Downtown Specific Plan Historic Resource Design Guidelines and Secretary of the Interior's Standards Compliance Review, City and County of Ventura. Prepared for the City of Ventura. Project No. 16-03175. April 16.

Table 1

Report List

Anacapa Courts IS-MND 18-06588

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-00016		1974	Leonard, Nelson N. III	Scope of Work and Programs for Archaeological Survey and Exploration of the Mission Plaza Project, City of San Buenaventura	University of California, Los Angeles Archaeological Survey	56-000004, 56-000087
VN-00091		1977	Bove, Frederick J.	An Archaeological Assessment Report for the Proposed Central Business Redevelopment Project in the City of Ventura, California	University of California, Los Angeles Archaeological Survey	56-000004, 56-000480
VN-00194		1966	Browne, Robert O.	San Buenaventura Mission Compound		56-000004
VN-00204		1976	Lopez, Robert	First Preliminary Report of Archaeological Investigations at Mission San Buenaventura's San Miguel Chapel (VEN-480), Ventura, California		56-000480
VN-00225		1979	Lopez, Robert	An Archaeological Reconnaissance of a 1200 Square Foot Lot on East Thompson Boulevard in the City of San Buenaventura, Ventura County, California		
VN-00237		1980	Lopez, Robert	An Archaeological Reconnaissance of the Proposed Santa Clara Associates Office Building Site on East Santa Clara Street in the City of San Buenaventura, Ventura County, California		
VN-00238		1980	Lopez, Robert	Second Preliminary Report of Archaeological Investigations at Mission San Buenaventura's San Miguel Chapel (VEN-480h), Ventura, California		56-000480
VN-00250		1973	Wheeler, Eugene, et al	Environmental Impact Report Mission Plaza Neighborhood Redevelopment Project Calif.-a-44	Eugene D. Wheeler and Associates, Inc.	56-000487
VN-00287		1966	Browne, Robert O.	Summary of Exploratory Archaeological Work at San Buenaventura Mission 1966-67		56-000087, 56-150211
VN-00296		1980	Lopez, Robert	An Archaeological Reconnaissance of the Area of Environmental Impact Report 814 City of San Buenaventura, Ventura County, California.		
VN-00344		1979	Lopez, Robert	An Archaeological Reconnaissance of the Area of the Proposed Ventura County		
VN-00428		1978	Martz, Patricia	Ventura County Beach Erosion Study Significant Environmental Features and Concerns		56-000001, 56-000003, 56-000062, 56-000063, 56-000086, 56-000143, 56-000187, 56-000196, 56-000256, 56-000266

Report List

Anacapa Courts IS-MND 18-06588

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-00450		1982	Wlodarski, Robert J.	Archaeological Monitoring Report Great Pacific Iron Works - Patagonia Warehouse	Historical, Environmental, Archaeological, Research, Team	
VN-00572		1988	Dames and Moore	Phase 1 Cultural Resources Survey Fiber Optic Cable Project, Burbank to Santa Barbara, California for Us Sprint Communications Company	Dames & Moore	56-000027, 56-000196, 56-000202, 56-000240, 56-000241, 56-000341, 56-000342, 56-000550, 56-000643, 56-000644, 56-000655, 56-000729, 56-000789, 56-000895, 56-000896, 56-000916, 56-000917, 56-000918
VN-00690		1988	Greenwood, Roberta S. and John M. Foster	Ventura County Fair and Seaside Park, Cultural Resources, Phase I	Greenwood and Associates	
VN-00693		1988	Foster, John M.	Cultural Resources Evaluation, Garden Estates, Ventura, California	Greenwood and Associates	
VN-00709		1980	Anonymous	(Duplicate of VN-1732) Archival Study/historic Overview Downtown San Buenaventura Redevelopment Study Area	Greenwood and Associates	56-000003, 56-000008, 56-000488, 56-000785
VN-00757		1989	Foster, John M. and Roberta S. Greenwood	Examination of a Small Portion of the Mission San Buenaventura Aqueduct	Greenwood and Associates	
VN-00897		1990	Romani, John F. and Roberta S. Greenwood	Data Recovery During Rehabilitation of the Albinger Interpretive Museum, City of San Buenaventura, Ventura County, California	Greenwood and Associates	56-000087
VN-01061		1991	Alexander, Molly B.	Cultural Resources Investigation: New Railroad Platform in Ventura, California	Greenwood and Associates	
VN-01064		1991	Foster, John M. and Roberta S. Greenwood	Bricks, Bottles, and Bamboo: Cultural Resources Below the Peirano-wilson Building	Greenwood and Associates	56-001071
VN-01102		1977	Singer, Clay A.	Preliminary Cultural Resource Survey and Potential Impact Assessment for Thirteen Areas in Southern Ventura County, California	ARI	56-000003, 56-000004, 56-000005, 56-000013, 56-000014, 56-000031, 56-000032, 56-000033, 56-000075, 56-000076, 56-000077, 56-000087, 56-000135, 56-000136, 56-000137, 56-000138, 56-000140, 56-000142, 56-000148, 56-000149, 56-000150, 56-000158, 56-000163, 56-000164, 56-000165, 56-000458, 56-000478, 56-000479, 56-000481, 56-000490
VN-01154		1992	Greenwood, Roberta S. and John M. Foster	Test Excavation at the Soo Hoo Property, City of San Buenaventura	Greenwood and Associates	56-001071
VN-01164		1967	Greenwood, Roberta S. and R. O. Browne	A Coastal Chumash Village: Excavation of Shisholop, Ventura County, California		56-000003

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-01264		1993	Greenwood, Roberta S. and James J. Schmidt	Data Recovery at the Soo Hoo Property, Ventura	Greenwood and Associates	56-001071
VN-01265		1992	Reed, L.W.	Consolidated Report: Cultural Resources Studies for the Proposed Pacific Pipeline Project	Peak and Associates	19-000007, 19-000021, 19-000034, 19-000089, 19-000251, 19-000357, 19-000385, 19-000389, 19-000390, 19-000407, 19-000409, 19-000668, 19-000781, 19-000830, 19-000887, 19-000901, 19-000963, 19-001097, 19-001112, 19-001124, 19-001575, 19-001620
VN-01269		1993	Greenwood, Roberta S.	Cultural Resources Investigation: California Court of Appeal, Santa Clara and Figueroa Streets, Ventura	Greenwood and Associates	56-001112
VN-01279		1994	Valentine-Maki, Mary	Archaeological Investigations at Site CA-VEN-3 for the Desalinization Feasibility Study, Promenade Park, City of Buenaventura, Ventura County, California	Fugro West, Inc.	56-000003
VN-01321		1995	Schmidt, James J., June Schmidt, and Roberta S. Greenwood	Archaeological Assessment of CA-VEN-1222H Northwest Corner of Figueroa Street and Thompson Boulevard, Ventura	Greenwood and Associates	
VN-01325		1995	Maki, Mary K.	A Phase Ii Archaeological Investigation at Site CA-VEN-3 for the Promenade Park Sewer Pipeline Project City of San Buenaventura Ventura County, California (Ventura Quadrangle)	Fugro West, Inc.	56-000003
VN-01351		1995	Schmidt, James J. and June Schmidt	Results of Archaeological Monitoring: California Main Street Improvements City of San Buenaventura	Greenwood and Associates	56-000087, 56-001071
VN-01405		1996	Schmidt, June A. and James J. Schmidt	The Mission Green Walls, Ventura County and Santa Clara Street, Ventura	Greenwood and Associates	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-01462		1994	King, Chester	Prehistoric Native American Cultural Sites in the Santa Monica Mountains	Topanga Anthropological Consultants	19-000002, 19-000007, 19-000043, 19-000052, 19-000059, 19-000060, 19-000066, 19-000069, 19-000070, 19-000071, 19-000072, 19-000073, 19-000074, 19-000080, 19-000111, 19-000114, 19-000186, 19-000193, 19-000194, 19-000207, 19-000227, 19-000229, 19-000242, 19-000243, 19-000264, 19-000267, 19-000324, 19-000373, 19-000384, 19-000413, 19-000629, 19-000669, 19-000690, 19-000776, 19-000807, 19-001117, 19-001248, 19-001326, 19-001327, 19-001341, 19-001352, 19-002153, 19-002154, 19-002157, 19-002158, 19-002159, 19-002160, 19-002161, 19-002162, 19-002163, 19-002164, 19-002165, 19-002167, 19-002168, 19-002200, 19-002201, 19-002202, 56-000001, 56-000003, 56-000011, 56-000024, 56-000027, 56-000039, 56-000044, 56-000045, 56-000061, 56-000065, 56-000070, 56-000071, 56-000089, 56-000095, 56-000096, 56-000100, 56-000110, 56-000123, 56-000124, 56-000145, 56-000146, 56-000174, 56-000179, 56-000195, 56-000204, 56-000221, 56-000222, 56-000261, 56-000271, 56-000294, 56-000341, 56-000342, 56-000535, 56-000536, 56-000538, 56-000606, 56-000629, 56-000639, 56-000640, 56-000705, 56-000706, 56-000707, 56-000721, 56-000737, 56-000853, 56-000865, 56-000869, 56-000870, 56-000871, 56-000872, 56-000873, 56-000874, 56-000875, 56-000876, 56-000877, 56-000878, 56-000879, 56-000880, 56-000881, 56-000882, 56-000883, 56-000884, 56-000885, 56-000886, 56-001020, 56-001153, 56-001154, 56-001155, 56-001156, 56-001157, 56-100026, 56-100027, 56-100028, 56-100029

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-01631		1978	Anonymous	Draft Environmental Impact Report Downtown Redevelopment Project City of San Buenaventura	Genge Consultants	56-000004, 56-000087, 56-000480, 56-000705, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289
VN-01632		1995	Maki, Mary K.	Results of Archaeological Monitoring for Sewer Pipeline in Promenade Park	Fugro West, Inc.	56-000003
VN-01633		1996	Costello, Julia and Padon, Beth	Final Archaeological Field and Recommendations Report for the Holy Cross School Project San Buenaventura Mission	Petra Resources	56-000004
VN-01636		1966	Fitch, John E.	Fish Remains, Primarily Otoliths, From a Ventura, California, Chumash Village Site (VEN-3)	none	56-000003
VN-01637		1974	Browne, Robert O.	San Buenaventura Mission Water System	Ventura County Archaeological Society	56-000004
VN-01638		1982	Browne, Robert O. and Kirk, Myrle, A.	The Clocktower Square Project Mission Plaza Northwest Corner of Figueroa and Santa Clara Streets Ventura, California	Unknown	56-001112, 56-001222
VN-01688		1982	Lopez, Robert	American Commercial Bank at Palm and Main Streets in the City of San Buenaventura	Robert Lopez, Archaeological Consultant	
VN-01689		1998	Wlodarski, Robert J.	A Phase I Cultural Resources Study for 120 East Santa Clara Street, Cvity of San Buenaventura, California	Historical, Environmental, Archaeological, Research, Team	
VN-01700		1975	Greenwood, Roberta S.	Archaeological Field Tests Mission Plaza Program Part Iii: Reuse Parcel 3	Roberta S. Greenwood	56-000004
VN-01701		1998	Lopez, Robert	An Archaeological Reconnaissance of the 30,000 Square Foot Lot at the Southeastern Corner of Poli and North Oak Streets Within the City of San Buenaventura, Ventura County California (am-4221/cdp-382/pa-33/arb-2685/pc 8/98-mm)	Robert Lopez, Ventura County Archaeological Society	
VN-01719		1998	Schmidt, James J.	Cultural Resource Investigation: Santa Clara and Garden Streets, Ventura	Greenwood and Associates	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-01732	Paleo -	1980	Wlodarski, Robert J. and Hatheway, Roger G.	Archival Study/historic Overview: Downtown San Buenaventura Redevelopment Study Area	Greenwood and Associates	56-150062, 56-150063, 56-150064, 56-150065, 56-150066, 56-150067, 56-150068, 56-150069, 56-150070, 56-150071, 56-150072, 56-150073, 56-150074, 56-150075, 56-150076, 56-150077, 56-150078, 56-150079, 56-150080, 56-150081, 56-150082, 56-150083, 56-150084, 56-150085, 56-150086, 56-150087, 56-150088, 56-150089, 56-150090, 56-150091, 56-150092, 56-150093, 56-150208, 56-150209, 56-150211
VN-01735		1984	Greenwood, Roberta S. and John M. Foster	Cultural Resource Assessments: Neighborhood Commericial Shopping Center, Peking Street Relocation, Highway 33 Realignment, and Demolition of Police Station	Greenwood and Associates	
VN-01750		1997	Hale, Alice E.	Archaeological Monitoring During Demolition of Existing Structures: New Theater Project Northwest Corner of Chestnut and East Main Street City of San Buena Ventura, Ca	Greenwood and Associates	
VN-01751		1980	Shull, Carol	The San Buenaventura Historic District, Ventura, California, Has Been Certified by the Secretary of the Interior	US Dept of Interior	
VN-01755		1984	Greenwood, Roberta S. and John M. Foster	The Ortega Adobe, West Main Street	Greenwood and Associates	56-000785, 56-150209
VN-01775		1999	Schmidt, James and June Schmidt	Probability Study for Blocks 114 and 116, Downtown Ventura	Greenwood and Associates	
VN-01822		1999	Schmidt, James and June Schmidt	Extended Phase I Archaeological Investigation Southwest Corner of Santa Clara and Garden Streets, Ventura, California	Greenwood and Associates	
VN-01848		2000	Maki, Mary K.	Westside Gateway Improvements: Ventura Avenue and Park Row Project No. 94642	Conejo Archaeological Consultants	
VN-01849		2000	Maki, Mary K.	Underground Utility District 15/ Project No. 66094	Conejo Archaeological Consultants	
VN-01909		2001	Duke, Curt	Cultural Resource Assessment Cingular Wireless Facility No. Vy 057-02, Ventura Co.	LSA Associates, Inc.	
VN-01946	Paleo -	2000	Higgins, Glen	Cultural and Paleontological Resource Monitoring of the Poli-oaks Project City of San Buenaventura	Glen M. Higgins, Cultural Resource Monitor	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-02107		1997	Stickel, Gary E.	Photographic and Graphic Documentation of Mission San Buenaventura's Lavanderia (exposed Section Under the Peirano/wilson Studion Building).	Environmental Research Archaeologists	56-001071
VN-02199		2001	Maki, Mary K.	Phase I Archaeological Survey of Approximately 16 Acres for the Surfers Point Managed Shoreline Retreat Project City of San Buenaventura, Ventura County, California	Conejo Archaeological Consultants	56-000002, 56-000003, 56-000018, 56-000088, 56-000114, 56-000310, 56-000842, 56-000847
VN-02504		2006	Arrington, Cindy and Nancy Sikes	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	SWCA Environmental Consultants, Inc.	
VN-02529		2005	Bonner, Wayne H.	Cultural Resources Records Search Results and Site Visit for Cingular Wireless Candidate Vn-0016-02 (ventura Inn) 487 East Main Street, Ventura, Ventura County, California	Michael Brandman Associates	
VN-02530		2006	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of 144 and 158 South Fir Street, Ventura (san Buenaventura), Ventura County, California	McKenna et al.	56-000004, 56-000087, 56-000480, 56-000749, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289, 56-150172, 56-150173
VN-02531		2005	Greenwood, Roberta S. and Dana N. Slawson	Phase I Cultural Resource Investigation, Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura	Greenwood and Associates	
VN-02532		2005	Foster, John M.	Archaeological Inventory 253 and 257 Cedar Street, Ventura	Greenwood and Associates	56-000749
VN-02535		2006	Wlodarski, Robert J.	Records Search and Field Reconnaissance for Proposed Bechtel Corporation Wireless Telecommunications Site Snbbcaov27 (fairground), Located at 450 East Harbor Bourlevard, Ventura, California	Cellular, Archaeological Resource, Evaluations	56-000003, 56-000004, 56-000087, 56-000110, 56-000412, 56-000480, 56-000749, 56-000785, 56-000974, 56-001071, 56-001222, 56-001289, 56-001668, 56-001692, 56-100073
VN-02536		2004	Maki, Mary K.	Negative Archaeological Survey Report of 1500 Square Feet for the Thompson Boulevard Condominium Project, City of San Buenaventura, Ventura County, California	Conejo Archaeological Consultants	
VN-02538		2005	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of Properties Within the Proposed Artist's Live-work Affordable Housing Project Area in the City of Ventura, Ventura County, California	McKenna et al.	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-02539		2004	Foster, John M.	Archaeological Evaluation, Ventura County Musuem of History and Art	Greenwood and Associates	56-000087
VN-02540		2005	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of 701 East Santa Clara Street, Ventura (san Buenaventura), Ventura County, California	McKenna et al.	56-000004, 56-000087, 56-000480, 56-000749, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289
VN-02544		2007	Maki, Mary K.	Phase I Cultural Resources Investigation of Approximately 7,500 Linear Feet for the Downtown Ventura Water & Sewer Lines Replacement Project, City of San Buenaventura, Ventura County, California	Conejo Archaeological Consultants	56-000004, 56-000087, 56-000974, 56-001071
VN-02545		2001	Foster, John M. and Roberta S. Greenwood	Ventura County Museum Expansion Project Archaeological Investigation	Greenwood and Associates	
VN-02546		2001	Whitley, David S.	Phase I Archaeological Survey of the Mission Inn Study Area, City of San Buenaventura, Ventura County, California	W & S Consultants	56-000002, 56-000003, 56-000004, 56-000087, 56-000480, 56-000785, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289, 56-100073, 56-150098
VN-02547		2004	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of the Residence Located at 73 North Palm Street, Ventura, Ventura County, California	McKenna et al.	56-000003, 56-000004, 56-000480, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289
VN-02548		2005	Foster, John M.	Archaeological Survey Report, Parcel 8, Block 114, City of San Buenaventura, California	Greenwood and Associates	56-000003, 56-000004, 56-000087, 56-000785, 56-000974, 56-001071, 56-001109, 56-001112, 56-001222, 56-001289
VN-02549		2005	Foster, John M.	Archaeological Survey Report, Parcels 3, 4, 9, and 10 Block 114, City of San Buenaventura, California	Greenwood and Associates	
VN-02550		2004	Foster, John M.	Archaeological Survey, 73 N. Palm Street in the City of Ventura, California	Greenwood and Associates	
VN-02552		2001	Foster, John M.	San Miguel Chapel, San Buenaventura: Archaeological Investigation at CA-VEN-480h	Greenwood and Associates	56-000480
VN-02553		2002	Sylvia, Barbara	Archaeological Survey Report for the California Street Off-ramp Improvement Project, Ventura, California	Caltrans District 7	
VN-02554		2004	Foster, John M.	An Extended Phase I Archaeological Program, Parcel 116, Ventura	Greenwood and Associates	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-02556		2006	Foster, John M.	Extended Archaeological Inventory Program Assessor Parcel Nos. 071-0-194-405 and 071-0-194-415 (73 N. Palm), in the City of Ventura	Greenwood and Associates	56-000004, 56-000087, 56-001692
VN-02557		1994	Toren, George A. and John F. Romani	Archaeological Phase Ii Testing on Figueroa Street, City of San Buenaventura, Ventura County, California	Owl Clan Consultants	56-001112
VN-02558		2007	Foster, John M. and Alice Hale	Archaeological Data Recovery, CA-VEN-3, Ventura Beach Water Quality Improvements Project, Final Report	Greenwood and Associates	56-000003
VN-02560		2005	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of the Properties Located at 242 Through 270 East Main Street, Ventura, Ventura County, California	McKenna et al.	56-000480, 56-001109, 56-001112, 56-001222, 56-001289
VN-02561		2005	McKenna, Jeanette A.	A Cultural Resources Investigation and Architectural Evaluation of the Property Located at 230 East Main Street, Ventura, Ventura County, California	McKenna et al.	56-000480, 56-001109, 56-001112, 56-001222, 56-001289
VN-02562		2006	Hale, Alice E.	Archaeological Research Report, Block 47, City of San Buenaventura, Ventura, California	Greenwood and Associates	56-000087, 56-000749, 56-000974, 56-001071, 56-150068
VN-02601		2007	Foster, John M.	Extended Archaeological Inventory Program for the Meta Motel Parcel, in the City of Ventura	Greenwood and Associates	56-001780
VN-02682		2008	Foster, John M.	Archaeological Inventory V2V Ventures, N. Chestnut Street Project City of Ventura	Greenwood and Associates	56-000004, 56-000082, 56-000480, 56-000749, 56-000974, 56-001071, 56-001112, 56-001692
VN-02683		2008	Foster, John M.	Archaeological Inventory Terrace Project, Georgino Development in the City of Ventura	Greenwood and Associates	56-000004, 56-000082, 56-000087, 56-000480, 56-000974, 56-001692
VN-02703		2008	Foster, John M.	Archaeological Mitigation Working Artists Ventura	Greenwood and Associates	56-001801
VN-02709		2008	Supernowicz, Dana E.	Cultural Resources Study of the Masonic Center Project Royal Street Communications Site No. LA2939B, 482 E. Santa Clara Street, San Buenaventura, Ventura County, California 93001	Historic Resources Group	56-000749, 56-001692, 56-001780, 56-150172, 56-150173, 56-150341, 56-150497, 56-152835
VN-02784		2009	Maki, Mary	Archaeological Survey Report of Approximately 0.74 Acre for the 351 East Thompson Boulevard Project, City of Ventura, Ventura County, California	Conejo Archaeological Consultants	56-001780

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-02786		2009	Bray, Madeleine and John F. Romani	Cultural Resources Monitoring Report for the City of Ventura Water and Sewer Line Replacement Project	ESA, Compass Rose	56-152846
VN-02801		2008	Hale, Alice	Archaeological Monitoring Working Artists Ventura CA-VEN-1801	Greenwood and Associates	56-001801
VN-02805		2009	Foster, John M.	Extended Archaeological Inventory Program for the Embassy Suites Project, in the City of Ventura	Greenwood and Associates	56-000003
VN-03033		2011	Kirkish, Alex	Archaeological Survey Report for the union Pacific Railroad Safety Project Ventura County, California	California Department of Transportation	56-000480, 56-001222
VN-03118		2012	Bonner, Wayne and Crawford, Kathleen	Cultural Resources Records Search and Site Visit Results for T-Mobile West , LLC Candidate SV00364A (LA364 LA-364-00-PB) 739 East Santa Clara, Ventura, California	MBA	56-001294, 56-150074, 56-150155, 56-150170, 56-150172, 56-150204, 56-150234, 56-153065
VN-03121		2013	Foster, Jennifer	Archaeological Evaluation and Mitigation: Mushrooom Cannery Apartment Parcel Ventura, California	Greenwood & Associates	56-000003, 56-000004, 56-000087, 56-001430
VN-03297		2012	Foster, John M., Roberta S. Greenwood, Michael Kay, and Jennifer Foster	Archaeological Assessment and Recovery, E. Main Street and N. Palm Street, City of Ventura	Greenwood and Associates	56-000004
VN-03298		1975	Roberta S. Greenwood, Editor, Wlodarski, Robert, Larson, Dan, Kirk, Myrtle A., Romani, John A., Toren, George, Browne, Robert O., Fitch, Hohn E., Hastings, Richard B., Gardner, Elizabeth J., and Bente, Vance G.	3500 Year On One City Block: San Buenaventura Mission Plaza Project Archaeological Report, 1974		56-000004, 56-000087, 56-000749, 56-150222

Table 2

Resource List

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Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-000003	CA-VEN-000003	Other - VE-9; Resource Name - Shisolop	Site	Prehistoric	AP02 (Lithic scatter); AP15 (Habitation debris)	1948 (Hoover & H.E. and EG Rensch); 1951 (EBERHART); 1993 (M. Valentine-Maki, Fugro-McClelland)	LA-03587, VN-00428, VN-00709, VN-01102, VN-01164, VN-01279, VN-01325, VN-01455, VN-01462, VN-01632, VN-01636, VN-01961, VN-02199, VN-02535, VN-02546, VN-02547, VN-02548, VN-02558, VN-02805, VN-02903, VN-03121
P-56-000004	CA-VEN-000004	Resource Name - LA ASUNCION DE NUESTRA SENORA; Other - VE-10	Site	Prehistoric	AP15 (Habitation debris)	1948 (Hoover, M.B. and H.E. & E.G. Rensch); 1951 (Eberhart)	VN-00016, VN-00091, VN-00194, VN-01102, VN-01455, VN-01631, VN-01633, VN-01637, VN-01700, VN-01911, VN-02530, VN-02535, VN-02540, VN-02544, VN-02546, VN-02547, VN-02548, VN-02556, VN-02682, VN-02683, VN-03121, VN-03297, VN-03298

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Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-000087	CA-VEN-000087/H	Resource Name - MISSION LANDS; Other - Ventura County Museum of History and Art	Structure, Site	Prehistoric, Protohistoric, Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AH06 (Water conveyance system); AH11 (Walls/fences); AP15 (Habitation debris)	1966 (GREENWOOD); 2004 (John M. Foster)	VN-00016, VN-00254, VN-00287, VN-00897, VN-01102, VN-01230, VN-01332, VN-01351, VN-01455, VN-01631, VN-02530, VN-02535, VN-02539, VN-02540, VN-02544, VN-02546, VN-02548, VN-02556, VN-02562, VN-02683, VN-02903, VN-03121, VN-03298
P-56-000480	CA-VEN-000480H	Resource Name - SAN MIGUEL CHAPEL; Other - Mission San Buenaventura; Other - City of San Buenaventura Landmark No. 16	Site	Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AH11 (Walls/fences); AH15 (Standing structures)	1976 (Robert Lopez, Moorpark College); 2006 (Catherine M. Wood, ICF Jones & Stokes)	VN-00091, VN-00204, VN-00238, VN-01631, VN-02530, VN-02535, VN-02540, VN-02546, VN-02547, VN-02552, VN-02559, VN-02560, VN-02561, VN-02682, VN-02683, VN-02903, VN-03033
P-56-000749	CA-VEN-000749H	Resource Name - Vince St. Aqueduct; Resource Name - Mission San Buenaventura Aqueduct; Other - VCM	Structure, Site	Historic	AH02 (Foundations/structure pads); AH03 (Landscaping/orchard); AH06 (Water conveyance system); AH16 (Other) - Bovine Skull	1982 (LOPEZ, Moorpark College); 2004 (John M. Foster, Greenwood & Associates); 2004 (Linda H. Rehberger, Greenwood & Associates); 2005 (J. M. Foster, Greenwood & Associates); 2016	VN-00411, VN-02202, VN-02530, VN-02532, VN-02535, VN-02537, VN-02540, VN-02559, VN-02562, VN-02682, VN-02709, VN-02785, VN-02802, VN-03258, VN-03298

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Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-000974	CA-VEN-000974H	Resource Name - CT-1	Site	Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AH11 (Walls/fences); AH15 (Standing structures)	1988 (GREENWOOD, Greenwood & Associates)	VN-01631, VN-02530, VN-02535, VN-02540, VN-02544, VN-02546, VN-02547, VN-02548, VN-02562, VN-02682, VN-02683
P-56-001071	CA-VEN-001071H		Site, Element of district	Historic	AH04 (Privies/dumps/trash scatters); AH11 (Walls/fences); AH15 (Standing structures)	1991 (Greenwood and Foster, Greenwood & Associates)	VN-01064, VN-01154, VN-01264, VN-01351, VN-01631, VN-02107, VN-02530, VN-02535, VN-02540, VN-02544, VN-02546, VN-02547, VN-02548, VN-02562, VN-02682

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-001109	CA-VEN-001109H	Resource Name - VENTURA RIVER & OJAI VALLEY RAILROAD; Resource Name - The Nordhoff Spur	Site	Historic	AH07 (Roads/trails/railroad grades)	1993 (M. MACKO, Macko Archaeological Consulting); 1994 (Schmidt, James and June, Greenwood And Associates); 2012 (Hubert Switalski and Andrea Bardsley, AMEC)	LA-07849, VN-01275, VN-01280, VN-01631, VN-01634, VN-01675, VN-02101, VN-02202, VN-02386, VN-02484, VN-02530, VN-02540, VN-02543, VN-02546, VN-02547, VN-02548, VN-02560, VN-02561, VN-02568, VN-02602, VN-02702, VN-02734, VN-02748, VN-02785, VN-02802, VN-02806, VN-02808, VN-02820, VN-02906, VN-02910, VN-02919, VN-02920, VN-02928, VN-02953, VN-02971, VN-03036, VN-03064, VN-03069, VN-03117, VN-03120, VN-03123
P-56-001117	CA-VEN-001117	Resource Name - PINE SPRINGS SITE; USFS - 05-07-57-386; Other - CA-VEN-IF-10	Site	Prehistoric	AP02 (Lithic scatter); AP04 (Bedrock milling feature)	1992 (D. Burke, USFS); 1993 (Stephen Horne, USFS); 1993 (J. Garcia and D. Jackson, USFS)	VN-01258
P-56-001222	CA-VEN-001222H		Site	Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AH15 (Standing structures)	1994 (James J. Schmidt, Greenwood & Associates)	VN-01631, VN-01638, VN-02530, VN-02535, VN-02540, VN-02546, VN-02547, VN-02548, VN-02560, VN-02561, VN-03033

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-001298	CA-VEN-001298/H	Resource Name - SWCVASC	Site	Protohistoric, Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AP02 (Lithic scatter); AP03 (Ceramic scatter); AP15 (Habitation debris); AP16 (Other) - shell beads	1996 (J. J. Schmidt, J. Schmidt, Greenwood & Associates)	
P-56-001309	CA-VEN-001309H	Resource Name - Thompson No 1	Site	Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters)	2011 (John M. Foster, Greenwood & Associates)	
P-56-001310	CA-VEN-001310	Resource Name - Grant Park Cross Site #1	Site	Prehistoric	AP15 (Habitation debris)	2011 (Rob Wlodarski, Matt Conrad, Lauren DeOliveira, Wayne Bonner, HEART)	
P-56-001430	CA-VEN-001430H	Resource Name - Cannery 1	Site	Historic	AH04 (Privies/dumps/trash scatters)	2013 (Jennifer Foster, Greenwood & Associates)	VN-03121
P-56-001668	CA-VEN-001668/H	Resource Name - The Olson Company/VUSD	Site	Prehistoric, Protohistoric, Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AP15 (Habitation debris)	2004 (J. M. Foster, Greenwood & Associates)	VN-02535
P-56-001692	CA-VEN-001692H	Resource Name - Palm/Poli	Site, District	Historic	AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters)	2005 (J. Foster, Greenwood & Associates)	VN-02535, VN-02556, VN-02682, VN-02683, VN-02709
P-56-001780	CA-VEN-001780H	Resource Name - Meta-1	Site, District	Historic	AH04 (Privies/dumps/trash scatters)	2006 (J. Foster, Greenwood & Associates)	VN-02601, VN-02709, VN-02784
P-56-001801	CA-VEN-001801H	Resource Name - WAV	Site	Historic	AH02 (Foundations/structure pads); AH11 (Walls/fences); HP46 (Walls/gates/fences)	2008 (J. M. Foster, Greenwood & Associates)	VN-02703, VN-02801

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-100073		Resource Name - VRT-ISO-1	Other	Prehistoric	AP16 (Other) - shell bead	1994 (J Schmidt, Greenwood & Associates)	VN-02535, VN-02546
P-56-150062		Resource Name - 124 E Park Row Ave	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood)	VN-01732
P-56-150063		Resource Name - Mission San Buenaventura	Building	Historic	HP16 (Religious building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150064		Resource Name - Peirano Store & Grocery; Other - Landmark #32	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150065		Resource Name - Peirano House; Other - local landmark #33	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150067		Resource Name - Ortega Adobe / Historical Display; Other - Landmark #2	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150068		Resource Name - Wilson Studios; Other - Landmark #32	Building	Historic	HP06 (1-3 story commercial building)	2000 (R. Greenwood, Greenwood & Associates)	VN-01732, VN-02562
P-56-150069		Resource Name - 231 E thompson Blvd	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150070		Resource Name - J H Floors	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150071		Resource Name - 143 S Figueroa St	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150072		Resource Name - Knights of Columbus / Meeting Hall	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150073		Resource Name - Big Green House	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150074		Resource Name - 167 S Palm St	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732, VN-03118
P-56-150075		Resource Name - 73 N Palm St	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150076		Resource Name - 29 N Garden St	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150077		Resource Name - Coast Auto Salvage	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150078		Resource Name - 153 N Garden St	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-150079		Resource Name - National Drinks Inc	Building	Historic	HP08 (Industrial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150080		Resource Name - 43 Peking St	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150081		Resource Name - Roadway/Truck Terminal	Building	Historic	HP08 (Industrial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732, VN-02568
P-56-150082		Resource Name - 159 N Ventura	Building	Historic	HP08 (Industrial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150083		Resource Name - 139 Wall St	Building	Historic	HP03 (Multiple family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150084		Resource Name - 267 Wall St	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150085		Resource Name - SCE Bldg; Resource Name - Ventura Substation Property	Building, District	Historic	HP06 (1-3 story commercial building); HP09 (Public utility building)	1980 (R. Greenwood, Greenwood & Associates); 2015 (Christina Chiang, Urbana Preservation & Planning)	VN-01732
P-56-150086		Resource Name - 45-63 S Ventura Ave	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732, VN-02568
P-56-150087		Resource Name - Velasquez Café	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150088		Resource Name - 296 N Ventura Ave	Building	Historic	HP02 (Single family property)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150089		Resource Name - Old Mission Museum	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150090		Resource Name - Mission Auto Body, Jaguar Motor Car Co.	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150091		Resource Name - Alpenlite	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150092		Resource Name - Plaza Hotel; Resource Name - Cabrillo Hotel	Building	Historic	HP05 (Hotel/motel)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150093		Resource Name - Harley Davidson Motorcycle Sales and Repair	Building	Historic	HP06 (1-3 story commercial building)	1980 (R. Greenwood, Greenwood & Associates)	VN-01732
P-56-150132		OHP Property Number - 150132; Resource Name - Site of Junipero Serra's Cross; CHL - 113	Structure	Historic	HP26 (Monument/mural/gravestone)	1959 (Perkins, R.L.)	

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-150155		OHP Property Number - 015535; Resource Name - Ventura Theatre	Building	Historic	HP10 (Theater)	1984 (Triem, Judy)	VN-03118
P-56-150170		OHP Property Number - 015550; Resource Name - Elizabeth Bard Memorial Hospital; Other - Local Landmark No. 19	Building	Historic	HP41 (Hospital)	1976 (Mack, Miriam, City of Ventura)	VN-03118
P-56-150172		OHP Property Number - 015552; Resource Name - Carrie Newby Residence; Other - Newby Property	Building	Historic	HP02 (Single family property)	1983 (Judy Triem, Historic Preservation Comm.); 2006 (McKenna, Jeanette A., McKenna et al.)	VN-02530, VN-02709, VN-03118
P-56-150173		OHP Property Number - 015553; Resource Name - Joseph Fossati Residence; Other - Fossati Property	Building	Historic	HP02 (Single family property)	1983 (Triem, Judy, Historic Preservation Comm); 2006 (McKenna, Jeanette A., McKenna et al.)	VN-02530, VN-02709
P-56-150208		OHP Property Number - 015588; Resource Name - Feraud Geheral Merchandise Store; Other - 1903 Building	Building	Historic	HP06 (1-3 story commercial building)	1985 (Triem, Judy, San Buenaventura Research Associates)	VN-01732
P-56-150209		OHP Property Number - 015589; Resource Name - Ortega Adobe; Other - PHI VEN-002	Building	Historic	HP44 (Adobe building/structure)	1975 (Collart, Cheryl M.); 1977	VN-01732, VN-01755
P-56-150211		OHP Property Number - 015591; Resource Name - San Buenaventura Mission; CHL - 310	Building, Element of district	Historic	HP16 (Religious building); HP44 (Adobe	1939; 1959 (Perkins, R.L.); 1980 (J. Arbuckle)	VN-00287, VN-01732
P-56-150222		OHP Property Number - 015603; Resource Name - The Mission Historical District; Other - Mission San Buenaventura & Mission Compound Site	District	Protohistoric	HP16 (Religious building); HP44 (Adobe	1974 (Capito, James R., Robert Lopez, and Myrle Kirk, Historic Preservation Commission)	VN-03298
P-56-150234		OHP Property Number - 015615; Resource Name - Ventura Inn Hotel; Resource Name - Hotel Ventura	Building	Historic	HP05 (Hotel/motel)	1983 (Judy Triem, Historic Preservation Commission)	VN-03118
P-56-150292		OHP Property Number - 015673; Resource Name - Emmanuel Franz House	Building	Historic	HP02 (Single family property)	1981 (Triem, Judy)	

Resource List

Anacapa Courts IS-MND 18-06588

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-150308		OHP Property Number - 015689; Resource Name - Ventura County Court House; CHL - 847; Voided - 56-150307	Building	Historic	HP14 (Government building)	1971 (Hagopian, Michael J., Ventura County Cultural Heritage Board); 1980 (Arbuckle, J.)	
P-56-150341		Resource Name - San Buenaventura Masonic Temple; Resource Name - Old Ventura City Hall; OHP Property Number - 015722	Building	Historic	HP07 (3+ story commercial building); HP13 (Community center/social hall); HP14 (Government building)	2007 (D. Supernowicz, Historic Resources Associates)	VN-02709
P-56-150374		Resource Name - Mission San Buenaventura; Resource Name - San Miguel Chapel; OHP Property Number - 015755	Site	Protohistoric	AH02 (Foundations/structure pads); AH06 (Water conveyance system); HP16 (Religious building)	1976 (Lopez, Robert, Ventura County Archaeological Society)	
P-56-150449		OHP Property Number - 015831; Resource Name - William Sharp Residence	Building	Historic	HP02 (Single family property)		
P-56-150497		OHP Property Number - 015879; Resource Name - Mitchell Block Historic District	District	Historic	HP01 (Unknown)	1977 (Miriam Mack, City of San Buenaventura)	VN-02709
P-56-152361		OHP Property Number - 093372; Resource Name - Old Mission Reservoir; CHL - 114; Resource Name - Holding Reservoir Bldg	Structure	Historic	AH06 (Water conveyance system); HP22 (Lake/river/reservoir)	1980 (Arbuckle, J.)	
P-56-152835		Resource Name - Top Hat Burger Palace	Building	Historic	HP06 (1-3 story commercial building)	2005 (S. Schafer, San Buenaventura Conservancy)	VN-02709
P-56-152846		Resource Name - Ventura monitoring tile feature	Site	Historic	AH01 (Unknown)	2008 (Nienstedt, Martin, ESA)	VN-02786
P-56-153065		Resource Name - Pacific Bell & Telegraph Co; Other - T-Mobile West LLC SV00364A/LA364-00-PB	Building	Historic	HP09 (Public utility building)	2012 (K.A. Crawford, Michael Brandman Associates)	VN-03118

Appendix C

Energy Calculations

Anacapa Courts Mixed Use

Last Updated:October 2019

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase
Tractors/Loaders/Backhoes	1	8	97	0.37	Site Prep
Graders	1	8	187	0.41	Site Prep
Rubber Tired Dozer	1	1	247	0.40	Grading
Tractors/Loaders/Backhoes	2	6	97	0.37	Grading
Concrete/Industrial Saws	1	8	81	0.73	Grading
Cranes	1	4	231	0.29	Building
Forklifts	2	6	89	0.20	Building
Tractors/Loaders/Backhoes	2	8	97	0.37	Building
Air Compressors	1	6	78	0.48	Arch Coating
Pavers	1	7	130	0.42	Paving
Tractors/Loaders/Backhoes	1	7	97	0.37	Paving
Rollers	1	7	80	0.38	Paving
Cement and Mortar Mixers	4	6	9	0.56	Paving
					Total Fuel Used

Construction Phase	Days of Operation
Site Preparation Phase	1
Grading Phase	2
Building Construction Phase	100
Paving Phase	33
Architectural Coating Phase	50
Total Days	186

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)
Site Prep Phase	24.0	5	10.8
Grading Phase	24.0	10	10.8

Building Phase	24.0	25	10.8
Paving Phase	24.0	18	10.8
Architectural Coating Phase	24.0	5	10.8
			Total

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)
HAULING TRIPS			
Site Prep Phase	7.4		20.0
Grading Phase	7.4		20.0
Building Phase	7.4		20.0
Paving Phase	7.4		20.0
Architectural Coating Phase	7.4		20.0
			Total
VENDOR TRIPS			
Site Prep Phase	7.4		7.3
Grading Phase	7.4		7.3
Building Phase	7.4	6	7.3
Paving Phase	7.4		7.3
Architectural Coating Phase	7.4		7.3
			Total

Total Gasoline Consumption (gallons)
Total Diesel Consumption (gallons)

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors* *Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *Nationa* *Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/brov products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Fuel Used (gallons)
16.87
32.42
10.44
50.62
55.60
1,416.41
1,255.20
3,374.48
660.04
666.69
487.19
412.67
234.57
8,673.19
(Gallons)

Fuel Used (gallons)
2.25
9.00

1125.00
267.30
112.50
1,516.05
Fuel Used (gallons)
0.00
0.00
0.00
0.00
0.00
-
0.00
0.00
591.89
0.00
0.00
8.00
1,516.05
8,681.19

for Nonroad

/

vse-statistical-

Anacapa Courts Mixed Use

Last Updated: DATE

Populate one of the following tables (Leave the other blank):

Annual VMT	
Annual VMT:	470,156

OR

Daily Vehicle Trips	
Daily Vehicle Trips:	
Average Trip Distance:	

Fleet Class	**Fleet Mix**
Light Duty Auto (LDA)	0.611150
Light Duty Truck 1 (LDT1)	0.038739
Light Duty Truck 2 (LDT2)	0.187677
Medium Duty Vehicle (MDV)	0.096955
Light Heavy Duty 1 (LHD1)	0.013383
Light Heavy Duty 2 (LHD2)	0.005563
Medium Heavy Duty (MHD)	0.020646
Heavy Heavy Duty (HHD)	0.018593
Other Bus (OBUS)	0.001209
Urban Bus (UBUS)	0.001094
School Bus (SBUS)	0.000418
Motorhome (MH)	0.000914
Motorcycle (MCY)	0.003654

Fuel Economy (MPG)	
Passenger Vehicles	24.0
Light-Med Duty Trucks	17.4
Heavy Trucks/Other	7.4
Motorcycles	43.9

Fleet Mix

Vehicle Type	**Percent**	**Fuel Type**	**Annual VMT: VMT**	**Vehicle Trips: VMT**	**Fuel Consumption (Gallons)**
Passenger Vehicles	*61.12%*	*Gasoline*	287336	0.00	11972.33
Light-Medium Duty Trucks	*32.34%*	*Gasoline*	152035	0.00	8737.63
Heavy Trucks/Other	*6.18%*	*Diesel*	29065	0.00	3927.71
Motorcycle	*0.37%*	*Gasoline*	1718	0.00	39.13
			470154		24676.80

Total Gasoline Consumption (gallons)	**20749.09**
Total Diesel Consumption (gallons)	**3927.71**

Appendix D

Geotechnical Engineering Reports

Earth Systems

Southern California

ENGINEERING GEOLOGY AND GEOTECHNICAL ENGINEERING REPORT FOR NWC OF PALM AND MAIN STREETS PROPOSED FIVE-STORY-MIXED-USE BUILDING VENTURA, CALIFORNIA

Consulting Engineers and Geologists

ENGINEERING GEOLOGY AND GEOTECHNICAL ENGINEERING REPORT FOR NWC OF PALM AND MAIN STREETS PROPOSED FIVE-STORY-MIXED-USE BUILDING VENTURA, CALIFORNIA

VT-23104-01
October 29, 2004

PREPARED FOR

James E. Mesa
34 North Palm Street, Suite 200
Ventura, California 93001

BY

EARTH SYSTEMS
SOUTHERN CALIFORNIA
1731-A WALTER STREET
VENTURA, CALIFORNIA

Earth Systems
Southern California

1731-A Walter Street
Ventura, CA 93003
(805) 642-6727
FAX (805) 642-1325

October 29, 2004

VT-23104-01
04-9-8

James E. Mesa
34 North Palm Street, Suite 200
Ventura, California 93001

Project: NWC of Palm and Main Streets
Proposed Five-Story Mixed-Use Building
Ventura, California

As authorized, we have performed a geotechnical geological study for a proposed five-story mixed-use building with a subterranean parking area to be located at the northwest corner of Palm Street and Main Street in Ventura, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, as well as our conclusions and recommendations pertaining to geotechnical and geological aspects of project design.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or when we can be of further service.

Respectfully submitted,

EARTH SYSTEMS
SOUTHERN CALIFORNIA

Jeff Tawakoli
Project Engineer

REGISTERED PROFESSIONAL ENGINEER
JAFAR TAWAKOLI
No. 51883
Exp. 6/30/06
CIVIL
STATE OF CALIFORNIA

Reviewed and Approved,

Todd Tranby
Certified Engineering Geologist

Richard M. Beard
Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
RICHARD M. BEARD
GE 128
Exp. 12-31-05
GEOTECHNICAL
STATE OF CALIFORNIA

JT/TT/RMB/bt
Copies: 6 - James Mesa
1 - VTA File

REGISTERED GEOLOGIST
TODD J. TRANBY
No. 2078
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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INTRODUCTION

A. Project Description

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a proposed five-story mixed-use building to be located at northwest corner of Palm Street and Main Street in Ventura, California. The building will have a subterranean parking area. The building and its subterranean parking will be located immediately adjacent to a structure on the west side that will remain in place. Thus, it is anticipated that underpinning of at least part of the adjacent building will be necessary. Depth of the excavation for the underground parking is expected to be in the range of 8 to 10 feet. Hence, shoring to retain excavation cuts is anticipated.

Column loads for the proposed structure is expected to range up to about 200 kips. Wall loads are expected to be about 6 kips per lineal foot. A caisson foundation system is likely to be necessary to limit foundation settlement because of underlying compressive soils. If actual loads vary significantly from these assumed loads, Earth Systems Southern California (ESSC) should be notified since reevaluation of the recommendations contained in this report may be required.

Because the site is relatively flat, and no cut or fill slopes of significance are anticipated to be necessary, grading for the proposed project is expected to be limited to preparing the site soils to support slab-on-grade floors of the subterranean parking area.

B. Purpose and Scope of Work

The purpose of the geotechnical study that led to this report was to evaluate the subsurface soil and groundwater conditions at the site with respect to the proposed structure. The scope of work included:

1. Performing a reconnaissance of the site.
2. Drilling, sampling, and logging one hollow-stem-auger boring, and advancing twenty cone penetrometer test (CPT) soundings to explore subsurface soil and groundwater conditions.

3. Laboratory testing soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
4. Consulting with owner representatives and design team members.
5. Geological and geotechnical analysis of the data obtained.
6. Preparing this report.

Contained in this report are:

1. Descriptions of field and laboratory tests that were performed.
2. Results of field and laboratory tests that were performed.
3. Conclusions and recommendations pertaining to site grading and structural design.

C. Site Setting

The site of the proposed building is an asphalt paved vacant lot that is located at northwest corner of the Palm and Main Streets in Ventura, California. The site is surrounded by a commercial building to the west, Main Street to the south, Palm Street to the east, and by a paved private drive to the north. No vegetation is present on site and surface drainage is to the south. A small commercial food stand is located at the southeast corner of the property. The relative elevation of the north end of the site is about 33.5 feet above mean sea level and the elevation of the south end of the site is about 26.5 feet above mean sea level.

SOIL CONDITIONS

Fill material consisting of silt, clayey silts, and silty clays with debris such as wood and brick fragments were encountered at this site. Thickness of the fill layer was observed to be about 5-1/2 feet at the Boring No. 1 location. The fill material is underlain by alluvium consisting of clayey silts and silty clays with sand to the maximum depth explored. In general, soils within the anticipated influence of the building foundations and the parking areas have less than 90% relative compaction, and consolidation testing indicated that these soils are compressible. The boring log and CPT's along with a site plan showing the approximate locations of the boring and CPT's are presented in Appendix A of this report.

The pore water dissipation records from CPTs 2, 3, 5, and 11 indicate that the groundwater table is at about 23 to 25 feet below ground surface. This is consistent with the groundwater level of 23.5 feet encountered in Boring No. 1. However, the degree of saturation of the recovered samples was 97% and 100% at depths of 5 and 10 feet, respectively, indicating that groundwater may be between these two depths. Furthermore, historical high groundwater table however, as indicated by the Seismic Hazard Zone Report for the Ventura Quadrangle (California Geological Survey, 2003) is about 7 feet. The historical high groundwater depth is used in calculations in this report. Soil moisture content above the groundwater, at the time the site was explored, was above the optimum moisture content for compaction. Soil moisture may change with variations in weather patterns, the time of year, irrigation, and other factors.

Expansion determination indicates that bearing soils lie in the "low" range (51-90) in accordance with Table 18-I-B of the 2001 California Building Code (CBC). Table 18-I-DR, a locally adopted variation of CBC Table 18-I-B, provides recommended minimum foundation and slab requirements as a function of expansion index, and is included in Appendix B of this report.

Corrosion characteristics of shallow soils were determined by testing for resistivity, pH, soluble sulfates, and soluble chlorides. The results are presented in Appendix B and should be brought to the attention of the project Structural or Mechanical Engineer or anyone designing facilities in contact with soil. Soluble sulfate content is in the "negligible" range of Table 19-A-4 of the CBC. Therefore, it appears that special designs for cement in contact with the ground will not be necessary. Soil resistivity is in the "Moderately Corrosive" range for ferrous metal according to a table in the Los Angeles County Guidelines of Preparing Geotechnical Reports (2002). Designers of metals in contact with soil should be made aware of this potential. Please note that ESSC does not provide corrosion-engineering services.

SEISMICITY

This site, like all other sites in the general area, can be affected by moderate to major earthquakes centered on faults in southern California. An estimate of the seismic shaking that the proposed construction could experience was made by using the Seismic Hazard Zone report for the Ventura Quadrangle prepared by California Geological Survey (CGS, 2003). Based on interpolation on this map the peak horizontal acceleration at the site, at a 10% probability of exceedance in 50 years, estimated to be about 0.61-g.

The report also presents a mapping of earthquake magnitudes that are expected to generate the aforementioned peak ground acceleration. That map shows the project site to be within an area where the magnitude is expected to be about 6.9.

The following 2001 California Building Code (CBC) geotechnical related values could be used in the building's earthquake design:

Seismic Zone - Figure 16-2	4
Seismic Zone Factor Z - Table 16A-I	0.40
Soil Profile Type - Table 16A-J	S_D
Seismic Coefficient C_a - Table 16A-Q	$0.44N_a$
Seismic Coefficient C_v - Table 16A-R	$0.64N_v$
Near Source Factor N_a -Table 16A-S	1.3
Near Source Factor N_v -Table 16A-T	1.6
Seismic Source Type - Table 16A-U	B
Distance to Seismic Source	Less than 2 km

LIQUEFACTION

Earthquake-induced vibrations can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction can result in a complete loss of strength and can cause structures to settle or even overturn if it occurs in the bearing zone. If liquefaction occurs beneath sloping ground, a phenomenon known as lateral spreading can occur. Liquefaction is typically limited to the upper 50 feet of the subsurface soils.

There are a number of conditions that need to be satisfied for liquefaction to be a potential hazard. Of primary importance is that groundwater, perched or otherwise, usually must be within the upper 50 feet of soils. Groundwater was encountered during the site exploration at a depth of about 23 feet. Soils with less than 15% clay content but, with a Plasticity Index (P.I.) of 15 or better/or sands with relative densities of 80% (dense soils) or better, are generally not susceptible to liquefaction. The soils that contain a wide range of soil particle sizes and coarse soils that drain freely are also not generally susceptible to liquefaction.

Because of the presence of shallow groundwater and sands that appear to be less than very dense, liquefaction potential was analyzed. It was done using the SPT data, a magnitude 7.5 earthquake, and a 0.48-g peak ground acceleration (liquefaction opportunity, CGS, 2003). Groundwater was assumed to be 7 feet below the ground surface. The analyses were done with a proprietary spreadsheet developed by this firm. This spreadsheet is based on the SPT data and methods developed by Youd and Idriss (1998). The analyses were done at every data point, which were taken at 0.05m intervals (about every 2 inches). No data averaging was performed. Depths at which the laboratory data indicated the soil was too clayey to liquefy, the result of the CPT analysis was overridden, and the soils at those depths taken as non-liquefiable. The analysis is presented in Appendix C. It indicates that the potential for liquefaction related settlement is low.

HYDROCONSOLIDATION

Hydroconsolidation is a phenomenon in which naturally occurring soil deposits, or non-engineered fill, collapse when wetted. Natural soils that are susceptible to this phenomenon are typically aeolian, debris flow, alluvial, or colluvial deposits with high apparent strength when dry. The dry strength is attributed to salts, clays, silts, and in some cases capillary tension, bonding larger soil grains together. So long as these soils remain dry, their strength and resistance to compression are retained. However, when wetted, the salt, clay, or silt-bonding agent is weakened or dissolved, or capillary tension reduced, eventually leading to collapse. Soils susceptible to this phenomenon are found throughout the southwestern United States. Soils above 60% saturation or soils below the groundwater surface are not susceptible to hydroconsolidation.

Consolidation tests performed on the soil samples in the upper 10 feet, indicates that the potential for hydroconsolidation at the subject site is low. Furthermore, all the samples are wet (degree of saturation above 60%) which indicates the soils are not subject to this phenomenon (El-Ehwany, & Houston, 1990).

SEISMIC INDUCED SETTLEMENT OF DRY SANDS

Dry sands tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. Procedures to evaluate this type of settlement were developed by Seed and Silver (1972) and later modified by Pyke, et. al. (1975). Tokimatsu and Seed (1987) presented a simplified procedure. Clays are not susceptible to seismic induced settlement.

Based on the analysis performed with the above procedure, and because the soils above the water table are primarily clayey soils, the seismic induced settlement of the dry sands above the water table at this site is low to nonexistence.

REGIONAL GEOLOGY

The site lies within the Ventura Foothills in the western portion of the Transverse Ranges geologic province. Numerous east-west trending folds and reverse faults indicative of ongoing north-south transpressional tectonics characterize the region. The property is situated where early Pleistocene to Tertiary aged marine and non-marine sedimentary bedrock units have been folded. The ongoing regional compression has locally resulted in the east-west trending Ventura fault, which is located north of the proposed construction. The project area is located within one of the "Fault Rupture Hazard Zones" that have been specified by the State of California (C.D.M.G. 1972, Revised 1999). No evidence of faulting was found during the field for this report. No landslides are mapped as either on or trending into the site.

Mappings by Dibblee (1988), State of California Department of Conservation, Division of Mines and Geology (DMG, 1975 and 1976), Rockwell (1984), CDMG (Special Studies Zones Map, 1978), and Yerkes, Sarna-Wojcicki, and LaJoie (1987) indicate that the potential faulting is further north, near the south side of Poli Street.

STRATIGRAPHY

The subsurface stratigraphy below the proposed building site is inferred to be alluvial fan deposits based on the current field study and a field study performed for the Holy Cross School on the north side of the proposed construction (Earth Systems Consultants Southern California, 1996). The younger alluvial deposits consist of loose to medium dense silty sand to sandy silt with some interbedded clays.

Mapping by Rockwell (1984) indicates that the site is underlain by alluvial deposits (designated as Qf3) that are estimated to be about 9,000 ±1,300 years.

STRUCTURE

As mentioned above, the site is underlain by some uncertified fill (about 5.5 feet at the Boring No. 1 location) over younger alluvial deposits. Based on the field study of the subject site, the younger alluvial deposits are fairly flat lying with a slight southern gradient approximating the past surface topography that existed before grading for the parking lot. Because of the fairly loose to medium dense nature of the soil deposits inferred by the CPT data, it is assumed that the site is underlain by at least 50 feet of younger alluvial deposits. Bedrock was encountered during the field study (Earth Systems Consultants Southern California, 1996) for the north and adjacent Holy Cross School at a depth of about 50 feet below the ground surface at the south end of the that site. Based on the CPT data, it does not appear that bedrock was encountered at the subject site.

As previously mentioned, the southeastern portion of the site lies within a State of California Special Studies Zone (CDMG, 1996) for fault rupture hazard for the Ventura fault. Fault trenching was not reasonable for this project because of the anticipated depth of younger alluvium. Therefore, the potential for fault rupture hazard for the subject site was evaluated using a relatively closely spaced line of cone penetrometer tests (CPT's) across the site in a north-south direction (i.e. perpendicular to the anticipated trend of the Ventura fault.

No faults were encountered during the field study. No structural setbacks are recommended.

No landslides were observed to be located on or trending into the subject property during the field study, during reviews of the referenced geologic literature, or during review of the aerial photographs taken of the site.

GEOLOGIC HAZARDS

Geologic hazards that are common to the Southern California area include fault rupture, seismic shaking (previously discussed in this report), landslides, rockfalls, tsunami, seiche, and flooding (seismic related and non-seismic related). Below, we will address each of these hazards as they relate to the subject site.

Fault Rupture

The parcel does lies within a State of California designated fault hazard zone. X Therefore, the potential for fault rupture hazard on the subject site is considered low.

Landslides and Rockfall

There are no identified landslides or rockfalls either on or trending into the site; therefore, hazards associated with these phenomena should be considered low.

Seismically Induced Flooding

The potential for earthquake induced flooding (tsunamis, seiche, and reservoir failure) must be considered low because of the site's relative elevation and positioning away from any large upstream reservoirs and the Pacific ocean.

Other Flooding

The site is not located within a 100-year or 500-year flood zone as recognized by Ventura County, (1994).

CONCLUSIONS AND RECOMMENDATIONS

The primary geotechnical concerns at this site are the presence of uncertified fill material and compressible soils within the anticipated influence of the building's foundations. Settlement analysis indicates settlement of the largest spread or column footing with the assumed load of 200 kips could be in excess of 5 inches.

Because of the compressible nature of the site soils, it is recommended that the building be founded on caissons. Appendant lightweight structures and walls can bear on conventional footings. Examples would be garden walls, trash enclosures, lightweight signs, and the like.

The excavation for the subterranean parking will remove most of the uncertified fill. However, to help mitigate concerns about the influence of uncertified fill, it should be removed in its entirety and replaced with engineered fill where necessary in pavement and floor areas. The extent of the removal should be determined in the field by the Geotechnical Engineer or his representative. The uncertified fill, after debris and organics are removed, can be used as engineered fill. As mentioned earlier, the depth of fill appears to be between about 1 to 3-1/2 feet.

Hydroconsolidation, seismic induced settlement of dry sands, and liquefaction potentials are low to non-existent. The following section provides recommendations for grading in general and for appendant structures.

A. <u>Grading</u>

1. <u>General Grading</u>

   a. Grading at a <u>minimum</u> should conform to Chapter 33 of the California Building Code and Ventura City Building Code.

   b. The existing ground surface should be initially prepared for grading by removing all surface and subsurface structures, foundations, pavements, noncomplying fill, vegetation, trees, large roots, debris, and other organic material. Voids created by removal of such material should be properly backfilled and compacted.

   c. The bottom of all excavations should be observed by a representative of this firm prior to processing or placing fill.

   d. Fill and backfill placed at near optimum moisture in layers with loose thickness not greater than 8 inches should be compacted to a minimum of 90% of the maximum dry density obtainable by the ASTM D 1557 test method, unless otherwise recommended or specified. Randomly located compaction tests by ESSC can assist the Grading Contractor in evaluating whether the compaction requirements are being met. However, compaction tests pertain only to specific locations, and do not guarantee that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve California compaction in accordance with the requirements of this report and the grading ordinance.

e. Loss due to clearing is unknown because the quantities of foundations, thickness of pavements and slabs, and the presence of subsurface structures and obstructions to be removed are not all defined. Shrinkage of soils affected by compaction is estimated to be about 15%. Shrinkage from removing foundations and any subsurface structures is not included in these figures.

f. Import soils used to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

g. Roof draining systems should be designed so that water is not discharged into bearing soils or near structures. Final site grade should be such that all water is diverted away from the structures, and is not allowed to pond. A minimum gradient of 2% is recommended for landscaped areas.

h. It is recommended that ESSC be retained to provide Geotechnical Engineering services during the grading and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

i. Plans and specifications should be provided to ESSC prior to grading. Plans should include the grading plans, foundation plans, and foundation details. ESSC will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.

2. Site Grading/Development

a. Because the building is anticipated to be supported by deep foundations, over-excavation and recompaction of soils will, for the most part, be limited to the bearing soils for foundations for auxiliary, lightly loaded structures, such as garden walls, site retaining walls, and signs.

b. Recompaction in the areas of such lightly loaded structures will be necessary to decrease the potential for differential settlement and provide more uniform bearing conditions. Soils should be over-excavated to the deeper depth of 1 foot below the bottoms of footings, or 2 feet below existing grade or until all uncertified fill is removed. For isolated auxiliary structures (garden walls, site retaining walls, signs, etc.) the over-excavation should extend to 3 feet beyond the foundation perimeters. The resulting surfaces should then be scarified an additional 1 foot; moisture conditioned, and recompacted to at least 90% of maximum density. The intent of this recommendation is to provide 2 feet of compacted fill below the bottom of footings. This recommendation does not apply to the subterranean parking slab-on grade.

c. Areas outside of the building area to receive fill, exterior slabs-on-grade, sidewalks or paving should be over-excavated to the deeper depth of 1 foot below existing grade, or until all uncertified fill is removed. The resulting surface should then be scarified an additional 1 foot, moisture conditioned, and recompacted.

d. On-site soils may be used for fill once they are cleaned of all organic material, rock, debris and irreducible material larger than 6 inches. Alternatively, a granular import soil may be used for fill.

e. Pumping soils or otherwise unstable soils are likely to be encountered at over-excavation bottoms. The Contractor should be prepared for these construction difficulties. Because of the high moisture contents, and the probability that excavations will extend below groundwater levels in the deeper areas, drying the exposed soils to achieve stability probably will not be possible. Alternate ways to stabilize excavation bottoms include working thin lifts of 1-1/2-inch (minimum size) float rock into the excavation bottoms until stabilization is achieved, treating the soils with lime, or treating the soils with cement. Use of geotextiles in combination with crushed rock is another possibility. In this method, the bottom of an excavation would be covered with a woven geotextile fabric equivalent to Mirafi 500X, and the fabric covered with crushed rock about 18 inches thick. After the rock has been wheel rolled or track-walked, it should be smoothed, rolled, and then covered with a non-woven filter fabric equivalent to Mirafi 140N before placing fill.

f. Groundwater may be encountered in excavations. The Contractor should be aware of this possibility and be prepared to de-water excavations if groundwater is present.

3. <u>Shoring</u>

a. Because there will be near zero property line construction in conjunction with subterranean construction, shoring will be required.

b. Cantilever shoring can be designed using an equivalent fluid weight of 40 pcf above groundwater. Below groundwater the soil equivalent fluid weight can be reduced to 20 pcf, but hydrostatic pressure of 62.4 psf per foot of depth should be included.

c. With tied back, braced, or strutted shoring systems, the pressure diagram will vary according to the stiffness if the soil. At this site, the soil profile to the depth of anticipated excavations includes both medium stiff and stiff clays. The diagram for medium stiff clays has been selected, which is a triangular pressure diagram in which the pressure on the shoring increases with depth. The pressure on the retaining system above groundwater can be assumed equal to 60H psf where H is the depth below the ground surface. Below groundwater the pressure will increase at a rate of 30 psf/ft., plus the hydrostatic head.

d. In any of the methods used, surcharges should be included.

e. Passive resistance below the base of the excavation can be assumed equal to 300 pcf (no factor of safety included) above groundwater,(if applicable). Below the groundwater, the passive equivalent fluid weight can be assumed equal to 180 pcf (no factor of safety included).

4. Utility Trenches

a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, service lines inside of the property lines may be backfilled with native soils compacted to 90% of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.

b. Laying-back or shoring of trenches may be required due to the potential presence of medium stiff, moist clay soils.

c. If water is present in trenches, backfill should be gravel to 6 inches above the water. If the elevation of a utility does not allow this, water should be pumped from its trench.

d. Jetting of native soils is not recommended.

e. Excavated soils are expected to be at high moisture contents, and drying may be necessary before replacing as compacted backfill.

f. Backfill operations should be tested by the Geotechnical Engineer to monitor compliance with these recommendations.

B. Structural Design

60' CAISSONS

1. Caissons

a. Because of settlement potential of about 5 inches at the more heavily loaded columns and basement walls, supported by conventional spread foundations, and the potential for uplift forces in deeper basement areas, a deep foundation system is recommended for the structure. Figures in Appendix D provide allowable downward and upward caisson capacities versus depth for 2-foot diameter caissons. The data on the graphs were determined by applying the LCPC (French) Method (Bustamante and Gianeselli, 1982) to the CPT tip resistance data. The allowable downward capacities include a factor-of-safety of 2.0 to side resistance. Caissons are designed for friction only. The allowable uplift capacities were taken as two-thirds of the downward side resistance and the graph includes a factor-of-safety of 2.0.

b. Individual piles in groups should be spaced at least three widths apart, measured from center to center.

c. The lateral resistance to individual piles has been determined based on presumed embedment of about 60 feet below the existing ground surface using the computer program LPILEPLUS. The analysis was done for a generalized soil profile, and 24-inch diameter caisson. In the analysis, the pile head was assumed to be free against rotation. Analyses were done for lateral loads of 10, 15, and 20 kips at the pile tops. Graphs of pile deflection, bending moment, and shear as a function of depth are presented in Appendix D. A graph of lateral deflection at the top of piles versus lateral load is also provided. It should be noted that the graphs presented are estimates of the pile response for specific loading and soil conditions and, as such, do not include factors of safety. If necessary, other cases can be analyzed as the project design progresses.

d. Because caissons will be utilizing only skin friction for support, it will not be necessary to thoroughly clean the bottoms of the excavation. However, excessive loose debris and slough must be removed.

e. Groundwater is located about 20 to 25 feet below the existing ground surfaces (based on the water table depth during the drilling), but may be as shallow as 5 to 10 feet below the ground surface. Accordingly, the drilled holes for the caissons will require stabilization. Casings or drilling fluid can be used to support the excavation sidewalls. If casing is used, it will need to be pulled after the concrete is poured.

f. It is recommended that concrete used in the caisson be placed with a slump of 4 to 6 inches in dry excavations and 6 to 8 inches when placed under water. In dry excavations, the concrete can free-fall so long as it is dropped vertically and does not strike the reinforcing cage. In wet excavations, the concrete should be tremied to the bottom of the excavation. In no case should the concrete be allowed to free-fall through water or drilling fluids. The end of the tremie should be kept several feet below the top of the concrete. The concreting should continue until clean concrete is discharged at the top of the caisson. Concreting should begin no more than 4 hours after the hole is completed.

g. Caisson construction should be continuously monitored by the Geotechnical Engineer's representative to verify compliance with the intent of this report.

h. Caisson capacities are based on the strength of the soils. The Structural Engineer in responsible for determining the structural adequacy of the piles.

2. Shallow Foundations for Auxiliary Structures

a. Conventional continuous footings and/or isolated pad footings may be used to support lightly loaded auxiliary structures such as garden walls, site retaining walls, and signs. Footings with a minimum embedment depth of 24 inches should bear into firm recompacted soils, as recommended earlier in this report.

b. Conventional continuous and isolated pad footings may be designed based on an allowable bearing value of 1,000 psf. This is a net bearing value (weight of footing and soil surcharge may be neglected) and is applicable for dead plus live loads. This value is based on a factor of safety of greater than 3.

c. The above bearing value has been limited because of settlement considerations, and should not be increased. However, the bearing value may be increased by one-third when transient loads such as wind and/or seismicity are included.

d. Lateral loads may be resisted by soil friction on floor slabs and foundations, and by passive resistance of the soils acting on foundation stem walls. Lateral capacity is based on the assumption that any required backfill adjacent to foundations and grade beams is properly compacted.

e. Reinforcement and other requirements for conventional footings should at a minimum conform to Table 18-1-DR for the "low" expansion range. It should be noted, however, that these values are minimums, and that other more stringent structural considerations may govern. Actual footing designs, depths, widths and reinforcement should be provided by the Structural Engineer, but should not be less than values given herein.

f. Reinforcement of footings bottomed in soils in the "low" expansion range should be with two No. 4 bars, one at the top and one at the bottom. In addition, bent No. 3 bars on 24-inch centers should extend from within the footings to a minimum of 3 feet into adjacent slabs.

g. Bearing soils in the "low" expansion range should be premoistened to 3% over optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening should be confirmed by testing.

h. Foundation excavations should be observed by a representative of ESSC after excavation, but prior to placing of reinforcing steel or concrete.

3. <u>Slabs-on-Grade</u>

a. Concrete slabs (where applicable) should be supported by compacted structural fill as recommended earlier in this report and in the case of the subterranean floors, a layer of crushed rock when near or below the groundwater.

b. It is recommended that perimeter slabs (walks, patios, etc.) be designed relatively independent of footing stems (i.e., free floating) so foundation adjustment will be less likely to cause cracking.

c. Slabs at or near existing grades should be underlain with a minimum of 4 inches of sand. Areas where floor wetness would be undesirable should be underlain with a plastic vapor retarder to reduce moisture transmission from the subgrade soils to the slab. The membrane should be centered in the sand. The sand should be lightly moistened just prior to placing concrete.

d. Slabs constructed at or near the groundwater should be designed as either pressure relieved or pressure slabs. The choice between these alternatives will depend on project economics and other design consideration. Pressure slabs may be preferable because pressure relieved slabs may require continual discharge of groundwater. Pressure slabs are designed as a structural element to resist the uplift of the groundwater, the slabs and walls are designed to be waterproof, and a blanket of crushed rock and a sump are used on top of the pressure slab to drain away any water that penetrates the slab. A floor slab is constructed over the drain rock.

e. Reinforcement and premoistening data given herein for slabs are the same as those given in Table 18-1-DR for the "low" expansion range. It should be noted, however, that these values are minima, and that other more stringent structural considerations, such as large construction or service loads, or hydrostatic pressure may govern. Actual reinforcement and slab thickness should be determined by the Structural Engineer, but should not be less than values given herein.

f. Slabs bottomed on soils in the "low" expansion range should be reinforced with No. 3 bars on 24-inch centers both ways placed at mid-slab.

g. Soils underlying slabs that are in the "low" expansion range should be premoistened to 3% above optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening of slab areas should be observed and tested by ESSC for compliance with these recommendations prior to placing of sand, reinforcing steel, or concrete.

4. Frictional and Lateral Coefficients

a. Resistance to lateral loading may be provided by friction acting on the base of foundations, grade-beams, and slabs-on-grade. A coefficient of friction of 0.38 may be applied to dead load forces. This value includes a factor of safety of 1.5.

b. Passive resistance acting on the sides of foundation stems equal to 200 pcf of equivalent fluid weight may be included for resistance to lateral load. This value includes a factor of safety of 1.5 and applies to soils above groundwater. When the soils providing passive resistance are below the groundwater, the equivalent fluid weight should be reduced to 135 pcf. This value includes a factor of safety of 1.5. However, when passive resistance is used in conjunction with friction, the coefficient of friction should be reduced by one-third in determining the total lateral resistance.

c. A one-third increase in the quoted passive value may be used when considering transient loads such as wind and seismicity.

5. <u>Settlement Considerations</u>

a. Maximum expected settlements of less than 1/2-inch are anticipated for foundations and floor slabs designed as recommended. Differential settlement between adjacent load bearing members could be about one-half the total settlement.

6. <u>Retaining Walls</u>

a. Conventional cantilever retaining walls backfilled with compacted on-site soils may be designed for active pressures developed from 41 pcf of equivalent fluid weight for well-drained, level backfill conditions. If the retaining walls are backfilled with free draining sand within a 1 to 1 (horizontal to vertical) projection up from the base of the wall footings, an equivalent fluid weight of 32 pcf can be used to determine active earth pressures.

b. For restrained basement retaining walls, an at-rest pressure for soils above the groundwater can be determined using 60 pcf of equivalent fluid weight. For restrained retaining walls supporting on-site soils, an at-rest pressure for soils below the groundwater can be determined using 95 pcf of equivalent fluid weight. For restrained retaining walls backfilled with free draining sand (as described above), an at-rest pressure for soils above the groundwater table may be determined using 52 pcf of equivalent fluid weight, and the at-rest pressure for soils below the groundwater table may be determined using 91 pcf of equivalent fluid weight. All these equivalent fluid weights assume that the backfill is drained except as noted.

c. Earthquakes will cause an increase in the active forces on retaining walls. When a basement is surrounded by soil on all sides at the same elevation the seismic earth pressure on a basement wall is usually small. However, a seismic earth pressure should be included if the basement may act out of phase with the surrounding soil (Lew, et al., undated). The seismic dynamic component can be estimated as $14H^2$ per lineal foot of wall where H is the height of the excavation in feet. The force should be assumed to act at 0.6H above the base of the wall, where H is the wall height in feet. If groundwater is above the base of the wall (the wall is not drained) a hydrodynamic pressure component should be added. Under dynamic conditions a factor-of-safety of 1.1 or 1.2 is appropriate for retaining walls.

d. The pressures listed above were based on the assumption that backfill soils will be compacted to 90% of maximum dry density as determined by the ASTM D 1557 Test Method.

e. The lateral earth pressure to be resisted by the retaining walls or similar structures should be increased to allow for surcharge loads. The surcharge considered should include the loads from any structures or temporary loads that would influence wall design.

f. A backdrain or an equivalent system of backfill drainage should be incorporated into retaining wall design. Backfill immediately behind retaining structures should be a free-draining granular material. Alternately, the backs of walls could be lined with a geodrain system. Waterproofing should be according to the Architect's recommendations.

g. Compaction on the uphill side of walls within a horizontal distance equal to one wall height should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.

h. Water should not be allowed to pond near the tops of walls. To accomplish this, the final backfill surface grade should be such that all water is diverted away from retaining walls.

7. Paving Designs

a. The R-value assumed on a sample of anticipated subgrade soil was 10, and this value is used in the designs that follow.

b. If a Traffic Index of 4.5 is assumed (automobiles and infrequent light trucks), and using the assumed R-Value of 10, paving sections should have a minimum gravel equivalent of 1.3 feet. This can be achieved by using 3 inches of asphalt concrete over 7.5 inches of aggregate base.

c. If a Traffic Index of 5.0 is assumed (based on two trash trucks or similar light trucks per day), and using the assumed R-Value of 10, paving sections should have a minimum gravel equivalent of 1.44 feet. This can be achieved by using 3 inches of asphalt concrete over 9 inches of aggregate base.

d. In the truck traffic areas described above, a PCC paving design would be 6 inches of PCC over 4 inches of aggregate base. The concrete should have a minimum compressive strength of 3,700 psi. Cracks can be controlled by placing contraction joints spaced about 15 feet apart in each direction. Slabs should have aspect ratios of about 1:1. Reinforcing would provide additional crack control. However, contraction joints are still necessary and the steel should be interrupted at the joints.

e. The above paving sections have been designed for the type of traffic indicated. If the pavement is placed before construction on the project is complete, construction loads should be taken into account.

f. Subgrade should be compacted to a minimum of 90% of maximum density to a depth of 12 inches. The subgrade should be firm and unyielding. Aggregate base should be compacted to a minimum of 95% maximum density and should be firm and unyielding prior to placing concrete.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by ESSC during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

1. Review of the building and grading plans during the design phase of the project.
2. Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
3. Consultation as required during construction.
4. Special Inspection as necessary.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analysis and recommendations submitted in this report are based in part upon the data obtained from the boring and CPT soundings on the site. The nature and extent of variations between and beyond the boring and soundings may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are due to natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structure and other improvements are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, ESSC has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client and their authorized agents.

It is recommended that ESSC be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If ESSC is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations contained herein.

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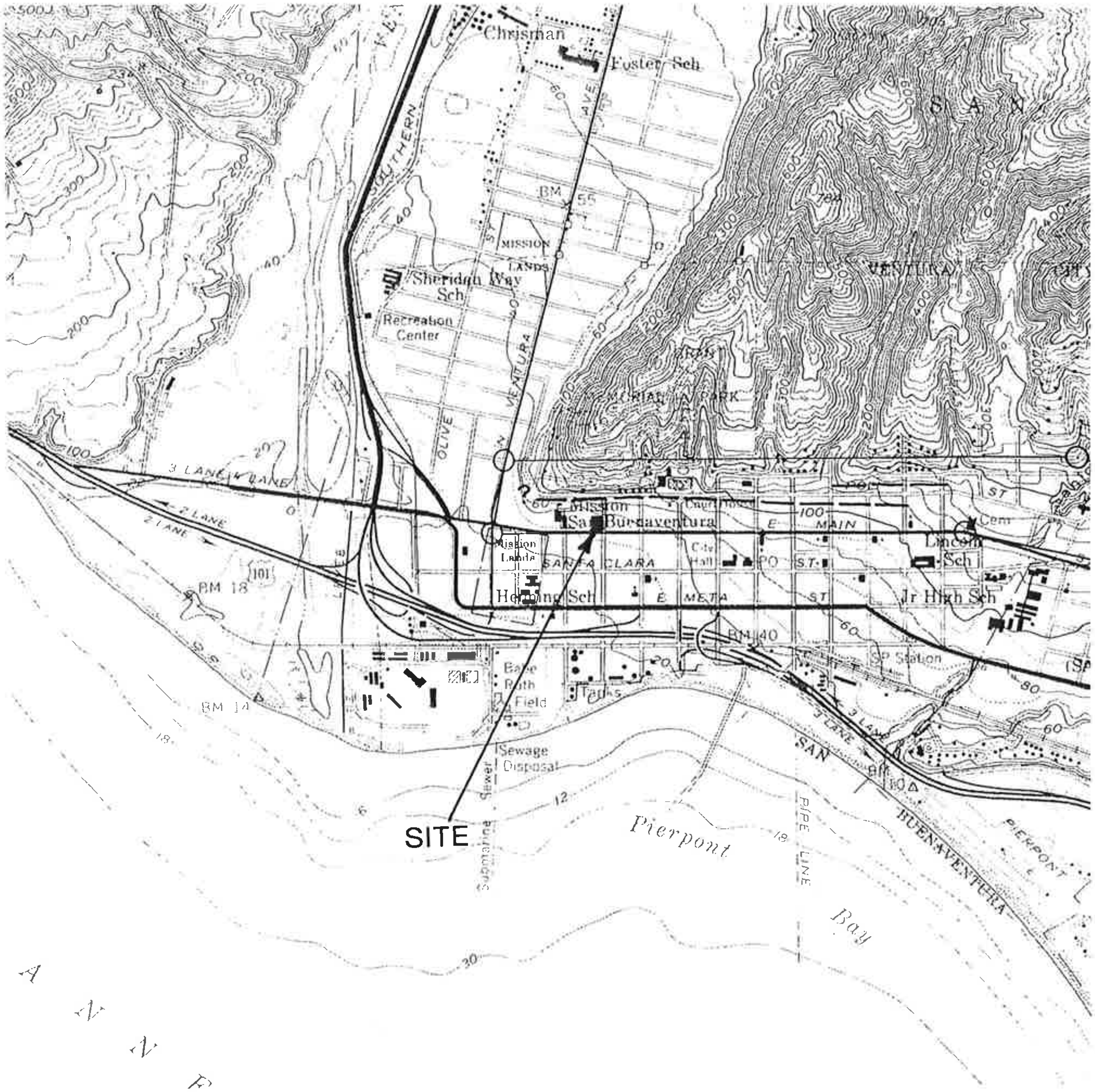
APPENDIX A

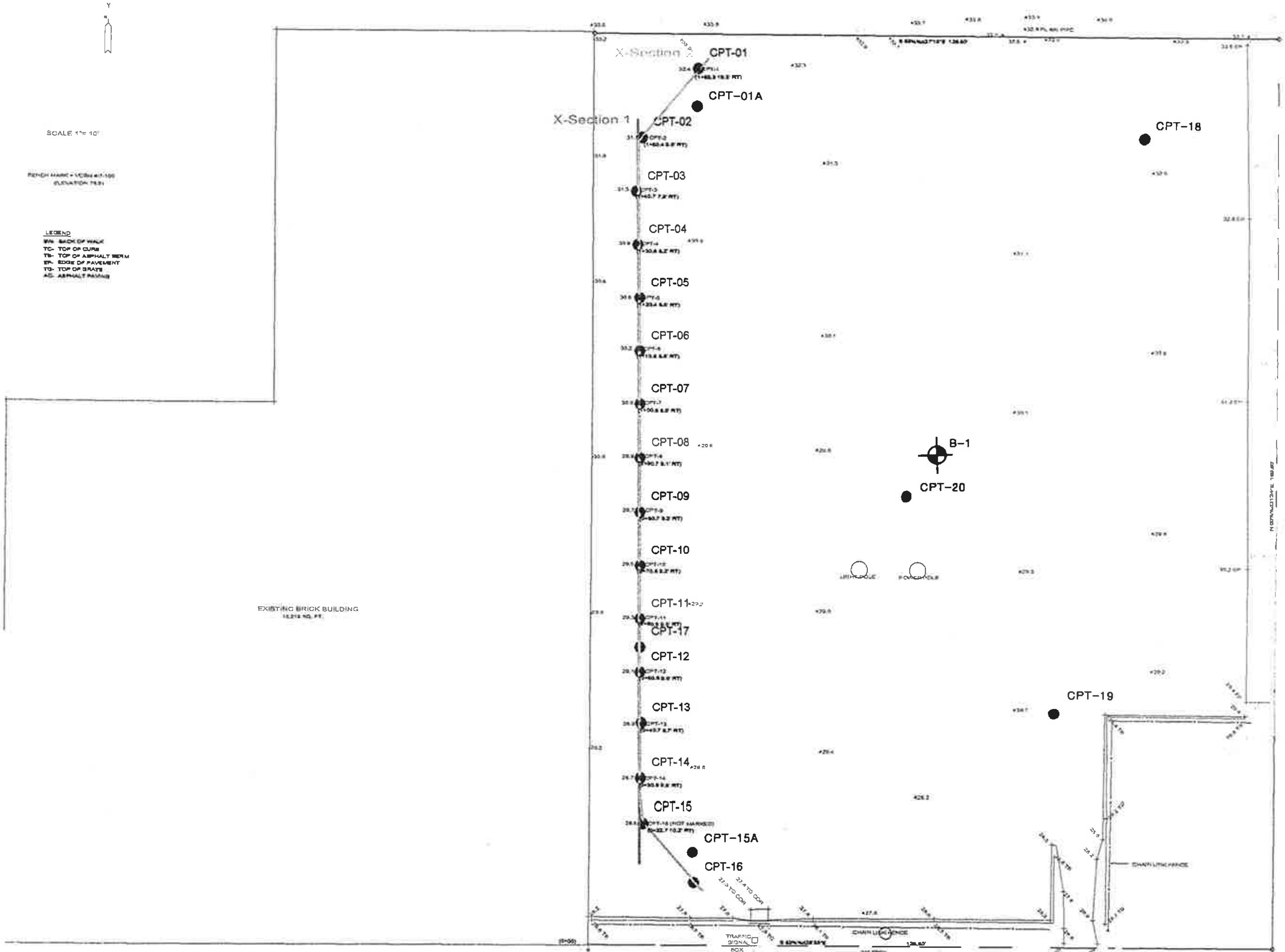


SCALE: 1"=2,000'

NORTH

*Taken from U.S.G.S. 7.5' Ventura Quadrangle, 1951 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA 1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	**VICINITY MAP** NWC Palm Street and Main Street Ventura, California VT-23104-01 Sep-04

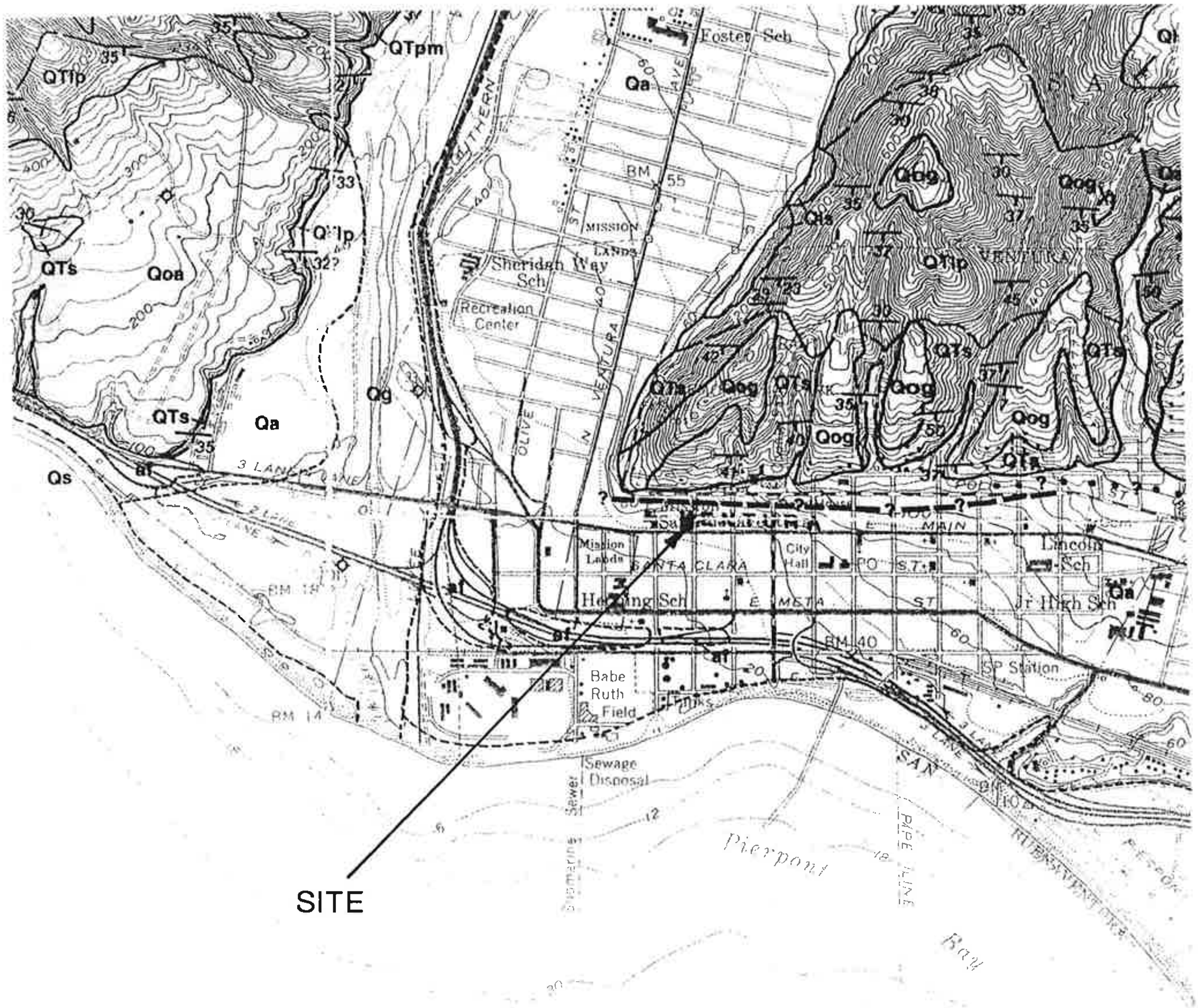


SITE PLAN

EARTH SYSTEMS SOUTHERN CALIFORNIA

VT-23104-01 SEPTEMBER 2004

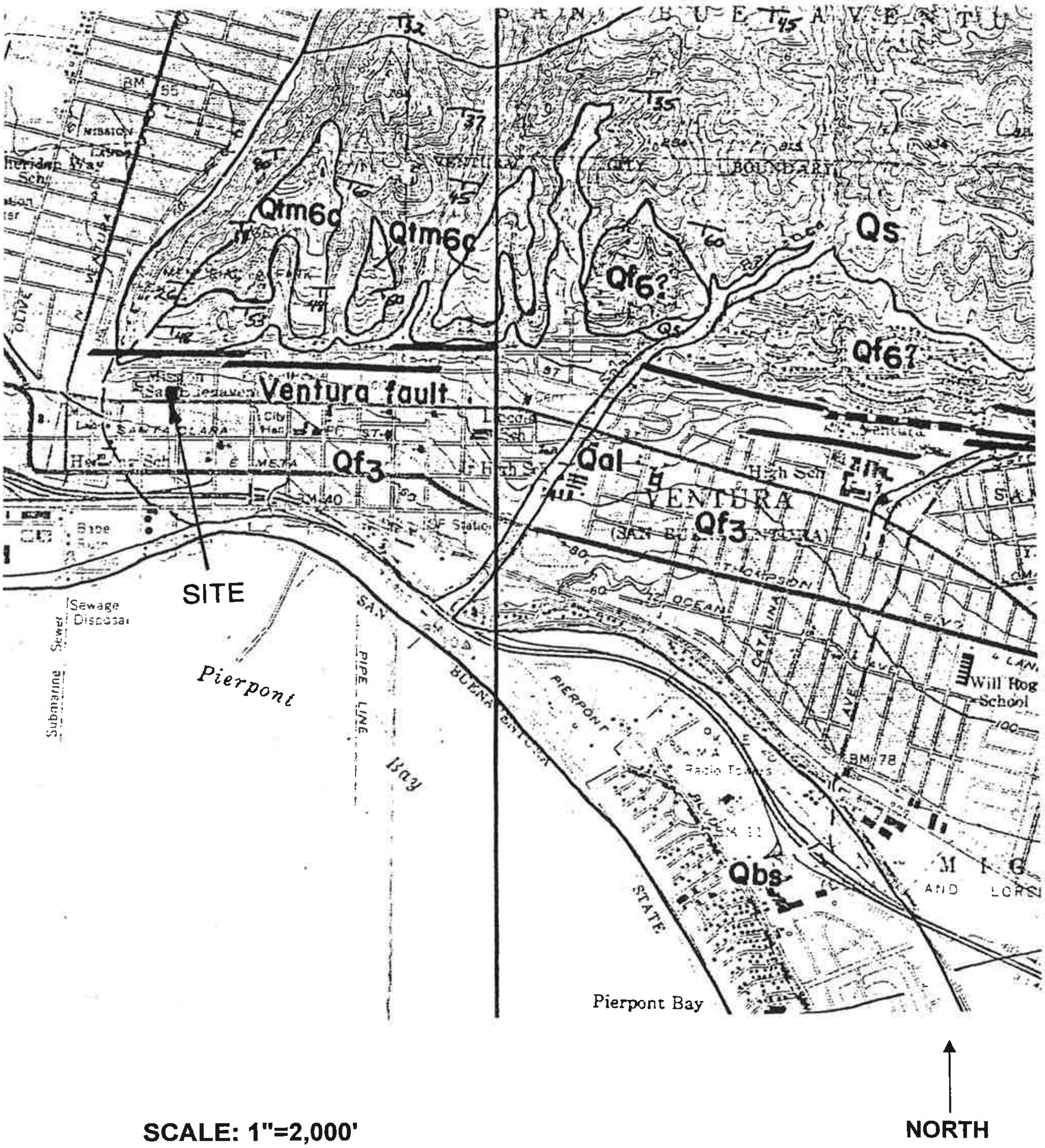
Gregg Insitu. Job Number 04-051SH	
Earth Systems	
Date: March 23, 2003	Units: Meters
Gregg Insitu.	Figure: Base Map



SCALE: 1"=2,000'

*Taken from Geologic Map of the Ventura and Pitas Point Quadrangles, Thomas W. Dibblee, 1988

EARTH SYSTEMS SOUTHERN CALIFORNIA	**REGIONAL GEOLOGY MAP 1** NWC Palm Street and Main Street Ventura, California
1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	VT-23104-01 Sep-04



SCALE: 1"=2,000'

*Taken from Tectonic Geomophology and Earthquake Hazard, North Flank, Central Ventura Basin, California, Keller, Johnson, Clark, Rockwell, USGS OFR 81-376, 1984

EARTH SYSTEMS SOUTHERN CALIFORNIA	REGIONAL GEOLOGY MAP 2 NWC Palm Street and Main Street Ventura, California
1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	VT-23104-01 Sep-04

SCALE: 1"=2,000'

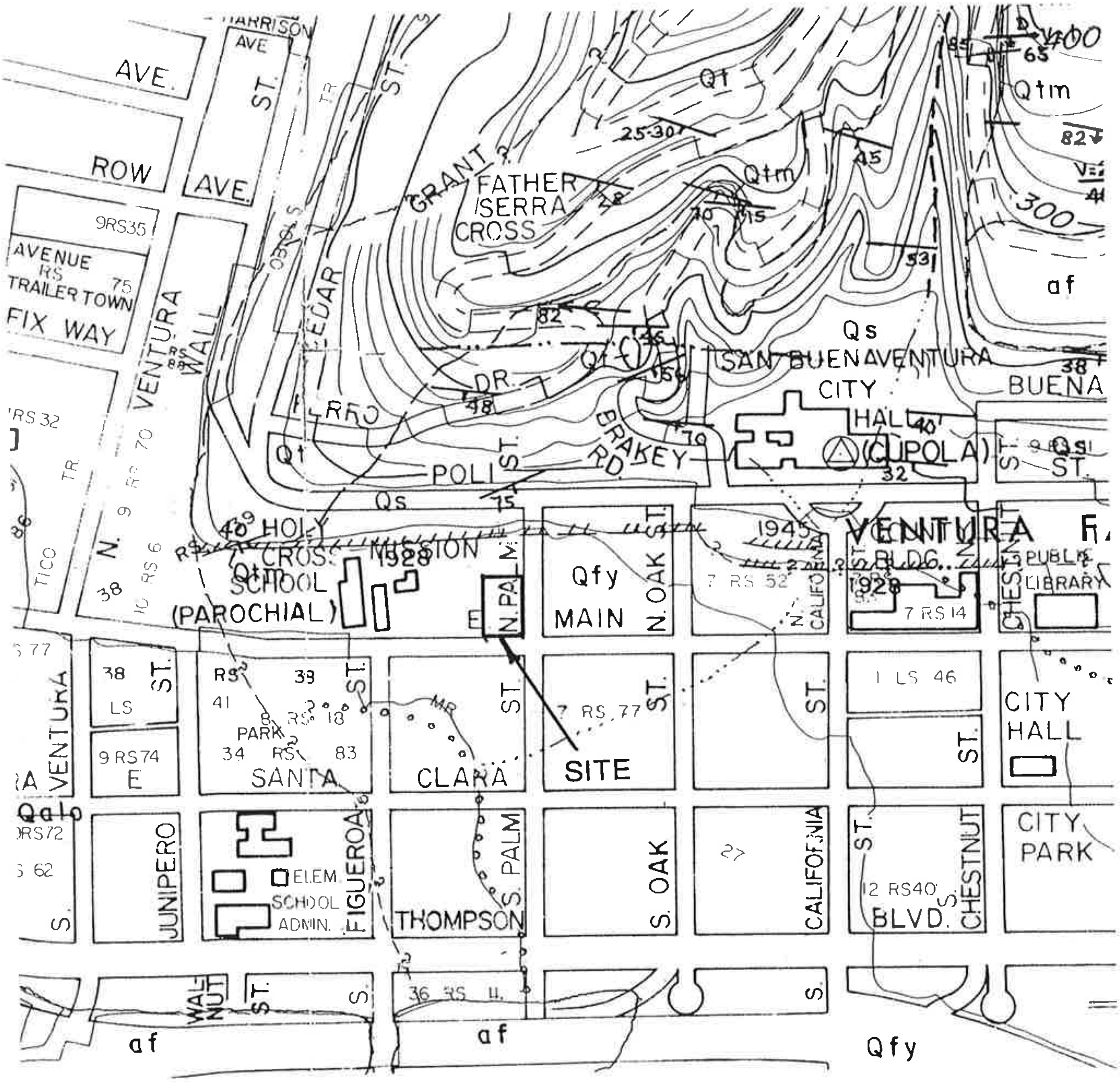
*Taken from U.S.G.S. 7.5' Ventura Quadrangle, 1951 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA
1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

REGIONAL GEOLOGY MAP 3
NWC Palm Street and Main Street
Ventura, California

VT-23104-01

Sep-04



SCALE: 1"=2,000'

NORTH

*Taken from Geology of the Ventura Fault, Sarna Wojcicki and Others, USGS Map MF-781, 1976

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REGIONAL GEOLOGY MAP 4
NWC Palm Street and Main Street
Ventura, California

VT-23104-01

Sep-04

FIELD INVESTIGATION

A. One boring was drilled to a maximum depth of 50.5 feet below the existing ground surface to observe the soil profile and to obtain samples for laboratory analysis. The boring was drilled on July 13, 2004, using a 6-inch outside diameter hollow stem auger powered by a Mobile Drill B-80 truck mounted drilling rig. The approximate location of the boring was determined in the field by pacing and sighting, and is shown on the Site Plan in this Appendix.

B. Twenty cone penetration test soundings (CPT's) were made to a depth of 70 feet below the existing ground surface on February 16 and 17, and on July, 16, 2004. The CPT's were conducted in general accordance with the current ASTM specifications (D 5778 and D 3441) using an electrical cone penetrometer. The cone penetrometer assembly consisted of a conical tip and a friction sleeve. The conical tip had a 60-degree apex angle and a diameter of 1.4 inches. The friction sleeve was 5.25 inches long and 1.4 inches in diameter. The CPT's consisted of pushing an instrumented cone-tipped probe into the ground while simultaneously recording the resistance to penetration at the cone tip and along the friction sleeve. The approximate location of the CPT's were determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix. The CPT logs and their interpretation are presented in this Appendix.

C. Samples were obtained within the test borings with a Modified California (MC) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586). The MC sampler has a 3-inch outside diameter and a 2.37-inch inside diameter. Samples from below groundwater were taken with a Standard Penetration Test split spoon sampler with a 2-inch outside diameter and 1.63-inch inside diameter. The samples were obtained by driving the samplers with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. A downhole hammer was used and it was lifted and dropped with a power reversing hydraulic winch.

D. Bulk samples of shallow soils were gathered from the auger cuttings.

E. The final log of the boring and CPT's represent our interpretation of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface investigation. The final logs are included in this Appendix.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1	DRILLING DATE: July 13, 2004
PROJECT NAME: NWC of Palm & Main	DRILL RIG: Mobile B-80
PROJECT NUMBER: VT-23104-01	DRILLING METHOD: 6" Hollow Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0									SURFACE: Asphalt over Base.
	X		■	9/6/7		ML	99.9	20.5	**ARTIFICIAL FILL:** Fine to coarse sandy clayey SILT with fine gravel, trace small pieces of brick, moist, stiff, dark brown to moderate brown.
5	X		■	4/7/11		ML	102.1	18.5	**ARTIFICIAL FILL:** Fine sandy SILT, trace clay, moist, stiff, mottled olive brown to pale brown to moderate yellowish brown to orangish brown.
			■	3/4/6		CL	92.5	28.7	**ALLUVIUM:** Silty CLAY with fine sand, low plasticity, moist, medium stiff, dark brown to light olive. HYDRO: 43.9% clay, 27.1% silt, 29.0% sand, 0% gravel.
10			■	8/10/12		CL	104.6	22.1	**ALLUVIUM:** CLAY with silt and fine sand, medium plasticity, trace odor of gasoline, moist, very stiff, black to dark gray. HYDRO: 42.5% clay, 27.4% silt, 30.1% sand, 0% gravel.
15			◪	5/8/8		CL	--	--	**ALLUVIUM:** Silty CLAY, low plasticity, very moist, stiff, light olive. HYDRO: 52.6% clay, 13.4% silt, 34.0% sand, 0% gravel.
20		◧		3/5/7		CL	--	--	**ALLUVIUM:** CLAY with silt and fine sand, low to medium plasticity, moist, stiff, slight orangish brown to light olive. HYDRO: 41.1% clay, 28.0% silt, 30.9% sand, 0% gravel. ▼
25		◧		3/5/6		CH	--	--	**ALLUVIIUM:** CLAY with fine sand and silt, medium to high plasticity, wet, stiff, light olive to moderate olive, some gray. HYDRO: 42.8% clay, 26.0% silt, 31.2% sand, 0% gravel.
30		◧		3/5/7		CL	--	--	**ALLUVIUM:** CLAY with fine sand and silt, low to medium plasticity, wet, stiff, dark olive to moderate olive. HYDRO: 44.7% clay, 23.9% silt, 31.4% sand, 0% gravel.
35		◧		4/6/6		CH	--	--	**ALLUVIUM:** CLAY with silt and fine sand, medium to high plasticity, wet, stiff, dark olive to gray. HYDRO: 55.1% clay, 23.4% silt, 21.5% sand, 0% gravel.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1	DRILLING DATE: July 13, 2004
PROJECT NAME: NWC of Main St. and Poli St.	DRILL RIG: Mobile B-80
PROJECT NUMBER: VT-23104-01	DRILLING METHOD: 6" Hollow Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
40		■		4/6/8		CL	--	--	**ALLUVIUM:** Silty fine sandy CLAY, low plasticity, wet, stiff, dark olive. HYDRO: 23.5% clay, 38.3% silt, 38.2% sand, 0% gravel.
45		■		6/10/14		SM	--	--	**ALLUVIUM:** Clayey silty fine SAND, wet, very stiff, dark olive. HYDRO: 23.9% clay, 30.9% silt, 45.1% sand, 0.1% gravel.
50		■		13/18/25		SM	--	--	**ALLUVIUM:** Silty fine to medium SAND, some clay, wet, dense, moderate olive. HYDRO: 8.3% clay, 34.1% silt, 57.6% sand, 0% gravel.
55									Final Depth: 51.5 feet Groundwater was encountered around 23.5 feet.
60									
65									
70									
75									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Modified California Split Barrel Sampler

Modified California Split Barrel Sampler - No Recovery

Standard Penetration Test (SPT) Sampler

Standard Penetration Test (SPT) Sampler - No Recovery

Perched Water Level

Water Level First Encountered

Water Level After Drilling

Pocket Penetrometer (tsf)

Vane Shear (ksf)

1. The approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between statigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.

Earth Systems So. Calif.

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Symbols Commonly Used on Boring Logs

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				S P	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SAND WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				S C	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				C L	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				O L	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				O H	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				P T	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

Earth Systems So. Calif.

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PH: (805) 642-6727 FAX: (805) 642-1325

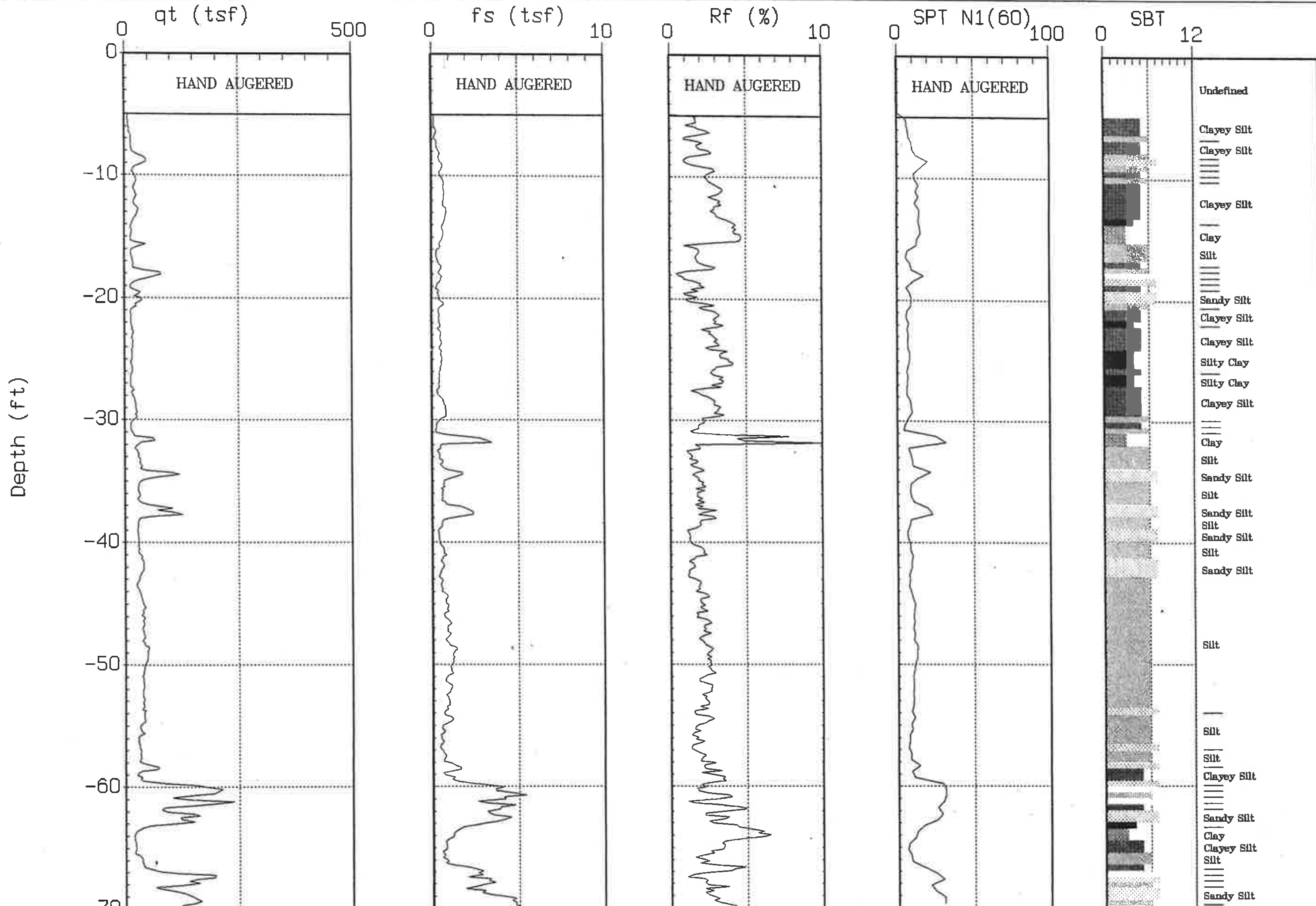
Unified Soil Classification System (USCS)

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-01

Engineer: T. TRANBY
Date: 02:16:04 08:28



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — **Project No:** VT-23104-01 — **Date:** 09/02/04

CPT SOUNDING: CPT-1 — Plot: 1 — Density: 1 — SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** — Dr correlation: 0 — Baldi — Qc/N: 1 — Robertson — Phi Correlation: 4 — SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.014	0.014	0.10	0.99	1.70	1.6	3.27		1				0.06	21.5
0.30	1.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.041	0.041	0.10	1.00	1.70	1.6	3.27		1				0.06	7.0
0.46	1.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.069	0.069	0.11	1.00	1.70	1.6	3.27		1				0.05	4.1
0.61	2.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.096	0.096	0.11	1.00	1.70	1.6	3.27		1				0.05	2.8
0.76	2.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.124	0.124	0.11	1.00	1.70	1.6	3.28		1				0.05	2.1
0.91	3.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.151	0.151	0.12	1.00	1.70	1.6	3.28		1				0.05	1.7
1.07	3.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.179	0.179	0.12	1.00	1.70	1.6	3.28		1				0.05	1.4
1.22	4.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.206	0.206	0.13	1.00	1.70	1.6	3.28		1				0.05	1.2
1.37	4.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.234	0.234	0.13	1.00	1.70	1.6	3.28		1				0.05	1.0
1.52	5.0	3.00	0.64	Sensitive fine grained	ML	soft	110	2.0	2	0.261	0.261	0.70	0.91	1.70	4.8	2.98		2				0.16	3.1
1.68	5.5	6.94	1.53	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	3	0.289	0.289	1.60	0.86	1.70	11.1	2.81		3				0.39	6.9
1.83	6.0	8.31	1.98	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.316	0.316	2.06	0.85	1.70	13.4	2.80		4				0.47	7.6
1.98	6.5	11.34	1.86	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.344	0.344	1.92	0.81	1.70	18.2	2.67		6				0.65	9.6
2.13	7.0	12.93	1.56	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.371	0.371	1.60	0.79	1.70	20.8	2.58	66.8	11	13	12	30		
2.29	7.5	13.54	1.82	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.399	0.399	1.88	0.79	1.70	21.8	2.60		7				0.77	9.9
2.44	8.0	17.04	2.45	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.426	0.426	2.51	0.79	1.70	27.4	2.60	91.0	13	18	23	31		
2.59	8.5	39.47	1.01	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.454	0.454	1.02	0.63	1.70	63.4	2.07	89.2	20	18	58	33		
2.74	9.0	38.93	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.481	0.481	1.56	0.67	1.69	62.2	2.19	102.5	19	21	57	33		
2.90	9.5	17.64	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.509	0.509	2.89	0.80	1.70	28.3	2.63		9				1.01	10.1
3.05	10.0	20.66	2.39	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.536	0.536	2.45	0.77	1.69	33.0	2.53	96.4	14	19	31	31		
3.20	10.5	23.85	2.74	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.564	0.564	2.81	0.77	1.62	36.6	2.53	107.8	16	22	35	32		
3.35	11.0	19.78	3.36	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.591	0.591	3.46	0.81	1.60	29.9	2.66		10				1.13	9.7
3.51	11.5	23.28	2.99	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.619	0.619	3.07	0.79	1.53	33.6	2.59	109.1	15	22	32	32		
3.66	12.0	21.00	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.646	0.646	3.26	0.81	1.49	29.5	2.65		11				1.20	9.5
3.81	12.5	22.67	3.08	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.674	0.674	3.18	0.80	1.43	30.7	2.63		11				1.29	9.8
3.96	13.0	28.07	2.90	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.701	0.701	2.98	0.78	1.38	36.5	2.55	111.0	17	22	35	32		
4.11	13.5	21.97	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.729	0.729	3.63	0.82	1.36	28.2	2.69		11				1.25	8.7
4.27	14.0	15.27	4.21	Clay	CL/CH	stiff	110	1.0	15	0.756	0.756	4.43	0.87	1.34	19.4	2.87		15				0.85	5.8
4.42	14.5	14.25	4.26	Clay	CL/CH	stiff	110	1.0	14	0.784	0.784	4.51	0.89	1.30	17.6	2.91		14				0.79	5.2
4.57	15.0	13.38	4.68	Clay	CL/CH	stiff	110	1.0	13	0.811	0.811	4.98	0.90	1.27	16.1	2.97		13				0.74	4.6
4.72	15.5	24.57	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.839	0.839	2.86	0.80	1.20	28.0	2.63		12				1.40	8.5
4.88	16.0	20.46	1.80	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.866	0.866	1.88	0.79	1.17	22.6	2.59	73.9	9	15	15	30		
5.03	16.5	14.16	1.77	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.894	0.894	1.88	0.83	1.15	15.4	2.73		7				0.78	4.5
5.18	17.0	16.92	2.08	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.921	0.921	2.20	0.83	1.12	17.9	2.71		8				0.94	5.2
5.33	17.5	24.12	2.36	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	10	0.949	0.949	2.45	0.80	1.09	24.9	2.63		10				1.36	7.3
5.49	18.0	74.46	0.62	Sand to Silty Sand	SP/SM	medium dense	100	4.0	19	0.975	0.975	0.63	0.58	1.05	73.8	1.90	87.6	19	18	64	33		
5.64	18.5	34.74	1.49	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	1.001	1.001	1.53	0.73	1.04	34.2	2.39	77.9	12	16	32	31		
5.79	19.0	12.79	1.91	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	1.029	1.029	2.08	0.87	1.02	12.4	2.83		6				0.69	3.4
5.94	19.5	27.91	1.31	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	1.056	1.056	1.36	0.75	1.00	26.4	2.45	67.3	11	13	22	30		
6.10	20.0	31.01	1.38	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	10	1.085	1.085	1.43	0.74	0.98	28.8	2.44	70.9	10	14	25	30		
6.25	20.5	25.46	2.36	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.115	1.115	2.46	0.81	0.96	23.1	2.65		10				1.43	6.6
6.40	21.0	14.09	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.145	1.145	2.98	0.89	0.93	12.4	2.92		7				0.76	3.4
6.55	21.5	13.31	3.08	Silty Clay to Clay	CL	stiff	120	1.5	9	1.175	1.175	3.38	0.91	0.91	11.4	2.98		9				0.71	3.1
6.71	22.0	13.04	3.17	Silty Clay to Clay	CL	stiff	120	1.5	9	1.205	1.205	3.49	0.92	0.89	10.9	3.00		9				0.70	2.9
6.86	22.5	15.42	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.235	1.235	2.84	0.89	0.87	12.7	2.90		8				0.83	3.4
7.01	23.0	17.48	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.265	1.265	2.97	0.88	0.85	14.1	2.87		9				0.95	3.8
7.16	23.5	16.39	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.295	1.279	3.29	0.89	0.84	13.1	2.93		8				0.89	3.5
7.32	24.0	16.57	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.325	1.294	2.98	0.89	0.84	13.1	2.90		8				0.90	3.5
7.47	24.5	14.79	3.50	Silty Clay to Clay	CL	stiff	120	1.5	10	1.355	1.308	3.85	0.92	0.82	11.5	3.01		10				0.79	3.1
7.62	25.0	14.93	3.72	Silty Clay to Clay	CL	stiff	120	1.5	10	1.385	1.323	4.10	0.93	0.81	11.5	3.03		10				0.80	3.1
7.77	25.5	13.98	3.80	Silty Clay to Clay	CL	stiff	120	1.5	9	1.415	1.337	4.23	0.94	0.80	10.6	3.06		9				0.74	2.8
7.92	26.0	15.86	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.445	1.351	3.10	0.90	0.80	12.0	2.94		8				0.85	3.2
8.08	26.5	12.37	3.33	Silty Clay to Clay	CL	stiff	120	1.5	8	1.475	1.366	3.78	0.95	0.79	9.2	3.08		8				0.65	2.4
8.23	27.0	12.39	3.23	Silty Clay to Clay	CL	stiff	120	1.5	8	1.505	1.380	3.68	0.94	0.78	9.1	3.08		8				0.65	2.4
8.38	27.5	16.70	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.535	1.395	1.96	0.86	0.79	12.4	2.82		7				0.90	3.3
8.53	28.0	17.66	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.565	1.409	2.71	0.88	0.78	13.0	2.88		9				0.96	3.4
8.69	28.5	22.32	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.595	1.423	3.17	0.87	0.77	16.3	2.84		11				1.23	4.4
8.84	29.0	23.76	3.24	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.625	1.438	3.48	0.87	0.77	17.2	2.85		12				1.31	4.6
8.99	29.5	25.02	3.18	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.655	1.452	3.40	0.86	0.76	18.0	2.82		13				1.39	4.8
9.14	30.0	19.43	2.21	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.685	1.467	2.42	0.86	0.75	13.8	2.83		10				1.06	3.6
9.30	30.5	11.98	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.715	1.481	2.24	0.92	0.73	8.3	3.00		6				0.62	2.1
9.45	31.0	14.74	2.21	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.745	1.495	2.50	0.90	0.73	10.2	2.95		7				0.78	2.6
9.60	31.5	48.82	5.83	Clay	CL/CH	hard	120	1.0	49	1.775	1.510	6.05	0.85	0.74	34.1	2.79		49				2.78	9.3
9.75	32.0	28.93	4.62	Silty Clay to Clay	CL	very stiff	120	1.5	19	1.805	1.524	4.93	0.88	0.72	19.8	2.89		19				1.61	5.3
9.91	32.5	24.31	1.45	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.835	1.539	1.56	0.81	0.74	17.0	2.65		10				1.34	4.4
10.06	33.0	29.11	1.40	Sandy Silt to Clayey Silt	ML	loose	120	2.5	12	1.865	1.553	1.50	0.79	0.74	20.4	2.57	64.3	9	13	11	30		
10.21	33.5	32.22	1.66	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	13	1.895	1.567	1.76	0.79	0.73	22.3	2.58	71.4	10	14	15	30		
10.36	34.0	37.71	1.96	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.925	1.582	2.06	0.78	0.73	26.0	2.56	81.1	12	16	21	31		
10.52	34.5	99.72	1.63	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	33	1.955	1.596	1.66	0.66	0.76	71.9	2.16	113.5	26	23	63	35		
10.67	35.0	39.51	1.99	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	16	1.985	1.611	2.09	0.78	0.72	26.9	2.56	82.6	12	17	22	31		
10.82	35.5	28.33	2.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.015	1.625	2.23	0.82	0.70	18.8	2.70		11				1.57	4.9

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

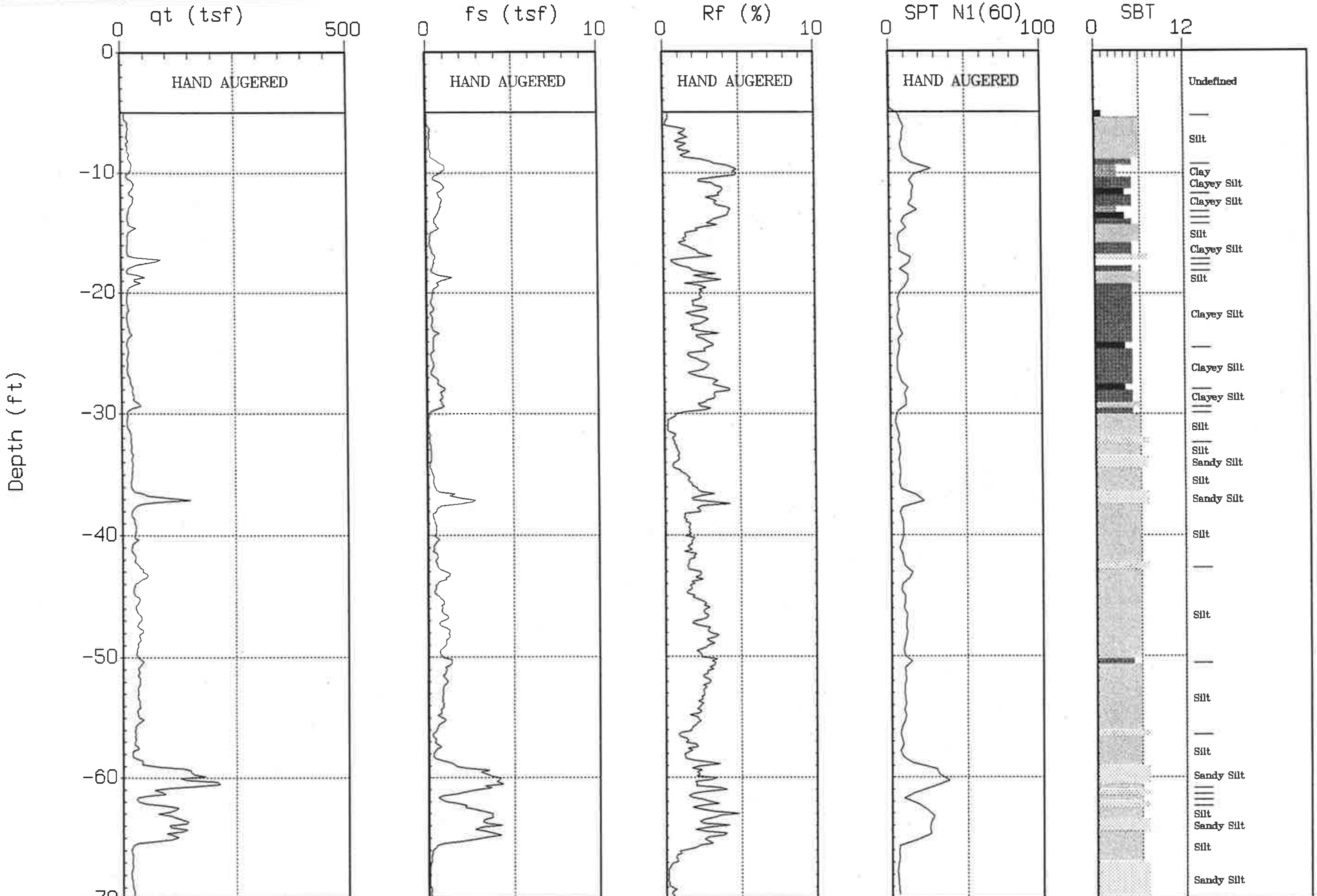
Est. GWT (feet): **23.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	29.05	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.045	1.639	2.15	0.82	0.70	19.2	2.68		12				1.61	4.9
11.13	36.5	28.95	2.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.075	1.654	2.20	0.82	0.69	19.0	2.69		12				1.61	4.9
11.28	37.0	75.11	1.88	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	25	2.105	1.668	1.93	0.71	0.73	51.5	2.31	102.8	19	21	49	33		
11.43	37.5	100.12	2.39	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	33	2.135	1.683	2.45	0.70	0.72	68.5	2.29	131.9	26	26	61	35		
11.58	38.0	41.26	2.58	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.165	1.697	2.73	0.80	0.68	26.7	2.63		17				2.33	6.9
11.73	38.5	27.47	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.195	1.711	2.12	0.83	0.67	17.4	2.71		11				1.52	4.4
11.89	39.0	25.89	1.33	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.225	1.726	1.45	0.81	0.67	16.5	2.64		10				1.42	4.1
12.04	39.5	26.79	1.29	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.255	1.740	1.41	0.80	0.67	17.0	2.63		11				1.47	4.2
12.19	40.0	28.31	1.40	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.285	1.755	1.53	0.80	0.67	17.8	2.63		11				1.56	4.4
12.34	40.5	28.27	2.13	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.315	1.769	2.32	0.84	0.65	17.4	2.74		11				1.56	4.4
12.50	41.0	32.24	2.10	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.345	1.783	2.27	0.82	0.65	19.9	2.68		13				1.79	5.0
12.65	41.5	36.82	1.44	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.375	1.798	1.53	0.77	0.66	23.1	2.53	67.9	9	14	16	30		
12.80	42.0	38.58	1.53	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	13	2.405	1.812	1.63	0.77	0.66	24.0	2.53	70.7	10	14	18	30		
12.95	42.5	34.54	1.21	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.435	1.827	1.30	0.77	0.66	21.4	2.52	61.6	9	12	13	29		
13.11	43.0	29.26	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.465	1.841	1.76	0.81	0.64	17.6	2.66		12				1.61	4.4
13.26	43.5	24.50	1.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.495	1.855	2.20	0.85	0.62	14.3	2.79		10				1.33	3.6
13.41	44.0	29.94	1.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.525	1.870	2.09	0.83	0.62	17.7	2.70		12				1.65	4.4
13.56	44.5	33.95	2.34	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.555	1.884	2.53	0.83	0.62	19.9	2.71		14				1.89	5.0
13.72	45.0	37.45	2.11	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.585	1.899	2.27	0.81	0.62	22.1	2.65		15				2.09	5.5
13.87	45.5	39.14	2.20	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.615	1.913	2.36	0.81	0.62	22.9	2.64		16				2.19	5.7
14.02	46.0	37.54	1.76	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.645	1.927	1.89	0.79	0.62	22.0	2.60		15				2.10	5.4
14.17	46.5	37.90	2.54	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.675	1.942	2.73	0.82	0.61	21.7	2.70		15				2.11	5.4
14.33	47.0	37.12	2.26	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.705	1.956	2.43	0.82	0.60	21.2	2.68		15				2.07	5.3
14.48	47.5	39.27	2.34	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.735	1.971	2.51	0.81	0.60	22.4	2.67		16				2.19	5.6
14.63	48.0	38.22	2.06	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.765	1.985	2.22	0.81	0.60	21.7	2.65		15				2.13	5.4
14.78	48.5	46.93	2.58	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.795	1.999	2.74	0.80	0.60	26.6	2.63		19				2.64	6.6
14.94	49.0	46.66	2.51	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.825	2.014	2.68	0.80	0.60	26.3	2.63		19				2.63	6.5
15.09	49.5	45.50	2.59	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.855	2.028	2.76	0.81	0.59	25.4	2.65		18				2.56	6.3
15.24	50.0	40.45	2.60	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.885	2.043	2.80	0.82	0.58	22.2	2.70		16				2.26	5.5

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-02

Engineer: T. TRANBY
Date: 02:16:04 09:05



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-2 Plot: 2 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.014	0.014	0.10	0.99	1.70	1.6	3.27		1				0.06	21.5
0.30	1.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.041	0.041	0.10	1.00	1.70	1.6	3.27		1				0.06	7.0
0.46	1.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.069	0.069	0.11	1.00	1.70	1.6	3.27		1				0.05	4.1
0.61	2.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.096	0.096	0.11	1.00	1.70	1.6	3.27		1				0.05	2.8
0.76	2.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.124	0.124	0.11	1.00	1.70	1.6	3.28		1				0.05	2.1
0.91	3.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.151	0.151	0.12	1.00	1.70	1.6	3.28		1				0.05	1.7
1.07	3.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.179	0.179	0.12	1.00	1.70	1.6	3.28		1				0.05	1.4
1.22	4.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.206	0.206	0.13	1.00	1.70	1.6	3.28		1				0.05	1.2
1.37	4.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.234	0.234	0.13	1.00	1.70	1.6	3.28		1				0.05	1.0
1.52	5.0	3.00	0.16	Sensitive fine grained	ML	soft	110	2.0	2	0.261	0.261	0.18	0.87	1.70	4.8	2.83		2				0.16	3.1
1.68	5.5	8.31	0.25	Sensitive fine grained	ML	loose	110	2.0	4	0.289	0.289	0.26	0.74	1.70	13.3	2.43	13.3	7	3	-7	29		
1.83	6.0	14.81	0.39	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.316	0.316	0.40	0.68	1.70	23.8	2.25	23.8	10	5	17	30		
1.98	6.5	14.60	1.27	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.344	0.344	1.30	0.76	1.70	23.5	2.49	63.5	10	13	17	30		
2.13	7.0	12.69	1.33	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.371	0.371	1.37	0.78	1.70	20.4	2.55	62.0	8	12	11	29		
2.29	7.5	13.70	1.18	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.399	0.399	1.22	0.76	1.70	22.0	2.50	60.5	9	12	14	30		
2.44	8.0	14.19	1.24	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.426	0.426	1.28	0.76	1.70	22.8	2.49	62.4	9	12	15	30		
2.59	8.5	16.71	1.35	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.454	0.454	1.39	0.75	1.70	26.8	2.45	68.3	10	14	22	30		
2.74	9.0	19.44	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.481	0.481	3.11	0.79	1.70	31.2	2.61		10				1.12	11.8
2.90	9.5	22.52	4.54	Clay	CL/CH	very stiff	110	1.0	23	0.509	0.509	4.65	0.82	1.70	36.2	2.69		23				1.29	13.0
3.05	10.0	16.19	4.73	Clay	CL/CH	stiff	110	1.0	16	0.536	0.536	4.89	0.85	1.70	26.0	2.81		16				0.92	8.8
3.20	10.5	16.43	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.564	0.564	2.79	0.81	1.66	25.8	2.65		8				0.93	8.4
3.35	11.0	26.58	3.48	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.591	0.591	3.56	0.78	1.58	39.6	2.58	126.5	17	25	38	32		
3.51	11.5	21.37	3.79	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.619	0.619	3.90	0.82	1.55	31.3	2.68		14				1.22	10.1
3.66	12.0	23.61	3.24	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.646	0.646	3.33	0.80	1.48	33.0	2.62		12				1.35	10.7
3.81	12.5	24.40	3.47	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.674	0.674	3.57	0.80	1.44	33.1	2.64		12				1.40	10.6
3.96	13.0	17.70	4.32	Clay	CL/CH	stiff	110	1.0	18	0.701	0.701	4.50	0.85	1.42	23.8	2.81		18				1.00	7.3
4.11	13.5	14.57	4.13	Clay	CL/CH	stiff	110	1.0	15	0.729	0.729	4.35	0.87	1.39	19.1	2.87		15				0.81	5.7
4.27	14.0	13.98	3.13	Silty Clay to Clay	CL	stiff	110	1.5	9	0.756	0.756	3.31	0.86	1.34	17.6	2.82		9				0.78	5.2
4.42	14.5	23.04	2.79	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.784	0.784	2.89	0.80	1.27	27.7	2.63		12				1.31	8.5
4.57	15.0	18.24	1.70	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.811	0.811	1.78	0.79	1.23	21.3	2.60	70.6	8	14	13	29		
4.72	15.5	13.45	1.41	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	5	0.839	0.839	1.51	0.82	1.21	15.4	2.68		5				0.74	4.5
4.88	16.0	12.89	1.37	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	5	0.866	0.866	1.46	0.82	1.18	14.4	2.70		5				0.71	4.2
5.03	16.5	12.56	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.894	0.894	2.53	0.87	1.16	13.7	2.84		6				0.69	3.9
5.18	17.0	43.45	1.80	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.921	0.921	1.84	0.71	1.10	45.3	2.34	95.0	15	19	44	32		
5.33	17.5	54.27	0.77	Sand to Silty Sand	SP/SM	medium dense	100	4.0	14	0.948	0.948	0.78	0.63	1.07	55.0	2.06	76.0	14	15	52	31		
5.49	18.0	14.08	1.99	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.974	0.974	2.14	0.85	1.07	14.3	2.79		7				0.77	4.0
5.64	18.5	32.93	2.73	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.001	1.001	2.81	0.78	1.04	32.5	2.57	102.9	13	21	30	31		
5.79	19.0	33.33	2.62	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.029	1.029	2.70	0.78	1.02	32.2	2.56	100.4	13	20	30	31		
5.94	19.5	21.27	2.46	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.056	1.056	2.59	0.83	1.00	20.1	2.71		11				1.19	5.7
6.10	20.0	13.23	2.39	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.085	1.085	2.61	0.88	0.98	12.2	2.89		7				0.71	3.4
6.25	20.5	11.56	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.115	1.115	2.42	0.90	0.95	10.4	2.93		6				0.61	2.8
6.40	21.0	12.35	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.145	1.145	2.42	0.89	0.93	10.9	2.91		6				0.66	2.9
6.55	21.5	13.67	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.175	1.175	2.33	0.88	0.91	11.8	2.88		7				0.73	3.2
6.71	22.0	11.27	2.44	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.205	1.205	2.73	0.92	0.89	9.5	2.99		6				0.59	2.5
6.86	22.5	12.17	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.235	1.235	2.53	0.91	0.87	10.0	2.96		6				0.64	2.7
7.01	23.0	15.10	2.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.265	1.265	2.19	0.87	0.86	12.2	2.85		8				0.81	3.3
7.16	23.5	19.57	2.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.295	1.279	2.80	0.86	0.85	15.7	2.82		10				1.08	4.3
7.32	24.0	12.22	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.325	1.294	3.17	0.93	0.83	9.6	3.03		6				0.64	2.5
7.47	24.5	11.70	2.91	Silty Clay to Clay	CL	stiff	120	1.5	8	1.355	1.308	3.29	0.94	0.82	9.1	3.05		8				0.61	2.4
7.62	25.0	13.72	1.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.385	1.323	2.16	0.89	0.82	10.6	2.90		7				0.73	2.8
7.77	25.5	11.96	2.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.415	1.337	2.35	0.91	0.81	9.1	2.97		6				0.63	2.4
7.92	26.0	12.15	2.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.445	1.351	3.24	0.94	0.80	9.1	3.05		6				0.64	2.4
8.08	26.5	11.84	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.475	1.366	2.36	0.92	0.79	8.9	2.98		6				0.62	2.3
8.23	27.0	16.95	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.505	1.380	3.25	0.90	0.79	12.6	2.93		8				0.92	3.4
8.38	27.5	19.47	3.36	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.535	1.395	3.65	0.89	0.78	14.4	2.92		10				1.06	3.9
8.53	28.0	22.97	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.565	1.409	4.26	0.89	0.78	16.8	2.91		15				1.27	4.6
8.69	28.5	25.31	3.28	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.595	1.423	3.50	0.86	0.77	18.5	2.82		13				1.41	5.0
8.84	29.0	30.90	2.57	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.625	1.438	2.71	0.82	0.78	22.7	2.68		12				1.73	6.1
8.99	29.5	26.72	2.67	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.655	1.452	2.85	0.84	0.77	19.4	2.75		13				1.49	5.2
9.14	30.0	11.41	0.94	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.685	1.467	1.10	0.88	0.75	8.1	2.86		5				0.59	2.0
9.30	30.5	10.42	0.28	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	4	1.715	1.481	0.34	0.84	0.75	7.4	2.71		4				0.53	1.8
9.45	31.0	10.81	0.19	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	4	1.745	1.495	0.22	0.82	0.75	7.7	2.65		4				0.55	1.8
9.60	31.5	16.30	0.35	Sandy Silt to Clayey Silt	ML	loose	120	2.5	7	1.775	1.510	0.39	0.78	0.76	11.7	2.54	11.7	5	2	-12	28		
9.75	32.0	18.92	0.56	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	6	1.805	1.524	0.62	0.78	0.75	13.4	2.55	40.9	5	8	-6	28		
9.91	32.5	19.52	0.68	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.835	1.539	0.75	0.79	0.74	13.7	2.58	43.8	5	9	-6	28		
10.06	33.0	20.01	0.82	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.865	1.553	0.90	0.80	0.74	13.9	2.61		8				1.09	3.5
10.21	33.5	21.99	0.90	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.895	1.567	0.98	0.79	0.73	15.2	2.59	49.6	6	10	-1	28		
10.36	34.0	21.53	0.72	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.925	1.582	0.79	0.78	0.73	14.8	2.56	45.5	6	9	-2	28		
10.52	34.5	21.81	0.68	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.955	1.596	0.74	0.78	0.73	15.0	2.54	44.7	6	9	-2	28		
10.67	35.0	21.09	1.27	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.985	1.611	1.40	0.83	0.71	14.1	2.69		8				1.15	3.6
10.82	35.5	19.55	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.015	1.625	1.79	0.85	0.69	12.8	2.78		8				1.05	3.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-2 | Plot: 2 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

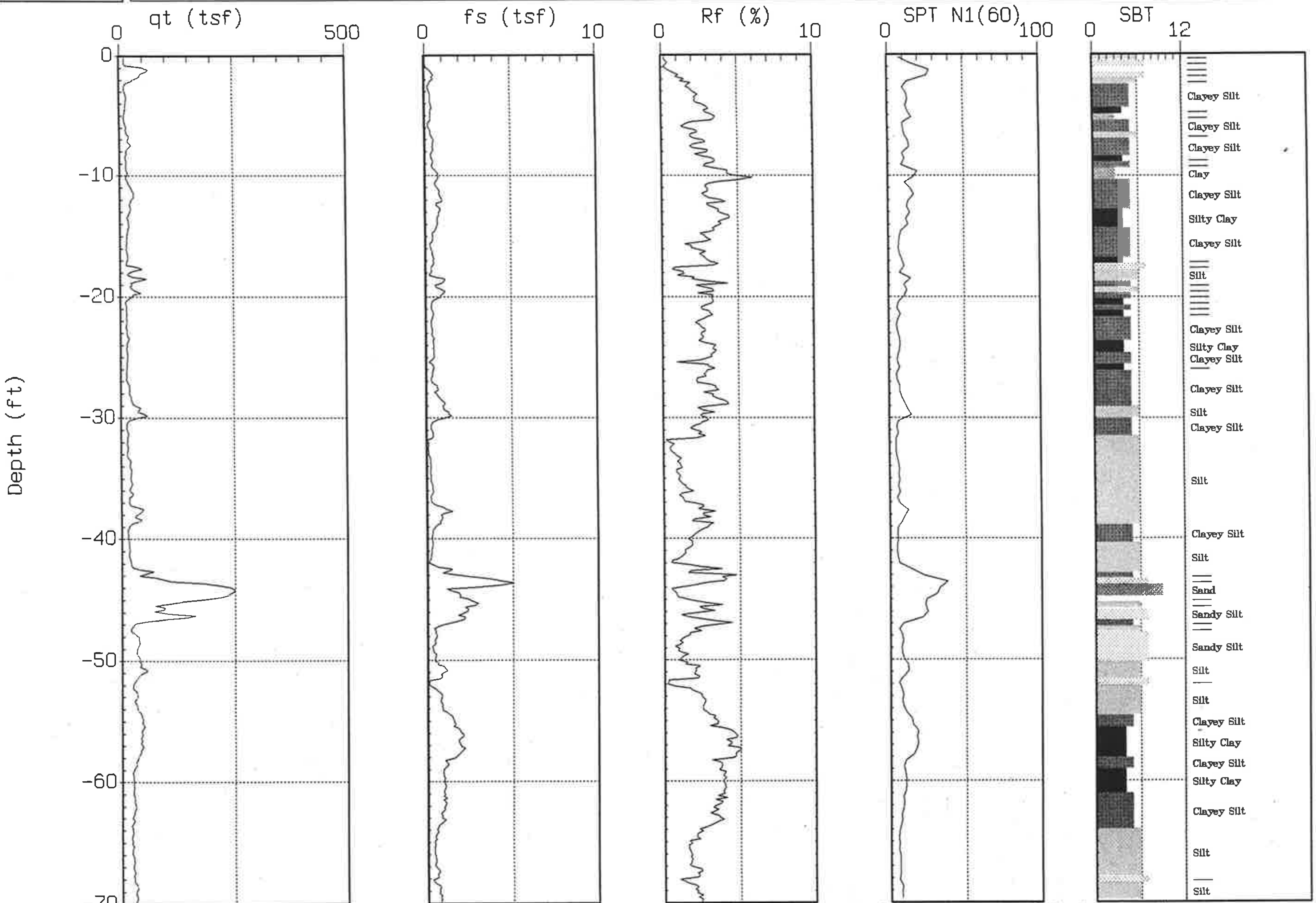
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.8 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.95	1.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.045	1.639	2.14	0.87	0.68	12.2	2.84		8				1.02	3.1
11.13	36.5	36.97	2.56	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.075	1.654	2.72	0.81	0.70	24.3	2.66		15				2.08	6.3
11.28	37.0	112.74	2.23	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	38	2.105	1.668	2.28	0.68	0.73	78.2	2.23	136.4	29	27	67	36		
11.43	37.5	33.68	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	2.135	1.683	3.11	0.83	0.68	21.6	2.74		17				1.88	5.6
11.58	38.0	20.75	1.94	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.165	1.697	2.17	0.86	0.66	13.0	2.82		8				1.12	3.3
11.73	38.5	22.86	1.32	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.195	1.711	1.46	0.82	0.67	14.5	2.69		9				1.24	3.6
11.89	39.0	26.06	1.55	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.225	1.726	1.69	0.82	0.67	16.5	2.68		10				1.43	4.1
12.04	39.5	27.91	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.255	1.740	1.74	0.81	0.67	17.6	2.66		11				1.54	4.4
12.19	40.0	25.25	1.67	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.285	1.755	1.84	0.83	0.66	15.7	2.72		10				1.38	3.9
12.34	40.5	27.48	1.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.315	1.769	1.94	0.83	0.65	17.0	2.70		11				1.51	4.3
12.50	41.0	19.10	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.345	1.783	1.83	0.87	0.64	11.5	2.83		8				1.02	2.8
12.65	41.5	23.20	1.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.375	1.798	1.94	0.85	0.64	14.0	2.77		9				1.26	3.5
12.80	42.0	26.48	1.73	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.405	1.812	1.90	0.83	0.64	16.0	2.72		11				1.45	4.0
12.95	42.5	34.16	1.52	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.435	1.827	1.63	0.79	0.65	21.0	2.58	67.5	8	14	12	29		
13.11	43.0	46.15	2.09	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	2.465	1.841	2.21	0.78	0.65	28.3	2.55	86.5	14	17	24	31		
13.26	43.5	48.91	2.24	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	20	2.495	1.855	2.36	0.78	0.65	29.9	2.55	91.0	14	18	27	31		
13.41	44.0	29.30	1.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.525	1.870	1.93	0.82	0.63	17.3	2.69		12				1.61	4.3
13.56	44.5	23.54	1.64	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.555	1.884	1.84	0.85	0.61	13.6	2.77		9				1.27	3.3
13.72	45.0	28.59	1.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.585	1.899	1.93	0.83	0.62	16.7	2.71		11				1.57	4.1
13.87	45.5	34.31	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.615	1.913	2.72	0.83	0.61	19.8	2.73		14				1.91	5.0
14.02	46.0	28.66	2.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.645	1.927	2.96	0.86	0.60	16.1	2.82		11				1.57	4.0
14.17	46.5	34.12	2.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.675	1.942	2.88	0.84	0.60	19.4	2.75		14				1.89	4.9
14.33	47.0	37.22	2.24	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.705	1.956	2.42	0.82	0.61	21.3	2.68		15				2.07	5.3
14.48	47.5	35.91	2.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.735	1.971	2.88	0.84	0.59	20.2	2.74		14				2.00	5.1
14.63	48.0	39.07	3.09	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.765	1.985	3.32	0.84	0.59	21.8	2.75		16				2.18	5.5
14.78	48.5	36.37	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.795	1.999	3.21	0.85	0.58	20.1	2.77		15				2.02	5.0
14.94	49.0	32.28	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.825	2.014	3.19	0.86	0.57	17.5	2.82		16				1.78	4.4
15.09	49.5	29.40	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.855	2.028	2.48	0.85	0.57	16.0	2.78		12				1.61	3.9
15.24	50.0	33.08	2.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.885	2.043	3.01	0.85	0.57	17.8	2.79		13				1.83	4.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-03

Engineer: T. TRANBY
Date: 02:16:04 09:59



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 09/02/04

CPT SOUNDING: CPT-3   Plot: 3   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	10.14	0.30	Sensitive fine grained	ML	loose	110	2.0	5	0.014	0.014	0.30	0.72	1.70	16.3	2.36	16.3	9	3	2	29		
0.30	1.0	42.42	0.27	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.040	0.040	0.27	0.54	1.70	68.2	1.76	68.2	18	14	61	33		
0.46	1.5	51.53	0.86	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.066	0.066	0.86	0.59	1.70	82.8	1.93	101.2	29	20	69	36		
0.61	2.0	34.02	1.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.094	0.094	1.24	0.66	1.70	54.7	2.17	87.8	19	18	52	33		
0.76	2.5	11.84	1.76	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.121	0.121	1.78	0.80	1.70	19.0	2.64		6				0.69	29.0
0.91	3.0	10.90	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.149	0.149	2.07	0.82	1.70	17.5	2.70		5				0.63	21.7
1.07	3.5	13.75	2.26	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.176	0.176	2.29	0.80	1.70	22.1	2.65		7				0.80	23.1
1.22	4.0	13.21	2.38	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.204	0.204	2.42	0.81	1.70	21.2	2.68		7				0.77	19.2
1.37	4.5	12.25	2.94	Silty Clay to Clay	CL	stiff	110	1.5	8	0.231	0.231	2.99	0.84	1.70	19.7	2.76		8				0.71	15.6
1.52	5.0	9.98	3.23	Silty Clay to Clay	CL	stiff	110	1.5	7	0.259	0.259	3.31	0.87	1.70	16.0	2.86		7				0.57	11.3
1.68	5.5	9.90	2.51	Silty Clay to Clay	CL	stiff	110	1.5	7	0.286	0.286	2.59	0.85	1.70	15.9	2.80		7				0.57	10.1
1.83	6.0	12.75	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.314	0.314	1.78	0.79	1.70	20.5	2.61		6				0.73	11.9
1.98	6.5	16.17	2.03	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.341	0.341	2.07	0.78	1.70	26.0	2.57	81.2	14	16	21	31		
2.13	7.0	17.87	2.58	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.369	0.369	2.63	0.79	1.70	28.7	2.60	94.8	15	19	25	32		
2.29	7.5	21.57	1.98	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.396	0.396	2.02	0.75	1.70	34.7	2.46	89.2	14	18	33	31		
2.44	8.0	14.22	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.424	0.424	2.81	0.82	1.70	22.8	2.69		7				0.81	9.8
2.59	8.5	11.81	3.11	Silty Clay to Clay	CL	stiff	110	1.5	8	0.451	0.451	3.23	0.85	1.70	19.0	2.79		8				0.67	7.6
2.74	9.0	13.52	3.04	Silty Clay to Clay	CL	stiff	110	1.5	9	0.479	0.479	3.15	0.83	1.70	21.7	2.74		9				0.77	8.2
2.90	9.5	13.50	4.00	Clay	CL/CH	stiff	110	1.0	13	0.506	0.506	4.16	0.86	1.70	21.7	2.82		13				0.76	7.7
3.05	10.0	14.79	5.06	Clay	CL/CH	stiff	110	1.0	15	0.534	0.534	5.25	0.87	1.70	23.8	2.85		15				0.84	8.0
3.20	10.5	15.55	3.96	Silty Clay to Clay	CL	stiff	110	1.5	10	0.561	0.561	4.11	0.84	1.70	25.0	2.77		10				0.88	8.0
3.35	11.0	22.30	2.94	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.589	0.589	3.02	0.79	1.59	33.4	2.58	107.9	15	22	31	32		
3.51	11.5	28.41	2.82	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.616	0.616	2.88	0.76	1.51	40.6	2.51	113.9	18	23	39	33		
3.66	12.0	25.67	3.71	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	0.644	0.644	3.80	0.80	1.49	36.1	2.63		13				1.47	11.7
3.81	12.5	21.67	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.671	0.671	3.26	0.81	1.44	29.5	2.65		11				1.24	9.4
3.96	13.0	21.35	3.82	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.699	0.699	3.95	0.83	1.41	28.4	2.71		14				1.21	8.9
4.11	13.5	16.23	4.34	Clay	CL/CH	stiff	110	1.0	16	0.726	0.726	4.54	0.87	1.39	21.3	2.85		16				0.91	6.4
4.27	14.0	18.01	3.76	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.754	0.754	3.92	0.85	1.33	22.7	2.79		12				1.02	6.9
4.42	14.5	16.78	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.781	0.781	3.50	0.85	1.29	20.5	2.79		8				0.94	6.1
4.57	15.0	14.51	2.76	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.809	0.809	2.93	0.85	1.26	17.3	2.80		7				0.81	5.1
4.72	15.5	13.57	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.836	0.836	2.67	0.86	1.22	15.7	2.81		7				0.75	4.6
4.88	16.0	12.92	2.27	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.864	0.864	2.43	0.86	1.19	14.5	2.81		6				0.71	4.2
5.03	16.5	15.05	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.891	0.891	2.82	0.86	1.16	16.5	2.80		8				0.83	4.8
5.18	17.0	13.92	3.26	Silty Clay to Clay	CL	stiff	110	1.5	9	0.919	0.919	3.49	0.88	1.13	14.9	2.90		9				0.76	4.2
5.33	17.5	31.82	1.61	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	0.946	0.946	1.66	0.74	1.09	32.7	2.43	79.6	13	16	30	31		
5.49	18.0	19.29	1.23	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.974	0.974	1.29	0.78	1.07	19.4	2.56	59.6	8	12	9	29		
5.64	18.5	39.30	2.35	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	16	1.001	1.001	2.41	0.75	1.04	38.7	2.47	101.8	16	20	37	32		
5.79	19.0	22.45	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.029	1.029	3.22	0.84	1.02	21.7	2.74		11				1.26	6.2
5.94	19.5	33.76	2.99	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	1.056	1.056	3.09	0.79	1.00	32.0	2.60		17				1.92	9.3
6.10	20.0	22.84	3.27	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.085	1.085	3.43	0.84	0.98	21.1	2.77		11				1.28	6.0
6.25	20.5	10.81	3.15	Silty Clay to Clay	CL	stiff	120	1.5	7	1.115	1.115	3.51	0.93	0.95	9.7	3.05		7				0.57	2.6
6.40	21.0	12.14	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.145	1.145	3.00	0.91	0.93	10.7	2.97		6				0.65	2.9
6.55	21.5	12.92	3.12	Silty Clay to Clay	CL	stiff	120	1.5	9	1.175	1.175	3.43	0.92	0.91	11.1	2.99		9				0.69	3.0
6.71	22.0	13.21	2.38	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.205	1.205	2.61	0.90	0.89	11.1	2.93		7				0.71	3.0
6.86	22.5	12.12	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.235	1.235	2.88	0.92	0.87	9.9	2.99		6				0.64	2.6
7.01	23.0	13.24	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.265	1.265	2.90	0.91	0.85	10.6	2.97		7				0.70	2.8
7.16	23.5	16.61	2.53	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.295	1.279	2.75	0.88	0.85	13.3	2.87		8				0.90	3.6
7.32	24.0	13.44	3.19	Silty Clay to Clay	CL	stiff	120	1.5	9	1.325	1.294	3.54	0.92	0.83	10.5	3.02		9				0.71	2.8
7.47	24.5	12.76	3.40	Silty Clay to Clay	CL	stiff	120	1.5	9	1.355	1.308	3.80	0.94	0.82	9.9	3.06		9				0.67	2.6
7.62	25.0	14.25	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.385	1.323	3.40	0.92	0.81	11.0	2.99		7				0.76	2.9
7.77	25.5	13.07	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.415	1.337	2.31	0.90	0.81	10.0	2.93		7				0.69	2.6
7.92	26.0	13.06	3.12	Silty Clay to Clay	CL	stiff	120	1.5	9	1.445	1.351	3.51	0.93	0.80	9.8	3.04		9				0.69	2.6
8.08	26.5	12.17	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.475	1.366	3.02	0.93	0.79	9.1	3.03		6				0.64	2.3
8.23	27.0	13.96	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.505	1.380	2.82	0.91	0.79	10.4	2.97		7				0.74	2.7
8.38	27.5	18.13	3.53	Silty Clay to Clay	CL	stiff	120	1.5	12	1.535	1.395	3.86	0.90	0.78	13.3	2.96		12				0.98	3.6
8.53	28.0	18.55	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.565	1.409	3.34	0.89	0.77	13.6	2.92		9				1.01	3.6
8.69	28.5	22.46	3.95	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.595	1.423	4.25	0.89	0.77	16.3	2.92		15				1.24	4.4
8.84	29.0	32.89	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.625	1.438	3.37	0.83	0.78	24.1	2.72		16				1.85	6.5
8.99	29.5	42.32	2.85	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	1.655	1.452	2.96	0.79	0.78	31.1	2.60		17				2.40	8.4
9.14	30.0	37.92	2.78	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	1.685	1.467	2.90	0.80	0.77	27.6	2.64		15				2.14	7.4
9.30	30.5	12.48	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.715	1.481	2.68	0.93	0.73	8.6	3.02		6				0.65	2.2
9.45	31.0	12.80	2.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.745	1.495	2.47	0.92	0.73	8.8	3.00		6				0.66	2.2
9.60	31.5	14.30	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.775	1.510	2.77	0.92	0.72	9.8	2.99		7				0.75	2.5
9.75	32.0	12.78	0.38	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.805	1.524	0.44	0.82	0.74	8.9	2.66		5				0.66	2.2
9.91	32.5	14.53	0.46	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.835	1.539	0.52	0.81	0.74	10.1	2.64		6				0.76	2.5
10.06	33.0	12.93	0.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.865	1.553	0.82	0.85	0.72	8.8	2.77		5				0.67	2.1
10.21	33.5	17.99	1.03	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.895	1.567	1.15	0.83	0.72	12.3	2.70		7				0.97	3.1
10.36	34.0	18.85	1.13	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.925	1.582	1.26	0.83	0.72	12.8	2.71		8				1.02	3.2
10.52	34.5	21.21	0.87	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	7	1.955	1.596	0.95	0.80	0.72	14.4	2.60		7				1.15	3.6
10.67	35.0	20.19	1.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.985	1.611	1.13	0.82	0.71	13.5	2.66		8				1.09	3.4
10.82	35.5	21.60	1.23	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.015	1.625	1.36	0.82	0.70	14.3	2.68		9				1.17	3.6

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-3 Plot: 3 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

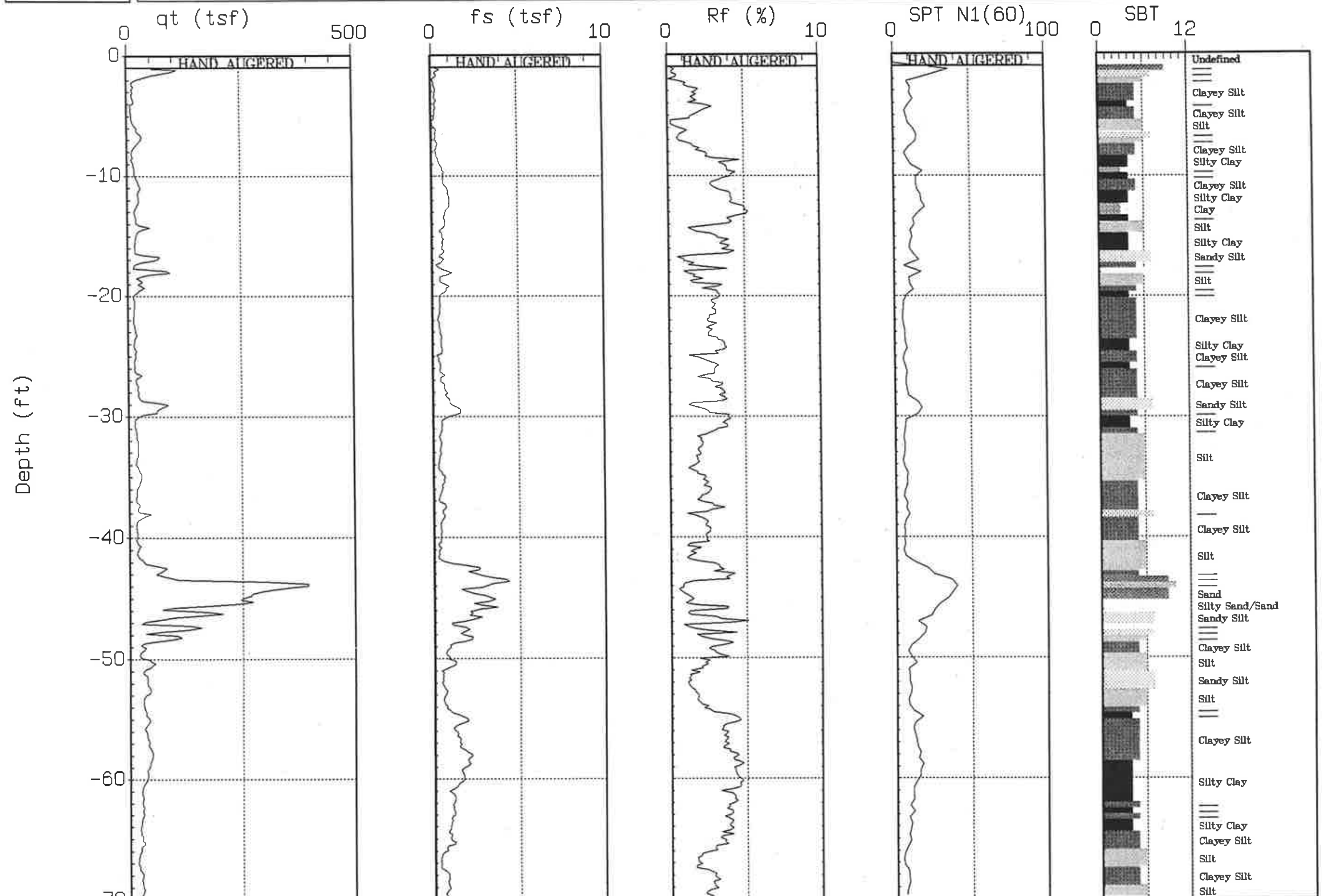
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.71	1.68	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	2.045	1.639	1.89	0.86	0.69	12.1	2.82		7				1.00	3.0
11.13	36.5	20.14	1.17	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.075	1.654	1.30	0.83	0.69	13.1	2.70		8				1.09	3.3
11.28	37.0	17.29	2.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.105	1.668	2.28	0.89	0.67	10.9	2.90		9				0.92	2.7
11.43	37.5	41.82	2.73	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.135	1.683	2.88	0.80	0.69	27.2	2.64		17				2.36	7.1
11.58	38.0	32.46	2.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.165	1.697	2.94	0.84	0.67	20.7	2.74		13				1.81	5.4
11.73	38.5	35.58	2.36	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.195	1.711	2.51	0.81	0.68	22.8	2.66		14				1.99	5.9
11.89	39.0	15.85	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.225	1.726	3.28	0.93	0.63	9.5	3.04		8				0.83	2.4
12.04	39.5	12.76	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.255	1.740	2.61	0.94	0.63	7.5	3.07		6				0.65	1.8
12.19	40.0	13.99	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.285	1.755	2.08	0.92	0.63	8.3	2.98		7				0.72	2.0
12.34	40.5	14.97	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.315	1.769	2.13	0.91	0.63	8.9	2.96		7				0.78	2.1
12.50	41.0	15.73	1.40	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.345	1.783	1.64	0.89	0.63	9.4	2.88		6				0.82	2.3
12.65	41.5	16.05	1.09	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.375	1.798	1.28	0.87	0.63	9.6	2.82		6				0.84	2.3
12.80	42.0	18.98	0.82	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.405	1.812	0.94	0.83	0.64	11.5	2.69		8				1.01	2.7
12.95	42.5	43.38	2.68	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.435	1.827	2.84	0.81	0.64	26.4	2.64		17				2.44	6.7
13.11	43.0	55.53	3.38	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.465	1.841	3.54	0.80	0.64	33.7	2.63		22				3.16	8.6
13.26	43.5	126.63	3.61	Sandy Silt to Clayey Silt	ML	dense	120	2.5	51	2.495	1.855	3.68	0.72	0.67	79.7	2.38	177.0	37	35	67	38		
13.41	44.0	234.88	1.24	Sand	SP	dense	120	5.0	47	2.525	1.870	1.25	0.56	0.73	161.7	1.82	181.8	34	36	97	37		
13.56	44.5	240.25	0.71	Sand	SP	dense	120	5.0	48	2.555	1.884	0.72	0.50	0.75	169.9	1.64	169.4	35	34	99	37		
13.72	45.0	178.14	1.34	Sand to Silty Sand	SP/SM	dense	120	4.0	45	2.585	1.899	1.36	0.59	0.71	119.0	1.94	146.6	32	29	84	37		
13.87	45.5	90.90	2.96	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	36	2.615	1.913	3.05	0.74	0.65	55.5	2.43	134.3	26	27	52	35		
14.02	46.0	89.29	2.61	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	36	2.645	1.927	2.69	0.73	0.65	54.5	2.39	124.6	26	25	52	35		
14.17	46.5	132.41	1.64	Sand to Silty Sand	SP/SM	medium dense	120	4.0	33	2.675	1.942	1.67	0.64	0.68	84.6	2.11	125.0	24	25	70	34		
14.33	47.0	31.81	3.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.705	1.956	3.72	0.87	0.59	17.6	2.86		16				1.76	4.5
14.48	47.5	21.38	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.735	1.971	2.30	0.88	0.58	11.7	2.88		9				1.14	2.8
14.63	48.0	34.51	1.41	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.765	1.985	1.54	0.79	0.61	19.8	2.59	64.5	8	13	10	29		
14.78	48.5	37.02	1.05	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.795	1.999	1.14	0.76	0.62	21.5	2.49	58.4	9	12	13	30		
14.94	49.0	32.64	0.84	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.825	2.014	0.92	0.76	0.61	18.9	2.49	51.6	8	10	8	29		
15.09	49.5	33.28	1.28	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.855	2.028	1.40	0.79	0.60	18.8	2.59	61.0	8	12	7	29		
15.24	50.0	39.26	1.17	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	13	2.885	2.043	1.26	0.76	0.60	22.4	2.50	61.7	9	12	15	30		

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-04

Engineer: T. TRANBY
Date: 02:16:04 10:46



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 09/02/04

CPT SOUNDING: CPT-4   Plot: 4   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: Su (tsf)	17 OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	38.01	0.18	Sand to Silty Sand	SP/SM	medium dense	100	4.0	10	0.040	0.040	0.19	0.53	1.70	61.1	1.75	61.1	16	12	56	32		
0.46	1.5	76.05	0.38	Sand to Silty Sand	SP/SM	dense	100	4.0	19	0.065	0.065	0.38	0.50	1.70	122.2	1.60	122.2	32	24	85	37		
0.61	2.0	23.91	0.46	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.091	0.091	0.46	0.63	1.70	38.4	2.08	38.4	14	8	37	31		
0.76	2.5	11.99	1.19	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.119	0.119	1.20	0.77	1.70	19.3	2.54	57.6	8	12	9	29		
0.91	3.0	11.27	1.84	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.146	0.146	1.87	0.81	1.70	18.1	2.67		6				0.65	22.8
1.07	3.5	11.12	1.71	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.174	0.174	1.74	0.81	1.70	17.9	2.66		6				0.64	18.9
1.22	4.0	11.77	1.88	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.201	0.201	1.91	0.81	1.70	18.9	2.66		6				0.68	17.2
1.37	4.5	7.52	2.57	Silty Clay to Clay	CL	firm	110	1.5	5	0.229	0.229	2.65	0.88	1.70	12.1	2.90		5				0.43	9.6
1.52	5.0	8.91	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	4	0.256	0.256	1.79	0.83	1.70	14.3	2.74		4				0.51	10.1
1.68	5.5	11.27	0.51	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.284	0.284	0.52	0.73	1.70	18.1	2.40	42.1	8	8	6	29		
1.83	6.0	19.55	0.87	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.311	0.311	0.89	0.70	1.70	31.4	2.29	60.4	13	12	29	31		
1.98	6.5	26.95	0.80	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.339	0.339	0.81	0.66	1.70	43.3	2.15	67.5	15	13	42	32		
2.13	7.0	28.08	0.81	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.366	0.366	0.82	0.65	1.70	45.1	2.14	69.1	15	14	44	32		
2.29	7.5	16.95	1.77	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.394	0.394	1.81	0.76	1.70	27.2	2.51	77.4	11	15	23	30		
2.44	8.0	10.04	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.421	0.421	2.38	0.84	1.70	16.1	2.77		5				0.57	6.9
2.59	8.5	9.42	3.38	Silty Clay to Clay	CL	stiff	110	1.5	6	0.449	0.449	3.55	0.88	1.70	15.1	2.89		6				0.53	6.0
2.74	9.0	12.14	3.62	Silty Clay to Clay	CL	stiff	110	1.5	8	0.476	0.476	3.77	0.86	1.70	19.5	2.82		8				0.69	7.3
2.90	9.5	14.83	4.07	Silty Clay to Clay	CL	stiff	110	1.5	10	0.504	0.504	4.21	0.85	1.70	23.8	2.79		10				0.84	8.5
3.05	10.0	15.79	3.97	Silty Clay to Clay	CL	stiff	110	1.5	11	0.531	0.531	4.10	0.84	1.70	25.4	2.76		11				0.90	8.6
3.20	10.5	22.10	2.95	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.559	0.559	3.03	0.78	1.65	34.4	2.58	109.4	15	22	33	32		
3.35	11.0	26.35	3.11	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.586	0.586	3.18	0.77	1.58	39.3	2.55	118.5	17	24	38	32		
3.51	11.5	22.73	4.06	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.614	0.614	4.18	0.81	1.56	33.5	2.68		15				1.30	10.8
3.66	12.0	23.97	4.13	Silty Clay to Clay	CL	very stiff	110	1.5	16	0.641	0.641	4.24	0.81	1.50	34.1	2.68		16				1.37	10.9
3.81	12.5	20.29	4.76	Clay	CL/CH	very stiff	110	1.0	20	0.669	0.669	4.92	0.85	1.47	28.3	2.78		20				1.15	8.8
3.96	13.0	14.82	5.18	Clay	CL/CH	stiff	110	1.0	15	0.696	0.696	5.43	0.89	1.45	20.3	2.91		15				0.83	6.1
4.11	13.5	16.77	4.15	Silty Clay to Clay	CL	stiff	110	1.5	11	0.724	0.724	4.33	0.86	1.39	22.0	2.82		11				0.94	6.7
4.27	14.0	21.03	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.751	0.751	3.67	0.83	1.33	26.4	2.72		11				1.19	8.1
4.42	14.5	34.68	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	0.779	0.779	1.58	0.71	1.24	40.8	2.34	84.8	13	17	40	31		
4.57	15.0	18.25	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.806	0.806	3.18	0.84	1.25	21.7	2.74		9				1.03	6.5
4.72	15.5	16.16	3.65	Silty Clay to Clay	CL	stiff	110	1.5	11	0.834	0.834	3.85	0.87	1.23	18.8	2.84		11				0.90	5.5
4.88	16.0	14.92	3.94	Silty Clay to Clay	CL	stiff	110	1.5	10	0.861	0.861	4.18	0.88	1.20	16.9	2.90		10				0.83	4.9
5.03	16.5	38.72	1.99	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.889	0.889	2.03	0.73	1.14	41.6	2.40	96.2	16	19	40	32		
5.18	17.0	50.64	1.21	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.916	0.916	1.23	0.67	1.10	52.7	2.18	85.8	18	17	50	33		
5.33	17.5	13.13	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.944	0.944	2.71	0.87	1.11	13.7	2.86		7				0.72	3.9
5.49	18.0	75.40	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	25	0.971	0.971	1.32	0.63	1.06	75.2	2.08	107.2	26	21	65	35		
5.64	18.5	25.73	1.75	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.999	0.999	1.82	0.77	1.05	25.4	2.54	75.8	10	15	20	30		
5.79	19.0	27.53	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.026	1.026	2.87	0.81	1.02	26.7	2.64		14				1.56	7.7
5.94	19.5	27.54	2.83	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.054	1.054	2.95	0.81	1.00	26.1	2.66		14				1.56	7.5
6.10	20.0	12.83	3.27	Silty Clay to Clay	CL	stiff	120	1.5	9	1.083	1.083	3.57	0.91	0.98	11.9	2.98		9				0.69	3.3
6.25	20.5	13.30	2.88	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.113	1.113	3.15	0.90	0.96	12.0	2.94		7				0.72	3.3
6.40	21.0	12.90	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.143	1.143	3.26	0.91	0.93	11.4	2.97		6				0.69	3.1
6.55	21.5	12.39	2.93	Silty Clay to Clay	CL	stiff	120	1.5	8	1.173	1.173	3.24	0.92	0.91	10.7	2.99		8				0.66	2.9
6.71	22.0	11.44	2.56	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.203	1.203	2.86	0.92	0.89	9.6	3.00		6				0.60	2.6
6.86	22.5	13.12	2.77	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.233	1.233	3.06	0.91	0.87	10.8	2.97		7				0.70	2.9
7.01	23.0	15.46	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.263	1.263	2.91	0.89	0.85	12.5	2.91		8				0.84	3.4
7.16	23.5	15.96	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.293	1.277	3.25	0.90	0.84	12.7	2.93		8				0.86	3.4
7.32	24.0	12.72	3.64	Silty Clay to Clay	CL	stiff	120	1.5	8	1.323	1.291	4.07	0.94	0.83	10.0	3.07		8				0.67	2.6
7.47	24.5	14.74	3.48	Silty Clay to Clay	CL	stiff	120	1.5	10	1.353	1.306	3.83	0.92	0.82	11.5	3.01		10				0.79	3.1
7.62	25.0	15.14	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.383	1.320	2.36	0.88	0.82	11.8	2.88		8				0.81	3.1
7.77	25.5	13.11	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.413	1.335	2.89	0.92	0.81	10.0	2.99		7				0.69	2.6
7.92	26.0	12.86	3.08	Silty Clay to Clay	CL	stiff	120	1.5	9	1.443	1.349	3.47	0.93	0.80	9.7	3.04		9				0.68	2.5
8.08	26.5	20.62	2.51	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.473	1.363	2.70	0.86	0.80	15.7	2.81		10				1.13	4.2
8.23	27.0	15.96	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.503	1.378	3.29	0.91	0.79	11.9	2.96		8				0.86	3.1
8.38	27.5	19.25	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.533	1.392	3.58	0.89	0.78	14.2	2.92		10				1.05	3.8
8.53	28.0	20.99	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.563	1.407	3.77	0.89	0.78	15.4	2.90		10				1.15	4.1
8.69	28.5	24.94	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.593	1.421	3.81	0.87	0.77	18.2	2.85		12				1.38	4.9
8.84	29.0	76.50	1.45	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	26	1.623	1.435	1.48	0.67	0.82	59.0	2.20	97.7	21	20	55	34		
8.99	29.5	63.56	2.45	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	25	1.653	1.450	2.52	0.74	0.79	47.7	2.42	113.5	21	23	46	34		
9.14	30.0	23.79	3.91	Silty Clay to Clay	CL	very stiff	120	1.5	16	1.683	1.464	4.20	0.89	0.75	16.9	2.90		16				1.31	4.5
9.30	30.5	12.73	3.67	Silty Clay to Clay	CL	stiff	120	1.5	8	1.713	1.479	4.24	0.96	0.73	8.7	3.13		8				0.66	2.2
9.45	31.0	13.92	3.31	Silty Clay to Clay	CL	stiff	120	1.5	9	1.743	1.493	3.79	0.94	0.72	9.5	3.07		9				0.73	2.4
9.60	31.5	15.97	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.773	1.507	2.59	0.90	0.73	11.0	2.93		8				0.85	2.8
9.75	32.0	18.61	2.08	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.803	1.522	2.30	0.87	0.73	12.8	2.84		7				1.00	3.3
9.91	32.5	19.77	2.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.833	1.536	2.23	0.86	0.73	13.6	2.82		8				1.07	3.5
10.06	33.0	19.66	1.93	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.863	1.551	2.13	0.86	0.72	13.4	2.81		8				1.07	3.4
10.21	33.5	17.84	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.893	1.565	1.99	0.87	0.71	12.0	2.83		7				0.96	3.1
10.36	34.0	16.04	1.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.923	1.579	1.93	0.88	0.70	10.7	2.87		6				0.85	2.7
10.52	34.5	22.25	1.48	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.953	1.594	1.62	0.83	0.71	15.0	2.70		9				1.21	3.8
10.67	35.0	26.72	2.14	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	1.983	1.608	2.31	0.83	0.71	17.8	2.73		11				1.48	4.6
10.82	35.5	23.72	2.35	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.013	1.623	2.57	0.86	0.69	15.5	2.80		9				1.30	4.0

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

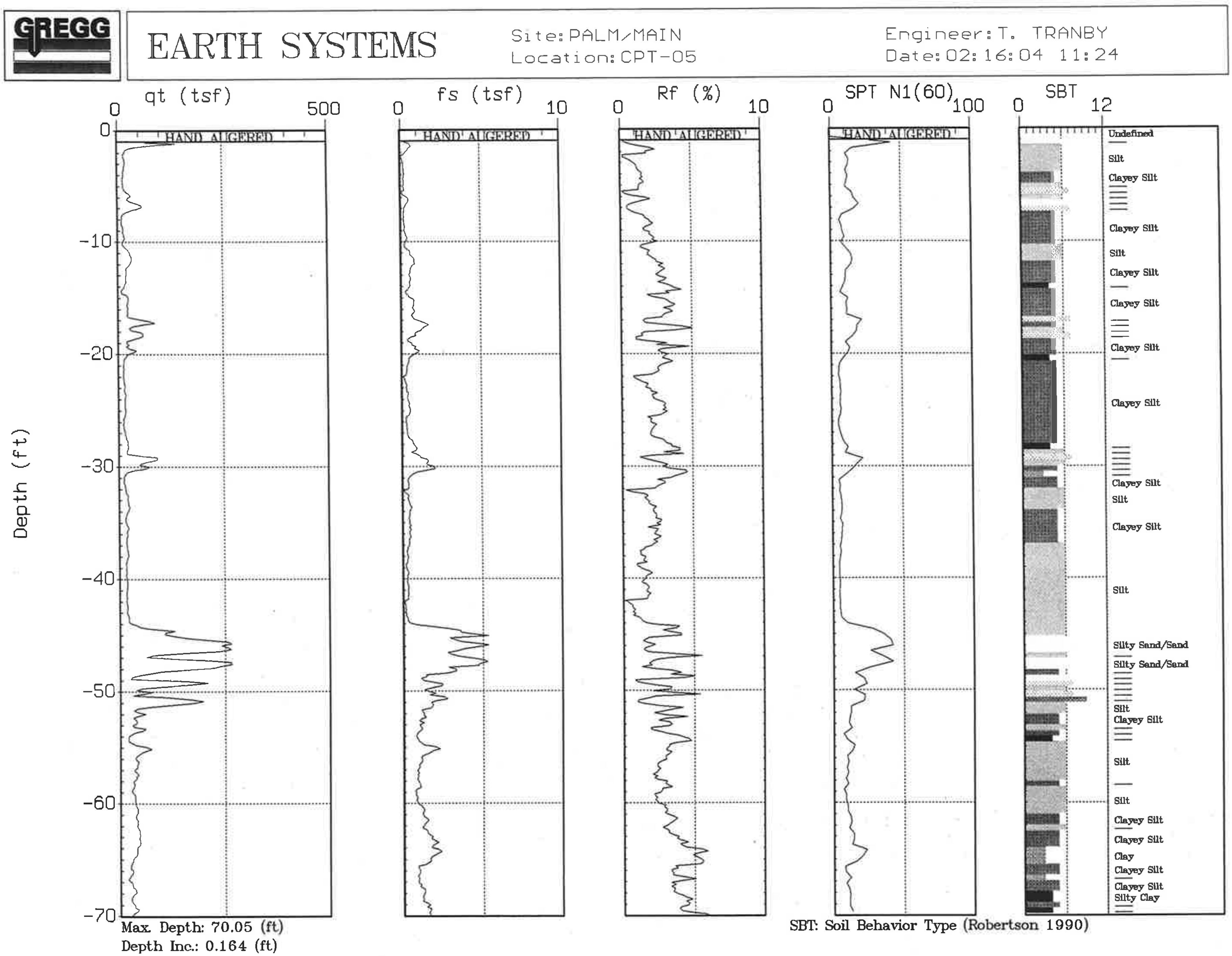
(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 09/02/04

CPT SOUNDING: CPT-4 | Plot: 4 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.85	2.53	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.043	1.637	2.84	0.89	0.68	12.1	2.92		9				1.01	3.1
11.13	36.5	15.64	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.073	1.651	2.63	0.91	0.67	9.9	2.97		8				0.82	2.5
11.28	37.0	16.89	2.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.103	1.666	2.55	0.90	0.66	10.6	2.94		8				0.90	2.7
11.43	37.5	20.14	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.133	1.680	3.40	0.90	0.66	12.5	2.95		10				1.09	3.2
11.58	38.0	34.36	1.74	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	14	2.163	1.695	1.85	0.79	0.69	22.4	2.59	73.1	11	15	15	30		
11.73	38.5	20.56	2.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.193	1.709	2.58	0.88	0.66	12.7	2.87		10				1.11	3.2
11.89	39.0	14.50	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.223	1.723	2.93	0.93	0.63	8.7	3.04		7				0.75	2.1
12.04	39.5	15.34	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.253	1.738	3.01	0.93	0.63	9.1	3.03		8				0.80	2.3
12.19	40.0	15.05	2.41	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.283	1.752	2.85	0.93	0.63	8.9	3.03		8				0.78	2.2
12.34	40.5	18.58	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.313	1.767	1.87	0.87	0.64	11.2	2.84		7				0.99	2.8
12.50	41.0	17.67	1.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.343	1.781	1.92	0.88	0.63	10.6	2.87		7				0.93	2.6
12.65	41.5	17.51	1.36	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.373	1.795	1.58	0.87	0.63	10.4	2.83		7				0.92	2.5
12.80	42.0	29.53	2.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.403	1.810	2.27	0.83	0.64	17.9	2.72		12				1.63	4.5
12.95	42.5	72.49	3.32	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	2.433	1.824	3.44	0.77	0.66	45.1	2.53	131.0	21	26	44	34		
13.11	43.0	65.75	3.66	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	33	2.463	1.839	3.80	0.79	0.65	40.2	2.59	131.8	24	26	39	34		
13.26	43.5	166.82	2.98	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	56	2.493	1.853	3.02	0.68	0.68	107.9	2.23	187.1	41	37	80	39		
13.41	44.0	382.32	0.80	Gravelly Sand to Sand	SW	dense	120	6.0	64	2.523	1.867	0.81	0.50	0.75	272.0	1.53	272.0	47	54	100	40		
13.56	44.5	295.21	0.64	Gravelly Sand to Sand	SW	dense	120	6.0	49	2.553	1.882	0.65	0.50	0.75	209.2	1.55	209.2	36	42	100	38		
13.72	45.0	257.07	1.25	Sand	SP	dense	120	5.0	51	2.583	1.896	1.26	0.55	0.73	176.3	1.80	195.2	37	39	100	38		
13.87	45.5	229.47	1.22	Sand	SP	dense	120	5.0	46	2.613	1.911	1.23	0.56	0.72	155.9	1.83	176.1	33	35	95	37		
14.02	46.0	113.67	2.87	Sandy Silt to Clayey Silt	ML	dense	120	2.5	45	2.643	1.925	2.94	0.71	0.65	70.1	2.34	146.9	33	29	62	37		
14.17	46.5	151.32	1.76	Sand to Silty Sand	SP/SM	medium dense	120	4.0	38	2.673	1.939	1.79	0.64	0.68	97.2	2.09	139.5	27	28	76	35		
14.33	47.0	63.47	3.24	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	25	2.703	1.954	3.39	0.79	0.62	37.0	2.58	119.6	18	24	36	33		
14.48	47.5	117.47	1.75	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	39	2.733	1.968	1.79	0.66	0.66	73.5	2.18	118.6	28	24	64	35		
14.63	48.0	83.82	2.63	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	34	2.763	1.983	2.72	0.74	0.63	49.8	2.42	120.3	24	24	48	34		
14.78	48.5	54.58	3.36	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.793	1.997	3.54	0.81	0.60	30.9	2.66		22				3.09	7.8
14.94	49.0	29.71	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.823	2.011	3.19	0.87	0.57	16.1	2.85		15				1.63	4.0
15.09	49.5	22.26	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.853	2.026	3.38	0.91	0.55	11.7	2.97		11				1.19	2.9
15.24	50.0	36.41	2.70	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.882	2.040	2.93	0.84	0.58	19.8	2.75		15				2.02	4.9


GREGG
EARTH SYSTEMS
Site: PALM/MAIN
Location: CPT-05
Engineer: T. TRANBY
Date: 02:16:04 11:24
qt (tsf)
fs (tsf)
Rf (%)
SPT N1(60)
SBT
Depth (ft)
HAND AUGERED
Undefined
Silt
Clayey Silt
Silty Sand/Sand
Clay
Silty Clay
Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 09/02/04

CPT SOUNDING: CPT-5 | Plot: 5 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	47.41	0.15	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	0.040	0.040	0.15	0.50	1.70	76.2	1.64	76.2	20	15	66	33		
0.46	1.5	52.23	1.37	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.066	0.066	1.37	0.63	1.70	83.9	2.06	116.1	30	23	70	36		
0.61	2.0	16.66	2.02	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.094	0.094	2.03	0.77	1.70	26.8	2.55	81.3	14	16	22	31		
0.76	2.5	14.83	0.24	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.121	0.121	0.24	0.66	1.70	23.8	2.18	23.8	10	5	17	30		
0.91	3.0	17.62	0.87	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.149	0.149	0.88	0.71	1.70	28.3	2.33	57.9	12	12	24	31		
1.07	3.5	15.29	1.18	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.176	0.176	1.19	0.74	1.70	24.6	2.45	62.2	10	12	19	30		
1.22	4.0	13.68	1.46	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.204	0.204	1.48	0.77	1.70	22.0	2.54	65.8	9	13	14	30		
1.37	4.5	12.42	1.50	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.231	0.231	1.53	0.79	1.70	20.0	2.59	64.6	11	13	10	30		
1.52	5.0	12.87	1.43	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.259	0.259	1.46	0.78	1.70	20.7	2.56	64.0	11	13	11	30		
1.68	5.5	20.50	0.73	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.286	0.286	0.75	0.68	1.70	32.9	2.24	58.1	12	12	31	31		
1.83	6.0	26.21	1.53	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.314	0.314	1.55	0.71	1.70	42.1	2.32	85.2	18	17	41	33		
1.98	6.5	43.05	0.99	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.341	0.341	0.99	0.62	1.70	69.2	2.03	93.2	24	19	62	35		
2.13	7.0	45.90	0.47	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.368	0.368	0.47	0.56	1.70	73.7	1.84	73.7	19	15	64	33		
2.29	7.5	13.69	1.28	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.394	0.394	1.32	0.77	1.70	22.0	2.51	62.5	9	12	14	30		
2.44	8.0	8.76	1.88	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.421	0.421	1.97	0.84	1.70	14.1	2.77		4				0.49	5.9
2.59	8.5	9.86	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.449	0.449	2.16	0.84	1.70	15.8	2.75		5				0.55	6.3
2.74	9.0	11.74	1.77	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.476	0.476	1.84	0.81	1.70	18.9	2.65		6				0.66	7.1
2.90	9.5	14.36	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.504	0.504	2.27	0.80	1.70	23.1	2.63		7				0.82	8.3
3.05	10.0	12.38	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.531	0.531	2.38	0.82	1.70	19.9	2.70		6				0.70	6.7
3.20	10.5	17.06	1.49	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.559	0.559	1.54	0.76	1.62	26.2	2.49	70.9	9	14	21	30		
3.35	11.0	27.46	1.93	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.586	0.586	1.98	0.73	1.54	40.0	2.41	93.4	14	19	39	31		
3.51	11.5	32.59	2.26	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	0.614	0.614	2.30	0.73	1.49	45.9	2.40	106.6	17	21	44	32		
3.66	12.0	28.54	2.71	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.641	0.641	2.78	0.76	1.46	39.5	2.51	110.4	18	22	38	33		
3.81	12.5	19.47	2.93	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.669	0.669	3.04	0.81	1.45	26.7	2.66		10				1.11	8.4
3.96	13.0	19.40	2.63	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.696	0.696	2.73	0.81	1.40	25.7	2.64		10				1.10	8.1
4.11	13.5	18.72	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.724	0.724	3.06	0.82	1.37	24.2	2.70		9				1.06	7.5
4.27	14.0	14.67	3.44	Silty Clay to Clay	CL	stiff	110	1.5	10	0.751	0.751	3.63	0.86	1.34	18.6	2.83		10				0.82	5.6
4.42	14.5	7.89	3.64	Clay	CL/CH	firm	110	1.0	8	0.779	0.779	4.04	0.94	1.33	9.9	3.07		8				0.42	2.7
4.57	15.0	21.86	2.38	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.806	0.806	2.47	0.80	1.24	25.7	2.62		11				1.24	7.8
4.72	15.5	22.11	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.834	0.834	3.65	0.83	1.22	25.5	2.73		11				1.25	7.7
4.88	16.0	21.73	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.861	0.861	3.58	0.83	1.19	24.4	2.74		11				1.23	7.3
5.03	16.5	22.34	2.99	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.889	0.889	3.11	0.82	1.15	24.4	2.70		11				1.26	7.2
5.18	17.0	67.30	1.64	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	22	0.916	0.916	1.66	0.66	1.10	70.0	2.17	112.0	23	22	62	34		
5.33	17.5	38.69	4.12	Clayey Silt to Silty Clay	ML/CL	hard	110	2.0	19	0.944	0.944	4.22	0.80	1.10	40.1	2.63		19				2.22	12.0
5.49	18.0	48.02	2.28	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	19	0.971	0.971	2.33	0.73	1.06	48.3	2.39	109.6	19	22	47	33		
5.64	18.5	48.07	1.18	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	16	0.999	0.999	1.20	0.68	1.04	47.2	2.22	80.8	16	16	46	32		
5.79	19.0	21.51	2.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.026	1.026	2.64	0.82	1.03	20.9	2.71		11				1.21	6.0
5.94	19.5	29.07	3.42	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	15	1.054	1.054	3.55	0.82	1.00	27.6	2.69		15				1.65	8.0
6.10	20.0	25.97	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.083	1.083	3.15	0.82	0.98	24.1	2.70		13				1.46	6.9
6.25	20.5	13.34	3.30	Silty Clay to Clay	CL	stiff	120	1.5	9	1.113	1.113	3.60	0.91	0.96	12.0	2.98		9				0.72	3.3
6.40	21.0	11.97	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.143	1.143	3.10	0.91	0.93	10.5	2.99		6				0.64	2.8
6.55	21.5	11.77	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.173	1.173	2.83	0.91	0.91	10.1	2.98		6				0.62	2.7
6.71	22.0	11.33	1.26	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.203	1.203	1.41	0.87	0.89	9.6	2.84		6				0.60	2.5
6.86	22.5	13.06	1.50	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.233	1.233	1.65	0.87	0.88	10.8	2.83		5				0.70	2.9
7.01	23.0	14.34	1.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.263	1.263	1.99	0.87	0.86	11.6	2.84		7				0.77	3.1
7.16	23.5	15.39	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.293	1.277	2.43	0.88	0.85	12.3	2.87		8				0.83	3.3
7.32	24.0	14.66	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.323	1.291	2.58	0.89	0.84	11.6	2.91		7				0.79	3.1
7.47	24.5	14.25	2.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.353	1.306	3.31	0.91	0.83	11.1	2.98		7				0.76	3.0
7.62	25.0	15.58	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.383	1.320	3.36	0.91	0.82	12.0	2.96		8				0.84	3.2
7.77	25.5	14.59	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.413	1.335	2.74	0.90	0.81	11.2	2.93		7				0.78	3.0
7.92	26.0	11.15	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.443	1.349	2.34	0.92	0.80	8.4	3.00		6				0.58	2.2
8.08	26.5	11.50	2.25	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.473	1.363	2.58	0.93	0.79	8.6	3.01		6				0.60	2.2
8.23	27.0	14.87	2.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.503	1.378	2.24	0.89	0.79	11.1	2.89		7				0.79	2.9
8.38	27.5	18.69	2.67	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.533	1.392	2.91	0.88	0.79	13.9	2.87		9				1.02	3.7
8.53	28.0	21.72	3.37	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.563	1.407	3.64	0.88	0.78	16.0	2.88		11				1.19	4.3
8.69	28.5	19.98	3.71	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.593	1.421	4.03	0.90	0.77	14.5	2.94		13				1.09	3.9
8.84	29.0	54.31	2.54	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.623	1.435	2.62	0.75	0.79	40.8	2.48	108.6	18	22	40	33		
8.99	29.5	71.95	2.27	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	1.653	1.450	2.32	0.72	0.80	54.3	2.35	115.2	20	23	51	33		
9.14	30.0	60.47	3.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.683	1.464	3.20	0.76	0.78	44.6	2.51	125.3	20	25	43	33		
9.30	30.5	22.25	4.47	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.713	1.479	4.84	0.91	0.74	15.5	2.97		15				1.22	4.2
9.45	31.0	11.80	3.22	Silty Clay to Clay	CL	stiff	120	1.5	8	1.743	1.493	3.78	0.96	0.72	8.0	3.13		8				0.61	2.0
9.60	31.5	11.70	2.86	Silty Clay to Clay	CL	stiff	120	1.5	8	1.773	1.507	3.37	0.96	0.71	7.9	3.11		8				0.60	2.0
9.75	32.0	14.62	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.803	1.522	1.87	0.89	0.72	10.0	2.89		6				0.77	2.5
9.91	32.5	18.38	1.39	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.833	1.536	1.54	0.84	0.73	12.7	2.75		7				0.99	3.2
10.06	33.0	19.88	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.863	1.551	1.87	0.85	0.72	13.6	2.77		8				1.08	3.5
10.21	33.5	22.29	2.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.893	1.565	2.26	0.85	0.72	15.1	2.78		9				1.22	3.9
10.36	34.0	20.63	2.18	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.923	1.579	2.40	0.87	0.71	13.8	2.83		8				1.12	3.6
10.52	34.5	15.69	2.36	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.953	1.594	2.69	0.91	0.69	10.2	2.96		8				0.83	2.6
10.67	35.0	14.91	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.983	1.608	3.00	0.92	0.68	9.6	3.01		7				0.78	2.4
10.82	35.5	19.88	2.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.013	1.623	2.55	0.88	0.69	12.9	2.87		10				1.07	3.3

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-5 Plot: 5 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

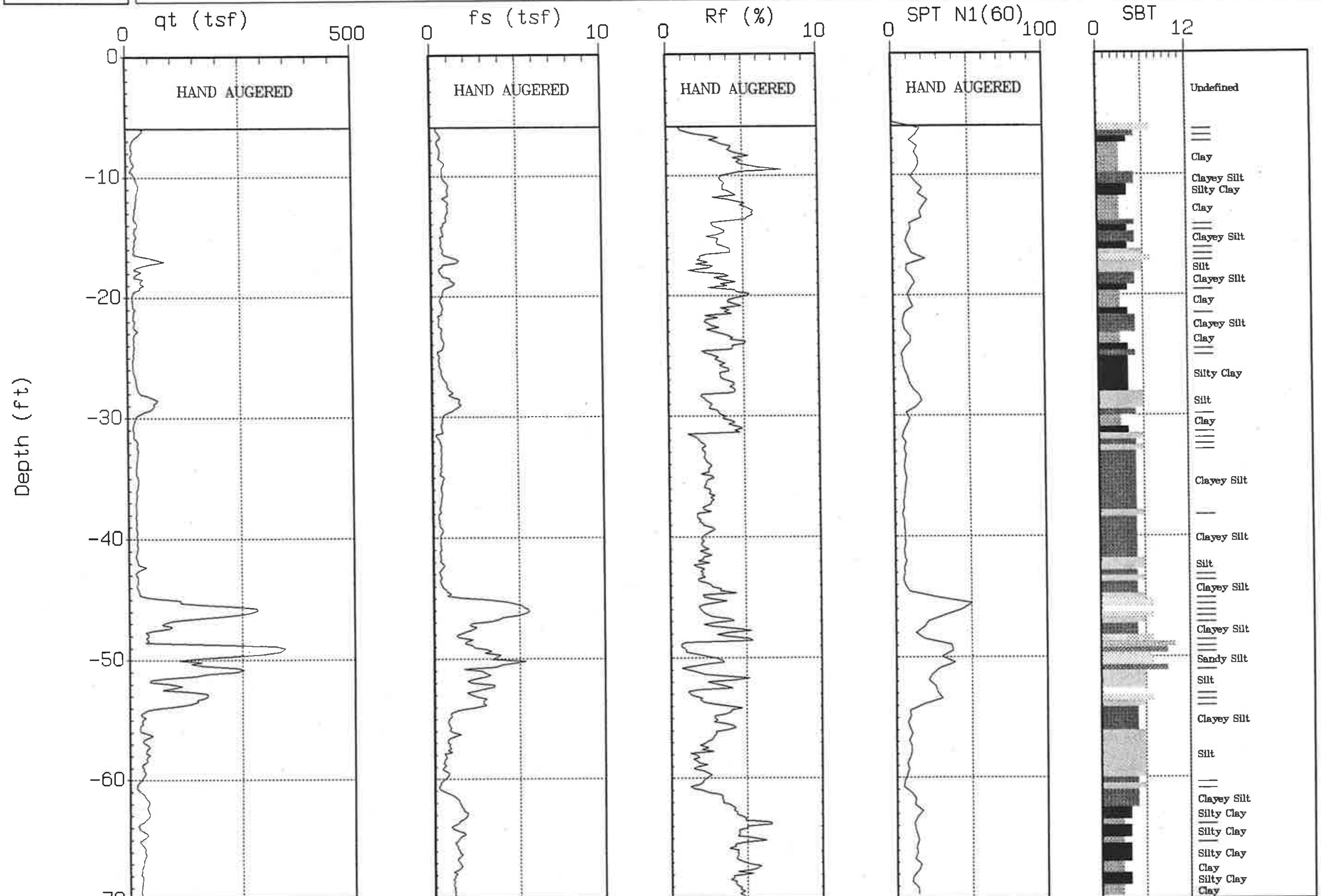
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	17.81	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.043	1.637	2.60	0.89	0.68	11.4	2.91		9				0.95	2.9
11.13	36.5	16.42	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.073	1.651	2.79	0.91	0.67	10.4	2.97		8				0.87	2.6
11.28	37.0	16.87	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.103	1.666	2.20	0.89	0.67	10.6	2.90		8				0.89	2.7
11.43	37.5	18.99	1.31	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.133	1.680	1.47	0.85	0.68	12.1	2.76		8				1.02	3.0
11.58	38.0	19.11	1.44	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.163	1.695	1.62	0.85	0.67	12.1	2.78		8				1.02	3.0
11.73	38.5	15.55	1.34	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.193	1.709	1.56	0.88	0.66	9.6	2.86		6				0.81	2.3
11.89	39.0	15.12	1.21	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.223	1.723	1.42	0.88	0.65	9.3	2.85		6				0.79	2.2
12.04	39.5	15.36	1.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.253	1.738	2.21	0.91	0.64	9.3	2.95		8				0.80	2.3
12.19	40.0	15.90	1.51	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.283	1.752	1.76	0.89	0.64	9.6	2.89		6				0.83	2.3
12.34	40.5	17.45	1.55	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.313	1.767	1.79	0.88	0.64	10.5	2.86		7				0.92	2.6
12.50	41.0	16.37	1.69	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.343	1.781	1.97	0.89	0.63	9.7	2.91		7				0.86	2.4
12.65	41.5	15.65	1.79	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.373	1.795	2.11	0.91	0.62	9.2	2.95		6				0.81	2.2
12.80	42.0	15.65	0.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.403	1.810	0.83	0.85	0.63	9.4	2.74		6				0.81	2.2
12.95	42.5	17.65	0.60	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.433	1.824	0.70	0.82	0.64	10.7	2.66		7				0.93	2.5
13.11	43.0	17.02	0.76	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.463	1.839	0.89	0.84	0.63	10.1	2.73		7				0.89	2.4
13.26	43.5	20.24	0.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.493	1.853	1.10	0.83	0.63	12.0	2.70		8				1.08	2.9
13.41	44.0	28.32	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.523	1.867	1.85	0.82	0.63	16.8	2.69		11				1.56	4.1
13.56	44.5	82.05	3.49	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.553	1.882	3.60	0.76	0.64	50.0	2.51	140.5	24	28	48	34		
13.72	45.0	114.54	3.83	Sandy Silt to Clayey Silt	ML	dense	120	2.5	46	2.583	1.896	3.91	0.74	0.65	70.3	2.43	172.4	33	34	62	37		
13.87	45.5	210.54	1.55	Sand to Silty Sand	SP/SM	dense	120	4.0	53	2.613	1.911	1.57	0.59	0.70	140.3	1.94	172.2	38	34	91	38		
14.02	46.0	254.72	1.88	Sand to Silty Sand	SP/SM	dense	120	4.0	64	2.643	1.925	1.90	0.59	0.70	168.7	1.95	208.8	46	42	99	40		
14.17	46.5	218.67	1.54	Sand to Silty Sand	SP/SM	dense	120	4.0	55	2.673	1.939	1.56	0.59	0.70	144.7	1.93	175.9	39	35	92	38		
14.33	47.0	120.56	3.77	Sandy Silt to Clayey Silt	ML	dense	120	2.5	48	2.703	1.954	3.86	0.74	0.64	72.6	2.42	173.6	35	35	64	37		
14.48	47.5	256.10	1.91	Sand to Silty Sand	SP/SM	dense	120	4.0	64	2.733	1.968	1.93	0.60	0.69	167.2	1.96	208.3	46	42	98	40		
14.63	48.0	159.61	2.22	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	53	2.763	1.983	2.26	0.66	0.66	99.9	2.15	156.0	38	31	77	38		
14.78	48.5	46.05	4.14	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	2.793	1.997	4.40	0.85	0.58	25.4	2.78		23				2.59	6.5
14.94	49.0	129.82	1.98	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	43	2.823	2.011	2.02	0.67	0.65	79.9	2.19	130.9	31	26	68	36		
15.09	49.5	108.08	2.36	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	36	2.853	2.026	2.42	0.70	0.63	64.7	2.31	127.7	25	26	59	35		
15.24	50.0	55.99	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.882	2.040	3.13	0.80	0.59	31.4	2.61		22				3.17	7.8

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-06

Engineer: T. TRANBY
Date: 02:16:04 12:08



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — **Project No:** VT-23104-01 — **Date:** 09/02/04

CPT SOUNDING: CPT-6 — Plot: 6 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N — Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.96		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.96		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.96		1				0.11	4.5
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.96		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.96		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.06	0.91	1.70	3.2	2.96		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.06	0.91	1.70	3.2	2.96		1				0.10	2.3
1.52	5.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.261	0.261	0.06	0.92	1.70	3.2	2.96		1				0.10	2.0
1.68	5.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.289	0.289	0.06	0.92	1.70	3.2	2.96		1				0.10	1.8
1.83	6.0	25.05	0.58	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.316	0.316	0.59	0.64	1.70	40.3	2.11	59.4	14	12	39	31		
1.98	6.5	25.50	2.03	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.344	0.344	2.05	0.73	1.70	41.0	2.41	96.1	17	19	40	32		
2.13	7.0	13.34	3.17	Silty Clay to Clay	CL	stiff	110	1.5	9	0.371	0.371	3.26	0.84	1.70	21.4	2.75		9				0.76	10.5
2.29	7.5	10.95	4.05	Clay	CL/CH	stiff	110	1.0	11	0.399	0.399	4.20	0.88	1.70	17.6	2.89		11				0.62	7.9
2.44	8.0	11.60	4.43	Clay	CL/CH	stiff	110	1.0	12	0.426	0.426	4.60	0.88	1.70	18.6	2.90		12				0.66	7.9
2.59	8.5	10.40	4.92	Clay	CL/CH	stiff	110	1.0	10	0.454	0.454	5.14	0.90	1.70	16.7	2.96		10				0.58	6.6
2.74	9.0	15.14	4.96	Clay	CL/CH	stiff	110	1.0	15	0.481	0.481	5.12	0.86	1.70	24.3	2.84		15				0.86	9.1
2.90	9.5	10.42	6.19	Clay	CL/CH	stiff	110	1.0	10	0.509	0.509	6.51	0.92	1.70	16.7	3.03		10				0.58	5.8
3.05	10.0	17.59	3.78	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.536	0.536	3.90	0.82	1.70	28.3	2.71		12				1.00	9.5
3.20	10.5	23.62	3.66	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.564	0.564	3.75	0.80	1.65	36.8	2.62		12				1.36	12.3
3.35	11.0	26.04	3.69	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.591	0.591	3.77	0.79	1.58	39.0	2.60	129.6	17	26	38	32		
3.51	11.5	22.44	4.31	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.619	0.619	4.44	0.82	1.55	33.0	2.70		15				1.28	10.6
3.66	12.0	20.89	3.84	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.646	0.646	3.96	0.82	1.50	29.6	2.70		14				1.19	9.4
3.81	12.5	18.88	5.07	Clay	CL/CH	very stiff	110	1.0	19	0.674	0.674	5.26	0.86	1.47	26.3	2.82		19				1.07	8.1
3.96	13.0	16.94	5.61	Clay	CL/CH	stiff	110	1.0	17	0.701	0.701	5.85	0.88	1.44	23.0	2.90		17				0.96	6.9
4.11	13.5	15.73	5.41	Clay	CL/CH	stiff	110	1.0	16	0.729	0.729	5.67	0.89	1.39	20.7	2.92		16				0.88	6.2
4.27	14.0	22.63	3.32	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.756	0.756	3.43	0.81	1.31	28.1	2.68		11				1.29	8.7
4.42	14.5	16.91	3.50	Silty Clay to Clay	CL	stiff	110	1.5	11	0.784	0.784	3.67	0.85	1.29	20.6	2.80		11				0.95	6.2
4.57	15.0	19.20	3.21	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.811	0.811	3.35	0.84	1.25	22.7	2.74		10				1.08	6.8
4.72	15.5	16.74	3.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.839	0.839	3.48	0.86	1.22	19.3	2.81		8				0.94	5.7
4.88	16.0	15.35	3.81	Silty Clay to Clay	CL	stiff	110	1.5	10	0.866	0.866	4.04	0.88	1.19	17.3	2.88		10				0.85	5.0
5.03	16.5	30.87	2.95	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	15	0.894	0.894	3.04	0.79	1.14	33.3	2.59	108.2	16	22	31	32		
5.18	17.0	67.18	2.26	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	22	0.921	0.921	2.29	0.69	1.10	69.9	2.27	129.1	23	26	62	34		
5.33	17.5	23.42	2.53	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.949	0.949	2.64	0.81	1.09	24.2	2.65		12				1.32	7.1
5.49	18.0	23.51	2.39	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	9	0.976	0.976	2.49	0.81	1.07	23.7	2.65		9				1.33	6.9
5.64	18.5	26.47	3.63	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.004	1.004	3.77	0.83	1.04	26.1	2.73		13				1.50	7.6
5.79	19.0	31.48	3.97	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	16	1.031	1.031	4.11	0.82	1.02	30.4	2.70		16				1.79	8.9
5.94	19.5	19.27	3.90	Silty Clay to Clay	CL	very stiff	110	1.5	13	1.059	1.059	4.12	0.88	1.00	18.2	2.87		13				1.07	5.2
6.10	20.0	10.96	5.05	Clay	CL/CH	stiff	120	1.0	11	1.088	1.088	5.60	0.97	0.97	10.1	3.16		11				0.58	2.7
6.25	20.5	12.21	4.12	Clay	CL/CH	stiff	120	1.0	12	1.118	1.118	4.54	0.94	0.95	11.0	3.07		12				0.65	3.0
6.40	21.0	14.83	4.15	Clay	CL/CH	stiff	120	1.0	15	1.148	1.148	4.50	0.92	0.93	13.0	3.01		15				0.80	3.6
6.55	21.5	13.64	3.48	Silty Clay to Clay	CL	stiff	120	1.5	9	1.178	1.178	3.80	0.92	0.91	11.7	3.00		9				0.73	3.2
6.71	22.0	14.80	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.208	1.208	2.97	0.89	0.89	12.4	2.92		7				0.80	3.4
6.86	22.5	14.77	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	3.23	0.90	0.87	12.1	2.95		7				0.80	3.3
7.01	23.0	18.17	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.268	1.268	3.22	0.88	0.85	14.7	2.88		9				0.99	4.0
7.16	23.5	13.65	4.13	Clay	CL/CH	stiff	120	1.0	14	1.298	1.282	4.56	0.94	0.83	10.8	3.08		14				0.73	2.9
7.32	24.0	13.82	4.82	Clay	CL/CH	stiff	120	1.0	14	1.328	1.296	5.34	0.95	0.82	10.8	3.12		14				0.74	2.9
7.47	24.5	13.92	3.57	Silty Clay to Clay	CL	stiff	120	1.5	9	1.358	1.311	3.95	0.93	0.82	10.8	3.04		9				0.74	2.9
7.62	25.0	12.67	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.388	1.325	3.31	0.93	0.81	9.7	3.03		6				0.67	2.6
7.77	25.5	11.05	3.41	Silty Clay to Clay	CL	stiff	120	1.5	7	1.418	1.340	3.91	0.96	0.80	8.3	3.13		7				0.57	2.2
7.92	26.0	11.58	3.68	Silty Clay to Clay	CL	stiff	120	1.5	8	1.448	1.354	4.20	0.96	0.79	8.6	3.13		8				0.60	2.2
8.08	26.5	14.90	3.58	Silty Clay to Clay	CL	stiff	120	1.5	10	1.478	1.368	3.97	0.93	0.79	11.1	3.03		10				0.80	2.9
8.23	27.0	18.54	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	12	1.508	1.383	4.32	0.91	0.78	13.7	2.98		12				1.01	3.7
8.38	27.5	20.55	4.25	Silty Clay to Clay	CL	very stiff	120	1.5	14	1.538	1.397	4.60	0.90	0.78	15.1	2.97		14				1.13	4.1
8.53	28.0	32.29	3.62	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.568	1.412	3.80	0.84	0.78	24.0	2.76		16				1.82	6.5
8.69	28.5	61.02	2.31	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.598	1.426	2.37	0.73	0.80	46.3	2.41	108.7	20	22	45	33		
8.84	29.0	56.99	2.75	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.628	1.440	2.84	0.76	0.79	42.6	2.49	115.2	19	23	41	33		
8.99	29.5	36.82	3.06	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	1.658	1.455	3.20	0.81	0.77	26.9	2.67		18				2.08	7.3
9.14	30.0	16.67	3.57	Silty Clay to Clay	CL	stiff	120	1.5	11	1.688	1.469	3.98	0.92	0.74	11.6	3.02		11				0.89	3.1
9.30	30.5	12.34	4.16	Clay	CL/CH	stiff	120	1.0	12	1.718	1.484	4.83	0.98	0.72	8.4	3.18		12				0.64	2.1
9.45	31.0	11.09	4.61	Clay	CL/CH	stiff	120	1.0	11	1.748	1.498	5.47	1.00	0.71	7.4	3.26		11				0.56	1.9
9.60	31.5	12.28	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.778	1.512	2.95	0.94	0.71	8.3	3.06		6				0.63	2.1
9.75	32.0	19.10	1.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.808	1.527	2.17	0.86	0.73	13.2	2.82		8				1.03	3.4
9.91	32.5	20.41	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.838	1.541	2.54	0.87	0.72	13.9	2.84		10				1.11	3.6
10.06	33.0	20.76	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.868	1.556	2.54	0.87	0.72	14.1	2.83		10				1.13	3.6
10.21	33.5	19.29	2.37	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.898	1.570	2.63	0.88	0.71	12.9	2.87		10				1.04	3.3
10.36	34.0	17.96	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.928	1.584	3.00	0.90	0.70	11.8	2.94		9				0.96	3.0
10.52	34.5	16.76	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.958	1.599	2.97	0.91	0.69	10.9	2.96		8				0.89	2.8
10.67	35.0	19.90	2.62	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.988	1.613	2.91	0.89	0.69	12.9	2.90		10				1.08	3.3
10.82	35.5	21.23	2.48	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.018	1.628	2.74	0.87	0.69	13.8	2.86		11				1.15	3.5

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING: CPT-6 — Plot: 6 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N — Nk: 17

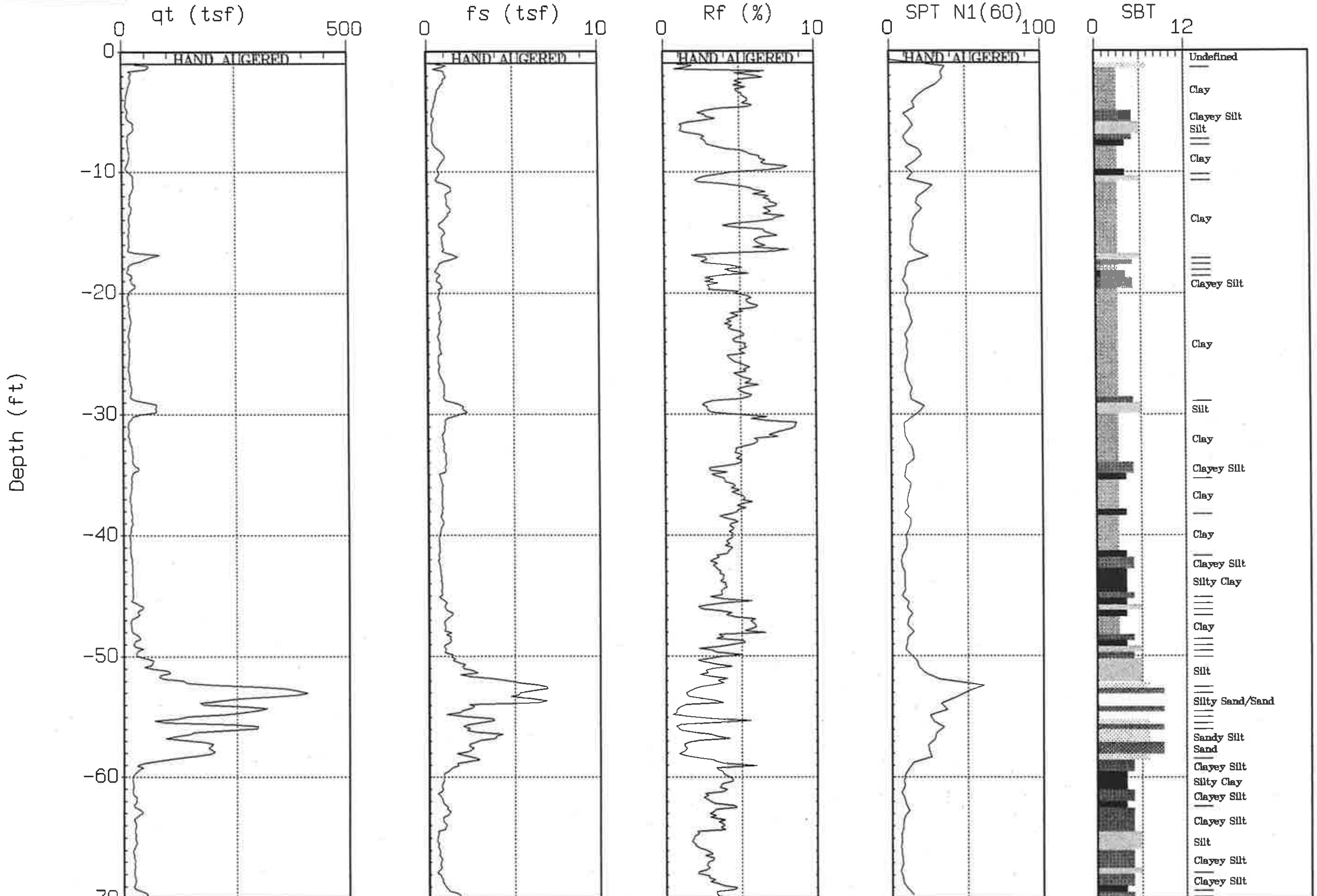
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	18.68	2.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.048	1.642	2.75	0.89	0.68	11.9	2.91		9				1.00	3.0
11.13	36.5	17.67	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.078	1.656	3.15	0.91	0.67	11.1	2.97		9				0.94	2.8
11.28	37.0	15.85	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.108	1.671	3.25	0.93	0.65	9.8	3.02		8				0.83	2.5
11.43	37.5	16.24	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.138	1.685	2.69	0.91	0.65	10.0	2.97		8				0.86	2.5
11.58	38.0	15.99	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.168	1.700	2.49	0.91	0.65	9.8	2.96		8				0.84	2.4
11.73	38.5	16.60	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.198	1.714	2.24	0.90	0.65	10.2	2.92		8				0.88	2.5
11.89	39.0	15.95	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.228	1.728	2.81	0.92	0.64	9.6	3.00		8				0.84	2.4
12.04	39.5	17.73	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	3.14	0.92	0.63	10.6	2.99		9				0.94	2.7
12.19	40.0	17.51	2.17	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.288	1.757	2.50	0.90	0.63	10.5	2.94		9				0.93	2.6
12.34	40.5	17.92	2.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.318	1.772	2.48	0.90	0.63	10.7	2.93		9				0.95	2.6
12.50	41.0	17.25	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.348	1.786	2.63	0.91	0.62	10.1	2.96		9				0.91	2.5
12.65	41.5	15.39	2.44	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.378	1.800	2.88	0.93	0.61	8.9	3.03		8				0.80	2.2
12.80	42.0	18.78	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.408	1.815	2.55	0.90	0.62	10.9	2.93		9				1.00	2.7
12.95	42.5	27.93	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.438	1.829	2.07	0.83	0.63	16.7	2.72		11				1.54	4.2
13.11	43.0	15.95	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.468	1.844	2.49	0.92	0.60	9.1	2.99		8				0.83	2.2
13.26	43.5	18.47	2.02	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.498	1.858	2.34	0.90	0.60	10.5	2.92		7				0.98	2.6
13.41	44.0	16.94	2.69	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.528	1.872	3.16	0.93	0.59	9.4	3.03		8				0.89	2.3
13.56	44.5	21.20	3.73	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.558	1.887	4.24	0.93	0.59	11.7	3.03		14				1.14	3.0
13.72	45.0	72.27	2.34	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	2.588	1.901	2.43	0.74	0.65	44.3	2.43	107.9	17	22	43	32		
13.87	45.5	171.00	2.93	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	57	2.618	1.916	2.97	0.68	0.67	108.2	2.22	185.9	41	37	80	39		
14.02	46.0	278.86	1.95	Sand to Silty Sand	SP/SM	very dense	120	4.0	70	2.648	1.930	1.97	0.59	0.70	184.9	1.93	226.1	50	45	100	41		
14.17	46.5	199.01	2.43	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	66	2.678	1.944	2.46	0.64	0.68	127.2	2.11	187.9	48	38	87	40		
14.33	47.0	85.38	3.29	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	34	2.708	1.959	3.40	0.76	0.63	50.6	2.49	136.9	24	27	49	35		
14.48	47.5	57.44	4.17	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	29	2.738	1.973	4.38	0.82	0.60	32.5	2.70		29				3.26	8.3
14.63	48.0	39.84	3.53	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	20	2.768	1.988	3.80	0.85	0.59	22.0	2.79		20				2.23	5.6
14.78	48.5	86.53	3.86	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	43	2.798	2.002	3.99	0.77	0.61	50.0	2.54	149.0	31	30	48	36		
14.94	49.0	336.39	0.74	Gravelly Sand to Sand	SW	dense	120	6.0	56	2.828	2.016	0.75	0.50	0.72	230.3	1.56	230.3	39	46	100	38		
15.09	49.5	288.73	1.20	Sand	SP	dense	120	5.0	58	2.858	2.031	1.21	0.54	0.70	192.0	1.76	207.5	41	41	100	39		
15.24	50.0	139.50	2.94	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	47	2.887	2.045	3.00	0.70	0.63	83.1	2.30	161.7	33	32	69	37		

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-07

Engineer: T. TRANBY
Date: 02:16:04 13:03



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets **Project No:** VT-23104-01 **Date:** 09/02/04

CPT SOUNDING: CPT-7 Plot: 7 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	21.46	0.66	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.041	0.041	0.66	0.67	1.70	34.5	2.20	57.1	12	11	33	31		
0.46	1.5	41.92	2.96	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.069	0.069	2.96	0.72	1.70	67.4	2.36	144.6	29	29	60	36		
0.61	2.0	18.57	5.75	Clay	CL/CH	very stiff	110	1.0	19	0.096	0.096	5.78	0.85	1.70	29.8	2.81		19				1.09	57.6
0.76	2.5	18.73	5.01	Clay	CL/CH	very stiff	110	1.0	19	0.124	0.124	5.04	0.84	1.70	30.1	2.77		19				1.09	45.1
0.91	3.0	14.63	4.94	Clay	CL/CH	stiff	110	1.0	15	0.151	0.151	4.99	0.86	1.70	23.5	2.84		15				0.85	28.7
1.07	3.5	11.30	5.06	Clay	CL/CH	stiff	110	1.0	11	0.179	0.179	5.14	0.89	1.70	18.2	2.94		11				0.65	18.7
1.22	4.0	9.14	5.48	Clay	CL/CH	stiff	110	1.0	9	0.206	0.206	5.60	0.92	1.70	14.7	3.03		9				0.53	13.0
1.37	4.5	7.42	5.54	Clay	CL/CH	firm	110	1.0	7	0.234	0.234	5.72	0.94	1.70	11.9	3.10		7				0.42	9.2
1.52	5.0	10.71	2.90	Silty Clay to Clay	CL	stiff	110	1.5	7	0.261	0.261	2.97	0.85	1.70	17.2	2.80		7				0.61	12.0
1.68	5.5	11.33	2.83	Silty Clay to Clay	CL	stiff	110	1.5	8	0.289	0.289	2.90	0.84	1.70	18.2	2.78		8				0.65	11.5
1.83	6.0	23.07	1.25	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.316	0.316	1.27	0.70	1.70	37.1	2.32	74.3	16	15	36	32		
1.98	6.5	22.86	1.24	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.344	0.344	1.26	0.71	1.70	36.7	2.32	73.8	16	15	35	32		
2.13	7.0	12.92	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.371	0.371	2.56	0.82	1.70	20.8	2.70		6				0.74	10.1
2.29	7.5	11.64	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.399	0.399	2.87	0.84	1.70	18.7	2.77		6				0.66	8.5
2.44	8.0	13.03	4.16	Clay	CL/CH	stiff	110	1.0	13	0.426	0.426	4.31	0.86	1.70	20.9	2.84		13				0.74	8.9
2.59	8.5	15.39	5.86	Clay	CL/CH	stiff	110	1.0	15	0.454	0.454	6.04	0.88	1.70	24.7	2.88		15				0.88	9.9
2.74	9.0	14.21	6.53	Clay	CL/CH	stiff	110	1.0	14	0.481	0.481	6.76	0.89	1.70	22.8	2.94		14				0.81	8.6
2.90	9.5	9.01	7.61	Clay	CL/CH	firm	110	1.0	9	0.509	0.509	8.07	0.96	1.70	14.5	3.14		9				0.50	5.0
3.05	10.0	13.37	5.11	Clay	CL/CH	stiff	110	1.0	13	0.536	0.536	5.32	0.88	1.70	21.5	2.89		13				0.75	7.2
3.20	10.5	22.76	2.40	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.564	0.564	2.46	0.76	1.62	34.8	2.51	98.6	12	20	33	31		
3.35	11.0	23.21	3.80	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.591	0.591	3.90	0.80	1.60	35.0	2.64		15				1.33	11.5
3.51	11.5	22.02	6.20	Clay	CL/CH	very stiff	110	1.0	22	0.619	0.619	6.38	0.85	1.58	32.9	2.81		22				1.26	10.4
3.66	12.0	16.41	6.55	Clay	CL/CH	stiff	110	1.0	16	0.646	0.646	6.82	0.89	1.55	24.1	2.93		16				0.93	7.3
3.81	12.5	15.22	7.26	Clay	CL/CH	stiff	110	1.0	15	0.674	0.674	7.59	0.91	1.51	21.7	2.99		15				0.86	6.5
3.96	13.0	17.73	7.05	Clay	CL/CH	very stiff	110	1.0	18	0.701	0.701	7.34	0.90	1.45	24.2	2.95		18				1.00	7.3
4.11	13.5	16.99	7.29	Clay	CL/CH	stiff	110	1.0	17	0.729	0.729	7.61	0.91	1.40	22.5	2.98		17				0.96	6.7
4.27	14.0	13.75	6.95	Clay	CL/CH	stiff	110	1.0	14	0.756	0.756	7.36	0.93	1.37	17.7	3.05		14				0.76	5.2
4.42	14.5	14.67	4.52	Clay	CL/CH	stiff	110	1.0	15	0.784	0.784	4.78	0.89	1.31	18.1	2.92		15				0.82	5.3
4.57	15.0	13.72	6.85	Clay	CL/CH	stiff	110	1.0	14	0.811	0.811	7.28	0.93	1.28	16.6	3.07		14				0.76	4.8
4.72	15.5	12.25	6.71	Clay	CL/CH	stiff	110	1.0	12	0.839	0.839	7.20	0.95	1.25	14.4	3.11		12				0.67	4.1
4.88	16.0	13.31	6.34	Clay	CL/CH	stiff	110	1.0	13	0.866	0.866	6.78	0.94	1.21	15.2	3.07		13				0.73	4.3
5.03	16.5	16.60	6.60	Clay	CL/CH	stiff	110	1.0	17	0.894	0.894	6.98	0.92	1.17	18.3	3.02		17				0.92	5.3
5.18	17.0	65.21	2.43	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	26	0.921	0.921	2.46	0.70	1.10	67.9	2.30	131.9	27	26	61	35		
5.33	17.5	25.72	3.21	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	0.949	0.949	3.33	0.82	1.09	26.6	2.69		13				1.46	7.8
5.49	18.0	10.72	4.55	Clay	CL/CH	stiff	110	1.0	11	0.976	0.976	5.01	0.95	1.08	10.9	3.10		11				0.57	3.0
5.64	18.5	16.20	4.03	Silty Clay to Clay	CL	stiff	110	1.5	11	1.004	1.004	4.30	0.89	1.05	16.0	2.93		11				0.89	4.5
5.79	19.0	17.50	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.031	1.031	3.38	0.87	1.02	16.9	2.84		9				0.97	4.8
5.94	19.5	24.64	2.93	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	1.059	1.059	3.07	0.82	1.00	23.3	2.71		12				1.39	6.7
6.10	20.0	12.90	5.05	Clay	CL/CH	stiff	120	1.0	13	1.088	1.088	5.52	0.95	0.97	11.9	3.10		13				0.69	3.3
6.25	20.5	10.64	5.62	Clay	CL/CH	stiff	120	1.0	11	1.118	1.118	6.28	0.98	0.95	9.5	3.21		11				0.56	2.6
6.40	21.0	11.50	6.07	Clay	CL/CH	stiff	120	1.0	11	1.148	1.148	6.74	0.98	0.92	10.0	3.21		11				0.61	2.7
6.55	21.5	13.77	4.91	Clay	CL/CH	stiff	120	1.0	14	1.178	1.178	5.37	0.94	0.90	11.8	3.09		14				0.74	3.2
6.71	22.0	15.18	4.57	Clay	CL/CH	stiff	120	1.0	15	1.208	1.208	4.96	0.93	0.88	12.7	3.04		15				0.82	3.5
6.86	22.5	16.54	4.34	Clay	CL/CH	stiff	120	1.0	17	1.238	1.238	4.69	0.92	0.87	13.5	3.01		17				0.90	3.7
7.01	23.0	14.15	4.57	Clay	CL/CH	stiff	120	1.0	14	1.268	1.268	5.02	0.94	0.84	11.3	3.09		14				0.76	3.0
7.16	23.5	11.08	5.23	Clay	CL/CH	stiff	120	1.0	11	1.298	1.282	5.93	0.99	0.83	8.7	3.22		11				0.58	2.3
7.32	24.0	12.93	4.91	Clay	CL/CH	stiff	120	1.0	13	1.328	1.296	5.47	0.96	0.82	10.0	3.15		13				0.68	2.7
7.47	24.5	12.65	5.31	Clay	CL/CH	stiff	120	1.0	13	1.358	1.311	5.95	0.97	0.81	9.7	3.18		13				0.67	2.6
7.62	25.0	13.92	4.89	Clay	CL/CH	stiff	120	1.0	14	1.388	1.325	5.43	0.96	0.81	10.6	3.13		14				0.74	2.8
7.77	25.5	12.89	4.48	Clay	CL/CH	stiff	120	1.0	13	1.418	1.340	5.04	0.96	0.80	9.7	3.14		13				0.68	2.6
7.92	26.0	11.49	5.46	Clay	CL/CH	stiff	120	1.0	11	1.448	1.354	6.25	0.99	0.78	8.5	3.24		11				0.60	2.2
8.08	26.5	11.86	5.13	Clay	CL/CH	stiff	120	1.0	12	1.478	1.368	5.85	0.99	0.78	8.7	3.22		12				0.62	2.3
8.23	27.0	13.64	5.62	Clay	CL/CH	stiff	120	1.0	14	1.508	1.383	6.32	0.98	0.77	9.9	3.19		14				0.72	2.6
8.38	27.5	15.86	5.69	Clay	CL/CH	stiff	120	1.0	16	1.538	1.397	6.30	0.96	0.77	11.5	3.14		16				0.85	3.1
8.53	28.0	17.96	5.09	Clay	CL/CH	stiff	120	1.0	18	1.568	1.412	5.58	0.94	0.76	13.0	3.07		18				0.97	3.5
8.69	28.5	16.29	5.55	Clay	CL/CH	stiff	120	1.0	16	1.598	1.426	6.15	0.96	0.75	11.6	3.13		16				0.87	3.1
8.84	29.0	52.23	2.80	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.628	1.440	2.89	0.77	0.79	39.0	2.52	112.2	17	22	38	32		
8.99	29.5	73.20	2.78	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	1.658	1.455	2.84	0.73	0.79	54.8	2.41	128.5	24	26	52	34		
9.14	30.0	44.31	4.84	Silty Clay to Clay	CL	hard	120	1.5	30	1.688	1.469	5.04	0.84	0.76	31.8	2.75		30				2.52	8.7
9.30	30.5	14.46	7.16	Clay	CL/CH	stiff	120	1.0	14	1.718	1.484	8.12	1.00	0.71	9.7	3.27		14				0.76	2.6
9.45	31.0	10.71	8.78	Clay	CL/CH	stiff	120	1.0	11	1.748	1.498	####	1.00	0.71	7.1	3.44		11				0.54	1.8
9.60	31.5	11.36	7.68	Clay	CL/CH	stiff	120	1.0	11	1.778	1.512	9.10	1.00	0.70	7.5	3.39		11				0.58	1.9
9.75	32.0	12.01	6.93	Clay	CL/CH	stiff	120	1.0	12	1.808	1.527	8.15	1.00	0.69	7.9	3.34		12				0.62	2.0
9.91	32.5	14.70	6.04	Clay	CL/CH	stiff	120	1.0	15	1.838	1.541	6.90	0.99	0.69	9.6	3.23		15				0.77	2.5
10.06	33.0	18.14	4.93	Clay	CL/CH	stiff	120	1.0	18	1.868	1.556	5.49	0.95	0.69	11.9	3.09		18				0.98	3.1
10.21	33.5	19.56	5.10	Clay	CL/CH	very stiff	120	1.0	20	1.898	1.570	5.65	0.94	0.69	12.8	3.08		20				1.06	3.4
10.36	34.0	19.71	5.12	Clay	CL/CH	very stiff	120	1.0	20	1.928	1.584	5.67	0.94	0.68	12.7	3.08		20				1.07	3.4
10.52	34.5	29.87	3.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	1.958	1.599	3.55	0.85	0.70	19.8	2.80		15				1.66	5.2
10.67	35.0	19.98	3.55	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.988	1.613	3.94	0.91	0.68	12.9	2.98		10				1.08	3.3
10.82	35.5	17.23	4.08	Silty Clay to Clay	CL	stiff	120	1.5	11	2.018	1.628	4.62	0.94	0.67	10.9	3.08		11				0.92	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-7 | Plot: 7 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

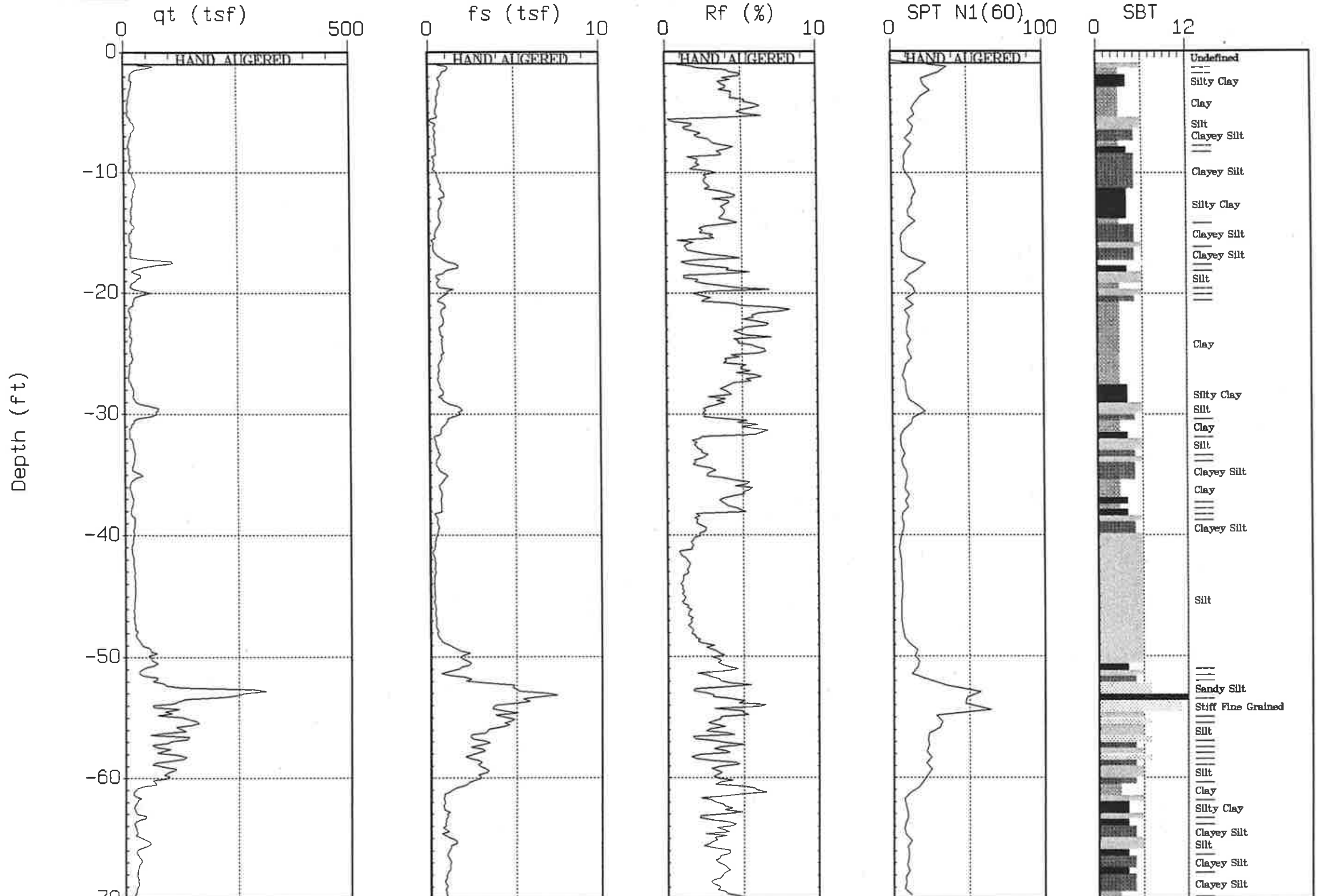
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	16.75	4.66	Clay	CL/CH	stiff	120	1.0	17	2.048	1.642	5.31	0.96	0.66	10.4	3.13		17				0.89	2.7
11.13	36.5	15.33	4.94	Clay	CL/CH	stiff	120	1.0	15	2.078	1.656	5.71	0.98	0.65	9.4	3.19		15				0.80	2.4
11.28	37.0	13.69	5.61	Clay	CL/CH	stiff	120	1.0	14	2.108	1.671	6.63	1.00	0.63	8.2	3.27		14				0.71	2.1
11.43	37.5	14.87	5.28	Clay	CL/CH	stiff	120	1.0	15	2.138	1.685	6.16	0.99	0.63	8.9	3.22		15				0.78	2.3
11.58	38.0	15.84	4.81	Clay	CL/CH	stiff	120	1.0	16	2.168	1.700	5.57	0.97	0.63	9.4	3.18		16				0.83	2.4
11.73	38.5	17.38	4.14	Silty Clay to Clay	CL	stiff	120	1.5	12	2.198	1.714	4.74	0.95	0.63	10.4	3.10		12				0.92	2.7
11.89	39.0	17.38	4.65	Clay	CL/CH	stiff	120	1.0	17	2.228	1.728	5.33	0.96	0.62	10.3	3.14		17				0.92	2.6
12.04	39.5	15.08	4.55	Clay	CL/CH	stiff	120	1.0	15	2.258	1.743	5.36	0.98	0.61	8.7	3.19		15				0.78	2.2
12.19	40.0	12.80	4.69	Clay	CL/CH	stiff	120	1.0	13	2.288	1.757	5.71	1.00	0.60	7.3	3.27		13				0.65	1.8
12.34	40.5	13.07	4.41	Clay	CL/CH	stiff	120	1.0	13	2.318	1.772	5.36	1.00	0.60	7.4	3.25		13				0.66	1.8
12.50	41.0	13.06	4.47	Clay	CL/CH	stiff	120	1.0	13	2.348	1.786	5.45	1.00	0.59	7.3	3.26		13				0.66	1.8
12.65	41.5	13.84	4.11	Clay	CL/CH	stiff	120	1.0	14	2.378	1.800	4.97	0.99	0.59	7.7	3.21		14				0.71	1.9
12.80	42.0	16.10	3.41	Silty Clay to Clay	CL	stiff	120	1.5	11	2.408	1.815	4.01	0.95	0.60	9.1	3.10		11				0.84	2.3
12.95	42.5	17.53	3.44	Silty Clay to Clay	CL	stiff	120	1.5	12	2.438	1.829	4.00	0.94	0.60	9.9	3.07		12				0.92	2.5
13.11	43.0	17.50	3.70	Silty Clay to Clay	CL	stiff	120	1.5	12	2.468	1.844	4.30	0.95	0.59	9.8	3.10		12				0.92	2.4
13.26	43.5	17.49	4.02	Silty Clay to Clay	CL	stiff	120	1.5	12	2.498	1.858	4.69	0.96	0.58	9.6	3.12		12				0.92	2.4
13.41	44.0	17.49	4.02	Silty Clay to Clay	CL	stiff	120	1.5	12	2.528	1.872	4.70	0.96	0.58	9.6	3.13		12				0.92	2.4
13.56	44.5	17.89	4.03	Silty Clay to Clay	CL	stiff	120	1.5	12	2.558	1.887	4.70	0.96	0.58	9.7	3.12		12				0.94	2.4
13.72	45.0	18.58	3.62	Silty Clay to Clay	CL	stiff	120	1.5	12	2.588	1.901	4.21	0.94	0.58	10.1	3.08		12				0.98	2.5
13.87	45.5	18.96	4.79	Clay	CL/CH	very stiff	120	1.0	19	2.618	1.916	5.56	0.96	0.56	10.1	3.15		19				1.00	2.6
14.02	46.0	37.27	2.53	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.648	1.930	2.73	0.83	0.61	21.4	2.70		15				2.08	5.4
14.17	46.5	31.00	4.03	Silty Clay to Clay	CL	very stiff	120	1.5	21	2.678	1.944	4.41	0.89	0.58	17.1	2.91		21				1.71	4.4
14.33	47.0	17.60	5.67	Clay	CL/CH	stiff	120	1.0	18	2.708	1.959	6.70	0.99	0.54	9.0	3.24		18				0.92	2.3
14.48	47.5	14.86	6.13	Clay	CL/CH	stiff	120	1.0	15	2.738	1.973	7.51	1.00	0.54	7.5	3.33		15				0.76	1.8
14.63	48.0	20.41	5.34	Clay	CL/CH	very stiff	120	1.0	20	2.768	1.988	6.18	0.97	0.54	10.5	3.17		20				1.08	2.7
14.78	48.5	30.32	4.19	Silty Clay to Clay	CL	very stiff	120	1.5	20	2.798	2.002	4.62	0.90	0.56	16.2	2.94		20				1.67	4.1
14.94	49.0	21.66	4.54	Clay	CL/CH	very stiff	120	1.0	22	2.828	2.016	5.22	0.95	0.54	11.1	3.10		22				1.16	2.8
15.09	49.5	32.54	2.90	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.858	2.031	3.18	0.86	0.57	17.6	2.81		13				1.79	4.4
15.24	50.0	37.53	3.89	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.887	2.045	4.22	0.87	0.56	20.0	2.85		19				2.09	5.1

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-08

Engineer: T. TRANBY
Date: 02:16:04 13:38



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING:	CPT-8	Plot:	8	Density:	1	SPT N	Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest
Est. GWT (feet):	23.0			Dr correlation:	0	Baldi	Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	22.56	0.59	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.041	0.041	0.59	0.65	1.70	36.2	2.15	56.6	13	11	35	31		
0.46	1.5	33.53	3.45	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.069	0.069	3.46	0.75	1.70	53.9	2.47	142.0	29	28	51	36		
0.61	2.0	14.86	4.54	Clay	CL/CH	stiff	110	1.0	15	0.096	0.096	4.57	0.85	1.70	23.9	2.81		15				0.87	46.0
0.76	2.5	16.67	3.81	Silty Clay to Clay	CL	stiff	110	1.5	11	0.124	0.124	3.84	0.83	1.70	26.8	2.72		11				0.97	40.1
0.91	3.0	15.73	3.85	Silty Clay to Clay	CL	stiff	110	1.5	10	0.151	0.151	3.89	0.83	1.70	25.3	2.75		10				0.92	30.9
1.07	3.5	12.11	4.32	Clay	CL/CH	stiff	110	1.0	12	0.179	0.179	4.39	0.87	1.70	19.5	2.87		12				0.70	20.0
1.22	4.0	9.35	4.89	Clay	CL/CH	stiff	110	1.0	9	0.206	0.206	5.00	0.91	1.70	15.0	2.99		9				0.54	13.3
1.37	4.5	7.80	5.98	Clay	CL/CH	firm	110	1.0	8	0.234	0.234	6.17	0.94	1.70	12.5	3.11		8				0.45	9.7
1.52	5.0	7.59	5.01	Clay	CL/CH	firm	110	1.0	8	0.261	0.261	5.19	0.93	1.70	12.2	3.07		8				0.43	8.4
1.68	5.5	11.99	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.289	0.289	2.79	0.83	1.70	19.3	2.75		6				0.69	12.2
1.83	6.0	21.99	1.53	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.316	0.316	1.55	0.72	1.70	35.3	2.38	79.5	15	16	34	32		
1.98	6.5	18.85	1.83	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.344	0.344	1.86	0.76	1.70	30.3	2.49	81.6	13	16	27	31		
2.13	7.0	14.03	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.371	0.371	2.37	0.81	1.70	22.5	2.65		7				0.80	11.0
2.29	7.5	10.13	3.29	Silty Clay to Clay	CL	stiff	110	1.5	7	0.399	0.399	3.43	0.87	1.70	16.3	2.86		7				0.57	7.3
2.44	8.0	9.98	3.93	Clay	CL/CH	stiff	110	1.0	10	0.426	0.426	4.10	0.89	1.70	16.0	2.91		10				0.56	6.7
2.59	8.5	11.14	2.90	Silty Clay to Clay	CL	stiff	110	1.5	7	0.454	0.454	3.02	0.85	1.70	17.9	2.79		7				0.63	7.1
2.74	9.0	12.75	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.481	0.481	2.12	0.81	1.70	20.5	2.66		6				0.72	7.6
2.90	9.5	13.02	1.89	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.509	0.509	1.96	0.80	1.70	20.9	2.63		7				0.74	7.4
3.05	10.0	13.45	2.86	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.536	0.536	2.98	0.83	1.70	21.6	2.73		7				0.76	7.2
3.20	10.5	19.92	2.55	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.564	0.564	2.62	0.78	1.64	30.8	2.57	97.2	13	19	28	31		
3.35	11.0	23.55	2.73	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.591	0.591	2.80	0.78	1.57	34.9	2.55	105.6	15	21	33	32		
3.51	11.5	21.82	3.33	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.619	0.619	3.42	0.80	1.54	31.7	2.64		11				1.25	10.3
3.66	12.0	18.59	4.04	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.646	0.646	4.19	0.84	1.51	26.6	2.75		12				1.06	8.3
3.81	12.5	17.02	4.06	Silty Clay to Clay	CL	stiff	110	1.5	11	0.674	0.674	4.23	0.85	1.47	23.6	2.79		11				0.96	7.3
3.96	13.0	15.77	3.77	Silty Clay to Clay	CL	stiff	110	1.5	11	0.701	0.701	3.95	0.86	1.42	21.2	2.81		11				0.89	6.4
4.11	13.5	14.44	3.74	Silty Clay to Clay	CL	stiff	110	1.5	10	0.729	0.729	3.94	0.87	1.38	18.9	2.85		10				0.81	5.6
4.27	14.0	14.45	4.13	Clay	CL/CH	stiff	110	1.0	14	0.756	0.756	4.36	0.88	1.34	18.3	2.89		14				0.81	5.4
4.42	14.5	19.37	2.83	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.784	0.784	2.95	0.82	1.28	23.4	2.70		10				1.09	7.1
4.57	15.0	13.82	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.811	0.811	2.74	0.85	1.25	16.4	2.80		7				0.77	4.8
4.72	15.5	10.71	2.26	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.839	0.839	2.45	0.88	1.23	12.4	2.87		5				0.58	3.5
4.88	16.0	14.30	1.41	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.866	0.866	1.50	0.81	1.18	15.9	2.66		6				0.79	4.7
5.03	16.5	12.38	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.894	0.894	2.27	0.86	1.16	13.5	2.82		6				0.68	3.9
5.18	17.0	22.87	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.921	0.921	3.72	0.84	1.12	24.3	2.75		11				1.29	7.1
5.33	17.5	93.81	1.56	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	31	0.949	0.949	1.57	0.63	1.07	94.9	2.06	131.3	32	26	75	37		
5.49	18.0	27.69	4.50	Silty Clay to Clay	CL	very stiff	110	1.5	18	0.976	0.976	4.67	0.84	1.07	28.0	2.77		18				1.57	8.2
5.64	18.5	30.09	2.02	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	12	1.004	1.004	2.09	0.77	1.04	29.6	2.52	85.5	12	17	26	31		
5.79	19.0	23.32	2.16	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	9	1.031	1.031	2.26	0.80	1.02	22.5	2.64		9				1.31	6.5
5.94	19.5	15.03	4.96	Clay	CL/CH	stiff	110	1.0	15	1.059	1.059	5.33	0.92	1.00	14.2	3.03		15				0.82	4.0
6.10	20.0	42.97	2.28	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.088	1.088	2.34	0.75	0.98	39.8	2.45	101.4	16	20	39	32		
6.25	20.5	20.77	2.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.118	1.118	2.73	0.84	0.96	18.8	2.75		10				1.16	5.3
6.40	21.0	15.99	5.52	Clay	CL/CH	stiff	120	1.0	16	1.148	1.148	5.94	0.93	0.93	14.0	3.06		16				0.87	3.9
6.55	21.5	9.27	7.26	Clay	CL/CH	firm	120	1.0	9	1.178	1.178	8.32	1.00	0.90	7.9	3.35		9				0.48	2.1
6.71	22.0	13.24	5.47	Clay	CL/CH	stiff	120	1.0	13	1.208	1.208	6.02	0.96	0.88	11.0	3.15		13				0.71	3.0
6.86	22.5	12.11	6.42	Clay	CL/CH	stiff	120	1.0	12	1.238	1.238	7.15	0.99	0.86	9.8	3.23		12				0.64	2.6
7.01	23.0	11.16	4.93	Clay	CL/CH	stiff	120	1.0	11	1.268	1.268	5.56	0.98	0.84	8.8	3.20		11				0.58	2.3
7.16	23.5	11.63	5.73	Clay	CL/CH	stiff	120	1.0	12	1.298	1.282	6.45	0.99	0.83	9.1	3.23		12				0.61	2.4
7.32	24.0	14.77	4.67	Clay	CL/CH	stiff	120	1.0	15	1.328	1.296	5.14	0.94	0.83	11.5	3.09		15				0.79	3.1
7.47	24.5	11.84	6.04	Clay	CL/CH	stiff	120	1.0	12	1.358	1.311	6.82	0.99	0.81	9.0	3.25		12				0.62	2.4
7.62	25.0	13.14	5.70	Clay	CL/CH	stiff	120	1.0	13	1.388	1.325	6.37	0.98	0.80	10.0	3.19		13				0.69	2.7
7.77	25.5	15.85	4.23	Clay	CL/CH	stiff	120	1.0	16	1.418	1.340	4.64	0.93	0.80	12.0	3.04		16				0.85	3.2
7.92	26.0	11.19	4.65	Clay	CL/CH	stiff	120	1.0	11	1.448	1.354	5.34	0.98	0.78	8.3	3.21		11				0.58	2.2
8.08	26.5	9.57	5.26	Clay	CL/CH	firm	120	1.0	10	1.478	1.368	6.22	1.00	0.77	7.0	3.31		10				0.48	1.8
8.23	27.0	8.20	5.74	Clay	CL/CH	firm	120	1.0	8	1.508	1.383	7.03	1.00	0.77	5.9	3.40		8				0.40	1.5
8.38	27.5	12.97	4.18	Clay	CL/CH	stiff	120	1.0	13	1.538	1.397	4.75	0.96	0.77	9.4	3.14		13				0.68	2.5
8.53	28.0	18.05	3.85	Silty Clay to Clay	CL	stiff	120	1.5	12	1.568	1.412	4.22	0.91	0.77	13.1	2.99		12				0.98	3.5
8.69	28.5	18.01	3.64	Silty Clay to Clay	CL	stiff	120	1.5	12	1.598	1.426	4.00	0.91	0.76	13.0	2.98		12				0.98	3.5
8.84	29.0	26.62	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.628	1.440	3.72	0.86	0.77	19.3	2.82		13				1.48	5.2
8.99	29.5	69.13	2.56	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	28	1.658	1.455	2.62	0.73	0.79	51.8	2.40	120.1	23	24	50	34		
9.14	30.0	65.69	2.43	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.688	1.469	2.49	0.73	0.79	48.8	2.41	114.0	22	23	47	34		
9.30	30.5	23.37	4.51	Silty Clay to Clay	CL	very stiff	120	1.5	16	1.718	1.484	4.87	0.90	0.74	16.3	2.96		16				1.29	4.4
9.45	31.0	13.52	5.53	Clay	CL/CH	stiff	120	1.0	14	1.748	1.498	6.35	0.99	0.71	9.1	3.23		14				0.71	2.4
9.60	31.5	9.59	6.27	Clay	CL/CH	firm	120	1.0	10	1.778	1.512	7.70	1.00	0.70	6.3	3.40		10				0.47	1.5
9.75	32.0	11.60	2.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.808	1.527	2.42	0.93	0.71	7.8	3.04		6				0.59	1.9
9.91	32.5	17.22	1.90	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.838	1.541	2.12	0.88	0.72	11.7	2.86		7				0.92	3.0
10.06	33.0	19.63	2.19	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.868	1.556	2.42	0.87	0.72	13.3	2.84		8				1.06	3.4
10.21	33.5	20.86	2.47	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.898	1.570	2.72	0.87	0.71	14.0	2.85		10				1.13	3.6
10.36	34.0	19.16	1.79	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.928	1.584	1.99	0.86	0.71	12.8	2.81		8				1.03	3.3
10.52	34.5	15.89	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.958	1.599	3.09	0.92	0.68	10.3	2.99		8				0.84	2.6
10.67	35.0	31.29	2.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	1.988	1.613	2.88	0.83	0.70	20.8	2.73		13				1.75	5.4
10.82	35.5	17.62	4.54	Clay	CL/CH	stiff	120	1.0	18	2.018	1.628	5.13	0.95	0.66	11.1	3.10		18				0.94	2.9

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 09/02/04

CPT SOUNDING: CPT-8 | Plot: 8 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

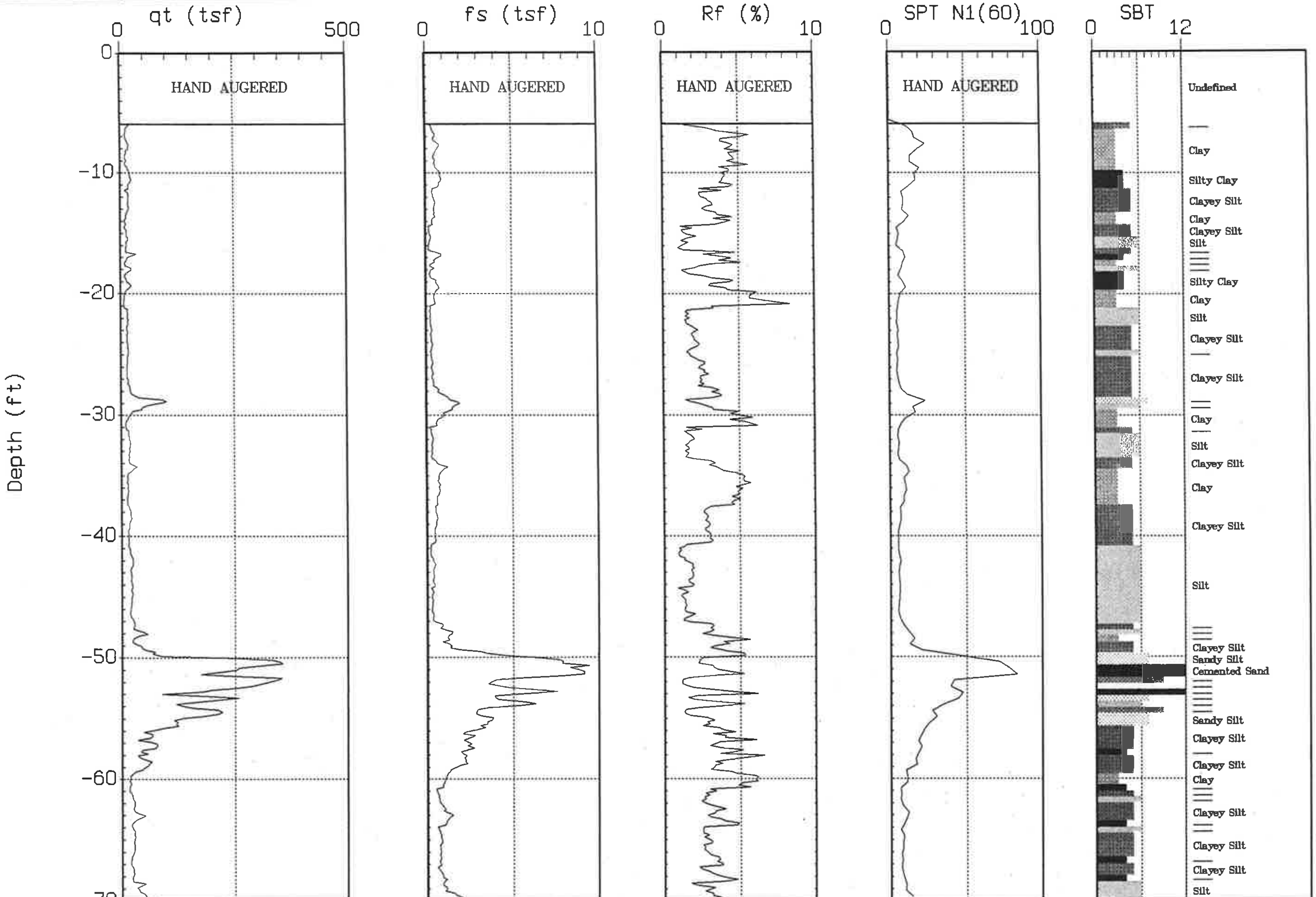
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	10.29	5.17	Clay	CL/CH	stiff	120	1.0	10	2.048	1.642	6.46	1.00	0.64	6.3	3.36		10				0.51	1.5
11.13	36.5	12.50	5.04	Clay	CL/CH	stiff	120	1.0	13	2.078	1.656	6.04	1.00	0.64	7.5	3.27		13				0.64	1.9
11.28	37.0	16.61	3.61	Silty Clay to Clay	CL	stiff	120	1.5	11	2.108	1.671	4.14	0.94	0.65	10.2	3.07		11				0.88	2.6
11.43	37.5	14.97	4.14	Clay	CL/CH	stiff	120	1.0	15	2.138	1.685	4.84	0.97	0.64	9.0	3.15		15				0.78	2.3
11.58	38.0	12.42	4.00	Clay	CL/CH	stiff	120	1.0	12	2.168	1.700	4.85	0.99	0.62	7.3	3.23		12				0.63	1.8
11.73	38.5	18.01	1.98	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.198	1.714	2.25	0.89	0.65	11.1	2.89		7				0.96	2.8
11.89	39.0	19.80	2.06	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.228	1.728	2.32	0.88	0.65	12.2	2.86		8				1.06	3.0
12.04	39.5	17.93	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	2.87	0.91	0.64	10.8	2.96		9				0.95	2.7
12.19	40.0	17.99	2.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.288	1.757	2.31	0.89	0.64	10.8	2.91		9				0.95	2.7
12.34	40.5	15.95	1.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.318	1.772	1.91	0.89	0.63	9.5	2.91		6				0.83	2.3
12.50	41.0	13.65	1.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.348	1.786	1.97	0.92	0.62	8.0	2.98		7				0.70	1.9
12.65	41.5	14.71	0.84	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.378	1.800	1.00	0.87	0.63	8.8	2.81		6				0.76	2.1
12.80	42.0	17.19	1.24	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.408	1.815	1.44	0.87	0.63	10.2	2.82		7				0.90	2.4
12.95	42.5	17.66	1.44	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.438	1.829	1.66	0.87	0.62	10.3	2.85		7				0.93	2.5
13.11	43.0	19.08	1.33	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.468	1.844	1.52	0.86	0.62	11.2	2.80		8				1.01	2.7
13.26	43.5	18.85	1.03	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	8	2.498	1.858	1.18	0.85	0.62	11.1	2.75		8				1.00	2.6
13.41	44.0	20.10	0.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.528	1.872	1.04	0.83	0.62	11.8	2.70		8				1.07	2.8
13.56	44.5	20.59	1.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.558	1.887	1.15	0.83	0.62	12.0	2.71		8				1.10	2.9
13.72	45.0	20.01	1.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.588	1.901	1.21	0.84	0.61	11.6	2.74		8				1.07	2.7
13.87	45.5	18.61	1.02	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.618	1.916	1.19	0.85	0.60	10.6	2.77		7				0.98	2.5
14.02	46.0	17.93	1.40	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.648	1.930	1.64	0.88	0.59	10.0	2.86		7				0.94	2.4
14.17	46.5	17.80	1.39	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.678	1.944	1.63	0.88	0.59	9.8	2.86		7				0.93	2.3
14.33	47.0	18.05	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.708	1.959	1.86	0.89	0.58	9.9	2.89		7				0.95	2.3
14.48	47.5	19.94	1.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.738	1.973	1.76	0.87	0.58	10.9	2.84		8				1.06	2.6
14.63	48.0	22.87	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.768	1.988	1.93	0.86	0.58	12.6	2.81		9				1.23	3.0
14.78	48.5	26.54	2.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.798	2.002	2.25	0.85	0.58	14.5	2.79		11				1.44	3.6
14.94	49.0	39.35	2.67	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.828	2.016	2.88	0.83	0.59	21.8	2.71		16				2.20	5.4
15.09	49.5	57.96	3.16	Sandy Silt to Clayey Silt	ML	hard	120	2.5	23	2.858	2.031	3.33	0.80	0.59	32.6	2.62		23				3.29	8.1
15.24	50.0	52.89	3.38	Sandy Silt to Clayey Silt	ML	hard	120	2.5	21	2.887	2.045	3.57	0.82	0.58	29.2	2.68		21				2.99	7.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-09

Engineer: T. TRANBY
Date: 02:16:04 14:13



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 09/02/04

CPT SOUNDING: CPT-9   Plot: 9   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0**   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.96		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.96		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.96		1				0.11	4.5
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.96		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.96		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.06	0.91	1.70	3.2	2.96		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.06	0.91	1.70	3.2	2.96		1				0.10	2.3
1.52	5.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.261	0.261	0.06	0.92	1.70	3.2	2.96		1				0.10	2.0
1.68	5.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.289	0.289	0.06	0.92	1.70	3.2	2.96		1				0.10	1.8
1.83	6.0	11.52	1.37	Clayey Silt to Silty Clay	ML/CL	loose	110	2.0	6	0.316	0.316	1.41	0.79	1.70	18.5	2.59	60.8	10	12	7	30		
1.98	6.5	10.92	3.84	Clay	CL/CH	stiff	110	1.0	11	0.344	0.344	3.96	0.87	1.70	17.5	2.87		11				0.62	9.2
2.13	7.0	10.14	4.87	Clay	CL/CH	stiff	110	1.0	10	0.371	0.371	5.06	0.90	1.70	16.3	2.97		10				0.57	7.9
2.29	7.5	15.42	4.24	Clay	CL/CH	stiff	110	1.0	15	0.399	0.399	4.36	0.85	1.70	24.8	2.79		15				0.88	11.3
2.44	8.0	14.83	4.58	Clay	CL/CH	stiff	110	1.0	15	0.426	0.426	4.71	0.86	1.70	23.8	2.82		15				0.85	10.1
2.59	8.5	10.71	4.49	Clay	CL/CH	stiff	110	1.0	11	0.454	0.454	4.69	0.89	1.70	17.2	2.93		11				0.60	6.8
2.74	9.0	10.88	4.63	Clay	CL/CH	stiff	110	1.0	11	0.481	0.481	4.84	0.89	1.70	17.5	2.93		11				0.61	6.5
2.90	9.5	13.12	4.59	Clay	CL/CH	stiff	110	1.0	13	0.509	0.509	4.78	0.87	1.70	21.1	2.87		13				0.74	7.4
3.05	10.0	19.15	4.15	Silty Clay to Clay	CL	very stiff	110	1.5	13	0.536	0.536	4.27	0.82	1.70	30.8	2.71		13				1.09	10.4
3.20	10.5	21.94	3.97	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.564	0.564	4.07	0.81	1.66	34.5	2.66		15				1.26	11.4
3.35	11.0	17.63	4.25	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.591	0.591	4.40	0.84	1.63	27.2	2.76		12				1.00	8.6
3.51	11.5	13.48	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.619	0.619	3.05	0.84	1.57	20.0	2.76		7				0.76	6.2
3.66	12.0	16.56	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.646	0.646	2.69	0.81	1.49	23.4	2.67		8				0.94	7.4
3.81	12.5	16.20	3.17	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.674	0.674	3.31	0.84	1.46	22.3	2.74		8				0.91	6.9
3.96	13.0	17.12	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.701	0.701	2.86	0.82	1.40	22.7	2.70		9				0.97	7.0
4.11	13.5	12.70	3.91	Clay	CL/CH	stiff	110	1.0	13	0.729	0.729	4.15	0.89	1.39	16.7	2.90		13				0.70	4.9
4.27	14.0	9.48	3.94	Clay	CL/CH	stiff	110	1.0	9	0.756	0.756	4.28	0.92	1.36	12.2	3.02		9				0.51	3.5
4.42	14.5	9.09	2.17	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	5	0.784	0.784	2.37	0.89	1.31	11.2	2.90		5				0.49	3.2
4.57	15.0	12.02	1.39	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.811	0.811	1.49	0.83	1.25	14.2	2.71		6				0.66	4.1
4.72	15.5	14.36	1.66	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.839	0.839	1.77	0.82	1.21	16.4	2.69		6				0.80	4.8
4.88	16.0	11.45	1.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.866	0.866	1.42	0.84	1.18	12.8	2.73		6				0.62	3.7
5.03	16.5	18.86	2.96	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.894	0.894	3.11	0.84	1.15	20.5	2.75		9				1.06	6.0
5.18	17.0	16.61	3.91	Silty Clay to Clay	CL	stiff	110	1.5	11	0.921	0.921	4.14	0.88	1.13	17.7	2.88		11				0.92	5.1
5.33	17.5	9.30	3.56	Clay	CL/CH	firm	110	1.0	9	0.949	0.949	3.96	0.94	1.11	9.7	3.08		9				0.49	2.6
5.49	18.0	20.60	1.57	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.976	0.976	1.65	0.79	1.07	20.8	2.59	67.6	8	14	12	29		
5.64	18.5	9.34	2.54	Silty Clay to Clay	CL	firm	110	1.5	6	1.004	1.004	2.85	0.92	1.05	9.3	3.01		6				0.49	2.5
5.79	19.0	14.45	4.03	Clay	CL/CH	stiff	110	1.0	14	1.031	1.031	4.34	0.91	1.02	14.0	2.98		14				0.79	3.9
5.94	19.5	18.25	3.81	Silty Clay to Clay	CL	very stiff	110	1.5	12	1.059	1.059	4.04	0.88	1.00	17.2	2.89		12				1.01	4.9
6.10	20.0	8.24	5.93	Clay	CL/CH	firm	120	1.0	8	1.088	1.088	6.83	1.00	0.97	7.6	3.31		8				0.42	2.0
6.25	20.5	7.05	6.51	Clay	CL/CH	firm	120	1.0	7	1.118	1.118	7.73	1.00	0.95	6.3	3.40		7				0.35	1.6
6.40	21.0	6.57	4.96	Clay	CL/CH	firm	120	1.0	7	1.148	1.148	6.01	1.00	0.92	5.7	3.37		7				0.32	1.4
6.55	21.5	14.20	1.57	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.178	1.178	1.71	0.85	0.91	12.3	2.79		6				0.77	3.3
6.71	22.0	14.43	1.53	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.208	1.208	1.67	0.85	0.89	12.2	2.79		6				0.78	3.3
6.86	22.5	13.95	1.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	1.79	0.87	0.87	11.5	2.82		7				0.75	3.1
7.01	23.0	13.16	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.268	1.268	2.33	0.89	0.85	10.6	2.92		7				0.70	2.8
7.16	23.5	13.17	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.298	1.282	2.16	0.89	0.84	10.5	2.90		7				0.70	2.8
7.32	24.0	13.38	2.21	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.328	1.296	2.46	0.90	0.83	10.5	2.93		7				0.71	2.8
7.47	24.5	14.95	1.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.358	1.311	2.16	0.88	0.83	11.7	2.86		7				0.80	3.1
7.62	25.0	14.91	1.68	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.388	1.325	1.85	0.87	0.82	11.6	2.83		6				0.80	3.1
7.77	25.5	13.48	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.418	1.340	2.63	0.91	0.81	10.3	2.95		7				0.71	2.7
7.92	26.0	12.63	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.448	1.354	2.80	0.92	0.80	9.5	3.00		6				0.66	2.5
8.08	26.5	12.25	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.478	1.368	3.09	0.93	0.79	9.1	3.04		6				0.64	2.4
8.23	27.0	14.27	2.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.508	1.383	2.74	0.91	0.78	10.6	2.95		7				0.76	2.8
8.38	27.5	16.86	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.538	1.397	2.99	0.89	0.78	12.4	2.92		8				0.91	3.3
8.53	28.0	20.26	3.50	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.568	1.412	3.79	0.89	0.77	14.8	2.92		10				1.11	4.0
8.69	28.5	53.19	2.82	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.598	1.426	2.90	0.77	0.80	40.0	2.51	113.7	18	23	39	33		
8.84	29.0	80.08	2.28	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	27	1.628	1.440	2.33	0.70	0.80	60.9	2.32	121.7	22	24	56	34		
8.99	29.5	38.69	3.81	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.658	1.455	3.98	0.83	0.77	28.1	2.72		19				2.19	7.6
9.14	30.0	18.42	5.11	Clay	CL/CH	stiff	120	1.0	18	1.688	1.469	5.62	0.94	0.73	12.8	3.08		18				1.00	3.4
9.30	30.5	11.67	5.12	Clay	CL/CH	stiff	120	1.0	12	1.718	1.484	6.00	1.00	0.71	7.9	3.26		12				0.60	2.0
9.45	31.0	9.66	3.38	Silty Clay to Clay	CL	firm	120	1.5	6	1.748	1.498	4.13	1.00	0.71	6.5	3.23		6				0.48	1.6
9.60	31.5	15.94	1.55	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.778	1.512	1.74	0.87	0.73	11.0	2.83		6				0.85	2.8
9.75	32.0	18.00	1.87	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.808	1.527	2.08	0.87	0.73	12.4	2.83		7				0.97	3.2
9.91	32.5	19.36	1.53	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.838	1.541	1.69	0.84	0.73	13.3	2.76		8				1.05	3.4
10.06	33.0	18.13	1.57	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.868	1.556	1.75	0.86	0.72	12.3	2.79		7				0.97	3.1
10.21	33.5	16.93	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.898	1.570	1.84	0.87	0.71	11.4	2.84		7				0.90	2.9
10.36	34.0	20.09	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.928	1.584	3.48	0.90	0.70	13.2	2.94		10				1.09	3.4
10.52	34.5	27.66	3.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.958	1.599	3.97	0.87	0.70	18.2	2.86		14				1.53	4.8
10.67	35.0	13.78	5.15	Clay	CL/CH	stiff	120	1.0	14	1.988	1.613	6.02	0.99	0.66	8.6	3.23		14				0.72	2.2
10.82	35.5	12.14	5.45	Clay	CL/CH	stiff	120	1.0	12	2.018	1.628	6.53	1.00	0.65	7.5	3.30		12				0.62	1.9

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-9 Plot: 9 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest
Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

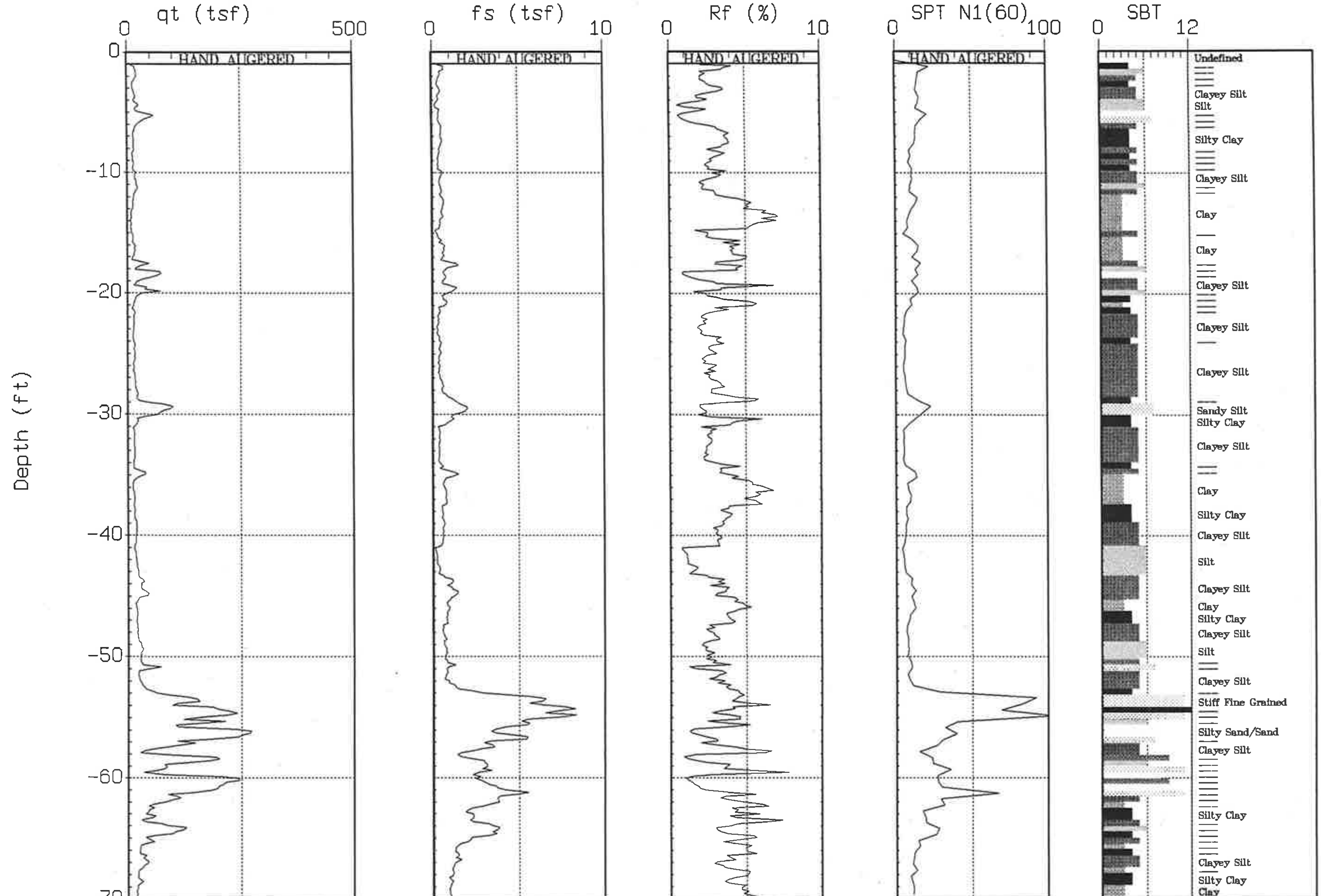
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	14.19	5.07	Clay	CL/CH	stiff	120	1.0	14	2.048	1.642	5.93	0.99	0.65	8.7	3.22		14				0.74	2.2
11.13	36.5	13.89	4.83	Clay	CL/CH	stiff	120	1.0	14	2.078	1.656	5.68	0.99	0.64	8.4	3.22		14				0.72	2.1
11.28	37.0	12.04	4.72	Clay	CL/CH	stiff	120	1.0	12	2.108	1.671	5.72	1.00	0.63	7.2	3.28		12				0.61	1.8
11.43	37.5	15.18	3.51	Silty Clay to Clay	CL	stiff	120	1.5	10	2.138	1.685	4.08	0.95	0.64	9.2	3.10		10				0.79	2.3
11.58	38.0	18.96	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.168	1.700	3.04	0.90	0.65	11.7	2.94		9				1.02	3.0
11.73	38.5	20.28	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.198	1.714	3.15	0.90	0.65	12.4	2.93		10				1.09	3.2
11.89	39.0	17.04	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.228	1.728	3.40	0.93	0.63	10.2	3.02		9				0.90	2.6
12.04	39.5	15.01	2.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.258	1.743	3.30	0.94	0.63	8.9	3.06		8				0.78	2.2
12.19	40.0	14.30	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.288	1.757	3.61	0.95	0.62	8.3	3.11		7				0.74	2.1
12.34	40.5	14.15	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.318	1.772	3.09	0.95	0.61	8.2	3.07		7				0.73	2.0
12.50	41.0	15.85	1.13	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.348	1.786	1.32	0.87	0.63	9.5	2.83		6				0.83	2.3
12.65	41.5	18.88	0.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.378	1.800	1.09	0.84	0.64	11.4	2.72		8				1.00	2.7
12.80	42.0	23.20	1.41	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.408	1.815	1.57	0.83	0.64	14.0	2.72		9				1.26	3.4
12.95	42.5	21.95	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.438	1.829	2.12	0.86	0.62	12.9	2.82		9				1.18	3.2
13.11	43.0	19.15	1.83	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.468	1.844	2.10	0.88	0.61	11.1	2.87		8				1.02	2.7
13.26	43.5	19.87	1.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.498	1.858	2.01	0.87	0.61	11.5	2.85		8				1.06	2.8
13.41	44.0	21.14	1.81	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.528	1.872	2.06	0.87	0.61	12.2	2.83		8				1.13	3.0
13.56	44.5	21.30	1.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.558	1.887	1.41	0.84	0.61	12.4	2.74		9				1.14	3.0
13.72	45.0	21.57	1.18	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.588	1.901	1.34	0.84	0.61	12.5	2.73		9				1.16	3.0
13.87	45.5	20.17	1.37	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.618	1.916	1.58	0.86	0.60	11.4	2.80		8				1.07	2.7
14.02	46.0	18.65	1.36	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.648	1.930	1.58	0.87	0.59	10.4	2.83		7				0.98	2.5
14.17	46.5	17.76	1.73	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.678	1.944	2.03	0.90	0.58	9.7	2.91		7				0.93	2.3
14.33	47.0	24.76	1.83	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.708	1.959	2.06	0.85	0.59	13.8	2.79		10				1.34	3.4
14.48	47.5	27.30	3.18	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.738	1.973	3.53	0.89	0.58	14.9	2.90		14				1.49	3.7
14.63	48.0	46.59	2.91	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.768	1.988	3.09	0.81	0.60	26.4	2.67		19				2.62	6.6
14.78	48.5	23.44	4.72	Clay	CL/CH	very stiff	120	1.0	23	2.798	2.002	5.36	0.94	0.55	12.2	3.08		23				1.26	3.1
14.94	49.0	37.55	3.57	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.828	2.016	3.86	0.86	0.57	20.4	2.82		19				2.09	5.2
15.09	49.5	62.49	4.40	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	31	2.858	2.031	4.61	0.82	0.59	34.6	2.70		31				3.56	8.8
15.24	50.0	223.13	3.43	Sand to Clayey Sand	SP/SC	medium dense	120	6.0	37	2.887	2.045	3.48	0.67	0.64	135.3	2.21	229.7	26	46	89	35		

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-10

Engineer: T. TRANBY
Date: 02:16:04 14:43



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-10 | Plot: 10 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	6.90	1.41	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	3	0.041	0.041	1.42	0.84	1.70	11.1	2.79		3				0.40	49.9
0.46	1.5	18.33	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	3.04	0.80	1.70	29.4	2.63		9				1.07	79.7
0.61	2.0	19.19	2.17	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.096	0.096	2.18	0.76	1.70	30.8	2.52	88.7	16	18	28	32		
0.76	2.5	13.17	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.124	0.124	2.32	0.81	1.70	21.2	2.67		7				0.77	31.6
0.91	3.0	11.39	3.27	Silty Clay to Clay	CL	stiff	110	1.5	8	0.151	0.151	3.31	0.85	1.70	18.3	2.81		8				0.66	22.3
1.07	3.5	15.82	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.179	0.179	2.46	0.79	1.70	25.4	2.62		8				0.92	26.2
1.22	4.0	15.35	2.13	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.206	0.206	2.16	0.79	1.70	24.7	2.59	81.2	13	16	19	31		
1.37	4.5	21.57	0.84	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.234	0.234	0.85	0.68	1.70	34.7	2.25	62.1	12	12	33	31		
1.52	5.0	25.25	1.75	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.261	0.261	1.77	0.72	1.70	40.6	2.37	89.2	17	18	39	32		
1.68	5.5	43.38	0.85	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.289	0.289	0.85	0.61	1.70	69.7	1.99	89.9	25	18	62	35		
1.83	6.0	19.95	2.42	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.316	0.316	2.46	0.77	1.70	32.1	2.54	95.5	17	19	30	32		
1.98	6.5	13.97	3.56	Silty Clay to Clay	CL	stiff	110	1.5	9	0.344	0.344	3.64	0.84	1.70	22.5	2.77		9				0.80	11.9
2.13	7.0	13.00	3.72	Silty Clay to Clay	CL	stiff	110	1.5	9	0.371	0.371	3.82	0.85	1.70	20.9	2.81		9				0.74	10.2
2.29	7.5	13.28	3.79	Silty Clay to Clay	CL	stiff	110	1.5	9	0.399	0.399	3.91	0.85	1.70	21.3	2.80		9				0.76	9.7
2.44	8.0	13.54	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.426	0.426	3.10	0.83	1.70	21.8	2.73		7				0.77	9.2
2.59	8.5	10.73	3.33	Silty Clay to Clay	CL	stiff	110	1.5	7	0.454	0.454	3.48	0.87	1.70	17.2	2.84		7				0.60	6.8
2.74	9.0	11.84	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.481	0.481	2.77	0.84	1.70	19.0	2.75		6				0.67	7.1
2.90	9.5	12.30	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.509	0.509	2.60	0.83	1.70	19.8	2.72		6				0.69	7.0
3.05	10.0	16.17	3.34	Silty Clay to Clay	CL	stiff	110	1.5	11	0.536	0.536	3.45	0.82	1.70	26.0	2.70		11				0.92	8.7
3.20	10.5	16.36	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.564	0.564	2.70	0.80	1.66	25.6	2.64		8				0.93	8.4
3.35	11.0	19.64	2.14	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.591	0.591	2.21	0.77	1.57	29.1	2.54	87.3	10	17	26	30		
3.51	11.5	18.55	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.619	0.619	2.78	0.80	1.54	27.0	2.63		9				1.05	8.7
3.66	12.0	13.11	3.78	Silty Clay to Clay	CL	stiff	110	1.5	9	0.646	0.646	3.98	0.87	1.53	19.0	2.85		9				0.73	5.8
3.81	12.5	11.93	5.18	Clay	CL/CH	stiff	110	1.0	12	0.674	0.674	5.49	0.91	1.51	17.0	2.98		12				0.66	5.0
3.96	13.0	10.12	5.56	Clay	CL/CH	stiff	110	1.0	10	0.701	0.701	5.98	0.93	1.47	14.0	3.06		10				0.55	4.0
4.11	13.5	7.86	6.87	Clay	CL/CH	firm	110	1.0	8	0.729	0.729	7.58	0.98	1.44	10.7	3.22		8				0.42	2.9
4.27	14.0	6.88	6.46	Clay	CL/CH	firm	110	1.0	7	0.756	0.756	7.25	1.00	1.40	9.1	3.26		7				0.36	2.4
4.42	14.5	7.58	5.36	Clay	CL/CH	firm	110	1.0	8	0.784	0.784	5.98	0.98	1.34	9.6	3.19		8				0.40	2.6
4.57	15.0	8.70	2.27	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.811	0.811	2.50	0.90	1.27	10.4	2.94		4				0.46	2.9
4.72	15.5	10.94	3.32	Silty Clay to Clay	CL	stiff	110	1.5	7	0.839	0.839	3.60	0.90	1.23	12.8	2.96		7				0.59	3.6
4.88	16.0	13.71	4.13	Clay	CL/CH	stiff	110	1.0	14	0.866	0.866	4.41	0.90	1.20	15.5	2.94		14				0.76	4.4
5.03	16.5	14.59	4.14	Clay	CL/CH	stiff	110	1.0	15	0.894	0.894	4.41	0.89	1.16	16.0	2.93		15				0.81	4.6
5.18	17.0	11.03	4.97	Clay	CL/CH	stiff	110	1.0	11	0.921	0.921	5.42	0.94	1.14	11.9	3.09		11				0.59	3.3
5.33	17.5	34.77	3.62	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	0.949	0.949	3.72	0.80	1.09	35.8	2.62		17				1.99	10.7
5.49	18.0	34.89	3.24	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.976	0.976	3.33	0.79	1.07	35.1	2.60	116.1	18	23	33	33		
5.64	18.5	63.03	1.11	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	21	1.004	1.004	1.13	0.64	1.03	61.6	2.11	90.6	21	18	57	34		
5.79	19.0	23.27	2.64	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	1.031	1.031	2.77	0.82	1.02	22.5	2.69		12				1.31	6.5
5.94	19.5	30.69	4.52	Silty Clay to Clay	CL	very stiff	110	1.5	20	1.059	1.059	4.68	0.84	1.00	29.0	2.76		20				1.74	8.4
6.10	20.0	41.71	2.13	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.088	1.088	2.19	0.74	0.98	38.6	2.45	96.9	16	19	37	32		
6.25	20.5	16.50	3.98	Silty Clay to Clay	CL	stiff	120	1.5	11	1.118	1.118	4.27	0.90	0.95	14.8	2.95		11				0.90	4.1
6.40	21.0	12.24	4.72	Clay	CL/CH	stiff	120	1.0	12	1.148	1.148	5.21	0.95	0.93	10.7	3.12		12				0.65	2.9
6.55	21.5	12.44	3.12	Silty Clay to Clay	CL	stiff	120	1.5	8	1.178	1.178	3.44	0.92	0.91	10.7	3.01		8				0.66	2.9
6.71	22.0	13.37	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.208	1.208	2.44	0.89	0.89	11.2	2.90		7				0.72	3.0
6.86	22.5	13.47	2.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	2.40	0.89	0.87	11.1	2.91		7				0.72	3.0
7.01	23.0	12.18	1.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.268	1.268	2.20	0.90	0.85	9.8	2.93		6				0.64	2.6
7.16	23.5	11.27	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.298	1.282	2.89	0.93	0.84	8.9	3.03		6				0.59	2.3
7.32	24.0	12.11	3.26	Silty Clay to Clay	CL	stiff	120	1.5	8	1.328	1.296	3.66	0.94	0.83	9.5	3.07		8				0.64	2.5
7.47	24.5	14.60	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.358	1.311	2.92	0.90	0.82	11.4	2.94		7				0.78	3.0
7.62	25.0	14.68	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.388	1.325	3.11	0.91	0.82	11.3	2.96		7				0.79	3.0
7.77	25.5	14.90	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.418	1.340	2.48	0.89	0.81	11.4	2.90		7				0.80	3.0
7.92	26.0	12.34	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.448	1.354	3.07	0.93	0.80	9.3	3.03		6				0.65	2.4
8.08	26.5	12.98	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.478	1.368	2.93	0.92	0.79	9.7	3.00		6				0.68	2.5
8.23	27.0	15.19	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.508	1.383	3.12	0.91	0.78	11.3	2.96		8				0.81	3.0
8.38	27.5	16.14	3.45	Silty Clay to Clay	CL	stiff	120	1.5	11	1.538	1.397	3.81	0.92	0.77	11.8	3.00		11				0.87	3.1
8.53	28.0	18.88	2.74	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.568	1.412	2.99	0.88	0.78	13.8	2.88		9				1.03	3.7
8.69	28.5	19.85	4.59	Clay	CL/CH	very stiff	120	1.0	20	1.598	1.426	4.99	0.92	0.76	14.3	3.01		20				1.08	3.8
8.84	29.0	47.62	3.66	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	24	1.628	1.440	3.79	0.80	0.78	35.2	2.63		24				2.72	9.6
8.99	29.5	90.31	2.16	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	30	1.658	1.455	2.20	0.69	0.80	68.6	2.26	125.4	25	25	61	35		
9.14	30.0	58.30	2.32	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.688	1.469	2.39	0.74	0.78	43.2	2.43	105.9	19	21	42	33		
9.30	30.5	21.10	4.91	Clay	CL/CH	very stiff	120	1.0	21	1.718	1.484	5.35	0.92	0.73	14.6	3.02		21				1.15	3.9
9.45	31.0	13.65	3.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.748	1.498	3.45	0.94	0.72	9.3	3.06		7				0.72	2.4
9.60	31.5	13.95	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.778	1.512	2.99	0.93	0.72	9.5	3.02		7				0.73	2.4
9.75	32.0	13.46	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.808	1.527	3.06	0.93	0.71	9.0	3.04		7				0.70	2.3
9.91	32.5	13.38	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.838	1.541	2.92	0.93	0.70	8.9	3.03		7				0.70	2.2
10.06	33.0	14.36	2.37	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.868	1.556	2.72	0.92	0.70	9.5	2.99		7				0.75	2.4
10.21	33.5	14.60	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.898	1.570	2.65	0.91	0.70	9.6	2.98		7				0.77	2.4
10.36	34.0	12.21	2.93	Silty Clay to Clay	CL	stiff	120	1.5	8	1.928	1.584	3.48	0.96	0.68	7.8	3.12		8				0.62	1.9
10.52	34.5	16.51	3.77	Silty Clay to Clay	CL	stiff	120	1.5	11	1.958	1.599	4.28	0.94	0.68	10.6	3.07		11				0.88	2.7
10.67	35.0	33.76	3.87	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	1.988	1.613	4.11	0.85	0.70	22.3	2.81		17				1.89	5.9
10.82	35.5	13.72	4.95	Clay	CL/CH	stiff	120	1.0	14	2.018	1.628	5.80	0.99	0.65	8.5	3.22		14				0.71	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-10 | Plot: 10 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

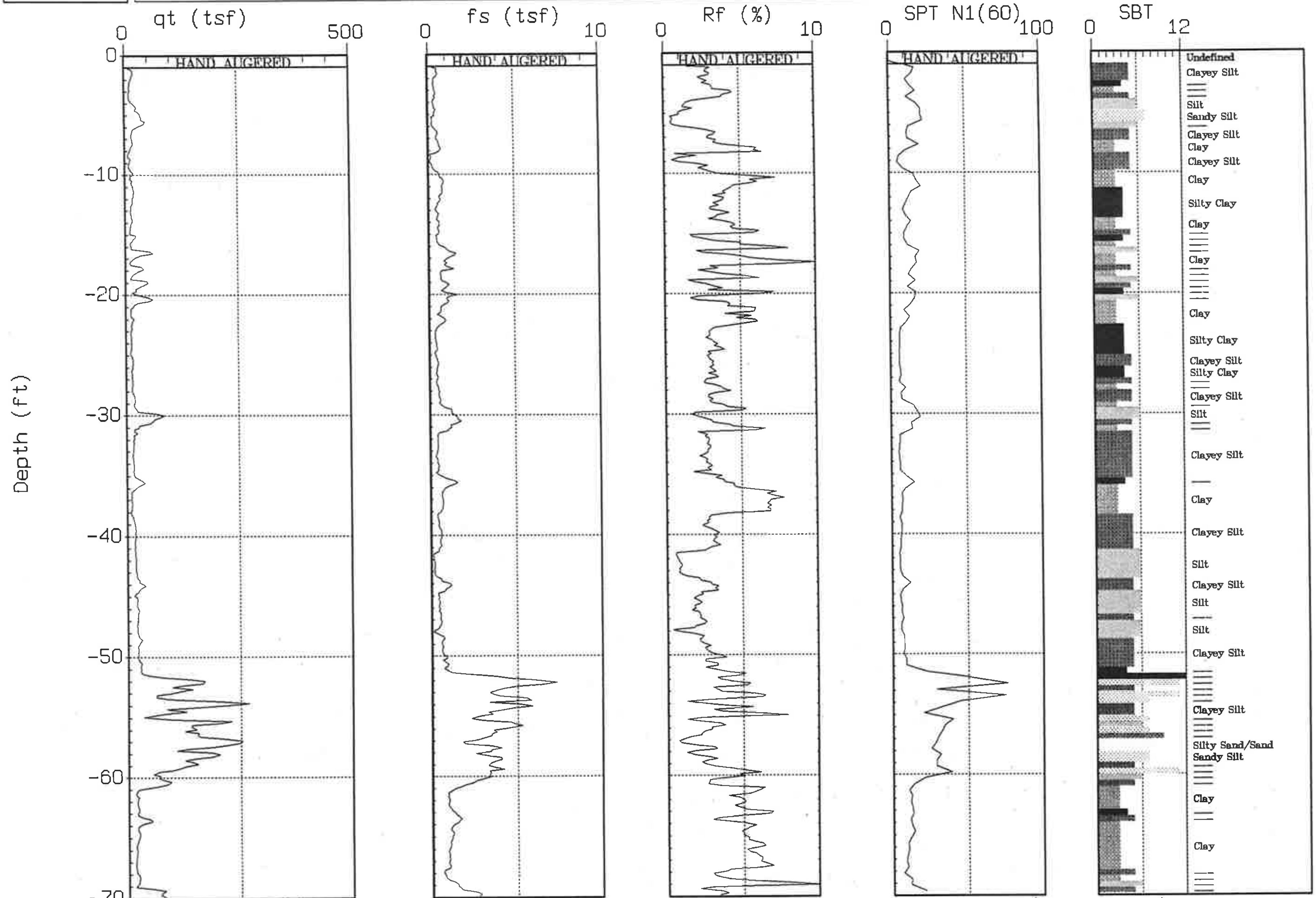
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	10.07	6.03	Clay	CL/CH	firm	120	1.0	10	2.048	1.642	7.57	1.00	0.64	6.1	3.41		10				0.50	1.5
11.13	36.5	12.10	6.09	Clay	CL/CH	stiff	120	1.0	12	2.078	1.656	7.35	1.00	0.64	7.3	3.34		12				0.61	1.8
11.28	37.0	13.65	5.49	Clay	CL/CH	stiff	120	1.0	14	2.108	1.671	6.49	1.00	0.63	8.2	3.27		14				0.70	2.1
11.43	37.5	12.86	4.63	Clay	CL/CH	stiff	120	1.0	13	2.138	1.685	5.55	1.00	0.63	7.6	3.25		13				0.66	1.9
11.58	38.0	13.77	3.70	Silty Clay to Clay	CL	stiff	120	1.5	9	2.168	1.700	4.39	0.97	0.63	8.2	3.16		9				0.71	2.0
11.73	38.5	14.09	3.77	Silty Clay to Clay	CL	stiff	120	1.5	9	2.198	1.714	4.46	0.97	0.63	8.3	3.16		9				0.73	2.1
11.89	39.0	17.42	3.45	Silty Clay to Clay	CL	stiff	120	1.5	12	2.228	1.728	3.95	0.93	0.63	10.4	3.05		12				0.92	2.6
12.04	39.5	18.33	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	3.45	0.92	0.63	11.0	3.00		9				0.98	2.8
12.19	40.0	16.75	3.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.288	1.757	3.74	0.94	0.62	9.8	3.06		8				0.88	2.5
12.34	40.5	16.04	3.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.318	1.772	3.67	0.94	0.62	9.3	3.07		8				0.84	2.3
12.50	41.0	12.98	1.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.348	1.786	1.93	0.92	0.62	7.6	3.00		6				0.66	1.8
12.65	41.5	16.12	1.01	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.378	1.800	1.19	0.86	0.63	9.6	2.80		6				0.84	2.3
12.80	42.0	17.16	1.11	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.408	1.815	1.29	0.86	0.63	10.2	2.80		7				0.90	2.4
12.95	42.5	18.37	1.46	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.438	1.829	1.69	0.87	0.62	10.8	2.83		7				0.97	2.6
13.11	43.0	22.01	1.44	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.468	1.844	1.63	0.85	0.63	13.0	2.76		9				1.19	3.2
13.26	43.5	25.68	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.498	1.858	3.12	0.88	0.61	14.8	2.87		13				1.40	3.7
13.41	44.0	31.06	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.528	1.872	3.39	0.86	0.61	17.9	2.82		16				1.72	4.6
13.56	44.5	31.85	3.75	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.558	1.887	4.07	0.88	0.60	18.1	2.87		16				1.76	4.7
13.72	45.0	37.33	3.42	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.588	1.901	3.67	0.85	0.61	21.4	2.79		19				2.08	5.5
13.87	45.5	18.68	4.56	Clay	CL/CH	stiff	120	1.0	19	2.618	1.916	5.30	0.96	0.56	10.0	3.14		19				0.99	2.5
14.02	46.0	17.28	4.98	Clay	CL/CH	stiff	120	1.0	17	2.648	1.930	5.88	0.98	0.55	9.1	3.21		17				0.90	2.3
14.17	46.5	19.94	3.90	Silty Clay to Clay	CL	very stiff	120	1.5	13	2.678	1.944	4.51	0.94	0.56	10.6	3.08		13				1.06	2.7
14.33	47.0	18.48	4.09	Silty Clay to Clay	CL	stiff	120	1.5	12	2.708	1.959	4.79	0.96	0.55	9.7	3.13		12				0.97	2.4
14.48	47.5	20.11	2.63	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.738	1.973	3.04	0.91	0.57	10.8	2.97		10				1.07	2.6
14.63	48.0	19.68	2.80	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.768	1.988	3.25	0.92	0.56	10.4	3.00		10				1.04	2.6
14.78	48.5	21.79	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.798	2.002	3.46	0.91	0.56	11.5	2.98		11				1.16	2.8
14.94	49.0	27.81	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.828	2.016	2.50	0.86	0.58	15.1	2.80		11				1.52	3.7
15.09	49.5	29.47	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.858	2.031	2.78	0.86	0.57	15.9	2.81		12				1.61	3.9
15.24	50.0	26.28	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.887	2.045	2.81	0.88	0.56	13.9	2.86		11				1.43	3.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-11

Engineer: T. TRANBY
Date: 02:16:04 15:13



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 10/29/04

CPT SOUNDING: CPT-11 | Plot: 1 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	6.91	1.07	Sensitive fine grained	ML	firm	110	2.0	3	0.041	0.041	1.08	0.83	1.70	11.1	2.73		3				0.40	50.0
0.46	1.5	18.03	2.87	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	2.88	0.79	1.70	29.0	2.62		9				1.06	78.4
0.61	2.0	14.37	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.096	0.096	2.62	0.81	1.70	23.1	2.67		7				0.84	44.5
0.76	2.5	11.02	2.85	Silty Clay to Clay	CL	stiff	110	1.5	7	0.124	0.124	2.88	0.84	1.70	17.7	2.79		7				0.64	26.4
0.91	3.0	10.34	3.62	Clay	CL/CH	stiff	110	1.0	10	0.151	0.151	3.67	0.87	1.70	16.6	2.87		10				0.60	20.2
1.07	3.5	9.18	4.08	Clay	CL/CH	stiff	110	1.0	9	0.179	0.179	4.16	0.89	1.70	14.7	2.95		9				0.53	15.1
1.22	4.0	14.97	2.04	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.206	0.206	2.07	0.79	1.70	24.0	2.59	79.0	13	16	18	31		
1.37	4.5	24.51	1.47	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.234	0.234	1.48	0.71	1.70	39.4	2.33	81.3	17	16	38	32		
1.52	5.0	32.66	1.07	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.261	0.261	1.08	0.65	1.70	52.5	2.15	81.8	19	16	50	33		
1.68	5.5	40.35	0.48	Sand to Silty Sand	SP/SM	medium dense	100	4.0	10	0.288	0.288	0.48	0.58	1.70	64.8	1.89	64.8	17	13	59	32		
1.83	6.0	25.61	1.17	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.314	0.314	1.19	0.69	1.70	41.1	2.26	75.4	15	15	40	32		
1.98	6.5	15.69	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.341	0.341	3.23	0.82	1.70	25.2	2.70		8				0.90	13.5
2.13	7.0	15.39	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.369	0.369	3.14	0.82	1.70	24.7	2.69		8				0.88	12.2
2.29	7.5	15.59	3.94	Silty Clay to Clay	CL	stiff	110	1.5	10	0.396	0.396	4.04	0.84	1.70	25.1	2.76		10				0.89	11.5
2.44	8.0	9.49	6.22	Clay	CL/CH	stiff	110	1.0	9	0.424	0.424	6.51	0.93	1.70	15.2	3.06		9				0.53	6.4
2.59	8.5	7.80	1.27	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.451	0.451	1.35	0.83	1.70	12.5	2.73		4				0.43	4.9
2.74	9.0	8.75	1.21	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.479	0.479	1.28	0.82	1.70	14.1	2.68		4				0.49	5.2
2.90	9.5	10.10	2.61	Silty Clay to Clay	CL	stiff	110	1.5	7	0.506	0.506	2.75	0.85	1.70	16.2	2.80		7				0.56	5.7
3.05	10.0	15.18	3.91	Silty Clay to Clay	CL	stiff	110	1.5	10	0.534	0.534	4.06	0.84	1.70	24.4	2.77		10				0.86	8.2
3.20	10.5	13.07	6.38	Clay	CL/CH	stiff	110	1.0	13	0.561	0.561	6.66	0.90	1.70	21.0	2.96		13				0.74	6.7
3.35	11.0	16.16	4.85	Clay	CL/CH	stiff	110	1.0	16	0.589	0.589	5.03	0.86	1.65	25.3	2.82		16				0.92	7.9
3.51	11.5	18.68	4.02	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.616	0.616	4.15	0.83	1.57	27.7	2.74		12				1.06	8.8
3.66	12.0	16.92	3.68	Silty Clay to Clay	CL	stiff	110	1.5	11	0.644	0.644	3.83	0.84	1.52	24.3	2.76		11				0.96	7.6
3.81	12.5	14.66	3.48	Silty Clay to Clay	CL	stiff	110	1.5	10	0.671	0.671	3.65	0.85	1.47	20.4	2.80		10				0.82	6.3
3.96	13.0	12.17	3.27	Silty Clay to Clay	CL	stiff	110	1.5	8	0.699	0.699	3.47	0.87	1.44	16.5	2.86		8				0.67	4.9
4.11	13.5	13.64	3.74	Silty Clay to Clay	CL	stiff	110	1.5	9	0.726	0.726	3.95	0.87	1.39	17.9	2.87		9				0.76	5.3
4.27	14.0	14.25	3.72	Silty Clay to Clay	CL	stiff	110	1.5	9	0.754	0.754	3.93	0.87	1.34	18.1	2.86		9				0.79	5.4
4.42	14.5	11.47	4.53	Clay	CL/CH	stiff	110	1.0	11	0.781	0.781	4.86	0.91	1.32	14.3	3.00		11				0.63	4.1
4.57	15.0	13.86	4.62	Clay	CL/CH	stiff	110	1.0	14	0.809	0.809	4.90	0.90	1.27	16.7	2.95		14				0.77	4.8
4.72	15.5	17.57	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.836	0.836	2.68	0.83	1.22	20.2	2.72		9				0.98	6.0
4.88	16.0	11.48	6.31	Clay	CL/CH	stiff	110	1.0	11	0.864	0.864	6.83	0.95	1.21	13.2	3.12		11				0.62	3.7
5.03	16.5	50.32	2.92	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	20	0.891	0.891	2.97	0.74	1.13	54.0	2.43	130.7	21	26	51	34		
5.18	17.0	17.33	6.14	Clay	CL/CH	stiff	110	1.0	17	0.919	0.919	6.48	0.91	1.14	18.6	2.99		17				0.97	5.4
5.33	17.5	18.48	7.10	Clay	CL/CH	very stiff	110	1.0	18	0.946	0.946	7.49	0.92	1.11	19.4	3.03		18				1.03	5.6
5.49	18.0	30.63	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	15	0.974	0.974	3.00	0.79	1.07	30.9	2.61		15				1.74	9.1
5.64	18.5	13.14	5.10	Clay	CL/CH	stiff	110	1.0	13	1.001	1.001	5.52	0.94	1.05	13.1	3.06		13				0.71	3.6
5.79	19.0	46.22	2.05	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	18	1.029	1.029	2.10	0.73	1.02	44.6	2.39	100.7	18	20	43	33		
5.94	19.5	25.86	3.25	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.056	1.056	3.39	0.83	1.00	24.5	2.72		13				1.46	7.0
6.10	20.0	29.05	5.22	Clay	CL/CH	very stiff	110	1.0	29	1.084	1.084	5.42	0.86	0.98	26.9	2.83		29				1.64	7.7
6.25	20.5	46.38	2.60	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	19	1.111	1.111	2.67	0.75	0.96	42.2	2.47	111.1	18	22	41	32		
6.40	21.0	15.19	4.81	Clay	CL/CH	stiff	110	1.0	15	1.139	1.139	5.20	0.93	0.93	13.4	3.04		15				0.83	3.7
6.55	21.5	10.68	5.29	Clay	CL/CH	stiff	110	1.0	11	1.166	1.166	5.93	0.98	0.91	9.2	3.20		11				0.56	2.4
6.71	22.0	14.93	5.48	Clay	CL/CH	stiff	120	1.0	15	1.195	1.195	5.96	0.95	0.89	12.6	3.10		15				0.81	3.4
6.86	22.5	12.43	5.13	Clay	CL/CH	stiff	120	1.0	12	1.225	1.225	5.69	0.97	0.87	10.2	3.16		12				0.66	2.7
7.01	23.0	11.73	3.06	Silty Clay to Clay	CL	stiff	120	1.5	8	1.255	1.255	3.42	0.94	0.85	9.4	3.05		8				0.62	2.5
7.16	23.5	10.83	2.83	Silty Clay to Clay	CL	stiff	120	1.5	7	1.285	1.285	3.22	0.94	0.83	8.5	3.07		7				0.56	2.2
7.32	24.0	11.10	3.21	Silty Clay to Clay	CL	stiff	120	1.5	7	1.315	1.315	3.64	0.95	0.81	8.5	3.10		7				0.58	2.2
7.47	24.5	11.12	3.58	Silty Clay to Clay	CL	stiff	120	1.5	7	1.345	1.345	4.07	0.96	0.79	8.3	3.14		7				0.57	2.2
7.62	25.0	10.40	2.86	Silty Clay to Clay	CL	stiff	120	1.5	7	1.375	1.375	3.30	0.96	0.78	7.6	3.12		7				0.53	2.0
7.77	25.5	14.05	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.405	1.389	3.29	0.92	0.78	10.3	3.01		7				0.74	2.7
7.92	26.0	13.98	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.435	1.404	3.40	0.93	0.77	10.2	3.02		7				0.74	2.7
8.08	26.5	11.84	3.15	Silty Clay to Clay	CL	stiff	120	1.5	8	1.465	1.418	3.60	0.95	0.76	8.5	3.10		8				0.61	2.2
8.23	27.0	13.26	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.495	1.433	3.28	0.93	0.75	9.4	3.04		7				0.70	2.5
8.38	27.5	12.97	3.14	Silty Clay to Clay	CL	stiff	120	1.5	9	1.525	1.447	3.56	0.94	0.74	9.1	3.07		9				0.68	2.4
8.53	28.0	12.96	3.82	Silty Clay to Clay	CL	stiff	120	1.5	9	1.555	1.461	4.34	0.96	0.73	9.0	3.13		9				0.68	2.3
8.69	28.5	18.25	2.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.585	1.476	3.20	0.89	0.74	12.8	2.93		9				0.99	3.4
8.84	29.0	17.69	3.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.615	1.490	3.56	0.91	0.73	12.2	2.97		9				0.95	3.2
8.99	29.5	22.45	4.81	Clay	CL/CH	very stiff	120	1.0	22	1.645	1.505	5.19	0.91	0.73	15.4	2.99		22				1.23	4.1
9.14	30.0	73.00	1.92	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	1.675	1.519	1.97	0.70	0.78	53.5	2.31	105.6	20	21	51	33		
9.30	30.5	56.82	2.89	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.705	1.533	2.98	0.77	0.75	40.4	2.52	115.7	18	23	39	33		
9.45	31.0	23.79	5.07	Clay	CL/CH	very stiff	120	1.0	24	1.735	1.548	5.47	0.91	0.71	15.9	3.00		24				1.31	4.3
9.60	31.5	17.93	3.57	Silty Clay to Clay	CL	stiff	120	1.5	12	1.765	1.562	3.96	0.92	0.70	11.8	3.01		12				0.96	3.1
9.75	32.0	15.43	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.795	1.577	3.09	0.92	0.69	10.1	3.00		8				0.82	2.6
9.91	32.5	14.70	2.79	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.825	1.591	3.19	0.93	0.68	9.5	3.03		7				0.77	2.4
10.06	33.0	13.71	2.79	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.855	1.605	3.23	0.94	0.68	8.8	3.06		7				0.71	2.2
10.21	33.5	12.89	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.885	1.620	2.85	0.94	0.67	8.2	3.06		6				0.66	2.0
10.36	34.0	14.60	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.915	1.634	3.13	0.93	0.67	9.2	3.04		7				0.76	2.3
10.52	34.5	15.11	2.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.945	1.649	3.32	0.93	0.66	9.4	3.04		8				0.79	2.4
10.67	35.0	16.43	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.975	1.663	3.09	0.92	0.66	10.3	3.00		8				0.87	2.6
10.82	35.5	34.01	3.63	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	2.005	1.677	3.85	0.85	0.68	21.7	2.80		17				1.90	5.7

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 10/29/04

CPT SOUNDING: CPT-11 | Plot: 1 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

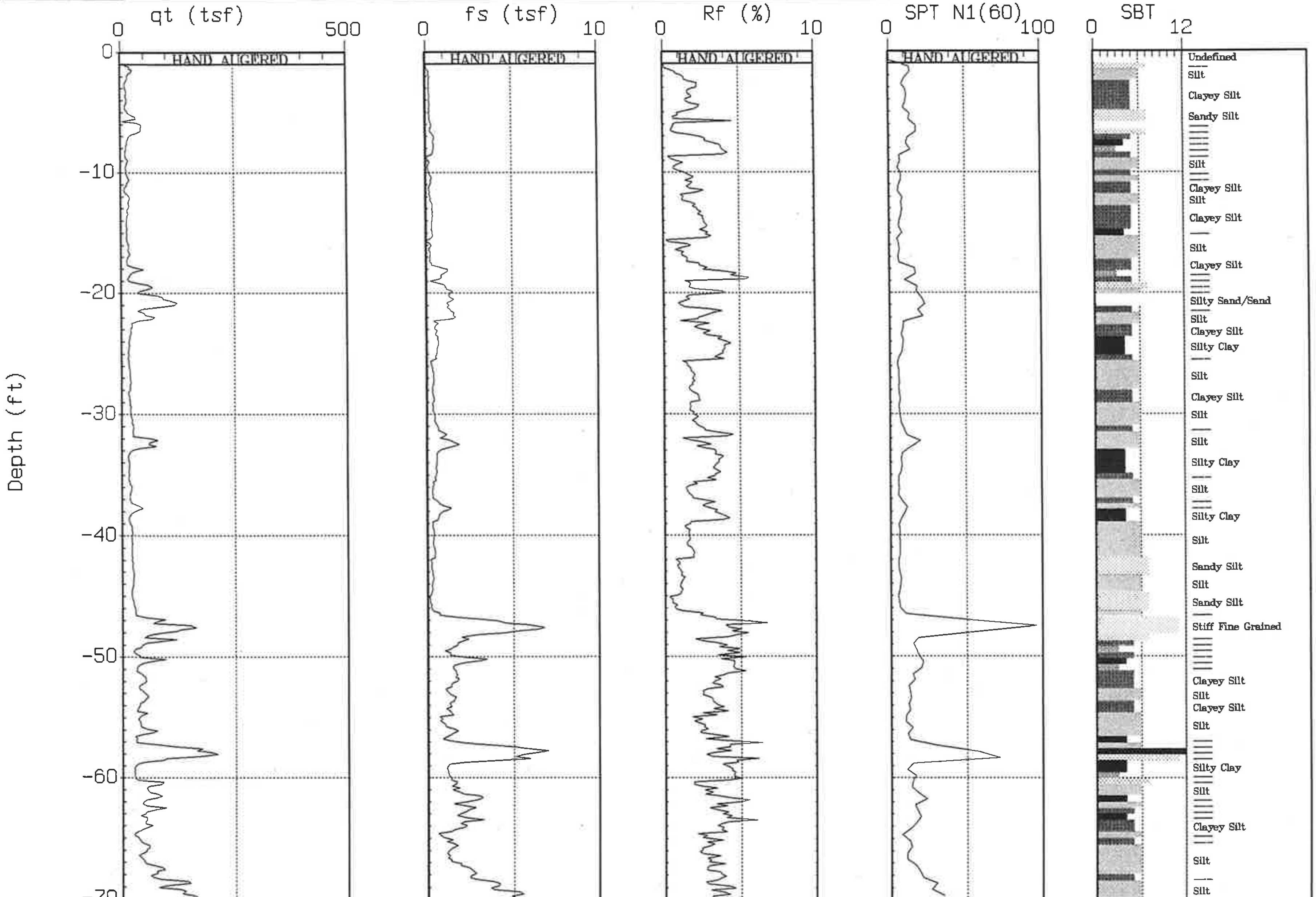
Est. GWT (feet): **25.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	23.11	4.53	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.035	1.692	4.97	0.92	0.65	14.2	3.01		15				1.26	3.7
11.13	36.5	9.69	6.77	Clay	CL/CH	firm	120	1.0	10	2.065	1.706	8.61	1.00	0.62	5.7	3.47		10				0.47	1.3
11.28	37.0	9.29	7.24	Clay	CL/CH	firm	120	1.0	9	2.095	1.721	9.35	1.00	0.61	5.4	3.51		9				0.45	1.3
11.43	37.5	9.64	6.81	Clay	CL/CH	firm	120	1.0	10	2.125	1.735	8.74	1.00	0.61	5.6	3.48		10				0.47	1.3
11.58	38.0	8.18	5.99	Clay	CL/CH	firm	120	1.0	8	2.155	1.749	8.14	1.00	0.60	4.7	3.52		8				0.38	1.0
11.73	38.5	12.89	2.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.185	1.764	3.43	0.96	0.61	7.4	3.14		6				0.65	1.8
11.89	39.0	16.48	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.215	1.778	2.98	0.92	0.62	9.6	3.01		8				0.87	2.4
12.04	39.5	17.87	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.245	1.793	3.37	0.92	0.61	10.4	3.01		9				0.95	2.6
12.19	40.0	17.09	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.275	1.807	3.78	0.94	0.60	9.8	3.06		9				0.90	2.5
12.34	40.5	15.92	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.305	1.821	3.70	0.95	0.60	9.0	3.09		8				0.83	2.2
12.50	41.0	15.79	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.335	1.836	3.61	0.95	0.59	8.9	3.09		8				0.82	2.2
12.65	41.5	16.12	1.21	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.365	1.850	1.42	0.88	0.61	9.3	2.85		6				0.84	2.2
12.80	42.0	17.73	0.68	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.395	1.865	0.78	0.83	0.63	10.5	2.69		7				0.93	2.5
12.95	42.5	17.65	0.91	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.425	1.879	1.05	0.85	0.61	10.2	2.76		7				0.93	2.4
13.11	43.0	18.31	0.80	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.455	1.893	0.93	0.84	0.61	10.6	2.72		7				0.97	2.5
13.26	43.5	22.43	1.48	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.485	1.908	1.66	0.85	0.61	12.9	2.77		9				1.21	3.1
13.41	44.0	33.52	2.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.515	1.922	2.87	0.84	0.60	19.2	2.76		13				1.86	4.8
13.56	44.5	26.06	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.545	1.937	3.66	0.89	0.58	14.4	2.92		13				1.42	3.6
13.72	45.0	16.71	2.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.575	1.951	2.57	0.92	0.57	9.0	3.00		8				0.87	2.2
13.87	45.5	20.70	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.605	1.965	2.29	0.89	0.58	11.3	2.89		8				1.10	2.8
14.02	46.0	21.99	1.90	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.635	1.980	2.16	0.87	0.58	12.0	2.85		9				1.18	2.9
14.17	46.5	23.18	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.665	1.994	2.20	0.87	0.58	12.6	2.84		9				1.25	3.1
14.33	47.0	21.32	2.34	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.695	2.009	2.68	0.90	0.56	11.3	2.92		11				1.14	2.8
14.48	47.5	20.76	2.01	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.725	2.023	2.32	0.89	0.56	11.0	2.90		8				1.10	2.7
14.63	48.0	21.46	0.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.755	2.037	1.09	0.83	0.58	11.7	2.71		9				1.14	2.8
14.78	48.5	28.08	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.785	2.052	2.49	0.86	0.57	15.0	2.81		11				1.53	3.7
14.94	49.0	22.81	2.50	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.815	2.066	2.86	0.90	0.55	11.8	2.92		11				1.22	2.9
15.09	49.5	22.18	2.56	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.845	2.081	2.93	0.90	0.54	11.4	2.95		11				1.18	2.8
15.24	50.0	21.47	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.875	2.095	4.05	0.93	0.53	10.7	3.05		11				1.14	2.7

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-12

Engineer: T. TRANBY
Date: 02:17:04 07:34



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-12 Plot: 2 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

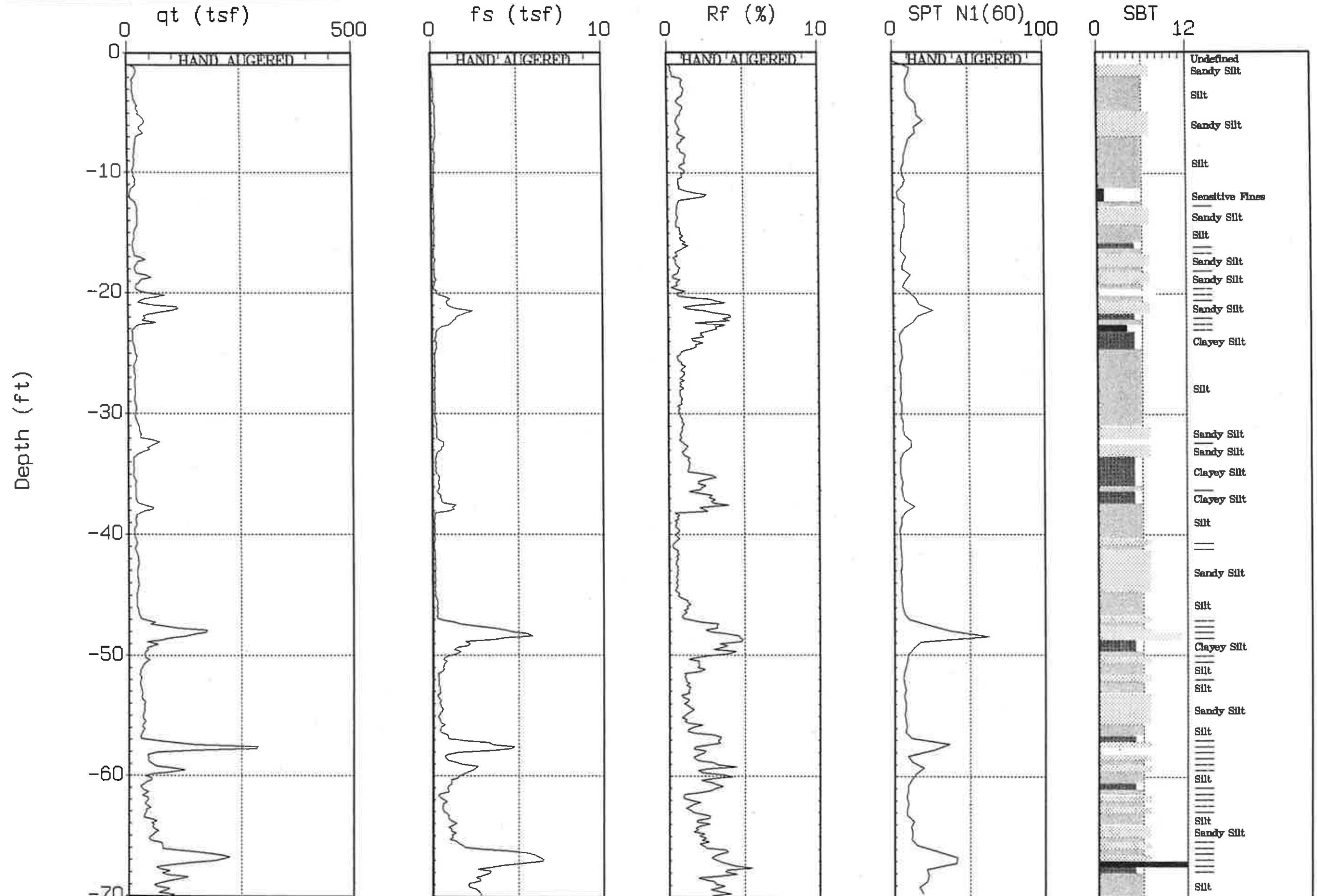
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	7.78	0.07	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.07	0.72	1.70	12.5	2.37	12.5	7	2	-9	29		
0.46	1.5	22.80	0.42	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.069	0.069	0.42	0.63	1.70	36.6	2.08	36.6	13	7	35	31		
0.61	2.0	15.53	1.18	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.096	0.096	1.18	0.74	1.70	25.0	2.44	62.3	11	12	19	30		
0.76	2.5	11.60	1.79	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.124	0.124	1.81	0.80	1.70	18.6	2.65		6				0.67	27.8
0.91	3.0	9.74	2.08	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.151	0.151	2.11	0.83	1.70	15.7	2.75		5				0.56	19.0
1.07	3.5	11.91	1.71	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.179	0.179	1.74	0.80	1.70	19.1	2.63		6				0.69	19.7
1.22	4.0	12.72	1.64	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.206	0.206	1.67	0.79	1.70	20.4	2.60	67.5	11	14	11	30		
1.37	4.5	10.20	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.234	0.234	2.24	0.84	1.70	16.4	2.75		5				0.59	12.8
1.52	5.0	13.03	1.54	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.261	0.261	1.57	0.78	1.70	20.9	2.57	66.4	11	13	12	30		
1.68	5.5	23.38	1.72	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.289	0.289	1.74	0.73	1.70	37.6	2.39	85.8	16	17	36	32		
1.83	6.0	41.93	0.72	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.316	0.316	0.72	0.60	1.70	67.4	1.96	84.6	24	17	60	34		
1.98	6.5	41.95	0.64	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.344	0.344	0.65	0.59	1.70	67.4	1.94	82.7	24	17	60	34		
2.13	7.0	19.58	2.31	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.371	0.371	2.35	0.77	1.70	31.5	2.53	92.8	16	19	29	32		
2.29	7.5	13.23	3.24	Silty Clay to Clay	CL	stiff	110	1.5	9	0.399	0.399	3.34	0.84	1.70	21.3	2.76		9				0.75	9.7
2.44	8.0	10.93	3.91	Clay	CL/CH	stiff	110	1.0	11	0.426	0.426	4.07	0.88	1.70	17.6	2.88		11				0.62	7.4
2.59	8.5	9.22	2.85	Silty Clay to Clay	CL	stiff	110	1.5	6	0.454	0.454	3.00	0.87	1.70	14.8	2.86		6				0.52	5.8
2.74	9.0	13.55	0.89	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.481	0.481	0.93	0.74	1.70	21.8	2.44	54.1	8	11	14	29		
2.90	9.5	11.13	0.77	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.509	0.509	0.80	0.76	1.70	17.9	2.49	48.3	6	10	5	29		
3.05	10.0	11.27	1.35	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.536	0.536	1.42	0.79	1.70	18.1	2.60		6				0.63	6.0
3.20	10.5	15.64	1.76	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.564	0.564	1.83	0.78	1.63	24.4	2.56	74.9	8	15	18	29		
3.35	11.0	12.83	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.591	0.591	1.83	0.81	1.60	19.4	2.64		6				0.72	6.2
3.51	11.5	7.14	2.22	Silty Clay to Clay	CL	firm	110	1.5	5	0.619	0.619	2.44	0.89	1.61	10.9	2.92		5				0.38	3.2
3.66	12.0	17.02	1.25	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.646	0.646	1.30	0.76	1.45	23.4	2.49	63.3	8	13	17	29		
3.81	12.5	17.19	1.71	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.674	0.674	1.78	0.78	1.42	23.1	2.57	72.6	8	15	16	29		
3.96	13.0	16.27	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.701	0.701	2.24	0.81	1.39	21.4	2.65		8				0.92	6.7
4.11	13.5	14.58	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.729	0.729	2.60	0.83	1.37	18.8	2.74		7				0.81	5.7
4.27	14.0	12.65	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.756	0.756	2.83	0.86	1.33	16.0	2.82		6				0.70	4.7
4.42	14.5	11.53	2.83	Silty Clay to Clay	CL	stiff	110	1.5	8	0.784	0.784	3.04	0.88	1.30	14.2	2.88		8				0.63	4.1
4.57	15.0	12.00	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.811	0.811	2.92	0.87	1.26	14.3	2.86		6				0.66	4.1
4.72	15.5	11.98	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.839	0.839	2.21	0.86	1.22	13.8	2.81		6				0.66	4.0
4.88	16.0	14.75	1.22	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.866	0.866	1.30	0.80	1.17	16.4	2.62		6				0.82	4.8
5.03	16.5	16.24	1.10	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.894	0.894	1.17	0.79	1.14	17.5	2.57	55.3	7	11	5	29		
5.18	17.0	14.01	1.48	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.921	0.921	1.58	0.83	1.12	14.8	2.70		6				0.77	4.3
5.33	17.5	12.56	2.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.949	0.949	2.29	0.87	1.10	13.1	2.84		6				0.68	3.7
5.49	18.0	35.65	3.15	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	18	0.976	0.976	3.24	0.78	1.07	36.1	2.58	115.5	18	23	35	33		
5.64	18.5	18.51	4.97	Clay	CL/CH	very stiff	110	1.0	19	1.004	1.004	5.26	0.90	1.05	18.3	2.94		19				1.03	5.2
5.79	19.0	21.51	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.031	1.031	3.04	0.84	1.02	20.8	2.74		11				1.20	6.0
5.94	19.5	60.88	1.82	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	20	1.059	1.059	1.85	0.69	1.00	57.5	2.27	106.2	20	21	54	33		
6.10	20.0	49.93	3.16	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	20	1.086	1.086	3.23	0.76	0.98	46.3	2.50	128.0	19	26	45	33		
6.25	20.5	98.04	1.49	Sand to Silty Sand	SP/SM	medium dense	100	4.0	25	1.113	1.113	1.51	0.63	0.97	89.8	2.06	124.9	23	25	72	34		
6.40	21.0	107.43	1.17	Sand to Silty Sand	SP/SM	medium dense	100	4.0	27	1.138	1.138	1.18	0.60	0.96	97.2	1.97	122.3	25	24	76	35		
6.55	21.5	43.31	3.36	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	22	1.164	1.164	3.45	0.79	0.93	38.0	2.58	122.1	20	24	37	33		
6.71	22.0	65.34	2.44	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.193	1.193	2.49	0.72	0.92	56.7	2.36	121.7	24	24	53	34		
6.86	22.5	27.22	2.12	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	1.223	1.223	2.22	0.80	0.89	22.9	2.63		11				1.53	6.4
7.01	23.0	20.39	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.253	1.253	2.66	0.85	0.87	16.7	2.78		10				1.13	4.6
7.16	23.5	18.30	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.283	1.283	3.35	0.88	0.84	14.6	2.89		9				1.00	4.0
7.32	24.0	15.90	4.09	Silty Clay to Clay	CL	stiff	120	1.5	11	1.313	1.313	4.46	0.92	0.82	12.3	3.03		11				0.86	3.3
7.47	24.5	15.35	4.08	Silty Clay to Clay	CL	stiff	120	1.5	10	1.343	1.343	4.47	0.93	0.80	11.6	3.05		10				0.82	3.1
7.62	25.0	14.57	3.84	Silty Clay to Clay	CL	stiff	120	1.5	10	1.373	1.373	4.24	0.94	0.78	10.8	3.06		10				0.78	2.9
7.77	25.5	14.22	2.88	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.403	1.387	3.19	0.92	0.78	10.5	3.00		7				0.75	2.8
7.92	26.0	14.74	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.433	1.401	1.75	0.87	0.78	10.9	2.84		6				0.78	2.8
8.08	26.5	16.98	1.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.463	1.416	2.09	0.87	0.78	12.5	2.83		8				0.92	3.3
8.23	27.0	17.93	1.97	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.493	1.430	2.15	0.86	0.77	13.1	2.82		7				0.97	3.4
8.38	27.5	18.51	1.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.523	1.445	1.96	0.85	0.77	13.4	2.79		7				1.00	3.5
8.53	28.0	16.60	1.80	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.553	1.459	1.99	0.87	0.76	11.9	2.84		7				0.89	3.1
8.69	28.5	15.51	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.583	1.473	2.54	0.90	0.74	10.9	2.93		8				0.83	2.8
8.84	29.0	17.30	1.93	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.613	1.488	2.13	0.87	0.74	12.2	2.84		7				0.93	3.2
8.99	29.5	18.44	1.74	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.643	1.502	1.90	0.86	0.74	12.9	2.80		7				1.00	3.4
9.14	30.0	18.96	2.06	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.673	1.517	2.26	0.87	0.73	13.1	2.83		8				1.03	3.4
9.30	30.5	21.71	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.703	1.531	2.17	0.85	0.73	15.0	2.77		9				1.19	3.9
9.45	31.0	24.43	2.36	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.733	1.545	2.54	0.85	0.73	16.8	2.77		10				1.35	4.4
9.60	31.5	23.62	3.53	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.763	1.560	3.81	0.88	0.71	15.8	2.90		12				1.30	4.2
9.75	32.0	54.11	2.33	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.793	1.574	2.41	0.75	0.74	37.9	2.48	100.9	17	20	37	32		
9.91	32.5	65.40	2.56	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.823	1.589	2.63	0.74	0.74	45.7	2.44	114.0	21	23	44	33		
10.06	33.0	27.32	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.853	1.603	3.35	0.86	0.70	18.1	2.82		14				1.51	4.8
10.21	33.5	14.69	3.69	Silty Clay to Clay	CL	stiff	120	1.5	10	1.883	1.617	4.23	0.95	0.67	9.3	3.11		10				0.77	2.4
10.36	34.0	14.73	3.60	Silty Clay to Clay	CL	stiff	120	1.5	10	1.913	1.632	4.14	0.95	0.66	9.2	3.11		10				0.77	2.4
10.52	34.5	14.91	3.42	Silty Clay to Clay	CL	stiff	120	1.5	10	1.943	1.646	3.93	0.95	0.66	9.3	3.09		10				0.78	2.4
10.67	35.0	14.48	3.54	Silty Clay to Clay	CL	stiff	120	1.5	10	1.973	1.661	4.10	0.96	0.65	8.9	3.12		10				0.75	2.3
10.82	35.5	14.84	2.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.003	1.675	3.19	0.93	0.65	9.1	3.04		7				0.77	2.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-13

Engineer: T. TRANBY
Date: 02:17:04 08:08



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION

Earth Systems Southern California

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 10/29/04

CPT SOUNDING: CPT-12	Plot: 2	Density: 1	SPT N	Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest
Est. GWT (feet): 25.0		Dr correlation: 0	Baldi	Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.85	1.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.033	1.689	1.95	0.87	0.67	11.9	2.83		8				1.01	3.0
11.13	36.5	17.58	1.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.063	1.704	1.85	0.87	0.66	11.0	2.85		7				0.93	2.7
11.28	37.0	17.25	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.093	1.718	3.05	0.91	0.64	10.5	2.98		9				0.91	2.6
11.43	37.5	35.42	2.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.123	1.733	2.96	0.83	0.66	22.3	2.71		14				1.98	5.8
11.58	38.0	25.66	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.153	1.747	3.77	0.89	0.64	15.6	2.90		13				1.41	4.0
11.73	38.5	14.69	4.09	Silty Clay to Clay	CL	stiff	120	1.5	10	2.183	1.761	4.80	0.97	0.61	8.4	3.18		10				0.76	2.1
11.89	39.0	16.85	1.59	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.213	1.776	1.83	0.88	0.63	10.1	2.88		7				0.89	2.5
12.04	39.5	20.25	1.55	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.243	1.790	1.74	0.86	0.64	12.2	2.80		8				1.09	3.0
12.19	40.0	20.58	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.273	1.805	1.80	0.86	0.63	12.3	2.80		8				1.10	3.0
12.34	40.5	20.28	1.55	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.303	1.819	1.75	0.86	0.63	12.0	2.80		8				1.09	3.0
12.50	41.0	20.02	1.71	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.333	1.833	1.94	0.87	0.62	11.7	2.83		8				1.07	2.9
12.65	41.5	20.38	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.363	1.848	2.20	0.88	0.61	11.8	2.86		8				1.09	2.9
12.80	42.0	20.49	1.17	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.393	1.862	1.32	0.84	0.62	12.0	2.74		8				1.10	2.9
12.95	42.5	21.35	0.89	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	7	2.423	1.877	1.00	0.82	0.63	12.6	2.67		7				1.15	3.0
13.11	43.0	22.97	1.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.453	1.891	1.20	0.82	0.62	13.5	2.68		9				1.24	3.3
13.26	43.5	23.64	1.21	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.483	1.905	1.36	0.83	0.61	13.7	2.70		9				1.28	3.3
13.41	44.0	22.77	1.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.513	1.920	1.18	0.82	0.61	13.2	2.68		9				1.23	3.2
13.56	44.5	20.56	1.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.543	1.934	1.24	0.84	0.60	11.7	2.74		8				1.10	2.8
13.72	45.0	19.30	0.73	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.573	1.949	0.85	0.83	0.60	11.0	2.69		8				1.02	2.6
13.87	45.5	22.05	0.48	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.603	1.963	0.55	0.79	0.62	12.8	2.55	38.9	5	8	-8	28		
14.02	46.0	25.14	0.72	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	8	2.633	1.977	0.80	0.79	0.61	14.5	2.57	45.4	6	9	-3	29		
14.17	46.5	26.97	2.04	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.663	1.992	2.26	0.85	0.58	14.9	2.79		11				1.47	3.7
14.33	47.0	71.69	4.75	Overconsolidated Soil	??	hard	120	6.0	12	2.693	2.006	4.94	0.81	0.59	40.3	2.67		12				4.10	10.3
14.48	47.5	145.99	4.39	Overconsolidated Soil	??	medium dense	120	6.0	24	2.723	2.021	4.47	0.74	0.62	85.7	2.42	205.8	17	41	70	32		
14.63	48.0	85.50	4.90	Overconsolidated Soil	??	hard	120	6.0	14	2.753	2.035	5.06	0.80	0.59	47.9	2.63		14				4.91	12.2
14.78	48.5	81.56	2.88	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.783	2.049	2.98	0.75	0.61	46.9	2.47	123.1	23	25	45	34		
14.94	49.0	43.87	3.69	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.813	2.064	3.95	0.85	0.57	23.6	2.77		22				2.46	6.0
15.09	49.5	24.29	4.86	Clay	CL/CH	very stiff	120	1.0	24	2.843	2.078	5.51	0.94	0.53	12.1	3.09		24				1.31	3.1
15.24	50.0	55.06	4.26	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	28	2.873	2.092	4.49	0.83	0.57	29.5	2.74		28				3.12	7.5

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets **Project No:** VT-23104-01 **Date:** 10/29/04

CPT SOUNDING: CPT-13 Plot: 3 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	7.03	0.11	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.11	0.74	1.70	11.3	2.43	11.3	6	2	-14	29		
0.46	1.5	18.52	0.23	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	6	0.069	0.069	0.23	0.63	1.70	29.8	2.08	29.8	10	6	27	30		
0.61	2.0	14.22	0.51	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.096	0.096	0.51	0.70	1.70	22.8	2.31	45.0	10	9	16	30		
0.76	2.5	11.29	0.95	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.124	0.124	0.96	0.76	1.70	18.1	2.52	51.8	8	10	6	29		
0.91	3.0	11.22	1.04	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.151	0.151	1.06	0.77	1.70	18.0	2.54	53.7	8	11	6	29		
1.07	3.5	12.70	1.00	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.179	0.179	1.01	0.75	1.70	20.4	2.48	54.9	9	11	11	29		
1.22	4.0	15.29	0.66	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.206	0.206	0.67	0.71	1.70	24.6	2.33	50.1	10	10	19	30		
1.37	4.5	20.42	0.91	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.234	0.234	0.92	0.69	1.70	32.8	2.29	62.4	14	12	31	31		
1.52	5.0	22.56	0.89	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.261	0.261	0.90	0.68	1.70	36.2	2.24	64.4	13	13	35	31		
1.68	5.5	33.48	0.62	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.289	0.289	0.62	0.61	1.70	53.8	2.01	70.9	19	14	51	33		
1.83	6.0	30.12	0.68	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.316	0.316	0.69	0.63	1.70	48.4	2.08	68.4	17	14	47	32		
1.98	6.5	30.09	0.72	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.344	0.344	0.72	0.64	1.70	48.4	2.09	69.2	17	14	47	32		
2.13	7.0	19.77	0.98	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.371	0.371	1.00	0.71	1.70	31.8	2.32	63.6	13	13	29	31		
2.29	7.5	16.59	0.78	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.399	0.399	0.80	0.71	1.70	26.7	2.33	54.8	11	11	22	30		
2.44	8.0	14.73	0.77	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.426	0.426	0.80	0.72	1.70	23.7	2.38	52.5	9	11	17	30		
2.59	8.5	13.65	1.15	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.454	0.454	1.19	0.76	1.70	21.9	2.49	59.9	8	12	14	29		
2.74	9.0	13.76	1.09	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.481	0.481	1.13	0.76	1.70	22.1	2.48	58.8	8	12	14	29		
2.90	9.5	12.49	0.86	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.509	0.509	0.90	0.75	1.70	20.1	2.46	52.1	7	10	10	29		
3.05	10.0	10.51	1.03	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.536	0.536	1.08	0.78	1.70	16.9	2.57	53.1	6	11	3	28		
3.20	10.5	14.81	0.78	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.564	0.564	0.81	0.73	1.59	22.2	2.40	51.8	8	10	14	29		
3.35	11.0	15.48	0.71	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.591	0.591	0.74	0.73	1.53	22.4	2.38	50.3	8	10	15	29		
3.51	11.5	6.03	1.10	Sensitive fine grained	ML	firm	110	2.0	3	0.619	0.619	1.22	0.87	1.60	9.1	2.83		3				0.32	2.6
3.66	12.0	3.36	2.17	Clay	CL/CH	soft	110	1.0	3	0.646	0.646	2.69	1.00	1.63	5.2	3.21		3				0.16	1.3
3.81	12.5	13.64	0.70	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.674	0.674	0.74	0.75	1.41	18.1	2.46	47.0	7	9	6	29		
3.96	13.0	19.60	0.58	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.701	0.701	0.60	0.70	1.34	24.7	2.30	48.5	8	10	19	29		
4.11	13.5	20.18	0.58	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.729	0.729	0.60	0.70	1.30	24.8	2.30	48.5	8	10	19	29		
4.27	14.0	20.69	0.56	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.756	0.756	0.59	0.70	1.27	24.8	2.30	48.2	8	10	19	29		
4.42	14.5	19.02	0.60	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	6	0.784	0.784	0.63	0.72	1.24	22.3	2.35	47.6	7	10	15	29		
4.57	15.0	14.03	0.79	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.811	0.811	0.83	0.77	1.23	16.3	2.53	47.7	6	10	2	29		
4.72	15.5	12.97	0.87	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.839	0.839	0.93	0.79	1.20	14.7	2.59	48.2	6	10	-3	28		
4.88	16.0	10.30	1.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.866	0.866	1.22	0.84	1.18	11.5	2.74		5				0.56	3.3
5.03	16.5	12.24	0.60	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.894	0.894	0.65	0.79	1.14	13.2	2.57	41.3	5	8	-7	28		
5.18	17.0	26.01	0.46	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	9	0.921	0.921	0.48	0.68	1.10	27.0	2.23	27.0	9	5	23	30		
5.33	17.5	19.60	0.52	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.949	0.949	0.54	0.72	1.08	20.0	2.37	43.9	7	9	10	29		
5.49	18.0	14.94	0.69	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.976	0.976	0.74	0.78	1.06	15.0	2.54	44.7	6	9	-2	29		
5.64	18.5	36.12	0.38	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	1.004	1.004	0.39	0.64	1.03	35.3	2.09	35.3	12	7	34	31		
5.79	19.0	26.21	0.61	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	9	1.031	1.031	0.64	0.71	1.02	25.2	2.31	49.9	9	10	20	29		
5.94	19.5	16.40	0.45	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	1.059	1.059	0.48	0.75	1.00	15.5	2.45	15.5	6	3	-1	29		
6.10	20.0	48.70	0.75	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	1.085	1.085	0.77	0.65	0.98	45.3	2.12	67.9	12	14	44	31		
6.25	20.5	42.26	2.40	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	1.111	1.111	2.47	0.75	0.96	38.5	2.48	102.7	16	21	37	32		
6.40	21.0	58.80	2.22	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	24	1.139	1.139	2.26	0.72	0.95	52.7	2.35	112.3	22	22	50	34		
6.55	21.5	91.36	2.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	30	1.166	1.166	2.27	0.67	0.94	80.9	2.22	138.6	28	28	68	36		
6.71	22.0	37.22	3.95	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.195	1.195	4.09	0.82	0.91	31.8	2.69		19				2.12	9.0
6.86	22.5	38.77	3.18	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.225	1.225	3.29	0.80	0.89	32.6	2.62		19				2.21	9.2
7.01	23.0	12.04	3.03	Silty Clay to Clay	CL	stiff	120	1.5	8	1.255	1.255	3.39	0.93	0.85	9.7	3.04		8				0.63	2.6
7.16	23.5	9.02	2.22	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	5	1.285	1.285	2.59	0.95	0.83	7.1	3.09		5				0.46	1.8
7.32	24.0	8.95	1.82	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	4	1.315	1.315	2.13	0.94	0.81	6.9	3.05		4				0.45	1.7
7.47	24.5	11.99	1.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.345	1.345	1.98	0.90	0.81	9.1	2.93		6				0.63	2.4
7.62	25.0	15.24	0.86	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.375	1.375	0.94	0.82	0.81	11.6	2.69		6				0.82	3.0
7.77	25.5	17.90	0.60	Sandy Silt to Clayey Silt	ML	loose	120	2.5	7	1.405	1.389	0.65	0.78	0.81	13.7	2.55	41.6	6	8	-6	29		
7.92	26.0	13.41	0.93	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.435	1.404	1.04	0.85	0.79	10.0	2.76		5				0.71	2.6
8.08	26.5	12.56	0.95	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.465	1.418	1.08	0.86	0.78	9.2	2.80		5				0.66	2.3
8.23	27.0	14.60	0.89	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.495	1.433	1.00	0.84	0.78	10.7	2.73		6				0.77	2.7
8.38	27.5	13.25	0.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.525	1.447	0.88	0.85	0.77	9.6	2.75		5				0.69	2.4
8.53	28.0	14.66	0.82	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.555	1.461	0.92	0.84	0.76	10.6	2.72		6				0.78	2.7
8.69	28.5	13.93	0.79	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.585	1.476	0.89	0.84	0.76	10.0	2.74		6				0.73	2.5
8.84	29.0	14.02	0.86	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.615	1.490	0.97	0.85	0.75	9.9	2.75		6				0.74	2.5
8.99	29.5	17.16	0.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.645	1.505	0.73	0.80	0.75	12.2	2.62		7				0.92	3.1
9.14	30.0	15.05	0.71	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.675	1.519	0.80	0.83	0.74	10.5	2.69		6				0.80	2.6
9.30	30.5	16.94	0.87	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.705	1.533	0.96	0.82	0.74	11.8	2.68		7				0.91	3.0
9.45	31.0	22.01	0.93	Sandy Silt to Clayey Silt	ML	loose	120	2.5	9	1.735	1.548	1.01	0.79	0.74	15.4	2.59	50.2	7	10	-1	29		
9.60	31.5	25.19	0.82	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	8	1.765	1.562	0.89	0.77	0.74	17.6	2.51	49.9	7	10	5	29		
9.75	32.0	34.64	0.76	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	1.795	1.577	0.81	0.72	0.75	24.5	2.37	53.4	9	11	19	30		
9.91	32.5	59.89	1.06	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	20	1.825	1.591	1.09	0.68	0.76	42.9	2.23	74.4	16	15	42	32		
10.06	33.0	40.39	1.03	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	13	1.855	1.605	1.08	0.73	0.74	28.2	2.38	62.7	11	13	24	30		
10.21	33.5	16.77	1.14	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.885	1.620	1.29	0.85	0.70	11.0	2.77		7				0.89	2.8
10.36	34.0	11.12	1.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.915	1.634	1.63	0.92	0.67	7.0	2.99		6				0.56	1.7
10.52	34.5	10.99	1.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	1.945	1.649	1.62	0.93	0.66	6.9	3.00		5				0.55	1.6
10.67	35.0	10.66	2.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	1.975	1.663	2.62	0.96	0.65	6.5	3.12		5				0.53	1.6
10.82	35.5	13.65	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	2.95	0.94	0.65	8.4	3.06		7				0.70	2.1

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-13 | Plot: 3 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

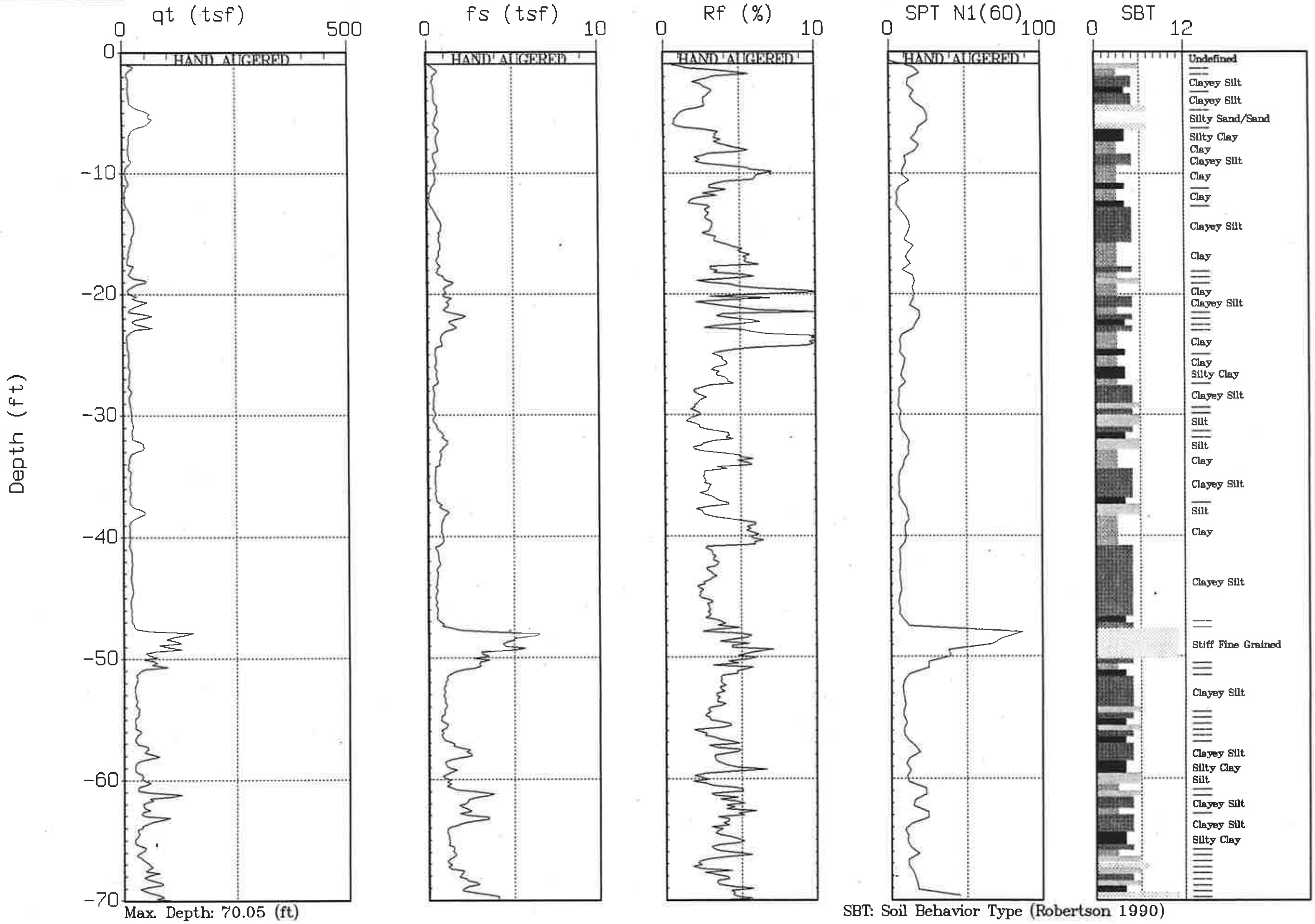
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	15.00	2.25	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.035	1.692	2.60	0.92	0.65	9.2	2.99		7				0.78	2.3
11.13	36.5	15.09	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.065	1.706	2.47	0.92	0.65	9.2	2.98		8				0.79	2.3
11.28	37.0	16.04	2.93	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.095	1.721	3.37	0.93	0.64	9.6	3.04		8				0.84	2.4
11.43	37.5	35.63	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	18	2.125	1.735	3.23	0.83	0.66	22.3	2.74		18				1.99	5.8
11.58	38.0	38.29	1.75	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	2.155	1.749	1.85	0.78	0.68	24.4	2.56	75.4	12	15	18	31		
11.73	38.5	15.58	0.62	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.185	1.764	0.72	0.84	0.65	9.6	2.71		6				0.81	2.3
11.89	39.0	15.82	0.44	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.215	1.778	0.52	0.82	0.65	9.8	2.65		6				0.83	2.3
12.04	39.5	12.80	0.56	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	2.245	1.793	0.68	0.86	0.63	7.7	2.79		5				0.65	1.8
12.19	40.0	12.48	0.51	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	2.275	1.807	0.62	0.86	0.63	7.4	2.79		5				0.63	1.7
12.34	40.5	15.61	0.52	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.305	1.821	0.61	0.83	0.64	9.4	2.69		6				0.81	2.2
12.50	41.0	14.94	0.25	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.335	1.836	0.29	0.81	0.64	9.1	2.61		6				0.77	2.1
12.65	41.5	16.16	0.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.365	1.850	0.68	0.83	0.63	9.6	2.70		6				0.84	2.2
12.80	42.0	19.22	0.54	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	6	2.395	1.865	0.61	0.80	0.63	11.5	2.61		6				1.02	2.7
12.95	42.5	20.44	0.49	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.425	1.879	0.56	0.79	0.63	12.3	2.57	38.6	5	8	-10	28		
13.11	43.0	18.01	0.54	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.455	1.893	0.62	0.82	0.62	10.6	2.65		7				0.95	2.5
13.26	43.5	18.36	0.53	Silty Sand to Sandy Silt	SM/ML	stiff	120	3.0	6	2.485	1.908	0.61	0.81	0.62	10.7	2.64		6				0.97	2.5
13.41	44.0	20.10	0.51	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.515	1.922	0.59	0.80	0.62	11.8	2.59	38.8	5	8	-12	28		
13.56	44.5	19.06	0.47	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	6	2.545	1.937	0.54	0.80	0.62	11.1	2.61		6				1.01	2.6
13.72	45.0	16.50	0.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.575	1.951	0.74	0.84	0.60	9.3	2.73		7				0.86	2.1
13.87	45.5	16.30	1.16	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.605	1.965	1.39	0.88	0.58	8.9	2.86		7				0.84	2.1
14.02	46.0	16.90	1.34	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.635	1.980	1.59	0.89	0.57	9.2	2.88		7				0.88	2.2
14.17	46.5	20.29	1.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.665	1.994	1.23	0.85	0.58	11.2	2.75		8				1.08	2.7
14.33	47.0	35.71	1.34	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.695	2.009	1.45	0.78	0.60	20.4	2.56	63.5	8	13	11	29		
14.48	47.5	79.81	3.21	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	32	2.725	2.023	3.32	0.76	0.61	46.0	2.51	129.6	22	26	45	34		
14.63	48.0	163.80	2.95	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	55	2.755	2.037	3.00	0.68	0.64	98.9	2.25	177.4	38	35	76	38		
14.78	48.5	95.33	4.75	Overconsolidated Soil	??	medium dense	120	6.0	16	2.785	2.052	4.89	0.79	0.59	53.5	2.58	172.9	11	35	51	30		
14.94	49.0	51.09	4.02	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	2.815	2.066	4.25	0.84	0.57	27.6	2.75		26				2.88	7.0
15.09	49.5	38.25	3.64	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.845	2.081	3.93	0.86	0.56	20.2	2.82		19				2.13	5.1
15.24	50.0	33.84	2.86	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.875	2.095	3.12	0.86	0.56	17.8	2.80		14				1.87	4.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-14

Engineer: T. TRANBY
Date: 02:17:04 08:42



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — **Project No:** VT-23104-01 — **Date:** 10/29/04

CPT SOUNDING: CPT-14 — Plot: 4 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	9.24	0.41	Sensitive fine grained	ML	loose	110	2.0	5	0.041	0.041	0.41	0.74	1.70	14.8	2.45	14.8	8	3	-2	29		
0.46	1.5	17.57	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	3.15	0.80	1.70	28.2	2.65		9				1.03	76.4
0.61	2.0	9.93	3.93	Clay	CL/CH	stiff	110	1.0	10	0.096	0.096	3.97	0.88	1.70	16.0	2.91		10				0.58	30.7
0.76	2.5	13.10	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.124	0.124	2.26	0.81	1.70	21.0	2.66		7				0.76	31.5
0.91	3.0	12.32	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.151	0.151	2.91	0.83	1.70	19.8	2.75		6				0.72	24.1
1.07	3.5	13.34	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.179	0.179	2.99	0.83	1.70	21.4	2.73		7				0.77	22.1
1.22	4.0	14.88	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.206	0.206	2.68	0.81	1.70	23.9	2.66		7				0.86	21.3
1.37	4.5	21.71	2.55	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.234	0.234	2.57	0.77	1.70	34.9	2.52	101.0	18	20	33	33		
1.52	5.0	49.64	1.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.261	0.261	1.25	0.62	1.70	79.8	2.05	109.1	28	22	67	36		
1.68	5.5	59.81	0.79	Sand to Silty Sand	SP/SM	medium dense	100	4.0	15	0.288	0.288	0.79	0.57	1.70	96.1	1.86	110.9	25	22	75	35		
1.83	6.0	47.13	0.93	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	16	0.314	0.314	0.93	0.60	1.70	75.7	1.99	97.2	27	19	65	35		
1.98	6.5	20.65	3.19	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.341	0.341	3.25	0.79	1.70	33.2	2.61		10				1.19	17.9
2.13	7.0	14.61	3.48	Silty Clay to Clay	CL	stiff	110	1.5	10	0.369	0.369	3.57	0.83	1.70	23.5	2.75		10				0.84	11.6
2.29	7.5	14.39	3.69	Silty Clay to Clay	CL	stiff	110	1.5	10	0.396	0.396	3.80	0.84	1.70	23.1	2.77		10				0.82	10.6
2.44	8.0	12.15	5.06	Clay	CL/CH	stiff	110	1.0	12	0.424	0.424	5.24	0.89	1.70	19.5	2.92		12				0.69	8.3
2.59	8.5	13.55	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.451	0.451	2.58	0.82	1.70	21.8	2.69		7				0.77	8.7
2.74	9.0	17.58	2.37	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.479	0.479	2.43	0.78	1.70	28.2	2.58	90.5	13	18	24	31		
2.90	9.5	9.33	5.07	Clay	CL/CH	stiff	110	1.0	9	0.506	0.506	5.36	0.92	1.70	15.0	3.01		9				0.52	5.2
3.05	10.0	5.71	6.64	Clay	CL/CH	firm	110	1.0	6	0.534	0.534	7.33	1.00	1.70	9.2	3.26		6				0.30	2.9
3.20	10.5	8.59	5.36	Clay	CL/CH	firm	110	1.0	9	0.561	0.561	5.74	0.93	1.70	13.8	3.06		9				0.47	4.3
3.35	11.0	10.62	3.17	Silty Clay to Clay	CL	stiff	110	1.5	7	0.589	0.589	3.36	0.87	1.66	16.7	2.85		7				0.59	5.1
3.51	11.5	4.59	3.36	Clay	CL/CH	soft	110	1.0	5	0.616	0.616	3.88	0.97	1.69	7.3	3.17		5				0.23	1.9
3.66	12.0	3.81	2.57	Clay	CL/CH	soft	110	1.0	4	0.644	0.644	3.09	0.99	1.63	5.9	3.20		4				0.19	1.5
3.81	12.5	4.66	2.07	Silty Clay to Clay	CL	soft	110	1.5	3	0.671	0.671	2.42	0.95	1.54	6.8	3.09		3				0.23	1.8
3.96	13.0	10.27	2.82	Silty Clay to Clay	CL	stiff	110	1.5	7	0.699	0.699	3.03	0.88	1.44	14.0	2.88		7				0.56	4.1
4.11	13.5	17.26	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.726	0.726	2.95	0.83	1.36	22.3	2.71		9				0.97	6.8
4.27	14.0	22.87	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.754	0.754	3.11	0.81	1.31	28.4	2.65		11				1.30	8.8
4.42	14.5	24.87	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.781	0.781	3.21	0.80	1.28	30.0	2.64		12				1.42	9.3
4.57	15.0	23.79	2.85	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.809	0.809	2.95	0.80	1.24	27.9	2.64		12				1.35	8.5
4.72	15.5	19.27	3.35	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.836	0.836	3.51	0.84	1.22	22.2	2.76		10				1.08	6.6
4.88	16.0	16.29	4.42	Clay	CL/CH	stiff	110	1.0	16	0.864	0.864	4.67	0.88	1.20	18.4	2.90		16				0.91	5.4
5.03	16.5	12.35	5.25	Clay	CL/CH	stiff	110	1.0	12	0.891	0.891	5.66	0.93	1.17	13.7	3.06		12				0.67	3.9
5.18	17.0	10.46	5.32	Clay	CL/CH	stiff	110	1.0	10	0.919	0.919	5.84	0.96	1.14	11.3	3.13		10				0.56	3.1
5.33	17.5	14.46	4.96	Clay	CL/CH	stiff	110	1.0	14	0.946	0.946	5.30	0.92	1.11	15.1	3.00		14				0.79	4.3
5.49	18.0	17.02	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.974	0.974	3.48	0.87	1.07	17.3	2.84		9				0.94	4.9
5.64	18.5	16.40	5.08	Clay	CL/CH	stiff	110	1.0	16	1.001	1.001	5.42	0.91	1.05	16.3	2.99		16				0.91	4.6
5.79	19.0	44.54	3.16	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	18	1.029	1.029	3.23	0.77	1.02	43.0	2.52	124.1	18	25	42	32		
5.94	19.5	16.10	6.76	Clay	CL/CH	stiff	110	1.0	16	1.056	1.056	7.24	0.94	1.00	15.2	3.09		16				0.88	4.3
6.10	20.0	17.94	6.65	Clay	CL/CH	stiff	110	1.0	18	1.084	1.084	7.08	0.93	0.98	16.6	3.06		18				0.99	4.7
6.25	20.5	34.65	4.34	Silty Clay to Clay	CL	very stiff	110	1.5	23	1.111	1.111	4.49	0.83	0.96	31.5	2.72		23				1.97	9.1
6.40	21.0	29.89	4.06	Silty Clay to Clay	CL	very stiff	110	1.5	20	1.139	1.139	4.22	0.84	0.94	26.6	2.75		20				1.69	7.6
6.55	21.5	22.16	6.69	Clay	CL/CH	very stiff	110	1.0	22	1.166	1.166	7.06	0.92	0.91	19.2	3.01		22				1.23	5.4
6.71	22.0	45.74	4.50	Silty Clay to Clay	CL	hard	120	1.5	30	1.195	1.195	4.62	0.81	0.91	39.2	2.66		30				2.62	11.2
6.86	22.5	30.68	4.85	Clay	CL/CH	very stiff	120	1.0	31	1.225	1.225	5.05	0.86	0.88	25.6	2.82		31				1.73	7.2
7.01	23.0	36.72	4.49	Silty Clay to Clay	CL	hard	120	1.5	24	1.255	1.255	4.65	0.83	0.87	30.1	2.74		24				2.09	8.5
7.16	23.5	9.15	8.92	Clay	CL/CH	firm	120	1.0	9	1.285	1.285	####	1.00	0.82	7.1	3.44		9				0.46	1.8
7.32	24.0	7.73	10.02	Organic Material	OL/OH	firm	120	1.0	8	1.315	1.315	####	1.00	0.80	5.9	3.55		8				0.38	1.5
7.47	24.5	8.54	6.83	Clay	CL/CH	firm	120	1.0	9	1.345	1.345	8.11	1.00	0.79	6.3	3.41		9				0.42	1.6
7.62	25.0	11.82	3.45	Silty Clay to Clay	CL	stiff	120	1.5	8	1.375	1.375	3.91	0.95	0.78	8.7	3.11		8				0.61	2.3
7.77	25.5	12.08	3.89	Clay	CL/CH	stiff	120	1.0	12	1.405	1.389	4.41	0.96	0.77	8.8	3.14		12				0.63	2.3
7.92	26.0	11.36	3.80	Clay	CL/CH	stiff	120	1.0	11	1.435	1.404	4.34	0.97	0.76	8.2	3.16		11				0.59	2.1
8.08	26.5	14.32	3.39	Silty Clay to Clay	CL	stiff	120	1.5	10	1.465	1.418	3.78	0.93	0.76	10.3	3.04		10				0.76	2.7
8.23	27.0	12.70	4.09	Clay	CL/CH	stiff	120	1.0	13	1.495	1.433	4.64	0.96	0.75	9.0	3.15		13				0.66	2.3
8.38	27.5	11.47	3.35	Silty Clay to Clay	CL	stiff	120	1.5	8	1.525	1.447	3.86	0.96	0.74	8.0	3.14		8				0.59	2.1
8.53	28.0	16.47	2.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.555	1.461	2.21	0.88	0.75	11.7	2.87		8				0.88	3.1
8.69	28.5	13.17	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.585	1.476	2.86	0.93	0.73	9.1	3.02		7				0.69	2.4
8.84	29.0	14.46	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.615	1.490	2.42	0.90	0.73	10.0	2.94		7				0.76	2.6
8.99	29.5	16.50	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.645	1.505	2.13	0.88	0.73	11.4	2.87		8				0.88	3.0
9.14	30.0	18.01	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.675	1.519	2.35	0.88	0.73	12.4	2.86		9				0.97	3.2
9.30	30.5	18.58	1.62	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.705	1.533	1.78	0.85	0.73	12.8	2.78		7				1.00	3.3
9.45	31.0	20.89	2.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.735	1.548	2.62	0.87	0.72	14.2	2.84		10				1.14	3.7
9.60	31.5	19.53	3.98	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.765	1.562	4.38	0.92	0.70	12.9	3.00		13				1.06	3.4
9.75	32.0	24.87	3.92	Silty Clay to Clay	CL	very stiff	120	1.5	17	1.795	1.577	4.23	0.89	0.70	16.5	2.91		17				1.37	4.4
9.91	32.5	44.45	2.27	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	1.825	1.591	2.36	0.78	0.73	30.6	2.54	92.0	14	18	28	31		
10.06	33.0	29.58	2.72	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.855	1.605	2.91	0.84	0.70	19.7	2.75		12				1.65	5.2
10.21	33.5	13.85	5.26	Clay	CL/CH	stiff	120	1.0	14	1.885	1.620	6.09	0.99	0.66	8.6	3.23		14				0.72	2.2
10.36	34.0	12.11	5.42	Clay	CL/CH	stiff	120	1.0	12	1.915	1.634	6.44	1.00	0.65	7.4	3.30		12				0.62	1.9
10.52	34.5	12.62	3.41	Silty Clay to Clay	CL	stiff	120	1.5	8	1.945	1.649	4.03	0.97	0.65	7.8	3.16		8				0.65	1.9
10.67	35.0	15.17	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.975	1.663	2.96	0.92	0.66	9.4	3.01		8				0.79	2.4
10.82	35.5	14.67	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	3.05	0.93	0.65	9.0	3.04		7				0.76	2.3

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 10/29/04

CPT SOUNDING: CPT-14   Plot: 4   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0**   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

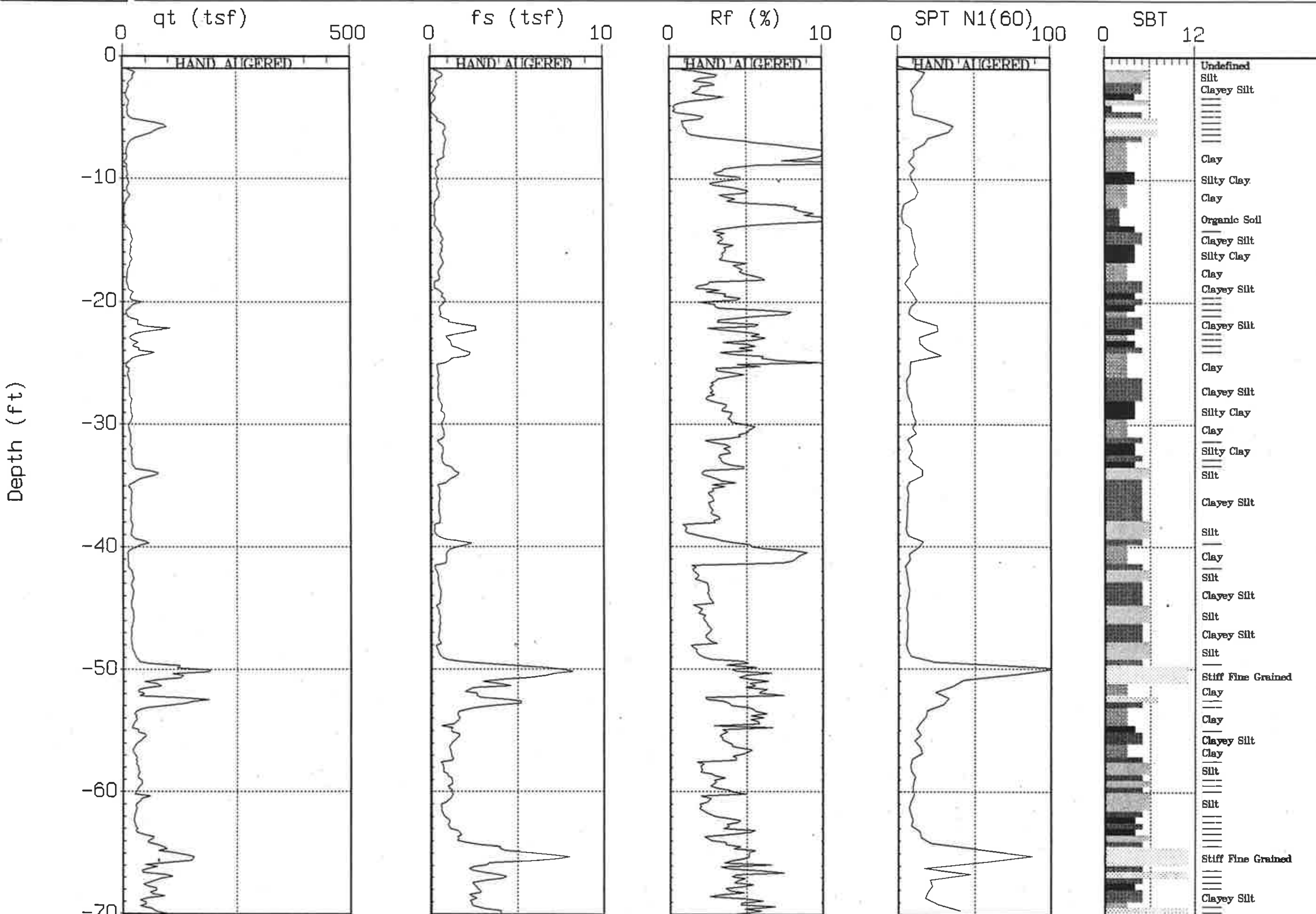
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	13.71	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.035	1.692	3.48	0.95	0.64	8.3	3.10		7				0.71	2.1
11.13	36.5	15.32	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.065	1.706	3.17	0.93	0.64	9.3	3.04		8				0.80	2.3
11.28	37.0	13.48	3.75	Silty Clay to Clay	CL	stiff	120	1.5	9	2.095	1.721	4.43	0.98	0.62	7.9	3.18		9				0.69	2.0
11.43	37.5	26.28	3.05	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.125	1.735	3.32	0.87	0.65	16.1	2.85		13				1.44	4.2
11.58	38.0	43.75	2.51	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.155	1.749	2.64	0.80	0.67	27.7	2.61		17				2.47	7.1
11.73	38.5	21.25	4.20	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.185	1.764	4.68	0.93	0.62	12.5	3.03		14				1.15	3.2
11.89	39.0	12.94	5.88	Clay	CL/CH	stiff	120	1.0	13	2.215	1.778	7.09	1.00	0.59	7.3	3.33		13				0.66	1.8
12.04	39.5	13.06	5.69	Clay	CL/CH	stiff	120	1.0	13	2.245	1.793	6.88	1.00	0.59	7.3	3.32		13				0.66	1.8
12.19	40.0	13.67	5.98	Clay	CL/CH	stiff	120	1.0	14	2.275	1.807	7.18	1.00	0.59	7.6	3.32		14				0.70	1.9
12.34	40.5	12.83	6.23	Clay	CL/CH	stiff	120	1.0	13	2.305	1.821	7.59	1.00	0.58	7.0	3.36		13				0.65	1.7
12.50	41.0	14.77	2.86	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.335	1.836	3.39	0.95	0.59	8.3	3.10		7				0.76	2.0
12.65	41.5	16.89	3.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.365	1.850	3.76	0.94	0.59	9.4	3.07		8				0.88	2.4
12.80	42.0	17.66	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.395	1.865	3.86	0.94	0.59	9.8	3.07		9				0.93	2.5
12.95	42.5	17.72	3.19	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.425	1.879	3.70	0.94	0.58	9.8	3.06		9				0.93	2.4
13.11	43.0	16.89	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.455	1.893	3.53	0.94	0.58	9.2	3.07		8				0.88	2.3
13.26	43.5	15.76	3.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.485	1.908	3.79	0.96	0.57	8.5	3.11		8				0.82	2.1
13.41	44.0	18.09	2.46	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.515	1.922	2.85	0.92	0.58	9.9	2.99		9				0.95	2.4
13.56	44.5	19.63	2.39	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.545	1.937	2.75	0.90	0.58	10.7	2.95		10				1.04	2.6
13.72	45.0	17.36	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.575	1.951	2.75	0.92	0.57	9.3	3.00		9				0.91	2.3
13.87	45.5	14.61	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.605	1.965	3.69	0.97	0.55	7.6	3.15		7				0.74	1.8
14.02	46.0	16.17	2.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.635	1.980	3.57	0.95	0.55	8.4	3.10		8				0.83	2.1
14.17	46.5	16.38	2.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.665	1.994	3.57	0.95	0.55	8.5	3.10		8				0.85	2.1
14.33	47.0	18.27	3.51	Silty Clay to Clay	CL	stiff	120	1.5	12	2.695	2.009	4.12	0.95	0.54	9.4	3.10		12				0.96	2.3
14.48	47.5	35.06	3.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	18	2.725	2.023	4.27	0.88	0.57	18.8	2.87		18				1.94	4.8
14.63	48.0	132.81	4.28	Overconsolidated Soil	??	medium dense	120	6.0	22	2.755	2.037	4.37	0.74	0.61	77.2	2.44	192.4	16	38	66	32		
14.78	48.5	111.82	4.41	Overconsolidated Soil	??	medium dense	120	6.0	19	2.785	2.052	4.52	0.76	0.60	63.8	2.51	179.2	13	36	58	31		
14.94	49.0	103.04	4.75	Overconsolidated Soil	??	medium dense	120	6.0	17	2.815	2.066	4.88	0.78	0.59	57.8	2.56	179.1	12	36	54	31		
15.09	49.5	58.37	6.29	Clay	CL/CH	hard	120	1.0	58	2.845	2.081	6.61	0.87	0.56	30.7	2.84		58				3.31	8.0
15.24	50.0	60.71	5.38	Overconsolidated Soil	??	hard	120	6.0	10	2.875	2.095	5.65	0.85	0.56	32.2	2.78		10				3.45	8.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-15

Engineer: T. TRANBY
Date: 02:17:04 09:13



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-15 Plot: 5 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	8.24	0.58	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.58	0.77	1.70	13.2	2.55	39.9	7	8	-7	29		
0.46	1.5	23.40	2.79	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.069	0.069	2.79	0.77	1.70	37.6	2.52	108.6	20	22	36	33		
0.61	2.0	16.75	2.04	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.096	0.096	2.05	0.77	1.70	26.9	2.55	81.9	14	16	22	31		
0.76	2.5	11.95	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.124	0.124	2.34	0.82	1.70	19.2	2.70		6				0.70	28.7
0.91	3.0	7.42	1.80	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.151	0.151	1.84	0.86	1.70	11.9	2.82		4				0.43	14.4
1.07	3.5	10.07	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.179	0.179	2.60	0.85	1.70	16.2	2.79		5				0.58	16.6
1.22	4.0	11.43	0.42	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.206	0.206	0.43	0.72	1.70	18.4	2.36	18.4	8	4	7	29		
1.37	4.5	9.70	0.35	Sensitive fine grained	ML	loose	110	2.0	5	0.234	0.234	0.36	0.73	1.70	15.6	2.41	15.6	8	3	0	29		
1.52	5.0	14.44	1.93	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.261	0.261	1.96	0.79	1.70	23.2	2.59	76.1	12	15	16	31		
1.68	5.5	74.48	0.84	Sand to Silty Sand	SP/SM	dense	100	4.0	19	0.288	0.288	0.84	0.55	1.70	119.7	1.80	132.7	32	27	84	36		
1.83	6.0	71.08	1.09	Sand to Silty Sand	SP/SM	dense	100	4.0	18	0.313	0.313	1.09	0.58	1.70	114.2	1.89	134.9	30	27	82	36		
1.98	6.5	37.73	2.43	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.339	0.339	2.45	0.71	1.70	60.6	2.33	124.5	26	25	56	35		
2.13	7.0	14.46	5.81	Clay	CL/CH	stiff	110	1.0	14	0.366	0.366	5.97	0.88	1.70	23.2	2.90		14				0.83	11.5
2.29	7.5	8.17	9.53	Organic Material	OL/OH	firm	110	1.0	8	0.394	0.394	####	0.98	1.70	13.1	3.23		8				0.46	5.9
2.44	8.0	7.14	10.45	Organic Material	OL/OH	firm	110	1.0	7	0.421	0.421	####	1.00	1.70	11.5	3.31		7				0.40	4.8
2.59	8.5	4.76	11.00	Organic Material	OL/OH	firm	110	1.0	5	0.449	0.449	####	1.00	1.70	7.6	3.46		5				0.25	2.9
2.74	9.0	8.00	4.60	Clay	CL/CH	firm	110	1.0	8	0.476	0.476	4.90	0.93	1.70	12.9	3.04		8				0.44	4.7
2.90	9.5	9.44	3.12	Silty Clay to Clay	CL	stiff	110	1.5	6	0.504	0.504	3.29	0.88	1.70	15.2	2.87		6				0.53	5.3
3.05	10.0	8.77	4.26	Clay	CL/CH	firm	110	1.0	9	0.531	0.531	4.53	0.91	1.70	14.1	2.98		9				0.48	4.7
3.20	10.5	11.08	3.13	Silty Clay to Clay	CL	stiff	110	1.5	7	0.559	0.559	3.30	0.86	1.70	17.8	2.82		7				0.62	5.6
3.35	11.0	8.81	4.88	Clay	CL/CH	firm	110	1.0	9	0.586	0.586	5.23	0.92	1.70	14.2	3.02		9				0.48	4.2
3.51	11.5	12.15	3.70	Silty Clay to Clay	CL	stiff	110	1.5	8	0.614	0.614	3.90	0.87	1.61	18.4	2.85		8				0.68	5.6
3.66	12.0	4.56	5.39	Clay	CL/CH	soft	110	1.0	5	0.641	0.641	6.27	1.00	1.65	7.1	3.31		5				0.23	1.8
3.81	12.5	2.18	8.54	Organic Material	OL/OH	very soft	110	1.0	2	0.669	0.669	####	1.00	1.58	3.3	3.75		2				0.09	0.7
3.96	13.0	2.03	9.71	Organic Material	OL/OH	very soft	110	1.0	2	0.696	0.696	####	1.00	1.52	2.9	3.84		2				0.08	0.6
4.11	13.5	2.28	10.17	Organic Material	OL/OH	very soft	110	1.0	2	0.724	0.724	####	1.00	1.46	3.2	3.81		2				0.09	0.6
4.27	14.0	7.77	4.32	Clay	CL/CH	firm	110	1.0	8	0.751	0.751	4.78	0.95	1.39	10.2	3.11		8				0.41	2.8
4.42	14.5	16.51	3.15	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.779	0.779	3.31	0.85	1.30	20.2	2.78		8				0.93	6.1
4.57	15.0	19.56	3.34	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.806	0.806	3.48	0.84	1.25	23.2	2.74		10				1.10	7.0
4.72	15.5	17.11	3.59	Silty Clay to Clay	CL	stiff	110	1.5	11	0.834	0.834	3.78	0.86	1.23	19.8	2.82		11				0.96	5.9
4.88	16.0	15.75	3.52	Silty Clay to Clay	CL	stiff	110	1.5	10	0.861	0.861	3.73	0.87	1.20	17.8	2.85		10				0.88	5.2
5.03	16.5	17.79	3.54	Silty Clay to Clay	CL	stiff	110	1.5	12	0.889	0.889	3.72	0.86	1.16	19.5	2.82		12				0.99	5.7
5.18	17.0	13.50	4.57	Clay	CL/CH	stiff	110	1.0	13	0.916	0.916	4.90	0.91	1.14	14.5	3.00		13				0.74	4.1
5.33	17.5	8.95	4.73	Clay	CL/CH	firm	110	1.0	9	0.944	0.944	5.29	0.97	1.12	9.4	3.16		9				0.47	2.5
5.49	18.0	8.00	5.93	Clay	CL/CH	firm	110	1.0	8	0.971	0.971	6.75	1.00	1.09	8.2	3.27		8				0.41	2.2
5.64	18.5	8.78	2.28	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.999	0.999	2.57	0.92	1.05	8.8	3.01		4				0.46	2.3
5.79	19.0	16.11	2.41	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	1.026	1.026	2.58	0.86	1.03	15.6	2.80		8				0.89	4.4
5.94	19.5	16.89	3.93	Silty Clay to Clay	CL	stiff	110	1.5	11	1.054	1.054	4.19	0.89	1.00	16.0	2.92		11				0.93	4.5
6.10	20.0	26.91	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.081	1.081	3.16	0.82	0.98	25.0	2.69		13				1.52	7.2
6.25	20.5	13.37	4.04	Clay	CL/CH	stiff	110	1.0	13	1.109	1.109	4.41	0.93	0.96	12.1	3.03		13				0.72	3.3
6.40	21.0	7.72	7.08	Clay	CL/CH	firm	110	1.0	8	1.136	1.136	8.30	1.00	0.93	6.8	3.40		8				0.39	1.7
6.55	21.5	27.17	3.55	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.164	1.164	3.71	0.84	0.92	23.7	2.76		14				1.53	6.7
6.71	22.0	60.83	4.58	Silty Clay to Clay	CL	dense	120	1.5	41	1.193	1.193	4.67	0.78	0.91	52.4	2.58	166.7	37	33	50	38		
6.86	22.5	46.55	4.79	Silty Clay to Clay	CL	hard	120	1.5	31	1.223	1.223	4.92	0.81	0.89	39.1	2.68		31				2.67	11.1
7.01	23.0	16.77	5.73	Clay	CL/CH	stiff	120	1.0	17	1.253	1.253	6.19	0.94	0.85	13.5	3.09		17				0.91	3.7
7.16	23.5	26.02	4.70	Clay	CL/CH	very stiff	120	1.0	26	1.283	1.283	4.94	0.88	0.84	20.8	2.88		26				1.45	5.8
7.32	24.0	45.78	4.42	Silty Clay to Clay	CL	hard	120	1.5	31	1.313	1.313	4.55	0.81	0.84	36.3	2.68		31				2.62	10.2
7.47	24.5	35.22	5.40	Clay	CL/CH	very stiff	120	1.0	35	1.343	1.343	5.62	0.86	0.81	27.1	2.83		35				1.99	7.6
7.62	25.0	10.00	7.23	Clay	CL/CH	stiff	120	1.0	10	1.373	1.373	8.38	1.00	0.77	7.3	3.38		10				0.51	1.9
7.77	25.5	9.80	4.00	Clay	CL/CH	firm	120	1.0	10	1.403	1.387	4.67	0.99	0.76	7.1	3.23		10				0.49	1.8
7.92	26.0	9.77	4.28	Clay	CL/CH	firm	120	1.0	10	1.433	1.401	5.02	1.00	0.76	7.0	3.25		10				0.49	1.8
8.08	26.5	13.68	2.90	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.463	1.416	3.25	0.93	0.76	9.9	3.02		7				0.72	2.6
8.23	27.0	14.32	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.493	1.430	3.02	0.92	0.76	10.3	2.99		7				0.76	2.7
8.38	27.5	14.62	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.523	1.445	2.96	0.91	0.75	10.4	2.98		7				0.77	2.7
8.53	28.0	18.54	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.553	1.459	2.94	0.88	0.75	13.2	2.89		9				1.00	3.5
8.69	28.5	16.77	3.60	Silty Clay to Clay	CL	stiff	120	1.5	11	1.583	1.473	3.97	0.92	0.74	11.7	3.01		11				0.90	3.1
8.84	29.0	18.11	3.82	Silty Clay to Clay	CL	stiff	120	1.5	12	1.613	1.488	4.19	0.92	0.73	12.5	3.00		12				0.98	3.3
8.99	29.5	18.98	3.90	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.643	1.502	4.27	0.92	0.73	13.0	3.00		13				1.03	3.5
9.14	30.0	12.70	4.79	Clay	CL/CH	stiff	120	1.0	13	1.673	1.517	5.51	0.99	0.70	8.4	3.21		13				0.66	2.2
9.30	30.5	13.41	5.20	Clay	CL/CH	stiff	120	1.0	13	1.703	1.531	5.96	0.99	0.69	8.8	3.22		13				0.70	2.3
9.45	31.0	16.13	4.30	Clay	CL/CH	stiff	120	1.0	16	1.733	1.545	4.82	0.95	0.70	10.6	3.10		16				0.86	2.8
9.60	31.5	14.97	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.763	1.560	3.29	0.93	0.70	9.9	3.02		7				0.79	2.5
9.75	32.0	17.70	3.76	Silty Clay to Clay	CL	stiff	120	1.5	12	1.793	1.574	4.18	0.93	0.69	11.6	3.03		12				0.95	3.0
9.91	32.5	18.31	3.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.823	1.589	3.83	0.92	0.69	11.9	3.00		9				0.98	3.1
10.06	33.0	18.85	3.38	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.853	1.603	3.74	0.91	0.68	12.2	2.98		9				1.01	3.2
10.21	33.5	23.00	4.54	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.883	1.617	4.95	0.91	0.68	14.8	2.99		15				1.26	3.9
10.36	34.0	69.26	2.15	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	23	1.913	1.632	2.21	0.72	0.73	47.8	2.38	106.3	18	21	46	33		
10.52	34.5	39.34	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	1.943	1.646	3.11	0.82	0.70	25.9	2.68		16				2.22	6.8
10.67	35.0	14.81	3.53	Silty Clay to Clay	CL	stiff	120	1.5	10	1.973	1.661	4.80	0.95	0.65	9.1	3.11		10				0.77	2.3
10.82	35.5	17.33	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.003	1.675	3.05	0.91	0.66	10.8	2.97		9				0.92	2.7

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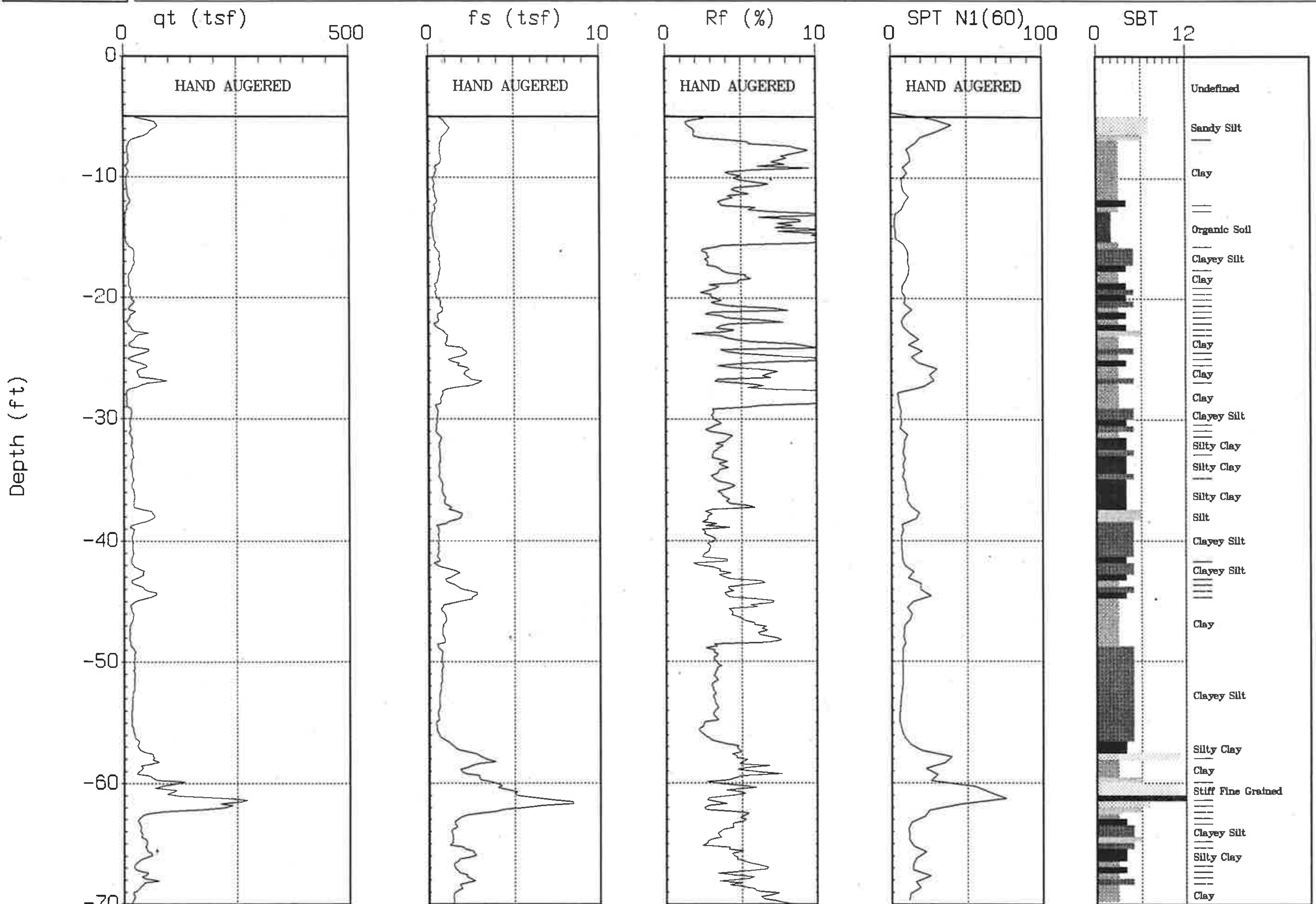
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: Su (tsf)	17 OCR
10.97	36.0	17.32	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.033	1.689	3.05	0.91	0.65	10.7	2.98		9				0.92	2.7
11.13	36.5	16.81	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.063	1.704	3.00	0.92	0.65	10.3	2.99		8				0.89	2.6
11.28	37.0	15.97	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.093	1.718	3.12	0.93	0.64	9.6	3.02		8				0.84	2.4
11.43	37.5	16.04	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.123	1.733	3.53	0.94	0.63	9.6	3.05		8				0.84	2.4
11.58	38.0	17.67	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.153	1.747	2.50	0.90	0.64	10.6	2.93		9				0.94	2.7
11.73	38.5	18.38	1.01	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.183	1.761	1.15	0.84	0.65	11.3	2.73		7				0.98	2.8
11.89	39.0	18.93	1.59	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.213	1.776	1.81	0.87	0.64	11.4	2.83		8				1.01	2.8
12.04	39.5	43.35	3.49	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.243	1.790	3.68	0.83	0.65	26.5	2.72		22				2.44	6.9
12.19	40.0	27.18	5.64	Clay	CL/CH	very stiff	120	1.0	27	2.273	1.805	6.16	0.93	0.61	15.7	3.04		27				1.49	4.1
12.34	40.5	10.35	8.65	Clay	CL/CH	stiff	120	1.0	10	2.303	1.819	####	1.00	0.58	5.7	3.54		10				0.50	1.3
12.50	41.0	10.42	8.25	Clay	CL/CH	stiff	120	1.0	10	2.333	1.833	####	1.00	0.58	5.7	3.52		10				0.51	1.3
12.65	41.5	10.96	3.49	Silty Clay to Clay	CL	stiff	120	1.5	7	2.363	1.848	4.45	1.00	0.57	5.9	3.28		7				0.54	1.4
12.80	42.0	17.84	1.54	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.393	1.862	1.78	0.88	0.61	10.3	2.87		7				0.94	2.5
12.95	42.5	21.21	1.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.423	1.877	1.97	0.87	0.61	12.2	2.82		8				1.14	3.0
13.11	43.0	18.14	2.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.453	1.891	2.63	0.91	0.59	10.1	2.96		9				0.96	2.5
13.26	43.5	20.17	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.483	1.905	2.84	0.90	0.59	11.2	2.94		10				1.07	2.8
13.41	44.0	20.78	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.513	1.920	2.83	0.90	0.59	11.5	2.93		10				1.11	2.9
13.56	44.5	17.93	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.543	1.934	3.17	0.93	0.57	9.7	3.02		9				0.94	2.4
13.72	45.0	18.21	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.573	1.949	2.07	0.89	0.58	10.0	2.91		7				0.96	2.4
13.87	45.5	21.54	2.03	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.603	1.963	2.31	0.88	0.58	11.8	2.87		9				1.15	2.9
14.02	46.0	21.59	2.21	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.633	1.977	2.52	0.89	0.57	11.7	2.90		9				1.15	2.9
14.17	46.5	18.78	2.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.663	1.992	2.86	0.92	0.56	9.9	2.99		9				0.99	2.4
14.33	47.0	17.03	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.693	2.006	2.98	0.93	0.55	8.9	3.04		9				0.88	2.1
14.48	47.5	16.72	2.49	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.723	2.021	2.98	0.94	0.55	8.6	3.05		8				0.86	2.1
14.63	48.0	18.20	1.95	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.753	2.035	2.30	0.91	0.55	9.5	2.95		7				0.95	2.3
14.78	48.5	22.02	1.71	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.783	2.049	1.96	0.87	0.56	11.7	2.84		9				1.17	2.8
14.94	49.0	28.65	2.28	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.813	2.064	2.52	0.86	0.56	15.4	2.80		12				1.58	3.8
15.09	49.5	71.70	4.49	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	36	2.843	2.078	4.68	0.81	0.58	39.2	2.66		36				4.10	9.9
15.24	50.0	165.33	4.68	Overconsolidated Soil	??	medium dense	120	6.0	28	2.873	2.092	4.76	0.73	0.61	94.7	2.41	224.8	19	45	75	33		

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-16

Engineer: T. TRANBY
Date: 02:17:04 09:43



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING:	CPT-16	Plot: 6	Density:	1	SPT N	Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest
Est. GWT (feet):	25.0		Dr correlation:	0	Baldi	Qc/N: 1 Robertson; Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.96		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.96		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.96		1				0.11	4.5
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.96		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.96		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.06	0.91	1.70	3.2	2.96		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.06	0.91	1.70	3.2	2.96		1				0.10	2.3
1.52	5.0	10.47	0.88	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.261	0.261	0.91	0.77	1.70	16.8	2.53	49.6	7	10	3	29		
1.68	5.5	66.17	1.49	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	22	0.289	0.289	1.49	0.61	1.70	106.3	2.01	139.1	37	28	79	38		
1.83	6.0	63.83	1.84	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	21	0.316	0.316	1.85	0.63	1.70	102.6	2.08	146.1	36	29	78	38		
1.98	6.5	43.73	2.07	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.344	0.344	2.09	0.68	1.70	70.3	2.24	123.9	30	25	62	36		
2.13	7.0	14.28	5.07	Clay	CL/CH	stiff	110	1.0	14	0.371	0.371	5.20	0.87	1.70	22.9	2.86		14				0.82	11.2
2.29	7.5	7.48	8.81	Clay	CL/CH	firm	110	1.0	7	0.399	0.399	9.31	0.99	1.70	12.0	3.24		7				0.42	5.3
2.44	8.0	8.14	8.32	Clay	CL/CH	firm	110	1.0	8	0.426	0.426	8.78	0.97	1.70	13.1	3.20		8				0.45	5.4
2.59	8.5	9.46	7.53	Clay	CL/CH	stiff	110	1.0	9	0.454	0.454	7.91	0.95	1.70	15.2	3.12		9				0.53	6.0
2.74	9.0	6.27	7.86	Clay	CL/CH	firm	110	1.0	6	0.481	0.481	8.51	1.00	1.70	10.1	3.27		6				0.34	3.6
2.90	9.5	8.45	4.71	Clay	CL/CH	firm	110	1.0	8	0.509	0.509	5.01	0.92	1.70	13.6	3.02		8				0.47	4.7
3.05	10.0	6.05	4.79	Clay	CL/CH	firm	110	1.0	6	0.536	0.536	5.25	0.96	1.70	9.7	3.15		6				0.32	3.1
3.20	10.5	5.24	6.29	Clay	CL/CH	firm	110	1.0	5	0.564	0.564	7.05	1.00	1.70	8.4	3.28		5				0.28	2.5
3.35	11.0	6.47	4.64	Clay	CL/CH	firm	110	1.0	6	0.591	0.591	5.10	0.95	1.70	10.4	3.12		6				0.35	3.0
3.51	11.5	8.11	4.70	Clay	CL/CH	firm	110	1.0	8	0.619	0.619	5.09	0.93	1.65	12.6	3.05		8				0.44	3.6
3.66	12.0	12.65	3.65	Silty Clay to Clay	CL	stiff	110	1.5	8	0.646	0.646	3.84	0.87	1.53	18.3	2.85		8				0.71	5.6
3.81	12.5	7.11	5.06	Clay	CL/CH	firm	110	1.0	7	0.674	0.674	5.59	0.96	1.54	10.4	3.15		7				0.38	2.9
3.96	13.0	2.99	9.35	Organic Material	OL/OH	soft	110	1.0	3	0.701	0.701	####	1.00	1.51	4.3	3.66		3				0.13	1.0
4.11	13.5	2.30	8.08	Organic Material	OL/OH	very soft	110	1.0	2	0.729	0.729	####	1.00	1.45	3.2	3.75		2				0.09	0.6
4.27	14.0	2.15	7.77	Organic Material	OL/OH	very soft	110	1.0	2	0.756	0.756	####	1.00	1.40	2.8	3.79		2				0.08	0.6
4.42	14.5	2.42	9.90	Organic Material	OL/OH	very soft	110	1.0	2	0.784	0.784	####	1.00	1.35	3.1	3.82		2				0.10	0.6
4.57	15.0	2.48	11.28	Organic Material	OL/OH	very soft	110	1.0	2	0.811	0.811	####	1.00	1.30	3.1	3.86		2				0.10	0.6
4.72	15.5	5.25	8.20	Organic Material	OL/OH	firm	110	1.0	5	0.839	0.839	9.76	1.00	1.26	6.3	3.47		5				0.26	1.6
4.88	16.0	18.63	2.70	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.866	0.866	2.83	0.83	1.18	20.8	2.72		9				1.04	6.2
5.03	16.5	22.56	2.72	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.894	0.894	2.83	0.81	1.15	24.5	2.67		11				1.27	7.3
5.18	17.0	22.64	2.77	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.921	0.921	2.88	0.82	1.12	24.0	2.68		11				1.28	7.1
5.33	17.5	18.50	3.57	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.949	0.949	3.77	0.86	1.10	19.2	2.83		12				1.03	5.5
5.49	18.0	12.04	4.92	Clay	CL/CH	stiff	110	1.0	12	0.976	0.976	5.35	0.94	1.08	12.3	3.08		12				0.65	3.4
5.64	18.5	10.40	5.08	Clay	CL/CH	stiff	110	1.0	10	1.004	1.004	5.62	0.96	1.05	10.3	3.15		10				0.55	2.8
5.79	19.0	11.69	3.22	Silty Clay to Clay	CL	stiff	110	1.5	8	1.031	1.031	3.53	0.92	1.02	11.3	2.99		8				0.63	3.1
5.94	19.5	15.01	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	1.059	1.059	2.95	0.88	1.00	14.2	2.87		8				0.82	4.0
6.10	20.0	15.62	3.28	Silty Clay to Clay	CL	stiff	110	1.5	10	1.086	1.086	3.53	0.89	0.98	14.4	2.91		10				0.85	4.0
6.25	20.5	19.12	3.60	Silty Clay to Clay	CL	very stiff	110	1.5	13	1.114	1.114	3.82	0.87	0.96	17.3	2.87		13				1.06	4.9
6.40	21.0	15.55	6.08	Clay	CL/CH	stiff	110	1.0	16	1.141	1.141	6.56	0.94	0.93	13.7	3.10		16				0.85	3.8
6.55	21.5	15.55	3.44	Silty Clay to Clay	CL	stiff	110	1.5	10	1.169	1.169	3.72	0.90	0.91	13.4	2.95		10				0.85	3.7
6.71	22.0	7.69	6.19	Clay	CL/CH	firm	120	1.0	8	1.198	1.198	7.34	1.00	0.88	6.4	3.38		8				0.38	1.6
6.86	22.5	13.65	3.82	Silty Clay to Clay	CL	stiff	120	1.5	9	1.228	1.228	4.20	0.93	0.87	11.2	3.04		9				0.73	3.0
7.01	23.0	36.11	3.05	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	1.258	1.258	3.16	0.80	0.87	29.7	2.64		18				2.05	8.3
7.16	23.5	21.99	4.82	Clay	CL/CH	very stiff	120	1.0	22	1.288	1.288	5.12	0.90	0.84	17.4	2.95		22				1.22	4.8
7.32	24.0	13.64	9.31	Clay	CL/CH	stiff	120	1.0	14	1.318	1.318	####	1.00	0.80	10.4	3.32		14				0.72	2.8
7.47	24.5	51.07	4.18	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	1.348	1.348	4.29	0.80	0.82	39.8	2.63		26				2.92	11.1
7.62	25.0	16.57	10.66	Clay	CL/CH	stiff	120	1.0	17	1.378	1.378	####	1.00	0.77	12.0	3.31		17				0.89	3.3
7.77	25.5	33.32	5.38	Clay	CL/CH	very stiff	120	1.0	33	1.408	1.392	5.62	0.87	0.79	24.8	2.86		33				1.88	6.9
7.92	26.0	38.68	6.08	Clay	CL/CH	hard	120	1.0	39	1.438	1.406	6.31	0.87	0.78	28.6	2.85		39				2.19	7.9
8.08	26.5	42.06	5.89	Clay	CL/CH	hard	120	1.0	42	1.468	1.421	6.10	0.86	0.78	30.9	2.82		42				2.39	8.6
8.23	27.0	61.52	5.05	Overconsolidated Soil	??	hard	120	6.0	10	1.498	1.435	5.17	0.81	0.78	45.5	2.65		10				3.53	12.5
8.38	27.5	16.27	8.67	Clay	CL/CH	stiff	120	1.0	16	1.528	1.450	9.57	1.00	0.73	11.2	3.27		16				0.87	3.1
8.53	28.0	4.99	15.31	Organic Material	OL/OH	soft	120	1.0	5	1.558	1.464	####	1.00	0.72	3.4	3.90		5				0.21	0.7
8.69	28.5	5.98	11.65	Organic Material	OL/OH	firm	120	1.0	6	1.588	1.478	####	1.00	0.72	4.0	3.75		6				0.26	0.9
8.84	29.0	9.67	4.94	Clay	CL/CH	firm	120	1.0	10	1.618	1.493	5.93	1.00	0.71	6.5	3.32		10				0.48	1.6
8.99	29.5	16.27	3.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.648	1.507	3.46	0.92	0.72	11.1	3.00		8				0.87	2.9
9.14	30.0	14.39	3.25	Silty Clay to Clay	CL	stiff	120	1.5	10	1.678	1.522	3.68	0.94	0.71	9.7	3.06		10				0.76	2.5
9.30	30.5	13.16	3.31	Silty Clay to Clay	CL	stiff	120	1.5	9	1.708	1.536	3.80	0.95	0.70	8.7	3.10		9				0.68	2.2
9.45	31.0	13.66	3.13	Silty Clay to Clay	CL	stiff	120	1.5	9	1.738	1.550	3.58	0.94	0.70	9.0	3.08		9				0.71	2.3
9.60	31.5	15.74	4.23	Clay	CL/CH	stiff	120	1.0	16	1.768	1.565	4.76	0.95	0.69	10.3	3.11		16				0.83	2.7
9.75	32.0	16.73	3.65	Silty Clay to Clay	CL	stiff	120	1.5	11	1.798	1.579	4.09	0.93	0.69	10.9	3.05		11				0.89	2.8
9.91	32.5	18.10	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.828	1.594	3.72	0.92	0.69	11.8	2.99		9				0.97	3.1
10.06	33.0	20.42	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.858	1.608	3.38	0.89	0.69	13.3	2.93		10				1.11	3.5
10.21	33.5	16.78	3.72	Silty Clay to Clay	CL	stiff	120	1.5	11	1.888	1.622	4.19	0.94	0.67	10.6	3.06		11				0.89	2.8
10.36	34.0	15.42	3.79	Silty Clay to Clay	CL	stiff	120	1.5	10	1.918	1.637	4.33	0.95	0.66	9.6	3.10		10				0.81	2.5
10.52	34.5	18.10	3.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.948	1.651	3.70	0.92	0.66	11.4	3.00		9				0.97	2.9
10.67	35.0	19.90	3.28	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.978	1.666	3.64	0.91	0.66	12.5	2.97		10				1.07	3.2
10.82	35.5	17.74	4.33	Clay	CL/CH	stiff	120	1.0	18	2.008	1.680	4.88	0.95	0.65	10.8	3.09		18				0.94	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-16 | Plot: 6 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

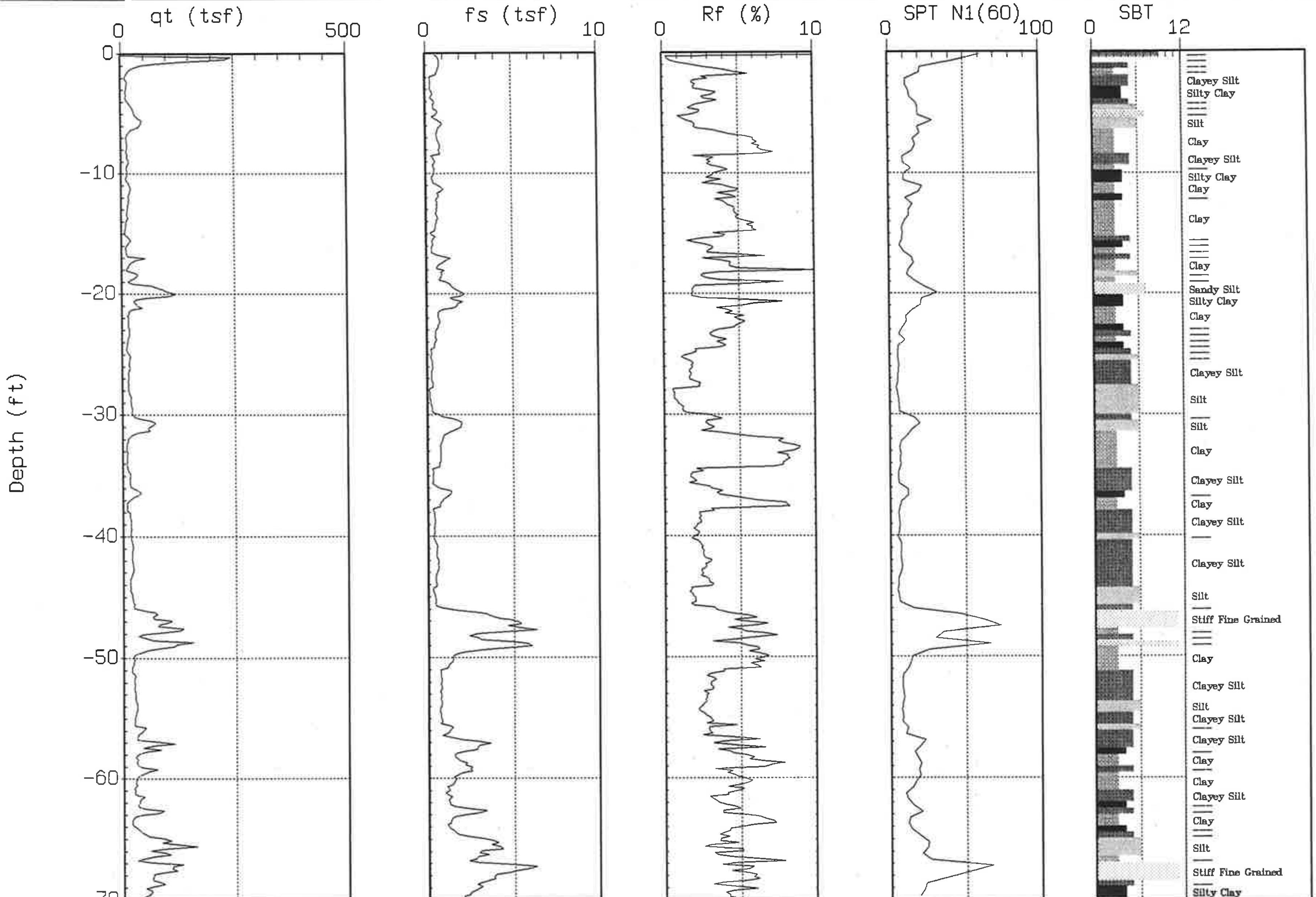
Est. GWT (feet): **25.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	20.75	3.67	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.038	1.694	4.07	0.91	0.65	12.8	2.99		14				1.12	3.3
11.13	36.5	22.52	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.068	1.709	4.37	0.91	0.65	13.8	2.98		15				1.22	3.6
11.28	37.0	21.28	5.17	Clay	CL/CH	very stiff	120	1.0	21	2.098	1.723	5.74	0.94	0.63	12.7	3.08		21				1.15	3.3
11.43	37.5	54.31	2.86	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	2.128	1.738	2.98	0.78	0.68	34.8	2.57	108.9	16	22	33	32		
11.58	38.0	64.96	2.74	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	2.158	1.752	2.84	0.76	0.68	41.9	2.49	114.4	20	23	41	33		
11.73	38.5	31.07	2.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.188	1.766	2.97	0.84	0.65	19.0	2.77		12				1.72	4.9
11.89	39.0	18.59	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.218	1.781	3.46	0.92	0.62	10.9	3.00		9				0.99	2.8
12.04	39.5	18.98	2.80	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.248	1.795	3.17	0.91	0.62	11.1	2.97		9				1.01	2.8
12.19	40.0	18.06	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.278	1.810	3.46	0.93	0.61	10.4	3.02		9				0.96	2.6
12.34	40.5	18.35	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.308	1.824	3.28	0.92	0.61	10.5	3.00		9				0.97	2.6
12.50	41.0	19.81	2.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.338	1.838	2.96	0.90	0.61	11.4	2.95		10				1.06	2.9
12.65	41.5	16.21	3.48	Silty Clay to Clay	CL	stiff	120	1.5	11	2.368	1.853	4.07	0.95	0.59	9.0	3.11		11				0.84	2.2
12.80	42.0	19.14	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.398	1.867	2.65	0.90	0.60	10.8	2.94		10				1.02	2.7
12.95	42.5	39.84	3.77	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	20	2.428	1.882	4.02	0.85	0.61	23.1	2.79		20				2.23	6.0
13.11	43.0	32.73	3.88	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.458	1.896	4.19	0.88	0.60	18.6	2.87		16				1.81	4.8
13.26	43.5	19.73	6.13	Clay	CL/CH	very stiff	120	1.0	20	2.488	1.910	7.02	0.98	0.56	10.5	3.21		20				1.05	2.7
13.41	44.0	45.88	4.23	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	2.518	1.925	4.47	0.85	0.60	26.1	2.78		23				2.59	6.8
13.56	44.5	67.55	3.99	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	34	2.548	1.939	4.15	0.80	0.62	39.3	2.63		34				3.86	10.1
13.72	45.0	30.42	6.68	Clay	CL/CH	very stiff	120	1.0	30	2.578	1.954	7.30	0.94	0.56	16.2	3.07		30				1.67	4.3
13.87	45.5	14.63	5.27	Clay	CL/CH	stiff	120	1.0	15	2.608	1.968	6.41	1.00	0.54	7.4	3.30		15				0.74	1.8
14.02	46.0	18.77	4.35	Clay	CL/CH	stiff	120	1.0	19	2.638	1.982	5.06	0.96	0.55	9.7	3.14		19				0.99	2.4
14.17	46.5	19.47	4.97	Clay	CL/CH	very stiff	120	1.0	19	2.668	1.997	5.76	0.97	0.54	9.9	3.17		19				1.03	2.5
14.33	47.0	13.26	6.17	Clay	CL/CH	stiff	120	1.0	13	2.698	2.011	7.75	1.00	0.53	6.6	3.39		13				0.66	1.6
14.48	47.5	11.90	6.34	Clay	CL/CH	stiff	120	1.0	12	2.728	2.026	8.23	1.00	0.52	5.9	3.44		12				0.58	1.4
14.63	48.0	11.67	7.29	Clay	CL/CH	stiff	120	1.0	12	2.758	2.040	9.54	1.00	0.52	5.7	3.49		12				0.57	1.3
14.78	48.5	13.71	4.46	Clay	CL/CH	stiff	120	1.0	14	2.788	2.054	5.60	1.00	0.52	6.7	3.30		14				0.69	1.6
14.94	49.0	21.74	2.99	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.818	2.069	3.43	0.92	0.54	11.1	2.99		11				1.16	2.7
15.09	49.5	21.75	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.848	2.083	3.79	0.93	0.53	11.0	3.02		11				1.16	2.7
15.24	50.0	21.50	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.878	2.097	3.81	0.93	0.53	10.8	3.03		11				1.14	2.7

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-17

Engineer: T. TRANBY
Date: 02:17:04 10:11



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | **Project No:** VT-23104-01 | **Date:** 10/29/04

CPT SOUNDING: CPT-17 | Plot: 7 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	206.07	0.39	Sand	SP	very dense	100	5.0	41	0.013	0.013	0.39	0.50	1.70	331.1	1.25	331.1	70	66	100	44		
0.30	1.0	52.16	1.79	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.039	0.039	1.79	0.65	1.70	83.8	2.14	127.6	30	26	69	36		
0.46	1.5	16.78	4.23	Clay	CL/CH	stiff	110	1.0	17	0.066	0.066	4.24	0.83	1.70	27.0	2.75		17				0.98	75.7
0.61	2.0	9.56	3.76	Clay	CL/CH	stiff	110	1.0	10	0.094	0.094	3.80	0.88	1.70	15.4	2.91		10				0.56	30.3
0.76	2.5	13.24	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.121	0.121	2.06	0.80	1.70	21.3	2.63		7				0.77	32.5
0.91	3.0	11.64	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.149	0.149	2.34	0.82	1.70	18.7	2.71		6				0.68	23.2
1.07	3.5	10.92	3.14	Silty Clay to Clay	CL	stiff	110	1.5	7	0.176	0.176	3.20	0.85	1.70	17.5	2.82		7				0.63	18.3
1.22	4.0	13.20	3.12	Silty Clay to Clay	CL	stiff	110	1.5	9	0.204	0.204	3.17	0.83	1.70	21.2	2.75		9				0.76	19.1
1.37	4.5	22.77	1.94	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.231	0.231	1.96	0.74	1.70	36.6	2.43	89.8	15	18	35	32		
1.52	5.0	28.32	2.26	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.259	0.259	2.28	0.73	1.70	45.5	2.40	105.7	19	21	44	33		
1.68	5.5	40.77	1.45	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.286	0.286	1.46	0.66	1.70	65.5	2.16	102.6	23	21	59	34		
1.83	6.0	37.60	2.15	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.314	0.314	2.17	0.70	1.70	60.4	2.30	117.0	26	23	56	35		
1.98	6.5	16.91	3.87	Silty Clay to Clay	CL	stiff	110	1.5	11	0.341	0.341	3.95	0.83	1.70	27.2	2.73		11				0.97	14.6
2.13	7.0	11.06	5.79	Clay	CL/CH	stiff	110	1.0	11	0.369	0.369	5.99	0.91	1.70	17.8	2.99		11				0.63	8.7
2.29	7.5	12.25	6.21	Clay	CL/CH	stiff	110	1.0	12	0.396	0.396	6.42	0.90	1.70	19.7	2.97		12				0.70	9.0
2.44	8.0	11.36	6.73	Clay	CL/CH	stiff	110	1.0	11	0.424	0.424	6.99	0.92	1.70	18.2	3.02		11				0.64	7.7
2.59	8.5	12.50	3.99	Clay	CL/CH	stiff	110	1.0	13	0.451	0.451	4.14	0.86	1.70	20.1	2.84		13				0.71	8.0
2.74	9.0	15.67	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.479	0.479	3.09	0.82	1.70	25.2	2.68		8				0.89	9.5
2.90	9.5	11.67	3.81	Clay	CL/CH	stiff	110	1.0	12	0.506	0.506	3.98	0.87	1.70	18.8	2.85		12				0.66	6.6
3.05	10.0	12.59	3.47	Silty Clay to Clay	CL	stiff	110	1.5	8	0.534	0.534	3.63	0.85	1.70	20.2	2.80		8				0.71	6.8
3.20	10.5	10.45	3.28	Silty Clay to Clay	CL	stiff	110	1.5	7	0.561	0.561	3.47	0.87	1.70	16.8	2.85		7				0.58	5.3
3.35	11.0	17.18	3.67	Silty Clay to Clay	CL	stiff	110	1.5	11	0.589	0.589	3.80	0.83	1.63	26.4	2.73		11				0.98	8.5
3.51	11.5	18.40	4.49	Clay	CL/CH	very stiff	110	1.0	18	0.616	0.616	4.64	0.84	1.58	27.4	2.77		18				1.05	8.7
3.66	12.0	15.43	4.26	Clay	CL/CH	stiff	110	1.0	15	0.644	0.644	4.45	0.86	1.53	22.4	2.83		15				0.87	6.9
3.81	12.5	14.42	4.14	Clay	CL/CH	stiff	110	1.0	14	0.671	0.671	4.34	0.87	1.48	20.2	2.85		14				0.81	6.1
3.96	13.0	12.66	4.71	Clay	CL/CH	stiff	110	1.0	13	0.699	0.699	4.99	0.90	1.45	17.4	2.94		13				0.70	5.1
4.11	13.5	11.88	4.85	Clay	CL/CH	stiff	110	1.0	12	0.726	0.726	5.17	0.91	1.41	15.8	2.98		12				0.66	4.6
4.27	14.0	10.99	5.43	Clay	CL/CH	stiff	110	1.0	11	0.754	0.754	5.83	0.93	1.37	14.2	3.05		11				0.60	4.1
4.42	14.5	8.76	5.82	Clay	CL/CH	firm	110	1.0	9	0.781	0.781	6.39	0.97	1.34	11.1	3.16		9				0.47	3.1
4.57	15.0	7.07	4.54	Clay	CL/CH	firm	110	1.0	7	0.809	0.809	5.13	0.98	1.30	8.7	3.18		7				0.37	2.3
4.72	15.5	16.17	2.67	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.836	0.836	2.82	0.84	1.22	18.6	2.76		8				0.90	5.5
4.88	16.0	11.40	2.87	Silty Clay to Clay	CL	stiff	110	1.5	8	0.864	0.864	3.10	0.89	1.20	12.9	2.91		8				0.62	3.7
5.03	16.5	9.70	3.63	Clay	CL/CH	stiff	110	1.0	10	0.891	0.891	4.00	0.93	1.17	10.8	3.04		10				0.52	3.0
5.18	17.0	31.16	4.38	Silty Clay to Clay	CL	very stiff	110	1.5	21	0.919	0.919	4.52	0.82	1.12	33.1	2.71		21				1.78	9.9
5.33	17.5	17.36	4.41	Clay	CL/CH	stiff	110	1.0	17	0.946	0.946	4.67	0.89	1.10	18.1	2.91		17				0.97	5.2
5.49	18.0	14.02	6.56	Clay	CL/CH	stiff	110	1.0	14	0.974	0.974	7.05	0.95	1.08	14.3	3.10		14				0.77	4.0
5.64	18.5	31.51	2.66	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.001	1.001	2.75	0.79	1.04	31.1	2.58	99.9	13	20	28	31		
5.79	19.0	18.69	5.79	Clay	CL/CH	very stiff	110	1.0	19	1.029	1.029	6.13	0.91	1.03	18.1	2.99		19				1.04	5.2
5.94	19.5	79.48	1.96	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	26	1.056	1.056	1.99	0.67	1.00	75.2	2.20	125.6	26	25	65	35		
6.10	20.0	107.91	1.89	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	36	1.084	1.084	1.91	0.64	0.98	100.4	2.10	145.9	35	29	77	37		
6.25	20.5	36.53	5.23	Clay	CL/CH	hard	110	1.0	37	1.111	1.111	5.40	0.84	0.96	33.1	2.76		37				2.08	9.6
6.40	21.0	36.11	4.87	Silty Clay to Clay	CL	hard	110	1.5	24	1.139	1.139	5.03	0.84	0.94	32.1	2.75		24				2.06	9.2
6.55	21.5	17.25	4.27	Silty Clay to Clay	CL	stiff	110	1.5	11	1.166	1.166	4.58	0.91	0.92	14.9	2.97		11				0.95	4.1
6.71	22.0	12.96	5.01	Clay	CL/CH	stiff	120	1.0	13	1.195	1.195	5.52	0.96	0.89	10.9	3.12		13				0.69	3.0
6.86	22.5	13.50	5.06	Clay	CL/CH	stiff	120	1.0	13	1.225	1.225	5.56	0.95	0.87	11.1	3.12		13				0.72	3.0
7.01	23.0	14.56	3.88	Silty Clay to Clay	CL	stiff	120	1.5	10	1.255	1.255	4.24	0.93	0.85	11.7	3.03		10				0.78	3.2
7.16	23.5	15.08	3.22	Silty Clay to Clay	CL	stiff	120	1.5	10	1.285	1.285	3.52	0.91	0.84	11.9	2.97		10				0.81	3.2
7.32	24.0	12.32	3.84	Clay	CL/CH	stiff	120	1.0	12	1.315	1.315	4.30	0.95	0.81	9.5	3.11		12				0.65	2.5
7.47	24.5	10.29	3.28	Silty Clay to Clay	CL	stiff	120	1.5	7	1.345	1.345	3.77	0.97	0.79	7.7	3.15		7				0.53	2.0
7.62	25.0	13.57	1.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.375	1.375	1.96	0.89	0.79	10.2	2.89		7				0.72	2.7
7.77	25.5	16.21	1.47	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.405	1.389	1.61	0.85	0.79	12.1	2.78		6				0.87	3.2
7.92	26.0	14.76	1.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.435	1.404	2.05	0.88	0.78	10.9	2.88		7				0.79	2.8
8.08	26.5	13.79	1.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.465	1.418	1.93	0.89	0.77	10.0	2.89		7				0.73	2.6
8.23	27.0	12.87	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.495	1.433	2.03	0.90	0.76	9.3	2.93		6				0.67	2.4
8.38	27.5	12.76	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.525	1.447	2.67	0.92	0.75	9.0	3.01		6				0.67	2.3
8.53	28.0	13.57	0.61	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.555	1.461	0.69	0.83	0.76	9.8	2.70		5				0.71	2.5
8.69	28.5	17.15	0.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.585	1.476	0.73	0.80	0.77	12.4	2.61		7				0.92	3.2
8.84	29.0	18.47	0.94	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.615	1.490	1.03	0.81	0.76	13.2	2.65		7				1.00	3.4
8.99	29.5	20.27	1.23	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.645	1.505	1.34	0.82	0.75	14.4	2.68		8				1.10	3.7
9.14	30.0	22.43	2.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.675	1.519	2.80	0.86	0.73	15.5	2.82		11				1.23	4.1
9.30	30.5	58.22	3.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.705	1.533	3.21	0.77	0.75	41.3	2.53	121.6	19	24	40	33		
9.45	31.0	59.94	3.09	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.735	1.548	3.18	0.77	0.75	42.3	2.52	122.1	19	24	41	33		
9.60	31.5	37.16	3.67	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.765	1.562	3.85	0.84	0.72	25.4	2.74		19				2.09	6.8
9.75	32.0	12.26	7.14	Clay	CL/CH	stiff	120	1.0	12	1.795	1.577	8.37	1.00	0.67	7.8	3.35		12				0.63	2.0
9.91	32.5	8.64	8.49	Clay	CL/CH	firm	120	1.0	9	1.825	1.591	####	1.00	0.66	5.4	3.54		9				0.41	1.3
10.06	33.0	8.85	8.34	Clay	CL/CH	firm	120	1.0	9	1.855	1.605	####	1.00	0.66	5.5	3.53		9				0.43	1.3
10.21	33.5	8.81	8.25	Clay	CL/CH	firm	120	1.0	9	1.885	1.620	####	1.00	0.65	5.4	3.54		9				0.42	1.3
10.36	34.0	8.55	7.95	Clay	CL/CH	firm	120	1.0	9	1.915	1.634	####	1.00	0.65	5.2	3.54		9				0.41	1.2
10.52	34.5	10.47	3.96	Clay	CL/CH	stiff	120	1.0	10	1.945	1.649	4.87	1.00	0.64	6.3	3.28		10				0.52	1.6
10.67	35.0	15.66	1.74	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.975	1.663	2.00	0.89	0.67	9.9	2.90		6				0.82	2.5
10.82	35.5	14.29	1.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	2.15	0.91	0.66	8.9	2.96		7				0.74	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 10/29/04

CPT SOUNDING: CPT-17 — Plot: 7 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

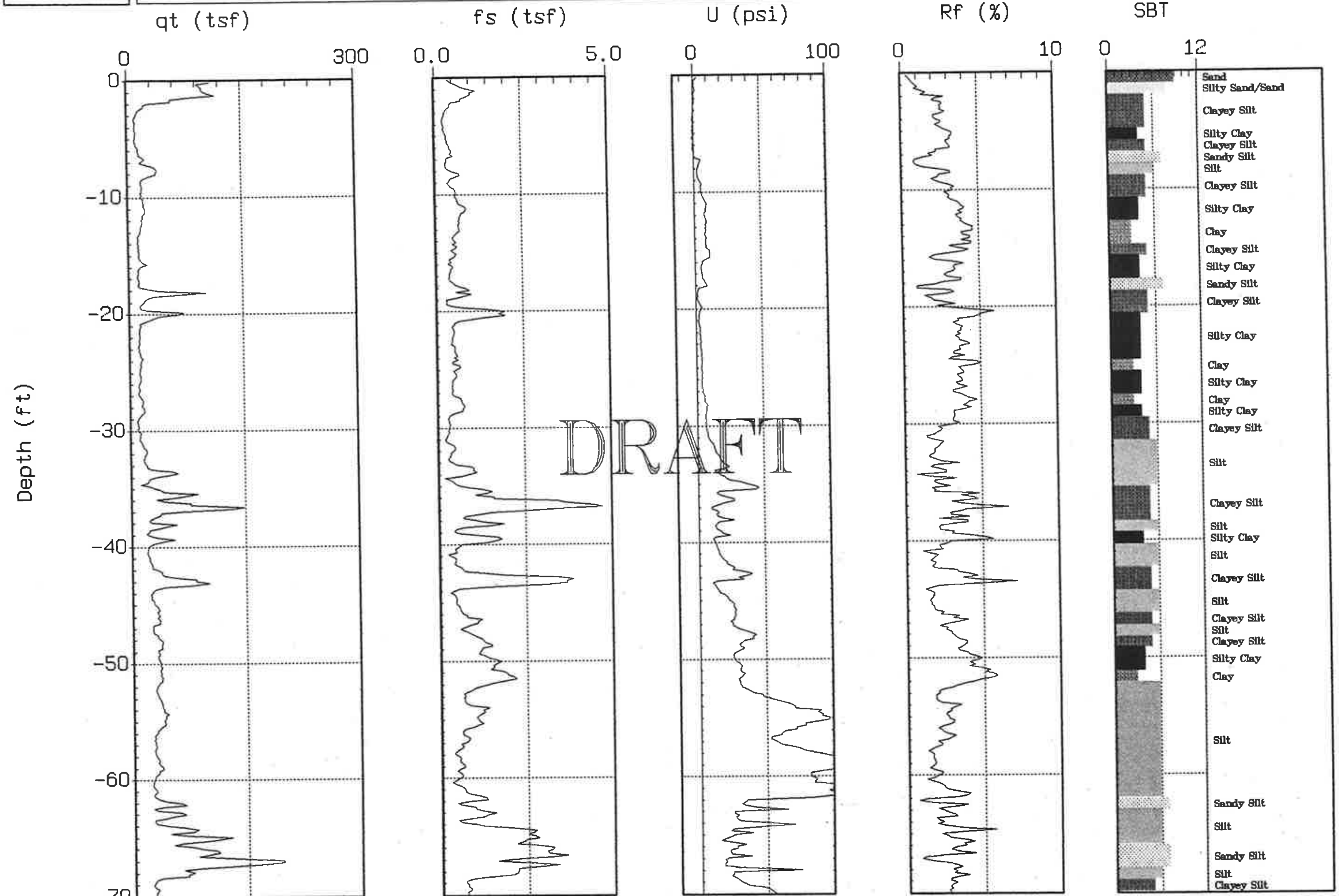
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.73	2.78	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.035	1.692	3.12	0.90	0.65	11.6	2.95		9				1.00	3.0
11.13	36.5	32.96	3.85	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.065	1.706	4.11	0.86	0.66	20.6	2.83		16				1.84	5.4
11.28	37.0	12.59	6.59	Clay	CL/CH	stiff	120	1.0	13	2.095	1.721	7.90	1.00	0.61	7.3	3.36		13				0.64	1.8
11.43	37.5	8.12	6.51	Clay	CL/CH	firm	120	1.0	8	2.125	1.735	8.82	1.00	0.61	4.7	3.54		8				0.38	1.0
11.58	38.0	12.46	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.155	1.749	3.17	0.96	0.62	7.3	3.13		6				0.63	1.8
11.73	38.5	15.36	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.185	1.764	2.71	0.92	0.62	9.1	3.01		8				0.80	2.2
11.89	39.0	16.53	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.215	1.778	2.54	0.91	0.62	9.7	2.97		8				0.87	2.4
12.04	39.5	16.41	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.245	1.793	2.39	0.91	0.62	9.6	2.96		8				0.86	2.4
12.19	40.0	15.98	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.275	1.807	2.27	0.91	0.61	9.3	2.96		8				0.83	2.3
12.34	40.5	18.42	2.26	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.305	1.821	2.58	0.90	0.61	10.7	2.94		9				0.98	2.7
12.50	41.0	20.07	2.48	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.335	1.836	2.80	0.90	0.61	11.6	2.93		10				1.07	2.9
12.65	41.5	18.54	2.54	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.365	1.850	2.91	0.91	0.60	10.5	2.97		9				0.98	2.6
12.80	42.0	18.96	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.395	1.865	3.32	0.92	0.59	10.6	3.00		9				1.01	2.7
12.95	42.5	20.79	2.68	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.425	1.879	3.03	0.90	0.60	11.7	2.94		10				1.11	2.9
13.11	43.0	20.38	2.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.455	1.893	2.77	0.90	0.59	11.4	2.93		10				1.09	2.8
13.26	43.5	15.46	2.69	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.485	1.908	3.21	0.95	0.57	8.4	3.08		8				0.80	2.0
13.41	44.0	14.47	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.515	1.922	3.71	0.97	0.56	7.7	3.14		7				0.74	1.9
13.56	44.5	15.70	1.68	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.545	1.937	2.00	0.91	0.58	8.6	2.96		6				0.81	2.0
13.72	45.0	18.74	1.85	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.575	1.951	2.14	0.89	0.58	10.3	2.91		7				0.99	2.5
13.87	45.5	21.47	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.605	1.965	2.15	0.88	0.58	11.8	2.86		9				1.15	2.9
14.02	46.0	29.97	2.83	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.635	1.980	3.11	0.86	0.58	16.5	2.83		15				1.65	4.1
14.17	46.5	69.46	4.60	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	35	2.665	1.994	4.78	0.81	0.60	39.2	2.67		35				3.97	10.0
14.33	47.0	87.20	5.70	Overconsolidated Soil	??	hard	120	6.0	15	2.695	2.009	5.89	0.81	0.59	49.0	2.67		15				5.01	12.6
14.48	47.5	110.93	5.08	Overconsolidated Soil	??	medium dense	120	6.0	18	2.725	2.023	5.20	0.78	0.60	63.4	2.56	194.3	13	39	58	31		
14.63	48.0	53.28	6.43	Clay	CL/CH	hard	120	1.0	53	2.755	2.037	6.78	0.88	0.56	28.4	2.88		53				3.01	7.4
14.78	48.5	90.52	4.48	Overconsolidated Soil	??	medium dense	120	6.0	15	2.785	2.052	4.63	0.79	0.59	50.9	2.58	163.6	11	33	49	30		
14.94	49.0	101.28	5.49	Overconsolidated Soil	??	hard	120	6.0	17	2.815	2.066	5.65	0.80	0.59	56.2	2.62		17				5.84	14.3
15.09	49.5	38.68	5.98	Clay	CL/CH	hard	120	1.0	39	2.845	2.081	6.46	0.91	0.54	19.8	2.97		39				2.15	5.2
15.24	50.0	21.70	6.41	Clay	CL/CH	very stiff	120	1.0	22	2.875	2.095	7.39	0.98	0.51	10.5	3.22		22				1.15	2.7

GREGG

EARTH SYSTEMS

Site : NWC PALM & MAIN
Location : CPT-18

Engineer : TODD TRANBY
Date : 07:16:04 08:23



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-18 | Plot: 8 | Density: 1 | SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 | Baldi | Qc/N: 1 | Robertson | Phi Correlation: 4 | SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	95.90	0.58	Sand	SP	dense	100	5.0	19	0.013	0.013	0.58	0.50	1.70	154.1	1.62	154.1	33	31	95	37		
0.30	1.0	102.25	0.95	Sand to Silty Sand	SP/SM	dense	100	4.0	26	0.038	0.038	0.95	0.53	1.70	164.3	1.74	174.4	43	35	97	39		
0.46	1.5	84.60	1.27	Sand to Silty Sand	SP/SM	dense	100	4.0	21	0.063	0.063	1.27	0.57	1.70	135.9	1.88	159.3	36	32	90	38		
0.61	2.0	35.50	2.11	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	14	0.089	0.089	2.12	0.70	1.70	57.0	2.31	112.7	24	23	54	34		
0.76	2.5	17.72	2.47	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.116	0.116	2.49	0.78	1.70	28.5	2.58	91.8	15	18	25	32		
0.91	3.0	11.75	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.144	0.144	2.59	0.83	1.70	18.9	2.73		6				0.68	24.2
1.07	3.5	9.75	2.52	Silty Clay to Clay	CL	stiff	110	1.5	6	0.171	0.171	2.56	0.85	1.70	15.7	2.80		6				0.56	16.8
1.22	4.0	10.04	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.199	0.199	2.37	0.84	1.70	16.1	2.77		5				0.58	14.9
1.37	4.5	10.72	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.226	0.226	2.48	0.84	1.70	17.2	2.76		5				0.62	13.9
1.52	5.0	10.34	3.02	Silty Clay to Clay	CL	stiff	110	1.5	7	0.254	0.254	3.09	0.86	1.70	16.6	2.83		7				0.59	11.9
1.68	5.5	11.43	3.15	Silty Clay to Clay	CL	stiff	110	1.5	8	0.281	0.281	3.23	0.85	1.70	18.4	2.80		8				0.66	11.9
1.83	6.0	14.35	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.309	0.309	3.13	0.83	1.70	23.1	2.72		7				0.83	13.6
1.98	6.5	19.05	2.57	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.336	0.336	2.62	0.78	1.70	30.6	2.57	96.8	16	19	28	32		
2.13	7.0	19.41	1.73	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.364	0.364	1.76	0.75	1.70	31.2	2.46	80.3	13	16	28	31		
2.29	7.5	36.51	0.84	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	0.391	0.391	0.85	0.63	1.70	58.7	2.05	80.7	19	16	55	33		
2.44	8.0	34.22	1.56	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.419	0.419	1.57	0.68	1.70	55.0	2.24	96.8	18	19	52	33		
2.59	8.5	19.27	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.446	0.446	2.98	0.79	1.70	31.0	2.61		10				1.11	12.7
2.74	9.0	18.01	2.18	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.474	0.474	2.23	0.78	1.70	28.9	2.55	87.6	13	18	25	31		
2.90	9.5	17.37	3.01	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.501	0.501	3.10	0.81	1.70	27.9	2.65		9				0.99	10.1
3.05	10.0	18.49	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.529	0.529	3.21	0.80	1.70	29.7	2.64		9				1.06	10.2
3.20	10.5	20.48	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.556	0.556	3.14	0.79	1.66	32.2	2.61		10				1.17	10.7
3.35	11.0	21.84	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.584	0.584	3.63	0.80	1.61	33.3	2.64		11				1.25	10.9
3.51	11.5	20.40	3.98	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.611	0.611	4.11	0.82	1.57	30.3	2.71		14				1.16	9.7
3.66	12.0	18.67	3.73	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.639	0.639	3.86	0.83	1.52	26.8	2.73		12				1.06	8.5
3.81	12.5	17.26	3.80	Silty Clay to Clay	CL	stiff	110	1.5	12	0.666	0.666	3.96	0.84	1.48	24.1	2.77		12				0.98	7.5
3.96	13.0	15.62	4.30	Clay	CL/CH	stiff	110	1.0	16	0.694	0.694	4.50	0.87	1.44	21.3	2.85		16				0.88	6.5
4.11	13.5	12.51	4.37	Clay	CL/CH	stiff	110	1.0	13	0.721	0.721	4.64	0.89	1.41	16.7	2.93		13				0.69	4.9
4.27	14.0	12.26	4.29	Clay	CL/CH	stiff	110	1.0	12	0.749	0.749	4.56	0.90	1.36	15.8	2.95		12				0.68	4.6
4.42	14.5	12.60	4.32	Clay	CL/CH	stiff	110	1.0	13	0.776	0.776	4.60	0.90	1.32	15.7	2.95		13				0.70	4.6
4.57	15.0	13.58	3.67	Silty Clay to Clay	CL	stiff	110	1.5	9	0.804	0.804	3.90	0.88	1.27	16.4	2.89		9				0.75	4.8
4.72	15.5	15.75	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.831	0.831	3.14	0.85	1.23	18.3	2.80		8				0.88	5.4
4.88	16.0	16.31	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.859	0.859	2.93	0.85	1.19	18.4	2.78		8				0.91	5.4
5.03	16.5	11.79	3.37	Silty Clay to Clay	CL	stiff	110	1.5	8	0.886	0.886	3.64	0.90	1.17	13.1	2.95		8				0.64	3.7
5.18	17.0	12.14	2.98	Silty Clay to Clay	CL	stiff	110	1.5	8	0.914	0.914	3.22	0.89	1.14	13.1	2.92		8				0.66	3.7
5.33	17.5	12.77	3.51	Silty Clay to Clay	CL	stiff	110	1.5	9	0.941	0.941	3.79	0.90	1.11	13.4	2.95		9				0.70	3.8
5.49	18.0	55.14	1.86	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	18	0.969	0.969	1.89	0.70	1.06	55.4	2.28	105.3	19	21	52	33		
5.64	18.5	39.97	2.41	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	16	0.996	0.996	2.47	0.75	1.05	39.5	2.47	103.9	16	21	38	32		
5.79	19.0	18.75	2.03	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	7	1.024	1.024	2.14	0.82	1.03	18.2	2.70		7				1.04	5.2
5.94	19.5	17.66	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.051	1.051	2.83	0.85	1.01	16.8	2.80		9				0.98	4.7
6.10	20.0	58.66	3.22	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	23	1.079	1.079	3.28	0.75	0.99	54.6	2.45	138.9	23	28	52	34		
6.25	20.5	27.34	5.33	Clay	CL/CH	very stiff	110	1.0	27	1.106	1.106	5.56	0.87	0.96	24.9	2.86		27				1.54	7.1
6.40	21.0	14.00	3.90	Silty Clay to Clay	CL	stiff	110	1.5	9	1.134	1.134	4.25	0.92	0.94	12.4	3.01		9				0.76	3.4
6.55	21.5	12.77	3.53	Silty Clay to Clay	CL	stiff	110	1.5	9	1.161	1.161	3.88	0.93	0.92	11.1	3.03		9				0.68	3.0
6.71	22.0	13.07	3.65	Silty Clay to Clay	CL	stiff	120	1.5	9	1.190	1.190	4.02	0.93	0.90	11.1	3.03		9				0.70	3.0
6.86	22.5	12.05	3.56	Silty Clay to Clay	CL	stiff	120	1.5	8	1.220	1.220	3.96	0.94	0.87	10.0	3.07		8				0.64	2.7
7.01	23.0	11.72	4.02	Clay	CL/CH	stiff	120	1.0	12	1.250	1.250	4.50	0.96	0.85	9.4	3.12		12				0.62	2.5
7.16	23.5	13.84	3.67	Silty Clay to Clay	CL	stiff	120	1.5	9	1.280	1.280	4.04	0.93	0.84	11.0	3.04		9				0.74	2.9
7.32	24.0	15.76	3.50	Silty Clay to Clay	CL	stiff	120	1.5	11	1.310	1.310	3.81	0.91	0.82	12.3	2.99		11				0.85	3.3
7.47	24.5	13.83	3.62	Silty Clay to Clay	CL	stiff	120	1.5	9	1.340	1.340	4.00	0.93	0.80	10.5	3.05		9				0.73	2.8
7.62	25.0	12.61	4.39	Clay	CL/CH	stiff	120	1.0	13	1.370	1.370	4.92	0.96	0.78	9.3	3.15		13				0.66	2.5
7.77	25.5	13.59	3.81	Silty Clay to Clay	CL	stiff	120	1.5	9	1.400	1.384	4.25	0.95	0.78	10.0	3.09		9				0.72	2.6
7.92	26.0	12.15	3.59	Silty Clay to Clay	CL	stiff	120	1.5	8	1.430	1.399	4.07	0.96	0.77	8.8	3.12		8				0.63	2.3
8.08	26.5	11.31	3.71	Clay	CL/CH	stiff	120	1.0	11	1.460	1.413	4.25	0.97	0.76	8.1	3.16		11				0.58	2.1
8.23	27.0	12.92	3.35	Silty Clay to Clay	CL	stiff	120	1.5	9	1.490	1.428	3.79	0.95	0.75	9.2	3.08		9				0.68	2.4
8.38	27.5	16.63	3.96	Silty Clay to Clay	CL	stiff	120	1.5	11	1.520	1.442	4.36	0.93	0.75	11.8	3.03		11				0.89	3.1
8.53	28.0	16.92	4.36	Clay	CL/CH	stiff	120	1.0	17	1.550	1.456	4.80	0.93	0.74	11.9	3.06		17				0.91	3.2
8.69	28.5	15.88	4.04	Silty Clay to Clay	CL	stiff	120	1.5	11	1.580	1.471	4.49	0.94	0.73	11.0	3.07		11				0.85	2.9
8.84	29.0	9.78	3.25	Silty Clay to Clay	CL	firm	120	1.5	7	1.610	1.485	3.89	0.99	0.72	6.6	3.21		7				0.49	1.6
8.99	29.5	9.84	3.21	Silty Clay to Clay	CL	firm	120	1.5	7	1.640	1.500	3.86	0.99	0.71	6.6	3.21		7				0.49	1.6
9.14	30.0	10.80	2.92	Silty Clay to Clay	CL	stiff	120	1.5	7	1.670	1.514	3.45	0.97	0.71	7.2	3.15		7				0.55	1.8
9.30	30.5	12.06	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.700	1.528	2.65	0.94	0.71	8.1	3.04		6				0.62	2.0
9.45	31.0	13.56	1.59	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.730	1.543	1.83	0.90	0.71	9.1	2.91		7				0.71	2.3
9.60	31.5	17.77	2.29	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.760	1.557	2.54	0.89	0.71	11.9	2.89		9				0.95	3.1
9.75	32.0	19.89	2.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.790	1.572	2.29	0.87	0.71	13.3	2.83		8				1.08	3.5
9.91	32.5	17.07	1.84	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.820	1.586	2.06	0.88	0.70	11.3	2.86		7				0.91	2.9
10.06	33.0	19.73	1.96	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.850	1.600	2.16	0.86	0.70	13.0	2.82		8				1.07	3.4
10.21	33.5	47.00	2.36	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	1.880	1.615	2.46	0.77	0.72	32.0	2.54	95.5	15	19	30	32		
10.36	34.0	34.86	2.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	1.910	1.629	2.67	0.81	0.70	23.2	2.67		14				1.95	6.1
10.52	34.5	18.49	1.90	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.940	1.644	2.13	0.87	0.68	11.9	2.85		7				0.99	3.0
10.67	35.0	31.09	2.03	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.970	1.658	2.17	0.81	0.69	20.4	2.66		12				1.73	5.3
10.82	35.5	67.28	2.20	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	22	2.000	1.672	2.27	0.73	0.72	45.5	2.40	105.4	17	21	44	32		

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets **Project No:** VT-23104-01 **Date:** 10/29/04

CPT SOUNDING: CPT-18 Plot: 8 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

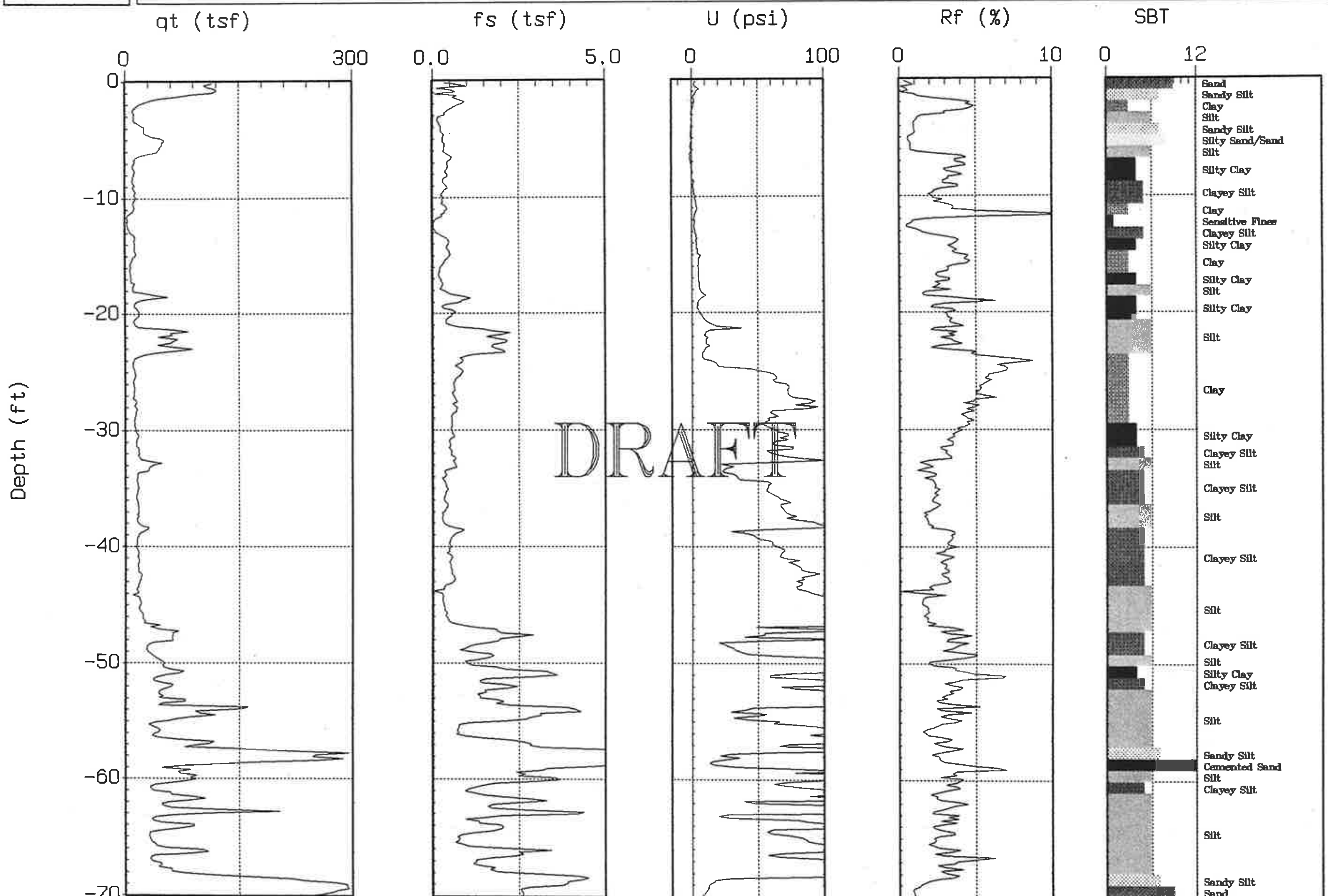
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	44.32	3.43	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.030	1.687	3.60	0.82	0.68	28.6	2.69		22				2.51	7.5
11.13	36.5	108.49	3.94	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	54	2.060	1.701	4.02	0.74	0.70	72.2	2.43	177.2	42	35	63	39		
11.28	37.0	48.97	5.19	Clay	CL/CH	hard	120	1.0	49	2.090	1.716	5.43	0.85	0.66	30.7	2.78		49				2.78	8.2
11.43	37.5	27.09	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.120	1.730	3.41	0.87	0.65	16.7	2.85		14				1.49	4.3
11.58	38.0	43.16	3.43	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.150	1.744	3.61	0.82	0.66	27.0	2.70		22				2.44	7.1
11.73	38.5	27.71	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.180	1.759	3.27	0.87	0.64	16.9	2.84		14				1.53	4.4
11.89	39.0	25.54	2.50	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.210	1.773	2.74	0.86	0.64	15.5	2.82		10				1.40	3.9
12.04	39.5	42.24	4.21	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	21	2.240	1.788	4.44	0.85	0.64	25.6	2.78		21				2.38	6.7
12.19	40.0	21.79	3.76	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.270	1.802	4.20	0.92	0.61	12.6	3.00		15				1.18	3.3
12.34	40.5	19.97	2.24	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.300	1.816	2.53	0.89	0.62	11.7	2.90		10				1.07	2.9
12.50	41.0	22.34	1.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.330	1.831	1.69	0.85	0.63	13.3	2.76		9				1.21	3.3
12.65	41.5	25.01	1.72	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.360	1.845	1.90	0.84	0.63	14.8	2.74		10				1.36	3.7
12.80	42.0	32.63	1.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.390	1.860	1.94	0.81	0.63	19.5	2.65		13				1.81	4.9
12.95	42.5	45.38	2.83	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.420	1.874	2.99	0.81	0.63	27.0	2.65		18				2.56	6.9
13.11	43.0	89.07	4.14	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	45	2.450	1.888	4.26	0.77	0.64	53.8	2.54	159.9	32	32	51	37		
13.26	43.5	51.19	5.49	Clay	CL/CH	hard	120	1.0	51	2.480	1.903	5.77	0.86	0.60	29.3	2.82		51				2.90	7.7
13.41	44.0	25.12	1.62	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.510	1.917	1.80	0.84	0.61	14.4	2.74		10				1.37	3.5
13.56	44.5	25.17	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.540	1.932	1.88	0.84	0.60	14.3	2.75		10				1.37	3.5
13.72	45.0	28.96	1.59	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.570	1.946	1.75	0.82	0.61	16.6	2.68		12				1.59	4.1
13.87	45.5	32.71	1.65	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.600	1.960	1.80	0.81	0.61	18.8	2.65		13				1.81	4.6
14.02	46.0	33.25	1.99	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.630	1.975	2.16	0.82	0.60	18.8	2.69		13				1.84	4.7
14.17	46.5	35.09	2.86	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.660	1.989	3.10	0.85	0.59	19.4	2.77		14				1.95	4.9
14.33	47.0	26.12	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.690	2.004	3.36	0.89	0.57	14.0	2.91		13				1.42	3.5
14.48	47.5	30.39	2.68	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.720	2.018	2.95	0.86	0.57	16.5	2.82		12				1.67	4.1
14.63	48.0	36.86	3.08	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	2.750	2.032	3.32	0.85	0.57	20.0	2.78		18				2.05	5.0
14.78	48.5	37.12	3.75	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.780	2.047	4.06	0.87	0.56	19.8	2.84		19				2.06	5.0
14.94	49.0	32.92	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.810	2.061	3.87	0.88	0.56	17.3	2.87		16				1.82	4.4
15.09	49.5	32.48	3.79	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.840	2.076	4.15	0.88	0.55	16.9	2.90		16				1.79	4.3
15.24	50.0	35.01	4.65	Silty Clay to Clay	CL	very stiff	120	1.5	23	2.870	2.090	5.07	0.89	0.54	18.0	2.93		23				1.94	4.6

GREGG

EARTH SYSTEMS

Site : NWC PALM & MAIN
Location : CPT-19

Engineer : TODD TRANBY
Date : 07:16:04 08:56



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets **Project No:** VT-23104-01 **Date:** 10/29/04

CPT SOUNDING: CPT-19 Plot: 9 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.0 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	110.48	0.54	Sand	SP	dense	100	5.0	22	0.013	0.013	0.54	0.50	1.70	177.5	1.55	177.5	38	36	100	38		
0.30	1.0	106.87	0.36	Sand	SP	dense	100	5.0	21	0.038	0.038	0.36	0.50	1.70	171.7	1.46	171.7	36	34	99	38		
0.46	1.5	50.25	1.44	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.064	0.064	1.44	0.63	1.70	80.7	2.08	115.2	28	23	68	36		
0.61	2.0	19.75	4.20	Silty Clay to Clay	CL	very stiff	110	1.5	13	0.091	0.091	4.22	0.82	1.70	31.7	2.70		13				1.16	64.6
0.76	2.5	10.61	4.61	Clay	CL/CH	stiff	110	1.0	11	0.119	0.119	4.66	0.89	1.70	17.0	2.93		11				0.62	26.5
0.91	3.0	11.30	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.146	0.146	2.46	0.83	1.70	18.2	2.74		6				0.66	22.9
1.07	3.5	13.13	1.11	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.174	0.174	1.12	0.76	1.70	21.1	2.49	57.7	9	12	12	30		
1.22	4.0	23.32	0.94	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.201	0.201	0.95	0.68	1.70	37.5	2.24	66.5	13	13	36	31		
1.37	4.5	26.44	0.98	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.229	0.229	0.99	0.67	1.70	42.5	2.21	71.5	15	14	41	32		
1.52	5.0	45.40	0.67	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.255	0.255	0.67	0.58	1.70	73.0	1.92	88.1	19	18	64	33		
1.68	5.5	47.45	0.68	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	0.280	0.280	0.68	0.58	1.70	76.2	1.91	91.1	20	18	66	33		
1.83	6.0	37.69	0.93	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.306	0.306	0.94	0.63	1.70	60.6	2.07	84.7	21	17	56	34		
1.98	6.5	14.83	3.67	Silty Clay to Clay	CL	stiff	110	1.5	10	0.334	0.334	3.76	0.84	1.70	23.8	2.76		10				0.85	13.0
2.13	7.0	11.23	3.86	Clay	CL/CH	stiff	110	1.0	11	0.361	0.361	3.98	0.87	1.70	18.0	2.87		11				0.64	9.0
2.29	7.5	11.51	3.57	Silty Clay to Clay	CL	stiff	110	1.5	8	0.389	0.389	3.70	0.86	1.70	18.5	2.84		8				0.65	8.6
2.44	8.0	11.09	3.64	Silty Clay to Clay	CL	stiff	110	1.5	7	0.416	0.416	3.78	0.87	1.70	17.8	2.86		7				0.63	7.7
2.59	8.5	9.73	3.08	Silty Clay to Clay	CL	stiff	110	1.5	6	0.444	0.444	3.23	0.87	1.70	15.6	2.86		6				0.55	6.3
2.74	9.0	11.18	3.51	Silty Clay to Clay	CL	stiff	110	1.5	7	0.471	0.471	3.66	0.87	1.70	18.0	2.84		7				0.63	6.8
2.90	9.5	12.63	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.499	0.499	2.52	0.82	1.70	20.3	2.70		6				0.71	7.3
3.05	10.0	13.13	2.09	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.526	0.526	2.17	0.81	1.70	21.1	2.65		7				0.74	7.2
3.20	10.5	10.89	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.554	0.554	2.80	0.85	1.70	17.5	2.78		5				0.61	5.6
3.35	11.0	11.02	3.48	Silty Clay to Clay	CL	stiff	110	1.5	7	0.581	0.581	3.67	0.87	1.68	17.5	2.85		7				0.61	5.4
3.51	11.5	3.73	8.78	Organic Material	OL/OH	soft	110	1.0	4	0.609	0.609	####	1.00	1.70	6.0	3.50		4				0.18	1.5
3.66	12.0	2.58	2.53	Clay	CL/CH	very soft	110	1.0	3	0.636	0.636	3.35	1.00	1.66	4.1	3.35		3				0.11	0.9
3.81	12.5	3.12	0.57	Sensitive fine grained	ML	soft	110	2.0	2	0.664	0.664	0.72	0.94	1.55	4.6	3.01		2				0.14	1.1
3.96	13.0	7.67	1.31	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.691	0.691	1.44	0.86	1.44	10.5	2.81		4				0.41	3.0
4.11	13.5	12.15	2.91	Silty Clay to Clay	CL	stiff	110	1.5	8	0.719	0.719	3.10	0.87	1.40	16.1	2.84		8				0.67	4.8
4.27	14.0	12.12	3.72	Silty Clay to Clay	CL	stiff	110	1.5	8	0.746	0.746	3.96	0.89	1.36	15.6	2.91		8				0.67	4.6
4.42	14.5	12.15	3.50	Silty Clay to Clay	CL	stiff	110	1.5	8	0.774	0.774	3.74	0.89	1.32	15.2	2.91		8				0.67	4.4
4.57	15.0	12.37	3.91	Clay	CL/CH	stiff	110	1.0	12	0.801	0.801	4.18	0.90	1.28	15.0	2.94		12				0.68	4.3
4.72	15.5	8.21	4.45	Clay	CL/CH	firm	110	1.0	8	0.829	0.829	4.95	0.96	1.26	9.8	3.13		8				0.43	2.7
4.88	16.0	6.25	3.57	Clay	CL/CH	firm	110	1.0	6	0.856	0.856	4.14	0.98	1.23	7.3	3.19		6				0.32	1.9
5.03	16.5	6.62	2.69	Silty Clay to Clay	CL	firm	110	1.5	4	0.884	0.884	3.10	0.96	1.19	7.4	3.11		4				0.34	1.9
5.18	17.0	7.36	3.04	Silty Clay to Clay	CL	firm	110	1.5	5	0.911	0.911	3.47	0.96	1.15	8.0	3.11		5				0.38	2.1
5.33	17.5	10.83	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.939	0.939	2.74	0.90	1.11	11.4	2.93		5				0.58	3.2
5.49	18.0	14.62	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.966	0.966	2.60	0.86	1.08	14.9	2.82		7				0.80	4.2
5.64	18.5	41.51	2.15	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.994	0.994	2.21	0.74	1.05	41.1	2.43	99.7	17	20	40	32		
5.79	19.0	14.28	4.62	Clay	CL/CH	stiff	110	1.0	14	1.021	1.021	4.98	0.92	1.03	13.9	3.01		14				0.78	3.9
5.94	19.5	14.02	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	1.049	1.049	2.78	0.88	1.01	13.4	2.87		7				0.76	3.7
6.10	20.0	17.95	3.26	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.076	1.076	3.47	0.87	0.99	16.7	2.85		9				0.99	4.7
6.25	20.5	12.37	3.31	Silty Clay to Clay	CL	stiff	110	1.5	8	1.104	1.104	3.63	0.92	0.96	11.3	3.00		8				0.66	3.1
6.40	21.0	14.33	3.81	Silty Clay to Clay	CL	stiff	110	1.5	10	1.131	1.131	4.14	0.91	0.94	12.7	2.99		10				0.78	3.5
6.55	21.5	68.21	2.71	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	27	1.159	1.159	2.76	0.72	0.94	60.4	2.37	132.1	25	26	56	35		
6.71	22.0	57.48	3.19	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.188	1.188	3.26	0.75	0.92	49.8	2.48	132.7	21	27	48	34		
6.86	22.5	55.16	3.69	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	1.218	1.218	3.77	0.77	0.90	46.8	2.54	140.1	25	28	45	35		
7.01	23.0	72.67	2.61	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	1.248	1.248	2.65	0.72	0.89	61.0	2.35	130.1	26	26	56	35		
7.16	23.5	28.59	4.95	Clay	CL/CH	very stiff	120	1.0	29	1.278	1.278	5.18	0.87	0.85	22.9	2.86		29				1.61	6.4
7.32	24.0	11.12	7.62	Clay	CL/CH	stiff	120	1.0	11	1.308	1.308	8.64	1.00	0.81	8.5	3.33		11				0.58	2.3
7.47	24.5	10.04	7.10	Clay	CL/CH	stiff	120	1.0	10	1.338	1.338	8.19	1.00	0.79	7.5	3.36		10				0.51	2.0
7.62	25.0	11.63	7.17	Clay	CL/CH	stiff	120	1.0	12	1.368	1.368	8.12	1.00	0.77	8.5	3.31		12				0.60	2.3
7.77	25.5	11.92	6.07	Clay	CL/CH	stiff	120	1.0	12	1.398	1.382	6.88	1.00	0.77	8.6	3.26		12				0.62	2.3
7.92	26.0	10.00	6.12	Clay	CL/CH	stiff	120	1.0	10	1.428	1.396	7.14	1.00	0.76	7.2	3.34		10				0.51	1.8
8.08	26.5	10.87	5.58	Clay	CL/CH	stiff	120	1.0	11	1.458	1.411	6.44	1.00	0.75	7.7	3.28		11				0.56	2.0
8.23	27.0	9.95	6.09	Clay	CL/CH	stiff	120	1.0	10	1.488	1.425	7.16	1.00	0.74	7.0	3.35		10				0.50	1.8
8.38	27.5	12.76	5.00	Clay	CL/CH	stiff	120	1.0	13	1.518	1.440	5.68	0.98	0.74	8.9	3.20		13				0.67	2.3
8.53	28.0	12.97	5.16	Clay	CL/CH	stiff	120	1.0	13	1.548	1.454	5.86	0.98	0.73	9.0	3.21		13				0.68	2.4
8.69	28.5	12.89	4.64	Clay	CL/CH	stiff	120	1.0	13	1.578	1.468	5.29	0.98	0.73	8.8	3.18		13				0.67	2.3
8.84	29.0	11.31	4.78	Clay	CL/CH	stiff	120	1.0	11	1.608	1.483	5.57	1.00	0.71	7.6	3.25		11				0.58	2.0
8.99	29.5	11.62	4.64	Clay	CL/CH	stiff	120	1.0	12	1.638	1.497	5.40	0.99	0.71	7.8	3.23		12				0.60	2.0
9.14	30.0	13.26	4.05	Clay	CL/CH	stiff	120	1.0	13	1.668	1.512	4.64	0.97	0.71	8.9	3.15		13				0.69	2.3
9.30	30.5	15.74	3.64	Silty Clay to Clay	CL	stiff	120	1.5	10	1.698	1.526	4.08	0.94	0.71	10.6	3.06		10				0.84	2.8
9.45	31.0	13.62	3.52	Silty Clay to Clay	CL	stiff	120	1.5	9	1.728	1.540	4.03	0.95	0.70	9.0	3.11		9				0.71	2.3
9.60	31.5	15.77	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.758	1.555	3.49	0.92	0.70	10.4	3.02		8				0.84	2.7
9.75	32.0	16.60	3.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.788	1.569	3.60	0.92	0.70	10.9	3.01		8				0.88	2.8
9.91	32.5	21.75	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.818	1.584	3.28	0.88	0.70	14.4	2.89		11				1.19	3.8
10.06	33.0	38.20	1.76	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.848	1.598	1.85	0.77	0.73	26.3	2.53	77.2	12	15	21	31		
10.21	33.5	25.68	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.878	1.612	1.73	0.82	0.71	17.2	2.67		10				1.42	4.4
10.36	34.0	15.26	2.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.908	1.627	2.47	0.91	0.68	9.8	2.96		8				0.80	2.5
10.52	34.5	14.82	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.938	1.641	2.62	0.92	0.67	9.4	2.99		7				0.78	2.4
10.67	35.0	15.85	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.968	1.656	2.86	0.92	0.66	9.9	2.99		8				0.83	2.5
10.82	35.5	14.38	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.998	1.670	2.92	0.93	0.65	8.9	3.03		7				0.75	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 10/29/04

CPT SOUNDING: CPT-19	Plot: 9	Density: 1	SPT N	Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest
Est. GWT (feet): 25.0		Dr correlation: 0	Baldi	Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

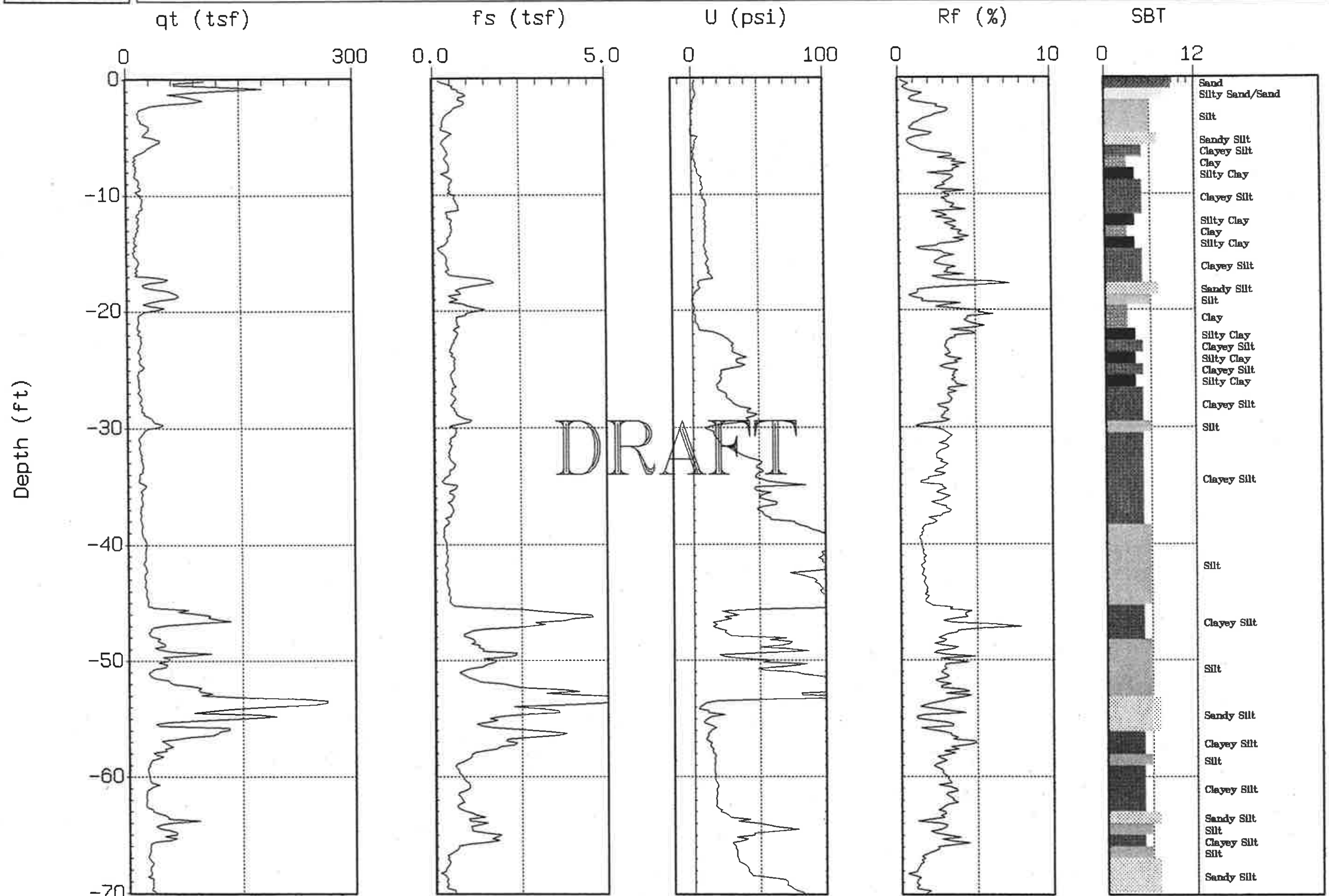
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	13.98	2.29	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.028	1.684	2.68	0.93	0.65	8.6	3.03		7				0.72	2.1
11.13	36.5	15.75	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.058	1.699	2.89	0.92	0.65	9.6	3.00		8				0.83	2.4
11.28	37.0	15.51	1.86	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.088	1.713	2.15	0.90	0.65	9.5	2.94		8				0.81	2.4
11.43	37.5	14.67	1.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.118	1.728	2.12	0.91	0.64	8.9	2.96		7				0.76	2.2
11.58	38.0	16.98	2.08	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.148	1.742	2.38	0.90	0.64	10.2	2.93		8				0.90	2.6
11.73	38.5	26.66	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.178	1.756	3.20	0.87	0.64	16.2	2.84		13				1.46	4.2
11.89	39.0	16.46	3.55	Silty Clay to Clay	CL	stiff	120	1.5	11	2.208	1.771	4.10	0.95	0.61	9.5	3.09		11				0.86	2.4
12.04	39.5	14.23	3.38	Silty Clay to Clay	CL	stiff	120	1.5	9	2.238	1.785	4.01	0.97	0.60	8.1	3.14		9				0.73	2.0
12.19	40.0	13.78	3.44	Silty Clay to Clay	CL	stiff	120	1.5	9	2.268	1.800	4.12	0.97	0.60	7.8	3.17		9				0.70	1.9
12.34	40.5	15.96	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.298	1.814	3.35	0.94	0.60	9.1	3.06		8				0.83	2.3
12.50	41.0	15.67	3.35	Silty Clay to Clay	CL	stiff	120	1.5	10	2.328	1.828	3.94	0.95	0.59	8.8	3.11		10				0.81	2.2
12.65	41.5	15.89	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.358	1.843	3.58	0.95	0.59	8.9	3.08		8				0.83	2.2
12.80	42.0	15.97	3.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.388	1.857	3.84	0.95	0.59	8.8	3.10		8				0.83	2.2
12.95	42.5	19.06	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.418	1.872	3.47	0.92	0.59	10.6	3.01		10				1.01	2.7
13.11	43.0	17.62	3.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.448	1.886	3.84	0.94	0.58	9.7	3.07		9				0.93	2.4
13.26	43.5	15.12	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.478	1.900	2.63	0.93	0.58	8.3	3.03		8				0.78	2.0
13.41	44.0	12.87	1.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.508	1.915	2.00	0.94	0.57	7.0	3.04		6				0.64	1.6
13.56	44.5	16.63	1.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.538	1.929	1.96	0.90	0.58	9.2	2.93		7				0.86	2.2
13.72	45.0	17.93	1.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.568	1.944	1.94	0.89	0.58	9.9	2.90		7				0.94	2.4
13.87	45.5	17.20	2.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.598	1.958	2.35	0.91	0.57	9.3	2.97		9				0.90	2.2
14.02	46.0	20.92	1.84	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.628	1.972	2.10	0.88	0.58	11.4	2.86		8				1.11	2.8
14.17	46.5	22.82	2.11	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.658	1.987	2.38	0.88	0.58	12.4	2.86		9				1.23	3.0
14.33	47.0	46.64	3.09	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.688	2.001	3.28	0.82	0.59	26.1	2.69		19				2.63	6.6
14.48	47.5	61.39	3.96	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	31	2.718	2.016	4.14	0.81	0.59	34.4	2.67		31				3.49	8.7
14.63	48.0	52.50	3.61	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	2.748	2.030	3.81	0.82	0.59	29.1	2.70		26				2.97	7.4
14.78	48.5	28.72	3.71	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.778	2.044	4.11	0.90	0.55	15.0	2.94		14				1.57	3.8
14.94	49.0	29.37	4.00	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.808	2.059	4.42	0.90	0.55	15.2	2.95		15				1.61	3.9
15.09	49.5	38.34	4.11	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.838	2.073	4.43	0.87	0.56	20.2	2.86		19				2.13	5.1
15.24	50.0	47.68	2.10	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	2.868	2.088	2.24	0.79	0.59	26.4	2.58	84.7	13	17	22	31		

GREGG

EARTH SYSTEMS

Site : NWC PALM & MAI
Location : CPT-20

Engineer : TODD TRANBY
Date : 07:16:04 09:32



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

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Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-20 Plot: 10 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	86.83	0.51	Sand to Silty Sand	SP/SM	dense	100	4.0	22	0.013	0.013	0.51	0.50	1.70	139.5	1.62	139.5	37	28	91	38		
0.30	1.0	129.07	0.59	Sand	SP	dense	100	5.0	26	0.038	0.038	0.59	0.50	1.70	207.4	1.52	207.4	44	41	100	39		
0.46	1.5	73.61	1.25	Sand to Silty Sand	SP/SM	dense	100	4.0	18	0.063	0.063	1.25	0.58	1.70	118.3	1.92	142.8	31	29	84	36		
0.61	2.0	81.13	1.16	Sand to Silty Sand	SP/SM	dense	100	4.0	20	0.088	0.088	1.16	0.57	1.70	130.4	1.87	151.2	34	30	88	37		
0.76	2.5	25.44	2.79	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.114	0.114	2.80	0.76	1.70	40.9	2.50	112.5	22	22	40	34		
0.91	3.0	16.18	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.141	0.141	2.94	0.81	1.70	26.0	2.66		8				0.94	34.1
1.07	3.5	17.71	1.84	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.169	0.169	1.86	0.76	1.70	28.5	2.51	79.7	12	16	25	31		
1.22	4.0	25.32	1.12	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.196	0.196	1.13	0.69	1.70	40.7	2.25	73.7	17	15	40	32		
1.37	4.5	29.05	1.05	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.224	0.224	1.06	0.67	1.70	46.7	2.19	76.6	16	15	45	32		
1.52	5.0	27.35	1.82	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.251	0.251	1.83	0.71	1.70	43.9	2.35	93.7	19	19	43	33		
1.68	5.5	40.60	0.68	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.279	0.279	0.69	0.60	1.70	65.2	1.96	81.9	23	16	59	34		
1.83	6.0	26.53	1.34	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.306	0.306	1.36	0.69	1.70	42.6	2.28	80.9	18	16	41	33		
1.98	6.5	13.29	3.14	Silty Clay to Clay	CL	stiff	110	1.5	9	0.334	0.334	3.22	0.84	1.70	21.4	2.75		9				0.76	11.6
2.13	7.0	11.13	3.32	Silty Clay to Clay	CL	stiff	110	1.5	7	0.361	0.361	3.43	0.86	1.70	17.9	2.83		7				0.63	8.9
2.29	7.5	11.40	4.03	Clay	CL/CH	stiff	110	1.0	11	0.389	0.389	4.17	0.87	1.70	18.3	2.87		11				0.65	8.5
2.44	8.0	12.11	3.06	Silty Clay to Clay	CL	stiff	110	1.5	8	0.416	0.416	3.17	0.85	1.70	19.5	2.78		8				0.69	8.4
2.59	8.5	12.94	3.50	Silty Clay to Clay	CL	stiff	110	1.5	9	0.444	0.444	3.63	0.85	1.70	20.8	2.79		9				0.74	8.5
2.74	9.0	15.95	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.471	0.471	3.15	0.82	1.70	25.6	2.68		8				0.91	9.9
2.90	9.5	16.06	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.499	0.499	3.20	0.82	1.70	25.8	2.69		8				0.92	9.4
3.05	10.0	17.12	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.526	0.526	3.28	0.81	1.70	27.5	2.67		9				0.98	9.5
3.20	10.5	20.62	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.554	0.554	3.13	0.79	1.67	32.5	2.60		10				1.18	10.9
3.35	11.0	19.91	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.581	0.581	3.68	0.81	1.63	30.6	2.67		10				1.14	10.0
3.51	11.5	15.46	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.609	0.609	3.29	0.83	1.58	23.1	2.73		8				0.87	7.3
3.66	12.0	14.68	3.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.636	0.636	3.18	0.84	1.53	21.2	2.75		7				0.83	6.6
3.81	12.5	14.91	3.40	Silty Clay to Clay	CL	stiff	110	1.5	10	0.664	0.664	3.56	0.85	1.49	20.9	2.78		10				0.84	6.4
3.96	13.0	13.66	3.81	Silty Clay to Clay	CL	stiff	110	1.5	9	0.691	0.691	4.01	0.87	1.45	18.7	2.86		9				0.76	5.6
4.11	13.5	11.37	4.19	Clay	CL/CH	stiff	110	1.0	11	0.719	0.719	4.47	0.90	1.42	15.2	2.95		11				0.63	4.4
4.27	14.0	10.13	3.94	Clay	CL/CH	stiff	110	1.0	10	0.746	0.746	4.26	0.91	1.38	13.2	2.99		10				0.55	3.8
4.42	14.5	10.42	2.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.774	0.774	2.29	0.87	1.31	12.9	2.84		5				0.57	3.7
4.57	15.0	9.01	2.41	Silty Clay to Clay	CL	firm	110	1.5	6	0.801	0.801	2.65	0.90	1.28	10.9	2.93		6				0.48	3.1
4.72	15.5	11.93	3.06	Silty Clay to Clay	CL	stiff	110	1.5	8	0.829	0.829	3.29	0.89	1.24	14.0	2.90		8				0.65	4.0
4.88	16.0	13.57	2.84	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.856	0.856	3.03	0.87	1.20	15.4	2.85		7				0.75	4.5
5.03	16.5	12.56	3.13	Silty Clay to Clay	CL	stiff	110	1.5	8	0.884	0.884	3.37	0.89	1.17	13.9	2.91		8				0.69	4.0
5.18	17.0	34.76	3.03	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.911	0.911	3.12	0.78	1.12	36.9	2.56	114.2	18	23	35	33		
5.33	17.5	32.10	5.62	Clay	CL/CH	very stiff	110	1.0	32	0.939	0.939	5.79	0.84	1.11	33.6	2.78		32				1.83	10.0
5.49	18.0	36.16	2.79	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	14	0.966	0.966	2.87	0.77	1.07	36.7	2.54	109.0	15	22	35	32		
5.64	18.5	64.58	1.01	Sand to Silty Sand	SP/SM	medium dense	100	4.0	16	0.993	0.993	1.02	0.63	1.04	63.6	2.07	89.4	16	18	58	32		
5.79	19.0	44.90	1.30	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	15	1.019	1.019	1.33	0.69	1.03	43.6	2.27	80.9	15	16	42	32		
5.94	19.5	34.10	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	1.046	1.046	3.25	0.80	1.01	32.5	2.61		17				1.94	9.5
6.10	20.0	26.73	4.74	Clay	CL/CH	very stiff	110	1.0	27	1.074	1.074	4.94	0.86	0.99	24.9	2.82		27				1.51	7.2
6.25	20.5	14.66	5.04	Clay	CL/CH	stiff	110	1.0	15	1.101	1.101	5.45	0.93	0.96	13.3	3.05		15				0.80	3.7
6.40	21.0	14.37	4.58	Clay	CL/CH	stiff	110	1.0	14	1.129	1.129	4.97	0.93	0.94	12.8	3.04		14				0.78	3.5
6.55	21.5	14.15	4.55	Clay	CL/CH	stiff	110	1.0	14	1.156	1.156	4.95	0.93	0.92	12.3	3.05		14				0.76	3.4
6.71	22.0	15.01	4.51	Clay	CL/CH	stiff	120	1.0	15	1.185	1.185	4.90	0.93	0.90	12.8	3.04		15				0.81	3.5
6.86	22.5	17.43	3.37	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.215	1.215	3.63	0.89	0.88	14.6	2.91		9				0.95	4.0
7.01	23.0	16.28	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.245	1.245	3.33	0.89	0.86	13.3	2.92		8				0.88	3.6
7.16	23.5	14.33	3.30	Silty Clay to Clay	CL	stiff	120	1.5	10	1.275	1.275	3.62	0.92	0.84	11.4	3.00		10				0.77	3.1
7.32	24.0	15.88	3.51	Silty Clay to Clay	CL	stiff	120	1.5	11	1.305	1.305	3.82	0.91	0.83	12.4	2.98		11				0.86	3.4
7.47	24.5	16.06	3.55	Silty Clay to Clay	CL	stiff	120	1.5	11	1.335	1.335	3.87	0.91	0.81	12.3	2.99		11				0.87	3.3
7.62	25.0	18.40	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.365	1.365	3.46	0.89	0.80	13.9	2.92		9				1.00	3.7
7.77	25.5	13.42	3.57	Silty Clay to Clay	CL	stiff	120	1.5	9	1.395	1.379	3.98	0.94	0.78	9.9	3.07		9				0.71	2.6
7.92	26.0	14.12	3.60	Silty Clay to Clay	CL	stiff	120	1.5	9	1.425	1.394	4.01	0.94	0.77	10.3	3.06		9				0.75	2.7
8.08	26.5	15.27	3.66	Silty Clay to Clay	CL	stiff	120	1.5	10	1.455	1.408	4.05	0.93	0.77	11.1	3.04		10				0.82	2.9
8.23	27.0	14.92	3.41	Silty Clay to Clay	CL	stiff	120	1.5	10	1.485	1.423	3.79	0.93	0.76	10.7	3.03		10				0.79	2.8
8.38	27.5	17.11	3.41	Silty Clay to Clay	CL	stiff	120	1.5	11	1.515	1.437	3.74	0.91	0.76	12.2	2.98		11				0.92	3.3
8.53	28.0	17.79	2.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.545	1.451	3.06	0.89	0.75	12.7	2.92		9				0.96	3.4
8.69	28.5	18.95	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.575	1.466	3.43	0.89	0.75	13.4	2.93		9				1.03	3.6
8.84	29.0	26.25	2.84	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.605	1.480	3.02	0.85	0.75	18.7	2.78		13				1.46	5.0
8.99	29.5	37.67	2.55	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	1.635	1.495	2.67	0.80	0.76	27.0	2.62		15				2.13	7.2
9.14	30.0	29.78	2.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.665	1.509	2.17	0.81	0.75	21.1	2.65		12				1.66	5.6
9.30	30.5	18.80	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.695	1.523	3.52	0.90	0.72	12.8	2.95		9				1.02	3.4
9.45	31.0	14.66	3.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.725	1.538	3.56	0.93	0.71	9.8	3.05		7				0.77	2.5
9.60	31.5	15.41	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.755	1.552	3.37	0.92	0.70	10.2	3.02		8				0.82	2.6
9.75	32.0	15.43	2.77	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.785	1.567	3.13	0.92	0.70	10.2	3.00		8				0.82	2.6
9.91	32.5	17.42	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.815	1.581	2.71	0.90	0.70	11.5	2.92		9				0.93	3.0
10.06	33.0	17.70	2.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.845	1.595	3.26	0.91	0.69	11.5	2.97		9				0.95	3.0
10.21	33.5	18.80	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.875	1.610	3.06	0.90	0.69	12.2	2.93		9				1.01	3.2
10.36	34.0	15.57	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.905	1.624	3.08	0.92	0.67	9.9	3.01		8				0.82	2.5
10.52	34.5	14.11	1.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.935	1.639	2.01	0.90	0.67	9.0	2.94		7				0.73	2.2
10.67	35.0	20.89	2.35	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.965	1.653	2.59	0.87	0.68	13.4	2.86		10				1.13	3.4
10.82	35.5	17.54	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.995	1.667	3.09	0.91	0.66	11.0	2.97		9				0.93	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-20 | Plot: 10 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **25.0** | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	17.14	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.025	1.682	3.52	0.92	0.65	10.6	3.02		9				0.91	2.7
11.13	36.5	17.11	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.055	1.696	3.00	0.91	0.65	10.5	2.98		9				0.91	2.7
11.28	37.0	15.72	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.085	1.711	3.79	0.94	0.64	9.4	3.08		8				0.82	2.4
11.43	37.5	15.97	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.115	1.725	2.90	0.92	0.64	9.6	3.00		8				0.84	2.4
11.58	38.0	16.25	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.145	1.739	2.69	0.91	0.63	9.7	2.98		8				0.85	2.4
11.73	38.5	16.94	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.175	1.754	1.81	0.88	0.64	10.3	2.87		7				0.89	2.5
11.89	39.0	16.99	1.50	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.205	1.768	1.72	0.88	0.64	10.2	2.86		7				0.90	2.5
12.04	39.5	19.88	1.32	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.235	1.783	1.49	0.85	0.64	12.1	2.77		8				1.06	3.0
12.19	40.0	22.46	1.42	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.265	1.797	1.58	0.84	0.64	13.6	2.73		9				1.22	3.4
12.34	40.5	21.25	1.53	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.295	1.811	1.71	0.85	0.63	12.7	2.78		9				1.14	3.1
12.50	41.0	21.10	1.62	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.325	1.826	1.82	0.86	0.63	12.5	2.80		8				1.13	3.1
12.65	41.5	19.97	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.355	1.840	1.82	0.87	0.62	11.7	2.82		8				1.07	2.9
12.80	42.0	21.47	1.49	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.385	1.855	1.68	0.85	0.62	12.6	2.78		9				1.15	3.1
12.95	42.5	21.35	1.49	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.415	1.869	1.68	0.85	0.62	12.4	2.78		9				1.15	3.0
13.11	43.0	20.71	1.64	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.445	1.883	1.86	0.87	0.61	11.9	2.82		8				1.11	2.9
13.26	43.5	20.47	1.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.475	1.898	1.89	0.87	0.60	11.6	2.83		8				1.09	2.8
13.41	44.0	21.99	1.79	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.505	1.912	2.02	0.87	0.60	12.5	2.82		9				1.18	3.1
13.56	44.5	22.19	1.79	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.535	1.927	2.02	0.87	0.60	12.5	2.82		9				1.19	3.1
13.72	45.0	23.88	1.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.565	1.941	1.99	0.86	0.60	13.4	2.79		10				1.29	3.3
13.87	45.5	44.74	2.98	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.595	1.955	3.16	0.82	0.60	25.6	2.69		18				2.52	6.5
14.02	46.0	86.23	4.38	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	43	2.625	1.970	4.52	0.78	0.61	50.1	2.58	160.1	31	32	48	36		
14.17	46.5	117.99	3.53	Sandy Silt to Clayey Silt	ML	dense	120	2.5	47	2.655	1.984	3.61	0.73	0.63	70.4	2.41	164.7	34	33	62	37		
14.33	47.0	50.46	5.58	Clay	CL/CH	hard	120	1.0	50	2.685	1.999	5.90	0.87	0.58	27.5	2.84		50				2.85	7.2
14.48	47.5	26.58	3.52	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.715	2.013	3.92	0.90	0.56	14.1	2.95		13				1.44	3.6
14.63	48.0	35.33	2.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.745	2.027	2.99	0.84	0.58	19.3	2.77		14				1.96	4.8
14.78	48.5	44.39	2.60	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.775	2.042	2.77	0.81	0.59	24.6	2.66		18				2.49	6.1
14.94	49.0	42.63	3.21	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	21	2.805	2.056	3.44	0.84	0.57	23.1	2.74		21				2.39	5.8
15.09	49.5	76.77	3.34	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	31	2.835	2.071	3.47	0.77	0.59	43.1	2.54	129.2	21	26	42	34		
15.24	50.0	47.21	3.52	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	24	2.865	2.085	3.75	0.83	0.57	25.3	2.74		24				2.65	6.4

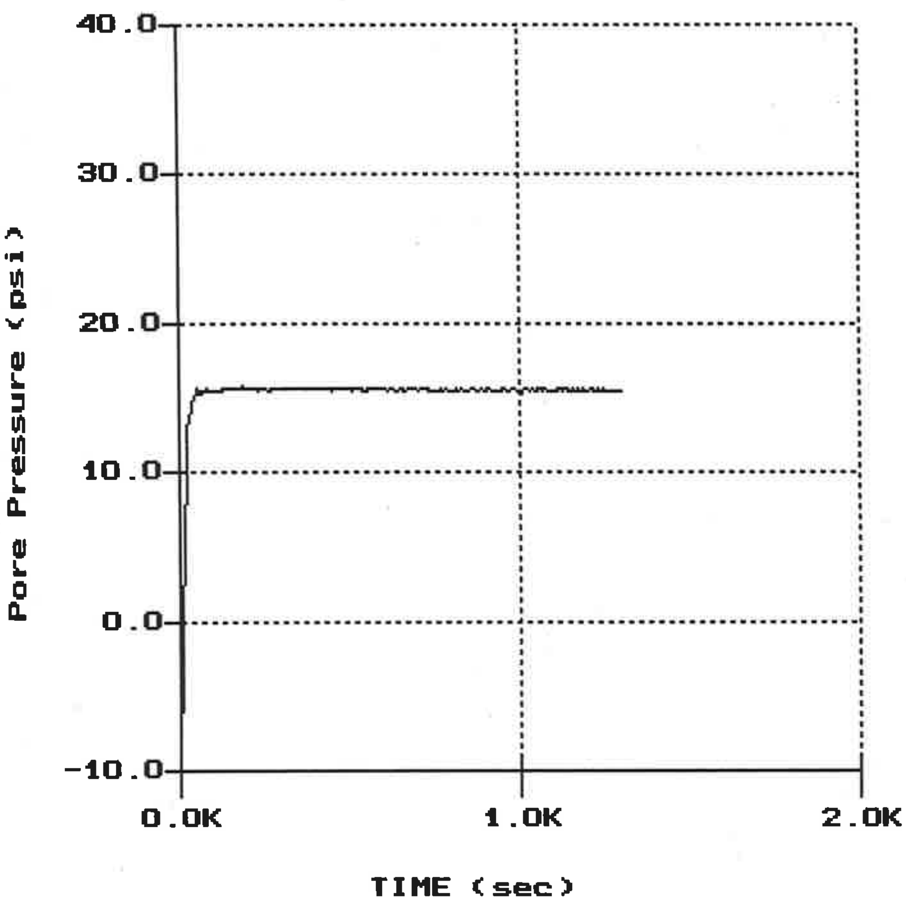
EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-02

Engineer: T. TRANBY
Date:02:16:04 09:05

File: 051C02.PPC
Depth (m): 18.20
(ft): 59.71
Duration : 1295.0s
U-min: -6.82 0.0s
U-max: 15.62 185.0s

PORE PRESSURE DISSIPATION RECORD

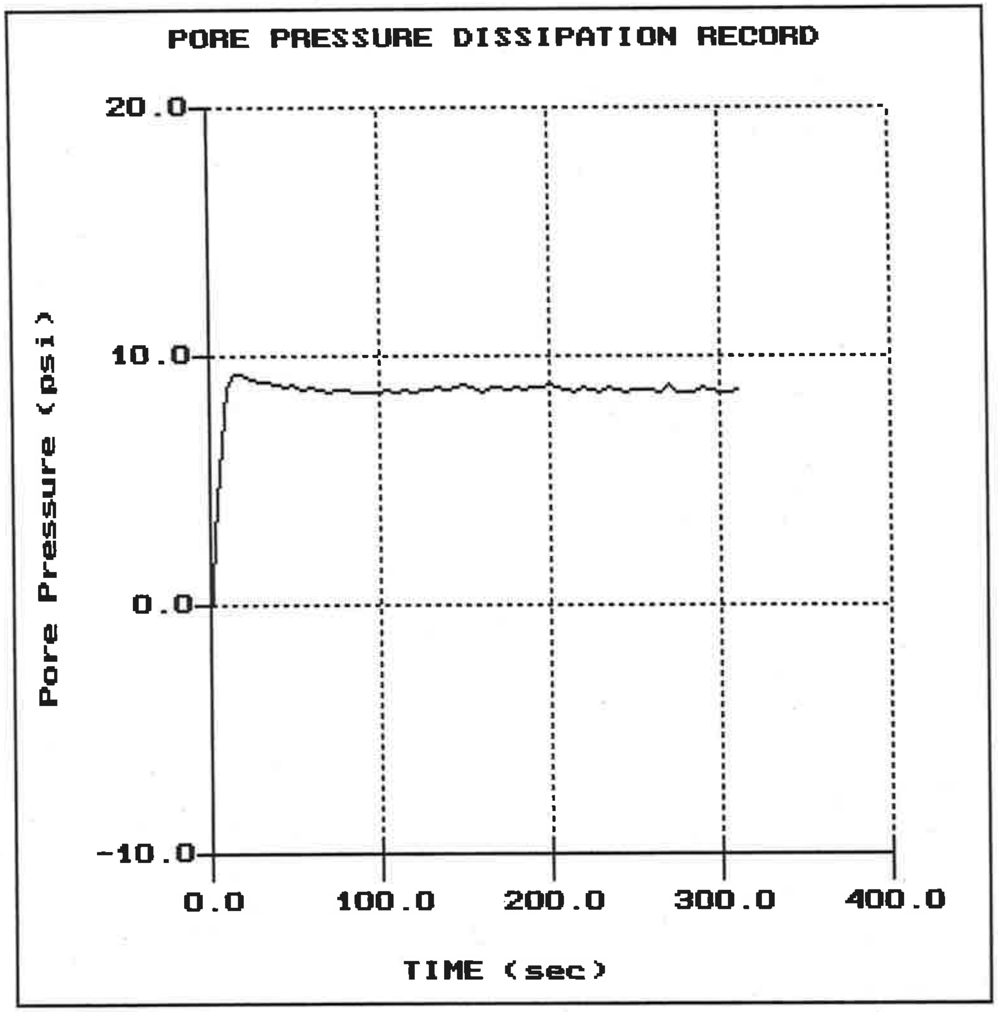


EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-03

Engineer: T. TRANBY
Date:02:16:04 09:59

File: 051C03.PPC
Depth (m): 13.50
(ft): 44.29
Duration : 310.0s
U-min: -0.79 0.0s
U-max: 9.22 20.0s

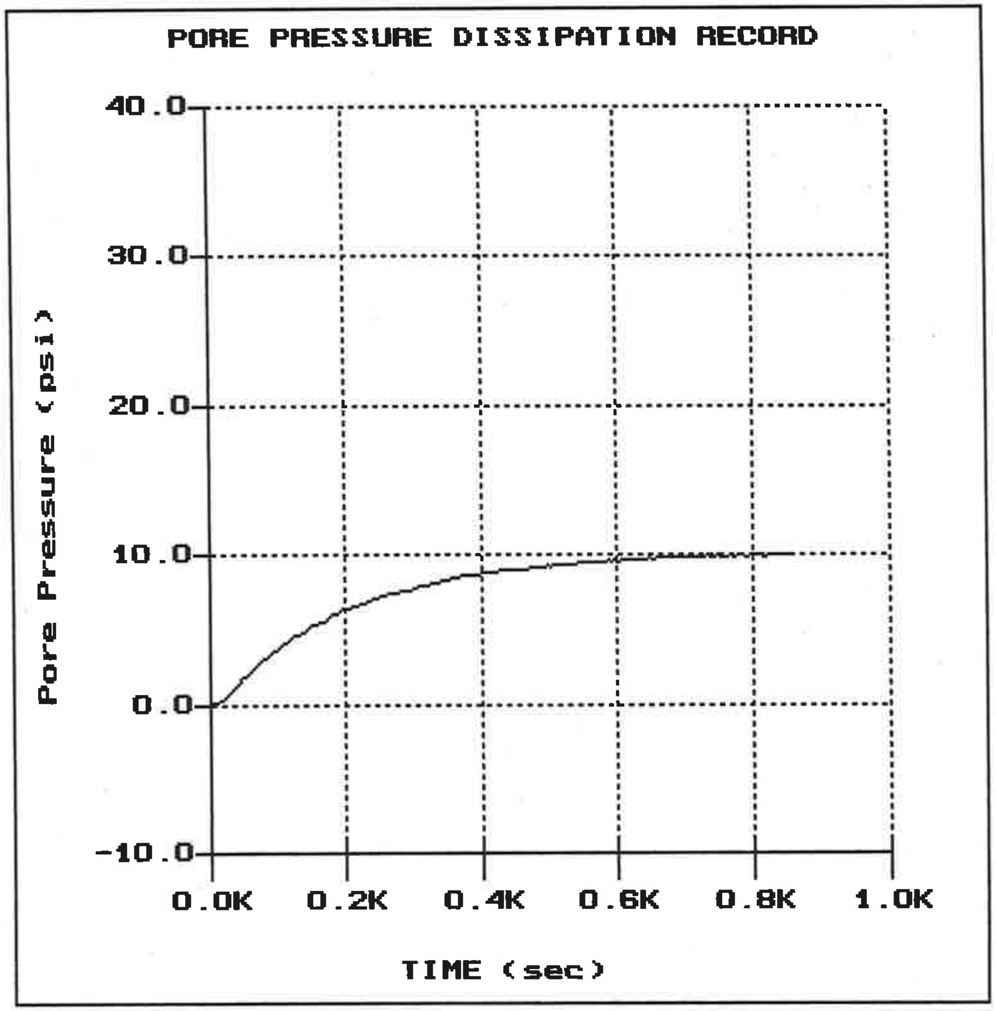


EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-05

Engineer: T. TRANBY
Date:02:16:04 11:24

File: 051C05.PPC
Depth (m): 14.65
(ft): 48.06
Duration : 855.0s
U-min: 0.10 5.0s
U-max: 9.99 850.0s



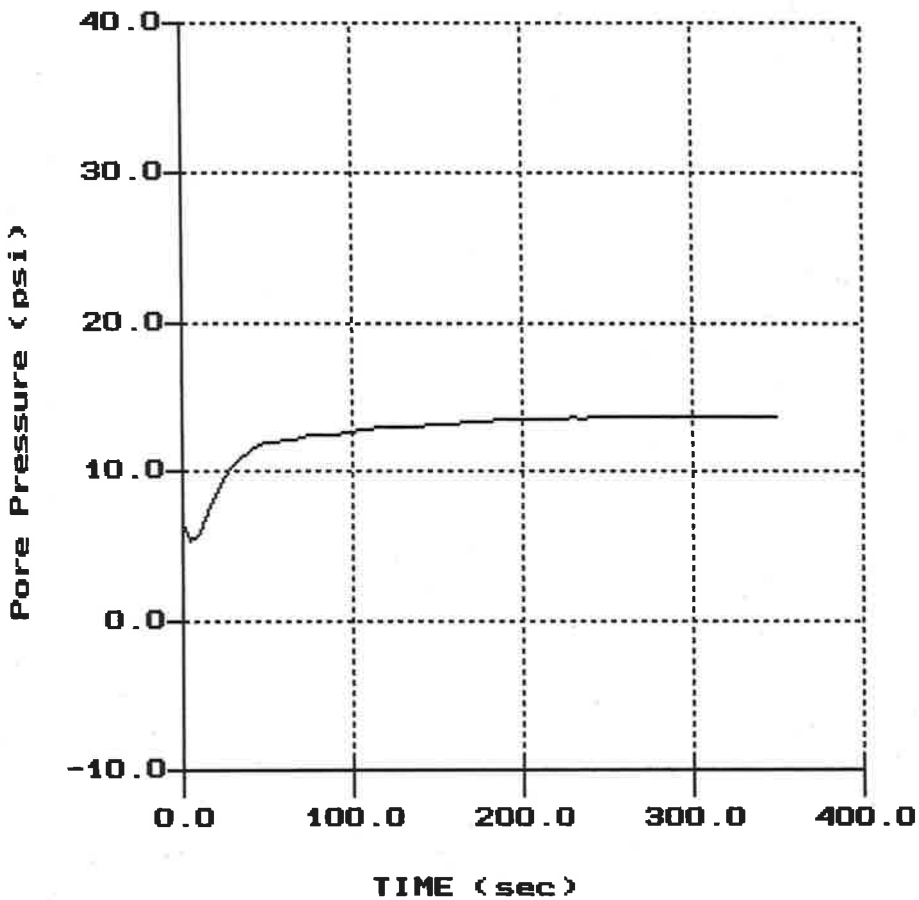
EARTH SYSTEMS

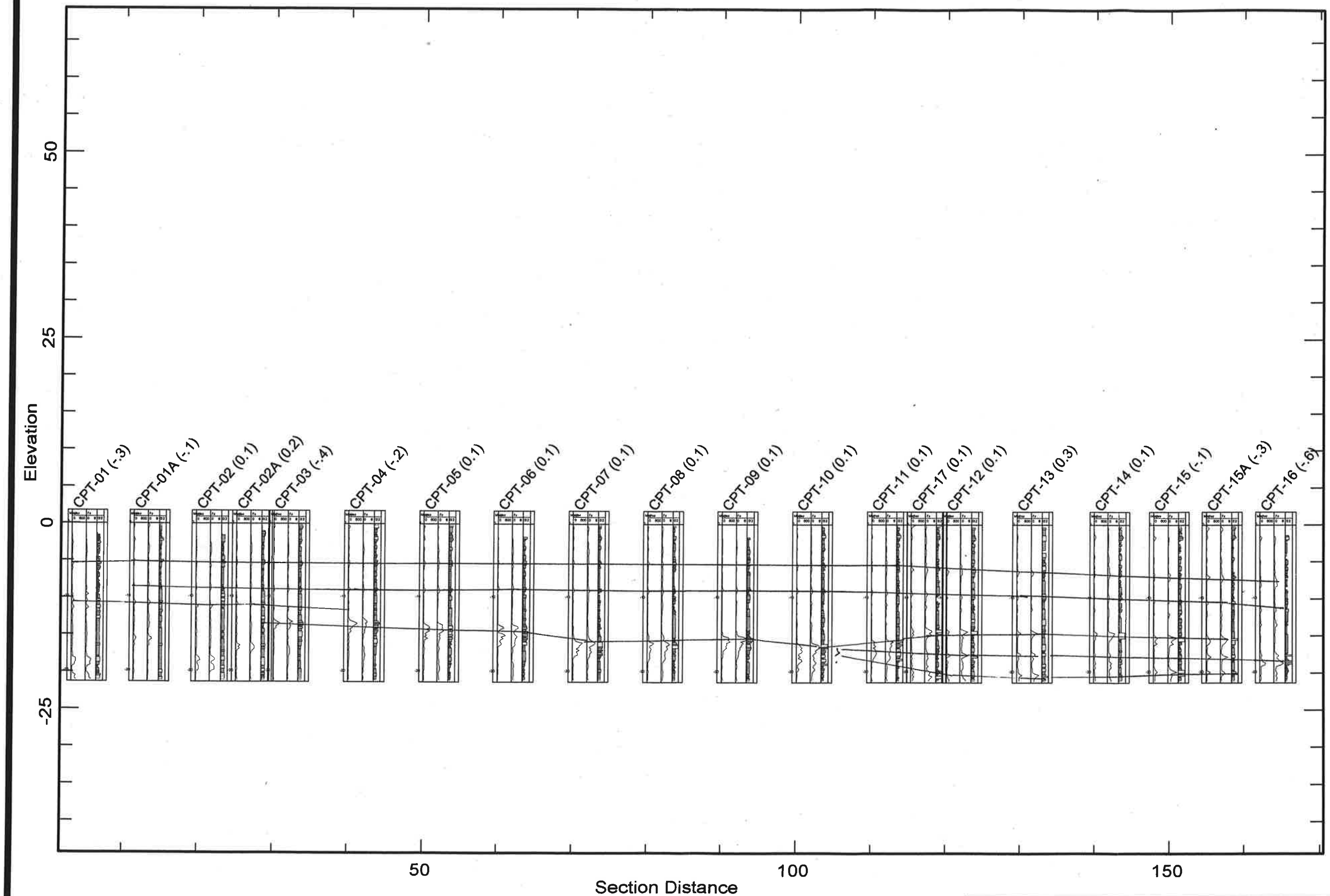
Site: PALM/MAIN
Location: CPT-11

Engineer: T. TRANBY
Date: 02:16:04 15:13

File: 051C11.PPC
Depth (m): 17.45
(ft): 57.25
Duration : 350.0s
U-min: 5.29 5.0s
U-max: 13.67 310.0s

PORE PRESSURE DISSIPATION RECORD





Gregg Insitu. Job Number 04-051SH & 04-129SH	
Earth Systems	
Date: May 13, 2004	Units: Depth in Meters
Gregg Insitu.	Figure: X-Section 2

CPT PROFILE

EARTH SYSTEMS SOUTHERN CALIFORNIA

VT-23104-01 SEPTEMBER 2004

APPENDIX B

Laboratory Testing
Test Results
Individual Test Results
Table 18-I-DR

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of the proposed building. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ Moisture Content and Unit Dry Weight for the ring samples were determined in general accordance with ASTM D 2937.

C. Relative strength characteristics of the soils were determined from the results of Direct Shear tests on a remolded soil sample. Specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 0.5 to 2.0 kips per square foot in general accordance with ASTM D 3080.

D. Settlement characteristics were developed from the results of one-dimensional Consolidation tests performed in general accordance with ASTM D 2435. The samples were loaded to 0.125 ksf and then flooded with water, and then incrementally loaded to 1.0, 2.0, 4.0, and 8.0 ksf. The samples were allowed to consolidate under each load increment. Rebound was measured under reverse alternate loading. Compression was measured by dial gauges accurate to 0.0001 inch. The results of the consolidation tests in the form of a percent consolidation versus log of pressure curve is presented in this Appendix.

E. An expansion index test was performed on a bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144-pounds per square foot at moisture content of near 50% saturation. The sample was then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator.

F. A maximum density test was performed to estimate the moisture-density relationship of a typical soil material. The test was performed in accordance with ASTM designation D 1557.

G. The gradation characteristics of selected samples were made by hydrometer and sieve analysis procedures. Selected samples were soaked in water until individual soil particles were separated, and then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve, and then mechanically sieved. Additionally, hydrometer analyses were performed to assess the distribution of the minus No. 200 mesh material of selected samples. The hydrometer test was run using sodium hexametaphosphate as a dispersing agent.

H. Soil corrosion potential was evaluated by measuring pH, resistivity, soluble sulfate content, and soluble chloride content. These tests were subcontracted to Capco Analytical Services.

TEST RESULTS

BORING AND DEPTH	1 @ 0-5'
USCS	ML
MAXIMUM DENSITY (pcf)	121
OPTIMUM MOISTURE (%)	11
COHESION (psf)	250
ANGLE. OF INT. FRICTION (°)	30
EXPANSION INDEX	39
GRAVEL (%)	4
SAND (%)	37
SILT (%)	33
CLAY (%)	26
pH	7.7
RESISTIVITY (ohms/cm)	2100
SOLUBLE CHLORIDES (mg/kg)	42
SOLUBLE SULFATES (mg/kg)	290

GRAIN SIZE DISTRIBUTION (%)

BORING AND DEPTH	1 @ 6'	1 @ 10'	1 @15'	1 @ 20'	1 @ 25'	1 @ 30'
GRAVEL	0	0	0	0	0	0
SAND	29	30	34	31	31	31
SILT	27	27	13	28	26	24
CLAY	44	43	53	41	43	45

BORING AND DEPTH	1 @ 35'	1 @ 40'	1 @ 45'	1 @ 50'	1 @ 50'
GRAVEL	0	0	0	0	
SAND	22	38	45	58	
SILT	23	38	31	34	
CLAY	55	24	24	8	

VT-23104-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

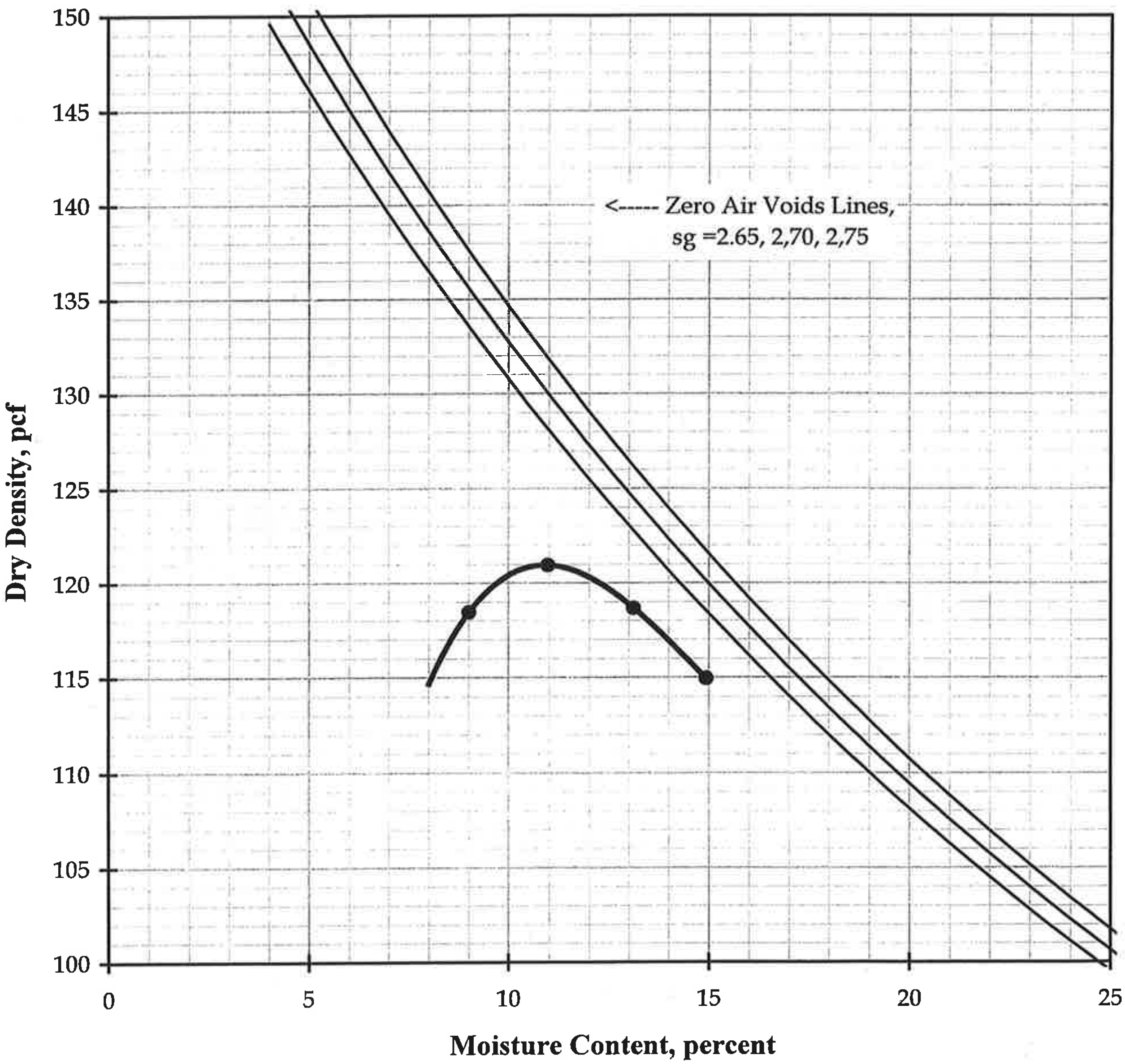
ASTM D 1557-91 (Modified)

Job Name: NWC Palm and Main
Sample ID: Clayey Silty Sand
Location:
Description: 1 @ 0 - 5

Procedure Used: A
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: **121 pcf**
Optimum Moisture: **11%**

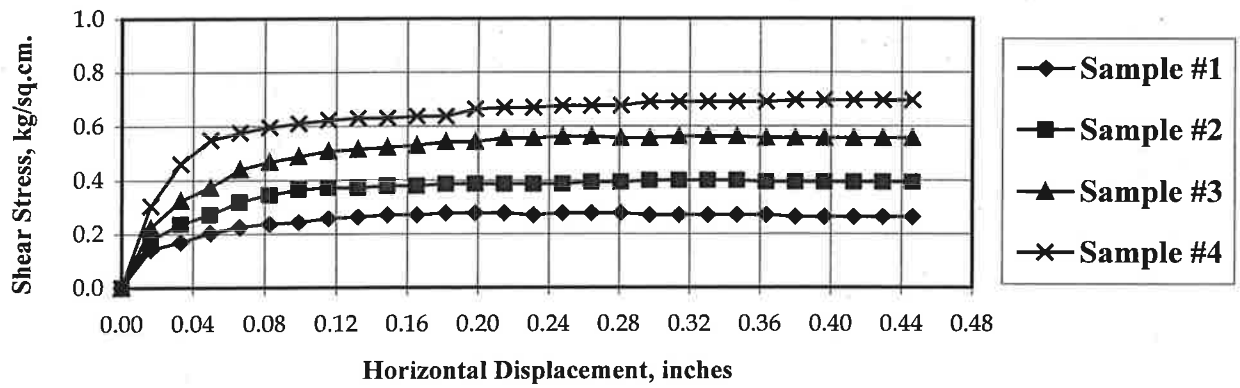
Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	4.3



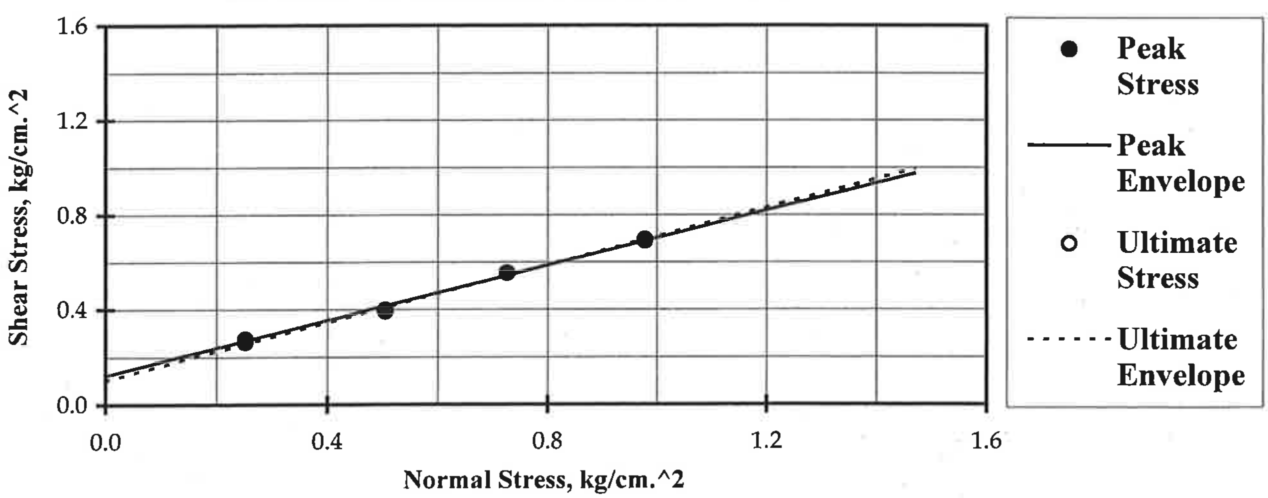
DIRECT SHEAR

NWC Palm and Main	Initial Dry Density: 109.5 pcf
1 @ 0 - 5	Initial Mosture Content: 11.0 %
Clayey Silty Sand	Peak Friction Angle (Ø): 30°
Remolded	Cohesion (c): 0.123 kg/cm^2 (250 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	108.9	108.9	108.9	111.4	109.5
Moisture Content, %	11.0	11.0	11.0	11.0	11.0
Saturation, %	55	55	55	59	56
At Test					
Moisture Content, %	18.9	18.7	19.1	17.5	18.6
Saturation, %	95	94	96	94	95
Normal Stress, kg/cm^2	0.25	0.51	0.73	0.98	
Peak Stress, kg/cm^2	0.28	0.40	0.55	0.69	
Ultimate Stress, kg/cm^2	0.26	0.39	0.55	0.70	



SHEAR vs. NORMAL STRESS DIAGRAM



VT-23104-01

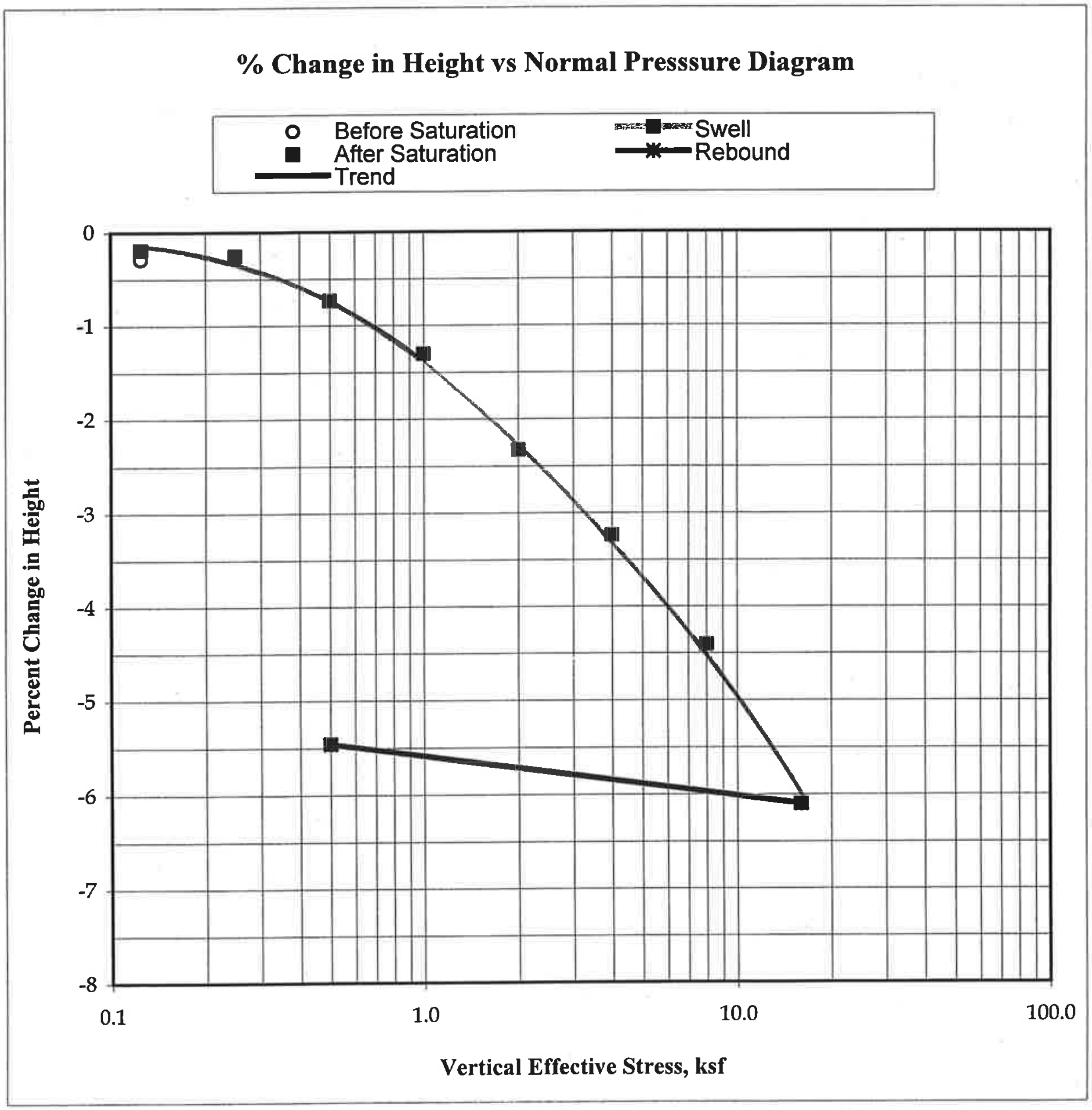
Jul 30, 2004

CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 4
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 102.4 pcf
Initial Moisture, %: 18.5%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.628

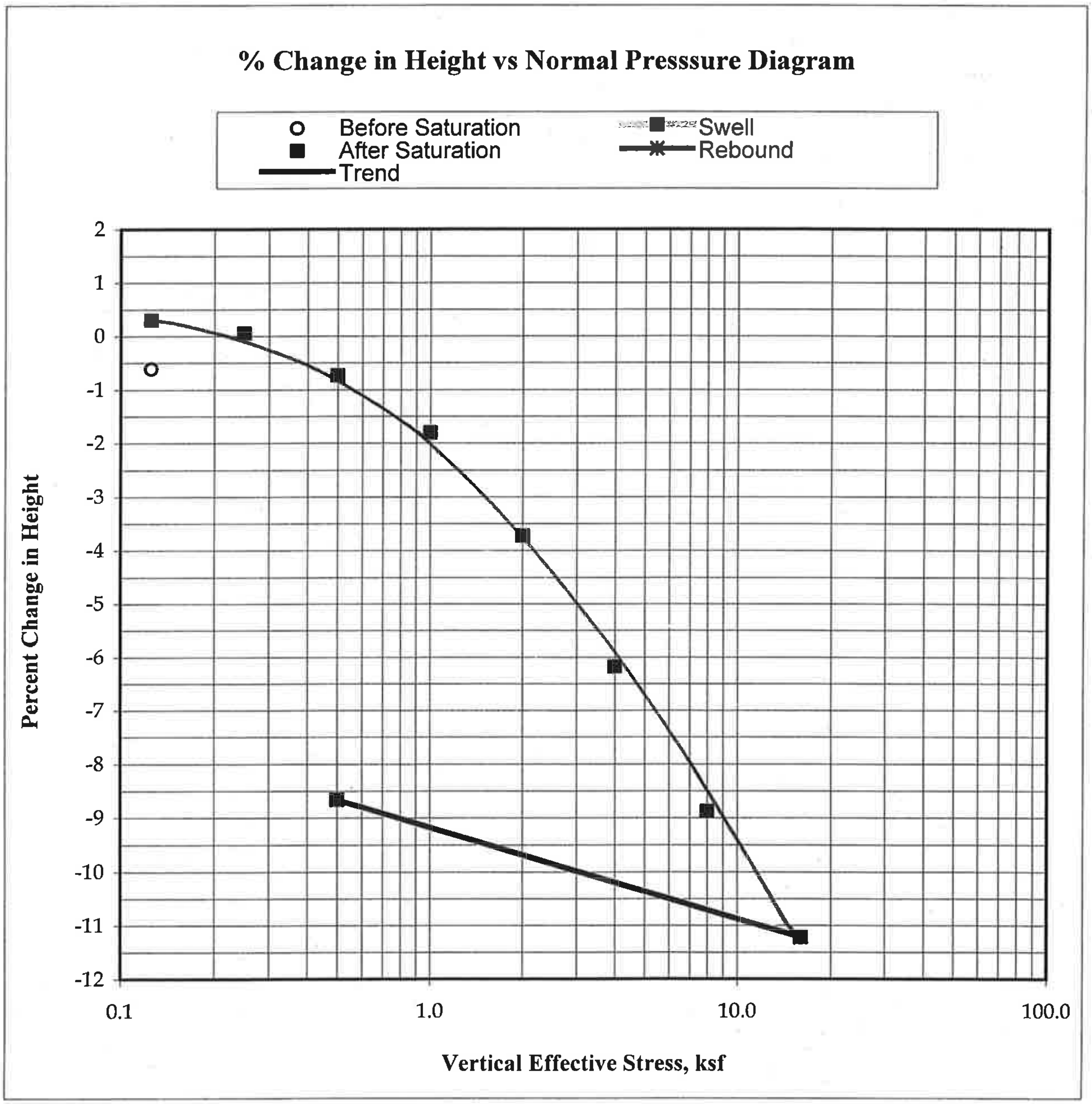


CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 6
Sandy Silty Clay
Ring Sample

Initial Dry Density: 92.9 pcf
Initial Moisture, %: 28.7%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.794

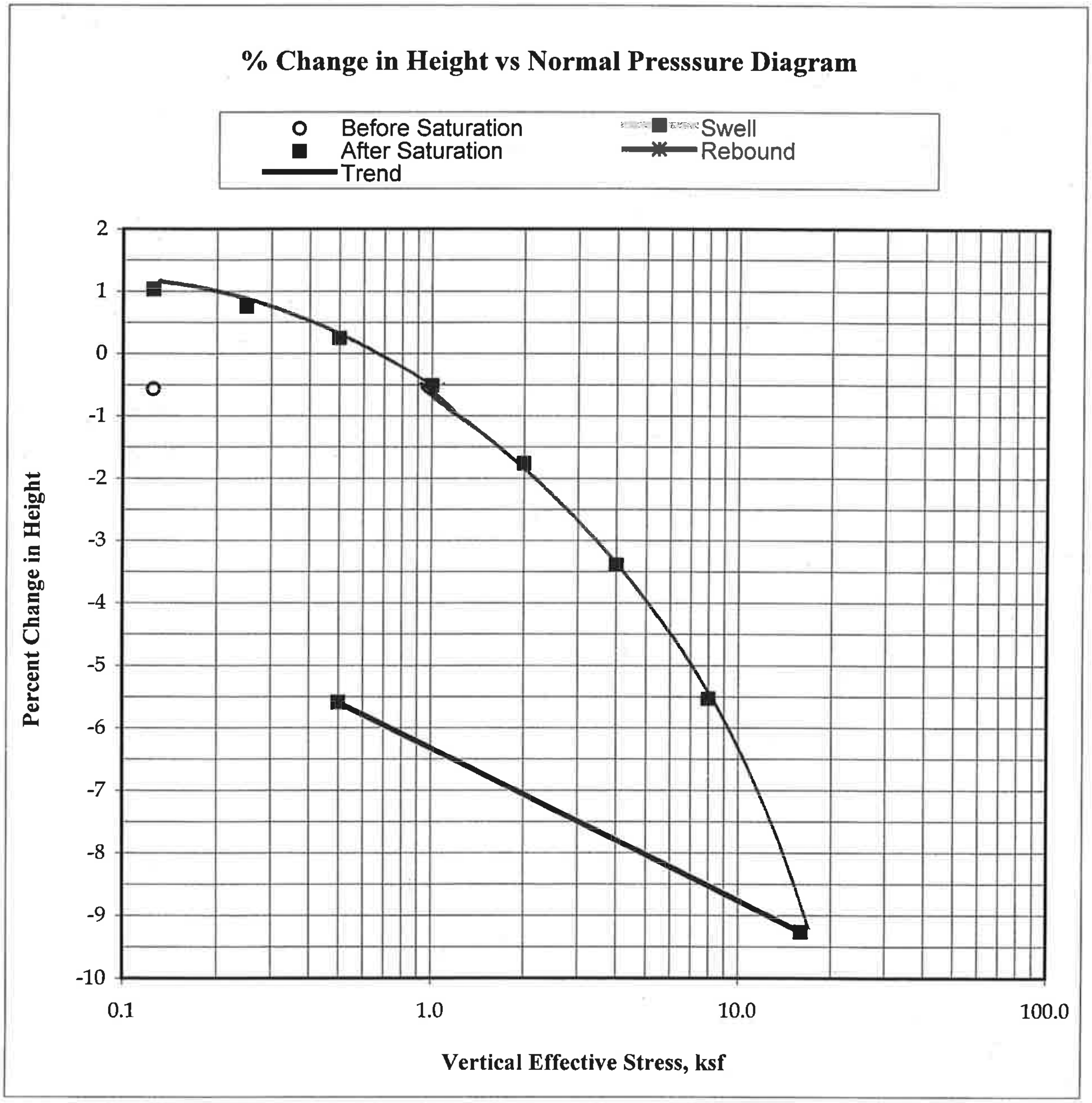


CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 10
Sandy Silty Clay
Ring Sample

Initial Dry Density: 105.1 pcf
Initial Moisture, %: 22.1%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.587



Capco Analytical Services INC. (CAS)
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Earth Systems
Sample ID: B-1 @ 0-5
Date Received: 07/21/04
Date Sampled: N/A

Sample Matrix: Soil
CAS LAB NO: 04137201

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	METHOD	ANALYZED
*Chloride	42	mg/Kg	1	10	300.0M	07/27/04
pH	7.7	S.U.	1	---	9045	07/27/04
*Resistivity	2100	ohms-cm	1	3	CA test 424	07/27/04
*Sulfate	290	mg/Kg	10	100	300.0M	07/27/04

*Sample was analyzed on a 1:3 soil/water extract. Results were reported based on the original soil sample weight.
PQL: Practical Quantitation Limit
BQL: Below Practical Quantitation Limit

Principal Analyst

CAPCO Analytical Services, Inc.

Table 18-1-D is amended to read as follows:

Table 18-I-DR Minimum Foundation Requirements. (1) (11)

WEIGHTED EXPANSION INDEX	FOUNDATION For Slab & Raised Floor Systems (2) (5) (7): NUMBER OF STORIES	STEM THICKNESS	FOOTING WIDTH (9)	FOOTING THICKNESS	All Perimeter Footings (6) — Depth Below Natural Surface of Ground & Finish Grade	Interior Ftgs. for Slab & Raised Floors (6) — Depth Below Natural Surface of Ground & Finish Grade	REINFORCEMENT FOR CONTINUOUS FOUNDATIONS (3) (8)	CONCRETE SLABS 3-1/2" Minimum Thickness 4" Over 51 EI: REINFORCEMENT (4)	CONCRETE SLABS: TOTAL THICKNESS OF SAND	PREMOISTENING OF SOILS UNDER FOOTINGS, PIERS & SLABS (5) (6)	RESTRICTIONS ON PIERS UNDER RAISED FLOORS
	(Inches)										
0-20 Very Low (Non-Expansive)	1 2 3	6 8 10	12 15 18	6 7 8	12 18 24	12 18 24	1 - # 4 Top & Bottom	# 4 @ 48" o.c. each way or # 3 @ 36" o.c. each way	2"	Moistening of Ground Prior to Placing Concrete is Recommended	Piers Allowed for Single Floor Loads Only
21-50 Low	1 2 3	6 8 10	12 15 18	6 7 8	15 18 24	12 18 24	1 - # 4 Top & Bottom		4"	3% Over Optimum Moisture Required to a depth of 18" below lowest adjacent grade. Testing Required	Piers Allowed For Single Floor Loads Only
51-90 Medium	1 2 3	6 8 10	12 12 15	6 8 8	21 21 24	12 18 24	1 - # 4 Top & Bottom # 3 bars @ 24" o.c. 12" into Footing, 36" into Slab (10)	# 3 @ 24" o.c. each way	4"	3% Over Optimum Moisture Required to a depth of 18" below lowest adjacent grade. Testing Required	Piers Not Allowed
91-130 High	1 2 3	6 8 10	12 12 15	8 8 8	27 27 27	12 18 24	2 - # 4 Top & Bottom # 3 bars @ 24" o.c. 12" into Footing, 36" into Slab (10)	# 3 @ 24" o.c. each way	4"	3% Over Optimum Moisture Required to a depth of 24" below lowest adjacent grade. Testing Required	Piers Not Allowed
Above 130 Very High	Special Design by Licensed Engineer or Architect Required										

TABLE 18-I-DR FOOTNOTES

1. Premoistening is required where specified in Table 18-I-DR in order to achieve maximum and uniform expansion of the soil prior to construction and thus limit structural distress caused by uneven expansions and shrinkage. Other systems which do not include pre-moistening may be approved by the Building Official when such alternatives are shown to provide equivalent safeguards against the adverse effects of expansive soil.

2. Underfloor access crawl holes shall be provided with curbs extending not less than six (6) inches above adjacent grade to prevent surface water from entering the foundation area.

3. Reinforcement for continuous foundations shall be placed not less than 3" above the bottom of the footing and not less than 3" below the top of the stem.

4. Slab reinforcement shall be placed at slab mid-depth and continue to within two inches of the exterior face of the exterior footing walls.

5. Moisture content shall be maintained until foundations and piers are poured and a vapor barrier is installed. Tests shall be taken within 24 hours of each slab pour.

6. Crawl spaces under raised floors need not be pre-moistened except under interior footings. Interior footings which are not enclosed by a continuous perimeter foundation system or equivalent concrete or masonry moisture barrier complying with Section UBC 1806.2 in this ordinance shall be designated and constructed as specified for perimeter footings in Table 18-I-DR.

7. A grade beam not less than 12" x 12" in cross-sectional area, reinforced as specified for continuous foundations in Table 18-I-DR, shall be provided at garage door openings.

8. Foundation stem walls which exceed a height of 3 times the stem thickness above the lowest adjacent grade shall be reinforced in accordance with Chapters 18 & 19 or as required by engineering design, whichever is more restrictive.

9. Footing widths may be reduced upon submittal of calculations by a registered civil or structural engineer or licensed architect, but shall be a minimum of 12 inches for one and two-story structures and 15 inches for three-story structures.

10. Bent reinforcing bars between exterior footing and slab shall be omitted when the floor is designed as an independent, "floating" slab.

11. Fireplace footings shall be reinforced with a horizontal grid located 3" above the bottom of the footing and consisting of not less than No. 4 bars at 12" on center each way. Vertical chimney reinforcing bars shall be hooked under the grid.

APPENDIX C

Liquefaction Analysis

LIQUEFY.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE
Developed 2003 by Shelton L. Stringer, GE - Earth Systems Southwest

Project: NWC of Palm and Main Street
Job No: VT-23104-01
Date: 10/28/2004
Boring: B-1 Data Set: 1

Methods: Liquefaction Analysis using 1996 & 1998 NCEER workshop methods (Youd & Idriss)
Settlement Analysis from Tokimatsu and Seed (1987), ASCE GT Journal, Vol 113, No.8
Modified by Pradel, ASCE Journal of G&GE, Vol 124, No. 4

EARTHQUAKE INFORMATION:

Magnitude: **7.5** 7.5
PGA, g: **0.48** 0.48
MSF: 1.00
GWT, feet: **23.0** feet
Design GWT: **7.0** feet

SPT N VALUE CORRECTIONS:

Energy Correction to N60 (C_E): 1.13
Drive Rod Corr. (C_R):
Rod Length above ground (feet): 3.0
Borehole Dia. Corr. (C_B): 1.00
Sampler Liner Corr. (C_S): 1.20
Cal Mod/ SPT Ratio: 0.63

$N_{1(60)} = C_N*C_E*C_B*C_R*C_S*N$
C_R = 0.75 for Rod lengths < 3m, 1.0 for > 10m
$C_N = (1/p'o)^{0.5}$, max 1.7 for sands, 1 for clays
Induced $CSR_{eq,\ M=7.5,\ 1atm}$ = $0.65*PGA*(po/p'o)*rd/MSF/K\sigma$

Threshold Acceler., g: 1.13

Total (ft) Liquefied Thickness
0

Required SF: **1.25**
Minimum Calculated SF: **2.34**

Total (in.) Induced Subsidence
0.0

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

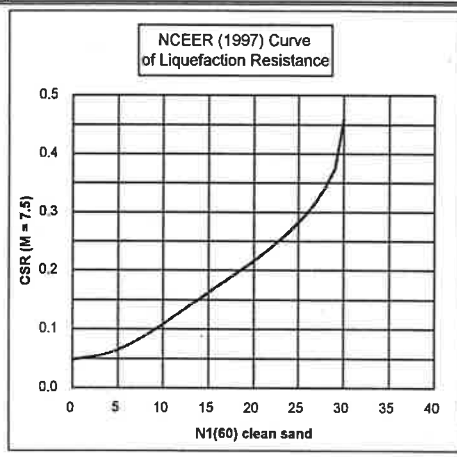
$p = 0.67*po$
$\tau_{av} = 0.65*PGA*po*rd$
$G_{max} = 447*N_{1(60)cs}{}^{(1/3)}*p^{0.5}$
$a = 0.0389*(p/1)+0.124$
$b = 6400*(p/1)^{(-0.6)}$
$\gamma = [1+a*EXP(b*\tau_{av}/G_{max})]/[(1+a)*\tau_{av}/G_{max}]$
$E_{15} = \gamma*(N_{1(60)cs}/20)^{-1.2}$
$Nc = (MAG-4)^{2.17}$
$E_{nc} = (Nc/15)^{0.45}*E15$
$S = 2*H*E_{nc}$

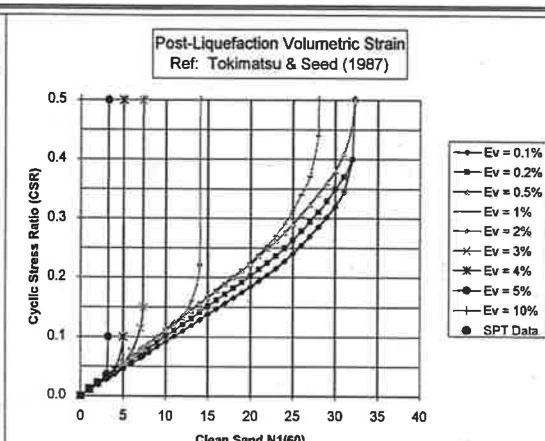
Nc = 15.2

Base Depth (feet)	Cal Mod N	SPT N	Liquef. Suscept. (0 or 1)	Total Unit Wt. (pcf)	Fines Content (%)	Depth of SPT (feet)	Rod Length (feet)	Tot.Stress at SPT po (tsf)	Eff.Stress at SPT p'o (tsf)	rd	C_N	C_R	$N_{1(60)}$	Rel. Dens. Dr (%)	Trigger FC Adj. $\delta N_{1(60)}$	Equiv. Sand $N_{1(60)cs}$	Kσ	M = 7.5 Available CRR	M = 7.5 Induced CSR	Liquefac. Safety Factor	Post FC Adj. $\delta N_{1(60)}$	Equiv. Sand $N_{1(60)cs}$	Volumetric Strain (%)	Induced Subsidence (in.)
								0.000																
5.0	16	10	1	120	58	3.0	5.0	0.180	0.180	0.99	1.70	0.75	14.5	46	7.9	22.4	1.00	0.246	0.311	Non-Liq.	7.9	22.4	0.07	**0.04**
8.0	10	6		118	71	6.0	5.0	0.359	0.359	0.99	1.00	0.75	6.4				1.00	Infin.	0.308	Non-Liq.		6.4	0.00	**0.00**
13.0	22	14		128	70	10.0	5.0	0.605	0.605	0.98	1.00	0.75	14.1				1.00	Infin.	0.362	Non-Liq.		14.1	0.00	**0.00**
18.0	16	10		110	66	15.0	5.0	0.907	0.907	0.97	1.00	0.75	10.3				1.00	Infin.	0.417	Non-Liq.		10.3	0.00	**0.00**
23.0		12		110	69	20.0	5.0	1.182	1.182	0.96	1.00	0.75	12.2				1.00	Infin.	0.455	Non-Liq.		12.2	0.00	**0.00**
28.0		11		110	69	25.0	10.0	1.457	1.395	0.94	1.00	0.75	11.2				1.00	Infin.	0.478	Non-Liq.		11.2	0.00	**0.00**
33.0		12		110	69	30.0	15.0	1.732	1.514	0.92	1.00	0.81	13.1				1.01	Infin.	0.486	Non-Liq.		13.1	0.00	**0.00**
38.0		12		110	78	35.0	20.0	2.007	1.633	0.89	1.00	0.89	14.6				0.99	Infin.	0.499	Non-Liq.		14.6	0.00	**0.00**
43.0		14		110	62	40.0	25.0	2.282	1.752	0.85	1.00	0.96	18.1				0.97	Infin.	0.501	Non-Liq.		18.1	0.00	**0.00**
48.0		24		110	55	45.0	30.0	2.557	1.871	0.80	1.00	1.00	32.5				0.95	Infin.	0.493	Non-Liq.		32.5	0.00	**0.00**
51.5		43	1	110	42	50.0	35.0	2.832	1.990	0.75	0.73	1.00	42.5	78	10.0	52.5	0.87	1.200	0.512	**2.34**	10.0	52.5	0.00	**0.00**

Base Depth (feet)	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	Dry Sand Subsidence (in.)
5.0	0.121	438	0.056	3.8E-04	3.3E-04	3.3E-04	**0.04**
8.0	0.241						
13.0	0.405						
18.0	0.608						
23.0	0.792						
28.0	0.976						
33.0	1.160						
38.0	1.345						
43.0	1.529						
48.0	1.713						
51.5	1.897	2,306	0.665	4.1E-04			

Use Idriss/Seed(0) or Stark/Olsen(1) FC Corr.: 0

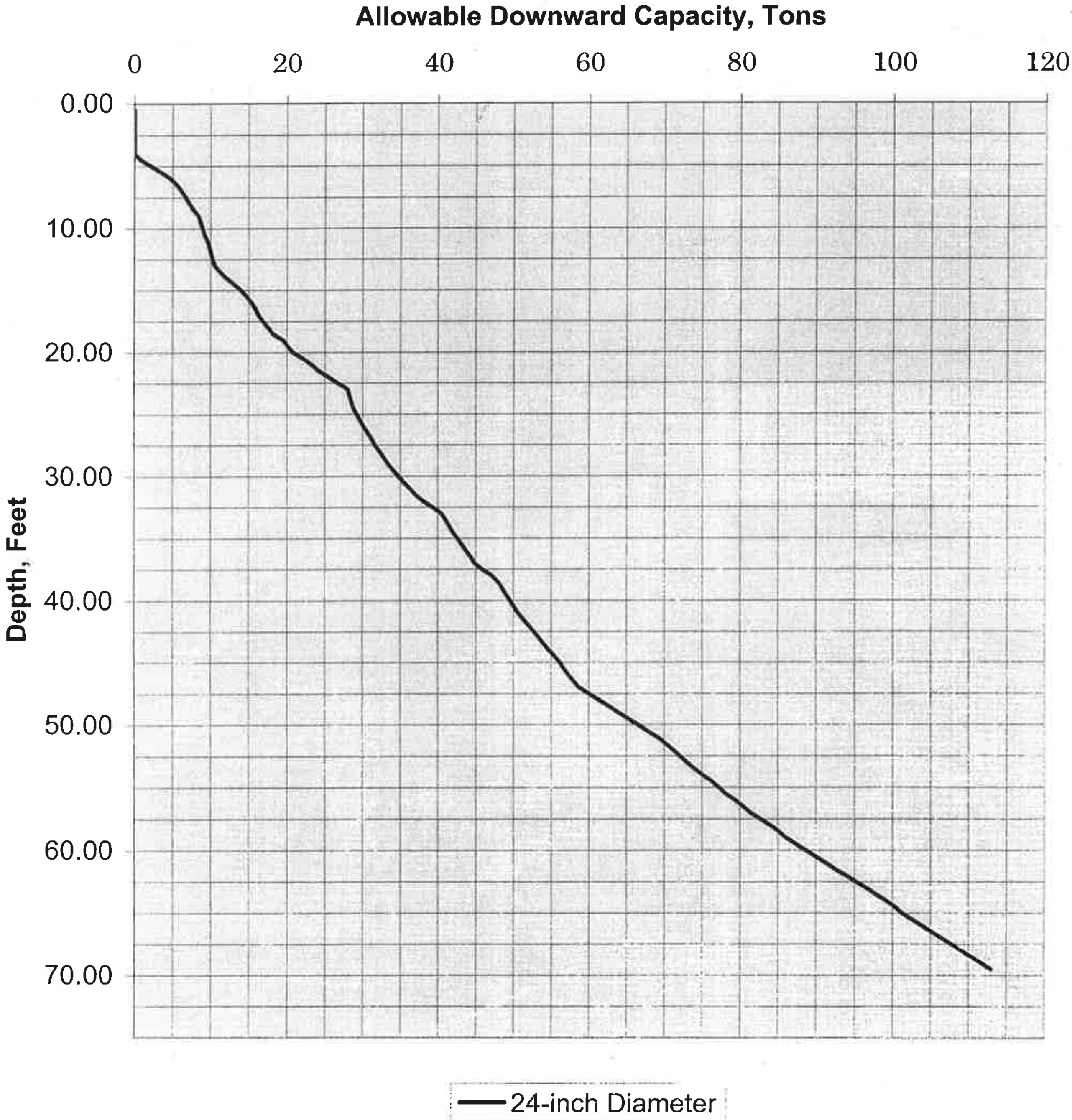




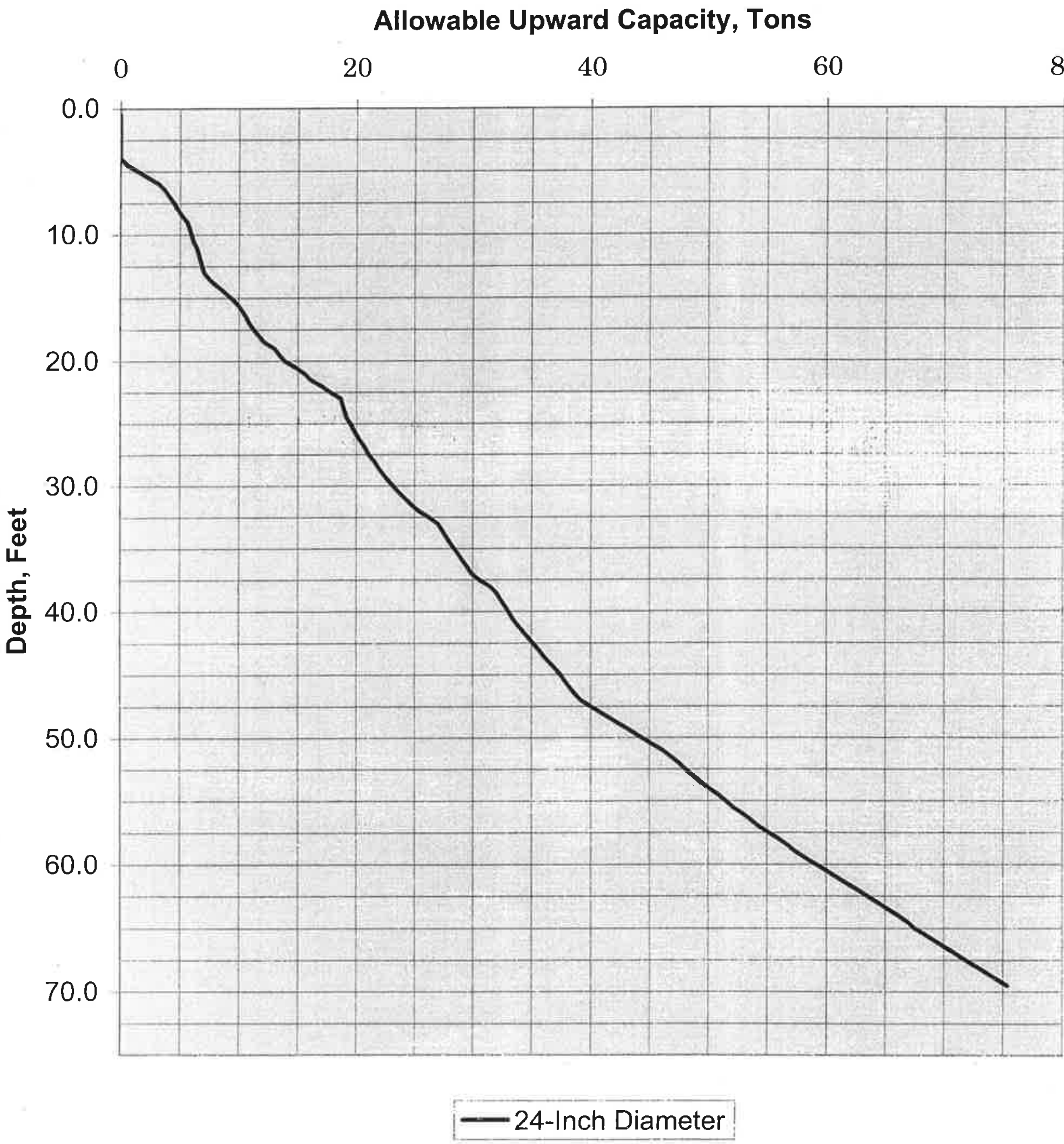
APPENDIX D

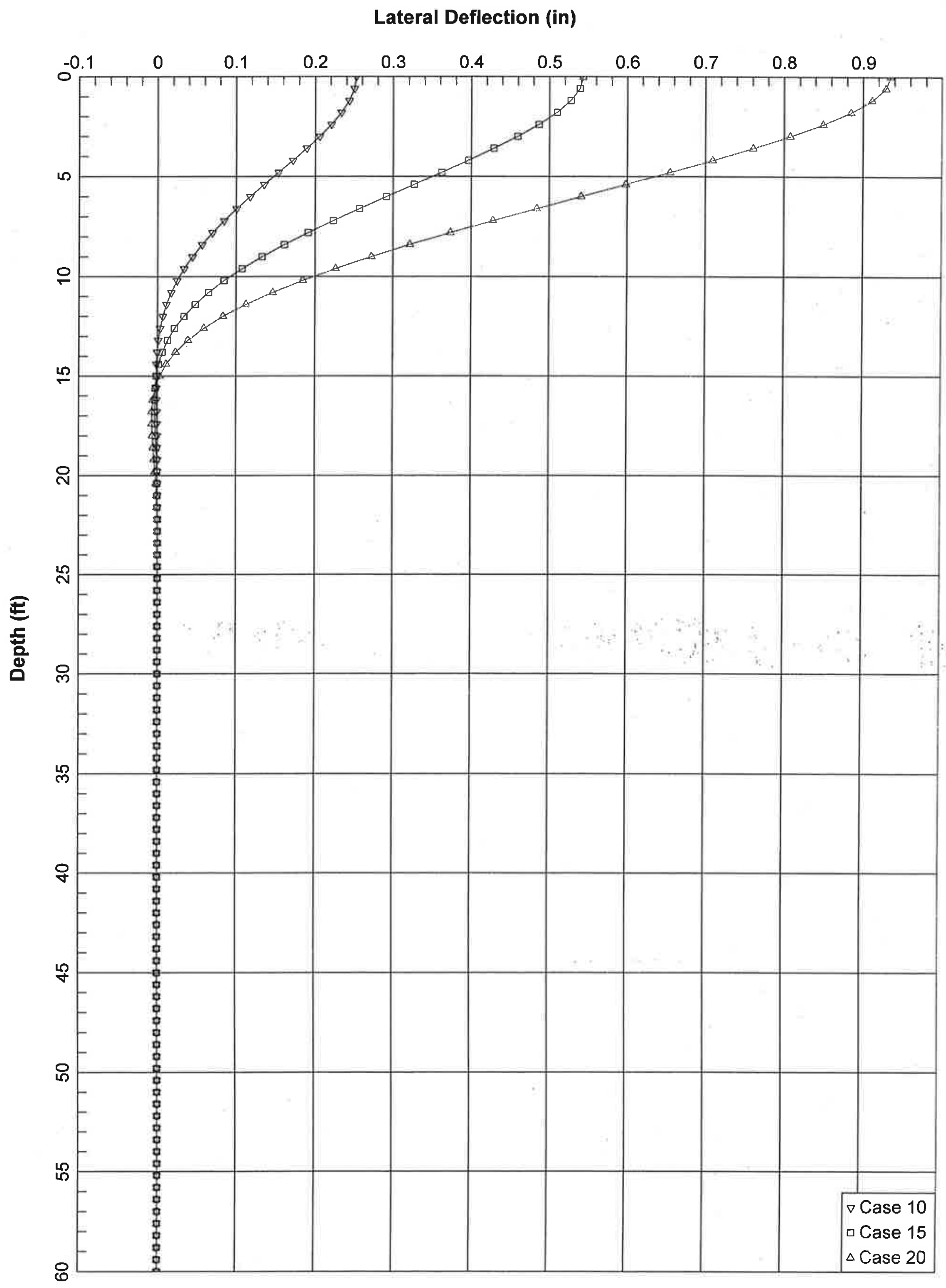
Vertical and Lateral Caisson Analysis

NWC of Palm and Main Street
VT-23104-01
CIDH Pile (Caisson) Capacity
24-Inch Diameter

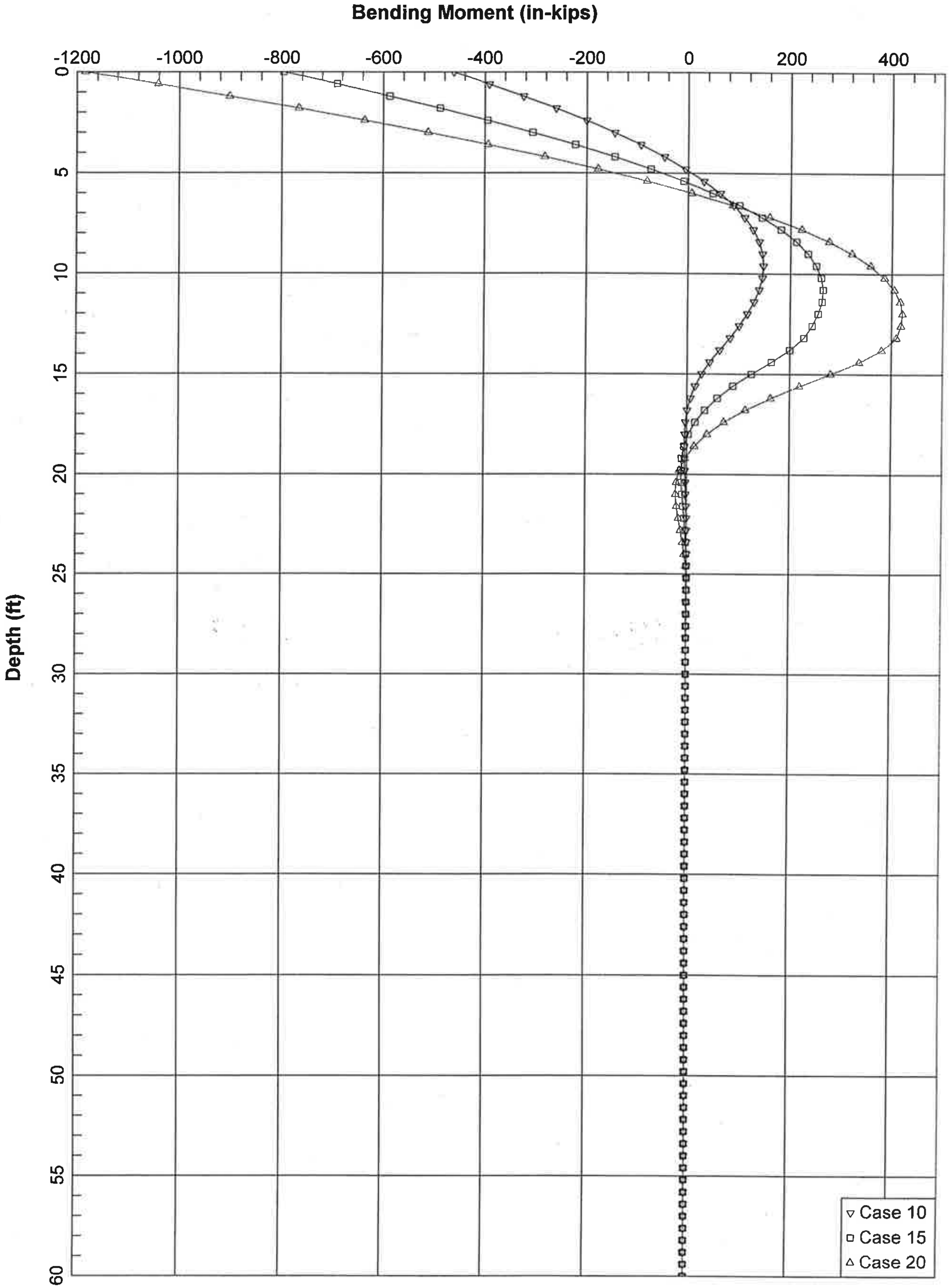


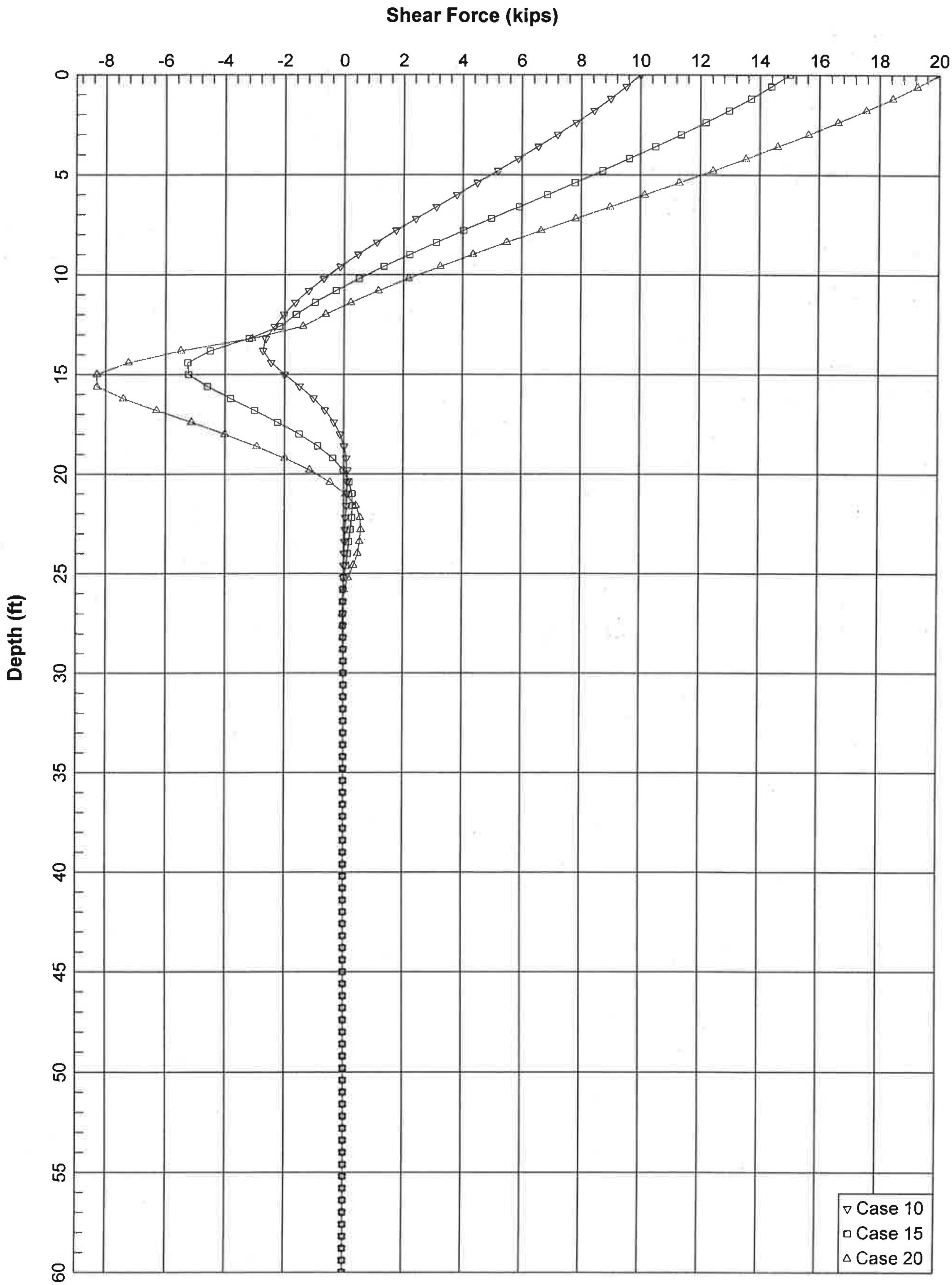
NWC of Palm and Main Street
VT-23104-01
CIDH Pile (Caisson) Capacity
24-Inch Diameter





Lateral Deflection (in)
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20


Bending Moment (in-kips)
-1200
-1000
-800
-600
-400
-200
0
200
400
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20



Shear Force (kips)
-8
-6
-4
-2
0
2
4
6
8
10
12
14
16
18
20
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20

```
================================================================================

              LPILE Plus for Windows, Version 4.0 (4.0.8)

              Analysis of Individual Piles and Drilled Shafts
              Subjected to Lateral Loading Using the p-y Method

                (c) Copyright ENSOFT, Inc., 1985-2003
                        All Rights Reserved

================================================================================

'his program is licensed to:

Pau; Mooney
Earth Systems 9outhern California

'ath to file locations:      C:\Program Files\Ensoft\LpileP4\
Name of input data file:     NWC of Palm and Main Streets.lpd
Name of output file:         NWC of Palm and Main Streets.lpo
 ame of plot output file:    NWC of Palm and Main Streets.lpp
 ame of runtime file:        NWC of Palm and Main Streets.lpr

--------------------------------------------------------------------------------
                        Time and Date of Analysis
--------------------------------------------------------------------------------

             Date:  September  3, 2004     Time:   9:53:30

--------------------------------------------------------------------------------
                              Problem Title
--------------------------------------------------------------------------------

New Pile

--------------------------------------------------------------------------------
                             Program Options
--------------------------------------------------------------------------------

 nits Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

 nalysis Type 1:
- Computation of Lateral Pile Response Using User-specified Constant EI

 omputation Options:
  Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
  Analysis for fixed-length pile or shaft only
  No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
  No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments            =          100
  Maximum number of iterations allowed =          100
```

- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 720.00 in
Depth of ground surface below top of pile = -12.00 in
Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	-12.0000	24.000	16286.0000	452.0000	300000.000
2	720.0000	24.000	16286.0000	452.0000	300000.000

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970
Distance from top of pile to top of layer = -12.000 in
Distance from top of pile to bottom of layer = 156.000 in

Layer 2 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 156.000 in
Distance from top of pile to bottom of layer = 276.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 3 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 276.000 in
Distance from top of pile to bottom of layer = 294.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 4 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 294.000 in
Distance from top of pile to bottom of layer = 558.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

Layer 5 is stiff clay without free water
Distance from top of pile to top of layer = 558.000 in
Distance from top of pile to bottom of layer = 720.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

(Depth of lowest layer extends .00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

---

istribution of effective unit weight of soil with depth
is defined using 10 points

oint No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-12.00	.05700
2	156.00	.03700
3	156.00	.03700
4	276.00	.03700
5	276.00	.03700
6	294.00	.03700
7	294.00	.03700
8	558.00	.03700
9	558.00	.03700
10	720.00	.03700

Shear Strength of Soils

Distribution of shear strength parameters with depth
efined using 10 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	-12.000	2.00000	.00	.01000	.0
2	156.000	2.00000	.00	.01000	.0
3	156.000	5.00000	.00	.00500	.0
4	276.000	5.00000	.00	.00500	.0
5	276.000	5.00000	.00	.00500	.0
6	294.000	5.00000	.00	.00500	.0
7	294.000	7.00000	.00	.00500	.0
8	558.000	7.00000	.00	.00500	.0
9	558.000	7.00000	.00	.00500	.0
10	720.000	7.00000	.00	.00500	.0

otes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves

---

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 10000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 2

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 15000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 150000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 20000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 10000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.252399	-461980.2296	10000.0000	0.0000	561.6395	-64.5186
7.200	.249948	-391407.4638	9513.7308	-6.288E-04	509.6394	-70.5562
14.400	.243344	-324077.0332	8985.8910	-.001156	460.0284	-76.0660
21.600	.233302	-260346.0068	8420.4462	-.001587	413.0695	-81.0020
28.800	.220497	-200537.8883	7821.6711	-.001926	369.0011	-85.3244
36.000	.205564	-144940.2102	7194.1072	-.002181	328.0351	-88.9989
43.200	.189094	-93802.4477	6542.5261	-.002357	290.3553	-91.9959
50.400	.171628	-47334.2239	5871.8961	-.002461	256.1162	-94.2902
57.600	.153660	-5703.7814	5187.3532	-.002500	225.4417	-95.8606
64.800	.135632	30963.2986	4494.1731	-.002481	244.0536	-96.6894
72.000	.117932	62585.1476	3797.7480	-.002412	267.3535	-96.7620

79.200	.100896	89124.4478	3103.5636	-.002300	286.9084	-96.0670
86.400	.084806	110589.0721	2417.1803	-.002153	302.7242	-94.5951
93.600	.069889	127032.5497	1744.2174	-.001978	314.8402	-92.3391
100.800	.056320	138554.3836	1090.3423	-.001782	323.3299	-89.2929
108.000	.044221	145300.2639	461.2683	-.001573	328.3004	-85.4499
115.200	.033664	147462.2514	-137.2345	-.001358	329.8934	-80.8008
122.400	.024671	145279.0618	-696.5315	-.001142	328.2848	-74.5595
129.600	.017220	139076.5631	-1203.0461	-9.324E-04	323.7146	-66.1390
136.800	.011245	129297.8518	-1647.7195	-7.347E-04	316.5094	-57.3814
144.000	.006641	116407.3018	-2027.6143	-5.536E-04	307.0112	-48.1450
151.200	.003273	100897.4047	-2337.8475	-3.935E-04	295.5831	-38.0309
158.400	9.75E-04	83308.9282	-2634.4296	-2.578E-04	282.6234	-44.3530
165.600	-4.39E-04	63332.7999	-2721.0980	-1.497E-04	267.9044	20.2784
172.800	-.001181	44340.7062	-2448.6126	-7.038E-05	253.9105	55.4120
180.000	-.001452	28174.1233	-2000.0177	-1.695E-05	241.9985	69.1977
187.200	-.001425	15564.8548	-1502.8094	1.528E-05	232.7076	68.9157
194.400	-.001232	6511.6637	-1036.9570	3.155E-05	226.0369	60.4877
201.600	-9.71E-04	587.2457	-645.1732	3.678E-05	221.6716	48.3411
208.800	-7.03E-04	-2831.7918	-343.3348	3.512E-05	223.3255	35.5029
216.000	-4.65E-04	-4407.3549	-129.7774	2.979E-05	224.4864	23.8186
223.200	-2.74E-04	-4743.4843	7.1687	2.305E-05	224.7341	14.2220
230.400	-1.33E-04	-4337.3142	83.5744	1.636E-05	224.4348	7.0018
237.600	-3.81E-05	-3563.5674	116.1133	1.054E-05	223.8647	2.0368
244.800	1.88E-05	-2680.4541	119.7801	5.934E-06	223.2140	-1.0182
252.000	4.73E-05	-1847.2801	106.7715	2.598E-06	222.6001	-2.5953
259.200	5.62E-05	-1146.6862	86.1809	3.922E-07	222.0838	-3.1243
266.400	5.30E-05	-606.8402	64.2005	-8.998E-07	221.6861	-2.9813
273.600	4.33E-05	-220.9033	44.5878	-1.510E-06	221.4017	-2.4666
280.800	3.12E-05	37.3981	28.9560	-1.645E-06	221.2665	-1.8755
288.000	1.96E-05	198.4320	17.9193	-1.471E-06	221.3851	-1.1902
295.200	1.00E-05	297.5547	4.7669	-1.106E-06	221.4582	-2.4632
302.400	3.66E-06	268.6677	-7.3798	-6.885E-07	221.4369	-.9108
309.600	1.28E-07	192.2771	-10.7750	-3.489E-07	221.3806	-.032262
316.800	-1.36E-06	114.0101	-9.6336	-1.232E-07	221.3229	.3493
324.000	-1.65E-06	53.7302	-6.8372	4.095E-10	221.2785	.4275
331.200	-1.36E-06	15.5534	-4.0111	5.146E-08	221.2504	.3576
338.400	-9.05E-07	-4.1033	-1.8542	5.990E-08	221.2420	.2416
345.600	-4.96E-07	-11.2334	-.5020	4.860E-08	221.2472	.1341
352.800	-2.05E-07	-11.4022	.1832	3.192E-08	221.2473	.056273
360.000	-3.60E-08	-8.6416	.4217	1.715E-08	221.2453	.009995
367.200	4.16E-08	-5.3538	.4156	6.836E-09	221.2429	-.011709
374.400	6.24E-08	-2.6673	.3094	9.261E-10	221.2409	-.017790
381.600	5.50E-08	-.9001	.1882	-1.702E-09	221.2396	-.015856
388.800	3.79E-08	.045946	.091279	-2.332E-09	221.2390	-.011079
396.000	2.14E-08	.4176	.028631	-1.990E-09	221.2392	-.006323
403.200	9.27E-09	.4611	-.004122	-1.343E-09	221.2393	-.002775
410.400	2.05E-09	.3602	-.016344	-7.376E-10	221.2392	-6.206E-04
417.600	-1.35E-09	.2268	-.017088	-3.051E-10	221.2391	4.141E-04
424.800	-2.34E-09	.1146	-.012980	-5.355E-11	221.2390	7.270E-04
432.000	-2.12E-09	.039957	-.007967	6.033E-11	221.2390	6.657E-04
439.200	-1.48E-09	-2.139E-04	-.003885	8.962E-11	221.2389	4.682E-04
446.400	-8.32E-10	-.016113	-.001239	7.759E-11	221.2389	2.668E-04
453.600	-3.58E-10	-.018162	1.407E-04	5.233E-11	221.2390	1.163E-04
460.800	-7.80E-11	-.014162	6.515E-04	2.851E-11	221.2389	2.559E-05
468.000	5.22E-11	-.008821	6.813E-04	1.158E-11	221.2389	-1.730E-05
475.200	8.87E-11	-.004368	5.120E-04	1.861E-12	221.2389	-2.975E-05
482.400	7.90E-11	-.001452	3.085E-04	-2.427E-12	221.2389	-2.676E-05
489.600	5.38E-11	7.851E-05	1.459E-04	-3.439E-12	221.2389	-1.842E-05
496.800	2.94E-11	6.537E-04	4.287E-05	-2.899E-12	221.2389	-1.019E-05
504.000	1.20E-11	7.000E-04	-8.960E-06	-1.902E-12	221.2389	-4.208E-06
511.200	2.06E-12	5.274E-04	-2.672E-05	-9.974E-13	221.2389	-7.261E-07
518.400	-2.33E-12	3.167E-04	-2.635E-05	-3.754E-13	221.2389	8.308E-07
525.600	-3.35E-12	1.486E-04	-1.901E-05	-3.264E-14	221.2389	1.208E-06

532.800	-2.80E-12	4.300E-05	-1.099E-05	1.085E-13	221.2389	1.019E-06
540.000	-1.79E-12	-9.832E-06	-4.956E-06	1.330E-13	221.2389	6.575E-07
547.200	-8.83E-13	-2.856E-05	-1.409E-06	1.047E-13	221.2389	3.279E-07
554.400	-2.81E-13	-3.027E-05	1.508E-07	6.133E-14	221.2389	1.053E-07
561.600	-1.74E-20	-2.648E-05	2.104E-06	1.951E-14	221.2389	4.372E-07
568.800	1.98E-20	-5.371E-12	1.839E-06	1.208E-21	221.2389	-5.108E-07
576.000	0.000	1.865E-12	3.728E-13	-1.375E-21	221.2389	-1.755E-13
583.200	0.000	8.741E-19	-1.295E-13	0.0000	221.2389	3.598E-14
590.400	0.000	-1.248E-19	-6.069E-20	0.0000	221.2389	2.167E-20
597.600	0.000	0.0000	8.667E-21	0.0000	221.2389	-2.408E-21
604.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
612.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
619.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
626.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
633.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
640.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
648.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
655.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
662.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
669.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
676.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
684.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
691.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
698.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
705.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
712.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
720.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =     .25239887 in
Computed slope at pile head       =         0.000
Maximum bending moment            =   -461980.230 lbs-in
Maximum shear force               =     10000.000 lbs
Depth of maximum bending moment   =         0.000 in
Depth of maximum shear force      =         0.000 in
Number of iterations              =            22
Number of zero deflection points  =            19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head   =     15000.000 lbs
Specified slope at pile head         =     0.000E+00 in/in
Specified axial load at pile head    =    150000.000 lbs
```

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in

0.000	.543152	-796821.8718	15000.0000	-1.542E-17	918.9800	-83.2956
7.200	.538925	-690346.8028	14371.9982	-.001096	840.5261	-91.1493
14.400	.527373	-587498.1932	13689.4956	-.002037	764.7442	-98.4347
21.600	.509587	-488817.4059	12956.7835	-.002830	692.0333	-105.0964
28.800	.486615	-394806.8387	12178.5269	-.003481	622.7636	-111.0860
36.000	.459454	-305926.6134	11359.7182	-.003998	557.2741	-116.3609
43.200	.429046	-222591.6393	10505.6373	-.004387	495.8704	-120.8838
50.400	.396278	-145169.0141	9621.8177	-.004658	438.8232	-124.6217
57.600	.361968	-73975.7337	8714.0149	-.004820	386.3659	-127.5457
64.800	.326874	-9276.6880	7788.1806	-.004881	338.6937	-129.6305
72.000	.291682	48717.0794	6850.4386	-.004852	367.7546	-130.8534
79.200	.257006	99849.8684	5907.0646	-.004742	405.4307	-131.1949
86.400	.223390	144022.5988	4964.4701	-.004563	437.9785	-130.6369
93.600	.191301	181193.8904	4029.1894	-.004323	465.3674	-129.1632
100.800	.161136	211380.9800	3107.8734	-.004034	487.6101	-126.7579
108.000	.133213	234660.5183	2207.2899	-.003705	504.7631	-123.4042
115.200	.107780	251169.3087	1334.3359	-.003347	516.9273	-119.0830
122.400	.085012	261105.0856	500.2464	-.002970	524.2483	-112.6085
129.600	.065015	264787.6771	-275.8685	-.002582	526.9617	-102.9790
136.800	.047827	262710.4146	-981.2538	-.002194	525.4311	-92.9614
144.000	.033426	255395.9175	-1612.9068	-.001812	520.0416	-82.4978
151.200	.021735	243398.2591	-2167.1992	-.001444	511.2013	-71.4723
158.400	.012627	227308.0948	-3195.2608	-.001098	499.3456	-214.1003
165.600	.005931	199757.1967	-4494.2565	-7.829E-04	479.0453	-146.7318
172.800	.001354	164281.7980	-5251.2006	-5.146E-04	452.9060	-63.5305
180.000	-.001480	125251.5176	-5226.0495	-3.013E-04	424.1474	70.5169
187.200	-.002985	89677.4877	-4597.4612	-1.429E-04	397.9354	104.0910
194.400	-.003538	59356.8077	-3814.7432	-3.312E-05	375.5942	113.3307
201.600	-.003462	34816.7224	-3003.1910	3.627E-05	357.5124	112.1004
208.800	-.003016	16032.5112	-2222.9501	7.374E-05	343.6716	104.6332
216.000	-.002400	2646.9664	-1510.2512	8.750E-05	333.8088	93.3388
223.200	-.001756	-5904.1096	-886.8136	8.510E-05	336.2087	79.8383
230.400	-.001174	-10306.9696	-376.6324	7.316E-05	339.4529	61.8787
237.600	-7.02E-04	-11485.6360	-18.8203	5.710E-05	340.3214	37.5136
244.800	-3.52E-04	-10701.3177	184.8626	4.075E-05	339.7435	19.0650
252.000	-1.16E-04	-8911.6381	276.3195	2.630E-05	338.4248	6.3397
259.200	2.65E-05	-6779.1262	293.8421	1.474E-05	336.8535	-1.4723
266.400	9.67E-05	-4712.1475	268.9573	6.272E-06	335.3305	-5.4402
273.600	1.17E-04	-2919.6887	225.4004	6.485E-07	334.0097	-6.6589
280.800	1.06E-04	-1467.7828	178.5111	-2.584E-06	332.9399	-6.3659
288.000	7.96E-05	-343.5469	138.1775	-3.919E-06	332.1115	-4.8379
295.200	4.96E-05	530.4388	77.0012	-3.781E-06	332.2492	-12.1555
302.400	2.51E-05	773.4377	10.7113	-2.821E-06	332.4283	-6.2583
309.600	8.94E-06	690.7738	-19.9453	-1.742E-06	332.3674	-2.2574
316.800	6.53E-08	489.9877	-28.1321	-8.716E-07	332.2194	-.016722
324.000	-3.61E-06	287.5549	-24.8164	-2.987E-07	332.0703	.9377
331.200	-4.24E-06	133.2772	-17.4251	1.135E-08	331.9566	1.1154
338.400	-3.45E-06	36.6091	-10.0973	1.365E-07	331.8854	.9201
345.600	-2.27E-06	-12.4184	-4.5741	1.544E-07	331.8676	.6141
352.800	-1.22E-06	-29.5911	-1.1547	1.234E-07	331.8802	.3357
360.000	-4.93E-07	-29.3128	.5471	8.000E-08	331.8800	.1370
367.200	-7.29E-08	-21.8855	1.1142	4.227E-08	331.8745	.020506
374.400	1.15E-07	-13.3604	1.0696	1.630E-08	331.8683	-.032867
381.600	1.62E-07	-6.5178	.7832	1.657E-09	331.8632	-.046700
388.800	1.39E-07	-2.0858	.4687	-4.682E-09	331.8599	-.040668
396.000	9.45E-08	.2413	.2217	-6.041E-09	331.8586	-.027930
403.200	5.22E-08	1.1201	.064894	-5.038E-09	331.8592	-.015635
410.400	2.19E-08	1.1866	-.015281	-3.338E-09	331.8593	-.006636
417.600	4.17E-09	.9073	-.043768	-1.796E-09	331.8591	-.001277
424.800	-3.95E-09	.5603	-.043960	-7.142E-10	331.8588	.001224
432.000	-6.12E-09	.2758	-.032646	-9.819E-11	331.8586	.001919
439.200	-5.36E-09	.090362	-.019615	1.716E-10	331.8585	.001701
446.400	-3.65E-09	-.007033	-.009279	2.330E-10	331.8584	.001170

453.600	-2.01E-09	-.043765	-.002725	1.956E-10	331.8584	6.508E-04
460.800	-8.30E-10	-.046688	5.985E-04	1.289E-10	331.8584	2.722E-04
468.000	-1.49E-10	-.035424	.001757	6.842E-11	331.8584	4.949E-05
475.200	1.56E-10	-.021538	.001747	2.645E-11	331.8584	-5.214E-05
482.400	2.32E-10	-.010321	.001277	2.976E-12	331.8584	-7.852E-05
489.600	1.98E-10	-.003158	7.496E-04	-6.956E-12	331.8584	-6.794E-05
496.800	1.32E-10	4.883E-04	3.412E-04	-8.923E-12	331.8584	-4.552E-05
504.000	6.99E-11	.001774	8.936E-05	-7.256E-12	331.8584	-2.443E-05
511.200	2.70E-11	.001791	-3.298E-05	-4.629E-12	331.8584	-9.552E-06
518.400	3.21E-12	.001309	-7.148E-05	-2.345E-12	331.8584	-1.144E-06
525.600	-6.73E-12	7.665E-04	-6.687E-05	-8.155E-13	331.8584	2.427E-06
532.800	-8.54E-12	3.483E-04	-4.694E-05	5.898E-15	331.8584	3.108E-06
540.000	-6.65E-12	9.057E-05	-2.695E-05	3.292E-13	331.8584	2.444E-06
547.200	-3.80E-12	-4.054E-05	-1.308E-05	3.661E-13	331.8584	1.409E-06
554.400	-1.38E-12	-9.853E-05	-6.147E-06	2.636E-13	331.8584	5.156E-07
561.600	-1.23E-19	-1.296E-04	6.857E-06	9.551E-14	331.8584	3.096E-06
568.800	9.69E-20	-2.988E-11	9.002E-06	8.558E-21	331.8584	-2.501E-06
576.000	0.000	9.132E-12	2.074E-12	-6.728E-21	331.8584	-9.284E-13
583.200	0.000	4.525E-18	-6.341E-13	0.0000	331.8584	1.761E-13
590.400	0.000	-6.110E-19	-3.142E-19	0.0000	331.8584	1.108E-19
597.600	0.000	-4.529E-25	4.243E-20	0.0000	331.8584	-1.179E-20
604.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
612.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
619.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
626.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
633.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
640.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
648.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
655.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
662.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
669.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
676.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
684.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
691.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
698.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
705.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
712.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
720.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

```
Pile-head deflection             =      .54315202 in
Computed slope at pile head      =   -1.54198E-17
Maximum bending moment           =    -796821.872 lbs-in
Maximum shear force              =      15000.000 lbs
Depth of maximum bending moment  =          0.000 in
Depth of maximum shear force     =          0.000 in
Number of iterations             =             23
Number of zero deflection points =             19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)
pecified shear force at pile head = 20000.000 lbs
pecified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 200000.000 lbs

Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.934952	-1.184E+06	20000.0000	4.626E-17	1314.7041	-99.8261
7.200	.928672	-1.041E+06	19247.2266	-.001639	1209.5818	-109.2776
14.400	.911345	-901875.0850	18428.5827	-.003071	1107.0058	-118.1235
21.600	.884450	-766871.9455	17548.6556	-.004301	1007.5315	-126.3007
28.800	.849417	-636788.8790	16612.4618	-.005335	911.6825	-133.7532
36.000	.807629	-512288.2671	15625.3985	-.006181	819.9468	-140.4311
43.200	.760404	-393980.4920	14593.2031	-.006849	732.7742	-146.2899
50.400	.708999	-282420.3296	13521.9176	-.007348	650.5734	-151.2894
57.600	.654598	-178103.6966	12417.8582	-.007687	573.7099	-155.3937
64.800	.598307	-81464.7262	11287.5888	-.007878	502.5035	-158.5700
72.000	.541152	7126.8492	10137.8987	-.007933	447.7291	-160.7884
79.200	.484072	87368.0323	8975.7842	-.007863	506.8532	-162.0212
86.400	.427919	159024.6346	7808.4344	-.007682	559.6519	-162.2426
93.600	.373454	221933.1178	6643.2216	-.007401	606.0047	-161.4276
100.800	.321343	276002.2378	5487.6984	-.007034	645.8444	-159.5511
108.000	.272161	321214.5341	4349.6017	-.006594	679.1581	-156.5869
115.200	.226387	357627.7264	3236.8676	-.006094	705.9884	-152.5059
122.400	.184408	385376.1032	2163.0730	-.005547	726.4342	-145.7704
129.600	.146517	404749.9482	1152.2552	-.004964	740.7094	-135.0123
136.800	.112922	416265.8475	220.5826	-.004359	749.1947	-123.7856
144.000	.083742	420481.3554	-628.4094	-.003743	752.3008	-112.0455
151.200	.059025	417996.1350	-1390.7460	-.003125	750.4696	-99.7147
158.400	.038742	409454.6898	-3099.7925	-.002515	744.1760	-375.0205
165.600	.022804	380603.2932	-5485.6621	-.001933	722.9175	-287.7211
172.800	.010904	336028.7691	-7237.7201	-.001405	690.0737	-198.9617
180.000	.002569	280426.9944	-8301.7234	-9.509E-04	649.1047	-96.5948
187.200	-.002790	219222.6623	-8287.2441	-5.828E-04	604.0075	100.6168
194.400	-.005823	162769.0985	-7401.6674	-3.013E-04	562.4109	145.3768
201.600	-.007129	113506.4586	-6299.2167	-9.775E-05	526.1127	160.8596
208.800	-.007230	72341.9093	-5136.9079	3.918E-05	495.7815	162.0040
216.000	-.006564	39422.1342	-3997.9810	1.215E-04	471.5253	154.3645
223.200	-.005480	14420.9604	-2934.5148	1.612E-04	453.1037	141.0427
230.400	-.004243	-3299.1599	-1979.9811	1.694E-04	444.9088	124.1055
237.600	-.003041	-14578.6491	-1154.9732	1.562E-04	453.2199	105.0633
244.800	-.001993	-20380.7185	-470.5151	1.305E-04	457.4950	85.0639
252.000	-.001162	-21729.8244	65.1598	9.944E-05	458.4890	63.7347
259.200	-5.61E-04	-19728.8136	406.8953	6.890E-05	457.0146	31.1919
266.400	-1.70E-04	-16068.9509	553.6253	4.252E-05	454.3179	9.5665
273.600	5.09E-05	-11879.0622	577.6138	2.193E-05	451.2307	-2.9030
280.800	1.46E-04	-7814.4578	535.6451	7.415E-06	448.2358	-8.7550
288.000	1.58E-04	-4187.1280	469.6212	-1.428E-06	445.5631	-9.5850
295.200	1.25E-04	-1047.7993	327.6725	-5.286E-06	443.2499	-29.8452
302.400	8.16E-05	546.5778	147.1305	-5.655E-06	442.8806	-20.3054
309.600	4.38E-05	1087.1654	34.2472	-4.451E-06	443.2789	-11.0511
316.800	1.75E-05	1052.5561	-21.6599	-2.875E-06	443.2534	-4.4786
324.000	2.38E-06	783.5415	-40.0044	-1.522E-06	443.0552	-.6171
331.200	-4.42E-06	480.8746	-38.0341	-5.900E-07	442.8322	1.1644
338.400	-6.12E-06	237.5494	-27.9632	-6.060E-08	442.6529	1.6331
345.600	-5.30E-06	78.3797	-16.9279	1.722E-07	442.5356	1.4323
352.800	-3.64E-06	-6.7083	-8.1806	2.250E-07	442.4828	.9975
360.000	-2.06E-06	-40.0695	-2.5351	1.905E-07	442.5074	.5707
367.200	-8.96E-07	-43.7620	.4265	1.288E-07	442.5101	.2520

374.400	-2.01E-07	-34.2987	1.5397	7.125E-08	442.5031	.057234
381.600	1.30E-07	-21.7956	1.6106	2.991E-08	442.4939	-.037535
388.800	2.30E-07	-11.1921	1.2338	5.608E-09	442.4861	-.067139
396.000	2.11E-07	-4.0453	.7676	-5.620E-09	442.4809	-.062348
403.200	1.49E-07	-.1220	.3827	-8.690E-09	442.4780	-.044575
410.400	8.57E-08	1.4907	.1288	-7.682E-09	442.4790	-.025964
417.600	3.83E-08	1.7543	-.006989	-5.291E-09	442.4792	-.011745
424.800	9.54E-09	1.4053	-.059919	-2.962E-09	442.4789	-.002957
432.000	-4.34E-09	.9000	-.065669	-1.264E-09	442.4785	.001360
439.200	-8.66E-09	.4633	-.050878	-2.592E-10	442.4782	.002748
446.400	-8.07E-09	.1681	-.031663	2.060E-10	442.4780	.002589
453.600	-5.69E-09	.006789	-.015689	3.349E-10	442.4779	.001848
460.800	-3.25E-09	-.058769	-.005202	2.966E-10	442.4779	.001065
468.000	-1.42E-09	-.068977	3.322E-04	2.025E-10	442.4779	4.720E-04
475.200	-3.31E-10	-.054568	.002431	1.115E-10	442.4779	1.111E-04
482.400	1.82E-10	-.034286	.002609	4.598E-11	442.4779	-6.159E-05
489.600	3.31E-10	-.017125	.001980	8.102E-12	442.4779	-1.133E-04
496.800	2.98E-10	-.005802	.001200	-8.792E-12	442.4779	-1.033E-04
504.000	2.04E-10	1.780E-04	5.708E-04	-1.294E-11	442.4779	-7.145E-05
511.200	1.12E-10	.002454	1.709E-04	-1.100E-11	442.4779	-3.962E-05
518.400	4.60E-11	.002671	-3.080E-05	-7.221E-12	442.4779	-1.641E-05
525.600	8.17E-12	.002031	-1.005E-04	-3.756E-12	442.4779	-2.944E-06
532.800	-8.10E-12	.001235	-1.005E-04	-1.350E-12	442.4779	2.950E-06
540.000	-1.13E-11	5.885E-04	-7.491E-05	-6.457E-15	442.4779	4.145E-06
547.200	-8.20E-12	1.560E-04	-4.904E-05	5.421E-13	442.4779	3.043E-06
554.400	-3.47E-12	-1.192E-04	-3.340E-05	5.692E-13	442.4779	1.299E-06
561.600	-4.10E-19	-3.267E-04	8.323E-06	2.407E-13	442.4779	1.029E-05
568.800	2.44E-19	-8.463E-11	2.269E-05	2.844E-20	442.4779	-6.302E-06
576.000	0.000	2.301E-11	5.873E-12	-1.696E-20	442.4779	-2.519E-12
583.200	0.000	1.204E-17	-1.598E-12	0.0000	442.4779	4.439E-13
590.400	0.000	-1.540E-18	-8.361E-19	0.0000	442.4779	2.916E-19
597.600	0.000	-1.183E-24	1.069E-19	0.0000	442.4779	-2.970E-20
604.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
612.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
619.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
626.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
633.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
640.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
648.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
655.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
662.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
669.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
676.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
684.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
691.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
698.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
705.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
712.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
720.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000

utput Verification:

Computed forces and moments are within specified convergence limits.

utput Summary for Load Case No. 3:

```
Pile-head deflection             =       .93495159 in
omputed slope at pile head       =     4.62593E-17
aximum bending moment            =   -1183756.419 lbs-in
Maximum shear force              =      20000.000 lbs
Depth of maximum bending moment  =          0.000 in
epth of maximum shear force      =          0.000 in
```

```
'lumber of iterations             =               23
lumber of zero deflection points =               19
```

Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

```
' = pile-head displacment, in
l = pile-head moment, lbs-in
V = pile-head shear force, lbs
S = pile-head slope, radians
: = rotational stiffness of pile-head, in-lbs/rad
```

BC Type	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
2	V= 10000.000	S= 0.000	100000.0000	.2524	-461980.2296	10000.0000
2	V= 15000.000	S= 0.000	150000.0000	.5432	-796821.8718	15000.0000
2	V= 20000.000	S= 0.000	200000.0000	.9350	-1.184E+06	20000.0000

'he analysis ended normally.

```
===============================================================================

              LPILE Plus for Windows, Version 4.0 (4.0.8)

              Analysis of Individual Piles and Drilled Shafts
              Subjected to Lateral Loading Using the p-y Method

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                             All Rights Reserved

===============================================================================

This program is licensed to:

Pau; Mooney
Earth Systems 9outhern California

Path to file locations:        C:\Program Files\Ensoft\LpileP4\
Name of input data file:       NWC of Palm and Main Streets.lpd
Name of output file:           NWC of Palm and Main Streets.lpo
Name of plot output file:      NWC of Palm and Main Streets.lpp
Name of runtime file:          NWC of Palm and Main Streets.lpr

-------------------------------------------------------------------------------
                         Time and Date of Analysis
-------------------------------------------------------------------------------

              Date:  September  3, 2004     Time:   9:53:30

-------------------------------------------------------------------------------
                               Problem Title
-------------------------------------------------------------------------------

New Pile

-------------------------------------------------------------------------------
                              Program Options
-------------------------------------------------------------------------------

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 1:
- Computation of Lateral Pile Response Using User-specified Constant EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments            =          100
- Maximum number of iterations allowed =          100
```

- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 720.00 in
Depth of ground surface below top of pile = -12.00 in
Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	-12.0000	24.000	16286.0000	452.0000	300000.000
2	720.0000	24.000	16286.0000	452.0000	300000.000

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970
Distance from top of pile to top of layer = -12.000 in
Distance from top of pile to bottom of layer = 156.000 in

Layer 2 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 156.000 in
Distance from top of pile to bottom of layer = 276.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 3 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 276.000 in
Distance from top of pile to bottom of layer = 294.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 4 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 294.000 in
Distance from top of pile to bottom of layer = 558.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

Layer 5 is stiff clay without free water
Distance from top of pile to top of layer = 558.000 in
Distance from top of pile to bottom of layer = 720.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

(Depth of lowest layer extends .00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth is defined using 10 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-12.00	.05700
2	156.00	.03700
3	156.00	.03700
4	276.00	.03700
5	276.00	.03700
6	294.00	.03700
7	294.00	.03700
8	558.00	.03700
9	558.00	.03700
10	720.00	.03700

Shear Strength of Soils

Distribution of shear strength parameters with depth defined using 10 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	-12.000	2.00000	.00	.01000	.0
2	156.000	2.00000	.00	.01000	.0
3	156.000	5.00000	.00	.00500	.0
4	276.000	5.00000	.00	.00500	.0
5	276.000	5.00000	.00	.00500	.0
6	294.000	5.00000	.00	.00500	.0
7	294.000	7.00000	.00	.00500	.0
8	558.000	7.00000	.00	.00500	.0
9	558.000	7.00000	.00	.00500	.0
10	720.000	7.00000	.00	.00500	.0

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves

---

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

oad Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
hear force at pile head = 10000.000 lbs
lope at pile head = .000 in/in
Axial load at pile head = 100000.000 lbs

Zero slope for this load indicates fixed-head condition)

Load Case Number 2

ile-head boundary conditions are Shear and Slope (BC Type 2)
hear force at pile head = 15000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 150000.000 lbs

Zero slope for this load indicates fixed-head condition)

Load Case Number 3

ile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 20000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 200000.000 lbs

Zero slope for this load indicates fixed-head condition)

Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 10000.000 lbs
pecified slope at pile head = 0.000E+00 in/in
pecified axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.252399	-461980.2296	10000.0000	0.0000	561.6395	-64.5186
7.200	.249948	-391407.4638	9513.7308	-6.288E-04	509.6394	-70.5562
14.400	.243344	-324077.0332	8985.8910	-.001156	460.0284	-76.0660
21.600	.233302	-260346.0068	8420.4462	-.001587	413.0695	-81.0020
28.800	.220497	-200537.8883	7821.6711	-.001926	369.0011	-85.3244
36.000	.205564	-144940.2102	7194.1072	-.002181	328.0351	-88.9989
43.200	.189094	-93802.4477	6542.5261	-.002357	290.3553	-91.9959
50.400	.171628	-47334.2239	5871.8961	-.002461	256.1162	-94.2902
57.600	.153660	-5703.7814	5187.3532	-.002500	225.4417	-95.8606
64.800	.135632	30963.2986	4494.1731	-.002481	244.0536	-96.6894
72.000	.117932	62585.1476	3797.7480	-.002412	267.3535	-96.7620
79.200	.100896	89124.4478	3103.5636	-.002300	286.9084	-96.0670

86.400	.084806	110589.0721	2417.1803	-.002153	302.7242	-94.5951
93.600	.069889	127032.5497	1744.2174	-.001978	314.8402	-92.3391
100.800	.056320	138554.3836	1090.3423	-.001782	323.3299	-89.2929
108.000	.044221	145300.2639	461.2683	-.001573	328.3004	-85.4499
115.200	.033664	147462.2514	-137.2345	-.001358	329.8934	-80.8008
122.400	.024671	145279.0618	-696.5315	-.001142	328.2848	-74.5595
129.600	.017220	139076.5631	-1203.0461	-9.324E-04	323.7146	-66.1390
136.800	.011245	129297.8518	-1647.7195	-7.347E-04	316.5094	-57.3814
144.000	.006641	116407.3018	-2027.6143	-5.536E-04	307.0112	-48.1450
151.200	.003273	100897.4047	-2337.8475	-3.935E-04	295.5831	-38.0309
158.400	9.75E-04	83308.9282	-2634.4296	-2.578E-04	282.6234	-44.3530
165.600	-4.39E-04	63332.7999	-2721.0980	-1.497E-04	267.9044	20.2784
172.800	-.001181	44340.7062	-2448.6126	-7.038E-05	253.9105	55.4120
180.000	-.001452	28174.1233	-2000.0177	-1.695E-05	241.9985	69.1977
187.200	-.001425	15564.8548	-1502.8094	1.528E-05	232.7076	68.9157
194.400	-.001232	6511.6637	-1036.9570	3.155E-05	226.0369	60.4877
201.600	-9.71E-04	587.2457	-645.1732	3.678E-05	221.6716	48.3411
208.800	-7.03E-04	-2831.7918	-343.3348	3.512E-05	223.3255	35.5029
216.000	-4.65E-04	-4407.3549	-129.7774	2.979E-05	224.4864	23.8186
223.200	-2.74E-04	-4743.4843	7.1687	2.305E-05	224.7341	14.2220
230.400	-1.33E-04	-4337.3142	83.5744	1.636E-05	224.4348	7.0018
237.600	-3.81E-05	-3563.5674	116.1133	1.054E-05	223.8647	2.0368
244.800	1.88E-05	-2680.4541	119.7801	5.934E-06	223.2140	-1.0182
252.000	4.73E-05	-1847.2801	106.7715	2.598E-06	222.6001	-2.5953
259.200	5.62E-05	-1146.6862	86.1809	3.922E-07	222.0838	-3.1243
266.400	5.30E-05	-606.8402	64.2005	-8.998E-07	221.6861	-2.9813
273.600	4.33E-05	-220.9033	44.5878	-1.510E-06	221.4017	-2.4666
280.800	3.12E-05	37.3981	28.9560	-1.645E-06	221.2665	-1.8755
288.000	1.96E-05	198.4320	17.9193	-1.471E-06	221.3851	-1.1902
295.200	1.00E-05	297.5547	4.7669	-1.106E-06	221.4582	-2.4632
302.400	3.66E-06	268.6677	-7.3798	-6.885E-07	221.4369	-.9108
309.600	1.28E-07	192.2771	-10.7750	-3.489E-07	221.3806	-.032262
316.800	-1.36E-06	114.0101	-9.6336	-1.232E-07	221.3229	.3493
324.000	-1.65E-06	53.7302	-6.8372	4.095E-10	221.2785	.4275
331.200	-1.36E-06	15.5534	-4.0111	5.146E-08	221.2504	.3576
338.400	-9.05E-07	-4.1033	-1.8542	5.990E-08	221.2420	.2416
345.600	-4.96E-07	-11.2334	-.5020	4.860E-08	221.2472	.1341
352.800	-2.05E-07	-11.4022	.1832	3.192E-08	221.2473	.056273
360.000	-3.60E-08	-8.6416	.4217	1.715E-08	221.2453	.009995
367.200	4.16E-08	-5.3538	.4156	6.836E-09	221.2429	-.011709
374.400	6.24E-08	-2.6673	.3094	9.261E-10	221.2409	-.017790
381.600	5.50E-08	-.9001	.1882	-1.702E-09	221.2396	-.015856
388.800	3.79E-08	.045946	.091279	-2.332E-09	221.2390	-.011079
396.000	2.14E-08	.4176	.028631	-1.990E-09	221.2392	-.006323
403.200	9.27E-09	.4611	-.004122	-1.343E-09	221.2393	-.002775
410.400	2.05E-09	.3602	-.016344	-7.376E-10	221.2392	-6.206E-04
417.600	-1.35E-09	.2268	-.017088	-3.051E-10	221.2391	4.141E-04
424.800	-2.34E-09	.1146	-.012980	-5.355E-11	221.2390	7.270E-04
432.000	-2.12E-09	.039957	-.007967	6.033E-11	221.2390	6.657E-04
439.200	-1.48E-09	-2.139E-04	-.003885	8.962E-11	221.2389	4.682E-04
446.400	-8.32E-10	-.016113	-.001239	7.759E-11	221.2389	2.668E-04
453.600	-3.58E-10	-.018162	1.407E-04	5.233E-11	221.2390	1.163E-04
460.800	-7.80E-11	-.014162	6.515E-04	2.851E-11	221.2389	2.559E-05
468.000	5.22E-11	-.008821	6.813E-04	1.158E-11	221.2389	-1.730E-05
475.200	8.87E-11	-.004368	5.120E-04	1.861E-12	221.2389	-2.975E-05
482.400	7.90E-11	-.001452	3.085E-04	-2.427E-12	221.2389	-2.676E-05
489.600	5.38E-11	7.851E-05	1.459E-04	-3.439E-12	221.2389	-1.842E-05
496.800	2.94E-11	6.537E-04	4.287E-05	-2.899E-12	221.2389	-1.019E-05
504.000	1.20E-11	7.000E-04	-8.960E-06	-1.902E-12	221.2389	-4.208E-06
511.200	2.06E-12	5.274E-04	-2.672E-05	-9.974E-13	221.2389	-7.261E-07
518.400	-2.33E-12	3.167E-04	-2.635E-05	-3.754E-13	221.2389	8.308E-07
525.600	-3.35E-12	1.486E-04	-1.901E-05	-3.264E-14	221.2389	1.208E-06
532.800	-2.80E-12	4.300E-05	-1.099E-05	1.085E-13	221.2389	1.019E-06

540.000	-1.79E-12	-9.832E-06	-4.956E-06	1.330E-13	221.2389	6.575E-07
547.200	-8.83E-13	-2.856E-05	-1.409E-06	1.047E-13	221.2389	3.279E-07
554.400	-2.81E-13	-3.027E-05	1.508E-07	6.133E-14	221.2389	1.053E-07
561.600	-1.74E-20	-2.648E-05	2.104E-06	1.951E-14	221.2389	4.372E-07
568.800	1.98E-20	-5.371E-12	1.839E-06	1.208E-21	221.2389	-5.108E-07
576.000	0.000	1.865E-12	3.728E-13	-1.375E-21	221.2389	-1.755E-13
583.200	0.000	8.741E-19	-1.295E-13	0.0000	221.2389	3.598E-14
590.400	0.000	-1.248E-19	-6.069E-20	0.0000	221.2389	2.167E-20
597.600	0.000	0.0000	8.667E-21	0.0000	221.2389	-2.408E-21
604.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
612.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
619.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
626.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
633.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
640.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
648.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
655.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
662.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
669.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
676.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
684.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
691.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
698.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
705.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
712.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
720.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

```
Pile-head deflection               =      .25239887 in
Computed slope at pile head        =          0.000
Maximum bending moment             =    -461980.230 lbs-in
Maximum shear force                =      10000.000 lbs
Depth of maximum bending moment    =          0.000 in
Depth of maximum shear force       =          0.000 in
Number of iterations               =             22
Number of zero deflection points   =             19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head   =      15000.000 lbs
Specified slope at pile head         =      0.000E+00 in/in
Specified axial load at pile head    =     150000.000 lbs
```

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.543152	-796821.8718	15000.0000	-1.542E-17	918.9800	-83.2956

7.200	.538925	-690346.8028	14371.9982	-.001096	840.5261	-91.1493
14.400	.527373	-587498.1932	13689.4956	-.002037	764.7442	-98.4347
21.600	.509587	-488817.4059	12956.7835	-.002830	692.0333	-105.0964
28.800	.486615	-394806.8387	12178.5269	-.003481	622.7636	-111.0860
36.000	.459454	-305926.6134	11359.7182	-.003998	557.2741	-116.3609
43.200	.429046	-222591.6393	10505.6373	-.004387	495.8704	-120.8838
50.400	.396278	-145169.0141	9621.8177	-.004658	438.8232	-124.6217
57.600	.361968	-73975.7337	8714.0149	-.004820	386.3659	-127.5457
64.800	.326874	-9276.6880	7788.1806	-.004881	338.6937	-129.6305
72.000	.291682	48717.0794	6850.4386	-.004852	367.7546	-130.8534
79.200	.257006	99849.8684	5907.0646	-.004742	405.4307	-131.1949
86.400	.223390	144022.5988	4964.4701	-.004563	437.9785	-130.6369
93.600	.191301	181193.8904	4029.1894	-.004323	465.3674	-129.1632
100.800	.161136	211380.9800	3107.8734	-.004034	487.6101	-126.7579
108.000	.133213	234660.5183	2207.2899	-.003705	504.7631	-123.4042
115.200	.107780	251169.3087	1334.3359	-.003347	516.9273	-119.0830
122.400	.085012	261105.0856	500.2464	-.002970	524.2483	-112.6085
129.600	.065015	264787.6771	-275.8685	-.002582	526.9617	-102.9790
136.800	.047827	262710.4146	-981.2538	-.002194	525.4311	-92.9614
144.000	.033426	255395.9175	-1612.9068	-.001812	520.0416	-82.4978
151.200	.021735	243398.2591	-2167.1992	-.001444	511.2013	-71.4723
158.400	.012627	227308.0948	-3195.2608	-.001098	499.3456	-214.1003
165.600	.005931	199757.1967	-4494.2565	-7.829E-04	479.0453	-146.7318
172.800	.001354	164281.7980	-5251.2006	-5.146E-04	452.9060	-63.5305
180.000	-.001480	125251.5176	-5226.0495	-3.013E-04	424.1474	70.5169
187.200	-.002985	89677.4877	-4597.4612	-1.429E-04	397.9354	104.0910
194.400	-.003538	59356.8077	-3814.7432	-3.312E-05	375.5942	113.3307
201.600	-.003462	34816.7224	-3003.1910	3.627E-05	357.5124	112.1004
208.800	-.003016	16032.5112	-2222.9501	7.374E-05	343.6716	104.6332
216.000	-.002400	2646.9664	-1510.2512	8.750E-05	333.8088	93.3388
223.200	-.001756	-5904.1096	-886.8136	8.510E-05	336.2087	79.8383
230.400	-.001174	-10306.9696	-376.6324	7.316E-05	339.4529	61.8787
237.600	-7.02E-04	-11485.6360	-18.8203	5.710E-05	340.3214	37.5136
244.800	-3.52E-04	-10701.3177	184.8626	4.075E-05	339.7435	19.0650
252.000	-1.16E-04	-8911.6381	276.3195	2.630E-05	338.4248	6.3397
259.200	2.65E-05	-6779.1262	293.8421	1.474E-05	336.8535	-1.4723
266.400	9.67E-05	-4712.1475	268.9573	6.272E-06	335.3305	-5.4402
273.600	1.17E-04	-2919.6887	225.4004	6.485E-07	334.0097	-6.6589
280.800	1.06E-04	-1467.7828	178.5111	-2.584E-06	332.9399	-6.3659
288.000	7.96E-05	-343.5469	138.1775	-3.919E-06	332.1115	-4.8379
295.200	4.96E-05	530.4388	77.0012	-3.781E-06	332.2492	-12.1555
302.400	2.51E-05	773.4377	10.7113	-2.821E-06	332.4283	-6.2583
309.600	8.94E-06	690.7738	-19.9453	-1.742E-06	332.3674	-2.2574
316.800	6.53E-08	489.9877	-28.1321	-8.716E-07	332.2194	-.016722
324.000	-3.61E-06	287.5549	-24.8164	-2.987E-07	332.0703	.9377
331.200	-4.24E-06	133.2772	-17.4251	1.135E-08	331.9566	1.1154
338.400	-3.45E-06	36.6091	-10.0973	1.365E-07	331.8854	.9201
345.600	-2.27E-06	-12.4184	-4.5741	1.544E-07	331.8676	.6141
352.800	-1.22E-06	-29.5911	-1.1547	1.234E-07	331.8802	.3357
360.000	-4.93E-07	-29.3128	.5471	8.000E-08	331.8800	.1370
367.200	-7.29E-08	-21.8855	1.1142	4.227E-08	331.8745	.020506
374.400	1.15E-07	-13.3604	1.0696	1.630E-08	331.8683	-.032867
381.600	1.62E-07	-6.5178	.7832	1.657E-09	331.8632	-.046700
388.800	1.39E-07	-2.0858	.4687	-4.682E-09	331.8599	-.040668
396.000	9.45E-08	.2413	.2217	-6.041E-09	331.8586	-.027930
403.200	5.22E-08	1.1201	.064894	-5.038E-09	331.8592	-.015635
410.400	2.19E-08	1.1866	-.015281	-3.338E-09	331.8593	-.006636
417.600	4.17E-09	.9073	-.043768	-1.796E-09	331.8591	-.001277
424.800	-3.95E-09	.5603	-.043960	-7.142E-10	331.8588	.001224
432.000	-6.12E-09	.2758	-.032646	-9.819E-11	331.8586	.001919
439.200	-5.36E-09	.090362	-.019615	1.716E-10	331.8585	.001701
446.400	-3.65E-09	-.007033	-.009279	2.330E-10	331.8584	.001170
453.600	-2.01E-09	-.043765	-.002725	1.956E-10	331.8584	6.508E-04

460.800	-8.30E-10	-.046688	5.985E-04	1.289E-10	331.8584	2.722E-04
468.000	-1.49E-10	-.035424	.001757	6.842E-11	331.8584	4.949E-05
475.200	1.56E-10	-.021538	.001747	2.645E-11	331.8584	-5.214E-05
482.400	2.32E-10	-.010321	.001277	2.976E-12	331.8584	-7.852E-05
489.600	1.98E-10	-.003158	7.496E-04	-6.956E-12	331.8584	-6.794E-05
496.800	1.32E-10	4.883E-04	3.412E-04	-8.923E-12	331.8584	-4.552E-05
504.000	6.99E-11	.001774	8.936E-05	-7.256E-12	331.8584	-2.443E-05
511.200	2.70E-11	.001791	-3.298E-05	-4.629E-12	331.8584	-9.552E-06
518.400	3.21E-12	.001309	-7.148E-05	-2.345E-12	331.8584	-1.144E-06
525.600	-6.73E-12	7.665E-04	-6.687E-05	-8.155E-13	331.8584	2.427E-06
532.800	-8.54E-12	3.483E-04	-4.694E-05	5.898E-15	331.8584	3.108E-06
540.000	-6.65E-12	9.057E-05	-2.695E-05	3.292E-13	331.8584	2.444E-06
547.200	-3.80E-12	-4.054E-05	-1.308E-05	3.661E-13	331.8584	1.409E-06
554.400	-1.38E-12	-9.853E-05	-6.147E-06	2.636E-13	331.8584	5.156E-07
561.600	-1.23E-19	-1.296E-04	6.857E-06	9.551E-14	331.8584	3.096E-06
568.800	9.69E-20	-2.988E-11	9.002E-06	8.558E-21	331.8584	-2.501E-06
576.000	0.000	9.132E-12	2.074E-12	-6.728E-21	331.8584	-9.284E-13
583.200	0.000	4.525E-18	-6.341E-13	0.0000	331.8584	1.761E-13
590.400	0.000	-6.110E-19	-3.142E-19	0.0000	331.8584	1.108E-19
597.600	0.000	-4.529E-25	4.243E-20	0.0000	331.8584	-1.179E-20
604.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
612.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
619.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
626.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
633.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
640.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
648.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
655.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
662.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
669.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
676.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
684.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
691.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
698.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
705.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
712.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
720.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000

utput Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

```
 ile-head deflection              =       .54315202 in
 omputed slope at pile head       =    -1.54198E-17
Maximum bending moment            =     -796821.872 lbs-in
Maximum shear force               =       15000.000 lbs
 epth of maximum bending moment   =           0.000 in
 epth of maximum shear force      =           0.000 in
Number of iterations              =              23
Number of zero deflection points  =              19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 3

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ile-head boundary conditions are Shear and Slope (BC Type 2)

pecified shear force at pile head = 20000.000 lbs
pecified slope at pile head = 0.000E+00 in/in
specified axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.934952	-1.184E+06	20000.0000	4.626E-17	1314.7041	-99.8261
7.200	.928672	-1.041E+06	19247.2266	-.001639	1209.5818	-109.2776
14.400	.911345	-901875.0850	18428.5827	-.003071	1107.0058	-118.1235
21.600	.884450	-766871.9455	17548.6556	-.004301	1007.5315	-126.3007
28.800	.849417	-636788.8790	16612.4618	-.005335	911.6825	-133.7532
36.000	.807629	-512288.2671	15625.3985	-.006181	819.9468	-140.4311
43.200	.760404	-393980.4920	14593.2031	-.006849	732.7742	-146.2899
50.400	.708999	-282420.3296	13521.9176	-.007348	650.5734	-151.2894
57.600	.654598	-178103.6966	12417.8582	-.007687	573.7099	-155.3937
64.800	.598307	-81464.7262	11287.5888	-.007878	502.5035	-158.5700
72.000	.541152	7126.8492	10137.8987	-.007933	447.7291	-160.7884
79.200	.484072	87368.0323	8975.7842	-.007863	506.8532	-162.0212
86.400	.427919	159024.6346	7808.4344	-.007682	559.6519	-162.2426
93.600	.373454	221933.1178	6643.2216	-.007401	606.0047	-161.4276
100.800	.321343	276002.2378	5487.6984	-.007034	645.8444	-159.5511
108.000	.272161	321214.5341	4349.6017	-.006594	679.1581	-156.5869
115.200	.226387	357627.7264	3236.8676	-.006094	705.9884	-152.5059
122.400	.184408	385376.1032	2163.0730	-.005547	726.4342	-145.7704
129.600	.146517	404749.9482	1152.2552	-.004964	740.7094	-135.0123
136.800	.112922	416265.8475	220.5826	-.004359	749.1947	-123.7856
144.000	.083742	420481.3554	-628.4094	-.003743	752.3008	-112.0455
151.200	.059025	417996.1350	-1390.7460	-.003125	750.4696	-99.7147
158.400	.038742	409454.6898	-3099.7925	-.002515	744.1760	-375.0205
165.600	.022804	380603.2932	-5485.6621	-.001933	722.9175	-287.7211
172.800	.010904	336028.7691	-7237.7201	-.001405	690.0737	-198.9617
180.000	.002569	280426.9944	-8301.7234	-9.509E-04	649.1047	-96.5948
187.200	-.002790	219222.6623	-8287.2441	-5.828E-04	604.0075	100.6168
194.400	-.005823	162769.0985	-7401.6674	-3.013E-04	562.4109	145.3768
201.600	-.007129	113506.4586	-6299.2167	-9.775E-05	526.1127	160.8596
208.800	-.007230	72341.9093	-5136.9079	3.918E-05	495.7815	162.0040
216.000	-.006564	39422.1342	-3997.9810	1.215E-04	471.5253	154.3645
223.200	-.005480	14420.9604	-2934.5148	1.612E-04	453.1037	141.0427
230.400	-.004243	-3299.1599	-1979.9811	1.694E-04	444.9088	124.1055
237.600	-.003041	-14578.6491	-1154.9732	1.562E-04	453.2199	105.0633
244.800	-.001993	-20380.7185	-470.5151	1.305E-04	457.4950	85.0639
252.000	-.001162	-21729.8244	65.1598	9.944E-05	458.4890	63.7347
259.200	-5.61E-04	-19728.8136	406.8953	6.890E-05	457.0146	31.1919
266.400	-1.70E-04	-16068.9509	553.6253	4.252E-05	454.3179	9.5665
273.600	5.09E-05	-11879.0622	577.6138	2.193E-05	451.2307	-2.9030
280.800	1.46E-04	-7814.4578	535.6451	7.415E-06	448.2358	-8.7550
288.000	1.58E-04	-4187.1280	469.6212	-1.428E-06	445.5631	-9.5850
295.200	1.25E-04	-1047.7993	327.6725	-5.286E-06	443.2499	-29.8452
302.400	8.16E-05	546.5778	147.1305	-5.655E-06	442.8806	-20.3054
309.600	4.38E-05	1087.1654	34.2472	-4.451E-06	443.2789	-11.0511
316.800	1.75E-05	1052.5561	-21.6599	-2.875E-06	443.2534	-4.4786
324.000	2.38E-06	783.5415	-40.0044	-1.522E-06	443.0552	-.6171
331.200	-4.42E-06	480.8746	-38.0341	-5.900E-07	442.8322	1.1644
338.400	-6.12E-06	237.5494	-27.9632	-6.060E-08	442.6529	1.6331
345.600	-5.30E-06	78.3797	-16.9279	1.722E-07	442.5356	1.4323
352.800	-3.64E-06	-6.7083	-8.1806	2.250E-07	442.4828	.9975
360.000	-2.06E-06	-40.0695	-2.5351	1.905E-07	442.5074	.5707
367.200	-8.96E-07	-43.7620	.4265	1.288E-07	442.5101	.2520
374.400	-2.01E-07	-34.2987	1.5397	7.125E-08	442.5031	.057234

381.600	1.30E-07	-21.7956	1.6106	2.991E-08	442.4939	-.037535
388.800	2.30E-07	-11.1921	1.2338	5.608E-09	442.4861	-.067139
396.000	2.11E-07	-4.0453	.7676	-5.620E-09	442.4809	-.062348
403.200	1.49E-07	-.1220	.3827	-8.690E-09	442.4780	-.044575
410.400	8.57E-08	1.4907	.1288	-7.682E-09	442.4790	-.025964
417.600	3.83E-08	1.7543	-.006989	-5.291E-09	442.4792	-.011745
424.800	9.54E-09	1.4053	-.059919	-2.962E-09	442.4789	-.002957
432.000	-4.34E-09	.9000	-.065669	-1.264E-09	442.4785	.001360
439.200	-8.66E-09	.4633	-.050878	-2.592E-10	442.4782	.002748
446.400	-8.07E-09	.1681	-.031663	2.060E-10	442.4780	.002589
453.600	-5.69E-09	.006789	-.015689	3.349E-10	442.4779	.001848
460.800	-3.25E-09	-.058769	-.005202	2.966E-10	442.4779	.001065
468.000	-1.42E-09	-.068977	3.322E-04	2.025E-10	442.4779	4.720E-04
475.200	-3.31E-10	-.054568	.002431	1.115E-10	442.4779	1.111E-04
482.400	1.82E-10	-.034286	.002609	4.598E-11	442.4779	-6.159E-05
489.600	3.31E-10	-.017125	.001980	8.102E-12	442.4779	-1.133E-04
496.800	2.98E-10	-.005802	.001200	-8.792E-12	442.4779	-1.033E-04
504.000	2.04E-10	1.780E-04	5.708E-04	-1.294E-11	442.4779	-7.145E-05
511.200	1.12E-10	.002454	1.709E-04	-1.100E-11	442.4779	-3.962E-05
518.400	4.60E-11	.002671	-3.080E-05	-7.221E-12	442.4779	-1.641E-05
525.600	8.17E-12	.002031	-1.005E-04	-3.756E-12	442.4779	-2.944E-06
532.800	-8.10E-12	.001235	-1.005E-04	-1.350E-12	442.4779	2.950E-06
540.000	-1.13E-11	5.885E-04	-7.491E-05	-6.457E-15	442.4779	4.145E-06
547.200	-8.20E-12	1.560E-04	-4.904E-05	5.421E-13	442.4779	3.043E-06
554.400	-3.47E-12	-1.192E-04	-3.340E-05	5.692E-13	442.4779	1.299E-06
561.600	-4.10E-19	-3.267E-04	8.323E-06	2.407E-13	442.4779	1.029E-05
568.800	2.44E-19	-8.463E-11	2.269E-05	2.844E-20	442.4779	-6.302E-06
576.000	0.000	2.301E-11	5.873E-12	-1.696E-20	442.4779	-2.519E-12
583.200	0.000	1.204E-17	-1.598E-12	0.0000	442.4779	4.439E-13
590.400	0.000	-1.540E-18	-8.361E-19	0.0000	442.4779	2.916E-19
597.600	0.000	-1.183E-24	1.069E-19	0.0000	442.4779	-2.970E-20
604.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
612.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
619.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
626.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
633.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
640.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
648.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
655.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
662.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
669.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
676.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
684.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
691.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
698.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
705.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
712.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
720.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000

Output Verification:

omputed forces and moments are within specified convergence limits.

utput Summary for Load Case No. 3:

Pile-head deflection	=	.93495159 in
Computed slope at pile head	=	4.62593E-17
aximum bending moment	=	-1183756.419 lbs-in
aximum shear force	=	20000.000 lbs
Depth of maximum bending moment	=	0.000 in
Depth of maximum shear force	=	0.000 in
umber of iterations	=	23

Number of zero deflection points = 19

Summary of Pile-head Response

---

efinition of symbols for pile-head boundary conditions:

y = pile-head displacment, in
= pile-head moment, lbs-in
= pile-head shear force, lbs
ɔ = pile-head slope, radians
R = rotational stiffness of pile-head, in-lbs/rad

BC ,ype	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
2	V= 10000.000	S= 0.000	100000.0000	.2524	-461980.2296	10000.0000
2	V= 15000.000	S= 0.000	150000.0000	.5432	-796821.8718	15000.0000
2	V= 20000.000	S= 0.000	200000.0000	.9350	-1.184E+06	20000.0000

he analysis ended normally.

UPDATE OF ENGINEERING GEOLOGY AND GEOTECHNICAL ENGINEERING REPORT FOR NWC OF PALM AND MAIN STREETS VENTURA, CALIFORNIA

VT-23104-02

September 22, 2010

PREPARED FOR

Charles and Wright Watling

BY

EARTH SYSTEMS SOUTHERN CALIFORNIA
1731-A WALTER STREET
VENTURA, CALIFORNIA

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September 22, 2010

VT-23104-02
10-9-84

Charles Watling
10875 Encino Drive
Oak View, CA 93022

Wright Watling
PO Box 40812
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Project: Northwest Corner of E. Main Street and Palm Street
Ventura, California

Subject: Update of Geotechnical Report

Reference: Engineering Geology and Geotechnical Engineering Report for NWC of Palm and Main Streets, Proposed Five-Story Mixed-Use Building, Ventura, California, File VT-23104-01, Earth Systems Southern California, October 29, 2004.

The purpose of this report is to update an Engineering Geology and Geotechnical Engineering Report prepared for a proposed five-story building at the northwest corner of Palm Street and Main Street in Ventura, California. No construction is planned at this time, rather an archeological study of the site will be made. The archeological study will involve removing the upper 8 inches of the site prior to the archeological excavation. The scope of archeological excavation is dependent on findings, but could be 5 feet deep.

On September 22, 2010, the site was visited to observe its current conditions so that they could be compared to those when the referenced report was prepared. The fenced site is paved in asphalt and serves as a public parking lot. It is bordered by Palm Street on the east, Main Street on the south, a brick masonry building on the west, and a paved alley on the north. There is a small structure in the southeast corner of the site. The site grade essentially is the same as that in Palm Street and slopes up to the north gaining about 5 to 7 feet in elevation. This site appeared to be in the same condition as it was when the report was prepared in 2004.

The brick masonry building on the west property line of the site has a floor elevation of about 26 feet and the floor continues northward at that elevation to the north property line of the project site. At the south end of the site, the building's floor is about 2 feet below the site's elevation and at the north end the building's floor is about 7 feet below the adjacent site's elevation. The east wall of this building (on the west property line of the project site) is of brick construction but it appears to have seismic retrofitting of the roof connections. The foundation type for this wall is unknown.

The site exploration reported in the project Engineering Geology and Geotechnical Engineering Report indicates about 5 feet of artificial fill underlain by clays at the boring location. The cone penetrometer soundings (CPT's) made at the site indicated a layering of clayey silts, clays, and silty clays below the artificial fill. The fill is medium stiff to stiff clayey soils and appears to be classifiable as OSHA Type B soil. The natural soils beneath the fill also can be considered OSHA Class B soils based on the strength measure by the CPT soundings.

Excavation adjacent to the building on the west side of the site should not extend below the foundations except when the grade is sloped away from the top of the foundation at a 1 horizontal to 1 vertical projection or flatter. The depth of the foundations are unknown but are expected to be at an elevation similar to, or somewhat below, the floor of the building. In any case, excavation near the building should proceed with caution. Excavation at the adjacent building that exceeds these limits may require underpinning of the foundations.

Backfilling excavations can be with the removed soils, placed in 8-inch, or less, thick lifts at near optimum moisture, and compacted to a minimum of 90% of maximum density. Backfilling near the building wall along the west side of the site should be done with light, manually operated, equipment. Vibratory compaction equipment is not recommended for compaction near the existing building.

Respectfully submitted,
Earth Systems Southern California

Richard M. Beard
Richard M. Beard
California Geotechnical Engineer 128

REGISTERED PROFESSIONAL ENGINEER
RICHARD MICHAEL BEARD
GE 128
Exp. 12-31-11
GEOTECHNICAL
STATE OF CALIFORNIA

Attachment: Referenced Report

Copies: 1 - Charles Watling (email)
1 - Wright Watling (email)
2 - DTR Engineering (Isabella Gamble)
1 - Project File

Engineering Geology and Geotechnical Engineering Report for NWC of Palm and Main Streets Proposed Five-Story Mixed-Use Building Ventura, California

APPENDIX B

Laboratory Testing

Test Results

Individual Test Results

Table 18-I-DR

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of the proposed building. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ Moisture Content and Unit Dry Weight for the ring samples were determined in general accordance with ASTM D 2937.

C. Relative strength characteristics of the soils were determined from the results of Direct Shear tests on a remolded soil sample. Specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 0.5 to 2.0 kips per square foot in general accordance with ASTM D 3080.

D. Settlement characteristics were developed from the results of one-dimensional Consolidation tests performed in general accordance with ASTM D 2435. The samples were loaded to 0.125 ksf and then flooded with water, and then incrementally loaded to 1.0, 2.0, 4.0, and 8.0 ksf. The samples were allowed to consolidate under each load increment. Rebound was measured under reverse alternate loading. Compression was measured by dial gauges accurate to 0.0001 inch. The results of the consolidation tests in the form of a percent consolidation versus log of pressure curve is presented in this Appendix.

E. An expansion index test was performed on a bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144-pounds per square foot at moisture content of near 50% saturation. The sample was then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator.

F. A maximum density test was performed to estimate the moisture-density relationship of a typical soil material. The test was performed in accordance with ASTM designation D 1557.

G. The gradation characteristics of selected samples were made by hydrometer and sieve analysis procedures. Selected samples were soaked in water until individual soil particles were separated, and then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve, and then mechanically sieved. Additionally, hydrometer analyses were performed to assess the distribution of the minus No. 200 mesh material of selected samples. The hydrometer test was run using sodium hexametaphosphate as a dispersing agent.

H. Soil corrosion potential was evaluated by measuring pH, resistivity, soluble sulfate content, and soluble chloride content. These tests were subcontracted to Capco Analytical Services.

TEST RESULTS

BORING AND DEPTH	1 @ 0-5'
USCS	ML
MAXIMUM DENSITY (pcf)	121
OPTIMUM MOISTURE (%)	11
COHESION (psf)	250
ANGLE. OF INT. FRICTION (°)	30
EXPANSION INDEX	39
GRAVEL (%)	4
SAND (%)	37
SILT (%)	33
CLAY (%)	26
pH	7.7
RESISTIVITY (ohms/cm)	2100
SOLUBLE CHLORIDES (mg/kg)	42
SOLUBLE SULFATES (mg/kg)	290

GRAIN SIZE DISTRIBUTION (%)

BORING AND DEPTH	1 @ 6'	1 @ 10'	1 @15'	1 @ 20'	1 @ 25'	1 @ 30'
GRAVEL	0	0	0	0	0	0
SAND	29	30	34	31	31	31
SILT	27	27	13	28	26	24
CLAY	44	43	53	41	43	45

BORING AND DEPTH	1 @ 35'	1 @ 40'	1 @ 45'	1 @ 50'	1 @ 50'
GRAVEL	0	0	0	0	
SAND	22	38	45	58	
SILT	23	38	31	34	
CLAY	55	24	24	8	

VT-23104-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

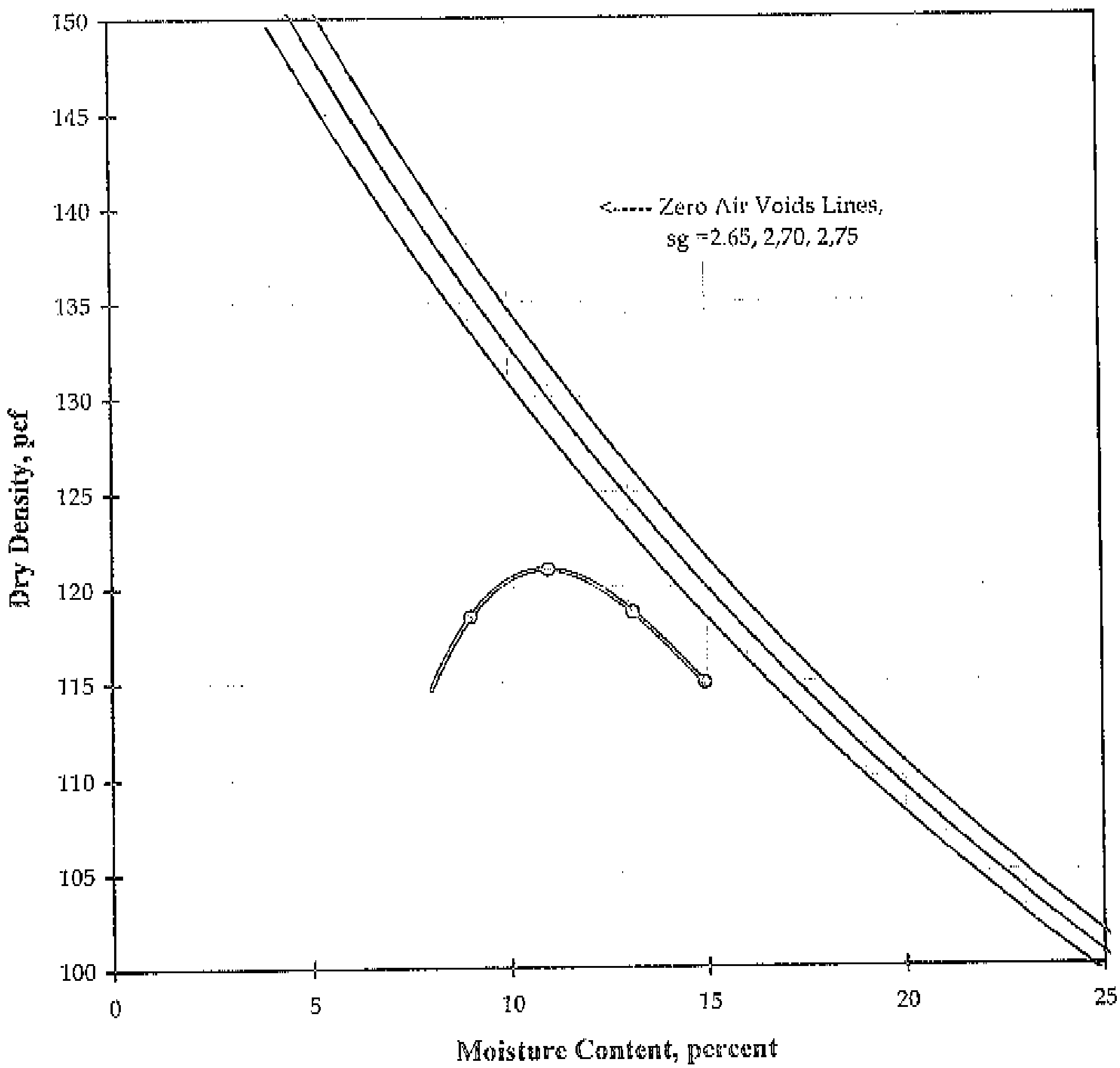
ASTM D 1557-91 (Modified)

Job Name: NWC Palm and Main
Sample ID: Clayey Silty Sand
Location:
Description: 1 @ 0 - 5

Procedure Used: A
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: 121 pcf
Optimum Moisture: 11%

Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	4.3

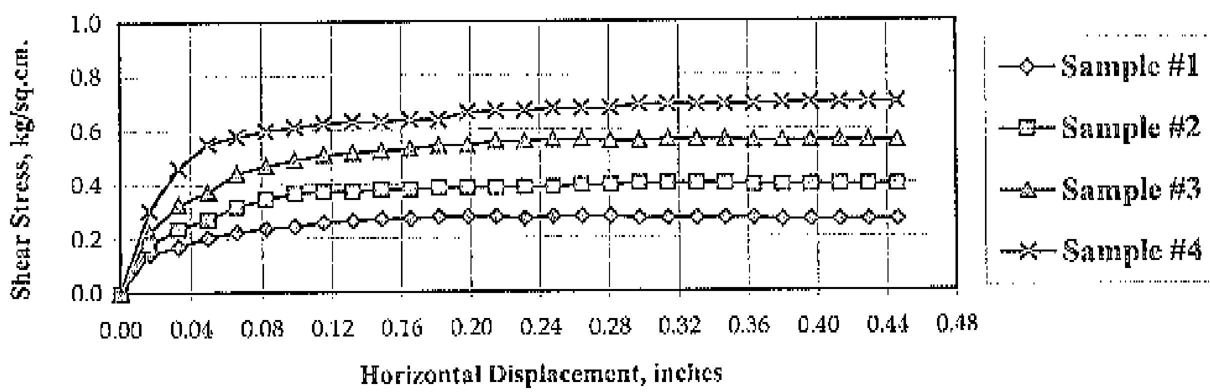


DIRECT SHEAR

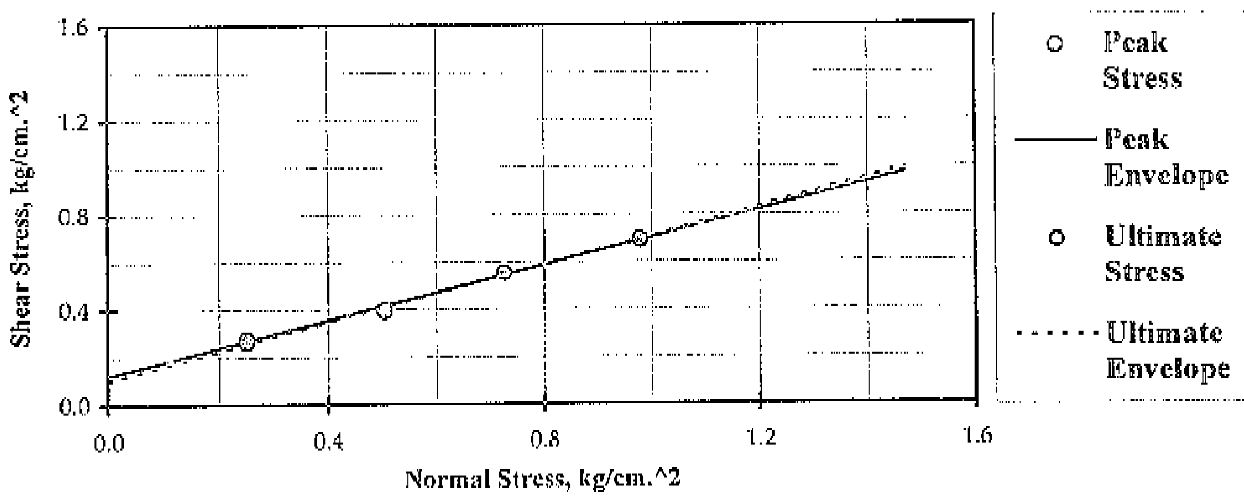
NWC Palm and Main
1 @ 0 - 5
Clayey Silty Sand
Remolded

Initial Dry Density: 109.5 pcf
Initial Mosture Content: 11.0 %
Peak Friction Angle (Ø): 30°
Cohesion (c): 0.123 kg/cm^2 (250 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	108.9	108.9	108.9	111.4	109.5
Moisture Content, %	11.0	11.0	11.0	11.0	11.0
Saturation, %	55	55	55	59	56
At Test					
Moisture Content, %	18.9	18.7	19.1	17.5	18.6
Saturation, %	95	94	96	94	95
Normal Stress, kg/cm^2	0.25	0.51	0.73	0.98	
Peak Stress, kg/cm^2	0.28	0.40	0.55	0.69	
Ultimate Stress, kg/cm^2	0.26	0.39	0.55	0.70	



SHEAR vs. NORMAL STRESS DIAGRAM

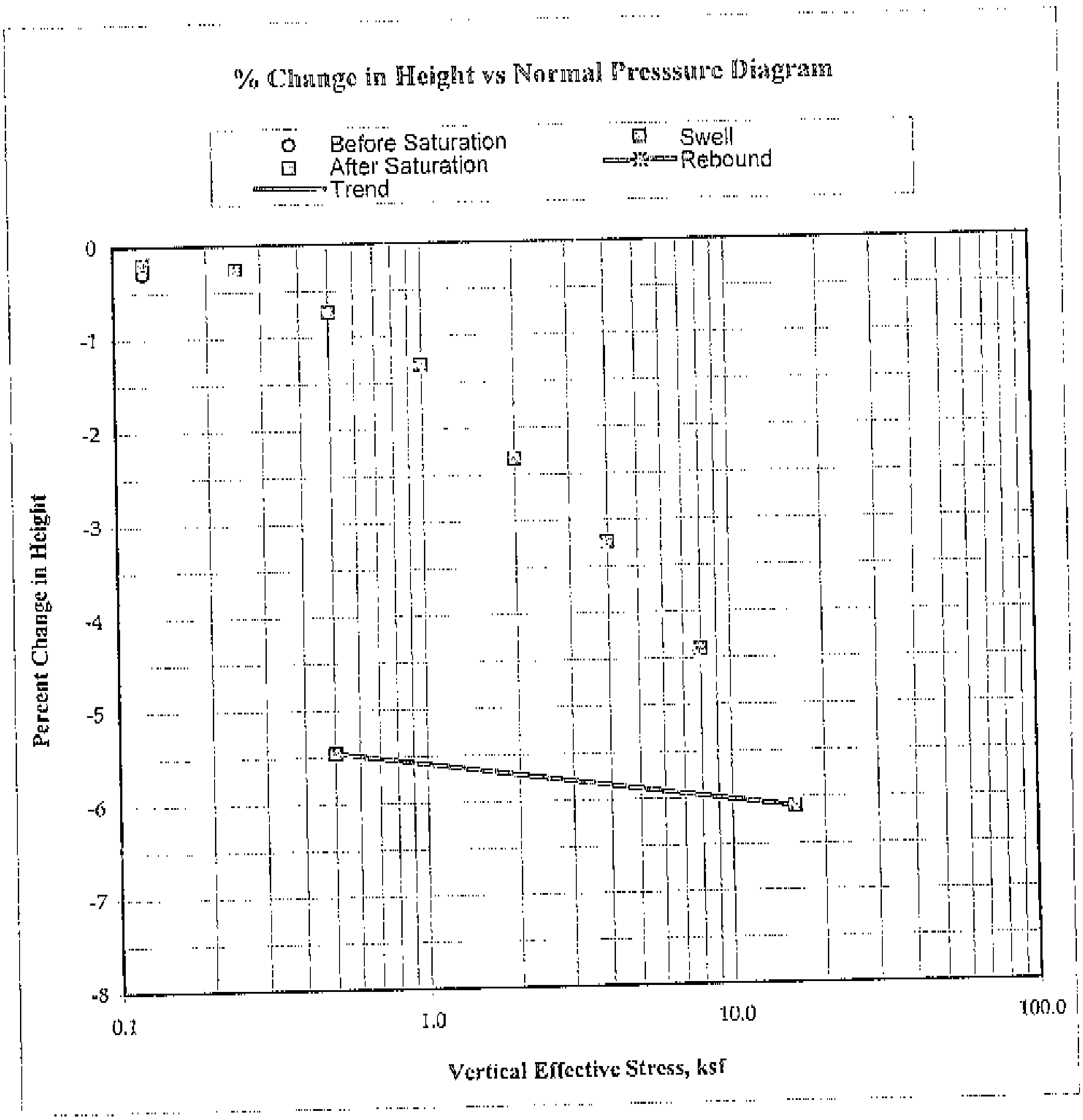


CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 4
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 102.4 pcf
Initial Moisture, %: 18.5%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.628

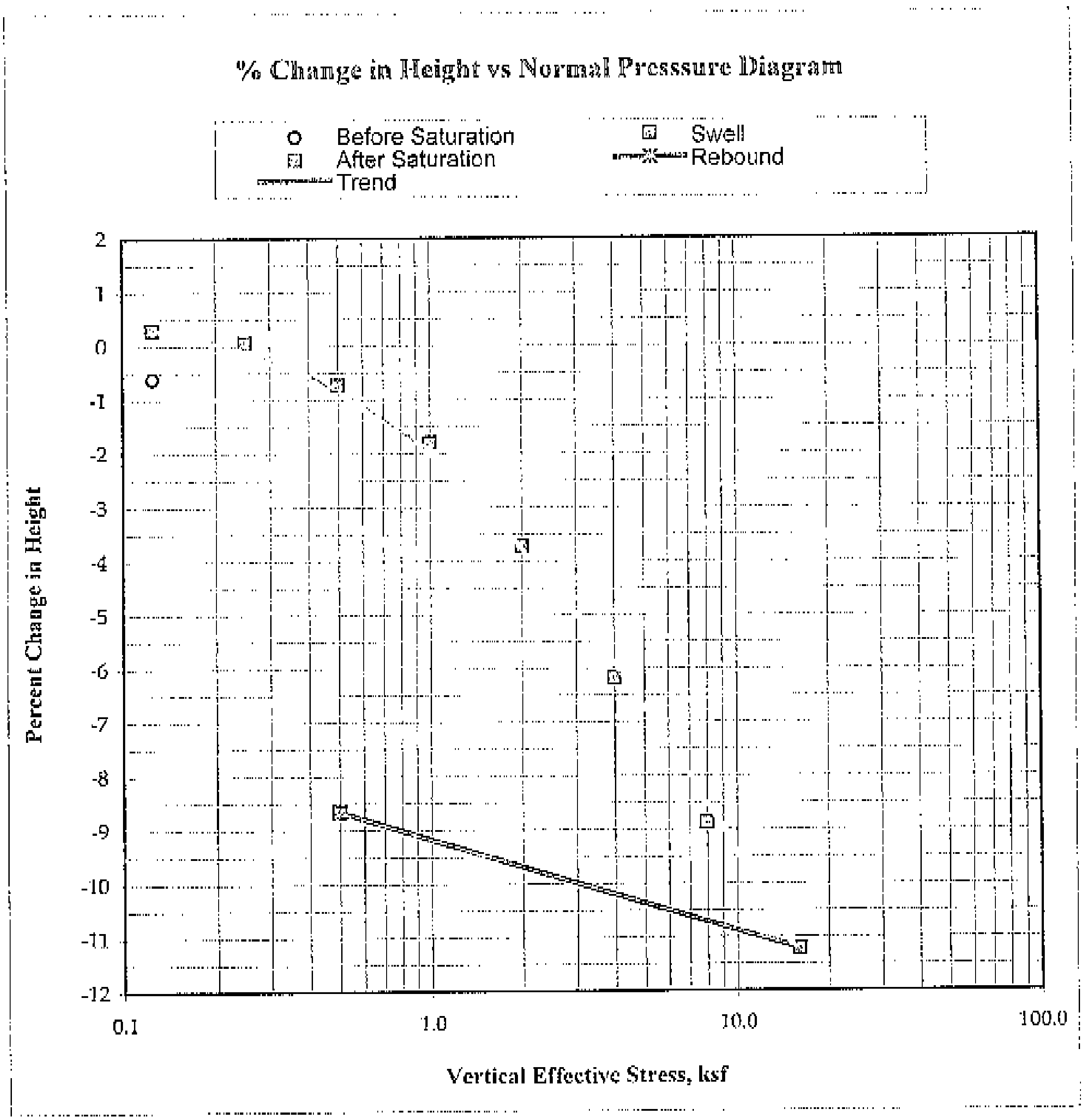


CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 6
Sandy Silty Clay
Ring Sample

Initial Dry Density: 92.9 pcf
Initial Moisture, %: 28.7%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.794

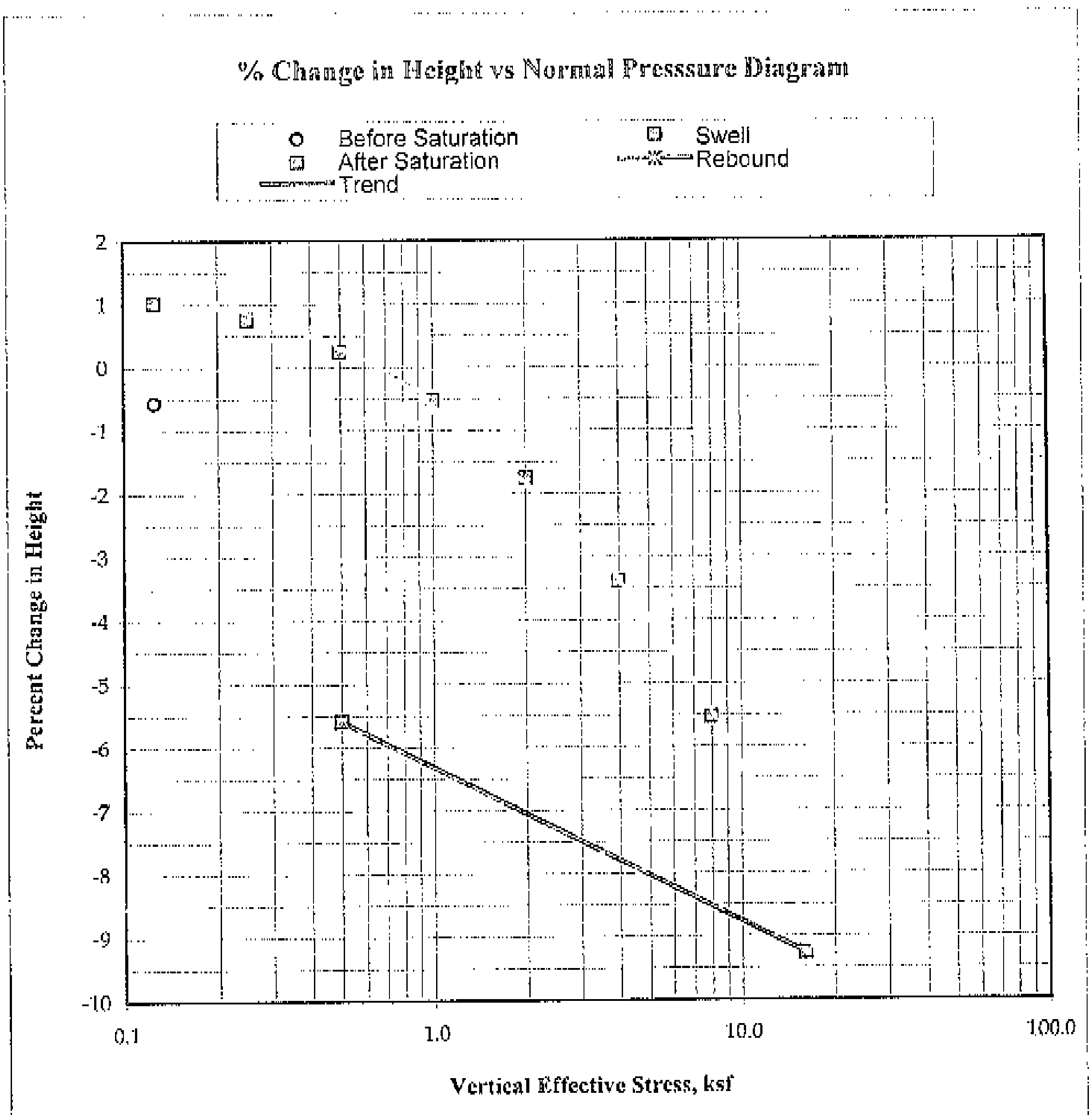


CONSOLIDATION TEST

ASTM D 2435-90

NWC Palm and Main
1 @ 10
Sandy Silty Clay
Ring Sample

Initial Dry Density: 105.1 pcf
Initial Moisture, %: 22.1%
Specific Gravity: 2.67 (assumed)
Initial Void Ratio: 0.587



Capco Analytical Services INC. (CAS)
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Earth Systems
Sample ID: B-1 @ 0-5
Date Received: 07/21/04
Date Sampled: N/A

Sample Matrix: Soil
CAS LAB NO: 04137201

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	METHOD	ANALYZED
*Chloride	42	mg/Kg	1	10	300.0M	07/27/04
pH	7.7	S.U.	1	---	9045	07/27/04
*Resistivity	2100	ohms-cm	1	3	CA test 424	07/27/04
*Sulfate	290	mg/Kg	10	100	300.0M	07/27/04

*Sample was analyzed on a 1:3 soil/water extract. Results were reported based on the original soil sample weight.
PQL: Practical Quantitation Limit
BQL: Below Practical Quantitation Limit

Principal Analyst

CAPCO Analytical Services, Inc.

Table 18-I-D is amended to read as follows:

Table 18-I-DR Minimum Foundation Requirements. (1) (11)

WEIGHTED EXPANSION INDEX	FOUNDATION For Slab & Raised Floor Systems (2) (5) (7): NUMBER OF STORIES	STEM THICKNESS	FOOTING WIDTH (5)	FOOTING THICKNESS	All Perimeter Footings (6)	Interior Ftgs. for Slab & Raised Floors (6)	REINFORCEMENT FOR CONTINUOUS FOUNDATIONS (3) (8)	CONCRETE SLABS 3-1/2" Minimum Thickness 4" Over 51 EI: REINFORCEMENT (4)	CONCRETE SLABS: TOTAL THICKNESS OF SAND	PREMOISTENING OF SOILS UNDER FOOTINGS, PIERS & SLABS (5) (6)	RESTRICTIONS ON PIERS UNDER RAISED FLOORS
					Depth Below Natural Surface of Ground & Finish Grade						
	(Inches)										
0-20 Very Low (Non-Expansive)	1 2 3	6 8 10	12 15 18	6 7 8	12 18 24	12 18 24	1 - # 4 Top & Bottom	# 4 @ 48" o.c. each way or # 3 @ 36" o.c. each way	2"	Moistening of Ground Prior to Placing Concrete is Recommended	Piers Allowed for Single Floor Loads Only
21-50 Low	1 2 3	6 8 10	12 15 18	6 7 8	15 18 24	12 18 24	1 - # 4 Top & Bottom		4"	3% Over Optimum Moisture Required to a depth of 18" below lowest adjacent grade. Testing Required	Piers Allowed For Single Floor Loads Only
51-90 Medium	1 2 3	6 8 10	12 12 15	6 8 8	21 21 24	12 18 24	1 - # 4 Top & Bottom # 3 bars @ 24" o.c. 12" into Footing, 36" into Slab (10)	# 3 @ 24" o.c. each way	4"	3% Over Optimum Moisture Required to a depth of 18" below lowest adjacent grade. Testing Required	Piers Not Allowed
91-130 High	1 2 3	6 8 10	12 12 15	8 8 8	27 27 27	12 18 24	2 - # 4 Top & Bottom # 3 bars @ 24" o.c. 12" into Footing, 36" into Slab (10)	# 3 @ 24" o.c. each way	4"	3% Over Optimum Moisture Required to a depth of 24" below lowest adjacent grade. Testing Required	Piers Not Allowed
Above 130 Very High	Special Design by Licensed Engineer or Architect Required										

TABLE 18-I-DR FOOTNOTES

1. Premoistening is required where specified in Table 18-I-DR in order to achieve maximum and uniform expansion of the soil prior to construction and thus limit structural distress caused by uneven expansions and shrinkage. Other systems which do not include pre-moistening may be approved by the Building Official when such alternatives are shown to provide equivalent safeguards against the adverse effects of expansive soil.

2. Underfloor access crawl holes shall be provided with curbs extending not less than six (6) inches above adjacent grade to prevent surface water from entering the foundation area.

3. Reinforcement for continuous foundations shall be placed not less than 3" above the bottom of the footing and not less than 3" below the top of the stem.

4 Slab reinforcement shall be placed at slab mid-depth and continue to within two inches of the exterior face of the exterior footing walls.

5. Moisture content shall be maintained until foundations and piers are poured and a vapor barrier is installed. Tests shall be taken within 24 hours of each slab pour.

6. Crawl spaces under raised floors need not be pre-moistened except under interior footings. Interior footings which are not enclosed by a continuous perimeter foundation system or equivalent concrete or masonry moisture barrier complying with Section UBC 1806.2 in this ordinance shall be designated and constructed as specified for perimeter footings in Table 18-I-DR.

7. A grade beam not less than 12" x 12" in cross-sectional area, reinforced as specified for continuous foundations in Table 18-I-DR, shall be provided at garage door openings.

8 Foundation stem walls which exceed a height of 3 times the stem thickness above the lowest adjacent grade shall be reinforced in accordance with C Chapters 18 & 19 or as required by engineering design, whichever is more restrictive.

9 Footing widths may be reduced upon submittal of calculations by a registered civil or structural engineer or licensed architect, but shall be a minimum of 12 inches for one and two-story structures and 15 inches for three-story structures.

10 Bent reinforcing bars between exterior footing and slab shall be omitted when the floor is designed as an independent, "floating" slab

11. Fireplace footings shall be reinforced with a horizontal grid located 3" above the bottom of the footing and consisting of not less than No. 4 bars at 12" on center each way. Vertical chimney reinforcing bars shall be hooked under the grid.

APPENDIX C

Liquefaction Analysis

LIQUEFY.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE
Developed 2003 by Shelton L. Stringer, GE - Earth Systems Southwest

Project: WWC of Palm and Main Street
Job No: VT-23104-01
Date: 10/28/2004
Boring: B-1 Data Set: 1

Methods: Liquefaction Analysis using 1996 & 1998 NCEER workshop methods (Youd & Idriss)
Settlement Analysis from Tokimatsu and Seed (1987), ASCE GT Journal, Vol 113, No 8
Modified by Pradel, ASCE Journal of G&GE, Vol 124, No. 4

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

$p = 0.67*po$
$\tau_{av} = 0.65*PGA*po*rd$
$G_{max} = 447*N_{1(60)cs}^{1/3}*p^{0.5}$
$a = 0.0389*(p/1)+0.124$
$b = 6400*(p/1)^{-0.6}$
$\gamma = [1+a*EXP(b*\tau_{av}/G_{max})]/[(1+a)*\tau_{av}/G_{max}]$
$E_{15} = \gamma*(N_{1(60)cs}/20)^{-1.2}$
$Nc = (MAG-4)^{2.17}$
$E_{Nc} = (Nc/15)^{0.45}*E15$
$S = 2*H*E_{Nc}$

EARTHQUAKE INFORMATION:
Magnitude: 7.5 7.5
PGA, g: 0.48 0.48
MSF: 1.00
GWT, feet: 23.0 feet
Design GWT: 7.0 feet

SPT N VALUE CORRECTIONS:
Energy Correction to N60 (C_E): 1.13
Drive Rod Corr. (C_R):
Rod Length above ground (feet): 3.0
Borehole Dia. Corr. (C_B): 1.00
Sampler Liner Corr. (C_S): 1.20
Cal Mod/ SPT Ratio: 0.63

$N_{1(60)} = C_N*C_E*C_B*C_R*C_S*N$
$C_R = 0.75$ for Rod lengths < 3m, 1.0 for > 10m
$C_N = (1/p'o)^{0.5}$, max 1.7 for sands, 1 for clays
Induced $CSR_{eq\ M=7.5\ sem} = 0.65*PGA*(po/p'o)*rd/MSF/K\sigma$

Threshold Acceler., g: 1.13

Total (ft) Liquefied Thickness: 0
Total (in.) Induced Subsidence: 0.0

Required SF: 1.25
Minimum Calculated SF: 2.34

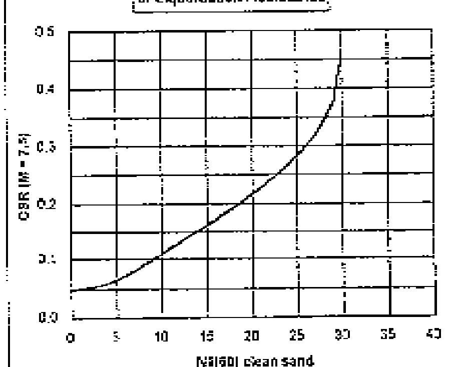
Nc = 15.2

Base Depth (feet)	Cal Mod N	SPT N	Liquef. Suscept. (0 or 1)	Total Unit Wt. (pcf)	Fines Content (%)	Depth of SPT (feet)	Rod Length (feet)	Tot. Stress at SPT po (tsf)	Eff. Stress at SPT p'o (tsf)	rd	C_N	C_R	$N_{1(60)}$	Rel. Dens. Dr (%)	Trigger FC Adj. $\delta N_{1(60)}$	Equiv. Sand $N_{1(60)cs}$
								0.000								
5.0	16	10	1	120	58	3.0	5.0	0.190	0.180	0.99	1.70	0.75	14.5	46	7.9	22.4
8.0	10	6		116	71	6.0	5.0	0.359	0.359	0.99	1.00	0.75	6.4			
13.0	22	14		128	70	10.0	5.0	0.605	0.605	0.98	1.00	0.75	14.1			
18.0	16	10		110	66	15.0	5.0	0.907	0.907	0.97	1.00	0.75	10.3			
23.0		12		110	69	20.0	5.0	1.162	1.182	0.96	1.00	0.75	12.2			
28.0		11		110	69	25.0	10.0	1.457	1.395	0.94	1.00	0.75	11.2			
33.0		12		110	69	30.0	15.0	1.732	1.514	0.92	1.00	0.81	13.1			
38.0		12		110	78	35.0	20.0	2.007	1.633	0.89	1.00	0.89	14.6			
43.0		14		110	52	40.0	25.0	2.282	1.752	0.85	1.00	0.96	18.1			
48.0		24		110	55	45.0	30.0	2.557	1.871	0.80	1.00	1.00	32.5			
51.5		43	1	110	42	50.0	35.0	2.832	1.990	0.75	0.73	1.00	42.5	78	10.0	52.5

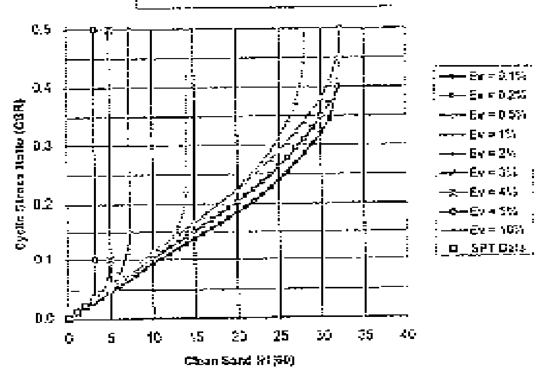
Base Depth (feet)	$K\sigma$	M = 7.5 Available CRR	M = 7.5 Induced CSR	Liquefac. Safety Factor	Post FC Adj. $\delta N_{1(60)}$	Equiv. Sand $N_{1(60)cs}$	Volumetric Strain (%)	Induced Subsidence (in.)	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain E_{Nc}	Dry Sand Subsidence (in.)
5.0	1.00	0.246	0.311	Non-Liq.	7.9	22.4	0.07	0.04	0.121	433	0.256	3.8E-04	3.3E-04	3.3E-04	0.04
8.0	1.00	Infin.	0.308	Non-Liq.		6.4	0.02	0.00	0.241						
13.0	1.00	Infin.	0.362	Non-Liq.		14.1	0.00	0.00	0.405						
18.0	1.00	Infin.	0.417	Non-Liq.		10.3	0.00	0.00	0.608						
23.0	1.00	Infin.	0.455	Non-Liq.		12.2	0.00	0.00	0.792						
28.0	1.00	Infin.	0.478	Non-Liq.		11.2	0.00	0.00	0.976						
33.0	1.01	Infin.	0.485	Non-Liq.		13.1	0.00	0.00	1.160						
38.0	0.99	Infin.	0.499	Non-Liq.		14.6	0.00	0.00	1.345						
43.0	0.97	Infin.	0.501	Non-Liq.		18.1	0.00	0.00	1.529						
48.0	0.95	Infin.	0.493	Non-Liq.		32.5	0.00	0.00	1.713						
51.5	0.87	1.200	0.512	2.34	10.0	52.5	0.03	0.00	1.897	2,303	0.655	4.1E-04			

Use Idriss/Seed(0) or Stark/Olsen(1) FC Corr.: 0

NCEER (1997) Curve of Liquefaction Resistance



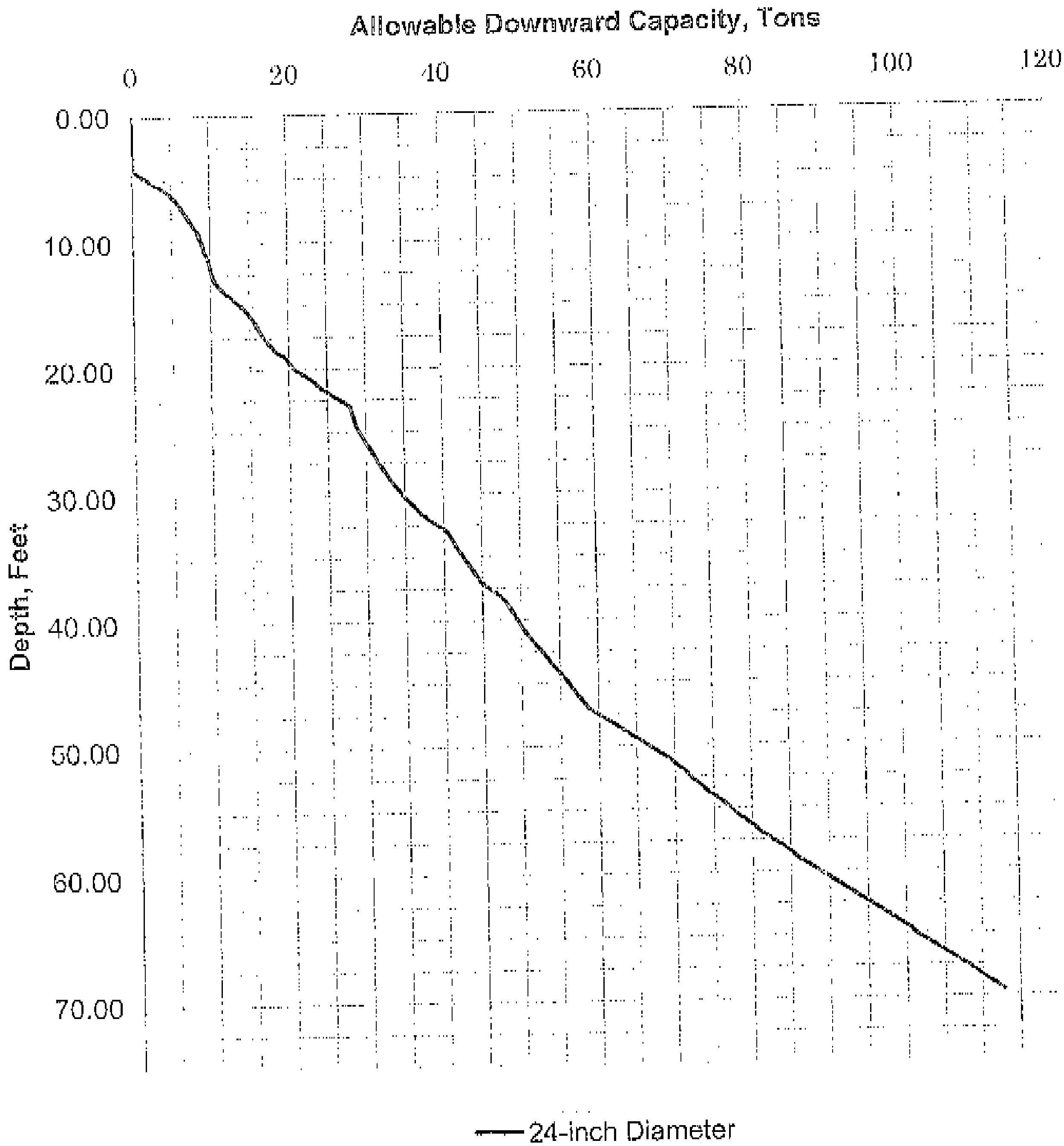
Post-Liquefaction Volumetric Strain
Ref: Tokimatsu & Seed (1987)



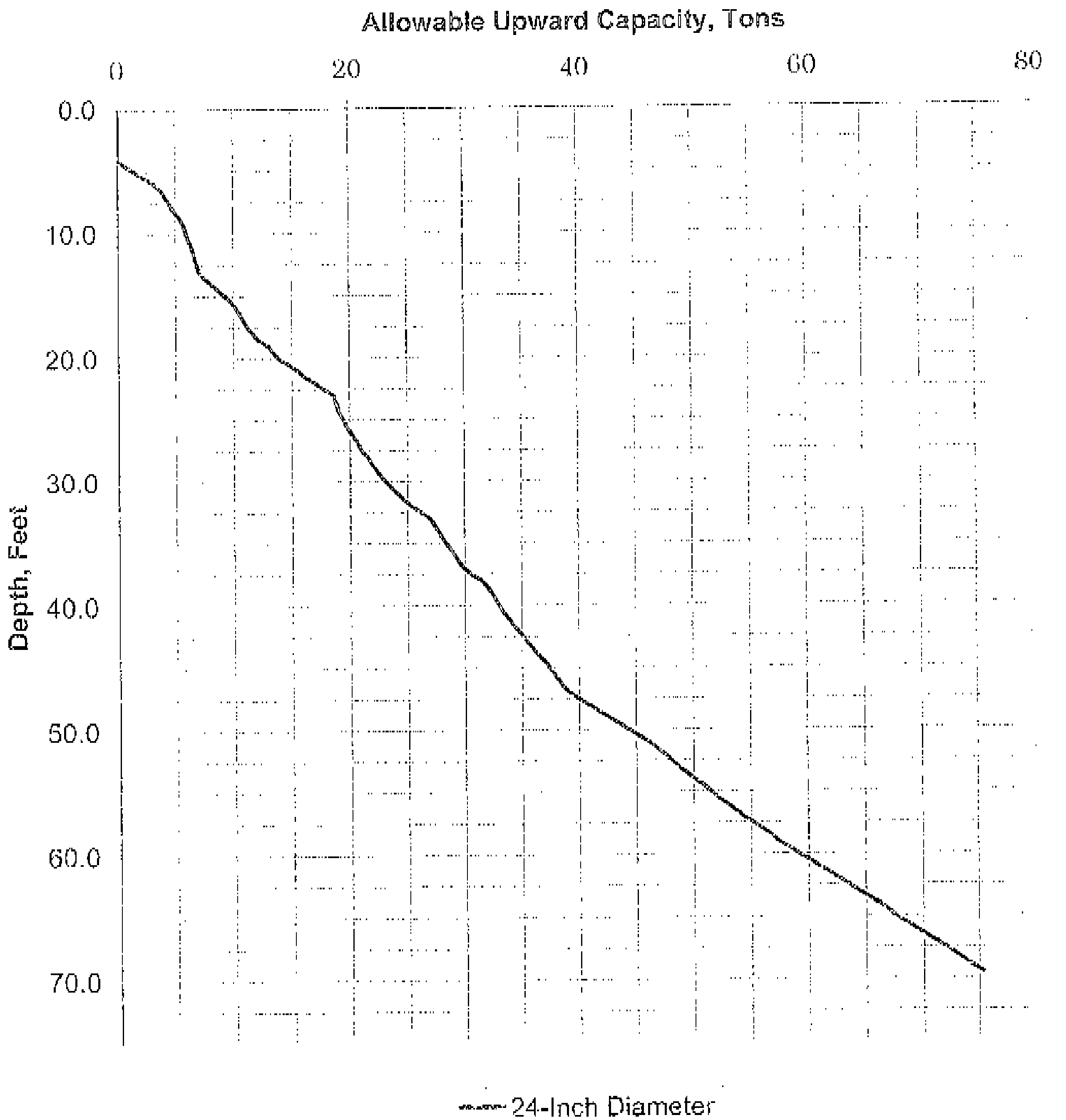
APPENDIX D

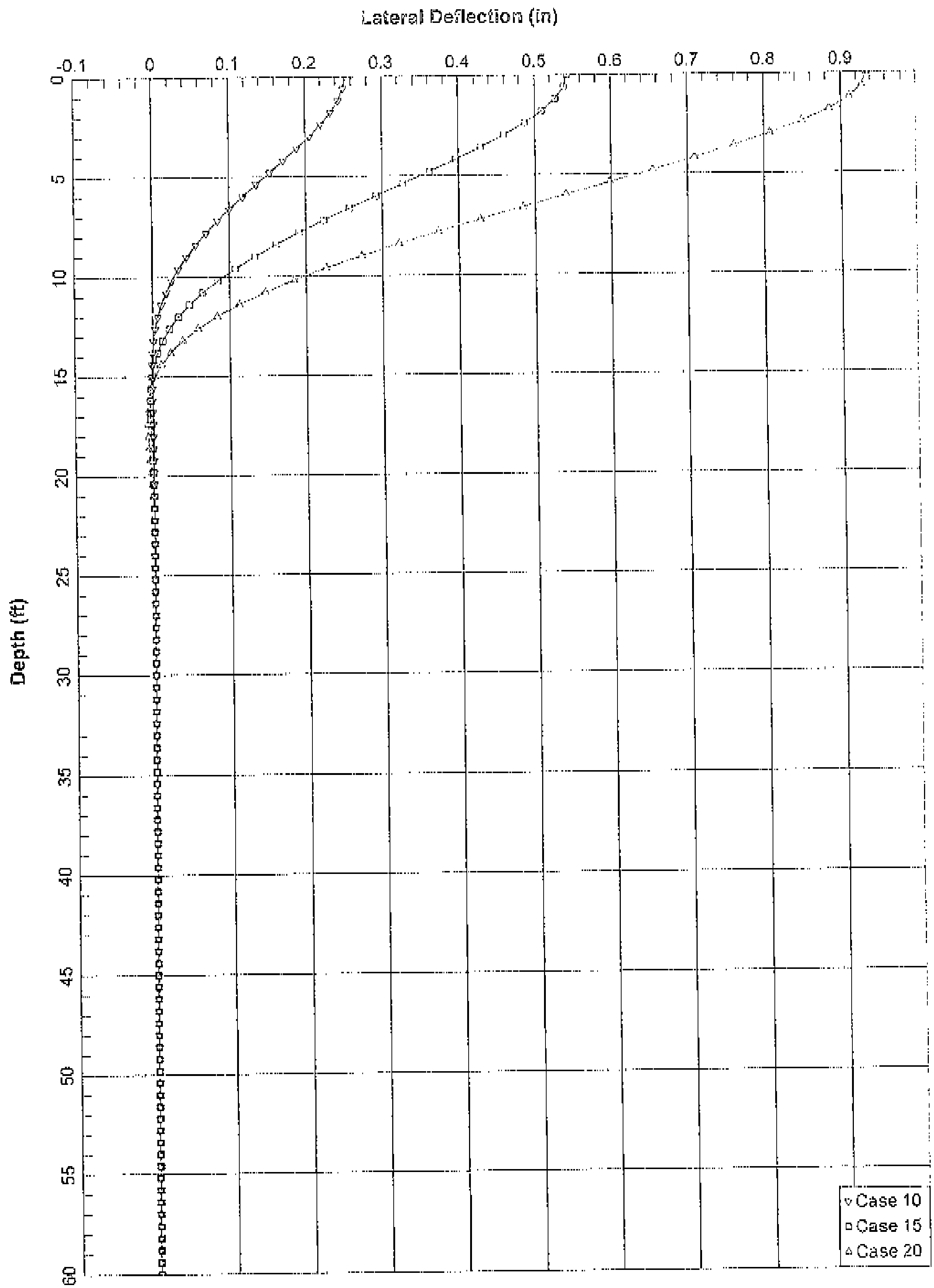
Vertical and Lateral Caisson Analysis

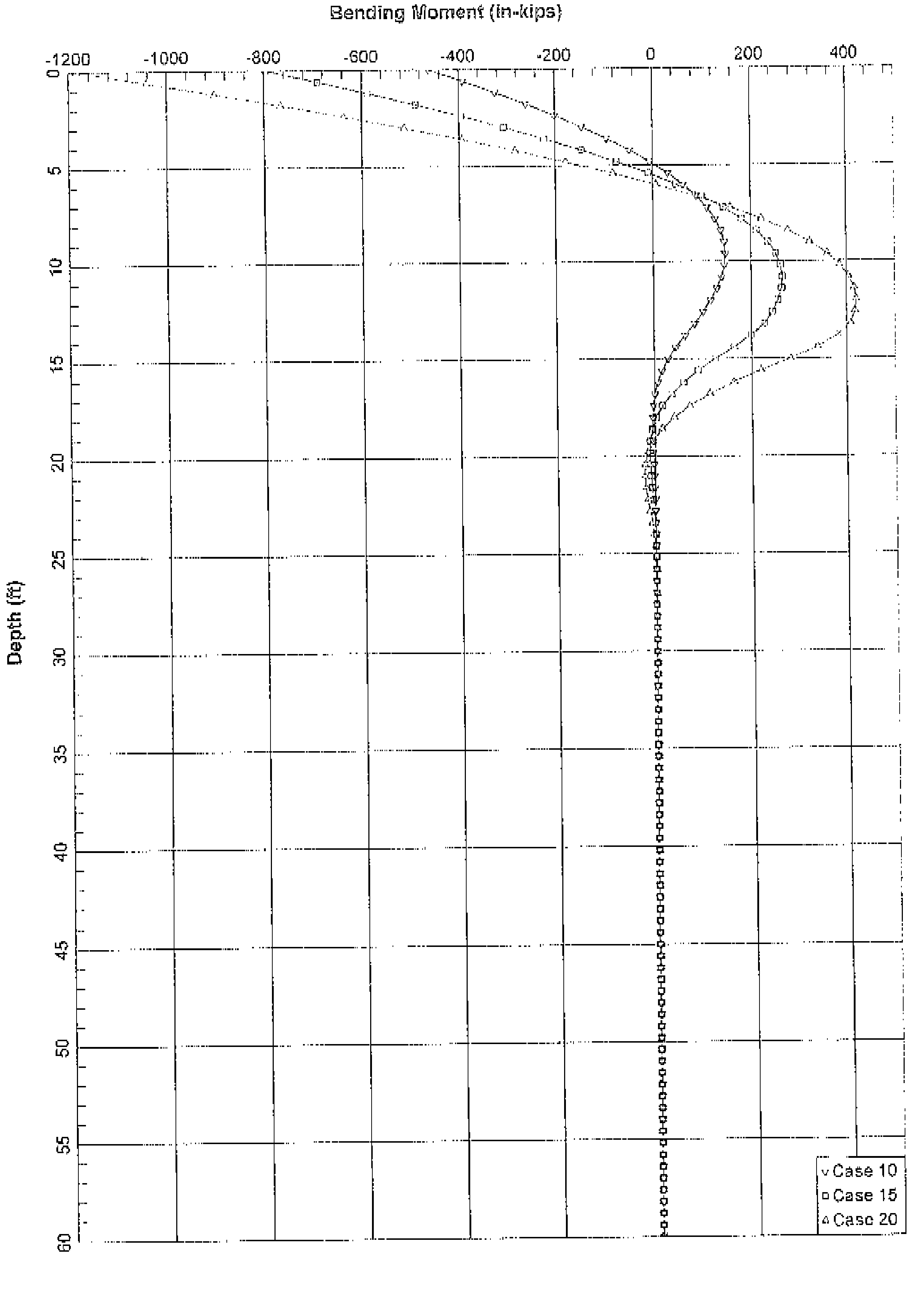
NWC of Palm and Main Street
VT-23104-01
CIDH Pile (Caisson) Capacity
24-Inch Diameter

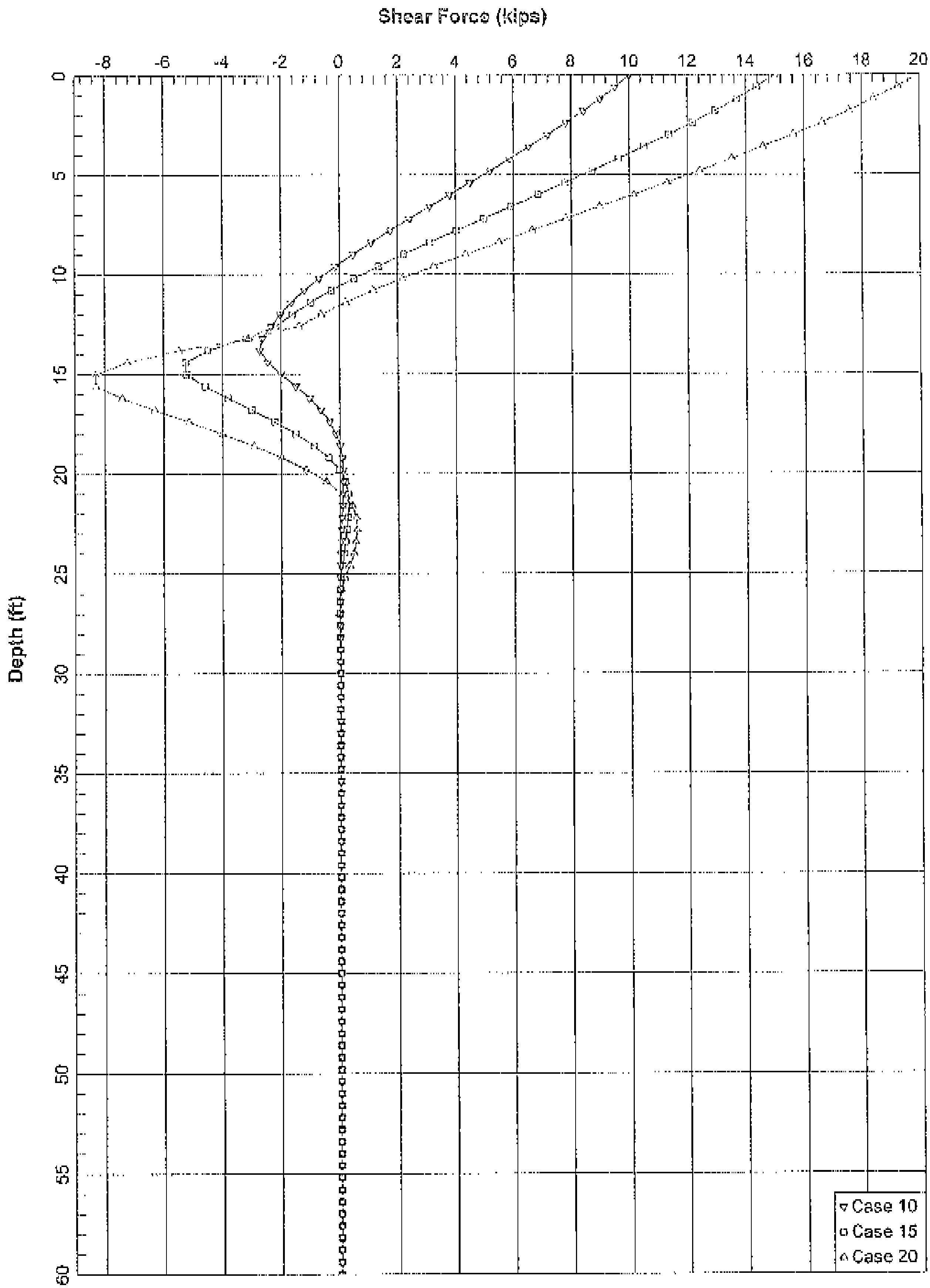


NWC of Palm and Main Street
VT-23104-01
CIDH Pile (Caisson) Capacity
24-Inch Diameter




Lateral Deflection (in)
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20


Bending Moment (in-kips)
-1200
-1000
-800
-600
-400
-200
0
200
400
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20


Shear Force (kips)
-8
-6
-4
-2
0
2
4
6
8
10
12
14
16
18
20
Depth (ft)
0
5
10
15
20
25
30
35
40
45
50
55
60
Case 10
Case 15
Case 20

===

LPILE Plus for Windows, Version 4.0 (4.0.8)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

===

This program is licensed to:

Pau; Mooney
Earth Systems Southern California

Path to file locations: C:\Program Files\Ensoft\LpileP4\
Name of input data file: NWC of Palm and Main Streets.lpd
Name of output file: NWC of Palm and Main Streets.lpo
Name of plot output file: NWC of Palm and Main Streets.lpp
Name of runtime file: NWC of Palm and Main Streets.lpr

Time and Date of Analysis

Date: September 3, 2004 Time: 9:53:30

Problem Title

New Pile

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 1:
- Computation of Lateral Pile Response Using User-specified Constant EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments = 100
- Maximum number of iterations allowed = 100

- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 720.00 in
Depth of ground surface below top of pile = -12.00 in
Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	-12.0000	24.000	16286.0000	452.0000	300000.000
2	720.0000	24.000	16286.0000	452.0000	300000.000

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970
Distance from top of pile to top of layer = -12.000 in
Distance from top of pile to bottom of layer = 156.000 in

Layer 2 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 156.000 in
Distance from top of pile to bottom of layer = 276.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 3 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 276.000 in
Distance from top of pile to bottom of layer = 294.000 in
p-y subgrade modulus k for top of soil layer = 100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 100.000 lbs/in**3

Layer 4 is stiff clay with water-induced erosion
Distance from top of pile to top of layer = 294.000 in
Distance from top of pile to bottom of layer = 558.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

Layer 5 is stiff clay without free water
Distance from top of pile to top of layer = 558.000 in
Distance from top of pile to bottom of layer = 720.000 in
p-y subgrade modulus k for top of soil layer = 500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 500.000 lbs/in**3

(Depth of lowest layer extends .00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth
is defined using 10 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-12.00	.05700
2	156.00	.03700
3	156.00	.03700
4	276.00	.03700
5	276.00	.03700
6	294.00	.03700
7	294.00	.03700
8	558.00	.03700
9	558.00	.03700
10	720.00	.03700

Shear Strength of Soils

Distribution of shear strength parameters with depth
defined using 10 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	-12.000	2.00000	.00	.01000	.0
2	156.000	2.00000	.00	.01000	.0
3	156.000	5.00000	.00	.00500	.0
4	276.000	5.00000	.00	.00500	.0
5	276.000	5.00000	.00	.00500	.0
6	294.000	5.00000	.00	.00500	.0
7	294.000	7.00000	.00	.00500	.0
8	558.000	7.00000	.00	.00500	.0
9	558.000	7.00000	.00	.00500	.0
10	720.000	7.00000	.00	.00500	.0

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves

---

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 10000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 2

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 15000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 150000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 20000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 10000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.252399	-461980.2296	10000.0000	0.0000	561.6395	-64.5186
7.200	.249948	-391407.4638	9513.7308	-6.288E-04	509.6394	-70.5562
14.400	.243344	-324077.0332	8985.8910	-.001156	460.0284	-76.0660
21.600	.233302	-260346.0068	8420.4462	-.001587	413.0695	-81.0020
28.800	.220497	-200537.8883	7821.6711	-.001926	369.0011	-85.3244
36.000	.205564	-144940.2102	7194.1072	-.002181	328.0351	-88.9989
43.200	.189094	-93802.4477	6542.5261	-.002357	290.3553	-91.9959
50.400	.171628	-47334.2239	5871.8961	-.002461	256.1162	-94.2902
57.600	.153660	-5703.7814	5187.3532	-.002500	225.4417	-95.8606
64.800	.135632	30963.2986	4494.1731	-.002481	244.0536	-96.6894
72.000	.117932	62585.1476	3797.7480	-.002412	267.3535	-96.7620

79.200	.100896	89124.4478	3103.5636	-.002300	286.9084	-96.0670
86.400	.084806	110589.0721	2417.1803	-.002153	302.7242	-94.5951
93.600	.069889	127032.5497	1744.2174	-.001978	314.8402	-92.3391
100.800	.056320	138554.3836	1090.3423	-.001782	323.3299	-89.2929
108.000	.044221	145300.2639	461.2683	-.001573	328.3004	-85.4499
115.200	.033664	147462.2514	-137.2345	-.001358	329.8934	-80.8008
122.400	.024671	145279.0618	-696.5315	-.001142	328.2848	-74.5595
129.600	.017220	139076.5631	-1203.0461	-9.324E-04	323.7146	-66.1390
136.800	.011245	129297.8518	-1647.7195	-7.347E-04	316.5094	-57.3814
144.000	.006641	116407.3018	-2027.6143	-5.536E-04	307.0112	-48.1450
151.200	.003273	100897.4047	-2337.8475	-3.935E-04	295.5831	-38.0309
158.400	9.75E-04	83308.9282	-2634.4296	-2.578E-04	282.6234	-44.3530
165.600	-4.39E-04	63332.7999	-2721.0980	-1.497E-04	267.9044	20.2784
172.800	-.001181	44340.7062	-2448.6126	-7.038E-05	253.9105	55.4120
180.000	-.001452	28174.1233	-2000.0177	-1.695E-05	241.9985	69.1977
187.200	-.001425	15564.8548	-1502.8094	1.528E-05	232.7076	68.9157
194.400	-.001232	6511.6637	-1036.9570	3.155E-05	226.0369	60.4877
201.600	-9.71E-04	587.2457	-645.1732	3.678E-05	221.6716	48.3411
208.800	-7.03E-04	-2831.7918	-343.3348	3.512E-05	223.3255	35.5029
216.000	-4.65E-04	-4407.3549	-129.7774	2.979E-05	224.4864	23.8186
223.200	-2.74E-04	-4743.4843	7.1687	2.305E-05	224.7341	14.2220
230.400	-1.33E-04	-4337.3142	83.5744	1.636E-05	224.4348	7.0018
237.600	-3.81E-05	-3563.5674	116.1133	1.054E-05	223.8647	2.0368
244.800	1.88E-05	-2680.4541	119.7801	5.934E-06	223.2140	-1.0182
252.000	4.73E-05	-1847.2801	106.7715	2.598E-06	222.6001	-2.5953
259.200	5.62E-05	-1146.6862	86.1809	3.922E-07	222.0838	-3.1243
266.400	5.30E-05	-606.8402	64.2005	-8.998E-07	221.6861	-2.9813
273.600	4.33E-05	-220.9033	44.5878	-1.510E-06	221.4017	-2.4666
280.800	3.12E-05	37.3981	28.9560	-1.645E-06	221.2665	-1.8755
288.000	1.96E-05	198.4320	17.9193	-1.471E-06	221.3851	-1.1902
295.200	1.00E-05	297.5547	4.7669	-1.106E-06	221.4582	-2.4632
302.400	3.66E-06	268.6677	-7.3798	-6.885E-07	221.4369	-.9108
309.600	1.28E-07	192.2771	-10.7750	-3.489E-07	221.3806	-.032262
316.800	-1.36E-06	114.0101	-9.6336	-1.232E-07	221.3229	.3493
324.000	-1.65E-06	53.7302	-6.8372	4.095E-10	221.2785	.4275
331.200	-1.36E-06	15.5534	-4.0111	5.146E-08	221.2504	.3576
338.400	-9.05E-07	-4.1033	-1.8542	5.990E-08	221.2420	.2416
345.600	-4.96E-07	-11.2334	-.5020	4.860E-08	221.2472	.1341
352.800	-2.05E-07	-11.4022	.1832	3.192E-08	221.2473	.056273
360.000	-3.60E-08	-8.6416	.4217	1.715E-08	221.2453	.009995
367.200	4.16E-08	-5.3538	.4156	6.836E-09	221.2429	-.011709
374.400	6.24E-08	-2.6673	.3094	9.261E-10	221.2409	-.017790
381.600	5.50E-08	-.9001	.1882	-1.702E-09	221.2396	-.015856
388.800	3.79E-08	.045946	.091279	-2.332E-09	221.2390	-.011079
396.000	2.14E-08	.4176	.028631	-1.990E-09	221.2392	-.006323
403.200	9.27E-09	.4611	-.004122	-1.343E-09	221.2393	-.002775
410.400	2.05E-09	.3602	-.016344	-7.376E-10	221.2392	-6.206E-04
417.600	-1.35E-09	.2268	-.017088	-3.051E-10	221.2391	4.141E-04
424.800	-2.34E-09	.1146	-.012980	-5.355E-11	221.2390	7.270E-04
432.000	-2.12E-09	.039957	-.007967	6.033E-11	221.2390	6.657E-04
439.200	-1.48E-09	-2.139E-04	-.003885	8.962E-11	221.2389	4.682E-04
446.400	-8.32E-10	-.016113	-.001239	7.759E-11	221.2389	2.668E-04
453.600	-3.58E-10	-.018162	1.407E-04	5.233E-11	221.2390	1.163E-04
460.800	-7.80E-11	-.014162	6.515E-04	2.851E-11	221.2389	2.559E-05
468.000	5.22E-11	-.008821	6.813E-04	1.158E-11	221.2389	-1.730E-05
475.200	8.87E-11	-.004368	5.120E-04	1.861E-12	221.2389	-2.975E-05
482.400	7.90E-11	-.001452	3.085E-04	-2.427E-12	221.2389	-2.676E-05
489.600	5.38E-11	7.851E-05	1.459E-04	-3.439E-12	221.2389	-1.842E-05
496.800	2.94E-11	6.537E-04	4.287E-05	-2.899E-12	221.2389	-1.019E-05
504.000	1.20E-11	7.000E-04	-8.960E-06	-1.902E-12	221.2389	-4.208E-06
511.200	2.06E-12	5.274E-04	-2.672E-05	-9.974E-13	221.2389	-7.261E-07
518.400	-2.33E-12	3.167E-04	-2.635E-05	-3.754E-13	221.2389	8.308E-07
525.600	-3.35E-12	1.486E-04	-1.901E-05	-3.264E-14	221.2389	1.208E-06

532.800	-2.80E-12	4.300E-05	-1.099E-05	1.085E-13	221.2389	1.019E-06
540.000	-1.79E-12	-9.832E-06	-4.956E-06	1.330E-13	221.2389	6.575E-07
547.200	-8.83E-13	-2.856E-05	-1.409E-06	1.047E-13	221.2389	3.279E-07
554.400	-2.81E-13	-3.027E-05	1.508E-07	6.133E-14	221.2389	1.053E-07
561.600	-1.74E-20	-2.648E-05	2.104E-06	1.951E-14	221.2389	4.372E-07
568.800	1.98E-20	-5.371E-12	1.839E-06	1.208E-21	221.2389	-5.108E-07
576.000	0.000	1.865E-12	3.728E-13	-1.375E-21	221.2389	-1.755E-13
583.200	0.000	8.741E-19	-1.295E-13	0.0000	221.2389	3.598E-14
590.400	0.000	-1.248E-19	-6.069E-20	0.0000	221.2389	2.167E-20
597.600	0.000	0.0000	8.667E-21	0.0000	221.2389	-2.408E-21
604.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
612.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
619.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
626.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
633.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
640.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
648.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
655.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
662.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
669.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
676.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
684.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
691.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
698.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
705.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
712.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
720.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =      .25239887 in
Computed slope at pile head       =          0.000
Maximum bending moment            =    -461980.230 lbs-in
Maximum shear force               =      10000.000 lbs
Depth of maximum bending moment   =          0.000 in
Depth of maximum shear force      =          0.000 in
Number of iterations              =             22
Number of zero deflection points  =             19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head  =     15000.000 lbs
Specified slope at pile head        =     0.000E+00 in/in
Specified axial load at pile head   =    150000.000 lbs
```

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in

0.000	.543152	-796821.8718	15000.0000	-1.542E-17	918.9800	-83.2956
7.200	.538925	-690346.8028	14371.9982	-.001096	840.5261	-91.1493
14.400	.527373	-587498.1932	13689.4956	-.002037	764.7442	-98.4347
21.600	.509587	-488817.4059	12956.7835	-.002830	692.0333	-105.0964
28.800	.486615	-394806.8387	12178.5269	-.003481	622.7636	-111.0860
36.000	.459454	-305926.6134	11359.7182	-.003998	557.2741	-116.3609
43.200	.429046	-222591.6393	10505.6373	-.004387	495.8704	-120.8838
50.400	.396278	-145169.0141	9621.8177	-.004658	438.8232	-124.6217
57.600	.361968	-73975.7337	8714.0149	-.004820	386.3659	-127.5457
64.800	.326874	-9276.6880	7788.1806	-.004881	338.6937	-129.6305
72.000	.291682	48717.0794	6850.4386	-.004852	367.7546	-130.8534
79.200	.257006	99849.8684	5907.0646	-.004742	405.4307	-131.1949
86.400	.223390	144022.5988	4964.4701	-.004563	437.9785	-130.6369
93.600	.191301	181193.8904	4029.1894	-.004323	465.3674	-129.1632
100.800	.161136	211380.9800	3107.8734	-.004034	487.6101	-126.7579
108.000	.133213	234660.5183	2207.2899	-.003705	504.7631	-123.4042
115.200	.107780	251169.3087	1334.3359	-.003347	516.9273	-119.0830
122.400	.085012	261105.0856	500.2464	-.002970	524.2483	-112.6085
129.600	.065015	264787.6771	-275.8685	-.002582	526.9617	-102.9790
136.800	.047827	262710.4146	-981.2538	-.002194	525.4311	-92.9614
144.000	.033426	255395.9175	-1612.9068	-.001812	520.0416	-82.4978
151.200	.021735	243398.2591	-2167.1992	-.001444	511.2013	-71.4723
158.400	.012627	227308.0948	-3195.2608	-.001098	499.3456	-214.1003
165.600	.005931	199757.1967	-4494.2565	-7.829E-04	479.0453	-146.7318
172.800	.001354	164281.7980	-5251.2006	-5.146E-04	452.9060	-63.5305
180.000	-.001480	125251.5176	-5226.0495	-3.013E-04	424.1474	70.5169
187.200	-.002985	89677.4877	-4597.4612	-1.429E-04	397.9354	104.0910
194.400	-.003538	59356.8077	-3814.7432	-3.312E-05	375.5942	113.3307
201.600	-.003462	34816.7224	-3003.1910	3.627E-05	357.5124	112.1004
208.800	-.003016	16032.5112	-2222.9501	7.374E-05	343.6716	104.6332
216.000	-.002400	2646.9664	-1510.2512	8.750E-05	333.8088	93.3388
223.200	-.001756	-5904.1096	-886.8136	8.510E-05	336.2087	79.8383
230.400	-.001174	-10306.9696	-376.6324	7.316E-05	339.4529	61.8787
237.600	-7.02E-04	-11485.6360	-18.8203	5.710E-05	340.3214	37.5136
244.800	-3.52E-04	-10701.3177	184.8626	4.075E-05	339.7435	19.0650
252.000	-1.16E-04	-8911.6381	276.3195	2.630E-05	338.4248	6.3397
259.200	2.65E-05	-6779.1262	293.8421	1.474E-05	336.8535	-1.4723
266.400	9.67E-05	-4712.1475	268.9573	6.272E-06	335.3305	-5.4402
273.600	1.17E-04	-2919.6887	225.4004	6.485E-07	334.0097	-6.6589
280.800	1.06E-04	-1467.7828	178.5111	-2.584E-06	332.9399	-6.3659
288.000	7.96E-05	-343.5469	138.1775	-3.919E-06	332.1115	-4.8379
295.200	4.96E-05	530.4388	77.0012	-3.781E-06	332.2492	-12.1555
302.400	2.51E-05	773.4377	10.7113	-2.821E-06	332.4283	-6.2583
309.600	8.94E-06	690.7738	-19.9453	-1.742E-06	332.3674	-2.2574
316.800	6.53E-08	489.9877	-28.1321	-8.716E-07	332.2194	-.016722
324.000	-3.61E-06	287.5549	-24.8164	-2.987E-07	332.0703	.9377
331.200	-4.24E-06	133.2772	-17.4251	1.135E-08	331.9566	1.1154
338.400	-3.45E-06	36.6091	-10.0973	1.365E-07	331.8854	.9201
345.600	-2.27E-06	-12.4184	-4.5741	1.544E-07	331.8676	.6141
352.800	-1.22E-06	-29.5911	-1.1547	1.234E-07	331.8802	.3357
360.000	-4.93E-07	-29.3128	.5471	8.000E-08	331.8800	.1370
367.200	-7.29E-08	-21.8855	1.1142	4.227E-08	331.8745	.020506
374.400	1.15E-07	-13.3604	1.0696	1.630E-08	331.8683	-.032867
381.600	1.62E-07	-6.5178	.7832	1.657E-09	331.8632	-.046700
388.800	1.39E-07	-2.0858	.4687	-4.682E-09	331.8599	-.040668
396.000	9.45E-08	.2413	.2217	-6.041E-09	331.8586	-.027930
403.200	5.22E-08	1.1201	.064894	-5.038E-09	331.8592	-.015635
410.400	2.19E-08	1.1866	-.015281	-3.338E-09	331.8593	-.006636
417.600	4.17E-09	.9073	-.043768	-1.796E-09	331.8591	-.001277
424.800	-3.95E-09	.5603	-.043960	-7.142E-10	331.8588	.001224
432.000	-6.12E-09	.2758	-.032646	-9.819E-11	331.8586	.001919
439.200	-5.36E-09	.090362	-.019615	1.716E-10	331.8585	.001701
446.400	-3.65E-09	-.007033	-.009279	2.330E-10	331.8584	.001170

453.600	-2.01E-09	-.043765	-.002725	1.956E-10	331.8584	6.508E-04
460.800	-8.30E-10	-.046688	5.985E-04	1.289E-10	331.8584	2.722E-04
468.000	-1.49E-10	-.035424	.001757	6.842E-11	331.8584	4.949E-05
475.200	1.56E-10	-.021538	.001747	2.645E-11	331.8584	-5.214E-05
482.400	2.32E-10	-.010321	.001277	2.976E-12	331.8584	-7.852E-05
489.600	1.98E-10	-.003158	7.496E-04	-6.956E-12	331.8584	-6.794E-05
496.800	1.32E-10	4.883E-04	3.412E-04	-8.923E-12	331.8584	-4.552E-05
504.000	6.99E-11	.001774	8.936E-05	-7.256E-12	331.8584	-2.443E-05
511.200	2.70E-11	.001791	-3.298E-05	-4.629E-12	331.8584	-9.552E-06
518.400	3.21E-12	.001309	-7.148E-05	-2.345E-12	331.8584	-1.144E-06
525.600	-6.73E-12	7.665E-04	-6.687E-05	-8.155E-13	331.8584	2.427E-06
532.800	-8.54E-12	3.483E-04	-4.694E-05	5.898E-15	331.8584	3.108E-06
540.000	-6.65E-12	9.057E-05	-2.695E-05	3.292E-13	331.8584	2.444E-06
547.200	-3.80E-12	-4.054E-05	-1.308E-05	3.661E-13	331.8584	1.409E-06
554.400	-1.38E-12	-9.853E-05	-6.147E-06	2.636E-13	331.8584	5.156E-07
561.600	-1.23E-19	-1.296E-04	6.857E-06	9.551E-14	331.8584	3.096E-06
568.800	9.69E-20	-2.988E-11	9.002E-06	8.558E-21	331.8584	-2.501E-06
576.000	0.000	9.132E-12	2.074E-12	-6.728E-21	331.8584	-9.284E-13
583.200	0.000	4.525E-18	-6.341E-13	0.0000	331.8584	1.761E-13
590.400	0.000	-6.110E-19	-3.142E-19	0.0000	331.8584	1.108E-19
597.600	0.000	-4.529E-25	4.243E-20	0.0000	331.8584	-1.179E-20
604.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
612.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
619.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
626.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
633.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
640.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
648.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
655.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
662.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
669.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
676.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
684.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
691.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
698.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
705.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
712.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
720.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

```
Pile-head deflection           =       .54315202 in
Computed slope at pile head    =    -1.54198E-17
Maximum bending moment         =     -796821.872 lbs-in
Maximum shear force            =       15000.000 lbs
Depth of maximum bending moment =          0.000 in
Depth of maximum shear force   =           0.000 in
Number of iterations           =              23
Number of zero deflection points =            19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 20000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.934952	-1.184E+06	20000.0000	4.626E-17	1314.7041	-99.8261
7.200	.928672	-1.041E+06	19247.2266	-.001639	1209.5818	-109.2776
14.400	.911345	-901875.0850	18428.5827	-.003071	1107.0058	-118.1235
21.600	.884450	-766871.9455	17548.6556	-.004301	1007.5315	-126.3007
28.800	.849417	-636788.8790	16612.4618	-.005335	911.6825	-133.7532
36.000	.807629	-512288.2671	15625.3985	-.006181	819.9468	-140.4311
43.200	.760404	-393980.4920	14593.2031	-.006849	732.7742	-146.2899
50.400	.708999	-282420.3296	13521.9176	-.007348	650.5734	-151.2894
57.600	.654598	-178103.6966	12417.8582	-.007687	573.7099	-155.3937
64.800	.598307	-81464.7262	11287.5888	-.007878	502.5035	-158.5700
72.000	.541152	7126.8492	10137.8987	-.007933	447.7291	-160.7884
79.200	.484072	87368.0323	8975.7842	-.007863	506.8532	-162.0212
86.400	.427919	159024.6346	7808.4344	-.007682	559.6519	-162.2426
93.600	.373454	221933.1178	6643.2216	-.007401	606.0047	-161.4276
100.800	.321343	276002.2378	5487.6984	-.007034	645.8444	-159.5511
108.000	.272161	321214.5341	4349.6017	-.006594	679.1581	-156.5869
115.200	.226387	357627.7264	3236.8676	-.006094	705.9884	-152.5059
122.400	.184408	385376.1032	2163.0730	-.005547	726.4342	-145.7704
129.600	.146517	404749.9482	1152.2552	-.004964	740.7094	-135.0123
136.800	.112922	416265.8475	220.5826	-.004359	749.1947	-123.7856
144.000	.083742	420481.3554	-628.4094	-.003743	752.3008	-112.0455
151.200	.059025	417996.1350	-1390.7460	-.003125	750.4696	-99.7147
158.400	.038742	409454.6898	-3099.7925	-.002515	744.1760	-375.0205
165.600	.022804	380603.2932	-5485.6621	-.001933	722.9175	-287.7211
172.800	.010904	336028.7691	-7237.7201	-.001405	690.0737	-198.9617
180.000	.002569	280426.9944	-8301.7234	-9.509E-04	649.1047	-96.5948
187.200	-.002790	219222.6623	-8287.2441	-5.828E-04	604.0075	100.6168
194.400	-.005823	162769.0985	-7401.6674	-3.013E-04	562.4109	145.3768
201.600	-.007129	113506.4586	-6299.2167	-9.775E-05	526.1127	160.8596
208.800	-.007230	72341.9093	-5136.9079	3.918E-05	495.7815	162.0040
216.000	-.006564	39422.1342	-3997.9810	1.215E-04	471.5253	154.3645
223.200	-.005480	14420.9604	-2934.5148	1.612E-04	453.1037	141.0427
230.400	-.004243	-3299.1599	-1979.9811	1.694E-04	444.9088	124.1055
237.600	-.003041	-14578.6491	-1154.9732	1.562E-04	453.2199	105.0633
244.800	-.001993	-20380.7185	-470.5151	1.305E-04	457.4950	85.0639
252.000	-.001162	-21729.8244	65.1598	9.944E-05	458.4890	63.7347
259.200	-5.61E-04	-19728.8136	406.8953	6.890E-05	457.0146	31.1919
266.400	-1.70E-04	-16068.9509	553.6253	4.252E-05	454.3179	9.5665
273.600	5.09E-05	-11879.0622	577.6138	2.193E-05	451.2307	-2.9030
280.800	1.46E-04	-7814.4578	535.6451	7.415E-06	448.2358	-8.7550
288.000	1.58E-04	-4187.1280	469.6212	-1.428E-06	445.5631	-9.5850
295.200	1.25E-04	-1047.7993	327.6725	-5.286E-06	443.2499	-29.8452
302.400	8.16E-05	546.5778	147.1305	-5.655E-06	442.8806	-20.3054
309.600	4.38E-05	1087.1654	34.2472	-4.451E-06	443.2789	-11.0511
316.800	1.75E-05	1052.5561	-21.6599	-2.875E-06	443.2534	-4.4786
324.000	2.38E-06	783.5415	-40.0044	-1.522E-06	443.0552	-.6171
331.200	-4.42E-06	480.8746	-38.0341	-5.900E-07	442.8322	1.1644
338.400	-6.12E-06	237.5494	-27.9632	-6.060E-08	442.6529	1.6331
345.600	-5.30E-06	78.3797	-16.9279	1.722E-07	442.5356	1.4323
352.800	-3.64E-06	-6.7083	-8.1806	2.250E-07	442.4828	.9975
360.000	-2.06E-06	-40.0695	-2.5351	1.905E-07	442.5074	.5707
367.200	-8.96E-07	-43.7620	.4265	1.288E-07	442.5101	.2520

374.400	-2.01E-07	-34.2987	1.5397	7.125E-08	442.5031	.057234
381.600	1.30E-07	-21.7956	1.6106	2.991E-08	442.4939	-.037535
388.800	2.30E-07	-11.1921	1.2338	5.608E-09	442.4861	-.067139
396.000	2.11E-07	-4.0453	.7676	-5.620E-09	442.4809	-.062348
403.200	1.49E-07	-.1220	.3827	-8.690E-09	442.4780	-.044575
410.400	8.57E-08	1.4907	.1288	-7.682E-09	442.4790	-.025964
417.600	3.83E-08	1.7543	-.006989	-5.291E-09	442.4792	-.011745
424.800	9.54E-09	1.4053	-.059919	-2.962E-09	442.4789	-.002957
432.000	-4.34E-09	.9000	-.065669	-1.264E-09	442.4785	.001360
439.200	-8.66E-09	.4633	-.050878	-2.592E-10	442.4782	.002748
446.400	-8.07E-09	.1681	-.031663	2.060E-10	442.4780	.002589
453.600	-5.69E-09	.006789	-.015689	3.349E-10	442.4779	.001848
460.800	-3.25E-09	-.058769	-.005202	2.966E-10	442.4779	.001065
468.000	-1.42E-09	-.068977	3.322E-04	2.025E-10	442.4779	4.720E-04
475.200	-3.31E-10	-.054568	.002431	1.115E-10	442.4779	1.111E-04
482.400	1.82E-10	-.034286	.002609	4.598E-11	442.4779	-6.159E-05
489.600	3.31E-10	-.017125	.001980	8.102E-12	442.4779	-1.133E-04
496.800	2.98E-10	-.005802	.001200	-8.792E-12	442.4779	-1.033E-04
504.000	2.04E-10	1.780E-04	5.708E-04	-1.294E-11	442.4779	-7.145E-05
511.200	1.12E-10	.002454	1.709E-04	-1.100E-11	442.4779	-3.962E-05
518.400	4.60E-11	.002671	-3.080E-05	-7.221E-12	442.4779	-1.641E-05
525.600	8.17E-12	.002031	-1.005E-04	-3.756E-12	442.4779	-2.944E-06
532.800	-8.10E-12	.001235	-1.005E-04	-1.350E-12	442.4779	2.950E-06
540.000	-1.13E-11	5.885E-04	-7.491E-05	-6.457E-15	442.4779	4.145E-06
547.200	-8.20E-12	1.560E-04	-4.904E-05	5.421E-13	442.4779	3.043E-06
554.400	-3.47E-12	-1.192E-04	-3.340E-05	5.692E-13	442.4779	1.299E-06
561.600	-4.10E-19	-3.267E-04	8.323E-06	2.407E-13	442.4779	1.029E-05
568.800	2.44E-19	-8.463E-11	2.269E-05	2.844E-20	442.4779	-6.302E-06
576.000	0.000	2.301E-11	5.873E-12	-1.696E-20	442.4779	-2.519E-12
583.200	0.000	1.204E-17	-1.598E-12	0.0000	442.4779	4.439E-13
590.400	0.000	-1.540E-18	-8.361E-19	0.0000	442.4779	2.916E-19
597.600	0.000	-1.183E-24	1.069E-19	0.0000	442.4779	-2.970E-20
604.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
612.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
619.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
626.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
633.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
640.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
648.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
655.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
662.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
669.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
676.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
684.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
691.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
698.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
705.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
712.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
720.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 3:

```
Pile-head deflection              =      .93495159 in
Computed slope at pile head       =    4.62593E-17
Maximum bending moment            =   -1183756.419 lbs-in
Maximum shear force               =      20000.000 lbs
Depth of maximum bending moment   =          0.000 in
Depth of maximum shear force      =          0.000 in
```

Number of iterations = 23
Number of zero deflection points = 19

Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

y = pile-head displacment, in
M = pile-head moment, lbs-in
V = pile-head shear force, lbs
S = pile-head slope, radians
R = rotational stiffness of pile-head, in-lbs/rad

BC Type	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
2	V= 10000.000	S= 0.000	100000.0000	.2524	-461980.2296	10000.0000
2	V= 15000.000	S= 0.000	150000.0000	.5432	-796821.8718	15000.0000
2	V= 20000.000	S= 0.000	200000.0000	.9350	-1.184E+06	20000.0000

The analysis ended normally.

```
==============================================================================

               LPILE Plus for Windows, Version 4.0 (4.0.8)

              Analysis of Individual Piles and Drilled Shafts
             Subjected to Lateral Loading Using the p-y Method

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==============================================================================


This program is licensed to:

Pau; Mooney
Earth Systems 9outhern California

Path to file locations:       C:\Program Files\Ensoft\LpileP4\
Name of input data file:      NWC of Palm and Main Streets.lpd
Name of output file:          NWC of Palm and Main Streets.lpo
Name of plot output file:     NWC of Palm and Main Streets.lpp
Name of runtime file:         NWC of Palm and Main Streets.lpr

------------------------------------------------------------------------------
                          Time and Date of Analysis
------------------------------------------------------------------------------

              Date:  September  3, 2004     Time:   9:53:30

------------------------------------------------------------------------------
                                Problem Title
------------------------------------------------------------------------------

New Pile

------------------------------------------------------------------------------
                               Program Options
------------------------------------------------------------------------------

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 1:
- Computation of Lateral Pile Response Using User-specified Constant EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments             =          100
- Maximum number of iterations allowed =          100
```

```
- Deflection tolerance for convergence =   1.0000E-05 in
- Maximum allowable deflection         =   1.0000E+02 in

Printing Options:
- Values of pile-head deflection, bending moment, shear force, and
  soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) =  1
```

Pile Structural Properties and Geometry

```
Pile Length                                =     720.00 in
Depth of ground surface below top of pile =     -12.00 in
Slope angle of ground surface              =        .00 deg.

Structural properties of pile defined using  2 points
```

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	-12.0000	24.000	16286.0000	452.0000	300000.000
2	720.0000	24.000	16286.0000	452.0000	300000.000

Soil and Rock Layering Information

```
The soil profile is modelled using  5 layers

Layer  1 is soft clay, p-y criteria by Matlock, 1970
Distance from top of pile to top of layer    =      -12.000 in
Distance from top of pile to bottom of layer =      156.000 in

Layer  2 is stiff clay with water-induced erosion
Distance from top of pile to top of layer    =      156.000 in
Distance from top of pile to bottom of layer =      276.000 in
p-y subgrade modulus k for top of soil layer =      100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer   =      100.000 lbs/in**3

Layer  3 is stiff clay with water-induced erosion
Distance from top of pile to top of layer    =      276.000 in
Distance from top of pile to bottom of layer =      294.000 in
p-y subgrade modulus k for top of soil layer =      100.000 lbs/in**3
p-y subgrade modulus k for bottom of layer   =      100.000 lbs/in**3

Layer  4 is stiff clay with water-induced erosion
Distance from top of pile to top of layer    =      294.000 in
Distance from top of pile to bottom of layer =      558.000 in
p-y subgrade modulus k for top of soil layer =      500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer   =      500.000 lbs/in**3

Layer  5 is stiff clay without free water
Distance from top of pile to top of layer    =      558.000 in
Distance from top of pile to bottom of layer =      720.000 in
p-y subgrade modulus k for top of soil layer =      500.000 lbs/in**3
p-y subgrade modulus k for bottom of layer   =      500.000 lbs/in**3

(Depth of lowest layer extends     .00 in below pile tip)
```

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth
is defined using 10 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-12.00	.05700
2	156.00	.03700
3	156.00	.03700
4	276.00	.03700
5	276.00	.03700
6	294.00	.03700
7	294.00	.03700
8	558.00	.03700
9	558.00	.03700
10	720.00	.03700

Shear Strength of Soils

Distribution of shear strength parameters with depth
defined using 10 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	-12.000	2.00000	.00	.01000	.0
2	156.000	2.00000	.00	.01000	.0
3	156.000	5.00000	.00	.00500	.0
4	276.000	5.00000	.00	.00500	.0
5	276.000	5.00000	.00	.00500	.0
6	294.000	5.00000	.00	.00500	.0
7	294.000	7.00000	.00	.00500	.0
8	558.000	7.00000	.00	.00500	.0
9	558.000	7.00000	.00	.00500	.0
10	720.000	7.00000	.00	.00500	.0

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves

---

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 10000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 2

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 15000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 150000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Shear force at pile head = 20000.000 lbs
Slope at pile head = .000 in/in
Axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head condition)

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 10000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 100000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.252399	-461980.2296	10000.0000	0.0000	561.6395	-64.5186
7.200	.249948	-391407.4638	9513.7308	-6.288E-04	509.6394	-70.5562
14.400	.243344	-324077.0332	8985.8910	-.001156	460.0284	-76.0660
21.600	.233302	-260346.0068	8420.4462	-.001587	413.0695	-81.0020
28.800	.220497	-200537.8883	7821.6711	-.001926	369.0011	-85.3244
36.000	.205564	-144940.2102	7194.1072	-.002181	328.0351	-88.9989
43.200	.189094	-93802.4477	6542.5261	-.002357	290.3553	-91.9959
50.400	.171628	-47334.2239	5871.8961	-.002461	256.1162	-94.2902
57.600	.153660	-5703.7814	5187.3532	-.002500	225.4417	-95.8606
64.800	.135632	30963.2986	4494.1731	-.002481	244.0536	-96.6894
72.000	.117932	62585.1476	3797.7480	-.002412	267.3535	-96.7620
79.200	.100896	89124.4478	3103.5636	-.002300	286.9084	-96.0670

86.400	.084806	110589.0721	2417.1803	-.002153	302.7242	-94.5951
93.600	.069889	127032.5497	1744.2174	-.001978	314.8402	-92.3391
100.800	.056320	138554.3836	1090.3423	-.001782	323.3299	-89.2929
108.000	.044221	145300.2639	461.2683	-.001573	328.3004	-85.4499
115.200	.033664	147462.2514	-137.2345	-.001358	329.8934	-80.8008
122.400	.024671	145279.0618	-696.5315	-.001142	328.2848	-74.5595
129.600	.017220	139076.5631	-1203.0461	-9.324E-04	323.7146	-66.1390
136.800	.011245	129297.8518	-1647.7195	-7.347E-04	316.5094	-57.3814
144.000	.006641	116407.3018	-2027.6143	-5.536E-04	307.0112	-48.1450
151.200	.003273	100897.4047	-2337.8475	-3.935E-04	295.5831	-38.0309
158.400	9.75E-04	83308.9282	-2634.4296	-2.578E-04	282.6234	-44.3530
165.600	-4.39E-04	63332.7999	-2721.0980	-1.497E-04	267.9044	20.2784
172.800	-.001181	44340.7062	-2448.6126	-7.038E-05	253.9105	55.4120
180.000	-.001452	28174.1233	-2000.0177	-1.695E-05	241.9985	69.1977
187.200	-.001425	15564.8548	-1502.8094	1.528E-05	232.7076	68.9157
194.400	-.001232	6511.6637	-1036.9570	3.155E-05	226.0369	60.4877
201.600	-9.71E-04	587.2457	-645.1732	3.678E-05	221.6716	48.3411
208.800	-7.03E-04	-2831.7918	-343.3348	3.512E-05	223.3255	35.5029
216.000	-4.65E-04	-4407.3549	-129.7774	2.979E-05	224.4864	23.8186
223.200	-2.74E-04	-4743.4843	7.1687	2.305E-05	224.7341	14.2220
230.400	-1.33E-04	-4337.3142	83.5744	1.636E-05	224.4348	7.0018
237.600	-3.81E-05	-3563.5674	116.1133	1.054E-05	223.8647	2.0368
244.800	1.88E-05	-2680.4541	119.7801	5.934E-06	223.2140	-1.0182
252.000	4.73E-05	-1847.2801	106.7715	2.598E-06	222.6001	-2.5953
259.200	5.62E-05	-1146.6862	86.1809	3.922E-07	222.0838	-3.1243
266.400	5.30E-05	-606.8402	64.2005	-8.998E-07	221.6861	-2.9813
273.600	4.33E-05	-220.9033	44.5878	-1.510E-06	221.4017	-2.4666
280.800	3.12E-05	37.3981	28.9560	-1.645E-06	221.2665	-1.8755
288.000	1.96E-05	198.4320	17.9193	-1.471E-06	221.3851	-1.1902
295.200	1.00E-05	297.5547	4.7669	-1.106E-06	221.4582	-2.4632
302.400	3.66E-06	268.6677	-7.3798	-6.885E-07	221.4369	-.9108
309.600	1.28E-07	192.2771	-10.7750	-3.489E-07	221.3806	-.032262
316.800	-1.36E-06	114.0101	-9.6336	-1.232E-07	221.3229	.3493
324.000	-1.65E-06	53.7302	-6.8372	4.095E-10	221.2785	.4275
331.200	-1.36E-06	15.5534	-4.0111	5.146E-08	221.2504	.3576
338.400	-9.05E-07	-4.1033	-1.8542	5.990E-08	221.2420	.2416
345.600	-4.96E-07	-11.2334	-.5020	4.860E-08	221.2472	.1341
352.800	-2.05E-07	-11.4022	.1832	3.192E-08	221.2473	.056273
360.000	-3.60E-08	-8.6416	.4217	1.715E-08	221.2453	.009995
367.200	4.16E-08	-5.3538	.4156	6.836E-09	221.2429	-.011709
374.400	6.24E-08	-2.6673	.3094	9.261E-10	221.2409	-.017790
381.600	5.50E-08	-.9001	.1882	-1.702E-09	221.2396	-.015856
388.800	3.79E-08	.045946	.091279	-2.332E-09	221.2390	-.011079
396.000	2.14E-08	.4176	.028631	-1.990E-09	221.2392	-.006323
403.200	9.27E-09	.4611	-.004122	-1.343E-09	221.2393	-.002775
410.400	2.05E-09	.3602	-.016344	-7.376E-10	221.2392	-6.206E-04
417.600	-1.35E-09	.2268	-.017088	-3.051E-10	221.2391	4.141E-04
424.800	-2.34E-09	.1146	-.012980	-5.355E-11	221.2390	7.270E-04
432.000	-2.12E-09	.039957	-.007967	6.033E-11	221.2390	6.657E-04
439.200	-1.48E-09	-2.139E-04	-.003885	8.962E-11	221.2389	4.682E-04
446.400	-8.32E-10	-.016113	-.001239	7.759E-11	221.2389	2.668E-04
453.600	-3.58E-10	-.018162	1.407E-04	5.233E-11	221.2390	1.163E-04
460.800	-7.80E-11	-.014162	6.515E-04	2.851E-11	221.2389	2.559E-05
468.000	5.22E-11	-.008821	6.813E-04	1.158E-11	221.2389	-1.730E-05
475.200	8.87E-11	-.004368	5.120E-04	1.861E-12	221.2389	-2.975E-05
482.400	7.90E-11	-.001452	3.085E-04	-2.427E-12	221.2389	-2.676E-05
489.600	5.38E-11	7.851E-05	1.459E-04	-3.439E-12	221.2389	-1.842E-05
496.800	2.94E-11	6.537E-04	4.287E-05	-2.899E-12	221.2389	-1.019E-05
504.000	1.20E-11	7.000E-04	-8.960E-06	-1.902E-12	221.2389	-4.208E-06
511.200	2.06E-12	5.274E-04	-2.672E-05	-9.974E-13	221.2389	-7.261E-07
518.400	-2.33E-12	3.167E-04	-2.635E-05	-3.754E-13	221.2389	8.308E-07
525.600	-3.35E-12	1.486E-04	-1.901E-05	-3.264E-14	221.2389	1.208E-06
532.800	-2.80E-12	4.300E-05	-1.099E-05	1.085E-13	221.2389	1.019E-06

540.000	-1.79E-12	-9.832E-06	-4.956E-06	1.330E-13	221.2389	6.575E-07
547.200	-8.83E-13	-2.856E-05	-1.409E-06	1.047E-13	221.2389	3.279E-07
554.400	-2.81E-13	-3.027E-05	1.508E-07	6.133E-14	221.2389	1.053E-07
561.600	-1.74E-20	-2.648E-05	2.104E-06	1.951E-14	221.2389	4.372E-07
568.800	1.98E-20	-5.371E-12	1.839E-06	1.208E-21	221.2389	-5.108E-07
576.000	0.000	1.865E-12	3.728E-13	-1.375E-21	221.2389	-1.755E-13
583.200	0.000	8.741E-19	-1.295E-13	0.0000	221.2389	3.598E-14
590.400	0.000	-1.248E-19	-6.069E-20	0.0000	221.2389	2.167E-20
597.600	0.000	0.0000	8.667E-21	0.0000	221.2389	-2.408E-21
604.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
612.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
619.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
626.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
633.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
640.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
648.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
655.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
662.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
669.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
676.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
684.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
691.200	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
698.400	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
705.600	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
712.800	0.000	0.0000	0.0000	0.0000	221.2389	0.0000
720.000	0.000	0.0000	0.0000	0.0000	221.2389	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

```
Pile-head deflection             =       .25239887 in
Computed slope at pile head      =        0.000
Maximum bending moment           =    -461980.230 lbs-in
Maximum shear force              =      10000.000 lbs
Depth of maximum bending moment  =          0.000 in
Depth of maximum shear force     =          0.000 in
Number of iterations             =             22
Number of zero deflection points =             19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

```
Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head  =      15000.000 lbs
Specified slope at pile head        =      0.000E+00 in/in
Specified axial load at pile head   =     150000.000 lbs
```

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.543152	-796821.8718	15000.0000	-1.542E-17	918.9800	-83.2956

7.200	.538925	-690346.8028	14371.9982	-.001096	840.5261	-91.1493
14.400	.527373	-587498.1932	13689.4956	-.002037	764.7442	-98.4347
21.600	.509587	-488817.4059	12956.7835	-.002830	692.0333	-105.0964
28.800	.486615	-394806.8387	12178.5269	-.003481	622.7636	-111.0860
36.000	.459454	-305926.6134	11359.7182	-.003998	557.2741	-116.3609
43.200	.429046	-222591.6393	10505.6373	-.004387	495.8704	-120.8838
50.400	.396278	-145169.0141	9621.8177	-.004658	438.8232	-124.6217
57.600	.361968	-73975.7337	8714.0149	-.004820	386.3659	-127.5457
64.800	.326874	-9276.6880	7788.1806	-.004881	338.6937	-129.6305
72.000	.291682	48717.0794	6850.4386	-.004852	367.7546	-130.8534
79.200	.257006	99849.8684	5907.0646	-.004742	405.4307	-131.1949
86.400	.223390	144022.5988	4964.4701	-.004563	437.9785	-130.6369
93.600	.191301	181193.8904	4029.1894	-.004323	465.3674	-129.1632
100.800	.161136	211380.9800	3107.8734	-.004034	487.6101	-126.7579
108.000	.133213	234660.5183	2207.2899	-.003705	504.7631	-123.4042
115.200	.107780	251169.3087	1334.3359	-.003347	516.9273	-119.0830
122.400	.085012	261105.0856	500.2464	-.002970	524.2483	-112.6085
129.600	.065015	264787.6771	-275.8685	-.002582	526.9617	-102.9790
136.800	.047827	262710.4146	-981.2538	-.002194	525.4311	-92.9614
144.000	.033426	255395.9175	-1612.9068	-.001812	520.0416	-82.4978
151.200	.021735	243398.2591	-2167.1992	-.001444	511.2013	-71.4723
158.400	.012627	227308.0948	-3195.2608	-.001098	499.3456	-214.1003
165.600	.005931	199757.1967	-4494.2565	-7.829E-04	479.0453	-146.7318
172.800	.001354	164281.7980	-5251.2006	-5.146E-04	452.9060	-63.5305
180.000	-.001480	125251.5176	-5226.0495	-3.013E-04	424.1474	70.5169
187.200	-.002985	89677.4877	-4597.4612	-1.429E-04	397.9354	104.0910
194.400	-.003538	59356.8077	-3814.7432	-3.312E-05	375.5942	113.3307
201.600	-.003462	34816.7224	-3003.1910	3.627E-05	357.5124	112.1004
208.800	-.003016	16032.5112	-2222.9501	7.374E-05	343.6716	104.6332
216.000	-.002400	2646.9664	-1510.2512	8.750E-05	333.8088	93.3388
223.200	-.001756	-5904.1096	-886.8136	8.510E-05	336.2087	79.8383
230.400	-.001174	-10306.9696	-376.6324	7.316E-05	339.4529	61.8787
237.600	-7.02E-04	-11485.6360	-18.8203	5.710E-05	340.3214	37.5136
244.800	-3.52E-04	-10701.3177	184.8626	4.075E-05	339.7435	19.0650
252.000	-1.16E-04	-8911.6381	276.3195	2.630E-05	338.4248	6.3397
259.200	2.65E-05	-6779.1262	293.8421	1.474E-05	336.8535	-1.4723
266.400	9.67E-05	-4712.1475	268.9573	6.272E-06	335.3305	-5.4402
273.600	1.17E-04	-2919.6887	225.4004	6.485E-07	334.0097	-6.6589
280.800	1.06E-04	-1467.7828	178.5111	-2.584E-06	332.9399	-6.3659
288.000	7.96E-05	-343.5469	138.1775	-3.919E-06	332.1115	-4.8379
295.200	4.96E-05	530.4388	77.0012	-3.781E-06	332.2492	-12.1555
302.400	2.51E-05	773.4377	10.7113	-2.821E-06	332.4283	-6.2583
309.600	8.94E-06	690.7738	-19.9453	-1.742E-06	332.3674	-2.2574
316.800	6.53E-08	489.9877	-28.1321	-8.716E-07	332.2194	-.016722
324.000	-3.61E-06	287.5549	-24.8164	-2.987E-07	332.0703	.9377
331.200	-4.24E-06	133.2772	-17.4251	1.135E-08	331.9566	1.1154
338.400	-3.45E-06	36.6091	-10.0973	1.365E-07	331.8854	.9201
345.600	-2.27E-06	-12.4184	-4.5741	1.544E-07	331.8676	.6141
352.800	-1.22E-06	-29.5911	-1.1547	1.234E-07	331.8802	.3357
360.000	-4.93E-07	-29.3128	.5471	8.000E-08	331.8800	.1370
367.200	-7.29E-08	-21.8855	1.1142	4.227E-08	331.8745	.020506
374.400	1.15E-07	-13.3604	1.0696	1.630E-08	331.8683	-.032867
381.600	1.62E-07	-6.5178	.7832	1.657E-09	331.8632	-.046700
388.800	1.39E-07	-2.0858	.4687	-4.682E-09	331.8599	-.040668
396.000	9.45E-08	.2413	.2217	-6.041E-09	331.8586	-.027930
403.200	5.22E-08	1.1201	.064894	-5.038E-09	331.8592	-.015635
410.400	2.19E-08	1.1866	-.015281	-3.338E-09	331.8593	-.006636
417.600	4.17E-09	.9073	-.043768	-1.796E-09	331.8591	-.001277
424.800	-3.95E-09	.5603	-.043960	-7.142E-10	331.8588	.001224
432.000	-6.12E-09	.2758	-.032646	-9.819E-11	331.8586	.001919
439.200	-5.36E-09	.090362	-.019615	1.716E-10	331.8585	.001701
446.400	-3.65E-09	-.007033	-.009279	2.330E-10	331.8584	.001170
453.600	-2.01E-09	-.043765	-.002725	1.956E-10	331.8584	6.508E-04

460.800	-8.30E-10	-.046688	5.985E-04	1.289E-10	331.8584	2.722E-04
468.000	-1.49E-10	-.035424	.001757	6.842E-11	331.8584	4.949E-05
475.200	1.56E-10	-.021538	.001747	2.645E-11	331.8584	-5.214E-05
482.400	2.32E-10	-.010321	.001277	2.976E-12	331.8584	-7.852E-05
489.600	1.98E-10	-.003158	7.496E-04	-6.956E-12	331.8584	-6.794E-05
496.800	1.32E-10	4.883E-04	3.412E-04	-8.923E-12	331.8584	-4.552E-05
504.000	6.99E-11	.001774	8.936E-05	-7.256E-12	331.8584	-2.443E-05
511.200	2.70E-11	.001791	-3.298E-05	-4.629E-12	331.8584	-9.552E-06
518.400	3.21E-12	.001309	-7.148E-05	-2.345E-12	331.8584	-1.144E-06
525.600	-6.73E-12	7.665E-04	-6.687E-05	-8.155E-13	331.8584	2.427E-06
532.800	-8.54E-12	3.483E-04	-4.694E-05	5.898E-15	331.8584	3.108E-06
540.000	-6.65E-12	9.057E-05	-2.695E-05	3.292E-13	331.8584	2.444E-06
547.200	-3.80E-12	-4.054E-05	-1.308E-05	3.661E-13	331.8584	1.409E-06
554.400	-1.38E-12	-9.853E-05	-6.147E-06	2.636E-13	331.8584	5.156E-07
561.600	-1.23E-19	-1.296E-04	6.857E-06	9.551E-14	331.8584	3.096E-06
568.800	9.69E-20	-2.988E-11	9.002E-06	8.558E-21	331.8584	-2.501E-06
576.000	0.000	9.132E-12	2.074E-12	-6.728E-21	331.8584	-9.284E-13
583.200	0.000	4.525E-18	-6.341E-13	0.0000	331.8584	1.761E-13
590.400	0.000	-6.110E-19	-3.142E-19	0.0000	331.8584	1.108E-19
597.600	0.000	-4.529E-25	4.243E-20	0.0000	331.8584	-1.179E-20
604.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
612.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
619.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
626.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
633.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
640.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
648.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
655.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
662.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
669.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
676.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
684.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
691.200	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
698.400	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
705.600	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
712.800	0.000	0.0000	0.0000	0.0000	331.8584	0.0000
720.000	0.000	0.0000	0.0000	0.0000	331.8584	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

```
Pile-head deflection             =      .54315202 in
Computed slope at pile head      =   -1.54198E-17
Maximum bending moment           =    -796821.872 lbs-in
Maximum shear force              =      15000.000 lbs
Depth of maximum bending moment  =          0.000 in
Depth of maximum shear force     =          0.000 in
Number of iterations             =             23
Number of zero deflection points =             19
```

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 3

Pile-head boundary conditions are Shear and Slope (BC Type 2)

Specified shear force at pile head = 20000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 200000.000 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.934952	-1.184E+06	20000.0000	4.626E-17	1314.7041	-99.8261
7.200	.928672	-1.041E+06	19247.2266	-.001639	1209.5818	-109.2776
14.400	.911345	-901875.0850	18428.5827	-.003071	1107.0058	-118.1235
21.600	.884450	-766871.9455	17548.6556	-.004301	1007.5315	-126.3007
28.800	.849417	-636788.8790	16612.4618	-.005335	911.6825	-133.7532
36.000	.807629	-512288.2671	15625.3985	-.006181	819.9468	-140.4311
43.200	.760404	-393980.4920	14593.2031	-.006849	732.7742	-146.2899
50.400	.708999	-282420.3296	13521.9176	-.007348	650.5734	-151.2894
57.600	.654598	-178103.6966	12417.8582	-.007687	573.7099	-155.3937
64.800	.598307	-81464.7262	11287.5888	-.007878	502.5035	-158.5700
72.000	.541152	7126.8492	10137.8987	-.007933	447.7291	-160.7884
79.200	.484072	87368.0323	8975.7842	-.007863	506.8532	-162.0212
86.400	.427919	159024.6346	7808.4344	-.007682	559.6519	-162.2426
93.600	.373454	221933.1178	6643.2216	-.007401	606.0047	-161.4276
100.800	.321343	276002.2378	5487.6984	-.007034	645.8444	-159.5511
108.000	.272161	321214.5341	4349.6017	-.006594	679.1581	-156.5869
115.200	.226387	357627.7264	3236.8676	-.006094	705.9884	-152.5059
122.400	.184408	385376.1032	2163.0730	-.005547	726.4342	-145.7704
129.600	.146517	404749.9482	1152.2552	-.004964	740.7094	-135.0123
136.800	.112922	416265.8475	220.5826	-.004359	749.1947	-123.7856
144.000	.083742	420481.3554	-628.4094	-.003743	752.3008	-112.0455
151.200	.059025	417996.1350	-1390.7460	-.003125	750.4696	-99.7147
158.400	.038742	409454.6898	-3099.7925	-.002515	744.1760	-375.0205
165.600	.022804	380603.2932	-5485.6621	-.001933	722.9175	-287.7211
172.800	.010904	336028.7691	-7237.7201	-.001405	690.0737	-198.9617
180.000	.002569	280426.9944	-8301.7234	-9.509E-04	649.1047	-96.5948
187.200	-.002790	219222.6623	-8287.2441	-5.828E-04	604.0075	100.6168
194.400	-.005823	162769.0985	-7401.6674	-3.013E-04	562.4109	145.3768
201.600	-.007129	113506.4586	-6299.2167	-9.775E-05	526.1127	160.8596
208.800	-.007230	72341.9093	-5136.9079	3.918E-05	495.7815	162.0040
216.000	-.006564	39422.1342	-3997.9810	1.215E-04	471.5253	154.3645
223.200	-.005480	14420.9604	-2934.5148	1.612E-04	453.1037	141.0427
230.400	-.004243	-3299.1599	-1979.9811	1.694E-04	444.9088	124.1055
237.600	-.003041	-14578.6491	-1154.9732	1.562E-04	453.2199	105.0633
244.800	-.001993	-20380.7185	-470.5151	1.305E-04	457.4950	85.0639
252.000	-.001162	-21729.8244	65.1598	9.944E-05	458.4890	63.7347
259.200	-5.61E-04	-19728.8136	406.8953	6.890E-05	457.0146	31.1919
266.400	-1.70E-04	-16068.9509	553.6253	4.252E-05	454.3179	9.5665
273.600	5.09E-05	-11879.0622	577.6138	2.193E-05	451.2307	-2.9030
280.800	1.46E-04	-7814.4578	535.6451	7.415E-06	448.2358	-8.7550
288.000	1.58E-04	-4187.1280	469.6212	-1.428E-06	445.5631	-9.5850
295.200	1.25E-04	-1047.7993	327.6725	-5.286E-06	443.2499	-29.8452
302.400	8.16E-05	546.5778	147.1305	-5.655E-06	442.8806	-20.3054
309.600	4.38E-05	1087.1654	34.2472	-4.451E-06	443.2789	-11.0511
316.800	1.75E-05	1052.5561	-21.6599	-2.875E-06	443.2534	-4.4786
324.000	2.38E-06	783.5415	-40.0044	-1.522E-06	443.0552	-.6171
331.200	-4.42E-06	480.8746	-38.0341	-5.900E-07	442.8322	1.1644
338.400	-6.12E-06	237.5494	-27.9632	-6.060E-08	442.6529	1.6331
345.600	-5.30E-06	78.3797	-16.9279	1.722E-07	442.5356	1.4323
352.800	-3.64E-06	-6.7083	-8.1806	2.250E-07	442.4828	.9975
360.000	-2.06E-06	-40.0695	-2.5351	1.905E-07	442.5074	.5707
367.200	-8.96E-07	-43.7620	.4265	1.288E-07	442.5101	.2520
374.400	-2.01E-07	-34.2987	1.5397	7.125E-08	442.5031	.057234

381.600	1.30E-07	-21.7956	1.6106	2.991E-08	442.4939	-.037535
388.800	2.30E-07	-11.1921	1.2338	5.608E-09	442.4861	-.067139
396.000	2.11E-07	-4.0453	.7676	-5.620E-09	442.4809	-.062348
403.200	1.49E-07	-.1220	.3827	-8.690E-09	442.4780	-.044575
410.400	8.57E-08	1.4907	.1288	-7.682E-09	442.4790	-.025964
417.600	3.83E-08	1.7543	-.006989	-5.291E-09	442.4792	-.011745
424.800	9.54E-09	1.4053	-.059919	-2.962E-09	442.4789	-.002957
432.000	-4.34E-09	.9000	-.065669	-1.264E-09	442.4785	.001360
439.200	-8.66E-09	.4633	-.050878	-2.592E-10	442.4782	.002748
446.400	-8.07E-09	.1681	-.031663	2.060E-10	442.4780	.002589
453.600	-5.69E-09	.006789	-.015689	3.349E-10	442.4779	.001848
460.800	-3.25E-09	-.058769	-.005202	2.966E-10	442.4779	.001065
468.000	-1.42E-09	-.068977	3.322E-04	2.025E-10	442.4779	4.720E-04
475.200	-3.31E-10	-.054568	.002431	1.115E-10	442.4779	1.111E-04
482.400	1.82E-10	-.034286	.002609	4.598E-11	442.4779	-6.159E-05
489.600	3.31E-10	-.017125	.001980	8.102E-12	442.4779	-1.133E-04
496.800	2.98E-10	-.005802	.001200	-8.792E-12	442.4779	-1.033E-04
504.000	2.04E-10	1.780E-04	5.708E-04	-1.294E-11	442.4779	-7.145E-05
511.200	1.12E-10	.002454	1.709E-04	-1.100E-11	442.4779	-3.962E-05
518.400	4.60E-11	.002671	-3.080E-05	-7.221E-12	442.4779	-1.641E-05
525.600	8.17E-12	.002031	-1.005E-04	-3.756E-12	442.4779	-2.944E-06
532.800	-8.10E-12	.001235	-1.005E-04	-1.350E-12	442.4779	2.950E-06
540.000	-1.13E-11	5.885E-04	-7.491E-05	-6.457E-15	442.4779	4.145E-06
547.200	-8.20E-12	1.560E-04	-4.904E-05	5.421E-13	442.4779	3.043E-06
554.400	-3.47E-12	-1.192E-04	-3.340E-05	5.692E-13	442.4779	1.299E-06
561.600	-4.10E-19	-3.267E-04	8.323E-06	2.407E-13	442.4779	1.029E-05
568.800	2.44E-19	-8.463E-11	2.269E-05	2.844E-20	442.4779	-6.302E-06
576.000	0.000	2.301E-11	5.873E-12	-1.696E-20	442.4779	-2.519E-12
583.200	0.000	1.204E-17	-1.598E-12	0.0000	442.4779	4.439E-13
590.400	0.000	-1.540E-18	-8.361E-19	0.0000	442.4779	2.916E-19
597.600	0.000	-1.183E-24	1.069E-19	0.0000	442.4779	-2.970E-20
604.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
612.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
619.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
626.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
633.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
640.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
648.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
655.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
662.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
669.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
676.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
684.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
691.200	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
698.400	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
705.600	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
712.800	0.000	0.0000	0.0000	0.0000	442.4779	0.0000
720.000	0.000	0.0000	0.0000	0.0000	442.4779	0.0000

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 3:

Pile-head deflection	=	.93495159 in
Computed slope at pile head	=	4.62593E-17
Maximum bending moment	=	-1183756.419 lbs-in
Maximum shear force	=	20000.000 lbs
Depth of maximum bending moment	=	0.000 in
Depth of maximum shear force	=	0.000 in
Number of iterations	=	23

Number of zero deflection points = 19

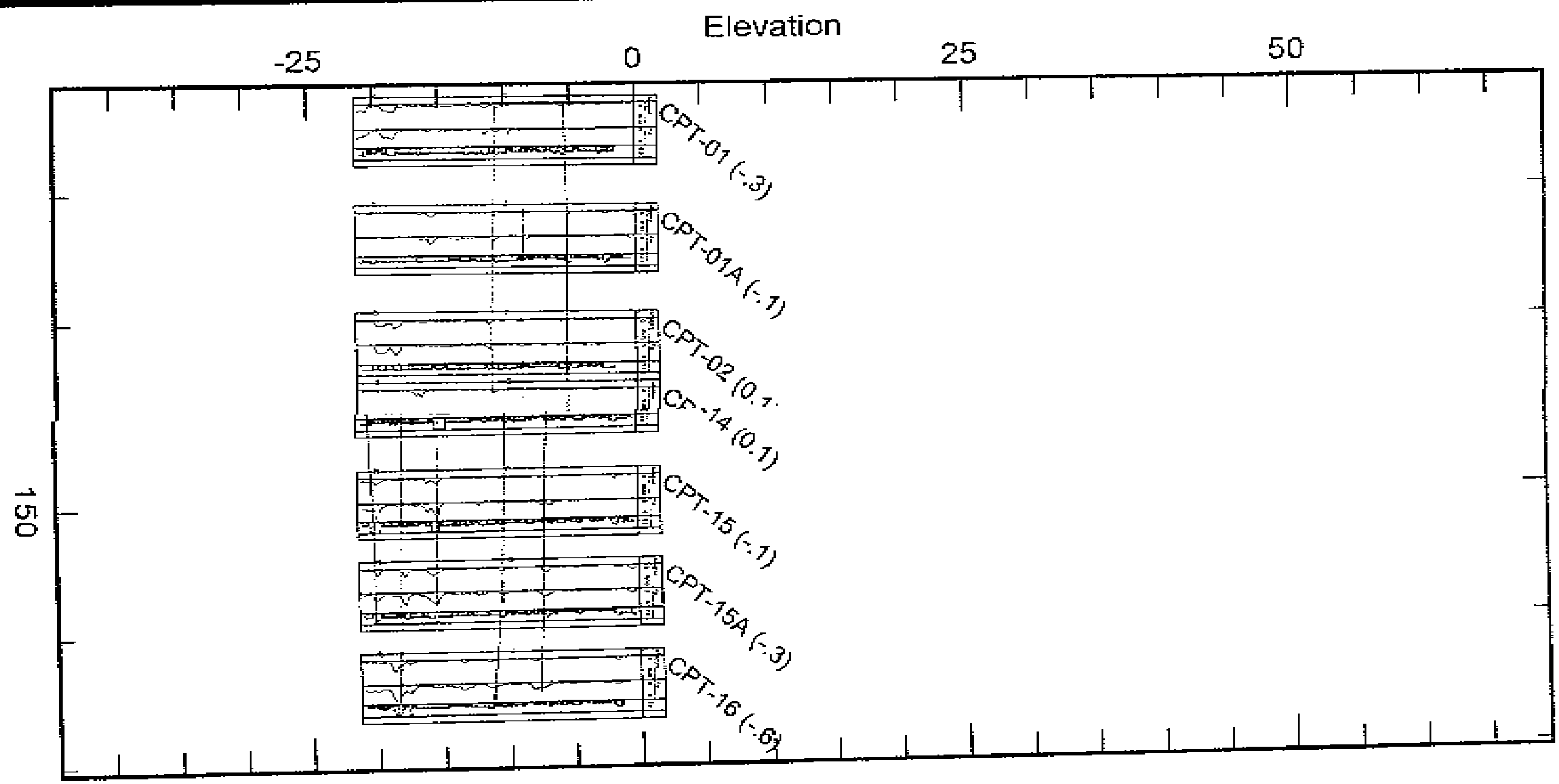
Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

y = pile-head displacment, in
M = pile-head moment, lbs-in
V = pile-head shear force, lbs
S = pile-head slope, radians
R = rotational stiffness of pile-head, in-lbs/rad

BC Type	Boundary Condition 1	Boundary Condition 2	Axial Load lbs	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
2	V= 10000.000	S= 0.000	100000.0000	.2524	-461980.2296	10000.0000
2	V= 15000.000	S= 0.000	150000.0000	.5432	-796821.8718	15000.0000
2	V= 20000.000	S= 0.000	200000.0000	.9350	-1.184E+06	20000.0000

The analysis ended normally.



ı. Job Number 04-051SH & 04-129SH

Systems

Units: Depth in Meters

Figure: X-Section 2

CPT PROFILE

EARTH SYSTEMS SOUTHERN CALIFORNIA

VT-23104-01 SEPTEMBER 2004

Engineering Geology and Geotechnical Engineering Report
for
NWC of Palm and Main Streets
Proposed Five-Story Mixed-Use Building
Ventura, California

ENGINEERING GEOLOGY AND
GEOTECHNICAL ENGINEERING REPORT
FOR
NWC OF PALM AND MAIN STREETS
PROPOSED FIVE-STORY-MIXED-USE BUILDING
VENTURA, CALIFORNIA

VT-23104-01
October 29, 2004

PREPARED FOR

James E. Mesa
34 North Palm Street, Suite 200
Ventura, California 93001

BY
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October 29, 2004

VT-23104-01
04-9-8

James E. Mesa
34 North Palm Street, Suite 200
Ventura, California 93001

Project: NWC of Palm and Main Streets
Proposed Five-Story Mixed-Use Building
Ventura, California

As authorized, we have performed a geotechnical geological study for a proposed five-story mixed-use building with a subterranean parking area to be located at the northwest corner of Palm Street and Main Street in Ventura, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, as well as our conclusions and recommendations pertaining to geotechnical and geological aspects of project design.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or when we can be of further service.

Respectfully submitted,

EARTH SYSTEMS
SOUTHERN CALIFORNIA

Jeff Tawakoli
Project Engineer

REGISTERED PROFESSIONAL ENGINEER
JAFAR TAWAKOLI
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INTRODUCTION

A. Project Description

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a proposed five-story mixed-use building to be located at northwest corner of Palm Street and Main Street in Ventura, California. The building will have a subterranean parking area. The building and its subterranean parking will be located immediately adjacent to a structure on the west side that will remain in place. Thus, it is anticipated that underpinning of at least part of the adjacent building will be necessary. Depth of the excavation for the underground parking is expected to be in the range of 8 to 10 feet. Hence, shoring to retain excavation cuts is anticipated.

Column loads for the proposed structure is expected to range up to about 200 kips. Wall loads are expected to be about 6 kips per lineal foot. A caisson foundation system is likely to be necessary to limit foundation settlement because of underlying compressive soils. If actual loads vary significantly from these assumed loads, Earth Systems Southern California (ESSC) should be notified since reevaluation of the recommendations contained in this report may be required.

Because the site is relatively flat, and no cut or fill slopes of significance are anticipated to be necessary, grading for the proposed project is expected to be limited to preparing the site soils to support slab-on-grade floors of the subterranean parking area.

B. Purpose and Scope of Work

The purpose of the geotechnical study that led to this report was to evaluate the subsurface soil and groundwater conditions at the site with respect to the proposed structure. The scope of work included:

1. Performing a reconnaissance of the site.
2. Drilling, sampling, and logging one hollow-stem-auger boring, and advancing twenty cone penetrometer test (CPT) soundings to explore subsurface soil and groundwater conditions.

3. Laboratory testing soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
4. Consulting with owner representatives and design team members.
5. Geological and geotechnical analysis of the data obtained.
6. Preparing this report.

Contained in this report are:

1. Descriptions of field and laboratory tests that were performed.
2. Results of field and laboratory tests that were performed.
3. Conclusions and recommendations pertaining to site grading and structural design.

C. Site Setting

The site of the proposed building is an asphalt paved vacant lot that is located at northwest corner of the Palm and Main Streets in Ventura, California. The site is surrounded by a commercial building to the west, Main Street to the south, Palm Street to the east, and by a paved private drive to the north. No vegetation is present on site and surface drainage is to the south. A small commercial food stand is located at the southeast corner of the property. The relative elevation of the north end of the site is about 33.5 feet above mean sea level and the elevation of the south end of the site is about 26.5 feet above mean sea level.

SOIL CONDITIONS

Fill material consisting of silt, clayey silts, and silty clays with debris such as wood and brick fragments were encountered at this site. Thickness of the fill layer was observed to be about 5-1/2 feet at the Boring No. 1 location. The fill material is underlain by alluvium consisting of clayey silts and silty clays with sand to the maximum depth explored. In general, soils within the anticipated influence of the building foundations and the parking areas have less than 90% relative compaction, and consolidation testing indicated that these soils are compressible. The boring log and CPT's along with a site plan showing the approximate locations of the boring and CPT's are presented in Appendix A of this report.

The pore water dissipation records from CPTs 2, 3, 5, and 11 indicate that the groundwater table is at about 23 to 25 feet below ground surface. This is consistent with the groundwater level of 23.5 feet encountered in Boring No. 1. However, the degree of saturation of the recovered samples was 97% and 100% at depths of 5 and 10 feet, respectively, indicating that groundwater may be between these two depths. Furthermore, historical high groundwater table however, as indicated by the Seismic Hazard Zone Report for the Ventura Quadrangle (California Geological Survey, 2003) is about 7 feet. The historical high groundwater depth is used in calculations in this report. Soil moisture content above the groundwater, at the time the site was explored, was above the optimum moisture content for compaction. Soil moisture may change with variations in weather patterns, the time of year, irrigation, and other factors.

Expansion determination indicates that bearing soils lie in the "low" range (51-90) in accordance with Table 18-I-B of the 2001 California Building Code (CBC). Table 18-I-DR, a locally adopted variation of CBC Table 18-I-B, provides recommended minimum foundation and slab requirements as a function of expansion index, and is included in Appendix B of this report.

Corrosion characteristics of shallow soils were determined by testing for resistivity, pH, soluble sulfates, and soluble chlorides. The results are presented in Appendix B and should be brought to the attention of the project Structural or Mechanical Engineer or anyone designing facilities in contact with soil. Soluble sulfate content is in the "negligible" range of Table 19-A-4 of the CBC. Therefore, it appears that special designs for cement in contact with the ground will not be necessary. Soil resistivity is in the "Moderately Corrosive" range for ferrous metal according to a table in the Los Angeles County Guidelines of Preparing Geotechnical Reports (2002). Designers of metals in contact with soil should be made aware of this potential. Please note that ESSC does not provide corrosion-engineering services.

SEISMICITY

This site, like all other sites in the general area, can be affected by moderate to major earthquakes centered on faults in southern California. An estimate of the seismic shaking that the proposed construction could experience was made by using the Seismic Hazard Zone report for the Ventura Quadrangle prepared by California Geological Survey (CGS, 2003). Based on interpolation on this map the peak horizontal acceleration at the site, at a 10% probability of exceedance in 50 years, estimated to be about 0.61-g.

The report also presents a mapping of earthquake magnitudes that are expected to generate the aforementioned peak ground acceleration. That map shows the project site to be within an area where the magnitude is expected to be about 6.9.

The following 2001 California Building Code (CBC) geotechnical related values could be used in the building's earthquake design:

Seismic Zone - Figure 16-2	4
Seismic Zone Factor Z - Table 16A-I	0.40
Soil Profile Type - Table 16A-J	S_D
Seismic Coefficient C_a - Table 16A-Q	$0.44N_a$
Seismic Coefficient C_v - Table 16A-R	$0.64N_v$
Near Source Factor N_a -Table 16A-S	1.3
Near Source Factor N_v -Table 16A-T	1.6
Seismic Source Type - Table 16A-U	B
Distance to Seismic Source	Less than 2 km

LIQUEFACTION

Earthquake-induced vibrations can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction can result in a complete loss of strength and can cause structures to settle or even overturn if it occurs in the bearing zone. If liquefaction occurs beneath sloping ground, a phenomenon known as lateral spreading can occur. Liquefaction is typically limited to the upper 50 feet of the subsurface soils.

There are a number of conditions that need to be satisfied for liquefaction to be a potential hazard. Of primary importance is that groundwater, perched or otherwise, usually must be within the upper 50 feet of soils. Groundwater was encountered during the site exploration at a depth of about 23 feet. Soils with less than 15% clay content but, with a Plasticity Index (P.I.) of 15 or better/or sands with relative densities of 80% (dense soils) or better, are generally not susceptible to liquefaction. The soils that contain a wide range of soil particle sizes and coarse soils that drain freely are also not generally susceptible to liquefaction.

Because of the presence of shallow groundwater and sands that appear to be less than very dense, liquefaction potential was analyzed. It was done using the SPT data, a magnitude 7.5 earthquake, and a 0.48-g peak ground acceleration (liquefaction opportunity, CGS, 2003). Groundwater was assumed to be 7 feet below the ground surface. The analyses were done with a proprietary spreadsheet developed by this firm. This spreadsheet is based on the SPT data and methods developed by Youd and Idriss (1998). The analyses were done at every data point, which were taken at 0.05m intervals (about every 2 inches). No data averaging was performed. Depths at which the laboratory data indicated the soil was too clayey to liquefy, the result of the CPT analysis was overridden, and the soils at those depths taken as non-liquefiable. The analysis is presented in Appendix C. It indicates that the potential for liquefaction related settlement is low.

HYDROCONSOLIDATION

Hydroconsolidation is a phenomenon in which naturally occurring soil deposits, or non-engineered fill, collapse when wetted. Natural soils that are susceptible to this phenomenon are typically aeolian, debris flow, alluvial, or colluvial deposits with high apparent strength when dry. The dry strength is attributed to salts, clays, silts, and in some cases capillary tension, bonding larger soil grains together. So long as these soils remain dry, their strength and resistance to compression are retained. However, when wetted, the salt, clay, or silt-bonding agent is weakened or dissolved, or capillary tension reduced, eventually leading to collapse. Soils susceptible to this phenomenon are found throughout the southwestern United States. Soils above 60% saturation or soils below the groundwater surface are not susceptible to hydroconsolidation.

Consolidation tests performed on the soil samples in the upper 10 feet, indicates that the potential for hydroconsolidation at the subject site is low. Furthermore, all the samples are wet (degree of saturation above 60%) which indicates the soils are not subject to this phenomenon (El-Ehwany, & Houston, 1990).

SEISMIC INDUCED SETTLEMENT OF DRY SANDS

Dry sands tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. Procedures to evaluate this type of settlement were developed by Seed and Silver (1972) and later modified by Pyke, et. al. (1975). Tokimatsu and Seed (1987) presented a simplified procedure. Clays are not susceptible to seismic induced settlement.

Based on the analysis performed with the above procedure, and because the soils above the water table are primarily clayey soils, the seismic induced settlement of the dry sands above the water table at this site is low to nonexistence.

REGIONAL GEOLOGY

The site lies within the Ventura Foothills in the western portion of the Transverse Ranges geologic province. Numerous east-west trending folds and reverse faults indicative of ongoing north-south transpressional tectonics characterize the region. The property is situated where early Pleistocene to Tertiary aged marine and non-marine sedimentary bedrock units have been folded. The ongoing regional compression has locally resulted in the east-west trending Ventura fault, which is located north of the proposed construction. The project area is located within one of the "Fault Rupture Hazard Zones" that have been specified by the State of California (C.D.M.G. 1972, Revised 1999). No evidence of faulting was found during the field for this report. No landslides are mapped as either on or trending into the site.

Mappings by Dibblee (1988), State of California Department of Conservation, Division of Mines and Geology (DMG, 1975 and 1976), Rockwell (1984), CDMG (Special Studies Zones Map, 1978), and Yerkes, Sarna-Wojcicki, and LaJoie (1987) indicate that the potential faulting is further north, near the south side of Poli Street.

STRATIGRAPHY

The subsurface stratigraphy below the proposed building site is inferred to be alluvial fan deposits based on the current field study and a field study performed for the Holy Cross School on the north side of the proposed construction (Earth Systems Consultants Southern California, 1996). The younger alluvial deposits consist of loose to medium dense silty sand to sandy silt with some interbedded clays.

Mapping by Rockwell (1984) indicates that the site is underlain by alluvial deposits (designated as Qf3) that are estimated to be about 9,000 ±1,300 years.

STRUCTURE

As mentioned above, the site is underlain by some uncertified fill (about 5.5 feet at the Boring No. 1 location) over younger alluvial deposits. Based on the field study of the subject site, the younger alluvial deposits are fairly flat lying with a slight southern gradient approximating the past surface topography that existed before grading for the parking lot. Because of the fairly loose to medium dense nature of the soil deposits inferred by the CPT data, it is assumed that the site is underlain by at least 50 feet of younger alluvial deposits. Bedrock was encountered during the field study (Earth Systems Consultants Southern California, 1996) for the north and adjacent Holy Cross School at a depth of about 50 feet below the ground surface at the south end of the that site. Based on the CPT data, it does not appear that bedrock was encountered at the subject site.

As previously mentioned, the southeastern portion of the site lies within a State of California Special Studies Zone (CDMG, 1996) for fault rupture hazard for the Ventura fault. Fault trenching was not reasonable for this project because of the anticipated depth of younger alluvium. Therefore, the potential for fault rupture hazard for the subject site was evaluated using a relatively closely spaced line of cone penetrometer tests (CPT's) across the site in a north-south direction (i.e. perpendicular to the anticipated trend of the Ventura fault.

No faults were encountered during the field study. No structural setbacks are recommended.

No landslides were observed to be located on or trending into the subject property during the field study, during reviews of the referenced geologic literature, or during review of the aerial photographs taken of the site.

GEOLOGIC HAZARDS

Geologic hazards that are common to the Southern California area include fault rupture, seismic shaking (previously discussed in this report), landslides, rockfalls, tsunami, seiche, and flooding (seismic related and non-seismic related). Below, we will address each of these hazards as they relate to the subject site.

Fault Rupture

The parcel does lies within a State of California designated fault hazard zone. Therefore, the potential for fault rupture hazard on the subject site is considered low.

Landslides and Rockfall

There are no identified landslides or rockfalls either on or trending into the site; therefore, hazards associated with these phenomena should be considered low.

Seismically Induced Flooding

The potential for earthquake induced flooding (tsunamis, seiche, and reservoir failure) must be considered low because of the site's relative elevation and positioning away from any large upstream reservoirs and the Pacific ocean.

Other Flooding

The site is not located within a 100-year or 500-year flood zone as recognized by Ventura County, (1994).

CONCLUSIONS AND RECOMMENDATIONS

The primary geotechnical concerns at this site are the presence of uncertified fill material and compressible soils within the anticipated influence of the building's foundations. Settlement analysis indicates settlement of the largest spread or column footing with the assumed load of 200 kips could be in excess of 5 inches.

Because of the compressible nature of the site soils, it is recommended that the building be founded on caissons. Appendant lightweight structures and walls can bear on conventional footings. Examples would be garden walls, trash enclosures, lightweight signs, and the like.

The excavation for the subterranean parking will remove most of the uncertified fill. However, to help mitigate concerns about the influence of uncertified fill, it should be removed in its entirety and replaced with engineered fill where necessary in pavement and floor areas. The extent of the removal should be determined in the field by the Geotechnical Engineer or his representative. The uncertified fill, after debris and organics are removed, can be used as engineered fill. As mentioned earlier, the depth of fill appears to be between about 1 to 3-1/2 feet.

Hydroconsolidation, seismic induced settlement of dry sands, and liquefaction potentials are low to non-existent. The following section provides recommendations for grading in general and for appendant structures.

A. Grading

1. General Grading

a. Grading at a minimum should conform to Chapter 33 of the California Building Code and Ventura City Building Code.

b. The existing ground surface should be initially prepared for grading by removing all surface and subsurface structures, foundations, pavements, noncomplying fill, vegetation, trees, large roots, debris, and other organic material. Voids created by removal of such material should be properly backfilled and compacted.

c. The bottom of all excavations should be observed by a representative of this firm prior to processing or placing fill.

d. Fill and backfill placed at near optimum moisture in layers with loose thickness not greater than 8 inches should be compacted to a minimum of 90% of the maximum dry density obtainable by the ASTM D 1557 test method, unless otherwise recommended or specified. Randomly located compaction tests by ESSC can assist the Grading Contractor in evaluating whether the compaction requirements are being met. However, compaction tests pertain only to specific locations, and do not guarantee that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve California compaction in accordance with the requirements of this report and the grading ordinance.

e. Loss due to clearing is unknown because the quantities of foundations, thickness of pavements and slabs, and the presence of subsurface structures and obstructions to be removed are not all defined. Shrinkage of soils affected by compaction is estimated to be about 15%. Shrinkage from removing foundations and any subsurface structures is not included in these figures.

f. Import soils used to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

g. Roof draining systems should be designed so that water is not discharged into bearing soils or near structures. Final site grade should be such that all water is diverted away from the structures, and is not allowed to pond. A minimum gradient of 2% is recommended for landscaped areas.

h. It is recommended that ESSC be retained to provide Geotechnical Engineering services during the grading and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

i. Plans and specifications should be provided to ESSC prior to grading. Plans should include the grading plans, foundation plans, and foundation details. ESSC will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.

2. Site Grading/Development

a. Because the building is anticipated to be supported by deep foundations, over-excavation and recompaction of soils will, for the most part, be limited to the bearing soils for foundations for auxiliary, lightly loaded structures, such as garden walls, site retaining walls, and signs.

b. Recompaction in the areas of such lightly loaded structures will be necessary to decrease the potential for differential settlement and provide more uniform bearing conditions. Soils should be over-excavated to the deeper depth of 1 foot below the bottoms of footings, or 2 feet below existing grade or until all uncertified fill is removed. For isolated auxiliary structures (garden walls, site retaining walls, signs, etc.) the over-excavation should extend to 3 feet beyond the foundation perimeters. The resulting surfaces should then be scarified an additional 1 foot; moisture conditioned, and recompacted to at least 90% of maximum density. The intent of this recommendation is to provide 2 feet of compacted fill below the bottom of footings. This recommendation does not apply to the subterranean parking slab-on grade.

c. Areas outside of the building area to receive fill, exterior slabs-on-grade, sidewalks or paving should be over-excavated to the deeper depth of 1 foot below existing grade, or until all uncertified fill is removed. The resulting surface should then be scarified an additional 1 foot, moisture conditioned, and recompacted.

d. On-site soils may be used for fill once they are cleaned of all organic material, rock, debris and irreducible material larger than 6 inches. Alternatively, a granular import soil may be used for fill.

e. Pumping soils or otherwise unstable soils are likely to be encountered at over-excavation bottoms. The Contractor should be prepared for these construction difficulties. Because of the high moisture contents, and the probability that excavations will extend below groundwater levels in the deeper areas, drying the exposed soils to achieve stability probably will not be possible. Alternate ways to stabilize excavation bottoms include working thin lifts of 1-1/2-inch (minimum size) float rock into the excavation bottoms until stabilization is achieved, treating the soils with lime, or treating the soils with cement. Use of geotextiles in combination with crushed rock is another possibility. In this method, the bottom of an excavation would be covered with a woven geotextile fabric equivalent to Mirafi 500X, and the fabric covered with crushed rock about 18 inches thick. After the rock has been wheel rolled or track-walked, it should be smoothed, rolled, and then covered with a non-woven filter fabric equivalent to Mirafi 140N before placing fill.

f. Groundwater may be encountered in excavations. The Contractor should be aware of this possibility and be prepared to de-water excavations if groundwater is present.

3. Shoring

a. Because there will be near zero property line construction in conjunction with subterranean construction, shoring will be required.

b. Cantilever shoring can be designed using an equivalent fluid weight of 40 pcf above groundwater. Below groundwater the soil equivalent fluid weight can be reduced to 20 pcf, but hydrostatic pressure of 62.4 psf per foot of depth should be included.

c. With tied back, braced, or strutted shoring systems, the pressure diagram will vary according to the stiffness if the soil. At this site, the soil profile to the depth of anticipated excavations includes both medium stiff and stiff clays. The diagram for medium stiff clays has been selected, which is a triangular pressure diagram in which the pressure on the shoring increases with depth. The pressure on the retaining system above groundwater can be assumed equal to 60H psf where H is the depth below the ground surface. Below groundwater the pressure will increase at a rate of 30 psf/ft., plus the hydrostatic head.

d. In any of the methods used, surcharges should be included.

e. Passive resistance below the base of the excavation can be assumed equal to 300 pcf (no factor of safety included) above groundwater,(if applicable). Below the groundwater, the passive equivalent fluid weight can be assumed equal to 180 pcf (no factor of safety included).

4. Utility Trenches

a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, service lines inside of the property lines may be backfilled with native soils compacted to 90% of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.

b. Laying-back or shoring of trenches may be required due to the potential presence of medium stiff, moist clay soils.

c. If water is present in trenches, backfill should be gravel to 6 inches above the water. If the elevation of a utility does not allow this, water should be pumped from its trench.

d. Jetting of native soils is not recommended.

e. Excavated soils are expected to be at high moisture contents, and drying may be necessary before replacing as compacted backfill.

f. Backfill operations should be tested by the Geotechnical Engineer to monitor compliance with these recommendations.

B. Structural Design

1. Caissons

a. Because of settlement potential of about 5 inches at the more heavily loaded columns and basement walls, supported by conventional spread foundations, and the potential for uplift forces in deeper basement areas, a deep foundation system is recommended for the structure. Figures in Appendix D provide allowable downward and upward caisson capacities versus depth for 2-foot diameter caissons. The data on the graphs were determined by applying the LCPC (French) Method (Bustamante and Gianeselli, 1982) to the CPT tip resistance data. The allowable downward capacities include a factor-of-safety of 2.0 to side resistance. Caissons are designed for friction only. The allowable uplift capacities were taken as two-thirds of the downward side resistance and the graph includes a factor-of-safety of 2.0.

b. Individual piles in groups should be spaced at least three widths apart, measured from center to center.

c. The lateral resistance to individual piles has been determined based on presumed embedment of about 60 feet below the existing ground surface using the computer program LPILEPLUS. The analysis was done for a generalized soil profile, and 24-inch diameter caisson. In the analysis, the pile head was assumed to be free against rotation. Analyses were done for lateral loads of 10, 15, and 20 kips at the pile tops. Graphs of pile deflection, bending moment, and shear as a function of depth are presented in Appendix D. A graph of lateral deflection at the top of piles versus lateral load is also provided. It should be noted that the graphs presented are estimates of the pile response for specific loading and soil conditions and, as such, do not include factors of safety. If necessary, other cases can be analyzed as the project design progresses.

d. Because caissons will be utilizing only skin friction for support, it will not be necessary to thoroughly clean the bottoms of the excavation. However, excessive loose debris and slough must be removed.

e. Groundwater is located about 20 to 25 feet below the existing ground surfaces (based on the water table depth during the drilling), but may be as shallow as 5 to 10 feet below the ground surface. Accordingly, the drilled holes for the caissons will require stabilization. Casings or drilling fluid can be used to support the excavation sidewalls. If casing is used, it will need to be pulled after the concrete is poured.

f. It is recommended that concrete used in the caisson be placed with a slump of 4 to 6 inches in dry excavations and 6 to 8 inches when placed under water. In dry excavations, the concrete can free-fall so long as it is dropped vertically and does not strike the reinforcing cage. In wet excavations, the concrete should be tremied to the bottom of the excavation. In no case should the concrete be allowed to free-fall through water or drilling fluids. The end of the tremie should be kept several feet below the top of the concrete. The concreting should continue until clean concrete is discharged at the top of the caisson. Concreting should begin no more than 4 hours after the hole is completed.

g. Caisson construction should be continuously monitored by the Geotechnical Engineer's representative to verify compliance with the intent of this report.

h. Caisson capacities are based on the strength of the soils. The Structural Engineer in responsible for determining the structural adequacy of the piles.

2. Shallow Foundations for Auxiliary Structures

a. Conventional continuous footings and/or isolated pad footings may be used to support lightly loaded auxiliary structures such as garden walls, site retaining walls, and signs. Footings with a minimum embedment depth of 24 inches should bear into firm recompacted soils, as recommended earlier in this report.

b. Conventional continuous and isolated pad footings may be designed based on an allowable bearing value of 1,000 psf. This is a net bearing value (weight of footing and soil surcharge may be neglected) and is applicable for dead plus live loads. This value is based on a factor of safety of greater than 3.

c. The above bearing value has been limited because of settlement considerations, and should not be increased. However, the bearing value may be increased by one-third when transient loads such as wind and/or seismicity are included.

d. Lateral loads may be resisted by soil friction on floor slabs and foundations, and by passive resistance of the soils acting on foundation stem walls. Lateral capacity is based on the assumption that any required backfill adjacent to foundations and grade beams is properly compacted.

e. Reinforcement and other requirements for conventional footings should at a minimum conform to Table 18-1-DR for the "low" expansion range. It should be noted, however, that these values are minimums, and that other more stringent structural considerations may govern. Actual footing designs, depths, widths and reinforcement should be provided by the Structural Engineer, but should not be less than values given herein.

f. Reinforcement of footings bottomed in soils in the "low" expansion range should be with two No. 4 bars, one at the top and one at the bottom. In addition, bent No. 3 bars on 24-inch centers should extend from within the footings to a minimum of 3 feet into adjacent slabs.

g. Bearing soils in the "low" expansion range should be premoistened to 3% over optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening should be confirmed by testing.

h. Foundation excavations should be observed by a representative of ESSC after excavation, but prior to placing of reinforcing steel or concrete.

3. <u>Slabs-on-Grade</u>

a. Concrete slabs (where applicable) should be supported by compacted structural fill as recommended earlier in this report and in the case of the subterranean floors, a layer of crushed rock when near or below the groundwater.

b. It is recommended that perimeter slabs (walks, patios, etc.) be designed relatively independent of footing stems (i.e., free floating) so foundation adjustment will be less likely to cause cracking.

c. Slabs at or near existing grades should be underlain with a minimum of 4 inches of sand. Areas where floor wetness would be undesirable should be underlain with a plastic vapor retarder to reduce moisture transmission from the subgrade soils to the slab. The membrane should be centered in the sand. The sand should be lightly moistened just prior to placing concrete.

d. Slabs constructed at or near the groundwater should be designed as either pressure relieved or pressure slabs. The choice between these alternatives will depend on project economics and other design consideration. Pressure slabs may be preferable because pressure relieved slabs may require continual discharge of groundwater. Pressure slabs are designed as a structural element to resist the uplift of the groundwater, the slabs and walls are designed to be waterproof, and a blanket of crushed rock and a sump are used on top of the pressure slab to drain away any water that penetrates the slab. A floor slab is constructed over the drain rock.

e. Reinforcement and premoistening data given herein for slabs are the same as those given in Table 18-1-DR for the "low" expansion range. It should be noted, however, that these values are minima, and that other more stringent structural considerations, such as large construction or service loads, or hydrostatic pressure may govern. Actual reinforcement and slab thickness should be determined by the Structural Engineer, but should not be less than values given herein.

f. Slabs bottomed on soils in the "low" expansion range should be reinforced with No. 3 bars on 24-inch centers both ways placed at mid-slab.

g. Soils underlying slabs that are in the "low" expansion range should be premoistened to 3% above optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening of slab areas should be observed and tested by ESSC for compliance with these recommendations prior to placing of sand, reinforcing steel, or concrete.

4. Frictional and Lateral Coefficients

a. Resistance to lateral loading may be provided by friction acting on the base of foundations, grade-beams, and slabs-on-grade. A coefficient of friction of 0.38 may be applied to dead load forces. This value includes a factor of safety of 1.5.

b. Passive resistance acting on the sides of foundation stems equal to 200 pcf of equivalent fluid weight may be included for resistance to lateral load. This value includes a factor of safety of 1.5 and applies to soils above groundwater. When the soils providing passive resistance are below the groundwater, the equivalent fluid weight should be reduced to 135 pcf. This value includes a factor of safety of 1.5. However, when passive resistance is used in conjunction with friction, the coefficient of friction should be reduced by one-third in determining the total lateral resistance.

c. A one-third increase in the quoted passive value may be used when considering transient loads such as wind and seismicity.

5. Settlement Considerations

a. Maximum expected settlements of less than 1/2-inch are anticipated for foundations and floor slabs designed as recommended. Differential settlement between adjacent load bearing members could be about one-half the total settlement.

6. Retaining Walls

a. Conventional cantilever retaining walls backfilled with compacted on-site soils may be designed for active pressures developed from 41 pcf of equivalent fluid weight for well-drained, level backfill conditions. If the retaining walls are backfilled with free draining sand within a 1 to 1 (horizontal to vertical) projection up from the base of the wall footings, an equivalent fluid weight of 32 pcf can be used to determine active earth pressures.

b. For restrained basement retaining walls, an at-rest pressure for soils above the groundwater can be determined using 60 pcf of equivalent fluid weight. For restrained retaining walls supporting on-site soils, an at-rest pressure for soils below the groundwater can be determined using 95 pcf of equivalent fluid weight. For restrained retaining walls backfilled with free draining sand (as described above), an at-rest pressure for soils above the groundwater table may be determined using 52 pcf of equivalent fluid weight, and the at-rest pressure for soils below the groundwater table may be determined using 91 pcf of equivalent fluid weight. All these equivalent fluid weights assume that the backfill is drained except as noted.

c. Earthquakes will cause an increase in the active forces on retaining walls. When a basement is surrounded by soil on all sides at the same elevation the seismic earth pressure on a basement wall is usually small. However, a seismic earth pressure should be included if the basement may act out of phase with the surrounding soil (Lew, et al., undated). The seismic dynamic component can be estimated as $14H^2$ per lineal foot of wall where H is the height of the excavation in feet. The force should be assumed to act at 0.6H above the base of the wall, where H is the wall height in feet. If groundwater is above the base of the wall (the wall is not drained) a hydrodynamic pressure component should be added. Under dynamic conditions a factor-of-safety of 1.1 or 1.2 is appropriate for retaining walls.

d. The pressures listed above were based on the assumption that backfill soils will be compacted to 90% of maximum dry density as determined by the ASTM D 1557 Test Method.

e. The lateral earth pressure to be resisted by the retaining walls or similar structures should be increased to allow for surcharge loads. The surcharge considered should include the loads from any structures or temporary loads that would influence wall design.

f. A backdrain or an equivalent system of backfill drainage should be incorporated into retaining wall design. Backfill immediately behind retaining structures should be a free-draining granular material. Alternately, the backs of walls could be lined with a geodrain system. Waterproofing should be according to the Architect's recommendations.

g. Compaction on the uphill side of walls within a horizontal distance equal to one wall height should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.

h. Water should not be allowed to pond near the tops of walls. To accomplish this, the final backfill surface grade should be such that all water is diverted away from retaining walls.

7. <u>Paving Designs</u>

a. The R-value assumed on a sample of anticipated subgrade soil was 10, and this value is used in the designs that follow.

b. If a Traffic Index of 4.5 is assumed (automobiles and infrequent light trucks), and using the assumed R-Value of 10, paving sections should have a minimum gravel equivalent of 1.3 feet. This can be achieved by using 3 inches of asphalt concrete over 7.5 inches of aggregate base.

c. If a Traffic Index of 5.0 is assumed (based on two trash trucks or similar light trucks per day), and using the assumed R-Value of 10, paving sections should have a minimum gravel equivalent of 1.44 feet. This can be achieved by using 3 inches of asphalt concrete over 9 inches of aggregate base.

d. In the truck traffic areas described above, a PCC paving design would be 6 inches of PCC over 4 inches of aggregate base. The concrete should have a minimum compressive strength of 3,700 psi. Cracks can be controlled by placing contraction joints spaced about 15 feet apart in each direction. Slabs should have aspect ratios of about 1:1. Reinforcing would provide additional crack control. However, contraction joints are still necessary and the steel should be interrupted at the joints.

e. The above paving sections have been designed for the type of traffic indicated. If the pavement is placed before construction on the project is complete, construction loads should be taken into account.

f. Subgrade should be compacted to a minimum of 90% of maximum density to a depth of 12 inches. The subgrade should be firm and unyielding. Aggregate base should be compacted to a minimum of 95% maximum density and should be firm and unyielding prior to placing concrete.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by ESSC during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

1. Review of the building and grading plans during the design phase of the project.
2. Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
3. Consultation as required during construction.
4. Special Inspection as necessary.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analysis and recommendations submitted in this report are based in part upon the data obtained from the boring and CPT soundings on the site. The nature and extent of variations between and beyond the boring and soundings may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are due to natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structure and other improvements are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, ESSC has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client and their authorized agents.

It is recommended that ESSC be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If ESSC is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations contained herein.

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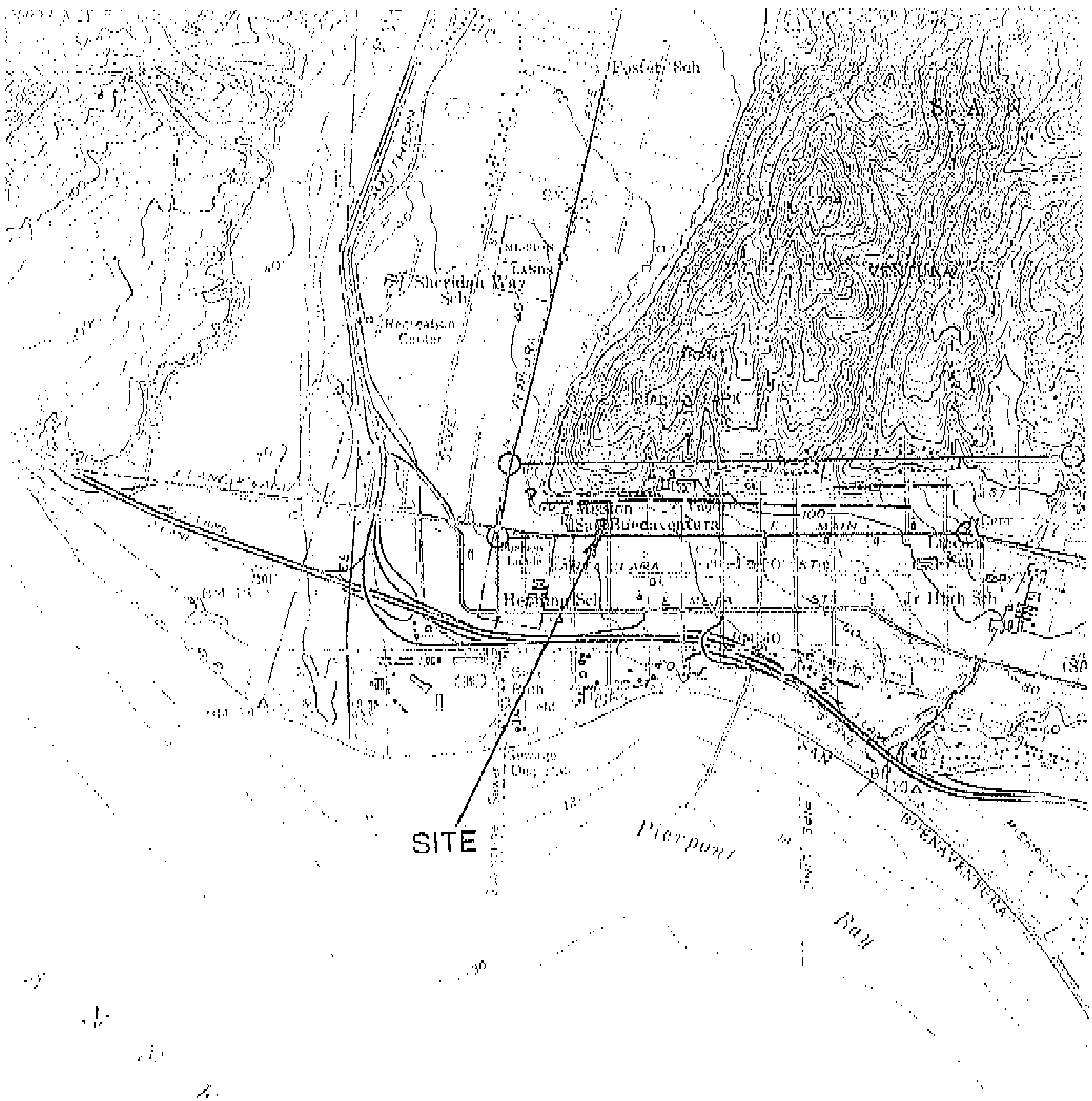
END OF TEXT

Appendices

APPENDIX A

Vicinity Map
Site Plan
Regional Geology Map 1 (Dibblee, 1988)
Regional Geology Map 2 (Rockwell, 1984)
Regional Geology Map 3 (DMG, 1978)
Regional Geology Map 4 (U.S.G.S., 1976)
Field Investigation
Boring Log
Symbols Commonly Used on Boring Logs
Unified Soil Classification
CPT Logs and Interpretations
CPT Profile



SCALE: 1"=2,000'

NORTH

"Taken from U.S.G.S. 7.5' Ventura Quadrangle, 1951 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA

1731-A Walter Street, Ventura, California 93003
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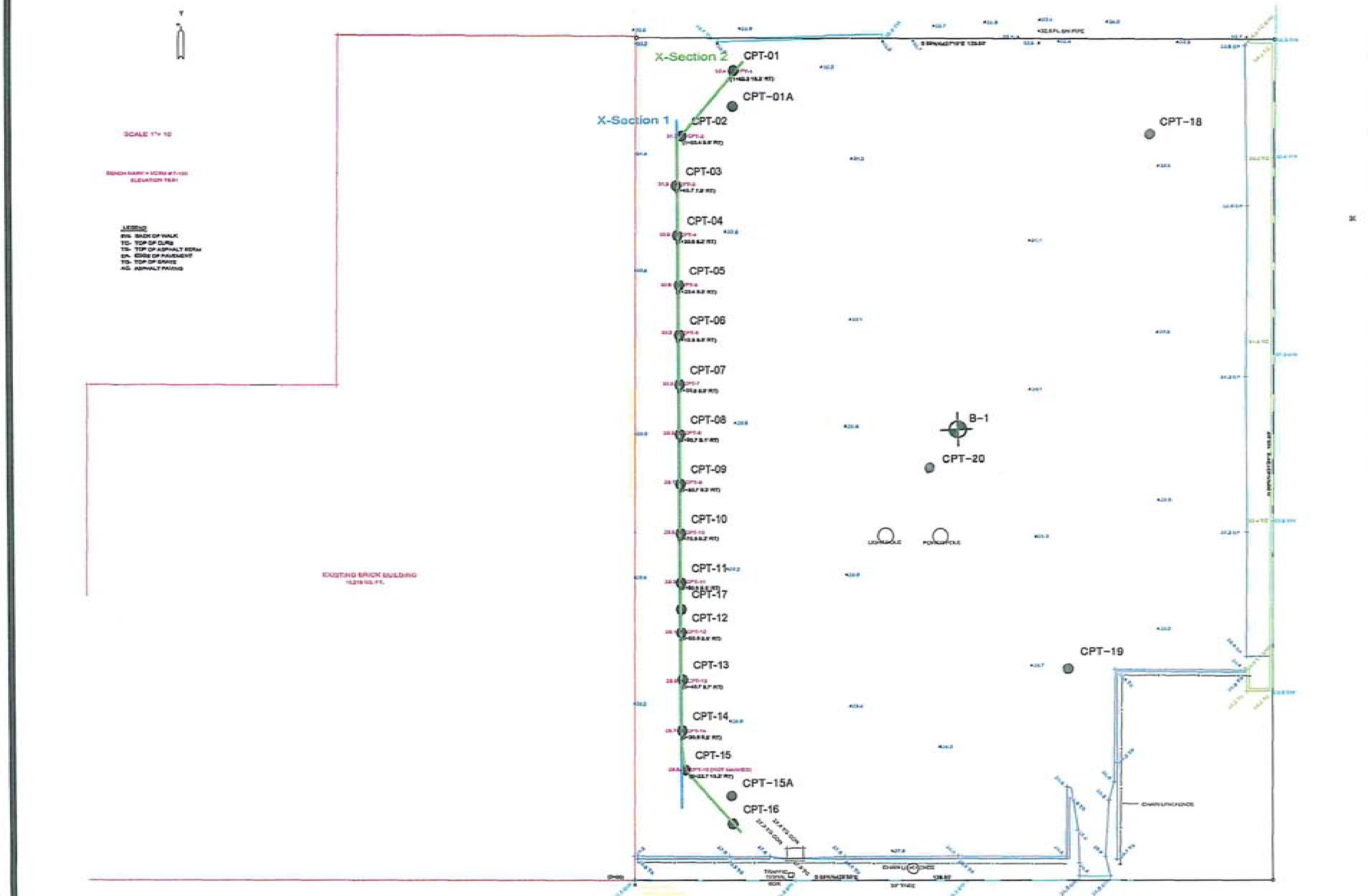
VICINITY MAP

NWC Palm Street and Main Street
Ventura, California

VT-23104-01

Sep-04

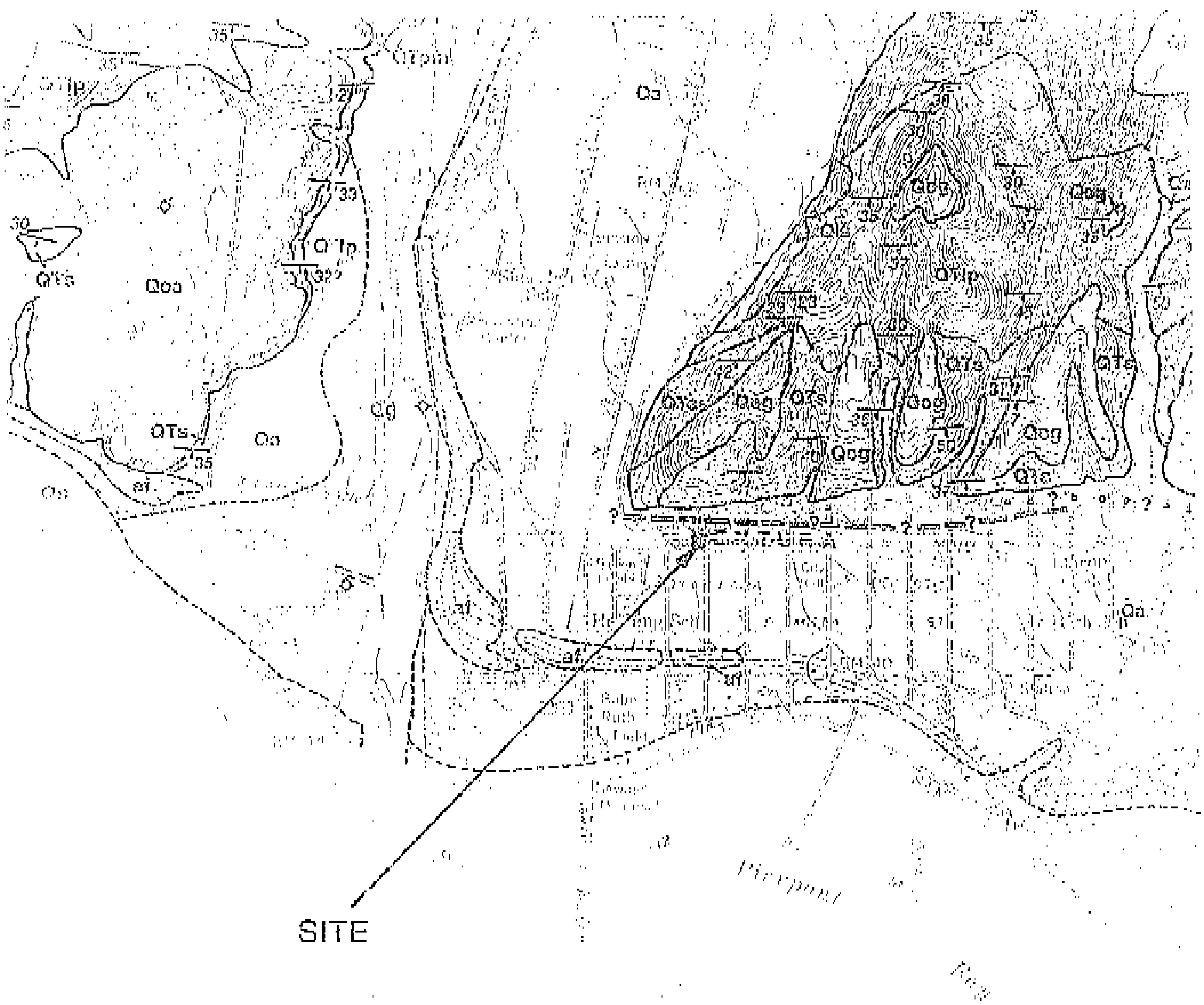


SITE PLAN

EARTH SYSTEMS SOUTHERN CALIFORNIA

VT-23104-01 SEPTEMBER 2004

Gregg Insitu. Job Number 04-051SH	
Earth Systems	
Date: March 23, 2003	Units: Meters
Gregg Insitu.	Figure: Base Map



SCALE: 1"=2,000'

NORTH

*Taken from Geologic Map of the Ventura and Pitas Point Quadrangles, Thomas W. Dibblee, 1988

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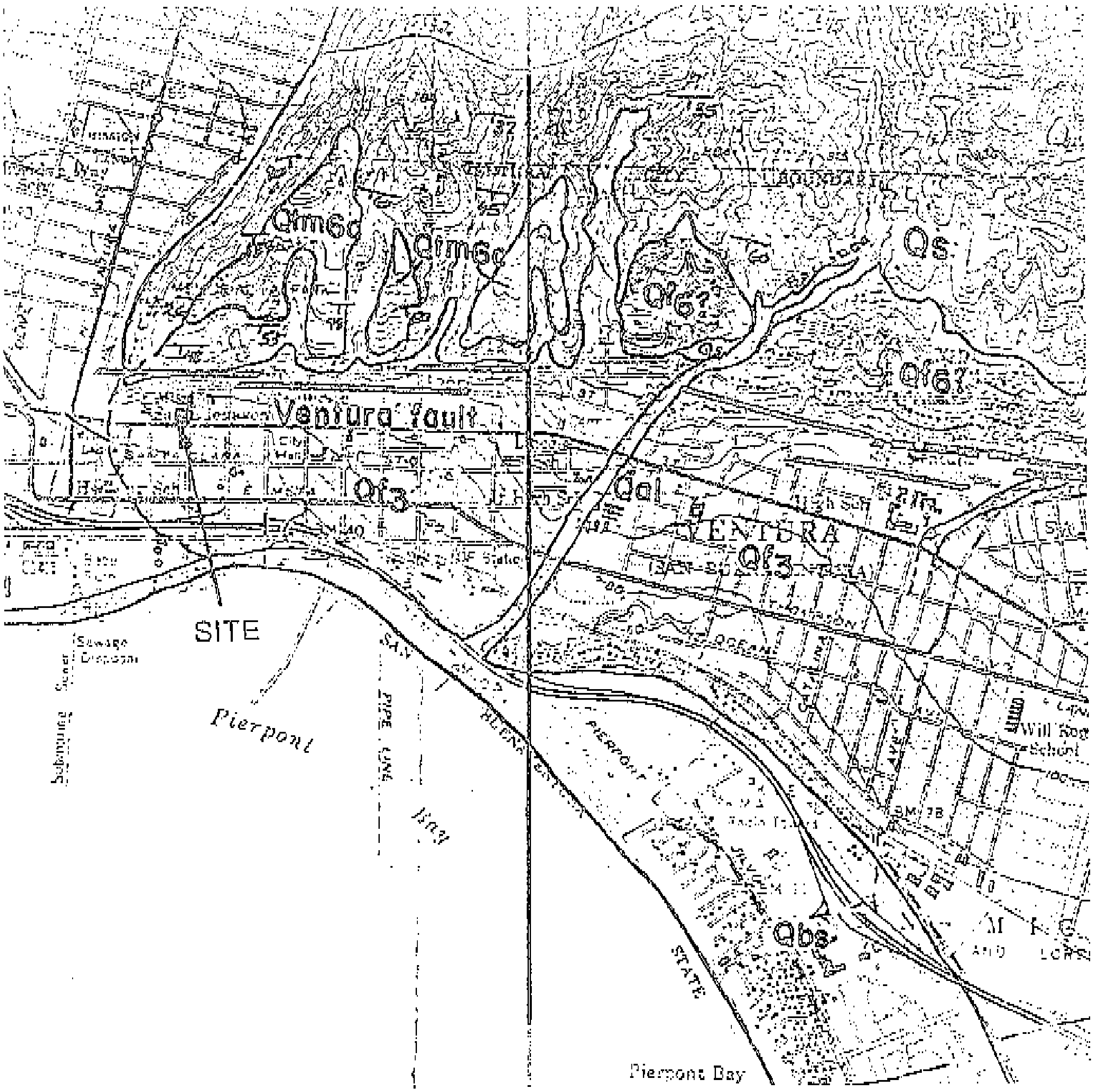
REGIONAL GEOLOGY MAP 1
NWC Palm Street and Main Street
Ventura, California

VT-23104-01 Sep-04

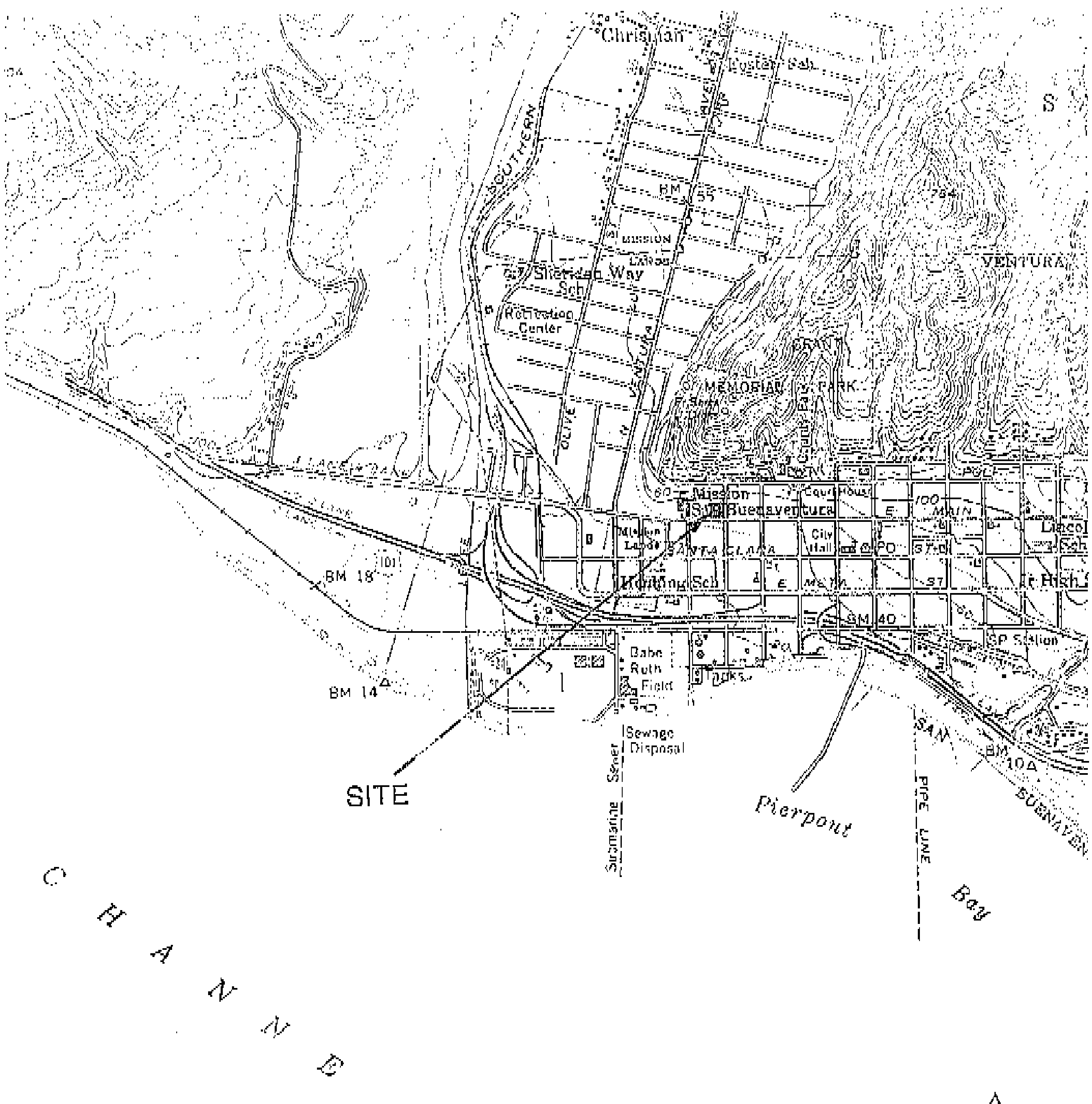


SCALE: 1"=2,000'

NORTH

*Taken from Tectonic Geomophology and Earthquake Hazard, North Flank, Central Ventura Basin, California, Keller, Johnson, Clark, Rockwell, USGS OFR 81-376, 1984

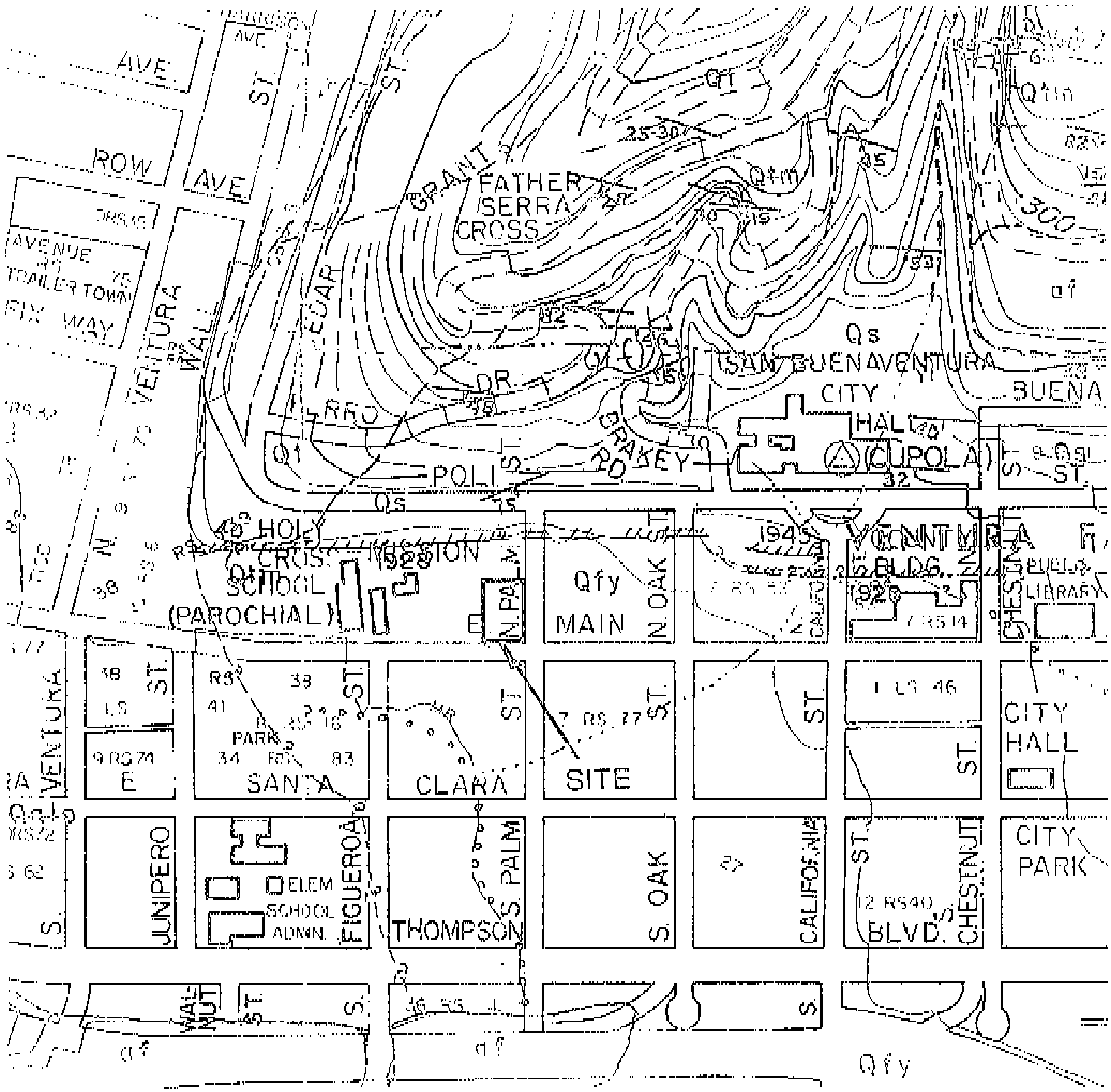
EARTH SYSTEMS SOUTHERN CALIFORNIA	REGIONAL GEOLOGY MAP 2 NWC Palm Street and Main Street Ventura, California
1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	VT-23104-01 Sep-04



SCALE: 1"=2,000'

*Taken from U.S.G.S. 7.5' Ventura Quadrangle, 1951 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA 1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	REGIONAL GEOLOGY MAP 3 NWC Palm Street and Main Street Ventura, California VT-23104-01 Sep-04



SCALE: 1"=2,000'

NORTH

*Taken from Geology of the Ventura Fault, Sarna Wojcicki and Others, USGS Map MF-781, 1976

EARTH SYSTEMS SOUTHERN CALIFORNIA	**REGIONAL GEOLOGY MAP 4** NWC Palm Street and Main Street Ventura, California
1731-A Walter Street, Ventura, California 93003 PH: (805) 642-6727 FAX: (805) 642-1325	VT-23104-01 Sep-04

FIELD INVESTIGATION

A. One boring was drilled to a maximum depth of 50.5 feet below the existing ground surface to observe the soil profile and to obtain samples for laboratory analysis. The boring was drilled on July 13, 2004, using a 6-inch outside diameter hollow stem auger powered by a Mobile Drill B-80 truck mounted drilling rig. The approximate location of the boring was determined in the field by pacing and sighting, and is shown on the Site Plan in this Appendix.

B. Twenty cone penetration test soundings (CPT's) were made to a depth of 70 feet below the existing ground surface on February 16 and 17, and on July, 16, 2004. The CPT's were conducted in general accordance with the current ASTM specifications (D 5778 and D 3441) using an electrical cone penetrometer. The cone penetrometer assembly consisted of a conical tip and a friction sleeve. The conical tip had a 60-degree apex angle and a diameter of 1.4 inches. The friction sleeve was 5.25 inches long and 1.4 inches in diameter. The CPT's consisted of pushing an instrumented cone-tipped probe into the ground while simultaneously recording the resistance to penetration at the cone tip and along the friction sleeve. The approximate location of the CPT's were determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix. The CPT logs and their interpretation are presented in this Appendix.

C. Samples were obtained within the test borings with a Modified California (MC) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586). The MC sampler has a 3-inch outside diameter and a 2.37-inch inside diameter. Samples from below groundwater were taken with a Standard Penetration Test split spoon sampler with a 2-inch outside diameter and 1.63-inch inside diameter. The samples were obtained by driving the samplers with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. A downhole hammer was used and it was lifted and dropped with a power reversing hydraulic winch.

D. Bulk samples of shallow soils were gathered from the auger cuttings.

E. The final log of the boring and CPT's represent our interpretation of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface investigation. The final logs are included in this Appendix.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1
PROJECT NAME: NWC of Palm & Main
PROJECT NUMBER: VT-23104-01
BORING LOCATION: Per Plan

DRILLING DATE: July 13, 2004
DRILL RIG: Mobile B-80
DRILLING METHOD: 6" Hollow Stem Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0									SURFACE: Asphalt over Base.
	X		■	9/6/7		ML	99.9	20.5	ARTIFICIAL FILL: Fine to coarse sandy clayey SILT with fine gravel, trace small pieces of brick, moist, stiff, dark brown to moderate brown.
5	X		■	4/7/11		ML	102.1	18.5	ARTIFICIAL FILL: Fine sandy SILT, trace clay, moist, stiff, mottled olive brown to pale brown to moderate yellowish brown to orangish brown.
			■	3/4/6		CL	92.5	28.7	ALLUVIUM: Silty CLAY with fine sand, low plasticity, moist, medium stiff, dark brown to light olive. HYDRO: 43.9% clay, 27.1% silt, 29.0% sand, 0% gravel.
10			■	8/10/12		CL	104.6	22.1	ALLUVIUM: CLAY with silt and fine sand, medium plasticity, trace odor of gasoline, moist, very stiff, black to dark gray. HYDRO: 42.5% clay, 27.4% silt, 30.1% sand, 0% gravel.
15			☐	5/6/8		CL	--	--	ALLUVIUM: Silty CLAY, low plasticity, very moist, stiff, light olive. HYDRO: 52.6% clay, 13.4% silt, 34.0% sand, 0% gravel.
20		■		3/5/7		CL	--	--	ALLUVIUM: CLAY with silt and fine sand, low to medium plasticity, moist, stiff, slight orangish brown to light olive. HYDRO: 41.1% clay, 28.0% silt, 30.9% sand, 0% gravel.
25		■		3/5/6		CH	--	--	ALLUVIUM: CLAY with fine sand and silt, medium to high plasticity, wet, stiff, light olive to moderate olive, some gray. HYDRO: 42.8% clay, 26.0% silt, 31.2% sand, 0% gravel.
30		■		3/5/7		CL	--	--	ALLUVIUM: CLAY with fine sand and silt, low to medium plasticity, wet, stiff, dark olive to moderate olive. HYDRO: 44.7% clay, 23.9% silt, 31.4% sand, 0% gravel.
35		■		4/6/6		CH	--	--	ALLUVIUM: CLAY with silt and fine sand, medium to high plasticity, wet, stiff, dark olive to gray. HYDRO: 55.1% clay, 23.4% silt, 21.5% sand, 0% gravel.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1	DRILLING DATE: July 13, 2004
PROJECT NAME: NWC of Main St. and Poli St.	DRILL RIG: Mobile B-80
PROJECT NUMBER: VT-23104-01	DRILLING METHOD: 6" Hollow Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
40		X		4/6/8		CL	--	--	ALLUVIUM: Silty fine sandy CLAY, low plasticity, wet, stiff, dark olive. HYDRO: 23.5% clay, 38.3% silt, 38.2% sand, 0% gravel.
45		X		6/10/14		SM	--	--	ALLUVIUM: Clayey silty fine SAND, wet, very stiff, dark olive. HYDRO: 23.9% clay, 30.9% silt, 45.1% sand, 0.1% gravel.
50		X		13/18/25		SM	--	--	ALLUVIUM: Silty fine to medium SAND, some clay, wet, dense, moderate olive. HYDRO: 8.3% clay, 34.1% silt, 57.6% sand, 0% gravel.
55									Final Depth: 51.5 feet Groundwater was encountered around 23.5 feet.
60									
65									
70									
75									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Modified California Split Barrel Sampler

Modified California Split Barrel Sampler - No Recovery

Standard Penetration Test (SPT) Sampler

Standard Penetration Test (SPT) Sampler - No Recovery

Perched Water Level

Water Level First Encountered

Water Level After Drilling

Pocket Penetrometer (tsf)

Vane Shear (ksf)

1. The approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between statigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.

Earth Systems So. Calif.

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Symbols Commonly Used on Boring Logs

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				S P	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SAND WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				S C	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				C L	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				O L	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				O H	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				P T	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

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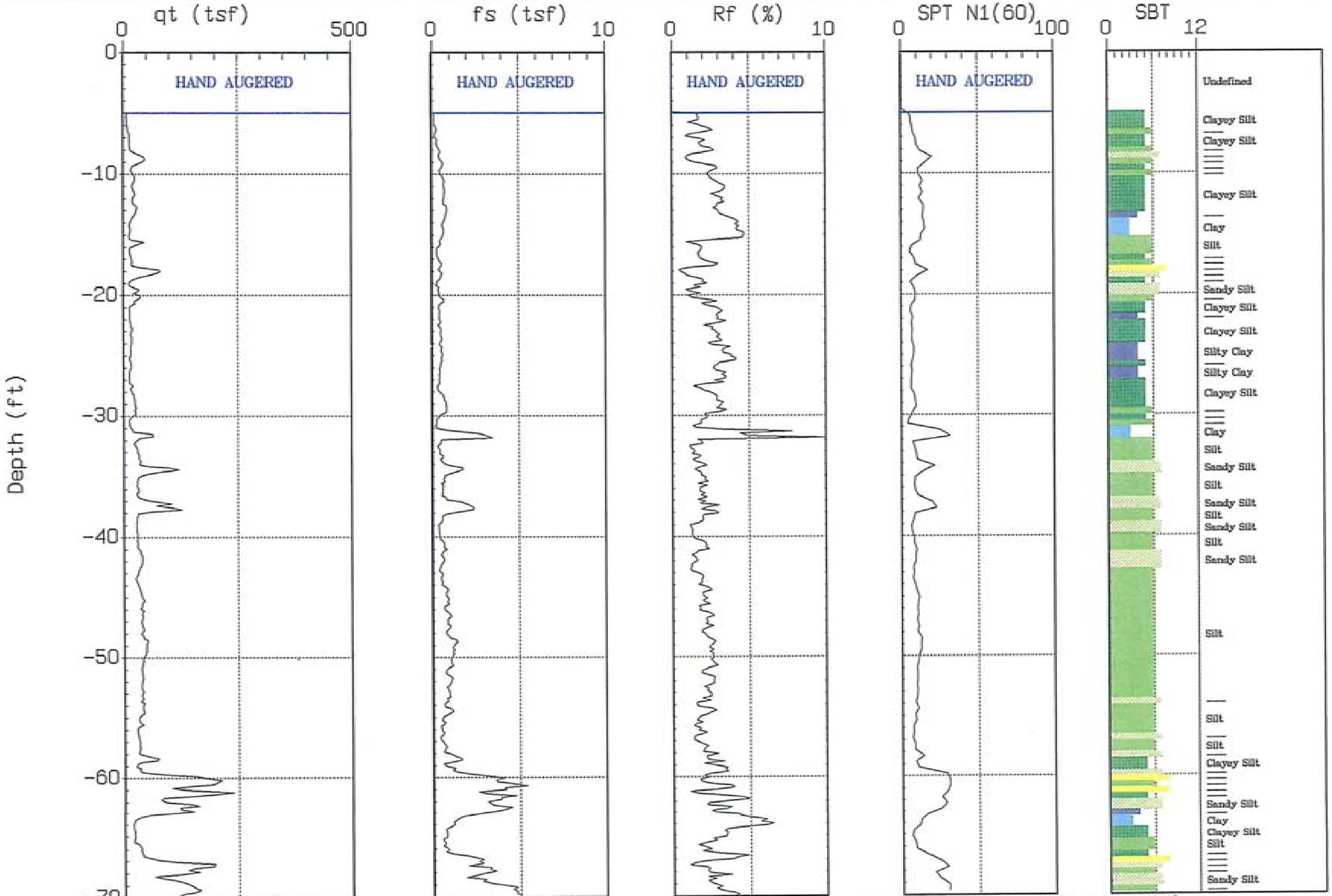
Unified Soil Classification System (USCS)

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-01

Engineer: T. TRANBY
Date: 02:16:04 08:28



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.014	0.014	0.10	0.99	1.70	1.6	3.27		1				0.06	21.5
0.30	1.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.041	0.041	0.10	1.00	1.70	1.6	3.27		1				0.05	7.0
0.46	1.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.069	0.069	0.11	1.00	1.70	1.6	3.27		1				0.05	4.1
0.61	2.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.096	0.096	0.11	1.00	1.70	1.6	3.27		1				0.05	2.8
0.76	2.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.124	0.124	0.11	1.00	1.70	1.6	3.28		1				0.05	2.1
0.91	3.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.151	0.151	0.12	1.00	1.70	1.6	3.28		1				0.05	1.7
1.07	3.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.179	0.179	0.12	1.00	1.70	1.6	3.28		1				0.05	1.4
1.22	4.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.206	0.206	0.13	1.00	1.70	1.6	3.28		1				0.05	1.2
1.37	4.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.234	0.234	0.13	1.00	1.70	1.6	3.28		1				0.05	1.0
1.52	5.0	3.00	0.64	Sensitive fine grained	ML	soft	110	2.0	2	0.261	0.261	0.70	0.91	1.70	4.8	2.98		2				0.16	3.1
1.68	5.5	6.94	1.53	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	3	0.289	0.289	1.00	0.86	1.70	11.1	2.81		3				0.30	6.9
1.83	6.0	8.31	1.08	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.316	0.316	2.06	0.85	1.70	13.4	2.80		4				0.47	7.6
1.98	6.5	11.34	1.88	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.344	0.344	1.92	0.81	1.70	18.2	2.67		6				0.65	9.6
2.13	7.0	12.93	1.58	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.371	0.371	1.60	0.79	1.70	20.8	2.58	65.8	11	13	12	30		
2.29	7.5	13.54	1.82	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.399	0.399	1.88	0.79	1.70	21.8	2.60		7				0.77	9.9
2.44	8.0	17.04	2.45	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.426	0.426	2.51	0.79	1.70	27.4	2.60	91.0	13	18	23	31		
2.59	8.5	39.47	1.01	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.454	0.454	1.02	0.63	1.70	63.4	2.07	80.2	20	18	58	33		
2.74	9.0	38.93	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.481	0.481	1.56	0.67	1.69	62.2	2.19	102.5	19	21	57	33		
2.90	9.5	17.64	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.509	0.509	2.89	0.80	1.70	28.3	2.63		9				1.01	10.1
3.05	10.0	20.68	2.39	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.536	0.536	2.45	0.77	1.69	33.0	2.53	98.4	14	19	31	31		
3.20	10.5	23.85	2.74	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.564	0.564	2.81	0.77	1.62	38.6	2.53	107.8	16	22	35	32		
3.35	11.0	19.78	3.36	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.591	0.591	3.46	0.81	1.60	29.9	2.68		10				1.13	9.7
3.51	11.5	23.28	2.99	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.619	0.619	3.07	0.79	1.53	33.6	2.59	109.1	15	22	32	32		
3.66	12.0	21.00	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.646	0.646	3.26	0.81	1.49	29.5	2.65		11				1.20	9.5
3.81	12.5	22.67	3.09	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.674	0.674	3.18	0.80	1.43	30.7	2.63		11				1.29	9.8
3.96	13.0	28.07	2.90	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.701	0.701	2.98	0.76	1.38	36.5	2.55	111.0	17	22	35	32		
4.11	13.5	21.97	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.729	0.729	3.63	0.82	1.36	28.2	2.69		11				1.25	8.7
4.27	14.0	15.27	4.21	Clay	CL/CH	stiff	110	1.0	15	0.756	0.756	4.43	0.87	1.34	19.4	2.87		15				0.85	5.8
4.42	14.5	14.25	4.26	Clay	CL/CH	stiff	110	1.0	14	0.784	0.784	4.51	0.89	1.30	17.6	2.91		14				0.79	5.2
4.57	15.0	13.38	4.08	Clay	CL/CH	stiff	110	1.0	13	0.811	0.811	4.90	0.90	1.27	16.1	2.97		13				0.74	4.6
4.72	15.5	24.57	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.839	0.839	2.86	0.80	1.20	28.0	2.63		12				1.40	8.5
4.88	16.0	20.46	1.80	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.866	0.866	1.88	0.79	1.17	22.8	2.59	73.0	9	15	15	30		
5.03	16.5	14.16	1.77	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.894	0.894	1.88	0.83	1.15	15.4	2.73		7				0.78	4.5
5.18	17.0	16.92	2.09	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.921	0.921	2.20	0.83	1.12	17.9	2.71		8				0.94	5.2
5.33	17.5	24.12	2.36	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	10	0.949	0.949	2.45	0.80	1.09	24.9	2.63		10				1.36	7.3
5.49	18.0	74.46	0.67	Sand to Silty Sand	SP/SM	medium dense	100	4.0	19	0.975	0.975	0.63	0.58	1.05	73.8	1.90	87.6	19	18	64	33		
5.64	18.5	34.74	1.49	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	1.001	1.001	1.53	0.73	1.04	34.2	2.39	77.9	12	16	32	31		
5.79	19.0	12.79	1.91	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	1.029	1.029	2.00	0.87	1.02	12.4	2.83		6				0.69	3.4
5.94	19.5	27.91	1.31	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	1.056	1.056	1.30	0.75	1.00	26.4	2.45	67.3	11	13	22	30		
6.10	20.0	31.01	1.38	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	10	1.085	1.085	1.43	0.74	0.98	28.6	2.44	70.9	10	14	25	30		
6.25	20.5	25.46	2.35	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.115	1.115	2.46	0.81	0.96	23.1	2.65		10				1.43	6.6
6.40	21.0	14.09	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.145	1.145	2.98	0.89	0.93	12.4	2.92		7				0.76	3.4
6.55	21.5	13.31	3.08	Silty Clay to Clay	CL	stiff	120	1.5	9	1.175	1.175	3.38	0.91	0.91	11.4	2.98		9				0.71	3.1
6.71	22.0	13.04	3.17	Silty Clay to Clay	CL	stiff	120	1.5	9	1.205	1.205	3.49	0.92	0.89	10.9	3.00		9				0.70	2.9
6.86	22.5	15.42	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.235	1.235	2.84	0.89	0.87	12.7	2.90		8				0.83	3.4
7.01	23.0	17.48	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.265	1.265	2.97	0.88	0.85	14.1	2.87		9				0.95	3.8
7.16	23.5	16.38	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.295	1.279	3.29	0.89	0.84	13.1	2.93		8				0.89	3.5
7.32	24.0	16.57	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.325	1.294	2.98	0.89	0.84	13.1	2.90		8				0.90	3.5
7.47	24.5	14.79	3.50	Silty Clay to Clay	CL	stiff	120	1.5	10	1.355	1.308	3.85	0.92	0.82	11.5	3.01		10				0.79	3.1
7.62	25.0	14.83	3.72	Silty Clay to Clay	CL	stiff	120	1.5	10	1.385	1.323	4.10	0.93	0.81	11.5	3.03		10				0.80	3.1
7.77	25.5	13.98	3.80	Silty Clay to Clay	CL	stiff	120	1.5	9	1.415	1.337	4.23	0.94	0.80	10.6	3.06		9				0.74	2.8
7.92	26.0	15.86	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.445	1.351	3.10	0.90	0.80	12.0	2.94		8				0.85	3.2
8.08	26.5	12.37	3.33	Silty Clay to Clay	CL	stiff	120	1.5	8	1.475	1.366	3.78	0.95	0.79	9.2	3.08		8				0.65	2.4
8.23	27.0	12.39	3.23	Silty Clay to Clay	CL	stiff	120	1.5	8	1.505	1.380	3.68	0.94	0.78	9.1	3.08		8				0.65	2.4
8.38	27.5	16.70	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.535	1.395	1.95	0.86	0.79	12.4	2.82		7				0.90	3.3
8.53	28.0	17.66	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.565	1.409	2.71	0.88	0.78	13.0	2.88		9				0.96	3.4
8.69	28.5	22.32	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.595	1.423	3.17	0.87	0.77	16.3	2.84		11				1.23	4.4
8.84	29.0	23.76	3.24	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.625	1.438	3.48	0.87	0.77	17.2	2.85		12				1.31	4.6
8.99	29.5	25.02	3.19	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.655	1.452	3.40	0.86	0.76	18.0	2.82		13				1.39	4.8
9.14	30.0	19.43	2.21	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.685	1.467	2.42	0.86	0.75	13.8	2.83		10				1.06	3.6
9.30	30.5	11.98	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.715	1.481	2.24	0.92	0.73	8.3	3.00		6				0.62	2.1
9.45	31.0	14.74	2.21	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.745	1.495	2.50	0.90	0.73	10.2	2.95		7				0.78	2.6
9.60	31.5	48.82	5.83	Clay	CL/CH	hard	120	1.0	49	1.775	1.510	6.05	0.85	0.74	34.1	2.79		49				2.76	9.3
9.75	32.0	28.93	4.62	Silty Clay to Clay	CL	very stiff	120	1.5	19	1.805	1.524	4.93	0.88	0.72	19.8	2.89		19				1.61	5.3
9.91	32.5	24.31	1.45	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.835	1.539	1.56	0.81	0.74	17.0	2.65		10				1.34	4.4
10.06	33.0	29.11	1.40	Sandy Silt to Clayey Silt	ML	loose	120	2.5	12	1.865	1.553	1.50	0.79	0.74	20.4	2.57	64.3	9	13	11	30		
10.21	33.5	32.22	1.66	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	13	1.895	1.567	1.78	0.79	0.73	22.3	2.58	71.4	10	14	15	30		
10.36	34.0	37.71	1.95	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.925	1.582	2.06	0.78	0.73	26.0	2.58	81.1	12	16	21	31		
10.52	34.5	99.72	1.63	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	33	1.955	1.596	1.66	0.66	0.76	71.9	2.10	113.5	26	23	63	35		
10.67	35.0	39.51	1.99	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	16	1.985	1.611	2.09	0.78	0.72	26.9	2.58	82.6	12	17	22	31		
10.82	35.5	28.33	2.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.015	1.625	2.23	0.82	0.70	18.8	2.70		11				1.57	4.9

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 09/02/04

CPT SOUNDING: CPT-1   Plot: 1   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

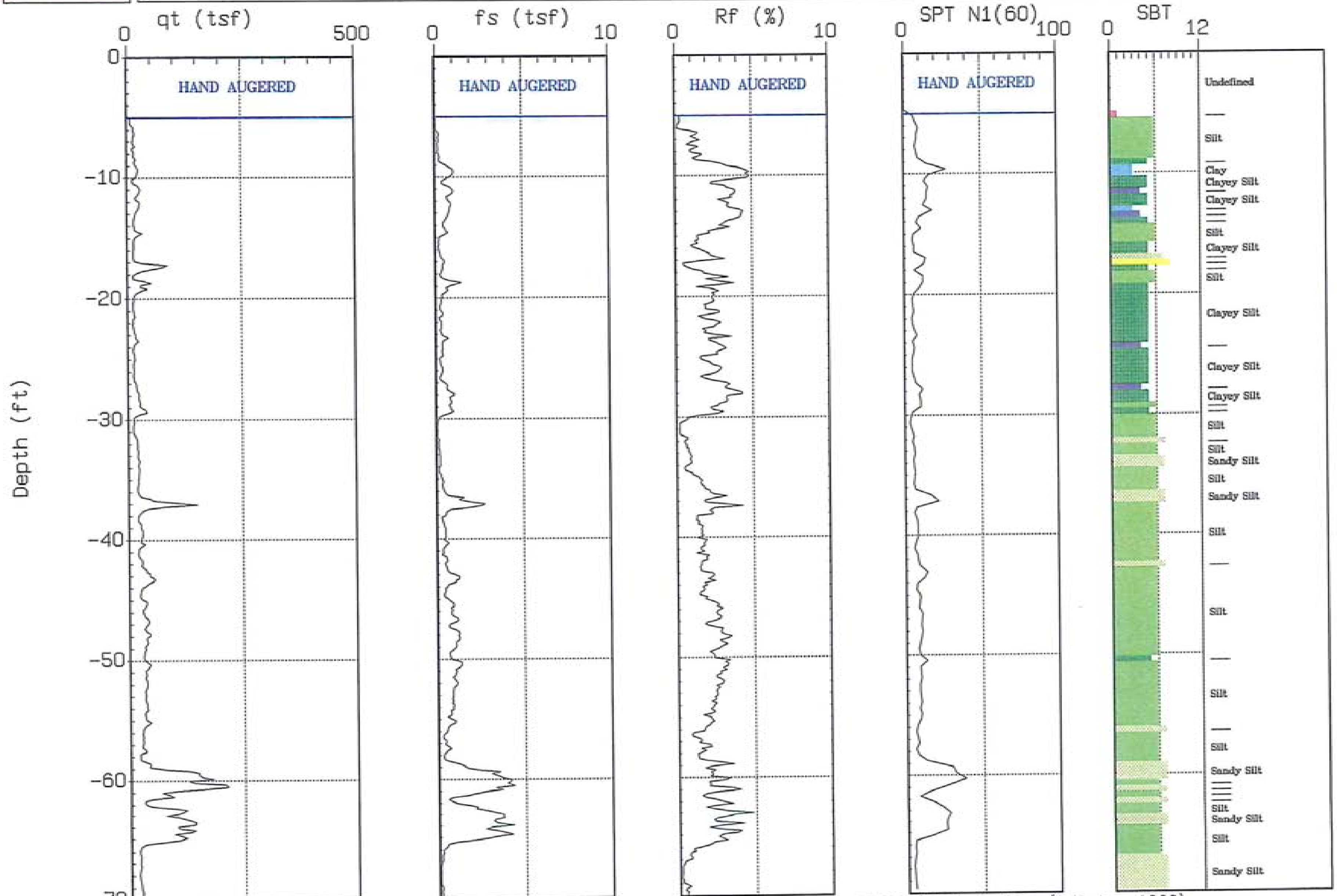
Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	29.05	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.045	1.639	2.15	0.82	0.70	19.2	2.68		12				1.61	4.9
11.13	36.5	28.05	2.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.075	1.654	2.20	0.82	0.69	19.0	2.69		12				1.61	4.9
11.28	37.0	75.11	1.88	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	25	2.105	1.668	1.93	0.71	0.73	51.5	2.31	102.8	19	31	49	33		
11.43	37.5	100.12	2.39	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	33	2.135	1.683	2.45	0.70	0.72	68.5	2.29	131.9	26	26	61	35		
11.58	38.0	41.76	2.58	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.165	1.697	2.73	0.80	0.68	26.7	2.63		17				2.33	6.9
11.73	38.5	27.47	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.195	1.711	2.12	0.83	0.67	17.4	2.71		11				1.52	4.4
11.89	39.0	25.89	1.33	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.225	1.726	1.45	0.81	0.67	16.5	2.64		10				1.42	4.1
12.04	39.5	26.70	1.29	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.255	1.740	1.41	0.80	0.67	17.0	2.63		11				1.47	4.2
12.19	40.0	28.31	1.40	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.285	1.755	1.53	0.80	0.67	17.8	2.63		11				1.56	4.4
12.34	40.5	28.27	2.13	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.315	1.769	2.32	0.84	0.65	17.4	2.74		11				1.56	4.4
12.50	41.0	32.24	2.10	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.345	1.783	2.27	0.82	0.65	19.9	2.68		13				1.79	5.0
12.65	41.5	36.62	1.44	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.375	1.798	1.53	0.77	0.65	23.1	2.53	67.0	9	14	16	30		
12.80	42.0	38.58	1.53	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	13	2.405	1.812	1.63	0.77	0.65	24.0	2.53	70.7	10	14	18	30		
12.95	42.5	34.54	1.21	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.435	1.827	1.30	0.77	0.66	21.4	2.52	61.6	9	12	13	29		
13.11	43.0	29.26	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.465	1.841	1.76	0.81	0.64	17.6	2.66		12				1.61	4.4
13.26	43.5	24.50	1.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.495	1.855	2.20	0.85	0.62	14.3	2.79		10				1.33	3.0
13.41	44.0	29.94	1.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.525	1.870	2.00	0.83	0.62	17.7	2.70		12				1.65	4.4
13.56	44.5	33.85	2.34	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.555	1.884	2.53	0.83	0.62	19.9	2.71		14				1.89	5.0
13.72	45.0	37.45	2.11	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.585	1.899	2.27	0.81	0.62	22.1	2.65		15				2.09	5.5
13.87	45.5	39.14	2.20	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.615	1.913	2.36	0.81	0.62	22.9	2.64		16				2.19	5.7
14.02	46.0	37.54	1.76	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.645	1.927	1.89	0.79	0.62	22.0	2.60		15				2.10	5.4
14.17	46.5	37.90	2.54	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.675	1.942	2.73	0.82	0.61	21.7	2.70		15				2.11	5.4
14.33	47.0	37.12	2.26	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.705	1.956	2.43	0.82	0.60	21.2	2.68		15				2.07	5.3
14.48	47.5	39.27	2.34	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.735	1.971	2.51	0.81	0.60	22.4	2.67		16				2.19	5.6
14.63	48.0	38.72	2.06	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.765	1.985	2.22	0.81	0.60	21.7	2.65		15				2.13	5.4
14.78	48.5	46.93	2.58	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.795	1.999	2.74	0.80	0.60	26.6	2.63		19				2.64	6.6
14.94	49.0	46.66	2.51	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.825	2.014	2.68	0.80	0.60	26.3	2.63		19				2.63	6.5
15.09	49.5	45.50	2.59	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.855	2.028	2.76	0.81	0.59	25.4	2.65		18				2.56	6.3
15.24	50.0	40.45	2.60	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.885	2.043	2.80	0.82	0.59	22.2	2.70		16				2.26	5.5

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-02

Engineer: T. TRANBY
Date: 02:16:04 09:05



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-2 | Plot: 2 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.014	0.014	0.10	0.99	1.70	1.6	3.27		1				0.06	21.5
0.30	1.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.041	0.041	0.10	1.00	1.70	1.6	3.27		1				0.06	7.0
0.46	1.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.069	0.069	0.11	1.00	1.70	1.6	3.27		1				0.05	4.1
0.61	2.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.096	0.096	0.11	1.00	1.70	1.6	3.27		1				0.05	2.8
0.76	2.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.124	0.124	0.11	1.00	1.70	1.6	3.28		1				0.05	2.1
0.91	3.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.151	0.151	0.12	1.00	1.70	1.6	3.28		1				0.05	1.7
1.07	3.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.179	0.179	0.12	1.00	1.70	1.6	3.28		1				0.05	1.4
1.22	4.0	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.206	0.206	0.13	1.00	1.70	1.6	3.28		1				0.05	1.2
1.37	4.5	1.00	0.10	Organic Material	OL/OH	very soft	110	1.0	1	0.234	0.234	0.13	1.00	1.70	1.6	3.28		1				0.05	1.0
1.52	5.0	3.00	0.16	Sensitive fine grained	ML	soft	110	2.0	2	0.261	0.261	0.18	0.87	1.70	4.8	2.93		2				0.16	3.1
1.68	5.5	8.31	0.25	Sensitive fine grained	ML	loose	110	2.0	4	0.289	0.289	0.28	0.74	1.70	13.3	2.43	13.3	7	3	-7	29		
1.83	6.0	14.81	0.39	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.316	0.316	0.40	0.68	1.70	23.6	2.25	23.0	10	5	17	30		
1.98	6.5	14.60	1.27	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.344	0.344	1.30	0.76	1.70	23.5	2.49	63.5	10	13	17	30		
2.13	7.0	12.69	1.33	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.371	0.371	1.37	0.76	1.70	20.4	2.55	62.0	8	12	11	29		
2.29	7.5	13.70	1.18	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.399	0.399	1.22	0.76	1.70	22.0	2.50	60.5	9	12	14	30		
2.44	8.0	14.19	1.24	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.426	0.426	1.28	0.76	1.70	22.8	2.49	62.4	9	12	15	30		
2.59	8.5	16.71	1.35	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.454	0.454	1.39	0.75	1.70	26.8	2.45	68.3	10	14	22	30		
2.74	9.0	19.44	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.481	0.481	3.11	0.79	1.70	31.2	2.61		10				1.12	11.8
2.90	9.5	22.52	4.54	Clay	CL/CH	very stiff	110	1.0	23	0.509	0.509	4.65	0.82	1.70	36.2	2.69		23				1.29	13.0
3.05	10.0	16.19	4.73	Clay	CL/CH	stiff	110	1.0	16	0.536	0.536	4.89	0.85	1.70	26.0	2.81		16				0.92	8.8
3.20	10.5	16.43	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.564	0.564	2.79	0.81	1.66	25.8	2.65		8				0.93	8.4
3.35	11.0	26.58	3.48	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.591	0.591	3.56	0.79	1.58	39.6	2.58	126.5	17	25	38	32		
3.51	11.5	21.37	3.79	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.619	0.619	3.90	0.82	1.55	31.3	2.66		14				1.22	10.1
3.66	12.0	23.61	3.24	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.646	0.646	3.33	0.80	1.48	33.0	2.62		12				1.35	10.7
3.81	12.5	24.40	3.47	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.674	0.674	3.57	0.80	1.44	33.1	2.64		12				1.40	10.6
3.96	13.0	17.70	4.32	Clay	CL/CH	stiff	110	1.0	18	0.701	0.701	4.50	0.85	1.42	23.6	2.81		18				1.00	7.3
4.11	13.5	14.57	4.13	Clay	CL/CH	stiff	110	1.0	15	0.729	0.729	4.35	0.87	1.39	19.1	2.87		15				0.81	5.7
4.27	14.0	13.98	3.13	Silty Clay to Clay	CL	stiff	110	1.5	9	0.756	0.756	3.31	0.86	1.34	17.6	2.82		9				0.78	5.2
4.42	14.5	23.04	2.79	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.784	0.784	2.89	0.80	1.27	27.7	2.63		12				1.31	8.5
4.57	15.0	18.24	1.70	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.811	0.811	1.78	0.79	1.23	21.8	2.60	70.6	8	14	13	29		
4.72	15.5	13.45	1.41	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	5	0.839	0.839	1.51	0.82	1.21	15.4	2.68		5				0.74	4.5
4.88	16.0	12.89	1.37	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	5	0.866	0.866	1.40	0.82	1.18	14.4	2.70		5				0.71	4.2
5.03	16.5	12.56	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.894	0.894	2.53	0.87	1.16	13.7	2.84		6				0.69	3.9
5.18	17.0	43.45	1.80	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.921	0.921	1.84	0.71	1.10	45.3	2.34	95.0	15	19	44	32		
5.33	17.5	54.77	0.77	Sand to Silty Sand	SP/SM	medium dense	100	4.0	14	0.948	0.948	0.78	0.63	1.07	55.0	2.06	76.0	14	15	52	31		
5.49	18.0	14.08	1.99	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.974	0.974	2.14	0.85	1.07	14.3	2.75		7				0.77	4.0
5.64	18.5	32.83	2.73	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.001	1.001	2.81	0.78	1.04	32.5	2.57	102.0	13	21	30	31		
5.79	19.0	33.33	2.62	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.029	1.029	2.70	0.78	1.02	32.2	2.56	100.4	13	20	30	31		
5.94	19.5	21.27	2.46	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.056	1.056	2.59	0.83	1.00	20.1	2.71		11				1.19	5.7
6.10	20.0	13.23	2.39	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.085	1.085	2.61	0.88	0.98	12.2	2.89		7				0.71	3.4
6.25	20.5	11.60	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.115	1.115	2.42	0.90	0.95	10.4	2.93		6				0.61	2.8
6.40	21.0	12.35	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.145	1.145	2.42	0.89	0.93	10.9	2.91		6				0.66	2.9
6.55	21.5	13.67	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.175	1.175	2.33	0.88	0.91	11.8	2.88		7				0.73	3.2
6.71	22.0	11.27	2.44	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.205	1.205	2.73	0.92	0.89	9.5	2.99		6				0.59	2.5
6.86	22.5	12.17	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.235	1.235	2.53	0.91	0.87	10.0	2.96		6				0.64	2.7
7.01	23.0	15.10	2.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.265	1.265	2.19	0.87	0.86	12.2	2.85		8				0.81	3.3
7.16	23.5	19.57	2.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.295	1.279	2.80	0.86	0.85	15.7	2.82		10				1.06	4.3
7.32	24.0	12.22	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.325	1.294	3.17	0.93	0.83	9.6	3.03		6				0.64	2.5
7.47	24.5	11.70	2.91	Silty Clay to Clay	CL	stiff	120	1.5	8	1.355	1.308	3.29	0.94	0.82	9.1	3.05		8				0.61	2.4
7.62	25.0	13.72	1.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.385	1.323	2.16	0.89	0.82	10.6	2.90		7				0.73	2.8
7.77	25.5	11.66	2.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.415	1.337	2.35	0.91	0.81	9.1	2.97		6				0.63	2.4
7.92	26.0	12.15	2.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.445	1.351	3.24	0.94	0.80	9.1	3.06		6				0.64	2.4
8.08	26.5	11.84	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.475	1.366	2.36	0.92	0.79	8.9	2.98		6				0.62	2.3
8.23	27.0	16.95	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.505	1.380	3.25	0.90	0.79	12.6	2.93		8				0.92	3.4
8.38	27.5	19.47	3.38	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.535	1.395	3.65	0.89	0.78	14.4	2.92		10				1.06	3.9
8.53	28.0	22.97	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.565	1.409	4.26	0.89	0.78	16.8	2.91		15				1.27	4.6
8.69	28.5	25.31	3.28	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.595	1.423	3.50	0.86	0.77	18.5	2.82		13				1.41	5.0
8.84	29.0	30.90	2.57	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.625	1.438	2.71	0.82	0.78	22.7	2.68		12				1.73	6.1
8.99	29.5	26.72	2.67	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.655	1.452	2.85	0.84	0.77	19.4	2.75		13				1.49	5.2
9.14	30.0	11.41	0.94	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.685	1.467	1.10	0.86	0.75	8.1	2.80		5				0.59	2.0
9.30	30.5	10.47	0.28	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	4	1.715	1.481	0.34	0.84	0.75	7.4	2.71		4				0.53	1.8
9.45	31.0	10.81	0.19	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	4	1.745	1.495	0.22	0.82	0.75	7.7	2.65		4				0.55	1.8
9.60	31.5	16.30	0.35	Sandy Silt to Clayey Silt	ML	loose	120	2.5	7	1.775	1.510	0.39	0.78	0.78	11.7	2.54	11.7	5	2	-12	26		
9.75	32.0	18.92	0.56	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	6	1.805	1.524	0.62	0.78	0.75	13.4	2.55	40.9	5	8	-6	26		
9.91	32.5	19.52	0.68	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.835	1.539	0.75	0.79	0.74	13.7	2.58	43.8	5	8	-6	26		
10.06	33.0	20.01	0.82	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.865	1.553	0.90	0.80	0.74	13.9	2.61		8				1.09	3.5
10.21	33.5	21.90	0.90	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.895	1.567	0.98	0.79	0.73	15.2	2.59	49.6	6	10	-1	28		
10.36	34.0	21.53	0.72	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.925	1.582	0.79	0.78	0.73	14.8	2.56	46.5	6	9	-2	28		
10.52	34.5	21.81	0.68	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	1.955	1.596	0.74	0.78	0.73	15.0	2.54	44.7	6	9	-2	28		
10.67	35.0	21.09	1.27	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.985	1.611	1.40	0.83	0.71	14.1	2.69		8				1.15	3.6
10.82	35.5	19.55	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.015	1.625	1.79	0.85	0.69	12.8	2.78		8				1.05	3.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING: CPT-2 — Plot: 2 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

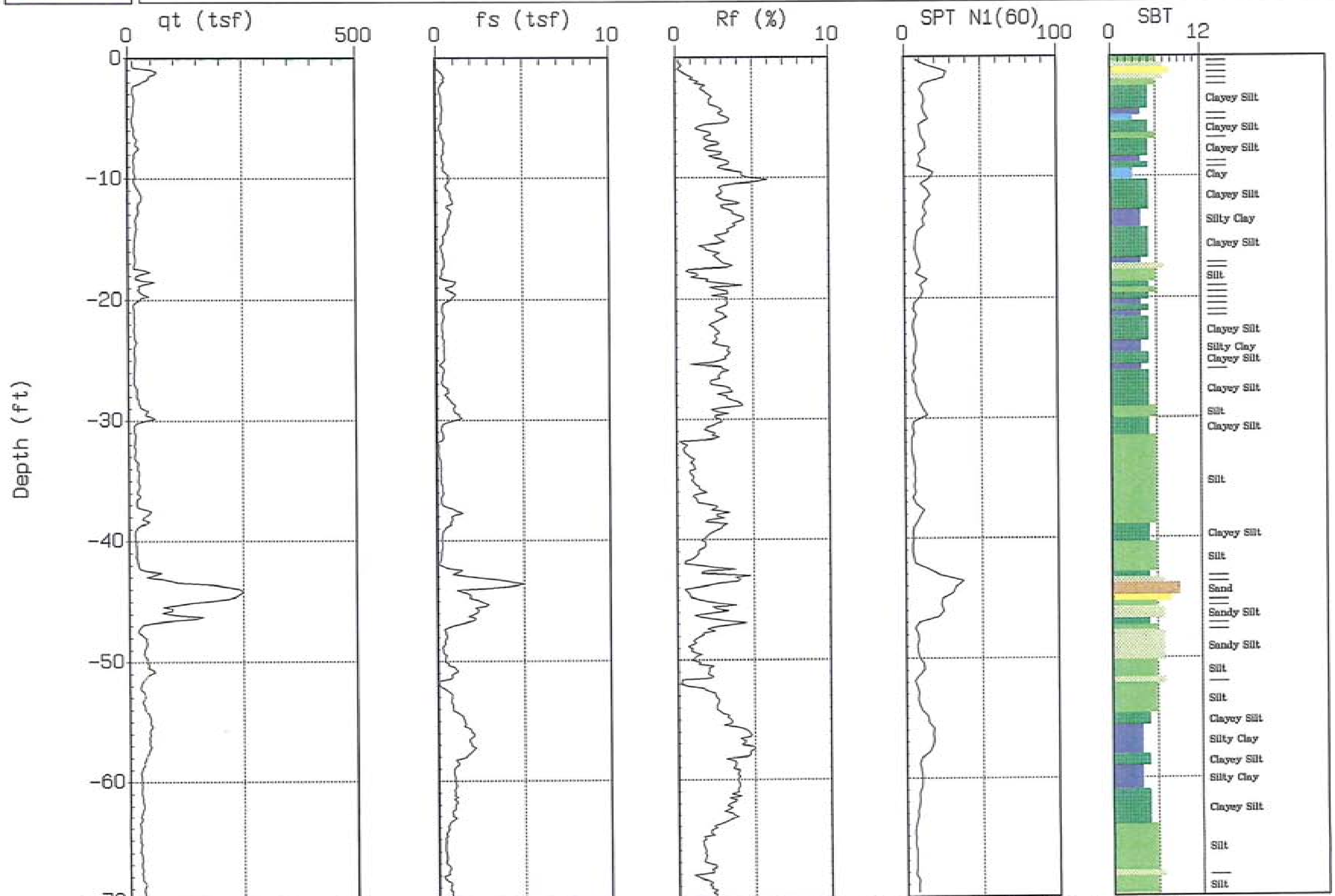
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr(%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.95	1.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.045	1.630	2.14	0.87	0.68	12.2	2.84		8				1.02	3.1
11.13	36.5	35.97	2.56	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.075	1.654	2.72	0.81	0.70	24.3	2.66		15				2.08	6.3
11.28	37.0	112.74	2.23	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	38	2.105	1.658	2.28	0.68	0.73	78.2	2.23	136.4	20	27	67	36		
11.43	37.5	33.68	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	2.135	1.683	3.11	0.83	0.68	21.0	2.74		17				1.80	5.6
11.58	38.0	20.75	1.94	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.165	1.697	2.17	0.86	0.68	13.0	2.82		8				1.12	3.3
11.73	38.5	22.86	1.32	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.195	1.711	1.46	0.82	0.67	14.5	2.69		9				1.24	3.6
11.89	39.0	26.05	1.55	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.225	1.726	1.69	0.82	0.67	16.5	2.68		10				1.43	4.1
12.04	39.5	27.91	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.255	1.740	1.74	0.81	0.67	17.6	2.66		11				1.54	4.4
12.19	40.0	25.25	1.67	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.285	1.755	1.84	0.83	0.66	15.7	2.72		10				1.38	3.9
12.34	40.5	27.48	1.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.315	1.769	1.94	0.83	0.65	17.0	2.70		11				1.51	4.3
12.50	41.0	19.10	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.345	1.783	1.83	0.87	0.64	11.5	2.83		8				1.02	2.8
12.65	41.5	23.20	1.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.375	1.798	1.94	0.85	0.64	14.0	2.77		9				1.26	3.5
12.80	42.0	26.40	1.73	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.405	1.812	1.90	0.83	0.64	16.0	2.72		11				1.45	4.0
12.95	42.5	34.16	1.52	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.435	1.827	1.63	0.79	0.65	21.0	2.58	67.5	8	14	12	29		
13.11	43.0	46.15	2.09	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	2.465	1.841	2.21	0.78	0.65	28.3	2.55	86.5	14	17	24	31		
13.26	43.5	48.91	2.24	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	20	2.495	1.855	2.30	0.78	0.65	29.9	2.55	91.0	14	18	27	31		
13.41	44.0	29.30	1.70	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.525	1.870	1.93	0.82	0.63	17.3	2.69		12				1.61	4.3
13.56	44.5	23.54	1.64	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.555	1.884	1.84	0.85	0.61	13.6	2.77		9				1.27	3.3
13.72	45.0	28.53	1.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.585	1.899	1.93	0.83	0.62	16.7	2.71		11				1.57	4.1
13.87	45.5	34.31	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.615	1.913	2.72	0.83	0.61	19.8	2.73		14				1.91	5.0
14.02	46.0	28.66	2.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.645	1.927	2.90	0.86	0.60	16.1	2.82		11				1.57	4.0
14.17	46.5	34.12	2.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.675	1.942	2.86	0.84	0.60	19.4	2.75		14				1.89	4.9
14.33	47.0	37.22	2.24	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.705	1.956	2.42	0.82	0.61	21.3	2.68		15				2.07	5.3
14.48	47.5	35.91	2.65	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.735	1.971	2.88	0.84	0.59	20.2	2.74		14				2.00	5.1
14.63	48.0	39.07	3.00	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.765	1.985	3.32	0.84	0.59	21.8	2.75		16				2.18	5.5
14.78	48.5	36.37	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.795	1.999	3.21	0.85	0.58	20.1	2.77		15				2.02	5.0
14.94	49.0	32.20	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.825	2.014	3.19	0.86	0.57	17.5	2.82		16				1.78	4.4
15.09	49.5	29.40	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.855	2.028	2.48	0.85	0.57	16.0	2.78		12				1.61	3.9
15.24	50.0	33.08	2.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.885	2.043	3.01	0.85	0.57	17.8	2.79		13				1.83	4.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-03

Engineer: T. TRANBY
Date: 02:16:04 09:59



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 09/02/04

CPT SOUNDING: CPT-3 | Plot: 3 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	Z.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg)	Nk: 17 Su (tsf)	OCR
0.15	0.5	10.14	0.30	Sensitive fine grained	ML	loose	110	2.0	5	0.014	0.014	0.30	0.72	1.70	16.3	2.36	16.3	9	3	7	29		
0.30	1.0	42.42	0.27	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.040	0.040	0.27	0.54	1.70	68.2	1.70	68.2	18	14	51	33		
0.46	1.5	51.53	0.60	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.066	0.066	0.66	0.59	1.70	82.8	1.95	101.2	29	20	69	36		
0.61	2.0	34.02	1.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.094	0.094	1.24	0.66	1.70	54.7	2.17	87.8	19	18	52	33		
0.76	2.5	11.84	1.76	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.121	0.121	1.78	0.80	1.70	19.0	2.64		6				0.69	20.0
0.91	3.0	10.90	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.149	0.149	2.07	0.82	1.70	17.5	2.70		5				0.63	21.7
1.07	3.5	13.75	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.176	0.176	2.23	0.80	1.70	22.1	2.65		7				0.80	23.1
1.22	4.0	13.21	2.38	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.204	0.204	2.47	0.81	1.70	21.2	2.68		7				0.77	19.2
1.37	4.5	12.25	2.94	Silty Clay to Clay	CL	stiff	110	1.5	8	0.231	0.231	2.99	0.84	1.70	19.7	2.76		8				0.71	15.6
1.52	5.0	9.98	3.23	Silty Clay to Clay	CL	stiff	110	1.5	7	0.259	0.259	3.31	0.87	1.70	16.0	2.86		7				0.57	11.3
1.68	5.5	9.90	2.51	Silty Clay to Clay	CL	stiff	110	1.5	7	0.286	0.286	2.59	0.85	1.70	15.9	2.80		7				0.57	10.1
1.83	6.0	12.75	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.314	0.314	1.78	0.79	1.70	20.5	2.61		6				0.73	11.9
1.98	6.5	16.17	2.03	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.341	0.341	2.07	0.78	1.70	26.0	2.57	81.2	14	16	21	31		
2.13	7.0	17.87	2.58	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.369	0.369	2.63	0.79	1.70	28.7	2.60	94.6	15	19	25	32		
2.29	7.5	21.57	1.98	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.396	0.396	2.02	0.75	1.70	34.7	2.46	89.2	14	18	33	31		
2.44	8.0	14.22	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.424	0.424	2.81	0.82	1.70	22.8	2.69		7				0.81	9.8
2.59	8.5	11.81	3.11	Silty Clay to Clay	CL	stiff	110	1.5	8	0.451	0.451	3.23	0.85	1.70	19.0	2.79		8				0.67	7.6
2.74	9.0	13.52	3.04	Silty Clay to Clay	CL	stiff	110	1.5	9	0.479	0.479	3.15	0.83	1.70	21.7	2.74		9				0.77	8.2
2.90	9.5	13.50	4.00	Clay	CL/CH	stiff	110	1.0	13	0.506	0.506	4.16	0.86	1.70	21.7	2.82		13				0.76	7.7
3.05	10.0	14.79	5.06	Clay	CL/CH	stiff	110	1.0	15	0.534	0.534	5.25	0.87	1.70	23.8	2.85		15				0.84	8.0
3.20	10.5	15.55	3.96	Silty Clay to Clay	CL	stiff	110	1.5	10	0.561	0.561	4.11	0.84	1.70	25.0	2.77		10				0.88	8.0
3.35	11.0	22.30	2.94	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.589	0.589	3.02	0.79	1.59	35.4	2.58	107.9	15	22	31	32		
3.51	11.5	28.41	2.82	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.616	0.616	2.88	0.78	1.51	40.6	2.51	113.0	18	23	39	33		
3.66	12.0	25.67	3.71	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	0.644	0.644	3.80	0.80	1.49	36.1	2.63		13				1.47	11.7
3.81	12.5	21.67	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.671	0.671	3.26	0.81	1.44	28.5	2.65		11				1.24	9.4
3.96	13.0	21.35	3.82	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.699	0.699	3.95	0.83	1.41	28.4	2.71		14				1.21	8.8
4.11	13.5	16.23	4.34	Clay	CL/CH	stiff	110	1.0	16	0.726	0.726	4.54	0.87	1.39	21.3	2.85		16				0.91	6.4
4.27	14.0	18.01	3.76	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.754	0.754	3.92	0.85	1.33	22.7	2.79		12				1.02	6.9
4.42	14.5	16.78	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.781	0.781	3.50	0.85	1.29	20.5	2.79		8				0.94	6.1
4.57	15.0	14.51	2.76	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.809	0.809	2.93	0.85	1.26	17.3	2.80		7				0.81	5.1
4.72	15.5	13.57	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.836	0.836	2.67	0.86	1.22	15.7	2.81		7				0.75	4.6
4.88	16.0	12.92	2.27	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.864	0.864	2.43	0.86	1.19	14.5	2.81		6				0.71	4.2
5.03	16.5	15.05	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.891	0.891	2.82	0.86	1.16	16.5	2.80		8				0.83	4.8
5.18	17.0	13.92	3.28	Silty Clay to Clay	CL	stiff	110	1.5	9	0.919	0.919	3.49	0.88	1.13	14.9	2.90		9				0.76	4.2
5.33	17.5	31.82	1.61	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	0.946	0.946	1.65	0.74	1.09	32.7	2.43	70.6	13	16	30	31		
5.49	18.0	19.29	1.23	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.974	0.974	1.29	0.78	1.07	19.4	2.56	59.6	8	12	9	29		
5.64	18.5	39.30	2.35	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	16	1.001	1.001	2.41	0.75	1.04	38.7	2.47	101.8	16	20	37	32		
5.79	19.0	22.45	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.029	1.029	3.22	0.84	1.02	21.7	2.74		11				1.26	6.2
5.94	19.5	33.76	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	1.056	1.056	3.09	0.79	1.00	32.0	2.60		17				1.92	9.3
6.10	20.0	22.64	3.27	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.085	1.085	3.43	0.84	0.98	21.1	2.77		11				1.28	6.0
6.25	20.5	10.81	3.15	Silty Clay to Clay	CL	stiff	120	1.5	7	1.115	1.115	3.51	0.93	0.95	9.7	3.05		7				0.57	2.8
6.40	21.0	12.14	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.145	1.145	3.00	0.91	0.93	10.7	2.97		6				0.65	2.9
6.55	21.5	12.92	3.12	Silty Clay to Clay	CL	stiff	120	1.5	9	1.175	1.175	3.43	0.92	0.91	11.1	2.99		9				0.69	3.0
6.71	22.0	13.21	2.38	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.205	1.205	2.61	0.90	0.89	11.1	2.93		7				0.71	3.0
6.86	22.5	12.12	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.235	1.235	2.88	0.92	0.87	9.9	2.99		6				0.64	2.6
7.01	23.0	13.24	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.265	1.265	2.90	0.91	0.85	10.5	2.97		7				0.70	2.8
7.16	23.5	16.61	2.53	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.295	1.279	2.75	0.88	0.85	13.3	2.87		8				0.90	3.6
7.32	24.0	13.44	3.19	Silty Clay to Clay	CL	stiff	120	1.5	9	1.325	1.294	3.54	0.92	0.83	10.5	3.02		9				0.71	2.8
7.47	24.5	12.76	3.40	Silty Clay to Clay	CL	stiff	120	1.5	9	1.355	1.308	3.80	0.94	0.82	9.9	3.06		9				0.67	2.5
7.62	25.0	14.75	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.385	1.323	3.40	0.92	0.81	11.0	2.99		7				0.76	2.9
7.77	25.5	13.07	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.415	1.337	2.31	0.90	0.81	10.0	2.93		7				0.69	2.6
7.92	26.0	13.08	3.12	Silty Clay to Clay	CL	stiff	120	1.5	9	1.445	1.351	3.51	0.93	0.80	9.8	3.04		9				0.69	2.6
8.08	26.5	12.17	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.475	1.366	3.02	0.93	0.79	9.1	3.03		6				0.64	2.3
8.23	27.0	13.98	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.505	1.380	2.82	0.91	0.79	10.4	2.97		7				0.74	2.7
8.38	27.5	18.13	3.53	Silty Clay to Clay	CL	stiff	120	1.5	12	1.535	1.395	3.86	0.90	0.78	13.3	2.96		12				0.98	3.6
8.53	28.0	18.55	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.565	1.409	3.34	0.89	0.77	13.6	2.92		9				1.01	3.6
8.69	28.5	22.40	3.95	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.595	1.423	4.25	0.89	0.77	16.3	2.92		15				1.24	4.4
8.84	29.0	32.89	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.625	1.438	3.37	0.83	0.76	24.1	2.72		16				1.85	6.5
8.99	29.5	42.32	2.85	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	1.655	1.452	2.96	0.79	0.70	31.1	2.60		17				2.40	8.4
9.14	30.0	37.92	2.78	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	1.685	1.467	2.90	0.80	0.77	27.6	2.64		15				2.14	7.4
9.30	30.5	12.48	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.715	1.481	2.69	0.93	0.73	8.8	3.02		6				0.65	2.2
9.45	31.0	12.80	2.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.745	1.495	2.47	0.92	0.73	8.8	3.00		6				0.66	2.2
9.60	31.5	14.30	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.775	1.510	2.77	0.92	0.72	9.8	2.99		7				0.75	2.5
9.75	32.0	12.76	0.38	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.805	1.524	0.44	0.82	0.74	8.9	2.66		5				0.66	2.2
9.91	32.5	14.53	0.46	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.835	1.539	0.52	0.81	0.74	10.1	2.64		6				0.76	2.5
10.06	33.0	12.93	0.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.865	1.553	0.82	0.85	0.72	8.8	2.77		5				0.67	2.1
10.21	33.5	17.69	1.03	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.895	1.567	1.15	0.83	0.72	12.3	2.70		7				0.97	3.1
10.36	34.0	18.85	1.13	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.925	1.582	1.26	0.83	0.72	12.8	2.71		8				1.02	3.2
10.52	34.5	21.21	0.87	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	7	1.955	1.596	0.95	0.80	0.72	14.4	2.60		7				1.15	3.6
10.67	35.0	20.19	1.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.985	1.611	1.13	0.82	0.71	13.5	2.68		8				1.09	3.4
10.82	35.5	21.60	1.23	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.015	1.625	1.36	0.82	0.70	14.3	2.68		9				1.17	3.6

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-3 Plot: 3 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

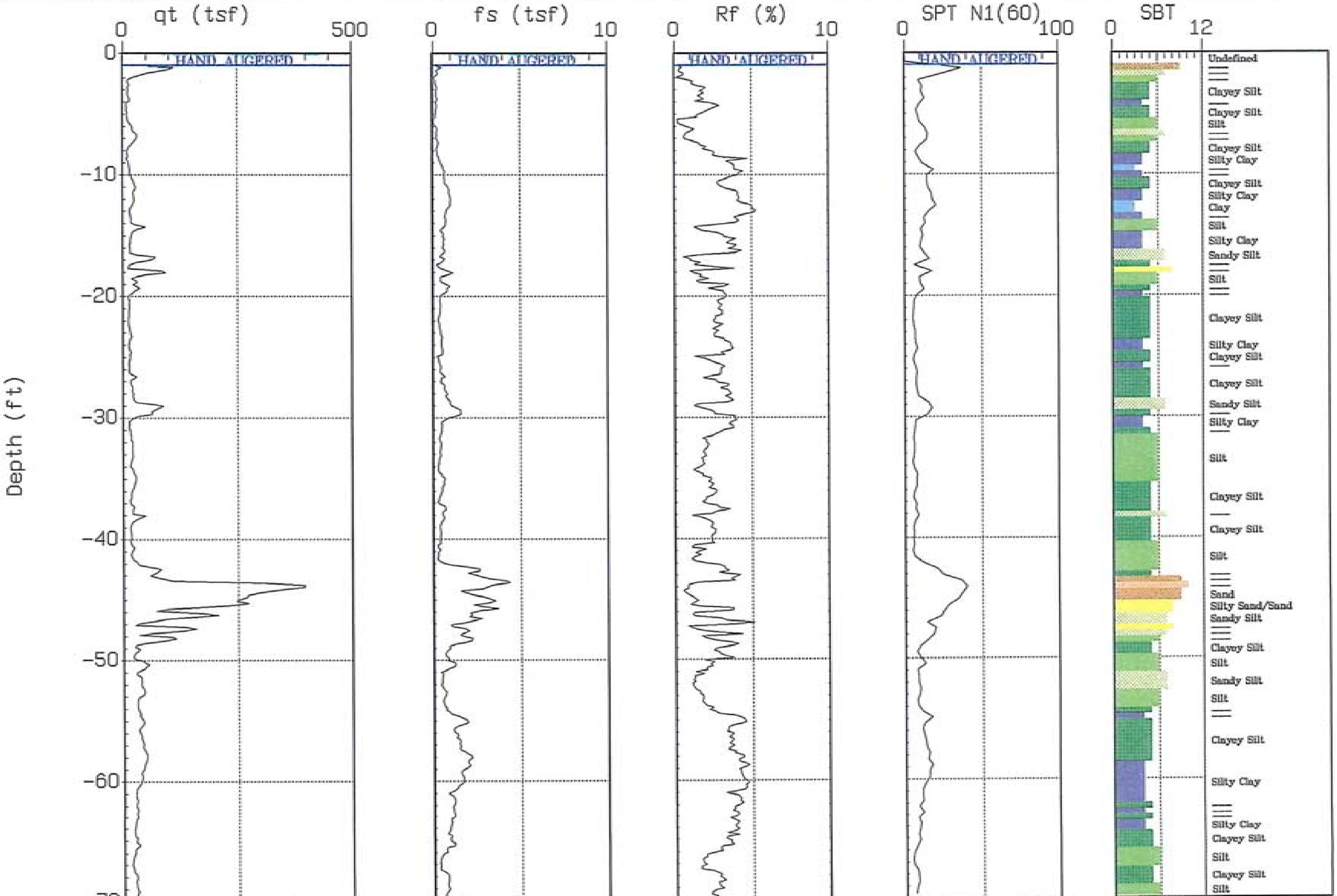
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total σo tsf	σ'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	35.0	18.71	1.68	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	2.045	1.639	1.80	0.86	0.69	12.1	2.82		7				1.00	3.0
11.13	36.5	20.14	1.17	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.075	1.654	1.30	0.83	0.69	13.1	2.70		8				1.09	3.3
11.28	37.0	17.29	2.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.105	1.668	2.28	0.89	0.67	10.9	2.90		9				0.92	2.7
11.43	37.5	41.82	2.73	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.135	1.683	2.88	0.80	0.60	27.2	2.64		17				2.36	7.1
11.58	38.0	32.46	2.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.165	1.697	2.94	0.84	0.67	20.7	2.74		13				1.81	5.4
11.73	38.5	35.58	2.36	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.195	1.711	2.51	0.81	0.68	22.8	2.66		14				1.99	5.9
11.89	39.0	15.85	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.225	1.726	3.28	0.93	0.63	9.5	3.04		8				0.83	2.4
12.04	39.5	12.76	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.255	1.740	2.61	0.94	0.63	7.5	3.07		6				0.65	1.8
12.19	40.0	13.99	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.285	1.755	2.08	0.92	0.63	8.3	2.98		7				0.72	2.0
12.34	40.5	14.97	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.315	1.769	2.13	0.91	0.63	8.9	2.96		7				0.78	2.1
12.50	41.0	15.73	1.40	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.345	1.783	1.64	0.89	0.63	9.4	2.88		6				0.82	2.3
12.65	41.5	16.05	1.09	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.375	1.798	1.28	0.87	0.63	9.6	2.82		6				0.84	2.3
12.80	42.0	18.98	0.82	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.405	1.812	0.94	0.83	0.64	11.5	2.69		8				1.01	2.7
12.95	42.5	43.38	2.08	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.435	1.827	2.04	0.81	0.64	26.4	2.64		17				2.44	6.7
13.11	43.0	55.63	3.38	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.465	1.841	3.54	0.80	0.64	33.7	2.63		22				3.16	8.6
13.26	43.5	126.63	3.61	Sandy Silt to Clayey Silt	ML	dense	120	2.5	51	2.495	1.855	3.68	0.72	0.67	79.7	2.38	177.0	37	35	67	38		
13.41	44.0	234.88	1.24	Sand	SP	dense	120	5.0	47	2.525	1.870	1.25	0.50	0.73	161.7	1.62	181.8	34	36	97	37		
13.56	44.5	240.25	0.71	Sand	SP	dense	120	5.0	48	2.555	1.884	0.72	0.50	0.75	160.9	1.04	160.4	35	34	99	37		
13.72	45.0	178.14	1.34	Sand to Silty Sand	SP/SM	dense	120	4.0	45	2.585	1.899	1.36	0.59	0.71	118.0	1.94	146.6	32	29	84	37		
13.87	45.5	90.90	2.96	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	36	2.615	1.913	3.05	0.74	0.65	55.5	2.43	134.3	26	27	52	35		
14.02	46.0	89.20	2.51	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	36	2.645	1.927	2.60	0.73	0.65	54.5	2.39	124.6	26	25	52	35		
14.17	46.5	132.41	1.64	Sand to Silty Sand	SP/SM	medium dense	120	4.0	33	2.675	1.942	1.67	0.64	0.68	84.8	2.11	125.0	24	25	70	34		
14.33	47.0	31.81	3.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.705	1.956	3.72	0.87	0.59	17.6	2.80		16				1.70	4.5
14.48	47.5	21.36	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.735	1.971	2.30	0.86	0.58	11.7	2.88		9				1.14	2.8
14.63	48.0	34.51	1.41	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.765	1.985	1.54	0.70	0.61	19.8	2.59	64.5	8	13	10	29		
14.78	48.5	37.02	1.05	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.795	1.999	1.14	0.76	0.62	21.5	2.49	60.4	9	12	13	30		
14.94	49.0	32.64	0.84	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.825	2.014	0.92	0.76	0.61	18.9	2.49	51.0	8	10	8	29		
15.09	49.5	33.20	1.28	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	11	2.855	2.028	1.40	0.79	0.60	18.8	2.59	61.0	8	12	7	29		
15.24	50.0	39.26	1.17	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	13	2.885	2.043	1.28	0.76	0.60	22.4	2.50	61.7	9	12	15	30		

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-04

Engineer: T. TRANBY
Date: 02:16:04 10:46



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING: CPT-4 — Plot: 4 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	38.01	0.18	Sand to Silty Sand	SP/SM	medium dense	100	4.0	10	0.040	0.040	0.19	0.53	1.70	61.1	1.75	61.1	16	12	50	32		
0.46	1.5	76.05	0.38	Sand to Silty Sand	SP/SM	dense	100	4.0	19	0.065	0.065	0.38	0.50	1.70	122.2	1.60	122.2	32	24	85	37		
0.61	2.0	23.91	0.46	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.091	0.091	0.46	0.63	1.70	38.4	2.08	38.4	14	8	37	31		
0.76	2.5	11.99	1.19	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.119	0.119	1.20	0.77	1.70	19.3	2.54	57.6	8	12	9	29		
0.91	3.0	11.27	1.84	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.146	0.146	1.87	0.81	1.70	18.1	2.67		6				0.65	22.6
1.07	3.5	11.12	1.71	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.174	0.174	1.74	0.81	1.70	17.9	2.60		6				0.64	18.9
1.22	4.0	11.77	1.88	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.201	0.201	1.91	0.81	1.70	18.9	2.66		6				0.68	17.2
1.37	4.5	7.52	2.57	Silty Clay to Clay	CL	firm	110	1.5	5	0.229	0.229	2.65	0.88	1.70	12.1	2.90		5				0.43	9.8
1.52	5.0	8.91	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	4	0.256	0.256	1.79	0.83	1.70	14.3	2.74		4				0.51	10.1
1.68	5.5	11.27	0.51	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.284	0.284	0.52	0.73	1.70	18.1	2.40	42.1	8	8	6	29		
1.83	6.0	19.55	0.87	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.311	0.311	0.89	0.70	1.70	31.4	2.29	60.4	13	12	29	31		
1.98	6.5	26.95	0.80	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.339	0.339	0.81	0.66	1.70	43.3	2.15	67.5	15	13	42	32		
2.13	7.0	28.08	0.81	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.366	0.366	0.82	0.65	1.70	45.1	2.14	69.1	15	14	44	32		
2.29	7.5	16.95	1.77	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.394	0.394	1.81	0.76	1.70	27.2	2.51	77.4	11	15	23	30		
2.44	8.0	10.04	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.421	0.421	2.38	0.84	1.70	16.1	2.77		5				0.57	6.9
2.59	8.5	9.42	3.38	Silty Clay to Clay	CL	stiff	110	1.5	6	0.449	0.449	3.55	0.89	1.70	15.1	2.89		6				0.53	6.0
2.74	9.0	12.14	3.62	Silty Clay to Clay	CL	stiff	110	1.5	8	0.476	0.476	3.77	0.86	1.70	19.5	2.82		8				0.69	7.3
2.90	9.5	14.83	4.07	Silty Clay to Clay	CL	stiff	110	1.5	10	0.504	0.504	4.21	0.85	1.70	23.8	2.79		10				0.84	8.5
3.05	10.0	15.79	3.97	Silty Clay to Clay	CL	stiff	110	1.5	11	0.531	0.531	4.10	0.84	1.70	25.4	2.76		11				0.90	8.6
3.20	10.5	22.10	2.95	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.559	0.559	3.03	0.78	1.65	34.4	2.58	109.4	15	22	33	32		
3.35	11.0	26.35	3.11	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.586	0.586	3.18	0.77	1.58	39.3	2.55	118.5	17	24	38	32		
3.51	11.5	22.73	4.06	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.614	0.614	4.10	0.81	1.56	33.5	2.68		15				1.30	10.8
3.66	12.0	23.97	4.13	Silty Clay to Clay	CL	very stiff	110	1.5	16	0.641	0.641	4.24	0.81	1.50	34.1	2.68		16				1.37	10.9
3.81	12.5	20.29	4.76	Clay	CL/CH	very stiff	110	1.0	20	0.669	0.669	4.92	0.85	1.47	28.3	2.78		20				1.15	8.8
3.96	13.0	14.82	5.18	Clay	CL/CH	stiff	110	1.0	15	0.696	0.696	5.43	0.89	1.45	20.3	2.91		15				0.83	6.1
4.11	13.5	16.77	4.15	Silty Clay to Clay	CL	stiff	110	1.5	11	0.724	0.724	4.33	0.86	1.39	22.0	2.82		11				0.94	6.7
4.27	14.0	21.03	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.751	0.751	3.67	0.83	1.33	26.4	2.72		11				1.19	8.1
4.42	14.5	34.68	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	0.779	0.779	1.58	0.71	1.24	40.8	2.34	84.8	13	17	40	31		
4.57	15.0	18.25	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.806	0.806	3.18	0.84	1.25	21.7	2.74		9				1.03	6.5
4.72	15.5	16.16	3.65	Silty Clay to Clay	CL	stiff	110	1.5	11	0.834	0.834	3.85	0.87	1.23	18.8	2.84		11				0.90	5.5
4.88	16.0	14.92	3.94	Silty Clay to Clay	CL	stiff	110	1.5	10	0.861	0.861	4.18	0.88	1.20	16.9	2.90		10				0.83	4.9
5.03	16.5	38.72	1.99	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.889	0.889	2.03	0.73	1.14	41.8	2.40	98.2	16	19	40	32		
5.18	17.0	50.64	1.21	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.916	0.916	1.23	0.67	1.10	52.7	2.18	85.8	18	17	50	33		
5.33	17.5	13.13	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.944	0.944	2.71	0.87	1.11	13.7	2.86		7				0.72	3.9
5.49	18.0	75.40	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	25	0.971	0.971	1.32	0.63	1.06	75.2	2.00	107.2	26	21	65	35		
5.64	18.5	25.73	1.75	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.999	0.999	1.82	0.77	1.05	25.4	2.54	75.8	10	15	20	30		
5.79	19.0	27.53	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.026	1.026	2.87	0.81	1.02	26.7	2.64		14				1.56	7.7
5.94	19.5	27.54	2.83	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.054	1.054	2.95	0.81	1.00	26.1	2.66		14				1.56	7.5
6.10	20.0	12.83	3.27	Silty Clay to Clay	CL	stiff	120	1.5	9	1.083	1.083	3.57	0.91	0.98	11.0	2.98		9				0.69	3.3
6.25	20.5	13.30	2.88	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.113	1.113	3.15	0.90	0.96	12.0	2.94		7				0.72	3.3
6.40	21.0	12.90	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.143	1.143	3.26	0.91	0.93	11.4	2.97		6				0.69	3.1
6.55	21.5	12.39	2.93	Silty Clay to Clay	CL	stiff	120	1.5	8	1.173	1.173	3.24	0.92	0.91	10.7	2.99		8				0.66	2.9
6.71	22.0	11.44	2.56	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.203	1.203	2.86	0.92	0.89	9.6	3.00		6				0.60	2.6
6.86	22.5	13.12	2.77	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.233	1.233	3.06	0.91	0.87	10.8	2.97		7				0.70	2.9
7.01	23.0	15.46	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.263	1.263	2.91	0.89	0.85	12.5	2.91		8				0.84	3.4
7.16	23.5	15.96	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.293	1.277	3.25	0.90	0.84	12.7	2.93		8				0.86	3.4
7.32	24.0	12.72	3.64	Silty Clay to Clay	CL	stiff	120	1.5	8	1.323	1.291	4.07	0.94	0.83	10.0	3.07		8				0.67	2.6
7.47	24.5	14.74	3.48	Silty Clay to Clay	CL	stiff	120	1.5	10	1.353	1.306	3.83	0.92	0.82	11.5	3.01		10				0.79	3.1
7.62	25.0	15.14	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.383	1.320	2.36	0.88	0.82	11.8	2.88		8				0.81	3.1
7.77	25.5	13.11	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.413	1.335	2.89	0.92	0.81	10.0	2.99		7				0.69	2.6
7.92	26.0	12.86	3.08	Silty Clay to Clay	CL	stiff	120	1.5	9	1.443	1.349	3.47	0.93	0.80	9.7	3.04		9				0.68	2.5
8.08	26.5	20.82	2.51	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.473	1.363	2.70	0.86	0.80	15.7	2.81		10				1.13	4.2
8.23	27.0	15.96	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.503	1.378	3.29	0.91	0.79	11.9	2.96		8				0.86	3.1
8.38	27.5	19.25	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.533	1.392	3.58	0.89	0.78	14.2	2.92		10				1.05	3.8
8.53	28.0	20.59	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.563	1.407	3.77	0.89	0.78	15.4	2.90		10				1.15	4.1
8.69	28.5	24.94	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.593	1.421	3.81	0.87	0.77	18.2	2.85		12				1.38	4.9
8.84	29.0	76.50	1.45	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	26	1.623	1.435	1.48	0.67	0.82	59.0	2.20	97.7	21	20	55	34		
8.99	29.5	63.56	2.45	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	25	1.653	1.450	2.52	0.74	0.79	47.7	2.42	113.5	21	23	46	34		
9.14	30.0	23.79	3.91	Silty Clay to Clay	CL	very stiff	120	1.5	16	1.683	1.464	4.20	0.89	0.75	16.9	2.90		16				1.31	4.5
9.30	30.5	12.73	3.67	Silty Clay to Clay	CL	stiff	120	1.5	8	1.713	1.479	4.24	0.96	0.73	8.7	3.13		8				0.66	2.2
9.45	31.0	13.92	3.31	Silty Clay to Clay	CL	stiff	120	1.5	9	1.743	1.493	3.79	0.94	0.72	9.5	3.07		9				0.73	2.4
9.60	31.5	15.97	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.773	1.507	2.59	0.90	0.73	11.0	2.93		8				0.85	2.8
9.75	32.0	18.61	2.08	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.803	1.522	2.30	0.87	0.73	12.8	2.84		7				1.00	3.3
9.91	32.5	19.77	2.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.833	1.536	2.23	0.86	0.73	13.6	2.82		8				1.07	3.5
10.06	33.0	19.68	1.93	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.863	1.551	2.13	0.86	0.72	13.4	2.81		8				1.07	3.4
10.21	33.5	17.64	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.893	1.565	1.99	0.87	0.71	12.0	2.83		7				0.96	3.1
10.36	34.0	16.04	1.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.923	1.579	1.93	0.88	0.70	10.7	2.87		6				0.85	2.7
10.52	34.5	22.73	1.48	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.953	1.594	1.62	0.83	0.71	15.0	2.70		9				1.21	3.8
10.67	35.0	26.72	2.14	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	1.983	1.608	2.31	0.83	0.71	17.8	2.73		11				1.48	4.5
10.82	35.5	23.72	2.35	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.013	1.623	2.57	0.86	0.69	15.5	2.80		9				1.30	4.0

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-4 | Plot: 4 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Nk: 17

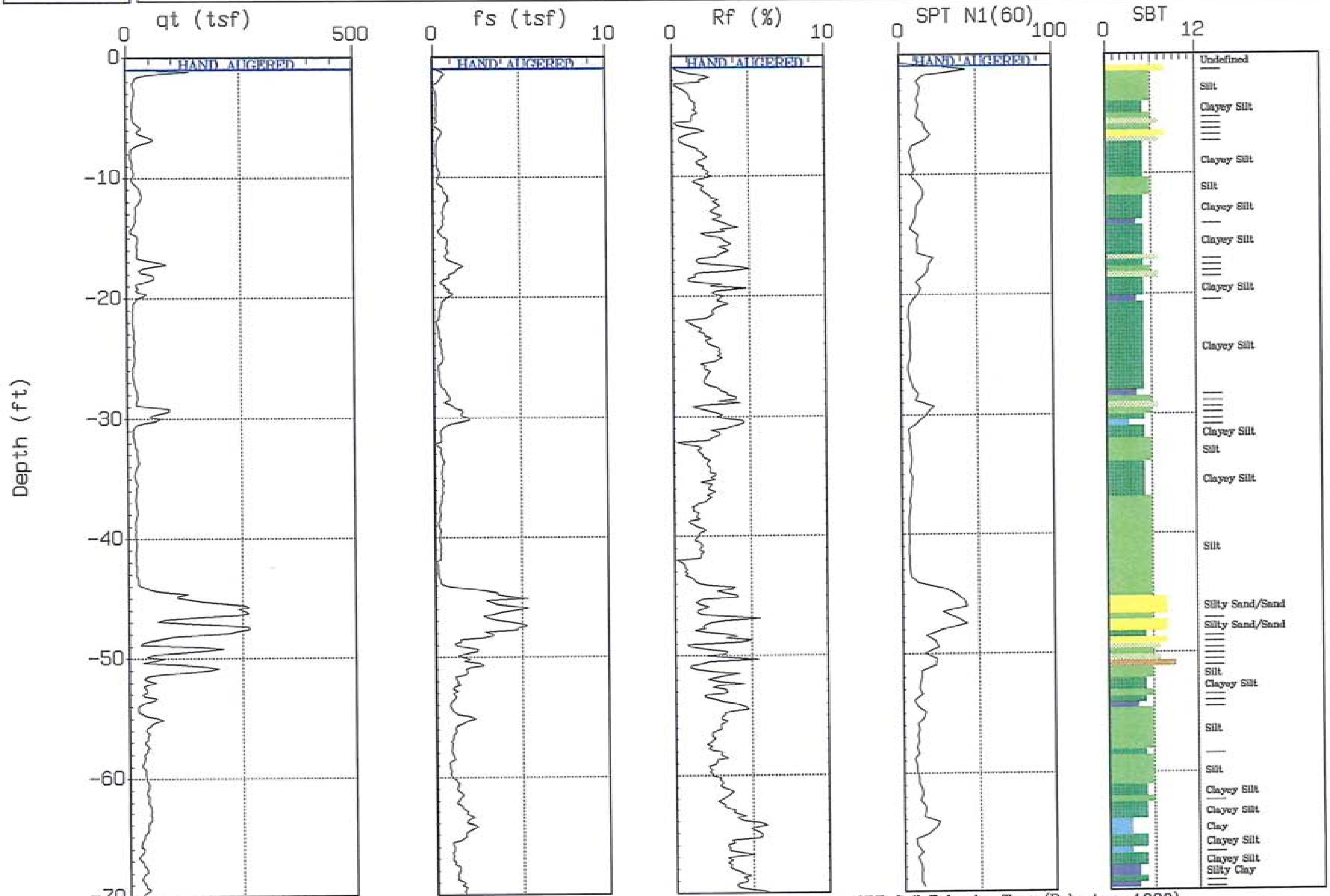
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens Dr(%)	Phi (deg)	Su (tsf)	OCR
10.97	36.0	18.85	2.53	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.043	1.637	2.84	0.89	0.68	12.1	2.92		9				1.01	3.1
11.13	36.5	15.64	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.073	1.651	2.63	0.91	0.67	9.9	2.97		8				0.82	2.5
11.28	37.0	16.89	2.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.103	1.666	2.56	0.90	0.66	10.6	2.94		8				0.90	2.7
11.43	37.5	20.14	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.133	1.680	3.40	0.90	0.66	12.5	2.95		10				1.09	3.2
11.58	38.0	34.35	1.74	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	14	2.163	1.695	1.85	0.79	0.60	22.4	2.59	73.1	11	15	15	30		
11.73	38.5	20.56	2.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.193	1.709	2.58	0.88	0.66	12.7	2.87		10				1.11	3.2
11.89	39.0	14.50	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.223	1.723	2.93	0.93	0.63	8.7	3.04		7				0.75	2.1
12.04	39.5	15.34	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.253	1.738	3.01	0.93	0.63	9.1	3.03		8				0.80	2.3
12.19	40.0	15.05	2.41	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.283	1.752	2.85	0.93	0.63	8.9	3.03		8				0.78	2.2
12.34	40.5	18.58	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.313	1.767	1.87	0.87	0.64	11.7	2.84		7				0.99	2.8
12.50	41.0	17.67	1.65	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.343	1.781	1.92	0.88	0.63	10.6	2.87		7				0.93	2.6
12.65	41.5	17.51	1.38	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.373	1.795	1.58	0.87	0.63	10.4	2.83		7				0.92	2.5
12.80	42.0	29.53	2.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.403	1.810	2.27	0.83	0.64	17.9	2.72		12				1.63	4.5
12.95	42.5	72.49	3.32	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	2.433	1.824	3.44	0.77	0.66	45.1	2.53	131.0	21	26	44	34		
13.11	43.0	65.75	3.68	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	33	2.463	1.839	3.80	0.70	0.65	40.2	2.59	131.8	24	26	39	34		
13.26	43.5	160.82	2.98	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	56	2.493	1.853	3.02	0.60	0.68	107.9	2.23	187.1	41	37	80	39		
13.41	44.0	382.32	0.80	Gravelly Sand to Sand	SW	dense	120	6.0	64	2.523	1.867	0.81	0.50	0.75	272.0	1.53	272.0	47	54	100	40		
13.56	44.5	295.21	0.84	Gravelly Sand to Sand	SW	dense	120	6.0	49	2.553	1.882	0.85	0.50	0.75	209.2	1.55	209.2	36	42	100	38		
13.72	45.0	257.07	1.25	Sand	SP	dense	120	5.0	51	2.583	1.896	1.26	0.55	0.73	176.3	1.80	185.2	37	39	100	38		
13.87	45.5	229.47	1.22	Sand	SP	dense	120	5.0	46	2.613	1.911	1.23	0.56	0.72	155.9	1.83	176.1	33	35	95	37		
14.02	46.0	113.67	2.87	Sandy Silt to Clayey Silt	ML	dense	120	2.5	45	2.643	1.925	2.94	0.71	0.65	70.1	2.34	146.9	33	29	62	37		
14.17	46.5	151.32	1.76	Sand to Silty Sand	SP/SM	medium dense	120	4.0	38	2.673	1.939	1.79	0.64	0.68	97.2	2.09	139.5	27	28	76	35		
14.33	47.0	63.47	3.24	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	25	2.703	1.954	3.39	0.79	0.62	37.0	2.58	119.6	18	24	36	33		
14.48	47.5	117.47	1.75	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	39	2.733	1.968	1.79	0.66	0.66	73.6	2.18	110.8	28	24	64	35		
14.63	48.0	83.62	2.63	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	34	2.763	1.983	2.72	0.74	0.63	49.8	2.42	120.3	24	24	48	34		
14.78	48.5	54.58	3.36	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.793	1.997	3.54	0.81	0.60	30.9	2.66		22				3.09	7.8
14.94	49.0	29.71	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.823	2.011	3.19	0.87	0.57	16.1	2.85		15				1.63	4.0
15.09	49.5	22.26	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.853	2.026	3.38	0.91	0.55	11.7	2.97		11				1.19	2.9
15.24	50.0	36.41	2.70	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.882	2.040	2.93	0.84	0.58	19.8	2.75		15				2.02	4.0

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-05

Engineer: T. TRANBY
Date: 02:16:04 11:24



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 09/02/04

CPT SOUNDING: CPT-5 | Plot: 5 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	47.41	0.15	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	0.040	0.040	0.15	0.50	1.70	76.2	1.64	76.2	20	15	65	33		
0.46	1.5	52.23	1.37	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.066	0.066	1.37	0.63	1.70	83.9	2.06	116.1	30	23	70	35		
0.61	2.0	16.66	2.02	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.094	0.094	2.03	0.77	1.70	26.8	2.55	81.3	14	16	22	31		
0.76	2.5	14.83	0.24	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.121	0.121	0.24	0.66	1.70	23.8	2.18	23.8	10	5	17	30		
0.91	3.0	17.62	0.87	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.149	0.149	0.88	0.71	1.70	28.3	2.33	57.9	12	12	24	31		
1.07	3.5	15.29	1.18	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.176	0.176	1.19	0.74	1.70	24.6	2.45	67.2	10	12	19	30		
1.22	4.0	13.66	1.46	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.204	0.204	1.48	0.77	1.70	22.0	2.54	65.8	9	13	14	30		
1.37	4.5	12.42	1.50	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.231	0.231	1.53	0.79	1.70	20.0	2.59	64.6	11	13	10	30		
1.52	5.0	12.87	1.43	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.259	0.259	1.46	0.78	1.70	20.7	2.56	64.0	11	13	11	30		
1.68	5.5	20.50	0.73	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.286	0.286	0.75	0.66	1.70	32.9	2.24	58.1	12	12	31	31		
1.83	6.0	26.21	1.53	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.314	0.314	1.55	0.71	1.70	42.1	2.32	85.2	18	17	41	33		
1.98	6.5	43.05	0.99	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.341	0.341	0.99	0.62	1.70	69.2	2.03	93.7	24	19	62	35		
2.13	7.0	45.90	0.47	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.368	0.368	0.47	0.58	1.70	73.7	1.84	73.7	19	15	64	33		
2.29	7.5	13.69	1.28	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.394	0.394	1.32	0.77	1.70	22.0	2.51	62.5	9	12	14	30		
2.44	8.0	8.76	1.88	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.421	0.421	1.97	0.84	1.70	14.1	2.77		4				0.49	5.9
2.59	8.5	9.86	2.05	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.449	0.449	2.16	0.84	1.70	15.8	2.75		5				0.55	6.3
2.74	9.0	11.74	1.77	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.476	0.476	1.84	0.81	1.70	18.9	2.65		6				0.66	7.1
2.90	9.5	14.36	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.504	0.504	2.27	0.80	1.70	23.1	2.83		7				0.82	8.3
3.05	10.0	12.30	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.531	0.531	2.38	0.82	1.70	19.9	2.70		6				0.70	6.7
3.20	10.5	17.06	1.49	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.559	0.559	1.64	0.70	1.62	20.2	2.49	70.0	9	14	21	30		
3.35	11.0	27.46	1.93	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.586	0.586	1.98	0.73	1.54	40.0	2.41	93.4	14	19	30	31		
3.51	11.5	32.59	2.26	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	0.614	0.614	2.30	0.73	1.49	45.9	2.40	106.6	17	21	44	32		
3.66	12.0	28.54	2.71	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	14	0.641	0.641	2.78	0.76	1.40	39.5	2.51	110.4	18	22	38	33		
3.81	12.5	19.47	2.93	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.669	0.669	3.04	0.81	1.45	28.7	2.66		10				1.11	8.4
3.96	13.0	19.40	2.63	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.696	0.696	2.73	0.81	1.40	25.7	2.64		10				1.10	8.1
4.11	13.5	18.72	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.724	0.724	3.06	0.82	1.37	24.2	2.70		9				1.06	7.5
4.27	14.0	14.67	3.44	Silty Clay to Clay	CL	stiff	110	1.5	10	0.751	0.751	3.63	0.86	1.34	18.6	2.03		10				0.82	5.8
4.42	14.5	7.89	3.64	Clay	CL/CH	firm	110	1.0	8	0.779	0.779	4.04	0.94	1.33	9.9	3.07		8				0.42	2.7
4.57	15.0	21.66	2.38	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.806	0.806	2.47	0.80	1.24	25.7	2.62		11				1.24	7.8
4.72	15.5	22.11	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.834	0.834	3.65	0.83	1.22	25.5	2.73		11				1.25	7.7
4.88	16.0	21.73	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.861	0.861	3.58	0.83	1.19	24.4	2.74		11				1.23	7.3
5.03	16.5	22.34	2.99	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.889	0.889	3.11	0.82	1.15	24.4	2.70		11				1.26	7.2
5.18	17.0	67.30	1.64	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	22	0.916	0.916	1.66	0.66	1.10	70.0	2.17	112.0	23	22	62	34		
5.33	17.5	38.69	4.12	Clayey Silt to Silty Clay	ML/CL	hard	110	2.0	19	0.944	0.944	4.22	0.80	1.10	40.1	2.63		19				2.22	12.0
5.49	18.0	48.02	2.28	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	19	0.971	0.971	2.33	0.73	1.06	48.3	2.39	106.6	19	22	47	33		
5.64	18.5	48.07	1.18	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	16	0.999	0.999	1.20	0.66	1.04	47.2	2.22	80.8	16	16	46	32		
5.79	19.0	21.51	2.51	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.026	1.026	2.64	0.82	1.03	20.9	2.71		11				1.21	6.0
5.94	19.5	29.07	3.42	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	15	1.054	1.054	3.55	0.82	1.00	27.6	2.69		15				1.65	8.0
6.10	20.0	25.97	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.083	1.083	3.15	0.82	0.98	24.1	2.70		13				1.46	6.9
6.25	20.5	13.34	3.30	Silty Clay to Clay	CL	stiff	120	1.5	9	1.113	1.113	3.60	0.91	0.96	12.0	2.96		9				0.72	3.3
6.40	21.0	11.97	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.143	1.143	3.10	0.91	0.93	10.5	2.99		6				0.64	2.8
6.55	21.5	11.77	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.173	1.173	2.83	0.91	0.91	10.1	2.98		6				0.62	2.7
6.71	22.0	11.33	1.26	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.203	1.203	1.41	0.87	0.89	9.6	2.84		6				0.60	2.5
6.86	22.5	13.06	1.50	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.233	1.233	1.65	0.87	0.88	10.8	2.83		5				0.70	2.9
7.01	23.0	14.34	1.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.263	1.263	1.99	0.87	0.86	11.6	2.84		7				0.77	3.1
7.16	23.5	15.39	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.293	1.277	2.43	0.88	0.85	12.3	2.87		8				0.83	3.3
7.32	24.0	14.68	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.323	1.291	2.58	0.89	0.84	11.6	2.91		7				0.79	3.1
7.47	24.5	14.25	2.93	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.353	1.306	3.31	0.91	0.83	11.1	2.98		7				0.76	3.0
7.62	25.0	15.56	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.383	1.320	3.36	0.91	0.82	12.0	2.96		8				0.84	3.2
7.77	25.5	14.59	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.413	1.335	2.74	0.90	0.81	11.2	2.93		7				0.78	3.0
7.92	26.0	11.15	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.443	1.349	2.34	0.92	0.80	8.4	3.00		6				0.58	2.2
8.08	26.5	11.60	2.25	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.473	1.363	2.59	0.93	0.79	8.8	3.01		6				0.60	2.2
8.23	27.0	14.87	2.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.503	1.378	2.24	0.88	0.79	11.1	2.89		7				0.79	2.9
8.38	27.5	18.09	2.67	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.533	1.392	2.91	0.88	0.79	13.9	2.87		9				1.02	3.7
8.53	28.0	21.72	3.37	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.563	1.407	3.64	0.88	0.78	16.0	2.88		11				1.19	4.3
8.69	28.5	19.90	3.71	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.593	1.421	4.03	0.80	0.77	14.5	2.94		13				1.09	3.9
8.84	29.0	54.31	2.54	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.623	1.436	2.62	0.75	0.79	40.8	2.48	106.6	18	22	40	33		
8.99	29.5	71.95	2.27	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	1.653	1.450	2.32	0.72	0.80	54.3	2.35	115.2	20	23	51	33		
9.14	30.0	60.47	3.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.683	1.464	3.20	0.78	0.78	44.6	2.51	125.3	20	25	43	33		
9.30	30.5	22.25	4.47	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.713	1.479	4.84	0.91	0.74	16.5	2.97		15				1.22	4.2
9.45	31.0	11.80	3.22	Silty Clay to Clay	CL	stiff	120	1.5	8	1.743	1.493	3.78	0.96	0.72	8.0	3.13		8				0.61	2.0
9.60	31.5	11.70	2.86	Silty Clay to Clay	CL	stiff	120	1.5	8	1.773	1.507	3.37	0.98	0.71	7.9	3.11		8				0.60	2.0
9.75	32.0	14.82	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.803	1.522	1.87	0.89	0.72	10.0	2.80		6				0.77	2.5
9.91	32.5	18.38	1.30	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.833	1.536	1.54	0.84	0.73	12.7	2.75		7				0.99	3.2
10.06	33.0	19.86	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.863	1.551	1.87	0.85	0.72	13.0	2.77		8				1.08	3.5
10.21	33.5	22.29	2.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.893	1.565	2.26	0.85	0.72	15.1	2.78		9				1.22	3.9
10.36	34.0	20.63	2.18	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.923	1.579	2.40	0.87	0.71	13.8	2.83		8				1.12	3.6
10.52	34.5	15.69	2.36	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.953	1.594	2.69	0.91	0.69	10.2	2.96		8				0.83	2.6
10.67	35.0	14.91	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.983	1.608	3.00	0.92	0.68	9.6	3.01		7				0.78	2.4
10.82	35.5	19.88	2.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.013	1.623	2.55	0.88	0.69	12.9	2.87		10				1.07	3.3

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 09/02/04

CPT SOUNDING: CPT-5 | Plot: 5 | Density: 1 SPT N

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Nk: 17

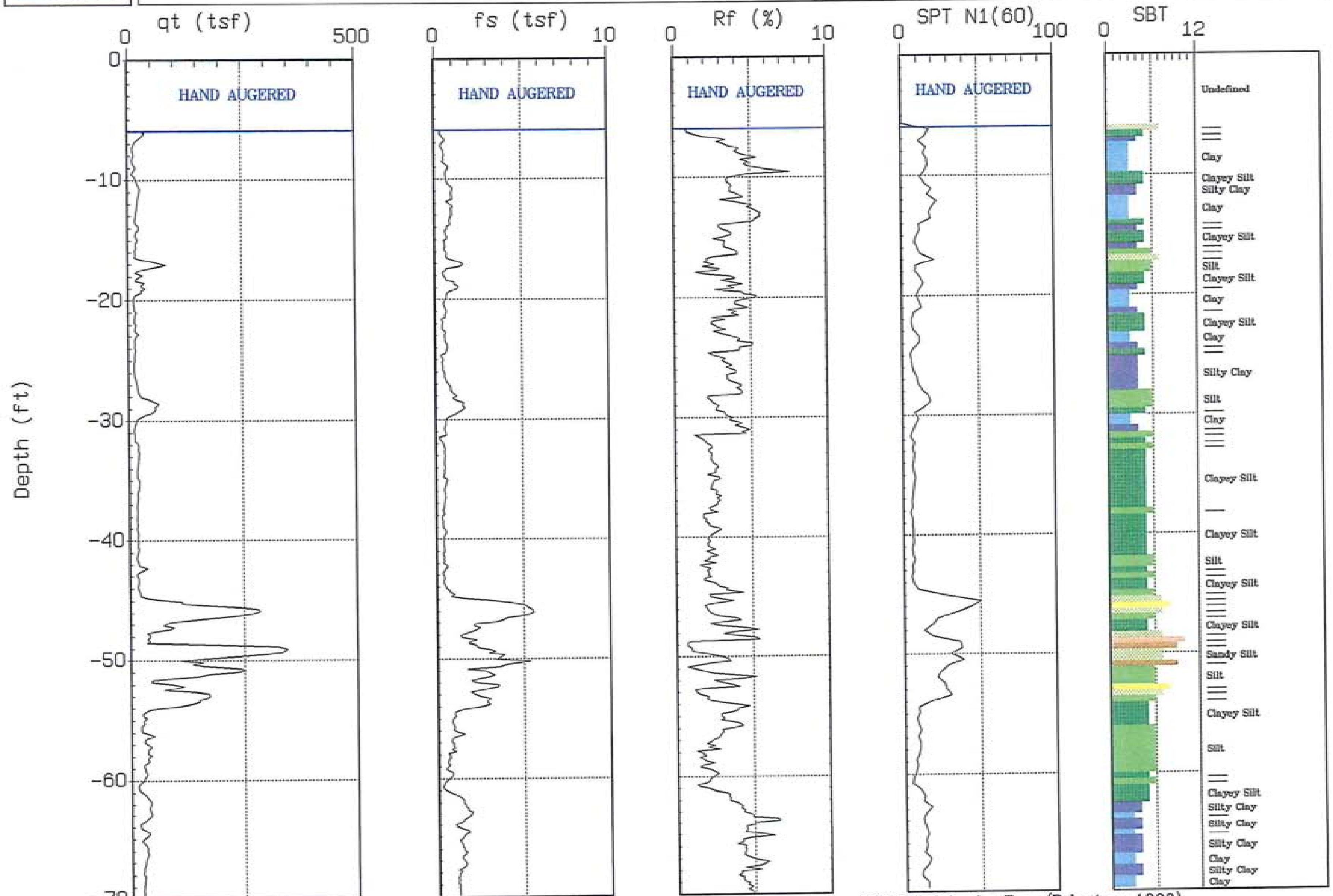
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	17.81	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.043	1.637	2.60	0.89	0.68	11.4	2.91		9				0.95	2.9
11.13	36.5	16.42	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.073	1.651	2.79	0.91	0.67	10.4	2.97		8				0.87	2.6
11.28	37.0	16.87	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.103	1.666	2.20	0.89	0.67	10.6	2.90		8				0.89	2.7
11.43	37.5	18.99	1.31	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.133	1.680	1.47	0.85	0.68	12.1	2.76		8				1.02	3.0
11.58	38.0	19.11	1.44	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.163	1.695	1.62	0.85	0.67	12.1	2.78		8				1.02	3.0
11.73	38.5	15.55	1.34	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.193	1.709	1.56	0.88	0.66	9.6	2.86		6				0.81	2.3
11.89	39.0	15.12	1.21	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.223	1.723	1.42	0.88	0.65	9.3	2.85		6				0.79	2.2
12.04	39.5	15.36	1.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.253	1.738	2.21	0.91	0.64	9.3	2.95		8				0.80	2.3
12.19	40.0	15.90	1.51	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.283	1.752	1.76	0.89	0.64	9.6	2.89		6				0.83	2.3
12.34	40.5	17.45	1.55	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.313	1.767	1.79	0.88	0.64	10.5	2.86		7				0.92	2.6
12.50	41.0	16.37	1.69	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.343	1.781	1.97	0.89	0.63	9.7	2.91		7				0.86	2.4
12.65	41.5	15.65	1.79	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.373	1.795	2.11	0.91	0.62	9.2	2.95		6				0.81	2.2
12.80	42.0	15.65	0.70	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.403	1.810	0.83	0.85	0.63	9.4	2.74		6				0.81	2.2
12.95	42.5	17.65	0.60	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.433	1.824	0.70	0.82	0.64	10.7	2.66		7				0.93	2.5
13.11	43.0	17.02	0.76	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.463	1.839	0.89	0.84	0.63	10.1	2.73		7				0.89	2.4
13.26	43.5	20.24	0.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.493	1.853	1.10	0.83	0.63	12.0	2.70		8				1.08	2.9
13.41	44.0	28.32	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.523	1.867	1.85	0.82	0.63	16.8	2.69		11				1.56	4.1
13.56	44.5	82.05	3.49	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.553	1.882	3.60	0.76	0.64	50.0	2.51	140.5	24	28	40	34		
13.72	45.0	114.54	3.83	Sandy Silt to Clayey Silt	ML	dense	120	2.5	46	2.583	1.896	3.91	0.74	0.65	70.3	2.43	172.4	33	34	62	37		
13.87	45.5	210.54	1.55	Sand to Silty Sand	SP/SM	dense	120	4.0	53	2.613	1.911	1.57	0.59	0.70	140.3	1.94	172.2	38	34	81	36		
14.02	46.0	254.72	1.88	Sand to Silty Sand	SP/SM	dense	120	4.0	64	2.643	1.925	1.90	0.59	0.70	168.7	1.95	208.8	46	42	99	40		
14.17	46.5	218.67	1.54	Sand to Silty Sand	SP/SM	dense	120	4.0	55	2.673	1.939	1.56	0.59	0.70	144.7	1.93	175.9	39	35	92	38		
14.33	47.0	120.56	3.77	Sandy Silt to Clayey Silt	ML	dense	120	2.5	48	2.703	1.954	3.86	0.74	0.64	72.8	2.42	173.6	35	35	64	37		
14.48	47.5	256.10	1.91	Sand to Silty Sand	SP/SM	dense	120	4.0	64	2.733	1.968	1.93	0.60	0.69	167.2	1.96	208.3	46	42	98	40		
14.63	48.0	159.61	2.22	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	53	2.763	1.983	2.26	0.66	0.66	99.9	2.15	156.0	38	31	77	38		
14.78	48.5	46.05	4.14	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	2.793	1.997	4.40	0.85	0.58	25.4	2.78		23				2.59	6.5
14.94	49.0	129.82	1.98	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	43	2.823	2.011	2.02	0.67	0.65	79.9	2.19	130.9	31	26	68	36		
15.09	49.5	108.08	2.38	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	36	2.853	2.026	2.42	0.70	0.63	64.7	2.31	127.7	25	26	59	35		
15.24	50.0	55.99	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	22	2.882	2.040	3.13	0.80	0.59	31.4	2.61		22				3.17	7.8

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-06

Engineer: T. TRANBY
Date: 02:16:04 12:08



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-6 Plot: 6 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT-N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.96		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.96		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.96		1				0.11	4.5
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.96		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.96		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.04	0.91	1.70	3.2	2.96		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.05	0.91	1.70	3.2	2.96		1				0.10	2.3
1.52	5.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.261	0.261	0.05	0.92	1.70	3.2	2.96		1				0.10	2.0
1.68	5.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.289	0.289	0.05	0.92	1.70	3.2	2.96		1				0.10	1.8
1.83	6.0	25.05	0.58	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.316	0.316	0.59	0.64	1.70	40.3	2.11	58.4	14	12	39	31		
1.98	6.5	25.50	2.03	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.344	0.344	2.05	0.73	1.70	41.0	2.41	86.1	17	10	40	32		
2.13	7.0	13.34	3.17	Silty Clay to Clay	CL	stiff	110	1.5	9	0.371	0.371	3.26	0.84	1.70	21.4	2.75		9				0.76	10.5
2.29	7.5	10.95	4.05	Clay	CL/CH	stiff	110	1.0	11	0.399	0.399	4.20	0.88	1.70	17.6	2.89		11				0.62	7.9
2.44	8.0	11.60	4.43	Clay	CL/CH	stiff	110	1.0	12	0.426	0.426	4.60	0.88	1.70	18.6	2.90		12				0.66	7.0
2.59	8.5	10.40	4.92	Clay	CL/CH	stiff	110	1.0	10	0.454	0.454	5.14	0.90	1.70	16.7	2.98		10				0.58	5.6
2.74	9.0	15.14	4.96	Clay	CL/CH	stiff	110	1.0	15	0.481	0.481	5.12	0.86	1.70	24.3	2.84		15				0.86	9.1
2.90	9.5	10.42	6.10	Clay	CL/CH	stiff	110	1.0	10	0.509	0.509	6.51	0.92	1.70	16.7	3.03		10				0.58	5.8
3.05	10.0	17.59	3.78	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.536	0.536	3.90	0.82	1.70	28.3	2.71		12				1.00	9.5
3.20	10.5	23.62	3.66	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.564	0.564	3.75	0.80	1.65	36.8	2.62		12				1.36	12.3
3.35	11.0	26.04	3.69	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.591	0.591	3.77	0.79	1.58	39.0	2.60	120.6	17	26	38	32		
3.51	11.5	22.44	4.31	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.619	0.619	4.44	0.82	1.55	33.0	2.70		15				1.28	10.6
3.66	12.0	20.89	3.84	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.646	0.646	3.96	0.82	1.50	29.6	2.70		14				1.19	9.4
3.81	12.5	18.88	5.07	Clay	CL/CH	very stiff	110	1.0	19	0.674	0.674	5.26	0.88	1.47	26.3	2.82		19				1.07	8.1
3.96	13.0	16.94	5.61	Clay	CL/CH	stiff	110	1.0	17	0.701	0.701	5.85	0.89	1.44	23.0	2.90		17				0.96	6.9
4.11	13.5	15.73	5.41	Clay	CL/CH	stiff	110	1.0	16	0.729	0.729	5.67	0.89	1.39	20.7	2.92		16				0.88	6.2
4.27	14.0	22.63	3.32	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.756	0.756	3.43	0.81	1.31	20.1	2.68		11				1.29	8.7
4.42	14.5	16.91	3.50	Silty Clay to Clay	CL	stiff	110	1.5	11	0.784	0.784	3.67	0.85	1.29	20.6	2.80		11				0.95	6.2
4.57	15.0	19.70	3.21	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.811	0.811	3.35	0.84	1.26	22.7	2.74		10				1.08	6.8
4.72	15.5	16.74	3.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.839	0.839	3.48	0.86	1.22	19.3	2.81		8				0.94	5.7
4.88	16.0	15.35	3.81	Silty Clay to Clay	CL	stiff	110	1.5	10	0.866	0.866	4.04	0.88	1.19	17.3	2.88		10				0.85	5.0
5.03	16.5	30.87	2.95	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	15	0.894	0.894	3.04	0.79	1.14	33.3	2.59	108.2	16	22	31	32		
5.18	17.0	67.18	2.26	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	22	0.921	0.921	2.29	0.60	1.10	69.9	2.27	128.1	23	26	62	34		
5.33	17.5	23.42	2.53	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.949	0.949	2.64	0.81	1.09	24.2	2.65		12				1.32	7.1
5.49	18.0	23.51	2.30	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	9	0.976	0.976	2.40	0.81	1.07	23.7	2.65		9				1.33	6.9
5.64	18.5	26.47	3.63	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.004	1.004	3.77	0.83	1.04	26.1	2.73		13				1.50	7.6
5.79	19.0	31.46	3.97	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	16	1.031	1.031	4.11	0.82	1.02	30.4	2.70		16				1.79	8.9
5.94	19.5	19.27	3.90	Silty Clay to Clay	CL	very stiff	110	1.5	13	1.059	1.059	4.12	0.86	1.00	18.2	2.87		13				1.07	5.2
6.10	20.0	10.96	5.05	Clay	CL/CH	stiff	120	1.0	11	1.088	1.088	5.60	0.97	0.97	10.1	3.10		11				0.58	2.7
6.25	20.5	12.21	4.12	Clay	CL/CH	stiff	120	1.0	12	1.118	1.118	4.54	0.94	0.95	11.0	3.07		12				0.65	3.0
6.40	21.0	14.83	4.15	Clay	CL/CH	stiff	120	1.0	15	1.148	1.148	4.50	0.92	0.93	13.0	3.01		15				0.80	3.6
6.55	21.5	13.64	3.49	Silty Clay to Clay	CL	stiff	120	1.5	9	1.178	1.178	3.80	0.92	0.91	11.7	3.00		9				0.73	3.2
6.71	22.0	14.80	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.208	1.208	2.97	0.89	0.89	12.4	2.92		7				0.80	3.4
6.86	22.5	14.77	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	3.23	0.90	0.87	12.1	2.95		7				0.80	3.3
7.01	23.0	18.17	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.268	1.268	3.22	0.88	0.85	14.7	2.88		9				0.99	4.0
7.16	23.5	13.65	4.13	Clay	CL/CH	stiff	120	1.0	14	1.298	1.282	4.56	0.94	0.83	10.9	3.08		14				0.73	2.9
7.32	24.0	13.82	4.82	Clay	CL/CH	stiff	120	1.0	14	1.328	1.296	5.34	0.95	0.82	10.8	3.12		14				0.74	2.9
7.47	24.5	13.92	3.57	Silty Clay to Clay	CL	stiff	120	1.5	9	1.358	1.311	3.95	0.93	0.82	10.8	3.04		9				0.74	2.9
7.62	25.0	12.67	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.388	1.325	3.31	0.93	0.81	9.7	3.03		6				0.67	2.6
7.77	25.5	11.06	3.41	Silty Clay to Clay	CL	stiff	120	1.5	7	1.418	1.340	3.91	0.96	0.80	8.3	3.13		7				0.57	2.2
7.92	26.0	11.58	3.68	Silty Clay to Clay	CL	stiff	120	1.5	8	1.448	1.354	4.20	0.96	0.79	8.6	3.13		8				0.60	2.2
8.08	26.5	14.90	3.58	Silty Clay to Clay	CL	stiff	120	1.5	10	1.478	1.368	3.97	0.93	0.79	11.1	3.03		10				0.80	2.9
8.23	27.0	18.54	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	12	1.508	1.383	4.32	0.91	0.78	13.7	2.98		12				1.01	3.7
8.38	27.5	20.95	4.25	Silty Clay to Clay	CL	very stiff	120	1.5	14	1.538	1.397	4.60	0.90	0.78	15.1	2.97		14				1.13	4.1
8.53	28.0	32.29	3.62	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.568	1.412	3.80	0.84	0.78	24.0	2.76		16				1.82	6.5
8.69	28.5	61.02	2.31	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.598	1.426	2.37	0.73	0.80	46.3	2.41	108.7	20	22	45	33		
8.84	29.0	56.09	2.75	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.628	1.440	2.84	0.76	0.79	42.6	2.49	115.2	19	23	41	33		
8.99	29.5	36.82	3.06	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	1.658	1.455	3.20	0.81	0.77	28.9	2.67		18				2.08	7.3
9.14	30.0	16.67	3.57	Silty Clay to Clay	CL	stiff	120	1.5	11	1.688	1.469	3.98	0.92	0.74	11.6	3.02		11				0.89	3.1
9.30	30.5	12.34	4.16	Clay	CL/CH	stiff	120	1.0	12	1.718	1.484	4.83	0.98	0.72	8.4	3.18		12				0.64	2.1
9.45	31.0	11.09	4.61	Clay	CL/CH	stiff	120	1.0	11	1.748	1.498	5.47	1.00	0.71	7.4	3.26		11				0.56	1.8
9.60	31.5	12.26	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.778	1.512	2.95	0.94	0.71	8.3	3.06		6				0.63	2.1
9.75	32.0	19.10	1.97	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.808	1.527	2.17	0.88	0.73	13.2	2.82		8				1.03	3.4
9.91	32.5	20.41	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.838	1.541	2.54	0.87	0.72	13.9	2.84		10				1.11	3.6
10.06	33.0	20.76	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.868	1.556	2.54	0.87	0.72	14.1	2.83		10				1.13	3.6
10.21	33.5	19.29	2.37	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.898	1.570	2.63	0.88	0.71	12.9	2.87		10				1.04	3.3
10.36	34.0	17.96	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.928	1.584	3.00	0.90	0.70	11.8	2.94		9				0.96	3.0
10.52	34.5	16.75	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.958	1.599	2.97	0.91	0.69	10.9	2.96		8				0.89	2.6
10.67	35.0	19.90	2.62	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.988	1.613	2.91	0.89	0.68	12.9	2.90		10				1.06	3.3
10.82	35.5	21.23	2.48	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.018	1.628	2.74	0.87	0.69	13.8	2.86		11				1.15	3.5

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING: CPT-6 — Plot: 6 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

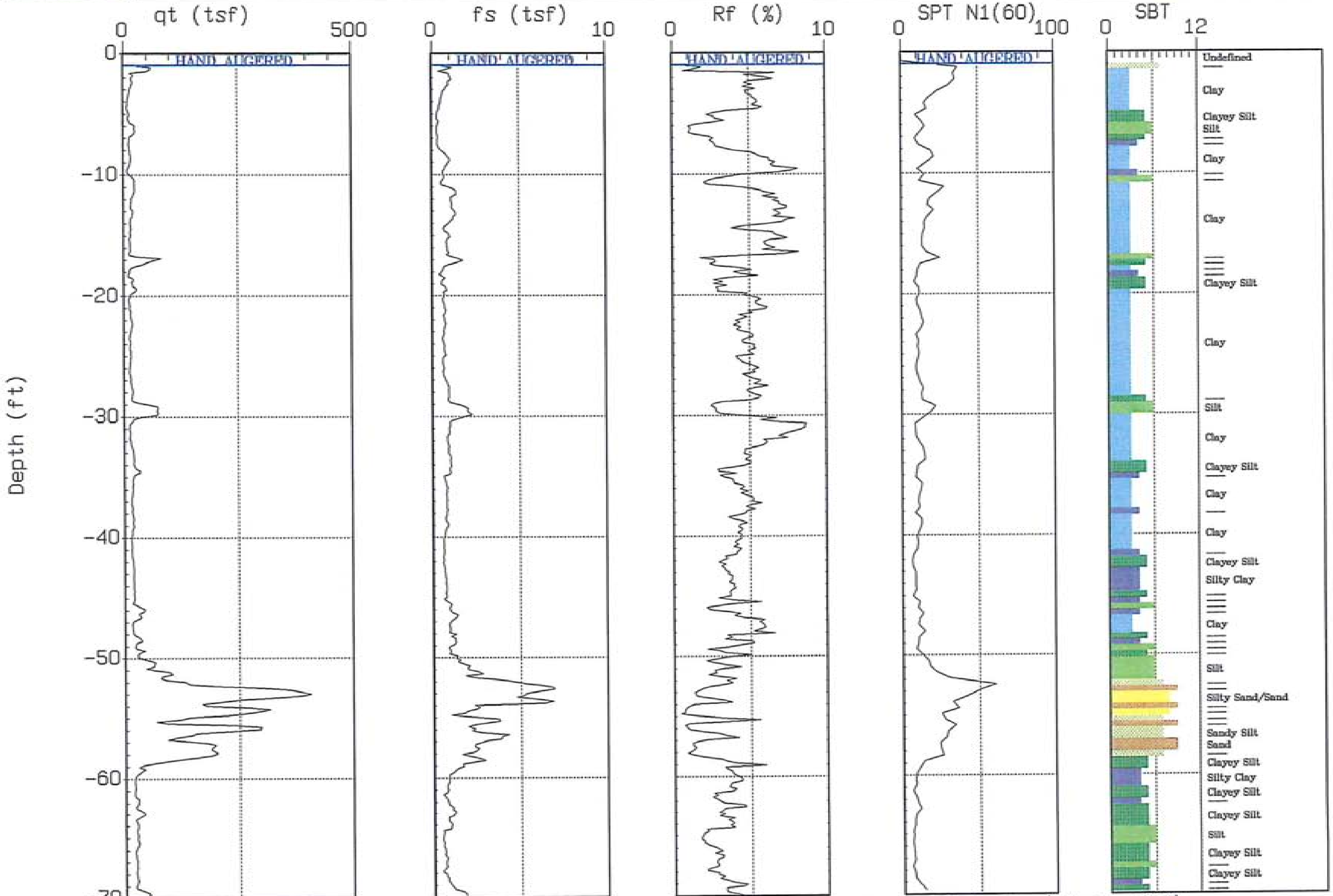
Est. GWT (feet): 23.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N — Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	18.68	2.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.048	1.642	2.75	0.89	0.68	11.9	2.91		9				1.00	3.0
11.13	36.5	17.67	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.078	1.656	3.15	0.91	0.67	11.1	2.97		9				0.94	2.8
11.28	37.0	15.85	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.108	1.671	3.25	0.93	0.65	9.8	3.02		8				0.83	2.5
11.43	37.5	16.24	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.138	1.685	2.69	0.91	0.65	10.0	2.97		8				0.86	2.5
11.58	38.0	15.99	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.168	1.700	2.49	0.91	0.65	9.8	2.96		8				0.84	2.4
11.73	38.5	16.60	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.198	1.714	2.24	0.90	0.65	10.2	2.92		8				0.88	2.5
11.89	39.0	15.95	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.228	1.728	2.81	0.92	0.64	9.6	3.00		8				0.84	2.4
12.04	39.5	17.73	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	3.14	0.92	0.63	10.6	2.99		9				0.94	2.7
12.19	40.0	17.51	2.17	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.288	1.757	2.50	0.90	0.63	10.5	2.94		9				0.93	2.6
12.34	40.5	17.97	2.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.318	1.772	2.48	0.90	0.63	10.7	2.93		9				0.95	2.6
12.50	41.0	17.25	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.348	1.786	2.63	0.91	0.62	10.1	2.96		9				0.91	2.5
12.65	41.5	15.39	2.44	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.378	1.800	2.88	0.93	0.61	8.9	3.03		8				0.80	2.2
12.80	42.0	18.78	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.408	1.815	2.55	0.90	0.62	10.9	2.93		9				1.00	2.7
12.95	42.5	27.93	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.438	1.829	2.07	0.83	0.63	16.7	2.72		11				1.54	4.2
13.11	43.0	15.95	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.468	1.844	2.49	0.92	0.60	9.1	2.99		8				0.83	2.2
13.26	43.5	18.47	2.02	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.498	1.858	2.34	0.90	0.60	10.5	2.92		7				0.98	2.6
13.41	44.0	16.94	2.69	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.528	1.872	3.16	0.93	0.59	9.4	3.03		8				0.89	2.3
13.56	44.5	21.20	3.73	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.558	1.887	4.24	0.93	0.59	11.7	3.03		14				1.14	3.0
13.72	45.0	72.27	2.34	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	2.589	1.901	2.43	0.74	0.65	44.3	2.43	107.9	17	22	43	32		
13.87	45.5	171.00	2.93	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	57	2.618	1.916	2.07	0.68	0.67	108.2	2.22	185.9	41	37	80	39		
14.02	46.0	278.86	1.95	Sand to Silty Sand	SP/SM	very dense	120	4.0	70	2.648	1.930	1.97	0.59	0.70	184.9	1.93	220.1	50	45	100	41		
14.17	46.5	198.01	2.43	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	66	2.678	1.944	2.46	0.64	0.68	127.2	2.11	187.0	46	38	87	40		
14.33	47.0	85.36	3.29	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	34	2.708	1.959	3.40	0.76	0.63	50.6	2.49	136.9	24	27	49	35		
14.48	47.5	57.44	4.17	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	29	2.738	1.973	4.36	0.82	0.60	32.5	2.70		29				3.26	8.3
14.63	48.0	39.84	3.53	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	20	2.768	1.988	3.90	0.85	0.59	22.0	2.79		20				2.23	5.6
14.78	48.5	86.63	3.08	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	43	2.798	2.002	3.99	0.77	0.61	50.0	2.54	149.0	31	30	48	36		
14.94	49.0	336.39	0.74	Gravelly Sand to Sand	SW	dense	120	6.0	56	2.828	2.016	0.75	0.50	0.72	230.3	1.56	230.3	39	46	100	38		
15.09	49.5	208.73	1.20	Sand	SP	dense	120	5.0	58	2.858	2.031	1.21	0.54	0.70	192.0	1.76	207.5	41	41	100	39		
15.24	50.0	139.50	2.94	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	47	2.887	2.045	3.00	0.70	0.63	83.1	2.30	161.7	33	32	69	37		

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-07

Engineer: T. TRANBY
Date: 02:16:04 13:03



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-7 | Plot: 7 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE. Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr(%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.98		1				0.12	43.3
0.30	1.0	21.46	0.66	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.041	0.041	0.66	0.67	1.70	34.5	2.20	57.1	12	11	33	31		
0.46	1.5	41.92	2.98	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.069	0.069	2.96	0.72	1.70	67.4	2.36	144.6	29	29	60	36		
0.61	2.0	18.57	5.75	Clay	CL/CH	very stiff	110	1.0	19	0.096	0.096	5.78	0.85	1.70	29.8	2.81		19				1.09	57.6
0.76	2.5	18.73	5.01	Clay	CL/CH	very stiff	110	1.0	19	0.124	0.124	5.04	0.84	1.70	30.1	2.77		19				1.09	45.1
0.91	3.0	14.63	4.94	Clay	CL/CH	stiff	110	1.0	15	0.151	0.151	4.99	0.86	1.70	23.5	2.84		15				0.85	28.7
1.07	3.5	11.30	5.08	Clay	CL/CH	stiff	110	1.0	11	0.179	0.179	5.14	0.89	1.70	18.2	2.94		11				0.65	18.7
1.22	4.0	9.14	5.48	Clay	CL/CH	stiff	110	1.0	9	0.206	0.206	5.60	0.92	1.70	14.7	3.03		9				0.53	13.0
1.37	4.5	7.42	5.54	Clay	CL/CH	firm	110	1.0	7	0.234	0.234	5.72	0.94	1.70	11.9	3.10		7				0.42	9.2
1.52	5.0	10.71	2.90	Silty Clay to Clay	CL	stiff	110	1.5	7	0.261	0.261	2.97	0.85	1.70	17.2	2.80		7				0.61	12.0
1.68	5.5	11.33	2.83	Silty Clay to Clay	CL	stiff	110	1.5	8	0.289	0.289	2.90	0.84	1.70	18.2	2.78		8				0.65	11.5
1.83	6.0	23.07	1.25	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.316	0.316	1.27	0.70	1.70	37.1	2.32	74.3	16	15	35	32		
1.98	6.5	22.86	1.24	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.344	0.344	1.26	0.71	1.70	36.7	2.32	73.6	16	15	35	32		
2.13	7.0	12.92	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.371	0.371	2.56	0.82	1.70	20.8	2.70		6				0.74	10.1
2.29	7.5	11.64	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.399	0.399	2.87	0.84	1.70	18.7	2.77		6				0.66	8.5
2.44	8.0	13.03	4.10	Clay	CL/CH	stiff	110	1.0	13	0.426	0.426	4.31	0.86	1.70	20.9	2.84		13				0.74	8.9
2.59	8.5	15.39	5.88	Clay	CL/CH	stiff	110	1.0	15	0.454	0.454	6.04	0.88	1.70	24.7	2.88		15				0.88	9.0
2.74	9.0	14.21	6.53	Clay	CL/CH	stiff	110	1.0	14	0.481	0.481	6.76	0.89	1.70	22.8	2.94		14				0.81	8.8
2.90	9.5	9.01	7.61	Clay	CL/CH	firm	110	1.0	9	0.509	0.509	8.07	0.98	1.70	14.5	3.14		9				0.50	5.0
3.05	10.0	13.37	5.11	Clay	CL/CH	stiff	110	1.0	13	0.536	0.536	5.32	0.88	1.70	21.5	2.89		13				0.75	7.2
3.20	10.5	22.78	2.40	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.564	0.564	2.46	0.76	1.62	34.8	2.51	98.6	12	20	33	31		
3.35	11.0	23.21	3.80	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.591	0.591	3.90	0.80	1.60	35.0	2.64		15				1.33	11.5
3.51	11.5	22.02	6.20	Clay	CL/CH	very stiff	110	1.0	22	0.619	0.619	6.38	0.85	1.56	32.9	2.81		22				1.20	10.4
3.66	12.0	16.41	6.55	Clay	CL/CH	stiff	110	1.0	16	0.646	0.646	6.82	0.89	1.55	24.1	2.93		16				0.93	7.3
3.81	12.5	15.22	7.26	Clay	CL/CH	stiff	110	1.0	15	0.674	0.674	7.59	0.91	1.51	21.7	2.98		15				0.86	6.5
3.96	13.0	17.73	7.05	Clay	CL/CH	very stiff	110	1.0	18	0.701	0.701	7.34	0.90	1.45	24.2	2.95		18				1.00	7.3
4.11	13.5	16.99	7.29	Clay	CL/CH	stiff	110	1.0	17	0.729	0.729	7.61	0.91	1.40	22.5	2.96		17				0.90	6.7
4.27	14.0	13.75	6.95	Clay	CL/CH	stiff	110	1.0	14	0.756	0.756	7.36	0.93	1.37	17.7	3.05		14				0.76	5.2
4.42	14.5	14.67	4.52	Clay	CL/CH	stiff	110	1.0	15	0.784	0.784	4.78	0.89	1.31	18.1	2.92		15				0.82	5.3
4.57	15.0	13.72	6.85	Clay	CL/CH	stiff	110	1.0	14	0.811	0.811	7.28	0.93	1.28	16.6	3.07		14				0.76	4.8
4.72	15.5	12.25	6.71	Clay	CL/CH	stiff	110	1.0	12	0.839	0.839	7.20	0.95	1.25	14.4	3.11		12				0.67	4.1
4.88	16.0	13.31	6.34	Clay	CL/CH	stiff	110	1.0	13	0.866	0.866	6.78	0.94	1.21	15.2	3.07		13				0.73	4.3
5.03	16.5	16.60	6.60	Clay	CL/CH	stiff	110	1.0	17	0.894	0.894	6.98	0.92	1.17	18.3	3.02		17				0.92	5.3
5.18	17.0	65.21	2.43	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	26	0.921	0.921	2.46	0.70	1.10	67.9	2.30	131.9	27	26	61	35		
5.33	17.5	25.72	3.21	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	0.949	0.949	3.33	0.82	1.09	26.8	2.69		13				1.48	7.8
5.49	18.0	10.72	4.55	Clay	CL/CH	stiff	110	1.0	11	0.976	0.976	5.01	0.95	1.08	10.9	3.10		11				0.57	3.0
5.64	18.5	16.20	4.03	Silty Clay to Clay	CL	stiff	110	1.5	11	1.004	1.004	4.30	0.89	1.05	16.0	2.93		11				0.89	4.5
5.79	19.0	17.50	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.031	1.031	3.38	0.87	1.02	16.9	2.84		9				0.97	4.8
5.94	19.5	24.64	2.93	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	1.059	1.059	3.07	0.82	1.00	23.3	2.71		12				1.39	6.7
6.10	20.0	12.90	5.05	Clay	CL/CH	stiff	120	1.0	13	1.088	1.088	5.57	0.95	0.97	11.9	3.10		13				0.69	3.3
6.25	20.5	10.64	5.62	Clay	CL/CH	stiff	120	1.0	11	1.118	1.118	6.28	0.98	0.95	9.5	3.21		11				0.56	2.6
6.40	21.0	11.50	6.07	Clay	CL/CH	stiff	120	1.0	11	1.148	1.148	6.74	0.98	0.92	10.0	3.21		11				0.61	2.7
6.55	21.5	13.77	4.91	Clay	CL/CH	stiff	120	1.0	14	1.178	1.178	5.37	0.94	0.90	11.8	3.09		14				0.74	3.2
6.71	22.0	15.18	4.57	Clay	CL/CH	stiff	120	1.0	15	1.208	1.208	4.98	0.93	0.88	12.7	3.04		15				0.82	3.5
6.86	22.5	16.54	4.34	Clay	CL/CH	stiff	120	1.0	17	1.238	1.238	4.69	0.92	0.87	13.5	3.01		17				0.90	3.7
7.01	23.0	14.19	4.57	Clay	CL/CH	stiff	120	1.0	14	1.268	1.268	5.02	0.94	0.84	11.3	3.09		14				0.76	3.0
7.16	23.5	11.08	5.23	Clay	CL/CH	stiff	120	1.0	11	1.298	1.282	5.93	0.99	0.83	8.7	3.22		11				0.58	2.3
7.32	24.0	12.93	4.91	Clay	CL/CH	stiff	120	1.0	13	1.328	1.296	5.47	0.96	0.82	10.0	3.15		13				0.68	2.7
7.47	24.5	12.65	5.31	Clay	CL/CH	stiff	120	1.0	13	1.358	1.311	5.95	0.97	0.81	9.7	3.18		13				0.67	2.6
7.62	25.0	13.82	4.89	Clay	CL/CH	stiff	120	1.0	14	1.388	1.325	5.43	0.96	0.81	10.6	3.13		14				0.74	2.8
7.77	25.5	12.89	4.48	Clay	CL/CH	stiff	120	1.0	13	1.418	1.340	5.04	0.96	0.80	9.7	3.14		13				0.68	2.6
7.92	26.0	11.49	5.46	Clay	CL/CH	stiff	120	1.0	11	1.448	1.354	6.25	0.99	0.78	8.5	3.24		11				0.60	2.2
8.08	26.5	11.86	5.13	Clay	CL/CH	stiff	120	1.0	12	1.478	1.368	5.85	0.99	0.78	8.7	3.22		12				0.62	2.3
8.23	27.0	13.64	5.62	Clay	CL/CH	stiff	120	1.0	14	1.500	1.383	6.32	0.98	0.77	9.9	3.19		14				0.72	2.6
8.38	27.5	15.88	5.60	Clay	CL/CH	stiff	120	1.0	16	1.538	1.397	6.30	0.96	0.77	11.5	3.14		16				0.85	3.1
8.53	28.0	17.96	5.09	Clay	CL/CH	stiff	120	1.0	18	1.568	1.412	5.58	0.94	0.76	13.0	3.07		18				0.97	3.5
8.69	28.5	16.29	5.55	Clay	CL/CH	stiff	120	1.0	16	1.598	1.426	6.15	0.96	0.75	11.8	3.13		16				0.87	3.1
8.84	29.0	52.23	2.80	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.628	1.440	2.89	0.77	0.79	39.0	2.52	112.2	17	22	38	32		
8.99	29.5	73.20	2.78	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	1.658	1.455	2.84	0.73	0.79	54.8	2.41	128.5	24	28	52	34		
9.14	30.0	44.31	4.84	Silty Clay to Clay	CL	hard	120	1.5	30	1.688	1.469	5.04	0.84	0.76	31.8	2.75		30				2.52	8.7
9.30	30.5	14.46	7.16	Clay	CL/CH	stiff	120	1.0	14	1.718	1.484	8.12	1.00	0.71	9.7	3.27		14				0.76	2.6
9.45	31.0	10.71	8.78	Clay	CL/CH	stiff	120	1.0	11	1.748	1.498	####	1.00	0.71	7.1	3.44		11				0.54	1.8
9.60	31.5	11.36	7.68	Clay	CL/CH	stiff	120	1.0	11	1.778	1.512	9.10	1.00	0.70	7.5	3.39		11				0.58	1.9
9.75	32.0	12.01	6.93	Clay	CL/CH	stiff	120	1.0	12	1.808	1.527	8.15	1.00	0.69	7.9	3.34		12				0.62	2.0
9.91	32.5	14.70	6.04	Clay	CL/CH	stiff	120	1.0	15	1.838	1.541	6.80	0.99	0.69	9.6	3.23		15				0.77	2.5
10.06	33.0	18.14	4.93	Clay	CL/CH	stiff	120	1.0	18	1.868	1.556	5.49	0.95	0.69	11.9	3.09		18				0.96	3.1
10.21	33.5	19.56	5.10	Clay	CL/CH	very stiff	120	1.0	20	1.898	1.570	5.65	0.94	0.69	12.8	3.08		20				1.06	3.4
10.36	34.0	19.71	5.12	Clay	CL/CH	very stiff	120	1.0	20	1.928	1.584	5.67	0.94	0.68	12.7	3.09		20				1.07	3.4
10.52	34.5	29.87	3.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	1.958	1.599	3.55	0.85	0.70	19.6	2.80		15				1.66	5.2
10.67	35.0	19.98	3.55	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.988	1.613	3.84	0.91	0.68	12.9	2.98		10				1.08	3.3
10.82	35.5	17.23	4.08	Silty Clay to Clay	CL	stiff	120	1.5	11	2.018	1.628	4.62	0.94	0.67	10.5	3.08		11				0.92	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 09/02/04

CPT SOUNDING: CPT-7 — Plot: 7 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **23.0** — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT-N

Nk: 17

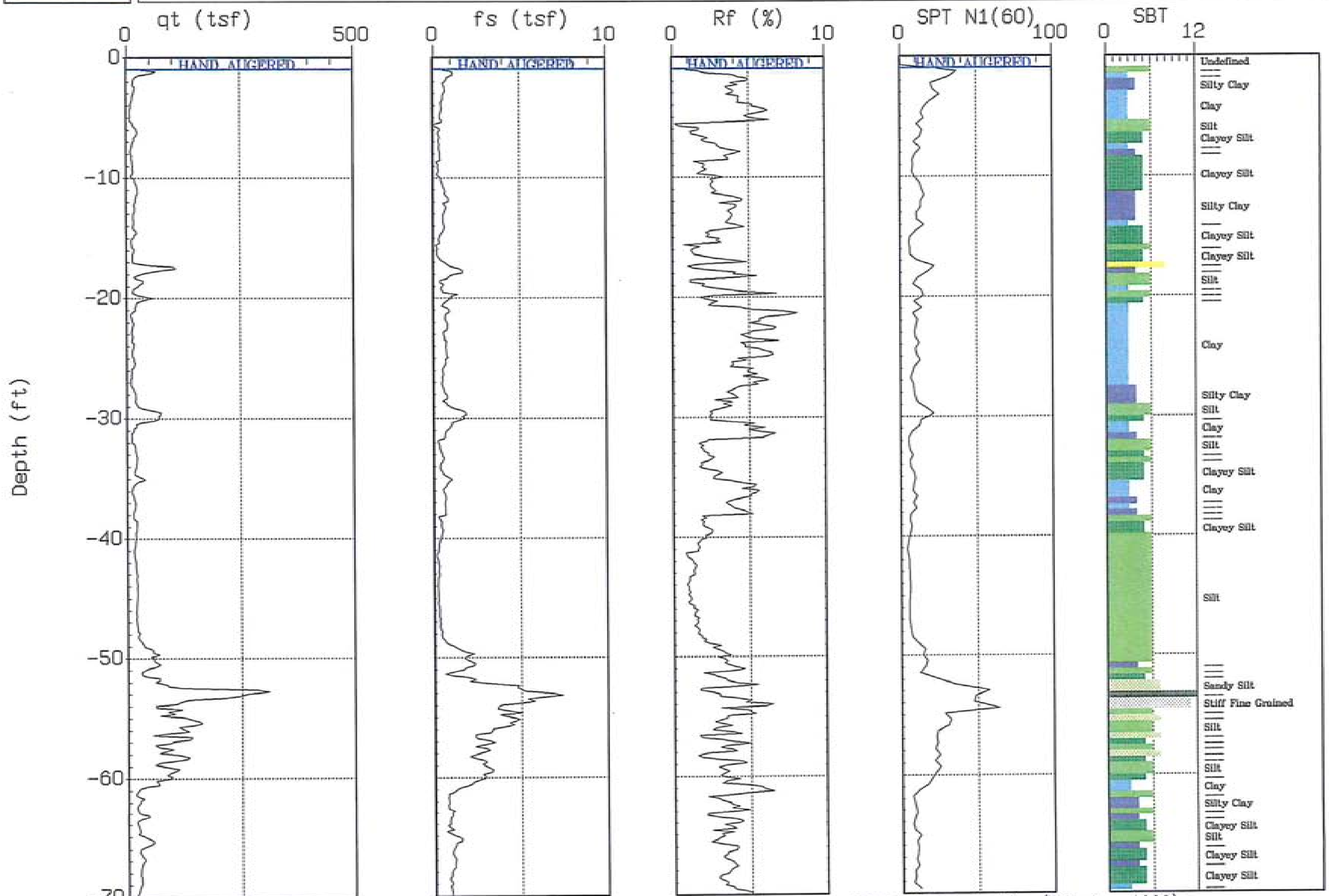
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	16.75	4.65	Clay	CL/CH	stiff	120	1.0	17	2.040	1.642	5.31	0.96	0.66	10.4	3.13		17				0.89	2.7
11.13	36.5	15.33	4.04	Clay	CL/CH	stiff	120	1.0	15	2.070	1.650	5.71	0.98	0.65	9.4	3.19		15				0.80	2.4
11.28	37.0	13.69	5.61	Clay	CL/CH	stiff	120	1.0	14	2.109	1.671	6.63	1.00	0.63	8.2	3.27		14				0.71	2.1
11.43	37.5	14.87	5.28	Clay	CL/CH	stiff	120	1.0	15	2.138	1.685	6.16	0.99	0.63	8.9	3.22		15				0.78	2.3
11.58	38.0	15.84	4.81	Clay	CL/CH	stiff	120	1.0	16	2.168	1.700	5.57	0.97	0.63	9.4	3.18		16				0.83	2.4
11.73	38.5	17.30	4.14	Silty Clay to Clay	CL	stiff	120	1.5	12	2.198	1.714	4.74	0.95	0.63	10.4	3.10		12				0.92	2.7
11.89	39.0	17.30	4.65	Clay	CL/CH	stiff	120	1.0	17	2.228	1.728	5.33	0.96	0.62	10.3	3.14		17				0.92	2.6
12.04	39.5	15.08	4.55	Clay	CL/CH	stiff	120	1.0	15	2.258	1.743	5.36	0.98	0.61	8.7	3.19		15				0.78	2.2
12.19	40.0	12.80	4.09	Clay	CL/CH	stiff	120	1.0	13	2.288	1.757	5.71	1.00	0.60	7.3	3.27		13				0.65	1.8
12.34	40.5	13.07	4.41	Clay	CL/CH	stiff	120	1.0	13	2.318	1.772	5.35	1.00	0.60	7.4	3.25		13				0.66	1.8
12.50	41.0	13.05	4.47	Clay	CL/CH	stiff	120	1.0	13	2.348	1.786	5.45	1.00	0.59	7.3	3.26		13				0.66	1.8
12.65	41.5	13.84	4.11	Clay	CL/CH	stiff	120	1.0	14	2.378	1.800	4.97	0.99	0.59	7.7	3.21		14				0.71	1.9
12.80	42.0	16.10	3.41	Silty Clay to Clay	CL	stiff	120	1.5	11	2.408	1.815	4.01	0.95	0.60	9.1	3.10		11				0.84	2.3
12.95	42.5	17.53	3.44	Silty Clay to Clay	CL	stiff	120	1.5	12	2.438	1.829	4.00	0.94	0.60	9.9	3.07		12				0.92	2.5
13.11	43.0	17.50	3.70	Silty Clay to Clay	CL	stiff	120	1.5	12	2.460	1.844	4.30	0.95	0.59	9.8	3.10		12				0.92	2.4
13.26	43.5	17.49	4.02	Silty Clay to Clay	CL	stiff	120	1.5	12	2.490	1.858	4.69	0.96	0.58	9.6	3.12		12				0.92	2.4
13.41	44.0	17.49	4.02	Silty Clay to Clay	CL	stiff	120	1.5	12	2.520	1.872	4.70	0.96	0.58	9.6	3.13		12				0.92	2.4
13.56	44.5	17.89	4.03	Silty Clay to Clay	CL	stiff	120	1.5	12	2.550	1.887	4.70	0.96	0.58	9.7	3.12		12				0.94	2.4
13.72	45.0	18.58	3.62	Silty Clay to Clay	CL	stiff	120	1.5	12	2.580	1.901	4.21	0.94	0.58	10.1	3.08		12				0.98	2.5
13.87	45.5	18.96	4.79	Clay	CL/CH	very stiff	120	1.0	19	2.618	1.916	5.56	0.96	0.56	10.1	3.15		19				1.00	2.6
14.02	46.0	37.27	2.53	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	2.648	1.930	2.73	0.83	0.61	21.4	2.70		15				2.00	5.4
14.17	46.5	31.00	4.03	Silty Clay to Clay	CL	very stiff	120	1.5	21	2.678	1.944	4.41	0.89	0.58	17.1	2.91		21				1.71	4.4
14.33	47.0	17.60	5.67	Clay	CL/CH	stiff	120	1.0	18	2.708	1.959	6.70	0.99	0.54	9.0	3.24		18				0.92	2.3
14.48	47.5	14.80	6.13	Clay	CL/CH	stiff	120	1.0	15	2.730	1.973	7.51	1.00	0.54	7.5	3.33		15				0.78	1.8
14.63	48.0	20.41	5.34	Clay	CL/CH	very stiff	120	1.0	20	2.768	1.988	6.18	0.97	0.54	10.5	3.17		20				1.08	2.7
14.78	48.5	30.32	4.19	Silty Clay to Clay	CL	very stiff	120	1.5	20	2.798	2.002	4.62	0.90	0.56	16.3	2.94		20				1.67	4.1
14.94	49.0	21.66	4.54	Clay	CL/CH	very stiff	120	1.0	22	2.828	2.016	5.22	0.95	0.54	11.1	3.10		22				1.16	2.8
15.09	49.5	32.54	2.90	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.858	2.031	3.16	0.86	0.57	17.6	2.81		13				1.79	4.4
15.24	50.0	37.53	3.69	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.887	2.045	4.22	0.87	0.58	20.0	2.85		19				2.09	5.1

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-08

Engineer: T. TRANBY
Date: 02:16:04 13:38



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-8 Plot: 8 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.00	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	22.58	0.50	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.041	0.041	0.50	0.65	1.70	36.2	2.15	56.6	13	11	35	31		
0.46	1.5	33.53	3.45	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.069	0.069	3.46	0.75	1.70	53.9	2.47	142.0	29	28	51	36		
0.61	2.0	14.66	4.54	Clay	CL/CH	stiff	110	1.0	15	0.096	0.096	4.57	0.85	1.70	23.9	2.81		15				0.87	46.0
0.76	2.5	16.67	3.81	Silty Clay to Clay	CL	stiff	110	1.5	11	0.124	0.124	3.84	0.83	1.70	20.0	2.72		11				0.97	40.1
0.91	3.0	15.73	3.85	Silty Clay to Clay	CL	stiff	110	1.5	10	0.151	0.151	3.89	0.83	1.70	25.3	2.75		10				0.92	30.0
1.07	3.5	12.11	4.32	Clay	CL/CH	stiff	110	1.0	12	0.179	0.179	4.39	0.87	1.70	19.6	2.87		12				0.70	20.0
1.22	4.0	9.35	4.89	Clay	CL/CH	stiff	110	1.0	9	0.206	0.206	5.00	0.91	1.70	15.0	2.99		9				0.54	13.3
1.37	4.5	7.80	5.08	Clay	CL/CH	firm	110	1.0	8	0.234	0.234	6.17	0.94	1.70	12.5	3.11		8				0.45	9.7
1.52	5.0	7.59	5.01	Clay	CL/CH	firm	110	1.0	8	0.261	0.261	5.19	0.93	1.70	12.2	3.07		8				0.43	8.4
1.68	5.5	11.99	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.289	0.289	2.79	0.83	1.70	19.3	2.75		6				0.69	12.2
1.83	6.0	21.99	1.53	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.316	0.316	1.55	0.72	1.70	35.3	2.38	79.5	15	16	34	32		
1.98	6.5	18.85	1.03	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.344	0.344	1.06	0.76	1.70	30.3	2.40	81.6	13	16	27	31		
2.13	7.0	14.03	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.371	0.371	2.37	0.81	1.70	22.5	2.65		7				0.80	11.0
2.29	7.5	10.13	3.29	Silty Clay to Clay	CL	stiff	110	1.5	7	0.399	0.399	3.43	0.87	1.70	16.3	2.89		7				0.57	7.3
2.44	8.0	9.98	3.93	Clay	CL/CH	stiff	110	1.0	10	0.426	0.426	4.10	0.89	1.70	16.0	2.91		10				0.56	6.7
2.59	8.5	11.14	2.90	Silty Clay to Clay	CL	stiff	110	1.5	7	0.454	0.454	3.02	0.85	1.70	17.9	2.79		7				0.63	7.1
2.74	9.0	12.75	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.481	0.481	2.12	0.81	1.70	20.5	2.66		6				0.72	7.6
2.90	9.5	13.02	1.89	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.509	0.509	1.96	0.80	1.70	20.9	2.63		7				0.74	7.4
3.05	10.0	13.45	2.86	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.536	0.536	2.98	0.83	1.70	21.6	2.73		7				0.76	7.2
3.20	10.5	19.92	2.55	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.564	0.564	2.62	0.79	1.64	30.8	2.57	97.2	13	19	28	31		
3.35	11.0	23.55	2.73	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.591	0.591	2.80	0.78	1.57	34.9	2.55	105.6	15	21	33	32		
3.51	11.5	21.82	3.33	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.619	0.619	3.42	0.80	1.54	31.7	2.64		11				1.25	10.3
3.66	12.0	18.59	4.04	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.646	0.646	4.19	0.84	1.51	26.6	2.75		12				1.06	8.3
3.81	12.5	17.02	4.08	Silty Clay to Clay	CL	stiff	110	1.5	11	0.674	0.674	4.23	0.85	1.47	23.6	2.79		11				0.96	7.3
3.96	13.0	15.77	3.77	Silty Clay to Clay	CL	stiff	110	1.5	11	0.701	0.701	3.95	0.85	1.42	21.2	2.81		11				0.89	6.4
4.11	13.5	14.44	3.74	Silty Clay to Clay	CL	stiff	110	1.5	10	0.729	0.729	3.94	0.87	1.38	18.9	2.85		10				0.81	5.8
4.27	14.0	14.45	4.13	Clay	CL/CH	stiff	110	1.0	14	0.756	0.756	4.36	0.88	1.34	18.3	2.89		14				0.81	5.4
4.42	14.5	19.37	2.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.784	0.784	2.95	0.82	1.28	23.4	2.70		10				1.09	7.1
4.57	15.0	13.82	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.811	0.811	2.74	0.85	1.25	16.4	2.80		7				0.77	4.8
4.72	15.5	10.71	2.26	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.839	0.839	2.45	0.88	1.23	12.4	2.87		5				0.58	3.5
4.88	16.0	14.30	1.41	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.866	0.866	1.50	0.81	1.18	15.9	2.60		6				0.79	4.7
5.03	16.5	12.38	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.894	0.894	2.27	0.86	1.16	13.5	2.82		6				0.68	3.9
5.18	17.0	22.87	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.921	0.921	3.72	0.84	1.12	24.3	2.75		11				1.29	7.1
5.33	17.5	93.81	1.56	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	31	0.949	0.949	1.57	0.63	1.07	94.9	2.06	131.3	32	26	75	37		
5.49	18.0	27.69	4.50	Silty Clay to Clay	CL	very stiff	110	1.5	18	0.976	0.976	4.67	0.84	1.07	28.0	2.77		18				1.57	8.2
5.64	18.5	30.09	2.02	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	12	1.004	1.004	2.09	0.77	1.04	29.0	2.52	85.5	12	17	26	31		
5.79	19.0	23.32	2.16	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	9	1.031	1.031	2.26	0.80	1.02	22.5	2.64		9				1.31	6.5
5.94	19.5	15.03	4.96	Clay	CL/CH	stiff	110	1.0	15	1.059	1.059	5.33	0.92	1.00	14.2	3.03		15				0.82	4.0
6.10	20.0	42.97	2.28	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.088	1.088	2.34	0.75	0.98	39.8	2.45	101.4	16	20	30	32		
6.25	20.5	20.77	2.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.118	1.118	2.73	0.84	0.96	18.8	2.75		10				1.16	5.3
6.40	21.0	15.99	5.52	Clay	CL/CH	stiff	120	1.0	16	1.148	1.148	5.94	0.93	0.93	14.0	3.06		16				0.87	3.9
6.55	21.5	9.27	7.26	Clay	CL/CH	firm	120	1.0	9	1.178	1.178	8.32	1.00	0.90	7.9	3.35		9				0.48	2.1
6.71	22.0	13.24	5.47	Clay	CL/CH	stiff	120	1.0	13	1.208	1.208	6.02	0.96	0.88	11.0	3.15		13				0.71	3.0
6.86	22.5	12.11	6.42	Clay	CL/CH	stiff	120	1.0	12	1.238	1.238	7.15	0.99	0.86	9.8	3.23		12				0.64	2.6
7.01	23.0	11.16	4.93	Clay	CL/CH	stiff	120	1.0	11	1.268	1.268	5.55	0.98	0.84	8.8	3.20		11				0.58	2.3
7.16	23.5	11.63	5.73	Clay	CL/CH	stiff	120	1.0	12	1.298	1.282	6.45	0.99	0.83	9.1	3.23		12				0.61	2.4
7.32	24.0	14.77	4.67	Clay	CL/CH	stiff	120	1.0	15	1.328	1.296	5.14	0.94	0.83	11.5	3.09		15				0.79	3.1
7.47	24.5	11.84	6.04	Clay	CL/CH	stiff	120	1.0	12	1.358	1.311	6.82	0.99	0.81	9.0	3.25		12				0.62	2.4
7.62	25.0	13.14	5.70	Clay	CL/CH	stiff	120	1.0	13	1.388	1.325	6.37	0.98	0.80	10.0	3.19		13				0.69	2.7
7.77	25.5	15.85	4.23	Clay	CL/CH	stiff	120	1.0	16	1.418	1.340	4.64	0.93	0.80	12.0	3.04		16				0.85	3.2
7.92	26.0	11.19	4.65	Clay	CL/CH	stiff	120	1.0	11	1.448	1.354	5.34	0.98	0.78	8.3	3.21		11				0.58	2.2
8.08	26.5	9.57	5.26	Clay	CL/CH	firm	120	1.0	10	1.478	1.368	6.22	1.00	0.77	7.0	3.31		10				0.48	1.8
8.23	27.0	8.20	5.74	Clay	CL/CH	firm	120	1.0	8	1.508	1.383	7.03	1.00	0.77	5.9	3.40		8				0.40	1.6
8.38	27.5	12.97	4.18	Clay	CL/CH	stiff	120	1.0	13	1.538	1.397	4.75	0.96	0.77	9.4	3.14		13				0.68	2.5
8.53	28.0	18.05	3.85	Silty Clay to Clay	CL	stiff	120	1.5	12	1.568	1.412	4.22	0.91	0.77	13.1	2.99		12				0.98	3.5
8.69	28.5	18.01	3.64	Silty Clay to Clay	CL	stiff	120	1.5	12	1.598	1.426	4.00	0.91	0.76	13.0	2.98		12				0.98	3.5
8.84	29.0	26.62	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.628	1.440	3.72	0.80	0.77	19.3	2.82		13				1.48	5.2
8.99	29.5	69.13	2.58	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	28	1.658	1.455	2.62	0.73	0.79	51.8	2.40	120.1	23	24	50	34		
9.14	30.0	65.69	2.43	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.688	1.469	2.49	0.73	0.79	40.8	2.41	114.0	22	23	47	34		
9.30	30.5	23.37	4.51	Silty Clay to Clay	CL	very stiff	120	1.5	16	1.718	1.484	4.87	0.90	0.74	16.3	2.96		16				1.29	4.4
9.45	31.0	13.52	5.53	Clay	CL/CH	stiff	120	1.0	14	1.748	1.498	6.35	0.99	0.71	9.1	3.23		14				0.71	2.4
9.60	31.5	9.59	6.27	Clay	CL/CH	firm	120	1.0	10	1.778	1.512	7.70	1.00	0.70	6.3	3.40		10				0.47	1.5
9.75	32.0	11.60	2.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.808	1.527	2.42	0.93	0.71	7.8	3.04		6				0.59	1.9
9.91	32.5	17.22	1.90	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.838	1.541	2.12	0.86	0.72	11.7	2.86		7				0.92	3.0
10.06	33.0	19.63	2.19	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.868	1.556	2.42	0.87	0.72	13.3	2.84		8				1.06	3.4
10.21	33.5	20.86	2.47	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.898	1.570	2.72	0.87	0.71	14.0	2.85		10				1.13	3.6
10.36	34.0	19.16	1.70	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.928	1.584	1.93	0.86	0.71	12.8	2.81		8				1.03	3.3
10.52	34.5	15.89	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.958	1.599	3.00	0.97	0.68	10.3	2.99		8				0.84	2.6
10.67	35.0	31.29	2.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	1.988	1.613	2.88	0.83	0.70	20.8	2.73		13				1.75	5.4
10.82	35.5	17.62	4.54	Clay	CL/CH	stiff	120	1.0	18	2.018	1.626	5.13	0.95	0.66	11.1	3.10		18				0.94	2.9

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-8 Plot: 8 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

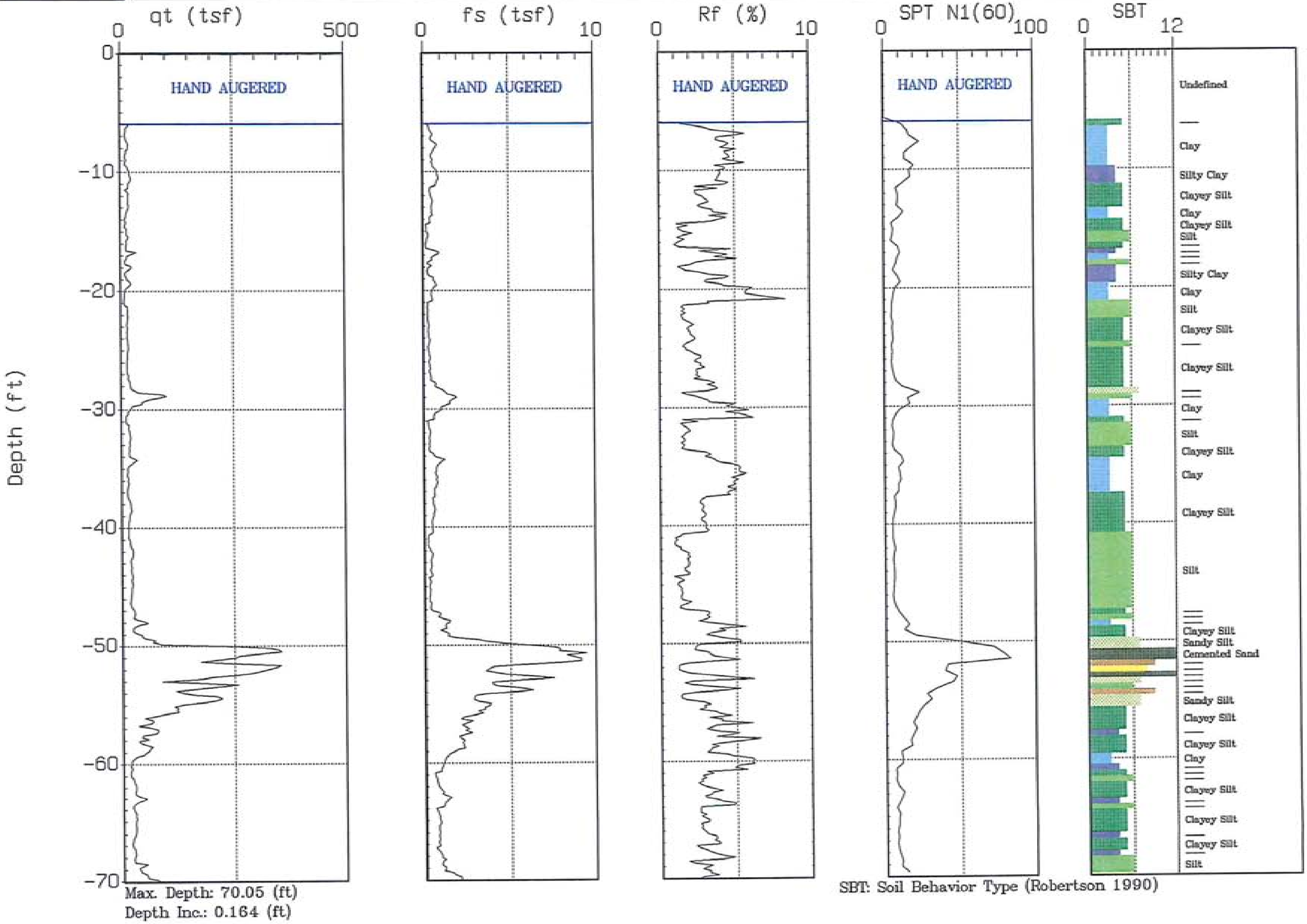
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg)	Nk: 17 Su (tsf)	OCR
10.97	36.0	10.29	5.17	Clay	CL/CH	stiff	120	1.0	10	2.048	1.642	6.46	1.00	0.64	6.8	3.38		10				0.51	1.5
11.13	36.5	12.50	5.04	Clay	CL/CH	stiff	120	1.0	13	2.078	1.658	6.04	1.00	0.64	7.5	3.27		13				0.64	1.9
11.28	37.0	16.61	3.61	Silty Clay to Clay	CL	stiff	120	1.5	11	2.108	1.671	4.14	0.94	0.65	10.2	3.07		11				0.88	2.6
11.43	37.5	14.97	4.14	Clay	CL/CH	stiff	120	1.0	15	2.138	1.685	4.84	0.97	0.64	9.0	3.15		15				0.78	2.3
11.58	38.0	12.42	4.00	Clay	CL/CH	stiff	120	1.0	12	2.168	1.700	4.85	0.99	0.62	7.3	3.23		12				0.63	1.8
11.73	38.5	18.01	1.98	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.198	1.714	2.25	0.89	0.65	11.1	2.80		7				0.96	2.8
11.89	39.0	19.80	2.06	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.228	1.728	2.32	0.88	0.65	12.2	2.86		8				1.06	3.0
12.04	39.5	17.03	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	2.87	0.91	0.64	10.8	2.90		9				0.95	2.7
12.19	40.0	17.99	2.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.288	1.757	2.31	0.80	0.64	10.8	2.91		9				0.95	2.7
12.34	40.5	15.95	1.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.318	1.772	1.91	0.80	0.63	9.5	2.91		6				0.83	2.3
12.50	41.0	13.65	1.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.348	1.786	1.97	0.92	0.62	8.0	2.98		7				0.70	1.9
12.65	41.5	14.71	0.84	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.378	1.800	1.00	0.87	0.63	8.8	2.81		6				0.76	2.1
12.80	42.0	17.19	1.24	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.408	1.815	1.44	0.87	0.63	10.2	2.82		7				0.90	2.4
12.95	42.5	17.68	1.44	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.438	1.829	1.66	0.87	0.62	10.3	2.85		7				0.93	2.5
13.11	43.0	19.08	1.33	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.468	1.844	1.52	0.86	0.62	11.2	2.80		8				1.01	2.7
13.26	43.5	18.85	1.03	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	8	2.498	1.858	1.18	0.85	0.62	11.1	2.75		8				1.00	2.6
13.41	44.0	20.10	0.91	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.528	1.872	1.04	0.83	0.62	11.8	2.70		8				1.07	2.8
13.56	44.5	20.59	1.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.558	1.887	1.15	0.83	0.62	12.0	2.71		8				1.10	2.9
13.72	45.0	20.01	1.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.588	1.901	1.21	0.84	0.61	11.6	2.74		8				1.07	2.7
13.87	45.5	18.61	1.02	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.618	1.916	1.19	0.85	0.60	10.8	2.77		7				0.98	2.5
14.02	46.0	17.93	1.40	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.648	1.930	1.64	0.88	0.59	10.0	2.88		7				0.94	2.4
14.17	46.5	17.80	1.39	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.678	1.944	1.63	0.88	0.59	9.8	2.88		7				0.93	2.3
14.33	47.0	18.05	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.708	1.959	1.86	0.89	0.58	9.9	2.89		7				0.95	2.3
14.48	47.5	19.94	1.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.738	1.973	1.76	0.87	0.58	10.9	2.84		8				1.05	2.0
14.63	48.0	22.67	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.768	1.988	1.93	0.86	0.58	12.6	2.81		9				1.23	3.0
14.78	48.5	26.54	2.02	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.798	2.002	2.25	0.85	0.58	14.5	2.79		11				1.44	3.5
14.94	49.0	39.35	2.67	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	2.828	2.016	2.88	0.83	0.59	21.8	2.71		16				2.20	5.4
15.09	49.5	57.90	3.16	Sandy Silt to Clayey Silt	ML	hard	120	2.5	23	2.858	2.031	3.33	0.80	0.59	32.6	2.62		23				3.20	8.1
15.24	50.0	52.89	3.38	Sandy Silt to Clayey Silt	ML	hard	120	2.5	21	2.887	2.045	3.57	0.82	0.58	29.2	2.66		21				2.99	7.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-09

Engineer: T. TRANBY
Date: 02:16:04 14:13



SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 09/02/04

CPT SOUNDING: CPT-9 Plot: 9 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.0 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR (Nk: 17)
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.95		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.95		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.96		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.96		1				0.11	4.3
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.96		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.96		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.06	0.91	1.70	3.2	2.96		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.06	0.91	1.70	3.2	2.96		1				0.10	2.3
1.52	5.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.261	0.261	0.06	0.92	1.70	3.2	2.96		1				0.10	2.0
1.68	5.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.289	0.289	0.06	0.92	1.70	3.2	2.96		1				0.10	1.8
1.83	6.0	11.52	1.37	Clayey Silt to Silty Clay	ML/CL	loose	110	2.0	6	0.316	0.316	1.41	0.79	1.70	18.5	2.59	60.8	10	12	7	30		
1.98	6.5	10.92	3.84	Clay	CL/CH	stiff	110	1.0	11	0.344	0.344	3.96	0.87	1.70	17.5	2.87		11				0.62	9.2
2.13	7.0	10.14	4.87	Clay	CL/CH	stiff	110	1.0	10	0.371	0.371	5.06	0.90	1.70	16.3	2.97		10				0.57	7.9
2.29	7.5	15.42	4.24	Clay	CL/CH	stiff	110	1.0	15	0.399	0.399	4.36	0.85	1.70	24.8	2.79		15				0.88	11.3
2.44	8.0	14.83	4.58	Clay	CL/CH	stiff	110	1.0	15	0.426	0.426	4.71	0.86	1.70	23.8	2.82		15				0.85	10.1
2.59	8.5	10.71	4.49	Clay	CL/CH	stiff	110	1.0	11	0.454	0.454	4.69	0.89	1.70	17.2	2.93		11				0.60	6.8
2.74	9.0	10.88	4.63	Clay	CL/CH	stiff	110	1.0	11	0.481	0.481	4.84	0.89	1.70	17.5	2.93		11				0.61	6.6
2.90	9.5	13.12	4.59	Clay	CL/CH	stiff	110	1.0	13	0.509	0.509	4.76	0.87	1.70	21.1	2.87		13				0.74	7.4
3.05	10.0	19.15	4.15	Silty Clay to Clay	CL	very stiff	110	1.5	13	0.536	0.536	4.27	0.82	1.70	30.8	2.71		13				1.00	10.4
3.20	10.5	21.94	3.97	Silty Clay to Clay	CL	very stiff	110	1.5	15	0.564	0.564	4.07	0.81	1.66	34.5	2.66		15				1.26	11.4
3.35	11.0	17.63	4.25	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.591	0.591	4.40	0.84	1.63	27.2	2.76		12				1.00	8.8
3.51	11.5	13.48	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.619	0.619	3.05	0.84	1.57	20.0	2.76		7				0.76	6.2
3.66	12.0	16.56	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.646	0.646	2.69	0.81	1.49	23.4	2.67		8				0.94	7.4
3.81	12.5	16.20	3.17	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.674	0.674	3.31	0.84	1.46	22.3	2.74		8				0.91	6.9
3.96	13.0	17.12	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.701	0.701	2.88	0.82	1.40	22.7	2.70		9				0.97	7.0
4.11	13.5	12.70	3.91	Clay	CL/CH	stiff	110	1.0	13	0.729	0.729	4.15	0.89	1.39	16.7	2.90		13				0.70	4.9
4.27	14.0	9.40	3.94	Clay	CL/CH	stiff	110	1.0	9	0.756	0.756	4.28	0.92	1.35	12.2	3.02		9				0.51	3.5
4.42	14.5	9.09	2.17	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	5	0.784	0.784	2.37	0.89	1.31	11.2	2.90		5				0.49	3.2
4.57	15.0	12.02	1.39	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.811	0.811	1.49	0.83	1.25	14.2	2.71		6				0.66	4.1
4.72	15.5	14.30	1.68	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.839	0.839	1.77	0.82	1.21	16.4	2.69		6				0.80	4.6
4.88	16.0	11.45	1.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.866	0.866	1.42	0.84	1.18	12.8	2.73		6				0.62	3.7
5.03	16.5	19.80	2.96	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.894	0.894	3.11	0.84	1.15	20.5	2.75		9				1.06	6.0
5.18	17.0	16.61	3.91	Silty Clay to Clay	CL	stiff	110	1.5	11	0.921	0.921	4.14	0.88	1.13	17.7	2.88		11				0.92	5.1
5.33	17.5	9.30	3.58	Clay	CL/CH	firm	110	1.0	9	0.949	0.949	3.86	0.94	1.11	9.7	3.08		9				0.49	2.6
5.49	18.0	20.60	1.57	Sandy Silt to Clayey Silt	ML	loose	110	2.5	8	0.976	0.976	1.65	0.79	1.07	20.8	2.59	67.6	8	14	12	29		
5.64	18.5	9.34	2.54	Silty Clay to Clay	CL	firm	110	1.5	6	1.004	1.004	2.85	0.92	1.05	9.3	3.01		6				0.49	2.5
5.79	19.0	14.45	4.03	Clay	CL/CH	stiff	110	1.0	14	1.031	1.031	4.34	0.91	1.02	14.0	2.98		14				0.79	3.9
5.94	19.5	18.25	3.81	Silty Clay to Clay	CL	very stiff	110	1.5	12	1.059	1.059	4.04	0.88	1.00	17.2	2.89		12				1.01	4.9
6.10	20.0	8.24	5.93	Clay	CL/CH	firm	120	1.0	8	1.089	1.089	6.83	1.00	0.97	7.8	3.31		8				0.42	2.0
6.25	20.5	7.05	6.51	Clay	CL/CH	firm	120	1.0	7	1.118	1.118	7.73	1.00	0.95	6.3	3.40		7				0.35	1.6
6.40	21.0	6.57	4.96	Clay	CL/CH	firm	120	1.0	7	1.148	1.148	6.01	1.00	0.92	5.7	3.37		7				0.32	1.4
6.55	21.5	14.20	1.57	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.178	1.178	1.71	0.85	0.91	12.3	2.79		6				0.77	3.3
6.71	22.0	14.43	1.53	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.208	1.208	1.67	0.85	0.89	12.2	2.78		6				0.78	3.3
6.86	22.5	13.95	1.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	1.79	0.87	0.87	11.5	2.82		7				0.75	3.1
7.01	23.0	13.16	2.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.268	1.268	2.33	0.89	0.85	10.6	2.92		7				0.70	2.8
7.16	23.5	13.17	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.298	1.282	2.16	0.89	0.84	10.5	2.90		7				0.70	2.8
7.32	24.0	13.38	2.21	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.328	1.296	2.46	0.90	0.83	10.5	2.93		7				0.71	2.8
7.47	24.5	14.95	1.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.358	1.311	2.16	0.88	0.83	11.7	2.86		7				0.80	3.1
7.62	25.0	14.91	1.68	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.388	1.325	1.85	0.87	0.82	11.6	2.83		6				0.80	3.1
7.77	25.5	13.46	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.418	1.340	2.63	0.91	0.81	10.3	2.95		7				0.71	2.7
7.92	26.0	12.63	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.448	1.354	2.80	0.92	0.80	9.5	3.00		6				0.66	2.5
8.08	26.5	12.25	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.478	1.368	3.09	0.93	0.79	9.1	3.04		6				0.64	2.4
8.23	27.0	14.27	2.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.508	1.383	2.74	0.91	0.78	10.6	2.95		7				0.76	2.8
8.38	27.5	16.86	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.538	1.397	2.99	0.89	0.78	12.4	2.92		8				0.91	3.3
8.53	28.0	20.26	3.50	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.568	1.412	3.79	0.89	0.77	14.8	2.92		10				1.11	4.0
8.69	28.5	53.19	2.82	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.598	1.426	2.90	0.77	0.80	40.0	2.51	113.7	16	23	39	33		
8.84	29.0	80.08	2.28	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	27	1.628	1.440	2.33	0.70	0.80	60.9	2.32	121.7	22	24	56	34		
8.99	29.5	38.69	3.81	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.658	1.455	3.98	0.83	0.77	28.1	2.72		19				2.19	7.6
9.14	30.0	18.42	5.11	Clay	CL/CH	stiff	120	1.0	18	1.688	1.469	5.62	0.94	0.73	12.8	3.08		18				1.00	3.4
9.30	30.5	11.67	5.12	Clay	CL/CH	stiff	120	1.0	12	1.718	1.484	6.00	1.00	0.71	7.9	3.26		12				0.60	2.0
9.45	31.0	9.66	3.38	Silty Clay to Clay	CL	firm	120	1.5	6	1.748	1.498	4.13	1.00	0.71	6.5	3.23		6				0.48	1.6
9.60	31.5	15.94	1.55	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.778	1.512	1.74	0.87	0.73	11.0	2.83		6				0.85	2.8
9.75	32.0	18.00	1.87	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.808	1.527	2.08	0.87	0.73	12.4	2.83		7				0.97	3.2
9.91	32.5	19.30	1.53	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.838	1.541	1.69	0.84	0.73	13.3	2.76		8				1.05	3.4
10.06	33.0	18.13	1.57	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.868	1.556	1.75	0.86	0.72	12.3	2.79		7				0.97	3.1
10.21	33.5	16.93	1.64	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.898	1.570	1.84	0.87	0.71	11.4	2.84		7				0.90	2.9
10.36	34.0	20.09	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.928	1.584	3.48	0.90	0.70	13.2	2.94		10				1.00	3.4
10.52	34.5	27.66	3.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.958	1.599	3.97	0.87	0.70	18.2	2.86		14				1.53	4.8
10.67	35.0	13.78	5.15	Clay	CL/CH	stiff	120	1.0	14	1.988	1.613	6.02	0.98	0.68	8.6	3.23		14				0.72	2.2
10.82	35.5	12.14	5.46	Clay	CL/CH	stiff	120	1.0	12	2.018	1.628	6.53	1.00	0.65	7.5	3.30		12				0.62	1.9

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 09/02/04

CPT SOUNDING: CPT-9   Plot: 9   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

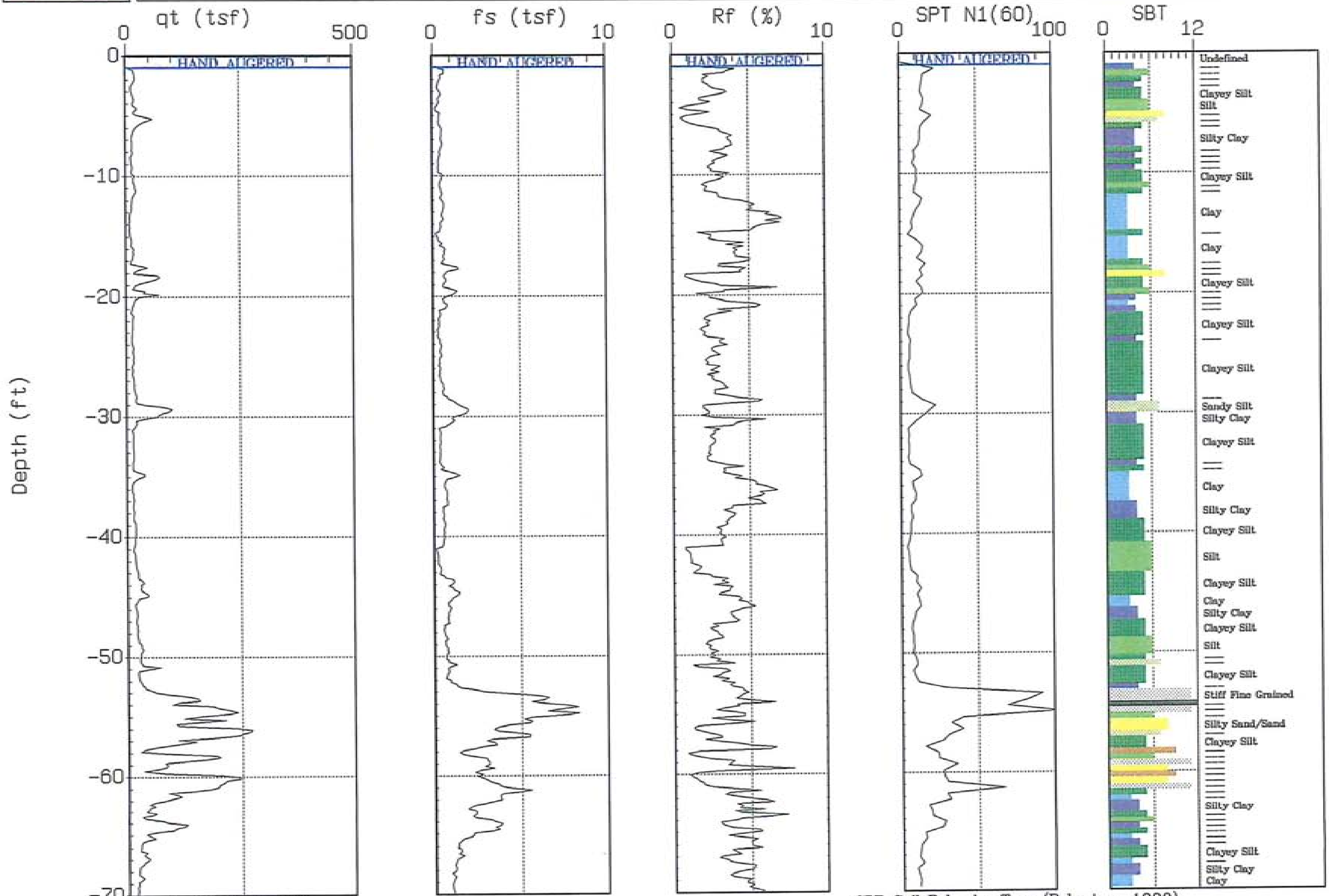
Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	14.10	5.07	Clay	CL/CH	stiff	120	1.0	14	2.048	1.642	5.93	0.99	0.65	8.7	3.22		14				0.74	2.2
11.13	36.5	13.80	4.83	Clay	CL/CH	stiff	120	1.0	14	2.078	1.656	5.68	0.99	0.64	8.4	3.22		14				0.72	2.1
11.28	37.0	12.04	4.72	Clay	CL/CH	stiff	120	1.0	12	2.108	1.671	5.72	1.00	0.63	7.2	3.28		12				0.61	1.8
11.43	37.5	15.18	3.51	Silty Clay to Clay	CL	stiff	120	1.5	10	2.138	1.685	4.08	0.95	0.64	9.2	3.10		10				0.79	2.3
11.58	38.0	18.98	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.168	1.700	3.04	0.90	0.65	11.7	2.94		9				1.02	3.0
11.73	38.5	20.28	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.198	1.714	3.15	0.90	0.65	12.4	2.93		10				1.09	3.2
11.89	39.0	17.04	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.228	1.728	3.40	0.93	0.63	10.2	3.02		9				0.90	2.6
12.04	39.5	15.01	2.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.258	1.743	3.30	0.94	0.63	8.9	3.05		8				0.78	2.2
12.19	40.0	14.30	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.288	1.757	3.61	0.95	0.62	8.3	3.11		7				0.74	2.1
12.34	40.5	14.15	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.318	1.772	3.09	0.95	0.61	8.2	3.07		7				0.73	2.0
12.50	41.0	15.65	1.13	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.348	1.786	1.32	0.87	0.63	9.5	2.83		6				0.83	2.3
12.65	41.5	18.68	0.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.378	1.800	1.09	0.84	0.64	11.4	2.72		8				1.00	2.7
12.80	42.0	23.20	1.41	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.408	1.815	1.57	0.83	0.64	14.0	2.72		9				1.28	3.4
12.95	42.5	21.95	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.438	1.829	2.12	0.86	0.62	12.9	2.82		9				1.18	3.2
13.11	43.0	19.15	1.83	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.468	1.844	2.10	0.89	0.61	11.1	2.87		8				1.02	2.7
13.26	43.5	19.87	1.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.498	1.858	2.01	0.87	0.61	11.5	2.85		8				1.06	2.8
13.41	44.0	21.14	1.81	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.528	1.872	2.05	0.87	0.61	12.2	2.83		8				1.13	3.0
13.56	44.5	21.30	1.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.558	1.887	1.41	0.84	0.61	12.4	2.74		9				1.14	3.0
13.72	45.0	21.57	1.18	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.588	1.901	1.34	0.84	0.61	12.5	2.73		9				1.16	3.0
13.87	45.5	20.17	1.37	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.618	1.916	1.58	0.86	0.60	11.4	2.80		8				1.07	2.7
14.02	46.0	18.65	1.36	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.648	1.930	1.58	0.87	0.59	10.4	2.83		7				0.98	2.5
14.17	46.5	17.76	1.73	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.678	1.944	2.03	0.90	0.58	9.7	2.91		7				0.93	2.3
14.33	47.0	24.76	1.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.708	1.959	2.06	0.86	0.59	13.8	2.79		10				1.34	3.4
14.48	47.5	27.30	3.18	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.738	1.973	3.53	0.89	0.58	14.9	2.90		14				1.49	3.7
14.63	48.0	46.59	2.91	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.768	1.988	3.09	0.81	0.60	26.4	2.67		19				2.62	6.6
14.78	48.5	23.44	4.72	Clay	CL/CH	very stiff	120	1.0	23	2.798	2.002	5.36	0.94	0.55	12.7	3.08		23				1.26	3.1
14.94	49.0	37.55	3.57	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.828	2.016	3.88	0.86	0.57	20.4	2.82		19				2.05	5.2
15.09	49.5	62.49	4.40	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	31	2.858	2.031	4.61	0.82	0.59	34.8	2.70		31				3.56	8.8
15.24	50.0	223.13	3.43	Sand to Clayey Sand	SP/SC	medium dense	120	6.0	37	2.887	2.045	3.40	0.67	0.64	135.3	2.21	220.7	76	46	89	35		

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-10

Engineer: T. TRANBY
Date: 02:16:04 14:43



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 09/02/04

CPT SOUNDING: CPT-10 | Plot: 10 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr(%)	Phi (deg)	Su (tsf)	OCR
0.15	0.5	2.00	0.06	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	6.00	1.41	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	3	0.041	0.041	1.42	0.84	1.70	11.1	2.79		3				0.40	49.0
0.46	1.5	18.33	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	3.04	0.80	1.70	28.4	2.63		9				1.07	70.7
0.61	2.0	19.19	2.17	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.096	0.096	2.16	0.76	1.70	30.8	2.52	88.7	10	18	28	32		
0.76	2.5	13.17	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.124	0.124	2.32	0.81	1.70	21.2	2.67		7				0.77	31.6
0.91	3.0	11.39	3.27	Silty Clay to Clay	CL	stiff	110	1.5	8	0.151	0.151	3.31	0.85	1.70	18.3	2.81		8				0.66	22.3
1.07	3.5	15.82	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.179	0.179	2.46	0.78	1.70	25.4	2.62		8				0.92	26.2
1.22	4.0	15.35	2.13	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.206	0.206	2.16	0.79	1.70	24.7	2.59	81.2	13	16	19	31		
1.37	4.5	21.57	0.84	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	7	0.234	0.234	0.85	0.68	1.70	34.7	2.25	62.1	12	12	33	31		
1.52	5.0	25.25	1.75	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.261	0.261	1.77	0.72	1.70	40.6	2.37	89.2	17	18	39	32		
1.68	5.5	43.38	0.85	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.289	0.289	0.85	0.61	1.70	69.7	1.99	89.9	25	18	62	35		
1.83	6.0	19.95	2.42	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.316	0.316	2.46	0.77	1.70	32.1	2.54	95.5	17	19	30	32		
1.98	6.5	13.97	3.56	Silty Clay to Clay	CL	stiff	110	1.5	9	0.344	0.344	3.64	0.84	1.70	22.5	2.77		9				0.80	11.9
2.13	7.0	13.00	3.72	Silty Clay to Clay	CL	stiff	110	1.5	9	0.371	0.371	3.82	0.85	1.70	20.9	2.81		9				0.74	10.2
2.29	7.5	13.28	3.79	Silty Clay to Clay	CL	stiff	110	1.5	9	0.399	0.399	3.91	0.85	1.70	21.3	2.80		9				0.76	9.7
2.44	8.0	13.54	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.426	0.426	3.10	0.83	1.70	21.8	2.73		7				0.77	9.2
2.59	8.5	10.73	3.33	Silty Clay to Clay	CL	stiff	110	1.5	7	0.454	0.454	3.48	0.87	1.70	17.2	2.84		7				0.60	6.8
2.74	9.0	11.84	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.481	0.481	2.77	0.84	1.70	19.0	2.75		6				0.67	7.1
2.90	9.5	12.30	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.509	0.509	2.60	0.83	1.70	19.8	2.72		6				0.69	7.0
3.05	10.0	16.17	3.34	Silty Clay to Clay	CL	stiff	110	1.5	11	0.536	0.536	3.45	0.82	1.70	26.0	2.70		11				0.92	8.7
3.20	10.5	16.36	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.564	0.564	2.70	0.80	1.66	25.6	2.64		8				0.93	8.4
3.35	11.0	19.64	2.14	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.591	0.591	2.21	0.77	1.57	29.1	2.54	87.3	10	17	26	30		
3.51	11.5	18.55	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.619	0.619	2.78	0.80	1.54	27.0	2.63		9				1.05	8.7
3.66	12.0	13.11	3.78	Silty Clay to Clay	CL	stiff	110	1.5	9	0.646	0.646	3.98	0.87	1.53	19.0	2.85		9				0.73	5.8
3.81	12.5	11.93	5.18	Clay	CL/CH	stiff	110	1.0	12	0.674	0.674	5.49	0.91	1.51	17.0	2.98		12				0.66	5.0
3.96	13.0	10.12	5.58	Clay	CL/CH	stiff	110	1.0	10	0.701	0.701	5.96	0.93	1.47	14.0	3.06		10				0.55	4.0
4.11	13.5	7.86	6.87	Clay	CL/CH	firm	110	1.0	8	0.729	0.729	7.58	0.98	1.44	10.7	3.22		8				0.42	2.9
4.27	14.0	6.86	6.40	Clay	CL/CH	firm	110	1.0	7	0.756	0.756	7.25	1.00	1.40	9.1	3.26		7				0.36	2.4
4.42	14.5	7.56	5.36	Clay	CL/CH	firm	110	1.0	8	0.784	0.784	5.93	0.98	1.34	9.6	3.19		8				0.40	2.6
4.57	15.0	8.70	2.27	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.811	0.811	2.50	0.90	1.27	10.4	2.94		4				0.46	2.9
4.72	15.5	10.94	3.32	Silty Clay to Clay	CL	stiff	110	1.5	7	0.839	0.839	3.60	0.90	1.23	12.6	2.96		7				0.59	3.6
4.88	16.0	13.71	4.13	Clay	CL/CH	stiff	110	1.0	14	0.866	0.866	4.41	0.90	1.20	15.5	2.94		14				0.76	4.4
5.03	16.5	14.59	4.14	Clay	CL/CH	stiff	110	1.0	15	0.894	0.894	4.41	0.89	1.16	16.0	2.93		15				0.81	4.6
5.18	17.0	11.03	4.97	Clay	CL/CH	stiff	110	1.0	11	0.921	0.921	5.42	0.94	1.14	11.9	3.09		11				0.59	3.3
5.33	17.5	34.77	3.62	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	0.949	0.949	3.72	0.80	1.09	35.0	2.62		17				1.99	10.7
5.49	18.0	34.89	3.24	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.976	0.976	3.33	0.79	1.07	35.1	2.60	116.1	18	23	33	33		
5.64	18.5	63.03	1.11	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	21	1.004	1.004	1.13	0.64	1.03	61.6	2.11	90.6	21	18	57	34		
5.79	19.0	23.27	2.64	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	1.031	1.031	2.77	0.82	1.02	22.5	2.69		12				1.31	6.5
5.94	19.5	30.69	4.52	Silty Clay to Clay	CL	very stiff	110	1.5	20	1.059	1.059	4.68	0.84	1.00	29.0	2.76		20				1.74	8.4
6.10	20.0	41.71	2.13	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.088	1.088	2.19	0.74	0.98	38.6	2.46	96.9	16	19	37	32		
6.25	20.5	16.50	3.98	Silty Clay to Clay	CL	stiff	120	1.5	11	1.118	1.118	4.27	0.90	0.95	14.8	2.95		11				0.90	4.1
6.40	21.0	12.24	4.72	Clay	CL/CH	stiff	120	1.0	12	1.148	1.148	5.21	0.95	0.93	10.7	3.12		12				0.65	2.9
6.55	21.5	12.44	3.12	Silty Clay to Clay	CL	stiff	120	1.5	8	1.178	1.178	3.44	0.92	0.91	10.7	3.01		8				0.66	2.9
6.71	22.0	13.37	2.22	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.208	1.208	2.44	0.89	0.89	11.2	2.90		7				0.72	3.0
6.86	22.5	13.47	2.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.238	1.238	2.40	0.89	0.87	11.1	2.91		7				0.72	3.0
7.01	23.0	12.18	1.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.268	1.268	2.20	0.90	0.85	9.8	2.93		6				0.64	2.6
7.16	23.5	11.27	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.298	1.282	2.89	0.93	0.84	8.9	3.03		6				0.59	2.3
7.32	24.0	12.11	3.28	Silty Clay to Clay	CL	stiff	120	1.5	8	1.326	1.296	3.65	0.94	0.83	9.5	3.07		8				0.64	2.5
7.47	24.5	14.60	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.358	1.311	2.92	0.90	0.82	11.4	2.94		7				0.78	3.0
7.62	25.0	14.68	2.82	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.388	1.325	3.11	0.91	0.82	11.3	2.96		7				0.79	3.0
7.77	25.5	14.90	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.418	1.340	2.48	0.88	0.81	11.4	2.90		7				0.80	3.0
7.92	26.0	12.34	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.448	1.354	3.07	0.93	0.80	9.3	3.03		6				0.65	2.4
8.08	26.5	12.98	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.478	1.368	2.93	0.92	0.79	9.7	3.00		6				0.68	2.5
8.23	27.0	15.19	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.508	1.383	3.12	0.91	0.78	11.3	2.96		8				0.81	3.0
8.38	27.5	16.14	3.45	Silty Clay to Clay	CL	stiff	120	1.5	11	1.538	1.397	3.81	0.92	0.77	11.8	3.00		11				0.87	3.1
8.53	28.0	18.69	2.74	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.568	1.412	2.99	0.88	0.78	13.8	2.88		9				1.03	3.7
8.69	28.5	19.85	4.59	Clay	CL/CH	very stiff	120	1.0	20	1.598	1.426	4.99	0.92	0.76	14.3	3.01		20				1.08	3.8
8.84	29.0	47.62	3.60	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	24	1.628	1.440	3.79	0.80	0.78	35.2	2.63		24				2.72	9.8
8.99	29.5	90.31	2.16	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	30	1.658	1.455	2.20	0.69	0.80	68.8	2.20	125.4	25	25	61	35		
9.14	30.0	58.30	2.32	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.688	1.469	2.39	0.74	0.78	43.2	2.43	105.9	19	21	42	33		
9.30	30.5	21.10	4.91	Clay	CL/CH	very stiff	120	1.0	21	1.718	1.484	5.35	0.92	0.73	14.6	3.02		21				1.15	3.9
9.45	31.0	13.65	3.01	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.748	1.498	3.45	0.94	0.72	9.3	3.06		7				0.72	2.4
9.60	31.5	13.95	2.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.778	1.512	2.99	0.93	0.72	9.5	3.02		7				0.73	2.4
9.75	32.0	13.46	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.808	1.527	3.06	0.93	0.71	9.0	3.04		7				0.70	2.3
9.91	32.5	13.36	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.838	1.541	2.92	0.93	0.70	8.9	3.03		7				0.70	2.2
10.06	33.0	14.36	2.37	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.868	1.556	2.72	0.92	0.70	9.5	2.99		7				0.75	2.4
10.21	33.5	14.60	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.898	1.570	2.65	0.91	0.70	9.6	2.98		7				0.77	2.4
10.36	34.0	12.21	2.83	Silty Clay to Clay	CL	stiff	120	1.5	8	1.928	1.584	3.48	0.96	0.68	7.8	3.12		8				0.62	1.9
10.52	34.5	16.31	3.77	Silty Clay to Clay	CL	stiff	120	1.5	11	1.958	1.599	4.28	0.94	0.69	10.6	3.07		11				0.86	2.7
10.67	35.0	33.76	3.87	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	1.988	1.613	4.11	0.85	0.70	22.3	2.81		17				1.89	5.9
10.82	35.5	13.72	4.95	Clay	CL/CH	stiff	120	1.0	14	2.018	1.628	5.80	0.99	0.65	8.5	3.22		14				0.71	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 08/02/04

CPT SOUNDING: CPT-10 | Plot: 10 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 23.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

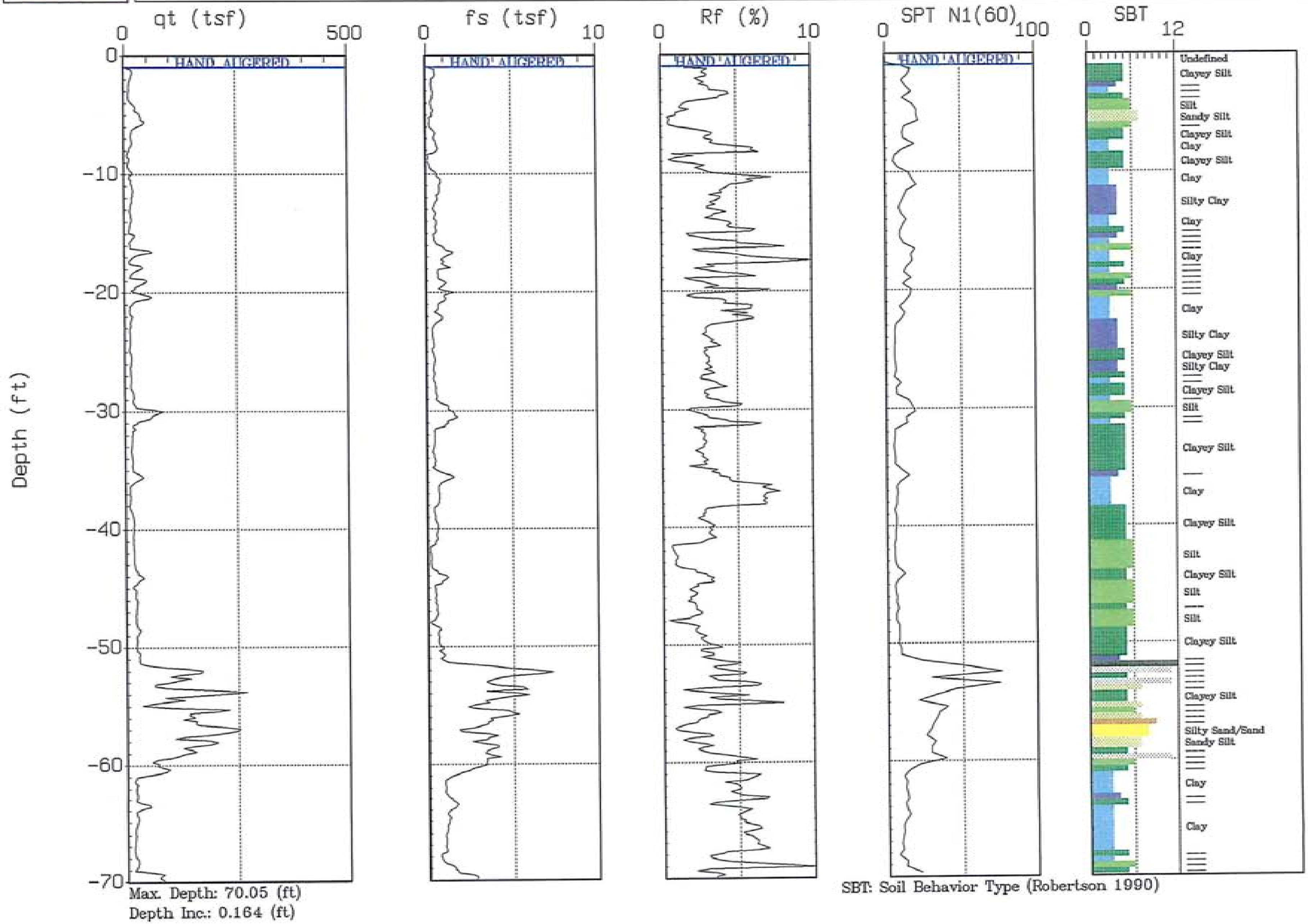
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	10.07	6.03	Clay	CL/CH	firm	120	1.0	10	2.048	1.642	7.57	1.00	0.64	6.1	3.41		10				0.50	1.5
11.13	36.5	12.10	6.09	Clay	CL/CH	stiff	120	1.0	12	2.078	1.656	7.35	1.00	0.64	7.3	3.34		12				0.61	1.8
11.28	37.0	13.65	5.48	Clay	CL/CH	stiff	120	1.0	14	2.108	1.671	6.49	1.00	0.63	8.2	3.27		14				0.70	2.1
11.43	37.5	12.86	4.63	Clay	CL/CH	stiff	120	1.0	13	2.138	1.685	5.55	1.00	0.63	7.6	3.25		13				0.66	1.9
11.58	38.0	13.77	3.70	Silty Clay to Clay	CL	stiff	120	1.5	9	2.168	1.700	4.39	0.97	0.63	8.2	3.16		9				0.71	2.0
11.73	38.5	14.09	3.77	Silty Clay to Clay	CL	stiff	120	1.5	9	2.198	1.714	4.46	0.97	0.63	8.3	3.16		9				0.73	2.1
11.89	39.0	17.42	3.45	Silty Clay to Clay	CL	stiff	120	1.5	12	2.228	1.728	3.95	0.93	0.63	10.4	3.05		12				0.92	2.6
12.04	39.5	18.33	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.258	1.743	3.45	0.92	0.63	11.0	3.00		9				0.96	2.8
12.19	40.0	16.75	3.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.288	1.757	3.74	0.94	0.62	9.8	3.06		8				0.86	2.5
12.34	40.5	16.04	3.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.318	1.772	3.67	0.94	0.62	9.3	3.07		8				0.84	2.3
12.50	41.0	12.98	1.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.348	1.786	1.93	0.92	0.62	7.6	3.00		6				0.66	1.8
12.65	41.5	16.12	1.01	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.378	1.800	1.19	0.86	0.63	9.6	2.60		6				0.84	2.3
12.80	42.0	17.16	1.11	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.408	1.815	1.29	0.86	0.63	10.2	2.80		7				0.90	2.4
12.95	42.5	18.37	1.46	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.438	1.829	1.69	0.87	0.62	10.8	2.83		7				0.97	2.6
13.11	43.0	22.01	1.44	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.468	1.844	1.63	0.85	0.63	13.0	2.76		9				1.19	3.2
13.26	43.5	25.68	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.498	1.858	3.12	0.88	0.61	14.8	2.87		13				1.40	3.7
13.41	44.0	31.06	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.528	1.872	3.30	0.86	0.61	17.9	2.82		16				1.72	4.6
13.56	44.5	31.85	3.75	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.558	1.887	4.07	0.88	0.60	18.1	2.87		16				1.76	4.7
13.72	45.0	37.33	3.42	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.588	1.901	3.67	0.85	0.61	21.4	2.79		19				2.00	5.5
13.87	45.5	18.68	4.56	Clay	CL/CH	stiff	120	1.0	19	2.618	1.916	5.30	0.98	0.56	10.0	3.14		19				0.99	2.5
14.02	46.0	17.26	4.98	Clay	CL/CH	stiff	120	1.0	17	2.648	1.930	5.88	0.98	0.55	9.1	3.21		17				0.90	2.3
14.17	46.5	19.94	3.90	Silty Clay to Clay	CL	very stiff	120	1.5	13	2.678	1.944	4.51	0.94	0.56	10.6	3.08		13				1.05	2.7
14.33	47.0	18.46	4.09	Silty Clay to Clay	CL	stiff	120	1.5	12	2.700	1.959	4.78	0.96	0.55	9.7	3.13		12				0.97	2.4
14.48	47.5	20.11	2.63	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.738	1.973	3.04	0.91	0.57	10.8	2.97		10				1.07	2.6
14.63	48.0	19.68	2.80	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.768	1.988	3.25	0.92	0.56	10.4	3.00		10				1.04	2.6
14.78	48.5	21.79	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.798	2.002	3.46	0.91	0.56	11.5	2.98		11				1.16	2.8
14.94	49.0	27.81	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.828	2.016	2.50	0.86	0.58	15.1	2.80		11				1.52	3.7
15.09	49.5	29.47	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.858	2.031	2.78	0.86	0.57	15.9	2.81		12				1.61	3.9
15.24	50.0	26.28	2.51	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.887	2.045	2.81	0.88	0.58	13.9	2.86		11				1.43	3.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-11

Engineer: T. TRANBY
Date: 02:16:04 15:13



Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Roberson & Campanella, 1989)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 10/29/04

CPT SOUNDING: CPT-11 | Plot: 1 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE. Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.98		1				0.12	43.3
0.30	1.0	5.91	1.07	Sensitive fine grained	ML	firm	110	2.0	3	0.041	0.041	1.08	0.83	1.70	11.1	2.73		3				0.40	50.0
0.46	1.5	18.03	2.87	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	2.80	0.79	1.70	29.0	2.62		9				1.06	78.4
0.61	2.0	14.37	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.096	0.096	2.82	0.81	1.70	23.1	2.67		7				0.84	44.5
0.76	2.5	11.02	2.85	Silty Clay to Clay	CL	stiff	110	1.5	7	0.124	0.124	2.80	0.84	1.70	17.7	2.79		7				0.64	26.4
0.91	3.0	10.34	3.62	Clay	CL/CH	stiff	110	1.0	10	0.151	0.151	3.67	0.87	1.70	16.6	2.87		10				0.60	20.2
1.07	3.5	9.18	4.06	Clay	CL/CH	stiff	110	1.0	9	0.179	0.179	4.10	0.89	1.70	14.7	2.95		9				0.53	15.1
1.22	4.0	14.97	2.04	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.206	0.206	2.07	0.79	1.70	24.0	2.59	79.0	13	16	10	31		
1.37	4.5	24.51	1.47	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.234	0.234	1.48	0.71	1.70	39.4	2.33	81.3	17	16	30	32		
1.52	5.0	32.06	1.07	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.261	0.261	1.08	0.65	1.70	52.5	2.15	81.6	19	16	50	33		
1.68	5.5	40.35	0.46	Sand to Silty Sand	SP/SM	medium dense	100	4.0	10	0.288	0.288	0.46	0.58	1.70	64.8	1.89	64.8	17	13	59	32		
1.83	6.0	25.61	1.17	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.314	0.314	1.19	0.69	1.70	41.1	2.26	75.4	15	15	40	32		
1.98	6.5	15.69	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.341	0.341	3.23	0.82	1.70	25.2	2.70		8				0.90	13.5
2.13	7.0	15.39	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.369	0.369	3.14	0.82	1.70	24.7	2.69		8				0.88	12.2
2.29	7.5	15.59	3.94	Silty Clay to Clay	CL	stiff	110	1.5	10	0.396	0.396	4.04	0.84	1.70	25.1	2.76		10				0.89	11.5
2.44	8.0	9.49	6.22	Clay	CL/CH	stiff	110	1.0	9	0.424	0.424	6.51	0.93	1.70	15.2	3.08		9				0.53	6.4
2.59	8.5	7.80	1.27	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.451	0.451	1.35	0.83	1.70	12.5	2.73		4				0.43	4.9
2.74	9.0	8.75	1.21	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.479	0.479	1.28	0.82	1.70	14.1	2.68		4				0.49	5.2
2.90	9.5	10.10	2.61	Silty Clay to Clay	CL	stiff	110	1.5	7	0.506	0.506	2.75	0.85	1.70	16.2	2.80		7				0.56	5.7
3.05	10.0	15.18	3.91	Silty Clay to Clay	CL	stiff	110	1.5	10	0.534	0.534	4.06	0.84	1.70	24.4	2.77		10				0.86	8.2
3.20	10.5	13.07	6.38	Clay	CL/CH	stiff	110	1.0	13	0.561	0.561	6.66	0.90	1.70	21.0	2.96		13				0.74	6.7
3.35	11.0	16.16	4.85	Clay	CL/CH	stiff	110	1.0	16	0.589	0.589	5.03	0.80	1.65	25.3	2.82		16				0.92	7.0
3.51	11.5	18.68	4.02	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.616	0.616	4.15	0.83	1.57	27.7	2.74		12				1.06	8.8
3.66	12.0	16.92	3.68	Silty Clay to Clay	CL	stiff	110	1.5	11	0.644	0.644	3.83	0.84	1.52	24.3	2.76		11				0.96	7.6
3.81	12.5	14.66	3.46	Silty Clay to Clay	CL	stiff	110	1.5	10	0.671	0.671	3.65	0.85	1.47	20.4	2.80		10				0.82	6.3
3.96	13.0	12.17	3.27	Silty Clay to Clay	CL	stiff	110	1.5	8	0.699	0.699	3.47	0.87	1.44	16.5	2.86		8				0.67	4.9
4.11	13.5	13.64	3.74	Silty Clay to Clay	CL	stiff	110	1.5	9	0.726	0.726	3.95	0.87	1.39	17.9	2.87		9				0.76	5.3
4.27	14.0	14.25	3.72	Silty Clay to Clay	CL	stiff	110	1.5	9	0.754	0.754	3.93	0.87	1.34	18.1	2.86		9				0.79	5.4
4.42	14.5	11.47	4.63	Clay	CL/CH	stiff	110	1.0	11	0.781	0.781	4.80	0.91	1.32	14.3	3.00		11				0.63	4.1
4.57	15.0	13.86	4.67	Clay	CL/CH	stiff	110	1.0	14	0.809	0.809	4.90	0.90	1.27	16.7	2.95		14				0.77	4.8
4.72	15.5	17.57	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.836	0.836	2.68	0.83	1.22	20.7	2.72		9				0.98	6.0
4.88	16.0	11.48	6.31	Clay	CL/CH	stiff	110	1.0	11	0.864	0.864	6.83	0.95	1.21	13.2	3.12		11				0.62	3.7
5.03	16.5	50.32	2.92	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	20	0.891	0.891	2.97	0.74	1.13	54.0	2.43	130.7	21	26	51	34		
5.18	17.0	17.33	6.14	Clay	CL/CH	stiff	110	1.0	17	0.919	0.919	6.48	0.91	1.14	18.6	2.90		17				0.97	5.4
5.33	17.5	18.48	7.10	Clay	CL/CH	very stiff	110	1.0	18	0.946	0.946	7.49	0.92	1.11	19.4	3.03		18				1.03	5.6
5.49	18.0	30.63	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	15	0.974	0.974	3.00	0.79	1.07	30.9	2.61		15				1.74	9.1
5.64	18.5	13.14	5.10	Clay	CL/CH	stiff	110	1.0	13	1.001	1.001	5.52	0.94	1.05	13.1	3.08		13				0.71	3.6
5.79	19.0	46.22	2.05	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	18	1.029	1.029	2.10	0.73	1.02	44.6	2.39	100.7	19	20	43	33		
5.94	19.5	25.88	3.25	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.056	1.056	3.39	0.83	1.00	24.5	2.72		13				1.46	7.0
6.10	20.0	29.05	5.22	Clay	CL/CH	very stiff	110	1.0	29	1.084	1.084	5.42	0.86	0.98	26.9	2.83		29				1.64	7.7
6.25	20.5	46.30	2.60	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	19	1.111	1.111	2.67	0.75	0.96	42.2	2.47	111.1	18	22	41	32		
6.40	21.0	15.19	4.81	Clay	CL/CH	stiff	110	1.0	15	1.139	1.139	5.20	0.93	0.93	13.4	3.04		15				0.83	3.7
6.55	21.5	10.68	5.29	Clay	CL/CH	stiff	110	1.0	11	1.166	1.166	5.93	0.98	0.91	9.2	3.20		11				0.56	2.4
6.71	22.0	14.93	5.48	Clay	CL/CH	stiff	120	1.0	15	1.195	1.195	5.96	0.95	0.89	12.6	3.10		15				0.81	3.4
6.86	22.5	12.43	5.13	Clay	CL/CH	stiff	120	1.0	12	1.225	1.225	5.69	0.97	0.87	10.2	3.16		12				0.66	2.7
7.01	23.0	11.73	3.06	Silty Clay to Clay	CL	stiff	120	1.5	8	1.255	1.255	3.42	0.94	0.85	9.4	3.05		8				0.62	2.5
7.16	23.5	10.83	2.83	Silty Clay to Clay	CL	stiff	120	1.5	7	1.285	1.285	3.22	0.94	0.83	8.5	3.07		7				0.56	2.2
7.32	24.0	11.10	3.21	Silty Clay to Clay	CL	stiff	120	1.5	7	1.315	1.315	3.64	0.95	0.81	8.5	3.10		7				0.58	2.2
7.47	24.5	11.12	3.58	Silty Clay to Clay	CL	stiff	120	1.5	7	1.345	1.345	4.07	0.96	0.79	8.3	3.14		7				0.57	2.2
7.62	25.0	10.40	2.86	Silty Clay to Clay	CL	stiff	120	1.5	7	1.375	1.375	3.30	0.96	0.78	7.6	3.12		7				0.53	2.0
7.77	25.5	14.05	2.86	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.405	1.389	3.20	0.92	0.78	10.3	3.01		7				0.74	2.7
7.92	26.0	13.98	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.435	1.404	3.40	0.93	0.77	10.2	3.02		7				0.74	2.7
8.08	26.5	11.84	3.15	Silty Clay to Clay	CL	stiff	120	1.5	8	1.465	1.418	3.60	0.95	0.76	8.5	3.10		8				0.61	2.2
8.23	27.0	13.26	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.495	1.433	3.28	0.93	0.75	9.4	3.04		7				0.70	2.5
8.38	27.5	12.87	3.14	Silty Clay to Clay	CL	stiff	120	1.5	9	1.525	1.447	3.56	0.94	0.74	9.1	3.07		9				0.68	2.4
8.53	28.0	12.98	3.82	Silty Clay to Clay	CL	stiff	120	1.5	9	1.555	1.461	4.34	0.96	0.73	9.0	3.13		9				0.68	2.3
8.69	28.5	18.25	2.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.585	1.476	3.20	0.89	0.74	12.8	2.93		9				0.99	3.4
8.84	29.0	17.68	3.23	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.615	1.490	3.56	0.91	0.73	12.2	2.97		9				0.95	3.2
8.99	29.5	22.45	4.81	Clay	CL/CH	very stiff	120	1.0	22	1.645	1.505	5.19	0.91	0.73	15.4	2.99		22				1.23	4.1
9.14	30.0	73.00	1.92	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	24	1.675	1.519	1.97	0.70	0.78	53.5	2.31	105.6	20	21	51	33		
9.30	30.5	56.82	2.89	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.705	1.533	2.98	0.77	0.75	40.4	2.52	115.7	18	23	39	33		
9.45	31.0	23.79	5.07	Clay	CL/CH	very stiff	120	1.0	24	1.735	1.548	5.47	0.91	0.71	15.9	3.00		24				1.31	4.3
9.60	31.5	17.93	3.57	Silty Clay to Clay	CL	stiff	120	1.5	12	1.765	1.562	3.90	0.92	0.70	11.8	3.01		12				0.98	3.1
9.75	32.0	15.43	2.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.795	1.577	3.09	0.92	0.69	10.1	3.00		8				0.82	2.6
9.91	32.5	14.70	2.79	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.825	1.591	3.19	0.93	0.68	9.5	3.03		7				0.77	2.4
10.06	33.0	13.71	2.79	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.855	1.605	3.23	0.94	0.68	8.8	3.06		7				0.71	2.2
10.21	33.5	12.89	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.885	1.620	2.85	0.94	0.67	8.2	3.06		6				0.66	2.0
10.36	34.0	14.60	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.915	1.634	3.13	0.93	0.67	9.2	3.04		7				0.76	2.3
10.52	34.5	15.11	2.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.945	1.649	3.32	0.93	0.66	9.4	3.04		8				0.79	2.4
10.67	35.0	16.43	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.975	1.663	3.09	0.92	0.66	10.3	3.00		8				0.87	2.6
10.82	35.5	34.01	3.63	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	17	2.005	1.677	3.85	0.85	0.68	21.7	2.80		17				1.90	5.7

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1990)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-11 | Plot: 1 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

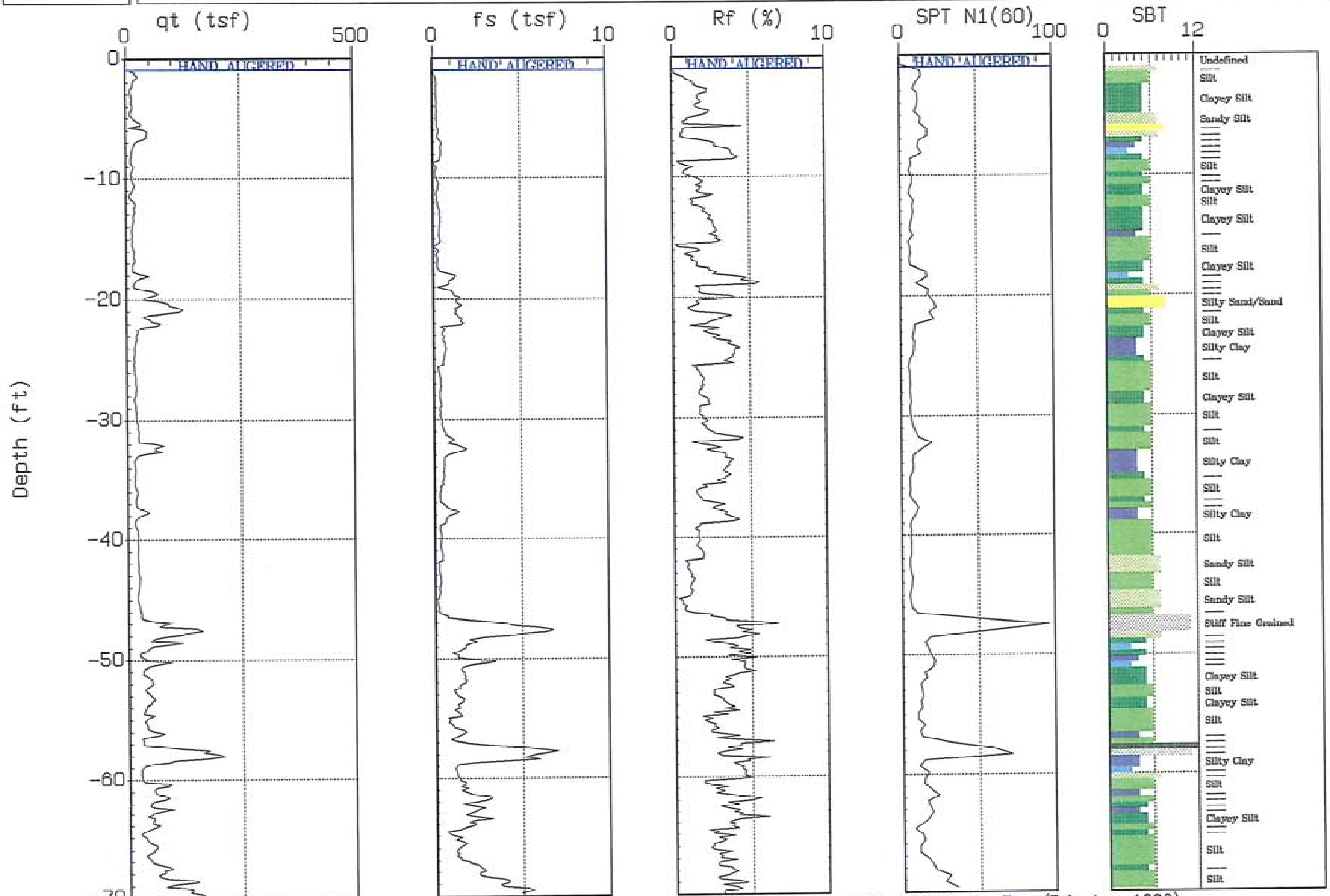
Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 1 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	23.11	4.53	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.035	1.692	4.97	0.92	0.65	14.2	3.01		15				1.26	3.7
11.13	36.5	9.60	6.77	Clay	CL/CH	firm	120	1.0	10	2.065	1.708	8.61	1.00	0.62	5.7	3.47		10				0.47	1.3
11.28	37.0	9.29	7.24	Clay	CL/CH	firm	120	1.0	9	2.095	1.721	9.35	1.00	0.61	5.4	3.51		9				0.45	1.3
11.43	37.5	9.64	6.81	Clay	CL/CH	firm	120	1.0	10	2.125	1.735	8.74	1.00	0.61	5.6	3.48		10				0.47	1.3
11.58	38.0	8.18	5.99	Clay	CL/CH	firm	120	1.0	8	2.155	1.749	8.14	1.00	0.60	4.7	3.52		8				0.38	1.0
11.73	38.5	12.09	2.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.185	1.764	3.43	0.96	0.61	7.4	3.14		6				0.65	1.8
11.89	39.0	16.40	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.215	1.778	2.98	0.92	0.62	9.6	3.01		8				0.87	2.4
12.04	39.5	17.07	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.245	1.793	3.37	0.92	0.61	10.4	3.01		9				0.95	2.6
12.19	40.0	17.09	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.275	1.807	3.78	0.94	0.60	9.6	3.06		9				0.90	2.6
12.34	40.5	15.92	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.305	1.821	3.70	0.95	0.60	9.0	3.09		8				0.83	2.2
12.50	41.0	15.79	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.335	1.836	3.61	0.95	0.59	8.9	3.09		8				0.82	2.7
12.65	41.5	16.12	1.21	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.365	1.850	1.42	0.89	0.61	9.3	2.85		6				0.84	2.2
12.80	42.0	17.73	0.68	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.395	1.865	0.78	0.83	0.63	10.5	2.60		7				0.93	2.5
12.95	42.5	17.65	0.91	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.425	1.879	1.05	0.85	0.61	10.2	2.76		7				0.93	2.4
13.11	43.0	18.31	0.80	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.455	1.893	0.93	0.84	0.61	10.6	2.72		7				0.97	2.5
13.26	43.5	22.43	1.46	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.485	1.908	1.68	0.85	0.61	12.9	2.77		9				1.21	3.1
13.41	44.0	33.52	2.08	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.515	1.922	2.87	0.84	0.60	19.2	2.76		13				1.85	4.6
13.56	44.5	26.08	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.545	1.937	3.66	0.89	0.58	14.4	2.92		13				1.42	3.8
13.72	45.0	16.71	2.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.575	1.951	2.57	0.92	0.57	9.0	3.00		8				0.87	2.2
13.87	45.5	20.70	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.605	1.965	2.29	0.89	0.58	11.3	2.89		8				1.10	2.8
14.02	46.0	21.99	1.90	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.635	1.980	2.16	0.87	0.58	12.0	2.85		9				1.18	2.9
14.17	46.5	23.18	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.665	1.994	2.20	0.87	0.58	12.6	2.84		9				1.25	3.1
14.33	47.0	21.32	2.34	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.695	2.009	2.65	0.90	0.56	11.3	2.92		11				1.14	2.8
14.48	47.5	20.76	2.01	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.725	2.023	2.32	0.89	0.56	11.0	2.90		8				1.10	2.7
14.63	48.0	21.46	0.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.755	2.037	1.09	0.83	0.58	11.7	2.71		9				1.14	2.8
14.78	48.5	28.08	2.24	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.785	2.052	2.49	0.86	0.57	15.0	2.81		11				1.53	3.7
14.94	49.0	22.81	2.50	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.815	2.066	2.86	0.90	0.55	11.8	2.92		11				1.22	3.0
15.09	49.5	22.18	2.56	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.845	2.081	2.93	0.90	0.54	11.4	2.95		11				1.18	2.8
15.24	50.0	21.47	3.51	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.875	2.095	4.05	0.93	0.53	10.7	3.05		11				1.14	2.7

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-12

Engineer: T. TRANBY
Date: 02:17:04 07:34



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 10/29/04

CPT SOUNDING: CPT-12   Plot: 2   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

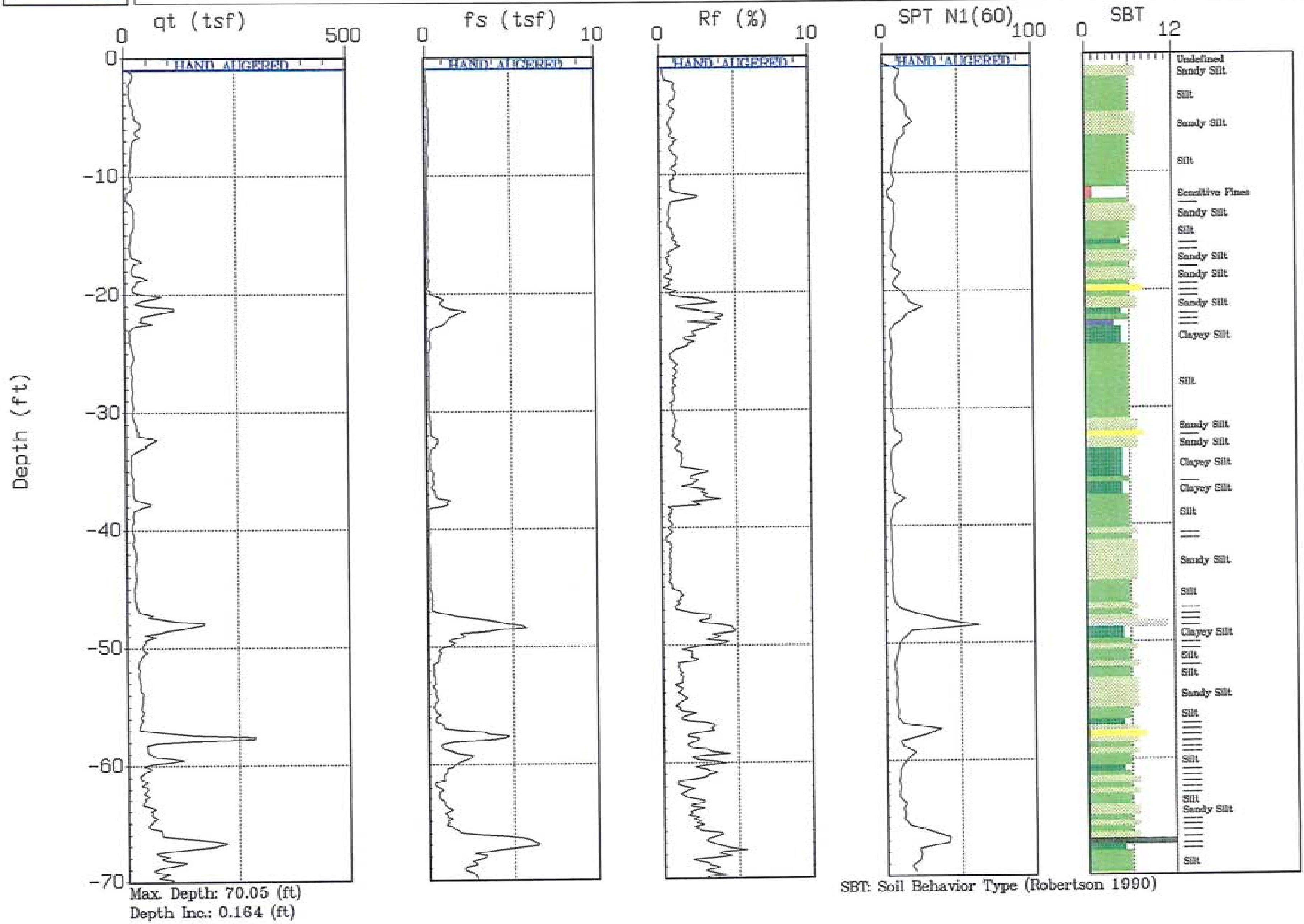
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg)	Nk 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.06		1				0.12	43.3
0.30	1.0	7.70	0.07	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.07	0.72	1.70	12.5	2.37	12.5	7	2	-9	29		
0.46	1.5	22.80	0.42	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.069	0.069	0.42	0.63	1.70	36.6	2.08	36.6	13	7	35	31		
0.61	2.0	15.53	1.18	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.096	0.096	1.18	0.74	1.70	25.0	2.44	67.3	11	12	19	30		
0.76	2.5	11.60	1.79	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.124	0.124	1.81	0.80	1.70	18.6	2.65		6				0.67	27.6
0.91	3.0	9.74	2.08	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.151	0.151	2.11	0.83	1.70	15.7	2.75		5				0.56	19.0
1.07	3.5	11.91	1.71	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.179	0.179	1.74	0.80	1.70	19.1	2.63		6				0.69	19.7
1.22	4.0	12.72	1.64	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	6	0.206	0.206	1.67	0.79	1.70	20.4	2.60	67.5	11	14	11	30		
1.37	4.5	10.20	2.19	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.234	0.234	2.24	0.84	1.70	16.4	2.75		5				0.59	12.8
1.52	5.0	13.03	1.54	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.261	0.261	1.57	0.78	1.70	20.9	2.57	66.4	11	13	12	30		
1.68	5.5	23.38	1.72	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.289	0.289	1.74	0.73	1.70	37.6	2.39	85.9	16	17	36	32		
1.83	6.0	41.93	0.72	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.316	0.316	0.72	0.60	1.70	67.4	1.96	84.6	24	17	60	34		
1.98	6.5	41.95	0.64	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.344	0.344	0.65	0.59	1.70	67.4	1.94	82.7	24	17	60	34		
2.13	7.0	19.58	2.31	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.371	0.371	2.35	0.77	1.70	31.5	2.53	92.8	16	19	20	32		
2.29	7.5	13.23	3.24	Silty Clay to Clay	CL	stiff	110	1.5	9	0.399	0.399	3.34	0.84	1.70	21.3	2.76		9				0.75	9.7
2.44	8.0	10.93	3.91	Clay	CL/CH	stiff	110	1.0	11	0.426	0.426	4.07	0.88	1.70	17.6	2.88		11				0.62	7.4
2.59	8.5	9.22	2.85	Silty Clay to Clay	CL	stiff	110	1.5	6	0.454	0.454	3.00	0.87	1.70	14.8	2.86		6				0.52	5.8
2.74	9.0	13.55	0.89	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.481	0.481	0.93	0.74	1.70	21.8	2.44	54.1	8	11	14	29		
2.90	9.5	11.13	0.77	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.509	0.509	0.80	0.76	1.70	17.9	2.49	48.3	6	10	5	29		
3.05	10.0	11.27	1.35	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.536	0.536	1.42	0.79	1.70	18.1	2.60		6				0.63	6.0
3.20	10.5	15.84	1.76	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.564	0.564	1.83	0.79	1.03	24.4	2.56	74.9	8	15	18	29		
3.35	11.0	12.63	1.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.591	0.591	1.83	0.81	1.00	19.4	2.64		6				0.72	6.2
3.51	11.5	7.14	2.22	Silty Clay to Clay	CL	firm	110	1.5	5	0.619	0.619	2.44	0.89	1.01	10.9	2.92		5				0.39	3.2
3.66	12.0	17.02	1.25	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.646	0.646	1.30	0.76	1.45	23.4	2.40	63.3	8	13	17	29		
3.81	12.5	17.19	1.71	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	0.674	0.674	1.78	0.78	1.42	23.1	2.57	72.6	8	15	16	29		
3.96	13.0	16.27	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.701	0.701	2.24	0.81	1.39	21.4	2.65		8				0.92	6.7
4.11	13.5	14.58	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.729	0.729	2.60	0.83	1.37	18.8	2.74		7				0.81	5.7
4.27	14.0	12.65	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.756	0.756	2.83	0.86	1.33	16.0	2.82		6				0.70	4.7
4.42	14.5	11.53	2.83	Silty Clay to Clay	CL	stiff	110	1.5	8	0.784	0.784	3.04	0.88	1.30	14.2	2.88		8				0.63	4.1
4.57	15.0	12.00	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.811	0.811	2.92	0.87	1.26	14.3	2.86		6				0.66	4.1
4.72	15.5	11.99	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.839	0.839	2.21	0.86	1.22	13.9	2.81		6				0.66	4.0
4.88	16.0	14.73	1.22	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.866	0.866	1.30	0.80	1.17	16.4	2.67		6				0.82	4.8
5.03	16.5	16.24	1.10	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.894	0.894	1.17	0.79	1.14	17.5	2.57	56.3	7	11	5	29		
5.18	17.0	14.01	1.48	Sandy Silt to Clayey Silt	ML	stiff	110	2.5	6	0.921	0.921	1.58	0.83	1.12	14.8	2.70		6				0.77	4.3
5.33	17.5	12.56	2.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.949	0.949	2.29	0.87	1.10	13.1	2.84		6				0.68	3.7
5.49	18.0	35.85	3.16	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	18	0.976	0.976	3.24	0.78	1.07	36.1	2.58	115.5	18	23	35	33		
5.64	18.5	18.51	4.97	Clay	CL/CH	very stiff	110	1.0	19	1.004	1.004	5.26	0.90	1.05	18.3	2.94		19				1.03	5.2
5.79	19.0	21.51	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	1.031	1.031	3.04	0.84	1.02	20.8	2.74		11				1.20	6.0
5.94	19.5	60.88	1.82	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	20	1.059	1.059	1.85	0.69	1.00	57.5	2.27	106.2	20	21	54	33		
6.10	20.0	49.93	3.18	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	20	1.086	1.086	3.23	0.76	0.98	48.3	2.50	128.0	19	26	45	33		
6.25	20.5	98.04	1.40	Sand to Silty Sand	SP/SM	medium dense	100	4.0	25	1.113	1.113	1.51	0.63	0.97	89.8	2.06	124.9	23	25	72	34		
6.40	21.0	107.43	1.17	Sand to Silty Sand	SP/SM	medium dense	100	4.0	27	1.138	1.138	1.18	0.60	0.95	97.2	1.97	122.3	25	24	78	35		
6.55	21.5	43.31	3.36	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	22	1.164	1.164	3.45	0.70	0.93	38.0	2.58	122.1	20	24	37	33		
6.71	22.0	65.34	2.44	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.193	1.193	2.49	0.72	0.92	50.7	2.36	121.7	24	24	53	34		
6.86	22.5	27.22	2.12	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	1.223	1.223	2.22	0.80	0.89	22.9	2.63		11				1.53	6.4
7.01	23.0	20.39	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.253	1.253	2.66	0.85	0.87	16.7	2.78		10				1.13	4.6
7.16	23.5	18.30	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.283	1.283	3.35	0.88	0.84	14.6	2.89		9				1.00	4.0
7.32	24.0	15.90	4.09	Silty Clay to Clay	CL	stiff	120	1.5	11	1.313	1.313	4.46	0.92	0.82	12.3	3.03		11				0.86	3.3
7.47	24.5	15.35	4.09	Silty Clay to Clay	CL	stiff	120	1.5	10	1.343	1.343	4.47	0.93	0.80	11.6	3.05		10				0.82	3.1
7.62	25.0	14.57	3.84	Silty Clay to Clay	CL	stiff	120	1.5	10	1.373	1.373	4.24	0.94	0.78	10.8	3.06		10				0.78	2.9
7.77	25.5	14.22	2.88	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.403	1.387	3.10	0.92	0.78	10.5	3.00		7				0.75	2.8
7.92	26.0	14.74	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.433	1.401	1.75	0.87	0.78	10.9	2.84		6				0.78	2.8
8.08	26.5	16.90	1.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.463	1.416	2.09	0.87	0.78	12.5	2.83		8				0.92	3.3
8.23	27.0	17.93	1.97	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.493	1.430	2.15	0.86	0.77	13.1	2.82		7				0.97	3.4
8.38	27.5	18.51	1.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.523	1.445	1.96	0.85	0.77	13.4	2.79		7				1.00	3.6
8.53	28.0	16.60	1.80	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.553	1.459	1.99	0.87	0.76	11.9	2.84		7				0.89	3.1
8.69	28.5	15.51	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.583	1.473	2.54	0.90	0.74	10.9	2.93		8				0.83	2.8
8.84	29.0	17.30	1.93	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.613	1.488	2.13	0.87	0.74	12.2	2.84		7				0.93	3.2
8.99	29.5	18.44	1.74	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.643	1.502	1.90	0.86	0.74	12.9	2.80		7				1.00	3.4
9.14	30.0	18.95	2.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.673	1.517	2.25	0.87	0.73	13.1	2.83		8				1.03	3.4
9.30	30.5	21.71	2.00	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	1.703	1.531	2.17	0.85	0.73	15.0	2.77		9				1.19	3.9
9.45	31.0	24.43	2.36	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.733	1.545	2.54	0.85	0.73	16.8	2.77		10				1.35	4.4
9.60	31.5	23.62	3.53	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	1.763	1.560	3.81	0.88	0.71	15.8	2.90		12				1.30	4.2
9.75	32.0	54.11	2.33	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.793	1.574	2.41	0.75	0.74	37.9	2.48	100.9	17	20	37	32		
9.91	32.5	65.40	2.56	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	1.823	1.589	2.63	0.74	0.74	45.7	2.44	114.0	21	23	44	33		
10.06	33.0	27.32	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.853	1.603	3.35	0.86	0.70	18.1	2.82		14				1.51	4.8
10.21	33.5	14.09	3.69	Silty Clay to Clay	CL	stiff	120	1.5	10	1.883	1.617	4.23	0.95	0.67	9.3	3.11		10				0.77	2.4
10.36	34.0	14.73	3.60	Silty Clay to Clay	CL	stiff	120	1.5	10	1.913	1.632	4.14	0.95	0.66	9.2	3.11		10				0.77	2.4
10.52	34.5	14.91	3.42	Silty Clay to Clay	CL	stiff	120	1.5	10	1.943	1.646	3.93	0.95	0.66	9.3	3.09		10				0.78	2.4
10.67	35.0	14.48	3.54	Silty Clay to Clay	CL	stiff	120	1.5	10	1.973	1.661	4.10	0.96	0.65	8.9	3.12		10				0.75	2.3
10.82	35.5	14.84	2.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.003	1.675	3.19	0.93	0.65	9.1	3.04		7				0.77	2.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-13

Engineer: T. TRANBY
Date: 02:17:04 08:08



SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 10/29/04

CPT SOUNDING: CPT-12   Plot: 2   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	Z.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg)	Nk: 17 Su (tsf)	OCR
10.97	36.0	18.85	1.74	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.033	1.689	1.95	0.87	0.67	11.9	2.83		8				1.01	3.0
11.13	36.5	17.58	1.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.063	1.704	1.85	0.87	0.66	11.0	2.85		7				0.93	2.7
11.28	37.0	17.25	2.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.093	1.718	3.05	0.91	0.64	10.5	2.98		9				0.91	2.6
11.43	37.5	35.42	2.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.123	1.733	2.96	0.83	0.66	22.3	2.71		14				1.98	5.8
11.58	38.0	25.60	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.153	1.747	3.77	0.89	0.64	15.6	2.90		13				1.41	4.0
11.73	38.5	14.60	4.09	Silty Clay to Clay	CL	stiff	120	1.5	10	2.183	1.761	4.80	0.97	0.61	8.4	3.18		10				0.76	2.1
11.89	39.0	16.85	1.59	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.213	1.776	1.83	0.80	0.63	10.1	2.88		7				0.89	2.5
12.04	39.5	20.25	1.55	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.243	1.790	1.74	0.86	0.64	12.2	2.80		8				1.09	3.0
12.19	40.0	20.56	1.60	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.273	1.805	1.80	0.86	0.63	12.3	2.80		8				1.10	3.0
12.34	40.5	20.28	1.56	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.303	1.819	1.75	0.86	0.63	12.0	2.80		8				1.09	3.0
12.50	41.0	20.02	1.71	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.333	1.833	1.94	0.87	0.62	11.7	2.83		8				1.07	2.9
12.65	41.5	20.38	1.95	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.363	1.848	2.20	0.88	0.61	11.8	2.86		8				1.09	2.9
12.80	42.0	20.49	1.17	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.393	1.862	1.32	0.84	0.62	12.0	2.74		8				1.10	2.9
12.95	42.5	21.35	0.89	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	7	2.423	1.877	1.00	0.82	0.63	12.6	2.67		7				1.15	3.0
13.11	43.0	22.97	1.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.453	1.891	1.20	0.82	0.62	13.5	2.66		9				1.24	3.3
13.26	43.5	23.64	1.21	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.483	1.905	1.36	0.83	0.61	13.7	2.70		9				1.28	3.3
13.41	44.0	22.77	1.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.513	1.920	1.18	0.82	0.61	13.2	2.68		9				1.23	3.2
13.56	44.5	20.56	1.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.543	1.934	1.24	0.84	0.60	11.7	2.74		8				1.10	2.8
13.72	45.0	19.30	0.73	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.573	1.949	0.85	0.83	0.60	11.0	2.69		8				1.02	2.6
13.87	45.5	22.05	0.49	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.603	1.963	0.55	0.79	0.62	12.8	2.55	30.9	5	8	-8	28		
14.02	46.0	25.14	0.72	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	8	2.633	1.977	0.80	0.79	0.61	14.5	2.57	45.4	6	9	-3	29		
14.17	46.5	26.97	2.04	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	11	2.663	1.992	2.28	0.85	0.58	14.9	2.79		11				1.47	3.7
14.33	47.0	71.69	4.75	Overconsolidated Soil	??	hard	120	6.0	12	2.693	2.006	4.94	0.81	0.59	40.3	2.67		12				4.10	10.3
14.48	47.5	145.99	4.39	Overconsolidated Soil	??	medium dense	120	6.0	24	2.723	2.021	4.47	0.74	0.62	85.7	2.42	205.8	17	41	70	32		
14.63	48.0	85.50	4.90	Overconsolidated Soil	??	hard	120	6.0	14	2.753	2.035	5.06	0.80	0.59	47.9	2.63		14				4.91	12.2
14.78	48.5	81.56	2.88	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.783	2.049	2.98	0.75	0.61	46.9	2.47	123.1	23	25	45	34		
14.94	49.0	43.87	3.69	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.813	2.064	3.95	0.85	0.57	23.6	2.77		22				2.46	6.0
15.09	49.5	24.29	4.86	Clay	CL/CH	very stiff	120	1.0	24	2.843	2.078	5.51	0.94	0.53	12.1	3.09		24				1.31	3.1
15.24	50.0	55.06	4.26	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	28	2.873	2.092	4.49	0.83	0.57	29.5	2.74		28				3.12	7.5

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 10/29/04

CPT SOUNDING: CPT-13 — Plot: 3 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	7.03	0.11	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.11	0.74	1.70	11.3	2.43	11.3	8	2	-14	29		
0.46	1.5	18.52	0.23	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	6	0.069	0.069	0.23	0.63	1.70	29.8	2.06	29.8	10	6	27	30		
0.61	2.0	14.22	0.51	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.096	0.096	0.51	0.70	1.70	22.8	2.31	45.0	10	9	16	30		
0.76	2.5	11.29	0.95	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.124	0.124	0.95	0.76	1.70	18.1	2.52	51.0	8	10	6	29		
0.91	3.0	11.22	1.04	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.151	0.151	1.06	0.77	1.70	18.0	2.54	53.7	8	11	6	29		
1.07	3.5	12.70	1.00	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.179	0.179	1.01	0.75	1.70	20.4	2.48	54.9	9	11	11	29		
1.22	4.0	15.29	0.66	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	6	0.206	0.206	0.67	0.71	1.70	24.6	2.33	50.1	10	10	19	30		
1.37	4.5	20.42	0.91	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.234	0.234	0.92	0.69	1.70	32.8	2.29	62.4	14	12	31	31		
1.52	5.0	22.56	0.89	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.261	0.261	0.90	0.68	1.70	36.2	2.24	64.4	13	13	35	31		
1.68	5.5	33.48	0.62	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.289	0.289	0.62	0.61	1.70	53.8	2.01	70.9	19	14	51	33		
1.83	6.0	30.12	0.68	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.316	0.316	0.69	0.63	1.70	48.4	2.08	68.4	17	14	47	32		
1.98	6.5	30.09	0.72	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.344	0.344	0.72	0.64	1.70	48.4	2.09	69.2	17	14	47	32		
2.13	7.0	19.77	0.98	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.371	0.371	1.00	0.71	1.70	31.8	2.32	63.6	13	13	29	31		
2.29	7.5	16.59	0.78	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.399	0.399	0.80	0.71	1.70	26.7	2.33	54.8	11	11	22	30		
2.44	8.0	14.73	0.77	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.426	0.426	0.80	0.72	1.70	23.7	2.38	52.5	9	11	17	30		
2.59	8.5	13.05	1.15	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.454	0.454	1.19	0.76	1.70	21.0	2.49	59.9	8	12	14	20		
2.74	9.0	13.76	1.09	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.481	0.481	1.13	0.76	1.70	22.1	2.48	58.8	8	12	14	20		
2.90	9.5	12.49	0.86	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.509	0.509	0.90	0.75	1.70	20.1	2.46	52.1	7	10	10	29		
3.05	10.0	10.51	1.03	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.536	0.536	1.08	0.78	1.70	16.9	2.57	53.1	6	11	3	28		
3.20	10.5	14.61	0.78	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.564	0.564	0.81	0.73	1.59	22.2	2.40	51.8	8	10	14	29		
3.35	11.0	15.46	0.71	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.591	0.591	0.74	0.73	1.53	22.4	2.38	50.3	8	10	15	29		
3.51	11.5	6.03	1.10	Sensitive fine grained	ML	firm	110	2.0	3	0.619	0.619	1.22	0.87	1.60	9.1	2.83		3				0.32	2.6
3.66	12.0	3.36	2.17	Clay	CL/CH	soft	110	1.0	3	0.646	0.646	2.69	1.00	1.63	5.2	3.21		3				0.16	1.3
3.81	12.5	13.64	0.70	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.674	0.674	0.74	0.75	1.41	18.1	2.40	47.0	7	9	8	29		
3.96	13.0	19.60	0.56	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.701	0.701	0.60	0.70	1.34	24.7	2.30	48.5	8	10	19	29		
4.11	13.5	20.16	0.56	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.729	0.729	0.60	0.70	1.30	24.8	2.30	48.5	8	10	19	29		
4.27	14.0	20.69	0.56	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.756	0.756	0.59	0.70	1.27	24.8	2.30	48.2	8	10	19	29		
4.42	14.5	19.02	0.60	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	6	0.784	0.784	0.63	0.72	1.24	22.3	2.35	47.6	7	10	15	29		
4.57	15.0	14.03	0.79	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.811	0.811	0.83	0.77	1.23	16.3	2.53	47.7	6	10	2	29		
4.72	15.5	12.97	0.87	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.839	0.839	0.93	0.79	1.20	14.7	2.59	48.7	6	10	-3	28		
4.88	16.0	10.30	1.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.866	0.866	1.22	0.84	1.16	11.5	2.74		5				0.55	3.3
5.03	16.5	12.24	0.60	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.894	0.894	0.65	0.79	1.14	13.2	2.57	41.3	5	8	-7	28		
5.18	17.0	26.01	0.46	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	9	0.921	0.921	0.48	0.68	1.10	27.0	2.23	27.0	9	5	23	30		
5.33	17.5	19.60	0.52	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	7	0.949	0.949	0.54	0.72	1.08	20.0	2.37	43.9	7	9	10	29		
5.49	18.0	14.94	0.69	Sandy Silt to Clayey Silt	ML	loose	110	2.5	6	0.976	0.976	0.74	0.78	1.06	15.0	2.54	44.7	6	9	-2	29		
5.64	18.5	36.12	0.38	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	1.004	1.004	0.39	0.64	1.03	35.3	2.09	35.3	12	7	34	31		
5.79	19.0	26.21	0.61	Silty Sand to Sandy Silt	SM/ML	loose	110	3.0	9	1.031	1.031	0.64	0.71	1.02	25.2	2.31	49.9	9	10	20	29		
5.94	19.5	16.40	0.45	Sandy Silt to Clayey Silt	ML	loose	110	2.5	7	1.059	1.059	0.48	0.75	1.00	15.5	2.45	15.5	6	3	-1	29		
6.10	20.0	48.70	0.75	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	1.085	1.085	0.77	0.65	0.98	45.3	2.12	67.9	12	14	44	31		
6.25	20.5	42.26	2.40	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	1.111	1.111	2.47	0.75	0.96	38.5	2.46	102.7	16	21	37	32		
6.40	21.0	58.60	2.22	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	24	1.139	1.139	2.26	0.72	0.95	52.7	2.35	112.3	22	22	50	34		
6.55	21.5	91.36	2.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	30	1.166	1.166	2.27	0.67	0.94	80.5	2.22	138.6	28	28	68	36		
6.71	22.0	37.22	3.95	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.195	1.195	4.09	0.82	0.91	31.8	2.69		19				2.12	9.0
6.86	22.5	38.77	3.18	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.225	1.225	3.29	0.80	0.89	32.6	2.62		19				2.21	9.2
7.01	23.0	12.04	3.03	Silty Clay to Clay	CL	stiff	120	1.5	8	1.255	1.255	3.39	0.93	0.85	9.7	3.04		8				0.63	2.6
7.16	23.5	9.02	2.22	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	5	1.285	1.285	2.59	0.95	0.83	7.1	3.09		5				0.46	1.8
7.32	24.0	8.95	1.82	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	4	1.315	1.315	2.13	0.94	0.81	6.9	3.05		4				0.45	1.7
7.47	24.5	11.99	1.78	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.345	1.345	1.98	0.90	0.81	9.1	2.93		6				0.63	2.4
7.62	25.0	15.24	0.86	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.375	1.375	0.94	0.82	0.81	11.6	2.69		6				0.82	3.0
7.77	25.5	17.90	0.60	Sandy Silt to Clayey Silt	ML	loose	120	2.5	7	1.405	1.389	0.65	0.78	0.81	13.7	2.55	41.6	6	8	-6	29		
7.92	26.0	13.41	0.93	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.435	1.404	1.04	0.85	0.79	10.0	2.76		5				0.71	2.6
8.08	26.5	12.56	0.95	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.465	1.418	1.08	0.86	0.78	9.2	2.80		5				0.66	2.3
8.23	27.0	14.60	0.89	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.495	1.433	1.00	0.84	0.78	10.7	2.73		6				0.77	2.7
8.38	27.5	13.25	0.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.525	1.447	0.88	0.85	0.77	9.6	2.75		5				0.69	2.4
8.53	28.0	14.66	0.82	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.555	1.461	0.92	0.84	0.76	10.6	2.72		6				0.78	2.7
8.69	28.5	13.93	0.79	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.585	1.476	0.89	0.84	0.76	10.0	2.74		6				0.73	2.5
8.84	29.0	14.02	0.86	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.615	1.490	0.97	0.85	0.75	9.9	2.75		6				0.74	2.5
8.99	29.5	17.16	0.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.645	1.505	0.73	0.80	0.75	12.2	2.62		7				0.92	3.1
9.14	30.0	15.05	0.71	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.675	1.519	0.80	0.83	0.74	10.5	2.69		6				0.80	2.6
9.30	30.5	16.94	0.87	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.705	1.533	0.96	0.82	0.74	11.6	2.68		7				0.91	3.0
9.45	31.0	22.01	0.93	Sandy Silt to Clayey Silt	ML	loose	120	2.5	9	1.735	1.548	1.01	0.79	0.74	15.4	2.59	50.2	7	10	-1	29		
9.60	31.5	25.19	0.82	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	8	1.765	1.562	0.89	0.77	0.74	17.6	2.51	49.9	7	10	5	29		
9.75	32.0	34.84	0.76	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	1.795	1.577	0.81	0.72	0.75	24.5	2.37	53.4	9	11	19	30		
9.91	32.5	59.89	1.08	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	20	1.825	1.591	1.09	0.69	0.76	42.9	2.23	74.4	16	15	42	32		
10.06	33.0	40.39	1.03	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	13	1.855	1.605	1.08	0.73	0.74	28.2	2.38	62.7	11	13	24	30		
10.21	33.5	16.77	1.14	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.885	1.620	1.29	0.85	0.70	11.0	2.77		7				0.89	2.8
10.36	34.0	11.12	1.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.915	1.634	1.63	0.92	0.67	7.0	2.99		6				0.58	1.7
10.52	34.5	10.99	1.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	1.945	1.649	1.62	0.93	0.66	6.9	3.00		5				0.55	1.6
10.67	35.0	10.66	2.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	1.975	1.663	2.62	0.98	0.65	6.5	3.12		5				0.53	1.6
10.82	35.5	13.65	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	2.95	0.94	0.65	8.4	3.06		7				0.70	2.1

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Roberson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-13 Plot: 3 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

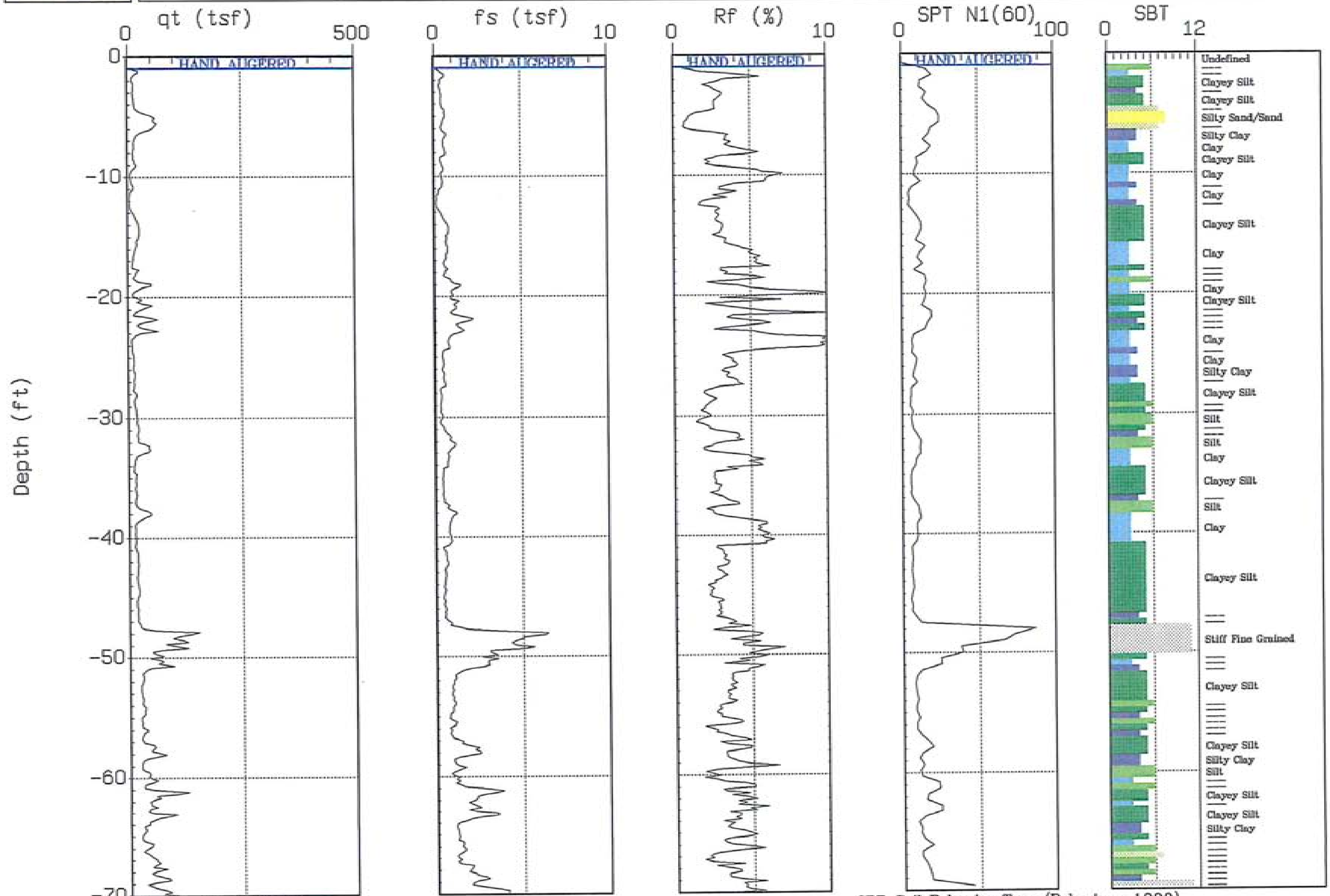
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	15.00	2.25	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.035	1.692	2.60	0.92	0.65	9.2	2.99		7				0.78	2.3
11.13	36.5	15.09	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.065	1.708	2.47	0.92	0.65	9.2	2.98		8				0.79	2.3
11.28	37.0	16.04	2.93	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.095	1.721	3.37	0.93	0.64	9.6	3.04		8				0.84	2.4
11.43	37.5	35.63	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	18	2.125	1.735	3.23	0.83	0.66	22.3	2.74		18				1.99	5.8
11.58	38.0	38.29	1.75	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	2.155	1.749	1.85	0.78	0.68	24.4	2.55	75.4	12	15	18	31		
11.73	38.5	15.58	0.62	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.185	1.764	0.72	0.84	0.65	9.6	2.71		6				0.81	2.3
11.89	39.0	15.82	0.44	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.215	1.778	0.52	0.82	0.65	9.8	2.65		6				0.83	2.3
12.04	39.5	12.80	0.56	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	2.245	1.793	0.66	0.88	0.63	7.7	2.79		5				0.65	1.8
12.19	40.0	12.48	0.51	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	2.275	1.807	0.62	0.86	0.63	7.4	2.79		5				0.63	1.7
12.34	40.5	15.61	0.52	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.305	1.821	0.61	0.83	0.64	9.4	2.69		6				0.81	2.2
12.50	41.0	14.94	0.25	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.335	1.836	0.29	0.81	0.64	9.1	2.61		6				0.77	2.1
12.65	41.5	16.16	0.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.365	1.850	0.68	0.83	0.63	9.6	2.70		6				0.84	2.2
12.80	42.0	19.22	0.54	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	6	2.395	1.865	0.61	0.80	0.63	11.5	2.61		6				1.02	2.7
12.95	42.5	20.44	0.49	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.425	1.879	0.55	0.79	0.63	12.3	2.57	38.6	5	8	-10	20		
13.11	43.0	18.01	0.54	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.455	1.893	0.62	0.82	0.62	10.8	2.65		7				0.95	2.5
13.26	43.5	18.36	0.53	Silty Sand to Sandy Silt	SM/ML	stiff	120	3.0	6	2.485	1.908	0.61	0.81	0.62	10.7	2.64		6				0.97	2.5
13.41	44.0	20.10	0.51	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	7	2.515	1.922	0.59	0.80	0.62	11.8	2.59	38.8	5	8	-12	20		
13.56	44.5	19.00	0.47	Silty Sand to Sandy Silt	SM/ML	very stiff	120	3.0	6	2.545	1.937	0.54	0.80	0.62	11.1	2.61		6				1.01	2.6
13.72	45.0	16.50	0.63	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.575	1.951	0.74	0.84	0.60	9.3	2.73		7				0.86	2.1
13.87	45.5	16.30	1.16	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.605	1.965	1.39	0.88	0.58	8.9	2.86		7				0.84	2.1
14.02	46.0	16.80	1.34	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.635	1.980	1.59	0.89	0.57	9.2	2.88		7				0.88	2.2
14.17	46.5	20.29	1.07	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.665	1.994	1.23	0.85	0.58	11.2	2.75		8				1.08	2.7
14.33	47.0	35.71	1.34	Silty Sand to Sandy Silt	SM/ML	loose	120	3.0	12	2.695	2.009	1.45	0.78	0.60	20.4	2.56	63.5	8	13	11	29		
14.48	47.5	79.81	3.21	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	32	2.725	2.023	3.32	0.76	0.61	46.0	2.51	129.6	22	26	45	34		
14.63	48.0	163.80	2.95	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	55	2.755	2.037	3.00	0.65	0.64	98.9	2.25	177.4	38	35	76	38		
14.78	48.5	95.33	4.74	Overconsolidated Soil	??	medium dense	120	6.0	16	2.785	2.052	4.89	0.70	0.59	53.5	2.58	172.9	11	35	51	30		
14.94	49.0	51.09	4.02	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	2.815	2.066	4.25	0.84	0.57	27.6	2.75		26				2.89	7.0
15.09	49.5	38.75	3.64	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.845	2.081	3.93	0.86	0.58	20.2	2.82		19				2.13	5.1
15.24	50.0	33.84	2.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.875	2.095	3.12	0.86	0.58	17.8	2.90		14				1.87	4.4

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-14

Engineer: T. TRANBY
Date: 02:17:04 08:42



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 10/29/04

CPT SOUNDING: CPT-14 Plot: 4 Density: 1 SPT N

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson

Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)cs}$	Rel Dens Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	9.24	0.41	Sensitive fine grained	ML	loose	110	2.0	5	0.041	0.041	0.41	0.74	1.70	14.8	2.45	14.8	8	5	-7	29		
0.46	1.5	17.57	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.069	0.069	3.15	0.80	1.70	28.2	2.65		9				1.03	76.4
0.61	2.0	9.93	3.93	Clay	CL/CH	stiff	110	1.0	10	0.096	0.096	3.97	0.88	1.70	16.0	2.91		10				0.58	30.7
0.76	2.5	13.10	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.124	0.124	2.28	0.81	1.70	21.0	2.66		7				0.76	31.5
0.91	3.0	12.32	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.151	0.151	2.91	0.83	1.70	19.8	2.75		6				0.72	24.1
1.07	3.5	13.34	2.95	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.179	0.179	2.90	0.83	1.70	21.4	2.73		7				0.77	22.1
1.22	4.0	14.88	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.206	0.206	2.68	0.81	1.70	23.9	2.66		7				0.86	21.3
1.37	4.5	21.71	2.55	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	11	0.234	0.234	2.57	0.77	1.70	34.9	2.52	101.0	18	20	33	33		
1.52	5.0	49.64	1.24	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.261	0.261	1.25	0.62	1.70	79.8	2.05	100.1	28	22	67	36		
1.68	5.5	59.81	0.79	Sand to Silty Sand	SP/SM	medium dense	100	4.0	15	0.288	0.288	0.79	0.57	1.70	96.1	1.88	110.9	25	22	75	35		
1.83	6.0	47.13	0.93	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	16	0.314	0.314	0.93	0.60	1.70	75.7	1.99	97.2	27	19	66	35		
1.98	6.5	20.65	3.19	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.341	0.341	3.25	0.79	1.70	33.2	2.61		10				1.19	17.9
2.13	7.0	14.61	3.48	Silty Clay to Clay	CL	stiff	110	1.5	10	0.369	0.369	3.57	0.83	1.70	23.5	2.75		10				0.84	11.6
2.29	7.5	14.39	3.69	Silty Clay to Clay	CL	stiff	110	1.5	10	0.396	0.396	3.80	0.84	1.70	23.1	2.77		10				0.82	10.6
2.44	8.0	12.15	5.06	Clay	CL/CH	stiff	110	1.0	12	0.424	0.424	5.24	0.89	1.70	19.5	2.92		12				0.69	8.3
2.59	8.5	13.55	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.451	0.451	2.58	0.82	1.70	21.8	2.69		7				0.77	8.7
2.74	9.0	17.56	2.37	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.479	0.479	2.43	0.78	1.70	28.2	2.58	80.5	13	16	24	31		
2.90	9.5	9.33	5.07	Clay	CL/CH	stiff	110	1.0	9	0.506	0.506	5.36	0.92	1.70	15.0	3.01		9				0.52	5.2
3.05	10.0	5.71	6.64	Clay	CL/CH	firm	110	1.0	6	0.534	0.534	7.33	1.00	1.70	9.2	3.26		6				0.30	2.9
3.20	10.5	8.59	5.36	Clay	CL/CH	firm	110	1.0	9	0.561	0.561	5.74	0.93	1.70	13.8	3.06		9				0.47	4.3
3.35	11.0	10.62	3.17	Silty Clay to Clay	CL	stiff	110	1.5	7	0.589	0.589	3.36	0.87	1.68	16.7	2.85		7				0.59	5.1
3.51	11.5	4.59	3.36	Clay	CL/CH	soft	110	1.0	5	0.616	0.616	3.80	0.97	1.69	7.3	3.17		5				0.23	1.9
3.66	12.0	3.81	2.57	Clay	CL/CH	soft	110	1.0	4	0.644	0.644	3.09	0.98	1.63	5.9	3.20		4				0.19	1.5
3.81	12.5	4.66	2.07	Silty Clay to Clay	CL	soft	110	1.5	3	0.671	0.671	2.42	0.95	1.54	6.8	3.09		3				0.23	1.8
3.96	13.0	10.27	2.82	Silty Clay to Clay	CL	stiff	110	1.5	7	0.699	0.699	3.03	0.88	1.44	14.0	2.88		7				0.56	4.1
4.11	13.5	17.26	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.726	0.726	2.95	0.83	1.36	22.3	2.71		9				0.97	6.8
4.27	14.0	22.67	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.754	0.754	3.11	0.81	1.31	28.4	2.65		11				1.30	8.8
4.42	14.5	24.67	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.781	0.781	3.21	0.80	1.28	30.0	2.64		12				1.42	9.3
4.57	15.0	23.79	2.85	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	12	0.809	0.809	2.95	0.80	1.24	27.9	2.64		12				1.35	8.5
4.72	15.5	19.27	3.35	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.836	0.836	3.51	0.84	1.22	22.2	2.76		10				1.08	6.6
4.88	16.0	16.29	4.42	Clay	CL/CH	stiff	110	1.0	16	0.864	0.864	4.67	0.88	1.20	18.4	2.90		16				0.91	5.4
5.03	16.5	12.35	5.25	Clay	CL/CH	stiff	110	1.0	12	0.891	0.891	5.66	0.93	1.17	13.7	3.05		12				0.67	3.9
5.18	17.0	10.46	5.32	Clay	CL/CH	stiff	110	1.0	10	0.919	0.919	5.84	0.96	1.14	11.3	3.13		10				0.56	3.1
5.33	17.5	14.46	4.96	Clay	CL/CH	stiff	110	1.0	14	0.946	0.946	5.30	0.92	1.11	15.1	3.00		14				0.79	4.3
5.49	18.0	17.02	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.974	0.974	3.48	0.87	1.07	17.3	2.84		9				0.94	4.9
5.64	18.5	16.40	5.08	Clay	CL/CH	stiff	110	1.0	16	1.001	1.001	5.42	0.91	1.05	16.3	2.99		16				0.91	4.6
5.79	19.0	44.54	3.16	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	18	1.029	1.029	3.23	0.77	1.02	43.0	2.52	124.1	18	25	42	32		
5.94	19.5	16.10	6.76	Clay	CL/CH	stiff	110	1.0	16	1.056	1.056	7.24	0.94	1.00	15.2	3.09		16				0.88	4.3
6.10	20.0	17.94	6.65	Clay	CL/CH	stiff	110	1.0	18	1.084	1.084	7.08	0.93	0.98	16.6	3.05		18				0.99	4.7
6.25	20.5	34.65	4.34	Silty Clay to Clay	CL	very stiff	110	1.5	23	1.111	1.111	4.49	0.83	0.96	31.5	2.72		23				1.97	9.1
6.40	21.0	29.89	4.06	Silty Clay to Clay	CL	very stiff	110	1.5	20	1.139	1.139	4.22	0.84	0.94	26.8	2.75		20				1.69	7.6
6.55	21.5	22.16	6.69	Clay	CL/CH	very stiff	110	1.0	22	1.166	1.166	7.05	0.92	0.91	19.2	3.01		22				1.23	5.4
6.71	22.0	45.74	4.50	Silty Clay to Clay	CL	hard	120	1.5	30	1.195	1.195	4.62	0.81	0.91	39.2	2.66		30				2.62	11.2
6.86	22.5	30.68	4.85	Clay	CL/CH	very stiff	120	1.0	31	1.225	1.225	5.05	0.86	0.88	25.6	2.82		31				1.73	7.2
7.01	23.0	36.72	4.49	Silty Clay to Clay	CL	hard	120	1.5	24	1.255	1.255	4.65	0.83	0.87	30.1	2.74		24				2.09	8.5
7.16	23.5	9.15	8.92	Clay	CL/CH	firm	120	1.0	9	1.285	1.285	####	1.00	0.82	7.1	3.44		9				0.46	1.8
7.32	24.0	7.73	10.02	Organic Material	OL/OH	firm	120	1.0	8	1.315	1.315	####	1.00	0.80	5.9	3.55		8				0.38	1.5
7.47	24.5	8.54	6.83	Clay	CL/CH	firm	120	1.0	9	1.345	1.345	8.11	1.00	0.79	6.3	3.41		9				0.42	1.6
7.62	25.0	11.82	3.45	Silty Clay to Clay	CL	stiff	120	1.5	8	1.375	1.375	3.91	0.95	0.78	8.7	3.11		8				0.61	2.3
7.77	25.5	12.06	3.89	Clay	CL/CH	stiff	120	1.0	12	1.405	1.389	4.41	0.96	0.77	8.8	3.14		12				0.63	2.3
7.92	26.0	11.36	3.80	Clay	CL/CH	stiff	120	1.0	11	1.435	1.404	4.34	0.97	0.76	8.2	3.18		11				0.59	2.1
8.08	26.5	14.32	3.39	Silty Clay to Clay	CL	stiff	120	1.5	10	1.465	1.418	3.78	0.93	0.76	10.3	3.04		10				0.76	2.7
8.23	27.0	12.70	4.09	Clay	CL/CH	stiff	120	1.0	13	1.495	1.433	4.64	0.96	0.75	9.0	3.15		13				0.66	2.3
8.38	27.5	11.47	3.35	Silty Clay to Clay	CL	stiff	120	1.5	8	1.525	1.447	3.86	0.96	0.74	8.0	3.14		8				0.59	2.1
8.53	28.0	16.47	2.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.555	1.461	2.21	0.88	0.75	11.7	2.87		8				0.88	3.1
8.69	28.5	13.17	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.585	1.476	2.86	0.93	0.73	9.1	3.02		7				0.69	2.4
8.84	29.0	14.46	2.15	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.615	1.490	2.42	0.90	0.73	10.0	2.94		7				0.76	2.6
8.99	29.5	16.50	1.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.645	1.505	2.13	0.88	0.73	11.4	2.87		8				0.88	3.0
9.14	30.0	18.01	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.675	1.519	2.35	0.88	0.73	12.4	2.86		9				0.97	3.2
9.30	30.5	18.58	1.82	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	7	1.705	1.533	1.78	0.85	0.73	12.8	2.78		7				1.00	3.3
9.45	31.0	20.89	2.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.735	1.548	2.62	0.87	0.72	14.2	2.84		10				1.14	3.7
9.60	31.5	19.53	3.98	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.765	1.562	4.38	0.92	0.70	12.9	3.00		13				1.06	3.4
9.75	32.0	24.87	3.92	Silty Clay to Clay	CL	very stiff	120	1.5	17	1.795	1.577	4.23	0.89	0.70	16.5	2.91		17				1.37	4.4
9.91	32.5	44.45	2.27	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	1.825	1.591	2.36	0.70	0.73	30.6	2.54	92.0	14	18	28	31		
10.06	33.0	29.58	2.72	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.855	1.606	2.91	0.84	0.70	19.7	2.75		12				1.65	5.2
10.21	33.5	13.85	5.26	Clay	CL/CH	stiff	120	1.0	14	1.885	1.620	6.09	0.99	0.66	8.6	3.23		14				0.72	2.2
10.36	34.0	12.11	5.42	Clay	CL/CH	stiff	120	1.0	12	1.915	1.634	6.44	1.00	0.65	7.4	3.30		12				0.62	1.9
10.52	34.5	12.62	3.41	Silty Clay to Clay	CL	stiff	120	1.5	8	1.945	1.649	4.03	0.97	0.65	7.8	3.16		8				0.65	1.9
10.67	35.0	15.17	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.975	1.663	2.96	0.92	0.66	9.4	3.01		8				0.79	2.4
10.82	35.5	14.67	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	3.05	0.93	0.65	9.0	3.04		7				0.78	2.3

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-14 | Plot: 4 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

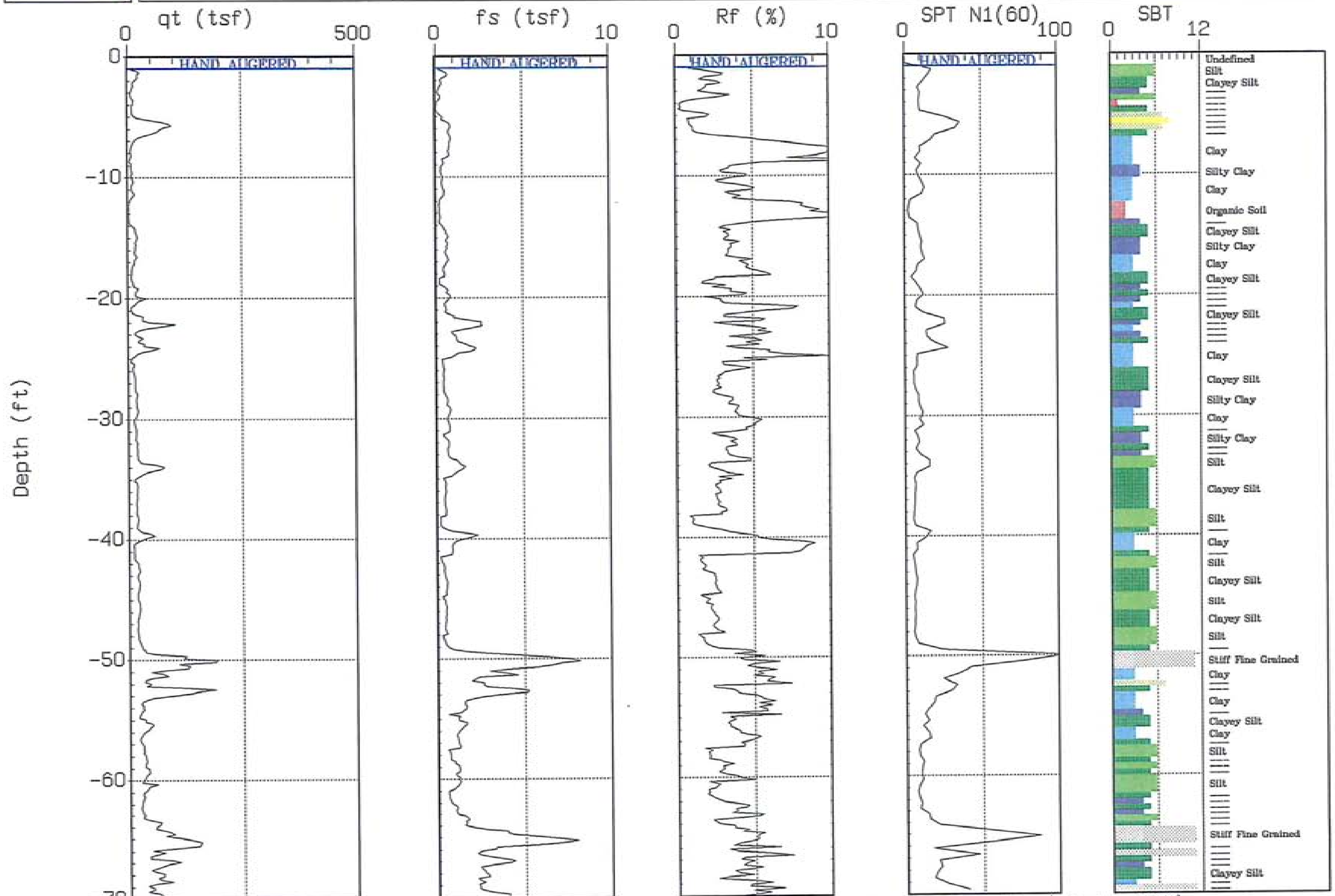
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	13.71	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.035	1.692	3.48	0.95	0.64	8.3	3.10		7				0.71	2.1
11.13	36.5	16.32	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.065	1.706	3.17	0.93	0.64	9.3	3.04		8				0.80	2.3
11.28	37.0	13.48	3.75	Silty Clay to Clay	CL	stiff	120	1.5	9	2.005	1.721	4.43	0.98	0.62	7.9	3.18		9				0.69	2.0
11.43	37.5	26.78	3.05	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.125	1.735	3.32	0.87	0.65	16.1	2.85		13				1.44	4.2
11.58	38.0	43.75	2.51	Sandy Silt to Clayey Silt	ML	hard	120	2.5	17	2.155	1.749	2.64	0.80	0.67	27.7	2.61		17				2.47	7.1
11.73	38.5	21.25	4.20	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.185	1.764	4.68	0.93	0.62	12.5	3.03		14				1.15	3.2
11.89	39.0	12.94	5.88	Clay	CL/CH	stiff	120	1.0	13	2.215	1.778	7.09	1.00	0.59	7.3	3.33		13				0.66	1.8
12.04	39.5	13.08	5.60	Clay	CL/CH	stiff	120	1.0	13	2.245	1.793	6.68	1.00	0.59	7.3	3.32		13				0.60	1.8
12.19	40.0	13.67	5.98	Clay	CL/CH	stiff	120	1.0	14	2.275	1.807	7.18	1.00	0.58	7.6	3.32		14				0.70	1.9
12.34	40.5	12.83	6.23	Clay	CL/CH	stiff	120	1.0	13	2.305	1.821	7.59	1.00	0.58	7.0	3.36		13				0.65	1.7
12.50	41.0	14.77	2.88	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.335	1.836	3.39	0.95	0.59	8.3	3.10		7				0.76	2.0
12.65	41.5	16.89	3.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.365	1.850	3.78	0.94	0.59	9.4	3.07		8				0.88	2.4
12.80	42.0	17.68	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.395	1.865	3.88	0.94	0.59	9.8	3.07		9				0.93	2.5
12.95	42.5	17.72	3.19	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.425	1.879	3.70	0.94	0.58	9.8	3.06		9				0.93	2.4
13.11	43.0	16.80	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.455	1.893	3.53	0.94	0.58	9.2	3.07		8				0.88	2.3
13.26	43.5	15.76	3.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.485	1.908	3.79	0.96	0.57	8.5	3.11		8				0.82	2.1
13.41	44.0	18.09	2.46	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.515	1.922	2.85	0.92	0.58	9.9	2.99		9				0.95	2.4
13.56	44.5	19.63	2.39	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.545	1.937	2.75	0.90	0.58	10.7	2.95		10				1.04	2.6
13.72	45.0	17.36	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.575	1.951	2.75	0.92	0.57	9.3	3.00		9				0.91	2.3
13.87	45.5	14.61	3.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.605	1.965	3.69	0.97	0.55	7.6	3.15		7				0.74	1.9
14.02	46.0	16.17	2.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.635	1.980	3.57	0.95	0.55	8.4	3.10		8				0.83	2.1
14.17	46.5	16.38	2.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.665	1.994	3.57	0.95	0.55	8.5	3.10		8				0.85	2.1
14.33	47.0	18.27	3.51	Silty Clay to Clay	CL	stiff	120	1.5	12	2.695	2.009	4.12	0.95	0.54	9.4	3.10		12				0.96	2.3
14.48	47.5	35.06	3.84	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	18	2.725	2.023	4.27	0.89	0.57	18.8	2.87		18				1.94	4.8
14.63	48.0	132.81	4.28	Overconsolidated Soil	??	medium dense	120	6.0	22	2.755	2.037	4.37	0.74	0.61	77.2	2.44	192.4	16	38	66	32		
14.78	48.5	111.82	4.41	Overconsolidated Soil	??	medium dense	120	6.0	19	2.785	2.052	4.52	0.76	0.60	63.8	2.51	179.2	13	36	58	31		
14.94	49.0	103.04	4.75	Overconsolidated Soil	??	medium dense	120	6.0	17	2.815	2.066	4.88	0.78	0.59	57.8	2.56	170.1	12	36	54	31		
15.09	49.5	58.37	6.29	Clay	CL/CH	hard	120	1.0	58	2.845	2.081	6.61	0.87	0.56	30.7	2.84		58				3.31	8.0
15.24	50.0	60.71	5.38	Overconsolidated Soil	??	hard	120	6.0	10	2.875	2.095	5.65	0.85	0.56	32.2	2.78		10				3.45	8.3

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-15

Engineer: T. TRANBY
Date: 02:17:04 09:13



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-15 Plot: 5 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.98		1				0.12	43.3
0.30	1.0	8.24	0.58	Sensitive fine grained	ML	loose	110	2.0	4	0.041	0.041	0.58	0.77	1.70	13.2	2.55	39.9	7	8	-7	29		
0.46	1.5	23.40	2.70	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	12	0.069	0.069	2.79	0.77	1.70	37.6	2.52	108.6	20	22	38	33		
0.61	2.0	16.75	2.04	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	8	0.096	0.096	2.05	0.77	1.70	26.9	2.55	81.9	14	16	22	31		
0.76	2.5	11.95	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.124	0.124	2.34	0.82	1.70	19.2	2.70		6				0.70	28.7
0.91	3.0	7.42	1.80	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.151	0.151	1.84	0.86	1.70	11.9	2.82		4				0.43	14.4
1.07	3.5	10.07	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.179	0.179	2.60	0.85	1.70	16.2	2.79		5				0.58	16.6
1.22	4.0	11.43	0.42	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.206	0.206	0.43	0.72	1.70	18.4	2.36	18.4	8	4	7	29		
1.37	4.5	9.70	0.35	Sensitive fine grained	ML	loose	110	2.0	5	0.234	0.234	0.36	0.73	1.70	15.6	2.41	15.6	8	3	0	29		
1.52	5.0	14.44	1.93	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	7	0.261	0.261	1.98	0.79	1.70	23.2	2.58	76.1	12	15	16	31		
1.68	5.5	74.48	0.84	Sand to Silty Sand	SP/SM	dense	100	4.0	19	0.288	0.288	0.84	0.55	1.70	119.7	1.80	132.7	32	27	84	36		
1.83	6.0	71.08	1.09	Sand to Silty Sand	SP/SM	dense	100	4.0	18	0.313	0.313	1.09	0.58	1.70	114.2	1.89	134.0	30	27	82	36		
1.98	6.5	37.73	2.43	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.339	0.339	2.45	0.71	1.70	60.6	2.33	124.5	26	25	56	35		
2.13	7.0	14.45	5.01	Clay	CL/CH	stiff	110	1.0	14	0.366	0.366	5.07	0.88	1.70	23.2	2.90		14				0.83	11.5
2.29	7.5	8.17	9.53	Organic Material	OL/OH	firm	110	1.0	8	0.394	0.394	####	0.98	1.70	13.1	3.23		8				0.46	5.8
2.44	8.0	7.14	10.45	Organic Material	OL/OH	firm	110	1.0	7	0.421	0.421	####	1.00	1.70	11.5	3.31		7				0.40	4.8
2.59	8.5	4.78	11.00	Organic Material	OL/OH	firm	110	1.0	5	0.449	0.449	####	1.00	1.70	7.6	3.46		5				0.25	2.9
2.74	9.0	8.00	4.60	Clay	CL/CH	firm	110	1.0	8	0.476	0.476	4.90	0.93	1.70	12.9	3.04		8				0.44	4.7
2.90	9.5	9.44	3.12	Silty Clay to Clay	CL	stiff	110	1.5	6	0.504	0.504	3.20	0.88	1.70	15.2	2.87		6				0.53	5.3
3.05	10.0	8.77	4.26	Clay	CL/CH	firm	110	1.0	9	0.531	0.531	4.53	0.91	1.70	14.1	2.98		9				0.48	4.7
3.20	10.5	11.08	3.13	Silty Clay to Clay	CL	stiff	110	1.5	7	0.559	0.559	3.30	0.86	1.70	17.8	2.82		7				0.62	5.6
3.35	11.0	8.81	4.88	Clay	CL/CH	firm	110	1.0	9	0.586	0.586	5.23	0.92	1.70	14.2	3.02		9				0.48	4.2
3.51	11.5	12.15	3.70	Silty Clay to Clay	CL	stiff	110	1.5	8	0.614	0.614	3.90	0.87	1.61	18.4	2.85		8				0.68	5.6
3.66	12.0	4.56	5.39	Clay	CL/CH	soft	110	1.0	5	0.641	0.641	6.27	1.00	1.65	7.1	3.31		5				0.23	1.8
3.81	12.5	2.19	8.54	Organic Material	OL/OH	very soft	110	1.0	2	0.669	0.669	####	1.00	1.58	3.3	3.75		2				0.09	0.7
3.96	13.0	2.03	9.71	Organic Material	OL/OH	very soft	110	1.0	2	0.696	0.696	####	1.00	1.52	2.9	3.84		2				0.08	0.6
4.11	13.5	2.28	10.17	Organic Material	OL/OH	very soft	110	1.0	2	0.724	0.724	####	1.00	1.46	3.2	3.81		2				0.09	0.6
4.27	14.0	7.77	4.32	Clay	CL/CH	firm	110	1.0	8	0.751	0.751	4.78	0.95	1.39	10.2	3.11		8				0.41	2.8
4.42	14.5	16.51	3.15	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.779	0.779	3.31	0.85	1.30	20.2	2.76		8				0.93	6.1
4.57	15.0	19.58	3.34	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.806	0.806	3.48	0.84	1.25	23.7	2.74		10				1.10	7.0
4.72	15.5	17.11	3.59	Silty Clay to Clay	CL	stiff	110	1.5	11	0.834	0.834	3.78	0.86	1.23	19.8	2.82		11				0.96	5.9
4.88	16.0	15.75	3.52	Silty Clay to Clay	CL	stiff	110	1.5	10	0.861	0.861	3.73	0.87	1.20	17.8	2.85		10				0.88	5.2
5.03	16.5	17.79	3.54	Silty Clay to Clay	CL	stiff	110	1.5	12	0.889	0.889	3.72	0.86	1.16	19.5	2.82		12				0.99	5.7
5.18	17.0	13.50	4.57	Clay	CL/CH	stiff	110	1.0	13	0.916	0.916	4.90	0.91	1.14	14.5	3.00		13				0.74	4.1
5.33	17.5	8.85	4.73	Clay	CL/CH	firm	110	1.0	9	0.944	0.944	5.29	0.97	1.12	9.4	3.16		9				0.47	2.5
5.49	18.0	8.00	5.93	Clay	CL/CH	firm	110	1.0	8	0.971	0.971	6.75	1.00	1.09	8.7	3.27		8				0.41	2.2
5.64	18.5	8.76	2.28	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.999	0.999	2.57	0.92	1.05	8.8	3.01		4				0.46	2.3
5.79	19.0	16.11	2.41	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	1.026	1.026	2.58	0.86	1.03	15.6	2.80		8				0.89	4.4
5.94	19.5	16.89	3.93	Silty Clay to Clay	CL	stiff	110	1.5	11	1.054	1.054	4.19	0.89	1.00	16.0	2.92		11				0.93	4.5
6.10	20.0	26.91	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	13	1.081	1.081	3.16	0.82	0.98	25.0	2.60		13				1.52	7.2
6.25	20.5	13.37	4.04	Clay	CL/CH	stiff	110	1.0	13	1.109	1.109	4.41	0.93	0.96	12.1	3.03		13				0.72	3.3
6.40	21.0	7.72	7.08	Clay	CL/CH	firm	110	1.0	8	1.136	1.136	8.30	1.00	0.93	6.8	3.40		8				0.39	1.7
6.55	21.5	27.17	3.55	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	14	1.164	1.164	3.71	0.84	0.92	23.7	2.76		14				1.53	6.7
6.71	22.0	60.83	4.58	Silty Clay to Clay	CL	dense	120	1.5	41	1.193	1.193	4.67	0.78	0.91	52.4	2.59	106.7	37	33	50	38		
6.86	22.5	46.55	4.79	Silty Clay to Clay	CL	hard	120	1.5	31	1.223	1.223	4.82	0.81	0.89	39.1	2.68		31				2.67	11.1
7.01	23.0	16.77	5.73	Clay	CL/CH	stiff	120	1.0	17	1.253	1.253	6.19	0.94	0.85	13.5	3.00		17				0.91	3.7
7.16	23.5	26.02	4.70	Clay	CL/CH	very stiff	120	1.0	26	1.283	1.283	4.94	0.88	0.84	20.8	2.88		26				1.45	5.8
7.32	24.0	45.78	4.42	Silty Clay to Clay	CL	hard	120	1.5	31	1.313	1.313	4.55	0.81	0.84	38.3	2.68		31				2.62	10.2
7.47	24.5	35.22	5.40	Clay	CL/CH	very stiff	120	1.0	35	1.343	1.343	5.62	0.86	0.81	27.1	2.83		35				1.99	7.6
7.62	25.0	10.00	7.23	Clay	CL/CH	stiff	120	1.0	10	1.373	1.373	8.38	1.00	0.77	7.3	3.36		10				0.51	1.9
7.77	25.5	9.80	4.00	Clay	CL/CH	firm	120	1.0	10	1.403	1.387	4.67	0.99	0.76	7.1	3.23		10				0.49	1.8
7.92	26.0	9.77	4.28	Clay	CL/CH	firm	120	1.0	10	1.433	1.401	5.02	1.00	0.76	7.0	3.25		10				0.49	1.8
8.08	26.5	13.68	2.90	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.463	1.416	3.25	0.93	0.76	9.9	3.02		7				0.72	2.6
8.23	27.0	14.32	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.493	1.430	3.02	0.92	0.76	10.3	2.99		7				0.76	2.7
8.38	27.5	14.62	2.65	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.523	1.445	2.98	0.91	0.75	10.4	2.98		7				0.77	2.7
8.53	28.0	18.54	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.553	1.459	2.94	0.88	0.75	13.2	2.89		9				1.00	3.5
8.69	28.5	16.77	3.60	Silty Clay to Clay	CL	stiff	120	1.5	11	1.583	1.473	3.97	0.92	0.74	11.7	3.01		11				0.90	3.1
8.84	29.0	18.11	3.62	Silty Clay to Clay	CL	stiff	120	1.5	12	1.613	1.488	4.19	0.92	0.73	12.5	3.00		12				0.98	3.3
8.99	29.5	18.98	3.90	Silty Clay to Clay	CL	very stiff	120	1.5	13	1.643	1.502	4.27	0.92	0.73	13.0	3.00		13				1.03	3.5
9.14	30.0	12.70	4.79	Clay	CL/CH	stiff	120	1.0	13	1.673	1.517	5.51	0.99	0.70	8.4	3.21		13				0.66	2.2
9.30	30.5	13.41	5.20	Clay	CL/CH	stiff	120	1.0	13	1.703	1.531	5.98	0.99	0.69	8.8	3.22		13				0.70	2.3
9.45	31.0	16.13	4.30	Clay	CL/CH	stiff	120	1.0	16	1.733	1.545	4.82	0.95	0.70	10.6	3.10		16				0.86	2.8
9.60	31.5	14.97	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.763	1.560	3.29	0.93	0.70	9.9	3.02		7				0.79	2.6
9.75	32.0	17.70	3.76	Silty Clay to Clay	CL	stiff	120	1.5	12	1.793	1.574	4.10	0.93	0.69	11.6	3.03		12				0.95	3.0
9.91	32.5	18.31	3.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.823	1.589	3.83	0.92	0.68	11.9	3.00		9				0.98	3.1
10.06	33.0	18.85	3.38	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.853	1.603	3.74	0.91	0.68	12.2	2.98		9				1.01	3.2
10.21	33.5	23.00	4.54	Silty Clay to Clay	CL	very stiff	120	1.5	15	1.883	1.617	4.95	0.91	0.68	14.8	2.99		15				1.26	3.9
10.36	34.0	60.76	2.15	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	23	1.913	1.632	2.21	0.72	0.73	47.8	2.38	106.3	18	21	46	33		
10.52	34.5	39.34	2.96	Sandy Silt to Clayey Silt	ML	hard	120	2.5	16	1.943	1.646	3.11	0.82	0.70	25.9	2.68		16				2.22	6.8
10.67	35.0	14.81	3.53	Silty Clay to Clay	CL	stiff	120	1.5	10	1.973	1.661	4.08	0.95	0.65	9.1	3.11		10				0.77	2.3
10.82	35.5	17.33	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.003	1.675	3.05	0.91	0.66	10.8	2.97		9				0.92	2.7

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-15 Plot: 5 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

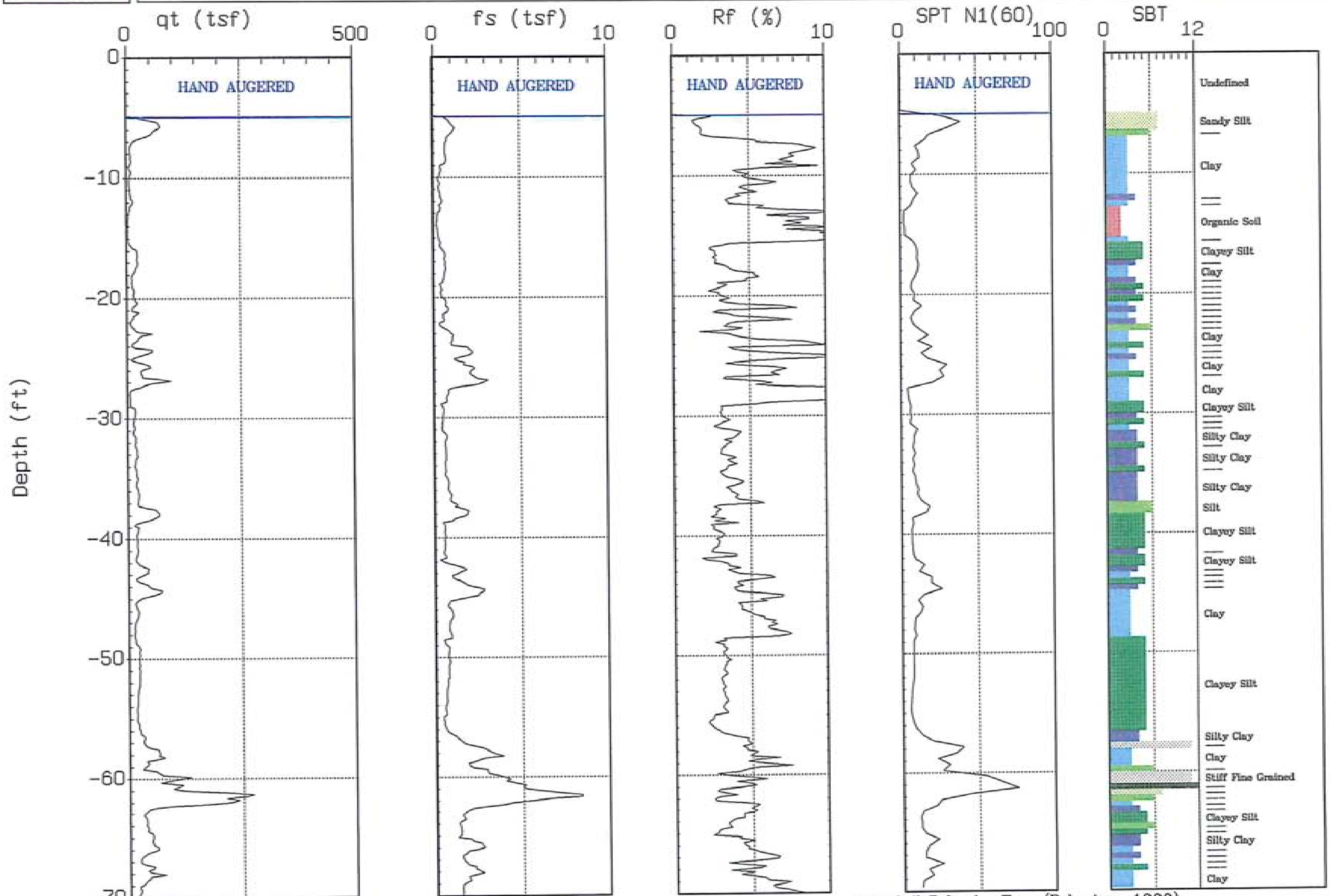
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	17.32	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.033	1.689	3.05	0.91	0.65	10.7	2.98		9				0.92	2.7
11.13	36.5	16.01	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.063	1.704	3.00	0.92	0.65	10.3	2.90		8				0.80	2.6
11.28	37.0	15.87	2.71	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.093	1.718	3.12	0.93	0.64	9.8	3.02		8				0.84	2.4
11.43	37.5	16.04	3.08	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.123	1.733	3.53	0.94	0.63	9.8	3.05		8				0.84	2.4
11.58	38.0	17.07	2.10	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.153	1.747	2.50	0.90	0.64	10.6	2.93		9				0.94	2.7
11.73	38.5	18.38	1.01	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.183	1.761	1.15	0.84	0.65	11.3	2.73		7				0.98	2.8
11.89	39.0	18.93	1.59	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.213	1.776	1.81	0.87	0.64	11.4	2.83		8				1.01	2.8
12.04	39.5	43.35	3.49	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.243	1.790	3.68	0.83	0.65	20.5	2.72		22				2.44	6.9
12.19	40.0	27.18	5.64	Clay	CL/CH	very stiff	120	1.0	27	2.273	1.805	6.16	0.93	0.61	15.7	3.04		27				1.48	4.1
12.34	40.5	10.35	8.65	Clay	CL/CH	stiff	120	1.0	10	2.303	1.819	#####	1.00	0.58	5.7	3.54		10				0.50	1.3
12.50	41.0	10.42	8.25	Clay	CL/CH	stiff	120	1.0	10	2.333	1.833	#####	1.00	0.58	5.7	3.52		10				0.51	1.3
12.65	41.5	10.98	3.49	Silty Clay to Clay	CL	stiff	120	1.5	7	2.363	1.848	4.45	1.00	0.57	5.9	3.28		7				0.54	1.4
12.80	42.0	17.84	1.54	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.393	1.862	1.78	0.88	0.61	10.3	2.87		7				0.94	2.5
12.95	42.5	21.21	1.75	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.423	1.877	1.97	0.87	0.61	12.2	2.82		8				1.14	3.0
13.11	43.0	18.14	2.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.453	1.891	2.63	0.91	0.59	10.1	2.96		9				0.96	2.5
13.26	43.5	20.17	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.483	1.905	2.84	0.90	0.59	11.2	2.94		10				1.07	2.8
13.41	44.0	20.78	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.513	1.920	2.83	0.90	0.59	11.5	2.93		10				1.11	2.9
13.56	44.5	17.93	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.543	1.934	3.17	0.93	0.57	9.7	3.02		9				0.94	2.4
13.72	45.0	18.21	1.78	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.573	1.949	2.07	0.89	0.58	10.0	2.91		7				0.96	2.4
13.87	45.5	21.54	2.03	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.603	1.963	2.31	0.88	0.58	11.8	2.87		9				1.15	2.9
14.02	46.0	21.59	2.21	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.633	1.977	2.52	0.89	0.57	11.7	2.90		9				1.15	2.9
14.17	46.5	18.78	2.45	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.663	1.992	2.86	0.92	0.56	9.9	2.99		9				0.99	2.4
14.33	47.0	17.03	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.693	2.006	2.90	0.93	0.55	8.9	3.04		9				0.88	2.1
14.48	47.5	16.72	2.49	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.723	2.021	2.98	0.94	0.55	8.6	3.05		8				0.86	2.1
14.63	48.0	18.70	1.95	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.753	2.035	2.30	0.91	0.55	9.5	2.95		7				0.95	2.3
14.78	48.5	22.02	1.71	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.783	2.049	1.96	0.87	0.56	11.7	2.84		9				1.17	2.8
14.94	49.0	28.85	2.28	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.813	2.064	2.52	0.86	0.56	15.4	2.80		12				1.58	3.8
15.09	49.5	71.70	4.49	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	36	2.843	2.078	4.68	0.81	0.58	39.2	2.68		38				4.10	9.9
15.24	50.0	165.33	4.68	Overconsolidated Soil	??	medium dense	120	6.0	28	2.873	2.092	4.76	0.73	0.61	94.7	2.41	224.8	19	45	75	33		

GREGG

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-16

Engineer: T. TRANBY
Date: 02:17:04 09:43



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets — Project No: VT-23104-01 — Date: 10/29/04

CPT SOUNDING: CPT-16 — Plot: 6 — Density: 1 SPT N — Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 — Dr correlation: 0 Baldi — Qc/N: 1 Robertson — Phi Correlation: 4 SPT N — Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.014	0.014	0.05	0.90	1.70	3.2	2.96		1				0.12	43.3
0.30	1.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.041	0.041	0.05	0.90	1.70	3.2	2.96		1				0.12	14.2
0.46	1.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.069	0.069	0.05	0.90	1.70	3.2	2.98		1				0.11	8.4
0.61	2.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.096	0.096	0.05	0.90	1.70	3.2	2.98		1				0.11	5.9
0.76	2.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.124	0.124	0.05	0.91	1.70	3.2	2.98		1				0.11	4.5
0.91	3.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.151	0.151	0.05	0.91	1.70	3.2	2.98		1				0.11	3.7
1.07	3.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.179	0.179	0.05	0.91	1.70	3.2	2.98		1				0.11	3.1
1.22	4.0	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.206	0.206	0.06	0.91	1.70	3.2	2.98		1				0.11	2.6
1.37	4.5	2.00	0.05	Sensitive fine grained	ML	very soft	110	2.0	1	0.234	0.234	0.06	0.91	1.70	3.2	2.98		1				0.10	2.3
1.52	5.0	10.47	0.88	Sandy Silt to Clayey Silt	ML	loose	110	2.5	4	0.261	0.261	0.91	0.77	1.70	16.8	2.53	49.6	7	10	3	29		
1.68	5.5	66.17	1.49	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	22	0.289	0.289	1.49	0.61	1.70	106.3	2.01	139.1	37	28	79	38		
1.83	6.0	63.83	1.84	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	21	0.316	0.316	1.85	0.63	1.70	102.6	2.08	146.1	35	29	78	38		
1.98	6.5	43.73	2.07	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.344	0.344	2.09	0.68	1.70	70.3	2.24	123.9	30	25	62	36		
2.13	7.0	14.28	5.07	Clay	CL/CH	stiff	110	1.0	14	0.371	0.371	5.20	0.87	1.70	22.9	2.68		14				0.82	11.2
2.29	7.5	7.46	8.81	Clay	CL/CH	firm	110	1.0	7	0.399	0.399	9.31	0.99	1.70	12.0	3.24		7				0.42	5.3
2.44	8.0	8.14	8.32	Clay	CL/CH	firm	110	1.0	8	0.426	0.426	8.76	0.97	1.70	13.1	3.20		8				0.45	5.4
2.59	8.5	9.46	7.53	Clay	CL/CH	stiff	110	1.0	9	0.454	0.454	7.91	0.95	1.70	15.2	3.12		9				0.53	6.0
2.74	9.0	6.27	7.88	Clay	CL/CH	firm	110	1.0	6	0.481	0.481	8.51	1.00	1.70	10.1	3.27		6				0.34	3.6
2.90	9.5	8.45	4.71	Clay	CL/CH	firm	110	1.0	8	0.509	0.509	5.01	0.92	1.70	13.6	3.02		8				0.47	4.7
3.05	10.0	6.05	4.79	Clay	CL/CH	firm	110	1.0	6	0.536	0.536	5.25	0.96	1.70	9.7	3.15		6				0.32	3.1
3.20	10.5	5.24	6.29	Clay	CL/CH	firm	110	1.0	5	0.564	0.564	7.05	1.00	1.70	8.4	3.28		5				0.28	2.5
3.35	11.0	6.47	4.64	Clay	CL/CH	firm	110	1.0	6	0.591	0.591	5.10	0.95	1.70	10.4	3.12		6				0.35	3.0
3.51	11.5	8.11	4.70	Clay	CL/CH	firm	110	1.0	8	0.619	0.619	5.09	0.93	1.65	12.6	3.05		8				0.44	3.6
3.66	12.0	12.65	3.65	Silty Clay to Clay	CL	stiff	110	1.5	8	0.646	0.646	3.84	0.87	1.53	18.3	2.85		8				0.71	5.6
3.81	12.5	7.11	5.06	Clay	CL/CH	firm	110	1.0	7	0.674	0.674	5.59	0.96	1.54	10.4	3.15		7				0.38	2.9
3.96	13.0	2.09	9.35	Organic Material	OL/OH	soft	110	1.0	3	0.701	0.701	####	1.00	1.51	4.3	3.66		3				0.13	1.0
4.11	13.5	2.30	8.08	Organic Material	OL/OH	very soft	110	1.0	2	0.729	0.729	####	1.00	1.45	3.2	3.75		2				0.09	0.6
4.27	14.0	2.15	7.77	Organic Material	OL/OH	very soft	110	1.0	2	0.756	0.756	####	1.00	1.40	2.8	3.79		2				0.08	0.6
4.42	14.5	2.42	9.90	Organic Material	OL/OH	very soft	110	1.0	2	0.784	0.784	####	1.00	1.35	3.1	3.82		2				0.10	0.6
4.57	15.0	2.40	11.26	Organic Material	OL/OH	very soft	110	1.0	2	0.811	0.811	####	1.00	1.30	3.1	3.88		2				0.10	0.6
4.72	15.5	5.23	8.20	Organic Material	OL/OH	firm	110	1.0	5	0.839	0.839	9.76	1.00	1.26	6.3	3.47		5				0.26	1.6
4.88	16.0	18.63	2.70	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.866	0.866	2.83	0.83	1.10	20.8	2.72		9				1.04	6.2
5.03	16.5	22.56	2.72	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.894	0.894	2.83	0.81	1.15	24.5	2.67		11				1.27	7.3
5.18	17.0	22.64	2.77	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.921	0.921	2.88	0.82	1.12	24.0	2.69		11				1.26	7.1
5.33	17.5	18.50	3.57	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.949	0.949	3.77	0.86	1.10	19.2	2.83		12				1.03	5.5
5.49	18.0	12.04	4.92	Clay	CL/CH	stiff	110	1.0	12	0.976	0.976	5.35	0.94	1.08	12.3	3.08		12				0.65	3.4
5.64	18.5	10.40	5.08	Clay	CL/CH	stiff	110	1.0	10	1.004	1.004	5.62	0.96	1.05	10.3	3.15		10				0.55	2.8
5.79	19.0	11.69	3.22	Silty Clay to Clay	CL	stiff	110	1.5	8	1.031	1.031	3.53	0.92	1.02	11.3	2.99		8				0.63	3.1
5.94	19.5	15.01	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	1.059	1.059	2.95	0.88	1.00	14.2	2.87		8				0.82	4.0
6.10	20.0	15.62	3.28	Silty Clay to Clay	CL	stiff	110	1.5	10	1.086	1.086	3.53	0.89	0.98	14.4	2.91		10				0.85	4.0
6.25	20.5	19.12	3.60	Silty Clay to Clay	CL	very stiff	110	1.5	13	1.114	1.114	3.82	0.87	0.96	17.3	2.87		13				1.05	4.9
6.40	21.0	15.55	6.08	Clay	CL/CH	stiff	110	1.0	16	1.141	1.141	6.56	0.94	0.93	13.7	3.10		16				0.85	3.8
6.55	21.5	15.55	3.44	Silty Clay to Clay	CL	stiff	110	1.5	10	1.169	1.169	3.72	0.90	0.91	13.4	2.95		10				0.85	3.7
6.71	22.0	7.69	6.19	Clay	CL/CH	firm	120	1.0	8	1.198	1.198	7.34	1.00	0.88	6.4	3.38		8				0.38	1.6
6.86	22.5	13.65	3.82	Silty Clay to Clay	CL	stiff	120	1.5	9	1.228	1.228	4.20	0.93	0.87	11.2	3.04		9				0.73	3.0
7.01	23.0	36.11	3.05	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	1.258	1.258	3.16	0.80	0.87	29.7	2.64		18				2.05	8.3
7.16	23.5	21.99	4.02	Clay	CL/CH	very stiff	120	1.0	22	1.288	1.288	5.12	0.90	0.84	17.4	2.95		22				1.22	4.8
7.32	24.0	13.84	8.31	Clay	CL/CH	stiff	120	1.0	14	1.318	1.318	####	1.00	0.80	10.4	3.32		14				0.72	2.8
7.47	24.5	51.07	4.18	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	1.348	1.348	4.29	0.80	0.82	39.8	2.63		26				2.92	11.1
7.62	25.0	16.57	10.60	Clay	CL/CH	stiff	120	1.0	17	1.378	1.378	####	1.00	0.77	12.0	3.31		17				0.89	3.3
7.77	25.5	33.32	5.38	Clay	CL/CH	very stiff	120	1.0	33	1.408	1.392	5.62	0.87	0.79	24.9	2.80		33				1.80	6.9
7.92	26.0	38.68	6.08	Clay	CL/CH	hard	120	1.0	39	1.438	1.406	6.31	0.87	0.78	28.6	2.85		39				2.19	7.9
8.08	26.5	42.06	5.89	Clay	CL/CH	hard	120	1.0	42	1.468	1.421	6.10	0.86	0.78	30.9	2.82		42				2.39	8.6
8.23	27.0	61.52	5.05	Overconsolidated Soil	??	hard	120	6.0	10	1.498	1.435	5.17	0.81	0.78	45.5	2.65		10				3.53	12.5
8.38	27.5	16.27	8.67	Clay	CL/CH	stiff	120	1.0	16	1.528	1.450	9.57	1.00	0.73	11.2	3.27		16				0.87	3.1
8.53	28.0	4.99	15.31	Organic Material	OL/OH	soft	120	1.0	5	1.558	1.464	####	1.00	0.72	3.4	3.90		5				0.21	0.7
8.69	28.5	5.98	11.65	Organic Material	OL/OH	firm	120	1.0	6	1.588	1.478	####	1.00	0.72	4.0	3.75		6				0.26	0.9
8.84	29.0	9.67	4.94	Clay	CL/CH	firm	120	1.0	10	1.618	1.493	5.93	1.00	0.71	6.5	3.32		10				0.48	1.6
8.99	29.5	16.27	3.11	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.648	1.507	3.46	0.92	0.72	11.1	3.00		8				0.87	2.9
9.14	30.0	14.30	3.25	Silty Clay to Clay	CL	stiff	120	1.5	10	1.678	1.522	3.60	0.94	0.71	9.7	3.09		10				0.76	2.5
9.30	30.5	13.16	3.31	Silty Clay to Clay	CL	stiff	120	1.5	9	1.708	1.536	3.80	0.95	0.70	8.7	3.10		9				0.68	2.2
9.45	31.0	13.68	3.13	Silty Clay to Clay	CL	stiff	120	1.5	9	1.738	1.550	3.58	0.94	0.70	9.0	3.08		9				0.71	2.3
9.60	31.5	15.74	4.23	Clay	CL/CH	stiff	120	1.0	16	1.768	1.565	4.76	0.95	0.69	10.3	3.11		16				0.83	2.7
9.75	32.0	16.73	3.65	Silty Clay to Clay	CL	stiff	120	1.5	11	1.798	1.579	4.09	0.93	0.69	10.9	3.05		11				0.89	2.8
9.91	32.5	18.10	3.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.828	1.594	3.72	0.92	0.69	11.8	2.99		9				0.97	3.1
10.06	33.0	20.42	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.858	1.608	3.38	0.89	0.69	13.3	2.93		10				1.11	3.5
10.21	33.5	16.70	3.72	Silty Clay to Clay	CL	stiff	120	1.5	11	1.888	1.622	4.19	0.94	0.67	10.6	3.06		11				0.89	2.8
10.36	34.0	15.42	3.79	Silty Clay to Clay	CL	stiff	120	1.5	10	1.918	1.637	4.33	0.95	0.66	9.6	3.10		10				0.81	2.5
10.52	34.5	18.10	3.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.948	1.651	3.70	0.92	0.66	11.4	3.00		9				0.97	2.9
10.67	35.0	19.90	3.28	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.978	1.666	3.64	0.91	0.66	12.5	2.97		10				1.07	3.2
10.82	35.5	17.74	4.33	Clay	CL/CH	stiff	120	1.0	18	2.008	1.680	4.88	0.95	0.65	10.8	3.09		18				0.94	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets   Project No: VT-23104-01   Date: 10/29/04

CPT SOUNDING: CPT-15   Plot: 6   Density: 1 SPT N   Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

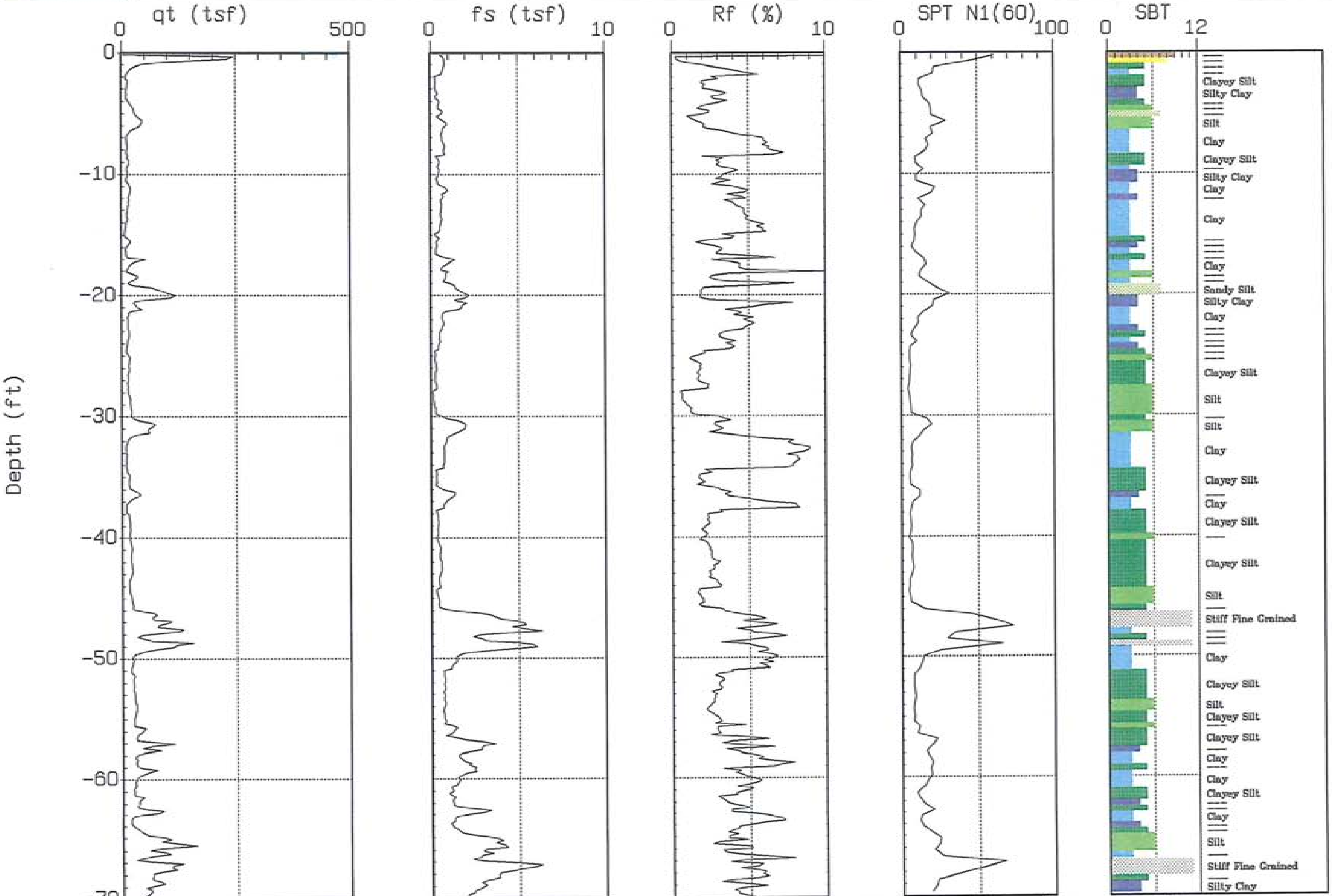
Est. GWT (feet): 25.0   Dr correlation: 0 Baldi   Qc/N: 1 Robertson   Phi Correlation: 4 SPT N   Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	20.75	3.67	Silty Clay to Clay	CL	very stiff	120	1.5	14	2.036	1.694	4.07	0.91	0.65	12.8	2.99		14				1.12	3.3
11.13	36.5	22.52	3.97	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.066	1.709	4.37	0.91	0.65	13.8	2.98		15				1.22	3.0
11.28	37.0	21.20	5.17	Clay	CL/CH	very stiff	120	1.0	21	2.096	1.723	5.74	0.94	0.63	12.7	3.08		21				1.15	3.3
11.43	37.5	54.31	2.06	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	2.126	1.738	2.08	0.78	0.68	34.8	2.57	108.9	10	22	33	33		
11.58	38.0	64.80	2.74	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	26	2.156	1.752	2.84	0.76	0.68	41.9	2.49	114.4	20	23	41	33		
11.73	38.5	31.07	2.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.186	1.766	2.97	0.84	0.65	19.0	2.77		12				1.72	4.9
11.89	39.0	18.59	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.216	1.781	3.46	0.92	0.62	10.9	3.00		9				0.99	2.8
12.04	39.5	18.93	2.80	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.248	1.795	3.17	0.91	0.62	11.1	2.97		9				1.01	2.8
12.19	40.0	18.06	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.278	1.810	3.46	0.93	0.61	10.4	3.02		9				0.96	2.6
12.34	40.5	18.35	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.308	1.824	3.28	0.92	0.61	10.5	3.00		9				0.97	2.6
12.50	41.0	19.81	2.61	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.338	1.839	2.96	0.90	0.61	11.4	2.95		10				1.06	2.9
12.65	41.5	16.21	3.48	Silty Clay to Clay	CL	stiff	120	1.5	11	2.368	1.853	4.07	0.95	0.59	9.0	3.11		11				0.84	2.2
12.80	42.0	19.14	2.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.398	1.867	2.65	0.90	0.60	10.8	2.94		10				1.02	2.7
12.95	42.5	39.84	3.77	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	20	2.428	1.882	4.02	0.85	0.61	23.1	2.79		20				2.23	6.0
13.11	43.0	32.73	3.88	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.458	1.896	4.19	0.88	0.60	18.6	2.87		16				1.81	4.8
13.26	43.5	19.73	6.13	Clay	CL/CH	very stiff	120	1.0	20	2.488	1.910	7.02	0.98	0.56	10.5	3.21		20				1.05	2.7
13.41	44.0	45.88	4.23	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	2.518	1.925	4.47	0.85	0.60	26.1	2.78		23				2.59	6.8
13.56	44.5	67.55	3.89	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	34	2.548	1.939	4.15	0.80	0.62	39.3	2.63		34				3.86	10.1
13.72	45.0	30.42	6.68	Clay	CL/CH	very stiff	120	1.0	30	2.578	1.954	7.30	0.94	0.56	16.2	3.07		30				1.67	4.3
13.87	45.5	14.63	5.27	Clay	CL/CH	stiff	120	1.0	15	2.608	1.968	6.41	1.00	0.54	7.4	3.30		15				0.74	1.8
14.02	46.0	18.77	4.35	Clay	CL/CH	stiff	120	1.0	19	2.638	1.982	5.08	0.96	0.55	9.7	3.14		19				0.95	2.4
14.17	46.5	19.47	4.97	Clay	CL/CH	very stiff	120	1.0	19	2.668	1.997	5.76	0.97	0.54	9.9	3.17		19				1.03	2.5
14.33	47.0	13.26	6.17	Clay	CL/CH	stiff	120	1.0	13	2.698	2.011	7.75	1.00	0.53	6.6	3.39		13				0.68	1.6
14.48	47.5	11.90	6.34	Clay	CL/CH	stiff	120	1.0	12	2.728	2.026	8.23	1.00	0.52	5.9	3.44		12				0.58	1.4
14.63	48.0	11.67	7.29	Clay	CL/CH	stiff	120	1.0	12	2.758	2.040	9.54	1.00	0.52	5.7	3.49		12				0.57	1.3
14.78	48.5	13.71	4.46	Clay	CL/CH	stiff	120	1.0	14	2.788	2.054	5.80	1.00	0.52	6.7	3.30		14				0.69	1.6
14.94	49.0	21.74	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.818	2.069	3.43	0.92	0.54	11.1	2.99		11				1.16	2.7
15.09	49.5	21.75	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.848	2.083	3.79	0.93	0.53	11.0	3.02		11				1.16	2.7
15.24	50.0	21.50	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.878	2.097	3.81	0.93	0.53	10.6	3.03		11				1.14	2.7

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-17

Engineer: T. TRANBY
Date: 02:17:04 10:11



Max. Depth: 70.05 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-17 Plot: 7 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	206.07	0.39	Sand	SP	very dense	100	5.0	41	0.013	0.013	0.39	0.50	1.70	331.1	1.25	331.1	70	66	100	44		
0.30	1.0	52.16	1.79	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.039	0.039	1.79	0.65	1.70	83.8	2.14	127.6	30	26	69	38		
0.46	1.5	16.78	4.23	Clay	CL/CH	stiff	110	1.0	17	0.066	0.066	4.24	0.83	1.70	27.0	2.75		17				0.98	75.7
0.61	2.0	9.56	3.76	Clay	CL/CH	stiff	110	1.0	10	0.094	0.094	3.80	0.88	1.70	15.4	2.91		10				0.56	30.3
0.76	2.5	13.24	2.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.121	0.121	2.06	0.80	1.70	21.3	2.63		7				0.77	32.5
0.91	3.0	11.64	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.149	0.149	2.34	0.82	1.70	18.7	2.71		6				0.68	23.2
1.07	3.5	10.92	3.14	Silty Clay to Clay	CL	stiff	110	1.5	7	0.176	0.176	3.20	0.85	1.70	17.5	2.82		7				0.63	18.3
1.22	4.0	13.20	3.12	Silty Clay to Clay	CL	stiff	110	1.5	9	0.204	0.204	3.17	0.83	1.70	21.2	2.75		9				0.76	19.1
1.37	4.5	22.77	1.94	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	9	0.231	0.231	1.96	0.74	1.70	36.6	2.43	89.8	15	18	35	32		
1.52	5.0	28.32	2.26	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.259	0.259	2.28	0.73	1.70	45.5	2.40	105.7	19	21	44	33		
1.68	5.5	40.77	1.45	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.286	0.286	1.46	0.68	1.70	65.5	2.16	102.6	23	21	59	34		
1.83	6.0	37.60	2.15	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	15	0.314	0.314	2.17	0.70	1.70	60.4	2.30	117.0	26	23	56	35		
1.98	6.5	16.91	3.87	Silty Clay to Clay	CL	stiff	110	1.5	11	0.341	0.341	3.95	0.83	1.70	27.2	2.73		11				0.97	14.6
2.13	7.0	11.08	5.79	Clay	CL/CH	stiff	110	1.0	11	0.369	0.369	5.09	0.91	1.70	17.8	2.93		11				0.63	8.7
2.29	7.5	12.25	6.21	Clay	CL/CH	stiff	110	1.0	12	0.396	0.396	6.42	0.90	1.70	19.7	2.97		12				0.70	9.0
2.44	8.0	11.30	6.73	Clay	CL/CH	stiff	110	1.0	11	0.424	0.424	6.99	0.92	1.70	18.7	3.02		11				0.64	7.7
2.59	8.5	12.50	3.99	Clay	CL/CH	stiff	110	1.0	13	0.451	0.451	4.14	0.86	1.70	20.1	2.84		13				0.71	8.0
2.74	9.0	15.67	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.479	0.479	3.09	0.82	1.70	25.2	2.68		8				0.89	9.5
2.90	9.5	11.67	3.81	Clay	CL/CH	stiff	110	1.0	12	0.506	0.506	3.98	0.87	1.70	18.8	2.85		12				0.66	6.6
3.05	10.0	12.59	3.47	Silty Clay to Clay	CL	stiff	110	1.5	8	0.534	0.534	3.63	0.85	1.70	20.2	2.80		8				0.71	6.8
3.20	10.5	10.45	3.28	Silty Clay to Clay	CL	stiff	110	1.5	7	0.561	0.561	3.47	0.87	1.70	16.8	2.85		7				0.58	5.3
3.35	11.0	17.18	3.67	Silty Clay to Clay	CL	stiff	110	1.5	11	0.589	0.589	3.80	0.83	1.63	28.4	2.73		11				0.98	8.5
3.51	11.5	18.40	4.49	Clay	CL/CH	very stiff	110	1.0	18	0.616	0.616	4.64	0.84	1.58	27.4	2.77		18				1.05	8.7
3.66	12.0	15.43	4.26	Clay	CL/CH	stiff	110	1.0	15	0.644	0.644	4.45	0.86	1.53	22.4	2.83		15				0.87	6.9
3.81	12.5	14.42	4.14	Clay	CL/CH	stiff	110	1.0	14	0.671	0.671	4.34	0.87	1.48	20.2	2.85		14				0.81	6.1
3.96	13.0	12.66	4.71	Clay	CL/CH	stiff	110	1.0	13	0.699	0.699	4.99	0.90	1.45	17.4	2.94		13				0.70	5.1
4.11	13.5	11.68	4.85	Clay	CL/CH	stiff	110	1.0	12	0.726	0.726	5.17	0.91	1.41	15.8	2.90		12				0.66	4.6
4.27	14.0	10.99	5.43	Clay	CL/CH	stiff	110	1.0	11	0.754	0.754	5.83	0.93	1.37	14.2	3.05		11				0.60	4.1
4.42	14.5	8.76	5.82	Clay	CL/CH	firm	110	1.0	9	0.781	0.781	6.39	0.97	1.34	11.1	3.16		9				0.47	3.1
4.57	15.0	7.07	4.54	Clay	CL/CH	firm	110	1.0	7	0.809	0.809	5.13	0.98	1.30	8.7	3.18		7				0.37	2.3
4.72	15.5	16.17	2.67	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.836	0.836	2.82	0.84	1.22	18.6	2.76		8				0.90	5.5
4.88	16.0	11.40	2.87	Silty Clay to Clay	CL	stiff	110	1.5	8	0.864	0.864	3.10	0.89	1.20	12.9	2.91		8				0.62	3.7
5.03	16.5	9.70	3.63	Clay	CL/CH	stiff	110	1.0	10	0.891	0.891	4.00	0.93	1.17	10.8	3.04		10				0.52	3.0
5.18	17.0	31.16	4.38	Silty Clay to Clay	CL	very stiff	110	1.5	21	0.919	0.919	4.52	0.82	1.12	33.1	2.71		21				1.78	9.9
5.33	17.5	17.36	4.41	Clay	CL/CH	stiff	110	1.0	17	0.946	0.946	4.67	0.89	1.10	18.1	2.91		17				0.97	5.2
5.49	18.0	14.02	6.56	Clay	CL/CH	stiff	110	1.0	14	0.974	0.974	7.05	0.95	1.08	14.3	3.10		14				0.77	4.0
5.64	18.5	31.51	2.08	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	13	1.001	1.001	2.75	0.79	1.04	31.1	2.58	99.9	13	20	28	31		
5.79	19.0	18.69	5.79	Clay	CL/CH	very stiff	110	1.0	19	1.029	1.029	6.13	0.91	1.03	18.1	2.99		19				1.04	5.2
5.94	19.5	79.48	1.96	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	26	1.056	1.056	1.99	0.67	1.00	75.2	2.20	125.6	26	25	65	35		
6.10	20.0	107.91	1.89	Silty Sand to Sandy Silt	SM/ML	dense	110	3.0	30	1.084	1.084	1.91	0.64	0.98	100.4	2.10	145.9	35	29	77	37		
6.25	20.5	36.53	5.23	Clay	CL/CH	hard	110	1.0	37	1.111	1.111	5.40	0.84	0.96	33.1	2.76		37				2.08	9.0
6.40	21.0	36.11	4.87	Silty Clay to Clay	CL	hard	110	1.5	24	1.139	1.139	5.03	0.84	0.94	32.1	2.75		24				2.06	9.2
6.55	21.5	17.29	4.27	Silty Clay to Clay	CL	stiff	110	1.5	11	1.166	1.166	4.58	0.91	0.92	14.9	2.97		11				0.95	4.1
6.71	22.0	12.96	5.01	Clay	CL/CH	stiff	120	1.0	13	1.195	1.195	5.52	0.95	0.89	10.9	3.12		13				0.69	3.0
6.86	22.5	13.50	5.08	Clay	CL/CH	stiff	120	1.0	13	1.225	1.225	5.56	0.95	0.87	11.1	3.12		13				0.72	3.0
7.01	23.0	14.56	3.88	Silty Clay to Clay	CL	stiff	120	1.5	10	1.255	1.255	4.24	0.93	0.85	11.7	3.03		10				0.78	3.2
7.16	23.5	15.08	3.22	Silty Clay to Clay	CL	stiff	120	1.5	10	1.285	1.285	3.52	0.91	0.84	11.9	2.97		10				0.81	3.2
7.32	24.0	12.32	3.04	Clay	CL/CH	stiff	120	1.0	12	1.315	1.315	4.30	0.95	0.81	9.5	3.11		12				0.65	2.5
7.47	24.5	10.29	3.29	Silty Clay to Clay	CL	stiff	120	1.5	7	1.345	1.345	3.77	0.97	0.79	7.7	3.15		7				0.53	2.0
7.62	25.0	13.57	1.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.375	1.375	1.96	0.89	0.79	10.2	2.89		7				0.72	2.7
7.77	25.5	16.21	1.47	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.405	1.389	1.61	0.85	0.79	12.1	2.78		6				0.87	3.2
7.92	26.0	14.76	1.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.435	1.404	2.05	0.88	0.78	10.9	2.80		7				0.79	2.8
8.08	26.5	13.79	1.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.465	1.418	1.93	0.80	0.77	10.0	2.89		7				0.73	2.6
8.23	27.0	12.07	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.495	1.433	2.03	0.90	0.76	9.3	2.93		6				0.67	2.4
8.38	27.5	12.70	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.525	1.447	2.67	0.92	0.75	9.0	3.01		6				0.67	2.3
8.53	28.0	13.57	0.61	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	5	1.555	1.461	0.69	0.83	0.76	9.8	2.70		5				0.71	2.5
8.69	28.5	17.15	0.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.585	1.476	0.73	0.80	0.77	12.4	2.61		7				0.92	3.2
8.84	29.0	18.47	0.94	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.615	1.490	1.03	0.81	0.76	13.2	2.65		7				1.00	3.4
8.99	29.5	20.27	1.23	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.645	1.505	1.34	0.82	0.75	14.4	2.69		8				1.10	3.7
9.14	30.0	22.43	2.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.675	1.519	2.80	0.86	0.73	15.5	2.82		11				1.23	4.1
9.30	30.5	58.22	3.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.705	1.533	3.21	0.77	0.75	41.3	2.53	121.6	19	24	40	33		
9.45	31.0	59.94	3.09	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.735	1.548	3.19	0.77	0.75	42.3	2.52	122.1	18	24	41	33		
9.60	31.5	37.16	3.67	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	1.765	1.562	3.85	0.84	0.72	25.4	2.74		19				2.09	6.8
9.75	32.0	12.26	7.14	Clay	CL/CH	stiff	120	1.0	12	1.795	1.577	8.37	1.00	0.67	7.6	3.35		12				0.63	2.0
9.91	32.5	8.64	8.49	Clay	CL/CH	firm	120	1.0	9	1.825	1.591	####	1.00	0.66	5.4	3.54		9				0.41	1.3
10.06	33.0	8.85	8.34	Clay	CL/CH	firm	120	1.0	9	1.855	1.605	####	1.00	0.66	5.5	3.53		9				0.43	1.3
10.21	33.5	8.81	8.25	Clay	CL/CH	firm	120	1.0	9	1.885	1.620	####	1.00	0.65	5.4	3.54		9				0.42	1.3
10.36	34.0	8.55	7.95	Clay	CL/CH	firm	120	1.0	9	1.915	1.634	####	1.00	0.65	5.2	3.54		9				0.41	1.2
10.52	34.5	10.47	3.96	Clay	CL/CH	stiff	120	1.0	10	1.945	1.649	4.87	1.00	0.64	6.3	3.28		10				0.52	1.6
10.67	35.0	15.66	1.74	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	1.975	1.663	2.00	0.89	0.67	9.9	2.90		6				0.82	2.5
10.82	35.5	14.29	1.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.005	1.677	2.15	0.91	0.66	8.9	2.96		7				0.74	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-17 | Plot: 7 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N | Nk: 17

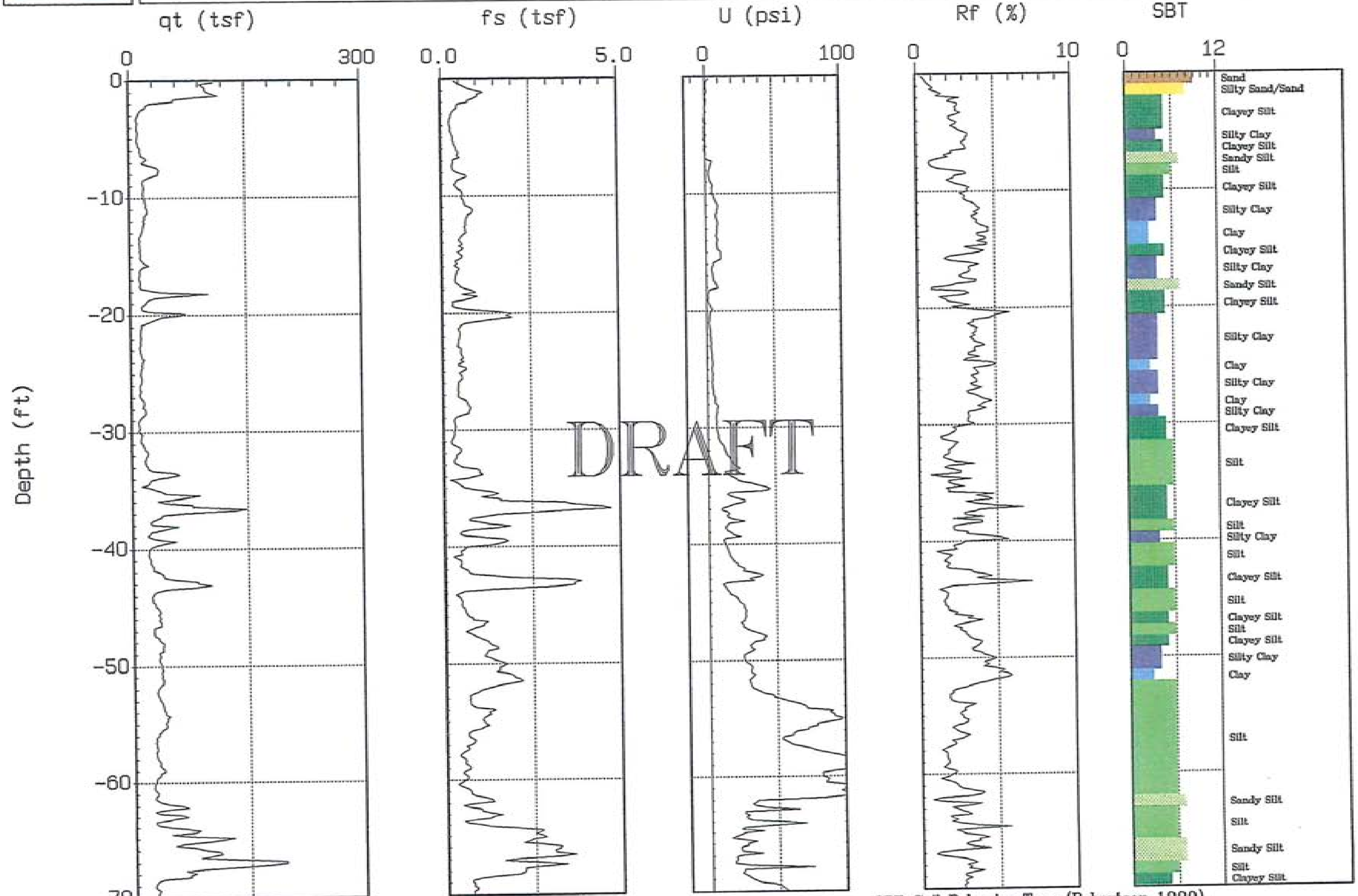
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	18.73	2.78	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.035	1.692	3.12	0.90	0.65	11.6	2.95		9				1.00	3.0
11.13	36.5	32.06	3.85	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.065	1.706	4.11	0.88	0.66	20.6	2.83		16				1.84	5.4
11.28	37.0	12.50	6.50	Clay	CL/CH	stiff	120	1.0	13	2.095	1.721	7.90	1.00	0.61	7.3	3.36		13				0.64	1.8
11.43	37.5	8.12	6.51	Clay	CL/CH	firm	120	1.0	8	2.125	1.735	8.82	1.00	0.61	4.7	3.54		8				0.38	1.0
11.58	38.0	12.48	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.155	1.749	3.17	0.98	0.62	7.3	3.13		6				0.63	1.8
11.73	38.5	15.36	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.185	1.764	2.71	0.92	0.62	9.1	3.01		8				0.80	2.2
11.89	39.0	16.53	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.215	1.778	2.54	0.91	0.62	9.7	2.97		8				0.87	2.4
12.04	39.5	16.41	2.06	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.245	1.793	2.39	0.91	0.62	9.6	2.96		8				0.86	2.4
12.19	40.0	15.90	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.275	1.807	2.27	0.91	0.61	9.3	2.96		8				0.83	2.3
12.34	40.5	18.42	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.305	1.821	2.59	0.90	0.61	10.7	2.94		9				0.98	2.7
12.50	41.0	20.07	2.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.335	1.836	2.80	0.90	0.61	11.6	2.93		10				1.07	2.9
12.65	41.5	18.54	2.54	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.365	1.850	2.91	0.91	0.60	10.5	2.97		9				0.98	2.6
12.80	42.0	18.96	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	2.395	1.865	3.32	0.92	0.59	10.6	3.00		9				1.01	2.7
12.95	42.5	20.79	2.68	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.425	1.879	3.03	0.90	0.60	11.7	2.94		10				1.11	2.9
13.11	43.0	20.38	2.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.455	1.893	2.77	0.90	0.59	11.4	2.93		10				1.09	2.8
13.26	43.5	15.40	2.69	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.485	1.908	3.21	0.95	0.57	8.4	3.08		8				0.80	2.0
13.41	44.0	14.47	3.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.515	1.922	3.71	0.97	0.56	7.7	3.14		7				0.74	1.9
13.56	44.5	15.70	1.60	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	6	2.545	1.937	2.00	0.91	0.58	8.8	2.96		6				0.81	2.0
13.72	45.0	18.74	1.85	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.575	1.951	2.14	0.89	0.58	10.3	2.91		7				0.99	2.5
13.87	45.5	21.47	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.605	1.965	2.15	0.88	0.58	11.8	2.88		9				1.15	2.9
14.02	46.0	29.97	2.83	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.635	1.980	3.11	0.86	0.58	16.5	2.83		15				1.65	4.1
14.17	46.5	69.40	4.00	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	35	2.665	1.994	4.79	0.81	0.60	39.2	2.67		35				3.97	10.0
14.33	47.0	87.70	5.70	Overconsolidated Soil	??	hard	120	6.0	15	2.695	2.009	5.89	0.81	0.59	49.0	2.67		15				5.01	12.6
14.48	47.5	110.93	5.08	Overconsolidated Soil	??	medium dense	120	6.0	18	2.725	2.023	5.20	0.78	0.60	63.4	2.58	184.3	13	30	58	31		
14.63	48.0	53.28	6.43	Clay	CL/CH	hard	120	1.0	53	2.755	2.037	6.78	0.88	0.56	28.4	2.88		53				3.01	7.4
14.78	48.5	90.52	4.48	Overconsolidated Soil	??	medium dense	120	6.0	15	2.785	2.052	4.63	0.79	0.59	50.9	2.58	163.6	11	33	49	30		
14.94	49.0	101.28	5.49	Overconsolidated Soil	??	hard	120	6.0	17	2.815	2.066	5.65	0.80	0.59	56.2	2.62		17				5.84	14.3
15.09	49.5	38.68	5.98	Clay	CL/CH	hard	120	1.0	39	2.845	2.081	6.45	0.91	0.54	19.8	2.97		39				2.15	5.2
15.24	50.0	21.70	6.41	Clay	CL/CH	very stiff	120	1.0	22	2.875	2.095	7.39	0.98	0.51	10.5	3.22		22				1.15	2.7

GREGG

EARTH SYSTEMS

Site : NWC PALM & MAIN
Location : CPT-18

Engineer : TODD TRANBY
Date : 07:16:04 08:23



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 10/29/04

CPT SOUNDING: CPT-18 Plot: 8 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	90.60	0.59	Sand	SP	dense	100	5.0	18	0.013	0.013	0.58	0.50	1.70	154.1	1.02	154.1	33	31	95	37		
0.30	1.0	102.25	0.65	Sand to Silty Sand	SP/SM	dense	100	4.0	26	0.038	0.038	0.65	0.53	1.70	174.3	1.74	174.4	43	35	97	39		
0.46	1.5	84.60	1.27	Sand to Silty Sand	SP/SM	dense	100	4.0	21	0.063	0.063	1.27	0.57	1.70	135.9	1.88	150.3	36	32	90	38		
0.61	2.0	35.50	2.11	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	14	0.089	0.089	2.12	0.70	1.70	57.0	2.31	112.7	24	23	54	34		
0.76	2.5	17.72	2.47	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.116	0.116	2.48	0.78	1.70	28.5	2.58	91.8	15	18	25	32		
0.91	3.0	11.75	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.144	0.144	2.59	0.83	1.70	18.9	2.73		6				0.68	24.2
1.07	3.5	9.75	2.52	Silty Clay to Clay	CL	stiff	110	1.5	6	0.171	0.171	2.56	0.85	1.70	15.7	2.80		6				0.56	16.8
1.22	4.0	10.04	2.32	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.199	0.199	2.37	0.84	1.70	16.1	2.77		5				0.58	14.9
1.37	4.5	10.72	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.226	0.226	2.48	0.84	1.70	17.2	2.78		5				0.62	13.9
1.52	5.0	10.34	3.02	Silty Clay to Clay	CL	stiff	110	1.5	7	0.254	0.254	3.09	0.88	1.70	16.6	2.88		7				0.59	11.9
1.68	5.5	11.43	3.15	Silty Clay to Clay	CL	stiff	110	1.5	8	0.281	0.281	3.23	0.85	1.70	18.4	2.80		8				0.66	11.9
1.83	6.0	14.35	3.06	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.309	0.309	3.13	0.83	1.70	23.1	2.72		7				0.83	13.6
1.98	6.5	19.05	2.57	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	10	0.336	0.336	2.62	0.78	1.70	30.6	2.57	96.8	10	19	28	32		
2.13	7.0	19.41	1.73	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	8	0.364	0.364	1.76	0.75	1.70	31.2	2.46	80.3	13	16	28	31		
2.29	7.5	36.51	0.84	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	12	0.391	0.391	0.86	0.63	1.70	58.7	2.05	80.7	19	18	55	33		
2.44	8.0	34.22	1.56	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	11	0.419	0.419	1.57	0.68	1.70	55.0	2.24	90.8	18	19	52	33		
2.59	8.5	19.27	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.446	0.446	2.98	0.79	1.70	31.0	2.61		10				1.11	12.7
2.74	9.0	18.01	2.18	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	9	0.474	0.474	2.23	0.78	1.70	28.9	2.55	87.6	13	18	25	31		
2.90	9.5	17.37	3.01	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.501	0.501	3.10	0.81	1.70	27.9	2.65		9				0.99	10.1
3.05	10.0	18.49	3.12	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	9	0.529	0.529	3.21	0.80	1.70	29.7	2.64		9				1.06	10.2
3.20	10.5	20.48	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.556	0.556	3.14	0.79	1.68	32.2	2.61		10				1.17	10.7
3.35	11.0	21.84	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	11	0.584	0.584	3.63	0.80	1.61	33.3	2.64		11				1.25	10.0
3.51	11.5	20.40	3.98	Silty Clay to Clay	CL	very stiff	110	1.5	14	0.611	0.611	4.11	0.82	1.57	30.3	2.71		14				1.16	9.7
3.66	12.0	18.67	3.73	Silty Clay to Clay	CL	very stiff	110	1.5	12	0.639	0.639	3.86	0.83	1.52	26.8	2.73		12				1.06	8.5
3.81	12.5	17.26	3.80	Silty Clay to Clay	CL	stiff	110	1.5	12	0.666	0.666	3.96	0.84	1.48	24.1	2.77		12				0.98	7.5
3.96	13.0	15.62	4.30	Clay	CL/CH	stiff	110	1.0	16	0.694	0.694	4.50	0.87	1.44	21.3	2.85		16				0.88	6.5
4.11	13.5	12.51	4.37	Clay	CL/CH	stiff	110	1.0	13	0.721	0.721	4.64	0.89	1.41	16.7	2.93		13				0.69	4.9
4.27	14.0	12.26	4.29	Clay	CL/CH	stiff	110	1.0	12	0.749	0.749	4.58	0.90	1.36	15.8	2.95		12				0.68	4.6
4.42	14.5	12.60	4.32	Clay	CL/CH	stiff	110	1.0	13	0.776	0.776	4.60	0.90	1.32	15.7	2.95		13				0.70	4.6
4.57	15.0	13.58	3.67	Silty Clay to Clay	CL	stiff	110	1.5	9	0.804	0.804	3.90	0.88	1.27	16.4	2.80		9				0.75	4.8
4.72	15.5	15.75	2.97	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.831	0.831	3.14	0.85	1.23	18.3	2.80		8				0.88	5.4
4.88	16.0	16.31	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.859	0.859	2.93	0.85	1.19	18.4	2.78		8				0.91	5.4
5.03	16.5	11.79	3.37	Silty Clay to Clay	CL	stiff	110	1.5	8	0.886	0.886	3.64	0.90	1.17	13.1	2.95		8				0.64	3.7
5.18	17.0	12.14	2.98	Silty Clay to Clay	CL	stiff	110	1.5	8	0.914	0.914	3.22	0.89	1.14	13.1	2.92		8				0.66	3.7
5.33	17.5	12.77	3.51	Silty Clay to Clay	CL	stiff	110	1.5	9	0.941	0.941	3.79	0.90	1.11	13.4	2.95		9				0.70	3.8
5.49	18.0	55.14	1.88	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	18	0.969	0.969	1.89	0.70	1.06	55.4	2.28	105.3	19	21	52	33		
5.64	18.5	39.07	2.41	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	16	0.996	0.996	2.47	0.75	1.05	39.5	2.47	103.9	16	21	39	32		
5.79	19.0	18.75	2.03	Sandy Silt to Clayey Silt	ML	very stiff	110	2.5	7	1.024	1.024	2.14	0.82	1.03	18.2	2.70		7				1.04	5.2
5.94	19.5	17.66	2.66	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.051	1.051	2.83	0.85	1.01	16.8	2.80		9				0.98	4.7
6.10	20.0	58.66	3.22	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	23	1.079	1.079	3.28	0.75	0.90	54.6	2.45	138.9	23	28	52	34		
6.25	20.5	27.34	5.33	Clay	CL/CH	very stiff	110	1.0	27	1.106	1.106	5.56	0.87	0.96	24.9	2.88		27				1.54	7.1
6.40	21.0	14.00	3.90	Silty Clay to Clay	CL	stiff	110	1.5	9	1.134	1.134	4.25	0.92	0.94	12.4	3.01		9				0.78	3.4
6.55	21.5	12.77	3.53	Silty Clay to Clay	CL	stiff	110	1.5	9	1.161	1.161	3.88	0.93	0.92	11.1	3.03		9				0.80	3.0
6.71	22.0	13.07	3.65	Silty Clay to Clay	CL	stiff	120	1.5	9	1.190	1.190	4.02	0.93	0.90	11.1	3.03		9				0.70	3.0
6.86	22.5	12.05	3.56	Silty Clay to Clay	CL	stiff	120	1.5	8	1.220	1.220	3.96	0.94	0.87	10.0	3.07		8				0.64	2.7
7.01	23.0	11.72	4.02	Clay	CL/CH	stiff	120	1.0	12	1.250	1.250	4.50	0.96	0.85	9.4	3.12		12				0.62	2.8
7.16	23.5	13.84	3.67	Silty Clay to Clay	CL	stiff	120	1.5	9	1.280	1.280	4.04	0.93	0.84	11.0	3.04		9				0.74	2.9
7.32	24.0	15.76	3.50	Silty Clay to Clay	CL	stiff	120	1.5	11	1.310	1.310	3.81	0.91	0.82	12.3	2.99		11				0.85	3.3
7.47	24.5	13.83	3.62	Silty Clay to Clay	CL	stiff	120	1.5	9	1.340	1.340	4.00	0.93	0.80	10.5	3.05		9				0.73	2.8
7.62	25.0	12.61	4.39	Clay	CL/CH	stiff	120	1.0	13	1.370	1.370	4.82	0.96	0.78	9.3	3.15		13				0.66	2.5
7.77	25.5	13.59	3.81	Silty Clay to Clay	CL	stiff	120	1.5	9	1.400	1.384	4.25	0.95	0.78	10.0	3.09		9				0.72	2.6
7.92	26.0	12.15	3.59	Silty Clay to Clay	CL	stiff	120	1.5	8	1.430	1.399	4.07	0.96	0.77	8.8	3.17		8				0.63	2.3
8.08	26.5	11.31	3.71	Clay	CL/CH	stiff	120	1.0	11	1.460	1.413	4.25	0.97	0.76	8.1	3.18		11				0.58	2.1
8.23	27.0	12.92	3.35	Silty Clay to Clay	CL	stiff	120	1.5	9	1.490	1.428	3.79	0.95	0.75	9.2	3.08		9				0.68	2.4
8.38	27.5	16.63	3.96	Silty Clay to Clay	CL	stiff	120	1.5	11	1.520	1.442	4.36	0.93	0.75	11.8	3.03		11				0.89	3.1
8.53	28.0	16.92	4.36	Clay	CL/CH	stiff	120	1.0	17	1.550	1.456	4.80	0.93	0.74	11.9	3.06		17				0.91	3.2
8.69	28.5	15.88	4.04	Silty Clay to Clay	CL	stiff	120	1.5	11	1.580	1.471	4.49	0.94	0.73	11.0	3.07		11				0.85	2.9
8.84	29.0	9.78	3.25	Silty Clay to Clay	CL	firm	120	1.5	7	1.610	1.485	3.89	0.99	0.72	6.6	3.21		7				0.49	1.6
8.99	29.5	9.84	3.21	Silty Clay to Clay	CL	firm	120	1.5	7	1.640	1.500	3.86	0.99	0.71	6.6	3.21		7				0.49	1.6
9.14	30.0	10.80	2.92	Silty Clay to Clay	CL	stiff	120	1.5	7	1.670	1.514	3.45	0.97	0.71	7.2	3.15		7				0.55	1.6
9.30	30.5	12.06	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	1.700	1.528	2.65	0.94	0.71	8.1	3.04		6				0.62	2.0
9.45	31.0	13.56	1.59	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.730	1.543	1.83	0.90	0.71	9.1	2.91		7				0.71	2.3
9.60	31.5	17.77	2.29	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.760	1.557	2.54	0.89	0.71	11.9	2.89		9				0.95	3.1
9.75	32.0	19.89	2.09	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.790	1.572	2.29	0.87	0.71	13.3	2.83		8				1.06	3.5
9.91	32.5	17.07	1.84	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.820	1.586	2.06	0.88	0.70	11.3	2.86		7				0.91	2.9
10.06	33.0	19.73	1.96	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	1.850	1.600	2.16	0.86	0.70	13.0	2.82		8				1.07	3.4
10.21	33.5	47.00	2.36	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	1.880	1.615	2.46	0.77	0.72	32.0	2.54	95.5	15	19	30	32		
10.36	34.0	34.86	2.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	1.910	1.629	2.67	0.81	0.70	23.2	2.67		14				1.95	6.1
10.52	34.5	18.49	1.90	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	1.940	1.644	2.13	0.87	0.68	11.9	2.85		7				0.98	3.0
10.67	35.0	31.09	2.03	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.970	1.658	2.17	0.81	0.69	20.4	2.66		12				1.73	5.3
10.82	35.5	67.28	2.20	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	22	2.000	1.672	2.27	0.73	0.72	45.5	2.40	105.4	17	21	44	32		

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-18 Plot: 8 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

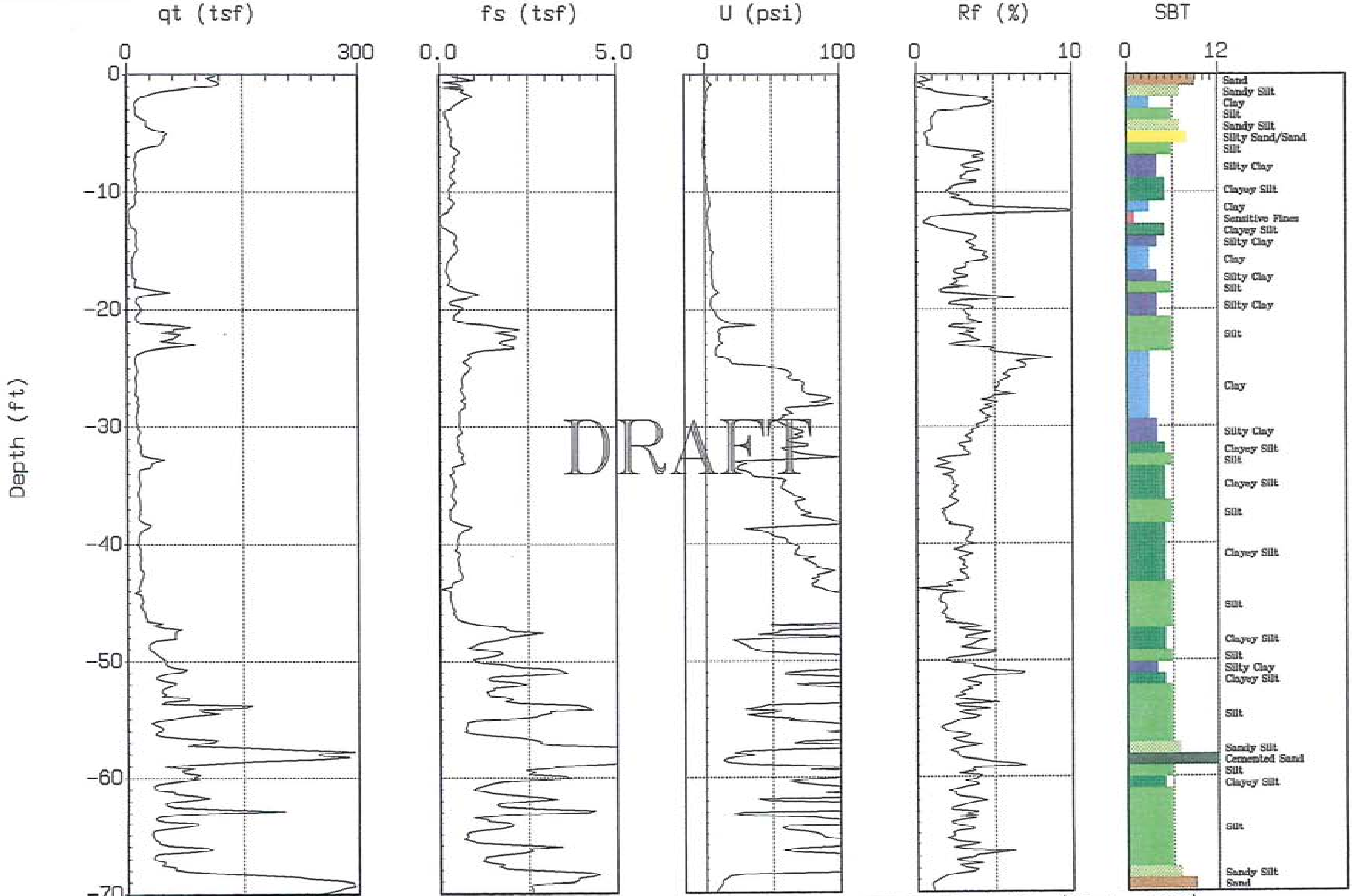
Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	N1(60)	Clean Sand N1(60)	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
10.97	36.0	44.32	3.43	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.030	1.687	3.80	0.82	0.68	28.6	2.69		22				2.51	7.5
11.13	36.5	108.40	3.94	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	54	2.060	1.701	4.02	0.74	0.70	72.2	2.43	177.2	42	35	63	39		
11.28	37.0	48.97	5.19	Clay	CL/CH	hard	120	1.0	49	2.090	1.710	5.43	0.85	0.66	30.7	2.78		49				2.78	8.2
11.43	37.5	27.09	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.120	1.730	3.41	0.87	0.65	16.7	2.85		14				1.49	4.3
11.58	38.0	43.16	3.43	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	22	2.150	1.744	3.61	0.82	0.65	27.0	2.70		22				2.44	7.1
11.73	38.5	27.71	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.180	1.759	3.27	0.87	0.64	16.9	2.84		14				1.53	4.4
11.89	39.0	25.54	2.50	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.210	1.773	2.74	0.85	0.64	15.5	2.82		10				1.40	3.9
12.04	39.5	42.24	4.21	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	21	2.240	1.788	4.44	0.85	0.64	25.6	2.78		21				2.38	6.7
12.19	40.0	21.79	3.76	Silty Clay to Clay	CL	very stiff	120	1.5	15	2.270	1.802	4.20	0.92	0.61	12.6	3.00		15				1.18	3.3
12.34	40.5	19.97	2.24	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.300	1.816	2.53	0.89	0.62	11.7	2.90		10				1.07	2.9
12.50	41.0	22.34	1.52	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.330	1.831	1.00	0.85	0.63	13.3	2.75		9				1.21	3.3
12.65	41.5	25.01	1.72	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.360	1.845	1.90	0.84	0.63	14.8	2.74		10				1.36	3.7
12.80	42.0	32.63	1.80	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.390	1.860	1.94	0.81	0.63	19.5	2.65		13				1.81	4.9
12.95	42.5	45.38	2.83	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.420	1.874	2.99	0.81	0.63	27.0	2.65		18				2.56	6.9
13.11	43.0	89.07	4.14	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	45	2.450	1.888	4.26	0.77	0.64	53.8	2.54	150.9	32	32	51	37		
13.26	43.5	51.19	5.49	Clay	CL/CH	hard	120	1.0	51	2.480	1.903	5.77	0.86	0.60	29.3	2.82		51				2.90	7.7
13.41	44.0	25.12	1.62	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.510	1.917	1.80	0.84	0.61	14.4	2.74		10				1.37	3.5
13.56	44.5	25.17	1.69	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.540	1.932	1.88	0.84	0.60	14.3	2.75		10				1.37	3.5
13.72	45.0	28.90	1.59	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.570	1.946	1.75	0.82	0.61	16.6	2.66		12				1.59	4.1
13.87	45.5	32.71	1.65	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.600	1.960	1.80	0.81	0.61	18.8	2.65		13				1.81	4.6
14.02	46.0	33.25	1.89	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	13	2.630	1.975	2.16	0.82	0.60	18.8	2.69		13				1.84	4.7
14.17	46.5	35.09	2.86	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.660	1.989	3.10	0.85	0.59	19.4	2.77		14				1.95	4.9
14.33	47.0	26.12	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.690	2.004	3.35	0.89	0.57	14.0	2.91		13				1.42	3.5
14.48	47.5	30.39	2.68	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	2.720	2.018	2.95	0.86	0.57	16.5	2.82		12				1.67	4.1
14.63	48.0	36.86	3.08	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	18	2.750	2.032	3.32	0.85	0.57	20.0	2.78		18				2.05	5.0
14.78	48.5	37.12	3.75	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.780	2.047	4.06	0.87	0.56	19.8	2.84		19				2.06	5.0
14.94	49.0	32.92	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.810	2.061	3.87	0.88	0.56	17.3	2.87		16				1.82	4.4
15.09	49.5	32.48	3.79	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.840	2.076	4.15	0.88	0.55	16.9	2.90		16				1.79	4.3
15.24	50.0	35.01	4.65	Silty Clay to Clay	CL	very stiff	120	1.5	23	2.870	2.090	5.07	0.89	0.54	18.0	2.93		23				1.94	4.6

EARTH SYSTEMS

Site : NWC PALM & MAIN
Location : CPT-19

Engineer : TODD TRANBY
Date : 07:16:04 08:56



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets Project No: VT-23104-01 Date: 10/29/04

CPT SOUNDING: CPT-19 Plot: 9 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf) Nk: 17	OCR
0.15	0.5	110.48	0.54	Sand	SP	dense	100	5.0	22	0.013	0.013	0.54	0.50	1.70	177.5	1.55	177.5	38	36	100	38		
0.30	1.0	106.87	0.36	Sand	SP	dense	100	5.0	21	0.038	0.038	0.36	0.50	1.70	171.7	1.46	171.7	36	34	99	38		
0.46	1.5	50.25	1.44	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	17	0.064	0.064	1.44	0.63	1.70	80.7	2.08	115.2	28	23	68	36		
0.61	2.0	19.75	4.20	Silty Clay to Clay	CL	very stiff	110	1.5	13	0.091	0.091	4.22	0.82	1.70	31.7	2.70		13				1.16	64.6
0.76	2.5	10.01	4.61	Clay	CL/CH	stiff	110	1.0	11	0.119	0.119	4.66	0.89	1.70	17.0	2.93		11				0.62	26.5
0.91	3.0	11.30	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.146	0.146	2.46	0.83	1.70	18.2	2.74		6				0.68	22.9
1.07	3.5	13.13	1.11	Sandy Silt to Clayey Silt	ML	loose	110	2.5	5	0.174	0.174	1.12	0.70	1.70	21.1	2.49	57.7	9	12	12	30		
1.22	4.0	23.32	0.94	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	8	0.201	0.201	0.95	0.68	1.70	37.5	2.24	66.5	13	13	36	31		
1.37	4.5	26.44	0.98	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	9	0.229	0.229	0.99	0.67	1.70	42.5	2.21	71.5	15	14	41	32		
1.52	5.0	45.40	0.67	Sand to Silty Sand	SP/SM	medium dense	100	4.0	11	0.255	0.255	0.67	0.58	1.70	73.0	1.92	88.1	19	18	64	33		
1.68	5.5	47.45	0.68	Sand to Silty Sand	SP/SM	medium dense	100	4.0	12	0.280	0.280	0.68	0.58	1.70	76.2	1.91	91.1	20	18	66	33		
1.83	6.0	37.69	0.93	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	13	0.306	0.306	0.94	0.63	1.70	60.6	2.07	84.7	21	17	58	34		
1.98	6.5	14.83	3.67	Silty Clay to Clay	CL	stiff	110	1.5	10	0.334	0.334	3.75	0.84	1.70	23.8	2.76		10				0.85	13.0
2.13	7.0	11.23	3.88	Clay	CL/CH	stiff	110	1.0	11	0.361	0.361	3.98	0.87	1.70	18.0	2.87		11				0.64	9.0
2.29	7.5	11.51	3.57	Silty Clay to Clay	CL	stiff	110	1.5	8	0.389	0.389	3.70	0.86	1.70	18.5	2.84		8				0.65	8.0
2.44	8.0	11.09	3.64	Silty Clay to Clay	CL	stiff	110	1.5	7	0.416	0.416	3.78	0.87	1.70	17.8	2.86		7				0.63	7.7
2.59	8.5	9.73	3.08	Silty Clay to Clay	CL	stiff	110	1.5	6	0.444	0.444	3.23	0.87	1.70	15.6	2.86		6				0.55	6.3
2.74	9.0	11.18	3.51	Silty Clay to Clay	CL	stiff	110	1.5	7	0.471	0.471	3.66	0.87	1.70	18.0	2.84		7				0.63	6.8
2.90	9.5	12.63	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	6	0.499	0.499	2.52	0.82	1.70	20.3	2.70		6				0.71	7.3
3.05	10.0	13.13	2.09	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.526	0.526	2.17	0.81	1.70	21.1	2.65		7				0.74	7.2
3.20	10.5	10.89	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.554	0.554	2.80	0.85	1.70	17.5	2.78		5				0.61	5.6
3.35	11.0	11.02	3.48	Silty Clay to Clay	CL	stiff	110	1.5	7	0.581	0.581	3.67	0.87	1.68	17.5	2.85		7				0.61	5.4
3.51	11.5	3.73	8.78	Organic Material	OL/OH	soft	110	1.0	4	0.609	0.609	####	1.00	1.70	6.0	3.50		4				0.18	1.5
3.66	12.0	2.58	2.53	Clay	CL/CH	very soft	110	1.0	3	0.636	0.636	3.35	1.00	1.65	4.1	3.35		3				0.11	0.9
3.81	12.5	3.12	0.57	Sensitive fine grained	ML	soft	110	2.0	2	0.664	0.664	0.72	0.94	1.55	4.8	3.01		2				0.14	1.1
3.96	13.0	7.67	1.31	Clayey Silt to Silty Clay	ML/CL	firm	110	2.0	4	0.691	0.691	1.44	0.86	1.44	10.5	2.81		4				0.41	3.0
4.11	13.5	12.15	2.91	Silty Clay to Clay	CL	stiff	110	1.5	8	0.719	0.719	3.10	0.87	1.40	16.1	2.84		8				0.67	4.8
4.27	14.0	12.12	3.72	Silty Clay to Clay	CL	stiff	110	1.5	8	0.746	0.746	3.96	0.89	1.38	15.6	2.91		8				0.67	4.6
4.42	14.5	12.15	3.50	Silty Clay to Clay	CL	stiff	110	1.5	8	0.774	0.774	3.74	0.89	1.32	15.2	2.91		8				0.67	4.4
4.57	15.0	12.37	3.91	Clay	CL/CH	stiff	110	1.0	12	0.801	0.801	4.19	0.90	1.28	15.0	2.94		12				0.68	4.3
4.72	15.5	8.21	4.45	Clay	CL/CH	firm	110	1.0	8	0.829	0.829	4.95	0.96	1.26	9.8	3.13		8				0.43	2.7
4.88	16.0	6.25	3.57	Clay	CL/CH	firm	110	1.0	6	0.856	0.856	4.14	0.98	1.23	7.3	3.19		6				0.32	1.9
5.03	16.5	6.62	2.69	Silty Clay to Clay	CL	firm	110	1.5	4	0.884	0.884	3.10	0.98	1.19	7.4	3.11		4				0.34	1.9
5.18	17.0	7.36	3.04	Silty Clay to Clay	CL	firm	110	1.5	5	0.911	0.911	3.47	0.98	1.15	8.0	3.11		5				0.38	2.1
5.33	17.5	10.83	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.939	0.939	2.74	0.90	1.11	11.4	2.93		5				0.58	3.2
5.49	18.0	14.62	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.966	0.966	2.60	0.88	1.08	14.9	2.82		7				0.80	4.2
5.64	18.5	41.61	2.15	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	17	0.994	0.994	2.21	0.74	1.05	41.1	2.43	99.7	17	20	40	32		
5.79	19.0	14.28	4.62	Clay	CL/CH	stiff	110	1.0	14	1.021	1.021	4.98	0.92	1.03	13.9	3.01		14				0.78	3.9
5.94	19.5	14.02	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	1.049	1.049	2.78	0.88	1.01	13.4	2.87		7				0.76	3.7
6.10	20.0	17.95	3.26	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	1.076	1.076	3.47	0.87	0.99	16.7	2.85		9				0.99	4.7
6.25	20.5	12.37	3.31	Silty Clay to Clay	CL	stiff	110	1.5	8	1.104	1.104	3.63	0.92	0.96	11.3	3.00		8				0.66	3.1
6.40	21.0	14.33	3.81	Silty Clay to Clay	CL	stiff	110	1.5	10	1.131	1.131	4.14	0.91	0.94	12.7	2.99		10				0.78	3.5
6.55	21.5	68.21	2.71	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	27	1.159	1.159	2.76	0.72	0.94	60.4	2.37	132.1	25	26	56	35		
6.71	22.0	57.48	3.19	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.188	1.188	3.26	0.75	0.92	49.6	2.48	132.7	21	27	48	34		
6.86	22.5	55.16	3.69	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	1.218	1.218	3.77	0.77	0.90	46.8	2.54	140.1	25	28	45	35		
7.01	23.0	72.87	2.81	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	29	1.248	1.248	2.85	0.72	0.89	61.0	2.35	130.1	26	28	56	35		
7.16	23.5	28.59	4.95	Clay	CL/CH	very stiff	120	1.0	29	1.278	1.278	5.18	0.87	0.85	22.9	2.86		29				1.61	6.4
7.32	24.0	11.12	7.62	Clay	CL/CH	stiff	120	1.0	11	1.308	1.308	8.64	1.00	0.81	8.5	3.33		11				0.58	2.3
7.47	24.5	10.04	7.10	Clay	CL/CH	stiff	120	1.0	10	1.338	1.338	8.19	1.00	0.79	7.5	3.38		10				0.51	2.0
7.62	25.0	11.63	7.17	Clay	CL/CH	stiff	120	1.0	12	1.368	1.368	8.12	1.00	0.77	8.5	3.31		12				0.60	2.3
7.77	25.5	11.92	6.07	Clay	CL/CH	stiff	120	1.0	12	1.398	1.382	6.88	1.00	0.77	8.6	3.26		12				0.62	2.3
7.92	26.0	10.00	6.12	Clay	CL/CH	stiff	120	1.0	10	1.428	1.396	7.14	1.00	0.76	7.2	3.34		10				0.51	1.8
8.08	26.5	10.87	5.58	Clay	CL/CH	stiff	120	1.0	11	1.458	1.411	6.44	1.00	0.75	7.7	3.28		11				0.56	2.0
8.23	27.0	9.95	6.09	Clay	CL/CH	stiff	120	1.0	10	1.488	1.425	7.16	1.00	0.74	7.0	3.35		10				0.50	1.8
8.38	27.5	12.76	5.00	Clay	CL/CH	stiff	120	1.0	13	1.518	1.440	5.68	0.98	0.74	8.9	3.20		13				0.67	2.3
8.53	28.0	12.97	5.16	Clay	CL/CH	stiff	120	1.0	13	1.548	1.454	5.88	0.98	0.73	9.0	3.21		13				0.68	2.4
8.69	28.5	12.80	4.64	Clay	CL/CH	stiff	120	1.0	13	1.578	1.468	5.29	0.98	0.73	8.8	3.18		13				0.67	2.3
8.84	29.0	11.31	4.78	Clay	CL/CH	stiff	120	1.0	11	1.608	1.483	5.57	1.00	0.71	7.6	3.25		11				0.58	2.0
8.99	29.5	11.62	4.64	Clay	CL/CH	stiff	120	1.0	12	1.638	1.497	5.40	0.99	0.71	7.8	3.23		12				0.60	2.0
9.14	30.0	13.26	4.05	Clay	CL/CH	stiff	120	1.0	13	1.668	1.512	4.64	0.97	0.71	8.9	3.15		13				0.69	2.3
9.30	30.5	15.74	3.64	Silty Clay to Clay	CL	stiff	120	1.5	10	1.698	1.526	4.08	0.94	0.71	10.6	3.09		10				0.84	2.8
9.45	31.0	13.62	3.52	Silty Clay to Clay	CL	stiff	120	1.5	9	1.728	1.540	4.03	0.95	0.70	9.0	3.11		9				0.71	2.3
9.60	31.5	15.77	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.758	1.555	3.40	0.92	0.70	10.4	3.02		8				0.84	2.7
9.75	32.0	16.60	3.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.788	1.569	3.60	0.92	0.70	10.9	3.01		8				0.88	2.8
9.91	32.5	21.75	3.01	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.818	1.584	3.28	0.88	0.70	14.4	2.89		11				1.19	3.8
10.06	33.0	38.20	1.76	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.848	1.598	1.85	0.77	0.73	28.3	2.53	77.2	12	15	21	31		
10.21	33.5	25.88	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	1.878	1.612	1.73	0.82	0.71	17.2	2.67		10				1.42	4.4
10.36	34.0	15.26	2.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.908	1.627	2.47	0.91	0.68	9.8	2.98		8				0.80	2.5
10.52	34.5	14.82	2.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.938	1.641	2.62	0.92	0.67	9.4	2.99		7				0.78	2.4
10.67	35.0	15.85	2.50	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.968	1.656	2.88	0.92	0.65	8.9	2.99		8				0.83	2.5
10.82	35.5	14.38	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.998	1.670	2.92	0.93	0.65	8.9	3.03		7				0.75	2.2

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-19 | Plot: 9 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

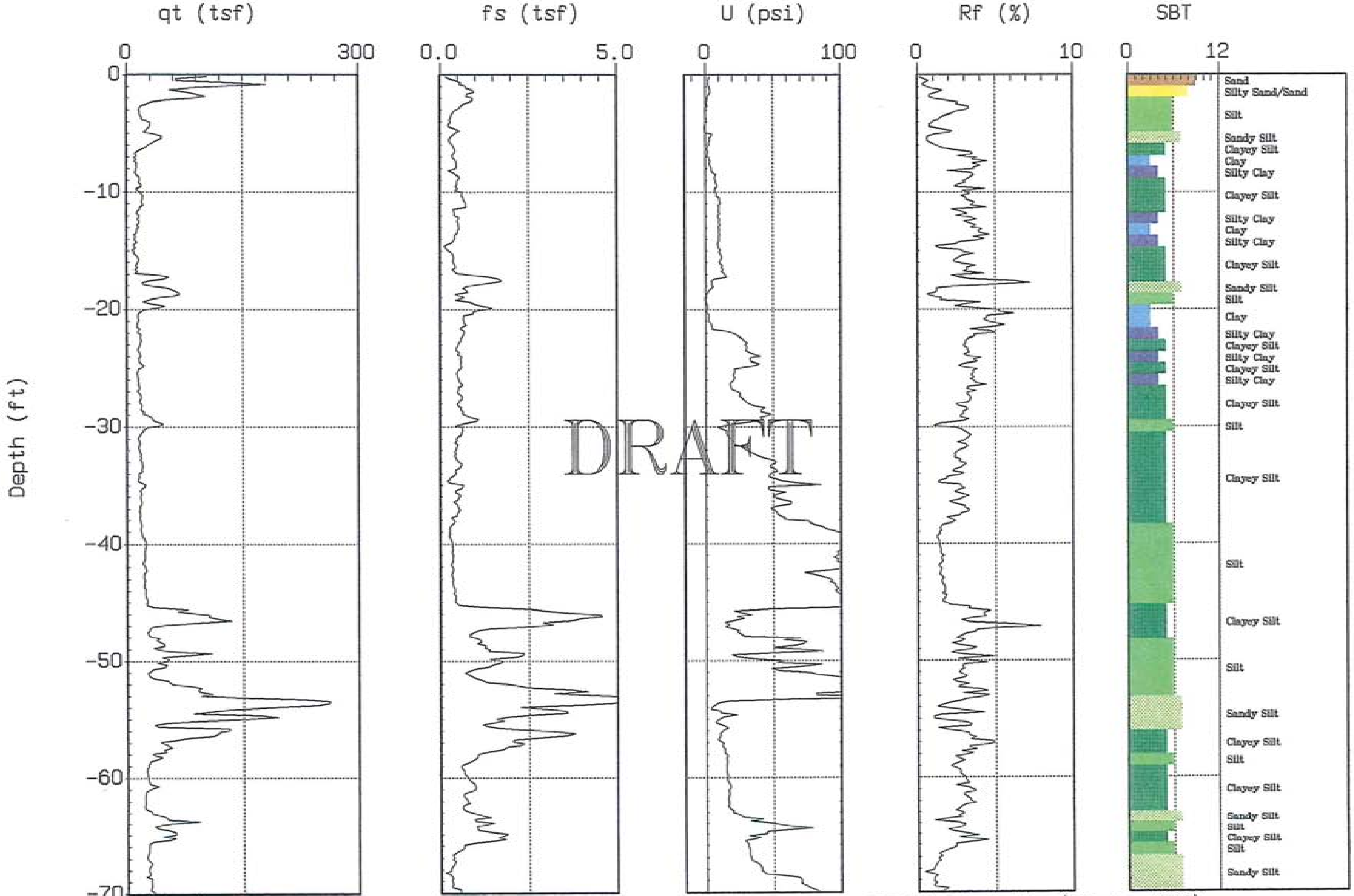
Est. GWT (feet): 25.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr(%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	13.98	2.29	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.028	1.684	2.08	0.93	0.65	8.6	3.03		7				0.72	2.1
11.13	36.5	15.75	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.058	1.699	2.89	0.92	0.65	9.6	3.00		8				0.83	2.4
11.28	37.0	15.51	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.088	1.713	2.15	0.90	0.65	9.5	2.94		8				0.81	2.4
11.43	37.5	14.67	1.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.118	1.728	2.12	0.91	0.64	8.9	2.96		7				0.76	2.2
11.58	38.0	16.98	2.08	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.148	1.742	2.38	0.90	0.64	10.2	2.93		8				0.90	2.6
11.73	38.5	26.60	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.178	1.756	3.20	0.87	0.64	16.2	2.84		13				1.46	4.2
11.89	39.0	16.46	3.55	Silty Clay to Clay	CL	stiff	120	1.5	11	2.208	1.771	4.10	0.95	0.61	9.5	3.09		11				0.86	2.4
12.04	39.5	14.23	3.38	Silty Clay to Clay	CL	stiff	120	1.5	9	2.238	1.785	4.01	0.97	0.60	8.1	3.14		9				0.73	2.0
12.19	40.0	13.78	3.44	Silty Clay to Clay	CL	stiff	120	1.5	9	2.268	1.800	4.12	0.97	0.60	7.8	3.17		9				0.70	1.9
12.34	40.5	15.96	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.298	1.814	3.35	0.94	0.60	9.1	3.06		8				0.83	2.3
12.50	41.0	15.67	3.35	Silty Clay to Clay	CL	stiff	120	1.5	10	2.328	1.828	3.94	0.95	0.59	8.8	3.11		10				0.81	2.2
12.65	41.5	15.80	3.05	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.358	1.843	3.58	0.95	0.59	8.9	3.08		8				0.83	2.2
12.80	42.0	15.97	3.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.388	1.857	3.84	0.95	0.59	8.9	3.10		8				0.83	2.2
12.95	42.5	19.06	3.03	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	2.418	1.872	3.47	0.92	0.59	10.6	3.01		10				1.01	2.7
13.11	43.0	17.62	3.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.448	1.886	3.84	0.94	0.58	9.7	3.07		9				0.93	2.4
13.26	43.5	15.12	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.478	1.900	2.63	0.93	0.58	8.3	3.03		8				0.78	2.0
13.41	44.0	12.87	1.61	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	2.508	1.915	2.00	0.94	0.57	7.0	3.04		6				0.64	1.6
13.56	44.5	16.63	1.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.538	1.929	1.96	0.90	0.58	9.2	2.93		7				0.86	2.2
13.72	45.0	17.93	1.66	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.568	1.944	1.94	0.89	0.58	9.9	2.90		7				0.94	2.4
13.87	45.5	17.20	2.00	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.598	1.958	2.35	0.91	0.57	9.3	2.97		9				0.90	2.2
14.02	46.0	20.82	1.84	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.628	1.972	2.10	0.88	0.58	11.4	2.86		8				1.11	2.8
14.17	46.5	22.82	2.11	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.658	1.987	2.38	0.88	0.58	12.4	2.85		9				1.23	3.0
14.33	47.0	46.64	3.09	Sandy Silt to Clayey Silt	ML	hard	120	2.5	19	2.688	2.001	3.28	0.82	0.60	26.1	2.69		19				2.58	6.6
14.48	47.5	61.39	3.96	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	31	2.718	2.016	4.14	0.81	0.59	34.4	2.67		31				3.49	8.7
14.63	48.0	52.50	3.61	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	26	2.748	2.030	3.81	0.82	0.59	29.1	2.70		26				2.97	7.4
14.78	48.5	28.72	3.71	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.778	2.044	4.11	0.90	0.55	15.0	2.94		14				1.57	3.8
14.94	49.0	29.37	4.00	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.808	2.059	4.42	0.90	0.55	15.2	2.95		15				1.61	3.9
15.09	49.5	38.34	4.11	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.838	2.073	4.43	0.87	0.56	20.2	2.86		19				2.13	5.1
15.24	50.0	47.68	2.10	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	2.868	2.088	2.24	0.78	0.59	26.4	2.58	84.7	13	17	22	31		

EARTH SYSTEMS

Site : NWC PALM & MAI
Location : CPT-20

Engineer : TODD TRANBY
Date : 07:16:04 09:32



Max. Depth: 70.05 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets

Project No: VT-23104-01

Date: 10/29/04

CPT SOUNDING: CPT-20 Plot: 10 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 25.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel Dens Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	86.83	0.51	Sand to Silty Sand	SP/SM	dense	100	4.0	22	0.013	0.013	0.51	0.50	1.70	139.5	1.62	139.5	37	28	91	38		
0.30	1.0	120.07	0.50	Sand	SP	dense	100	5.0	26	0.038	0.038	0.50	0.50	1.70	207.4	1.52	207.4	44	41	100	39		
0.46	1.5	73.61	1.25	Sand to Silty Sand	SP/SM	dense	100	4.0	18	0.063	0.063	1.25	0.58	1.70	118.3	1.92	142.8	31	29	84	36		
0.61	2.0	81.13	1.16	Sand to Silty Sand	SP/SM	dense	100	4.0	20	0.088	0.088	1.16	0.57	1.70	130.4	1.87	151.2	34	30	89	37		
0.76	2.5	25.44	2.79	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	13	0.114	0.114	2.80	0.76	1.70	40.9	2.50	112.5	22	22	40	34		
0.91	3.0	16.18	2.91	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.141	0.141	2.94	0.81	1.70	28.0	2.66		8				0.94	34.1
1.07	3.5	17.71	1.84	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	7	0.169	0.169	1.86	0.76	1.70	28.5	2.51	79.7	12	16	25	31		
1.22	4.0	25.32	1.12	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	10	0.196	0.196	1.13	0.69	1.70	40.7	2.25	73.7	17	15	40	32		
1.37	4.5	29.06	1.05	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	10	0.224	0.224	1.06	0.67	1.70	46.7	2.19	78.8	18	15	45	32		
1.52	5.0	27.35	1.82	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.251	0.251	1.83	0.71	1.70	43.9	2.35	93.7	19	19	43	33		
1.68	5.5	40.60	0.68	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	14	0.279	0.279	0.69	0.60	1.70	65.2	1.96	81.9	23	16	58	34		
1.83	6.0	26.53	1.34	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	11	0.306	0.306	1.36	0.69	1.70	42.6	2.28	80.9	18	16	41	33		
1.98	6.5	13.29	3.14	Silty Clay to Clay	CL	stiff	110	1.5	9	0.334	0.334	3.22	0.84	1.70	21.4	2.75		9				0.78	11.6
2.13	7.0	11.13	3.32	Silty Clay to Clay	CL	stiff	110	1.5	7	0.361	0.361	3.43	0.86	1.70	17.9	2.83		7				0.63	8.9
2.29	7.5	11.40	4.03	Clay	CL/CH	stiff	110	1.0	11	0.389	0.389	4.17	0.87	1.70	18.3	2.87		11				0.65	8.5
2.44	8.0	12.11	3.08	Silty Clay to Clay	CL	stiff	110	1.5	8	0.416	0.416	3.17	0.85	1.70	19.5	2.78		8				0.69	8.4
2.59	8.5	12.94	3.50	Silty Clay to Clay	CL	stiff	110	1.5	9	0.444	0.444	3.63	0.85	1.70	20.8	2.79		9				0.74	8.5
2.74	9.0	15.85	3.08	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.471	0.471	3.15	0.82	1.70	25.8	2.68		8				0.91	9.9
2.90	9.5	16.08	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.499	0.499	3.20	0.82	1.70	25.8	2.69		8				0.92	9.4
3.05	10.0	17.12	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	9	0.526	0.526	3.26	0.81	1.70	27.5	2.67		9				0.98	9.5
3.20	10.5	20.62	3.04	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.554	0.554	3.13	0.79	1.67	32.5	2.60		10				1.18	10.9
3.35	11.0	19.91	3.57	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	10	0.581	0.581	3.68	0.81	1.63	30.8	2.67		10				1.14	10.0
3.51	11.5	15.46	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	8	0.609	0.609	3.29	0.83	1.58	23.1	2.73		8				0.87	7.3
3.66	12.0	14.68	3.04	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.636	0.636	3.18	0.84	1.53	21.2	2.75		7				0.83	6.8
3.81	12.5	14.91	3.40	Silty Clay to Clay	CL	stiff	110	1.5	10	0.664	0.664	3.56	0.85	1.49	20.9	2.76		10				0.84	6.4
3.96	13.0	13.86	3.81	Silty Clay to Clay	CL	stiff	110	1.5	9	0.691	0.691	4.01	0.87	1.45	18.7	2.86		9				0.76	5.6
4.11	13.5	11.37	4.19	Clay	CL/CH	stiff	110	1.0	11	0.719	0.719	4.47	0.90	1.42	15.2	2.95		11				0.63	4.4
4.27	14.0	10.13	3.94	Clay	CL/CH	stiff	110	1.0	10	0.746	0.746	4.26	0.91	1.38	13.2	2.99		10				0.55	3.8
4.42	14.5	10.42	2.12	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	5	0.774	0.774	2.29	0.87	1.31	12.9	2.84		5				0.57	3.7
4.57	15.0	9.01	2.41	Silty Clay to Clay	CL	firm	110	1.5	6	0.801	0.801	2.65	0.90	1.28	10.9	2.93		6				0.48	3.1
4.72	15.5	11.93	3.06	Silty Clay to Clay	CL	stiff	110	1.5	8	0.829	0.829	3.29	0.89	1.24	14.0	2.90		8				0.65	4.0
4.88	16.0	13.67	2.84	Clayey Silt to Silty Clay	ML/CL	stiff	110	2.0	7	0.856	0.856	3.03	0.87	1.20	15.4	2.85		7				0.75	4.5
5.03	16.5	12.56	3.13	Silty Clay to Clay	CL	stiff	110	1.5	8	0.884	0.884	3.37	0.89	1.17	13.9	2.91		8				0.69	4.0
5.18	17.0	34.76	3.03	Clayey Silt to Silty Clay	ML/CL	medium dense	110	2.0	17	0.911	0.911	3.12	0.78	1.12	38.9	2.56	114.2	18	23	35	33		
5.33	17.5	32.10	5.62	Clay	CL/CH	very stiff	110	1.0	32	0.939	0.939	5.79	0.84	1.11	33.6	2.76		32				1.83	10.0
5.49	18.0	36.10	2.79	Sandy Silt to Clayey Silt	ML	medium dense	110	2.5	14	0.966	0.966	2.87	0.77	1.07	36.7	2.54	109.0	15	22	35	32		
5.64	18.5	64.58	1.01	Sand to Silty Sand	SP/SM	medium dense	100	4.0	16	0.993	0.993	1.02	0.63	1.04	63.8	2.07	89.4	16	18	58	32		
5.79	19.0	44.90	1.30	Silty Sand to Sandy Silt	SM/ML	medium dense	110	3.0	15	1.019	1.019	1.33	0.69	1.03	43.8	2.27	80.9	15	16	42	32		
5.94	19.5	34.10	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	110	2.0	17	1.046	1.046	3.25	0.80	1.01	32.5	2.81		17				1.94	9.5
6.10	20.0	28.73	4.74	Clay	CL/CH	very stiff	110	1.0	27	1.074	1.074	4.94	0.86	0.99	24.9	2.82		27				1.51	7.2
6.25	20.5	14.66	5.04	Clay	CL/CH	stiff	110	1.0	15	1.101	1.101	5.45	0.93	0.96	13.3	3.05		15				0.80	3.7
6.40	21.0	14.37	4.58	Clay	CL/CH	stiff	110	1.0	14	1.129	1.129	4.87	0.93	0.94	12.8	3.04		14				0.78	3.5
6.55	21.5	14.15	4.55	Clay	CL/CH	stiff	110	1.0	14	1.156	1.156	4.95	0.93	0.92	12.3	3.05		14				0.78	3.4
6.71	22.0	15.01	4.51	Clay	CL/CH	stiff	120	1.0	15	1.185	1.185	4.90	0.93	0.90	12.8	3.04		15				0.81	3.6
6.86	22.5	17.43	3.37	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.215	1.215	3.63	0.89	0.88	14.6	2.91		9				0.95	4.0
7.01	23.0	16.28	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.245	1.245	3.33	0.89	0.86	13.3	2.92		8				0.88	3.6
7.16	23.5	14.33	3.30	Silty Clay to Clay	CL	stiff	120	1.5	10	1.275	1.275	3.62	0.92	0.84	11.4	3.00		10				0.77	3.1
7.32	24.0	15.88	3.51	Silty Clay to Clay	CL	stiff	120	1.5	11	1.305	1.305	3.82	0.91	0.83	12.4	2.98		11				0.86	3.4
7.47	24.5	16.06	3.55	Silty Clay to Clay	CL	stiff	120	1.5	11	1.335	1.335	3.87	0.91	0.81	12.3	2.99		11				0.87	3.3
7.62	25.0	18.40	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.365	1.365	3.46	0.89	0.80	13.9	2.92		9				1.00	3.7
7.77	25.5	13.42	3.57	Silty Clay to Clay	CL	stiff	120	1.5	9	1.395	1.379	3.98	0.94	0.78	9.9	3.07		9				0.71	2.6
7.92	26.0	14.12	3.60	Silty Clay to Clay	CL	stiff	120	1.5	9	1.425	1.394	4.01	0.94	0.77	10.3	3.06		9				0.75	2.7
8.08	26.5	15.27	3.68	Silty Clay to Clay	CL	stiff	120	1.5	10	1.455	1.408	4.05	0.93	0.77	11.1	3.04		10				0.82	2.9
8.23	27.0	14.92	3.41	Silty Clay to Clay	CL	stiff	120	1.5	10	1.485	1.423	3.79	0.93	0.76	10.7	3.03		10				0.79	2.8
8.38	27.5	17.11	3.41	Silty Clay to Clay	CL	stiff	120	1.5	11	1.515	1.437	3.74	0.91	0.76	12.2	2.98		11				0.92	3.3
8.53	28.0	17.79	2.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.545	1.451	3.06	0.89	0.75	12.7	2.92		9				0.96	3.4
8.69	28.5	18.95	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.575	1.466	3.43	0.89	0.75	13.4	2.93		9				1.03	3.6
8.84	29.0	26.25	2.84	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.605	1.480	3.07	0.85	0.75	18.7	2.78		13				1.46	5.0
8.99	29.5	37.67	2.55	Sandy Silt to Clayey Silt	ML	hard	120	2.5	15	1.635	1.495	2.67	0.80	0.76	27.0	2.62		15				2.13	7.2
9.14	30.0	29.78	2.05	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	12	1.665	1.509	2.17	0.81	0.75	21.1	2.65		12				1.66	5.6
9.30	30.5	18.80	3.20	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.695	1.523	3.52	0.90	0.72	12.8	2.95		9				1.02	3.4
9.45	31.0	14.08	3.14	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.725	1.538	3.56	0.93	0.71	9.8	3.05		7				0.77	2.5
9.60	31.5	15.41	2.98	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.755	1.552	3.37	0.92	0.70	10.2	3.02		8				0.82	2.6
9.75	32.0	15.43	2.77	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.785	1.567	3.13	0.92	0.70	10.2	3.00		8				0.82	2.6
9.91	32.5	17.42	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.815	1.581	2.71	0.90	0.70	11.5	2.92		9				0.93	3.0
10.06	33.0	17.70	2.92	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.845	1.596	3.26	0.91	0.69	11.5	2.97		9				0.95	3.0
10.21	33.5	18.80	2.76	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	9	1.875	1.610	3.06	0.90	0.69	12.2	2.93		9				1.01	3.2
10.36	34.0	15.57	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.905	1.624	3.09	0.92	0.67	9.9	3.01		8				0.82	2.5
10.52	34.5	14.11	1.73	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	1.935	1.639	2.01	0.90	0.67	9.0	2.94		7				0.73	2.2
10.67	35.0	20.89	2.35	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	10	1.965	1.653	2.59	0.87	0.68	13.4	2.86		10				1.13	3.4
10.82	35.5	17.54	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	1.995	1.667	3.09	0.91	0.66	11.0	2.97		9				0.93	2.8

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION

(based on Robertson & Campanella, 1989)

Project: NWC of Palm and Main Streets | Project No: VT-23104-01 | Date: 10/29/04

CPT SOUNDING: CPT-20 | Plot: 10 | Density: 1 | SPT N | Program developed 2003 by Shelton L. Stringer, GE. Earth Systems Southwest

Est. GWT (feet): 25.0 | Dr correlation: 0 | Baldi | Qc/N: 1 | Robertson | Phi Correlation: 4 | SPT N

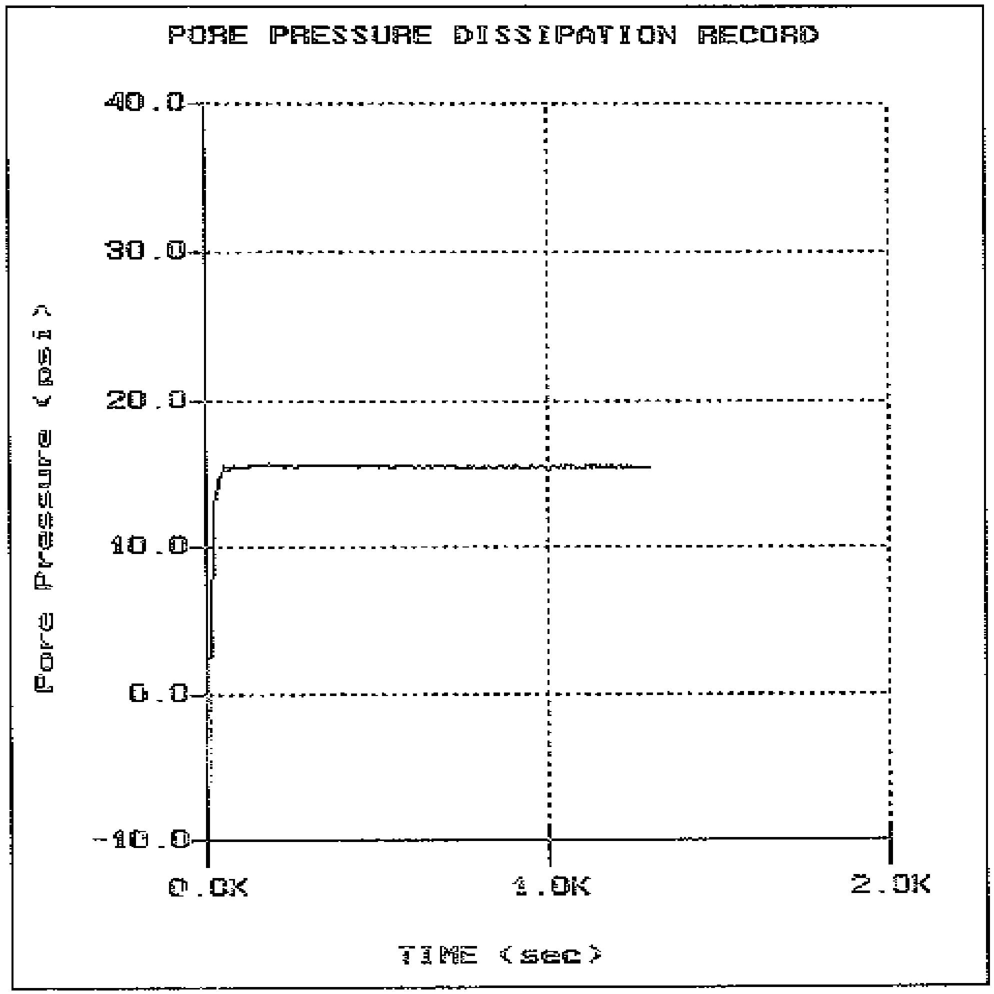
Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
10.97	36.0	17.14	3.10	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.025	1.682	3.52	0.92	0.65	10.6	3.02		9				0.91	2.7
11.13	36.5	17.11	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.055	1.696	3.00	0.91	0.65	10.5	2.98		9				0.91	2.7
11.28	37.0	15.72	3.28	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.085	1.711	3.79	0.94	0.64	9.4	3.08		8				0.82	2.4
11.43	37.5	15.97	2.57	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.115	1.725	2.90	0.92	0.64	9.6	3.00		8				0.84	2.4
11.58	38.0	16.25	2.34	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.145	1.739	2.60	0.91	0.63	9.7	2.98		8				0.85	2.4
11.73	38.5	16.94	1.58	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.175	1.754	1.81	0.88	0.64	10.3	2.87		7				0.89	2.5
11.89	39.0	16.90	1.50	Sandy Silt to Clayey Silt	ML	stiff	120	2.5	7	2.205	1.768	1.72	0.88	0.64	10.2	2.86		7				0.90	2.5
12.04	39.5	19.88	1.32	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.235	1.783	1.49	0.85	0.64	12.1	2.77		8				1.06	3.0
12.19	40.0	22.40	1.42	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.265	1.797	1.60	0.84	0.64	13.6	2.73		9				1.22	3.4
12.34	40.5	21.25	1.53	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.295	1.811	1.71	0.85	0.63	12.7	2.78		9				1.14	3.1
12.50	41.0	21.10	1.62	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.325	1.826	1.82	0.86	0.63	12.5	2.80		8				1.13	3.1
12.65	41.5	19.97	1.61	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.355	1.840	1.82	0.87	0.62	11.7	2.82		8				1.07	2.9
12.80	42.0	21.47	1.49	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.385	1.855	1.68	0.85	0.62	12.6	2.78		9				1.15	3.1
12.95	42.5	21.36	1.49	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.415	1.869	1.68	0.85	0.62	12.4	2.78		9				1.15	3.0
13.11	43.0	20.71	1.64	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.445	1.883	1.86	0.87	0.61	11.9	2.82		8				1.11	2.9
13.26	43.5	20.47	1.66	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	8	2.475	1.898	1.89	0.87	0.60	11.6	2.83		8				1.09	2.8
13.41	44.0	21.99	1.79	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.505	1.912	2.02	0.87	0.60	12.5	2.82		9				1.18	3.1
13.56	44.5	22.19	1.79	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	9	2.535	1.927	2.02	0.87	0.60	12.5	2.82		9				1.19	3.1
13.72	45.0	23.88	1.78	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	10	2.565	1.941	1.99	0.86	0.60	13.4	2.79		10				1.29	3.3
13.87	45.5	44.74	2.98	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.595	1.955	3.16	0.82	0.60	25.6	2.69		18				2.52	6.5
14.02	46.0	86.23	4.38	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	43	2.625	1.970	4.52	0.78	0.61	50.1	2.58	160.1	31	32	40	36		
14.17	46.5	117.99	3.53	Sandy Silt to Clayey Silt	ML	dense	120	2.5	47	2.655	1.984	3.61	0.73	0.63	70.4	2.41	164.7	34	33	62	37		
14.33	47.0	50.46	5.58	Clay	CL/CH	hard	120	1.0	50	2.685	1.999	5.90	0.87	0.59	27.5	2.84		50				2.85	7.2
14.48	47.5	26.58	3.52	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.715	2.013	3.92	0.90	0.58	14.1	2.95		13				1.44	3.6
14.63	48.0	35.33	2.76	Sandy Silt to Clayey Silt	ML	very stiff	120	2.5	14	2.745	2.027	2.99	0.84	0.58	19.3	2.77		14				1.98	4.8
14.78	48.5	44.39	2.60	Sandy Silt to Clayey Silt	ML	hard	120	2.5	18	2.775	2.042	2.77	0.81	0.59	24.6	2.66		18				2.49	6.1
14.94	49.0	42.63	3.21	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	21	2.805	2.056	3.44	0.84	0.57	23.1	2.74		21				2.39	5.8
15.09	49.5	76.77	3.34	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	31	2.835	2.071	3.47	0.77	0.59	43.1	2.54	129.2	21	26	42	34		
15.24	50.0	47.21	3.52	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	24	2.865	2.085	3.75	0.83	0.57	25.3	2.74		24				2.65	6.4

EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-02

Engineer: T. TRANBY
Date:02:16:04 09:05

File: 051C02.PPC
Depth (m): 18.20
(ft): 59.71
Duration : 1295.0s
U-min: -6.82 0.0s
U-max: 15.62 185.0s

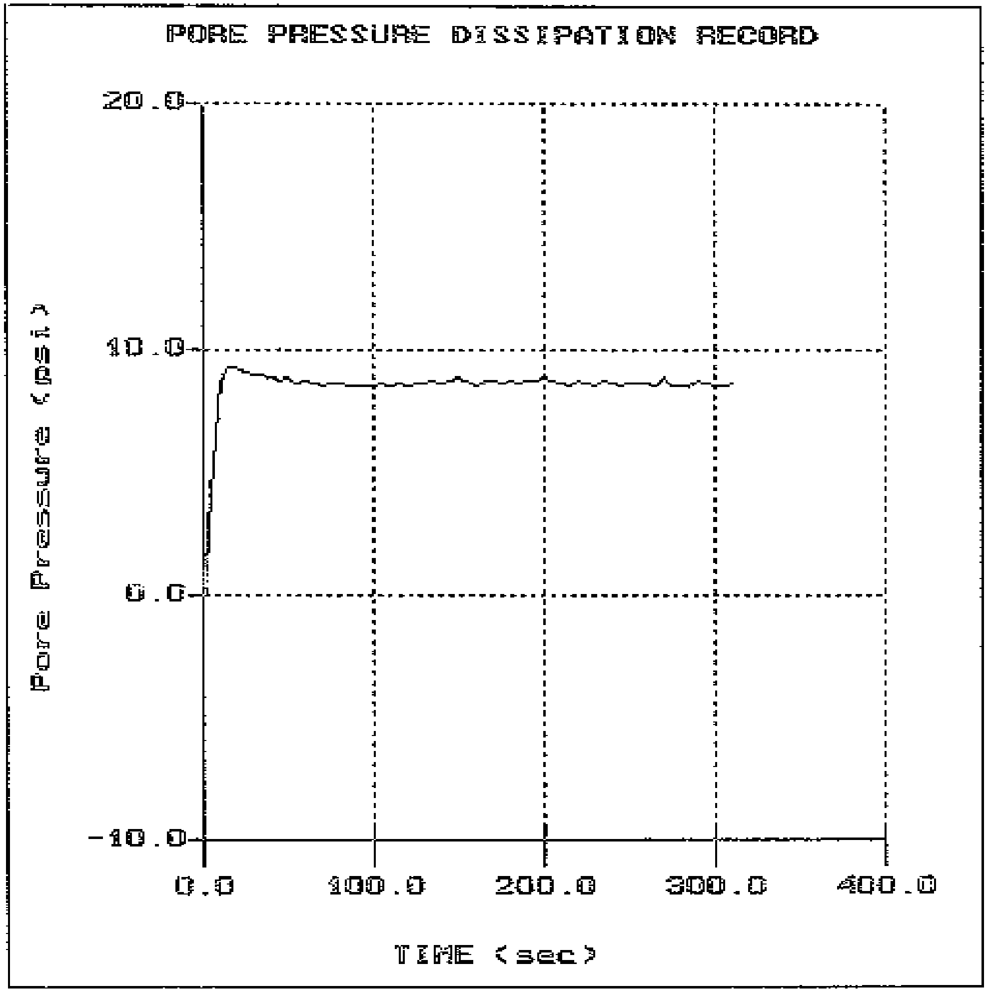


EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-03

Engineer: T. TRANBY
Date:02:16:04 09:58

File: 051C03.PPC
Depth (m): 13.50
(ft): 44.29
Duration : 310.0s
U-min: -0.79 0.0s
U-max: 9.22 20.0s

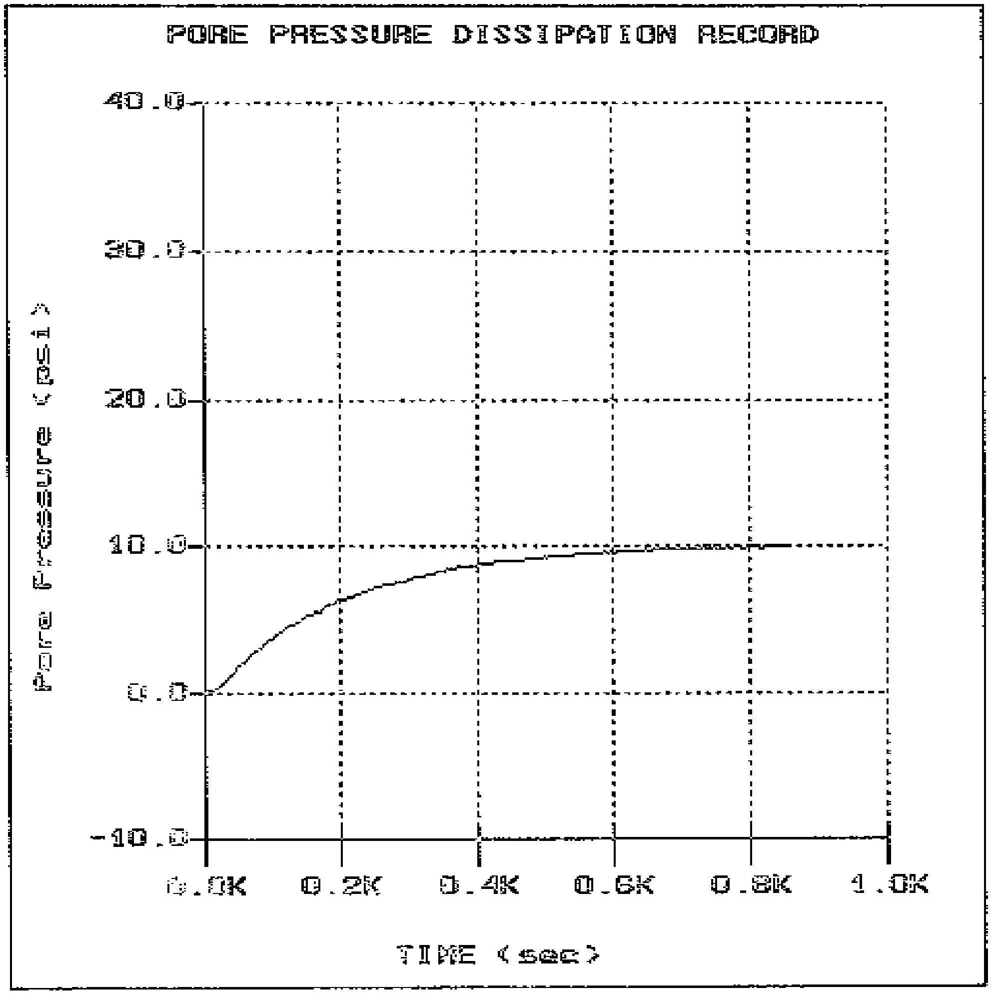


EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-05

Engineer: T. TRANBY
Date:02:16:04 11:24

File: 051C05.PPC
Depth (m): 14.65
(ft): 48.06
Duration : 355.0s
U-min: 0.10 5.0s
U-max: 9.99 850.0s

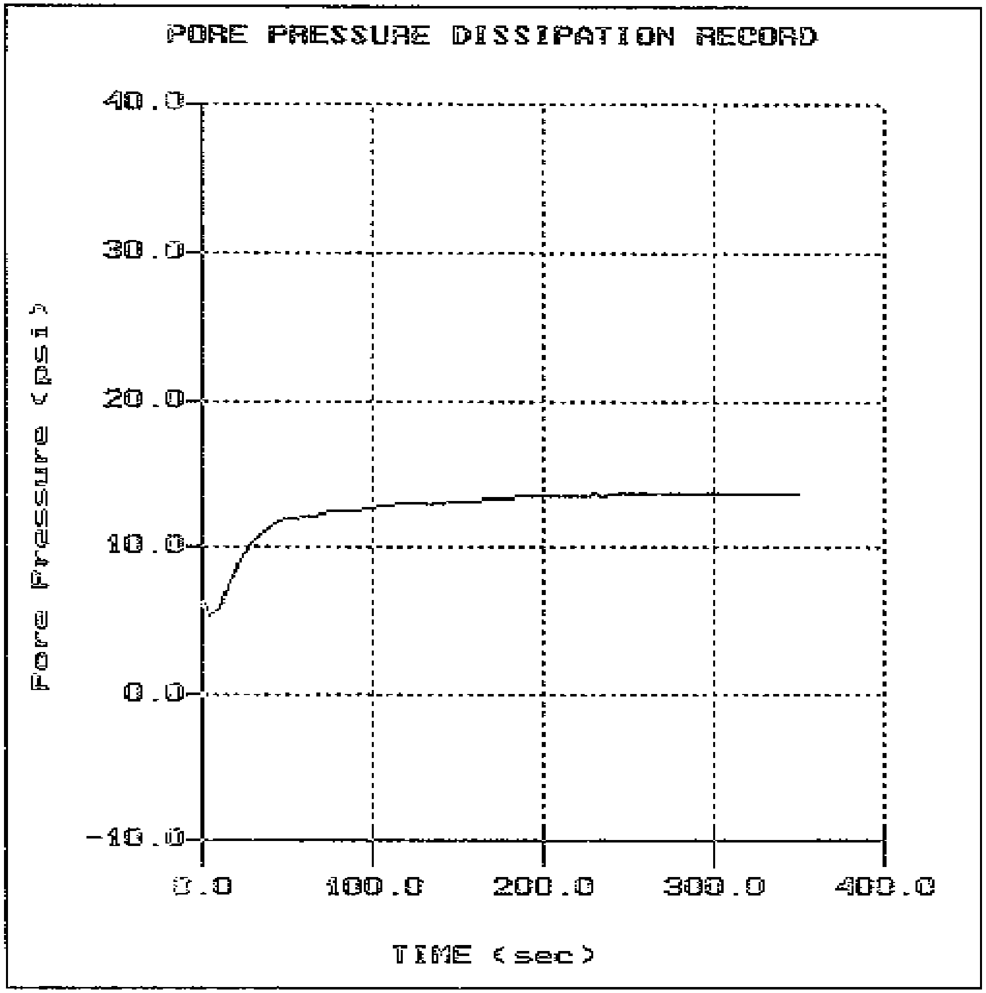


EARTH SYSTEMS

Site: PALM/MAIN
Location: CPT-11

Engineer: T. TRAMBY
Date:02:16:04 15:13

File: 051C11.PPC
Depth (m): 17.45
(ft): 57.25
Duration : 350.0s
U-min: 5.29 5.0s
U-max: 13.67 310.0s



Appendix E

Noise Calculations and Data Sheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/09/2019
Case Description: 297 East Main Street - Anacapa Courts

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Residential	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	150.0	0.0
Backhoe	No	40		77.6	150.0	0.0
Dozer	No	40		81.7	150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	68.0	64.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	74.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Noise Measurement 1 - Palm St.

Data Logger 2	
Duration (seconds)	3
Weighting	A
Response	SLOW
Range	40-100
L05	62.4
L10	61.1
L50	56.6
L90	53.6
L95	53
Lmax	67.9
Time	11/4/2019 7:14
SEL	87.7
Leq	58.2

Leq (Manual)			**58.3**	
No.s		Date Time	dB	Sound Energy
	1	11/4/2019 7:06	53.8	719649.8757
	2	11/4/2019 7:06	56.9	1469336.458
	3	11/4/2019 7:06	55.9	1167135.435
	4	11/4/2019 7:06	61.3	4046888.648
	5	11/4/2019 7:06	60.8	3606793.304
	6	11/4/2019 7:07	58.3	2028248.926
	7	11/4/2019 7:07	54.1	771118.7348
	8	11/4/2019 7:07	54.5	845514.8794
	9	11/4/2019 7:07	54.9	927088.6298
	10	11/4/2019 7:07	56.6	1371264.569
	11	11/4/2019 7:07	56.2	1250608.15
	12	11/4/2019 7:07	54.3	807460.4412
	13	11/4/2019 7:07	54.1	771118.7348
	14	11/4/2019 7:07	53.5	671616.3416
	15	11/4/2019 7:07	52.7	558626.141
	16	11/4/2019 7:07	52.7	558626.141
	17	11/4/2019 7:07	53.6	687260.2958
	18	11/4/2019 7:07	54.9	927088.6298
	19	11/4/2019 7:07	53.4	656328.4872
	20	11/4/2019 7:07	52.1	486543.0292
	21	11/4/2019 7:07	51.7	443732.5165
	22	11/4/2019 7:07	52.7	558626.141
	23	11/4/2019 7:07	52.3	509473.0957
	24	11/4/2019 7:07	52.8	571638.2154
	25	11/4/2019 7:07	53	598578.6945
	26	11/4/2019 7:08	52.2	497876.0722
	27	11/4/2019 7:08	53.4	656328.4872
	28	11/4/2019 7:08	53.6	687260.2958
	29	11/4/2019 7:08	56.7	1403205.424
	30	11/4/2019 7:08	64.3	8074604.412
	31	11/4/2019 7:08	62.9	5849533.799
	32	11/4/2019 7:08	61.2	3954770.216
	33	11/4/2019 7:08	58.2	1982080.344
	34	11/4/2019 7:08	57.1	1538584.152
	35	11/4/2019 7:08	55.9	1167135.435
	36	11/4/2019 7:08	55.9	1167135.435
	37	11/4/2019 7:08	55.7	1114605.687
	38	11/4/2019 7:08	56	1194321.512
	39	11/4/2019 7:08	57	1503561.701

40	11/4/2019 7:08	60	3000000
41	11/4/2019 7:08	58.8	2275732.725
42	11/4/2019 7:08	63.3	6413886.269
43	11/4/2019 7:08	62.6	5459102.576
44	11/4/2019 7:08	62	4754679.577
45	11/4/2019 7:08	61	3776776.235
46	11/4/2019 7:09	59.4	2612890.77
47	11/4/2019 7:09	55.5	1064440.168
48	11/4/2019 7:09	54.8	905985.5161
49	11/4/2019 7:09	54.6	865209.4509
50	11/4/2019 7:09	54.6	865209.4509
51	11/4/2019 7:09	55.8	1140568.189
52	11/4/2019 7:09	56	1194321.512
53	11/4/2019 7:09	56	1194321.512
54	11/4/2019 7:09	57.2	1574422.381
55	11/4/2019 7:09	55.9	1167135.435
56	11/4/2019 7:09	58.7	2223930.724
57	11/4/2019 7:09	62.7	5586261.41
58	11/4/2019 7:09	62.2	4978760.722
59	11/4/2019 7:09	61	3776776.235
60	11/4/2019 7:09	57.9	1849785.006
61	11/4/2019 7:09	57.2	1574422.381
62	11/4/2019 7:09	57.9	1849785.006
63	11/4/2019 7:09	58.8	2275732.725
64	11/4/2019 7:09	59.7	2799762.902
65	11/4/2019 7:09	56.3	1279738.556
66	11/4/2019 7:10	55.3	1016532.468
67	11/4/2019 7:10	55	948683.2981
68	11/4/2019 7:10	55.4	1040210.551
69	11/4/2019 7:10	54.8	905985.5161
70	11/4/2019 7:10	58.4	2075492.913
71	11/4/2019 7:10	59.9	2931711.663
72	11/4/2019 7:10	64.5	8455148.794
73	11/4/2019 7:10	58.4	2075492.913
74	11/4/2019 7:10	54.6	865209.4509
75	11/4/2019 7:10	54.2	789080.3976
76	11/4/2019 7:10	53.9	736412.6747
77	11/4/2019 7:10	54.3	807460.4412
78	11/4/2019 7:10	55.3	1016532.468
79	11/4/2019 7:10	55	948683.2981
80	11/4/2019 7:10	54.9	927088.6298
81	11/4/2019 7:10	55.4	1040210.551
82	11/4/2019 7:10	55.7	1114605.687
83	11/4/2019 7:10	57.3	1611095.389
84	11/4/2019 7:10	58.9	2328741.35
85	11/4/2019 7:10	58.1	1936962.687
86	11/4/2019 7:11	57.7	1766530.966
87	11/4/2019 7:11	58	1892872.033
88	11/4/2019 7:11	58.4	2075492.913
89	11/4/2019 7:11	61.1	3864748.655
90	11/4/2019 7:11	59	2382984.704
91	11/4/2019 7:11	59.1	2438491.548
92	11/4/2019 7:11	56.1	1222140.833
93	11/4/2019 7:11	54.3	807460.4412
94	11/4/2019 7:11	53.4	656328.4872
95	11/4/2019 7:11	52.5	533483.823
96	11/4/2019 7:11	52.9	584953.3799
97	11/4/2019 7:11	53	598578.6945
98	11/4/2019 7:11	55.3	1016532.468

99	11/4/2019 7:11	56.9	1469336.458
100	11/4/2019 7:11	60.8	3606793.304
101	11/4/2019 7:11	61.4	4141152.794
102	11/4/2019 7:11	56.2	1250608.15
103	11/4/2019 7:11	55.7	1114605.687
104	11/4/2019 7:11	54.4	826268.611
105	11/4/2019 7:11	54.3	807460.4412
106	11/4/2019 7:12	57.2	1574422.381
107	11/4/2019 7:12	54.7	885362.768
108	11/4/2019 7:12	52.8	571638.2154
109	11/4/2019 7:12	53.7	703268.6446
110	11/4/2019 7:12	56.3	1279738.556
111	11/4/2019 7:12	58.7	2223930.724
112	11/4/2019 7:12	56.5	1340050.776
113	11/4/2019 7:12	58.6	2173307.88
114	11/4/2019 7:12	58.9	2328741.35
115	11/4/2019 7:12	57.1	1538584.152
116	11/4/2019 7:12	54.4	826268.611
117	11/4/2019 7:12	53.6	687260.2958
118	11/4/2019 7:12	54.3	807460.4412
119	11/4/2019 7:12	53.1	612521.3834
120	11/4/2019 7:12	54.3	807460.4412
121	11/4/2019 7:12	53.5	671616.3416
122	11/4/2019 7:12	53.4	656328.4872
123	11/4/2019 7:12	54.8	905985.5161
124	11/4/2019 7:12	59.7	2799762.902
125	11/4/2019 7:12	56.2	1250608.15
126	11/4/2019 7:13	56.5	1340050.776
127	11/4/2019 7:13	58.9	2328741.35
128	11/4/2019 7:13	61	3776776.235
129	11/4/2019 7:13	61.7	4437325.165
130	11/4/2019 7:13	57.5	1687023.976
131	11/4/2019 7:13	56.4	1309547.497
132	11/4/2019 7:13	56.1	1222140.833
133	11/4/2019 7:13	58.6	2173307.88
134	11/4/2019 7:13	57.8	1807678.758
135	11/4/2019 7:13	57.5	1687023.976
136	11/4/2019 7:13	61.6	4336319.312
137	11/4/2019 7:13	63.7	7032686.446
138	11/4/2019 7:13	62	4754679.577
139	11/4/2019 7:13	58.8	2275732.725
140	11/4/2019 7:13	58.7	2223930.724
141	11/4/2019 7:13	59.8	2864977.758
142	11/4/2019 7:13	61.6	4336319.312
143	11/4/2019 7:13	57.2	1574422.381
144	11/4/2019 7:13	57.6	1726319.812
145	11/4/2019 7:13	57.4	1648622.622
146	11/4/2019 7:14	56.5	1340050.776
147	11/4/2019 7:14	56.7	1403205.424
148	11/4/2019 7:14	57.3	1611095.389
149	11/4/2019 7:14	58.1	1936962.687
150	11/4/2019 7:14	63.1	6125213.834
151	11/4/2019 7:14	66.2	12506081.5
152	11/4/2019 7:14	67.8	18076787.58
153	11/4/2019 7:14	61.8	4540683.745
154	11/4/2019 7:14	57.8	1807678.758
155	11/4/2019 7:14	57.4	1648622.622
156	11/4/2019 7:14	58.4	2075492.913
157	11/4/2019 7:14	57.2	1574422.381

158	11/4/2019 7:14	55.6	1089234.164
159	11/4/2019 7:14	54.4	826268.611
160	11/4/2019 7:14	55.7	1114605.687
161	11/4/2019 7:14	62.3	5094730.957
162	11/4/2019 7:14	66.4	13095474.97
163	11/4/2019 7:14	61.5	4237612.634
164	11/4/2019 7:14	60.8	3606793.304
165	11/4/2019 7:14	58.1	1936962.687
166	11/4/2019 7:15	57.2	1574422.381
167	11/4/2019 7:15	56.5	1340050.776
168	11/4/2019 7:15	57.7	1766530.966
169	11/4/2019 7:15	58.9	2328741.35
170	11/4/2019 7:15	56.2	1250608.15
171	11/4/2019 7:15	54.2	789080.3976
172	11/4/2019 7:15	54.4	826268.611
173	11/4/2019 7:15	54.4	826268.611
174	11/4/2019 7:15	53.9	736412.6747
175	11/4/2019 7:15	57.4	1648622.622
176	11/4/2019 7:15	59.2	2495291.313
177	11/4/2019 7:15	57	1503561.701
178	11/4/2019 7:15	57.1	1538584.152
179	11/4/2019 7:15	60.8	3606793.304
180	11/4/2019 7:15	61.9	4646449.857
181	11/4/2019 7:15	61.2	3954770.216
182	11/4/2019 7:15	59.3	2553414.115
183	11/4/2019 7:15	57.9	1849785.006
184	11/4/2019 7:15	55.3	1016532.468
185	11/4/2019 7:15	55.4	1040210.551
186	11/4/2019 7:16	61	3776776.235
187	11/4/2019 7:16	63.7	7032686.446
188	11/4/2019 7:16	59.4	2612890.77
189	11/4/2019 7:16	57.3	1611095.389
190	11/4/2019 7:16	55.9	1167135.435
191	11/4/2019 7:16	55.1	970780.9708
192	11/4/2019 7:16	54.7	885362.768
193	11/4/2019 7:16	55.2	993393.3644
194	11/4/2019 7:16	57.7	1766530.966
195	11/4/2019 7:16	59.7	2799762.902
196	11/4/2019 7:16	64	7535659.295
197	11/4/2019 7:16	58.3	2028248.926
198	11/4/2019 7:16	55.5	1064440.168
199	11/4/2019 7:16	55.1	970780.9708
200	11/4/2019 7:16	54.4	826268.611
201	11/4/2019 7:16	54.7	885362.768
202	11/4/2019 7:16	54	753565.9295
203	11/4/2019 7:16	54	753565.9295
204	11/4/2019 7:16	54.7	885362.768
205	11/4/2019 7:16	54.5	845514.8794
206	11/4/2019 7:17	58.1	1936962.687
207	11/4/2019 7:17	57.6	1726319.812
208	11/4/2019 7:17	58.9	2328741.35
209	11/4/2019 7:17	56.7	1403205.424
210	11/4/2019 7:17	55.2	993393.3644
211	11/4/2019 7:17	54	753565.9295
212	11/4/2019 7:17	53.9	736412.6747
213	11/4/2019 7:17	52.8	571638.2154
214	11/4/2019 7:17	53.1	612521.3834
215	11/4/2019 7:17	54.3	807460.4412
216	11/4/2019 7:17	54.1	771118.7348

217	11/4/2019 7:17	54	753565.9295
218	11/4/2019 7:17	55.2	993393.3644
219	11/4/2019 7:17	55.9	1167135.435
220	11/4/2019 7:17	58.4	2075492.913
221	11/4/2019 7:17	64.5	8455148.794
222	11/4/2019 7:17	61.7	4437325.165
223	11/4/2019 7:17	61.4	4141152.794
224	11/4/2019 7:17	64.4	8262686.11
225	11/4/2019 7:17	56.6	1371264.569
226	11/4/2019 7:18	55.3	1016532.468
227	11/4/2019 7:18	57.4	1648622.622
228	11/4/2019 7:18	59.6	2736032.518
229	11/4/2019 7:18	59.8	2864977.758
230	11/4/2019 7:18	58.3	2028248.926
231	11/4/2019 7:18	57.3	1611095.389
232	11/4/2019 7:18	55.8	1140568.189
233	11/4/2019 7:18	55.5	1064440.168
234	11/4/2019 7:18	54.8	905985.5161
235	11/4/2019 7:18	55.5	1064440.168
236	11/4/2019 7:18	57.4	1648622.622
237	11/4/2019 7:18	58.6	2173307.88
238	11/4/2019 7:18	58.3	2028248.926
239	11/4/2019 7:18	59.8	2864977.758
240	11/4/2019 7:18	59.4	2612890.77
241	11/4/2019 7:18	59.8	2864977.758
242	11/4/2019 7:18	59.3	2553414.115
243	11/4/2019 7:18	58.5	2123837.353
244	11/4/2019 7:18	59.9	2931711.663
245	11/4/2019 7:18	61.9	4646449.857
246	11/4/2019 7:19	60	3000000
247	11/4/2019 7:19	56.4	1309547.497
248	11/4/2019 7:19	57.6	1726319.812
249	11/4/2019 7:19	56.7	1403205.424
250	11/4/2019 7:19	54.9	927088.6298
251	11/4/2019 7:19	56.9	1469336.458
252	11/4/2019 7:19	61	3776776.235
253	11/4/2019 7:19	58.4	2075492.913
254	11/4/2019 7:19	58.7	2223930.724
255	11/4/2019 7:19	62.4	5213402.486
256	11/4/2019 7:19	62.4	5213402.486
257	11/4/2019 7:19	59.2	2495291.313
258	11/4/2019 7:19	58.6	2173307.88
259	11/4/2019 7:19	56.7	1403205.424
260	11/4/2019 7:19	56.4	1309547.497
261	11/4/2019 7:19	55.2	993393.3644
262	11/4/2019 7:19	55.2	993393.3644
263	11/4/2019 7:19	54.9	927088.6298
264	11/4/2019 7:19	53.6	687260.2958
265	11/4/2019 7:19	53.1	612521.3834
266	11/4/2019 7:20	54.5	845514.8794
267	11/4/2019 7:20	55.6	1089234.164
268	11/4/2019 7:20	56.1	1222140.833
269	11/4/2019 7:20	56.1	1222140.833
270	11/4/2019 7:20	56.6	1371264.569
271	11/4/2019 7:20	58	1892872.033
272	11/4/2019 7:20	58	1892872.033
273	11/4/2019 7:20	58.3	2028248.926
274	11/4/2019 7:20	56.2	1250608.15
275	11/4/2019 7:20	55.9	1167135.435

276	11/4/2019 7:20	56.6	1371264.569
277	11/4/2019 7:20	57.2	1574422.381
278	11/4/2019 7:20	55.9	1167135.435
279	11/4/2019 7:20	55.9	1167135.435
280	11/4/2019 7:20	55	948683.2981
281	11/4/2019 7:20	54.4	826268.611
282	11/4/2019 7:20	53.7	703268.6446
283	11/4/2019 7:20	53.9	736412.6747
284	11/4/2019 7:20	54.8	905985.5161
285	11/4/2019 7:20	55.1	970780.9708
286	11/4/2019 7:21	55.2	993393.3644
287	11/4/2019 7:21	55.7	1114605.687
288	11/4/2019 7:21	56.6	1371264.569
289	11/4/2019 7:21	55.9	1167135.435
290	11/4/2019 7:21	56.6	1371264.569
291	11/4/2019 7:21	57.6	1726319.812
292	11/4/2019 7:21	56.6	1371264.569
293	11/4/2019 7:21	56.3	1279738.556
294	11/4/2019 7:21	56.2	1250608.15
295	11/4/2019 7:21	54.5	845514.8794
296	11/4/2019 7:21	54.8	905985.5161
297	11/4/2019 7:21	57.3	1611095.389
298	11/4/2019 7:21	57.9	1849785.006
299	11/4/2019 7:21	58.8	2275732.725
300	11/4/2019 7:21	62.5	5334838.23

Noise Measurement 2 - Main St.

Data Logger 2	
Duration (seconds)	3
Weighting	A
Response	SLOW
Range	40-100
L05	68.9
L10	67.3
L50	61.3
L90	54.7
L95	53.4
Lmax	77.3
Time	11/4/2019 7:34
SEL	93.8
Leq	64.4

Leq (Manual) **64.4**

No.s	Date Time	dB	Sound Energy
1	11/4/2019 7:27	54.8	905985.5161
2	11/4/2019 7:27	57.8	1807678.758
3	11/4/2019 7:27	57.2	1574422.381
4	11/4/2019 7:27	56.2	1250608.15
5	11/4/2019 7:27	60.3	3214557.916
6	11/4/2019 7:27	68.2	19820803.44
7	11/4/2019 7:27	65.2	9933933.644
8	11/4/2019 7:27	59.8	2864977.758
9	11/4/2019 7:27	60	3000000
10	11/4/2019 7:28	61	3776776.235
11	11/4/2019 7:28	60.7	3524692.665
12	11/4/2019 7:28	56.7	1403205.424
13	11/4/2019 7:28	54.3	807460.4412
14	11/4/2019 7:28	55.2	993393.3644
15	11/4/2019 7:28	55.5	1064440.168
16	11/4/2019 7:28	55.4	1040210.551
17	11/4/2019 7:28	56.4	1309547.497
18	11/4/2019 7:28	58.4	2075492.913
19	11/4/2019 7:28	60.1	3069878.977
20	11/4/2019 7:28	59.2	2495291.313
21	11/4/2019 7:28	65.7	11146056.87
22	11/4/2019 7:28	64	7535659.295
23	11/4/2019 7:28	60.1	3069878.977
24	11/4/2019 7:28	64.3	8074604.412
25	11/4/2019 7:28	63.1	6125213.834
26	11/4/2019 7:28	64.8	9059855.161
27	11/4/2019 7:28	65	9486832.981
28	11/4/2019 7:28	69.3	25534141.15
29	11/4/2019 7:28	65.8	11405681.89
30	11/4/2019 7:29	63.9	7364126.747
31	11/4/2019 7:29	64.2	7890803.976
32	11/4/2019 7:29	67.4	16486226.22
33	11/4/2019 7:29	69	23829847.04
34	11/4/2019 7:29	67.9	18497850.06
35	11/4/2019 7:29	66.9	14693364.58
36	11/4/2019 7:29	63.9	7364126.747
37	11/4/2019 7:29	61.9	4646449.857
38	11/4/2019 7:29	62.3	5094730.957
39	11/4/2019 7:29	66	11943215.12

40	11/4/2019 7:29	62.3	5094730.957
41	11/4/2019 7:29	58.1	1936962.687
42	11/4/2019 7:29	56.3	1279738.556
43	11/4/2019 7:29	57.7	1766530.966
44	11/4/2019 7:29	59	2382984.704
45	11/4/2019 7:29	61.5	4237612.634
46	11/4/2019 7:29	65.8	11405681.89
47	11/4/2019 7:29	65.5	10644401.68
48	11/4/2019 7:29	63.4	6563284.872
49	11/4/2019 7:29	63.8	7196498.757
50	11/4/2019 7:30	62	4754679.577
51	11/4/2019 7:30	61.4	4141152.794
52	11/4/2019 7:30	62.4	5213402.486
53	11/4/2019 7:30	64.1	7711187.348
54	11/4/2019 7:30	64.4	8262686.11
55	11/4/2019 7:30	65.3	10165324.68
56	11/4/2019 7:30	65.1	9707809.708
57	11/4/2019 7:30	68.2	19820803.44
58	11/4/2019 7:30	66	11943215.12
59	11/4/2019 7:30	64.9	9270886.298
60	11/4/2019 7:30	63.2	6267888.393
61	11/4/2019 7:30	62.6	5459102.576
62	11/4/2019 7:30	64.5	8455148.794
63	11/4/2019 7:30	61.1	3864748.655
64	11/4/2019 7:30	60	3000000
65	11/4/2019 7:30	64.1	7711187.348
66	11/4/2019 7:30	65.6	10892341.64
67	11/4/2019 7:30	58	1892872.033
68	11/4/2019 7:30	55.6	1089234.164
69	11/4/2019 7:30	56.2	1250608.15
70	11/4/2019 7:31	55.1	970780.9708
71	11/4/2019 7:31	54.8	905985.5161
72	11/4/2019 7:31	55	948683.2981
73	11/4/2019 7:31	58.5	2123837.353
74	11/4/2019 7:31	66.1	12221408.33
75	11/4/2019 7:31	66.2	12506081.5
76	11/4/2019 7:31	62.1	4865430.292
77	11/4/2019 7:31	57.6	1726319.812
78	11/4/2019 7:31	54.1	771118.7348
79	11/4/2019 7:31	53	598578.6945
80	11/4/2019 7:31	53.1	612521.3834
81	11/4/2019 7:31	54	753565.9295
82	11/4/2019 7:31	54.9	927088.6298
83	11/4/2019 7:31	55	948683.2981
84	11/4/2019 7:31	54.9	927088.6298
85	11/4/2019 7:31	54.6	865209.4509
86	11/4/2019 7:31	56.9	1469336.458
87	11/4/2019 7:31	61.2	3954770.216
88	11/4/2019 7:31	60.5	3366055.363
89	11/4/2019 7:31	55	948683.2981
90	11/4/2019 7:32	53.9	736412.6747
91	11/4/2019 7:32	56.8	1435890.277
92	11/4/2019 7:32	61.8	4540683.745
93	11/4/2019 7:32	57.1	1538584.152
94	11/4/2019 7:32	55.1	970780.9708
95	11/4/2019 7:32	59.7	2799762.902
96	11/4/2019 7:32	65.5	10644401.68
97	11/4/2019 7:32	64.3	8074604.412
98	11/4/2019 7:32	61.2	3954770.216

99	11/4/2019 7:32	58.1	1936962.687
100	11/4/2019 7:32	62.8	5716382.154
101	11/4/2019 7:32	65.2	9933933.644
102	11/4/2019 7:32	63.4	6563284.872
103	11/4/2019 7:32	59.3	2553414.115
104	11/4/2019 7:32	56.6	1371264.569
105	11/4/2019 7:32	55.9	1167135.435
106	11/4/2019 7:32	60.5	3366055.363
107	11/4/2019 7:32	61.6	4336319.312
108	11/4/2019 7:32	64.9	9270886.298
109	11/4/2019 7:32	65.2	9933933.644
110	11/4/2019 7:33	67.1	15385841.52
111	11/4/2019 7:33	65	9486832.981
112	11/4/2019 7:33	60.4	3289434.588
113	11/4/2019 7:33	63.7	7032686.446
114	11/4/2019 7:33	60.5	3366055.363
115	11/4/2019 7:33	59.3	2553414.115
116	11/4/2019 7:33	62	4754679.577
117	11/4/2019 7:33	66.8	14358902.77
118	11/4/2019 7:33	66.2	12506081.5
119	11/4/2019 7:33	65.5	10644401.68
120	11/4/2019 7:33	67.1	15385841.52
121	11/4/2019 7:33	61.1	3864748.655
122	11/4/2019 7:33	56.9	1469336.458
123	11/4/2019 7:33	57.4	1648622.622
124	11/4/2019 7:33	56.1	1222140.833
125	11/4/2019 7:33	58.6	2173307.88
126	11/4/2019 7:33	59.4	2612890.77
127	11/4/2019 7:33	61	3776776.235
128	11/4/2019 7:33	62.4	5213402.486
129	11/4/2019 7:33	68.3	20282489.26
130	11/4/2019 7:34	75.8	114056818.9
131	11/4/2019 7:34	74.1	77111873.48
132	11/4/2019 7:34	68.1	19369626.87
133	11/4/2019 7:34	61.4	4141152.794
134	11/4/2019 7:34	65.9	11671354.35
135	11/4/2019 7:34	70	30000000
136	11/4/2019 7:34	66.2	12506081.5
137	11/4/2019 7:34	62.3	5094730.957
138	11/4/2019 7:34	56.3	1279738.556
139	11/4/2019 7:34	53.3	641388.6269
140	11/4/2019 7:34	57.8	1807678.758
141	11/4/2019 7:34	63.1	6125213.834
142	11/4/2019 7:34	60.5	3366055.363
143	11/4/2019 7:34	62.7	5586261.41
144	11/4/2019 7:34	71.9	46464498.57
145	11/4/2019 7:34	65.5	10644401.68
146	11/4/2019 7:34	68.2	19820803.44
147	11/4/2019 7:34	69.6	27360325.18
148	11/4/2019 7:34	67.9	18497850.06
149	11/4/2019 7:34	63.6	6872602.958
150	11/4/2019 7:35	59.3	2553414.115
151	11/4/2019 7:35	57.4	1648622.622
152	11/4/2019 7:35	59.9	2931711.663
153	11/4/2019 7:35	62.2	4978760.722
154	11/4/2019 7:35	58	1892872.033
155	11/4/2019 7:35	58.2	1982080.344
156	11/4/2019 7:35	58.1	1936962.687
157	11/4/2019 7:35	58	1892872.033

158	11/4/2019 7:35	65.2	9933933.644
159	11/4/2019 7:35	66.4	13095474.97
160	11/4/2019 7:35	66.3	12797385.56
161	11/4/2019 7:35	66.4	13095474.97
162	11/4/2019 7:35	60.4	3289434.588
163	11/4/2019 7:35	58.7	2223930.724
164	11/4/2019 7:35	60.4	3289434.588
165	11/4/2019 7:35	56.9	1469336.458
166	11/4/2019 7:35	54	753565.9295
167	11/4/2019 7:35	54	753565.9295
168	11/4/2019 7:35	56.5	1340050.776
169	11/4/2019 7:35	57.1	1538584.152
170	11/4/2019 7:36	59.6	2736032.518
171	11/4/2019 7:36	63.1	6125213.834
172	11/4/2019 7:36	61.4	4141152.794
173	11/4/2019 7:36	61.3	4046888.648
174	11/4/2019 7:36	61.3	4046888.648
175	11/4/2019 7:36	62.8	5716382.154
176	11/4/2019 7:36	74.3	80746044.12
177	11/4/2019 7:36	67.7	17665309.66
178	11/4/2019 7:36	62.7	5586261.41
179	11/4/2019 7:36	56.4	1309547.497
180	11/4/2019 7:36	55.1	970780.9708
181	11/4/2019 7:36	57.5	1687023.976
182	11/4/2019 7:36	58.4	2075492.913
183	11/4/2019 7:36	60.6	3444460.864
184	11/4/2019 7:36	60.5	3366055.363
185	11/4/2019 7:36	54.7	885362.768
186	11/4/2019 7:36	55.2	993393.3644
187	11/4/2019 7:36	60.5	3366055.363
188	11/4/2019 7:36	64.3	8074604.412
189	11/4/2019 7:36	65.2	9933933.644
190	11/4/2019 7:37	60.1	3069878.977
191	11/4/2019 7:37	56.6	1371264.569
192	11/4/2019 7:37	55.1	970780.9708
193	11/4/2019 7:37	54.1	771118.7348
194	11/4/2019 7:37	54.1	771118.7348
195	11/4/2019 7:37	56.4	1309547.497
196	11/4/2019 7:37	58.4	2075492.913
197	11/4/2019 7:37	62.6	5459102.576
198	11/4/2019 7:37	63.1	6125213.834
199	11/4/2019 7:37	59.3	2553414.115
200	11/4/2019 7:37	63.3	6413886.269
201	11/4/2019 7:37	62.5	5334838.23
202	11/4/2019 7:37	64.6	8652094.509
203	11/4/2019 7:37	61.5	4237612.634
204	11/4/2019 7:37	56.8	1435890.277
205	11/4/2019 7:37	59.3	2553414.115
206	11/4/2019 7:37	54.6	865209.4509
207	11/4/2019 7:37	53.5	671616.3416
208	11/4/2019 7:37	53.7	703268.6446
209	11/4/2019 7:37	58.8	2275732.725
210	11/4/2019 7:38	61.1	3864748.655
211	11/4/2019 7:38	55.5	1064440.168
212	11/4/2019 7:38	53.4	656328.4872
213	11/4/2019 7:38	55.4	1040210.551
214	11/4/2019 7:38	63.4	6563284.872
215	11/4/2019 7:38	64.3	8074604.412
216	11/4/2019 7:38	60.6	3444460.864

217	11/4/2019 7:38	60.8	3606793.304
218	11/4/2019 7:38	63.8	7196498.757
219	11/4/2019 7:38	69.6	27360325.18
220	11/4/2019 7:38	70.3	32145579.16
221	11/4/2019 7:38	67.5	16870239.76
222	11/4/2019 7:38	67.5	16870239.76
223	11/4/2019 7:38	67.4	16486226.22
224	11/4/2019 7:38	68.1	19369626.87
225	11/4/2019 7:38	67.8	18076787.58
226	11/4/2019 7:38	73.9	73641267.47
227	11/4/2019 7:38	75	94868329.81
228	11/4/2019 7:38	68.9	23287413.5
229	11/4/2019 7:38	64	7535659.295
230	11/4/2019 7:39	62.8	5716382.154
231	11/4/2019 7:39	66.3	12797385.56
232	11/4/2019 7:39	65.7	11146056.87
233	11/4/2019 7:39	64.5	8455148.794
234	11/4/2019 7:39	63.7	7032686.446
235	11/4/2019 7:39	63.4	6563284.872
236	11/4/2019 7:39	62.9	5849533.799
237	11/4/2019 7:39	62.2	4978760.722
238	11/4/2019 7:39	61.3	4046888.648
239	11/4/2019 7:39	70.2	31413856.44
240	11/4/2019 7:39	67.3	16110953.89
241	11/4/2019 7:39	61.3	4046888.648
242	11/4/2019 7:39	62.6	5459102.576
243	11/4/2019 7:39	58.4	2075492.913
244	11/4/2019 7:39	56.1	1222140.833
245	11/4/2019 7:39	63.5	6716163.416
246	11/4/2019 7:39	66	11943215.12
247	11/4/2019 7:39	60.4	3289434.588
248	11/4/2019 7:39	55.7	1114605.687
249	11/4/2019 7:39	56.4	1309547.497
250	11/4/2019 7:40	59.7	2799762.902
251	11/4/2019 7:40	63.5	6716163.416
252	11/4/2019 7:40	58.6	2173307.88
253	11/4/2019 7:40	53.1	612521.3834
254	11/4/2019 7:40	52.4	521340.2486
255	11/4/2019 7:40	52.2	497876.0722
256	11/4/2019 7:40	51.9	464644.9857
257	11/4/2019 7:40	56.5	1340050.776
258	11/4/2019 7:40	62.3	5094730.957
259	11/4/2019 7:40	64.4	8262686.11
260	11/4/2019 7:40	66.9	14693364.58
261	11/4/2019 7:40	65.7	11146056.87
262	11/4/2019 7:40	66.5	13400507.76
263	11/4/2019 7:40	61.4	4141152.794
264	11/4/2019 7:40	61	3776776.235
265	11/4/2019 7:40	60.8	3606793.304
266	11/4/2019 7:40	55.2	993393.3644
267	11/4/2019 7:40	52.9	584953.3799
268	11/4/2019 7:40	51.5	423761.2634
269	11/4/2019 7:40	51	377677.6235
270	11/4/2019 7:41	55.4	1040210.551
271	11/4/2019 7:41	62.1	4865430.292
272	11/4/2019 7:41	67.9	18497850.06
273	11/4/2019 7:41	65.9	11671354.35
274	11/4/2019 7:41	65	9486832.981
275	11/4/2019 7:41	72.1	48654302.92

276	11/4/2019 7:41	65.8	11405681.89
277	11/4/2019 7:41	66.5	13400507.76
278	11/4/2019 7:41	64.8	9059855.161
279	11/4/2019 7:41	57.3	1611095.389
280	11/4/2019 7:41	53.9	736412.6747
281	11/4/2019 7:41	52.3	509473.0957
282	11/4/2019 7:41	53.1	612521.3834
283	11/4/2019 7:41	57.8	1807678.758
284	11/4/2019 7:41	66.3	12797385.56
285	11/4/2019 7:41	66.9	14693364.58
286	11/4/2019 7:41	65.6	10892341.64
287	11/4/2019 7:41	62.1	4865430.292
288	11/4/2019 7:41	59.3	2553414.115
289	11/4/2019 7:41	60.9	3690806.312
290	11/4/2019 7:42	61.1	3864748.655
291	11/4/2019 7:42	59.5	2673752.814
292	11/4/2019 7:42	61.8	4540683.745
293	11/4/2019 7:42	63.9	7364126.747
294	11/4/2019 7:42	62	4754679.577
295	11/4/2019 7:42	62.7	5586261.41
296	11/4/2019 7:42	66.1	12221408.33
297	11/4/2019 7:42	69	23829847.04
298	11/4/2019 7:42	76.1	122214083.3
299	11/4/2019 7:42	69.5	26737528.14
300	11/4/2019 7:42	64.2	7890803.976

Noise Measurement 3 - Junipero Serra Way

Data Logger 2	
Duration (seconds)	3
Weighting	A
Response	SLOW
Range	40-100
L05	63.7
L10	61.4
L50	52.4
L90	49.4
L95	48.9
Lmax	77.3
Time	11/4/2019 7:53
SEL	88.3
Leq	58.1

Leq (Manual)			**58.1**	
No.s		Date Time	dB	Sound Energy
	1	11/4/2019 7:51	52.1	486543.0292
	2	11/4/2019 7:51	52.5	533483.823
	3	11/4/2019 7:51	52.4	521340.2486
	4	11/4/2019 7:51	51.8	454068.3745
	5	11/4/2019 7:51	52.2	497876.0722
	6	11/4/2019 7:51	51.4	414115.2794
	7	11/4/2019 7:51	52.4	521340.2486
	8	11/4/2019 7:51	53.3	641388.6269
	9	11/4/2019 7:51	58.5	2123837.353
	10	11/4/2019 7:51	65.2	9933933.644
	11	11/4/2019 7:51	58.9	2328741.35
	12	11/4/2019 7:51	53.4	656328.4872
	13	11/4/2019 7:51	53.4	656328.4872
	14	11/4/2019 7:51	53.3	641388.6269
	15	11/4/2019 7:51	55.7	1114605.687
	16	11/4/2019 7:51	58.2	1982080.344
	17	11/4/2019 7:51	67.3	16110953.89
	18	11/4/2019 7:51	61.6	4336319.312
	19	11/4/2019 7:51	53.1	612521.3834
	20	11/4/2019 7:51	52.2	497876.0722
	21	11/4/2019 7:52	54.5	845514.8794
	22	11/4/2019 7:52	53.7	703268.6446
	23	11/4/2019 7:52	52.3	509473.0957
	24	11/4/2019 7:52	53	598578.6945
	25	11/4/2019 7:52	51.9	464644.9857
	26	11/4/2019 7:52	55.4	1040210.551
	27	11/4/2019 7:52	60.8	3606793.304
	28	11/4/2019 7:52	62.8	5716382.154
	29	11/4/2019 7:52	55.2	993393.3644
	30	11/4/2019 7:52	54.3	807460.4412
	31	11/4/2019 7:52	54.1	771118.7348
	32	11/4/2019 7:52	62.3	5094730.957
	33	11/4/2019 7:52	54.5	845514.8794
	34	11/4/2019 7:52	51.7	443732.5165
	35	11/4/2019 7:52	51.8	454068.3745
	36	11/4/2019 7:52	50.1	306987.8977
	37	11/4/2019 7:52	50.9	369080.6312
	38	11/4/2019 7:52	54.5	845514.8794
	39	11/4/2019 7:52	54.7	885362.768

40	11/4/2019 7:52	53.3	641388.6269
41	11/4/2019 7:53	52.1	486543.0292
42	11/4/2019 7:53	51.3	404688.8648
43	11/4/2019 7:53	51.5	423761.2634
44	11/4/2019 7:53	50.6	344446.0864
45	11/4/2019 7:53	50.1	306987.8977
46	11/4/2019 7:53	50.5	336605.5363
47	11/4/2019 7:53	56.6	1371264.569
48	11/4/2019 7:53	61.8	4540683.745
49	11/4/2019 7:53	69.3	25534141.15
50	11/4/2019 7:53	57.9	1849785.006
51	11/4/2019 7:53	51.8	454068.3745
52	11/4/2019 7:53	52	475467.9577
53	11/4/2019 7:53	56.2	1250608.15
54	11/4/2019 7:53	57.6	1726319.812
55	11/4/2019 7:53	58.6	2173307.88
56	11/4/2019 7:53	63.6	6872602.958
57	11/4/2019 7:53	54.4	826268.611
58	11/4/2019 7:53	50.7	352469.2665
59	11/4/2019 7:53	49.4	261289.077
60	11/4/2019 7:53	49.4	261289.077
61	11/4/2019 7:54	49.8	286497.7758
62	11/4/2019 7:54	49.3	255341.4115
63	11/4/2019 7:54	49.2	249529.1313
64	11/4/2019 7:54	49.7	279976.2902
65	11/4/2019 7:54	49.8	286497.7758
66	11/4/2019 7:54	51.7	443732.5165
67	11/4/2019 7:54	51.1	386474.8655
68	11/4/2019 7:54	56.8	1435890.277
69	11/4/2019 7:54	61	3776776.235
70	11/4/2019 7:54	62.3	5094730.957
71	11/4/2019 7:54	63.2	6267888.393
72	11/4/2019 7:54	53.2	626788.8393
73	11/4/2019 7:54	49	238298.4704
74	11/4/2019 7:54	49	238298.4704
75	11/4/2019 7:54	48.9	232874.135
76	11/4/2019 7:54	49.2	249529.1313
77	11/4/2019 7:54	50.1	306987.8977
78	11/4/2019 7:54	50.7	352469.2665
79	11/4/2019 7:54	51.3	404688.8648
80	11/4/2019 7:54	51	377677.6235
81	11/4/2019 7:55	52.2	497876.0722
82	11/4/2019 7:55	50.9	369080.6312
83	11/4/2019 7:55	50.3	321455.7916
84	11/4/2019 7:55	51.5	423761.2634
85	11/4/2019 7:55	53.1	612521.3834
86	11/4/2019 7:55	52.2	497876.0722
87	11/4/2019 7:55	50.4	328943.4588
88	11/4/2019 7:55	49.3	255341.4115
89	11/4/2019 7:55	49.4	261289.077
90	11/4/2019 7:55	49.1	243849.1548
91	11/4/2019 7:55	49.4	261289.077
92	11/4/2019 7:55	48.9	232874.135
93	11/4/2019 7:55	48.4	207549.2913
94	11/4/2019 7:55	48	189287.2033
95	11/4/2019 7:55	50.6	344446.0864
96	11/4/2019 7:55	55.9	1167135.435
97	11/4/2019 7:55	65.9	11671354.35
98	11/4/2019 7:55	58.9	2328741.35

99	11/4/2019 7:55	55.4	1040210.551
100	11/4/2019 7:55	53	598578.6945
101	11/4/2019 7:56	52.2	497876.0722
102	11/4/2019 7:56	53.4	656328.4872
103	11/4/2019 7:56	54	753565.9295
104	11/4/2019 7:56	53.8	719649.8757
105	11/4/2019 7:56	52.4	521340.2486
106	11/4/2019 7:56	50.4	328943.4588
107	11/4/2019 7:56	50.1	306987.8977
108	11/4/2019 7:56	50.2	314138.5644
109	11/4/2019 7:56	50.6	344446.0864
110	11/4/2019 7:56	50.3	321455.7916
111	11/4/2019 7:56	50.2	314138.5644
112	11/4/2019 7:56	51.1	386474.8655
113	11/4/2019 7:56	50.8	360679.3304
114	11/4/2019 7:56	51.5	423761.2634
115	11/4/2019 7:56	49.4	261289.077
116	11/4/2019 7:56	49	238298.4704
117	11/4/2019 7:56	49.4	261289.077
118	11/4/2019 7:56	49.4	261289.077
119	11/4/2019 7:56	49.5	267375.2814
120	11/4/2019 7:56	50.3	321455.7916
121	11/4/2019 7:57	52.3	509473.0957
122	11/4/2019 7:57	56.5	1340050.776
123	11/4/2019 7:57	68.3	20282489.26
124	11/4/2019 7:57	62.7	5586261.41
125	11/4/2019 7:57	57.5	1687023.976
126	11/4/2019 7:57	54.1	771118.7348
127	11/4/2019 7:57	56.5	1340050.776
128	11/4/2019 7:57	53.9	736412.6747
129	11/4/2019 7:57	51.5	423761.2634
130	11/4/2019 7:57	51.6	433631.9312
131	11/4/2019 7:57	51.7	443732.5165
132	11/4/2019 7:57	51	377677.6235
133	11/4/2019 7:57	51	377677.6235
134	11/4/2019 7:57	50.5	336605.5363
135	11/4/2019 7:57	53.2	626788.8393
136	11/4/2019 7:57	49	238298.4704
137	11/4/2019 7:57	51.9	464644.9857
138	11/4/2019 7:57	59.9	2931711.663
139	11/4/2019 7:57	63.5	6716163.416
140	11/4/2019 7:57	56.8	1435890.277
141	11/4/2019 7:58	52.8	571638.2154
142	11/4/2019 7:58	51.3	404688.8648
143	11/4/2019 7:58	50	300000
144	11/4/2019 7:58	48.7	222393.0724
145	11/4/2019 7:58	49.9	293171.1663
146	11/4/2019 7:58	49.5	267375.2814
147	11/4/2019 7:58	53.4	656328.4872
148	11/4/2019 7:58	51.7	443732.5165
149	11/4/2019 7:58	56.8	1435890.277
150	11/4/2019 7:58	58.7	2223930.724
151	11/4/2019 7:58	56.7	1403205.424
152	11/4/2019 7:58	56.4	1309547.497
153	11/4/2019 7:58	58.5	2123837.353
154	11/4/2019 7:58	58.1	1936962.687
155	11/4/2019 7:58	54.7	885362.768
156	11/4/2019 7:58	55.5	1064440.168
157	11/4/2019 7:58	50.5	336605.5363

158	11/4/2019 7:58	50.8	360679.3304
159	11/4/2019 7:58	50.5	336605.5363
160	11/4/2019 7:58	50.5	336605.5363
161	11/4/2019 7:59	50.2	314138.5644
162	11/4/2019 7:59	53.5	671616.3416
163	11/4/2019 7:59	59.5	2673752.814
164	11/4/2019 7:59	62.3	5094730.957
165	11/4/2019 7:59	61.8	4540683.745
166	11/4/2019 7:59	73.9	73641267.47
167	11/4/2019 7:59	62.4	5213402.486
168	11/4/2019 7:59	65.3	10165324.68
169	11/4/2019 7:59	61.6	4336319.312
170	11/4/2019 7:59	55.9	1167135.435
171	11/4/2019 7:59	53.4	656328.4872
172	11/4/2019 7:59	53.8	719649.8757
173	11/4/2019 7:59	53.5	671616.3416
174	11/4/2019 7:59	56.1	1222140.833
175	11/4/2019 7:59	61.2	3954770.216
176	11/4/2019 7:59	60.2	3141385.644
177	11/4/2019 7:59	60.2	3141385.644
178	11/4/2019 7:59	61.9	4646449.857
179	11/4/2019 7:59	61.7	4437325.165
180	11/4/2019 7:59	60.5	3366055.363
181	11/4/2019 8:00	56.6	1371264.569
182	11/4/2019 8:00	57	1503561.701
183	11/4/2019 8:00	60.1	3069878.977
184	11/4/2019 8:00	59.4	2612890.77
185	11/4/2019 8:00	62.2	4978760.722
186	11/4/2019 8:00	54.5	845514.8794
187	11/4/2019 8:00	52.1	486543.0292
188	11/4/2019 8:00	52.3	509473.0957
189	11/4/2019 8:00	54.5	845514.8794
190	11/4/2019 8:00	55.8	1140568.189
191	11/4/2019 8:00	64.6	8652094.509
192	11/4/2019 8:00	59.3	2553414.115
193	11/4/2019 8:00	53.3	641388.6269
194	11/4/2019 8:00	52.5	533483.823
195	11/4/2019 8:00	57	1503561.701
196	11/4/2019 8:00	59.7	2799762.902
197	11/4/2019 8:00	59.2	2495291.313
198	11/4/2019 8:00	65.2	9933933.644
199	11/4/2019 8:00	58.2	1982080.344
200	11/4/2019 8:00	54.1	771118.7348
201	11/4/2019 8:01	50.8	360679.3304
202	11/4/2019 8:01	50.7	352469.2665
203	11/4/2019 8:01	53.9	736412.6747
204	11/4/2019 8:01	50	300000
205	11/4/2019 8:01	53	598578.6945
206	11/4/2019 8:01	58	1892872.033
207	11/4/2019 8:01	64.8	9059855.161
208	11/4/2019 8:01	55.6	1089234.164
209	11/4/2019 8:01	53	598578.6945
210	11/4/2019 8:01	52.6	545910.2576
211	11/4/2019 8:01	50.4	328943.4588
212	11/4/2019 8:01	48.9	232874.135
213	11/4/2019 8:01	48.3	202824.8926
214	11/4/2019 8:01	48.9	232874.135
215	11/4/2019 8:01	49.8	286497.7758
216	11/4/2019 8:01	50.8	360679.3304

217	11/4/2019 8:01	51	377677.6235
218	11/4/2019 8:01	51.1	386474.8655
219	11/4/2019 8:01	50.6	344446.0864
220	11/4/2019 8:01	50.1	306987.8977
221	11/4/2019 8:02	49	238298.4704
222	11/4/2019 8:02	49.8	286497.7758
223	11/4/2019 8:02	50.4	328943.4588
224	11/4/2019 8:02	49.7	279976.2902
225	11/4/2019 8:02	48.7	222393.0724
226	11/4/2019 8:02	49.5	267375.2814
227	11/4/2019 8:02	47.7	176653.0966
228	11/4/2019 8:02	49	238298.4704
229	11/4/2019 8:02	50.1	306987.8977
230	11/4/2019 8:02	51.1	386474.8655
231	11/4/2019 8:02	57	1503561.701
232	11/4/2019 8:02	60	3000000
233	11/4/2019 8:02	57	1503561.701
234	11/4/2019 8:02	58.9	2328741.35
235	11/4/2019 8:02	61.3	4046888.648
236	11/4/2019 8:02	56.4	1309547.497
237	11/4/2019 8:02	60.6	3444460.864
238	11/4/2019 8:02	66	11943215.12
239	11/4/2019 8:02	55.4	1040210.551
240	11/4/2019 8:02	49.5	267375.2814
241	11/4/2019 8:03	48.1	193696.2687
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300	11/4/2019 8:05	55.2	993393.3644

Appendix F

AB 52 Tribal Consultation Correspondence rincon

<u>The Proposed Anacapa Courts Mixed Used Project AB 52 Correspondence</u>

Contact Information	Date Letter Sent	Date Of Response	Comments/ Concerns
Barbareño/ Ventureño Band of Mission Indians Julie Tumamait-Stenslie, Chairperson 365 North Poli Avenue Ojai, California 93023	10/24/19		
Chumash Council of Bakersfield Julio Quair, Chairperson 729 Texas Street Bakersfield, California 93307	10/24/19		
Coastal Band of the Chumash Nation Gino Altamirano, Chairperson P.O. Box 4464 Santa Barbara, California 93140	10/24/19		
Northern Chumash Tribal Council Fred Collins, Spokesperson P.O. Box 6533 Los Osos, California 93412	10/24/19		
San Luis Obispo County Chumash Council Mark Vigil, Chief 1030 Ritchie Road Grover Beach, California 93433	10/24/19		
Santa Ynez Band of Chumash Indians	10/24/19	12/10/2019	Elders Council requests no further consultation on this project.

Kenneth Kahn, Chairperson P.O. Box 517 Santa Ynez, California 93460			
Yak tityu tityu yak tilhini – Northern Chumash Tribe Mona Tucker, Chairperson 660 Camino Del Rey Arroyo Grande, California 93420	10/24/19		

Santa Ynez Band of Chumash Indians
Tribal Elders' Council
P.O. Box 517 ◆ Santa Ynez ◆ CA ◆ 93460
Phone: (805)688-7997 ◆ Fax: (805)688-9578 ◆ Email: elders@santaynezchuhmash.org

December 10, 2019

City of Ventura
501 Poli Street
P.O. Box 99
Ventura, CA 93002

Att.: Maruja Clensay, Senior Planner

Re: Ventura – Anacapa Courts Mixed Use Project

Dear Ms. Clensay:

Thank you for contacting the Tribal Elders' Council for the Santa Ynez Band of Chumash Indians in regards to the above mentioned project. We apologize for the late response.

At this time, the Elders Council requests no further consultation on this project; however, if supplementary literature reveals additional information, or if the scope of the work changes, we kindly ask to be notified.

If you decide to have the presence of a Native American monitor in place during ground disturbance to assure that any cultural items unearthed be identified as quickly as possible, please contact our office or Chumash of the project area.

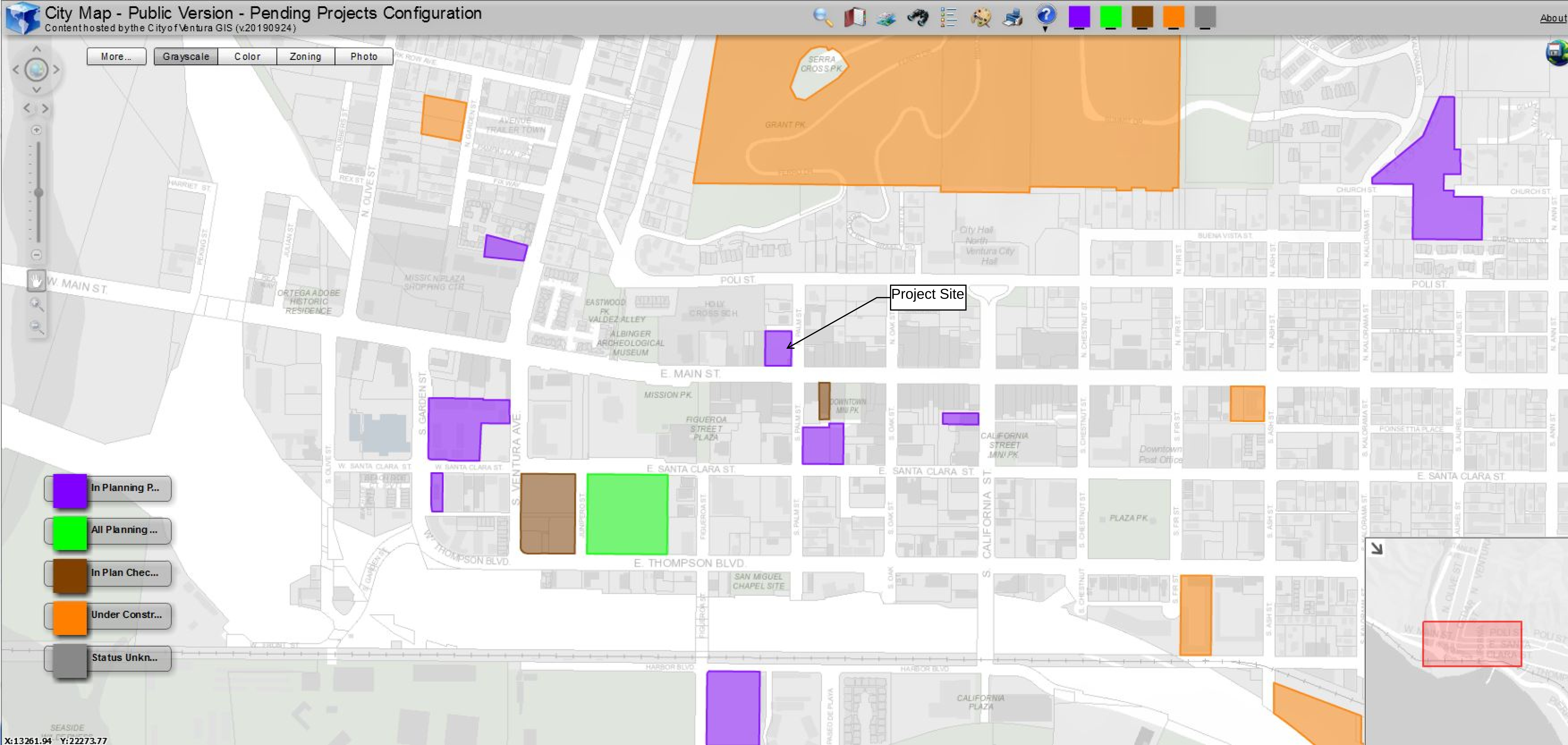
Thank you for remembering that at one time our ancestors walked this sacred land.

Sincerely Yours,

The Tribal Elders' Council Governing Board

Appendix G

Pending Projects in Project Site Vicinity


City Map - Public Version - Pending Projects Configuration
Content hosted by the City of Ventura GIS (v.20190924)
About
More...
Grayscale
Color
Zoning
Photo
Project Site
SERRA CROSS PK
GRANT PK
City Hall North Ventura City Hall
POLI ST
W. MAIN ST
E. MAIN ST
E. SANTA CLARA ST
W. SANTA CLARA ST
E. THOMPSON BLVD
W. THOMPSON BLVD
S. VENTURA AVE
S. CALIFORNIA ST
N. OLIVE ST
HARBOR BLVD
CHURCH ST
BUENA VISTA ST
MISSION PK
MISSION PLAZA SHOPPING CTR
ORTEGA ADOBE HISTORIC RESIDENCE
EASTWOOD PK
VALDEZ ALLEY
ALBINGER ARCHEOLOGICAL MUSEUM
HOLY CROSS SCH
FIGUEROA STREET PLAZA
DOWNTOWN MINI PK
CALIFORNIA STREET MINI PK
Downtown Post Office
PLAZA PK
SAN MIGUEL CHAPEL SITE
CALIFORNIA PLAZA
AVENUE TRAILER TOWN
In Planning P...
All Planning ...
In Plan Chec...
Under Constr...
Status Unkn...
X:13261.94 Y:22273.77

PROJECT ID: **PROJ-10752**	
PROJECT NAME: **324 E MAIN ST - IRON & RESIN FACADE CHG & ADDITION**	
DEVELOPER: **949 W HAWTHORNE ST STE 11** **SAN DIEGO, CA 92101-** CONTACT: **RICK NEILSON** PHONE: **(805)415-4771**	CATEGORY: **Commercial** STATUS: **In Plan Check** PLANNER: **JR** DATE FILED: **July 26, 2016** DATE APPROVED: **February 6, 2018** ZONE: **T6.1**
PROJECT LOCATION: **324 E Main Street**	
APN: **073-0-033-250**	
PROJECT DESCRIPTION: **Facade improvement to the Main Street elevation; tenant improvements to divide into 3 spaces; addition of 3 shipping containers to be used for coffee shop, covered dining area and private commercial storage.**	

Building Height: Number of Stories: **2.0** *View this Project on the Map...* *View Current Project List...*	Sq.Ft. Commercial: **800** Sq.Ft. Industrial: **0** Sq.Ft. Institutional: **0** Sq.Ft. Office: **0** Sq.Ft. Retail: **800** Sq.Ft. Hotel: **0**	Units Total: **0** Units Live/Work: **0** Units.Aff.Ext.Low: **0** Units.Aff.Very.Low: **0** Units.Aff.Low: **0** Units.Aff.Mod: **0**

PROJECT ID: **PROJ-12979**	
PROJECT NAME: **DOWNTOWN PARKING STRUCTURE_S.C./PALM**	
DEVELOPER: **CITY OF VENTURA PUBLIC WORKS** **501 POLI ST STE** **VENTURA, CA 93001-** CONTACT: **JEFF HEREFORD** PHONE: **(805)654-7744**	CATEGORY: **Conceptual Pro** STATUS: **In Planning Process** PLANNER: **ER** DATE FILED: **October 16, 2018** DATE APPROVED: **-** ZONE: **T6.1**
PROJECT LOCATION: **NEC SANTA CLARA ST & PALM ST**	
APN: **073-0-033-140 & 150**	
PROJECT DESCRIPTION:	**Public Works project to construct a 5-story parking garage (6 levels of parking) for approximately 460 parking spaces with 1,162 square feet of liner retail building, 279 square feet of bicycle repair space, and a 379 square foot public restroom.**

Building Height:	Sq.Ft. Commercial: **1162**	Units Total: **0**
Number of Stories: **5.0**	Sq.Ft. Industrial: **0**	Units Live/Work: **0**
	Sq.Ft. Institutional: **0**	Units.Aff.Ext.Low: **0**
View this Project on the Map...	Sq.Ft. Office: **0**	Units.Aff.Very.Low: **0**
View Current Project List...	Sq.Ft. Retail: **0**	Units.Aff.Low: **0**
	Sq.Ft. Hotel: **0**	Units.Aff.Mod: **0**

How to Contact Us: If you have questions about this product, please send email to **GIS@cityofventura.net**

Return to the Mobile Friendly Maps Menu

Appendix H

Joint Design Review Committee and Historic Preservation Committee Staff Report, September 5, 2018

CITY OF VENTURA

COMMUNITY DEVELOPMENT

Joint Design Review Committee and Historic Preservation Committee Staff Report

Agenda Item: 5	Hearing Date: September 5, 2018
Project No.: Case No.:	8105 HRA-8-18-46683, HPDR-8-18-46656, DRC-3-15-26897, E-3-17-39437, W-3-15-27325, PA-3-15-27326, TTM-3-15-26899, CDP-3-17-39438; EIR-3-15-26898
Applicant:	Downtown Ventura Properties III, LLC
Planner:	Don Nielsen, Associate Planner (805) 677-3959 Jeffrey Lambert, AICP, Community Development Director
Location:	297-299 East Main Street (Attachment A) APN: 071-0-194-070
Recommendation:	Provide Comments
Zoning:	Urban Core Zone (T6.1)
Land Use:	Downtown Specific Plan (DTSP)
Regulatory Review:	DTSP Sec. 5.20.020 & 8.10.040 & SBMC Sec. 24.545
Environmental Review:	Not required for this action

PROJECT DESCRIPTION

The proposed project is a request for Historic Resource Assessment and Formal Historic Preservation Design Review to review the preservation of and rehabilitation of an existing historical resource (Top Hat) and the proposed new construction of a three- and four-story mixed use building with approximately 4,652-square feet of street level commercial space, a 42 space ground level parking garage, and 25 residential condominium units, including 4 inclusionary units, above a podium courtyard on a 0.50-acre parcel located at 297-299 East Main Street in the Urban Core (T6.1) zone district of the Downtown Specific Plan.

Access to the site will continue from an existing public alley identified as Junipero Serra Way.

BACKGROUND

In 1888, the former Anacapa Hotel was constructed on the project site. This building was a four-story commercial/residential building and was demolished in approximately 1929.

In the 1940's, a bandstand was constructed on the project site. In 1943, an Army and Navy recruitment office was located on the project site. This bandstand and office were later removed from the site.

In 1948, the Top Hat structure was constructed on the project site.

On September 23, 1974, the City Council passed Resolution No. 74-113 which endorsed the nomination of the Mission Historical District to the National Register. The District's boundaries are defined as Poli Street, Ventura Avenue, Santa Clara Street, and Palm Street and generally corresponds to the presumed Mission Period settlement, containing the existing Mission, the settling tank, the holding reservoir, a portion of the aqueduct, and the foundation of numerous Mission Period out-buildings. The project site is located within the boundaries of the District.

On April 10, 1975, the National Park Service certified the listing of the Mission Historical District on the National Register of Historic Places. The project site is located within the boundaries of the District.

On December 15, 2014, the proposed development was preliminarily reviewed by the City Council as part of the Community Development Pending Projects Preliminary Check-in. Individual Councilmembers provided the following comments:

- The building massing and height are an issue due to its proximity to the Mission;
- Concern concerning the appropriateness of the architectural style in comparison to the surrounding historic structures; and
- Appropriateness /compatibility of residential use on Main Street, expressed by several individual Council Members.

On July 1, 2015, the Design Review Committee (DRC) and the Historic Preservation Committee (HPC) Formally jointly reviewed the proposed demolition of all existing structures onsite and construction of a new four-story mixed-use building with approximately 4,250 square feet of street-level shop fronts, a grade-level parking garage, and 25-unit residential condominiums above a podium courtyard on a 0.50-acre parcel located at 297-299 East Main Street.

The HPC made the following two separate motions:

1. The proposed project was not successful in preserving the historical aspect of the Top Hat building; and
2. Generally agrees with the massing and proportions of the project in regards to the surrounding historic context and accepts the following comments
   - the project should preserve the Top Hat structure in place as gathering place; and
   - the Top Hat should be incorporated into the proposed building or wrapped around or over the Top Hat building.

On July 1, 2015, the DRC passed a motion after the HPC during the Joint HPC-DRC Hearing to accept the following comments:

- The DRC supports the proposed massing and proportions;
- The proposed structure doesn't need to architecturally speak directly to the Mission;
- The proposed materials are appropriate. The masonry generally relates to the older buildings along Main Street, and the white stucco relates to the Mission;
- The openings of the first floor maintains the rhythm of Main Street;
- Consider ways to lighten the rooftop pergola in terms of materials. Consider pushing the pergola away from the building edges;
- The blank west elevation is unacceptable;
- Activate Palm Street. The east elevation is flat, unlike the south elevation;
- The 4^{th} story massing ratio/height Warrants, open space Warrants, and corridor length Warrant are supported as designed; and
- The parking placement setback Exception is supported.

On March 22, 2017, the HPC reviewed a Formal Design Review for the incorporation of a portion of an existing commercial building [Top Hat] and construction of a new mixed-use project consisting of 25 residential condominium units, including 4 inclusionary units, and a 4,250 square-foot ground floor commercial space in a three- and four-story commercial block building the project and made the following motion:

- Staff to review the following options to determine the type of environmental review:
  1. Keeping it in place
  2. Relocating completely off site
  3. Relocating into Palm Street
  4. Demolition and Document (Requires EIR)
- Retain 8 x 22 portion of structure for all options (except 4)

On May 17, 2018, the California State Historic Resource Commission (SHRC) found the Top Hat Structure to be eligible for listing on the National Register of Historic Places as a rare and intact example of postwar roadside commercial walk-up hot dog stand that specifically reflects California roadside architecture. The SHRC forwarded the nomination to the National Register of Historic Places and is pending evaluation by the National Park Service (Attachment B).

This is the second time the project has been scheduled to receive Formal Review from the DRC and the third time the project has been scheduled to receive Formal Review from the HPC for the adaptive reuse of the eligible Landmark building.

STAFF ANALYSIS

The focus of this report is on how the project has been revised in response to the direction the HPC and DRC provided on July 1, 2015, and the HPC on March 22, 2017. Prior to 2017, a series of reports have been prepared in association with this site and proposed developments.

A. Greenwood and Associates Cultural Resource Phase I Cultural Resource Investigation dated July 2005 (Attachment B)
B. Greenwood and Associates Cultural Resource Consultants' Top Hat Burger Palace Relocation dated March 9, 2006 (Attachment C)
C. San Buenaventura Research Associates Phase II Historic Resources Report dated August 27, 2010 (Attachment D)
D. Rincon Consultants' Secretary of the Interior's Standards Compliance Review for the Anacapa Courts Project, dated November 21, 2016 (Attachment E)

To assist in review of the design revisions since 2017, staff retained Rincon Consultants to determine if there are any historical impacts associated with the design concept and the project's consistency with *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* and the Downtown Specific Plan's Historic Resources Design Guidelines. The report and concluding compliance review with the Secretary of the Interior Standards and the DTSP's Historic Resource Design Guidelines is attached (Attachment F).

The analysis below first revisits the historical context of the site and surrounding properties, then provides a summary of previous studies regarding the historic resources onsite, and finally an analysis of the project's compliance with the Secretary of the Interior Standards and the DTSP Historic Resource Design Guidelines.

Historical Context

As described below, the proposed project is in close proximity to multiple historical resources, including one located onsite.

San Buenaventura Mission Compound

The Mission and Mission Compound (Figure 1) were listed on the National Register as a Historic District in 1975, and are bounded by Poli Street, Ventura Avenue, Santa Clara Street and Palm Street; the project site is located on the eastern edge of the district. This area is considered the Mission Historic District but contributing resources were not identified. The San Buenaventura Mission was designed in the "Adobe Worship Style" which consists of hand hewn adobe brick.

Since the Mission Compound Historic District is only recognized by the National Registry and not on the State or Local level, there are no design standards set. The proposed project's design, however, would be subject to the Secretary of the Interiors Standards for the Treatment of Historic Buildings and the Historic Resource Design Guidelines within the DTSP.

Figure 1: Mission Compound Historical District

Anacapa Hotel

The 100-room Anacapa Hotel (Figure 2) was constructed in 1888 by Fridolan W. Hartman, a prominent local businessman at the time. The three-story hotel was one of the tallest buildings in town and was one of the first to offer a telephone. It was frequented by out of town visitors and was frequently used by local leaders as a meeting place and secondary residence. An 1892 advertisement in the Los Angeles Herald stated that the hotel provided first class accommodations and good service (Volume 38, Number 136, 25 August 1892). The building was demolished in 1928 and the project site remained vacant until the 1940's when it became a bandstand used for patriotic rallies. The property contains identified subterranean archaeological artifacts dating with direct association with the development of the Mission.


Figure 2: Former Anacapa Hotel

Top Hat

The Top Hat structure (Figure 3), a single-story prefabricated steel panel walk up food stand, is located on the subject property at the northwest corner of East Main Street and Palm Street. It was constructed around 1948 and operated as a burger joint until it closed in 2010. It has been identified as a potential contributor to a locally eligible historic district. A Phase 2 Historic Report, prepared for the structure found there is enough evidence to support eligibility for individual listing as a state landmark for its association with events that made a significant contribution to the broad patterns of California history and cultural heritage and for embodying the distinctive characteristics of a type, period, region, or method of construction and as a potential contributor to a Ventura City Landmark historic district located along Main Street between Figueroa and Fir streets.

Top Hat structure was a modestly-designed hot dog/burger stand, which historically provided food with surrounding, open-air seating to its customers at the corner of Palm and Main Streets in Ventura. Both individually and as a contributor to the Main Street Commercial District, the Top Hat restaurant building has been previously found to be associated with the commercial development of Ventura in the years immediately after World War II. The period of significance for these associations is circa 1947 through 1962, corresponding with its construction date and extending the end date identified for the historic district. The building is also an early example of prefabricated all-steel construction, with a period of significance of circa 1947 through 1952, corresponding with its original construction and its last steel panel addition.

Figure 3: Top Hat Circa 2005-2009

Since 2005, the individual historical significance of the Top Hat restaurant building has been considered in multiple historical resource investigations (2005 & 2006 Greenwood and Associates; 2010 San Buenaventura Research Associates; 2016 & 2018 Rincon Consultants). Each investigation, summarized below, has found the subject building to possess significant cultural and architectural associations.

Other Historical

The 200 Block of E. Main Street contains a mix of historic buildings/locations and architectural styles. Most of the 200 block reflects the modernization of commercial structures that occur periodically as property owners update their properties to current standards and styles. Below is a list (Table 1) of nearby historic and potentially historic properties identified in the 2007 Historic Resources Survey Update:

Address	***Property Name***	***Designation***
200 Block East Main Street	China Alley	Point-of-Interest #91
204-208 E. Main Street	Periano's Grocery	Landmark #32
204-208 E. Main Street	Mission Lavenderia	Landmark #85
211 East Main Street	San Buenaventura Mission	Landmark #10
211 East Main Street	Mission Norfolk Pines	Landmark #8
213 E. Main Street	San Buenaventura Mission Rectory	Recommended Landmark
230 E. Main Street	Nash Motor Sales Garage; Vacant	Recommended Landmark
240-256 E. Main Street	Maria Bonita (Brick Veneered adobe building	Recommended Point-of-Interest

Table 1: Historic / Potential Historic Properties Along 200 East Main Street

The subject property also falls within a potential Main Street Commercial Historic District, as identified within the 2007 Historic Resources Survey Update.

Greenwood and Associates I:

In 2005, Greenwood and Associates Cultural Resource Consultants (Greenwood and Associates) conducted a Phase I Cultural Resource Investigation (Attachment B) for the project site and recommended further evaluation was needed of the Top Hat's structure as an early example of prefabricated all-steel construction and its continuation of the traditional use of this corner in supplying food and beverages to local residents and travelers.

In 2006, Greenwood and Associates conducted further research on the Top Hat structure and whether relocating the stand would meet historical standards for relocation (Attachment C). The report concluded that the structure is potentially significant at the local level and potentially eligible for inclusion in the California Register of Historical Resources under Criterion 1 for its association with events that made a significant contribution to the broad patterns of California history and cultural heritage, and under Criterion 3, as embodying the distinctive characteristics of a type, period, region, or method of construction. Its period of significance is considered to be circa 1947-1952, reflective of its initial date of construction and use as a restaurant, through completion of its last major steel panel addition. Any modifications made to the building subsequent to its period of significance are not viewed as contributing to its historic character. The report preliminarily concluded that with the implementation of several mitigation measures the relocation of the structure would meet historical standards for relocation.

The Character Defining Features of the structure include:

- Single-story height
- Small, box-like shape
- Detached, rectangular 8' x 22' plan
- Rectangular, hand-out window opening on south elevation
- Window openings above counter on southernmost portions of east and west elevations
- Slightly sloping pitched roof
- Shallow, wrap-around counter
- Vertically-seamed interlocking steel panels
- Freestanding metal pole at southwestern portion of property
- Location at the corner of Palm and Main Streets with open-air areas to the south and east, historically used for congregating, service and seating

San Buenaventura Research Associates

In 2010, San Buenaventura Research Associates (SBRA) conducted a Phase II Historic Resources Report (Attachment D) for the proposed demolition of a restaurant building at 299 East Main Street (Top Hat). The report agreed with the prior evaluation made by Greenwood and Associates that found the structure to be historically significant and eligible for listing on the California Register and as a local landmark. The report also agreed with the Historic Resources Group 2007 Historic Resources Survey Update (Excerpt – Attachment G) which found the subject structure to be a potential contributor to the potential Main Street Historic District. Therefore, the report concluded that the proposed demolition of the structure would be regarded as a significant and adverse impact that is not mitigable to a less than significant level.

Greenwood and Associates II:

Note: this report did not evaluate the Top Hat structure, but instead the archeological aspects of the site.

In 2011, Greenwood and Associates conducted archeological fieldwork on the entire project site in which 22 additional archeological features were located and documented. The discovered features were from the Mission Period (Mission Quadrangle), 1880's Chinese artifacts, the Anacapa Hotel, and 1950's automotive parts. The report recommends the intact archeological elements be preserved in place.

Top Hat Preservation

Subsequent to the March 2017 HPC hearing, the applicant revised the plans that would be consistent with the HPC and DRC's direction, and to preserve the 8-foot by 22-foot structure in place; however, the revised plans show the rear façade would be removed in order to attach the structure to the primary building (Figure 4). The main purpose of this would be to provide extra back of house space and increase the viability of adaptively reusing the Top Hat structure.

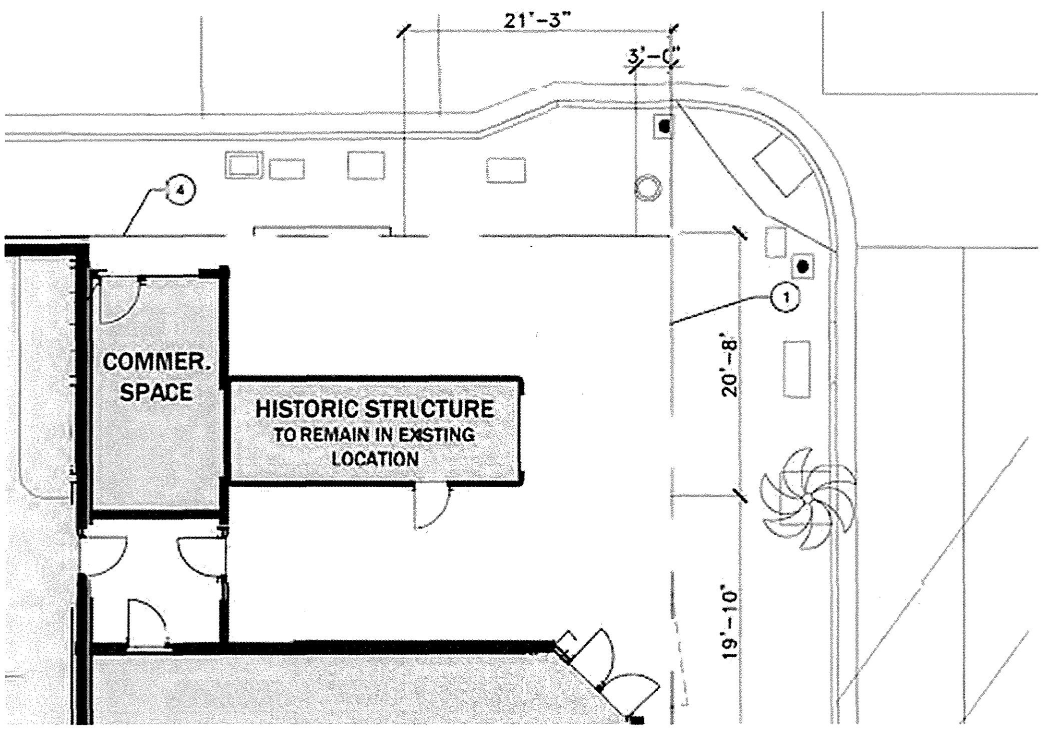


Figure 4: Proposed Plans dated September 5, 2018

Additionally, the proposed plans show that the Top Hat structure is separated from the new development by approximately 15-feet on the west side. As the structure is being preserved in place, it is preserving the existing setbacks along East Main Street and North Palm Street. This common space could potentially be utilized for the historic use of congregating, service, and seating at the corner.

Design Review Standards

Since the subject property contains historic resources, DTSP Sections 5.20.030 and 5.20.040 apply. These Sections identify that the design of infill buildings shall comply with the Secretary of the Interior's Standards for Rehabilitation (SOI Standards) and the DTSP's Historic Resource Design Guidelines.

The DTSP's Historic Resource Design Guidelines also recognize the inherent challenge to integrate the past while successfully building the future. The goal of these guidelines is to create an architectural record that "cherishes its history while concurrently crafting a contemporary statement of its time."

Below staff provides an analysis of the proposed project's compliance with the Secretary of the Interior's Standards. Staff's analysis is a summary from the longer Rincon Consultants' Anacapa Courts Project, Downtown Specific Plan Historic Resource Design Guidelines and Secretary of the Interior's Standards Compliance Review, City and County of Ventura dated June 6, 2018 (Attachment F). The Compliance Review report found the project to meet a majority of both of the above criteria, with the exception of SOI Standards 9 and 10, and that the project could be brought closer into compliance with all of the applicable SOI Standards and the DTSP's Historic Resource Design Guidelines as the project moves forward through consultation with a qualified historic professional who meets the Secretary of the Interiors Professional Qualifications Standards; it is recommended that the above qualified professional have a minimum of five (5) years of experience in historic preservation.

Secretary of the Interior Standards

The Secretary of the Interior's Standards for the Treatment of Historic Properties provide guidance for reviewing proposed projects that may affect historic resources. The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation, rehabilitation, restoration and reconstruction of historic materials, sizes and occupancy and encompass the exterior and interior of the buildings. The standards also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction.

Standard 1: A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

The proposed project could potentially reuse the Top Hat structure for food service, which is in line with its historic use. The plan includes the modification of the rear of the building to allow for the historic structure to connect to the new building and increase its adaptive reuse potential. In the rear of the building, the adjacent new wall would be clad in brick veneer with a row of rectangular transom windows. Along the west side, the historic building would be adjacent to a wide-eave steel awning. While the Standards discourage the alteration of character-defining features, it is often allowable to modify secondary or rear portions of a building when the changes allow for the continued use of the structure and can retain the primary architectural characteristics and integrity. The project also includes the construction of a three- to four-story, mixed-use development that envelopes the building on the north and west elevations, rising to 59 feet at the fourth story and to approximately 45 feet at the principal roof line along the third story. As proposed, the new building would be connected to the rear elevation of the Top Hat building.

Inclusion of the Top Hat building within the parcel and footprint of the new multi-story building would modify the setting of the Top Hat structure. While these changes are arguably greater than "minimal," the project would retain the Top Hat structure in its entirety and maintain its physical features and characteristics vis-à-vis its highly visible corner location, its mass and overall character, its relationship to the street and sidewalk, and, potentially, its original use. It would also maintain the view of the building from Main Street and preserve the use of the area in front for congregating, service, and -seating.

Therefore, the project can be considered in conformance with Rehabilitation Standard No. 1.

Standard 2: The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

The project would retain many aspects that contribute to the Top Hat structure. These aspects include: the small box-like shape; the rectangular, hand-out opening and side window openings; the slightly sloping pitched roof; the wrap around counter; and the vertically-seamed interlocking steel panels. As previously noted, while the Standards discourage the alteration of character-defining features, it is recognized that alterations to secondary elements can achieve conformance with the Standards in certain instances. Although the rear elevation would be removed to allow for the new construction, the project would provide additional commercial space for use by a future occupant, thus enhancing the possibility of the reuse of the structure.

Therefore, the project can be considered in conformance with Rehabilitation Standard No. 2.

Standard 3: Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

The proposed project would involve reconstruction of some original elements including the louvered awning and roof sign, but this is based on documentary evidence. The plans previously indicated the addition of a blade sign on the east side of the Top Hat structure, which would be classified as a conjectural element and therefore not appropriate.

Additionally, the new development on the site would be differentiated from the Top Hat structure since it will consist of different materials and designs which will not create a false sense of history.

Therefore, the project can be considered in conformance with Rehabilitation Standard No.3.

Standard 4: Changes to a property that have acquired significance in their own right will be retained and preserved.

As proposed, the project would retain the original building and subsequent associated additions identified as character-defining; therefore, this standard may not apply.

Therefore, the project can be considered in conformance with Rehabilitation Standard No. 4.

Standard 5: Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

As stated previously, the project will preserve the 8-foot by 22-foot structure in place, including the vertically-seamed interlocking steel panels, with the exception of the rear (north) façade in order to connect the Top Hat structure to expanded commercial space within the new structure. The proposed project would maintain the existing materials, features and finishes of the east, south and west facades. The rear façade has not been identified as being a distinctive material, feature, or finish and therefore its removal for an adaptive reuse of the structure is in compliance with the above standards.

Therefore, the project can be considered in conformance with Rehabilitation Standard No. 5.

Standard 6: Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

At this time, the proposed plans do not provide sufficient details to determine whether the rehabilitation and adaptive reuse plans of the Top Hat structure are compliant with the above Standard. However, the proposed project will preserve the 8-foot by 22-foot structure in place with the exception of the rear (north) façade.

Although the final plans are not yet available, it is anticipated that the project could achieve compliance with Standard No. 6.

Standard 7: Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

At this time, the proposed plans do not provide sufficient details to determine whether the rehabilitation and adaptive reuse plans of the Top Hat structure are compliant with the above Standard.

Although the final plans are not yet available, it is anticipated that the project could achieve compliance with Standard No. 7.

Standard 8: Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Archaeological testing, research and mitigation have been established for the project to ensure the project conforms to Rehabilitation Standard No 8.

Standard 9: New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

According to the Compliance Review report, Standard No. 9 focuses on two primary qualities for new additions or related adjacent construction: differentiation from and compatibility with the historic resource.

In terms of differentiation, the goal is to ensure – through design composition, materials, finishes—that the new construction is clearly discernible as a later, non-historic addition to the historic property. In terms of compatibility, the goal is ensuring that the new addition or construction blends seamlessly with the historic property, that it is (ideally) visually subordinate and unobtrusive to the historic property.

The proposed project will be able to be differentiated from the Top Hat structure due to the proposed the contemporary stylistic treatment, the variety of materials employed on the exterior walls, and the overall scale of the proposed project.

The proposed project is larger in massing, size, and scale than the Top hat structure which impacts the compatibility of the project to the historic resource. However, the same can be said of a majority of the buildings in the immediate vicinity, along both sides of East Main Street between Palm and Oak Streets, as compared to the Top Hat Restaurant which is a comparably small structure. In terms of addressing this disparity of scales between the resource and the new construction and to bring the project closer to compliance with the above Standard, the Compliance Review report recommends that the qualified historic preservation professional be consulted to identify a proper treatment or course of action that is in keeping with the guidance provided by the National Park Service including, but not limited to, varying materials or massing in this southeast corner of the development or incorporating transitional design elements to soften the change in size and scale.

Additionally, the proposed new construction would impact the integrity of the Top Hat structure's setting since the resource currently sits on a parcel that has remained largely vacant since the 1940's, and the new construction would wrap the resource on two sides. However, the proposed development would retain the scale of the Top Hat structure, the view of the resource from East Main Street, and the historic use of the area in front of the resource for congregating, service, and seating. Additionally, the design of the new construction would allow the resource to be readable as a stand-alone building from the public right-of-way.

Therefore, the project could be brought into conformance with Rehabilitation Standard No. 9 if the above recommendations are taken.

Standard 10: New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The Top Hat building would be retained in its original location with minimal changes to its character-defining features, therefore the essential form and integrity of the resource would remain largely unimpaired if the new building were to be removed in the future. The rear (north) elevation would experience the most dramatic changes, with removal of materials and the addition of the new building to enhance connections and facilitate the reuse of the historic property.

The Compliance Review report also indicates that visual impacts caused by additions to historic buildings can typically be softened or mitigated through the use of "hyphens" or transitional spaces that provide for a gradual change in height. At this time, the proposed plans do not provide sufficient details to determine if such an element would be feasible for the proposed project. The Compliance Review report recommends that a qualified historic preservation professional be consulted to identify a proper treatment or course of action that is in keeping with the guidance provided by the National Park Service including regarding the "hyphen" between the resource and the new construction.

Therefore, the project could be brought into conformance with Rehabilitation Standard No. 10 if the above recommendations are taken.

<u>DTSP Historic Design Guidelines</u>

Design Approach

The DTSP recognizes that because of Ventura's unique history and setting, present and future developers and property owners are encouraged to bring the very best to enhance, integrate, and grow the downtown while incorporating the past and successfully building the future, thus creating an architectural record that cherishes its history while concurrently crafting a contemporary statement of its time.

The DTSP also directs the design of infill building façades should be influenced by the other facades on the street but should not attempt to copy them. Infill buildings should be sympathetic and compatible with surrounding buildings in terms of mass, scale, height, façade rhythm, placement of doors and windows, storefront design, color and use of materials.

Design Principles

The Design Principles of the DTSP Historic Resource Design Guidelines pertains to how the exterior of new construction **would** be designed to ensure compatibility with existing historic resources. The following Design Principles are the most relevant to the proposed project:

Design Principle 1. *Façade Proportion: Characteristic proportion of existing facades should be respected in relation to new infill development.*

The proposed façade proportions are characteristic of the existing and historic façade along Main Street because the proposed ground floor storefront is designed in a similar scale and rhythm with recessed openings and materials, such as tile bulkheads and large display windows.

Design Principle 3. *Horizontal Rhythms: Integrate horizontal elements in the new development (e.g. cornice line, window height/width, and spacing) found in the adjoining historic structures.*

The proposed project integrates a strong horizontal rhythm by including a strong parapet line, window groupings, and a metallic storefront window and door system across the entire width of the building frontage with awnings over the window portions of the building frontage. A high first-floor ceiling plate and large window openings in the storefront façade would be consistent with historic downtown storefronts and maintain an open feel historically associated with adjacent commercial buildings. To be in further compliance with this Design Principle, on East Main Street, the project should be designed to ensure that the first-second-floor juncture of the new building aligns with/rises no higher than the roofline of the neighboring historic building at 265 East Main Street.

Design Principle 4. *Wall Articulation: New development should avoid monolithic street wall facades. Development should learn from adjacent historical structures with facades that are "broken" by vertical and horizontal articulation.*

The proposed project breaks up both the East Main Street and North Palm Street facades with horizontal and vertical breaks or elements. Additionally, the southeast corner of the building has been cut out to make room for the preservation of the Top Hat structure.

When a project typically provides ground floor parking, it can cause a monolithic wall along the adjacent right-of-way. Even though the project incorporates a ground floor parking garage, it avoids the monolithic feeling by having the expanded Top Hat commercial space accessed directly off of Palm Street. The residential portion of the project can also be accessed via two separate lobbies: an elevator lobby and a stair lobby. These two lobbies open directly up onto North Palm Street at different intervals. In-between each of the openings, the project will also be providing interpretive history metal panels. The combination of the above along North Palm Street helps to activate the façade and further avoid the sense of a monolithic wall.

To be in further compliance with this Design Principle, the design team should explore options that introduce continuous vertical and horizontal elements to lighten the volume of the new elevations (in particular, the elevation facing East Main Street) and blend in a complementary manner with the neighboring historic buildings

Design Principle 5. Roof Articulation: Flat or sloped consistent with surrounding buildings. Flat roofs should use decorative parapets and heavy cornice lines compatible with adjacent historic architecture. Cornice lines of new buildings (horizontal rhythm element) should be aligned with historic adjacent buildings

The proposed project includes flat roofs one the uppermost levels that are seen from the Main Street public right-of-way. To be in further compliance with this Design Principle, the design team should simplify the roof plan and consider a broader cornice line to set off and define the roof line, to balance the mass and design in lower stories.

Design Principle 6. *Building Material Palette: Materials to be used on infill buildings are to be compatible with the materials used on significant adjacent buildings.*

The proposed project materials include brick veneer, cementitious siding, aluminum storefronts, stucco, and wood clad windows. These materials are complimentary and compatible with the materials used on significant adjacent buildings (Mission: adobe; Peirano Store or Nash Motor Sales Garage: brick with wood windows; Hartman House: Wood clapboard siding) but provides a contrast to clearly identify the structure as a modern addition to the historic fabric.

To be in further compliance with this Design Principle, the design team should explore design options that simplify the palette of materials and volumes, for a more streamlined design composition.

Design Principle 8. *Setbacks and "Build To" Lines: Maintain the pattern and alignment of buildings established by the traditional setbacks from the street. Build consistently with the street wall, particularly at corner sites. Design new buildings to respond to the existing building context within a block, and provide continuity to the overall streetscape.*

The proposed project would maintain the pattern and alignment of the other buildings in downtown. As stated above, the southeast corner of the new construction will be "cut out" in order to preserve the Top hat structure in place. This "cut out" allows for the existing setbacks of the Top Hat structure to be maintained while also linking the two buildings by a common space that can be utilized for the historic use of congregating, service, and seating at the corner.

Design Principle 10. *Storefront Design: Storefront is an important visual element and should be compatible in scale, rhythm, recesses, etc. to adjoining existing historical storefront design.*

The proposed storefront façade is compatible with nearby historical storefront design by maintaining and enhancing a distinctive bottom, middle and top storefront. The slightly recessed frontage will be maintained and overall the new design is consistent with historical storefront design typical within the Downtown area.

To be in further compliance with this Design Principle, on East Main Street, the project should be designed with cantilevered canopies over the new storefronts to align with/rise no higher than the entrance canopy of the neighboring historic building at 265 East Main Street.

Design Principle 11. *Door and Window Design: Door and window proportion and detailing should be compatible with adjacent historical architecture, including percent of glass/solid, windowpanes/mullions proportion and window materials.*

The proposed window detailing would be compatible with adjacent architecture because it includes a ground floor storefront system which is consistent with historical storefront design typical within the Downtown area. Upper floor windows have been designed with wood clad frames.

To be in further compliance with this Design Principle, the design team should explore design options that better align second- and third-story windows with corresponding ground-floor storefronts and introduce a more symmetrical (or, if still asymmetrical, a clearly expressed modular design composition) to the East Main Street elevation.

It should be noted that even though the project plans include signs as part of the drawings they are not considered part of the submittal as they would be included under a separate submittal. At such a time, the signs would then be compared to the Signage guideline contained with the section.

Local Coastal Program/Comprehensive Plan Consistency

The project site is located within the Downtown community which is described as a unique community due to its historic significance and geographical location between the Pacific Ocean and the foothills of the Coastal Range with the opportunity to grow economically stronger by enhancing the area's already strong cultural climate and creating a "around-the-clock activity" center.

The subject site has a Comprehensive Plan Land Use designation of Specific Plan which is defined as comprehensive policy and regulatory for development in the Downtown Community that contains development standards and design guidelines which are needed to help realize the community's vision. Per regulation, this portion of Downtown is within the Local Coastal Program (LCP) as implemented by the Downtown Specific Plan (DTSP) and certain provisions of the General Plan (GP).

The Downtown Specific Plan area is identified within the 2005 General Plan as the most intensely developed area of the City. Maximum density of residential units per acre is not designated geographically within the DTSP by parcel, but the allowed density is based on the predicted level of development of the DTSP land area and assigns a conceptual range of 21 to 54 units per acre. In practice, this density is applied based on the entire land area within the DTSP and not down to the individual project. The premise behind the Form Based Code of the DTSP is that density is not regulated by the zone and a project's compliance with the form as intended by the DTSP code standards would regulate the project density. The proposed project density is 50 dwelling units per acre. The 2005 General Plan Development Intensity & Pattern Table 3.2 predicted 1,650 residential units within the Downtown Specific Plan, and this project would add 25 units to the 1,015 already entitled or constructed units for a total of 1,040 units that have been entitled since the adoption of the 2005 General Plan, and an additional 237 units are being processed for a total of 1,277 units. Consequently, the project does fit within the DTSP predicted development, and a total of 373 additional units could be entitled and constructed in the DTSP area.

The LCP also seeks appropriateness of urban form through the implementation of a DTSP that emphasizes pedestrian orientation, integration of land uses, and treatment of streetscapes as community living space, and environmentally sensitive building design and operation. The proposed multifamily condominium units and commercial space(s) are designed with material composition and an intentional subdued color palette that mirrors the vibrancy and energy of the surrounding context. The proposed development utilizes building placement and design to protect an existing historic resource, mask a ground floor parking area from the right of way, and integrates the project with the surrounding existing urban development. As such, the project is consistent with the following LCP policies and goals:

> *Community and Design Element, Policy 1.2: Encourage design compatible with the positive characteristics of existing development.*
>
> *Land Use Element, Goal 1: Support the adoption and implementation of local and regional guidelines which encourage urban development to be located within incorporated cities.*
>
> *Land Use Element, Goal 5: Encourage orderly growth and development, particularly through the development of vacant and unproductive properties in areas that are already developed.*

The project is consistent with the DTSP as it consists of a Commercial Block building with residential and commercial uses which are both recognized as appropriate building types and uses in the T6.1 zone. Additionally, the project complies with the following DTSP goals by designing a project with high standards of architecture while also incorporating and celebrating a historic resource, maintaining a connection to the public realm, and contributing to the activation of downtown:

> *DTSP Goal 1: Preserve Ventura's special sense of place by insisting on high standards of architecture, urban design and landscaping so that new development complements the eclectic architecture and historic richness of our Downtown.*
>
> > *Policy 1A: Enhance, preserve and celebrate the Downtown's historic and prehistoric resources.*
> >
> > > *Action 1.2: Require all new development on a lot containing a Historic Resource to be reviewed by the Historic Preservation Committee for compliance with this plan's Historic Resource Design Guidelines and the Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties.*
>
> *DTSP Goal 3: Maintain and enhance public features such as parks, streetscapes and open spaces. Provide access to our natural areas, including the hillsides and Ventura River and re-connect Downtown to the ocean. Encourage development and events that activate the public realm.*
>
> *DTSP Goal 4: Establish Downtown as a preferred place to work as well as live or visit. Ensure the future economic stability of Downtown by providing an active daytime workforce in offices and studios and by promoting successful retailing, tourism and the provision of high wage, high value jobs.*
>
> > *Policy 4B: Activate the Downtown by incorporating a complementary range of commercial, residential and institutional uses to establish around-the-clock activity and promote tourism.*
>
> *DTSP Goal 5: Provide high-quality, urban housing for a diverse range of income levels. Encourage efficient utilization of Downtown's limited land resources by promoting infill development.*
>
> > *Policy 5A: Facilitate production of a range of housing types that meet the diverse needs of the community.*
> >
> > > *Action 5.5: Ensure all new development containing seven (7) or more residential units constructed in the Merged Redevelopment Project Area complies with the 15% affordable inclusionary housing requirement (Resolution No. 2004-0022).*

Policy 5B: Maximize housing opportunities by promoting efficient use of land and resources.

Policy 5C: Augment the historic and unique character of the Downtown by ensuring new residential development and remodels exhibit the highest standards of architecture, urban design and landscaping.

The project site is not identified in the General Plan 2014-2021 Housing Element "Sites Inventory" list. However, the project does meet the following 2014-2021 Housing Element Goals and Policies:

HE Goal 2: Facilitate the provision of a range of housing types to meet the diverse needs of the community.

HE Policy 2.1: Provide high quality housing for current and future residents with a diverse range of income levels. Promote housing that is developed under modem sustainable community standards.

HE Goal 3: Provide adequate housing sites through appropriate land use and zoning designations to accommodate the City's share of the regional housing needs.

HE Policy 3.3: Encourage efficient utilization of the City's limited land resources by encouraging development at the upper end of the permitted Zoning Code/Comprehensive Plan density.

The proposed project proposes to maximize the development potential allowed on site, and by extension maximizes the use of land in the City and would allow high quality housing, potentially adding to the available range of housing types throughout Downtown. As this is a condominium project within the Merged San Buenaventura Redevelopment Project Area (Chapter 24R.250) greater than 7 units it is subject to the City's Inclusionary Housing Program. Since the project contains 25 units, it will be required to provide four total units, two moderate, one low, and one very-low income units.

The proposed building and site improvements would contribute to a development that is consistent with the following goals, policies and actions of the Downtown Specific Plan:

Goal 1: Preserve Ventura's special sense of place by insisting on high standards of architecture, urban design and landscaping so that new development complements the eclectic architecture and historic richness of our Downtown.

Policy 1B: New development and the substantial remodel of existing development in the Downtown shall be consistent with the purpose and intent of this Specific Plan and the Development Code.

Action 1.12: Ensure all development, including substantial remodels, adheres to Development Code standards.

The project would also be conditioned to pay a Transportation Demand Management (TDM) fee which will be used along with TDM fee collected from other Downtown projects to fund City program reducing air pollutant emissions.

Policy 6A: Provide access to and around the Downtown through a variety of options, emphasizing rail, buses, bikes and walking.

Action 6.9: Require all new development contribute toward a Transportation Demand Management (TDM) fund to be used to develop regional programs to offset air pollutant emissions associated with growth anticipated under the DTSP. The TDM fund shall be used to finance City programs to reduce regional air pollutant emissions.

The proposed project would be consistent with the Comprehensive Plan/LCP, DTSP, and General Plan Housing Element as it would consist of utilizing local design guidelines to redevelop a mostly vacant lot into a mixed-use development with ground-level commercial while preserving and rehabilitating a recognized historic resource.

Economic Development

The proposed mixed-use project, with new housing and commercial space component, also meets the intent of the adopted 2013-18 Economic Development Strategy - Tourism, Retail, and Quality of Life Goal which directs the City to Enhance and improve the quality of life for Ventura residents and promote Ventura as a business and vacation destination, and to stabilize and expand the retail base. The project also meets the Entrepreneurship and Economic Gardening Attraction Action which directs the City to provide a wide range of housing to support new job growth.

Urban Core (T6.1) – Mission Area Zone Consistency

The project site is located in the Urban Core (T6.1) – Mission Area zone which is meant to facilitate dense commercial, retail and mixed-use development. The project is identified as having a Commercial Block Building Type with a Storefront and Lightcourt Frontage Types.

In the spirit of historic preservation and adaptive reuse, the DTSP provides broad relief from complying with standard Zoning, Building Type and Frontage Type regulations. Per the DTSP Nonconformity Regulations for Historic Resources (DTSP Sec. 7.50.000.6) remodels, additions, and alterations to designated historic resources shall not be subject to the following:

- Article II (Urban Standards) requirements pertaining to:
    - Building Placement (Setbacks, Accessory Buildings, and Architectural Encroachments);
    - Building Profile and Frontage (Height and Frontage Types);
    - Parking (Parking Placement); and
    - Building Types
- Article III (Building Types)

Instead, proposed remodels, additions, and alterations shall be evaluated according to the requirements of Article V (Design Guidelines for Historic Resources). Additionally, a Historic Resource is defined as a building, site or feature that is a local, state, or national historic landmark, or anything that is determined to be a Historic Resource under CEQA.

Therefore, the proposed project would be considered an addition to the existing historic resource due to the resource being intrinsically linked with the new construction.

Even though the proposed project is not subject to most of the DTSP Zoning and any of the Building Type Standards, staff performed a zoning analysis and found the project is in compliance with many DTSP standards but does not conform to the following zoning regulations (Attachment H):

- T6.1 Mission Area – Height: 15% of building footprint may be 4 story [W]
- T6.1 – Parking Placement: Side Street Setback 5 feet [E]
- T6.1 – Parking Requirement: Bicycle Parking [E]
- Commercial Block Building Type – Access: Dwellings can be accessed via a single-loaded, exterior corridor, provided the corridor is designed per the following requirements
    - (a) The open corridor length does not exceed 40 feet [W]
    - (b) The open corridor is designed in the form of a Monterey balcony, loggia, terrace, or a wall with window openings. [DR]
- Commercial Block Building Type – Open Space: The primary shared open space is the rear yard, which shall be designed as a courtyard. Courtyards may be located on the ground or on a podium. [E]
- Commercial Block Building Type – Open Space: The minimum courtyard area shall be twenty percent (20%) of the lot area. [W]
- Commercial Block Building Type – Open Space: In 40-foot wide courtyards, the frontages and architectural projections allowed within the applicable zone are permitted on two sides of the courtyard; they are permitted on one side of a 30-foot wide courtyard. [W]
- Commercial Block Building Type –Building Size and Massing: Suggested Height Ratios 3.0 stories: 85% 3 stories, 15% 4 stories [W]
- Shopfront Frontage Type – Design Standards: The Shopfront opening(s) along the primary frontage may be at least 10 feet tall and comprise 65% of the 1st floor wall area facing the street and not have opaque or reflective glazing. [DR]

- Forecourt Frontage Type – Configuration (c): The corresponding shopfront(s) opening(s) along the primary frontage may be at least 65% of the 1st floor wall area and not have opaque or reflective glazing. [DR]

Site Plan

The project site is located at the northwest corner of East Main Street and Palm Street with access to a city alleyway that connects to North Palm Street (Figure 5). As stated above, the site contains a recognized historic resource in the southeast corner of the lot. The building covers almost the entire parcel with the exception of the southeast corner in order to preserve the aboveground historic resource in place. A foundation system which avoids underground historic resources is proposed.

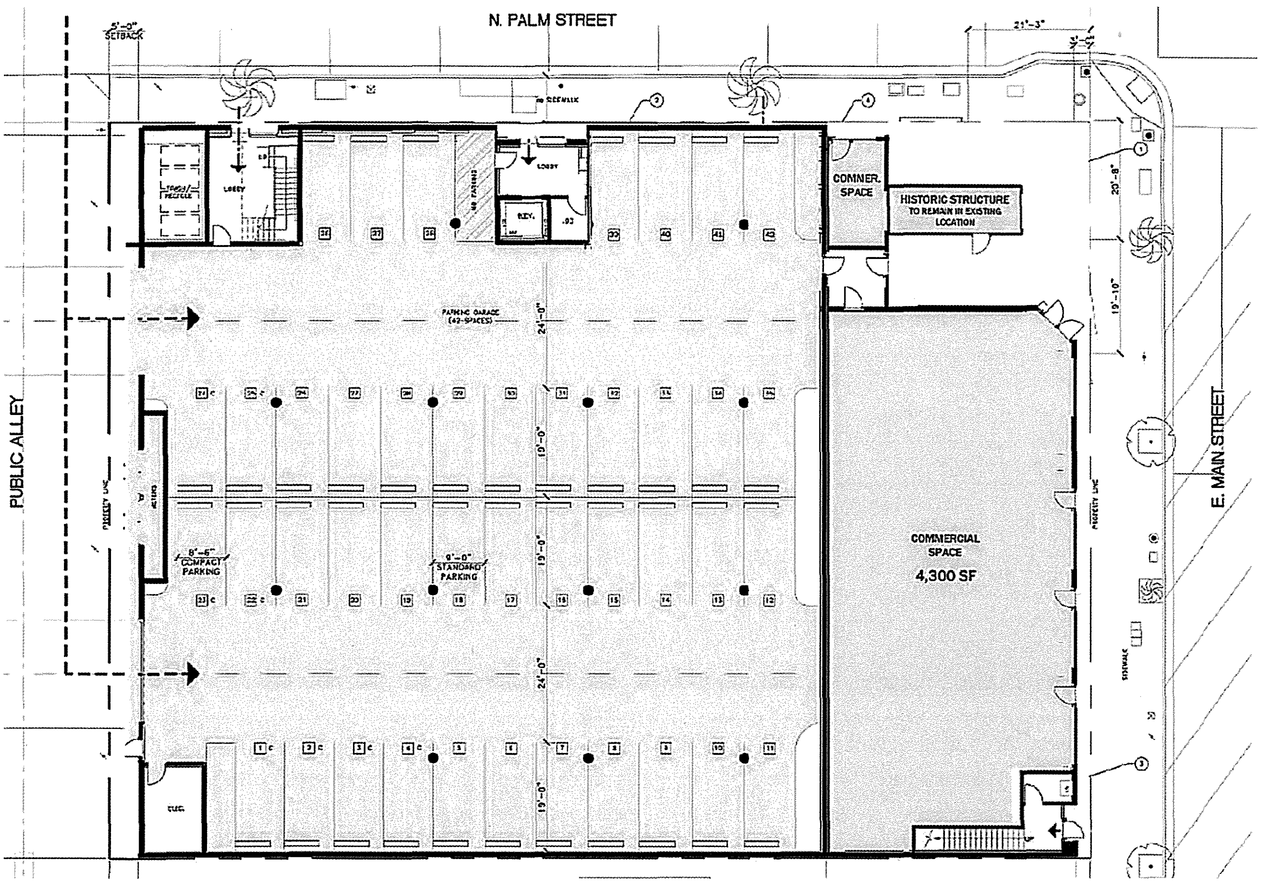


Figure 5: Proposed Site Plan

The area around the aboveground historic resource could be utilized as a forecourt and potentially for the historic use of congregating, service, and seating at the corner.

Pedestrian access to the commercial areas will be directly from East Main Street, while the pedestrian access to the residential portion of the project will be via two separate lobbies (elevator and stair) on North Palm Street and a stair access on East Main Street.

All proposed vehicle and utility access for the project will be via the public alley.

Staff solicits the DRC and HPC to comment on the acceptability of the site planning.

Parking

As demonstrated in the following table (Table 2), the 42 parking spaces provided onsite meets and exceeds the Off-street Parking Regulations found in the DTSP.

Classification	Square Footage	Parking Ratio	Required Parking
Commercial Uses	Approximately 4,652 square feet	2 spaces / 1000 - square feet	9 spaces
Residential Uses	Number of units comprising of square footage less than 1,500 square feet: 22	1 space / 1,500 square feet (per residential unit)	22 spaces
	Number of units comprising of square footage greater than 1,500 square feet, but less than 3,000 square feet: 3	1 space / 1,500 square feet (per residential unit)	6
Total			**37 Spaces**

Table 2: Off-street Parking Calculations

Therefore the project meets the DTSP's minimum off-street vehicle parking requirements and exceeds it by five (5) spaces.

However, the project plans do not indicate the location or provision of the required bicycle parking. The project will be required to provide a minimum of four (4) bicycle parking spaces; however, given the project's location in the heart of the Downtown and Goal 7 of the DTSP to promote the Park Once strategy, staff solicits the HPC and DRC to comment upon increasing the amount of required bicycle parking spaces.

Architecture and Materials

The proposed project's architectural character can be defined as being modern contemporary with Green building features incorporated into the building design (Figures 6 & 7). The project's design intent has been to integrate the past while successfully building the future and creating a contemporary statement of its time. Specifically, the architectural design has taken design elements from the surrounding neighboring buildings such as the Mission, Peirano Store, Nash Motor Sales Garage, and Hartman House. The architecture of the project has been described as eclectic with roots in 20th Century urban commercial architecture. The proposed project materials include brick veneer, cementitious siding, aluminum storefronts, stucco, and wood clad windows. These materials are complimentary and compatible with the materials used on significant adjacent buildings (Mission: adobe; Peirano Store or Nash Motor Sales Garage: brick with wood windows; Hartman House: Wood clapboard siding) but provides a contrast to clearly identify the structure as a modern addition to the historic fabric.

Figure 6: Proposed South Elevation (East Main Street)

Figure 7: Proposed East Elevation (North Palm Street)

Staff solicits the DRC and HPC to comment on the overall design, size and bulk and scale of the project and specifically on the architecture and materials.

<u>Other Department Technical Review</u>

Building & Safety – Accessibility Requirements

- Compliance with the Green Building Code will be required;
- The project is subject to compliance with the Federal and State accessibility compliance standards. A Certified Access Specialist program (CASp) professional is highly recommended. A full evaluation and technical review would follow during the formal process.

Public Works

- Improvements to the bus stop at the northwest corner of East Main Street and Palm Street;
- Submittal of a bicycle parking plan.

STAFF RECOMMENDATION

Design Review Committee Recommended Action

Staff solicits the DRC to provide comments on the plans, confirm that the design, size and bulk and scale is acceptable to finalize the project description and to begin environmental review, and to provide additional architectural direction to the design team.

Historic Preservation Committee Recommended Action

Staff solicits the HPC to provide comments on the plans, confirm that the Top Hat structure is being preserved in place, the proposed development is conceptually in conformance with the Secretary of Interior's Standards for Treatment of Historic Properties with Guidelines and the Downtown Specific Plan's Historic Resource Design Guidelines, and that the overall site design, size and bulk and scale is acceptable to finalize the project description and to begin environmental review, and to provide additional design direction to further the project's compliance with the Secretary of Interior's Standards for Treatment of Historic Properties with Guidelines and the Downtown Specific Plan's Historic Resource Design Guidelines.

Next Steps

The project is subject to the following:

- CEQA Compliance
- Approval of Inclusionary Housing Plan by the Community Development Director Design Review Committee / Historic Preservation Committee Approval
- Coastal Development Permit Approval
- City Council "Call for Review" Notification
- Design Review Confirmation of Details
- Plan Check and Building Permit issuance through the Building and Safety Department
- Design Review Compliance Inspection

ATTACHMENTS

A. Site Location & Context
B. California State Historic Resource Commission State Eligibility Letter dated July 13, 2018.

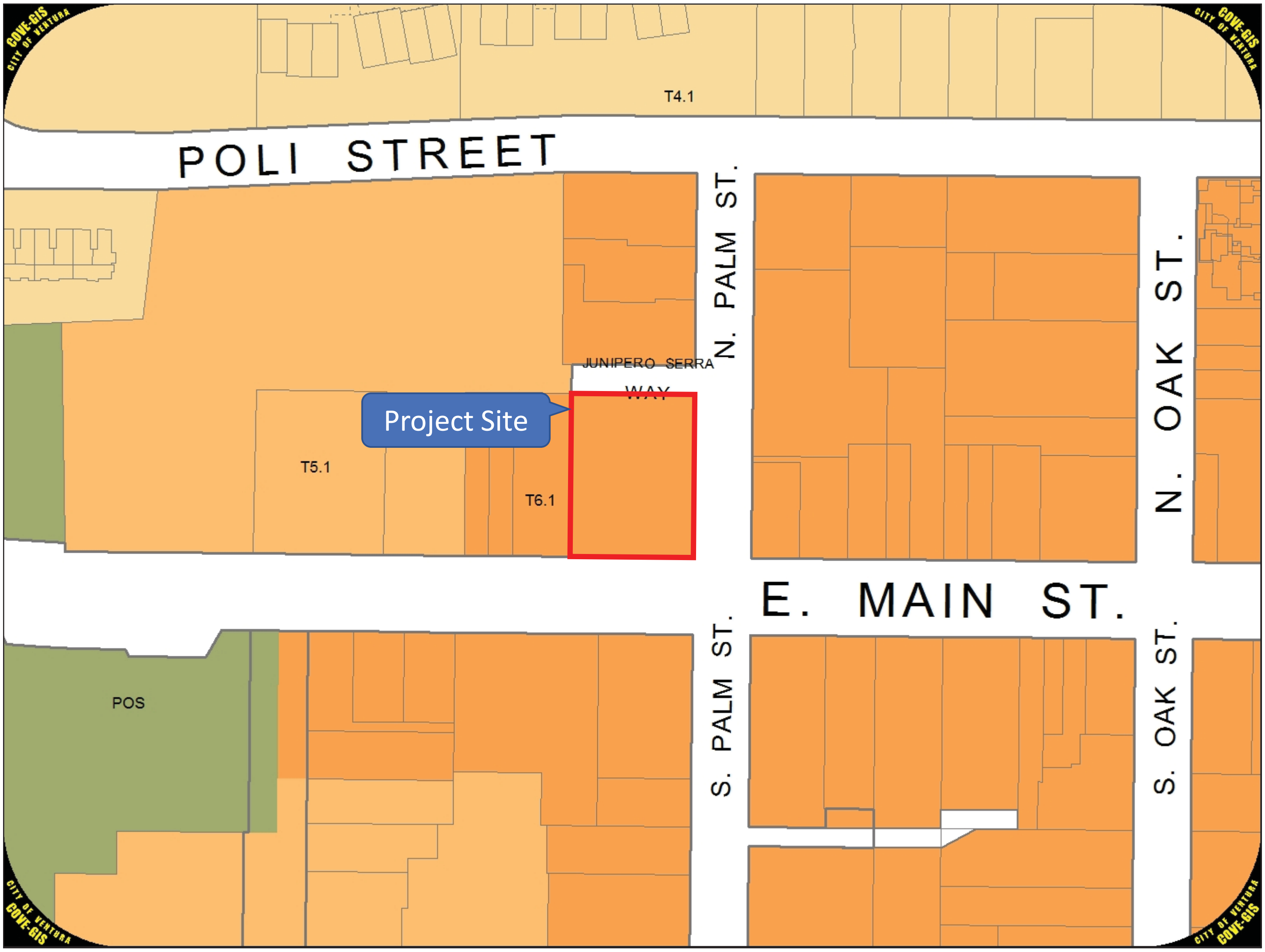
C. Greenwood and Associates Cultural Resource Phase I Cultural Resource Investigation dated July 2005
D. Greenwood and Associates Cultural Resource Consultants' Top Hat Burger Palace Relocation dated March 9, 2006
E. San Buenaventura Research Associates Phase II Historic Resources Report dated August 27, 2010
F. Rincon Consultants' Secretary of the Interior's Standards Compliance Review for the Anacapa Courts Project, dated November 21, 2016
G. Rincon Consultants' Anacapa Courts Project, Downtown Specific Plan Historic Resource Design Guidelines and Secretary of the Interior's Standards Compliance Review, City and County of Ventura dated June 6, 2018
H. Historic Resources Group 2007 Historic Resources Survey Update (Excerpt)
I. Zoning Consistency Tables
J. Project Plans dated September 5, 2018

Attachment A

Site Location & Context

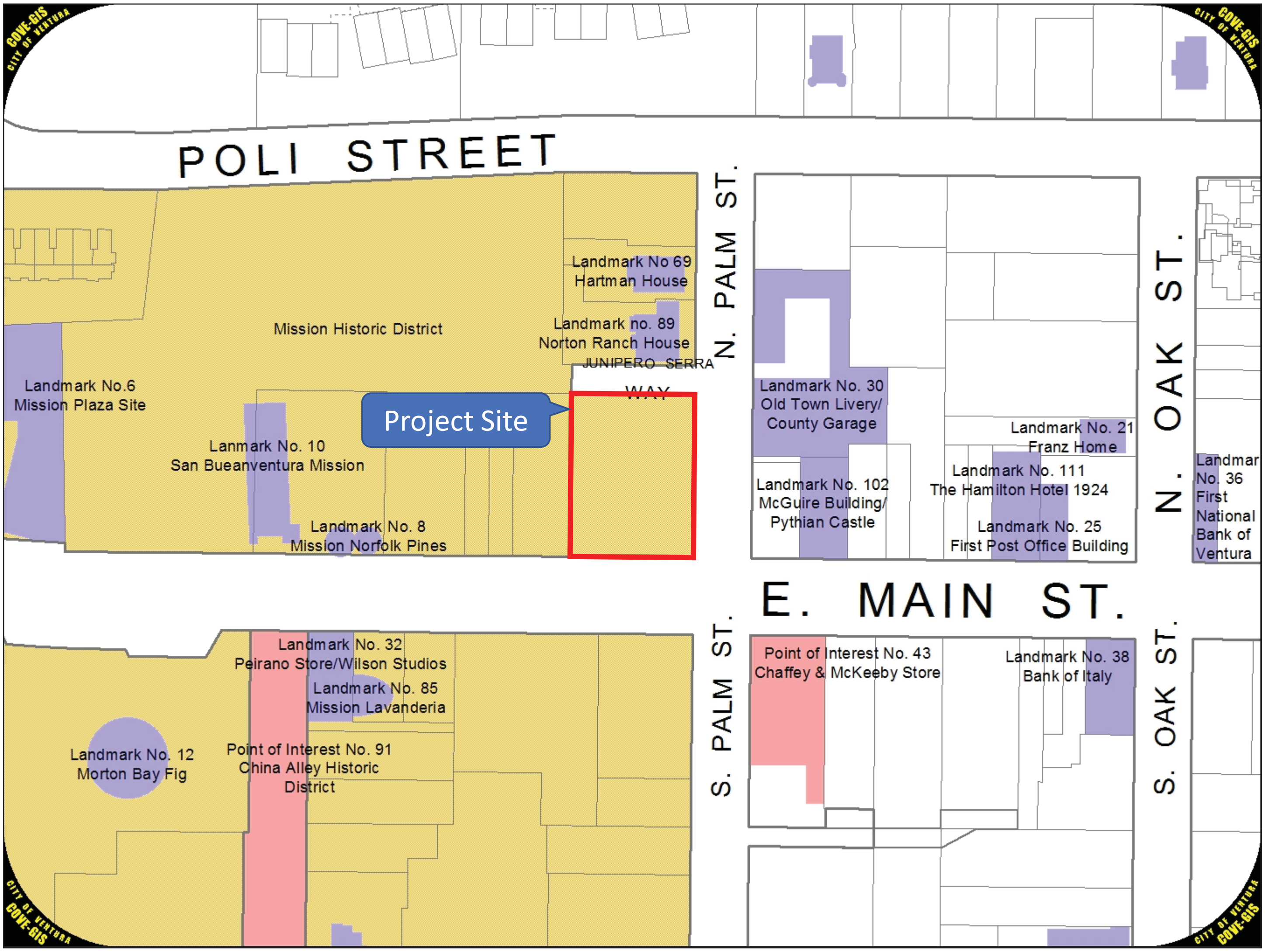
Attachment A
Site Location & Context

PROJ-8105
Aerial



Attachment A
Site Location & Context

PROJ-8105
DTSP Zoning



Attachment A
Site Location & Context

PROJ-8105
Surrounding Historic Resources

Attachment B

California State Historic Resource Commission
State Eligibility Letter dated July 13, 2018

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov

CITY OF VENTURA
JUL 16 2018
C... DEVELOPMENT

July 13, 2018

Jared Rosengren, Associate Planner
Community Development Department
City of Ventura
501 Poli Street
Ventura, California 93001

RE: **Top Hat Hot Dog Stand, Determination of Eligibility**
National Register of Historic Places

Dear Mr. Rosengren:

I am writing to inform you that on July 9, 2018, Top Hat Hot Dog Stand was determined eligible for the National Register of Historic Places (National Register). As a result of being determined eligible for the National Register, this property has been listed in the California Register of Historical Resources, pursuant to Section 4851(a)(2) of the California Code of Regulations.

There are no restrictions placed upon a private property owner with regard to normal use, maintenance, or sale of a property determined eligible for the National Register. However, a project that may cause substantial adverse changes in the significance of a registered property may require compliance with local ordinances or the California Environmental Quality Act. In addition, registered properties damaged due to a natural disaster may be subject to the provisions of Section 5028 of the Public Resources Code regarding demolition or significant alterations, if imminent threat to life safety does not exist.

If you have any questions or require further information, please contact Amy Crain of the Registration Unit at (916) 445-7009.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Enclosure

Attachment C

Greenwood and Associates Cultural Resource Phase I Cultural Resource Investigation dated July 2005

Phase I Cultural Resource Investigation,

Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura

Prepared for:

WestStar Ltd.
928 Carpinteria St., Ste. 8
Santa Barbara, CA 93103

Prepared by:

Roberta S. Greenwood, RPA, and
Dana N. Slawson, M. Arch.

July 2005

Greenwood and Associates
725 Jacon Way
Pacific Palisades, CA 90272

CONTENTS

FIGURES

INTRODUCTION

Greenwood and Associates is pleased to provide to WestStar Ltd. this preliminary investigation of the cultural resources that are either presently found to exist, or those that may have left evidence in the form of archaeological remains below the present surface. The parcel of concern is the northwest corner of Main and Palm Streets in the historic core of old downtown Ventura (Figure 1). The property has had a long and complex history of use, and falls within the boundaries of the San Buenaventura Mission and Mission Compound listed on the National Register of Historic Places (NRHP) in 1975. The District is bounded by Santa Clara Street on the south, Ventura Avenue on the west, Poli Street on the north, and Palm Street on the east. Within the District, as of the 1998 City of Ventura Master Plan, are six individually designated City Landmarks and several archaeological sites. Recognition on the NRHP does not automatically afford protection for undertakings without federal funding, licensing, or other jurisdiction. However, eligibility to the NRHP automatically enters a property on the California Register of Historical Places, and this designation, along with the local and state landmarking, does ensure that potential impacts to the cultural resources are given consideration under the California Environmental Quality Act (CEQA). The area encompassed by the NRHP boundaries is designated as the City Landmark No. 10 called Mission Historic District (San Buenaventura 1989:6-185), and is also California Historic Landmark No. 310. Within the proposed Downtown Specific Plan Boundary, the block is designated as Urban Core (UC).

NATURE OF THE PROJECT

Downtown Ventura Properties LLC has applied to the City for a mixed use development that covers 275 to 299 East Main Street. The pre-application plans drawn in June 2004 (Austin Veum Robbins Partners 2004) depicted a four-story building with 32 one- and two-story condominium units. Underground parking is provided for 67 vehicles, and the ground floor includes retail spaces. The land will be covered up to the existing west property line and the existing one-story building that is adjacent. There may have been subsequent design changes, but the footprint of the structure and potential for impacts remain the same.

The following individuals have contributed to this study: John M. Foster, RPA, did all that was possible in terms of archaeological surface survey; Dana N. Slawson, M. Arch., prepared the physical analysis of the existing structure and gathered public records; and Shelley Bookspan, PhD., was the lead historian, assisted locally by Linda Bentz. The illustrations were developed by Alice Hale. Dr. Charles Johnson of the Ventura County Museum of History & Art graciously assisted with archival materials and photographs.

HISTORICAL SUMMARY

It is not the intent of this report to recapitulate the history of San Buenaventura Mission and its quadrangles, courtyards, aqueducts, and activity areas, but to suggest the potential that any such remains and those of the many later uses of the block may still exist below the current pavement. Developments in the immediate vicinity illustrated on Sanborn fire insurance maps and referenced historically include the following:

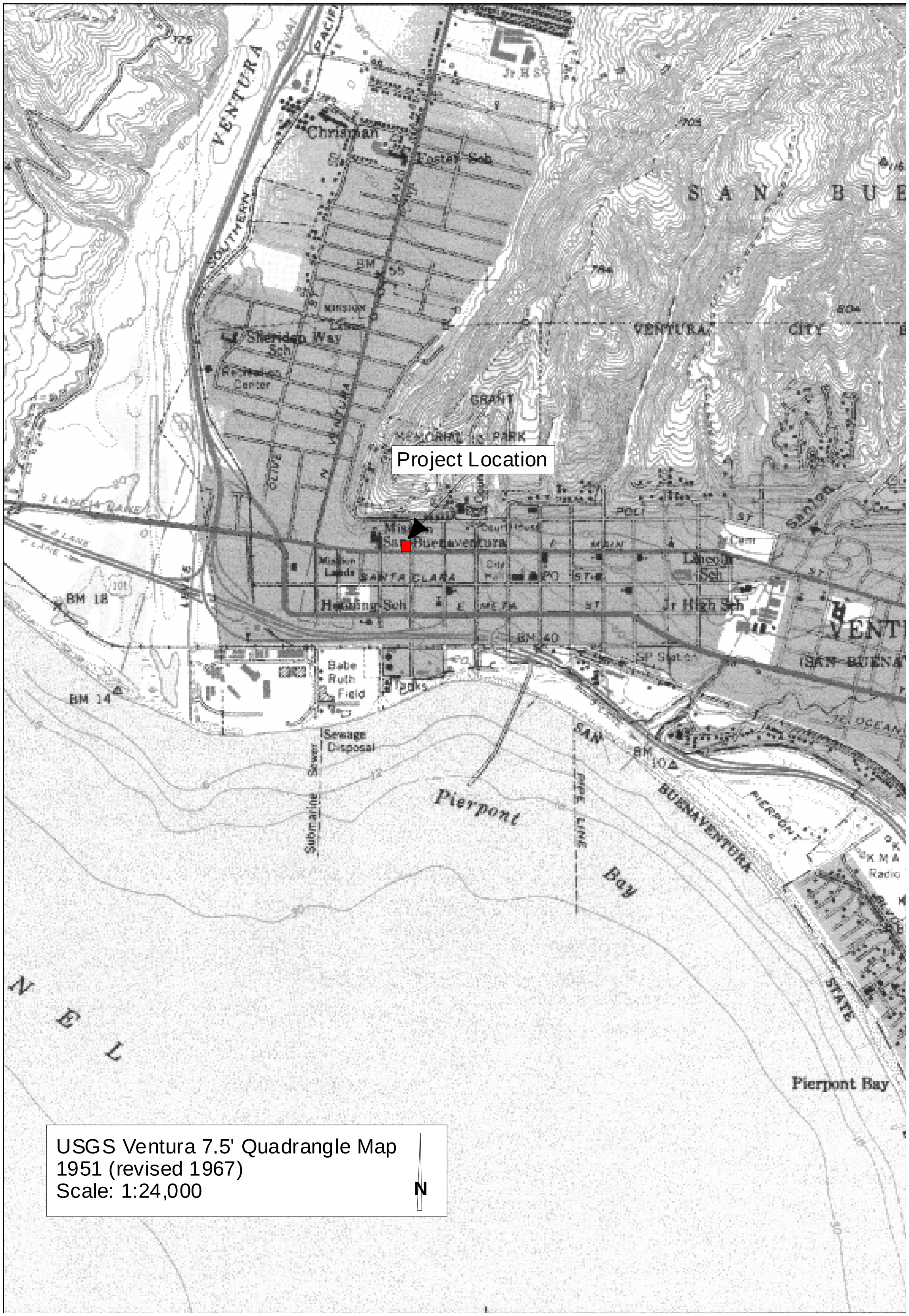


Figure 1. Project Vicinity Map

1886: From east to west from the corner of Palm and East Main Streets, were a saloon with a bowling alley and hose house of the hook and ladder company behind; attached thereto was a billiards room with detached shed in back; then the Chaffee, Gilbert and Co. lumber yard with a small office and sleeping room at its southeast corner; and then the easternmost wing of the Mission (Figure 2). The old adobe rooms along the north-south wall were being used as a moulding, sash and door company, lime and cement office, lumber storage, and lumber house, all retaining their tiled roofs. Rooms facing Main Street, from east to west, were used as a dwelling, carpenter shop, and vacant. The hose house may be that of the Hook and Ladder Co. No. 1 organized in 1878 (T&W 1883:372). The Chaffee, Gilbert & Bonestall lumberyard was established prior to 1883 (T&W 1883:369).

1890: By this year, the Anacapa Hotel (Figure 3) was in business at the corner. West of a vacant lot stood the new and impressive brick Armory Hall (Figure 4) replacing the lumber yard; a blacksmith shop with a dwelling behind it; another vacant lot; then a "T.C" (a small tin-clad structure), oven, and stable behind. A vacant building was adjacent to its west wall.

The 3-story wood frame Anacapa Hotel was built by Fridolin Hartman in 1888 with board and batten siding at a cost of $95,940 plus $1,000 for the porch that extended into Main and Palm Streets (Figure 4). It was the tallest building in Ventura for many years and had one of the earliest telephones, no. 12 (Greenwood et al. 1980:48). When described in 1929, it had 60 bed rooms and six baths, and was then owned by the Hartman Ranch Company (Building Description Blanks No. 2600)

1892: The hotel was further developed by this year, and the lot between it and Armory Hall was indicated as 48 ft wide. The same small structure was depicted at its west wall, followed by a vacant lot of 28 ft. The small structure next to the west had been substantially enlarged to house a bakery and confectionery, bake house, oven, storage, and stable (Figure 5). It was another 49 ft to the boundary of the Mission lot containing the Priest's House.

1906: The Anacapa Hotel had added a wood house and laundry at the rear of its lot. If accurately depicted, the Armory Hall has lost some of its frontage and is set back farther from Main Street, while adding electric footlights, a stage, scenery, and a studio at the rear. A blacksmith and wagon building was next door, and then the same 28-foot vacant lot. The bakery now included a lunchroom. The undertaker was next door with additional stables at the back of the lot (Figure 6). The priest's house is shown on the adjacent lot, 50 ft distant. Early in the decade, the Washington Hotel briefly took over structures used by the undertaker and bakery (Tolley 2002:42).

1910: The Anacapa Hotel maintained the same configuration, but no longer had the porch extending into Main Street (Figure 7). The same blacksmith and wagon shop, bakery and lunchroom, undertaker's building and stables, and undeveloped lots were shown.

The Assessor's maps in 1912 show that the south half of Parcel 58, the area of concern, was divided into multiple small lots 25 or 30 feet wide, except for the double-wide corner then owned by Katherine Hartman. The next four lots to the west were held by Margaret and Thomas Robinson, followed by a single lot owned by M. Kuhlman, two lots owned by B. Milbrook, and the westernmost two by E. Eastwood (Greenwood et al. 1980:50).

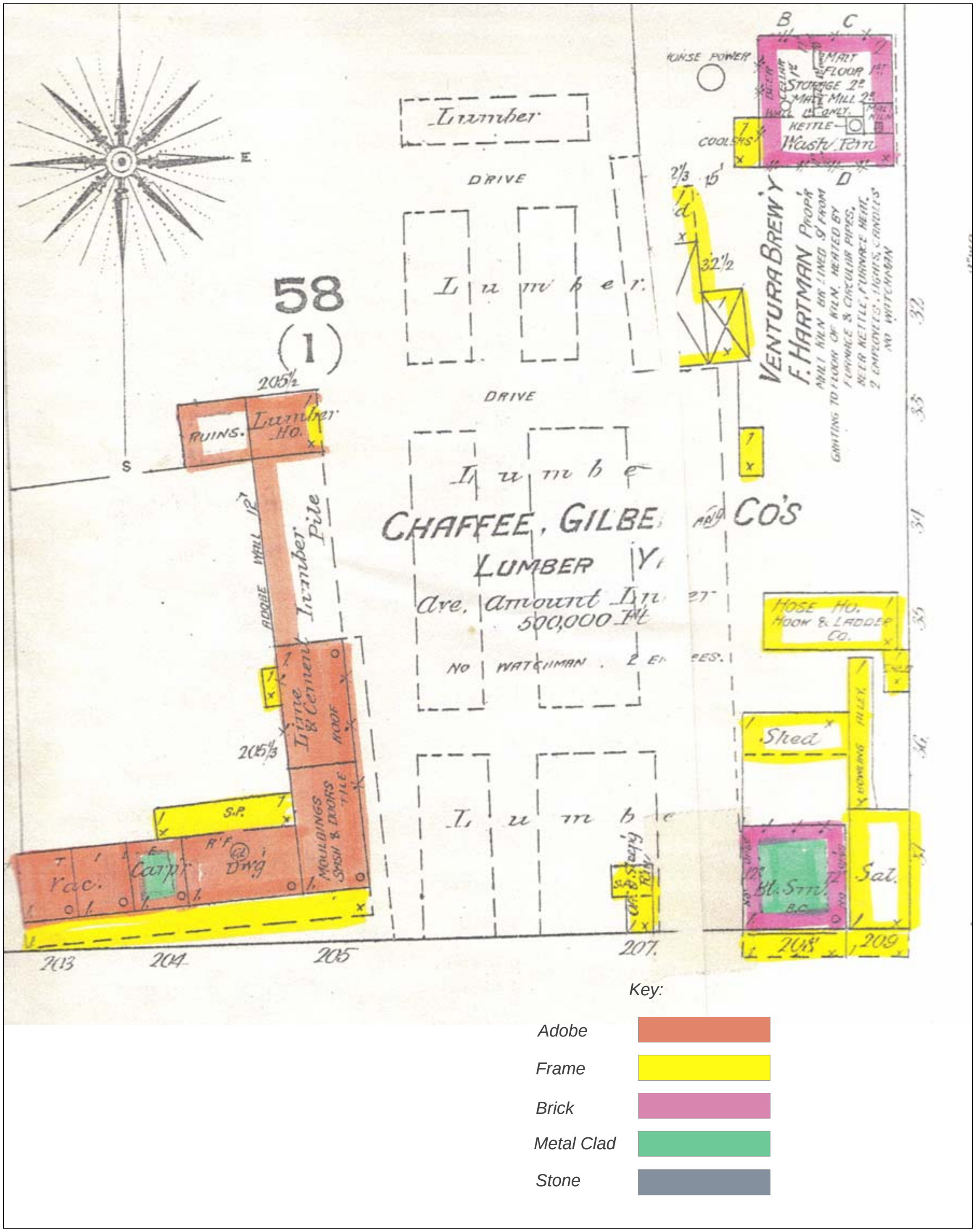


Figure 2. Sanborn Insurance Map, 1886

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Figure 3. Anacapa Hotel, 1898 (Ventura County Museum of History & Art, # 3815)

Figure 4. Armory Hall, 1890-1924 (Ventura County Museum of History & Art, # 3577)

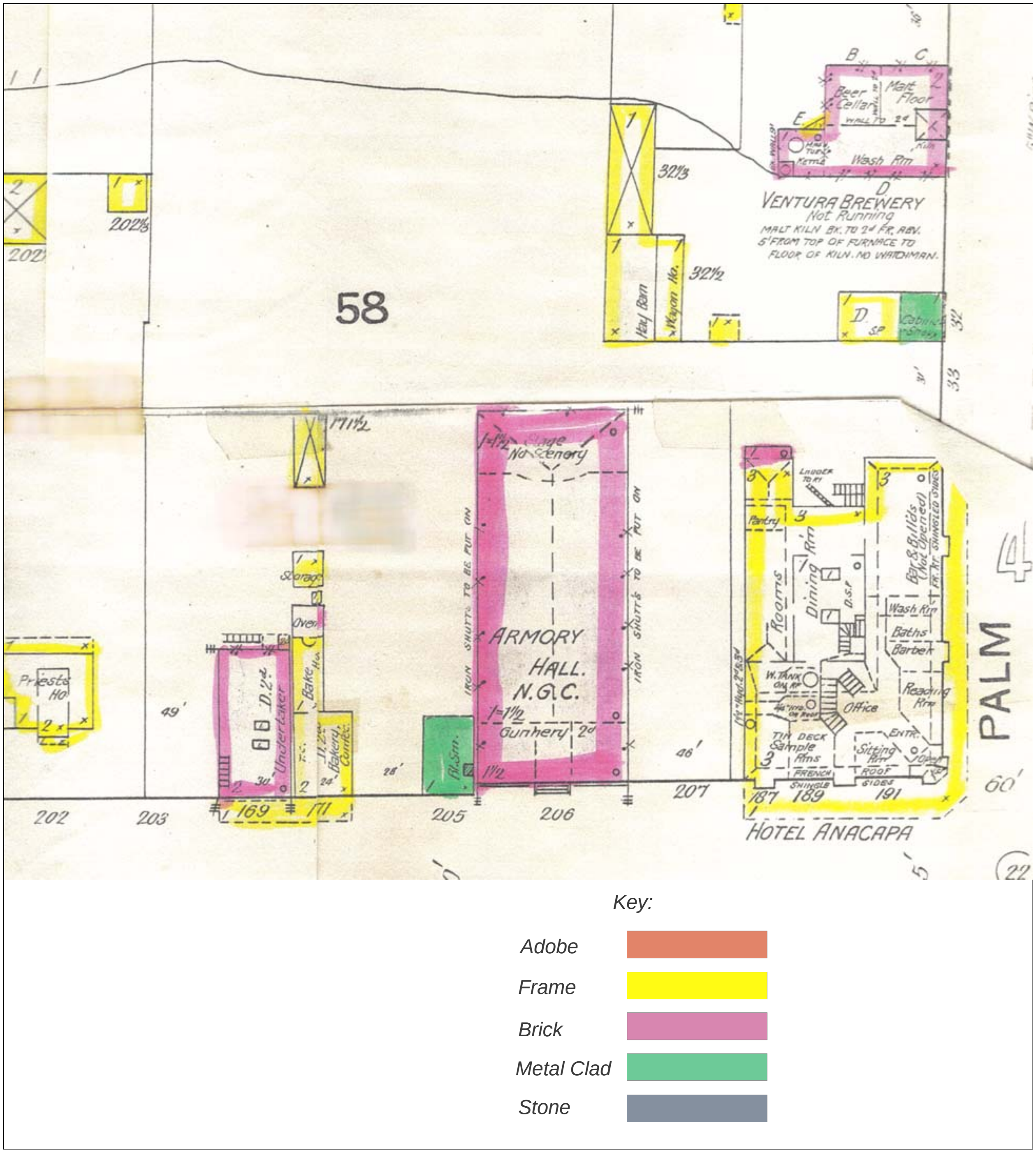

Figure 5. Sanborn Insurance Map, 1892

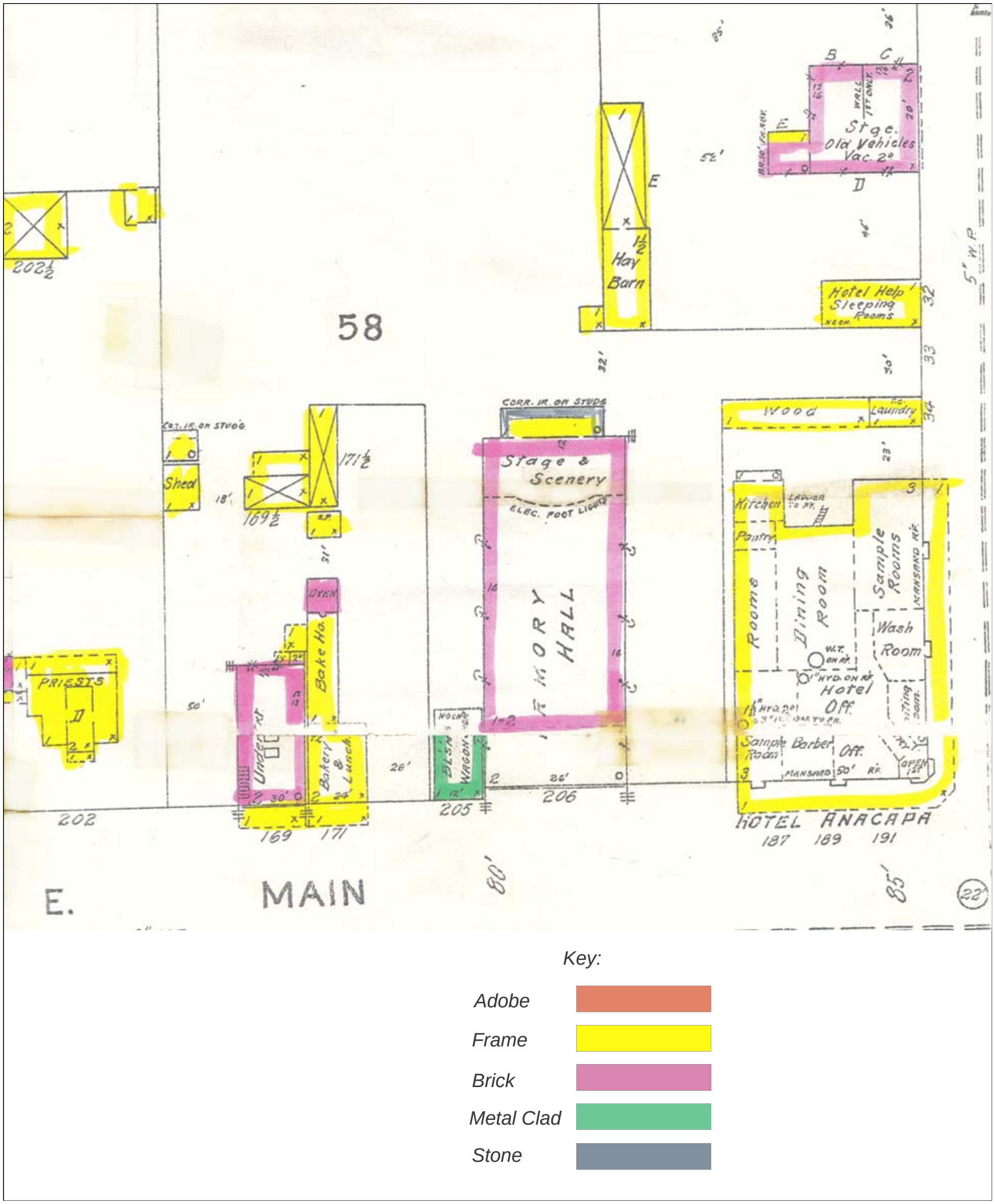

Figure 6. Sanborn Insurance Map, 1906

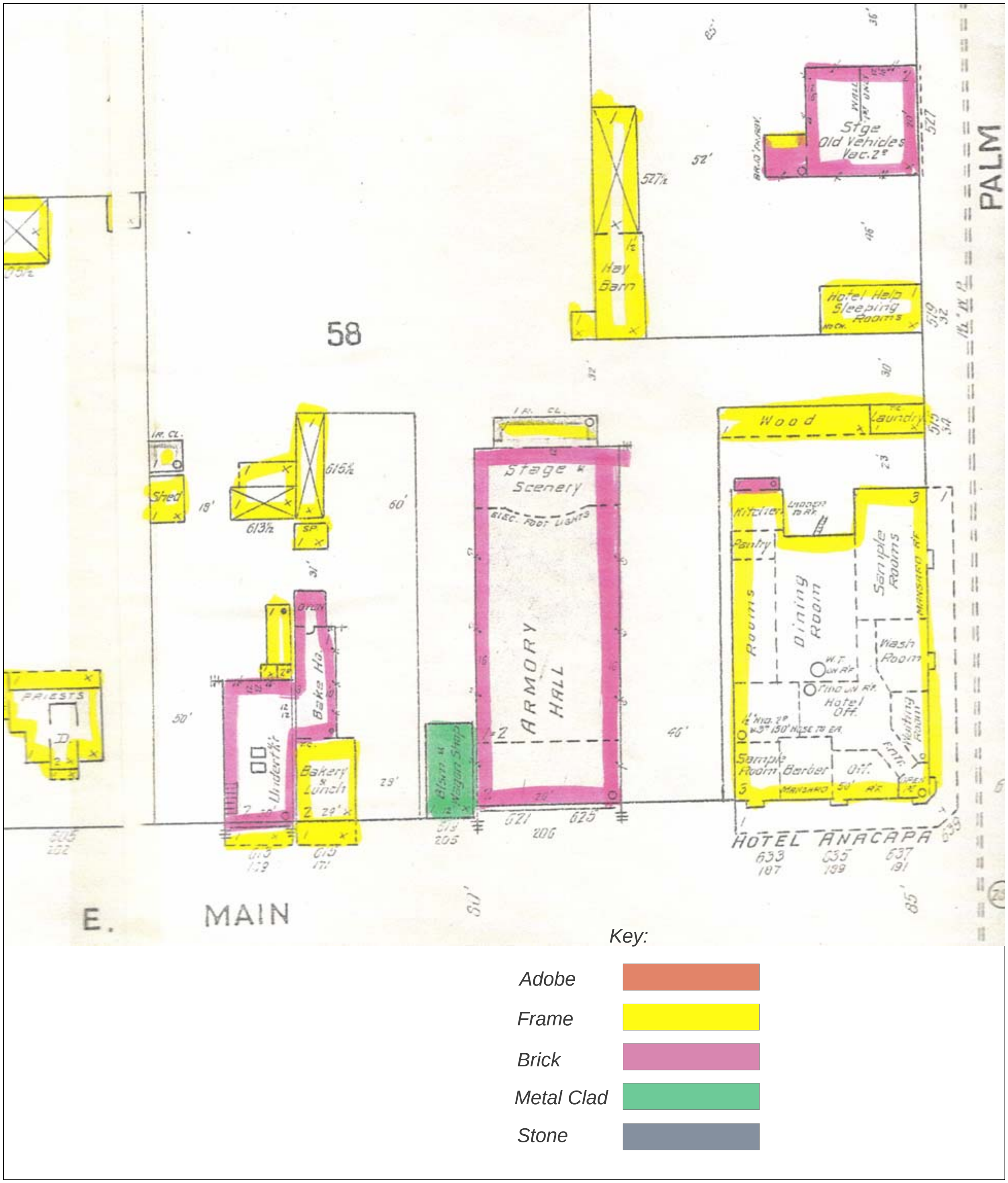

Figure 7. Sanborn Insurance Map, 1910

1928: The hotel still stood when the map was prepared (Figure 8), but it was torn down during 1928 (Triem 1985:203) or 1929. The rear alley was well defined, and the 25 ft immediately west of the hotel was being used for parking and used car sales. Replacing Armory Hall, razed in 1924, was a large brick building with skylights extending from the street to the alley. The frontage contained one restaurant and another space labeled cigars and restaurant. Abutting the west wall was another small restaurant, a pool hall with skylights, another restaurant with general storage behind, and four additional commercial structures, at least one of which was another restaurant and one was a plumbing shop.

1950: The hotel is gone, but a small structure was depicted at the very corner of the vacant lot, labeled restaurant. This is assumed to be Top Hat (Figure 9). No original building permits were found for the enterprise, but a permit for an addition was granted in 1948, as related in the building history below. The balance of the corner lot was given over to used car sales, with a sales office facing Main Street. Next west is depicted the same very large steel trussed structure extending from Main Street to the alley, used for furniture, with two contiguous smaller buildings also used for furniture. The same brick building depicted in 1928, it had been doubled in width.

A restaurant abuts their west wall, and contiguous to this, a complex of three commercial buildings with two small structures at the rear of the lot. After World War II, part of the undertaker's building was demolished, with the remaining portion converted to Mission storage and garage.

Some of the businesses listed on the block in the *1948-1949 County Directory* (371) include, from west to east: Hotel Washington at no. 227; Personal Finance Co. (231); Rudy & Millie Spanish Kitchen Restaurant (237); Ventura Furniture Mart, Edward Greenfield, prop. (243); K&S Pool Hall (249); Bowler Furniture Co. (265); Ventura County Sanitary Co. (273)}; and then the Army and Navy Recruiting Offices at 299 East Main.

Current Status: The surviving portion of the undertaker's structure, built over a Mission storage room, was demolished in 1999, the open spaces were graded, and a newly designed parking lot was completed in 1999-2000 (Tolley 2002:143). The only structure presently on the project area is the Top Hat.

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ARCHAEOLOGY

Portions of Lots 5 and 6 were accessible for a surface survey in 1980 which reported observing both prehistoric and historical remains. A shell deposit began just west of Palm Street and continued into an open playing field obscured by dense vegetative cover. Among the species noted were clam, mussel, and abalone. Historical materials included bricks made by the Los Angeles Pressed Brick Co. (1887-1926), glass fragments, and sherds of white earthenware and other ceramics (Greenwood et al. 1980:63). The *Star Free Press* reported in 1974 that the skeletons of three children were found during excavations in back of the old Armory building (Greenwood et al. 1980:51). Prehistoric sites have been recorded both north and south of Main Street within the NRHP district.

The present surface is obscured by paved parking, and no evidence of past land uses or activities is currently visible. Without referring to the many archaeological investigations that have taken place within the NRHP District, the nearest and most relevant is the series of tests conducted in support of the Holy Cross School Project. As summarized by Tolley (2002), several different investigators trenched or excavated between 1996 and 2000. The effort was

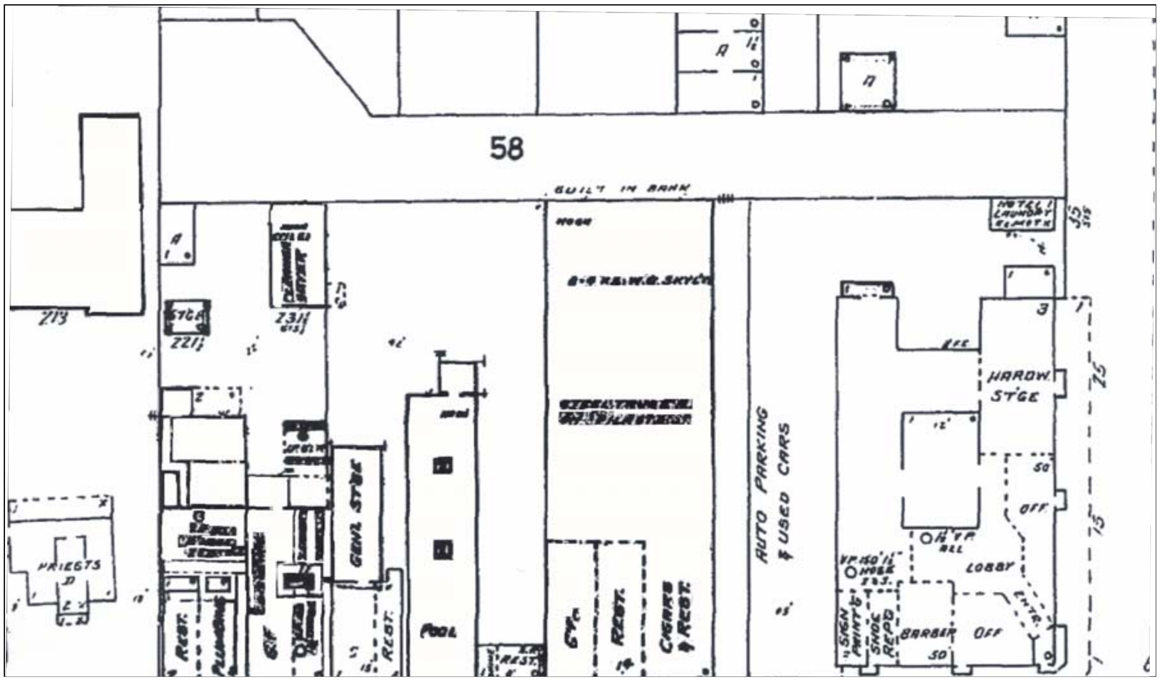

Figure 8. Sanborn Insurance Map, 1928

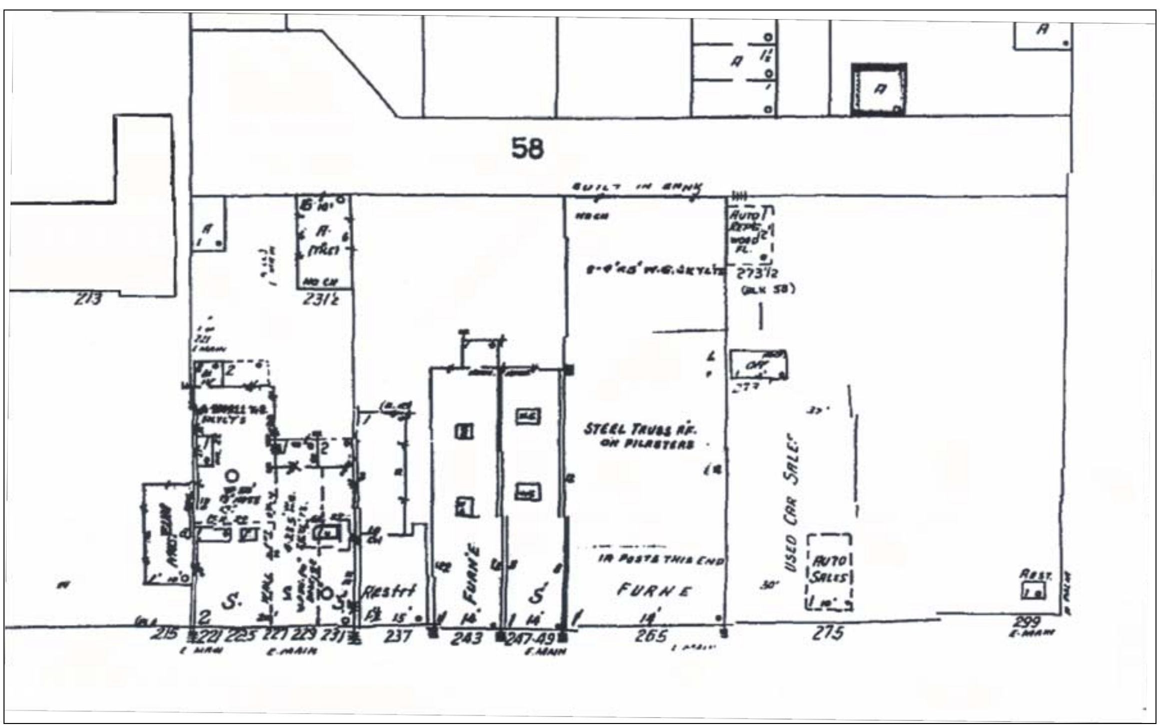

Figure 9. Sanborn Insurance Map, 1950

first concentrated on the north wing of the Mission quadrangle (Costello and Padon 1996), but later extended into the easternmost wall of the east wing. Tolley correlated the ground plan of the Mission quadrangle with the site plan as it then existed (Figure 10) and suggested certain resources that would extend eastward beyond the limits of that study, e.g., lines of the aqueducts, possible tanning vats, cistern, metal-working shops, the 21 Palm Restaurant, Mission storage rooms and eastern wall, a well, and cow corrals “east of the Mission quadrangle” (Tolley 2002:129,150-152.). According to Librado, Harrington’s local Native American informant, 15 cattle were slaughtered each week where the Anacapa Hotel was subsequently located, the meat for local consumption and the hides and tallow for Mission trade (Greenwood et al. 1980:26). Two threshing floors have also been reported at this corner.

Throughout the sequences of construction and demolition, the Sanborn maps do not symbolize the presence of any basements. Disturbance of the elevation by grading is suggested by the observation that the ground level around Top Hat is lower than that of the surrounding paved lot, but the presumed absence of basements carries the implication that archaeological resources may be present. In the excavations adjacent to this parcel, which were limited to areas of direct impact, cultural resources were recovered to 230 cm below grade (Tolley 2002).

HISTORICAL STRUCTURE

History

The only standing structure on the parcel is the Top Hat. In 1982, with a grant from the State Office of Historic Preservation, the City conducted a survey of the downtown and Ventura Avenue areas. The results led to a list of designated City Historic Landmarks that included the NRHP District (San Buenaventura 1989:6-170 - 6.191). The Top Hat was not individually named at that time, for one or both of two reasons. It was not recognized as meeting the 50-year criterion of age at the time, and there was less concern in the 1980s for examples of vernacular architecture.

The 1950 Sanborn map depicts the structure already existing in this location, and it may date back to the early 1940s. Definitive evidence for the early 1940s is lacking. A photo tentatively dated to 1943 shows a parade of Seabees from Port Hueneme participating in a War Bond rally (Figure 11). The stage and viewing platform obscure the background, but it does not appear that the structure that would become the Top Hat was present on the corner at that time. A hand-written manuscript on file at the Ventura County Museum of History & Art notes that Stats Super Market Grocery was at 295-299 Main Street in 1938 and 1939-1940, but that the lot was vacant in 1941-1942. No reference was cited (Johnson, pers. comm. 2005).

The same anonymous source agrees with the *1946 City Directory* (LADC 1946:78, 269) that lists the Army and Navy Recruiting Offices and the Chamber of Commerce then located at 299 East Main Street. The 1946 building was also known as Victory House (Johnson, pers. comm.. 2005). It is possible that the structure that would become Top Hat was built for the military purpose, since the use of steel for fabrication during the war years would have been limited to war-related or defense activities. The recruiting offices were still listed at this address in 1948-1949, but the Chamber of Commerce had moved to 478 East Santa Clara St. (LADC 1948-1949:371).

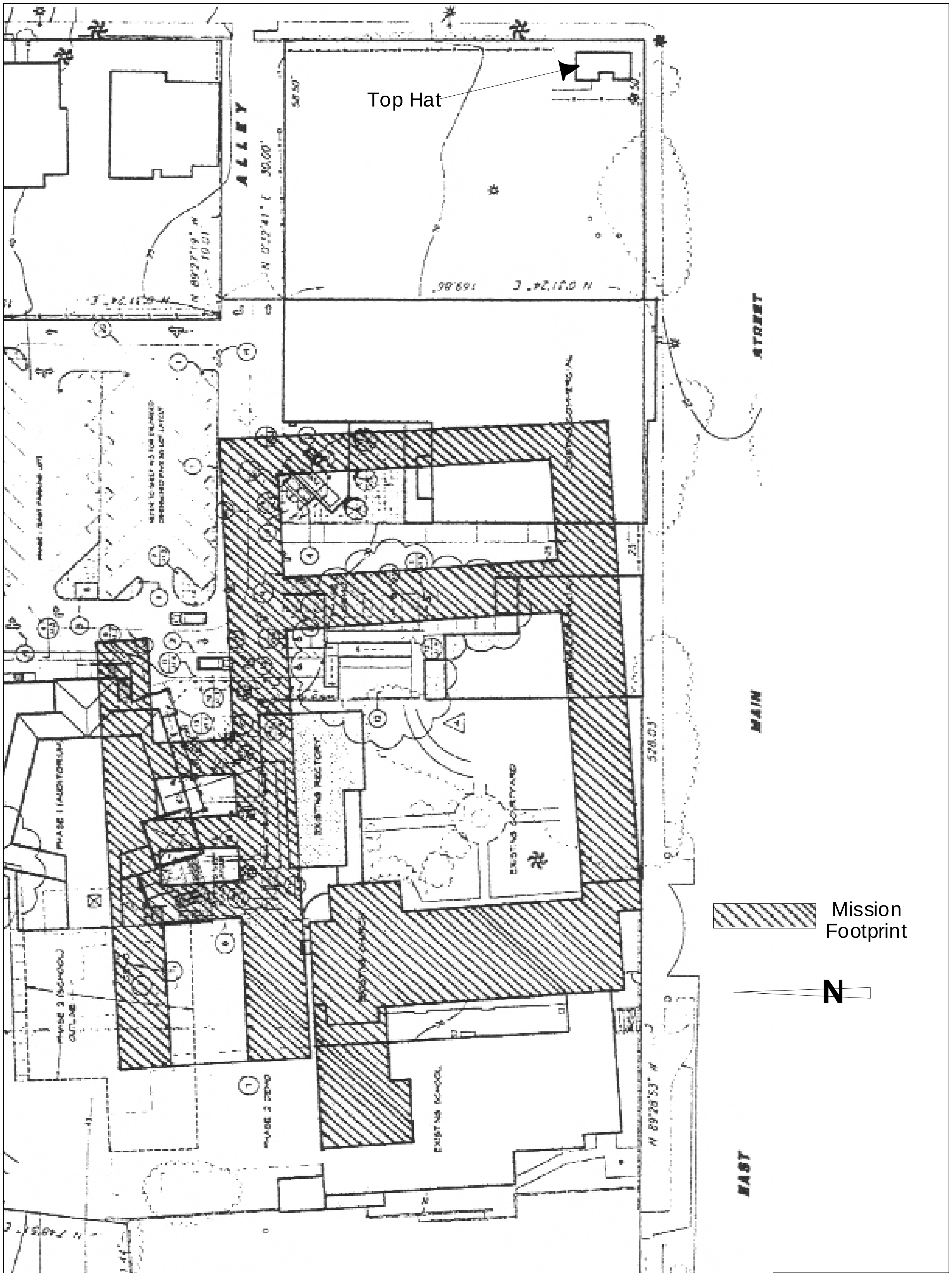

Figure 10. Site Plan with Post-1812 Mission Quadrangle Overlay (adapted from Tolley 2002:123)

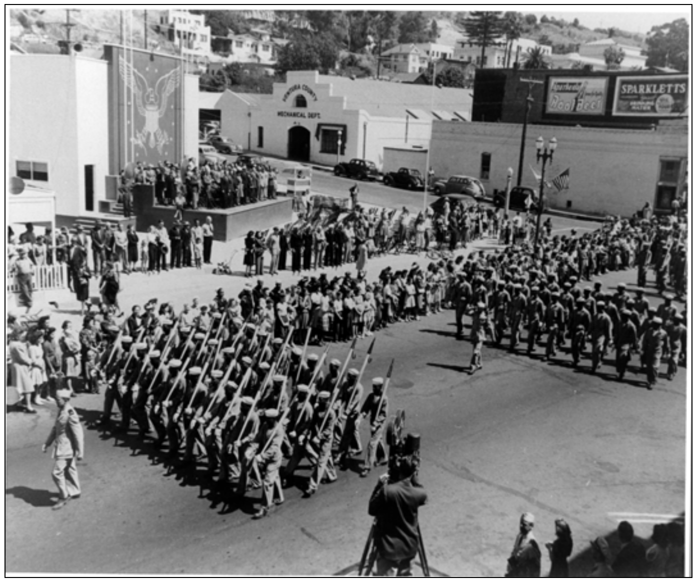

Figure 11. Seabees marching in war bond rally parade, ca. 1943 (Ventura County Museum of History & Art, # 11594)

The transition to commercial use as a restaurant had taken place by 1948. Building Permit No. 11911 dated Feb. 2, 1948 approved a 5 x 5 ft metal addition to the existing all metal “hot dog stand.” The wording refers also to an 8 x 8 ft metal slab, but it is not clear whether this was existing or to be added. It was then owned by Ed Carr and Harold Serene. At the same time they were granted Electrical Permit No. 17213 for six outlets, three fixtures, and a service connection for the “hot dog stand.” A temporary Christmas tree stand received an electrical permit in December 1948 to hook eight outlets “into existing Building.”

S. T. Stewart was the owner in 1950 when Permit No. 13091 approved his own labor to “finish roof and small partition” for $50.00. In the following year, Mrs. Eva Stewart applied for a permit to erect a neon sign post, and in 1952, her Sign Permit No. 19-11 for work to be done by the Coca Cola Bottling Co. is the earliest explicit citation of the building under the name Top Hat Café found so far. The name is also clear in the 1952 photograph (Figure 12). At this time, the structure was seemingly painted a dark color and had a canvas awning and customer stools in front. It had reached its full size of 8 x 22 ft by this year (Commercial Building Record). The same or a new pole sign was hung in 1955.

The City Directory for 1959 named Mrs. Doris Chandler as owner of the restaurant, succeeded by Mrs. Doris Mashburn in 1961 (Commercial Building Record). Certificate of Occupancy No. 21 was filed in 1963 when Top Hat was acquired by John H. and John W. Durham. Another was issued in 1964 in the name of Delbert L. Woods. In 1966, the Top Hat was acquired by Mrs. Gretchen McKee, mother of the present owner, Mrs. Charlotte Bell, and it has remained in the family’s ownership and operation since that time.

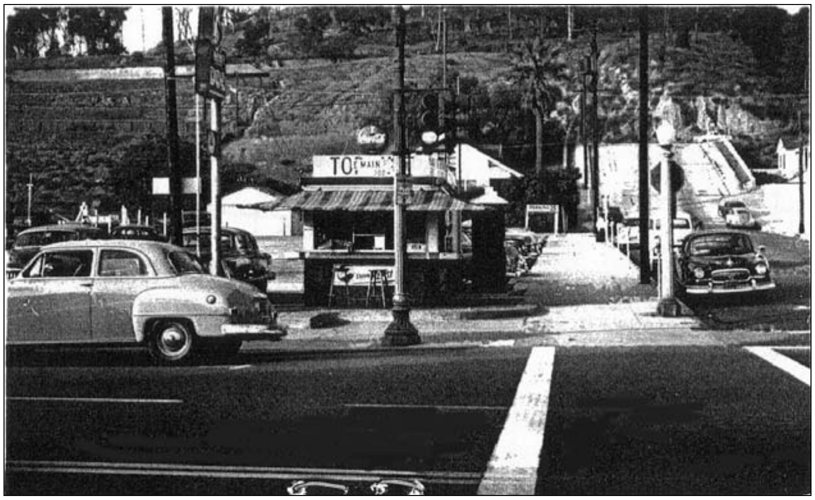

Figure 12. Top Hat, 1952
(Photograph from Commercial
Building Record, 1952)

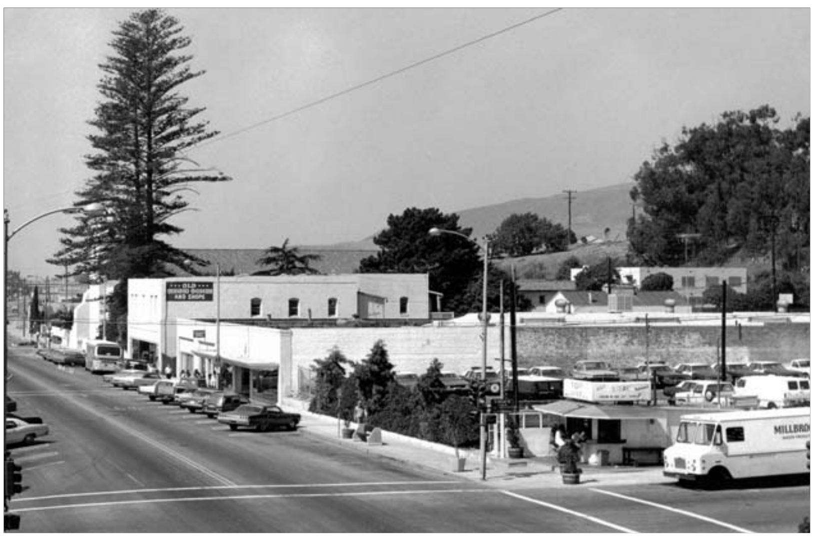

Figure 13. Top Hat, 1975.
Sign reads ‘Top Hat//Steak
Sandwich/Park in Side Lot’
(Photography by Jones,1975)

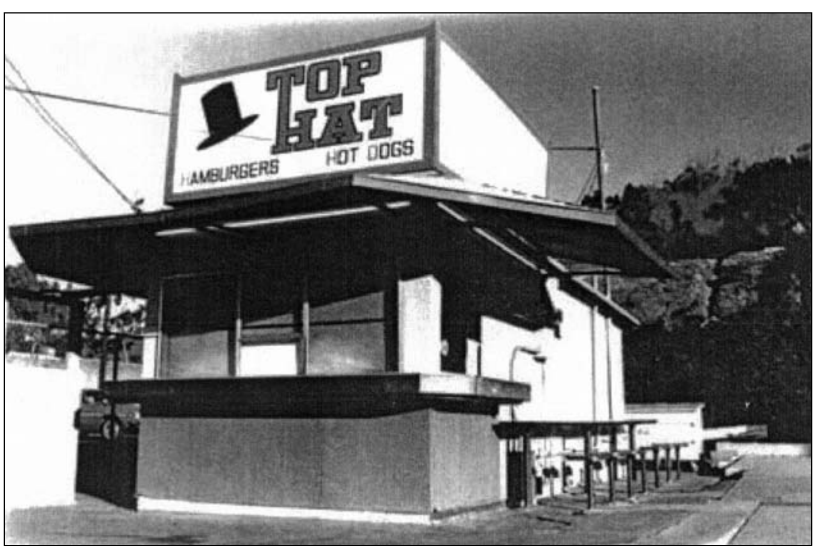

Figure 14. Top Hat, ca. 1985
(Photograph from the
collection of Charlotte Bell)

According to Charlotte Bell, the current owner with her grandson Jack Bell, the Top Hat Hamburger Palace was originally a roughly 8 x 8 ft structure that was built and first used as a sales office for U. S. War Bonds. Sometime during World War II, it was adapted for use as a restaurant. She bases her concept of when the building came into being on her recollection of the sale of War Bonds. Her belief that it became a hot dog stand during WW II is based on stories she has heard of soldiers returning home and dining there. Charlotte Bell's parents, Homer and Gretchen McKee, purchased the business in 1966 and Charlotte became manager soon after that. When the McKees bought the business from the Delbert L. Woods family, a man named Hudson was then the manager. When purchased, and through the early years of the McKee-Bell tenure, there were picnic tables in front of the structure along Main Street, and also along the east side of the building facing Palm Street. The counter along the east wall and stools on pipe posts added by Mrs. Bell were present by 1985 (Figure 13). The stools were replaced with a wooden plank bench less than 10 years ago. There was also a pole sign off the southwest corner of the stand with a hot dog graphic. It was removed (although the pole survives) approximately 30 years ago (pers. comm. 2005). This may relate to the sign permit issued to Stewart in 1951-1952. She believes that the building's metal walls were prefabricated pontoon bridge panels, although this may be questioned. Figures 13 and 14 show the steel awning in place and the white painted exterior.

Description

A classic hot dog/hamburger stand dating to ca. 1940-48, the Top Hat is a one story structure with a long and narrow rectangular footprint (Figure 15). It measures roughly 8 x 22 feet. The restaurant is covered by a low-sloped shed roof, and the entire structure, including roof, walls, and interior partitions, is fabricated of interlocking steel panels. A broad hip-roofed canopy, also formed of interlocking pressed steel sections (of a different shape), wraps the front, southern, portion of the building on three sides and

Figure 15. Top Hat, south elevation.

shelters the hand-out windows and dining counter beneath. An early photo (Figure 12) illustrates that the metal awning has the same form and configuration as the previous canvas awing that was replaced sometime before 1966. A row of three hand-out windows spans the south side, and there are single windows on the east and west sides (Figure 16). These steel framed windows with sliding screens are the only windows in the building. The west hand-out window has been in-filled with a plywood panel with a round cutout that formerly held a fan but is now glazed. Above the cutout is a row of three small screened openings. This feature appears quite old. Below the hand-out windows is a steel counter, formed of the same steel panels that comprise the walls and roof, and also wrapped around three sides.

Figure 16. Top Hat, detail of hand-out windows.

A tall three-sided signboard rises from the roof. Made of plywood, the front panel bears a hand painted sign depicting a top hat, gloves, and cane within a circle. The year 1966 denotes the acquisition by the McKee-Bell family, and not the date when the building was actually constructed. An older sign is said to survive in back of the visible one (Jack Bell, pers. comm. 2005).The side panels are presently without signage and help conceal the rooftop ventilation equipment. The building's roof is formed of the roughly 7.5-ft long, C-section steel panels covered with built-up roofing material (Figure 17). The panels overhang the walls slightly, forming narrow eaves. Abutting the west side of the restaurant are two small wood frame portable sheds, added approximately 10-15 years ago for storage purposes.

Anecdotal information indicates that the earliest portion of the building is the roughly 8 x 8 ft south section containing the kitchen and vending area. This is borne out by inspection of the sides of the building, where distinct differences in wall construction were observed. There appear to have been two extensions to the original block. The first, only three feet in length, includes the building's only exterior door, a modern glazed and paneled door on the west side, and incorporates horizontal steel panels at the top of the walls. Both this addition and the front section are built of 12-inch wide vertical steel panels. Panels forming the roughly 10.5 ft long rear portion of the building are 16 inches in width. The building has been painted several times and how these panels were originally finished is not known. The Top Hat rests on a steel faced concrete curb.

Figure 17. Top Hat, east and north elevations.

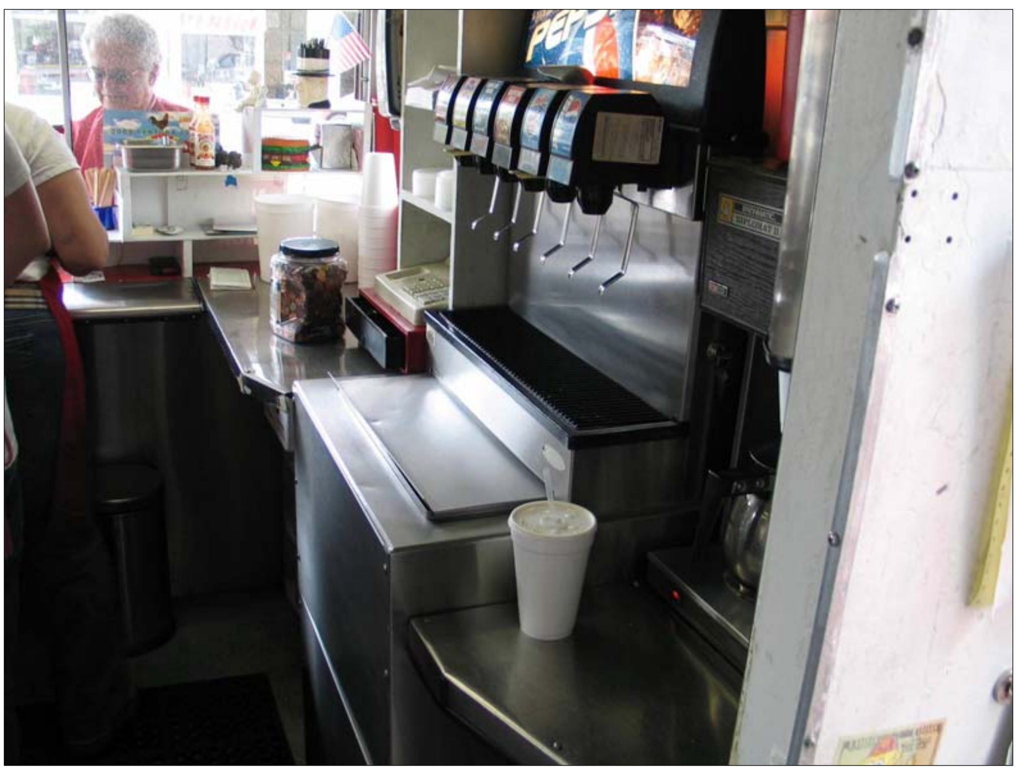

Figure 18. Top Hat, kitchen area.

Customer seating at the Top Hat consists of mismatched free-floating stools around the front counter, and a long counter and bench with pipe supports along the east wall. This fixed counter replaced movable benches along this side approximately 25 years ago. Additional features of the property include a low concrete wall with a menu board along the west edge of the site, and a steel sign pole off the southwest corner of the building along Main Street. There is a chain link fence along the west and north sides of the Top Hat property as well.

Packed with kitchen equipment and storage, the interior of the Top Hat has perimeter and partition walls of painted steel panels, identical to those of the exterior It contains four rooms or areas: the kitchen/vending area in front (Figure 18), a narrow washing galley and vestibule (which relates to the first, three foot long extension), a storage pantry, and a bathroom. A fire within the bathroom resulted in replacement of one steel wall with a frame partition, and this is the only frame wall in the building. The floors are a combination of painted concrete and sheet vinyl, and the ceilings are painted press board with modern fluorescent fixtures. Within the kitchen area, much of the equipment predates the McKee/Bell ownership and may correspond to its initial establishment as a restaurant. Among the older features are a “Reliable” gas grill and grill hood, wood topped steel preparation tables and storage bins, and a wooden overhead bin. Counter tops, walls and ceiling, and the grill hood have recently been covered with stainless steel sheets per health department requirements.

Conclusions

Given the history of land uses on this block, on the very corner lots as well as toward the west, there is every reasonable potential for encountering cultural resources below the current paved surface. As a prominent corner in the heart of historic Ventura, the project property was already well developed prior to 1886 with a saloon, bowling alley, shed, and the fire company’s hook and ladder structure. The potential remains that structures or activities of the Mission extended this far from the main compound, and evidence of the Native American presence is possible. The Anacapa Hotel replaced the earlier buildings from 1888 until 1928, but structural remains and refuse deposits may survive below the surface. Any archaeological evidence of these periods or land uses that retains adequate integrity and scientific research potential may be significant. In addition, since there have been multiple episodes of construction, demolition, and grading, it is possible that remains representing the Mission activities or any of the other historical functions may have become displaced onto the subject lots.

The Top Hat structure is included within the existing NRHP District, part of the City’s historic district, more than 50 years old, and thus an historic property that must be addressed and evaluated. It has values in architectural history as an early example of prefabricated all-steel construction. Apparently built during the years of World War II, the use of this material is likely related to the documented military association since the use of steel was then restricted. It has served the public as a restaurant since at least 1948. The structure and its function are a concern to local residents. It perpetuates the traditional use of this corner in supplying food and beverages to residents and travelers, first satisfied by the saloon and then the hotel.

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1965 *Polk's Ventura City Directory.* Monterey Park, CA.
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San Buenaventura, City of
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1950 No. 1568, 72 North Palm St.

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Attachment D

Greenwood and Associates Cultural Resource Consultants' Top Hat Burger Palace Relocation dated March 9, 2006

GREENWOOD AND ASSOCIATES

G and A

CULTURAL RESOURCE CONSULTANTS

CITY OF
SAN BUENAVENTURA

MAR 13 2006

COMMUNITY DEVELOPMENT

MEMORANDUM

DATE:	MARCH 9, 2006
TO:	MR. DAVID ARMSTRONG
COMPANY:	CITY OF VENTURA REDEVELOPMENT AGENCY
FROM:	DANA N. SLAWSON
PROJECT:	EAST MAIN STREET/PALM AVENUE DEVELOPMENT
SUBJECT:	TOP HAT BURGER PALACE RELOCATION

Dear Mr. Armstrong,

As one measure to mitigate development project related impacts to cultural resources on the site, the project proponent has agreed to relocate the Top Hat Burger Palace from its present site to a City-owned parcel on Oak Street just south of East Main. At the request of the City of Ventura, Greenwood and Associates has conducted an assessment of the building and building site to determine: (a) which portions of the Top Hat are character-defining features of the resource requiring preservation and which are not; and (b) other issues associated with moving the building.

Background research has indicated that the Top Hat Burger Palace was constructed for use as a hotdog stand ca. 1947. A permit for an addition to the existing hot dog stand was issued by the City in February of 1948. Sanborn insurance maps and anecdotal information indicate that the earliest portion of the building is the roughly 8' x 8' south section containing the kitchen and vending area. This is borne out by inspection of the sides of the building, where distinct differences in wall construction can be observed. There appear to have been two extensions to the original block. The first, only three feet in length, incorporates steel panels that are identical to the 12-inch wide panels of the original building. Panels forming the roughly 10.5 ft long by 8 ft wide rear portion of the building are of the same type, although somewhat wider. A County Commercial Building Record compiled for the Top Hat in 1952 includes the earliest known photograph of the structure, and also documents that the restaurant had reached its present 22 ft length by that year.

While a formal evaluation of significance has yet to be completed for the Top Hat, preliminary research and physical examination of the building have indicated that it is significant at the local level and potentially eligible for inclusion in the California Register of Historical Resources under Criterion 1, for its association with events that have made a significant contribution to the broad patterns of California history and cultural heritage, and under Criterion 3, as embodying the distinctive characteristics of a type, period, region, or method of construction. It also has merit in the eyes of the community, as demonstrated by a petition urging preservation that was signed by some 6,000 citizens. Its period of significance is considered to be ca. 1947-1952, reflective of its initial date of construction and use as a restaurant, through completion of its last major (steel panel) addition. Any modifications made to the building subsequent to its period of significance are not viewed as contributing to its historic character.

The lot proposed for the new location was visited. It meets the standards for relocation in that it is in a comparable setting in the historic core of Ventura, just south of Main Street. The alley provides off-street access for deliveries, there is parking behind the structure, and the two mature trees will frame the building attractively. There appear to be no impediments such as overhead utilities to the actual process of relocation.

Architectural features considered character defining and requiring preservation include:

- The approximately 8 x 22 ft steel-clad core of the building, including its walls and low-pitched shed roof.

- Hand-out windows and wrap-around steel dining counter.

- Rooftop signage. While the present sign was painted or repainted within the past 10 years, its placement, configuration, and probably materials as well, correspond with those of the earliest documented Top Hat sign. It appears to utilize some of the original mounting hardware. The sign, or one of comparable appearance and configuration, should be retained.

- Dining counter awning. A 1952 photo shows the Top Hat with a broad canvas awning sheltering the dining counter at the south end of the building. The canvas awing was replaced by the present metal awing, which is comparable in form to the original, probably before 1960. The awing should be retained and preserved. An alternative to its preservation is replacement with a canvas awning conforming in size and configuration with the awning depicted in the 1952 County photograph which dates to the period of significance.

- Interior features. Steel panel partitions and restaurant fixtures related to the early development and operation of the restaurant are viewed as important and should be retained wherever practicable. Interior elements are generally not considered as important in conveying historical character as external features, and their alteration or removal is considered acceptable to allow an appropriate contemporary use.

Additional considerations:

- Seating. Early on, seating at the Top Hat was limited to free-floating stools around the dining counter. A counter and fixed stools were added along the east side of the restaurant around 1980, and the present counter and bench were installed within the past 10 years. While the existing side seating is appropriate to the style and function of the resource, these elements are not considered character defining and their retention is discretionary.

- Signpost. To the immediate southwest of the Top Hat, along the Main Street sidewalk, is a steel signpost with a crossbar which held a lighted advertising sign installed around 1952. The sign itself was removed approximately 30 years ago, and because of this loss of integrity the feature is not considered a contributing element of the resource.

- Attached the west wall of the restaurant are two small wood frame storage rooms. These were added to the building approximately 10 years ago and do not contribute to its historic character.

- Other features of the site include a concrete wall at the southwest corner of the building on which the restaurant's menu board is mounted. Added after the period of significance, the wall is of standard construction and is not viewed as a contributing feature of the resource.

- The Top Hat rests on a steel-faced concrete curb and the floors within the building are concrete or sheet vinyl over concrete. The concrete curb and steel-clad sill are not considered important character defining features of the restaurant's design. The method employed to attach the walls of the structure to the curb could not be identified by the physical inspection conducted by Greenwood and Associates in May 2005 without penetrating the exterior. Decisions regarding retention/preservation of the concrete curb should be based on an assessment by the moving contractor and/or consulting structural engineer or architect of the method of attachment of the building's walls to the sill. The technique least likely to result in impacts to the character defining elements of the building should be employed. These may include saw cutting of the concrete perimeter pavement and removal of the intact slab, or detachment of the walls from the sill, stabilization and creation of a floor diaphragm, and installation on a new sill/curb.

Relocation of the Top Hat should be undertaken by a reputable building moving contractor familiar with relocating historic structures. All efforts should be employed to ensure the safe relocation of the resource, using guidance provided by the International Association of Structural Movers (*Moving Historic Buildings* 1991) and other sources.

Recommendations

- Prior to relocation of the Top Hat, the City/building owner should complete photographic documentation of the building in its present condition and location comparable to the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) standards. The HABS/HAER photographs will help to ensure that any move related alterations or disassembly of character defining features may be restored to their original appearance and configuration. Additionally, the photo set and accompanying historical documentation will provide a lasting record of the resource that may be made available for educational and public interpretational purposes.

- Any contributing character-defining features requiring disassembly should be carefully numbered and diagramed so that they may be correctly reinstalled.

- Because of the sensitivity for buried cultural resources on the block of East Main Street where the Top Hat presently stands, it is recommended that a qualified archaeological monitor be present during completion of all relocation-relate pavement removal and excavation on the site.

Attachment E

San Buenaventura Research Associates Phase II Historic Resources Report dated August 27, 2010

Phase 2 Historic Resources Report
Top Hat Restaurant
299 E. Main Street, Ventura CA

27 August 2010

Prepared by:

SAN BUENAVENTURA
RESEARCH ASSOCIATES
HISTORIC · RESOURCES · CONSULTING
1328 WOODLAND DRIVE ■ SANTA PAULA CA 93060

Prepared for:

City of Ventura

PO Box 99

Ventura, CA 93002

Executive Summary

This report was prepared for the purpose of assisting the City of Ventura in their compliance with the California Environmental Quality Act (CEQA) as it relates to historic resources, in connection with a proposal to demolish a restaurant building located at 299 E. Main Street in Ventura. No new construction on the property is currently proposed. [Figure 1]

This report summarizes the historical and architectural significance of the property as documented in previously completed reports. A determination will be made as to whether adverse environmental impacts on historic resources, as defined by CEQA and the CEQA Guidelines, may occur as a consequence of the proposed project, and recommend the adoption of mitigation measures.

This report was prepared by San Buenaventura Research Associates of Santa Paula, California, Judy Triem, Historian; and Mitch Stone, Preservation Planner, for the City of Ventura, and is based on a field investigation and a document review conducted in August 2010. The conclusions contained herein represent the professional opinions of San Buenaventura Research Associates, and are based on the factual data available at the time of its preparation, the application of the appropriate local, state and federal regulations, and best professional practices.

Summary of Findings

The property evaluated in this report was found in previously prepared reports to be eligible for listing in the California Register of Historical Resources (CRHR), and to be eligible as a contributor to a City of Ventura landmark district. Consequently, this report concludes that the building is a historic resource for the purposes of CEQA, and that the proposed project has the potential to have unmitigable adverse impacts on a historic resource.

Report Contents

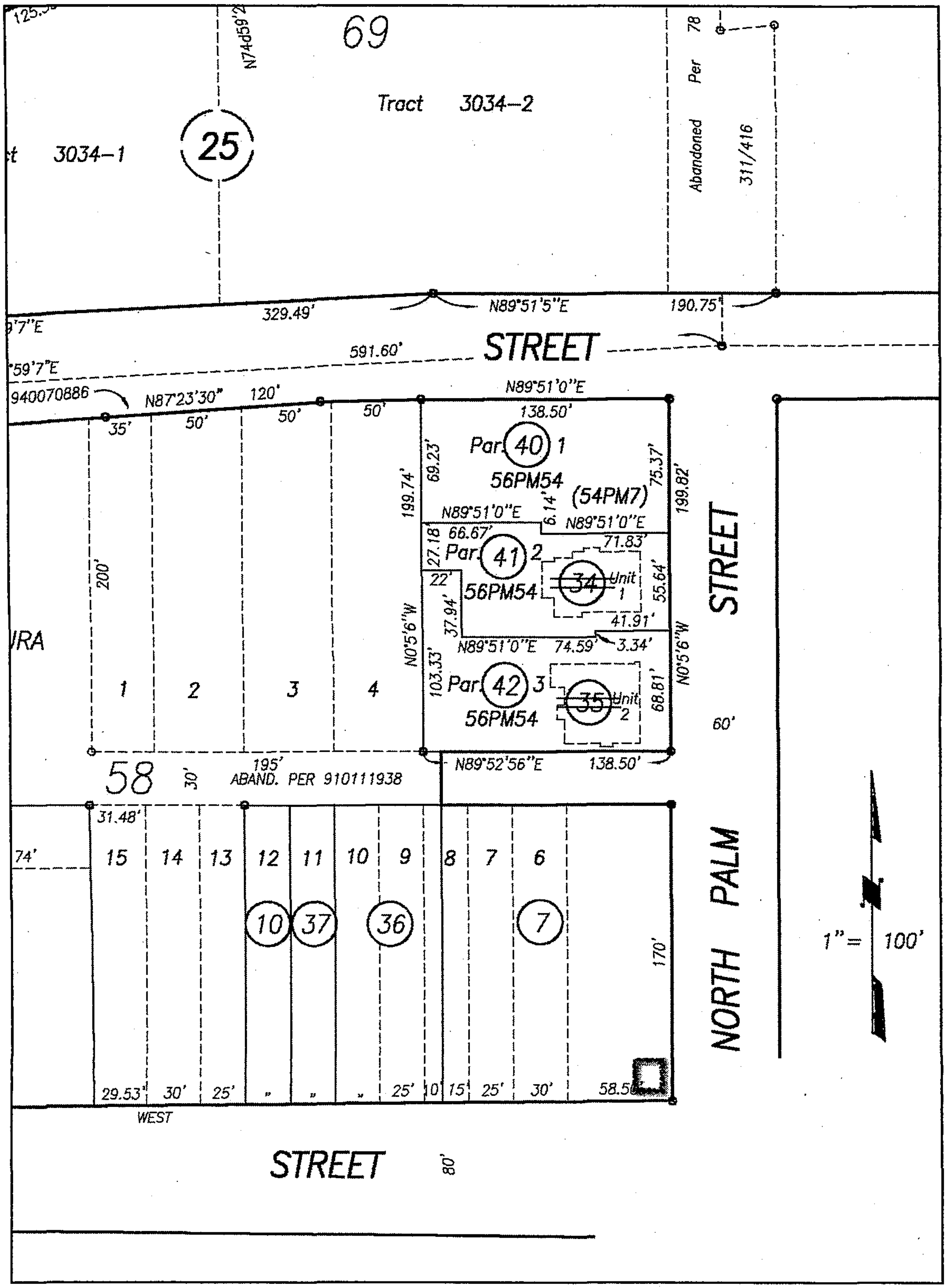

Figure 1. Project Location [Source: Ventura County Assessor, Map Book 071, Page 19]

1. Administrative Setting

The California Environmental Quality Act (CEQA) requires evaluation of project impacts on historic resources, including properties "listed in, or determined eligible for listing in, the California Register of Historical Resources [or] included in a local register of historical resources." A resource is eligible for listing on the California Register of Historical Resources if it meets any of the criteria for listing, which are:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

By definition, the California Register of Historical Resources also includes all "properties formally determined eligible for, or listed in, the National Register of Historic Places," and certain specified State Historical Landmarks. The majority of "formal determinations" of NRHP eligibility occur when properties are evaluated by the State Office of Historic Preservation in connection with federal environmental review procedures (Section 106 of the National Historic Preservation Act of 1966). Formal determinations of eligibility also occur when properties are nominated to the NRHP, but are not listed due to a lack of owner consent.

The criteria for determining eligibility for listing on the National Register of Historic Places (NRHP) have been developed by the National Park Service. Eligible properties include districts, sites, buildings and structures,

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
B. That are associated with the lives of persons significant in our past; or
C. That embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. That have yielded, or may be likely to yield, information important in prehistory or history.

According to the NRHP standards, in order for a property which is found to significant under one or more of the criteria to be considered eligible for listing, the "essential physical features" which define the property's significance must be present. The standard for determining if a property's essential physical features exist is known as *integrity*, which is defined as "the ability of a property to convey its significance." The integrity evaluation is broken down into seven "aspects."

The seven aspects of integrity are: *Location* (the place where the historic property was constructed or the place where the historic event occurred); *Design* (the combination of elements that create the form, plan, space, structure, and style of a property); *Setting* (the physical environment of a historic property); *Materials* (the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property); *Workmanship* (the physical evidence of the crafts of a particular culture or people during any given period of history or prehistory); *Feeling* (a property's expression of the aesthetic or historic sense of a particular period of time), and; *Association* (the direct link between an important historic event or person and a historic property).

The relevant aspects of integrity depend upon the NRHP criteria applied to a property. For example, a property nominated under Criterion A (events), would be likely to convey its significance primarily through integrity of location, setting and association. A property nominated solely under Criterion C (design) would usually rely primarily upon integrity of design, materials and workmanship. The California Register regulations include similar language with regard to integrity, but also state that "it is possible that historical resources may not retain sufficient integrity to meet the criteria for listing in the National Register, but they may still be eligible for listing in the California Register." Further, according to the NRHP guidelines, the integrity of a property must be evaluated at the time the evaluation of eligibility is conducted. Integrity assessments cannot be based on speculation with respect to historic fabric and architectural elements which may exist but are not visible to the evaluator, or on restorations which are theoretically possible but which have not occurred. (CCR §4852 (c))

The minimum age criterion for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) is 50 years. Properties less than 50 years old may be eligible for listing on the NRHP if they can be regarded as "exceptional," as defined by the NRHP procedures, or in terms of the CRHR, "if it can be demonstrated that sufficient time has passed to understand its historical importance" (Chapter 11, Title 14, §4842(d)(2))

Historic resources as defined by CEQA also includes properties listed in "local registers" of historic properties. A "local register of historic resources" is broadly defined in §5020.1 (k) of the Public Resources Code, as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution." Local registers of historic properties come essentially in two forms: (1) surveys of historic resources conducted by a local agency in accordance with Office of Historic Preservation procedures and standards, adopted by the local agency and maintained as current, and (2) landmarks designated under local ordinances or resolutions. These properties are "presumed to be historically or culturally significant... unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant." (PRC §§ 5024.1, 21804.1, 15064.5)

City of San Buenaventura Municipal Code, Sec. 24.455.120

1. Historic district means a geographically definable area possessing a significant concentration, linkage or continuity of site, buildings, structures and/or objects united by past events, or aesthetically by plan or physical development, regardless of whether such a district may include some buildings, structures, sites, objects, or open spaces that do not contribute to the significance of the district.

   A historic district can generally be distinguished from surrounding areas (1) by visual change such as building density, scale, type, age, or style; or (2) by historic documentation of different associations or patterns of development. The number of nonsignificant properties a historic district can contain yet still convey its sense of time and place and historical development depends on how these properties impact the historic district's integrity.

2. Landmark means any real property such as building, structure, or archaeological excavation, or object that is unique or significant because of its location, design, setting, materials, workmanship or aesthetic feeling, and is associated with:

   (a) Events that have made a meaningful contribution to the nation, state or community;
   (b) Lives of persons who made a meaningful contribution to national, state or local history;
   (c) Reflecting or exemplifying a particular period of the national, state or local history;
   (d) Embodying the distinctive characteristics of a type, period or method of construction;

(e) The work of one or more master builders, designers, artists or architects whose talents influenced their historical period, or work that otherwise possesses high artistic value;
(f) Representing a significant and distinguishable entity whose components may lack individual distinction; or
(g) Yielding, or likely to yield, information important to national, state or local history or prehistory.

3. Point of interest means any real property or object:

(a) That is the site of a building, structure or object that no longer exists but was associated with historic events, important persons, or embodied a distinctive character of architectural style;
(b) That has historic significance, but was altered to the extent that the integrity of the original workmanship, materials or style is substantially compromised;
(c) That is the site of a historic event which has no distinguishable characteristics other than that a historic event occurred there and the historic significance is sufficient to justify the establishment of a historic landmark. (Ord. No. 2005-004, § 3, 5-2-05) 2. Impact Thresholds and Mitigation

According to the Public Resources Code, "a project that may cause a substantial change in the significance of an historical resource is a project that may have a significant effect on the environment." The Public Resources Code broadly defines a threshold for determining if the impacts of a project on an historic property will be significant and adverse. By definition, a substantial adverse change means, "demolition, destruction, relocation, or alterations," such that the significance of an historical resource would be impaired. For purposes of NRHP eligibility, reductions in a property's integrity (the ability of the property to convey its significance) should be regarded as potentially adverse impacts. (PRC §21084.1, §5020.1(6))

Further, according to the CEQA Guidelines, "an historical resource is materially impaired when a project... [d]emolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources [or] that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant."

The lead agency is responsible for the identification of "potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource." The specified methodology for determining if impacts are mitigated to less than significant levels are the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995), publications of the National Park Service. (PRC §15064.5(b)(3-4))

2. Historic Resources

The subject property is a single-story prefabricated steel panel restaurant building constructed on a concrete slab, measuring roughly 8 by 22 feet in plan. The main body of the building is composed of vertically-seamed interlocking steel panels roughly one foot in width. The building is covered by a very low-pitched steel shed roof pitched upwards toward the south. A shallow counter wraps from the southern elevation onto the southernmost portions of the western and eastern elevations, underneath hand-out windows, which extend from the counter to roughly two feet below the shallow eave line. The southern windows are presently covered with accordion wood shutters and are not visible, but according to photographic documentation, are aluminum framed. The window on the eastern elevation is square and single-paned. The western window is wood and features a circular cutout with a three-panel light above, covered by a wrought-iron grill attached to the face of the building. These windows were opened or uncovered during the restaurant's business hours.

A bench seat and a shallow counter standing on steel poles parallels the eastern elevation. This seating replaced non-fixed barstools circa 1980. Prior to its closure in February 2010, the building featured louvered metal awnings projecting over the western, southern and eastern elevations, which have since been removed. These awnings were probably added to the building circa 1960, replacing canvas awnings seen in early photographs of the property. A three-panel plywood sign projecting above the roof parallel to the southern, western and eastern elevations of the building and a plywood menu-board located against the chain-link fence near the sidewalk to the west were also removed after February 2010. Two small, detached utility buildings constructed of vertically-scored plywood are located immediately to the west and north of the restaurant building, date from circa 1990-95. A steel pole which once supported a freestanding sign is located roughly ten feet from the southwestern corner of the building, near the sidewalk. The balance of the corner parcel is paved in asphalt and presently used for surface parking. [Photos 1-5]

The parcel is the former site of the Anacapa Hotel, constructed in 1888 and demolished in 1928. The property apparently remained vacant until the 1940s, when it became the location of a bandstand during wartime, evidently used for patriotic rallies and to promote war bond sales. The date of construction of the restaurant building is a matter of some conjecture due to a lack of definitive evidence. The earliest recorded date for a restaurant building on the property is a building permit for an addition to an existing restaurant taken out in 1948. A photo of this corner of Main Street dated circumstantially as circa 1943 shows the site to be the location of the bandstand, but otherwise vacant of buildings. City directories of the late 1940s indicate an Army and Navy recruitment office located at the same address, which leads to the speculation that the restaurant building was converted from an earlier building constructed by the military between circa 1943 and 1948. Apart from the address, no evidence was found to sustain this theory. It appears more likely that the bandstand doubled as the recruitment office, and that the restaurant was purpose-built, probably in two phases beginning in 1947 or 1948.

The first known owners of the restaurant were Ed Carr and Harold Serene. Additional work on the building was completed in 1950 and 1951 by S. T. Stewart and Eva Stewart. A neon pole sign was added in 1952, marking the first time the restaurant is definitively known to have been called the Top Hat Café. Other known owners of the restaurant include Doris Chandler (1959), Doris Mashburn (1961), John H. and John W. Durham (1963), and Delbert L. Woods (1964). The restaurant was purchased by Homer and Gretchen McKee in 1966. The last operator was their daughter, Charlotte Bell, who ran the business until its closure in February 2010. (Greenwood, 2005)

3. Eligibility of Historic Resources

This property has been the subject of several previous investigations and evaluations, the results of which are summarized in this report. The first opportunity to evaluate this property occurred in 1983 with the completion of the "Ventura County Cultural Heritage Survey: Phase I" (Triem, 1983). The property was not evaluated individually in this survey as it was substantially less that fifty years of age at that time.

A "Phase 1 Cultural Resources Investigation" prepared by Greenwood and Associates for the property owner in July 2005 did not explicitly evaluate the property for eligibility under the NRHP, CRHR or City Landmark criteria, but provided this conclusion with respect to its significance,

> The Top Hat structure is included within the existing NRHP District, part of the City's historic district, more than 50 years old, and thus an historic property that must be addressed and evaluated. It has values in architectural history as an early example of prefabricated all-steel construction. Apparently built during the years of World War II, the use of this material is likely related to the documented military association since the use of steel was then restricted. It has served the public as a restaurant since at least 1948. The structure and its function are a concern to local residents. It perpetuates the traditional use of this corner in supplying food and beverages to residents and travelers, first satisfied by the saloon and then the hotel. (Greenwood, 2005)

A follow-on memorandum from Greenwood and Associates addressed to the City of Ventura prepared in March 2006 acknowledges that,

> [w]hile a formal evaluation of significance has yet to be completed for the Top Hat, preliminary research and physical examination of the building have indicated that it is significant at the local level and potentially eligible for inclusion in the California Register of Historical Resources under Criterion 1, for its association with events that made a significant contribution to the broad patterns of California history and cultural heritage, and under Criterion 3, as embodying the distinctive characteristics of a type, period, region, or method of construction. (Slawson, 2006)

In this memorandum, Greenwood and Associates established a period of significance for the property as circa 1947 to 1952, "reflective of its initial date of construction and use as a restaurant, through completion of its last major (steel panel) addition."

An update to the 1983 survey was completed in 2007 by Historic Resources Group. This survey identified the property as one of 53 potential contributors to a locally eligible City Landmark historic district located along Main Street between Figueroa and Fir streets. The property apparently was not evaluated for individual landmark eligibility or for NRHP or CRHR eligibility in this survey.

In our opinion, the weight of evidence for significance presented in prior evaluations represents a factual argument in support of eligibility for this property for individual listing in the CRHR and as a contributor to a Ventura City Landmark district, and the need for it to be treated as a historic resource for the purposes of CEQA. Alterations occurring to the building since the closure of the restaurant business in February 2010 represent the removal of features which were evidently added to the building outside of the period of significance for the property as established by Greenwood and Associates, and should not be regarded as diminishing its integrity substantially. The detached shed buildings were constructed outside of the period of significance and therefore should not be regarded as contributing to the property's eligibility.

4. Project Impacts

The proposed project will result in demolition of a building which is defined as a historic resource. No new construction on the property is proposed at this time. This impact should be regarded as significant and adverse, and not mitigable to a less than significant level. (Class 1)

5. Mitigation Measures and Residual Impacts

A principle of environmental impact mitigation is that some measure or combination of measures may, if incorporated into a project, serve to avoid or reduce significant and adverse impacts to a historic resource. In reference to mitigating impacts on historic resources, the CEQA Guidelines state:

> Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (1995), Weeks and Grimmer, the project's impact on the historical resource shall generally be considered mitigated below a level of significance and thus is not significant. (PRC §15126.4 (b)(1))

These standards, developed by the National Park Service, represent design guidelines for carrying out historic preservation, restoration and rehabilitation projects. The Secretary's Standards and the supporting literature describe historic preservation principles and techniques, and offers recommended means for carrying them out. Adhering to the Standards is the only method described within CEQA for reducing project impacts on historic resources to less than significant and adverse levels.

The demolition of an historic property cannot be seen as conforming with the *Secretary of the Interior's Standards*. Therefore, the absolute loss of an historic property should generally be regarded as an adverse environmental impact which cannot be mitigated to a less than significant and adverse level. Further, the usefulness of documentation of an historic resource, through photographs and measured drawings, as mitigation for its demolition, is limited by the CEQA Guidelines, which state:

> In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur. (CEQA Guidelines §15126.4 (b)(2))

Implied by this language is the existence of circumstances whereby documentation may mitigate the impact of demolition to a less than significant level. However, the conditions under which this might be said to have occurred are not described in the Guidelines. It is also noteworthy that the existing CEQA case law does not appear to support the concept that the loss of an historic resource can be mitigated to less than adverse impact levels by means of documentation or commemoration. (*League for Protection of Oakland's Architectural and Historic Resources v. City of Oakland* [1997] 52 Cal. App. 4th 896; *Architectural Heritage Association v. County of Monterey* [2004] 19 Cal. Rptr. 3d 469)

Taken in their totality, the CEQA Guidelines require a project which will have potentially adverse impacts on historic resources to conform to the *Secretary of the Interior's Standards*, in order for the impacts to be mitigated to below significant and adverse levels. However, CEQA also mandates the adoption of feasible mitigation measures which will reduce adverse impacts, even if the residual impacts after mitigation remain significant. Means other than the application of the Standards would necessarily be required to achieve this level of mitigation. In determining what type of additional mitigation measures would reduce impacts to the greatest extent feasible, best professional practice dictates considering the level of eligibility of the property, as well as by what means it derives its significance.

Mitigation programs for impacts on historic resources tend to fall into three broad categories: documentation, design and interpretation. Documentation techniques involve the recordation of the site according to accepted professional standards, such that the data will be available to future researchers, or for future restoration efforts. Design measures could potentially include direct or indirect architectural references to a lost historic property, e.g., the incorporation of historic artifacts, into the new development, or the relocation of the historic property to another suitable site. Interpretative measures could include commemorating a significant historic event or the property's connection to historically significant themes.

Mitigation Measures

A. A historic preservation professional qualified in accordance with the *Secretary of the Interior's Standards* shall be selected to complete a documentation report on the eligible building to be demolished. The building to be demolished shall be documented with archival quality photographs and sketch location plans. This documentation, along with historical background prepared for this property, shall be submitted to an appropriate public repository approved by the City of Ventura. The documentation reports shall be completed and approved by the City of Ventura prior to the issuance of demolition permits.

B. A historic preservation professional qualified in accordance with the *Secretary of the Interior's Standards* shall be selected to prepare an on-site interpretive plan, focusing on the significant historic themes associated with the property to be demolished, particularly the history of postwar commercial development in Ventura. The plan shall consist of an interpretive display or other suitable interpretive approaches, as approved by the lead agency, and be installed in an appropriate location. The interpretive plan shall be completed and approved prior to the issuance of building permits for new construction on the property, and shall be installed within one year of occupancy. The interpretive display shall remain in public view for a minimum of five years, and if removed, appropriately archived.

Impacts After Mitigation

Significant and adverse.

6. Selected Sources

Greenwood, Roberta S. and Dana Slawson. Phase I Cultural Resources Investigation, Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura. Greenwood and Associates for WestStar Ltd., July 2005.

Historic Resources Group. Historic Resources Survey Update, City of Ventura, California, Downtown Specific Plan Area. City of Ventura, April 2007.

Slawson, Dana N. Memorandum to David Armstrong, City of Ventura Redevelopment Agency, Re: Top Hat Burger Palace Relocation. Greenwood and Associates, March 9, 2006.

Triem, Judy. Ventura County Cultural Heritage Survey: Phase I — San Buenaventura. Final Report and Inventory Data Collection. City of San Buenaventura, 1983.

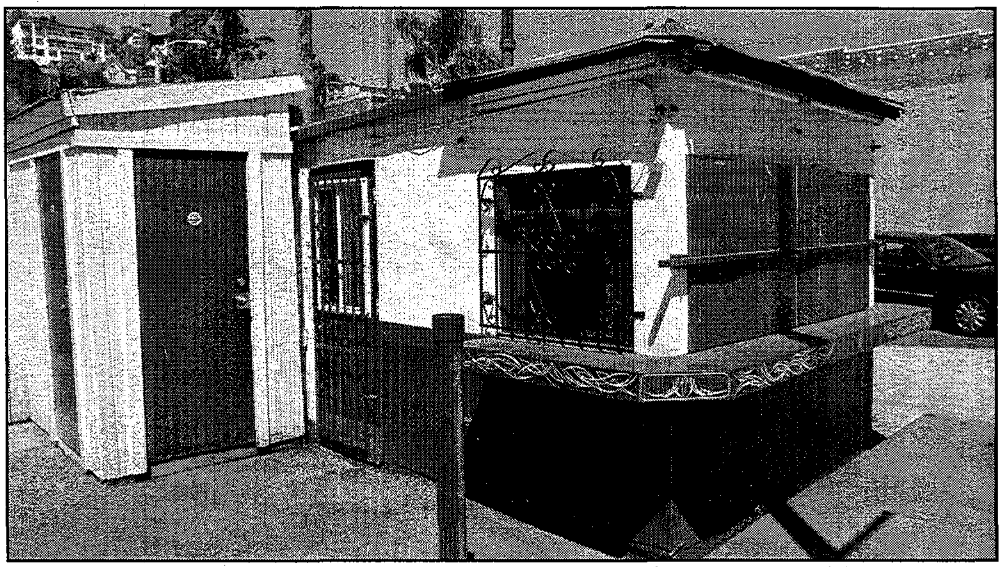

Photo 1. Top Hat Restaurant building, southern and western elevations, viewed from south-west. [8-24-2010]

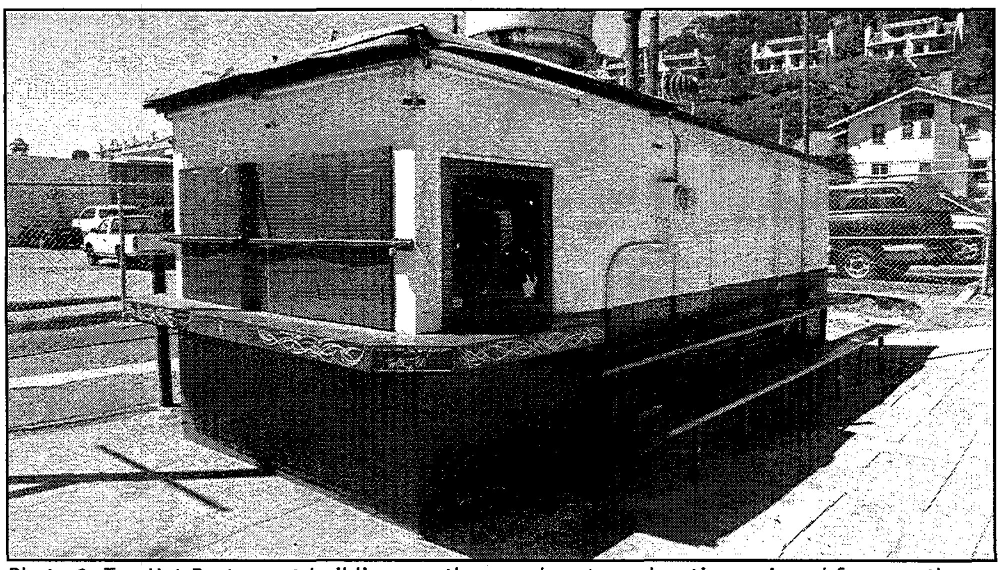

Photo 2. Top Hat Restaurant building, southern and eastern elevations, viewed from south-east. [8-24-2010]

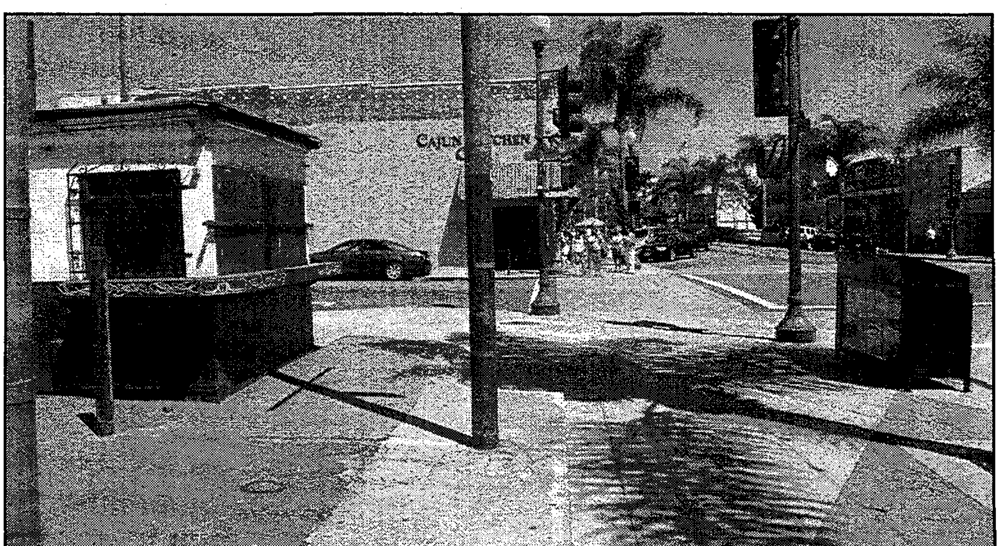

Photo 3. Top Hat Restaurant building, viewed from west at edge of sidewalk, abandoned sign pole in center. [8-24-2010]

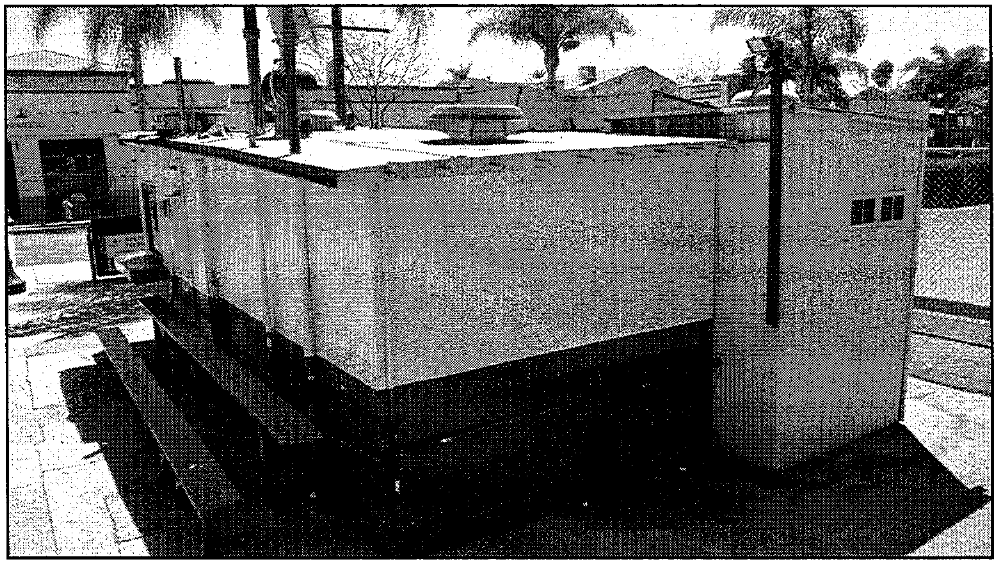

Photo 4. Top Hat Restaurant building, northern and eastern elevations, viewed from north-east. [8-24-2010]

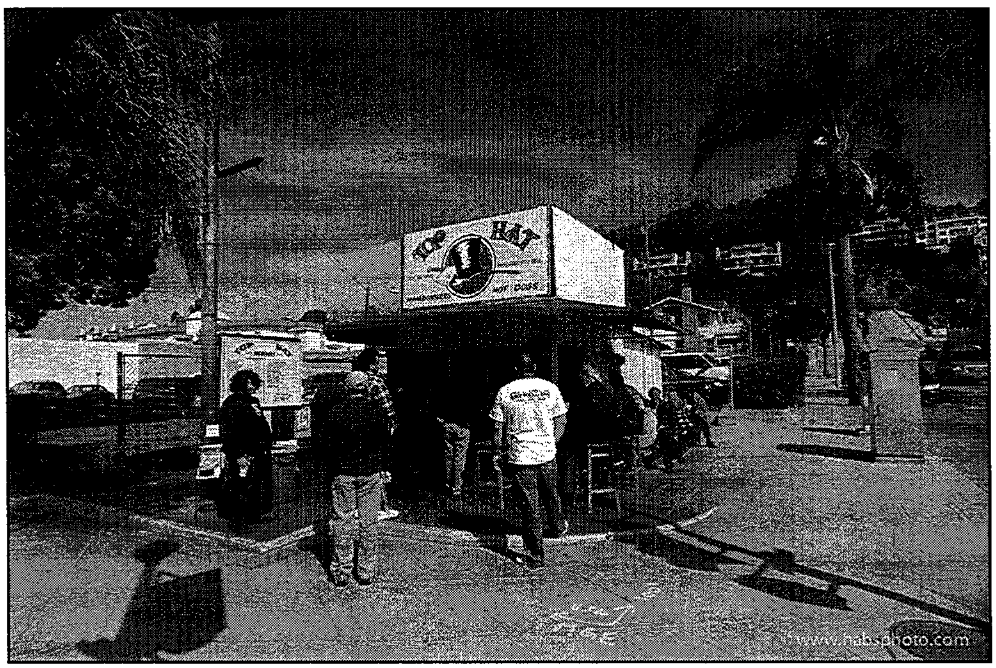

Photo 5. Top Hat Restaurant viewed from southwest, prior to removal of signs, menu board and metal canopies. [February 2010, Steve Schafer]

Attachment F

Rincon Consultants' Secretary of the Interior's Standards Compliance Review for the Anacapa Courts Project, dated November 21, 2016

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

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Date November 21, 2016
Project No: 16-03175

Jared Rosengren, AICP
Associate Planner
City of Ventura
501 Poli Street
P.O. Box 99
Ventura, CA 93002

Subject: **Secretary of the Interior's Standards Compliance Review for the Anacapa Courts Project, City and County of Ventura, California**

Dear Mr. Rosengren:

Rincon Consultants, Inc. (Rincon) was retained by the City of Ventura to provide historic design review in support of the Anacapa Courts Project (Project). The Project consists of a new mixed-use development proposed at 297-299 E. Main Street, at the northwest corner of the intersection of Main Street and Palm Street in downtown Ventura. The project site is mostly vacant, but contains the unoccupied Top Hat restaurant building (subject building). The Top Hat was previously identified as individually eligible for listing in the California Register of Historical Resources (CRHR) and is considered a historical resource for the purposes of the California Environmental Quality Act (CEQA). The purpose of this letter report is to present the findings of a review of the conceptual impacts to the integrity of the subject building and for conformance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) following project implementation.[1]

Rincon Architectural History Program Manager Shannon Carmack, B.A., conducted a survey of the structure, reviewed previously prepared documentation and co-authored this memorandum. Ms. Carmack has over 16 years of experience conducting historic resource analysis and preparing environmental compliance documentation throughout California. She was assisted by Rincon Architectural Historians Susan Zamudio-Gurrola, M.A., and Steven Treffers, M.H.P., who co-authored this memorandum. Ms. Carmack, Ms. Zamudio-Gurrola, and Mr. Treffers all meet the Secretary of the Interior's Professional Qualification Standards for architectural history and history.

[1] Kay Weeks and Anne Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*. National Park Service, Washington, D.C., 1995

Building Description

As described in the 2010 *Phase 2 Historic Resource Report, Top Hat Restaurant, 299 E. Main Street*, the subject building is:

> a single-story prefabricated steel panel restaurant building constructed on a concrete slab, measuring roughly 8 by 22 feet in plan. The main body of the building is composed of vertically-seamed interlocking steel panels roughly one foot in width. The building is covered by a very low-pitched steel shed roof pitched upwards toward the south. A shallow counter wraps from the southern elevation onto the southernmost portions of the western and eastern elevations, underneath hand-out windows, which extend from the counter to roughly two feet below the shallow eave line. The southern windows are presently covered with accordion wood shutters and are not visible, but according to photographic documentation, are aluminum framed. The window on the eastern elevation is square and single-paned. The western window is wood and features a circular cutout with a three-panel light above, covered by a wrought-iron grill to the face of the building. These windows were opened or uncovered during the restaurant's business hours.
>
> A bench seat and a shallow counter standing on steel poles parallels the eastern elevation. This seating re-placed non-fixed barstools circa 1980. Prior to its closure in February 2010, the building featured louvered metal awnings projecting over the western, southern and eastern elevations, which have since been removed. These awnings were probably added to the building circa 1960, replacing canvas awnings seen in early photographs of the property. A tree-panel plywood sign projecting above the roof parallel to the southern, western and eastern elevations and a plywood menu-board located against the chain-link fence near the sidewalk to the west were also removed after February 2010. Two small, detached utility buildings constructed of vertically-scored plywood are located immediately to the west and north of the restaurant building, date from circa 1990-95. A steel pole which once supported a freestanding sign is located roughly ten feet from the southwestern corner of the building, near the sidewalk. The balance of the corner parcel is paved in asphalt and presently used for surface parking.[2]

A field survey conducted in September 2016 as part of the current design review confirms that the subject building appears largely as described above in 2010 (see Attachment A). The site visit confirmed that the metal-framed windows located on the primary elevation were removed at an unknown date. Other changes since this time are limited to the building's surroundings and include the removal of the surface parking lot and the enclosure of the parcel with a chain-link fence.

The interior of the building was also inspected as part of the current study and was consistent with a long-vacant, former restaurant. Walls of the primary kitchen space are lined with stainless steel panels and nearly all of the appliances and fixtures appear to have been removed. The entire building features concrete floors and the rear (north) room is similarly void of fixtures, with the exception of pipes and electrical conduit.

Previous Findings of Significance

Since 2005, the individual historical significance of the Top Hat restaurant building has been considered in multiple historical resource investigations, primarily prepared in support of the current project and

[2] San Buenaventura Research Associates, Phase II Historic Resources Report for Top Hat Restaurant, 299 E. Main Street, Ventura, CA, August 2010.

submitted to the City of Ventura.[3] Each investigation has found the subject building to possess significant cultural and architectural associations. As summarized in a 2006 memorandum from Greenwood and Associates:

> preliminary research and physical examination of the building have indicated that it is significant at the local level and potentially eligible for inclusion in the California Register of Historical Resources under Criterion 1 for its association with events that made a significant contribution to the broad patterns of California history and cultural heritage, and under Criterion 3, as embodying the distinctive characteristics of a type, period, region, or method of construction. It also has merit in the eyes of the community, as demonstrated by a petition urging preservation that was signed by some 6,000 citizens. Its period of significance is considered to be ca. 1947-1952, reflective of its initial date of construction and use as a restaurant, through completion of its last major (steel panel) addition. Any modifications made to the building subsequent to its period of significance are not viewed as contributing to its historic character.[4]

In addition to the subject building's previously identified individual historical significance, a historic resources survey completed by Historic Resources Group in 2007 identified the Top Hat restaurant building as a contributor to the locally eligible, Main Street Commercial Historic District.[5] Located along Main Street between Figueroa and Fir Streets, the district reflects the broad historical commercial development of Ventura and has a period of significance extending from 1870-1962. Although the Top Hat restaurant building is also located within the National Register of Historic Places (NRHP)-listed San Buenaventura Mission District, it is not explicitly identified in the NRHP nomination form and it is assumed to be a non-contributor since it is not directly associated the Mission San Buenaventura or the reasons for its significance.[6]

Character-Defining Features

The intent of the Standards is to provide for the long-term preservation of a property's significance through the preservation of its historic materials and features. These historic materials and features are commonly referred to as character-defining features, and are indispensable in a historic property's ability to convey the reasons for its historical significance. To ensure a proposed project's compliance with the Standards, a historic property's character-defining features should therefore be identified and preserved as part of the final design.

According to Preservation Brief 17, *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, there is a three-step process to identifying character-defining features.[7] Step 1 involves assessing the distinguishing physical aspects of the exterior of the

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[3] See Greenwood and Associates, *Phase I Cultural Resource Investigation for Proposed Development at the Norwest Corner of Main and Palm Streets, Ventura*, prepared for WestStar Ltd., July 2015; Stephen Schafer, California Department of Parks and Recreation Primary Record and Building, Structure, and Object Record forms for Top Hat Burger Palace at 299 East Main Street, November 10, 2005; Greenwood and Associates, Memorandum to Mr. David Armstrong of the City of Ventura Redevelopment Agency from Dana N. Slawson, RE: Top Hat Burger Palace Relocation, March 9, 2006; San Buenaventura Research Associates, 2010.

[4] Greenwood and Associates, 2006.

[5] Historic Resources Group, *Historic Resources Survey Update, City of Ventura, California, Downtown Specific Plan Area,* prepared for the City of Ventura, April 2007.

[6] James R. Capito, Robert Lopez, and Myrle Kirk, National Register of Historic Places Registration Form for the Mission Historical District (aka Mission San Buenaventura and Mission Compound Site), September 1974.

[7] Lee H. Nelson, *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, Preservation Brief No. 17. U.S. Department of the Interior, National Park Service, Technical Preservation Services.

building as a whole, including its setting, shape and massing, orientation, roof and roof features, projections, and openings. Step 2 looks at the building more closely—at materials, trim, secondary features, and craftsmanship. Step 3 encompasses the interior, including individual spaces, relations or sequences of spaces (floor plan), surface finishes and materials, exposed structure, and interior features and details.

The Top Hat restaurant building is a modestly-designed hot dog/burger stand, which historically provided food with surrounding, open-air seating to its customers at the corner of Palm and Main Streets in Ventura. Both individually and as a contributor to the Main Street Commercial District, the Top Hat restaurant building has been previously found to be associated with the commercial development of Ventura in the years immediately after World War II. The period of significance for these associations is circa 1947 through 1962, corresponding with its construction date and extending the end date identified for the historic district (Historic Resources Group 2007). The building is also an early example of prefabricated all-steel construction, with a period of significance of circa 1947 through 1952, corresponding with its original construction and its last steel panel addition. The character-defining features of the Top Hat restaurant building include:

- Single-story height
- Small, box-like shape
- Detached, rectangular 8' x 22' plan
- Rectangular, hand-out window opening on south elevation
- Window openings above counter on southernmost portions of east and west elevations
- Slightly sloping pitched roof
- Shallow, wrap-around counter
- Vertically-seamed interlocking steel panels
- Freestanding metal pole at southwestern portion of property
- Location at the corner of Palm and Main Streets with open-air areas to the south and east, historically used for congregating, service and seating

Project Description

As currently proposed, the Anacapa Court project would redevelop the large, primarily vacant parcel on which the Top Hat restaurant building is currently located. The development would involve construction of a new, mixed-use building that would range from three to four stories and be designed in a contemporary architectural style. The revised plans propose to repurpose a portion of the Top Hat restaurant building by incorporating it into a ground-level commercial space at the corner of Main and Palm streets. This would be accomplished by removing the rear additions of the Top Hat restaurant building, and subsequently relocating the original, circa 1947 8' x 8' portion of the building approximately 10 feet to the north and using it as a service kiosk in the new venue. The new design intends to integrate the Top Hat restaurant building along with an open air bar with orientation to the public street front and would reconstruct the louvered metal awnings and tree panel roof sign or the western, southern and eastern elevations. The proposed project plans that were reviewed as part of the current study are included as Attachment B to this memorandum.

Secretary of the Interior's Standards Review

The Standards establish professional standards and provide advice on the preservation and protection of historic properties. As discussed in Section 10564.5 of the CEQA Guidelines, a project that is complaint with the Standards generally would not have a significant historic resource impact under CEQA. The Standards make broad-brush recommendations for maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations. They cannot, in and of themselves, be used to make essential decisions about which features of a historic property should be saved and which might be changed. Rather, once an appropriate treatment is selected, the Standards provide philosophical consistency to the work. There are Standards for four distinct, but interrelated, approaches to the treatment of historic properties: preservation, rehabilitation, restoration, and reconstruction. It is anticipated that the Rehabilitation Standards would be the most appropriate treatment for the Anacapa Courts Project because rehabilitation would allow for alteration to the subject building. Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.[8]

The following presents a standard-by-standard analysis of potential project-related impacts to the Top Hat restaurant building.

Rehabilitation Standard No. 1: *A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.*

The proposed project would successfully reuse of the building for food service, which is in line with its historic use. The plan includes removal of some of the steel panel additions at the rear of the building; however, while the Standards discourage the alteration of character-defining features, it is often allowable to modify secondary or rear portions of a building when the changes allow for the continued use of the structure and can retain the primary architectural characteristics and integrity.

The project also includes the construction of a multi-story, mixed-use development that extends above and around the building. As proposed, the new building would connect to the rear of the Top Hat structure's main 8' x 8' front portion and would be built over the top of the Top Hat structure. Inclusion of the Top Hat structure within the envelope of the new multi-story building would modify the setting of the structure. While these changes could arguably be considered greater than "minimal" the project would retain the structure and maintain its physical features and characteristics. It would also maintain the view of the structure from Main Street and preserve the use of the area in front of the structure for congregating, service, and seating. Therefore the project can be considered at least partially in conformance with Rehabilitation Standard No. 1.

Rehabilitation Standard No. 2: *The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.*

In examining the physical characteristics of the building, the project would retain many of those aspects that contribute to the identified historic character of the Top Hat restaurant. These include: the small box-like shape; the rectangular, hand-out opening and side window openings; the slightly sloping pitched roof; the wrap around counter; and the vertically-seamed interlocking steel panels. The project would result in the removal of the steel panel additions dating from circa 1948-1952 that are considered character-defining. As previously noted, while the Standards discourage the alteration of character-

[8] Weeks and Grimmer, 1995.

defining features, it is recognized that alterations to secondary elements can achieve conformance with the Standards in certain instances. The project would retain the primary front 8' x 8' segment of structure, which would continue to retain and preserve the important features of the structure. Although, the subject building's surrounding space and visual setting would be changed as part of the project, it would still retain many of the features as discussed above that contribute to its historic character. Therefore, the proposed project can be considered in compliance with Rehabilitation Standard No. 2.

Rehabilitation Standard No. 3: *Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.*

The proposed project would involve reconstruction of original elements, including the louvered awning and roof sign, the building was historically a detached, single-story hot dog/hamburger stand at the corner of Main and Palm Streets. Although the building would be slightly relocated and reincorporated into a larger, contemporary-style building, the original building would be differentiated from the new non-historical elements with new materials and design, and would not create any false sense of history. Therefore, the proposed project is considered in compliance with Rehabilitation Standard No. 3.

Rehabilitation Standard No. 4: *Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*

As proposed, the project would retain the original front 8' x 8' segment of the structure. Although the project would remove the rear steel panel additions that were completed circa 1948-1952, they are secondary to the original, street-facing segment. The loss of this portion of the structure would allow for the adaptive reuse of the structure and ensure its preservation. Therefore, the project is in compliance with Rehabilitation Standard No. 4.

Rehabilitation Standard No. 5: *Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.*

As discussed above, the project would retain the original front 8' x 8' segment of the structure. Although the project would remove the rear steel panel additions that were completed circa 1948-1952, they are secondary to the original, street-facing segment. The loss of this portion of the structure would allow for the adaptive reuse of the structure and ensure its preservation. Therefore, the project is in compliance with Rehabilitation Standard No. 5.

Rehabilitation Standard No. 6: *Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.*

Because the current project plans are still in a preliminary stage, they do not provide sufficient detail to determine whether they are compliant with Rehabilitation Standard No 6; however, it is anticipated that the project would achieve this through coordination with qualified historic preservation professionals.

Rehabilitation Standard No. 7: *Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.*

Because the current project plans are still in a preliminary stage, they do not provide sufficient detail to determine whether they are compliant with Rehabilitation Standard No 7; however, it is anticipated that the project would achieve this through coordination with qualified historic preservation professionals.

Rehabilitation Standard No. 8: *Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.*

Archaeological testing, research and mitigation have been established for the project to ensure the project conforms to Rehabilitation Standard No 8.

Rehabilitation Standard No. 9: *New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*

The proposed project would be differentiated from the Top Hat building with regard to materials, design and style and would not destroy the primary historic materials of the building. While the new multi-story building would modify the existing setting of the structure, it would be clearly different from the original building with respect to design and materials. Although the new building would be different than the Top Hat structure in terms of massing, size, and scale, it would be more similar to surrounding buildings within the local historic district in these respects than is the Top Hat structure. Further, the proposed development would retain the scale of the Top Hat structure, the view of the structure from Main Street, and the historic use of the area in front of the structure for congregating, service, and seating Therefore, the project can be considered at least partially in conformance with Rehabilitation Standard No. 9.

Rehabilitation Standard No. 10: *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Because the current project plans are still in a preliminary stage, they do not provide sufficient detail to determine whether they are compliant with Rehabilitation Standard No 10; however, it is anticipated that the project as proposed would allow the structure to retain the features previously identified as contributing to its historic significance.

Evaluation of Integrity upon Project Completion

The following presents a discussion of the integrity of the Top Hat restaurant building prior to and following completion of the Project. Integrity is the ability of a property to convey its significance and is defined by seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association.[9] To retain integrity, it is not necessary for a property to retain all of these aspects, but it is essential that it possess those physical features that enable it to convey its historic identity. The purpose of the following section is to determine whether the project would result in a loss of integrity to the Top Hat restaurant building to a level that would materially impair its ability to convey its significance.

Integrity Aspect	Current	Conceptual
Location	The current building has not been moved retains integrity of location.	The building would be relocated approximately 10 feet to the north. The new location is still on the same parcel on which it was originally constructed and the building's relationship to its original site would remain as it would still be located on the corner of Main and Palm streets. Therefore, it would retain integrity of location.
Design	Although diminished through the	The project would result in the partial demolition of

[9] Weeks and Grimmer 1995

	removal of the awning and signage and the addition of wood storage sheds, the building retains integrity of design.	the rear of the building; however, the project would retain and enhance other aspects of the building's design. Many of the building's character-defining design features, such as the hand-out window opening, shallow counter, and small box-like shape would be retained. Other aspects of the design would also be enhanced through the removal of non-character defining wood storage shed additions and the Standards-compliant reconstruction of original features, specifically the awning and signage. Therefore, it would retain integrity of design.
Setting	The current building retains integrity of setting. The physical environment of the surrounding area appears largely as it did throughout the operation of the structure.	The building's setting would be altered by the adjacent new construction, which would introduce a new visual element to the surrounding property. The visual character of the subject property would change, but the change would make the property more similar in appearance to adjacent properties. Further, the view of the Top Hat structure from Main Street and the historic use of the area in front of the Top Hat structure would be retained.
Materials	Although diminished through the removal of the signage, awning, and original hand-out windows, the building retains its integrity of materials.	The building would retain its integrity of materials. The building's integrity of materials would be slightly diminished through the partial demolition of the rear additions. However, the retention of the original 8' x 8' portion of the building will retain a sufficient portion of the building's steel panels to convey this unique building material. Further, the Standards-compliant reconstruction of the signage and awning would enhance the integrity of materials.
Workmanship	The current building retains integrity of workmanship. It retains its modest elements of steel panel construction and shallow counter, which represent the physical evidence of the technology- and material-based construction method.	The building would retain its integrity of workmanship. It would retain physical aspects that convey its workmanship, including its steel panel construction and its shallow counter.
Feeling	The current building retains integrity of feeling. It continues to express the modest aesthetic and sense from its historic period.	The building's integrity of feeling would be diminished through the construction of the new building, which would enclose Top Hat restaurant building. However, the a historic resource's feeling is conveyed by intact setting, materials, workmanship, and design, which together express the sense of a particular period of time. Aspects of materials, workmanship, and design would be retained as discussed above and collectively would contribute to the retention of some of the building's integrity of feeling. Therefore, integrity of feeling would remain.
Association	The current building retains integrity of association. It possesses those physical features that convey its historic character.	The building's integrity of association would be diminished in some ways through the loss of its setting and some historic materials. However, it would still retain many of the physical aspects that convey its historic character and the project would reintroduce its historic use, providing food at the corner of Main and Palm Streets. Therefore

	integrity of association would remain.

As discussed above, the project would introduce changes to the Top Hat restaurant building that would affect the building's setting. However, federal and state guidelines state that a historic property does not need to retain all seven aspects of integrity, but must retain enough of its character or appearance to be recognizable as a historical resource and convey its significance.[10] The Top Hat restaurant building has been previously recognized as a historical resource for its association with the commercial development of Main Street and for its steel panel construction. Although some elements of the project would alter certain aspects of the Top Hat restaurant structure's setting, other elements, such as the Standards-compliant reconstruction of original features, would enhance it. The subject building would still retain sufficient integrity of location, design, feeling and association because the project would reintroduce the building's historic use and it would continue to operate as a food service building at the corner of Main and Palm streets as it did historically. Incorporating the subject building into the envelope of the new development would also allow it to retain sufficient integrity of design, materials, and workmanship to convey its significance as a steel panel construction food stand. In consideration of these modifications and the subject building's significant associations, it is our professional opinion that the Top Hat restaurant building would retain sufficient integrity after project implementation to convey its significance.

Conclusions

Balancing the objectives of the proposed mixed-use project with the very small size of the Top Hat restaurant building is a challenging task. As proposed, the project successfully achieves the goal of incorporating the small ancillary Top Hat structure into the new design, while maintaining its food-service use. Although the project would introduce changes to the Top Hat's setting through the construction of the new building, the Top Hat structure would remain on the site and would retain the physical features that convey its original character. Generally speaking, the guidelines addressing the Rehabilitation of historic buildings recommend that new additions should always be subordinate to the historic building and should not compete in size, scale or design with the historic building. In incorporating the Top Hat building into the new project, regardless of where on the site it would be located, this would remain a challenge as the Top Hat building is such a small size, and the surrounding property has not changed substantially over the years. The only feasible way to avoid this issue and achieve project objectives would be to relocate the Top Hat structure to a new site that has a high level of street visibility and that has sufficient space to retain a larger portion of the structure; however, relocation of the structure would result in an impact to its integrity and location.

In considering these challenges, Rincon finds that the project manages to achieve the project objectives while minimizing impacts to the greatest extent feasible. As discussed above, the project as proposed appears to fully conform to eight of the ten Standards for Rehabilitation and partially conform to two of the Standards. Additionally, an analysis of the current and conceptual integrity of the property after project implementation indicates that while the integrity of setting would be incrementally diminished, the Top Hat structure would retain sufficient integrity to continue to convey its previously-identified significance. Because the project would not materially impair the significance of a historical resource, it would not result in a significant adverse impact as defined by CEQA. Further considerations may be needed with regards to the project's conformance to the Historic Resource Design Guidelines presented

[10] California Office of Historic Preservation, *Technical Assistance Series #6: California Register and National Register: A Comparison.* California Department of Parks and Recreation, Sacramento, 2001. Weeks and Grimmer, 1995;

in the Downtown Specific Plan.[11] If future design modifications are considered, it is recommended that the Historic Resource Design Guidelines be referenced and incorporated into the project's design.

Should you have any questions or comments regarding this report, please do not hesitate to contact me at 562-676-5485, or scarmack@rinconconsultants.com

Sincerely,

Architectural History Program Director
Rincon Consultants, Inc.

Attachments:

A. September 2016 Photographs of the Top Hat Restaurant Building

B. September 2016 Plans for the Anacapa Courts Project

[11] City of Ventura, Downtown Specific Plan, adopted by City Council March 19, 2007.

Attachment G

Rincon Consultants' Anacapa Courts Project, Downtown Specific Plan Historic Resource Design Guidelines and Secretary of the Interior's Standards Compliance Review, City and County of Ventura dated June 6, 2018

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

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Date: June 6, 2018
Project No: 16-03175

Don Nielsen, Associate Planner, City of Ventura
501 Poli Street (P.O. Box 99)
Ventura, CA 93002

Subject: **Anacapa Courts Project, Downtown Specific Plan Historic Resource Design Guidelines and Secretary of the Interior's Standards Compliance Review, City and County of Ventura**

Dear Mr. Nielsen:

Rincon Consultants, Inc. (Rincon) was retained by the City of Ventura to provide historic design review for the Anacapa Courts Project (project). The project consists of a three- to four-story, mixed-use building at 297-299 E. Main Street, at the northwest corner of East Main Street and Palm Street in downtown Ventura. The project site is vacant, save for a small, unoccupied roadside eatery, the Top Hat Restaurant (subject building). The Top Hat Restaurant was previously identified as individually eligible for listing in the California Register of Historical Resources (CRHR) and is considered a historical resource for the purposes of the California Environmental Quality Act (CEQA). Located within the Downtown Specific Plan area (DTSP), the project is also subject to the DTSP Historic Resource Design Guidelines, as defined in DTSP Article V, Section 5.20.000. The Top Hat Restaurant is also a contributor to Main Street Commercial Historic District and falls within the boundaries of the Mission Plaza Historical District, listed on the National Register of Historic Places (NRHP).

In March 2017, an earlier iteration of the Anacapa Courts project was brought before the City of Ventura Historic Preservation Commission (HPC) for review and comment. The HPC directed staff and the project proponent to attempt to incorporate the Top Hat Restaurant into the project design and to rehabilitate the building and return it to use as a restaurant. The project applicant updated the diagrammatic project plans; the project plans remain highly conceptual in nature. They are presented as Appendix A.

This report documents Rincon's review of updated, partial diagrammatic plans for Anacapa Courts, in view of HPC direction. Given the Top Hat Restaurant's location, this analysis considers DTSP Article 5, Section 5.20.000, "Historic Resource Design Guidelines" as well as the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Secretary's Standards).[1]

Rincon Architectural History Program Manager Shannon Carmack, B.A., conducted a survey of the project site, reviewed previously prepared documentation and co-authored this memorandum. Ms. Carmack has over 17 years of experience conducting historic resource analysis and preparing environmental compliance documentation. She was assisted by Rincon Architectural Historians Susan Zamudio-Gurrola, M.A., and Steven Treffers, M.H.P. Debi Howell-Ardila, M.H.P, co-authored this memorandum. Ms. Carmack, Ms. Zamudio-Gurrola, Mr. Treffers, and Ms. Howell-Ardila all meet the Secretary of the Interior's Professional Qualification Standards for architectural history and history.

[1] Kay Weeks and Anne Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*. National Park Service, Washington, D.C., 1995

Summary of Findings

The analysis presented in this memo was based on partial, conceptual diagrammatic sketches, site plans, and elevations for the project. The project site includes one eligible built environment historical resource (the Top Hat Restaurant, which the project envisions retaining) and is located within two historic districts (one eligible, the Main Street Commercial Historic District, and one designated, the Mission Plaza Historical District, which is listed in the NRHP). Additionally, archaeological resources are located within the project site; however, per direction from the City of Ventura, they are to be undisturbed by the proposed project and are not evaluated in this memo.

Given this historic resource status and the project's location within the Downtown Specific Plan (DTSP), the proposed project was analyzed for conformance with the DTSP, including its Goals and Historic Resource Design Guidelines, and with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*).

Based on available project information, Rincon has reached the following conclusions:

1. Conformance with Adopted Goals of the DTSP

The Anacapa Courts Complex conforms with and meets the central goals of the Downtown Specific Plan, adopted in March 2007. The project meets goals No. 1 (Ventura's Unique Character), No. 3 (Animating the Public Realm), No. 4 (Economic Vitality), and No. 5 (Housing Renaissance). Adopted in 2007, the DTSP "lays out a strategy for the continued revitalization of our city's cultural and commercial core through implementation of eight planning goals that constitute the central elements of this plan." The guiding idea of the DTSP is thus stated:

> Today, Downtown Ventura's revived economic vitality represents both a challenge and an opportunity. It is neither possible nor desirable to freeze the area in its current state. Longtime merchants face displacement due to rising real estate values, but the fragile charm of the area cannot be sustained on new restaurants and boutiques alone. By emphasizing the strengths that differentiate Ventura's historic downtown from made-to-order "lifestyle centers," the vision of sustaining our city's authentic heart can be achieved.[2]

2. Direct Changes to the Top Hat Restaurant: Possible Compliance with Secretary's Standards

Retention and repurposing of the Top Hat Restaurant would meet the Secretary's Standards aimed at encouraging minimal or no change in use to a historic building. In addition, plans for reuse of the Top Hat Restaurant could conceivably be designed to comply with the DTSP Historic Resource Design Guidelines and Secretary's Standards. Given that no information is currently available on the rehabilitation plans, full analysis should take place once preliminary construction plans are available showing the specific changes proposed for the subject property, including the proposed hyphen or connection to the new building. If the rehabilitation and reuse plans for Top Hat Restaurant comply with the Secretary's Standards, the project could avoid significant direct impacts to the subject property.

To facilitate compliance, the project design team should include input from a qualified historic professional who meets the Secretary of the Interior's Professional Qualifications Standards and possesses a minimum of five years of experience in historic preservation. The input from a historic professional should take place from conceptual and schematic phases through Design Development, in order to identify and implement project design elements that will facilitate compliance with the Secretary's Standards.

[2] City of San Buenaventura Downtown Specific Plan, p. I-2.

3. Indirect Changes to Top Hat Restaurant & Property: Partial Compliance with Secretary's Standards

According to the NPS and the Secretary's Standards for Rehabilitation, two guidelines in particular apply to new construction adjacent to a historic resource: Standards No. 9 and 10.

No. 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

No. 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In terms of Standard No. 10, the project complies, given that, if the Anacapa Courts project were removed in the future, the "essential form and integrity" of the restaurant would remain intact.

In terms of Standard No. 9, the project appears to be in partial conformance. As designed proposed project elements will not destroy any materials that characterize the property and the new work will be differentiated from the old. The proposed plans maintain generous amount of open space between the Top Hat Restaurant and the new building. According to the diagrammatic site plan, the restaurant is clearly readable as a stand-alone, roadside restaurant space, with equal amounts of space between the restaurant and sidewalk on one side and the new building on the other.

The height of the new construction is larger in "massing, size, and scale" than the Top Hat Restaurant. However, the same can be said of a majority of the buildings in the immediate vicinity, along both sides of East Main Street between Palm and Oak Streets, as compared to the Top Hat Restaurant which is a comparably small structure. Compliance with this standard could be facilitated through an examination and refinement of the wall treatment and massing in the corner of the project adjacent to the Top Hat Restaurant, and ongoing input from a historic professionalmeeting the qualifications noted above. This input would help design and implement project design options and elements capable of minimizing these indirect changes to the setting and feeling of the subject property.

4. DTSP Historic Resource Design Guidelines: Compliance

Based on available project information, Rincon finds that most of the project components either comply or could be brought into compliance through design refinements with the DTSP Historic Resource Design Guidelines. In accordance with Section 5.20.040 of the DTSP, the design of the in-fill building is "influenced by the other facades on the street" but is not a copy. The in-fill building is sympathetic in terms of façade rhythm, placement of doors and windows, storefront design, color, and use of materials.

As the project evolves from conceptual to schematic plans, it is recommended that a historic professional meeting the qualifications described above provide design input to ensure continued compliance with the DTSP Design Principles as the design develops.

I. Project Description, Anacapa Courts

As currently proposed, the Anacapa Courts project would redevelop the large, primarily vacant parcel currently occupied by the Top Hat Restaurant (in the parcel's southeast corner). The development would involve construction of a new, mixed-use building that would range from three to four stories (ranging from 59 feet at the highest point and approximately 45 feet along the main roof line). The project remains largely conceptual in nature. Rincon's plan review and analysis were limited to diagrammatic sketches of the East Main Street and Palm Street elevations, as well as sketches, site and floor plans. Detailed diagrams and elevations of the proposed north side and west side of the building were not provided. Also excluded are plans for the rehabilitation and reuse of the Top Hat Restaurant.

In keeping with the direction provided by the City of Ventura Historic Preservation Commission, the updated project plans reflect the following changes:

1. Retained in place, the Top Hat Restaurant will be rehabilitated and could potentially be re- used as a restaurant
2. A new conceptual plan has been put forward to join the rear elevation of the historic restaurant to the new building, in order to allow for the possibility of joining the two structures
    a. Project proponents include this element in order to provide the possibility for a modern, code-compliant food preparation facility
    b. Project proponents add the caveat that the use of the Top Hat Restaurant as food-service related is contingent upon future tenant viability.
        i. No concrete rehabilitation plans have been included or provided to Rincon. The analysis here is based on a concept to rehabilitate the building.
        ii. Project proponents plan to present the final design for the Top Hat Restaurant under a separate application at a future date yet to be determined.
3. The project has been reduced by approximately 3,000 square feet on three floors to make room for retention of the historic restaurant.
4. Project proponents seek a code variance to allow for the proposed fourth floor. They request a fourth floor encompassing 25 percent – instead of the code requirement of 15 percent – of the building footprint for the fourth floor.

While still conceptual in nature, the plans call for a contemporary architectural style, with exterior walls clad in a variety of materials, including brick veneer, stucco, cementitious siding, steel awnings, and aluminum storefronts with ceramic tile bulkheads. In addition to the varied design composition of the exterior walls, windows are similarly varied, with rows of multi-light windows as well as single, deeply recessed lighting.

As part of the proposed plan, the entire 8 by 22 foot historic building would be preserved in its current location, in a cut-out in the southeast corner of the new development. In the rear of the building, on the north elevation, an adjacent new wall, abutting the historic building, would be clad in brick veneer with a row of rectangular transom windows. Along the longitudinal segment of the historic building, the adjacent new construction consists of a varied wall treatment sheltered beneath a wide steel awning. Although the plans remain conceptual, the awning appears to extend nearly to the location of the Top Hat restaurant. Outdoor seating would be provided on the east and west sides of the historic building.

The updated diagrammatic project plans and sketches reviewed as part of the current study are included as Appendix A.

II. Top Hat Restaurant: Architectural Description, Historic Resource Status, and Character-Defining Features

Located at the northwest corner of Main Street and Palm Street in downtown Ventura, the subject property is a one-story steel-panel restaurant, measuring 8 feet by 22 feet, constructed in 1947. As described in the 2010 *Phase 2 Historic Resource Report, Top Hat Restaurant, 299 E. Main Street*, the subject building is:

> The main body of the building is composed of vertically-seamed interlocking steel panels roughly one foot in width. The building is covered by a very low-pitched steel shed roof pitched upwards toward the south. A shallow counter wraps from the southern elevation onto the southernmost portions of the western and eastern elevations, underneath hand-out windows, which extend from the counter to roughly two feet below the shallow eave line. The southern windows are presently covered with accordion wood shutters and are not visible, but according to photographic documentation, are aluminum framed. The window on the eastern elevation is square and single-paned. The western window is wood and features a circular cutout with a three-panel light above, covered by a wrought-iron grill to the face of the building. These windows were opened or uncovered during the restaurant's business hours.
>
> A bench seat and a shallow counter standing on steel poles parallels the eastern elevation. This seating re-placed non-fixed barstools circa 1980. Prior to its closure in February 2010, the building featured louvered metal awnings projecting over the western, southern and eastern elevations, which have since been removed. These awnings were probably added to the building circa 1960, replacing canvas awnings seen in early photographs of the property. A three-panel plywood sign projecting above the roof parallel to the southern, western and eastern elevations and a plywood menu-board located against the chain-link fence near the sidewalk to the west were also removed after February 2010. Two small, detached utility buildings constructed of vertically-scored plywood are located immediately to the west and north of the restaurant building, date from circa 1990-95. A steel pole which once supported a freestanding sign is located roughly ten feet from the southwestern corner of the building, near the sidewalk. The balance of the corner parcel is paved in asphalt and presently used for surface parking.[3]

A field survey conducted in September 2016 confirmed that the subject building appears largely as described above in 2010 (see Appendix B). The site visit confirmed that the metal-framed windows located on the primary elevation were removed at an unknown date. Other changes since this time are limited to the building's surroundings and include the removal of the surface parking lot and the enclosure of the parcel with a chain-link fence.

The interior of the building was also inspected as part of the current study and was consistent with a long-vacant, former restaurant. Walls of the primary kitchen space are lined with stainless steel panels and nearly all of the appliances and fixtures appear to have been removed. The entire building features concrete floors and the rear (north) room is similarly void of fixtures, with the exception of pipes and electrical conduit.

Previous Findings of Significance

Since 2005, the individual historical significance of the Top Hat Restaurant has been considered in multiple historical resource investigations, primarily prepared in support of the current project and

[3] San Buenaventura Research Associates, Phase II Historic Resources Report for Top Hat Restaurant, 299 E. Main Street, Ventura, CA, August 2010.

submitted to the City of Ventura.[4] Each investigation has found the subject building to possess significant cultural and architectural associations. As summarized in a 2006 memorandum from Greenwood and Associates:

> Preliminary research and physical examination of the building have indicated that it is significant at the local level and potentially eligible for inclusion in the California Register of Historical Resources under Criterion 1 for its association with events that made a significant contribution to the broad patterns of California history and cultural heritage, and under Criterion 3, as embodying the distinctive characteristics of a type, period, region, or method of construction. It also has merit in the eyes of the community, as demonstrated by a petition urging preservation that was signed by some 6,000 citizens. Its period of significance is considered to be ca. 1947-1952, reflective of its initial date of construction and use as a restaurant, through completion of its last major (steel panel) addition. Any modifications made to the building subsequent to its period of significance are not viewed as contributing to its historic character.[5]

In addition to the subject building's previously identified individual historical significance, a 2007 historic resources survey completed by Historic Resources Group identified the Top Hat Restaurant as a contributor to the locally eligible Main Street Commercial Historic District.[6] Located along Main Street between Figueroa and Fir Streets, the district reflects the broad historical commercial development of Ventura and has a period of significance extending from 1870-1962. Although the Top Hat Restaurant is also located within the NRHP-listed San Buenaventura Mission District, it is not explicitly identified in the NRHP nomination form and it is assumed to be a non-contributor since it is not directly associated the Mission San Buenaventura or the reasons for its significance.[7] A nomination form was completed in early 2018 seeking to list the Top Hat Restaurant in the National Register of Historic Places.[8]

Character-Defining Features

The intent of the Secretary's Standards is to provide for the long-term preservation of a property's significance through the preservation of its historic materials and features. These historic materials and features are commonly referred to as character-defining features, and are indispensable in a historic property's ability to convey the reasons for its historical significance. To ensure a proposed project's compliance with the Standards, a historic property's character-defining features should therefore be identified and preserved as part of the final design.

According to Preservation Brief 17, *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, there is a three-step process to identifying character-

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[4] See Greenwood and Associates, *Phase I Cultural Resource Investigation for Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura*, prepared for WestStar Ltd., July 2015; Stephen Schafer, California Department of Parks and Recreation Primary Record and Building, Structure, and Object Record forms for Top Hat Burger Palace at 299 East Main Street, November 10, 2005; Greenwood and Associates, Memorandum to Mr. David Armstrong of the City of Ventura Redevelopment Agency from Dana N. Slawson, RE: Top Hat Burger Palace Relocation, March 9, 2006; San Buenaventura Research Associates, 2010.

[5] Greenwood and Associates, 2006.

[6] Historic Resources Group, *Historic Resources Survey Update, City of Ventura, California, Downtown Specific Plan Area,* prepared for the City of Ventura, April 2007.

[7] James R. Capito, Robert Lopez, and Myrle Kirk, National Register of Historic Places Registration Form for the Mission Historical District (aka Mission San Buenaventura and Mission Compound Site), September 1974.

[8] Schafer, Stephen and Sian Winship. National Register of Historic Places Registration form for the Top Hat Hot Dog Stand, January 2018.

defining features.[9] Step 1 involves assessing the distinguishing physical aspects of the exterior of the building as a whole, including its setting, shape and massing, orientation, roof and roof features, projections, and openings. Step 2 looks at the building more closely—at materials, trim, secondary features, and craftsmanship. Step 3 encompasses the interior, including individual spaces, relations or sequences of spaces (floor plan), surface finishes and materials, exposed structure, and interior features and details.

The Top Hat Restaurant is a modestly-designed hot dog/burger stand, which historically provided food with surrounding, open-air seating to its customers at the corner of Palm and Main Streets in Ventura. Both individually and as a contributor to the potential Main Street Commercial District, the Top Hat Restaurant has been previously found to be associated with the commercial development of Ventura in the years immediately after World War II. The period of significance for these associations is circa 1947 through 1962, corresponding with its construction date and extending the end date identified for the potential historic district.

The building is also an early example of prefabricated all-steel construction, with a period of significance of circa 1947 through 1952, corresponding with its original construction and its last steel panel addition. The character-defining features of the Top Hat Restaurant include:

- Single-story height
- Small, box-like shape
- Detached, rectangular 8' x 22' plan
- Rectangular, hand-out window opening on south elevation
- Window openings above counter on southernmost portions of east and west elevations
- Slightly sloping pitched roof
- Shallow, wrap-around counter
- Vertically-seamed interlocking steel panels
- Set close to the sidewalk for ease of access
- Highly visible location at the corner of Palm and Main Streets, with open-air areas to the south and east, historically used for congregating, service and seating

[9] Lee H. Nelson, *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, Preservation Brief No. 17. U.S. Department of the Interior, National Park Service, Technical Preservation Services.

III. Description and Setting of Surrounding Neighborhood

A key aspect of the DTSP Historic Resource Design Guidelines concerns neighborhood character. In general, the DTSP design principles and approaches are aimed at ensuring the overall compatibility of in-fill construction with the historic character. Toward that end, this section briefly describes the overall uses and scale of buildings adjacent to the project site. Following this section, illustrations present a pictorial overview of the neighborhood and its scale and character.

The project site was once home to the Anacapa Hotel, a four-story commercial/residential building that was built in 1888 and was demolished in approximately 1929[10] (Figure 1).

Figure 1. Anacapa Hotel, 1898 (Ventura County Museum of History and Art, #3815).

The 300 block of East Main Street between Palm and Oak streets is generally characterized on both the south and the north sides by one and two-story commercial buildings. Similarly, the 200 block of East Main Street between Palm Street and approximately Figueroa Street is generally characterized on the south side by one-story commercial buildings and on the north side by one and two-story commercial buildings, as well as the Mission San Buenaventura property. The mission church is a two-story building, and the adjacent parish center is a one-story building; both are built above grade. The campus of Holy Cross School behind the mission includes a three-story building, which is accessed via the driveway running adjacent to and north of the subject property.

The property immediately north of the subject property, 71 North Palm Street (the Norton Ranch House, City Landmark No. 89), is a two-story Craftsman-style residence that was converted to commercial use.

The topographic features north of the project site – upward sloping terrain leading to a hilltop developed with multi-story buildings dominates the northern setting of the project site.

[10] Greenwood and Associates. Phase I Cultural Resource Investigation, Proposed Development at the Northwest Corner of Main and Palm Streets, Ventura, July 2005.

Across Palm Street to the east of the subject property is a two-story masonry building with a stepped parapet façade, which formerly housed the Ventura Improv Company. Approximately one block to the east of the subject property, at the southeast corner of North Oak Street and Poli Street, is a four-story mixed-use building. Approximately one block south of the subject property, at the southwest corner of South Palm Street and East Santa Clara Street, is a seven-story building that appears to be multifamily residential in use.

Figure 2. Project site: northwest corner of East Main Street and Palm Street, view to the northwest.

Figure 3. North side of the 200 block of East Main Street, view to northwest

Figure 4. North side of the 200 block of East Main Street, view to the northeast

Figure 5. South side of the 200 block of East Main Street, view to the southwest

Figure 6. South side of the 200 block of East Main Street, view to the southeast

Figure 7. North side of the 300 block of East Main Street, view to the northeast

Figure 8. North side of the 300 block of East Main Street, view to the northwest

Figure 9. South side of the 300 block of East Main Street, view to the southeast

Figure 10. South side of the 300 block of East Main Street, view to the southwest

Figure 11. Holy Cross School, view to the west (accessed by driveway adjacent to the subject property)

Figure 12. 71 North Palm Street to the north of subject property, view to the northeast

Figure 13. View from project site of the mixed-use building at Poli St. and N. Oak St., view to northeast

Figure 14. Close-up of mixed-use building at Poli St. and N. Oak St., view to the northeast

Figure 15. Building at corner of South Palm Street and East Santa Clara Street, view to the southwest (one block south of the subject property)

Potential Main Street Commercial Historic District

As stated previously, the Top Hat Restaurant has been identified as a potential "contributor" (or eligible property) to the potential Main Street Commercial Historic District. According to the City's 2007 Historic Resources Survey Update, the potential Main Street Commercial Historic District extends along both sides of East Main Street, between Figueroa and Fir Streets, extending immediately north and south of Main Street on Palm, Oak, California, and Chestnut Streets. As noted in the 2007 Historic Resources Survey Report: "These blocks of Main Street form a contiguous and relatively intact grouping of buildings, which functioned historically as the City's primary commercial corridor from the late 1860s through the 1950s."

The potential historic district includes 98 properties, 53 of which were identified as contributors. The Top Hat Restaurant is among the "contributing" (or potentially eligible) properties:

> Contributing buildings to the potential historic district date from the 1880s through the early 1960s and generally retain their original appearance. Properties are typically one- and two-story commercial storefronts built to the street and fronted with large display windows. Larger buildings include hotels, banks, theaters and a library. Many of the storefront buildings are vernacular in their design. Others, however, reflect the popular architectural styles of their time, including Beaux Arts, Spanish Colonial Revival, Mediterranean Revival, Art Deco, Streamline Moderne and Midcentury Modern styles.
>
> In addition to buildings that retain their original fabric, properties that were wholly remodeled during the period of significance and largely retain this updated appearance today have also been assessed as district contributors. In examining the integrity of commercial storefronts along Main Street, it quickly became apparent that the existing streetscape did not represent a single moment in time, but rather the evolution of the City's central commercial district over many

decades. In addition to construction that filled in previously undeveloped lots, one also finds evidence of façade remodeling.[11]

[11] Historic Resources Group. 2007. "Historic Resources Survey Update, Downtown Specific Plan, City of Ventura," p. 85-86. On file with City of Ventura.

IV. Project Analysis, Downtown Specific Plan, March 2007

Specific Plan Goals

Adopted in 2007, the DTSP "lays out a strategy for the continued revitalization of our city's cultural and commercial core through implementation of eight planning goals that constitute the central elements of this plan." The guiding idea of the DTSP is thus stated:

> Today, Downtown Ventura's revived economic vitality represents both a challenge and an opportunity. It is neither possible nor desirable to freeze the area in its current state. Longtime merchants face displacement due to rising real estate values, but the fragile charm of the area cannot be sustained on new restaurants and boutiques alone. By emphasizing the strengths that differentiate Ventura's historic downtown from made-to-order "lifestyle centers," the vision of sustaining our city's authentic heart can be achieved.[12]

The Anacapa Courts Complex conforms with and meets the central goals of the Downtown Specific Plan, adopted in March 2007. Specifically, the project meets goals No. 1 (Ventura's Unique Character), No. 3 (Animating the Public Realm), No. 4 (Economic Vitality), and No. 5 (Housing Renaissance).

DTSP Historic Resource Design Guidelines

The DTSP Historic Design Guidelines acknowledge the challenge of balancing historic preservation and new development. The following describes the overarching goals of the DTSP:

"The Challenge: Blending the Past while Building the Future"

Because of Ventura's unique history and setting, we invite present and future developers and property owners to bring the very best of their efforts to enhance, integrate, and grow this collection. With the pressure for both residential and commercial interests placed upon the city of San Buenaventura, the challenge will be to integrate the past while successfully building the future, hopefully creating an architectural record that will say the present generation cherishes its history while concurrently crafting a contemporary statement of its time.

Additionally, the document provides the following guidelines:

> Design of infill building façades should be influenced by the other facades on the street but should not attempt to copy. Infill buildings should be sympathetic and compatible with surrounding buildings in terms of mass, scale, height, façade rhythm, placement of doors and windows, storefront design, color and use of materials.

In order to achieve this outcome, the following design principles apply:

1. **Façade Proportion:** Characteristic proportion of existing facades should be respected in relation to new in-fill development.
2. **Proportion of Openings:** Maintain the predominant difference between upper story openings and street level storefront openings of adjoining existing development.
3. **Horizontal Rhythms:** Integrate horizontal elements in the new development (e.g. cornice line, window height/width, and spacing) found in the adjoining historic structures.

[12] City of San Buenaventura Downtown Specific Plan, p. I-2.

4. **Wall Articulation:** New development should avoid monolithic street wall facades. Development should learn from adjacent historical structures with facades that are "broken" by vertical and horizontal articulation.
5. **Roof Articulation:** Flat or sloped consistent with surrounding buildings. Flat roofs should use decorative parapets and heavy cornice lines compatible with adjacent historic architecture. Cornice lines of new buildings (horizontal rhythm element) should be aligned with historic adjacent buildings.
6. **Building Material Palette:** Materials to be used on in II buildings are to be compatible with the materials used on significant adjacent buildings.
7. **Mechanical Equipment Screening:** Mechanical equipment located on a roof shall be appropriately screened so as not to detract from the historic character of the streetscape and views from the hillsides. Screening shall be architecturally integrated with the structure in terms of color, shape and size and compatible materials that also minimize glare.
8. **Setbacks and "Build To" Lines:** Maintain the pattern and alignment of buildings established by the traditional setbacks from the street. Build consistently with the street wall, particularly at corner sites. Design new buildings to respond to the existing building context within a block, and provide continuity to the overall streetscape.
9. **Entrance Orientation:** Maintain the traditional design vocabulary used for defining building entrances.
10. **Storefront Design:** Storefronts are an important visual element and should be compatible in scale, rhythm, recesses, etc to adjoining existing historical storefront design.
11. **Door and Window Design:** Door and window proportion and detailing should be compatible with adjacent historical architecture, including percent of glass/solid, windowpanes/mullions proportion and window materials.
12. **Signage:** Signs should be subordinate to the architecture and overall character throughout the downtown area. New signage should be compatible in size, color, proportion, shape placement, and selection of lettering material with adjacent historical signage.
13. **Landscaping:** Consistency and continuity within the street right-of-way and building setback areas.

Project Analysis

1. Top Hat Restaurant Rehabilitation and Re-use:

   The proposed new construction of the Anacapa Courts Complex retains the Top Hat Restaurant in its historic, roadside location on East Main and Palm Streets. Adjacent to the Top Hat Restaurant, the Anacapa Courts complex would involve construction of a new building with a height ranging from 3- to 4-stories, with the principal roofline climbing to approximately 45 feet and the highest point of the roof climbing to 59 feet.

   The design incorporates the restaurant in the corner of the parcel, with adequate space around the restaurant for circulation and outdoor seating. An equal amount of open space is retained between the Top Hat Restaurant and the new building as currently exists between the Top Hat Restaurant and the sidewalk. Given the exceptionally small scale and height of the Top Hat Restaurant, the new Anacapa Courts Complex design would be larger in mass, scale, and height; however, the same can be said of a majority of the buildings in the immediate vicinity, along both sides of East Main Street between Palm and Oak Streets, as compared to the Top Hat Restaurant. Design modifications could be implemented to minimize this through an examination and refinement of the wall treatment and massing in the corner of the project adjacent to the Top Hat Restaurant, and ongoing input from a historic professional.

2. Anacapa Courts Complex:

   The project is in compliance (or could be brought into greater compliance through design refinements) with the DTSP guideline regarding compatibility of façade rhythm, placement of doors and windows, storefront design, color and use of materials. Further refinements and input from a historic professional would help ensure ongoing compliance as the design evolves.

   The DTSP guideline also states that "infill buildings should be sympathetic and compatible with surrounding buildings in terms of mass, scale, height." In terms of massing, scale, and height, the Anacapa Courts complex involves a new building with a height ranging from 3- to 4-stories, in keeping with allowable height requirements for the area. While the building would be larger than its immediate surrounding, other areas of historic downtown have taller buildings. Also noteworthy is that the Anacapa Hotel that previously occupied the site from 1888 to approximately 1929 was a four-story building.

In light of the DTSP Historic Resource Design Principles, the following describes some design modifications to explore in conjunction with a historic professional that would facilitate ongoing compliance with the DTSP:

1. On East Main Street, ensure that the first-second floor juncture of the new building aligns with/rises no higher than the roofline of the neighboring historic building at 265 E. Main Street;
2. On East Main Street, lower the cantilevered canopies over the new storefronts to align with/rise no higher than the entrance canopy of the neighboring historic building at 265 E. Main Street;
3. Explore design options that better align second- and third-story windows with corresponding ground-floor storefronts and introduce a more symmetrical (or, if still asymmetrical, a clearly expressed modular design composition) to the East Main Street elevation;
4. Explore design options that simplify the palette of materials and volumes, for a more streamlined design composition;
5. Explore options that introduce continuous vertical and horizontal elements to lighten the volume of the new elevations (in particular the elevation facing East Main Street) and blend in a complementary manner with the neighboring historic buildings;
6. Simplify the roof plan and consider a broader cornice line to set off and define the roof line, to balance the mass and design in lower stories.
7. While not a part of this application, the proposed signage for the development is a two-story blade sign facing Palm Street. The Design Guidelines state that signs should be subordinate to the architecture and overall character throughout the downtown area. Given the height of the sign (which would be higher than the rooflines of the most of the neighboring buildings), the signage may not comply with this guideline. Working in conjunction with a historic professional, the project team should ideally explore options for a sign that suits the project needs while also meeting the DTSP Historic Resources Design Guidelines.

A number of project components are not yet available to weigh against the Design Guidelines. For example, the guidelines state that "door and window proportion and detailing should be compatible with adjacent historical architecture, including percent of glass/solid, window panes/mullions proportion, and window materials." Many of the details for door and windows for the Anacapa Courts remain conceptual at this stage. Generally speaking, the pattern of window openings and the ratio of windows versus wall space could be made to be compatible.

As these conceptual plans progress, it is recommended that the project proponent work closely in conjunction with a historic professional to ensure that the window and door configurations and details comply with the DTSP Historic Resource Design Guidelines.

V. Project Analysis, Secretary of the Interior's Standards

The Secretary's Standards establish professional standards and provide advice on the preservation and protection of historic properties. As discussed in Section 10564.5 of the CEQA Guidelines, a project that is complaint with the Standards generally would not have a significant historic resource impact under CEQA. The Standards make broad-brush recommendations for maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations. They cannot, in and of themselves, be used to make essential decisions about which features of a historic property should be saved and which might be changed. Rather, once an appropriate treatment is selected, the Standards provide philosophical consistency to the work. There are Standards for four distinct, but interrelated, approaches to the treatment of historic properties: preservation, rehabilitation, restoration, and reconstruction. It is anticipated that the Rehabilitation Standards would be the most appropriate treatment for the Anacapa Courts Project because rehabilitation would allow for alteration to the subject building. Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.[13]

Since the initial project review was completed for the Anacapa Courts project, the National Park Service issued a 2017 update to the *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. The updated version of the Standards includes additional guidance on alterations and additions to historic properties; this guidance essentially expands upon Standards for Rehabilitation No. 9 and 10:

> 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
>
> 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The additional guidance available for Standards-compliant rehabilitation projects includes the following recommendations, excerpted from the 2017 Standards for Rehabilitation, for alterations and additions for a new use to historic properties:

> Recommended: Designing new onsite features…when required by a new use, so that they are as unobtrusive as possible, retain the historic relationship between the building or buildings and the landscape, and are compatible with the historic character of the property.
>
> Recommended: Designing new exterior additions to historic buildings or adjacent new construction that are compatible with the historic character of the site and preserves the historic relationship between the building or buildings and the landscape.
>
> Not Recommended: Introducing new construction on the building site which is visually incompatible in terms of size, scale, design, material, or color, which destroys historic relationships on the site.

[13] Weeks and Grimmer, 1995.

This expanded guidance is addressed in Standards No. 9 and 10 in the analysis below.

The following presents a standard-by-standard analysis of potential project-related impacts to the Top Hat Restaurant.

Rehabilitation Standard No. 1: A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

The proposed project could potentially reuse the Top Hat Restaurant for food service, which is in line with its historic use. The plan includes the modification of the rear of the building to allow for the historic structure to connect to the new building and increase its adaptive reuse potential. In the rear of the building, the adjacent new wall would be clad in brick veneer with a row of rectangular transom windows. Along the west side, the historic building would be adjacent to a wide-eave steel awning. While the Standards discourage the alteration of character-defining features, it is often allowable to modify secondary or rear portions of a building when the changes allow for the continued use of the structure and can retain the primary architectural characteristics and integrity. The project also includes the construction of a three- to four-story, mixed-use development that envelopes the building on the north and west elevations, rising to 59 feet at the fourth story and to approximately 45 feet at the principal roof line along the third story. As proposed, the new building would be connected to the rear elevation of the Top Hat building. Although the new building is more than an "addition" to the Top Hat structure, *Preservation Brief No. 14, New Exterior Additions for Historic Properties,* provides relevant guidance, stating that:

> A new addition to a historic building should preserve the building's historic character. To accomplish this and meet the Secretary of the Interior's Standards for Rehabilitation, a new addition should:
>
> - Preserve significant historic materials, features and form;
> - Be compatible; and
> - Be differentiated from the historic building.

Inclusion of the Top Hat building within the parcel and footprint of the new multi-story building would modify the setting of the building. While these changes are arguably greater than "minimal," the project would retain the building in its entirety and maintain its physical features and characteristics vis-à-vis its highly visible corner location, its mass and overall character, its relationship to the street and sidewalk, and, potentially, its original use. It would also maintain the view of the building from Main Street and preserve the use of the area in front for congregating, service, and seating. Therefore, the project can be considered in conformance with Rehabilitation Standard No. 1. Because the plans remain conceptual in nature, input to the design team by a qualified historic professional as well as ongoing Standards compliance review by a qualified historic preservation professional will facilitate project compliance with Standard No. 1 as the design evolves.

Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

In examining the physical characteristics of the building, the project would retain many of those aspects that contribute to the identified historic character of the Top Hat restaurant. These include: the small box-like shape; the rectangular, hand-out opening and side window openings; the slightly sloping pitched roof; the wrap around counter; and the vertically-seamed interlocking steel panels. As previously noted, while the Standards discourage the alteration of character-defining features, it is recognized that alterations to secondary elements can achieve conformance with the Standards in certain instances. Although the rear elevation would be removed to allow for the new construction, the project would retain the original structure and would continue to preserve the important features of the building. Although, the subject building's surrounding space and visual setting would be changed as part of the project, it would still retain the important physical features as discussed above that primarily contribute to its historic character.

At present, the plans for reuse of the historic building are conceptual, and the specific work plan items for repair and rehabilitation are not yet known. Project plans specify that the final design to the historic property will be submitted in a separate application to the City at a future date.

Therefore, the proposed project as currently envisioned can be considered in compliance with Rehabilitation Standard No. 2. Because the plans remain conceptual in nature, input to the design team by a qualified historic professional as well as ongoing Standards compliance review by a qualified historic preservation professional will ensure that the project plans comply with Standard No. 2 as the rehabilitation and reuse plans evolve.

Rehabilitation Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

The proposed project would involve reconstruction of original elements, including the louvered awning and roof sign, based on documentary evidence. The building was historically a detached, single-story hot dog/hamburger stand at the corner of Main and Palm Streets. Although the building would be enveloped on the north and west elevations by a 3- to 4-story contemporary-style building, the original building would be differentiated from the new non-historical elements with new materials and design, and would not create a false sense of history.

While signage is not a part of this application, drawing A-5 of the project plans shows the addition of a blade sign on the east elevation of the historic building. This appears to be a conjectural feature, as this feature does not appear on available historic photographs of the Top Hat restaurant. The reconstruction of any features should be based on documentary evidence rather than conjecture; if there is no documentary evidence for the presence of a blade sign or other features proposed in the conceptual plans, these items should be omitted as the design progresses.

Because the plans remain conceptual in nature (in particular as regards the reconstruction of the original sign and awning), input to the design team as well as ongoing Standards compliance review by a qualified historic professional will ensure that the project plans comply with Standard No. 3 as the design evolves.

Rehabilitation Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

As proposed, the project would retain the original building and subsequent associated additions identified as character-defining; therefore this standard may not apply. However, the specific work plan details for rehabilitation and reuse are not yet known. Project plans specify that the final design to the historic property will be submitted in a separate application to the City at a future date.

The proposed project, as currently envisioned at this conceptual stage, could be considered in compliance with Rehabilitation Standard No. 4.

Because the plans remain conceptual in nature (in particular as regards the reconstruction of the original sign and awning), input to the design team as well as ongoing Standards compliance review by a qualified historic professional will ensure that the project plans comply with Standard No. 4 as the design evolves.

Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

As discussed above, the project would retain the original building; however, the specific work plan items for repair and rehabilitation are not yet known. The final design to the historic property will be submitted in a separate application to the City at a future date.

The proposed project, as currently envisioned at this conceptual stage, could be considered in compliance with Rehabilitation Standard No. 5.

Because the plans remain conceptual in nature (in particular as regards the reconstruction of the original sign and awning), input to the design team as well as ongoing Standards compliance review by a qualified historic professional will ensure that the project plans comply with Standard No. 5 as the design evolves.

Rehabilitation Standard No. 6: Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

Because the current project plans are still in a conceptual stage, they do not provide sufficient detail to determine whether they are compliant with Rehabilitation Standard No 6. As specified on drawing A-5 of the Anacapa Courts project, reuse plans for the historic property will be submitted in a separate application to the City at a future date.

In order to comply with Standard No. 6, the reuse plans for the historic building should prioritize the repair and, if necessary, in-kind replacement of character-defining features. In-kind replacement means matching the character-defining historic feature in materials, appearance, profile/thickness, and the texture and color of finishes.

Although the final plans are not yet available, it is anticipated that the project could achieve compliance with Standard No. 6 through design team input and coordination on ongoing Standards compliance review from a historic professional , as the plans evolve.

Rehabilitation Standard No. 7: Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

Because the current project plans are still in a preliminary stage, they do not provide sufficient detail to determine whether they comply with Rehabilitation Standard No 7. As specified on drawing A-5 of the Anacapa Courts project, reuse plans for the historic property will be submitted in a separate application to the City at a future date.

It is anticipated that the project could achieve compliance with Standard No. 7 through design team input and coordination and ongoing Standards compliance review by a qualified historic preservation professional, as the plans evolve.

Rehabilitation Standard No. 8: Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

Archaeological testing, research and mitigation have been established for the project to ensure the project conforms to Rehabilitation Standard No 8.

Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

Standard No. 9 focuses on two primary qualities for new additions or related adjacent construction: differentiation from and compatibility with the historic resource.

In terms of differentiation, the goal is to ensure – through design composition, materials, finishes—that the new construction is clearly discernible as a later, non-historic addition to the historic property. In terms of compatibility, the goal is ensuring that the new addition or construction blends seamlessly with the historic property, that it is (ideally) visually subordinate and unobtrusive to the historic property.

For the proposed project, in terms of differentiation, the project complies and would not destroy the primary character-defining features of the building. Differentiation is achieved through a number of characteristics—the contemporary stylistic treatment, the variety of materials employed on the exterior walls, and the overall scale. The setting of the building is affected, due to the change to the immediate surroundings, but the building itself would remain intact.

On the second count, in terms of compatibility, the project could be brought into compliance with this portion of Standard No. 9. As proposed, the height of the new construction is larger in "massing, size, and scale" than the Top Hat Restaurant.

With input to the design team from a historic architect, options for varying the treatment and design of the walls directly facing the historic property could be explored in order to identify opportunities for greater compatibility of style and scale. This could include varying materials or massing in this southeast corner of the development or incorporating transitional design elements to soften the change in size and scale. These recommendations are in keeping with guidance provided by the National Park Service in the updated Standards, as described in above.

In spite of the difference in massing, size, and scale of the new construction, the proposed development would retain the scale of the Top Hat Restaurant, the view of the building from Main Street, and the historic use of the area in front of the building for congregating, service, and seating. The Top Hat Restaurant would remain largely stand-alone, as well, with only the rear (north) elevation receiving an addition. It will remain clearly readable as a stand-alone hamburger stand.

While still conceptual in nature, the new construction immediately surrounding the historic building would be larger in scale. As plans progress beyond the conceptual phase, design team input from a historic preservation professional will optimize opportunities for identifying design features capable of lessening or softening the visual impacts of this difference in scale and enhancing compatibility.

With this ongoing input, the project could be brought into conformance with Rehabilitation Standard No. 9.

Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Because the Top Hat building would be retained in its original location, with minimal changes to its character-defining features, the essential form and integrity of the historic property would remain largely unimpaired if the new building were to be removed in the future. The rear (north) elevation would experience the most dramatic changes, with removal of materials and the addition of the new building to enhance connections and facilitate the reuse of the historic property.

Typically, visual impacts caused by additions to historic buildings can be softened or mitigated through the use of "hyphens" or transitional spaces that provide for a gradual change in height. Because the current project plans are still in a preliminary stage, it is unknown whether such a project element would be feasible for the Anacapa Courts project. As specified on drawing A-5 of the project drawings, the specific plans for the historic property will be submitted in a separate application to the City at a future date.

In terms of the overall reuse and rehabilitation plans for the historic property, plans thus far do not provide sufficient detail to determine whether they comply with Rehabilitation Standard No. 10; however, it is anticipated that the project as proposed would allow the structure to retain the features previously identified as contributing to its historic significance.

As plans progress beyond the conceptual phase, design team input from a historic preservation professional will optimize opportunities for complying with Standard No. 10. This ongoing input would help facilitate and enhance project compliance with Standard No. 10.

VI. Evaluation of Integrity of Top Hat Restaurant upon Project Completion

The following presents a discussion of the integrity of the Top Hat Restaurant prior to and following completion of the project. Integrity is the ability of a property to convey its significance and is defined by seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association.[14] To retain integrity, it is not necessary for a property to retain all of these aspects, but it is essential that it possess those physical features that enable it to convey its historic identity. The purpose of the following section is to determine whether the project would result in a loss of integrity to the Top Hat Restaurant to a level that would materially impair its ability to convey its significance.

Integrity Aspect	Current	Conceptual
Location	The current building has not been moved retains integrity of location.	The building would be preserved in place. Therefore, it would retain integrity of location.
Design	Although diminished through the removal of the awning and signage and the addition of wood storage sheds, the building retains integrity of design.	The whole of the historic building would be preserved in place. Several aspects of the design would be enhanced through the removal of non-character defining wood storage shed additions and the Standards-compliant reconstruction of original features, specifically the awning and signage, based on documentary evidence. Therefore, it would retain integrity of design.
Setting	The current building retains integrity of setting. The physical environment of the surrounding area appears largely as it did throughout the operation of the structure.	The building's adjacent setting would be altered by the new construction, which would introduce a new visual element to the surrounding property. However, the view of the Top Hat building from Main Street and the historic use of the area in front of the Top Hat structure would be retained and restored. The immediate setting, of an open area surrounding the restaurant, for seating and service, would also remain intact.
Materials	Although diminished through the removal of the signage, awning, and original hand-out windows, the building retains its integrity of materials.	The whole of the building would be preserved in place, so the building's unique steel panels would remain intact. Non-character defining wood storage shed additions would be removed, and a Standards-compliant reconstruction of original features, specifically the awning and signage, would be carried out based on documentary evidence. Therefore, the property would retain integrity of materials.
Workmanship	The current building retains integrity of workmanship. It retains its modest elements of steel panel construction and shallow counter, which represent the physical evidence of the technology- and material-based construction method.	The building would retain its integrity of workmanship. It would retain physical aspects that convey its workmanship, including its steel panel construction and its shallow counter.
Feeling	The current building retains integrity of feeling. It continues to express the modest aesthetic and sense from its	The whole of the historic building would be preserved in place, but the building's integrity of feeling would be diminished through the construction of the new building, which would

[14] Weeks and Grimmer 1995

	historic period.	envelop the Top Hat Restaurant on the north and west elevations. However, a historic resource's feeling is conveyed by intact setting, materials, workmanship, and design, which together express the sense of a particular period of time. Aspects of materials, workmanship, and design would be retained as discussed above and collectively would contribute to the retention of some of the building's integrity of feeling.
Association	The current building retains integrity of association. It possesses those physical features that convey its historic character.	The building's integrity of association would be diminished in some ways through the loss of its setting. However, it would still retain most of the physical aspects that convey its historic character and the project could potentially reintroduce its historic use, providing food at the corner of Main and Palm Streets. Therefore integrity of association would remain intact.

As discussed above, the project would introduce changes to the Top Hat Restaurant that would alter the building's setting. Federal and state guidelines state that a historic property does not need to retain all seven aspects of integrity, but must retain enough of its character or appearance to be recognizable as a historical resource and convey its significance.[15] The Top Hat Restaurant has been previously recognized as a historical resource for its association with the commercial development of Main Street and for its steel-panel construction. Although some elements of the project would alter aspects of the Top Hat restaurant's setting, other elements, such as the Standards-compliant reconstruction of original features, would enhance it. In addition, the building is currently vacant, but it could potentially be returned to use as a food service building in its historic location, at the corner of Main and Palm streets.

Incorporating the subject building into the larger envelope and parcel of the new development would change its setting, but would also allow the property to retain sufficient integrity of location, design, materials, feeling, workmanship, and association such that it will continue to convey its significance as both a contributor to the Main Street commercial district and as an example of a steel-panel construction food stand. In consideration of these modifications and the subject building's significant associations, it is our professional opinion that the Top Hat Restaurant could retain sufficient integrity after project implementation to convey its significance.

[15] California Office of Historic Preservation, *Technical Assistance Series #6: California Register and National Register: A Comparison.* California Department of Parks and Recreation, Sacramento, 2001. Weeks and Grimmer, 1995;

VII. Conclusion and Recommended Next Steps

This analysis considered diagrammatic plans and sketches for a mixed-use project within the DTSP. As project plans evolve, environmental review should weigh potential impacts to two built environment historical resources that could be affected by the proposed project: the Top Hat Restaurant and the potential Main Street Commercial Historic District.

Based on available project information, Rincon has reached the following conclusions:

1. Conformance with Adopted Goals of the DTSP

The Anacapa Courts Complex meets the central goals of the Downtown Specific Plan, adopted in March 2007. The project meets goals No. 1 (Ventura's Unique Character), No. 3 (Animating the Public Realm), No. 4 (Economic Vitality), and No. 5 (Housing Renaissance).

2. Direct Changes to the Top Hat Restaurant: Possible Compliance with Secretary's Standards

Retention and repurposing of the Top Hat Restaurant would meet the Secretary's Standards aimed at encouraging minimal or no change in use to a historic building.

To facilitate compliance, the project design team should include input from a qualified professional who meets the Secretary of the Interior's Professional Qualifications Standards and possesses a minimum of five years of experience in historic preservation. The input from a historic professional should take place from conceptual and schematic phases through Design Development, in order to identify and implement project design elements that will facilitate compliance with the Secretary's Standards.

3. Indirect Changes to Top Hat Restaurant & Property: Partial Compliance with Secretary's Standards

According to the NPS and the Secretary's Standards for Rehabilitation, two guidelines in particular apply to related new construction adjacent to a historic resource: Standards No. 9 and 10. In terms of Standard No. 10, the project does comply, given that, if the Anacapa Courts project were removed in the future, the "essential form and integrity" of the restaurant would remain intact.

In terms of Standard No. 9, the project is in partial compliance. Compliance with this standard could be facilitated through an examination and refinement of the wall treatment and massing in the corner of the project adjacent to the Top Hat Restaurant. This input would help design and implement project design options and elements capable of minimizing these indirect changes to the setting and feeling of the subject property.

4. DTSP Historic Resource Design Guidelines: Compliance

Based on available project information, Rincon finds that most of the project components either comply or could be brought into compliance through minor design refinements with the DTSP Historic Resource Design Guidelines. As the project evolves from conceptual to schematic plans, it is recommended that a historic preservation professional meeting the qualifications described above provide design input to ensure compliance with the following DTSP Design Principles.

The following provides a brief overview of project components that should be explored in conjunction with a historic preservation professional in order to facilitate compliance with the DTSP Historic Resource Design Guidelines:

1. On East Main Street, ensure that the first-second floor juncture of the new building aligns with/rises no higher than the roofline of the neighboring historic building at 265 E. Main Street;

2. On East Main Street, lower the cantilevered canopies over the new storefronts to align with/rise no higher than the entrance canopy of the neighboring historic building at 265 E. Main Street;
3. Explore design options that better align second- and third-story windows with corresponding ground-floor storefronts and introduce a more symmetrical (or, if still asymmetrical, a clearly expressed modular design composition) to the East Main Street elevation;
4. Explore design options that simplify the palette of materials and volumes, for a more streamlined design composition;
5. Explore options that introduce continuous vertical and horizontal elements to lighten the volume of the new elevations (in particular the elevation facing East Main Street) and blend in a complementary manner with the neighboring historic buildings;
6. Simplify the roof plan and consider a broader cornice line to set off and define the roof line, to balance the mass and design in lower stories.
7. While not a part of this application, the proposed signage for the development is a two-story blade sign facing Palm Street. The Design Guidelines state that signs should be subordinate to the architecture and overall character throughout the downtown area. Given the height of the sign (which would be higher than the rooflines of the most of the neighboring buildings), the signage may not comply with this guideline. Working in conjunction with a historic preservation professional, the project team should ideally explore options for a sign that suits the project needs while also meeting the DTSP Historic Resources Design Guidelines.

Balancing the objectives of the proposed project with the very small size of the Top Hat Restaurant, in light of its historic resource status, presents a challenging task. As envisioned, the project achieves the goal of incorporating the small, currently vacant Top Hat Restaurant into the new design, in its original location, while maintaining (and potentially restoring) its historic food-service use. The project would introduce changes to the Top Hat's setting through the construction of the new building with a larger scale and mass. However, the Top Hat structure would remain intact on the site and would retain the physical features that convey its original character, including spaces for gathering and serving food.

Generally speaking, the guidelines addressing the rehabilitation of historic buildings recommend that new additions should always be visually subordinate to the historic building and should not compete in size, scale or design with the historic building. In incorporating the Top Hat building into the new project, this would remain a challenge as the Top Hat building is such a small size, and the surrounding parcel and land have not changed substantially over the years. The option of relocating the Top Hat Restaurant was rejected, due to potential impacts to the integrity of location, and therefore the updated plans call for retaining the building in situ.

In light of the need to retain as many character-defining features as possible while also finding a viable plan to put the historic building back into use, Rincon finds that the project as currently planned manages to achieve the project objectives while minimizing impacts. As discussed above, the project, though still conceptual in nature, appears capable of conforming to the Standards for Rehabilitation.

Additionally, an analysis of the current and conceptual integrity of the property after project implementation indicates that, while the integrity of setting would be affected, the Top Hat building would retain sufficient integrity to continue to convey its previously-identified significance. Because the project would not materially impair the significance of a historical resource, it would not result in a significant adverse impact as defined by CEQA.

As stated in the analysis above and in the Anacapa Courts drawings, specific project plans for the historic Top Hat Restaurant remain conceptual. The specific plans will be submitted to the City at a later date. As plans for the historic building evolve, it is recommended that an experienced historic preservation professional be brought on to provide input to the design team on the items described in this analysis and that a qualified preservation professional be commissioned to provide ongoing Standards compliance review. These steps will facilitate and enhance project compliance with the Standards as the plans evolve.

In addition, the drawings state that "the final design for improvements" to the Top Hat building will be brought to the City when ready. It is further recommended that plans be submitted to the City for review prior to completion of a final rehabilitation and reuse plan, in order to receive preliminary input and feedback.

Should you have any questions or comments regarding this report, please do not hesitate to contact me at 562-676-5485, or scarmack@rinconconsultants.com.

Sincerely,

Shannon Carmack

Architectural History Program Manager
Rincon Consultants, Inc.

Appendices:

A. October 2017, Diagrammatic Plans for the Anacapa Courts Project

B. September 2016 Photographs of the Top Hat Restaurant

Attachment H

Historic Resources Group 2007 Historic Resources Survey Update (Excerpt)

Historic Resources Survey Update

City of Ventura, California

Downtown Specific Plan Area

Prepared by

HISTORIC RESOURCES GROUP

April 2007

DRC/HPC-122

Main Street Commercial Historic District

This survey update has identified a third, currently undesignated local historic district. The Main Street Commercial Historic District contains 98 properties. Of these, 53 properties have been evaluated as district contributors (See Figure 9).

This potential district includes properties on the north and south sides of East Main Street between Figueroa and Fir Streets, and several properties immediately north and south of Main Street on Palm, Oak, California and Chestnut Streets. These blocks of Main Street form a contiguous and relatively intact grouping of buildings, which functioned historically as the City's primary commercial corridor from the late 1860s through the 1950s.

The period of significance for this district extends from 1870 through 1962. This broad period of significance is based upon knowledge of the City's general phases of historical development and Main Street's fundamental role in the commercial and social life of the City. With the opening of the freeway through town in 1962, Ventura's commercial development was largely reoriented to areas outside the downtown. This event marked a new era of urban expansion that ended Main Street's primacy as a local commercial center.

Contributing buildings to the potential historic district date from the 1880s through the early 1960s and generally retain their original appearance. Properties are typically one- and two-story commercial storefronts built to the street and fronted with large display windows. Larger buildings include hotels, banks, theaters and a library. Many of the storefront buildings are vernacular in their design. Others, however, reflect the popular architectural styles of their time, including Beaux Arts, Spanish Colonial Revival, Mediterranean Revival, Art Deco, Streamline Moderne and Mid-century Modern styles.

In addition to buildings that retain their original fabric, properties that were wholly remodeled during the period of significance and largely retain this updated appearance today have also been assessed as district contributors. In examining the integrity of commercial storefronts along Main Street, it quickly became apparent that the existing streetscape did not represent a single moment in time, but rather the evolution of the City's central commercial district over many decades. In addition to construction that filled in previously undeveloped lots, one also finds evidence of façade remodeling.

Business owners often undertake the widespread modernization of their commercial structures in order to meet the demands of changing business standards and update the appearance of the community's business district. This is particularly true of economic boom times such as those in the 1920s and the 1950s. This trend is evidenced along Main Streets throughout Southern California today, and reflects the stylistic evolution of a thriving commercial core. While such updated façades no longer retain their original fabric, these later façades may have assumed significance over time as representative of later development periods.

In Ventura, a vernacular brick building constructed in the 1890s may have been updated in the 1920s to reflect the style of that period. Similarly, the street façade of 1920s structure may have been remodeled in the 1950s with a more modern look. Although such buildings do not convey their original design to the street, they speak to broader patterns of façade modernization that characterizes the historical development of the Main Street corridor. For these reasons, such buildings have been assessed as district contributors.

Non-contributing buildings include more recent construction (post-1962), as well as older structures that have been substantially altered. In some cases, alterations have been made with little consideration for the structure's history. In other cases, renovations of older structures make an effort to reference established styles. While these buildings may retain their original scale, massing, and method of construction (i.e. brick), the publicly visible facade has been stripped of all historic fabric. As these buildings no longer convey their historic appearance to the street, were not renovated during the district's period of significance, and do not appear to have been rehabilitated with specific documentation as required by the Secretary of the Interior's guidelines, they are not considered district contributors.

Table 7. Main Street Historic District - Recommended District Contributors

Address	Property Name
39 N California St	Benton, Orr, Duval and Buckingham
53-57 S California St	Sportsman Restaurant (Astor Hotel)
61-79 S California St	Bella Magiore (A.C. Martin Building)
42 N Chestnut St	Motley-Gallentine Co. (Packard Garage)
26-54 S Chestnut St	Ventura Theatre
28-38 Figueroa St	Knights of Columbus (Mission Theater)
204-208 E Main St	Peirano's Grocery/J's Tapas
221-225 E Main St	Mission Gift Shop and Museum (Washington Hotel)
230 E Main St	Animal Rescue Thrift (Nash Garage)
243 E Main St	(None)
265 E Main St	Retarded Children's Thrift
297-299 E Main St	Top Hat Burger Palace
315-321 E Main St	Palermo
324-328 E Main St	Hamilton Building
327 E Main St	J.C. Penney
340 E Main St	Child Abuse Thrift
353-355 E Main St	Ventura Leather
363-373 E Main St	Hamilton Hotel
374 E Main St	Antique Collection
378 E Main St	Rusty Nail
384 E Main St	Main St. Antiques
394 E Main St	Bank of Italy

Property No.	Address (Number)	Address (Street)	Alternate Address(es)	APN	Evaluation Date (source)	Additional Date (source)	Historic Name	Common Name	Original Architect	Original Builder	Original Owner	Original Use	No. of Stories	Brick Construction	Building Type	Architectural Style	Current Use	Condition	Integrity	Designated Landmark/POI	Designated District	HRI Evaluation	Building Notes	Significance Notes	Local Evaluation	Recommended Designation	Evaluation Criteria	Basis for Evaluation	NR/CR
404	179	Laurel St S		730143060	1922 (city)										House	Craftsman	Single-family residence		Fair						Not eligible	(None)	(None)	Is not a distinct example of a type, period, or style and is not known to have any important historic associations.	
	186	Laurel St S		730145220																					(None)				
403	187	Laurel St S		730143070	1922 (city)										House	Craftsman	Single-family residence		Fair						Not eligible	(None)	(None)	Is not a distinct example of a type, period, or style and is not known to have any important historic associations.	
	188	Laurel St S		730145220																					(None)				
	223	Laurel St S		730144090																					(None)				
	249	Laurel St S		730144100																					(None)				
	255, 263, 265, 267, 275	Laurel St S		730144110																					(None)				
	375	Laurel St S		730280235																					(None)				
	24, 56	Main St E		730022160																					(None)				
	100, 190	Main St E		730022200																					(None)				
	113	Main St E		710194320																					(None)				
1	183	Main St E		710194390*	1949 (city)			Holy Cross School					1		School	Spanish Colonial Revival		Good	Good						Not eligible	(None)	(None)	Poor integrity.	
86	183	Main St E		710194390*	1990s (circa)			Holy Cross School Multi-Purpose Building					3		School, offices	Spanish Colonial Revival		Good	Good						Not eligible	(None)	(None)	Constructed outside the period of significance.	
38	204, 208	Main St E		730031170*	1920s façade (circa)	Original construction 1887 (city)	Peirano Store; Wilson Studio; Gandolfo's General Store; San Buenaventura Mission Lavanderia (site of)	Peirano's Grocery; Jonathan's; J's Tapas					1	X	Store	Commercial Vernacular	Commercial-retail	Good	Fair	Landmark #32 Peirano Store (Wilson Studio); 204/206 E Main St; designated 1978.		204 E Main St - 7J (1998); 208 E Main St 3D (1983).	The current building was originally constructed in two parts; according to Sanborn maps, 204 E Main St was constructed prior to 1886 as a grocery store; 208 E Main St was constructed between 1892 and 1906 as an addition to the adjacent store for use as a grocery warehouse (This portion of the building replaced a small store which was demolished between 1892 and 1906); visible extant prismatic glass at 204 E Main St.	Owned by Peirano family from 1890-1986; in constant use as a grocery store to the present; oldest remaining commercial brick building in the city.	Eligible	LMK, DC	Landmark b, c.	One of the oldest commercial brick buildings in Ventura; association with prominent Ventura family (Peirano); association with the evolution of the Main Street commercial corridor (early 20th century).	NR, CR
38	204, 208	Main St E		730031170*			San Buenaventura Mission Lavanderia (site of)													Landmark #85; San Buenaventura Mission Lavanderia; 204-208 E Main St; designated 1994.					Eligible	LMK, NC	Landmark c.	Archaeological remains from the Mission era in Ventura.	
40	210, 218, 222	Main St E		730031020	1910 (city)			Fox Fine Jewelry					1	X	Commercial block	Commercial Vernacular	Commercial-retail	Good	Poor						Not eligible	NC	(None)	Poor integrity.	
2	211	Main St E		710194380*	1809 (city)		San Buenaventura Mission	San Buenaventura Mission					2		Church	Spanish Colonial Revival	Religious	Good	Fair	Landmark #10 San Buenaventura Mission; 211 E Main St; designated 1974.		7K (1983)	Original mission established in 1782.		Eligible	LMK	Landmark a, b, c, d.	One of the 21 Spanish California Missions.	NR, CR
2	211	Main St E		710194380*			Mission Norfolk Pines	Mission Norfolk Pines												Landmark #8 Mission Norfolk Pines; 211 E Main St; designated 1974.		3D (1983)			Eligible	LMK	Landmark c.	Distinctive landscape feature in Ventura.	
85	213	Main St E		710194380*	1920s (circa)			San Buenaventura Mission Rectory					2		Residential; office building	Spanish Colonial Revival	Religious office	Good	Good				Pre-1946 per historic photos.		Eligible	LMK	Landmark c.	Unique example of Spanish Colonial Revival style architecture in Ventura.	
3	221, 225	Main St E	229, 231 E Main St	710194390	1927 (Triem survey form)		Washington Hotel	Mission Gift Shop/Museum				Hotel	2	X	Commercial block; store; hotel	Commercial Vernacular	Commercial-retail	Good	Fair			7	Obscured extant prismatic glass.		Eligible	DC	Landmark c.	Association with the evolution of the Main Street commercial corridor (early 20th century).	
41	230	Main St E		730031030	1926 (Triem survey form)		Nash Motor Sales Garage; Trueblood Thrift Shop	Animal Rescue Thrift			G. L. Reid	Garage	1	X	Auto garage	Commercial Vernacular	Commercial-retail	Good	Good			7	May retain extant prismatic glass.		Eligible	LMK, DC	Landmark c, d.	Rare example of early auto-related building type in Ventura; association with the evolution of the Main Street commercial corridor (early 20th century).	
42	240, 242, 248, 254, 256	Main St E		730031040	pre-1886 (Sanborn)			Maria Bonita					1	X	Commercial block	Commercial Vernacular	Commercial-retail	Fair	Poor				Brick-veneered adobe structure per Sanborn maps; appears on Sanborns as early as 1886.		Eligible	POI, NC	POI b.	Rare example of an adobe structure on Main Street.	
4	243	Main St E		710194100	1910 (city)								1	X	Store	Commercial Vernacular	Commercial-retail	Good	Fair				Visible extant prismatic glass.		Eligible	DC	Landmark c.	Association with the evolution of the Main Street commercial corridor (early 20th century).	
43	260	Main St E		730031040	1920 (city)			Coalition Thrift (annex)					1	X	Store	Commercial Vernacular	Commercial-retail	Fair	Poor						Not eligible	NC	(None)	Poor integrity.	
6	265	Main St E		710194360	1950s façade (circa)	Original construction 1920s (circa)		Retarded Children's Thrift					1	X	Store	Commercial Vernacular	Commercial-retail	Good	Fair						Eligible	DC	Landmark c.	Association with the evolution of the Main Street commercial corridor (mid 20th century).	
44	268, 270, 272	Main St E		730031040	1920 (city)			Coalition Thrift					1	X	Store	Commercial Vernacular	Commercial-retail	Fair	Poor						Not eligible	NC	(None)	Poor integrity.	
5	247, 249	Main St E		710194370	1920s (circa)								1	X	Store	Commercial Vernacular	Commercial	Fair	Poor						Not eligible	NC	(None)	Poor integrity.	
45	278	Main St E		730031160*	1907 (city)			Taqueria Vallarta					1		Store	Spanish Colonial Revival	Commercial-retail	Good	Poor						Not eligible	NC	(None)	Poor integrity.	
46	294, 298	Main St E		730031160*	1907 (city)		Milton P. Stiles Garage	Rotisseria				M.P. Stiles Garage Building	1		Commercial block	Commercial Vernacular	Commercial-retail	Good	Poor				2nd floor removed after 1950s earthquake.	Site of Spear's Hall, one of the town's first brick buildings (1871), arch. William Hobson Dewey.	Not eligible	NC	(None)	Poor integrity.	
7	297, 299	Main St E		710194070	1948 (SBC)			Top Hat Burger Palace					1		Store (walk-up food stand)	Commercial Vernacular	Commercial	Fair	Fair						Eligible	DC	Landmark c.	Association with the evolution of the Main Street commercial corridor (mid 20th century).	

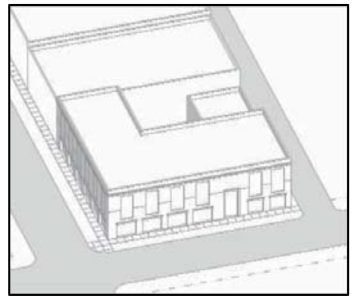
Attachment I

Zoning Consistency Tables

Downtown Specific Plan – T6.1 Urban Core				
PROJ-8105: 297-299 East Main Street – Anacapa Court				
T6.1 Zone		**Required/Allowed**	**Existing**	**Proposed Project**
Overlay Zone		Choose All Applicable: ***Coastal Zone*** ~~NA~~	--	--
Historic	**Year Built**	--	1948	--
	Listing Is the property listed on/as one of the following:	~~1. National Register~~ ~~2. California Register~~ ~~3. Historic District~~ ~~4. Landmark~~ ~~5. Point of Interest~~ ~~6. Mills Act Property~~ **7. None**	--	--
	Survey Is the property Identified in the:	**1. 2007 Downtown Historic Resources Survey Update** **2. 1983 Cultural Resources Survey** ~~3. 2011 Westside Historic Survey (advisory only)~~ 4. ~~None~~	--	--
Front Street Build-to Line		0 feet to 5 feet minimum	__feet	2-feet
Side Street Build-to Line		0 feet to 5 feet minimum	__feet	0-feet
Side Yard Setback		0 feet minimum	__feet	0-feet
Rear Yard Setback		5 feet minimum	__feet	5-feet
Height		1. *Core Area:* 4 stories, 20% of building footprint may be 5 story 2. *Fringe Area*: 3 Stories, 25% of building footprint may be 4 story 3. *Taper Area:* 3 stories, 25%of building footprint may be 4 story a) 25 feet setback for fourth story from Oak and California Streets b) Taper heights	__feet __inches	Mission Area 3- and 4-stories; 59-feet 0-inches **25.5% of building footprint is fourth story**

	apply to all T6.1 properties south of Hwy 101 4. *Mission Area:* 3 stories, 15% of building footprint may be 4 story		
Parking Setbacks	1. Street Setback: Rear 75% of lot depth 2. Side Street: 5 feet minimum 3. Side Yard: 0 feet minimum 4. Rear: 5 Feet minimum Subterranean Parking may extend to a height of 3 feet max above finished grade, provided that garage perimeter wall either aligns with face of building or becomes part of a Stoop or Dooryard frontage.	Street: __feet Side Street: __feet Side Yard: __feet Rear: __feet	Required Street: 42-feet 6-inches Proposed Street: 43-feet 8-inches **Side Street: 2-feet 3-inches** Side Yard: 0-feet Rear: 5-feet
Parking	Residential 1. 1 space/1500 sqft 2. No spaces required for single room occupancy units Non-Residential 1. 2 spaces/1000 sqft	__spaces (residential) __spaces (non-res)	Required Residential: 28-spaces Non-res: 9-spaces Proposed Residential: 28-spaces Non-res: 9-spaces Additional Non-designated: 5-spaces
Architectural Encroachments	*Balconies*: 6 feet maximum into street and side street build-to lines, and rear setback. *Bay windows, Chimneys, Cantilevered rooms, and eaves:* 3 feet maximum into all setbacks	__feet	N/A
Frontage Types	Shopfront Forecourt Stoop Porch (Poli St. only) Lightcourt Dooryard (Poli St. only)		Shopfront Forecourt

Building Types	Lot Width: 1. 25 to 150 feet: Live/Work 2. 50 to 150 feet: Commercial Block 3. 100 to 150 feet: Courtyard Housing		Lot Width: 128-feet 6-inches Commercial Block

Downtown Specific Plan Building Types – Commercial Block			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 3.10.130	**Required/Allowed**	**Existing**	**Proposed Project**
Overlay	Choose All Applicable: ~~Civic Building~~ ***Coastal Zone*** ~~Hillside~~ ~~Eastside Workplace~~ ~~Westside Workplace~~ ~~NA~~		
Zone	~~T4.4 Thompson Corridor~~ ~~T5.1 Neighborhood Center~~ ***T6.1 Urban Core***		
A. Description			
	A building designed for occupancy by retail, service, and/or office uses on the ground floor, with upper floors also configured for those uses or for dwelling units. A Commercial Block may be located upon a qualifying lot in the T4.4 Thompson Corridor, T5.1 Neighborhood Center and T6.1 Urban Core zones.		
B. Access			
1.	The main entrance to each ground floor area shall be directly from and face the street. [E]		Complies
2.	Entrance to the residential and/or non-residential portions of the building above the ground floor shall be through a street level lobby or through a podium lobby accessible from the street. [E]		Complies
3.	Elevator access shall be provided between the subterranean garage and each level of the building where dwelling and/or commerce access occurs. [W]		N/A
4.	Interior circulation to each dwelling shall be through a corridor which may be single or double-loaded. [E]		Complies
5.	Where an alley is present, parking shall be accessed through the alley. [E]		Complies
6.	Where an alley is not present, parking shall be accessed by a driveway of 14’ min. width. [E]		N/A
7.	On a corner lot without access to an alley, parking shall be accessed by a driveway of 14’ min. width.		N/A

Downtown Specific Plan Building Types – Commercial Block			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 3.10.130	**Required/Allowed**	**Existing**	**Proposed Project**
	[E]		
8.	Dwellings can be accessed via a single-loaded, exterior corridor, provided the corridor is designed per the following requirements: a) The open corridor length does not exceed 40 feet. [W] b) The open corridor is designed in the form of a Monterey balcony, loggia, terrace, or a wall with window openings. [DR]		**At least one open corridor is approximately 81-feet long.** **Architectural plans have not been provided on the design on the corridors.**
C. Parking and Services			
1.	Required parking may be at-grade or as subterranean. If provided at-grade, parking spaces may be within a garage, carport, or uncovered. [W]		Parking is provided at grade within a garage.
2.	Dwellings may have indirect access to their parking stalls. [DR]		Complies
3.	Where an alley is present, services, above ground equipment and trash container areas shall be located on the alley. [W]		Complies
4.	Where an alley is not present, above ground equipment and trash container areas should be located at least 10 feet behind the façade of the building and be screened from view from the street with landscaping or a fence. [DR]		N/A
5.	Parking entrances to subterranean garages and/or driveways should be located as close as possible to the side or rear of each lot. [DR]		N/A
D. Open Space			
1.	Front yards are defined by the street build-to line or front yard setback and frontage type requirements of the applicable zone. [DR]		Complies
2.	The primary shared open space is		**The primary open**

Downtown Specific Plan Building Types – Commercial Block			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 3.10.130	**Required/Allowed**	**Existing**	**Proposed Project**
	the rear yard, which shall be designed as a courtyard. Courtyards may be located on the ground or on a podium. Side yards may also be provided for outdoor patios connected to ground floor commercial uses. [E]		**space is not located within the rear yard.**
3.	Minimum courtyard dimensions shall be 40 feet when the long axis of the courtyard is oriented East/West, and 30 feet when the courtyard is oriented North/South. [W]		Complies East – West: 95-feet North – South: 31-feet 9-inches
4.	The minimum courtyard area shall be twenty percent (20%) of the lot area. [W]		*Required*: 4,369 square feet *Provided*: • Top Hat Corner: 540 square feet • Courtyard: 3,016 square feet • Common Terrace: 756 square feet • ***Total: 4,312 square feet***
5.	Courtyards shall not be of a proportion of less than 1:1 between their width and height. [W]		Complies Adjacent building elevations are approximately 25-feet all. The width od the courtyard is 31-feet 9-inches.
6.	In 40-foot wide courtyards, the frontages and architectural projections allowed within the applicable zone are permitted on two sides of the courtyard; they are permitted on one side of a 30-foot wide courtyard. [W]		**Private patios are located on both sides of a 31-foot wide courtyard.**
7.	Private patios may be provided in side and rear yards. [DR]		N/A
	E. Landscape		
1.	No private landscaping is required		Complies

Downtown Specific Plan Building Types – Commercial Block			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 3.10.130	**Required/Allowed**	**Existing**	**Proposed Project**
	in front of the building. [DR]		
2.	Trees may be placed in side yards to create a particular sense of place. [DR]		N/A
3.	Courtyards located over garages should be designed to avoid the sensation of forced podium hardscape through the use of ample landscaping. [DR]		Complies
F. Frontage			
1.	No arcade or gallery may encroach into the required minimum width of a courtyard. [W]		N/A
G. Building Size and Massing			
1.	Buildings may contain any of three dwelling types: flats, townhouses, and lofts. [W]		Complies
2.	Dwellings may be as repetitive or unique, as determined by individual designs. [DR]		Complies
3.	Buildings may be composed of one dominant volume, and may be flanked by secondary ones. [DR]		Complies
4.	The intent of these regulations is to provide for buildings with varying heights. Suggested height ratios are as follows: a) 1.0 story: 100% 1 story [W] b) 2.0 stories: 85% 2 stories, 15% 3 stories [W] c) 3.0 stories: 85% 3 stories, 15% 4 stories [W] d) 4.0 stories: 75% 4 stories, 25% 5 stories [W] These height ratios are maximums that may exceed that allowed by the applicable zone (e.g., Commercial Block 4.0 may exceed the 4.0 75% 4-story, 25% 5-story limitation of the T6.1 Urban Core zone).		**3.0 Stories:** **75% 3-stories, 25% 4-stories**

Downtown Specific Plan Building Types – Commercial Block			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 3.10.130	**Required/Allowed**	**Existing**	**Proposed Project**
5.	The visibility of elevators and of exterior corridors at the third, fourth and/or fifth stories should be minimized by incorporation into the mass of the building. [DR]		Complies

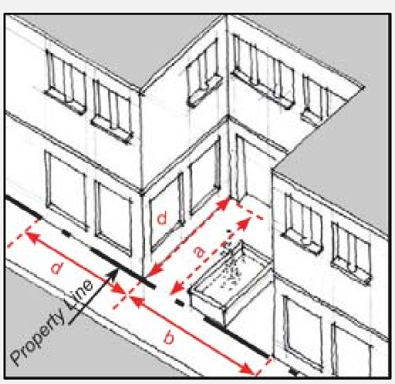
Illustrative Photos

Frontage Types – Shopfront			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 24V.204.090	**Required/Allowed**	**Existing**	**Proposed Project**
Description			
	Shopfronts are facades placed at or close to the right-of-way line, with the entrance at side walk grade. This type is conventional for retail frontage and is commonly equipped with cantilevered shed roof(s) or awning(s). Recessed Shopfronts are also acceptable.		
B. Design Standards			
1.a.	10 feet to 16 feet tall, as measured from the adjacent sidewalk.		20-feet (per T6.1 Zone Floor to Floor height allowance for shopfront frontage type)
1.b.	The Shopfront opening(s) along the primary frontage may be at least 10 feet tall and comprise 65% of the 1st floor wall area facing the street and not have opaque or reflective glazing.		**Unknown**
1.c.	The Shopfront may be recessed from the frontage line by up to 5 feet. The storefront assembly should not be deeply set back (maximum of 2 feet) in the Shopfront openings. The storefront may be set back up to 12 feet, but not less than 8 feet for up to 25 feet of the building Frontage in order to create a covered alcove in which outdoor dining or merchandising can occur within the volume of the building.		The building is setback approximately 2-feet from the property line. The shopfront’s do not contain a covered alcove.
1.d.	A bulkhead is a transition between the opening(s) and the adjacent grade. The bulkhead may be between 10 inches and 28 inches tall (aluminum shopfront or spandrel panel may not substitute		Complies; shopfront bulkhead is covered in ceramic tile.

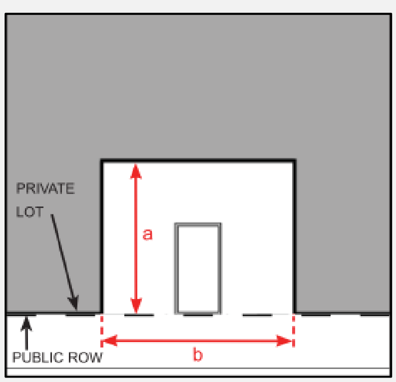
Frontage Types – Shopfront			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 24V.204.090	**Required/Allowed**	**Existing**	**Proposed Project**
	for a bulkhead)		
1.e .	The adjacent sidewalk may not be raised more than 6 inches without installation of the necessary stair or ramp access.		N/A
2.f.	Awnings, signs, etc, may be located 8 feet min. above the adjacent sidewalk		Complies
2.g.	Awnings may only cover openings so as to not cover the entire façade.		Complies.

Frontage Types – Forecourt			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 4.10.010	**Required/Allowed**	**Existing**	**Proposed Project**
Overlay	Choose All Applicable: ~~Civic Building~~ ***Coastal Zone*** ~~Eastside Workplace~~ ~~Hillside~~ ~~Westside Workplace~~ ~~NA~~		
Zone	~~T4.3 Urban General 3~~ ~~T4.4 Thompson Corridor~~ ~~T5.1 Neighborhood Center~~ ***T6.1 Urban Core***		
Description			
	On a Shopfront, Galley, or Arcade frontage, a Forecourt may be created by recessing the Façade for a portion of the building Frontage. A Forecourt is not covered, and must be at least 10’ by 10’. A Forecourt may be suitable for gardens, outdoor dining, or in some cases vehicular drop-offs. A fence or wall at the Frontage Line, with a pedestrian opening in all cases, may be provided to define the space of the court. This Frontage type should be used sparingly and in conjunction with Stoops or Shopfronts.		
1. Configuration			
	A great variety of forecourt designs are possible, but the following guidelines apply:		
a.	10 feet deep (clear) min, 30 feet deep (clear) max. Forecourts between 10’ and 15’ in depth shall be substantially paved, and enhanced with landscaping. Forecourts between 15’ and 30’ in depth shall be designed with a balance of paving and landscaping.		The project provides a 36-foot deep forecourt that is substantially paved due to this area being preserved for the historic use of congregating, service, and seating at the corner around the existing historic resource (Top Hat structure).
b.	10' wide min; up to 50% of lot width		Complies
c.	Shopfronts may be between 10 feet and 16 feet tall, as measured from the adjacent sidewalk. • The corresponding shopfront(s) opening(s)		Shopfronts are 20-feet tall per T6.1 Zone Floor to Floor height allowance for shopfront frontage type. ***Unknown if the project provide 65% openings on the***

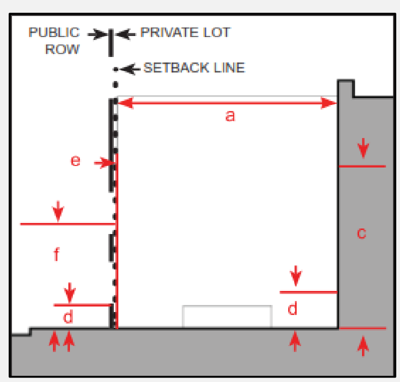
Frontage Types – Forecourt			
PROJ-8105: 297-299 East Main Street – Anacapa Court			
Sec. 4.10.010	**Required/Allowed**	**Existing**	**Proposed Project**
	along the primary frontage may be at least 65% of the 1st floor wall area and not have opaque or reflective glazing. • Shopfronts may be recessed from the frontage line by up to 5 feet.		***1st floor wall.*** Shopfronts are recessed approximately two (2) feet.
d.	Bulkhead: 10 inches min, 28 inches max (aluminum shopfront or spandrel panel may not be substituted for a bulkhead).		Complies; shopfront bulkhead is covered in ceramic tile.
2. Elements			
e.	A 1-story fence or wall at the property line may be used to define the private space of the yard.		N/A
f.	Minimum clearances: vertical: 8' from sidewalk; horizontal: width of sidewalk.		Complies
Diagrams			



Axonometric Diagram



Plan Diagram

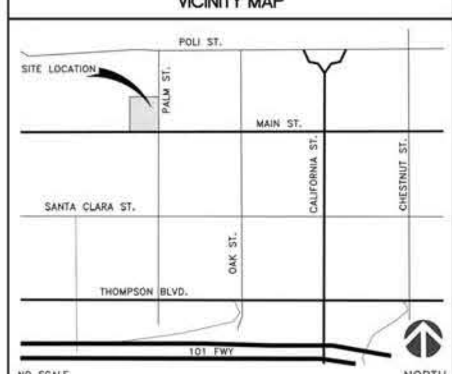


Section Diagram

Attachment J

Project Plans dated September 5, 2016

VICINITY MAP



PLANNING INFORMATION

PARKING AND SERVICES:

PARKING/SERVICES PLACEMENT	ALLOWED	PROPOSED
STREET SETBACK:	75% OF LOT DEPTH	CONFORMS
SIDE STREET:	5' MIN.	2'-3"
SIDE YARD:	0' MIN.	0'
REAR SETBACK:	5' MIN.	5'

PARKING GARAGE HEIGHT	ALLOWED	PROPOSED
MAX. HEIGHT ABOVE GRADE	3' MAX	GREATER THAN 3'

(SHOPFRONT AND RESIDENTIAL ACCESS POINTS LOCATED IN FRONT OF PARKING STRUCTURE)

PARKING REQUIREMENTS	REQUIRED	PROPOSED
RESIDENTIAL: (1 PARKING SPACE PER 1500 SF)	34 TOTAL	42 TOTAL
NON-RESIDENTIAL (1 PER 500 SF GROSS)	9 SPACES	13 ON-STREET

BUILDING TYPES	ALLOWED	PROPOSED
	STACKED DWELLINGS COMMERCIAL	STACKED DWELLINGS COMMERCIAL

ALLOWED LAND USES
(PER DOWNTOWN SPECIFIC PLAN, 2.30.070 T6.1 URBAN CORE USE TABLE)

RESIDENTIAL- MULTI-FAMILY:	PERMITTED USE
SERVICES- RESTAURANT, RETAIL:	PERMITTED USE

URBAN STANDARDS: CITY OF VENTURA DOWNTOWN SPECIFIC PLAN T6.1 URBAN CORE, MISSION AREA

BUILDING PLACEMENT:

PRIMARY BUILDINGS	ALLOWED	PROPOSED
FRONT SETBACK (MAIN STREET):	0' TO 5' MIN.	2'
SIDE STREET (PALM STREET):	0' TO 5' MIN.	0' TO 2'-3"
SIDE YARD:	0' MIN.	0'
REAR SETBACK:	5' MIN.	5'

ARCHITECTURAL ENCROACHMENTS: BALCONIES 6' MAX. INTO SETBACK, 3' FOR OTHER ELEMENTS

BUILDING PROFILE AND FRONTAGE:

BUILDING HEIGHT	ALLOWED	PROPOSED
MAXIMUM HEIGHT:	3 & 4 STORIES*	4 STORIES

*15% OF BLDG. FOOTPRINT MAY BE 4 STORIES, BLDG. FOOTPRINT=19,962

4TH FLOOR AREA	2,994 SF	5,092 SF

MINIMUM FLOOR TO FLOOR:

(GROUND FLOOR/SHOPFRONT)	15' MIN.- 20' MAX.	20'-0"
(SECOND FLOOR AND ABOVE)	12' MAX.	12'-0"

ALLOWED FRONTAGE TYPES: SHOPFRONT, STOOP, FORECOURT, LIGHTCOURT

PROJECT INFORMATION

PROJECT DESCRIPTION:

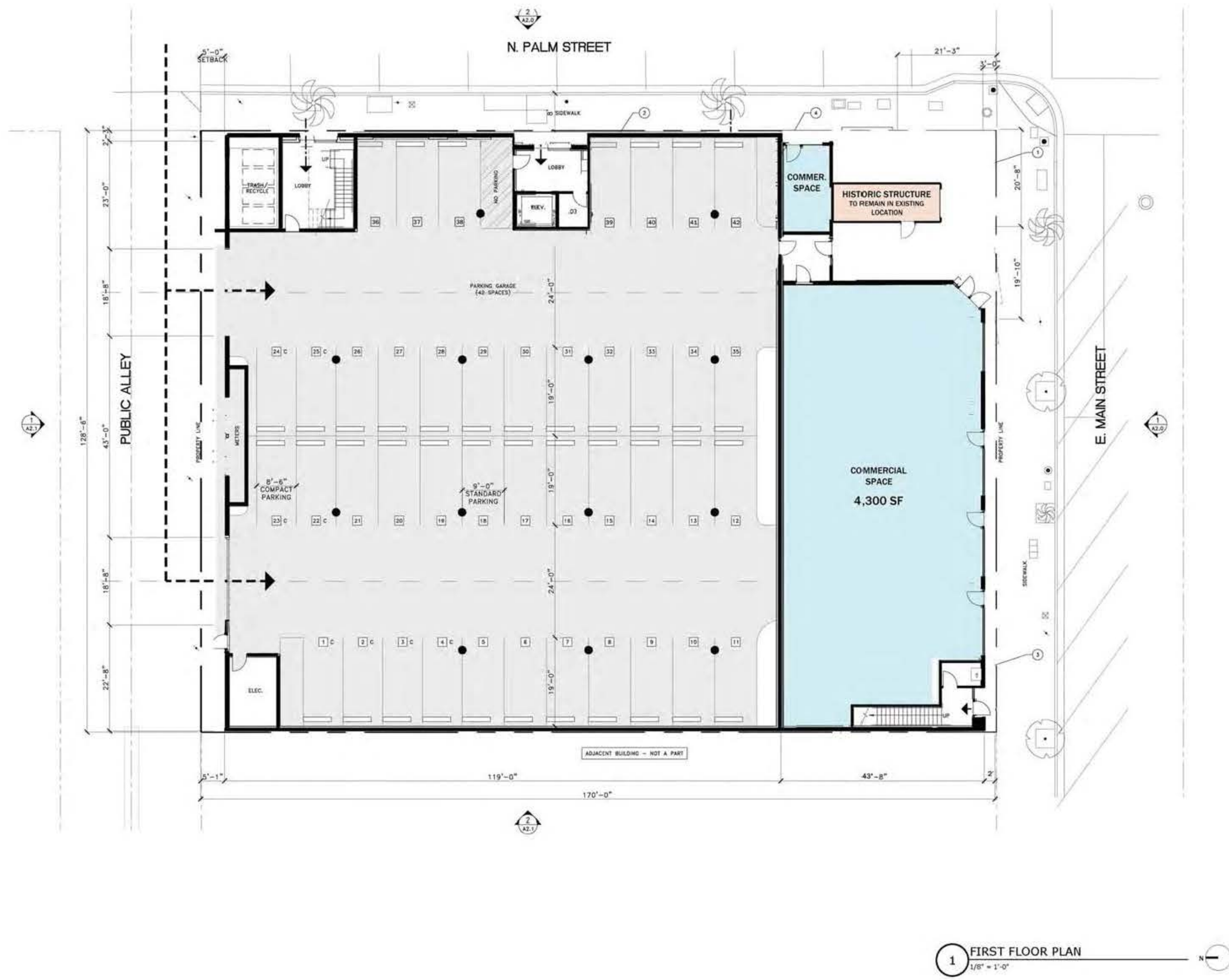
THE DEVELOPMENT WILL PROVIDE 18 MARKET-RATE CONDOS, 4 INCLUSIONARY CONDOS, 3 PENTHOUSE CONDOS, ROOFTOP TERRACE, AND GROUND FLOOR COMMERCIAL/RETAIL SPACE.

PROJECT ADDRESS:	297-299 E. MAIN STREET VENTURA, CALIFORNIA 93001
ASSESSORS PARCEL #:	071-0-194-070
SITE AREA:	21,845 S.F.
OCCUPANCY GROUPS:	R-2: RESIDENTIAL B: COMMON FACILITIES A-2: RESTAURANT
CONSTRUCTION TYPE:	R-2: TYPE V-A B: TYPE I A-2: TYPE V-A
SPRINKLERED:	YES THROUGHOUT (PER CBC 903.3.1.1)
USE:	8 ONE-BEDROOM UNITS 14 TWO-BEDROOM UNITS 3 TWO-BEDROOM PENTHOUSES COMMON FACILITES/ RETAIL/ RESTAURANT

PROJECT TEAM

OWNER:	DOWNTOWN VENTURA PROPERTIES III LLC 10875 ENCINO DRIVE OAK VIEW, CA 93022 p. (805) 889-1986 contact: Charlie or Wright Watling charliewatling@hotmail.com wwwatling@gmail.com
ARCHITECT:	MAINSTREET ARCHITECTS + PLANNERS, INC. 422 E. MAIN STREET VENTURA, CA 93001 p. (805) 652-2115 f. (805) 652-1532 contact: Nicholas Deitch nick@mainstreetarchitects.com
LANDSCAPE ARCHITECT:	BRODERSEN ASSOCIATES 422 E. MAIN STREET VENTURA, CA 93001 p. (805) 201-5614 contact: Brian Brodersen brodersenassoc@gmail.com

SHEET INDEX

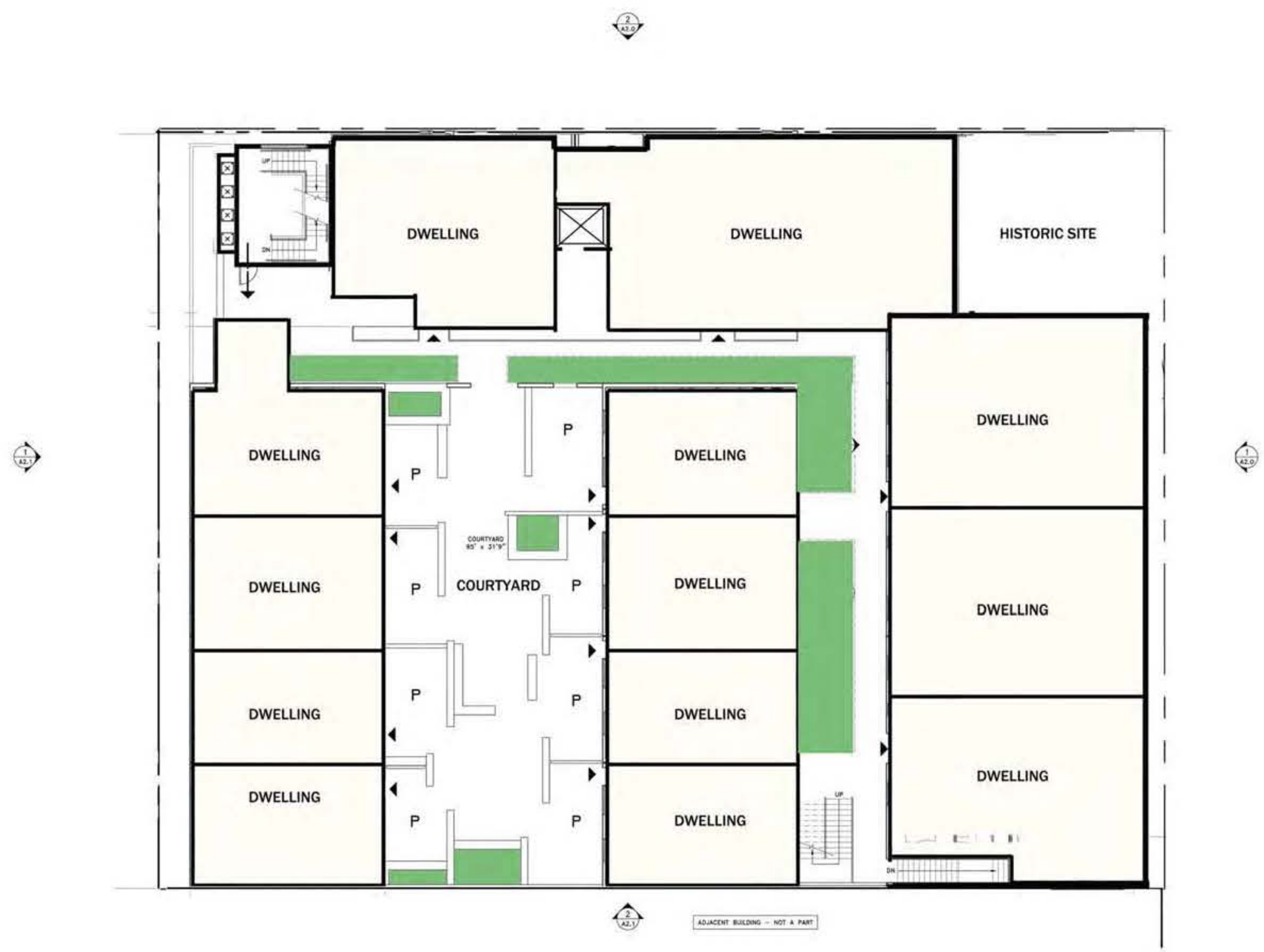


MAINSTREET ARCHITECTS + PLANNERS INC.
422 EAST MAIN STREET, VENTURA CA 93001

DOWNTONWN VENTURA PROPTERTIES III INC

ANACAPA COURT
297-299 EAST MAIN
VENTURA,CALLIFORNIA 93001

GARAGE / SITE PLAN
OCTOBER 16, 2017
A1.0



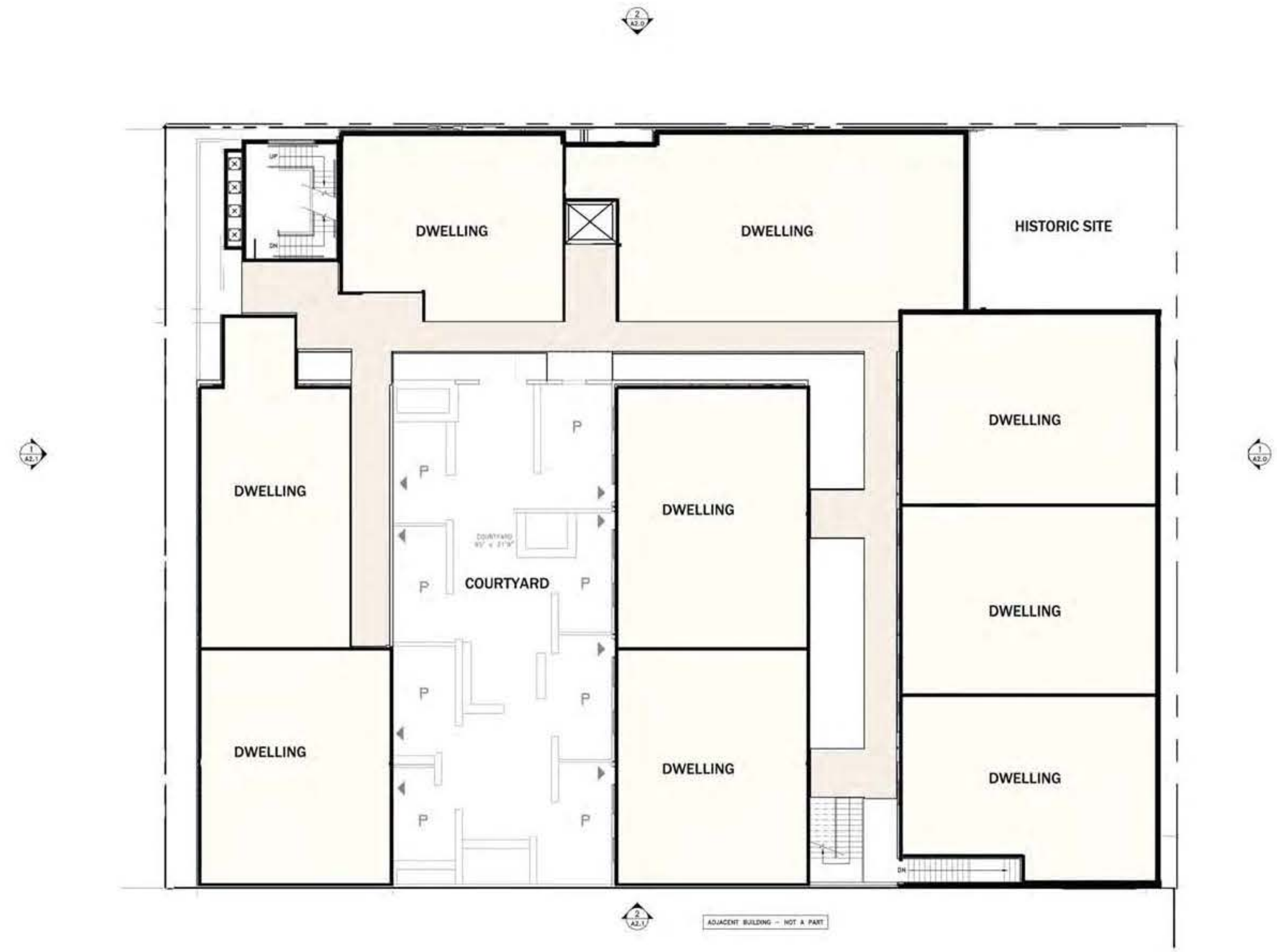
1 SECOND FLOOR PLAN
1/8" = 1'-0"

MAINSTREET ARCHITECTS + PLANNERS INC.
422 EAST MAIN STREET, VENTURA CA 93001

DOWNTONWN VENTURA PROPTERTIES III INC

ANACAPA COURT
297-299 EAST MAIN
VENTURA,CALLIFORNIA 93001

SECOND FLOOR PLAN
OCTOBER 16, 2017
A1.1



1 THIRD FLOOR PLAN
1/8" = 1'-0"

MAINSTREET ARCHITECTS + PLANNERS INC.
422 EAST MAIN STREET, VENTURA CA 93001

DOWNTONWN VENTURA PROPTERTIES III INC

ANACAPA COURT
297-299 EAST MAIN
VENTURA,CALLIFORNIA 93001

THIRD FLOOR PLAN
OCTOBER 16, 2017

A1.2

1 FOURTH FLOOR PLAN
1/8" = 1'-0"

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VENTURA,CALLIFORNIA 93001

FOURTH FLOOR PLAN
OCTOBER 16, 2017

A1.3

ROOF PLAN
1/8" = 1'-0"

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ROOF PLAN
OCTOBER 16, 2017

A1.4

1 PALM STREET
1/8" = 1'-0"

2 MAIN STREET AT PALM STREET
1/8" = 1'-0"

1 NORTHEAST (MAIN ST.)
1/8" = 1'-0"

2 NORTHWEST (MAIN ST.)
1/8" = 1'-0"

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3D VIEWS
OCTOBER 16, 2017

A1.5

1 SOUTHEAST (MAIN ST. AND PALM ST.)
1/8" = 1'-0"

2 NORTHEAST (PALM ST.)
1/8" = 1'-0"

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BIRDS-EYE VIEWS
OCTOBER 16, 2017

A1.6

1 SOUTH ELEVATION-MAIN STREET
1/8" = 1'-0"

MATERIAL NOTES

1. STUCCO FACE, SMOOTH FINISH
2. CERAMIC TILE BULKHEAD
3. STEEL AWNING, PAINTED
4. WOOD CLAD WINDOW OR DOOR
5. METAL RAILING
6. STUCCO PARAPET, SAND FINISH
7. ALUMINUM STOREFRONT
8. METAL STANDING SEAM ROOFING
9. STEEL GRATE GARAGE DOOR
10. EXISTING ADJACENT BUILDING
11. MAIN STREET FINISH FLOOR LEVEL BEYOND
12. METAL PANEL WITH INTERPRETIVE HISTORY
13. DOWNTOWN INTERPRETIVE HISTORY
14. TRASH ENCLOSURE DOORS
15. UTILITIES
16. CEMENTATIOUS SIDING
17. TIMBER TRELLIS
18. BRICK VENEER
19. MASONRY LINTEL
20. (E) FOOD STAND TO REAMAIN.
21. METAL BULDING SIGNAGE
22. METAL MESH SCREEN

2 EAST ELEVATION-PALM STREET
1/8" = 1'-0"

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EXTERIOR ELEVATIONS
OCTOBER 16, 2017

A2.0

MATERIAL NOTES

1. STUCCO FACE, SMOOTH FINISH
2. CERAMIC TILE BULKHEAD
3. STEEL AWNING, PAINTED
4. WOOD CLAD WINDOW OR DOOR
5. METAL RAILING
6. STUCCO PARAPET, SAND FINISH
7. ALUMINUM STOREFRONT
8. METAL STANDING SEAM ROOFING
9. STEEL GRATE GARAGE DOOR
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13. DOWNTOWN INTERPRETIVE HISTORY
14. TRASH ENCLOSURE DOORS
15. UTILITIES
16. CEMENTATIOUS SIDING
17. TIMBER TRELLIS
18. BRICK VENEER
19. MASONRY LINTEL
20. (E) FOOD STAND TO REAMAIN.
21. METAL BULDING SIGNAGE
22. METAL MESH SCREEN

1 NORTH ELEVATION-ALLY (IN PROGRESS)
1/8" = 1'-0"

2 WEST ELEVATION (IN PROGRESS)
1/8" = 1'-0"

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EXTERIOR ELEVATIONS
OCTOBER 16, 2017

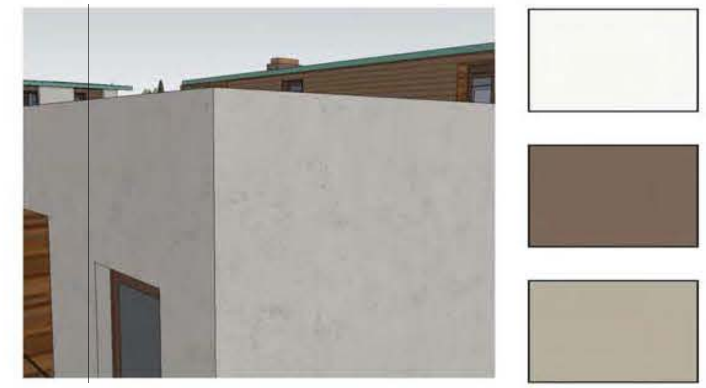
A2.1

S SOLAR SHADE STUDY
12/21 @ 1PM

W WOOD CLAD WINDOW OR DOOR

B BRICK VENEER

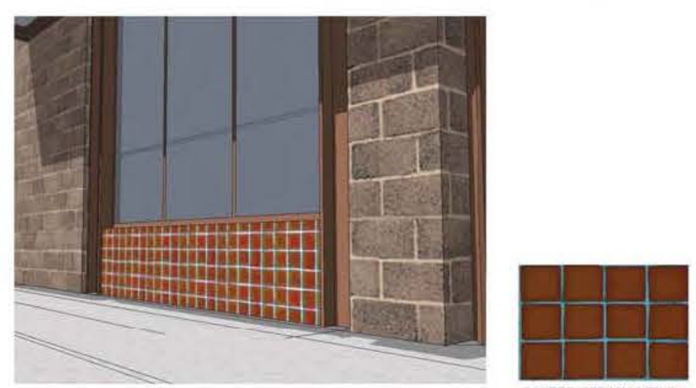
C CEMENTATIOUS SIDING



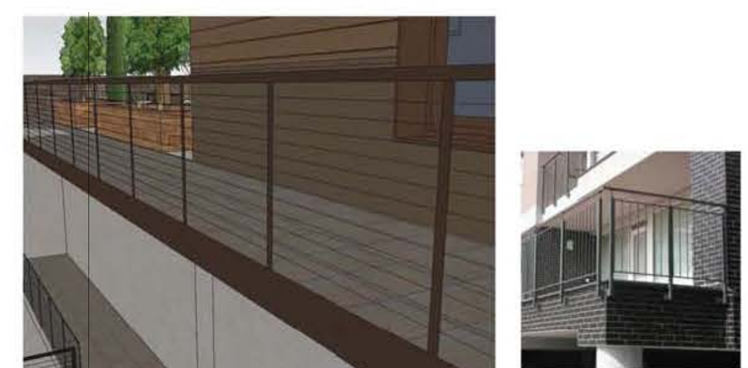
S STUCCO

A ALUMINUM STOREFRONT

S STEEL AWNING



C CERAMIC TILE BULKHEAD



F METAL RAILING

Appendix I

Historic Resources Project Review

SAN BUENAVENTURA RESEARCH ASSOCIATES

1328 Woodland Drive • Santa Paula CA • 93060

805-525-1909
Fax/Message 888-535-1563
sbra@historicresources.com
www.historicresources.com

MEMORANDUM

To: Maruja Clensay, Senior Planner, City of San Buenaventura Community Development Department

CC: Nick Deitch, Mainstreet Architect and Planners; Charlie Watling, Wright Watling

From: Mitch Stone, San Buenaventura Research Associates

Date: 22 January 2020

Re: Historic Resources Project Review, Anacapa Courts/Top Hat (299 E. Main Street, Ventura)

The report is SBRA's comments on the historic preservation approach proposed for the former Top Hat Hot Dog Stand, a building determined to be a historic resource, and the means by which it will be integrated into the proposed Anacapa Courts development at the northwestern corner of Main and Palm streets in downtown Ventura. The role of SBRA in this process has been to provide advice and guidance to the project architect in developing an appropriate approach within the concept design process. The general approach involves the removal of features that were added to the building outside of the defined period of historic significance for the property, and to protect the building from the potential for damage during the construction of the Acacapa Courts development.

It is assumed at this stage of the design process that the future use of the Top Hat building cannot reasonably be determined, as locating a tenant for it will necessarily be the subject of future marketing efforts. Given this unknown, the approach taken with the historic resource is to provide for the future adaptive reuse of the building in a way that is maximally compatible with its historic character and in accordance with an approach conforming to the *Secretary of the Interior's Standards for Rehabilitation*. The overall objective is to provide the building with a reasonable array of options for future use that are not only consistent with its historic character, but provide the best prospects for its longterm preservation, which will be best accomplished by a viable new use.

Description of Resource

The subject property is a single-story prefabricated steel panel restaurant building constructed on a concrete slab, measuring roughly 8 by 22 feet in plan. The main body of the building is composed of vertically-seamed interlocking steel panels roughly one foot in width. The building is covered by a very low-pitched steel shed roof pitched upwards toward the south. A shallow counter wraps from the southern elevation onto the southernmost portions of the western and eastern elevations, underneath hand-out windows, which extend from the counter to roughly two feet below the shallow eave line. The southern windows are covered with accordion wood shutters. The window on the eastern elevation is square and single-paned. The western window is wood and features a circular cutout with a three-panel light above, covered by a wrought-iron grill attached to the face of the building. These windows were opened or uncovered during the restaurant's business hours.

A bench seat and a shallow counter standing on steel poles parallels the eastern elevation. This seating replaced non-fixed barstools circa 1980. Prior to its closure in February 2010, the building featured louvered metal awnings projecting over the western, southern and eastern elevations, which have since been removed. These awnings were probably added to the building circa 1960, replacing canvas awnings seen in early photographs of the property. A three-panel plywood sign projecting above the roof parallel to the southern, western and eastern elevations of the building and a plywood menu-board located against the chain-link fence near the sidewalk to the west were also removed after February 2010. Two small, detached utility buildings constructed of vertically-scored plywood are located immediately to the west and north of the restaurant building, date from circa 1990-95. A steel pole which once supported a freestanding sign is located roughly ten feet from the southwestern corner of the building, near the sidewalk.

Period of Significance

The property has been the subject of numerous historic resources investigations beginning with Greenwood and Associates in 2005 and continuing through a draft nomination for listing the property on the National Register of Historic Places completed in 2018. The agreed upon period of significance for the Top Hat building in all of these investigations is circa 1947, when construction began, to 1952, the year the last steel-paneled addition was made and the building reached essentially its current configuration. A number of minor additions and alterations have been made to the property after the period of significance. Alterations and additions made outside of the period of significance, as described in the above section, are regarded as non-character defining features that do not contribute to the significance and eligibility of the property.

Character Defining Features

The character defining features of a historic building are the physical features created during its period of significance and which convey its significance to a viewer. Depending on the type of building, character defining features can include its function, materials, details, method of construction, or architectural style, that contribute to its sense of time and place.

The assessment of character defining features for the Top Hat building have varied somewhat in the studies of the property that have been conducted since 2005, but have generally included the steel panel walls, plan, signage, roof configuration, service counters, service windows, and other window and door openings. A draft National Register of Historic Places nomination prepared for the property in 2018 adds a steel sign pole on Main Street as a character defining feature of the property. However it is questionable whether this pole was used in connection with the restaurant. According to city building permits, a 6-inch steel pipe pole sign approximately 23 feet in height was erected on the property in 1950 to advertise a used car lot also located on the property.

Project Description and Phasing

Preservation and Selective Demolition. Elements of the building that post-date the period of significance will be removed, providing their removal does not damage or diminish the integrity of remaining building components (see Exhibit HM1). The exhibits indicate elements that are considered to have been added outside of the period of significance and are intended to be removed. The primary source for determining the originality of the features on the building during its period of significance is the circa 1952 photo included in the project exhibits. While this photo is not particularly clear, it does show the configuration of the main southern elevation of the building and provides reasonable evidence for determining its general appearance during the period of significance.

Voids in the envelope of the remaining structure caused by the removal of elements will be weather-sealed to prevent water intrusion and other infiltration during the period of dormancy, prior to undertaking the final rehabilitation and adaptive reuse. Where removal of non-historic elements creates a void or reveals historic material previously hidden, the materials and features will be restored or repaired whenever feasible. Where restoration or repair is infeasible due to a loss or excessive deterioration of materials, the feature will be reproduced and replaced in-kind utilizing design and materials matching the original. Compatible contemporary materials and designs may be employed where the historic appearance of the features cannot be confidently ascertained. Photo documentation will occur as works proceeds, as appropriate, to aid in the restoration and reproduction of damaged features.

Interior features: Publicly viewable elements at the front (southern section) of the building that describe its historic use for food service (stainless steel wall panels, countertops) will be retained where feasible. The degree to which this is feasible will depend substantially on the requirements of the new use and conditions of the existing materials, which is not currently fully known. The rear area of the interior of the building will be altered as needed to accommodate a new use. The substandard restroom will be removed.

Protection During Construction. The Top Hat building will be protected from damage during construction through application of a structural and weather resistant encapsulation. The building will be wrapped in Visqueen or similar moisture barrier, and surrounded in a plywood or other protective enclosure to prevent damage as well as potential vandalism, during the construction of the new building. The building will remain protected until a reuse and renovation plan is approved, at which time the encapsulation will be removed and work will begin to rehabilitate the building. During construction, an interpretive panel will be displayed on the enclosure, with narrative history of the building.

Note that the renovation/reuse design depictions in the submission exhibits is conceptual. The final design will depend upon use and tenant requirements, and be consistent with the *Secretary of the Interior's Standards*.

Rehabilitation and Conceptual Adaptive Reuse

The Top Hat building will be retained for adaptive reuse as part of the approval of the proposed mixed-use development. The project has been designed to support reuse by situating new construction and the historic building in close proximity, such that the two can be directly connected by means of a "hyphen." This architectural device is a weatherproof connection between the new and historic buildings that is intended to minimize alterations to the historic fabric and allow for an access opening between the two buildings. Connecting the new and old buildings presents the opportunity for a code-compliant kitchen facility within the new building, with customer service occurring in the historic component. In accordance with the principles of the *Secretary of the Interior's Standards,* the design approach is to minimize the dimensions of the connection to the Top Hat building and limit the removal of historic fabric to that which is required to provide the functional connection, as well as to differentiate it in design from the historic fabric.

It is anticipated that the maximum size of the opening between the buildings would not exceed five feet in width by six feet eight inches in height. The finished dimensions of the opening will to the extent feasible conform to the width of the metal panels to be removed in order to minimize the number of panels that need to be removed or altered. The final design of this opening will address the structural issues unique to this building, and will be subject to approval by the city. Where the opening and hyphen occur at the rear, the metal panels removed will be retained for possible reuse in the restoration work.

Interpretative Measures

The project site for Anacapa Court is located in the historic core of downtown Ventura. The property has had a long and varied history of use, for which significant analysis and documentation has been prepared. The project makes provision for storytelling and interpretation of this history, through the potential to provide several illustrative storyboards in the openings along Palm Street, shown in Exhibit HM2.

It is anticipated that these boards will share a written and pictorial history of the site, from the time of the Chumash, through the establishment of the Mission, the founding of the City of San Buenaventura, and into the 20th century and the thriving mid-century downtown. The final design and content will be refined and reviewed through the city's process, under the guidance of a qualified historic preservation consultant.

Evaluation of Project Conformance to the Secretary of the Interior's Standards

The following is a discussion of the proposed project activities evaluated in terms of their conformance with the *Secretary's of the Interior's Standards for Rehabilitation*. It should be understood that the *Secretary of the Interior's Standards* are descriptive, not proscriptive in nature. They are intended to provide for a range of design solutions to any given rehabilitation, not to enforce a specific or uniform approach to any given design problem involving historic resources. The Standards are written purposefully to be interpreted both by architects and decision-makers. Accordingly, multiple design solutions can properly be supported by the application of the *Secretary of the Interior's Standards*. The highly interpretative nature of the Standards provides ample grounds for differences of opinion, between professionals who are familiar with their application, and members of the public. Note also that not every standard necessarily applies to every aspect of a project, nor is it necessary to comply with every standard to achieve conformance.

The analysis of this project under the Standards is limited to the work to remove elements that are outside of the period of significance for the property. All future work required to adapt the building for a future use will be subject to review under the Standards and approval of the final design by the Historic Preservation Committee.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

   <u>Discussion</u>. The ideal reuse plan for a historic building is generally understood for it to continue its historic use, as this approach tends to require less alteration than would be required to adapt it to a new use. In the case of the Top Hat building, this principle cannot be as readily applied, given that the building as it exists today could not accommodate a code-compliant kitchen without substantial alteration. Consequently, an adaptive reuse plan that does not involve food service may ultimately provide a better opportunity for minimizing impacts to historic fabric. Further, reintroducing food service to the building would by necessity require a connection to the new building, where a kitchen would be located. Note, however, that the future use of the building and adaptations required to accommodate that use are not being evaluated at this time, as the building's future use has yet to be determined.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.

Discussion. The approach calls for the removal of only those features that were added to the building after the period of significance as determined by the available documentary evidence, as described above, and the retention of features that define its historic character.

3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

   Discussion. No features are proposed to be added to the building at this time.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

   Discussion: The building was constructed in two phases within its historic period. Both phases of construction will be retained.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

   Discussion. The character-defining features of the building, as described above, will be retained.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

   Discussion. This approach is integrated into the conceptual project design. However it should be noted that the restoration and repair of building features will take place at a subsequent stage of project design, at which time the feasibility of the rehabilitation or restoration of individual features, or the need for replacement in-kind, will be determined.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

   Discussion: An appropriate method for surface cleaning of the building and abiding by these general principles will be determined at the final project design stage.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

   Discussion: This standard is not applicable to this project.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

Discussion. Connecting the historic building to the new construction proposed on the property is a functional requirement of the successful adaptive reuse of the Top Hat building. In addressing the impact on the historic fabric in the terms directed by the Standards, the new construction is proposed to be minimally attached to the historic building through the use of the hyphen device described above. The massing and scale of the new construction is necessarily dissimilar from the historic building but at the same time appropriately draws from the urban scale of downtown that provides for its broader historic setting.

The Top Hat building itself is intended to be rehabilitated consistent with its character and appearance in its time of historic significance. New elements on the building may include: Security shutters of wood or metal at service counters, fabric or metal awnings, roof mounted signage fascias. All such elements would be designed to be consistent or compatible with the period of historic significance. The design of these elements will comply with the *Secretary of the Interior's Standards,* and will be subject to city review.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

    Discussion. The connection between the new and historic building will be minimized by the use of the hyphen architectural device. In theory this connective element could be removed in the future, leaving the new opening at the rear of the building as the only alteration to the historic building. Any potential added elements, such as street-front dining counters, would be completely detached from the historic building, and consequently capable of being removed without any loss of historic fabric.

Summary Conclusion

Overall, this project conforms to the *Secretary of the Interior's Standards* in terms of the treatment of existing historic fabric and the design of the proposed new construction.

SAN BUENAVENTURA RESEARCH ASSOCIATES
HISTORIC · RESOURCES · CONSULTING

San Buenaventura Research Associates has provided expert and cost-effective historic resources expertise to public and private sector clients since 1980. We specialize in the production of historic resources evaluations for compliance with state and federal environmental requirements, historic property surveys, and environmental documents to support historic preservation planning efforts. San Buenaventura Research Associates provides qualified Historian and Architectural Historian services, in accordance with Secretary of the Interior's Professional Qualifications (36 CFR 61).

Qualifications

San Buenaventura Research Associates (SBRA) extensive experience in historic resources investigation features the completion of hundreds of historic resources investigations in connection with a wide variety of public and private projects within California, Nevada and Arizona. Our professional services include:

Historic Resources Reports. San Buenaventura Research Associates conducts historic resources investigations for private clients, and federal, state and local agencies to support California Environmental Quality Act (CEQA) and Section 106 (NEPA) compliance. These reports typically involve the development of historic context, architectural descriptions, site-specific developmental histories, land use histories, evaluations of significance according to National Register of Historic Places, California Register of Historical Resources, and local criteria, determinations of project impacts, *Secretary of the Interior's Standards* analysis, the production of mitigation programs, and historic sites documentation.

Section 106 Eligibility Determinations. SBRA has completed thousands of historic resources evaluations for compliance with Section 106 of the Historic Preservation Act of 1966.

Historic Resources Surveys. SBRA has conducted many large-scale historic resources surveys throughout California, utilizing both intensive-level and reconnaissance methodologies. Many of these surveys were funded by the California State Historic Preservation Office and conducted according to state survey guidelines.

National Register of Historic Places Nominations. SBRA has completed numerous National Register of Historic Places nominations, including nominations accepted by the Keeper of the National Register for listing at the national level of significance.

Historic Preservation Planning. San Buenaventura Research Associates provides qualified planning support services to public agencies. SBRA staff has the ability to apply in-depth, direct experience with planning agency issues and programs to the development of solutions to historic preservation-related issues, including the production of ordinances, historic preservation plans, permit processing and environmental review procedures.

Mills Acts Applications. SBRA has completed the documentation required to support Mills Acts applications for clients in a number of cities.

Personnel

Judith P. Triem, Principal/Historian, founded San Buenaventura Research Associates in 1980. Ms. Triem received her M.A. from the University of California, Santa Barbara in 1980 in the field of Public History. Her B.A. was completed in 1962 at the University of Arizona, Tucson, with a major in Spanish and a minor in history. She specializes in conducting Historic Resources Surveys, National Register of Historic Places nominations, historic context statements, land-use histories, Section 106 and CEQA evaluations. Since 1987, her firm has maintained a contract with Los Angeles County Community Development Commission to complete Section 106 compliance for the Community Development Block Grant Program. She has been granted an individual programmatic agreement from the National Advisory Council authorizing her to complete direct evaluations of properties to satisfy Section 106 requirements. Ms. Triem has completed the Section 106 Training Course sponsored by the GSA Training Center and the Advisory Council on Historic Preservation.

Mitchel R. Stone, Principal/Preservation Planner, has over forty years of experience researching historic properties, preparing architectural and historical evaluation reports, including CEQA and Section 106 analyses, National Register of Historic Places nominations and State Historic Landmarks nominations. Mr. Stone received his B.S. in Urban Planning from the California State Polytechnic University, Pomona, in 1979 and has completed M.A. level studies in Geography at the University of California, Santa Barbara and has studied Geography in Oxford, England. He specializes in the production of maps, graphics and computer databases and geographic information systems, and has developed GIS-assisted historic resources survey techniques. He has participated in various capacities in designing and conducting urban and rural historic resources surveys. As a practicing city planner with over ten years of experience, Mr. Stone has served local agencies within Ventura, Orange and Los Angeles counties, specializing in architectural and site plan design review. He has completed the Section 106 Training Course sponsored by the GSA Training Center and the Advisory Council on Historic Preservation.

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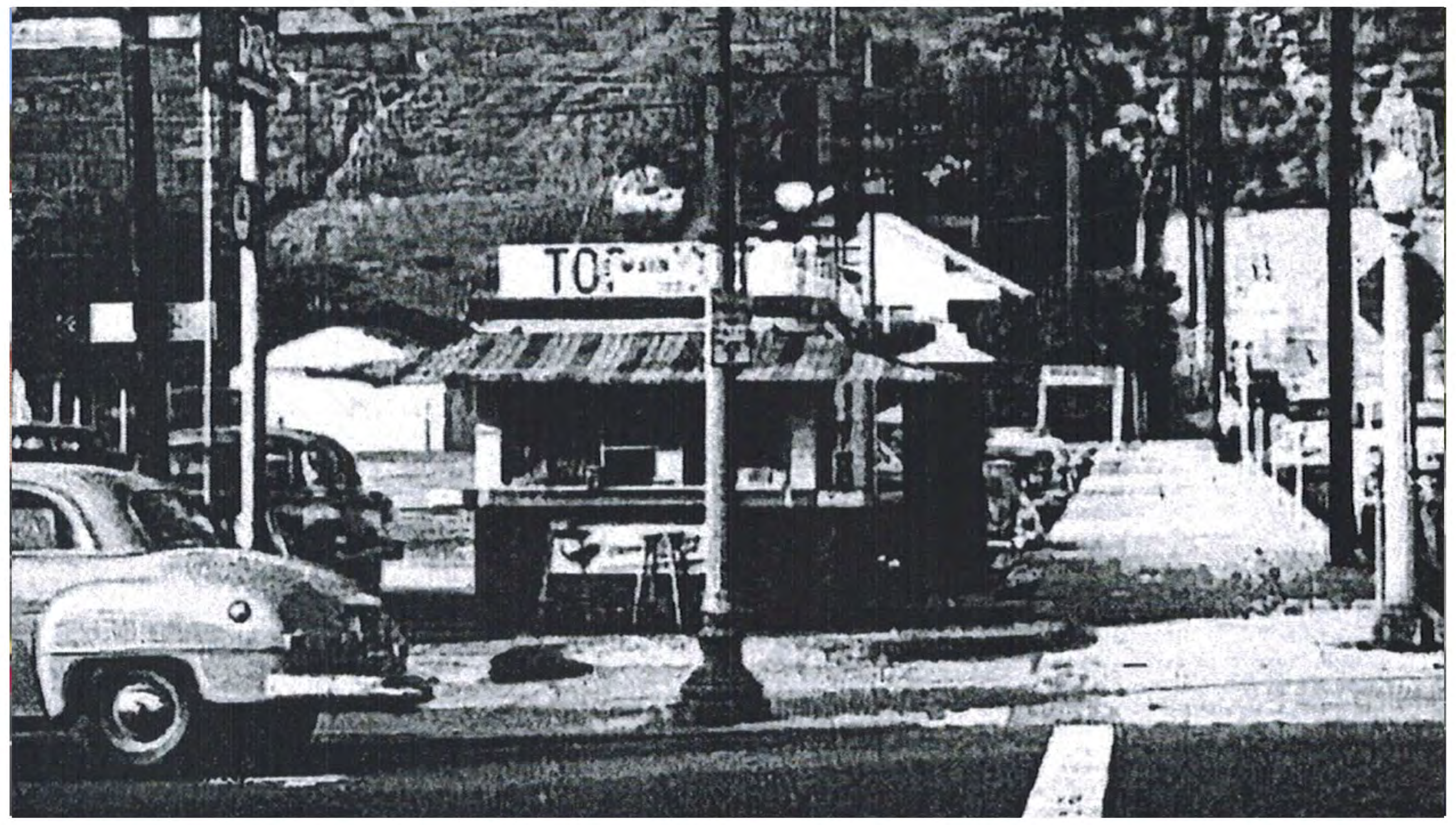
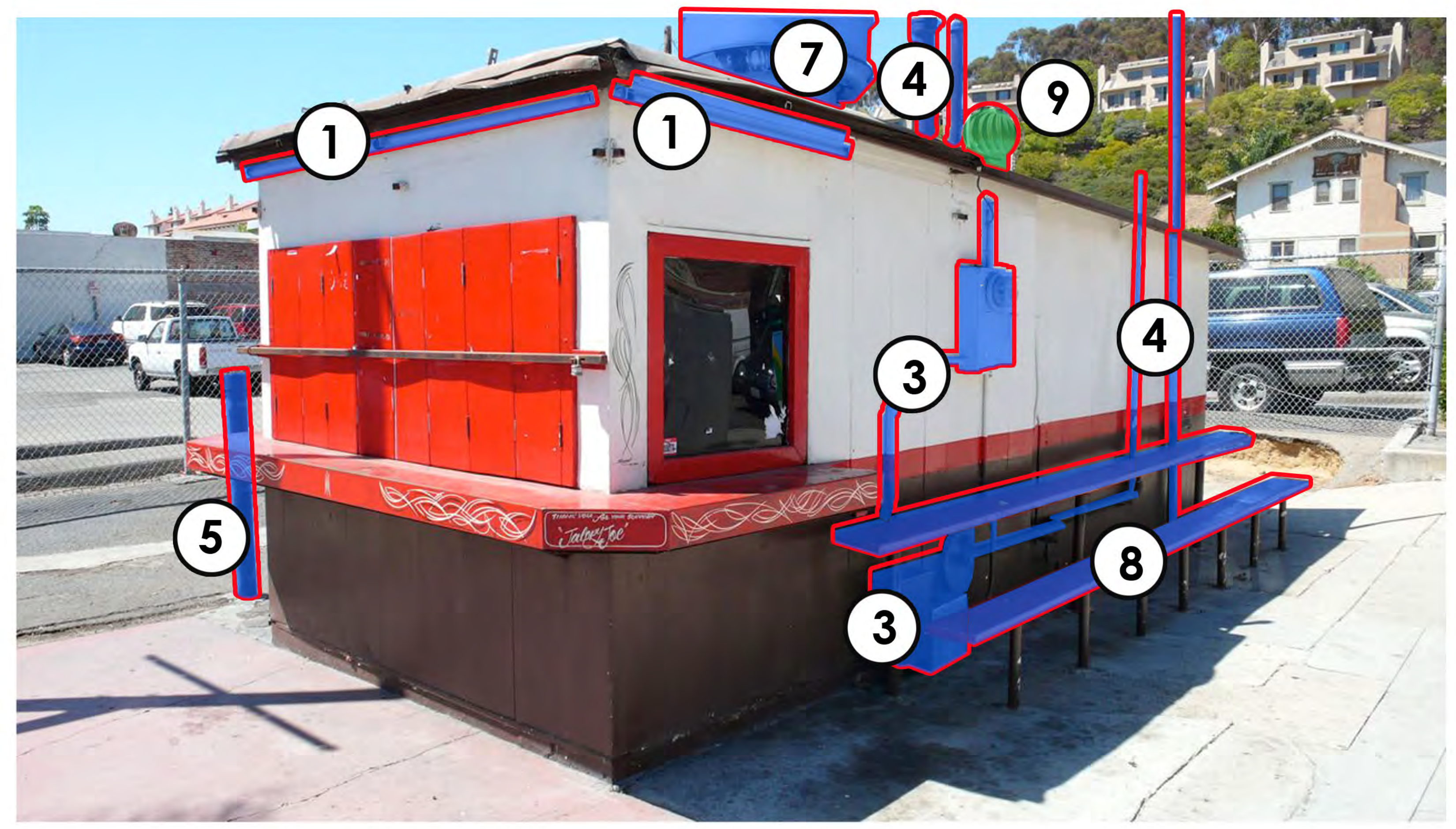
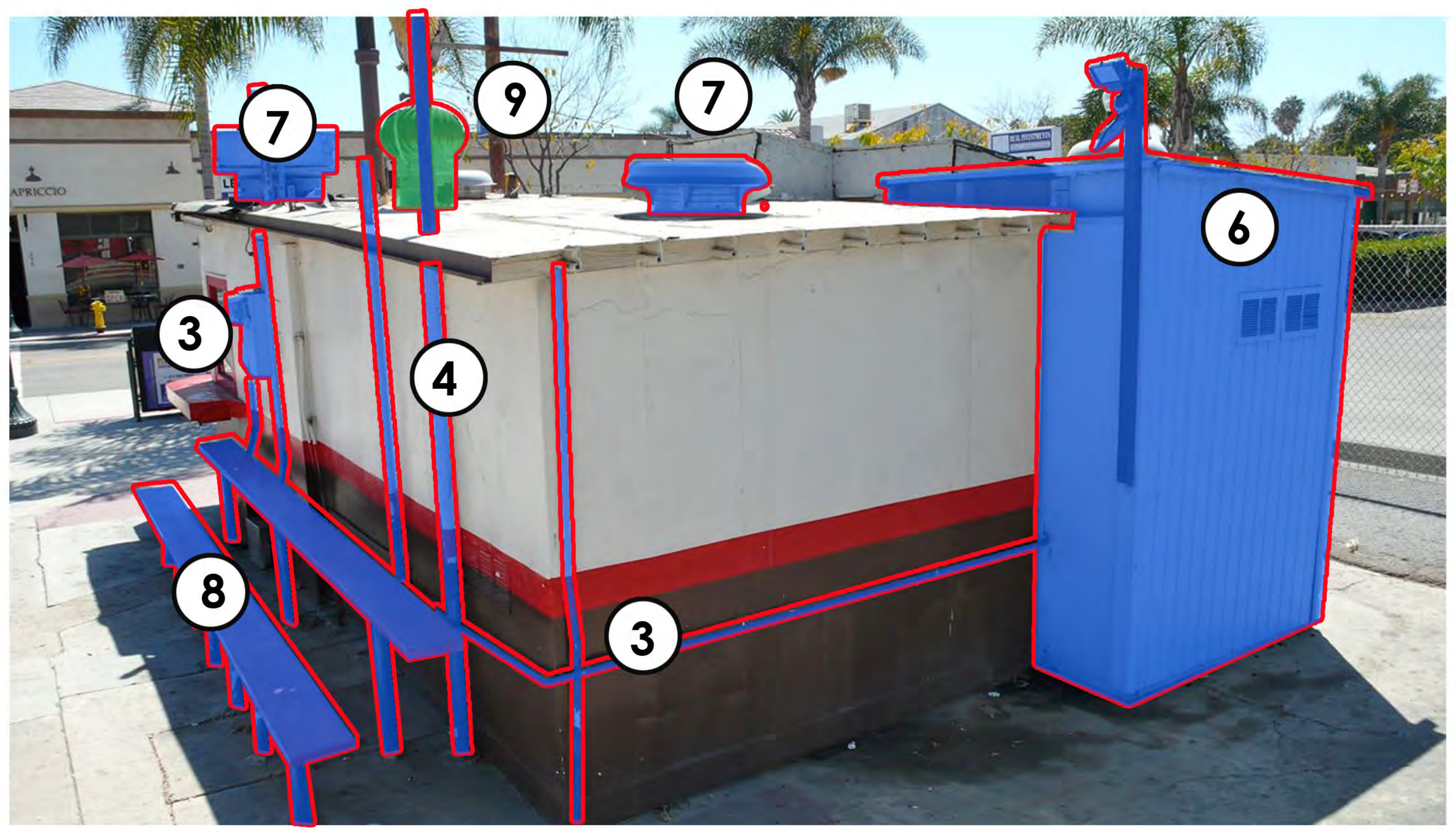


Top Hat as it appeared in 1952.



Top Hat southeast corner, circa 2016.



Top Hat northwest corner, circa 2016.

Top Hat southwest corner, circa 2016.

KEY TO SELECTIVE REMOVAL

1) Exterior florescent light fixture to be removed.

2) Iron security grilles to be removed.

3) Exterior conduit and electrical box to be removed.

4) Plumbing vent stack to be removed.

5) Bollard to be removed.

6) Wood-framed outbuilding to be demolished, including exterior slab.

7) Rooftop ventilation equipment to be removed.

8) Bench seating to be removed.

9) Turbine roof ventilator to be retained. Remove and store on-site until restorative work is undertaken.

10) Circle cut plywood panel, and front folding wood panels to be removed at time of restoration, replaced with historically compatible elements

Additional Notes:
Interior features: Publicly viewable elements at the front of the building that describe its historic use as a burger stand shall be retained where feasible.

The rear area of the interior will be altered to accommodate a new use. The substandard rest room will be removed.

Where the opening and Hyphen occur at the rear, the metal panels will be retained for possible re-use in the restoration work.

SELECTIVE REMOVAL OF NON-HISTORIC ELEMENTS

The period of historic significance is determined to be 1947-1952.

Elements of the building that post-date this period may be removed, providing that removing them does not damage or diminish the integrity of remaining components of the structure.

The images here show elements that are outside of the period of significance and are intended to be removed.

Voids in the envelope of the remaining structure caused by the removal of elements will be weather-sealed to prevent water intrusion and other infiltration during the period of dormancy, prior to undertaking the final renovation and re-use.

Where removal of non-historic elements creates a void or reveals additional historic material, restore or repair if feasible, reproduce and replace if not.

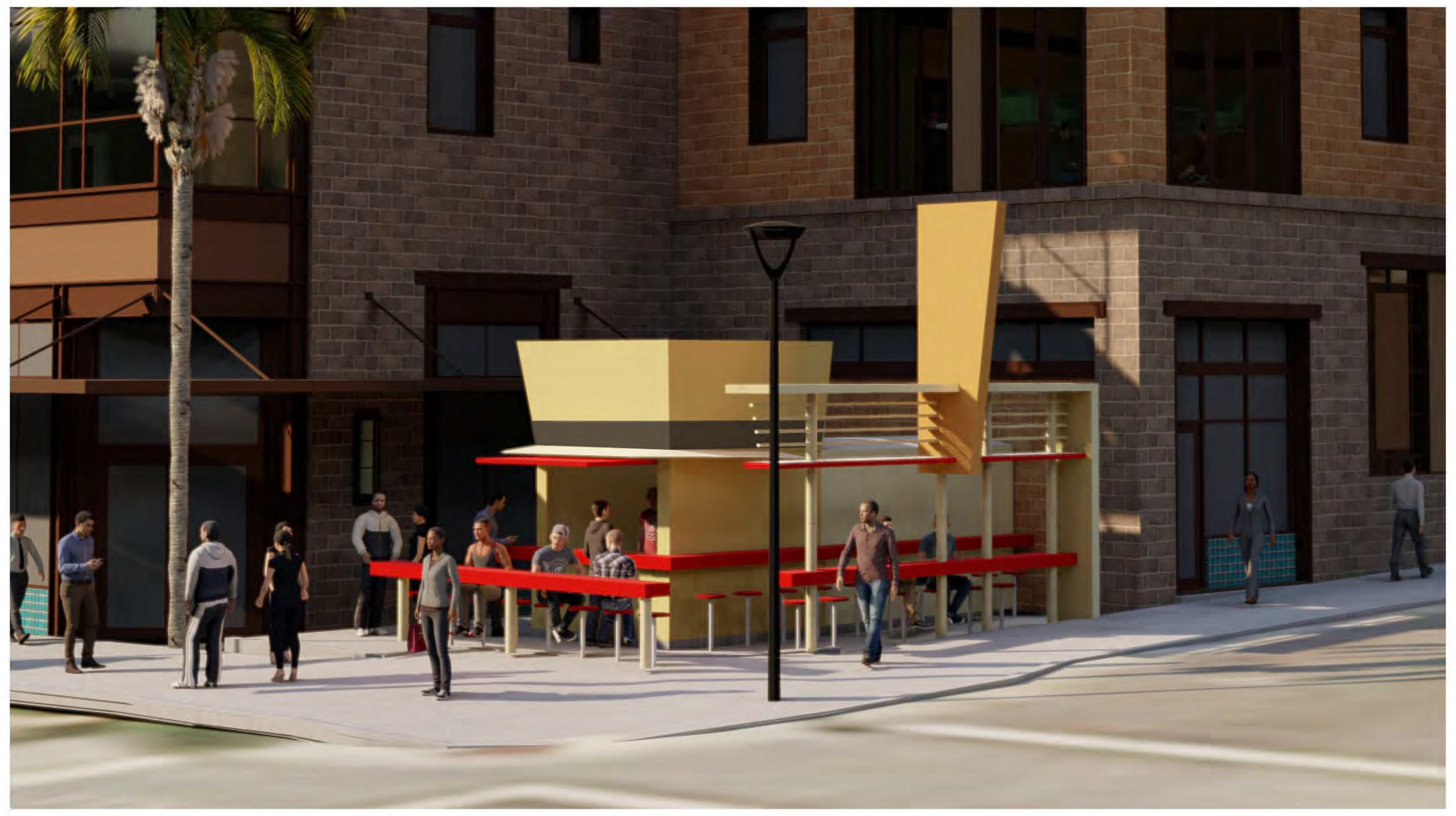
PROTECTION DURING CONSTRUCTION

The Top Hat structure will be protected from damage during construction through application of a structural and weather resistant encapsulation. The structure will be wrapped in visqueen or similar moisture barrier, and surrounded in a plywood or other protective enclosure, to prevent damage, as well as potential vandalism, during the construction of the new building.

The structure will remain protected until a reuse and renovation plan is approved, at which time the encapsulation will be removed and work will begin to renovate the structure.

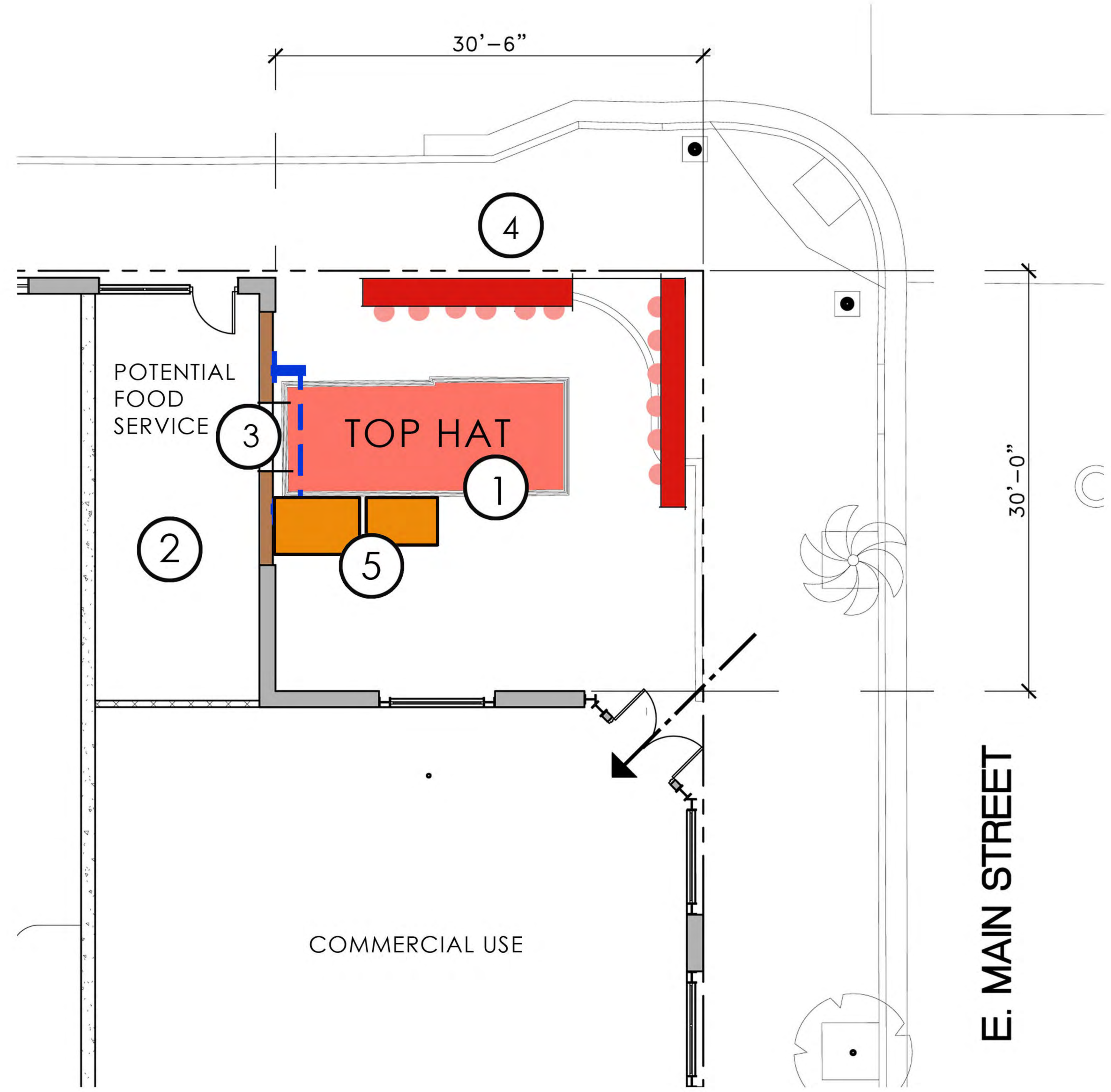
During construction, an interpretive panel will be displayed on the enclosure, with narrative history of the structure and its orgins.

Note that the renovation/re-use design depictions in these exhibits is conceptual. The final design will depend upon use and tenant requirements, consistent with the Secretary of the Interior's Standards.



Conceptual Study View 1

Conceptual Study View 2



Conceptual Study View 3

Conceptual Study View 4

CONCEPTUAL PLAN KEY

1) Top Hat Structure to be retained

2) Adjacent commercial space for possible food service / preparation

3) Connecting 'Hyphen'

4) Outdoor dining

5) Wood-framed outbuildings to be demolished

CONCEPTUAL RE-USE

Re-Use and Architectural Hyphen

As part of the approval of the proposed mixed-use development, the existing historic structure, commonly known as the 'Top Hat' will be retained for re-use, yet to be determined.

It is the applicant's intention that the structure may be once again used as a food/dining establishment, but no warranties are made as part of this project application as to the ultimate re-use.

The project has been designed to support this intended re-use, by situating new structure and the historic structure in close proximity, such that the two can be directly connected by means of a weather proof 'hyphen' - a sleeve that allows for an access opening between the two structures. This presents the opportunity for a code-compliant kitchen facility in the new structure, with customer service occurring in the historic component.

Social Hub

Much of the affection for the Top Hat was rooted in its long-time presence as a focus of downtown Ventura's daily life, as a place of meeting, chance encounters and people-watching.

The Applicant and design team recognize this value, and have taken time to create a conceptual proposal that demonstrates how this structure can again become a social hub of downtown life.

The designs depicted here are conceptual in nature, and are intended to illustrate how re-use can integrate the historic structure with a fresh design response that invigorates street life and reestablishes the location as a social hub.

This re-use is contingent upon market and economic viability of a new food service tenant.

Disclaimer

The design depicted here is a conceptual representation of the potential re-use of the historic Top Hat structure for new food service related use.

The final design proposal will be contingent upon the actual tenant lease requirements, which may or may not be food-service related.

Any plans for proposed re-use shall be subject to conformance with the Secretary of the Interior's Standards for Historic Preservation, and shall be submitted for separate review through the City of Ventura's planning approval process, as determined by the Community Development Director.

SOUTH ELEVATION - MAIN STREET
SCALE: 1/8"=1'-0"

EAST ELEVATION - PALM STREET
SCALE: 1/8"=1'-0"

KEYNOTES

1. STUCCO, SMOOTH
2. STANDING SEAM METAL ROOFING
3. CEMENTITIOUS SIDING
4. BELDEN BRICK, COLOR 470-479 DARK RANGE
5. BELDEN BRICK, COLOR 470-479 LIGHT RANGE
6. CASEWORK AND TRIM, COMPOSITE, PAINTED
7. WINDOW, ALUMINUM, DARK ANODIZED
8. HEADER, METAL, DARK ANODIZED
9. METAL AWNING, DARK ANODIZED
10. INTERPERETIVE HISTORY PANEL OVER METAL GRILLE
11. EXPOSED STEEL I-BEAM FRAME, PAINTED
12. METAL RAILING, DARK ANODIZED
13. FOLDING DOOR, ALUMINUM, DARK ANODIZED
14. CLADDING, COPPER FINISH
15. ALUMINUM STOREFRONT, DARK ANODIZED
16. CERAMIC TILE, GLAZED
17. HISTORIC RESOURCE. DESIGN UNDER SEPARATE REVIEW
18. FEATURE GLASS, COLORED
19. EXISTING ADJACENT BUILDING
20. ARCHITECTURAL HYPHEN AT HISTORIC FEATURE TO NEW BUILDING

HISTORIC INTERPRETATION

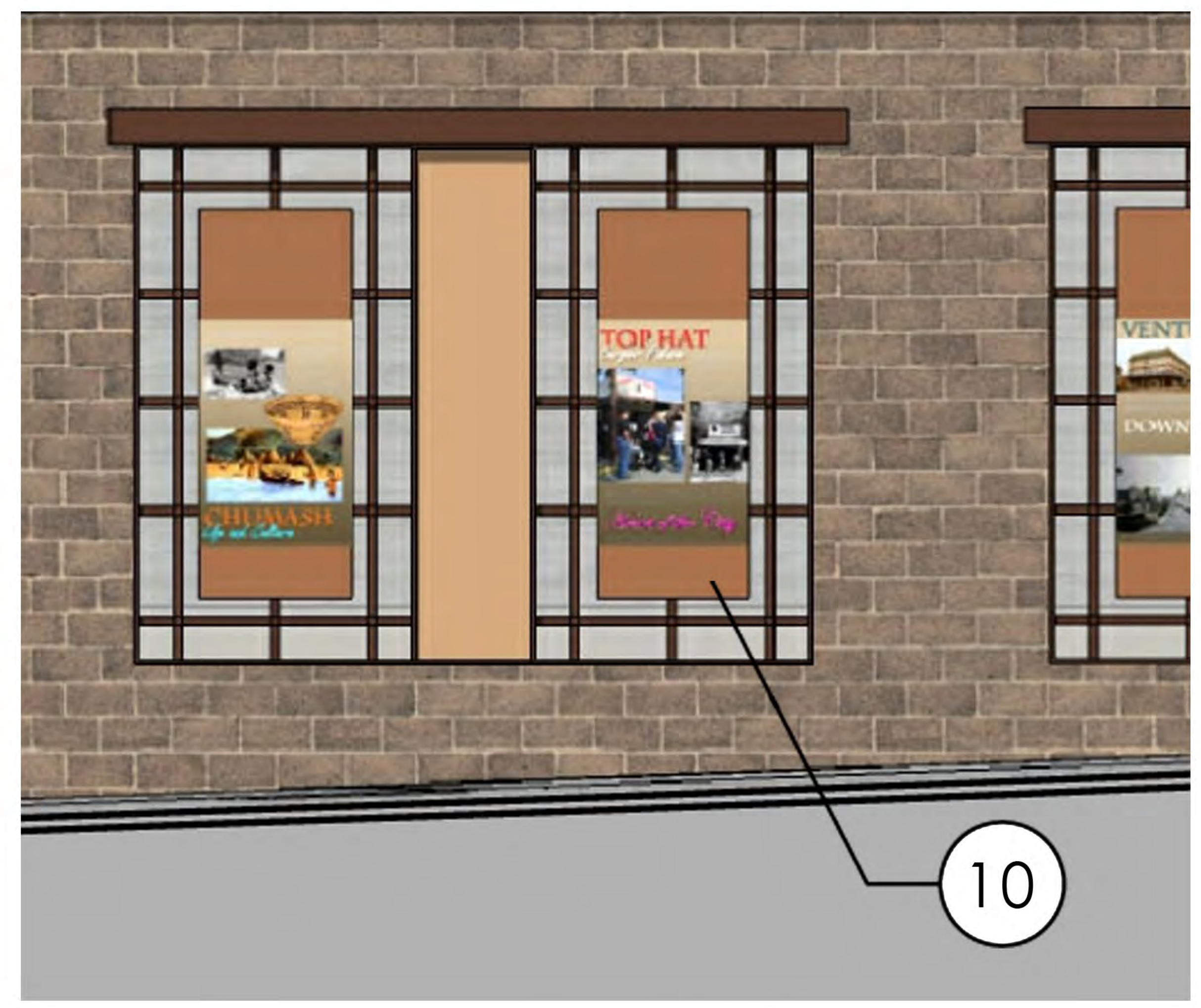
Story Panels at Palm Street

The project site for Anacapa Court is located in the historic core of downtown Ventura. The property has had a long and varied history of use, for which significant analysis and documentation has been prepared.

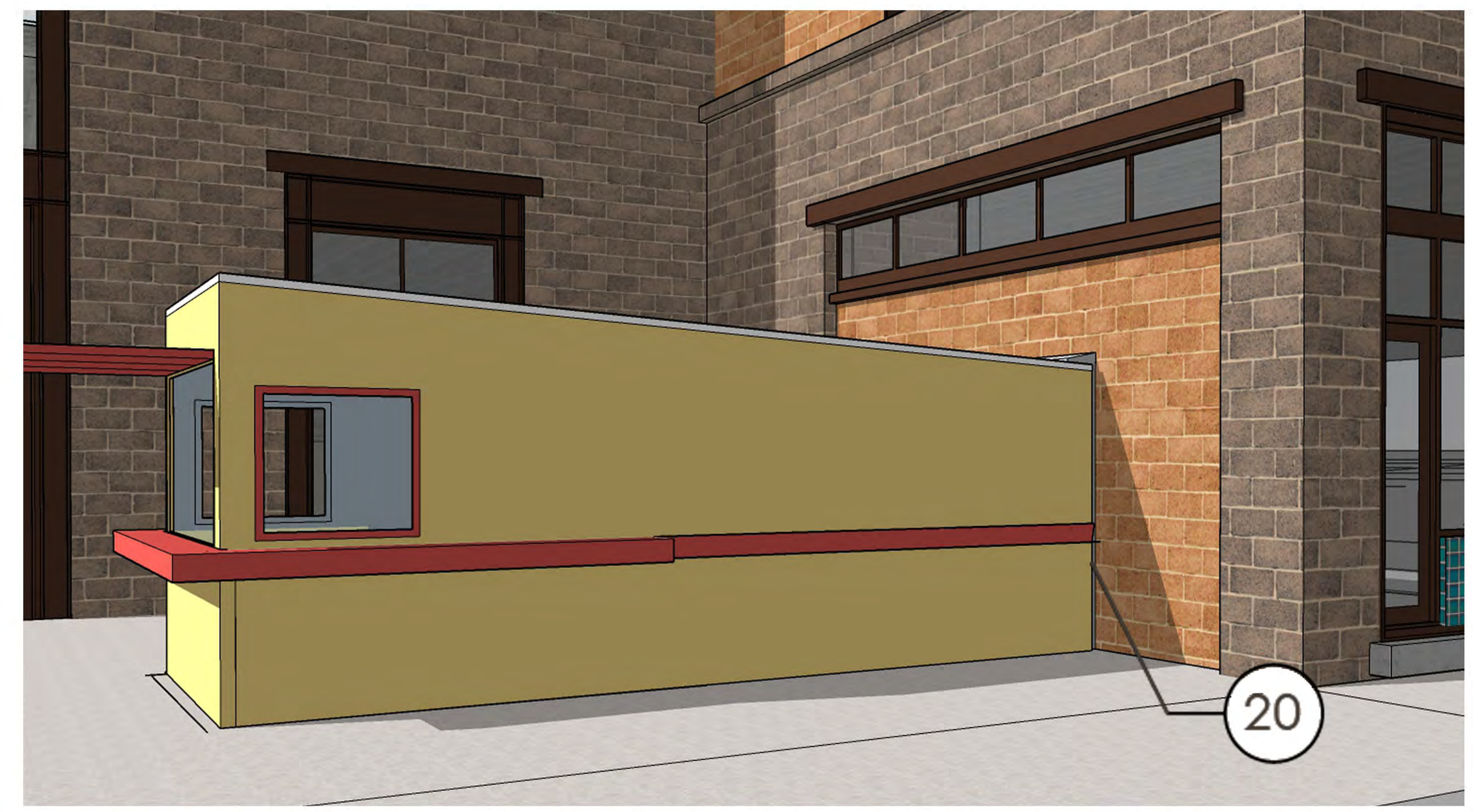
The project makes provision for storytelling and interpretation of this history, through the potential to provide several illustrative story-boards in the openings along Palm Street, shown in the elevations above.

It is anticipated that these boards will share a written and pictorial history of the site, from the time of the Chumash, through the establishment of the Mission, the founding of the City of San Buenaventura, and into the 20th century and the thriving mid-century downtown.

The story panels as illustrated here are conceptual. The final design and content will be refined and reviewed through the city's process, under the guidance of a qualified historic consultant.



Conceptual representation of the Story Panels



Conceptual representation of Hyphen at new building

Conceptual Disclaimer

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