

Appendix A



Air Quality and Greenhouse Gas Emissions Modeling Results

Marina VTC
North Central Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	71.00	Dwelling Unit	2.40	71,000.00	203

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.8	Precipitation Freq (Days)	53
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project plans. Population due to 64 studio units and 7 two-bedroom.

Construction Phase - Construction expected to last fourteen months. Architectural coating extended to occur half way through building construction.

Grading - Site acreage

Architectural Coating - MBUAPCD Rule 426

Vehicle Trips - Trip rate of 3.44 Based on traffic memo

Woodstoves - The project would not include woodstoves or fireplaces.

Area Coating - MBUAPCD Rule 426

Area Mitigation -

Demolition - Sf estimated from google earth: 12,000 sf

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblConstructionPhase	NumDays	10.00	115.00
tblConstructionPhase	NumDays	220.00	226.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	6.00	8.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	12/12/2019	8/8/2019
tblConstructionPhase	PhaseEndDate	8/30/2019	7/26/2019
tblConstructionPhase	PhaseEndDate	7/12/2018	8/10/2018
tblConstructionPhase	PhaseStartDate	7/5/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	8/11/2018	8/13/2018
tblConstructionPhase	PhaseStartDate	8/9/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	7/6/2018	8/6/2018
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	39.05	0.00
tblFireplaces	NumberNoFireplace	7.10	0.00
tblFireplaces	NumberWood	24.85	0.00
tblGrading	AcresOfGrading	4.00	2.40
tblGrading	AcresOfGrading	7.50	4.50
tblLandUse	LotAcreage	1.87	2.40

tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	3.44
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Energy	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Mobile	2.0092	5.0339	24.1145	0.0464	3.1074	0.0655	3.1729	0.8305	0.0604	0.8909		3,611.8302	3,611.8302	0.1633		3,615.2599
Total	4.3405	5.3099	30.0801	0.0481	3.1074	0.1146	3.2220	0.8305	0.1096	0.9400	0.0000	3,887.9506	3,887.9506	0.1787	4.8700e-003	3,893.2125

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Energy	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Mobile	2.0092	5.0339	24.1145	0.0464	3.1074	0.0655	3.1729	0.8305	0.0604	0.8909		3,611.8302	3,611.8302	0.1633		3,615.2599
Total	4.3405	5.3099	30.0801	0.0481	3.1074	0.1146	3.2220	0.8305	0.1096	0.9400	0.0000	3,887.9506	3,887.9506	0.1787	4.8700e-003	3,893.2125

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2018	7/5/2018	5	25	
2	Site Preparation	Site Preparation	8/6/2018	8/10/2018	5	5	
3	Grading	Grading	8/13/2018	8/22/2018	5	8	
4	Building Construction	Building Construction	8/23/2018	7/4/2019	5	226	
5	Architectural Coating	Architectural Coating	3/1/2019	8/8/2019	5	115	
6	Paving	Paving	7/5/2019	7/26/2019	5	16	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 2.4

Acres of Paving: 0

Residential Indoor: 143,775; Residential Outdoor: 47,925; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	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
Demolition	5	13.00	0.00	55.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	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	8	51.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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					0.4814	0.0000	0.4814	0.0729	0.0000	0.0729			0.0000			0.0000
Off-Road	2.3936	23.5008	19.6968	0.0245		1.3660	1.3660		1.2780	1.2780		2,427.2156	2,427.2156	0.6170		2,440.1728
Total	2.3936	23.5008	19.6968	0.0245	0.4814	1.3660	1.8474	0.0729	1.2780	1.3509		2,427.2156	2,427.2156	0.6170		2,440.1728

3.2 Demolition - 2018

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	0.0520	0.4716	0.7674	1.6300e-003	0.0383	7.4100e-003	0.0458	0.0105	6.8100e-003	0.0173		158.8017	158.8017	1.1100e-003		158.8251
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	0.0491	0.0813	0.6905	1.2800e-003	0.1068	9.6000e-004	0.1078	0.0283	8.9000e-004	0.0292		98.6532	98.6532	6.2700e-003		98.7849
Total	0.1011	0.5530	1.4579	2.9100e-003	0.1451	8.3700e-003	0.1535	0.0388	7.7000e-003	0.0465		257.4549	257.4549	7.3800e-003		257.6100

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					0.4814	0.0000	0.4814	0.0729	0.0000	0.0729			0.0000			0.0000
Off-Road	2.3936	23.5008	19.6968	0.0245		1.3660	1.3660		1.2780	1.2780	0.0000	2,427.2156	2,427.2156	0.6170		2,440.1728
Total	2.3936	23.5008	19.6968	0.0245	0.4814	1.3660	1.8474	0.0729	1.2780	1.3509	0.0000	2,427.2156	2,427.2156	0.6170		2,440.1728

3.2 Demolition - 2018

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	0.0520	0.4716	0.7674	1.6300e-003	0.0383	7.4100e-003	0.0458	0.0105	6.8100e-003	0.0173		158.8017	158.8017	1.1100e-003		158.8251
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	0.0491	0.0813	0.6905	1.2800e-003	0.1068	9.6000e-004	0.1078	0.0283	8.9000e-004	0.0292		98.6532	98.6532	6.2700e-003		98.7849
Total	0.1011	0.5530	1.4579	2.9100e-003	0.1451	8.3700e-003	0.1535	0.0388	7.7000e-003	0.0465		257.4549	257.4549	7.3800e-003		257.6100

3.3 Site Preparation - 2018

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					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859		2,399.3596	2,399.3596	0.7470		2,415.0456
Total	2.1932	24.5707	15.3552	0.0238	0.9545	1.1803	2.1348	0.1031	1.0859	1.1890		2,399.3596	2,399.3596	0.7470		2,415.0456

3.3 Site Preparation - 2018

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	0.0302	0.0500	0.4249	7.8000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		60.7097	60.7097	3.8600e-003		60.7907
Total	0.0302	0.0500	0.4249	7.8000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		60.7097	60.7097	3.8600e-003		60.7907

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					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859	0.0000	2,399.3596	2,399.3596	0.7470		2,415.0456
Total	2.1932	24.5707	15.3552	0.0238	0.9545	1.1803	2.1348	0.1031	1.0859	1.1890	0.0000	2,399.3596	2,399.3596	0.7470		2,415.0456

3.3 Site Preparation - 2018

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	0.0302	0.0500	0.4249	7.8000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		60.7097	60.7097	3.8600e-003		60.7907
Total	0.0302	0.0500	0.4249	7.8000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		60.7097	60.7097	3.8600e-003		60.7907

3.4 Grading - 2018

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					6.3402	0.0000	6.3402	3.3446	0.0000	3.3446			0.0000			0.0000
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266		2,069.3914	2,069.3914	0.6442		2,082.9202
Total	2.3737	24.6088	17.7193	0.0205	6.3402	1.3333	7.6735	3.3446	1.2266	4.5712		2,069.3914	2,069.3914	0.6442		2,082.9202

3.4 Grading - 2018

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	0.0378	0.0626	0.5312	9.8000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		75.8871	75.8871	4.8200e-003		75.9884
Total	0.0378	0.0626	0.5312	9.8000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		75.8871	75.8871	4.8200e-003		75.9884

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					6.3402	0.0000	6.3402	3.3446	0.0000	3.3446			0.0000			0.0000
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266	0.0000	2,069.3914	2,069.3914	0.6442		2,082.9202
Total	2.3737	24.6088	17.7193	0.0205	6.3402	1.3333	7.6735	3.3446	1.2266	4.5712	0.0000	2,069.3914	2,069.3914	0.6442		2,082.9202

3.4 Grading - 2018

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	0.0378	0.0626	0.5312	9.8000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		75.8871	75.8871	4.8200e-003		75.9884
Total	0.0378	0.0626	0.5312	9.8000e-004	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		75.8871	75.8871	4.8200e-003		75.9884

3.5 Building Construction - 2018

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	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980		2,327.6664
Total	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980		2,327.6664

3.5 Building Construction - 2018

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	0.1072	0.6534	1.6180	1.8700e-003	0.0526	0.0101	0.0628	0.0150	9.3100e-003	0.0243		180.2393	180.2393	1.4200e-003			180.2693
Worker	0.1928	0.3190	2.7089	5.0000e-003	0.4190	3.7700e-003	0.4227	0.1111	3.4800e-003	0.1146		387.0242	387.0242	0.0246			387.5408
Total	0.3000	0.9724	4.3269	6.8700e-003	0.4716	0.0139	0.4855	0.1261	0.0128	0.1389		567.2635	567.2635	0.0260			567.8101

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	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992	0.0000	2,317.2089	2,317.2089	0.4980			2,327.6664
Total	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992	0.0000	2,317.2089	2,317.2089	0.4980			2,327.6664

3.5 Building Construction - 2018

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	0.1072	0.6534	1.6180	1.8700e-003	0.0526	0.0101	0.0628	0.0150	9.3100e-003	0.0243		180.2393	180.2393	1.4200e-003			180.2693
Worker	0.1928	0.3190	2.7089	5.0000e-003	0.4190	3.7700e-003	0.4227	0.1111	3.4800e-003	0.1146		387.0242	387.0242	0.0246			387.5408
Total	0.3000	0.9724	4.3269	6.8700e-003	0.4716	0.0139	0.4855	0.1261	0.0128	0.1389		567.2635	567.2635	0.0260			567.8101

3.5 Building Construction - 2019

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	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399		2,299.7816	2,299.7816	0.4771			2,309.8005
Total	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399		2,299.7816	2,299.7816	0.4771			2,309.8005

3.5 Building Construction - 2019

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	0.0999	0.5932	1.5534	1.8700e-003	0.0526	9.3000e-003	0.0619	0.0150	8.5500e-003	0.0235		177.1663	177.1663	1.3800e-003			177.1952
Worker	0.1709	0.2887	2.4292	5.0000e-003	0.4190	3.6400e-003	0.4226	0.1111	3.3800e-003	0.1145		373.2014	373.2014	0.0228			373.6790
Total	0.2708	0.8819	3.9826	6.8700e-003	0.4716	0.0129	0.4845	0.1261	0.0119	0.1380		550.3677	550.3677	0.0241			550.8743

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	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399	0.0000	2,299.7816	2,299.7816	0.4771			2,309.8005
Total	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399	0.0000	2,299.7816	2,299.7816	0.4771			2,309.8005

3.5 Building Construction - 2019

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	0.0999	0.5932	1.5534	1.8700e-003	0.0526	9.3000e-003	0.0619	0.0150	8.5500e-003	0.0235		177.1663	177.1663	1.3800e-003		177.1952
Worker	0.1709	0.2887	2.4292	5.0000e-003	0.4190	3.6400e-003	0.4226	0.1111	3.3800e-003	0.1145		373.2014	373.2014	0.0228		373.6790
Total	0.2708	0.8819	3.9826	6.8700e-003	0.4716	0.0129	0.4845	0.1261	0.0119	0.1380		550.3677	550.3677	0.0241		550.8743

3.6 Architectural Coating - 2019

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	11.5895					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	11.8560	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473

3.6 Architectural Coating - 2019

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	0.0335	0.0566	0.4763	9.8000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		73.1767	73.1767	4.4600e-003		73.2704
Total	0.0335	0.0566	0.4763	9.8000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		73.1767	73.1767	4.4600e-003		73.2704

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	11.5895					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473
Total	11.8560	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473

3.6 Architectural Coating - 2019

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	0.0335	0.0566	0.4763	9.8000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		73.1767	73.1767	4.4600e-003		73.2704
Total	0.0335	0.0566	0.4763	9.8000e-004	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		73.1767	73.1767	4.4600e-003		73.2704

3.7 Paving - 2019

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	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658		1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658		1,722.2285	1,722.2285	0.5342		1,733.4458

3.7 Paving - 2019

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	0.0503	0.0849	0.7145	1.4700e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		109.7651	109.7651	6.6900e-003		109.9056
Total	0.0503	0.0849	0.7145	1.4700e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		109.7651	109.7651	6.6900e-003		109.9056

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	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658	0.0000	1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658	0.0000	1,722.2285	1,722.2285	0.5342		1,733.4458

3.7 Paving - 2019

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	0.0503	0.0849	0.7145	1.4700e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		109.7651	109.7651	6.6900e-003		109.9056
Total	0.0503	0.0849	0.7145	1.4700e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		109.7651	109.7651	6.6900e-003		109.9056

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	2.0092	5.0339	24.1145	0.0464	3.1074	0.0655	3.1729	0.8305	0.0604	0.8909		3,611.8302	3,611.8302	0.1633		3,615.2599
Unmitigated	2.0092	5.0339	24.1145	0.0464	3.1074	0.0655	3.1729	0.8305	0.0604	0.8909		3,611.8302	3,611.8302	0.1633		3,615.2599

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244.24	508.36	430.97	889,178	889,178
Total	244.24	508.36	430.97	889,178	889,178

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	44.00	18.80	37.20	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462716	0.038748	0.210376	0.164659	0.051247	0.007290	0.016776	0.031161	0.003080	0.002164	0.008275	0.000799	0.002709

5.0 Energy Detail

5.1 Fleet Mix

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	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
NaturalGas Unmitigated	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	2257.37	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Total		0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	lb/day										lb/day					
Apartments Mid Rise	2.25737	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Total		0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Unmitigated	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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	0.6086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5194					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	0.1790	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323		10.5472	10.5472	0.0103		10.7632
Total	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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					
Consumer Products	1.5194					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	0.1790	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323		10.5472	10.5472	0.0103		10.7632
Architectural Coating	0.6086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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
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10.0 Vegetation

Marina VTC
North Central Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	71.00	Dwelling Unit	2.40	71,000.00	203

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.8	Precipitation Freq (Days)	53
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project plans. Population due to 64 studio units and 7 two-bedroom.

Construction Phase - Construction expected to last fourteen months. Architectural coating extended to occur half way through building construction.

Grading - Site acreage

Architectural Coating - MBUAPCD Rule 426

Vehicle Trips - Trip rate of 3.44 Based on traffic memo

Woodstoves - The project would not include woodstoves or fireplaces.

Area Coating - MBUAPCD Rule 426

Area Mitigation -

Demolition - Sf estimated from google earth: 12,000 sf

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblConstructionPhase	NumDays	10.00	115.00
tblConstructionPhase	NumDays	220.00	226.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	6.00	8.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	12/12/2019	8/8/2019
tblConstructionPhase	PhaseEndDate	8/30/2019	7/26/2019
tblConstructionPhase	PhaseEndDate	7/12/2018	8/10/2018
tblConstructionPhase	PhaseStartDate	7/5/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	8/11/2018	8/13/2018
tblConstructionPhase	PhaseStartDate	8/9/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	7/6/2018	8/6/2018
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	39.05	0.00
tblFireplaces	NumberNoFireplace	7.10	0.00
tblFireplaces	NumberWood	24.85	0.00
tblGrading	AcresOfGrading	4.00	2.40
tblGrading	AcresOfGrading	7.50	4.50
tblLandUse	LotAcreage	1.87	2.40

tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	3.44
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Energy	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Mobile	1.8584	4.4555	20.4349	0.0486	3.1074	0.0652	3.1726	0.8305	0.0601	0.8906		3,775.2092	3,775.2092	0.1632		3,778.6354
Total	4.1897	4.7315	26.4004	0.0502	3.1074	0.1143	3.2217	0.8305	0.1093	0.9397	0.0000	4,051.3296	4,051.3296	0.1785	4.8700e-003	4,056.5881

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Energy	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Mobile	1.8584	4.4555	20.4349	0.0486	3.1074	0.0652	3.1726	0.8305	0.0601	0.8906		3,775.2092	3,775.2092	0.1632		3,778.6354
Total	4.1897	4.7315	26.4004	0.0502	3.1074	0.1143	3.2217	0.8305	0.1093	0.9397	0.0000	4,051.3296	4,051.3296	0.1785	4.8700e-003	4,056.5881

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2018	7/5/2018	5	25	
2	Site Preparation	Site Preparation	8/6/2018	8/10/2018	5	5	
3	Grading	Grading	8/13/2018	8/22/2018	5	8	
4	Building Construction	Building Construction	8/23/2018	7/4/2019	5	226	
5	Architectural Coating	Architectural Coating	3/1/2019	8/8/2019	5	115	
6	Paving	Paving	7/5/2019	7/26/2019	5	16	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 2.4

Acres of Paving: 0

Residential Indoor: 143,775; Residential Outdoor: 47,925; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	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
Demolition	5	13.00	0.00	55.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	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	8	51.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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					0.4814	0.0000	0.4814	0.0729	0.0000	0.0729			0.0000			0.0000
Off-Road	2.3936	23.5008	19.6968	0.0245		1.3660	1.3660		1.2780	1.2780		2,427.2156	2,427.2156	0.6170		2,440.1728
Total	2.3936	23.5008	19.6968	0.0245	0.4814	1.3660	1.8474	0.0729	1.2780	1.3509		2,427.2156	2,427.2156	0.6170		2,440.1728

3.2 Demolition - 2018

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	0.0428	0.4466	0.4607	1.6300e-003	0.0383	7.3800e-003	0.0457	0.0105	6.7900e-003	0.0173		159.1780	159.1780	1.1000e-003		159.2010
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	0.0470	0.0648	0.6745	1.3500e-003	0.1068	9.6000e-004	0.1078	0.0283	8.9000e-004	0.0292		104.7953	104.7953	6.2700e-003		104.9270
Total	0.0898	0.5113	1.1353	2.9800e-003	0.1451	8.3400e-003	0.1535	0.0388	7.6800e-003	0.0465		263.9733	263.9733	7.3700e-003		264.1280

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					0.4814	0.0000	0.4814	0.0729	0.0000	0.0729			0.0000			0.0000
Off-Road	2.3936	23.5008	19.6968	0.0245		1.3660	1.3660		1.2780	1.2780	0.0000	2,427.2156	2,427.2156	0.6170		2,440.1728
Total	2.3936	23.5008	19.6968	0.0245	0.4814	1.3660	1.8474	0.0729	1.2780	1.3509	0.0000	2,427.2156	2,427.2156	0.6170		2,440.1728

3.2 Demolition - 2018

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	0.0428	0.4466	0.4607	1.6300e-003	0.0383	7.3800e-003	0.0457	0.0105	6.7900e-003	0.0173		159.1780	159.1780	1.1000e-003		159.2010
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	0.0470	0.0648	0.6745	1.3500e-003	0.1068	9.6000e-004	0.1078	0.0283	8.9000e-004	0.0292		104.7953	104.7953	6.2700e-003		104.9270
Total	0.0898	0.5113	1.1353	2.9800e-003	0.1451	8.3400e-003	0.1535	0.0388	7.6800e-003	0.0465		263.9733	263.9733	7.3700e-003		264.1280

3.3 Site Preparation - 2018

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					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859		2,399.3596	2,399.3596	0.7470		2,415.0456
Total	2.1932	24.5707	15.3552	0.0238	0.9545	1.1803	2.1348	0.1031	1.0859	1.1890		2,399.3596	2,399.3596	0.7470		2,415.0456

3.3 Site Preparation - 2018

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	0.0289	0.0399	0.4151	8.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		64.4894	64.4894	3.8600e-003		64.5704
Total	0.0289	0.0399	0.4151	8.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		64.4894	64.4894	3.8600e-003		64.5704

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					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859	0.0000	2,399.3596	2,399.3596	0.7470		2,415.0456
Total	2.1932	24.5707	15.3552	0.0238	0.9545	1.1803	2.1348	0.1031	1.0859	1.1890	0.0000	2,399.3596	2,399.3596	0.7470		2,415.0456

3.3 Site Preparation - 2018

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	0.0289	0.0399	0.4151	8.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		64.4894	64.4894	3.8600e-003		64.5704
Total	0.0289	0.0399	0.4151	8.3000e-004	0.0657	5.9000e-004	0.0663	0.0174	5.5000e-004	0.0180		64.4894	64.4894	3.8600e-003		64.5704

3.4 Grading - 2018

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					6.3402	0.0000	6.3402	3.3446	0.0000	3.3446			0.0000			0.0000
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266		2,069.3914	2,069.3914	0.6442		2,082.9202
Total	2.3737	24.6088	17.7193	0.0205	6.3402	1.3333	7.6735	3.3446	1.2266	4.5712		2,069.3914	2,069.3914	0.6442		2,082.9202

3.4 Grading - 2018

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	0.0361	0.0498	0.5189	1.0400e-003	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		80.6117	80.6117	4.8200e-003			80.7131
Total	0.0361	0.0498	0.5189	1.0400e-003	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		80.6117	80.6117	4.8200e-003			80.7131

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					6.3402	0.0000	6.3402	3.3446	0.0000	3.3446			0.0000			0.0000	
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266	0.0000	2,069.3914	2,069.3914	0.6442			2,082.9202
Total	2.3737	24.6088	17.7193	0.0205	6.3402	1.3333	7.6735	3.3446	1.2266	4.5712	0.0000	2,069.3914	2,069.3914	0.6442			2,082.9202

3.4 Grading - 2018

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	0.0361	0.0498	0.5189	1.0400e-003	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		80.6117	80.6117	4.8200e-003			80.7131
Total	0.0361	0.0498	0.5189	1.0400e-003	0.0822	7.4000e-004	0.0829	0.0218	6.8000e-004	0.0225		80.6117	80.6117	4.8200e-003			80.7131

3.5 Building Construction - 2018

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	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980			2,327.6664
Total	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980			2,327.6664

3.5 Building Construction - 2018

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	0.0832	0.6233	0.9078	1.8700e-003	0.0526	9.9900e-003	0.0626	0.0150	9.1900e-003	0.0242		181.6552	181.6552	1.3800e-003		181.6843
Worker	0.1843	0.2541	2.6463	5.3100e-003	0.4190	3.7700e-003	0.4227	0.1111	3.4800e-003	0.1146		411.1199	411.1199	0.0246		411.6366
Total	0.2676	0.8774	3.5540	7.1800e-003	0.4716	0.0138	0.4854	0.1261	0.0127	0.1388		592.7751	592.7751	0.0260		593.3208

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	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992	0.0000	2,317.2089	2,317.2089	0.4980		2,327.6664
Total	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992	0.0000	2,317.2089	2,317.2089	0.4980		2,327.6664

3.5 Building Construction - 2018

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	0.0832	0.6233	0.9078	1.8700e-003	0.0526	9.9900e-003	0.0626	0.0150	9.1900e-003	0.0242		181.6552	181.6552	1.3800e-003			181.6843
Worker	0.1843	0.2541	2.6463	5.3100e-003	0.4190	3.7700e-003	0.4227	0.1111	3.4800e-003	0.1146		411.1199	411.1199	0.0246			411.6366
Total	0.2676	0.8774	3.5540	7.1800e-003	0.4716	0.0138	0.4854	0.1261	0.0127	0.1388		592.7751	592.7751	0.0260			593.3208

3.5 Building Construction - 2019

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	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399		2,299.7816	2,299.7816	0.4771			2,309.8005
Total	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399		2,299.7816	2,299.7816	0.4771			2,309.8005

3.5 Building Construction - 2019

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	0.0780	0.5661	0.8677	1.8700e-003	0.0526	9.1800e-003	0.0618	0.0150	8.4500e-003	0.0234		178.5615	178.5615	1.3400e-003			178.5896
Worker	0.1647	0.2298	2.3927	5.3100e-003	0.4190	3.6400e-003	0.4226	0.1111	3.3800e-003	0.1145		396.4751	396.4751	0.0228			396.9527
Total	0.2426	0.7960	3.2603	7.1800e-003	0.4716	0.0128	0.4844	0.1261	0.0118	0.1379		575.0366	575.0366	0.0241			575.5423

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	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399	0.0000	2,299.7816	2,299.7816	0.4771			2,309.8005
Total	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399	0.0000	2,299.7816	2,299.7816	0.4771			2,309.8005

3.5 Building Construction - 2019

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	0.0780	0.5661	0.8677	1.8700e-003	0.0526	9.1800e-003	0.0618	0.0150	8.4500e-003	0.0234		178.5615	178.5615	1.3400e-003		178.5896
Worker	0.1647	0.2298	2.3927	5.3100e-003	0.4190	3.6400e-003	0.4226	0.1111	3.3800e-003	0.1145		396.4751	396.4751	0.0228		396.9527
Total	0.2426	0.7960	3.2603	7.1800e-003	0.4716	0.0128	0.4844	0.1261	0.0118	0.1379		575.0366	575.0366	0.0241		575.5423

3.6 Architectural Coating - 2019

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	11.5895					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	11.8560	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473

3.6 Architectural Coating - 2019

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	0.0323	0.0451	0.4692	1.0400e-003	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		77.7402	77.7402	4.4600e-003		77.8339
Total	0.0323	0.0451	0.4692	1.0400e-003	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		77.7402	77.7402	4.4600e-003		77.8339

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	11.5895					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473
Total	11.8560	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473

3.6 Architectural Coating - 2019

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	0.0323	0.0451	0.4692	1.0400e-003	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		77.7402	77.7402	4.4600e-003		77.8339
Total	0.0323	0.0451	0.4692	1.0400e-003	0.0822	7.1000e-004	0.0829	0.0218	6.6000e-004	0.0225		77.7402	77.7402	4.4600e-003		77.8339

3.7 Paving - 2019

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	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658		1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658		1,722.2285	1,722.2285	0.5342		1,733.4458

3.7 Paving - 2019

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	0.0484	0.0676	0.7037	1.5600e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		116.6103	116.6103	6.6900e-003		116.7508
Total	0.0484	0.0676	0.7037	1.5600e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		116.6103	116.6103	6.6900e-003		116.7508

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	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658	0.0000	1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658	0.0000	1,722.2285	1,722.2285	0.5342		1,733.4458

3.7 Paving - 2019

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	0.0484	0.0676	0.7037	1.5600e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		116.6103	116.6103	6.6900e-003		116.7508
Total	0.0484	0.0676	0.7037	1.5600e-003	0.1232	1.0700e-003	0.1243	0.0327	9.9000e-004	0.0337		116.6103	116.6103	6.6900e-003		116.7508

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	1.8584	4.4555	20.4349	0.0486	3.1074	0.0652	3.1726	0.8305	0.0601	0.8906		3,775.2092	3,775.2092	0.1632		3,778.6354
Unmitigated	1.8584	4.4555	20.4349	0.0486	3.1074	0.0652	3.1726	0.8305	0.0601	0.8906		3,775.2092	3,775.2092	0.1632		3,778.6354

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244.24	508.36	430.97	889,178	889,178
Total	244.24	508.36	430.97	889,178	889,178

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	44.00	18.80	37.20	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462716	0.038748	0.210376	0.164659	0.051247	0.007290	0.016776	0.031161	0.003080	0.002164	0.008275	0.000799	0.002709

5.0 Energy Detail

~~5.1 Fleet Mix~~

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	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
NaturalGas Unmitigated	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	2257.37	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Total		0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	lb/day										lb/day					
Apartments Mid Rise	2.25737	0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894
Total		0.0243	0.2080	0.0885	1.3300e-003		0.0168	0.0168		0.0168	0.0168		265.5732	265.5732	5.0900e-003	4.8700e-003	267.1894

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	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632
Unmitigated	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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	0.6086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5194					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	0.1790	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323		10.5472	10.5472	0.0103		10.7632
Total	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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					
Consumer Products	1.5194					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	0.1790	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323		10.5472	10.5472	0.0103		10.7632
Architectural Coating	0.6086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.3069	0.0680	5.8771	3.1000e-004		0.0323	0.0323		0.0323	0.0323	0.0000	10.5472	10.5472	0.0103	0.0000	10.7632

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
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10.0 Vegetation

Marina VTC
North Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	71.00	Dwelling Unit	2.40	71,000.00	203

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.8	Precipitation Freq (Days)	53
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project plans. Population due to 64 studio units and 7 two-bedroom.

Construction Phase - Construction expected to last fourteen months. Architectural coating extended to occur half way through building construction.

Grading - Site acreage

Architectural Coating - MBUAPCD Rule 426

Vehicle Trips - Trip rate of 3.44 Based on traffic memo

Woodstoves - The project would not include woodstoves or fireplaces.

Area Coating - MBUAPCD Rule 426

Area Mitigation -

Demolition - Sf estimated from google earth: 12,000 sf

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblConstructionPhase	NumDays	10.00	115.00
tblConstructionPhase	NumDays	220.00	226.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	6.00	8.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	5.00
tblConstructionPhase	PhaseEndDate	12/12/2019	8/8/2019
tblConstructionPhase	PhaseEndDate	8/30/2019	7/26/2019
tblConstructionPhase	PhaseEndDate	7/12/2018	8/10/2018
tblConstructionPhase	PhaseStartDate	7/5/2019	3/1/2019
tblConstructionPhase	PhaseStartDate	8/11/2018	8/13/2018
tblConstructionPhase	PhaseStartDate	8/9/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	7/6/2018	8/6/2018
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	39.05	0.00
tblFireplaces	NumberNoFireplace	7.10	0.00
tblFireplaces	NumberWood	24.85	0.00
tblGrading	AcresOfGrading	4.00	2.40
tblGrading	AcresOfGrading	7.50	4.50
tblLandUse	LotAcreage	1.87	2.40

tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	3.44
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788
Energy	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	120.8653	120.8653	4.3200e-003	1.5300e-003	121.4289
Mobile	0.2070	0.5305	2.3923	5.1400e-003	0.3327	7.2100e-003	0.3399	0.0892	6.6500e-003	0.0958	0.0000	363.0017	363.0017	0.0163	0.0000	363.3449
Waste						0.0000	0.0000		0.0000	0.0000	6.6297	0.0000	6.6297	0.3918	0.0000	14.8576
Water						0.0000	0.0000		0.0000	0.0000	1.4676	10.2512	11.7188	0.1512	3.6600e-003	16.0271
Total	0.6159	0.5746	2.9374	5.4100e-003	0.3327	0.0132	0.3459	0.0892	0.0126	0.1018	8.0973	494.9793	503.0766	0.5645	5.1900e-003	516.5372

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	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788
Energy	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	120.8653	120.8653	4.3200e-003	1.5300e-003	121.4289
Mobile	0.2070	0.5305	2.3923	5.1400e-003	0.3327	7.2100e-003	0.3399	0.0892	6.6500e-003	0.0958	0.0000	363.0017	363.0017	0.0163	0.0000	363.3449
Waste						0.0000	0.0000		0.0000	0.0000	6.6297	0.0000	6.6297	0.3918	0.0000	14.8576
Water						0.0000	0.0000		0.0000	0.0000	1.4676	10.2512	11.7188	0.1512	3.6500e-003	16.0247
Total	0.6159	0.5746	2.9374	5.4100e-003	0.3327	0.0132	0.3459	0.0892	0.0126	0.1018	8.0973	494.9793	503.0766	0.5645	5.1800e-003	516.5349

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2018	7/5/2018	5	25	
2	Site Preparation	Site Preparation	8/6/2018	8/10/2018	5	5	
3	Grading	Grading	8/13/2018	8/22/2018	5	8	
4	Building Construction	Building Construction	8/23/2018	7/4/2019	5	226	
5	Architectural Coating	Architectural Coating	3/1/2019	8/8/2019	5	115	
6	Paving	Paving	7/5/2019	7/26/2019	5	16	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 2.4

Acres of Paving: 0

Residential Indoor: 143,775; Residential Outdoor: 47,925; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	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
Demolition	5	13.00	0.00	55.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	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	8	51.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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					6.0200e-003	0.0000	6.0200e-003	9.1000e-004	0.0000	9.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0299	0.2938	0.2462	3.1000e-004		0.0171	0.0171		0.0160	0.0160	0.0000	27.5242	27.5242	7.0000e-003	0.0000	27.6711
Total	0.0299	0.2938	0.2462	3.1000e-004	6.0200e-003	0.0171	0.0231	9.1000e-004	0.0160	0.0169	0.0000	27.5242	27.5242	7.0000e-003	0.0000	27.6711

3.2 Demolition - 2018

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	5.9000e-004	5.8000e-003	7.6100e-003	2.0000e-005	4.7000e-004	9.0000e-005	5.6000e-004	1.3000e-004	9.0000e-005	2.1000e-004	0.0000	1.8033	1.8033	1.0000e-005	0.0000	1.8035
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	5.7000e-004	9.3000e-004	8.1900e-003	2.0000e-005	1.2900e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1235	1.1235	7.0000e-005	0.0000	1.1250
Total	1.1600e-003	6.7300e-003	0.0158	4.0000e-005	1.7600e-003	1.0000e-004	1.8600e-003	4.7000e-004	1.0000e-004	5.6000e-004	0.0000	2.9268	2.9268	8.0000e-005	0.0000	2.9285

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					6.0200e-003	0.0000	6.0200e-003	9.1000e-004	0.0000	9.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0299	0.2938	0.2462	3.1000e-004		0.0171	0.0171		0.0160	0.0160	0.0000	27.5241	27.5241	7.0000e-003	0.0000	27.6711
Total	0.0299	0.2938	0.2462	3.1000e-004	6.0200e-003	0.0171	0.0231	9.1000e-004	0.0160	0.0169	0.0000	27.5241	27.5241	7.0000e-003	0.0000	27.6711

3.2 Demolition - 2018

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	5.9000e-004	5.8000e-003	7.6100e-003	2.0000e-005	4.7000e-004	9.0000e-005	5.6000e-004	1.3000e-004	9.0000e-005	2.1000e-004	0.0000	1.8033	1.8033	1.0000e-005	0.0000	1.8035
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	5.7000e-004	9.3000e-004	8.1900e-003	2.0000e-005	1.2900e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1235	1.1235	7.0000e-005	0.0000	1.1250
Total	1.1600e-003	6.7300e-003	0.0158	4.0000e-005	1.7600e-003	1.0000e-004	1.8600e-003	4.7000e-004	1.0000e-004	5.6000e-004	0.0000	2.9268	2.9268	8.0000e-005	0.0000	2.9285

3.3 Site Preparation - 2018

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0614	0.0384	6.0000e-005		2.9500e-003	2.9500e-003		2.7100e-003	2.7100e-003	0.0000	5.4417	5.4417	1.6900e-003	0.0000	5.4772
Total	5.4800e-003	0.0614	0.0384	6.0000e-005	2.3900e-003	2.9500e-003	5.3400e-003	2.6000e-004	2.7100e-003	2.9700e-003	0.0000	5.4417	5.4417	1.6900e-003	0.0000	5.4772

3.3 Site Preparation - 2018

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	7.0000e-005	1.1000e-004	1.0100e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385
Total	7.0000e-005	1.1000e-004	1.0100e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0614	0.0384	6.0000e-005		2.9500e-003	2.9500e-003		2.7100e-003	2.7100e-003	0.0000	5.4417	5.4417	1.6900e-003	0.0000	5.4772
Total	5.4800e-003	0.0614	0.0384	6.0000e-005	2.3900e-003	2.9500e-003	5.3400e-003	2.6000e-004	2.7100e-003	2.9700e-003	0.0000	5.4417	5.4417	1.6900e-003	0.0000	5.4772

3.3 Site Preparation - 2018

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	7.0000e-005	1.1000e-004	1.0100e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385
Total	7.0000e-005	1.1000e-004	1.0100e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1383	0.1383	1.0000e-005	0.0000	0.1385

3.4 Grading - 2018

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					0.0254	0.0000	0.0254	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4900e-003	0.0984	0.0709	8.0000e-005		5.3300e-003	5.3300e-003		4.9100e-003	4.9100e-003	0.0000	7.5093	7.5093	2.3400e-003	0.0000	7.5584
Total	9.4900e-003	0.0984	0.0709	8.0000e-005	0.0254	5.3300e-003	0.0307	0.0134	4.9100e-003	0.0183	0.0000	7.5093	7.5093	2.3400e-003	0.0000	7.5584

3.4 Grading - 2018

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	1.4000e-004	2.3000e-004	2.0200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2766	0.2766	2.0000e-005	0.0000	0.2769
Total	1.4000e-004	2.3000e-004	2.0200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2766	0.2766	2.0000e-005	0.0000	0.2769

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					0.0254	0.0000	0.0254	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4900e-003	0.0984	0.0709	8.0000e-005		5.3300e-003	5.3300e-003		4.9100e-003	4.9100e-003	0.0000	7.5093	7.5093	2.3400e-003	0.0000	7.5584
Total	9.4900e-003	0.0984	0.0709	8.0000e-005	0.0254	5.3300e-003	0.0307	0.0134	4.9100e-003	0.0183	0.0000	7.5093	7.5093	2.3400e-003	0.0000	7.5584

3.4 Grading - 2018

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	1.4000e-004	2.3000e-004	2.0200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2766	0.2766	2.0000e-005	0.0000	0.2769
Total	1.4000e-004	2.3000e-004	2.0200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2766	0.2766	2.0000e-005	0.0000	0.2769

3.5 Building Construction - 2018

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	0.1349	0.9560	0.7284	1.1600e-003		0.0582	0.0582		0.0558	0.0558	0.0000	97.7494	97.7494	0.0210	0.0000	98.1905
Total	0.1349	0.9560	0.7284	1.1600e-003		0.0582	0.0582		0.0558	0.0558	0.0000	97.7494	97.7494	0.0210	0.0000	98.1905

3.5 Building Construction - 2018

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	4.3900e-003	0.0300	0.0582	9.0000e-005	2.3800e-003	4.7000e-004	2.8500e-003	6.8000e-004	4.3000e-004	1.1100e-003	0.0000	7.6379	7.6379	6.0000e-005	0.0000	7.6391
Worker	8.3800e-003	0.0135	0.1196	2.3000e-004	0.0189	1.8000e-004	0.0190	5.0200e-003	1.6000e-004	5.1800e-003	0.0000	16.3963	16.3963	1.0400e-003	0.0000	16.4181
Total	0.0128	0.0435	0.1777	3.2000e-004	0.0213	6.5000e-004	0.0219	5.7000e-003	5.9000e-004	6.2900e-003	0.0000	24.0342	24.0342	1.1000e-003	0.0000	24.0572

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	0.1349	0.9560	0.7284	1.1600e-003		0.0582	0.0582		0.0558	0.0558	0.0000	97.7492	97.7492	0.0210	0.0000	98.1904
Total	0.1349	0.9560	0.7284	1.1600e-003		0.0582	0.0582		0.0558	0.0558	0.0000	97.7492	97.7492	0.0210	0.0000	98.1904

3.5 Building Construction - 2018

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	4.3900e-003	0.0300	0.0582	9.0000e-005	2.3800e-003	4.7000e-004	2.8500e-003	6.8000e-004	4.3000e-004	1.1100e-003	0.0000	7.6379	7.6379	6.0000e-005	0.0000	7.6391
Worker	8.3800e-003	0.0135	0.1196	2.3000e-004	0.0189	1.8000e-004	0.0190	5.0200e-003	1.6000e-004	5.1800e-003	0.0000	16.3963	16.3963	1.0400e-003	0.0000	16.4181
Total	0.0128	0.0435	0.1777	3.2000e-004	0.0213	6.5000e-004	0.0219	5.7000e-003	5.9000e-004	6.2900e-003	0.0000	24.0342	24.0342	1.1000e-003	0.0000	24.0572

3.5 Building Construction - 2019

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	0.1694	1.2489	1.0111	1.6600e-003		0.0721	0.0721		0.0692	0.0692	0.0000	138.7407	138.7407	0.0288	0.0000	139.3452
Total	0.1694	1.2489	1.0111	1.6600e-003		0.0721	0.0721		0.0692	0.0692	0.0000	138.7407	138.7407	0.0288	0.0000	139.3452

3.5 Building Construction - 2019

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	5.8700e-003	0.0390	0.0798	1.2000e-004	3.4100e-003	6.1000e-004	4.0200e-003	9.7000e-004	5.6000e-004	1.5400e-003	0.0000	10.7369	10.7369	8.0000e-005	0.0000	10.7386
Worker	0.0107	0.0175	0.1538	3.3000e-004	0.0270	2.4000e-004	0.0272	7.1700e-003	2.2000e-004	7.4000e-003	0.0000	22.6112	22.6112	1.3700e-003	0.0000	22.6401
Total	0.0165	0.0565	0.2336	4.5000e-004	0.0304	8.5000e-004	0.0312	8.1400e-003	7.8000e-004	8.9400e-003	0.0000	33.3481	33.3481	1.4500e-003	0.0000	33.3787

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	0.1694	1.2489	1.0111	1.6600e-003		0.0721	0.0721		0.0692	0.0692	0.0000	138.7406	138.7406	0.0288	0.0000	139.3450
Total	0.1694	1.2489	1.0111	1.6600e-003		0.0721	0.0721		0.0692	0.0692	0.0000	138.7406	138.7406	0.0288	0.0000	139.3450

3.5 Building Construction - 2019

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	5.8700e-003	0.0390	0.0798	1.2000e-004	3.4100e-003	6.1000e-004	4.0200e-003	9.7000e-004	5.6000e-004	1.5400e-003	0.0000	10.7369	10.7369	8.0000e-005	0.0000	10.7386
Worker	0.0107	0.0175	0.1538	3.3000e-004	0.0270	2.4000e-004	0.0272	7.1700e-003	2.2000e-004	7.4000e-003	0.0000	22.6112	22.6112	1.3700e-003	0.0000	22.6401
Total	0.0165	0.0565	0.2336	4.5000e-004	0.0304	8.5000e-004	0.0312	8.1400e-003	7.8000e-004	8.9400e-003	0.0000	33.3481	33.3481	1.4500e-003	0.0000	33.3787

3.6 Architectural Coating - 2019

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	0.6664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1055	0.1059	1.7000e-004		7.4000e-003	7.4000e-003		7.4000e-003	7.4000e-003	0.0000	14.6812	14.6812	1.2400e-003	0.0000	14.7073
Total	0.6817	0.1055	0.1059	1.7000e-004		7.4000e-003	7.4000e-003		7.4000e-003	7.4000e-003	0.0000	14.6812	14.6812	1.2400e-003	0.0000	14.7073

3.6 Architectural Coating - 2019

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	1.8100e-003	2.9700e-003	0.0261	6.0000e-005	4.5700e-003	4.0000e-005	4.6200e-003	1.2200e-003	4.0000e-005	1.2500e-003	0.0000	3.8335	3.8335	2.3000e-004	0.0000	3.8384
Total	1.8100e-003	2.9700e-003	0.0261	6.0000e-005	4.5700e-003	4.0000e-005	4.6200e-003	1.2200e-003	4.0000e-005	1.2500e-003	0.0000	3.8335	3.8335	2.3000e-004	0.0000	3.8384

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	0.6664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1055	0.1059	1.7000e-004		7.4000e-003	7.4000e-003		7.4000e-003	7.4000e-003	0.0000	14.6812	14.6812	1.2400e-003	0.0000	14.7072
Total	0.6817	0.1055	0.1059	1.7000e-004		7.4000e-003	7.4000e-003		7.4000e-003	7.4000e-003	0.0000	14.6812	14.6812	1.2400e-003	0.0000	14.7072

3.6 Architectural Coating - 2019

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	1.8100e-003	2.9700e-003	0.0261	6.0000e-005	4.5700e-003	4.0000e-005	4.6200e-003	1.2200e-003	4.0000e-005	1.2500e-003	0.0000	3.8335	3.8335	2.3000e-004	0.0000	3.8384
Total	1.8100e-003	2.9700e-003	0.0261	6.0000e-005	4.5700e-003	4.0000e-005	4.6200e-003	1.2200e-003	4.0000e-005	1.2500e-003	0.0000	3.8335	3.8335	2.3000e-004	0.0000	3.8384

3.7 Paving - 2019

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	9.8500e-003	0.0993	0.0936	1.4000e-004		5.7800e-003	5.7800e-003		5.3300e-003	5.3300e-003	0.0000	12.4990	12.4990	3.8800e-003	0.0000	12.5804
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.8500e-003	0.0993	0.0936	1.4000e-004		5.7800e-003	5.7800e-003		5.3300e-003	5.3300e-003	0.0000	12.4990	12.4990	3.8800e-003	0.0000	12.5804

3.7 Paving - 2019

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	3.8000e-004	6.2000e-004	5.4400e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8000	0.8000	5.0000e-005	0.0000	0.8011
Total	3.8000e-004	6.2000e-004	5.4400e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8000	0.8000	5.0000e-005	0.0000	0.8011

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	9.8500e-003	0.0993	0.0936	1.4000e-004		5.7800e-003	5.7800e-003		5.3300e-003	5.3300e-003	0.0000	12.4990	12.4990	3.8800e-003	0.0000	12.5804
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.8500e-003	0.0993	0.0936	1.4000e-004		5.7800e-003	5.7800e-003		5.3300e-003	5.3300e-003	0.0000	12.4990	12.4990	3.8800e-003	0.0000	12.5804

3.7 Paving - 2019

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	3.8000e-004	6.2000e-004	5.4400e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8000	0.8000	5.0000e-005	0.0000	0.8011
Total	3.8000e-004	6.2000e-004	5.4400e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8000	0.8000	5.0000e-005	0.0000	0.8011

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.2070	0.5305	2.3923	5.1400e-003	0.3327	7.2100e-003	0.3399	0.0892	6.6500e-003	0.0958	0.0000	363.0017	363.0017	0.0163	0.0000	363.3449
Unmitigated	0.2070	0.5305	2.3923	5.1400e-003	0.3327	7.2100e-003	0.3399	0.0892	6.6500e-003	0.0958	0.0000	363.0017	363.0017	0.0163	0.0000	363.3449

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	244.24	508.36	430.97	889,178	889,178
Total	244.24	508.36	430.97	889,178	889,178

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	44.00	18.80	37.20	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462716	0.038748	0.210376	0.164659	0.051247	0.007290	0.016776	0.031161	0.003080	0.002164	0.008275	0.000799	0.002709

5.0 Energy Detail

~~5.1 Fleet Mix~~

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	76.8967	76.8967	3.4800e-003	7.2000e-004	77.1927
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	76.8967	76.8967	3.4800e-003	7.2000e-004	77.1927
NaturalGas Mitigated	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362
NaturalGas Unmitigated	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362

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	823941	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362
Total		4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362

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	823941	4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362
Total		4.4400e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	43.9686	43.9686	8.4000e-004	8.1000e-004	44.2362

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	264330	76.8967	3.4800e-003	7.2000e-004	77.1927
Total		76.8967	3.4800e-003	7.2000e-004	77.1927

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	264330	76.8967	3.4800e-003	7.2000e-004	77.1927
Total		76.8967	3.4800e-003	7.2000e-004	77.1927

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	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788
Unmitigated	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788

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	0.1111					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2773					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	0.0161	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788
Total	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788

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	0.1111					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2773					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	0.0161	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788
Total	0.4045	6.1200e-003	0.5289	3.0000e-005		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	0.8611	0.8611	8.4000e-004	0.0000	0.8788

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.7188	0.1512	3.6500e-003	16.0247
Unmitigated	11.7188	0.1512	3.6600e-003	16.0271

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.62594 / 2.91635	11.7188	0.1512	3.6600e-003	16.0271
Total		11.7188	0.1512	3.6600e-003	16.0271

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.62594 / 2.91635	11.7188	0.1512	3.6500e-003	16.0247
Total		11.7188	0.1512	3.6500e-003	16.0247

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.6297	0.3918	0.0000	14.8576
Unmitigated	6.6297	0.3918	0.0000	14.8576

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	32.66	6.6297	0.3918	0.0000	14.8576
Total		6.6297	0.3918	0.0000	14.8576

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	32.66	6.6297	0.3918	0.0000	14.8576
Total		6.6297	0.3918	0.0000	14.8576

9.0 Operational Offroad

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

Greenhouse Gas Emission Worksheet
N2O Mobile Emissions

Marina Veterans Housing

From CalEEMod Vehicle Fleet Mix Output:

Annual VMT: 889,178

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	54.7%	0.04	0.0218877	0.04	0.021888
Light Truck < 3750 lbs	4.5%	0.05	0.0022589	0.06	0.002711
Light Truck 3751-5750 lbs	20.3%	0.05	0.0101372	0.06	0.012165
Med Truck 5751-8500 lbs	12.2%	0.12	0.0145812	0.2	0.024302
Lite-Heavy Truck 8501-10,000 lbs	1.6%	0.12	0.0019376	0.2	0.003229
Lite-Heavy Truck 10,001-14,000 lbs	0.6%	0.09	0.0005529	0.125	0.000768
Med-Heavy Truck 14,001-33,000 lbs	2.0%	0.06	0.0011846	0.05	0.000987
Heavy-Heavy Truck 33,001-60,000 lbs	3.0%	0.06	0.0017967	0.05	0.001497
Other Bus	0.2%	0.06	0.0001487	0.05	0.000124
Urban Bus	0.2%	0.06	0.0001362	0.05	0.000114
Motorcycle	0.5%	0.09	0.000457	0.01	5.08E-05
School Bus	0.1%	0.06	4.092E-05	0.05	3.41E-05
Motor Home	0.1%	0.09	8.019E-05	0.125	0.000111
Total	100.0%		0.0551997		0.06798

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4 21 GWP
 N2O 310 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

Total Emissions **Total CO2e units**
 N2O Emissions: 0.0604 metric tons N2O **18.74** metric tons CO2e

Project Total: 18.74 metric tons CO2e

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
 in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
 Assume Model year 2000-present, gasoline fueled.
 ** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.



Appendix B
Biological Resources Studies



Appendix B.1
Arborist Report



Marina Veteran's Supportive Housing, Marina, CA EAH Housing/Veteran's Transition Center

Tree Evaluation and Construction Assessment Report

PREFACE

This report is an evaluation of trees growing on the Marina Veteran's Supportive Housing (EAH Housing/Veteran's Transition Center) project site in Marina, CA. The purpose of this evaluation is to evaluate the health and structural condition of the trees and assess construction impact. Reviewed was the city of Marina Ordinance Chapter 17.51 Tree Removal, Preservation, and Protection and, specifically, section 17.51.060 Tree Removal Permit.

James MacNair, principal of MacNair and Associates, ISA Certified Arborist WE-0603A, and ISA Qualified Tree Risk Assessor prepared this evaluation and report.

Unless expressed otherwise, the information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection. The inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in questions may not arise in the future.

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Assignment:

This report is an evaluation of trees growing on the Marina Veteran's Supportive Housing (EAH Housing/Veteran's Transition Center) project site in Marina, CA. The purpose of this evaluation is to evaluate the health and structural condition of the trees and assess construction impact. The 2.38-acre site is located at approximately 180 Hayes Circle.

Tree evaluations were performed on December 4, 2015. The tree evaluation data are provided in Appendix A of this report. Also provided are tree images depicting typical tree conditions and the topographical survey (prepared by Whitson Engineers dated 12/3/15) showing tree locations and tag numbers.

A total of 15 trees were evaluated and consist of one blackwood acacia (*Acacia melanoxylon*), one bushy yate (*Eucalyptus lehmanii*), six coast live oak (*Quercus agrifolia*), five Monterey cypress (*Hesperocyparis macrocarpa*) and two myoporum (*Myoporum laetum*). The individual tree data is provided in Appendix A of the report.

Included in this discussion are a description of the tree data and evaluation criteria used in this assessment. Grading and drainage plans were not reviewed, although the Concept Site Plan (prepared by HKIT Architects dated 12/2/15) was reviewed for the assessment of probable tree impact due to construction.

Tree and Site Summary Discussion:

The site topography is varied with the southwest portion of the site flat and the north and mid-sections having old graded slopes within the project limits. The soils are sandy. The native tree vegetation on the site appears to be limited to the coast live oaks with the Monterey cypress and other species all introduced. It is possible that the coast live oaks were also planted as part of the original landscape design.

The coast live oaks are small trees, limited in number, and all have low, dense structures in response to the coastal conditions. With the exception of two trees, the coast live oaks are rated in moderate condition. Three of the Monterey cypress are mature trees and located behind the existing structures. Two of the larger trees are rated in marginal condition due to structural issues and crown dieback. The two smaller trees have low, dense multiple trunk structures and rated in marginal structural condition.

The condition of the other landscape trees is generally poor. The blackwood acacia is in poor health and structural condition, the myoporum are mostly dead, and the bushy yate is in marginal structural condition.

A dense hedgerow of semi-mature Monterey cypress is located west of the project site. The canopy edge of the hedgerow is from 10 to 25 feet from the project property line.

Specific health and structural ratings and observations for the individual trees are provided in Appendix A of this report.

Construction Impact:

The Concept Site Plan indicates that all of the trees located within the property boundaries will require removal due to grading and construction requirements. Tree #15, a coast live oak is located outside the property limits, but is included in the evaluation due to its location in proximity to a bio-retention area at the north end of the site. The tree is located approximately 15 to 20 feet from the property line, with a significant impact not likely.

Tree protection fencing for both tree #15 and the Monterey cypress hedgerow are recommended for protection during construction. For reference, general tree protection specifications are included in this report.

Individual Tree Evaluations:

Following is a description of the various data used in the evaluations.

Tree #:

The trees have been assigned a number and are physically tagged as indicated on the site plan.

Common and Botanical Name (Species):

The botanical name and common name are provided for each tree.

Trunk Diameter and # of Trunks:

Trunk diameter refers to the measurement of the trunk diameter at 4.5 feet above grade. The # of trunks notes single or multiple trunk trees. Trunks must occur at or below 4.5 feet above grade for a tree to be considered as having multiple trunks for purposes of measurement.

Height and Crown Diameters:

These fields are approximate visual estimates of the tree's height and crown spread. Accuracy is within plus or minus 10% of the indicated estimate.

Health and Structural Ratings and Descriptions:

The following chart describes the health and structural rating system used in the evaluation. It is a rating of relative conditions such as vigor, the extent of decay, structure, and insect or disease problems. Good and moderate ratings indicate limited structural problems, acceptable vigor, and an absence of significant pest or disease problems. Poor and marginal ratings indicate serious health or structural problems especially if the tree is situated near structures or public areas. Trees rated as poor or marginal are often a high risk of structural failure.

Rating Chart:

3.0	Moderate (or better) condition	Normal and correctable problems of structure or pests and diseases.
2.0	Marginal condition	Indicates serious problems with structure, decay, or significant insect or disease problems.
1.0	Poor condition	Indicates very poor health, vigor, and/or hazardous structural condition

Trees may be rated between two conditions, such as 2.5 or 3.5. This rating indicates the tree does not precisely meet the criteria for either of the two categories and allows the rating system to be used as a continuum.

The comments and observations describe the basis for the health and structural rating. The specific pests, disease, and structural defects observed are described and identified, if possible.

This evaluation is of above ground structure only, and additional defects may exist at the root collar. Often, larger mature and over-mature trees require a root collar examination to evaluate the primary structural roots and root collar for decay and disease. In addition, an aerial inspection of the limb structure may be required.

Comments/Observations:

This is the summary discussion of the health and structural ratings as well as identification of any significant pest or disease issues or structural defects.

Suitability for Preservation Ratings:

Rating Factors:

Tree Health: Vigorous and healthy trees are better able to tolerate construction impacts including root loss or injury,

Structural Condition: Preserved trees should be structurally sound or have defects that can be effectively abated in areas near structures or high use areas.

Tree Age and Species: Older trees may have reduced ability to tolerate construction impacts and adapt to changed site conditions. Additionally, individual tree species have varying tolerances to environmental impacts and changes.

Rating Scale:

Good: Trees in good health and structural condition with high potential for longevity.

Moderate: Trees in fair health and/or with structural defects that may be abated with management procedures. Trees in this category require more intense management and monitoring and may have shorter life spans.

Poor: Trees in poor health and/or structural condition that cannot be effectively abated with treatment. These trees have a high risk of decline or structural failure regardless of management. Also included in this category are trees that are undesirable in a landscape setting or inappropriate for high use areas.

Tree Protection Zone (TPZ) and Critical Root Zone (CRZ):

A tree protection zone designated as a radial distance from the trunk establishes the area where tree protection procedures are required. The critical root zone is the radial area around the trunk where all root impacts should be avoided or mitigated with specialized procedures. Impacts in this zone are likely to affect tree health permanently and could potentially destabilize the tree.

Construction Impact:

A summary of potential impact to the tree from the proposed construction is described. Clearance distances and type of construction are considered as part of this assessment.

Tree Protection Procedures (General)

Development of the project infrastructure, including roads, utilities, drainage facilities, etc. will alter the natural terrain and affect existing trees growing close to the construction areas. Impacts will primarily occur as a result of the site grading requirements. The following guidelines are recommended to maximize tree survivability.

1.0 Tree Protection Zone

1.1 All construction activity (grading, filling, paving, landscaping) will respect a Tree Protection Zone (TPZ) around trees to be protected. The TPZ will be a distance of one-foot radial distance from the trunk for each one-inch of trunk diameter. Exceptions to this standard may occur depending upon the age and condition of individual trees.

2.0 Construction Observations and Supervision

- 2.1. All arboricultural and related soil work should be performed under the observation of an International Society of Arboriculture (ISA) Certified Arborist or City designated representative.
- 2.2. All specified arboricultural work should be completed prior to site grading (root pruning, canopy pruning, fencing, etc.)
- 2.3. The contractor is required to meet with the Supervising Arborist or City designated representative to review all the tree protection requirements.

3.0 Tree Protection Fencing

- 3.1 Fencing at a minimum of four feet in height and clearly marked to prevent inadvertent encroachment by heavy machinery should be installed either at the edge of the Tree Protection Zone (TPZ), the crown drip line (whichever is further from the trunk), or at the edge of the construction zone, if the construction zone protrudes into the TPZ. The Supervising Arborist, or City designated representative, should approve the location of the fencing. All fencing should be in place prior to any site grading.
- 3.2. Contractor should maintain the protection fencing and prohibit all access to fenced areas by construction personnel or equipment until all site work is completed.
- 3.3. All structures including construction trailers, equipment storage areas, and any other construction traffic are prohibited within fenced areas. Burning or debris piles are prohibited within fenced areas. No materials, equipment, spoil, waste, or washout water should be deposited or stored within fenced areas. Fences may not be moved without written permission of the Supervising Arborist or City designated representative.
- 3.4 If temporary access within a fenced area is determined to be necessary then a six-inch layer of bark mulch should be placed in all areas requiring access. This requirement for mulching should apply to all areas within the fenced area and subject to access. If equipment access is required, then the mulch should be overlaid with metal plates of sufficient thickness to adequately distribute bearing load.
- 3.5 Trunk protection planks shall be installed consisting of 2x4 wood planks placed over a closed-cell foam pad with straps binding the planks in place. This requirement shall apply to all trees where grading or construction activities occur within the TPZ.

4.0 Demolition/Site Clearing

- 4.1 A qualified arborist should review any tree removal work within 50 feet of a TPZ. Trees requiring removal should be felled away from protected trees. Roots of trees to be removed may require pruning with approved root cutting equipment prior to felling if intermingled with roots of retained trees.
- 4.2 Excavation equipment should operate from outside the TPZ. Brush and wood chips generated from tree and brush removal should be placed in the TPZ to a maximum depth of six inches.
- 4.3 All required pruning should conform to the pruning section of these guidelines.
- 4.4 All brush removal should be performed with hand equipment when within a TPZ.

5.0 Site Grading, Trenching, and Root Pruning

- 5.1 Keep site grading within designated construction zones. Grading cuts or trenching within the TPZ of a retained tree trunk requires special trenching procedures. Trenches should be dug manually with an air spade or with the use of a root cutting machine, rock cutter,

or other approved root-pruning equipment. This root-pruning trench should be placed one foot inside the edge of the grading cut or trench edge. The depth of the trench should equal the depth of the grading cut to a maximum depth of 40 inches.

- 5.2 A trench may be mechanically dug toward a tree until the edge of the TPZ is reached. From the edge of the TPZ, the special trenching procedures should apply.
- 5.3 Underground utilities, drain, and irrigation lines should be routed outside the TPZs. When lines must cross the TPZ, the lines should be bored or tunneled through the area at a depth approved by the supervising arborist. In these instances, a single shared utility conduit should be used to reduce impacts to trees.
- 5.4. Any roots one inch in diameter or larger requiring removal should be cut cleanly in sound tissue. The roots and surrounding soil should be moistened, and covered with a thick mulch (4") to prevent desiccation. No pruning seals or paints should be used on wounds. Cut and exposed roots should be protected from drying. A water absorbent material (i.e. burlap) should be secured at the top of the trench and should be draped over the exposed roots. This material should be kept moistened, and soil replaced as soon as practicable.
- 5.5 Use of retaining walls is recommended to protect retained trees rather than mass grading.
- 5.6. Fill placement areas covering 30% or more of the TPZ of trees larger than 24 inches dbh and over one foot in depth should be mitigated with a retaining wall or well. Installation of aeration systems may also be required depending upon the extent, depth, and type of the fill.
- 5.7 The established method for protecting trees subjected to deep grading fills is to construct a well around the trunk and install an aeration system over the root system at the original grade level. The aeration system utilizes perforated plastic pipe laid out in a radially spoked pattern from the tree well with vertical pipes providing connection to surface oxygen and water. This aeration system should facilitate drainage away from the trunk. The fill is then placed over the aeration system.
- 5.6 Porous pavements are recommended for use within the TPZ. Construction of the pavement sub-base should avoid grading cuts where possible.

6.0 Foundation and Wall Construction

- 6.1. Foundation construction within the TPZ of retained trees is recommended to be either a pier and grade beam construction that bridges root areas, cantilevered structures, or raised foundations using pier footings.
- 6.2 Wall construction within a TPZ should be a design that requires minimal excavation within the TPZ. Walls requiring over-excavation for tieback structures should not be used within a TPZ.

7.0 Site Drainage

- 7.1 All grading shall be designed to provide positive drainage away from the base of the tree trunk, and not create ponding within the TPZ.
- 7.2 Drainage features such as v-ditches and French drains will be utilized upslope from existing trees to divert runoff away from roots and the TPZ. These v-ditches are best-utilized downslope of any irrigated landscape areas.

8.0 Pruning and Cabling

- 8.1 Any tree pruning, cabling, or other similar activity that may be proposed as part of site construction will be included on site plans and be reviewed by a qualified arborist or City designated representative.
- 8.2 Pruning methods shall conform to the ANSI A 300-2001 Pruning Standard Practices and performed by an ISA Certified Arborist or Certified Tree Worker. Cabling or other support systems shall conform to the ANSI A 300 (part 3)-2000 Standard Practices

9.0 Tree Damage Mitigation

- 9.1 Trees damaged during construction shall be evaluated by the Supervising Arborist or City designated representative. Proper mitigation measures shall be specified and may include:
- a.) Pruning of damaged and dead wood.
 - b.) Installation of a drip irrigation system to provide supplemental irrigation for three to five seasons following damage.
 - c.) Proper low nitrogen fertilization timed to growth response and phenological development of the tree.
 - d.) Periodic risk assessment of tree.
 - e.) Replacement of tree per City requirements.
 - f.) Alleviation of severe compaction by vertical mulching with augers or hydraulic soil probes.
 - g.) Alleviation of surface compaction by light cultivation or raking and the application of mulch.

Site and Tree Images:



Tree #1, blackwood acacia in poor condition.



Trees #2 and #3, coast live oaks with low, dense, multiple trunk structures.



Tree #4, coast live oak in marginal condition with extensive branch and twig dieback.



Lower trunk structure of tree #4. Multiple trunks with included attachments.



Tree #5, a mature Monterey cypress. Significant branch dieback occurring in lower crown.



Dense structure and branch dieback of tree #5.



Tree #6, a mature Monterey cypress. Lower crown dieback is also occurring with this tree.



Co-dominant trunk structure of tree #6.



Tree #7, a bush yate (eucalyptus).



Lower trunk structure of tree #7. Tree may have partially collapsed in the past.



Tree #8, a mature Monterey cypress in moderate health.



The structure of tree #8 is rated as marginal due to the multiple trunk structure with trunk attachment defects.



Trees #9 and #10, young Monterey cypress.



View of tree #10 with low structure and significant branch dieback occurring.



Trees #11 and #12, coast live oaks.



Tree #11 and the low trunk structure. Tree is in moderate condition.



Tree #12 with severe dieback occurring.



Trees #13 and #14, myoporum that are mostly dead.



Tree #15, a coast live oak located outside the property boundaries, but may require tree protection.



Monterey cypress hedgerow located west of project site. Tree protection fencing recommended to prevent impact.

Appendix A

Individual Tree Data

Marina Veteran's Supportive Housing
Tree Assessment Data- Appendix A

(EAH Housing/Veteran's Transition Center)
Tree Evaluation Data

Health and Structural Rating Key:

- 3.0 = moderate or better condition
- 2.5 = marginal to moderate
- 2.0 = marginal condition
- 1.5 = poor to marginal condition
- 1.0 = poor condition

Suitability for Preservation Ratings:

- Good: Trees in good health and structural condition with high potential for longevity.
- Moderate: Trees in fair health and/or with structural defects that may be abated with treatment.
- Poor: Trees in poor health and/or structural condition that cannot be effectively abated with treatment.

Construction Impact Code:

- RC= Removal for Construction
- PI= Possible Impact
- NI= No Impact
- RR= Recommended for Removal Due to Condition

Tree #	Species	Trunk Diameter @ 4.5'	# of Trunks	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (Radius in Feet)	Critical Root Zone (Radius in feet)	Construction Impact	Impact Code
1	blackwood acacia (<i>Acacia melanoxylon</i>)	4"; 5.75"; 6"	3	12'±	10'±	1.5	1.5	Small tree with three trunks forming at grade. One trunk is prostrate. This tree is in decline with very low vigor and extensive branch and twig dieback.	Poor	N/A	N/A	Location within proposed grading limits. Removal required.	RC/RR
2	coast live oak (<i>Quercus agrifolia</i>)	3"; 6.5"±	2	10'±	12'±	3.0	3.0	Part of a two tree cluster. Low, dense structure with asymmetrical crown extending to east. No significant structural defects. Vigor and foliage density are moderate.	Good	N/A	N/A	Location within proposed grading limits. Removal required.	RC

Marina Veteran's Supportive Housing
Tree Assessment Data- Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	# of Trunks	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (Radius in Feet)	Critical Root Zone (Radius in feet)	Construction Impact	Impact Code
3	coast live oak	2"-5"	5+	8'±	12'±	3.0	3.0	Low, multi-trunk tree growing next to tree #2. Trunks form at grade with deep leaf litter covering base. Possibly more than one tree. No significant structural defects. Vigor and foliage density are moderate. Dead, collapsed Monterey pine is leaning on portion of tree.	Good	N/A	N/A	Location within proposed grading limits. Removal required.	RC
4	coast live oak	2"-5"	9±	10'±	15'±	2.0	2.0	Dense, multiple trunk trees with trunks forming at grade. Trunk attachments are included at base. Vigor and foliage density are variable with significant branch and twig dieback occurring.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC
5	Monterey cypress (Hesperocyparis macrocarpa)	30.5"	1	40'-45'±	40'-50'±	2.5	2.0	Mature tree with closely spaced, multiple limb attachments forming at 10'. Contortion in trunk at 10'. Tree has history of pruning with heading cuts locations evident. Tree has history of limb failure. Upper crown has large diameter and extended limbs. Lower trunk appears sound with good radial root distribution. Vigor and foliage density is variable with significant limb and branch dieback occurring in lower crown. Probable Seridium canker infections occurring and boring beetle damage.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC

Marina Veteran's Supportive Housing
Tree Assessment Data- Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	# of Trunks	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (Radius in Feet)	Critical Root Zone (Radius in feet)	Construction Impact	Impact Code
6	Monterey cypress	26.5"; 28.0"	2	45'-50'±	50'-55'±	2.5	2.5	Mature tree with co-dominant trunks forming at 3'. Wide trunk attachment angle. 28" trunk has closely spaced, multiple limb attachments forming at 6'-7' with upright form. 26.5" trunk has three trunks forming at 6'-7' with generally acceptable attachments. The primary trunk is vertical with extended, horizontal limbs. Lower trunk appears sound with good radial root distribution. Vigor and foliage density is variable with significant limb and branch dieback occurring in lower crown on east side.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC
7	bushy yate (<i>Eucalyptus lehmanii</i>)	10"; 11"; 13"	3	15'-18'±	30'-35'±	3.0	2.0	Low, multiple trunk structure with strong asymmetrical crown extending to east. In addition to the three primary stems there are numerous 3"-4" stems at base of trunk. Tree may have partially collapsed in past, but is now stable. Vigor and foliage density are moderate with limited branch dieback occurring.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC

Marina Veteran's Supportive Housing
Tree Assessment Data- Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	# of Trunks	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (Radius in Feet)	Critical Root Zone (Radius in feet)	Construction Impact	Impact Code
8	Monterey cypress	7"; 8" 8" 9" 10"; 11"; 12"; 12"; 14"; 15"	10	40'±	40'-50'±	3.0	2.0	Multiple trunk structure forming at 3' with limited included attachment. Symmetrical crown form and very dense branch and limb structure. Mostly vertical trunks. One trunk on south side is angled and then ascending. Probably the result of an old limb failure. One large diameter surface root extends to the walkway. Root system is likely extensive. Vigor and foliage density is moderate.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC
9	Monterey cypress	3"-6"	8	15'±	20'-30'±	3.0	2.0	Low, dense multiple trunk structure forming at grade. Low, open structure. Sap exudate widely present on trunks, although generally moderate vigor and foliage density.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC
10	Monterey cypress	2"-3"	8-10	12'±	15'-18'±	3.0	2.0	Low, dense multiple trunk structure forming at grade. Low, open structure. Sap exudate widely present on trunks, although generally moderate vigor and foliage density.	Moderate	N/A	N/A	Location within proposed grading limits. Removal required.	RC
11	coast live oak	11"; 13" (low)	8 @ 3'-5'	15'±	20'±	3.0	2.5	Low, co-dominant trunk structure and then multiple trunks at 3'-5'. Trunks probably originated as basal sprouts. Symmetrical and dense crown form. Vigor is moderate.	Good	N/A	N/A	Location within proposed grading limits. Removal required.	RC
12	coast live oak	6.5" (low)	1	10'±	15'±	1.5	3.0	Low, single trunk structure with symmetrical form. Very low vigor and foliage density with significant branch and twig dieback occurring. Possible Diplodia infection.	Poor	N/A	N/A	Location within proposed grading limits. Removal required.	RC

Marina Veteran's Supportive Housing
Tree Assessment Data- Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	# of Trunks	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (Radius in Feet)	Critical Root Zone (Radius in feet)	Construction Impact	Impact Code
13	myoporum (<i>Myoporum laetum</i>)	1"-3"	5+	10'±	15'±	1.0	1.0	Tree is mostly dead with severe dieback occurring. Myoporum thrip foliage damage.	Poor	N/A	N/A	Location within proposed grading limits. Removal required.	RC/RR
14	myoporum (<i>Myoporum laetum</i>)	1"-4"	6	12'±	15'±	1.0	1.0	Tree is mostly dead with severe dieback occurring. Myoporum thrip foliage damage.	Poor	N/A	N/A	Location within proposed grading limits. Removal required.	RC/RR
15	coast live oak	6.5"; 8"; 10.5"	3	18'±	20'-22'±	3.0	3.0	Low, multiple trunk structure with symmetrical crown form. Wide trunk attachments. No significant structural defects. Vigor and foliage density are moderate.	Good	18'	6'	Located outside property limits. Bio-retention area shown in vicinity of tree. Specific grading requirements require evaluation.	PI



LEGEND

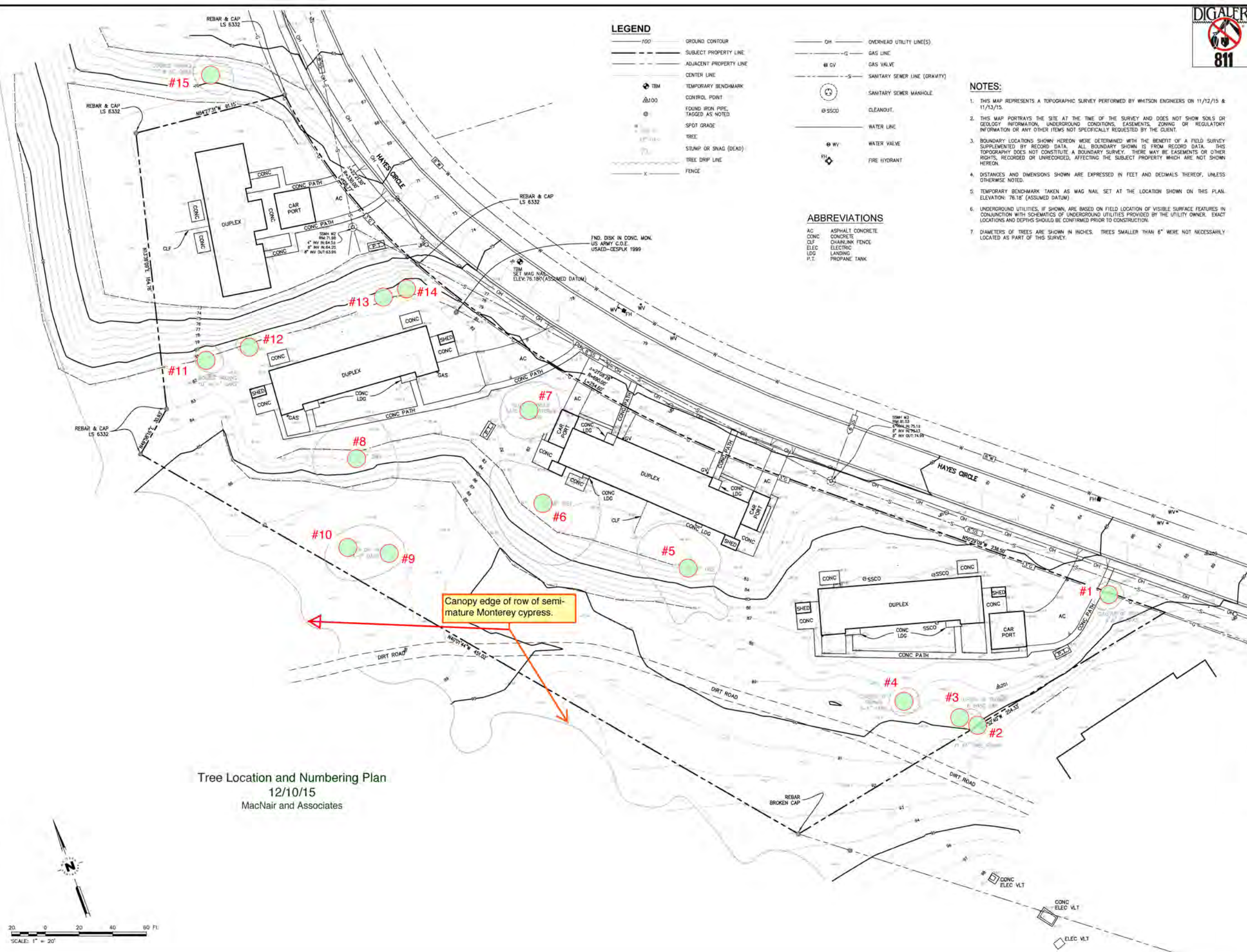
- 100 GROUND CONTOUR
- SUBJECT PROPERTY LINE
- ADJACENT PROPERTY LINE
- CENTER LINE
- TBM TEMPORARY BENCHMARK
- CONTROL POINT
- FOUND IRON PIPE, TAGGED AS NOTED
- SPOT GRADE
- TREE
- STUMP OR SHAG (DEAD)
- TREE DRIP LINE
- FENCE
- OH OVERHEAD UTILITY LINE(S)
- G GAS LINE
- GV GAS VALVE
- SS SANITARY SEWER LINE (GRAVITY)
- SSMH SANITARY SEWER MANHOLE
- SSCO CLEANOUT
- WL WATER LINE
- WV WATER VALVE
- FH FIRE HYDRANT

ABBREVIATIONS

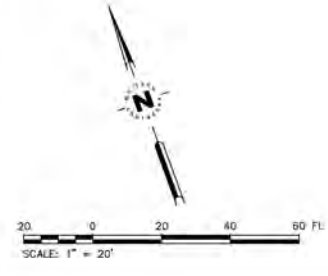
- AC ASPHALT CONCRETE
- CONC CONCRETE
- CLF CHAINLINK FENCE
- ELEC ELECTRIC
- LDC LANDING
- P.T. PROPANE TANK

NOTES:

1. THIS MAP REPRESENTS A TOPOGRAPHIC SURVEY PERFORMED BY WHITSON ENGINEERS ON 11/12/15 & 11/13/15.
2. THIS MAP PORTRAYS THE SITE AT THE TIME OF THE SURVEY AND DOES NOT SHOW SOILS OR GEOLOGY INFORMATION, UNDERGROUND CONDITIONS, EASEMENTS, ZONING OR REGULATORY INFORMATION OR ANY OTHER ITEMS NOT SPECIFICALLY REQUESTED BY THE CLIENT.
3. BOUNDARY LOCATIONS SHOWN HEREON WERE DETERMINED WITH THE BENEFIT OF A FIELD SURVEY SUPPLEMENTED BY RECORD DATA. ALL BOUNDARY SHOWN IS FROM RECORD DATA. THIS TOPOGRAPHY DOES NOT CONSTITUTE A BOUNDARY SURVEY. THERE MAY BE EASEMENTS OR OTHER RIGHTS, RECORDED OR UNRECORDED, AFFECTING THE SUBJECT PROPERTY WHICH ARE NOT SHOWN HEREON.
4. DISTANCES AND DIMENSIONS SHOWN ARE EXPRESSED IN FEET AND DECIMALS THEREOF, UNLESS OTHERWISE NOTED.
5. TEMPORARY BENCHMARK TAKEN AS MAG NAIL SET AT THE LOCATION SHOWN ON THIS PLAN. ELEVATION: 76.18' (ASSUMED DATUM)
6. UNDERGROUND UTILITIES, IF SHOWN, ARE BASED ON FIELD LOCATION OF VISIBLE SURFACE FEATURES IN CONJUNCTION WITH SCHEMATICS OF UNDERGROUND UTILITIES PROVIDED BY THE UTILITY OWNER. EXACT LOCATIONS AND DEPTHS SHOULD BE CONFIRMED PRIOR TO CONSTRUCTION.
7. DIAMETERS OF TREES ARE SHOWN IN INCHES. TREES SMALLER THAN 6" WERE NOT NECESSARILY LOCATED AS PART OF THIS SURVEY.



Tree Location and Numbering Plan
12/10/15
MacNair and Associates



MARINA

EAH HOUSING

TOPOGRAPHIC SURVEY

WHITSON ENGINEERS
 8669 Blue Larkspur Lane, Suite 105, Monterey, CA 93940
 831 649-9225 • Fax 831 373-6965
 CIVIL ENGINEERING • LAND SURVEYING • PROJECT MANAGEMENT

REGISTERED LAND SURVEYOR
 RICHARD P. WEBER
 No. 8002
 State of California

DATE: 12/03/15
 SCALE: 1" = 20'
 SHEET: 1 OF 1
 PROJECT: MARINA
 DRAWN BY: [blank]
 CHECKED BY: [blank]

MONTEREY COUNTY, CALIFORNIA
 APN 031-021-040



Appendix B.2
Rare Plant Report



Rincon Consultants, Inc.

437 Figueroa Street, Suite 203
Monterey, California 93940

831 333 0310

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June 22, 2016

Rincon Project Number: 15-02203

Taven M. Kinison Brown, Acting Planning Services Manager
Planning Services Division
City of Marina Community Development Department
209 Cypress Avenue
Marina, California 93933
Via email: tkinisonbrown@ci.marina.ca.us

**Subject: Rare Plant Survey Report for the Veterans Transition Center Project,
Marina, California**

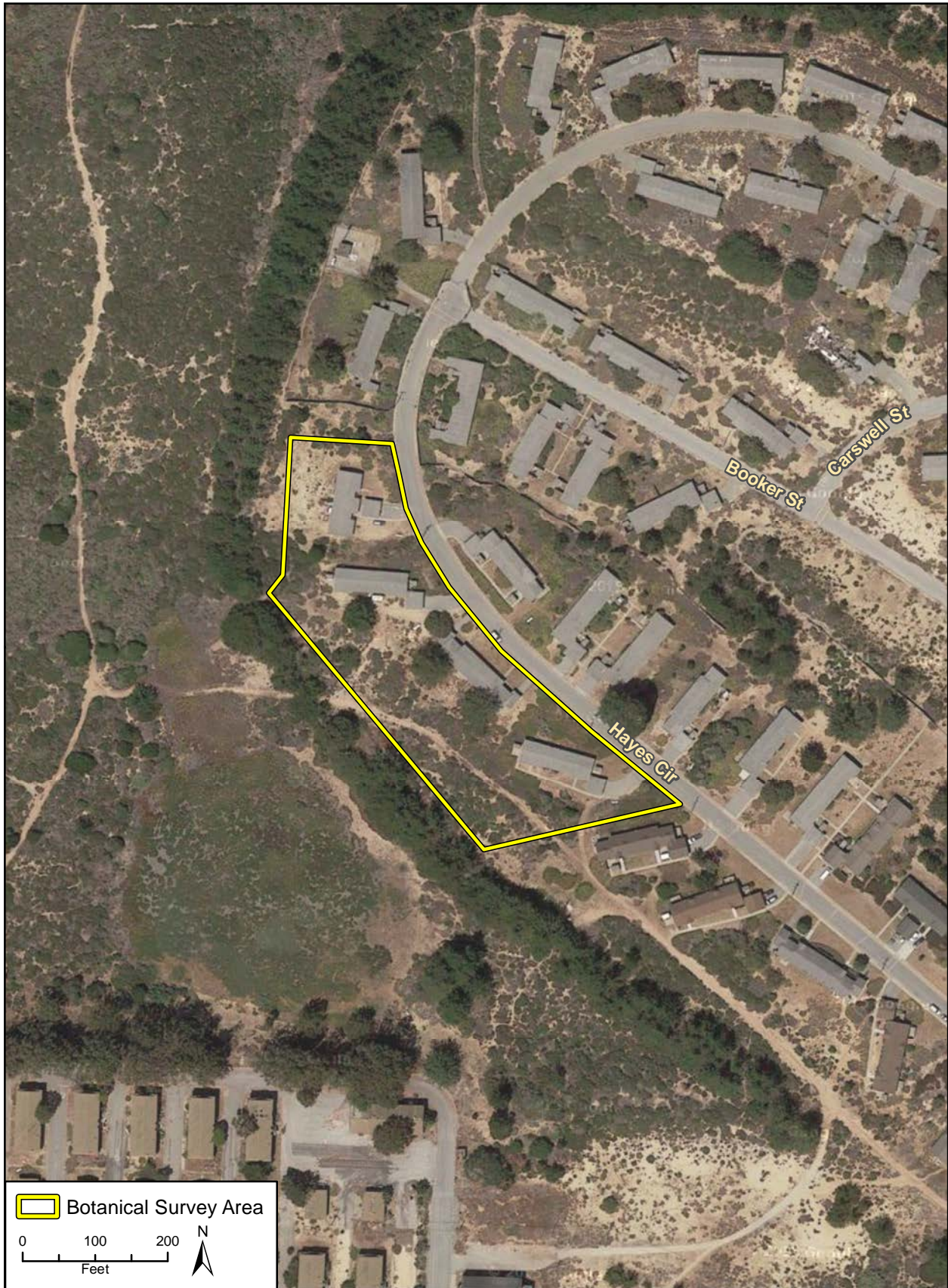
Dear Mr. Kinison Brown,

This report documents the findings of the rare plant surveys conducted by Rincon Consultants, Inc. (Rincon) for the Veterans Transition Center (project) in the City of Marina (City), California. A reconnaissance level survey conducted by a Rincon Consultants biologist in April 2016 to support preparation of an Initial Study - Mitigated Negative Declaration (IS-MND) identified potential habitat for special status plants, including federally listed species. Thus, a spring botanical survey was completed to identify botanical resources on the property, map the extent of all special status plants on the property, evaluate potential impacts to rare plants, and recommend appropriate mitigation measures for incorporation into the final IS-MND.

PROJECT LOCATION AND DESCRIPTION

The project site is located at 229 - 239 Hayes Circle, which was previously part of the former Fort Ord in Marina, Monterey County, California, but was transferred to the City as part of the decommissioning of Fort Ord. The approximately 2.95-acre project site encompasses Assessor's Parcel Number (APN) 031-021-040, located in (County), approximately one-quarter mile north of Imjin Parkway in the City of Marina (Figure 1). The approximate center of the project site is at latitude 36.671589° N and longitude 121.806747° W (WGS 84) and is depicted at the *Marina, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

The study area for this report encompasses the entirety of the approximately 2.95-acre parcel. The BSA is bordered by Hayes Circle on the east; and by an undeveloped area to the northwest, west and southwest, that extends approximately 1,000 feet to the west before ending at California State Route 1 "Cabrillo Highway" (Figure 1). The study area currently includes four vacant, single-story duplex structures. The surrounding area



Imagery provided by Google and its licensors ©2016.

Project Location

Figure 1





is currently developed with old army barracks that are no longer in use and a mixture of one-story duplexes and multi-family residences.

The proposed project would include demolition of the existing four on-site vacant duplex structures and construction of a 54,480 square foot, three-story, 72-unit apartment complex organized into a main building and a family wing, connected via a covered walkway. The proposed structures are intended to provide supportive housing for veterans, with a priority for homeless veterans. The project would also include community garden, community courtyard, and a children's playground. Parking would be located in the southeast portion of the property

REGULATORY BACKGROUND

Potential project-related impacts to botanical resources were analyzed on the basis of the following regulatory statutes and guiding documents:

- Federal Endangered Species Act (FESA);
- California Endangered Species Act (CESA);
- California Environmental Quality Act (CEQA);
- California Fish and Game Code (CFGC);
- City of Marina General Plan (2006)

Additionally, the project site is located within the boundaries of the Fort Ord Reuse Plan and is zoned for redevelopment (Fort Ord Reuse Authority, 1993). The goal of the Fort Ord Reuse Plan is to identify areas of the former Fort Ord that can be transferred to local jurisdictions to promote local economic development and housing opportunities. The Fort Ord Reuse Plan defines a specific Habitat Management Plan (HMP) to ensure protection of natural resources as defined by an agreement between the Army and the USFWS. The subject property was previously transferred to the City of Marina. Consistency with the Fort Ord Reuse Plan and applicability of the HMP and existing biological opinions that are in effect in the vicinity were also evaluated.

METHODOLOGY

Prior to conducting the field survey, Rincon reviewed a variety of literature to obtain baseline information about botanical resources with potential to occur in the BSA and in the surrounding areas, including resources reviewed during preparation of the administrative draft IS-MND. Rincon also conducted queries of several relevant scientific databases that provide information about occurrences of sensitive botanical resources:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDDB; 2016);
- CDFW Biogeographic Information and Observation System (BIOS; 2016);
- U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (2016)



- USFWS Information, Planning, and Conservation System Query (IPaC; 2016);
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (2016);
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (2016).

All queries were completed prior to field work. USFWS data sources were queried for the specific project area. CNDDDB and CNPS queries included special status plant occurrence data from within the *Marina, California* USGS 7.5-minute topographic quadrangle and any additional occurrences from within five miles of the site. Other sources of information used to evaluate the BSA include aerial photographs, topographic maps, geologic maps, climatic data, and general project plans. A complete list of the regionally occurring special status plant species reported from the scientific literature review and database queries was compiled for the BSA (Appendix A). . The CNDDDB, CNPS, and IPAC queries report 23 special status plant species from the vicinity that are ranked California Rare Plant Rank (CRPR) 1 or 2, and/or are federally or state listed. Additional CRPR 4 species are reported from the area; however, Rank 4 species are considered “watch list” species and these species do not typically warrant analysis under CEQA unless they are part of a unique community, from the type locality, or have local designation as rare or significant.

Based on results of the April 2016 and May 2016 site visits, several regionally occurring special status plant species were eliminated due to lack of suitable habitat within the BSA, range in elevation, and/or geographic distribution. Five special status plant species were identified as having the potential to occur on the project site based on suitable habitat: Monterey spineflower (*Chorizanthe pungens* var. *pungens*), Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*); Kellogg’s horkelia (*Horkelia cuneata* var. *sericea*), sandmat manzanita, and Eastwood’s goldenbush (*Ericameria fasciculata*).

Surveys were conducted according to the recommendations established by the California Department of Fish and Wildlife (CDFW, 2009), California Native Plant Society (2001), and USFWS (1996). Rincon Senior Ecologist/Botanist, Kristiaan Stuart conducted the botanical field surveys. Mr. Stuart performed reference site visits and field surveys of the project site on May 12 and May 13, 2016 (Table 1).

Table 1. Botanical Field Survey Parameters

Date	Observer	Time	Temperature Range	Winds (average)	Cloud Cover
05/12/2016	K. Stuart	19:00 to 20:00.	62 - 60°F	2-6 mph	70%
05/13/2016	K. Stuart	09:40 to 14:30	53 – 62°F	3-7 mph	60%, clearing to 25%

On May 12, 2016, Mr. Stuart visited reference populations for Monterey spineflower (*Chorizanthe pungens* var. *pungens*) and sand gilia (*Gilia tenuiflora* ssp. *arenaria*) prior to



conducting field surveys at the project site. Reference site visits were near Imjin Parkway, Imjin Road, and Abrams Drive. The Monterey spineflower reference population was in full bloom and the sand gilia reference population was found to be blooming but likely close to senescence. On May 13, 2016, Mr. Stuart visited a reference population of sandmat manzanita (*Arctostaphylos pumila*), which was in a vegetative state with several new leaves emerging from last year's growth. Reference site information is attached with Appendix A.

Within the same time frame that reference site visits confirmed status for special status plants with potential to occur in the study area, Mr. Stuart completed floristic surveys of the entire project site. The botanical field surveys were floristic in nature: all vascular plant species encountered onsite were identified to the lowest possible taxonomic level at the appropriate phenological stage (e.g., vegetative, flowering, fruiting) to determine presence or absence of special status plant species with potential to occur onsite. During field surveys, an inventory of all plant species observed was compiled, the existing vegetation communities were classified, and the general site conditions were documented. Plant species nomenclature and taxonomy followed *The Jepson Manual: Vascular Plants of California*, second edition (Baldwin et al., 2012). The botanist documented all plant species encountered during the surveys, and identified all species to the lowest possible taxonomic level. Intuitively controlled transects were walked throughout the entire BSA so that 100% visual inspection was achieved.

The Jepson Manual, Second Edition (2012), and a 10x hand lens aided in confirmation of species identity in the field. Mr. Stuart also collected and pressed some specimens for confirmation using a dissecting microscope at the office, with reference to the current edition of the Jepson eFlora (2016). Mr. Stuart mapped occurrences of special status plants using a Garmin handheld GPS and aerial photomaps. Rincon Graphics Staff interpreted field maps and GPS data onto figures presented herein.

EXISTING SITE CONDITIONS

The project site consists of four residential duplex structures surrounded by a matrix of native and non-native vegetation with previously disturbed and recolonized elements. Three land-cover types were identified on the site: central maritime chaparral; ruderal; and developed. Open sand areas are present within the chaparral habitat type. Vegetation classification used for the analysis was based on Holland (1986), Holland and Keil (1995), and Sawyer et al. (2009); but has been modified as needed to accurately describe the existing habitats observed onsite.

Ruderal areas are either barren or dominated (nearly exclusively) by iceplant (*Carpobrotus edulis*), non-native weedy species, and remnants of landscaping planted around the abandoned duplexes. Developed areas include existing structures, hardscapes and driveways.



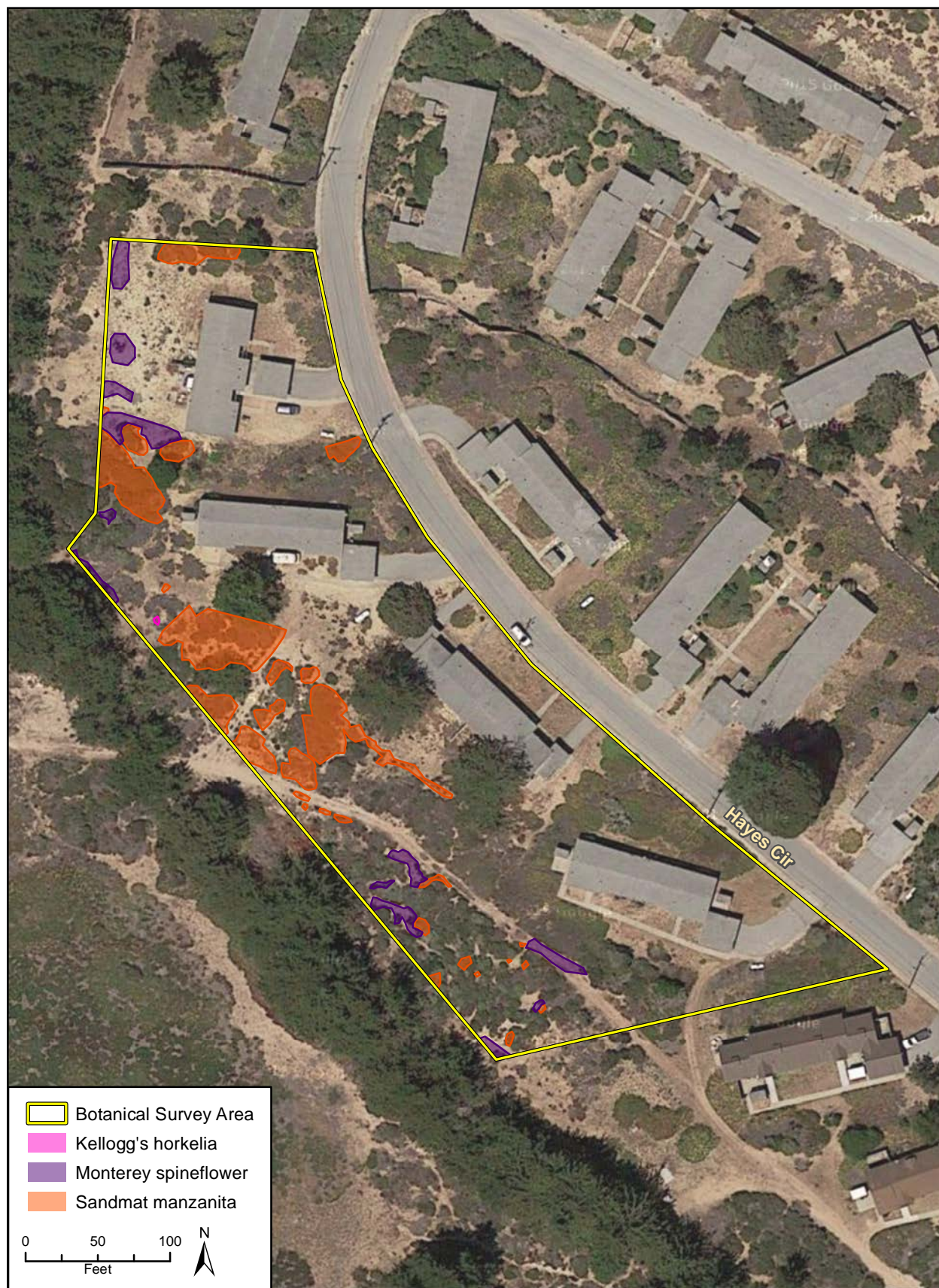
Highly disturbed central maritime chaparral is present along the western side of the project site. This habitat is dominated by black sage (*Salvia mellifera*), sand mat (*Cardionema ramosissimum*), chamise (*Adenostoma fasciculata*), sandmat manzanita (*Arctostaphylos pumila*), and ceanothus (*Ceanothus dentatus*), but also includes a lower abundance of other native plants such as coyote bush (*Baccharis pilularis*), deerweed (*Acmispon glaber*), California aster (*Corethrogyne filaginifolia*), California poppy (*Eschscholzia californica*), pygmy weed (*Crassula connata*), gilia (*Gilia* sp.), and rushrose (*Crocantemum scoparium*). This habitat has previously been disturbed by previous human activity and development, and as a result includes an abundance of non-native species. Maritime chaparral onsite is variable, and contains vegetation consistent with sandmat manzanita chaparral, chamise-black sage chaparral, and Eastwood manzanita chaparral as defined in the Manual of California Vegetation, 2nd Edition (Sawyer et al, 2009). Additionally, approximately 0.42 acre of open dune areas are present within the chaparral. Because chaparral and dunes are highly intermixed, these types were not separated to a finer level in mapping.

Coast live oak (*Quercus agrifolia*) and Monterey cypress (*Hesperocyparis macrocarpa*) are also present on the site. Although Monterey cypress and coast live oak are native to California, based on the known distribution of natural stands of Monterey cypress and oak woodland in the region, the individuals on the project site are not considered to be part of naturally occurring woodlands.

Soils are sandy. The USDA NRCS Web Soil Survey depicts one soil map unit overlapping the project site: Baywood sand, 2 to 15 percent slopes. Baywood sand, 2 to 15 percent slopes, is a somewhat excessively drained sandy soil on old sand dunes. It formed from stabilized aeolian (wind-blown) sand deposits, and typically occurs near the coast at low elevations (20 to 800 feet). Baywood sand typically has sand textures from the surface to at least 60 inches depth, and is typically moderately acidic. Organic matter content is low.

FLORISTIC SURVEY RESULTS

Floristic surveys in the project study area resulted in identification 50 species of vascular plants, and one lichen species, from 28 families. Appendix B contains a compendium of all plant and lichen species observed. Three special status plant species, Monterey spineflower (Federally Threatened; CRPR 1B.2), sandmat manzanita (CRPR 1B.2) and Kellogg's horkelia (CRPR 1B.1) are present on the project site. Table 2 summarizes roughly estimated number of individuals and occupied habitat for each of these species. Figure 2 illustrates the distribution of these species in the project area. Appendix C contains representative photos of the site and documentation of special status species.



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Botanical Resource Survey Results

Figure 2



Table 2. Special Status Plants on the Project Site.

Species	Number of Individuals	Estimated Occupied Area
Sandmat manzanita <i>Arctostaphylos pumila</i>	300	9,310 sq. ft. (0.2 acres)
Monterey spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i>	1,200	2,682 sq. ft. (0.06 acre)
Kellogg's horkelia <i>Horkelia cuneata</i> var. <i>sericea</i>	2	14 sq. ft. (<0.01 acre)

Rincon's biologist collected specimens for purposes of confirming field identifications and for preparing vouchers. Taxonomic identifications of the special status plant specimens were confirmed using a dissecting microscope and the Jepson eFlora (online). The physiognomy and coloration of Monterey spineflower is highly variable with different ages of the specimen and its precise growing location. Two closely related spineflowers, *Chorizanthe diffusa* and *C. cuspidata* are known from the region and have some similar characteristics. Characteristics of each could be seen in certain specimens of *C. pungens* var. *pungens* but were ruled out due to presence of definitive diagnostic features for Monterey spineflower, specifically perianth tube color and the outline configuration of the upper perianth margin.

Mr. Stuart also identified Monterey ceanothus (*Ceanothus rigidus*) and virgate eriastrum (*Eriastrum virgatum*) on the project site; these species are CRPR 4 species. Additionally, planted Monterey cypress (*Hesperocyparis macrocarpa*) grow in the project area; as noted above, although this plant is native to California and is considered rare in its native range, based on the known distribution of natural stands of Monterey cypress and oak woodland in the region, the individuals on the project site are not considered to be part of naturally occurring woodlands and thus are not treated as rare.

The site is not within designated critical habitat for any listed species.

DISCUSSION

The decision to close and dispose of the Fort Ord military base was considered a major federal action that could affect species listed under the FESA. The USFWS issued a final Biological Opinion on the disposal and reuse of former Fort Ord requiring that a habitat management plan be developed and implemented to reduce the incidental take of federally listed species and loss of habitat that supports such species (1993). A habitat management plan was prepared to assess impacts on vegetation and wildlife resources and provide mitigation for their loss associated with the disposal and reuse of former Fort Ord.

The Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord (United States Army Corps of Engineers, 1997), hereinafter referred to as the Habitat



Management Plan (HMP), established guidelines for the conservation and management of species and habitats on former Fort Ord lands by identifying lands that are available for development, lands that have some restrictions with development, and habitat reserve areas. The intent of the HMP was to establish large, contiguous habitat conservation areas and corridors to compensate for future development in other areas of the former base. The HMP identified what type of activities can occur on each parcel at former Fort Ord and parcels were designated accordingly. The HMP set the standards to assure the long-term viability of biological resources on former Fort Ord lands in the context of base reuse so that no further mitigation should be necessary for impacts to species and habitats considered in the HMP. The HMP does not authorize take of federally or state-listed species on transferred lands.

Based on our review of the HMP figures and online Fort Ord HMP Parcel Viewer, we have determined that this parcel is identified as L9.1.2 in the HMP, and is identified as a Development parcel that has been transferred out of federal management. The project site is located on a parcel designated as "Development" for which there are no management restrictions contained within the HMP. The HMP states that where possible habitat may be preserved within and around development areas. The 1993 Biological Opinion (U.S. Fish and Wildlife Service) stated that full development of these parcels is permitted but requires identification of sensitive biological resources within these parcels that may be salvaged for use in restoration activities within reserve areas.

While HMP species may be found in Development Areas, these parcels are not considered to be critical to the long-term viability of these species. The HMP does not authorize take of federally or state-listed species; however the conservation measures within the HMP are considered by the CDFW to be adequate mitigation for CEQA compliance for non-listed special status species (U.S. Army Corps of Engineers, 1997, page S-10). This plan does not cover all special status species with potential to occur in the region nor does it exempt future landowners from complying with federal, state, or local laws, ordinances, regulations, and statutes.

A BO was also issued by the USFWS to the Department of the Army in 1997 that addressed impacts to the federally listed Monterey spineflower on Fort Ord. In this BO, approximately 75% to 95% of the entire range of Monterey spineflower was reported as occurring within the boundaries of the former Fort Ord and Monterey spineflower was reported to also prefer disturbed grassland and scrub habitats. Surveys conducted throughout Fort Ord have identified Monterey spineflower and sand gilia in and near developed portions of Fort Ord, including on parcels adjacent to the project site (United States Army Corps of Engineers, 1997). The BOs determined that the loss of individuals of Monterey spineflower and sand gilia in some areas by new landowners is not expected to jeopardize the continued existence of this species, and once transferred to non-federal ownership, no federal permit will be required for removal of these plants. The project applicant, EAH Housing was awarded funding from the U.S. Department of Housing and Urban Development, Veterans Affairs Supportive Housing (HUD-VASH) for the design and construction of the Veterans Transition Center Project. This



federal funding functions as a federal nexus for the proposed project, and as such, consultation with USFWS is required.

Where possible, the HMP is referred to for mitigation for impacts to sensitive resources. If the HMP does not contain suitable mitigation for these resources, then additional measure are proposed below. For instance, the HMP does not does not authorize take of federally listed species on transferred lands.

Impacts to nonlisted Special Status Plants

The proposed project has potential to result in direct impacts to non-listed special status plants, sandmat manzanita and Kellogg's Horkelia. Sandmat manzanita and Kellogg's horkelia are not listed under the federal or state Endangered Species Act, are present on preserved lands in the Marina area, and the loss of individuals of each plant taxon observed on-site would not result in the substantial decline of local or regional populations for these plants. As such, impacts to sandmat manzanita and Kellogg's horkelia would be considered less than significant without mitigation.

Impacts to listed Special Status Plants

The proposed project has potential to result in direct impacts to Monterey spineflower, a federally threatened plant. As noted above, the project will use federal funds, thus, there is a federal action on the project. Under provisions of Section 7(a)(2) of the Federal Endangered Species Act (FESA), a Federal agency reviewing a proposed project within its jurisdiction must insure that actions "authorized, funded, or carried out by" a federal agency are not likely to jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated or proposed critical habitat for such species, unless the agency has been granted an exception allowing specified levels of incidental take otherwise prohibited by the FESA. The United States Fish and Wildlife Service (USFWS) generally implements the FESA for terrestrial and freshwater species.

The Fort Ord HMP does not authorize impacts to listed plants on lands that have been transferred. Avoidance and minimization measures are recommended to offset impacts to Monterey spineflower:

- Where feasible, avoid areas of occupied habitat during project construction and use.
- If Monterey spineflower cannot be feasibly avoided, Section 7 consultation would be required prior to project implementation. Consultation would be initiated as informal consultation between the action agency providing funding for the project, and the USFWS to evaluate potential effects on Monterey spineflower, and obtain authorization for activities that may affect Monterey spineflower. Avoidance, minimization, and/or mitigation measures developed through this consultation must be fully incorporated into the project design and implemented.



- An appropriate mitigation plan would be developed in accordance with these mitigation measures and submitted to the appropriate resource agencies for approval if impacts to Monterey spineflower cannot be avoided. A typical mitigation plan for Monterey spineflower must include the following components:
 - Identify a suitable conservation site, either onsite or offsite in a permanently protected area. The site should be suitable habitat but not currently occupied. Any existing noxious weeds such as ice plant or veldt grass should be removed prior to restoration work.
 - Contract with a qualified biologist to collect seed. Seed collection and storage must be authorized by USFWS. The biologist would collect all seed from the impact area when seed is ripe (typically June through August). The seed would be stored until the first fall rains.
 - The restoration biologist would then establish Monterey spineflower at the conservation site using the salvaged seed, via direct broadcast seeding and raking performed in the fall prior to the first winter rains. This method has proven to be effective at other sites in the Monterey Peninsula area with sandy soils and minimal competition from non-native plants.
 - Resprouts of ice plant, veldt grass, or other noxious weeds must be treated or pulled for the first year after planting, where feasible (avoid young spineflower plants).
 - The restoration area must be evaluated the following spring. If necessary, additional weed control must be completed.
 - A report outlining results must be submitted one year after seeding.
- A copy of all permits, or other correspondence stating that no permit is necessary, shall be filed with the City prior to land use clearing for grading. The City shall ensure that all the required documentation is received prior to initiation of construction activities and shall oversee implementation of the mitigation and restoration plans. Likewise, the City shall ensure that all the avoidance, minimization, and/or mitigation measures prescribed by the resource agencies are fully implemented.



Thank you for selecting Rincon to provide you with this biological technical study.
Please call if you have questions, or if we can be of further assistance.

Sincerely,
RINCON CONSULTANTS, INC.

Margaret Perry
Senior Botanist

Colby J. Boggs
Principal

Appendix A: Query Results and Reference Site Data
Appendix B: Floral Compendium
Appendix C: Photographs



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APPENDIX A. QUERY RESULTS AND REFERENCE SITES

CNDDDB, CNPS, and IPAC Query results are appended on the following pages.

Reference Site Information

Monterey Spineflower (*Chorizanthe pungens var. pungens*) located north of Imjin Parkway approximately 0.55 miles east of the intersection with Imjin Road (lat./long.: 36.663495, -121.781877, WGS 84). The Monterey spineflower reference population was in full bloom

Sand gilia (*Gilia tenuiflora ssp. arenaria*) located approximately 125 feet southeast from the southeast corner of the intersection of Imjin Parkway and Abrams Drive (lat./long.: 36.664822, -121.774597, WGS 84). The sand gilia reference population was found to be blooming but close to senescence.

Sandmat manzanita (*Arctostaphylos pumila*) located on the east side of California Drive off of Imjin Parkway (lat./long.: 36.665153, -121.797506, WGS 84), was visited. The sandmat manzanita was in a vegetative state with several new leaves emerging from last year's growth.



Selected Elements by Scientific Name
 California Department of Fish and Wildlife
 California Natural Diversity Database



Query Criteria: Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)
 AND Quad IS (Marina (3612167))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Allium hickmanii</i> Hickman's onion	PMLIL02140	None	None	G2	S2	1B.2
<i>Arctostaphylos hookeri ssp. hookeri</i> Hooker's manzanita	PDERI040J1	None	None	G3T2	S2	1B.2
<i>Arctostaphylos montereyensis</i> Toro manzanita	PDERI040R0	None	None	G2?	S2?	1B.2
<i>Arctostaphylos pajaroensis</i> Pajaro manzanita	PDERI04100	None	None	G1	S1	1B.1
<i>Arctostaphylos pumila</i> sandmat manzanita	PDERI04180	None	None	G1	S1	1B.2
<i>Castilleja ambigua var. insalutata</i> pink Johnny-nip	PDSCR0D403	None	None	G4T2	S2	1B.1
<i>Chorizanthe pungens var. pungens</i> Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
<i>Cordylanthus rigidus ssp. littoralis</i> seaside bird's-beak	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
<i>Ericameria fasciculata</i> Eastwood's goldenbush	PDAST3L080	None	None	G2	S2	1B.1
<i>Erysimum ammophilum</i> sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
<i>Erysimum menziesii</i> Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
<i>Gilia tenuiflora ssp. arenaria</i> Monterey gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
<i>Horkelia cuneata var. sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T2	S2?	1B.1
<i>Horkelia marinensis</i> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Microseris paludosa</i> marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
<i>Monardella sinuata ssp. nigrescens</i> northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2
<i>Piperia yadonii</i> Yadon's rein orchid	PMORC1X070	Endangered	None	G2	S2	1B.1
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1

Record Count: 19

CNPS *California Native Plant Society* Rare and Endangered Plant Inventory

Plant List

29 matches found. Click on scientific name for details

Search Criteria

Found in Quad 36121F7

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	Federal Listing Status	State Listing Status
Agrostis lacuna-vernalis	vernal pool bent grass	Poaceae	annual herb	1B.1		
Arctostaphylos pajaroensis	Pajaro manzanita	Ericaceae	perennial evergreen shrub	1B.1		
Castilleja ambigua var. insalutata	pink Johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	1B.1		
Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	annual herb	1B.1	FE	
Cordylanthus rigidus ssp. littoralis	seaside bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1		CE
Ericameria fasciculata	Eastwood's goldenbush	Asteraceae	perennial evergreen shrub	1B.1		
Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	1B.1	FE	CE
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	1B.1		
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	FE	
Lupinus tidestromii	Tidestrom's lupine	Fabaceae	perennial rhizomatous herb	1B.1	FE	CE
Piperia yadonii	Yadon's rein orchid	Orchidaceae	perennial herb	1B.1	FE	
Allium hickmanii	Hickman's onion	Alliaceae	perennial bulbiferous herb	1B.2		
Arctostaphylos hookeri ssp. hookeri	Hooker's manzanita	Ericaceae	perennial evergreen shrub	1B.2		
Arctostaphylos montereyensis	Toro manzanita	Ericaceae	perennial evergreen shrub	1B.2		
Arctostaphylos pumila	sandmat manzanita	Ericaceae	perennial evergreen shrub	1B.2		
Chorizanthe pungens var. pungens	Monterey spineflower	Polygonaceae	annual herb	1B.2	FT	
Erysimum ammophilum	sand-loving wallflower	Brassicaceae	perennial herb	1B.2		
Gilia tenuiflora ssp. arenaria	Monterey gilia	Polemoniaceae	annual herb	1B.2	FE	CT
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	1B.2		
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	1B.2		
Monardella sinuata ssp. nigrescens	northern curly-leaved monardella	Lamiaceae	annual herb	1B.2		
Corethrogyne leucophylla	branching beach aster	Asteraceae	perennial herb	3.2		
Astragalus nuttallii var.	ocean bluff milk-vetch	Fabaceae	perennial herb	4.2		

[nuttallii](#)

Ceanothus rigidus	Monterey ceanothus	Rhamnaceae	perennial evergreen shrub	4.2
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	4.2
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2
Castilleja latifolia	Monterey Coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	4.3
Chorizanthe douglasii	Douglas' spineflower	Polygonaceae	annual herb	4.3
Clarkia lewisii	Lewis' clarkia	Onagraceae	annual herb	4.3

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 22 June 2016].

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Contributors

[The Calflora Database](#)[The California Lichen Society](#)

Marina Veterans Transit Center

IPaC Trust Resources Report

Generated June 21, 2016 09:06 AM MDT, IPaC v3.0.7

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



Table of Contents

- IPaC Trust Resources Report [1](#)
- Project Description [1](#)
- Endangered Species [2](#)
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U.S. Fish & Wildlife Service

IPaC Trust Resources Report



NAME

Marina Veterans Transit Center

LOCATION

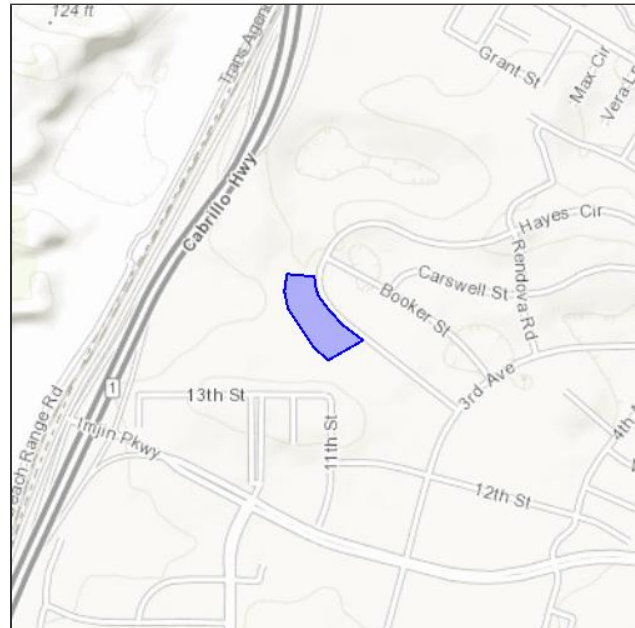
Monterey County, California

DESCRIPTION

Botanical Survey Report, May 2016

IPAC LINK

<https://ecos.fws.gov/ipac/project/HSL2G-FW5TF-F7FA4-S4XXV-K3MHMY>



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

(805) 644-1766

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[Section 7](#) of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog *Rana draytonii* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=D02D

California Tiger Salamander *Ambystoma californiense* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=D01T

Santa Cruz Long-toed Salamander *Ambystoma macrodactylum croceum* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=D000

Birds

California Condor *Gymnogyps californianus* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B002

California Least Tern *Sterna antillarum browni* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B03X

Least Bell's Vireo *Vireo bellii pusillus* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B067

Marbled Murrelet *Brachyramphus marmoratus* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B08C

Southwestern Willow Flycatcher *Empidonax traillii extimus* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B094

Western Snowy Plover *Charadrius alexandrinus nivosus* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B07C

Crustaceans

Vernal Pool Fairy Shrimp *Branchinecta lynchi* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=K03G

Fishes

Tidewater Goby *Eucyclogobius newberryi* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E071

Flowering Plants

Contra Costa Goldfields *Lasthenia conjugens* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q122

Marsh Sandwort *Arenaria paludicola* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q25H

Menzies' Wallflower *Erysimum menziesii* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q29W

Monterey Gilia *Gilia tenuiflora* ssp. *arenaria* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q2AJ

Monterey Spineflower *Chorizanthe pungens* var. *pungens* Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q271

Yadon's Piperia *Piperia yadonii* Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q3FA

Insects

Smith's Blue Butterfly *Euphilotes enoptes smithi* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=I00R

Mammals

Southern Sea Otter *Enhydra lutris nereis* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=A0A7

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.^[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data
<http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The following species of migratory birds could potentially be affected by activities in this location:

Allen's Hummingbird <i>Selasphorus sasin</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0LI	
Black Oystercatcher <i>Haematopus bachmani</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0KJ	
Black Swift <i>Cypseloides niger</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0FW	
Burrowing Owl <i>Athene cunicularia</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0NC	

Fox Sparrow <i>Passerella iliaca</i> Season: Wintering	Bird of conservation concern
Lesser Yellowlegs <i>Tringa flavipes</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0MD	Bird of conservation concern
Long-billed Curlew <i>Numenius americanus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B06S	Bird of conservation concern
Marbled Godwit <i>Limosa fedoa</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0JL	Bird of conservation concern
Nuttall's Woodpecker <i>Picoides nuttallii</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HT	Bird of conservation concern
Oak Titmouse <i>Baeolophus inornatus</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0MJ	Bird of conservation concern
Olive-sided Flycatcher <i>Contopus cooperi</i> Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0AN	Bird of conservation concern
Peregrine Falcon <i>Falco peregrinus</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0FU	Bird of conservation concern
Rufous-crowned Sparrow <i>Aimophila ruficeps</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0MX	Bird of conservation concern
Short-billed Dowitcher <i>Limnodromus griseus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0JK	Bird of conservation concern
Short-eared Owl <i>Asio flammeus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HD	Bird of conservation concern
Tricolored Blackbird <i>Agelaius tricolor</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B06P	Bird of conservation concern
Western Grebe <i>Aechmophorus occidentalis</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0EA	Bird of conservation concern

Whimbrel *Numenius phaeopus*

Season: Wintering

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=B0JN

Bird of conservation concern

Yellow Warbler *dendroica petechia* ssp. *brewsteri*

Season: Breeding

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=B0EN

Bird of conservation concern

Red Knot *Calidris canutus* ssp. *roselaari*

Season: Wintering

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=B0G6

Bird of conservation concern

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands in this location



APPENDIX B. FLORAL COMPENDIUM

Table B-1. Floral Compendium. All plant species and lichen species observed during surveys in 2016 are reported, sorted by Family and then Specific Epithet.

Family Name	Scientific name	Common name	Status
Plants			
Aizoaceae	<i>Carpobrotus edulis</i> **	Iceplant	
Asparagaceae	<i>Asparagus officinalis</i> *	Garden asparagus	
Asteraceae	<i>Agoseris heterophylla</i>	Annual mountain dandelion	
Asteraceae	<i>Agoseris hirsuta</i>	Woolly goat chicory	
Asteraceae	<i>Baccharis pilularis</i> ssp. <i>pilularis</i>	Coyote brush	
Asteraceae	<i>Corethrogyne filaginifolia</i>	Common sandaster	
Asteraceae	<i>Ericameria ericoides</i>	California goldenbush	
Asteraceae	<i>Ericameria nauseosa</i>	Rubber rabbitbrush	
Asteraceae	<i>Erigeron bonariensis</i> *	Flax-leaved horseweed	
Asteraceae	<i>Eriophyllum confertiflorum</i>	Golden yarrow	
Asteraceae	<i>Leontodon saxatilis</i> *	Hawkbit	
Asteraceae	<i>Logfia gallica</i> *	Narrow leaf cottonrose	
Boraginaceae	<i>Plagiobothrys</i> sp.	Popcorn flower	
Brassicaceae	<i>Lobularia maritima</i> **	Sweet alyssum	
Caryophyllaceae	<i>Loeflingia squarrosa</i>	Spreading loeflingia	
Caryophyllaceae	<i>Silene gallica</i> *	Windmill pink	
Cistaceae	<i>Cistus salvifolius</i> *	Sage leaf rockrose	
Cucurbitaceae	<i>Marah fabaceus</i>	California man-root	
Cupressaceae	<i>Hesperocyparis macrocarpa</i>	Monterey cypress	1B.2
Ericaceae	<i>Arctostaphylos glandulosa</i>	Eastwood's manzanita	
Ericaceae	<i>Arctostaphylos pumila</i>	Sandmat manzanita	1B.2
Fabaceae	<i>Acmispon glaber</i> var. <i>glaber</i>	Deerweed	
Fabaceae	<i>Trifolium angustifolium</i> *	Narrow leaved clover	
Fabaceae	<i>Trifolium</i> sp.	clover	
Fagaceae	<i>Quercus agrifolia</i>	Coast live oak	
Geraniaceae	<i>Erodium cicutarium</i> *	Red stemmed filaree	
Lamiaceae	<i>Salvia mellifera</i>	Black sage	
Myrsinaceae	<i>Lysimachia arvensis</i> *	Scarlet pimpernel	
Myrtaceae	<i>Eucalyptus lehmannii</i> *	Bushy yate	
Onagraceae	<i>Camissonia strigulosa</i>	Contorted primrose	
Onagraceae	<i>Camissoniopsis cheiranthifolia</i>	Beach evening-primrose	
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	
Pinaceae	<i>Pinus attenuata</i>	Knobcone Pine	
Plantaginaceae	<i>Plantago coronopus</i> *	Cut leaf plantain	
Poaceae	<i>Avena barbata</i> *	Slender oat	
Poaceae	<i>Bromus hordeaceus</i>	Soft brome	



Family Name	Scientific name	Common name	Status
Poaceae	<i>Festuca myuros</i> *	Rattail sixweeks grass	
Poaceae	<i>Festuca rubra</i>	Red fescue	
Poaceae	<i>Stipa pulchra</i>	Purple needle grass	
Polemoniaceae	<i>Eriastrum virgatum</i>	Virgate eriastrum	4.3
Polygonaceae	<i>Chorizanthe diffusa</i>	Diffuse spineflower	
Polygonaceae	<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower	FT / 1B.2
Rhamnaceae	<i>Ceanothus cuneatus</i>	Buck brush	
Rhamnaceae	<i>Ceanothus rigidus</i>	Monterey ceanothus	4.2
Rhamnaceae	<i>Frangula californica</i> ssp. <i>tomentella</i>	Hoary coffeeberry	
Rosaceae	<i>Adenostoma fasciculatum</i>	Chemise	
Rosaceae	<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's horkelia	1B.1
Rosaceae	<i>Rosa</i> sp.	Rose (ornamental)	
Scrophulariaceae	<i>Mimulus aurantiacus</i>	Bush monkey flower	
Solanaceae	<i>Solanum umbelliferum</i>	Blue witch nightshade	
Lichens			
Cladoniaceae	<i>Cladonia macilenta</i>	Lipstick powderhorn lichen	

*Indicates species that are not native to California

** Indicates invasive species listed in the California Invasive Plant Council's Online Inventory.

FT = Federally Threatened

Codes 1B.1, 1B.2, 4.2, and 4.3 indicate California Rare Plant Ranks



APPENDIX C. PHOTOGRAPHS



Photo 1. Ruderal-developed habitat located west of 229 Hayes Cir., Facing north. Photo taken May 12, 2016.



Photo 2. View of Ruderal-developed habitat west of 229 Hayes Cir Photo was taken May 12, 2016, facing approximately south.



Photo 3. Sandmat manzanita (foreground) and Ruderal-developed habitat. Photo was taken facing approximately northeast. May 13, 2016.



Photo 4. Sandmat manzanita. Photo taken May 13, 2016.



Photo 5. Monterey spineflower. Photo taken May 13, 2016.



Photo 6. Kellogg's horkelia. Photo taken May 13, 2016.



Photo 7. Sandmat manzanita in foreground and coastal dune habitat west of 239 Hayes Cir.
Photo taken May 13, 2016.



Appendix B.3
Biological Assessment

*City of Marina
Community Development Department,
Planning Services Division*

Veterans Transition Center Supportive Housing Project

Biological Assessment



October 2016

Rincon Consultants, Inc. 2016 (October). *Biological Assessment for the Veterans Transition Center Supportive Housing Project, City of Marina, County of Monterey, California*. Prepared for City of Marina Community Development Department, Planning Services Division. - 58+ pages.

BIOLOGICAL ASSESSMENT
FOR THE VETERANS TRANSITION CENTER
SUPPORTIVE HOUSING PROJECT

CITY OF MARINA
MONTEREY COUNTY, CALIFORNIA

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1.0 INTRODUCTION

EAH Inc. (EAH) has proposed to redevelop a parcel on the former U.S. Army Fort Ord (former Fort Ord) to create affordable permanent supportive housing with specific priority for homeless veterans, replacing four existing duplexes. The proposed housing complex (Proposed Action) would be managed by EAH, and the Veterans Transition Center of Monterey (VTC) would provide case management services. The Proposed Action would seek funding through a variety of sources, including the U.S. Department of Housing and Urban Development (HUD). HUD funding would be in the form of project-based vouchers through the Housing Authority of the County of Monterey. The City of Marina (City) has been delegated with responsibility to certify the National Environmental Policy Act (NEPA) document, an Environmental Assessment (EA). The City will also work with the U.S. Fish and Wildlife Service (USFWS) on HUD's behalf to comply with Section 7 of the federal Endangered Species Act (ESA). HUD has requested that the City provide the required information in the form of this Biological Assessment and communicate with USFWS to initiate and complete consultation, on HUD's behalf, as described in the attached letter, due to the presence and potential presence of federally listed species in the area encompassing the Proposed Action.

1.1 REGULATORY FRAMEWORK

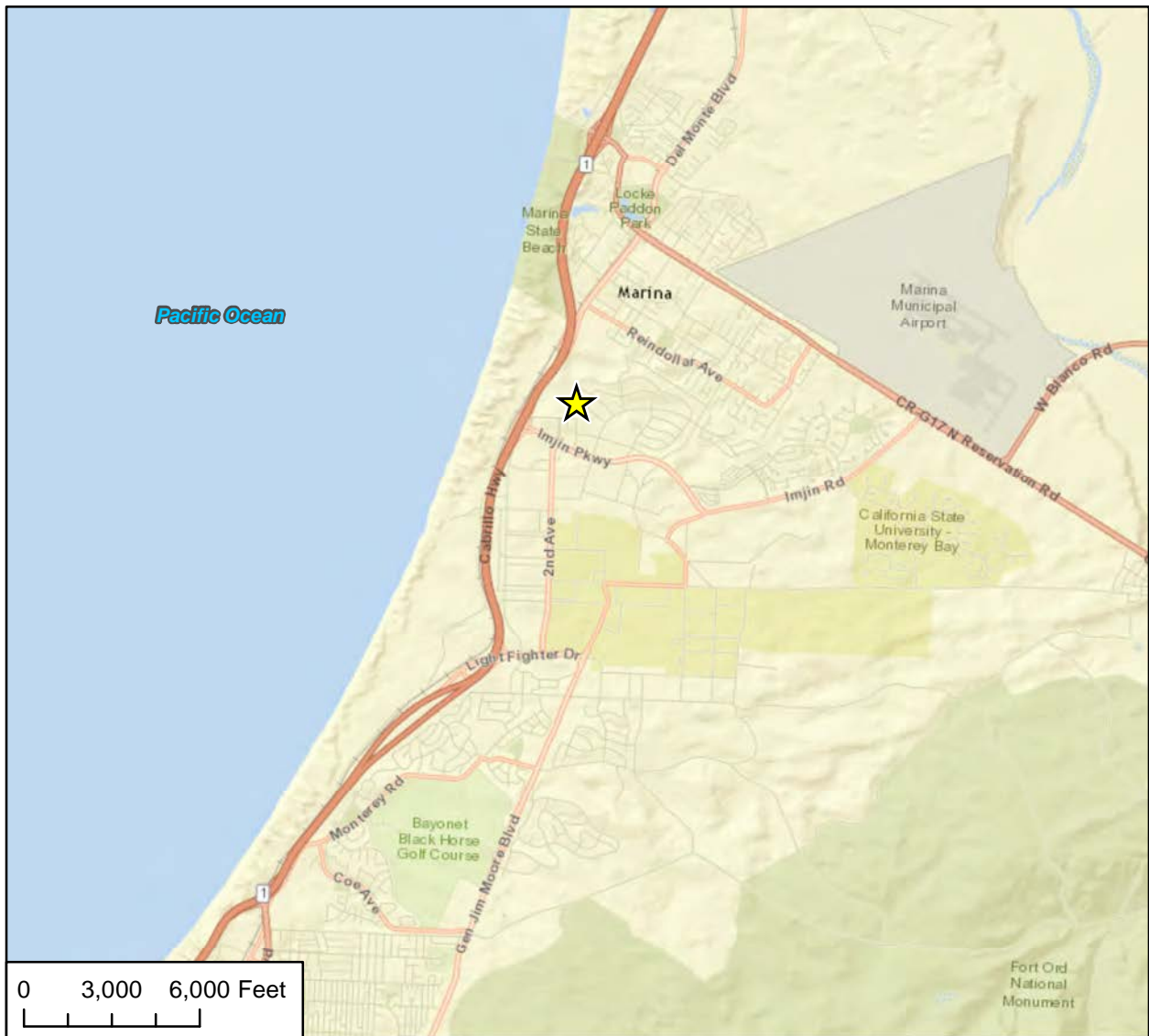
Under provisions of Section 7(a)(2) of the ESA, a federal agency reviewing a proposed project/action within its jurisdiction must insure that actions "authorized, funded, or carried out by" a federal agency are not likely to jeopardize the continued existence of a listed species or species proposed for listing, or result in the destruction or adverse modification of designated or proposed critical habitat for such species, unless the agency has been granted an exception allowing specified levels of incidental take otherwise prohibited by the ESA (see Appendix A – Regulatory Framework). "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. This determination is done in consultation with USFWS and National Marine Fisheries Service (NMFS), who share responsibility for implementing the ESA (16 USC § 153 *et seq.*). USFWS generally implements the ESA for terrestrial and freshwater species, while NMFS implements the ESA for marine and anadromous species. The Proposed Action evaluated in this report would not affect marine or anadromous species, thus only USFWS is discussed for the remainder of the report.

This Biological Assessment was prepared in accordance with the process outlined in Section 7(c) of the ESA (16 U.S.C. §1536(c)), using the best currently available scientific data.

1.2 PROPOSED ACTION LOCATION

The project site (hereafter referred to as Action Area) is located at 229 - 239 Hayes Circle, which was previously part of the former Fort Ord in Marina, Monterey County, California, but was transferred to the City as part of the decommissioning of Fort Ord. The approximately 2.64-acre Action Area encompasses Assessor's Parcel Number (APN) 031-021-040, located approximately one-quarter mile north of Imjin Parkway in the City of Marina (Figure 1). The approximate center of the Action Area is at latitude 36.671589° N and longitude 121.806747° W (WGS 84) and





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★ Project Location



Vicinity Map

Figure 1
City of Marina



is depicted at the *Marina, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The Action Area is bordered by Hayes Circle on the east; and by an undeveloped area to the northwest, west and southwest, that extends approximately 1,000 feet to the west of the Action Area before ending at State Route (SR) 1 “Cabrillo Highway” (Figure 1).

The approximately 2.64 acre Action Area analyzed in this Biological Assessment includes the entirety of the approximately 2.4-acre parcel, plus a small amount of the right of way along Hayes Circle for access and utilities. The Action Area encompasses all of the project components as described in the Description of Proposed Action, provided in full in Section 3: demolition of existing structures, construction of new apartments, parking, landscaping, utilities, and stormwater detention and infiltration facilities (Figure 2). The Action Area is described in detail in Section 4.





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Action Area

Figure 2

2.0 PURPOSE AND NEED OF PROPOSED ACTION

EAH and the VTC have partnered to develop a new residential project that would provide permanent rental housing for veterans, with a specific priority for homeless veterans. EAH is a nonprofit entity focused on providing affordable housing for low-income families and individuals. VTC is also a nonprofit organization, focused on providing housing for veteran individuals. VTC is located on the site of the former Fort Ord. Since its inception it has served 4,155 single veterans and 351 veterans with families (AEM 2016). The proposed housing project is intended to expand services offered by VTC through creation of more housing units with the express purpose of housing as many veterans as possible.

2.1 NEED FOR SUPPORTIVE HOUSING FOR VETERANS

As stated in the draft EA prepared for the Proposed Action (AEM 2016), the County of Monterey commissioned a comprehensive homeless census and needs assessment report in 2013. This point-in-time census found there were 2,590 homeless persons either in shelters or in non-shelter locations in Monterey County. The point-in-time estimate was then annualized to estimate the number of homeless individuals in a given year in the County. The report estimated the total number of homeless in the County at 6,423 homeless individuals in a given year. Specifically, the unincorporated areas of Monterey County have approximately 586 homeless persons (23% of the overall homeless population in the County). Most of these homeless persons living in the unincorporated areas (85%) were unsheltered. It is estimated that 12% of the homeless adult population are veterans. Thus, these reports indicate that there are between 1,300 and 1,800 homeless veterans in Monterey County alone (AEM 2016).

2.2 PURPOSE OF THE PROPOSED ACTION

The proposed project is a three-story, 71-unit apartment structure and associated parking and landscaping, intended to provide supportive housing for veterans, with a priority for homeless veterans. The facility would allow veterans to reside at the service-based property in perpetuity, as opposed to transitional housing which limits the tenure of tenants. A more detailed description of project features that would be developed if the Proposed Action is implemented is provided in Section 3.0. Affordable long-term housing for homeless veterans would directly address the need identified in Section 2.1



3.0 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action consists of demolition of the four existing on-site vacant duplex structures and construction of a three-story, 71-unit apartment complex organized into a main building and a family wing, connected via a covered walkway, as well as parking, landscaping and gardens, a community courtyard, and a children’s playground. The proposed structures are intended to provide supportive housing for veterans, with a priority for homeless veterans. Parking would be located in the southeast portion of the property.

Proposed Project Features

The proposed project is a three-story, 71-unit apartment structure intended to provide supportive housing for veterans, with a priority for homeless veterans. The facility would allow veterans to reside at the service-based property in perpetuity, as opposed to transitional housing which limits the tenure of tenants. The project is defined within the Marina Municipal Code (Section 17.04.698) as supportive housing, which is permitted in all residential zones. The proposed project would include demolition of the existing four on-site vacant duplex structures and construction of a 54,480 square foot, three-story, 71-unit apartment complex organized into a main building and a family wing, connected via a covered walkway. Located on a 2.4 acre-parcel, the project would have a residential density of 30 units per acre. Each of the proposed facilities is described below. The proposed site plan is attached as Appendix B.

Main Building. The main building would be situated at the front of the property along Hayes Circle and would include 64 studio apartments, each 475 square feet in size. The main building would include the following related facilities: entry area, common room, manager’s office, computer room, utility room, pet wash, laundry facilities, services office, meditation room, and fitness room.

Family Wing. The family wing would be situated at the rear of the project site, behind the main building and adjacent to the parking lot. The family wing would have seven two-bedroom apartments and would include covered bike storage on the ground floor. Each unit would be 950 square feet and have a private entry off of an interior hallway and a private outdoor patio. The family wing would be connected to the main building via covered walkways (one on each level) and have a separate entry off of the parking lot.

Grounds. Outdoor features of the proposed project would include a community garden, community courtyard, and a children’s playground. The community garden, with raised wooden planter boxes, storage shed, and work tables, would be located at the rear of the property. The ADA accessible community garden would feature stabilized decomposed granite paving and would be accessed via a concrete pathway. The community courtyard, with an outdoor grill, seat wall, and dining tables, would be located between the main building and family wing. The playground, with play structures for ages 2-5 and 5-12, would be located at the rear of the property, adjacent to the family wing and separated from the community garden by a retaining wall and vegetation screen. A six-foot high wooden fence would enclose the community gardens and playground.

Parking and Access. Parking would be provided in the southeast portion of the property, accessed via two entrances off of Hayes Circle. Sixty parking spaces would be provided, fifty of



which would be covered, carport spaces with solar photovoltaic cells utilized as the cover. Ten spaces would be uncovered, four of which would be handicap accessible. The existing informal, public trail at the southwestern edge of the property would be realigned off property. Additionally, bike parking for eight bikes would be provided in the entry plaza and space for eighteen bikes would be provided in the covered bike parking area on the ground floor of the family wing. Fire Department access would be through a fire truck turn-out.

Access to the main building would be provided through an entry courtyard featuring decorative concrete paving, a flagpole, and shore walls designed for comfortable seating (seat walls). Sidewalks would connect the courtyard to the street and parking lot. The family wing would be accessed via the covered walkways connecting the wing to the main building, or through a separate entry off of the parking lot.

Landscaping. Vegetation would be utilized as a windbreak along the property lines. Trees and shrubs would be used to separate the project from the public trail at the rear of the property and from Hayes Circle. Trees would also be used to screen the playground from the community garden and to provide shade. A bio retention basin would be located at the northern part of the property to treat stormwater and runoff. The bioretention basin would feature no-mow fescue and layered massing of water-conserving shrubs, grasses, and groundcovers. Shade trees would be used on the north facing sides of the project and in covered spaces. The landscaping plan would utilize a variety of plants to create layers of texture and color and complement the building's architecture. Irrigation for the landscaping would be a fully automatic, low gallon use drip system, designed to connect to the city's recycled water supply, when available.

Water Service. Water service would be provided to the facility, although the water source is still being determined. If additional service lines to the site are required to provide adequate water, these would be constructed along the existing road, according to local standards.

Sewer Service. Sewer service to the project site would be provided by the Marina Coast Water District (MCWD). A sanitary sewer manhole and pipe would be constructed along Hayes Circle, at the north end of the Action Area, per MCWD standards. The existing sanitary sewer manhole and pipe would be demolished.

Funding

Project financing is anticipated to be derived from several sources. The project has already been awarded a \$5.9 million loan through the California Department of Housing and Community Development's Veteran Housing and Homelessness Prevention (VHPP) program. In order to leverage these awarded funds, the project will also be seeking an award of 9% Low Income Housing Tax Credits through the California Tax Credit Allocation Committee. The Project additionally anticipates applying for funds through the Federal Home Loan Bank's Affordable Housing Program, as well as applying for project-based vouchers through the Housing Authority of the County of Monterey. These project-based vouchers would have funding backstopped by HUD and would provide subsidy for the 70 residential units operating at 30 percent (30%) of Area Median Income (AMI), also referred to as extremely low income units (EAH 2016; AEM 2016). The application for project-based vouchers necessitates a review of the project under NEPA, which as lead to preparation of this biological assessment.



Construction Access

Access for construction would utilize existing paved roads, including Hayes Circle and Booker Road.

Construction Footprint

The project is expected to disturb the majority of parcel 031-021-040. Some existing mature trees would be retained. However, to match final grades with existing topography outside the project footprint, construct the proposed stormwater basin features, build proposed structures and parking, create a new recreational park and landscape the site, it is anticipated that the majority of the Action Area would be disturbed. Additionally, utility work would occur within the existing paved roadway of Hayes Circle adjacent to the site.

Staging

Staging would take place on the subject parcel within the Action Area.

Equipment

Equipment expected to be used includes standard construction equipment, including loaders, graders, cranes, supply trucks, water trucks, and four-wheel-drive pick-up trucks.

Ongoing Maintenance

Upon completion of construction, it is anticipated that typical property maintenance activities associated with apartment complexes would occur, including landscape maintenance. The majority of the Action Area is anticipated to be altered such that native habitats are removed and potential for listed species is not present, thus maintenance activities are not anticipated to result in further impacts to native habitats or listed species.



4.0 ACTION AREA

The Action Area consists of the entirety of APN 031-021-040, which currently includes four vacant, single-story duplex structures. The surrounding area is currently developed with old army barracks that are no longer in use and a mixture of one-story duplexes and multi-family residences. An open space parcel is present to the west. Project-related disturbances are limited to parcel 031-021-040 and existing paved areas of Hayes Circle immediately adjacent. Access for construction equipment would be along existing paved roads.

4.1 LOCATION

As previously noted, the Action Area is within the former Fort Ord, east of SR 1, on the south side of Hayes Drive, in the central-southern portion of the City (refer to Figure 2). The Action Area is currently developed with four vacant duplex structures. The structures were built in the mid-20th century and were previously used as army barracks. The Action Area is adjacent to vacant duplexes that are part of the planned Cypress Knolls development, a senior residential community. The surrounding area is currently developed with old army barracks that are no longer in use and a mixture of duplexes and multi-family residences, all of which are one-story construction. The majority of the surrounding structures are abandoned and fenced off. An undeveloped open parcel is present to the west and south.

For the purpose of this BA, the Action Area is considered to include all project components: demolition of the previous structures, grading, construction of new apartments, onsite utilities, parking and recreational areas, development of the stormwater basin, landscaping, and related staging areas.

4.2 EXISTING ENVIRONMENT

The Action Area is located in northern coastal Monterey County where the moderate climate typifies a Mediterranean coastal climate throughout the year. The majority of rainfall occurs during the fall and winter months, and summers are cool with frequent coastal fog. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) National Water and Climate Center data for Monterey report mean annual precipitation as approximately 20.5 inches (USDA NRCS 2016a). Representative photographs of the Action Area are provided as Appendix C.

Elevations range from approximately 70 to 90 feet above mean sea level in the Action Area, which is within the Central Coast (CCo) geographic subregion of California. The CCo subregion is a component of the larger Central Western California geographic region, which occurs within the even larger California Floristic Province (Baldwin et al. 2012).

The Action Area is situated within the entirety of APN 031-021-040 and is surrounded by open space to the northwest, west and southwest with residential housing to the north, south and east. Approximately 1.65 acres within the Action Area consists of residential landscape and structures due to be vacated prior to construction. A dirt path, running north to south, bisects a portion of the Action Area. To the east of the dirt path, the majority of the area is disturbed and



has been planted with non-native ornamental grasses and shrubs consistent with a residential setting. West of the informal path, vegetation is less disturbed, dominated by native plants.

Topography of the Action Area is varied: the southwest portion of the site is relatively flat, while the central and northern portions of the site contain slopes. There is a slope of approximately 20% through the central portion of the site, rising approximately six feet, and there is a slope of approximately 60% through the northern portion of the site, rising approximately 12 feet. The overall site has a general slope downward from south to north, with the highest elevation (93 feet) at the southern edge of the site and the lowest elevation (71 feet) at the northern edge of the site. On-site vegetation is relatively sparse, with scattered live oaks, Monterey cypress, blackwood, and acacia trees. The majority of the trees on-site are in moderate to poor conditions. An informal trail runs along the southern edge of the Action Area, at the rear of the property.

4.2.1 Watershed and Drainages

The Action Area occurs within the Monterey Bay watershed (eight-digit Hydrologic Unit Code [HUC] 18060015), within the Central California Coastal Hydrologic Unit. The BSA slopes generally to the south and has no drainages within its boundaries, nor are any drainages present nearby. The closest features mapped by the National Wetlands Inventory are wetlands approximately 0.8 mile west, on the opposite side of SR 1 from the Action Area (USFWS 2016a). The closest features mapped by the National Hydrography Dataset are the Pacific Ocean approximately 0.62 mile west of the Action Area, on the west side of SR 1, perennial ponds in a City park approximately 1.12 miles north of the Action Area, and the Salinas River approximately 2.9 miles east of the Action Area at its nearest location (USGS 2016). No drainages, swales, ponds, or vernal pools are present in or near the Action Area, and due to the sandy soils and mostly gentle slopes, the site is not anticipated to generate much runoff in its current condition.

4.2.2 Soils

The USDA NRCS Web Soil Survey for the Monterey County, California survey area, one soil map unit occurs within the BSA: Baywood sand, 2 to 15% slopes, symbolized “BbC” on soil maps for the area (USDA NRCS, 2016b). This is a sandy soil commonly occurring on coastal terraces or sand dunes. A large portion of the Action Area was previously disturbed for construction of the existing structures and driveways. In remaining areas, soils are consistent with characteristics of Baywood sand soils.

Baywood sand, 2 to 15% slopes (BbC), is a somewhat excessively drained sandy soil on old sand dunes. It formed from stabilized aeolian (wind-blown) sand deposits, and typically occurs near the coast at low elevations (20 to 800 feet). Baywood sand typically has sand textures from the surface to at least 60 inches depth, and is typically moderately acidic. Organic matter content is low. This soil map unit is not included on the National Hydric Soils List for the state of California (United States Department of Agriculture, NRCS, 2016).



4.2.3 Terrestrial Habitat Types

Three terrestrial habitat or land-cover types are identified in the Action Area: central maritime chaparral; ruderal; and developed. Vegetation was classified and mapped during biological resource survey work conducted by Rincon Consultants, Inc. (Rincon) in April and May 2016 to characterize the site and survey for rare plants (Rincon 2016a; 2016b). The habitat and land-cover types are mapped in Figure 3, and acreages are summarized in Table 1. Coast live oak (*Quercus agrifolia*) and Monterey cypress (*Hesperocyparis macrocarpa*) are also present. Although Monterey cypress and coast live oak are native to California, based on the known distribution of natural stands of Monterey cypress and oak woodland in the region, the individuals in the Action Area are not considered to be part of any naturally occurring woodlands. No aquatic habitats are present in or immediately adjacent to the Action Area.

Table 1. Habitat Types in the Action Area

Habitat Type	Acreage in the Action Area	Percent of Total Area in Action Area
Developed Areas	0.50	19
Ruderal	1.15	43.5
Maritime Chaparral	0.99	37.5
Total	2.64	100.0

Developed Areas

Developed areas are located where existing structures and driveways occur. For this study, abandoned landscaped areas are not included with developed areas; rather they are mapped with ruderal areas (see next paragraph) due to the abundance of non-native plants naturalized in these areas. Developed areas are not classified in the Manual of California Vegetation, 2nd Edition (MCV2; Sawyer et al, 2009).

Ruderal

Ruderal areas are present along the margins of the developed areas in-between the existing buildings and along Hayes Circle at the east edge of the Action Area. Ruderal areas are either nearly barren, consist of dead landscaping, or are dominated (nearly exclusively) by iceplant (*Carpobrotus edulis*). A review of aerial photos indicates that this vegetation type is common in areas that were formerly landscaped. Some ruderal communities, including iceplant mats, are classified in the MCV2 (Sawyer et al, 2009). The iceplant-dominated areas are consistent with the Ice plant mats Herbaceous Semi-Natural Alliance described in the MCV2. Other ruderal areas present onsite are not defined in the MCV.

Maritime Chaparral

Disturbed central maritime chaparral is present along the western side of the Action Area. This habitat is dominated by black sage (*Salvia mellifera*), sand mat (*Cardionema ramosissimum*), chamise (*Adenostoma fasciculata*), sandmat manzanita (*Arctostaphylos pumila*), and ceanothus (*Ceanothus dentatus*), but also includes a lower abundance of other native plants such as coyote bush (*Baccharis pilularis*), deerweed (*Acmispon glaber*), California aster (*Corethrogyne filaginifolia*),





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Vegetation Communities

Figure 3

California poppy (*Eschscholzia californica*), pygmy weed (*Crassula connata*), and rushrose (*Crocianthemum scoparium*).

This habitat is highly disturbed by previous human activity and development, and as a result includes an abundance of non-native species. Maritime chaparral onsite is variable, and contains areas of vegetation consistent with Sandmat manzanita chaparral Provisional Shrubland Alliance, the Chamise-black sage chaparral Shrubland Alliance, and the Eastwood manzanita chaparral Shrubland Alliances as defined in the Manual of California Vegetation, 2nd Edition (Sawyer et al., 2009). Approximately 0.42 acre of open sand area is present within the chaparral habitat. Because chaparral types and sandy openings are highly intermixed, these types are not separated to a finer level in mapping, but sandy openings are easily discerned on aerial imagery of the site.

4.2.4 Former Fort Ord: Previous Environmental Analysis and Biological Opinions

The decision to close and dispose of the Fort Ord military base was considered a major federal action that could affect species listed under the ESA. The USFWS issued a final Biological Opinion on the disposal and reuse of former Fort Ord requiring that a habitat management plan be developed and implemented to reduce the incidental take of federally listed species and loss of habitat that supports such species (1993). Subsequent biological opinions were later issued to further address the effects of base closure activities on listed species and designated critical habitats. The Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord (United States Army Corps of Engineers, 1997), hereinafter referred to as the Habitat Management Plan (HMP), was prepared to assess impacts on vegetation and wildlife resources and provide mitigation for their loss associated with the disposal and reuse of former Fort Ord. The Fort Ord Reuse Plan was also developed to guide transfer of portions of former Fort Ord to local jurisdictions to promote local economic development and housing opportunities. The following sections summarize key points from these documents and discuss how the previous analysis and biological opinions contribute to analysis of the currently Proposed Action. Species-specific information from these documents is discussed more fully in Section 6.

Fort Ord Reuse Plan and FEIR

The Action Area is located within the boundaries of the Fort Ord Reuse Plan and is zoned for redevelopment (Fort Ord Reuse Authority, 1997). The Fort Ord Reuse Authority (FORA) developed the Fort Ord Reuse Plan to identify areas of the former Fort Ord that can be transferred to local jurisdictions to promote local economic development and housing opportunities.

The Fort Ord Reuse Plan identified land uses proposed for future redevelopment of former Fort Ord Lands, and planned for conservation of key resource areas and corridors as open space. The Fort Ord Reuse Plan project includes implementation of the HMP measures as a component of the project, and states that this is a critical component of successful re-use of former Fort Ord lands. The Fort Ord Reuse Plan includes the Fort Ord Installation-Wide Multi Species Management Plan Implementation Management Agreement as an appendix; this agreement defines the rights and obligations of FOR A, member agencies, California State University (CSU), and the University of California (UC) regarding implementation of the Plan. The Plan is discussed in the next subsection.



City of Marina Biological Resources Policy A-7 of the Fort Ord Reuse Plan specifies, “Where possible, the City shall encourage the preservation of small pockets of habitat and populations of HMP species within and around developed areas (Fort Ord Reuse Authority, Volume 2).” Further, Program A-7.3 of the Reuse Plan Elements specifies, “Program A-7.3: Where development will replace existing habitat which supports sensitive biological resources, the City shall encourage attempts to salvage some of those resources by collecting seed or cuttings of plants, transplanting vegetation, or capturing and relocating sensitive wildlife species.” (Fort Ord Reuse Plan Volume 2, FOR A et al. 1997).

The Final EIR referred to the implementation of HMP measures in determining a less than significant impact to biological resources through implementation of the Fort Ord Reuse Plan due to loss of sensitive species and habitats addressed in the HMP within the City of Marina (FORA et al. 1997; Volume 4).

Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord (HMP)

The HMP established guidelines for the conservation and management of species and habitats on former Fort Ord lands by identifying lands that are available for development, lands that have some restrictions with development, and habitat reserve areas. The intent of the HMP was to establish large, contiguous habitat conservation areas and corridors to compensate for future development in other areas of the former base. The HMP identified what type of activities could occur on each parcel at former Fort Ord and parcels were designated accordingly. The HMP also identified areas to be preserved. Four principal entities were identified in the HMP as recipients of the largest and most important conservation areas and corridors: Bureau of Land Management (BLM), UC, California Department of Parks and Recreation, and Monterey County.

The HMP set the standards to assure the long-term viability of biological resources on former Fort Ord lands in the context of base reuse so that no further mitigation should be necessary for impacts to species and habitats considered in the HMP. However, the HMP does not authorize take of federally or state-listed species on transferred lands. The HMP governs actions taken by the Army to decommission the base, but does not directly provide take coverage to properties that have been transferred out of Army ownership. However, the HMP is a valuable resource to evaluate former Fort Ord sites in the context of previous environmental analysis, a large dataset regarding species occurrence and distribution in the vicinity, and avoidance, minimization, and mitigation techniques that have been field-tested.

The Action Area was previously transferred to the City of Marina and is no longer under U.S. Army control. Based on a review of the HMP figures and the online Fort Ord HMP Parcel Viewer, this parcel is identified as L9.1.2 in the HMP, and is identified as a Development parcel that has been transferred out of federal management. The Proposed Action would occur on a parcel designated as “Development” for which there are no management restrictions contained within the HMP. The HMP states that, where possible, habitat may be preserved within and around development areas. The anticipated use of the Action Area identified in the HMP was for development without restriction.

While HMP species may be found in Development Areas, these parcels are not considered to be critical to the long-term viability of these species. The HMP allows for development of these



parcels, but it also requires identification of sensitive biological resources within these parcels that may be salvaged for use in restoration activities within reserve areas (U.S. Army Corps of Engineers, 1997 p. 4-3). This plan does not exempt future landowners from complying with federal, state, or local laws, ordinances, regulations, and statutes: the HMP does not authorize take of federally or state-listed species by land recipients (U.S. Army Corps of Engineers, 1997, page S-9). The HMP was intended to serve as the foundation for agreements between recipient landowners and USFWS, and no additional mitigation was anticipated to be required for recipients complying with the measures identified in the HMP (United States Army Corps of Engineers, 1997, p. S-9).

Surveys conducted throughout Fort Ord have identified Monterey spineflower and sand gilia in and near developed portions of Fort Ord, including on parcels adjacent to the Action Area (United States Army Corps of Engineers, 1997).

Fort Ord Habitat Conservation Plan (HCP)

FORA has been working on a Habitat Conservation Plan (HCP) since 1996. An administrative draft was released in March 2012 for agency review. The Fort Ord HCP has not been finalized or adopted and is therefore not applicable to the Proposed Action.

Fort Ord Previous Biological Opinions

As noted above, the decision to close and dispose of the Fort Ord military base, and the associated decommissioning actions constituted a major federal action that could affect species listed under the ESA. The USFWS issued a final Biological Opinion in 1993 regarding the base closure, with subsequent biological opinions relevant to closure of Fort Ord issued in 1993, 1997, 1999, 2002, 2005, 2007, and 2015. Biological opinions issued August of 2011 and April of 2014 are regarding specific sites and activities that do not affect the Action Area. Table 2 provides the date of the Biological Opinion, the action it addressed, and a summary of the information presented relevant to the analysis presented in this Biological Assessment.



Table 2. Summary of Fort Ord Decommissioning Biological and Conference Opinions

Date Issued	Subject of Opinion	Relevant Species* Discussed	Key Points
10/19/1993	Disposal and Reuse of Fort Ord	Sand gilia	<p>Requires preparation of a multi-species Habitat Management Plan in cooperation with CDFG and USFWS.</p> <p>Assumed that lands transferred for development would result in complete removal of resources from those lots. Destruction/removal of individual plants anticipated in development areas, found not likely to jeopardize continued existence of the species.</p> <p>Once transferred to non-federal ownership, a federal permit would not be required for removal of listed plants (except as required by State law or another Federal Action).</p>
1/31/1997	Closure and Reuse of Fort Ord	<p>Monterey spineflower</p> <p>Monterey gilia</p> <p>Yadon's piperia (no effect)</p>	<p>Considered December 1996 HMP draft, in which some parcels are designated for development with no restriction for management of biological resources. Assumed these parcels would be entirely developed.</p> <p>Concurred that Yadon's piperia would not be affected by the Proposed Action.</p> <p>Estimated disposal and reuse, and subsequent development of lands would result in removal of 806 acres of sand gilia habitat, and conservation of 2,951 acres, including 96% of high density stands, of sand gilia habitat.</p> <p>Estimated disposal and reuse, and subsequent development of lands would result in removal of 3,204 acres of Monterey spineflower habitat, and conservation of 7,198 acres of Monterey spineflower habitat.</p> <p>Determined that the loss of individuals of Monterey spineflower and sand gilia in some areas by new landowners is not expected to jeopardize the continued existence of these species.</p>
4/15/1997	Closure and Reuse of Fort Ord – reinitiate consultation to reflect updated information on predisposal activities	<p>Monterey spineflower</p> <p>Monterey gilia</p>	<p>Updated description of Proposed Action to include updated information on predisposal activities, and included April 1997 HMP version information. Analysis of disposal and re-use of development lands is unchanged.</p>
3/30/1999	Closure and Reuse of Fort Ord –added Contra Costa Goldfields and groundwater remediation activities	<p>Monterey spineflower</p> <p>Monterey gilia</p>	<p>This opinion analyzed effects on endangered Contra Costa goldfields in addition to previously analyzed species. Also considered additional activities during closure, specifically groundwater remediation, determined as likely to adversely affect Monterey spineflower and sand gilia, but would not jeopardize continued existing of these species. Analysis of disposal and reuse activities for designated development lands remains consistent with previous.</p>



Date Issued	Subject of Opinion	Relevant Species* Discussed	Key Points
10/22/2002	Closure and Reuse of Fort Ord as it affects Monterey spineflower critical habitat	Monterey spineflower – critical habitat	This opinion analyzes effects of closure and reuse of former Fort Ord specifically in regard to designated critical habitat for Monterey spineflower, none of which overlaps the Action Area for this Biological Assessment.
3/14/2005	Cleanup and Reuse of Former Fort Ord, as it affects California tiger salamander (CTS) and Contra Costa goldfields	CTS	This opinion analyzes effects on CTS, which was listed as threatened in 2004. Development parcels with potential or known habitat for CTS are south and southeast of and do not include the Action Area. The opinion states that specific reuse projects following transfer or land must be analyzed for potential effects on CTS under Section 7 or Section 10 of ESA, as appropriate.
6/1/2007	Cleanup and Reuse of Former Fort Ord, as it affects CTS and Contra Costa goldfields, Amended	CTS	This amended opinion analyzes additional CTS locations north of Reservation Road at a proposed water storage district near the boundary of former Fort Ord.
5/28/2015	Programmatic Biological Opinion for Cleanup and Property Transfer Actions Conducted at Former Fort Ord, Monterey County, California,	Monterey spineflower and its critical habitat Monterey gilia Yadon's piperia CTS	<p>This biological opinion responds to updated information on fuel break construction and maintenance, and updated actions on former Fort Ord. Considers previous opinions, memoranda, and FOR A documents, including net increase in reserve land by 447 acres.</p> <p>The opinion reiterates the HMP that the majority of development parcels can be developed without resource conservation or management requirements.</p> <p>States that “although transfer of 9,065 acres of development parcels may result in the loss of listed HMP species occurring on those parcels, implementation of HMP conservation and management requirements, including conservation measures implemented during Army cleanup activities on the remaining 18,762 acres, would offset the impacts to species in development parcels.</p> <p>This document includes updated maps that synthesize data from ongoing monitoring and reporting since the time the HMP was published with baseline survey data.</p>

* "Relevant species" here references pertinent data and analysis related to this Biological Assessment.



5.0 SPECIES AND CRITICAL HABITAT CONSIDERED

An official species list requested from USFWS was generated through the Information for Planning and Conservation (IPaC) tool (<https://ecos.fws.gov/ipac>; USFWS 2016b). The official species list, dated August 1, 2016, identified three amphibians, six birds, one crustacean, one fish, six vascular plants, one insect, and one mammal known from the vicinity as shown in Table 3. Figure 4 shows occurrences of listed species documented in the California Department of Fish and Wildlife’s California Natural Diversity Database (CNDDDB) from within three miles of the Action Area, as well as locations of designated critical habitat in the vicinity.

A copy of the official species list received from the Ventura Fish and Wildlife Office of USFWS is attached (Appendix D). As noted in the letter accompanying the list, due to staff shortages and workload, USFWS does not provide lists more specific to particular project sites. The list can be narrowed through review of existing literature, evaluation of site conditions, and surveys. All species from the official species list are displayed in this table, and those species either observed or with potential to occur in the Action Area are noted. In addition to the IPaC information, we reviewed previous biological studies, environmental analysis, and biological opinions for Fort Ord decommissioning and cleanup, as well as a reconnaissance-level wildlife survey and focused botanical survey of the Action Area completed in 2016. These sources were used to review the potential for listed and proposed species, as well as designated and proposed critical habitat, to occur in the Action Area. The sections following this table further discuss the rationale for determining species analyzed further and those excluded from the analysis.

Table 3. Summary of Federally Listed Species Known from the Action Area Vicinity

Scientific name	Common name	Status	Observed / Has Potential to Occur?	Included in Assessment?
Amphibians				
<i>Ambystoma californiense</i>	California tiger salamander (CTS) –Central California DPS	Threatened	Yes (dispersing)	Yes
<i>Ambystoma macrodactylum croceum</i>	Santa Cruz long-toed salamander	Endangered	No	No
<i>Rana draytonii</i>	California red-legged frog	Threatened	No	No
Birds				
<i>Brachyramphus marmoratus</i>	Marbled murrelet	Threatened	No	No
<i>Charadrius nivosus nivosus</i> [formerly, <i>C. alexandrinus nivosus</i>]	western snowy plover	Threatened	No	No
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	Endangered	No	No
<i>Gymnogyps californianus</i>	California condor	Endangered	No	No
<i>Sternula antillarum browni</i>	California least tern	Endangered	No	No
<i>Vireo bellii pusillus</i>	Least Bell's vireo	Endangered	No	No
Crustaceans				
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	Threatened	No	No



Scientific name	Common name	Status	Observed / Has Potential to Occur?	Included in Assessment?
Fish				
<i>Eucyclogobius newberryi</i>	Tidewater goby	Endangered	No	No
Plants				
<i>Arenaria paludicola</i>	Marsh sandwort	Endangered	No	No
<i>Chorizanthe pungens</i> var. <i>pungens</i>	Monterey spineflower; Sand gilia	Threatened	Yes - present	Yes
<i>Erysimum menziesii</i>	Menzies' wallflower	Endangered	No	No
<i>Gilia tenuiflora</i>	Monterey gilia	Endangered	Yes	Yes
<i>Lasthenia conjugens</i>	Contra Costa goldfields	Endangered	No	No
<i>Piperia yadonii</i>	Yadon's piperia	Endangered	Yes	Yes
Insects				
<i>Euphilotes enoptes smithi</i>	Smith's blue butterfly	Endangered	No	No
Mammals				
<i>Enhydra lutris nereis</i>	southern sea otter	Endangered	No	No

No Critical Habitats are present in the Action Area.

5.1 SPECIES INCLUDED IN THE ANALYSIS

The Proposed Action, if implemented, would remove maritime chaparral interspersed with sandy openings, and is anticipated to remove individuals of Monterey spineflower documented in the Action Area in 2016. Therefore, terrestrial species associated with maritime chaparral and sandy openings within chaparral that are listed under the ESA are included in this BA.

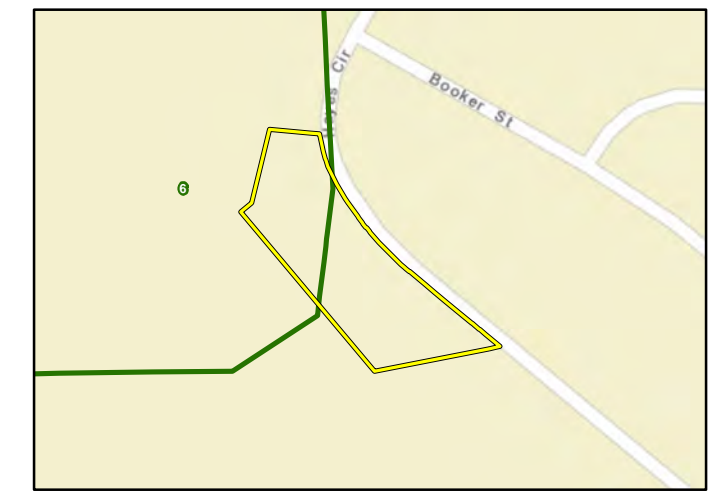
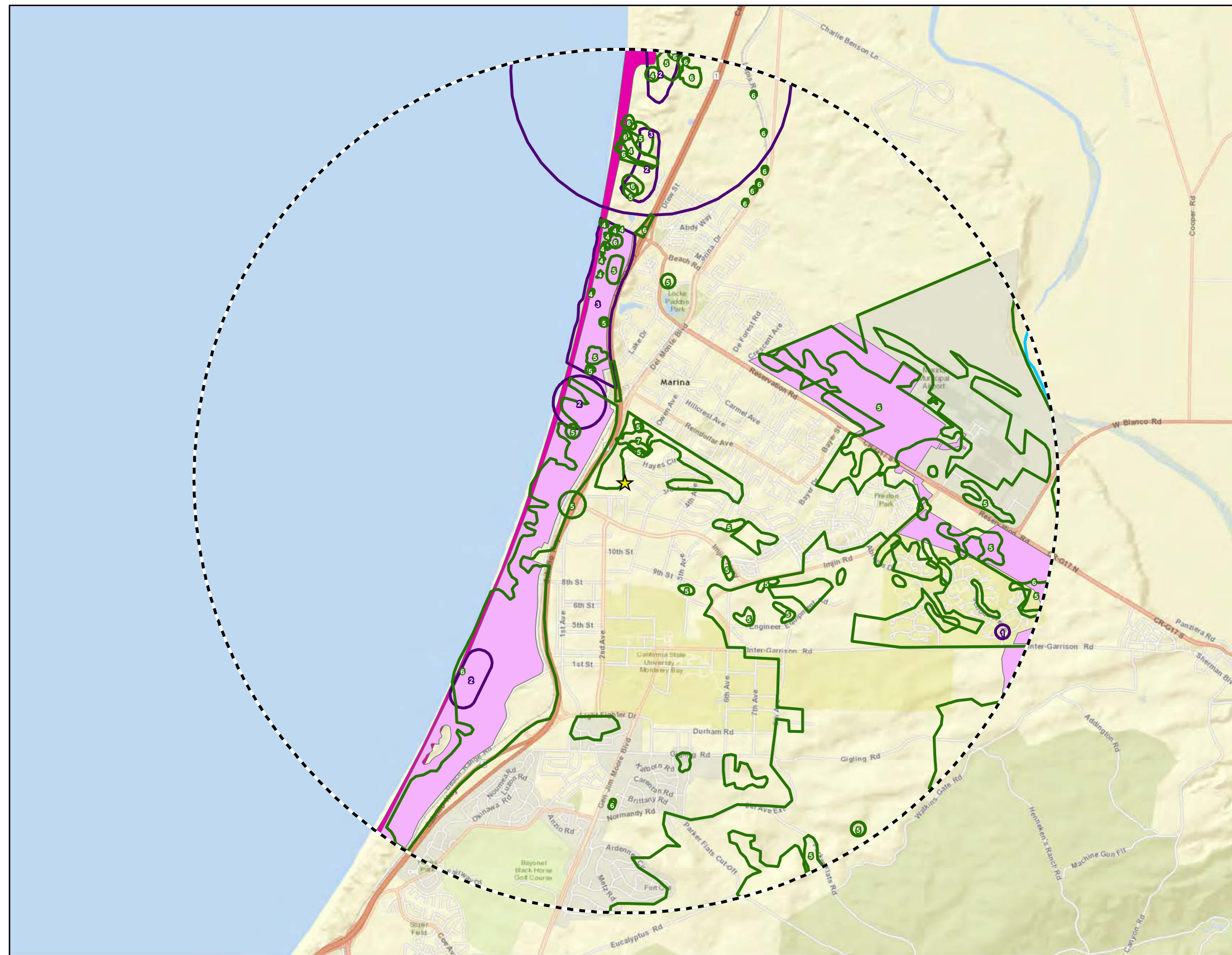
Additionally one species that breeds in aquatic habitat, but disperses into terrestrial upland habitats, CTS, is also analyzed. Thus, species analyzed in detail are Monterey spineflower, Monterey gilia, Yadon's piperia, and CTS, all of which are discussed extensively in Sections 6.0 through 9.0.

5.2 SPECIES EXCLUDED FROM THE ANALYSIS

No species proposed for listing are expected to occur in the Action Area. The following listed species are not expected in the Action Area. A rationale for excluding these species from further analysis is provided:

- **Santa Cruz long-toed salamander** is excluded due to lack of appropriate aquatic and terrestrial habitats, and the Action Area location is south of the known range of this animal (USFWS 2009a). This species utilizes a combination of terrestrial and aquatic habitats during its life cycle, with the terrestrial component consisting of mesic coastal scrub, oak woodland, Monterey pine forest, and willow riparian, and can disperse over 1,000 feet from aquatic habitat into uplands. The Action Area lacks these terrestrial habitat types, and is well over 1,000 feet from aquatic habitat; further, the Action Area is over nine miles south of the nearest known occurrence, outside the known range of the animal. Therefore this species it not included in the analysis.

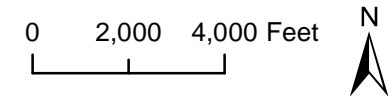




★ Project Location
 ⋯ 3-Mile Buffer

CNDDDB	Final Critical Habitat
⬜ Animals	— Steelhead
⬜ Plants	■ Western snowy plover
	■ Monterey spineflower

- 1 - California tiger salamander
- 2 - Smith's blue butterfly
- 3 - western snowy plover
- 4 - Menzies' wallflower
- 5 - Monterey gilia
- 6 - Monterey spineflower
- 7 - Yadon's rein orchid



Occurrences of Federally Listed Species and Designated Critical Habitats

Imagery provided by ESRI and its licensors © 2016. Special status species data source: California Natural Diversity Database, January 2016. For more information please contact the Department of Fish and Wildlife. Critical habitat data source: U.S. Fish and Wildlife Service, January, 2016. Final critical habitat acquired via the USFWS Critical Habitat Portal. It is only a general representation of the data and does not include all designated critical habitat. Contact USFWS for more specific data.

- **California red-legged frog** is excluded due to lack of aquatic habitats in and near the Action Area. California red-legged frog can survive in a variety of habitat types, including various aquatic, riparian, and upland habitats adjacent to aquatic habitats. Preferred aquatic habitat of the California red-legged frog is characterized by dense shrubby, or emergent riparian vegetation, such as arroyo willow, cattails, and bulrushes, associated with deep (greater than two feet), still or slow-moving water. The California red-legged frog will also utilize ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, manmade aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry thickets, nonnative annual grasslands, and oak savannas (U.S. Fish and Wildlife Service 2002). The nearest reported occurrence is from five miles northeast of the study area in the Salinas River (CNDDB Occurrence 997). Further, the Action Area is wholly upland habitat, and the distance to wetland and aquatic habitats is considerable. The Action Area is 0.8 miles from the nearest mapped wetland in the National Wetlands Inventory or visible on aerial photos, which is west of SR 1 in the dunes, and over 1 mile from the nearest mapped pond, which is northwest of the Study Area, in a park, surrounded by urban development. Substantial barriers to movement, including urban areas, highways, and heavily traveled roadways, exist between those waterways and the Action Area, and it is not anticipated that red-legged frog would attempt to move through the Action Area. Therefore this species it not included in the analysis.
- **Marbled murrelet** is excluded due to lack of suitable forest habitat in or near the Action Area. This small seabird primarily utilizes marine habitats, but requires coastal terrestrial habitat to nest, specifically using mature coniferous forest within flying distance of the sea for nest sites (USFWS 2009b). The Action Area does not support coniferous forest and is not near coniferous forest, and the Proposed Action is not expected to affect individuals in flight the vicinity, should they occur. Therefore, this species is not included in the analysis.
- **Western snowy plover** is excluded due to lack of suitable nesting habitat. This small shorebird occupies barren to sparsely vegetated sand beaches, foredunes, salt flats in lagoons, dredge spoils deposits on beach or dune habitats, levees and flats at salt-evaporation ponds, river bars, shores of alkaline or saline lakes, reservoirs, and ponds (USFWS 2016c). This bird nests on the ground in a small depression. This species is known to nest on the coastal strand of former Fort Ord west of SR 1, however, suitable nesting habitat is not present in the Action Area, and Proposed Action is not expected to affect individuals of this species. Therefore, this species is not included in the analysis.
- **California condor** is excluded due to the lack of suitable nesting and roosting habitat and the disturbed condition and small size of the proposed Action Area. California condor is a cavity-nesting species, with typical nest sites in steep rock formations or hollows in old-growth conifers. Cliff ledges and broken tops of old-growth trees are also occasionally used. Roost sites are typically on ridgelines, rock outcrops, canyon walls, tall trees and snags, and are habitually used. California condors predominately forage in open terrain of foothill grassland and oak savanna habitats, and at coastal sites in central California, and scavenge over long distances daily (USFWS 2013a). Although the Action Area is within the foraging range of condors in the Big Sur area, the Action Area is small



in size, and previous development has removed the majority of open habitat. Additionally, the Action Area lacks a reliable source of carrion. The Proposed Action is not expected to affect individuals in flight or foraging on the coastline the vicinity, should they occur. Therefore, this species is not included in the analysis.

- **Least Bell's vireo** and **southwestern willow flycatcher** are excluded due to lack of riparian habitat in or near the Action Area. Both species require riparian habitat for nesting (USFWS 2006a; USFWS 2014). No suitable nesting habitat is present in the study area, and the Proposed Action is not expected to affect foraging or migrating individuals in the vicinity, should they occur. Therefore, these species are not included in the analysis.
- **California least tern** is excluded due to distance of the Action Area to intact dune and beach habitat, the disturbed character of the site and small extent of sandy openings in and near the Action Area, and the distance to water. California least tern nests locally along the coast from the San Francisco Bay area southward. California least terns occur on beaches, estuaries, lagoons, and in nearshore waters; they nest in relatively undisturbed areas, such as coastal dunes and exposed tidal flats, from May to August. Adults leave the few California nesting locations with still-dependent young in August and feed more generally along the coast before migrating south. California least tern was historically reported nesting near the Pajaro River in Santa Cruz County; currently the nearest known nesting sites are around the San Francisco Bay (USFWS 2006b). No suitable nesting habitat is present in the study area, and the Project is not expected to affect least terns foraging in the vicinity, should they occur. Therefore, this species is not included in the analysis.
- **Vernal pool fairy shrimp** is an aquatic invertebrate excluded due to lack of vernal pools or other ephemeral ponded habitats in the Action Area. The Action Area consists solely of upland terrestrial habitats. Therefore, this species is not included in the analysis.
- **Tidewater goby** is excluded due to absence of any stream habitats, and distance from the Action Area to appropriate stream mouth or estuary habitats. The Action Area consists solely of upland terrestrial habitats. Therefore, this species is not included in the analysis.
- **Marsh sandwort** is an herbaceous plant excluded due to lack of marsh habitat. Furthermore, botanical surveys conducted in 2016 did not detect this species or suitable habitat to support it. Therefore, this species is not included in the analysis.
- **Menzies' wallflower** is an herbaceous plant species excluded from analysis due to the location of the Action Area inland of all known occurrences, lack of suitable foredune, coastal dune mat, or coastal strand habitat, associated dune and bluff scrub plant communities, and distance from the coast. In Monterey County, this plant is known from four isolated sites in dunes at the west edge of the Monterey Peninsula; in the vicinity of Marina, it occurs in dunes west of the City on the coastal side of SR 1 (USFWS 2008a; CDFW 2016). Furthermore, botanical surveys conducted in 2016 did not detect



this species or suitable habitat to support it. Therefore, this species is not included in the analysis.

- **Contra Costa goldfields** is an herbaceous plant species excluded due to lack of vernal pools, swales, and depressions and absence of mesic valley or foothill grasslands that could support this plant. Further botanical surveys conducted in 2016 did not detect this species or suitable habitat to support it. Therefore, this species is not included in the analysis.
- **Smith's blue butterfly** is excluded due to lack of host plant species in the Action Area. This butterfly use coast buckwheat (*Eriogonum latifolium*) and seacliff buckwheat (*Eriogonum parvifolium*) as host plants (USFWS 2006c). These species were not documented in the Action Area. The Proposed Action is not anticipated to affect individuals of this species. Therefore, this species is not included in the analysis.
- **Southern sea otter** is a marine mammal excluded due to the distance from the Action Area to the coast. The Action area is inland, separated from the Pacific Ocean coast by existing development, roads, and highways. Therefore, this species is not included in the analysis.

These species are excluded from further analysis for the reasons described above.

5.3 CONSULTATION TO DATE

An official species list was requested from USFWS on August 1, 2016 (Appendix D). Additionally, USFWS has been contacted regarding applicability of Fort Ord biological opinions and environmental analysis by Rincon biologists Kristiaan Stuart and Meg Perry as well as AEM staff Cinnamon Crake.

- Mr. Stuart contacted USFWS Staff on May 26, 2016 regarding Monterey spineflower numbers in 2016, as well as the applicability of existing biological opinions issued for decommissioning Fort Ord to properties that have been transferred to private or local ownership. USFWS Staff confirmed that these previous biological opinions do not provide take coverage for activities on transferred lands, and advised that Section 7 consultation would be needed for private development that may affect listed species or designated critical habitats.
- Ms. Crake contacted USFWS on July 6, 2016 regarding applicability of the biological opinions issued for Army actions. Mr. Jacob Martin confirmed that these biological opinions related to base closure and munitions cleanup do not cover activities on transferred lands, and indicated that formal consultation would be needed for a project with federal action that impacts listed species on transferred former Fort Ord lands. Additionally, Ms. Lena Chang (USFWS) also responded by phone and confirmed the information provided by Mr. Martin.
- Ms. Perry corresponded via electronic mail to Ms. Lena Chang on August 11, 2016 and followed up with Mark Ogonowski via phone calls and emails on August 18, 2016. This



discussion involved further clarification regarding how the existing HMP requirements apply to parcels that have been transferred as well as avoidance and minimization measure development.

6.0 SPECIES ACCOUNTS

This section presents species accounts for the federal-listed species discussed in this BA. No species proposed for listing are expected to occur in the Action Area. Based on review of the CNDDDB reported occurrences within 5 miles, a review of the California Native Plant Society (CNPS) database information, and field surveys conducted by Rincon (2016a, 2016b), Monterey spineflower occurs in the Action area, extending into the adjacent open space parcel west of the Action Area, and both Monterey gilia and Yadon's piperia are reported in the CNDDDB from the City's open space parcel, northwest of the Action Area, but were not observed on the adjacent site. CTS occurrences are reported from more than 3.0 miles away, but are not known from closer to the Action Area.

6.1 MONTEREY SPINEFLOWER

6.1.1 General Life History

Monterey spineflower is a prostrate annual species in the buckwheat family (Polygonaceae). It has long, somewhat wiry branching stems supporting aggregates of small white to pinkish flowers. Seeds typically germinate after the onset of winter rains. Flowering occurs from late March into July, depending on weather patterns, and seed is dispersed in mid-summer (Baldwin et al. 2012; USFWS 2013b). Monterey spineflower grows in sandy soils where competition with other plant species is minimal (CNPS 2016). Seed dispersal is likely facilitated by hooked spines on the structure surrounding the seed: these are believed to attach to passing animals and disperse seeds between plant colonies and populations (Reveal 2001, as cited in USFWS 2009). Wind also likely disperses seeds within colonies and populations (USFWS 2009c).

The USFWS five-year review (2009) references a study of the soil seed bank of *Chorizanthe pungens* var. *pungens* published in 2006 (Fox et al. as cited in USFWS 2009c). This study found that the density of Monterey spineflower in a population was directly related to the previous year's seed set. The variety germinates well under most winter conditions and does not develop an extensive persistent soil seed bank. However, USFWS also relates anecdotal reports of *C. p.* var. *pungens* reappearing in areas after habitat restoration efforts removed dense cover of iceplant, indicating that under some conditions, a soil seed bank that persists for several years may be present and substantial enough to repopulate a site.

A study of soil requirements and shade tolerances of a related taxon, Scotts Valley spineflower (*Chorizanthe pungens* var. *hartwegiana*) found that this taxon is restricted to openings in sandy soils primarily due to its intolerance of shade rather than its restriction to the specific soil type (McGraw and Levin 1998, as cited in USFWS 2009c). Monterey spineflower occurs in microhabitats consisting of sandy openings with little other vegetative cover, within other native plant communities along the coast. Shifts in habitat composition caused by patterns of sand mobilization that can create openings suitable for Monterey spineflower are followed by stabilization and successional trends that result in increased vegetation cover over time



(Barbour and Johnson 1988 as cited in USFWS 2009c). Thus distribution and size of individual colonies of Monterey spineflower found in the gaps between shrub vegetation shift as the optimal sandy openings utilized by this species change with time. As an annual species, Monterey spineflower exhibits large fluctuations in the population of plants visible above-ground from year to year in response to precipitation patterns (USFWS 2013b). Many populations reported in the CNDDDB have been documented with large numbers of individuals (thousands or tens of thousands of plants) scattered in openings among chaparral or scrub species (CDFW 2016).

Human-caused disturbance, such as creation of unpaved roads and trails, firebreaks, and other ground disturbance that removes vegetation can reduce the competition from other herbaceous species and consequently provide temporarily favorable conditions for Monterey spineflower, as long as competition from other plant species remains minimal (USFWS 2013b). At former Fort Ord, Monterey spineflower has been documented along the margins of dirt roads and trails and military training grounds (U.S. Army Corps of Engineers 1992 and U.S. Bureau of Land Management 2003, as cited in USFWS 2009c). However, ground-disturbing activities also promote spread and establishment of nonnative species and can bury the seedbank of Monterey spineflower (USFWS 2009c).

6.1.2 Method of Evaluation

A reconnaissance survey was conducted in April 2016 to evaluate potential to occur, and a botanical survey was conducted in mid-May 2016 to search for individuals of Monterey spineflower in the Action Area (Rincon 2016a, 2016b). A reference site was visited immediately prior to the botanical survey to verify that the species was identifiable during the survey. All areas containing native vegetation were surveyed at close transect spacing during the May 2016 survey.

Other sources of information included reported occurrences in the CNDDDB and reports completed in the past related to Fort Ord decommissioning efforts were reviewed (as referenced in Section 4.2.4.) The CNDDDB data were reviewed for the following USGS 7.5-minute quads: *Marina, Monterey, Seaside, Spreckels, Salinas, Prunedale, and Moss Landing*, the quadrangles containing or surrounding the Action Area. The focus was on reported occurrences within five miles of the Action Area. Due to the large number of records for the area, due in part to the large volume of work completed as part of the Fort Ord decommissioning process, the area shown on Figure 4 is restricted to a three-mile radius; however, spatial data from the CNDDDB were reviewed for all listed species with occurrence records within five miles of the Action Area as well as spatial records for northern coastal Monterey County included on the USFWS official species list.

Available literature was reviewed, including reports, plans, and biological opinions prepared for previous projects in the vicinity, including:

- Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord (USACE 1997).
- Biological Opinions associated with Fort Ord Decommissioning and Reuse activities (USFWS 1993, 1997, 1999, 2002, 2005, 2007, and 2015) as summarized in Section 4.2.4



- The Fort Ord Reuse Plan Volumes 1 through 4, including the EIR (FORA 1997; FORA et al. 1997)

6.1.3 Results and Species' Distribution in the Action Area

The CNDDDB search shows several occurrences within 5.0 miles of the Action Area, including a record centered on the open space parcel west of the studied area, which overlaps the Action Area (see Figure 4). This record, CNDDDB Occurrence 2, encompasses the Fort Ord occurrence data for this species – several former element occurrences were combined into this single feature in the CNDDDB. Only a small portion of the occurrence overlaps the Action Area. The Action Area is outside designated critical habitat for Monterey spineflower (Figure 4).

The Fort Ort HMP identified Monterey spineflower on approximately 10,456 acres of former Fort Ord, including a portion of Parcel L9.1.2, of which the Action Area is part. Since the original basewide surveys were completed, an additional 183 acres of occupied spineflower habitat were mapped (USFWS 2015).

Suitable habitat is present for Monterey spineflower where sandy open areas are present in undeveloped portions of the Action Area. This species was documented in the Action Area, primarily along the margins of the site and sandy openings outside developed and ruderal areas, during 2016 botanical surveys (Rincon 2016b). The Study Area for the botanical survey extended slightly outside the Action Area, and included a small portion of the adjacent parcel, allowing for mapping of patches that are immediately adjacent to the Action Area. During the 2016 survey, approximately 1,200 individuals were mapped in total, in small, dense patches occupying 2,680 square feet (0.062 acre) in total. Of this, 1,220 square feet (0.028 acre) and approximately 600 individuals are within the Action Area; the remaining 1,460 square feet (0.034 acre) and approximately 600 individuals are outside the Action Area. Patches of Monterey spineflower within and adjacent to the Action Area are displayed on Figure 5.

6.2 MONTEREY GILIA

6.2.1 General Life History

Monterey gilia (also called sand gilia in some documents) is an annual herb in the Phlox family (Polemoniaceae). This subspecies typically occurs on sandy substrates within openings in maritime chaparral, coastal scrub, and cismontane woodland, as well as occurring on coastal dunes (CNPS 2016). Monterey gilia is typically a small-statured plant generally less than one foot tall, with a basal rosette of leaves, and white and purple funnel-shaped flowers. This plant typically blooms between April and June, depending on weather conditions in a given year. The species occurs in northern coastal Monterey County, reportedly extending northward along the coast into southern Santa Cruz County (CNPS 2016). Taxonomy of individuals in the inland portions of the subspecies' range is unresolved – these individuals intergrade toward subspecies *tenuiflora*, but inland individuals on the eastern side of former Fort Ord have been treated as Monterey gilia during development and implementation of the Fort Ord HMP and Fort Ord Reuse Plan (USFWS 2008b).





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Additional data provided by Whitson Engineers, 2016.

Monterey Spineflower in Action Area

Figure 5

As with many annual species, Monterey gilia exhibits larger fluctuations in the number of individuals that grow from year to year (USFWS 2008b). A study published in 2005 indicates this plant may have long-lived seeds that create a relatively persistent soil seed bank (Fox et al. 2005 as cited in USFWS 2008b). This helps explain why this plant has been observed in areas that were not previously known to support it following large fires. Monterey gilia requires somewhat open areas in sandy soil to germinate, and is susceptible to competition from non-native vegetation. It does not tolerate dense vegetation or high litter accumulation (USFWS 2008b). One of the primary threats to Monterey gilia is competition from non-native, invasive species, especially iceplant and non-native annual grasses (USFWS 2008b).

6.2.2 Method of Evaluation

A reconnaissance survey was conducted in April 2016 to evaluate potential to occur, and a botanical survey was conducted in mid-May 2016 to search for individuals of Monterey gilia in the Action Area (Rincon 2016a, 2016b). A reference site was visited immediately prior to the botanical survey to verify that the species was identifiable during the survey. All areas containing native vegetation were surveyed at close transect spacing during the May 2016 survey.

Other sources of information included reported occurrences in the CNDDDB (described in Section 6.1.2) and reports completed in the past related to Fort Ord decommissioning efforts were reviewed as referenced in Section 4.2.4.

6.2.3 Results and Species' Distribution in the Action Area

CNDDDB results indicate no reported occurrences within the Action Area. However, one occurrence is reported from approximately 0.25 mile north of the Action Area on the adjacent open space parcel owned by the City of Marina (CNDDDB Element Occurrence 21). Numerous additional records are present in the vicinity of the Action Area, in all directions including both coastal and inland sites on former Fort Ord. Critical habitat has not been designated for Monterey gilia.

The Fort Ort HMP identifies occurrences of Monterey gilia on the adjacent open space parcel (Parcel E2a in the HMP) owned by the City as noted above. No occurrences of sand gilia were previously reported in the Action Area in the HMP. Sites with high density of sand gilia and Monterey spineflower were a priority in development of preserve and corridor priorities in development of the HMP. Updated information provided with the 2015 Programmatic Biological Opinion (USFWS) indicates that over 510 acres of additional Monterey gilia habitat (occupied) were identified after the initial base-wide surveys supporting the HMP were conducted; no new areas were mapped overlapping the Action Area.

Suitable habitat is present for Monterey gilia where sandy open areas are present in undeveloped portions of the Action Area. However, no individuals of Monterey gilia were observed (Rincon 2016b).



6.3 YADON'S PIPERIA

6.3.1 General Life History

Yadon's piperia is a slender perennial herb in the Orchid family (Orchidaceae) that is endemic to coastal Monterey County (Baldwin et al. 2012). The plant typically reaches heights ranging between 10 and 50 centimeters, with a dense raceme of flowers forming the inflorescence. Mature plants have two to three basal leaves up to six inches long and one inch wide. Flowers have a honey-like to harsh fragrance during the daytime (Baldwin et al. 2012). The species typically blooms between May and July. It occurs on sandy substrates in coastal bluff scrub, maritime chaparral, and closed-cone coniferous forest (Baldwin et al. 2012; CNPS 2016). Specifically, *Piperia yadonii* is reported from two primary habitat types: Monterey pine forest with an herbaceous, sparse understory; and ridges in maritime chaparral growing beneath dwarfed *Arctostaphylos hookeri* (Hooker's manzanita) shrubs in shallow soils (Morgan and Ackerman 1990, Allen 1996, Doak and Graff 2001 as cited in USFWS 2009d).

Germination likely involves a symbiotic relationship with a fungus. Following germination, seedlings grow below ground for one to several years before emerging with their first basal leaves (USFWS 2009d). Young plants may persist in vegetative form for several years before blooming. In mature plants of *P. yadonii*, the basal leaves typically emerge sometime after fall or winter rains and wither by May or June, when the plant produces a single flowering stem (USFWS 2009d). Consistent with many other orchid species, only a small percentage of the *Piperia yadonii* plants in a population may flower in any year (Allen 1996 as cited in USFWS 2009d). Pollinators are predominantly nocturnal, short-tongued moths (Doak and Graff 2001 as cited in USFWS 2009d).

USFWS notes in the five-year review that *Piperia yadonii* occasionally occurs in locations where disturbance has occurred in the past 10 to 15 years, and can persist in areas affected by limited recreation, development, and landscaping, such as abandoned dirt roads or cut slopes created by road construction (2009). However, the species is not considered an early successional species and requires a decade or more of favorable conditions to colonize disturbance sites (USFWS 2009d).

6.3.2 Method of Evaluation

A survey was conducted in April 2016 to map habitat and evaluate potential to occur, and a botanical survey was conducted in mid-May 2016 to search for individuals of listed plant species, including Yadon's piperia, in the Action Area (Rincon 2016a, 2016b). Yadon's piperia typically blooms in May through July, with peak bloom often in June. Foliage would have been identifiable when the April survey was conducted, and young inflorescences would have been present when the May survey was conducted. At the very close transect spacing used to identify and map all Monterey spineflower occurrences, this plant would have been observed had it been present during surveys. All areas containing native vegetation were surveyed closely during the May 2016 survey.



6.3.3 Results and Species' Distribution in the Action Area

The CNDDDB documents 29 occurrences of this species, the majority of which are either more than eight miles south of the Action Area near Monterey, or more than 10 miles north of the Action Area near Prunedale. One occurrence, Element Occurrence 9, is mapped west and slightly north of the Action Area in an open space parcel owned by the City of Marina. The CNDDDB classifies this occurrence as possibly extirpated. Six plants were reported here in 1992; subsequent site visits have resulted in observations of the more common *Piperia michaelii* in 1995. Yadon's piperia is known to co-occur with other species of *Piperia* (USFWS 2009). The most recent attempt to locate Yadon's piperia at this location was unsuccessful, in 2003. The CNDDDB record comments that habitat at this location, which is characterized as maritime chaparral, is not typical habitat for the species. The Action Area is not within or close to federally designated Critical Habitat for this species.

The HMP reports Yadon's piperia from just one population on former Fort Ord (parcel E2a). The HMP identified this population for preservation. Former Fort Ord parcel E2a is the City open space parcel adjacent to the Action Area, and the Yadon's piperia population there is Element Occurrence 9. Updated distribution data from the USFWS 2015 biological opinion notes that this plant has since been found in additional locations at Fort Ord, including parcels E29b.3.1, E4.1, L7.1, and S4.1.3. As of 2016, approximately 60 acres of Yadon's piperia habitat are known from former Fort Ord.

Yadon's piperia was not found during site surveys conducted in April and May 2016 (Rincon 2016a, 2016b). Conditions in the Action Area are generally marginal for this species due to the high level of disturbance and atypical condition of maritime chaparral compared with typical habitat for this species.

6.4 CALIFORNIA TIGER SALAMANDER

6.4.1 General Life History

The CTS is a lowland species found primarily in grasslands and low foothill and oak woodland habitats located within approximately 2,200 ft (671 meters [m]) of breeding pools (Trenham and Shaffer, 2005). CTS breed in long-lasting rain pools (e.g., seasonal ponds, vernal pools, slow-moving streams) that are often turbid, and occasionally in permanent ponds lacking fish predators. During the non-breeding season, adults occur in upland habitats and occupy ground squirrel or pocket gopher burrows. They migrate nocturnally to aquatic sites to breed during relatively warm winter or spring rains. Juveniles emigrate at night from the drying pools to upland refuge sites, such as rodent burrows and cracks in the soil. Following breeding, adults move 9 to 518 ft (3 to 158 m) away from breeding ponds within the first night (Loredo et al., 1996; Trenham, 2001). Most salamanders continue to move to different burrow systems further from the pond over the next one to four months, with an average distance of 374 ft (114 m) from the pond (Trenham, 2001). Trenham and Shaffer (2005) estimated that conserving upland habitats within 2,200 ft (671 m) of breeding ponds would protect 95% of CTS at their study location in Solano County. The Action Area is located within the range of CTS in Monterey County, Central California Distinct Population Segment (DPS).



6.4.2 Method of Evaluation

A review of the National Wetlands Inventory, National Hydrography Dataset, and a series of aerial photographs spanning the last 10 years was conducted for the areas within 1.24 miles of the Action Area to evaluate potential for breeding sites within dispersal distance of the Action Area. Additionally, a review of CNDDDB records within 3.1 miles of the Action Area was conducted to gather information on previous observations of the species in the vicinity. Previous biological opinions and environmental analysis associated with decommissioning and reuse of former Fort Ord were referenced, as previously discussed in Section 4.2.4. Finally, habitat in the Action Area was evaluated during a site visit to map habitats and determine potential for species to occur.

6.4.3 Results and Species' Distribution in the Action Area

A review of the National Wetland Inventory, National Hydrography Dataset, and a time sequence of aerial photographs found no potential aquatic habitats suitable for breeding that are within dispersal distance of the Action Area, and no known breeding ponds within 1.24 miles of the Action Area. As previously noted, the nearest wetland identified in the National Wetlands Inventory is mapped as an herbaceous wetland, approximately 0.8 mile west-southwest of the Action Area, west of SR 1. Our review of aerial photos did not document standing water or saturation in this area in any of the years analyzed, and further, the presence of SR 1 presents a significant barrier to movement into the Action Area. The next closest site is a perennial pond approximately 1.12 miles north of the Action Area. This pond is in a City park, and is separated from the Action Area by substantial barriers, including urban development and major roads. No other wetlands or aquatic features were observed during the review of aerial photographs within 1.24 miles of the Action Area.

Numerous CTS occurrence are recorded by the CNDDDB on former Fort Ord lands, primarily to the southeast of the Action Area. However, no occurrences are reported from within 3.1 miles. The nearest reported occurrence of CTS is the report of one adult individual approximately 3.5 miles east southeast of the study area (CNDDDB Occurrence 918). This report is of a dispersing adult female found in a water meter box. The occurrence site is within dispersal distance of the nearest breeding location, Occurrence 747, which is approximately 0.8 mile south of that reported dispersing individual. However, that site is 3.9 miles from the Action Area, and no breeding locations are reported from closer to the Action Area. The Action Area is not located within federally designated Critical Habitat for the CTS (Figure 4).

CTS was a candidate for listing at the time the Fort Ord HMP was prepared, and was included in the list of analyzed species. The HMP identifies potential and known occurrence sites south of Inter-Garrison Road. No known occurrences are reported in the vicinity of the Action Area. Approximately 56 acres and 27 locations on former Fort Ord are CTS breeding sites (USFWS 2015). These locations are all more than 3.0 miles from the Action Area.



The Action Area does not contain aquatic habitat of any kind. Portions of the Action Area are developed, and the remainder is highly disturbed. The sandy soils, high level of disturbance, and extremely limited presence of small mammal burrows are not high quality upland habitat for use as refugia during the nonbreeding season. The distance from breeding habitat combined with poor upland habitat characteristics for CTS within the Action Area result in extremely low potential for CTS occurrence. Any use of the Action Area by CTS would be transient, for dispersal.



7.0 EFFECTS ANALYSIS

This section analyzes effects of the Proposed Action on Monterey spineflower, Monterey gilia, Yadon's piperia, and CTS in the Action Area. The Proposed Action may result in direct, indirect, and cumulative effects to Monterey spineflower, as detailed in Section 7.1. The project may result in indirect effects to Monterey gilia and Yadon's piperia, as described below in Sections 7.2 through 7.3. The project is not expected to affect CTS, as described in Section 7.4.

The project would have no effect on Santa Cruz long-toed salamander, California red-legged frog, marbled murrelet, western snowy plover, southwestern willow flycatcher, California condor, California least tern, vernal pool fairy shrimp, tidewater goby, marsh sandwort, Menzies' wallflower, Contra Costa goldfields, Smith's blue butterfly, or southern sea otter. These species are excluded from further analysis.

7.1 MONTEREY SPINEFLOWER

7.1.1 Direct Effects

Potential direct effects on Monterey spineflower due to the Proposed Action include removal of a small amount, 0.028 acre, of occupied habitat. In 2016, this area supported approximately 600 individuals; however, for annual species, the number of individuals that germinate and grow each year fluctuates, and this number is not anticipated to be consistent from year to year. An additional approximately 0.034 acre of occupied habitat, with approximately 600 additional individuals of spineflower, are present immediately outside the Action Area on the neighboring parcel but can be avoided.

As noted in Section 4.2.4, previous environmental analysis considered Monterey spineflower on former Fort Ord, including sites designated to be development parcels following the decommissioning and transfer of these lands out of U.S. Army ownership. The HMP parcel (L9.1.2) containing the Action Area was known to support Monterey spineflower at the time the parcel was designated for Development without restriction, and no mitigation was required beyond identifying special status resources for potential salvage, and complying with state and federal law (U.S. Army Corps of Engineers 1997, Appendix B of the HMP).

Direct effects to Monterey spineflower would be reduced by implementation of conservation measures described in Section 8.0.

7.1.2 Indirect Effects

Potential indirect effects include the potential for introduction of new non-native invasive plant species. Several non-native plant species, including invasive iceplant are already present in the Action Area. The Proposed Action could result introduction of additional invasive species not already present, or could contribute to spread of iceplant and other existing invasive species if measures are not implemented to manage spread of these species in the Action Area and in the vicinity as a result of the Proposed Action.



Introduction of invasive plants into the Action Area could alter the species composition and cause competition with native species, recruit into and ultimately vegetate and effectively remove sandy openings typically utilized by Monterey spineflower. Weed control measures would be implemented. This would assist in controlling existing invasive species known from the Action Area, and preventing new invasive plants from establishing in the Action Area.

The implementation of conservation measures in Section 8.0 would reduce indirect effects to Monterey spineflower.

7.1.3 Cumulative Effects

The cumulative effects analysis for this document considered the impacts of the Proposed Action in context of other current and future projects in the vicinity. This analysis references previous environmental analyses of Monterey spineflower, as presented in documents associated with Fort Ord, particularly environmental analysis for the Ford Ord decommissioning and reuse process, the Fort Ord Reuse Plan EIR, and previous biological opinions regarding the decommissioning and transfer of former Fort Ord lands to other entities.

The HMP estimated that implementation of the plan, including the anticipated development without restriction of Development parcels, would remove up to 1,970 acres of low density, 985 acres of medium density, and 260 acres of high-density Monterey spineflower. The HMP determined that the Development parcels with no resource conservation requirements in the HMP, which includes the Action Area, are not critical to long-term survival of the species. Although the Proposed Action would permanently remove a small amount of occupied habitat, the effect of the Proposed Action is a very small contributor to the total estimated acreage of impact for conversion of habitat on Development parcels. Additionally, the proposed transfer of former Fort Ord Lands with occupied habitat into conservation reserves, including the BLM, State Parks, and UC reserve areas, was estimated to protect over 3,900 acres of occupied habitat for Monterey spineflower. Because of the large area of conserved habitat, and the location of the Action Area at the margin of existing development, the proposed project would not considerably contribute to adverse cumulative effects on Monterey spineflower.

7.1.4 Critical Habitat

Federally designated Critical Habitat for Monterey spineflower is not present in or adjacent to the Action Area. Thus, the Proposed Action would have no effect on designated Critical Habitat for this species.

7.2 MONTEREY GILIA

7.2.1 Direct Effects

The Proposed Action would remove potentially suitable but unoccupied habitat for Monterey gilia. Botanical surveys completed in 2016 as well as a review of previous environmental analysis indicate this habitat is not currently occupied. No direct effects to Monterey gilia are expected because this plant is not known to occur within the Action Area. The likelihood and



magnitude of effects to Monterey gilia would be reduced further by implementation of general conservation measures described in Section 8.0.

7.2.2 Indirect Effects

Similar to potential indirect effects on Monterey spineflower, potential indirect effects on Monterey gilia include the potential for introduction of new non-native invasive plant species. The Proposed Action could result introduction of additional invasive species not already present, or could contribute to spread of iceplant and other existing invasive species into adjacent offsite areas currently occupied by Monterey gilia, if measures are not implemented to manage spread of these species in the Action Area and in the vicinity as a result of the Proposed Action.

Introduction of invasive plants into the Action Area could alter the species composition and cause competition with native species, recruit into and ultimately vegetate and effectively remove sandy openings typically utilized by Monterey gilia. As noted in the discussion of Monterey spineflower, weed control measures would be implemented to assist in controlling existing invasive species known from the Action Area, and preventing new invasive plants from establishing in the Action Area.

The implementation of invasive species control measures outlined with general conservation measures in Section 8.0 would reduce potential for indirect effects to Monterey gilia.

7.2.3 Cumulative Effects

The cumulative effects analysis for this document considered the impacts of the Proposed Action in context of other current and future projects in the vicinity. This analysis references previous environmental analyses of Monterey gilia, as presented in documents associated with Fort Ord, particularly environmental analysis for the Ford Ord decommissioning and reuse process. The HMP reports Monterey gilia from many locations across Fort Ord, and anticipates that a portion of known occurrences would be impacted, and a portion would be permanently conserved. The Proposed Action would not directly impact Monterey gilia, and indirect effects are limited to potential spread of invasive species. Thus, the Proposed Action is not anticipated to contribute considerably to adverse cumulative effects on Monterey gilia.

7.2.4 Critical Habitat

There is no federally designated Critical Habitat for Monterey gilia; thus, this project would not result in effects to Critical Habitat for this species.

7.3 YADON'S PIPERIA

7.3.1 Direct Effects

The Proposed Action would remove marginally suitable potential habitat for Yadon's piperia where maritime chaparral persists in the undeveloped portion of the Action Area. However, botanical surveys completed in 2016 as well as a review of previous environmental analyses



indicate this habitat is not currently occupied by Yadon's piperia. Thus, no direct effects to Yadon's piperia are expected because this plant is not known to occur within the Action Area. The likelihood and magnitude of effects to Yadon's piperia would be reduced further by implementation of conservation measures described in Section 8.0.

7.3.2 Indirect Effects

Similar to potential indirect effects on Monterey spineflower and Monterey gilia, potential indirect effects on Yadon's piperia include the potential for introduction of new non-native invasive plant species. The Proposed Action could result introduction of additional invasive species not already present, or could contribute to spread of iceplant and other existing invasive species if measures are not implemented to manage spread of these species in the Action Area and in the vicinity as a result of the Proposed Action.

Introduction of invasive plants into the Action Area could alter the species composition and cause competition with native species, recruit into and ultimately displace maritime chaparral suitable for Yadon's piperia. As noted in the discussions of Monterey spineflower and Monterey gilia, weed control measures would be implemented to assist in controlling existing invasive species known from the Action Area, and preventing new invasive plants from establishing in the Action Area.

The implementation of conservation measures in Section 8.0 would reduce indirect effects to Yadon's piperia.

7.3.3 Cumulative Effects

Similar to the approach for Monterey gilia and Monterey spineflower, the cumulative effects analysis for this document considered the impacts of the Proposed Action in context of other current and future projects in the vicinity. This analysis references previous environmental analyses of Yadon's piperia, as presented in documents associated with Fort Ord, particularly environmental analysis for the Ford Ord decommissioning and reuse process. Only one population of Yadon's piperia is reported from former Fort Ord, on a City-owned parcel adjacent to the Action Area, and that occurrence has been designated for conservation and management actions. That parcel is designated for limited development in the form of a proposed roadway, which is planned to avoid the Yadon's piperia according to the HMP. No known projects are anticipated impact Yadon's piperia. The Proposed Action would not directly impact Yadon's piperia, and indirect effects are limited to potential spread of invasive species. Thus, the Proposed Action is not anticipated to contribute considerably to adverse cumulative effects on Yadon's piperia.

7.3.4 Critical Habitat

There is no federally designated Critical Habitat for Yadon's piperia within the Action Area. This project would not result in effects to Critical Habitat for this species.



7.4 CALIFORNIA TIGER SALAMANDER

7.4.1 Direct Effects

CTS are not reported from the Action Area. Based on the lack of aquatic habitat, distance to suitable breeding locations, poor quality of upland habitat in the Action Area, and distance to known occurrences, CTS is not expected to occur in the Action Area. Direct effects would not occur.

7.4.2 Indirect Effects

The project would remove a small amount of marginally suitable potential upland dispersal habitat; however, because the Action Area is outside dispersal distance from breeding locations and lacks high quality upland habitat, the proposed Action is not anticipated to result in indirect effects to CTS. The Proposed Action is within an existing residential area, and no new transportation corridors are proposed, thus the action is not expected to substantially increase noise, human presence, or predators supplemented by trash and food left out by people.

7.4.3 Cumulative Effects

Because the Proposed Action is not expected to result in any impacts to CTS, it would also avoid contributing to adverse cumulative effects on CTS.

7.4.4 Critical Habitat

There is no federally designated Critical Habitat for CTS within the Action Area. This project would not result in effects to Critical Habitat for this species.



8.0 CONSERVATION MEASURES

Described below are conservation measures designed to reduce the likelihood and magnitude of potential impacts to three federally listed plant species and one federally listed animal species addressed in this Biological Assessment. Some measures address all the species. Others are species-specific and are included in Sections 8.1 through 8.4, where relevant. Formal consultation with USFWS is anticipated for this project. The measures that follow would become a condition of the project's HUD grant funding.

Project-Wide Conservation Measures

- 1. Work Area, Staging and Access.** Limits of access and work areas shall be marked in the field with highly visible orange construction fencing, post and rope, and/or stakes and flagging to clearly identify the limits of work/property lines and avoid offsite resource damage. Maximum spacing for posts supporting flagging, ropelines, or fencing will be no more than 10 feet on center. Fencing/flagging must be inspected weekly by a Service-approved biologist during construction activities, to ensure that the fence or flagging remains intact and properly placed. Upon completion of construction fencing or flagging must be removed and disposed of legally (reused, recycled, or taken to a legal landfill).
- 2. Worker Environmental Awareness Program.** Prior to initiation of all construction activities (including staging and mobilization), all personnel associated with construction of the project shall attend Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special status biological resources that may occur in the project area. After the initial training is completed, subsequent training may include recordings, pamphlets and handouts. A qualified biologist must be available to answer questions regardless of the method of subsequent training efforts. This training will include information about Monterey spineflower, Monterey gilia, Yadon's piperia, and CTS, and what to do if these species are observed in the Action Area, as well as other special-status species that could potentially occur in the project area.

The specifics of this program shall include identification of sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction of the project. All employees shall sign a form provided by the trainer documenting they have attended WEAP and understand the information presented to them. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to sensitive species.

Any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, shall immediately report the incident to the biological monitor. The monitor shall immediately notify the project proponent, who shall provide verbal notification, as appropriate, to the USFWS Endangered Species Office in Ventura,



California, within three (3) working days. The project proponents shall provide written notification of the incident to the USFWS within five (5) working days. HUD and the City of Marina shall also be notified to re-initiate consultation with USFWS, if appropriate.

3. **Pollutant Management.** All vehicles and equipment shall be in good working condition and free of leaks. The contractor shall prevent oil, petroleum products, or any other pollutant from contaminating the soil. When equipment and/or vehicles are parked overnight, mats or drip pans shall be placed below equipment to contain fluid leaks. When hydraulic equipment is used, proper containment materials and a spill kit must be available on-site and any leaks or spills must be cleaned up promptly.
4. **Speed Limit.** Project-related vehicles shall observe the posted speed limits on hard surfaced roadways and a 15 mile-per-hour speed limit within the construction area.
5. **Site Materials and Refuse Management.** All food-related trash shall be disposed of in closed containers and removed from the project area at least weekly during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the Action Area.
6. **Invasive Non-native Plants.** To avoid the introduction or spread of invasive non-native plants into previously un-infested areas, the contractor will implement the following measures:
 - a. Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations;
 - b. Invasive non-native plants shall be removed from the work area. Noxious vegetation shall be disposed of in a manner and at a location that will prevent its re-establishment. Reproductive parts of all noxious weeds, particularly iceplant, removed from the site during demolition and site clearance must be hauled to a legal landfill that can appropriately contain weeds. Seeds/fruits/other propagules that are hauled offsite must be fully contained, either in bags or covered containers.
 - c. Landscaping will use native species to the extent feasible. Non-native species must be non-invasive (not listed on the Cal-IPC list as invasive, and not included on local, state or federal noxious weed lists).
 - d. A Service-approved biologist will be present during implementation of invasive non-native plant control measures to ensure invasive plant materials are appropriately handled to avoid inadvertent introduction of into adjacent native habitats.



- e. A weed management and monitoring program will be implemented during the first two years after construction to prevent establishment of invasive plants which could spread to adjacent native habitats. The plan will be submitted to the Service for review.
7. **Pets and Firearms.** No pets or firearms shall be permitted in the construction area.
8. **Work Schedule Limitations.** Work shall not occur during or within 24 hours following precipitation events other than fog drip, i.e. no work shall occur during or immediately following rainstorms.

8.1 MONTEREY SPINEFLOWER

Aspects of the Proposed Action are anticipated to directly impact Monterey spineflower individuals, as described in Section 7.1. Conservation, avoidance and minimization measures beyond general project measures outlined in Section 8.0 are proposed to further minimize potential adverse effects of the Proposed Action on the Monterey spineflower because the project is expected to result in direct impacts to individuals. The following measures are intended to protect offsite individuals that occur in very close proximity to the proposed Action.

Monterey Spineflower Conservation Measures

1. **Avoidance Fencing.** In areas where special status plants are present adjacent to but outside the area(s) of grading, silt fencing or a similar barrier shall installed at the limits of work/property line, in addition to work limits flagging/fencing, as appropriate, to prevent burial of plants during grading activities. Protective fencing must be installed between project areas and each adjacent offsite area containing special status plants to be preserved before vegetation removal or grading begins. Fencing would be placed at the limits of work, or at the property line where equipment access for demolition of existing structures and construction of new buildings and structures does not allow for fencing at the immediate limit of work. Fencing will be place at the greatest distance from spineflower occurrences that does not preclude project activities, and will in all cases protect offsite occurrences of spineflower from equipment and soil movement in the construction area. Installation of such fencing shall be supervised by a qualified biological monitor. Signage shall be posted on the fencing instructing construction workers to stay out of the area. The biological monitor shall determine where use of silt fencing for protection of special status plants is appropriate, e.g. where populations to be protected are downslope of the work area.
2. **Site Stabilization.** Standard best management practices (BMPs), such as fiber rolls, silt fences, geotextiles, mulch, and revegetation techniques shall be implemented along the margins of the construction area as appropriate to control dust and stormwater runoff and prevent sediment from being transported off site into adjacent areas that support spineflower. Temporary erosion control devices shall remain in place until construction has been completed and areas of disturbed soil have been stabilized. Erosion control measures shall be maintained until it is determined they are no longer needed.



3. **Herbicide Use.** If herbicides are applied at any time before, during, or after construction, BMPs to prevent overspray, aerial or water borne transport into adjacent native habitats must be observed. Specifically, herbicides must be applied by a qualified applicator; herbicides must not be sprayed when winds are over 5 miles per hour; and herbicides must not be sprayed when there is a 50 percent chance of rain predicted within 24 hours (NOAA forecast).
4. **Protective Fencing/Signage.** To discourage trampling of spineflower adjacent to but offsite from the Action Area, some form of permanent fencing or signage identifying the presence of sensitive habitat shall be implemented along the western and southern boundary of the site.
5. **Salvage.** The Fort Ord Reuse Plan identifies a program to be implemented by the City of Marina wherein the City shall encourage attempts to salvage sensitive resources to be impacted by development. Thus, the conservation measures include an effort to salvage seed and/or topsoil (seed bank) of Monterey Spineflower. Salvage efforts would include the following elements.
 - a. Initial ground disturbance in areas that support spineflower would be timed to allow for collection of seed and/or topsoil with seed bank **after** seed has set for the year, typically in August or September, or as determined by a qualified botanist approved by the Service to oversee salvage efforts. If construction proceeds on other parts of the site, spineflower areas would be protected with silt fencing and flagging to ensure there are no accidental impacts to individuals prior to seed/topsoil collection.
 - b. A qualified botanist, with approval from the Service, would salvage seed and/or topsoil from areas of impact prior to construction activities that affect spineflower areas.
 - c. Seed and/or topsoil would be stored dry in a climate controlled environment.
 - d. To the extent feasible seed and/or topsoil would be reused on the project site after construction in open areas that are not developed.
 - e. Excess seed/soil would be made available to nearby sites that are suitable for restoration efforts, such as State Parks properties, the UC Reserve, CSU Monterey Bay lands, or BLM lands. The botanist who performs seed collection and salvage would work with land manager(s) for those sites to determine a suitable planting location and would assist with placement of seed/soil, or would coordinate with the Service to identify another qualified person working on the restoration site who can assume responsibility for the seed.
 - f. If no suitable receiver sites and willing participants can be found, the project owner would fund permanent ex situ storage of the seed at a qualified seed bank with appropriate credentials to store native plant seed for long term conservation research and potential future planting projects.

8.2 MONTEREY GILIA

Potential effects to Monterey gilia, as described in Section 7.2, are limited to potential indirect effects. Implementation of general conservation measures as identified in Section 8.0 are sufficient to minimize adverse effects to this species.



8.3 YADON'S PIPERIA

Potential effects to Yadon's piperia, as described in Section 7.3, are limited to potential indirect effects. Implementation of general conservation measures as identified in Section 8.0 are sufficient to minimize adverse effects to this species.

8.4 CALIFORNIA TIGER SALAMANDER

No specific conservation measures are required for CTS, beyond WEAP training, trash containment, and work timing restrictions specified in Section 8.0, because this species is not expected to occur in the Action Area.



9.0 EFFECTS DETERMINATION

This discussion provides a Section 7 finding for proposed or listed species and proposed or designated critical habitat that may be present in the Action Area should the Proposed Action be implemented.

The Proposed Action would have no effect on designated critical habitats as none are present in or immediately adjacent to the Action Area.

9.1 MONTEREY SPINEFLOWER

The project would directly affect Monterey spineflower plants within 0.028 acre of the 2.64-Action Area. Therefore, the project is likely to adversely affect the federally threatened Monterey spineflower in the Action Area. The project would not affect Monterey spineflower critical habitat. Both direct and indirect effects of associated with construction of the proposed veterans supportive housing project would affect a small area of Monterey spineflower relative to the extent of adjacent occurrences and would not fragment or impact previously undisturbed habitat.

Indirect impacts can be offset by implementing avoidance and minimization measures for Monterey spineflower, as described herein in Section 8. The transfer of large areas of spineflower habitat to permanent reserves and conservation uses as part of the HMP implementation has offset impacts due to development in areas planned for development in the HMP.

Direct impacts to Monterey spineflower as a result of grading in the Action Area would be minimized by implementing conservation measures listed in Section 8.1 to ensure offsite individuals on the neighboring parcel are protected, to salvage seed and soil to the extent feasible, and to ensure site stabilization and weed control efforts do not impact offsite individuals adjacent to the Action Area.

9.2 MONTEREY GILIA

The project may affect, but is not likely to adversely affect, Monterey gilia. To avoid and minimize potential adverse effects to the Monterey gilia, the conservation measures described in Section 8.0 would be implemented; specifically, WEAP training, clearly defining work limits and implementing invasive species control measures.

9.3 YADON'S PIPERIA

This project may affect, but is not likely to adversely affect, Yadon's piperia. To avoid and minimize potential adverse effects to the Yadon's piperia, the conservation measures described in Section 8.0 would be implemented; specifically, WEAP training, clearly defining work limits and implementing invasive species control measures. This project would have no effect on designated critical habitat for Yadon's piperia.



9.4 CALIFORNIA TIGER SALAMANDER

This project would have no effect on CTS. This project would have no effect on designated critical habitat for CTS. To ensure the project has no effect on CTS, the species would be included in the WEAP training and the general conservation measures described in Section 8.0 would be implemented.



10.0 SUMMARY

In summary, EAH has proposed to redevelop a parcel in the City of Marina on former Fort Ord to create affordable permanent supportive housing with specific priority for homeless veterans, replacing four existing duplexes. The Proposed Action would seek funding through a variety of sources, including HUD. HUD subsidy would be in the form of project-based vouchers through the Housing Authority of the County of Monterey. The City has been delegated with responsibility to certify the NEPA document, and will also work with the USFWS on HUD's behalf to comply with Section 7 of the federal ESA.

The proposed Action would construct 71 units of apartments, to address in part a large homeless veteran population in Monterey County. Under provisions of Section 7(a)(2) of the ESA, a federal agency reviewing a proposed project/ action within its jurisdiction must insure that actions "authorized, funded, or carried out by" a federal agency are not likely to jeopardize the continued existence of a listed species or species proposed for listing, or result in the destruction or adverse modification of designated or proposed critical habitat for such species, unless the agency has been granted an exception allowing specified levels of incidental take otherwise prohibited by the ESA.

This Biological Assessment was prepared to review potential resources that could occur in the Action Area and/or be affected by the Proposed Action. An official species list was requested and the species contained therein were evaluated. Focused biological surveys determined that part of the Action Area is developed, but part supports native maritime chaparral with open sandy areas, and a portion of those open sandy areas are occupied by Monterey spineflower, a threatened species. Additional spineflower was identified on the neighboring open space parcel. The Proposed Action would potentially remove approximately 600 individuals based on 2016 counts, and approximately 0.028 acre of occupied habitat.

The Action Area is a parcel that was slated for transfer and redevelopment in the Fort Ord Reuse Plan, and the HMP. Spineflower was known to occur on the parcel during preparation of the HMP but due to the level of disturbance on the parcel it was not determined to be a high priority for conservation and loss of individuals on the parcel were not thought to imperile the survival of the species. The HMP did not require compensatory mitigation for activities on Development parcels, but did require compliance with state and local laws, including the ESA. Further, the Fort Ord Reuse Plan includes a policy in which the City will encourage salvage of special status resources from development parcels where feasible. Avoidance and minimization measures have been developed to minimize potential effects on Monterey spineflower, including work area limits, avoidance fencing, erosion control and site stabilization, and weed control. Additional conservation measures have been identified to further reduce impacts, including salvage of seed and/or topsoil and contribution of those materials to restoration efforts underway at one of the local offsite reserve location, or contributing seed to a qualified seed bank if such a site cannot be identified. This Biological Assessment and the avoidance, minimization, and conservation measures contained herein are consistent with the FORA BRP and HMP.



11.0 REFERENCES AND PREPARERS

11.1 REFERENCES

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11.2 LIST OF PREPARERS

RINCON CONSULTANTS, INC.

- Field Surveys:
Kristiaan Stuart, Senior Ecologist
Daniel Schrimsher, Associate Biologist
- Report Preparation:
Meg Perry, Senior Biologist/Botanist
- Technical Review:
Colby J. Boggs, Principal/Senior Ecologist
- Spatial Analysis and Map Production:
Meg Perry, Senior Biologist/Botanist
Doug Carreiro, GIS Analyst



Appendix A

Regulatory Framework

REGULATORY FRAMEWORK

Federally listed species are those taxa that are formally listed as endangered or threatened by the federal government (e.g. USFWS), pursuant to the federal Endangered Species Act (ESA).

The following is a brief summary of the regulatory context under which federal-listed threatened and endangered species are managed. The two agencies with the responsibility for protection of federal-listed species are discussed below.

United States Fish and Wildlife Service and National Marine Fisheries Service. The USFWS and NMFS share responsibility for implementing the federal ESA (16 USC § 153 et seq.). The USFWS generally implements the ESA for terrestrial and freshwater species, while the NMFS implements the ESA for marine and anadromous species. Projects that would result in “take” of any federal-listed threatened or endangered species are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of ESA, depending on the involvement by the federal government in permitting and/or funding of the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. “Take” under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

See also section 4.2.4 of this Biological Assessment for a discussion of former Fort Ord.



Appendix B

Site Plans

VETERANS SUPPORTIVE HOUSING MARINA, CA 93933

PROJECT TEAM

CO-DEVELOPER
ECUMENICAL ASSOCIATION FOR HOUSING
2169 E. Francisco Blvd., Suite B
San Rafael, CA 94901
Phone: 415-295-8886
CONTACT: ETHAN DANIELS
ethan.daniels@EAHousing.org

ARCHITECT
HKIT ARCHITECTS
538 Ninth Street, Suite 240 Oakland CA 94607
Phone: 510 625-9800 Fax: 510 625 9801
CONTACT: RICH CALDWELL
rcaldwell@hkit.com

CO-DEVELOPER
VETERANS TRANSITION CENTER
OF MONTEREY COUNTY
220 Twelfth St, Marina CA 93933
Phone: 831 883-8587
CONTACT: WILLIAM TERRY BARE
wbare@vtcmonterey.org

LANDSCAPE ARCHITECT
VAN DORN ABED LANDSCAPE ARCHITECTS INC.
81 14th Street San Francisco, CA 94103
Phone: 415 864-1921 Fax: 415 864-4796
CONTACT: SHARI VAN DORN
shari@valainc.com

CIVIL ENGINEER
WHITSON ENGINEERS
9699 Blue Larkspur Lane, Suite 105
Monterey, CA 93940
Phone: 831 649-5225
CONTACT: RICHARD WEBER
rweber@whitsonengineers.com

PROJECT DATA

PROJECT INFORMATION		REFERENCE
ZONE	PROJECT SITE ADJACENT ZONES	R-4 SOUTHWEST: OPEN SPACE ACROSS HAYES CIRC. R-4 TO NORTHWEST: R-1 "CYPRUS KNOLLS"
USES	GENERAL PLAN AREA PERMITTED CONDITIONAL USE PERMIT 2013 CBC OCCUPANCY	17.20.030 17.20.030
SITE AREA	SQUARE FEET ACRES	104,365 S.F. 2.40 ACRES
DENSITY	UNITS / ACRE	
	MINIMUM DENSITY MAX ALLOWABLE (NO BONUS) PROPOSED UNITS / ACRE	15 UN/ACRE 35 UN/ACRE 30 UN/ACRE
F.A.R.	PROPOSED FAR (CONDITIONED ONLY)	0.52
HEIGHT	CONSTRUCTION MAX ALLOWABLE HEIGHT PROPOSED HEIGHT EXCEPTIONS	TYPE VA (ONE-HOUR WOOD FRAMED) 42' 42' MAX MECH EQUIP, ARCH FEATURES
LOT COVERAGE	LOT COVERAGE ALLOWABLE LOT COVERAGE PROPOSED - AREA LOT COVERAGE PROPOSED - PERCENTAGE	60% 19,485 19%
YARDS AND COURTS	FRONT - HAYES CIRCLE SIDE ADJACENT R-4 SIDE ADJACENT R-1 REAR YARDS	12' 5' 17' 10'
OPEN SPACE (S.F.)	REQUIREMENTS: MAX SLOPE MIN. DIMENSION INDOOR SPACE COUNTED TOWARDS TOTAL REQUIRED > PER STUDIO APT: 300 SF PER UNIT > PER 2BR AT 400 S.F. PER UNIT TOTAL REQUIRED AREA REQUIRED PRIVATE OPEN SPACE PER UNIT: > 80 S.F. PATIOS AT GROUND LEVEL > 40 S.F. BALCONS AT UPPER LEVEL TOTAL REQUIRED PRIVATE OPEN SPACE PROVIDED - COMMON OUTDOOR COMMON OPEN SPACE INDOOR COMMON OPEN SPACE (300 S.F. MIN) TOTAL COMMON PROVIDED PROVIDED - PRIVATE TYPICAL PATIO AT GROUND FLOOR LEVEL TYPICAL BALCONY AT UPPER FLOOR LEVEL TOTAL PRIVATE OPEN SPACE PROVIDED GRAND TOTAL OPEN SPACE	10% 6' ROOMS 300 S.F. OR MORE 19,200 S.F. 2,800 S.F. 22,000 S.F. 1,840 S.F. 1,960 S.F. 3,800 S.F. 26,352 S.F. 1,770 S.F. 28,122 S.F. 1,955 S.F. 2,258 S.F. 4,013 S.F. 32,135 S.F.
UNITS	STUDIO TWO-BEDROOM TOTAL	64 7 71
		90% 10%
BUILDING AREA (S.F.) - GROSS AREAS	FLOOR 1 CONDITIONED UNCONDITIONED (COVERED WALKWAY) FLOOR 2 CONDITIONED UNCONDITIONED (COVERED WALKWAY) FLOOR 3 CONDITIONED UNCONDITIONED (COVERED WALKWAY) TOTAL CONDITIONED AREA TOTAL UNCONDITIONED AREA TOTAL OVERALL AREA	19,339 S.F. 146 S.F. 18,387 S.F. 374 S.F. 16,754 S.F. 374 S.F. 54,480 894 S.F. 55,374 S.F.
PARKING	RESIDENTIAL PER CA A.B. 744 * * 3 STALLS / BEDROOM (INCLUSIVE H.C. AND VISITOR PKG) STUDIO: 3 PER UNIT (1:1 COVERED) TWO BR: 6 PER UNIT (1:1 COVERED) TOTAL REQUIRED PARKING PROVIDED ON-SITE MIN. STALL DIMENSIONS AISLE BICYCLES SHORT TERM PROVIDED LONG TERM PROVIDED	WHEN MAX. AFFORDABLE + SPECIAL NEEDS + 1/2 MILE TO TRANSIT 20.0 STALLS 5.0 STALLS 25 STALLS 60 STALLS 9x19' 25' 8 BIKES 18 BIKES



VIEW FACING NORTHWEST ALONG MILLER

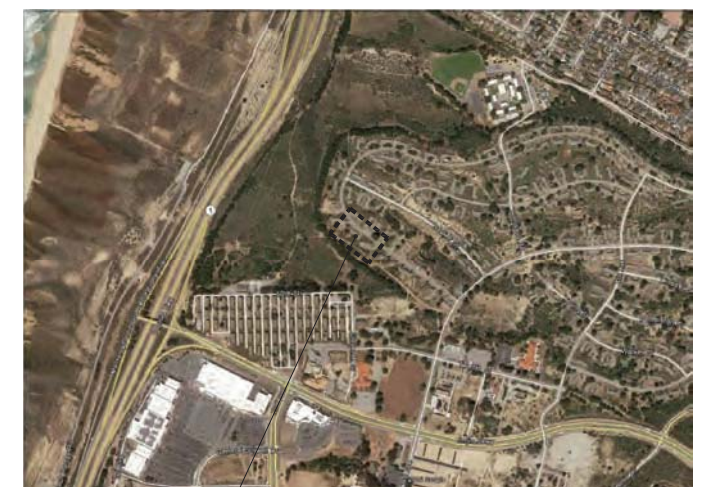
APPLICABLE CODES

UFAS: ACCESSIBLE UNITS
FAIR HOUSING GUIDELINES: COMMON AREAS AND VISITABLE/ADAPTABLE UNITS
2013 CBC, INCLUDING CHAPTER 11B FOR COMMON AREAS AND ACCESSIBLE UNITS
2013 CBC CHAPTER 11A FOR ADAPTABLE UNITS
2013 CA PLUMBING, ELECTRICAL, FIRE CODES
2013 CA ENERGY CODE
2013 GREEN BUILDING STANDARDS - RESIDENTIAL MANDATORY MEASURES
2010 ADA: TITLE III PUBLIC AREAS AND ACCESSIBLE UNITS

SHEET INDEX

##	TITLE
GENERAL	
G0.0	PROJECT INFORMATION
CIVIL	
C0.1	PRELIMINARY CIVIL TITLE SHEET
C1.0	TOPOGRAPHIC SURVEY
C1.1	PRELIMINARY CIVIL SITE PLAN
LANDSCAPE	
L1.1	PRELIMINARY LANDSCAPE PLAN
L2.1	PRELIMINARY PLANT PALETTE
L3.1	IRRIGATION EQUIPMENT LIST AND DETAILS
L3.2	IRRIGATION DETAILS
L3.3	IRRIGATION DETAILS
L4.1	TREE PRESERVATION AND REMOVAL PLAN
ARCHITECTURAL	
A0.1	CONCEPTUAL RENDERINGS
A0.2	CONCEPTUAL RENDERINGS
A1.1	SITE PLAN
A2.1	FLOOR 1 PLAN
A2.2	FLOOR 2 PLAN
A2.3	FLOOR 3 PLAN
A2.4	ROOF PLAN
A3.0	EXTERIOR ELEVATIONS
A3.1	EXTERIOR ELEVATIONS

VICINITY MAP



SITE

VETERANS SUPPORTIVE HOUSING V.T.C / E.A.H

MARINA, CALIFORNIA

JOB NO. 30043
DRAWN .
CHECKED .
JOB CAPTAIN PM
DATE 12/21/2015
DESIGN REVIEW APPLICATION
2/11/2016
DESIGN REVIEW RESUBMITTAL

DRAWING TITLE PROJECT INFORMATION

SCALE AS NOTED

GENERAL NOTES

- 1. CONSTRUCTION CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY...

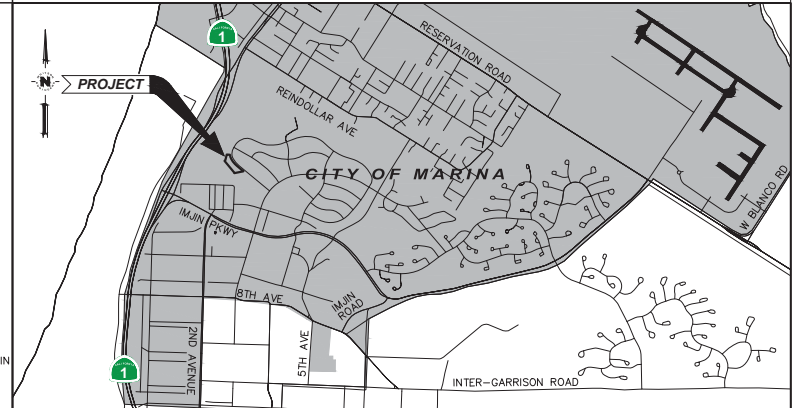
GRADING NOTES

- 1. SITE GRADING SHALL BE DONE IN CONFORMANCE WITH THE PROJECT GEOTECHNICAL REPORT ENTITLED: GEOTECHNICAL INVESTIGATION: xxx MARINA, CALIFORNIA BY MOORE TWNING ASSOCIATES, INC, XXX, 2016

LEGEND

Table with 2 columns: Symbol/Line Style and Description. Includes symbols for property boundary, existing/finished grade contours, proposed storm/rain water lines, existing sanitary sewer lines, proposed water lines, fire service lines, grade breaks, flowlines, joint trenches, and various pavement types.

VICINITY MAP



CIVIL SHEET INDEX

- C01 PRELIMINARY CIVIL TITLE SHEET
C10 TOPOGRAPHIC SURVEY
C11 PRELIMINARY CIVIL SITE PLAN

PROJECT TEAM / DIRECTORY

Table listing project team members: DEVELOPER (EAM HOUSING), ARCHITECT (HKIT ARCHITECTS), CIVIL ENGINEER / SURVEYOR (WHITSON ENGINEERS), LANDSCAPE ARCHITECT (VAN DORN ABED LANDSCAPE ARCHITECTS, INC.), GEOTECHNICAL ENGINEER (MOORE TWNING ASSOCIATES, INC.), GRADING CONTRACTOR (TO BE DETERMINED), and GENERAL CONTRACTOR (TO BE DETERMINED).

EARTHWORK SUMMARY

Table with 3 columns: DESCRIPTION, CUT (CY), and FILL (CY). Rows include FINISH GRADING (5,000 CUT, 1,500 FILL), DEMO AND CLEARING (4'), SHRINKAGE (10%), TOTAL (3,750 CUT, 2,900 FILL), and NET EXPORT (850 CY).

THE QUANTITIES PRESENTED ARE ESTIMATES ONLY AND ARE BASED ON AN ASSUMED DEMOLITION AND CLEARING VOLUME, STRUCTURAL UNDERCUTS, AND ADJUSTMENTS IN VOLUME DUE TO CHANGES IN SOIL DENSITY (SHRINKAGE).

BENCHMARK

LOCAL BENCHMARK: MAG NAIL SET AT THE LOCATION SHOWN ON SHEET C10. ELEVATION: 76.18' (ASSUMED DATUM)



MARINA COAST WATER DISTRICT logo and contact information: 11 RESERVATION ROAD, MARINA, CA 93933, (831) 384-6131.

Approval section with fields for 'REVIEWED BY' (Brian C. Lau, P.E.), 'APPROVED BY CITY OF MARINA FIRE CHIEF' (Harold Kelly), and 'APPROVED:' (Nourdin Khayata, Acting City Engineer).

HKIT ARCHITECTS logo and contact information: 339 NINTH STREET SUITE 240 - OAKLAND, CA 94607, T 510 623 9400 • F 510 623 9401 • WWW.HKIT.COM



WHITSON ENGINEERS logo and contact information: 9699 Blue Larkspur Lane + Suite 105, Monterey, CA 93940, 831.649.5225 • Fax 831.373.5065. Also lists services: CIVIL ENGINEERING, LAND SURVEYING, PROJECT MANAGEMENT.

VETERANS SUPPORTIVE HOUSING

MARINA, CALIFORNIA
JOB NO. 30043 | WE: 3394.01
DRAWN RPW
CHECKED RPW
JOB CAPTAINM
DATE 2/10/2016
DESIGN REVIEW APPLICATION

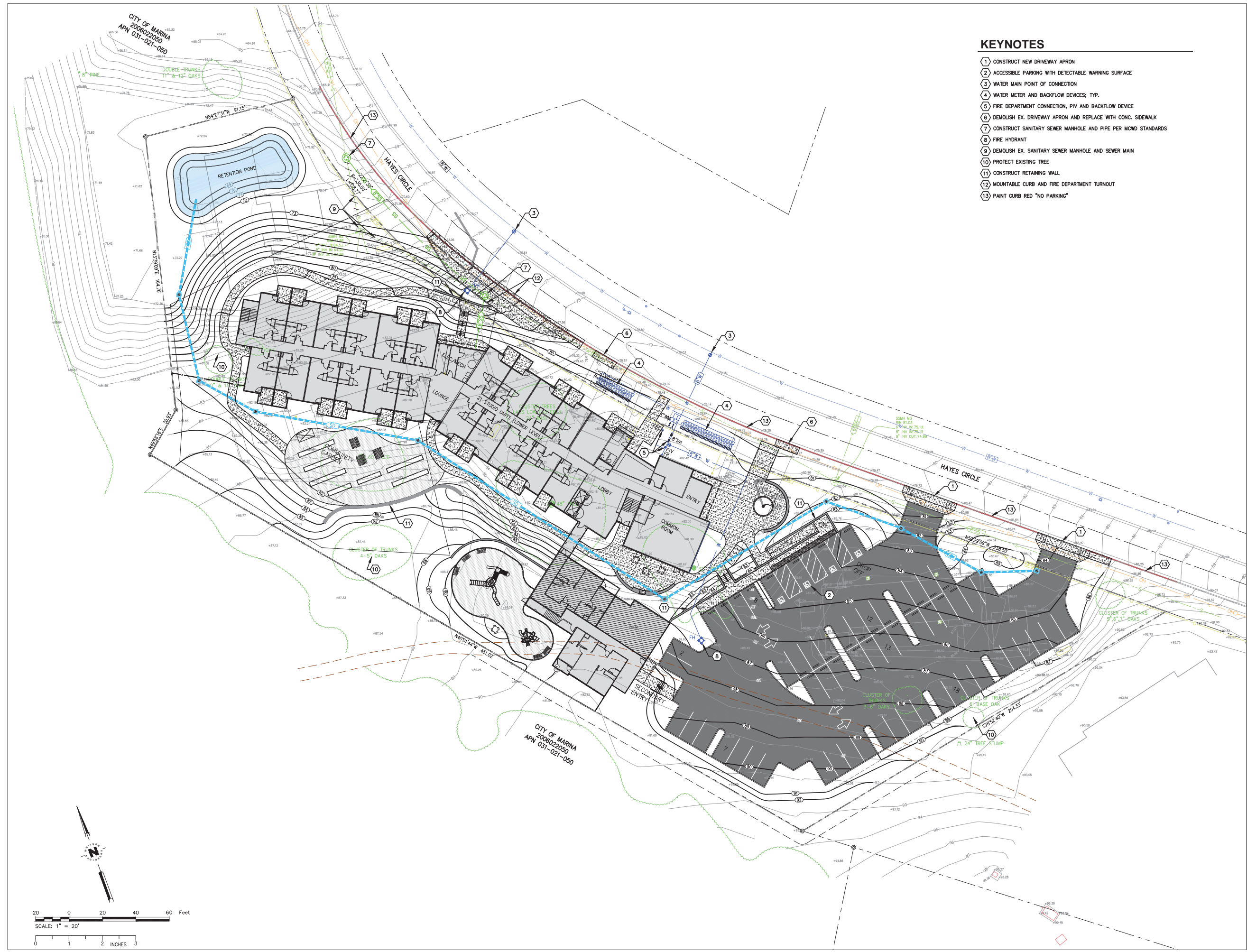
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PRELIMINARY CIVIL TITLE SHEET

SCALE AS NOTED

C0.1

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LAST SAVED: THURSDAY, MAY 23, 2022 12:31:49 PM BKG\LIST DWG\FILE 11\WHITSON\ADMIN\TEMPLATES\PLATES\SHEETS\SPONSORING - REF_PLATE_0.rvt INO_LIST



- KEYNOTES**
- 1 CONSTRUCT NEW DRIVEWAY APRON
 - 2 ACCESSIBLE PARKING WITH DETECTABLE WARNING SURFACE
 - 3 WATER MAIN POINT OF CONNECTION
 - 4 WATER METER AND BACKFLOW DEVICES; TYP.
 - 5 FIRE DEPARTMENT CONNECTION, PIV AND BACKFLOW DEVICE
 - 6 DEMOLISH EX. DRIVEWAY APRON AND REPLACE WITH CONC. SIDEWALK
 - 7 CONSTRUCT SANITARY SEWER MANHOLE AND PIPE PER MCD STANDARDS
 - 8 FIRE HYDRANT
 - 9 DEMOLISH EX. SANITARY SEWER MANHOLE AND SEWER MAIN
 - 10 PROTECT EXISTING TREE
 - 11 CONSTRUCT RETAINING WALL
 - 12 MOUNTABLE CURB AND FIRE DEPARTMENT TURNOUT
 - 13 PAINT CURB RED "NO PARKING"

HKITARCHITECTS
 339 NINTH STREET SUITE 240 • OAKLAND, CA 94607
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 831 649-5225 • Fax 831 373-5065
 CIVIL ENGINEERING • LAND SURVEYING • PROJECT MANAGEMENT

VETERANS SUPPORTIVE HOUSING

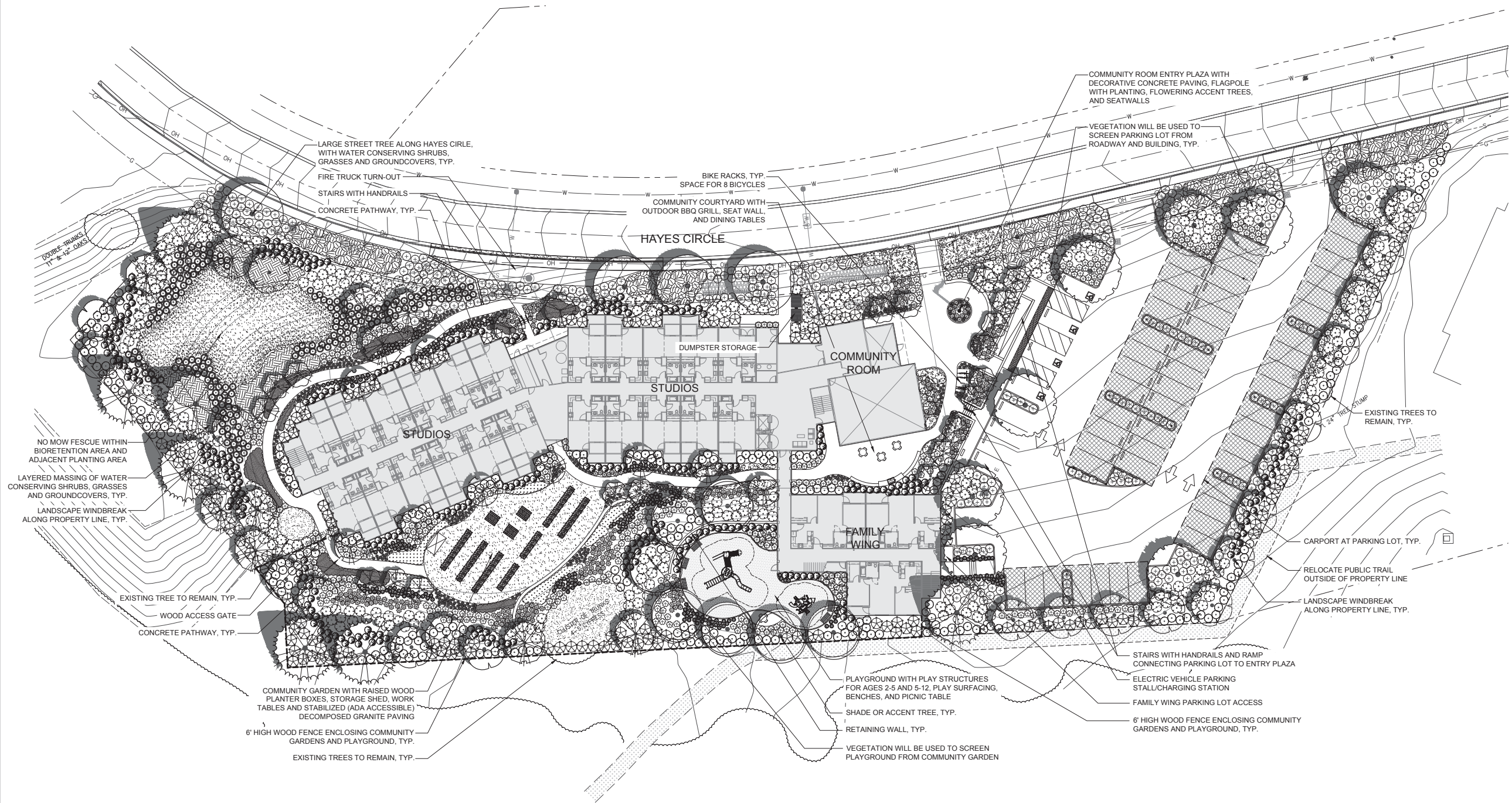
MARINA, CALIFORNIA

JOB NO. 30043 | WE: 3394.01
 DRAWN RPW
 CHECKED RPW
 JOB CAPTAIN
 DATE 2/10/2016
 DESIGN REVIEW APPLICATION

DRAWING TITLE
PRELIMINARY CIVIL SITE PLAN

SCALE AS NOTED

C1.1
 COPYRIGHT © 2015 HKIT ARCHITECTS



PLANTING DESIGN INTENT STATEMENT

The planting design utilizes a variety of plants to create layers of color and texture to complement the architecture. Shade tolerant plants will be utilized on the North facing sides of the project and in covered spaces. The plants will be selected utilizing the State of California's Model Water Efficient Landscape Ordinance plant list and ET Calc water management computer software, as well as recommended plant sources from the Marina Coast Water District. See Sheet L2.1 for Plant Palette.

WATER USE DESIGN INTENT STATEMENT

The irrigation system will be a fully automatic, low gallon use drip system. This system will be designed to connect to the city's recycled water supply, when available. The low, medium and high water use hydrozones will be on separate valve circuits. All new trees will have separate drip or bubbler circuits. The remote control valves will have integral pressure regulators to prevent fluctuations and ensure constant application rates to minimize over or under watering. The electronic irrigation controller will be weather based and make automatic adjustments based on current climate along with multiple programs and application cycles/start times. A rain switch will be installed to prevent irrigation during rainy periods. A flow sensor and master valve will be connected to the controller to allow automatic shut off of any valve circuit or main line in the event of a pipe brake to prevent water waste.

VETERANS SUPPORTIVE HOUSING

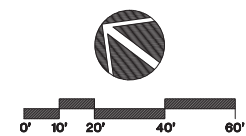
MARINA, CALIFORNIA

JOB NO. V1552
 DRAWN WM
 CHECKED SVD
 JOB CAPTAIN WM
 DATE 12/21/2015
 DESIGN REVIEW APPLICATION
 1/26/2016
 DR RESUBMITTAL
 2/10/2016
 DR RESUBMITTAL

DRAWING TITLE
**PRELIMINARY
 LANDSCAPE
 PLAN**

SCALE 1"=20'-0"

L1.1
 COPYRIGHT © SHANNON ARCHITECTS



Appendix C

Photo Plate

PHOTO PLATE



Photo 1. Ruderal and developed habitat located west of 229 Hayes Circle, in the Action Area, facing north. Photo taken May 12, 2016.



Photo 2. View of Ruderal and developed habitat at 229 Hayes Circle. Photo was taken May 12, 2016.



Photo 3. Sandmat manzanita (foreground) and ruderal and developed habitat. Photo was taken facing approximately northeast. May 13, 2016.



Photo 4. Monterey spineflower in the Action Area. Photo taken May 13, 2016.



Photo 5. Maritime chaparral with sandy openings west of 239 Hayes Cir. Photo taken May 13, 2016.

Appendix D

USFWS Official Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
2493 PORTOLA ROAD, SUITE B
VENTURA, CA 93003
PHONE: (805)644-1766 FAX: (805)644-3958

Consultation Code: 08EVEN00-2016-SLI-0559

August 01, 2016

Event Code: 08EVEN00-2016-E-01101

Project Name: Veterans Transition Center

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve

conflicts with respect to threatened or endangered species or their critical habitat prior to a written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Official Species List

Provided by:

Ventura Fish and Wildlife Office
2493 PORTOLA ROAD, SUITE B
VENTURA, CA 93003
(805) 644-1766

Consultation Code: 08EVEN00-2016-SLI-0559

Event Code: 08EVEN00-2016-E-01101

Project Type: Federal Grant / Loan Related

Project Name: Veterans Transition Center

Project Description: This project is redevelopment of an existing site currently containing 4 abandoned duplex buildings into a transition housing center for veterans. The site is a former Fort Ord parcel that has been transferred out of federal ownership. The project would be funded through a HUD voucher program.

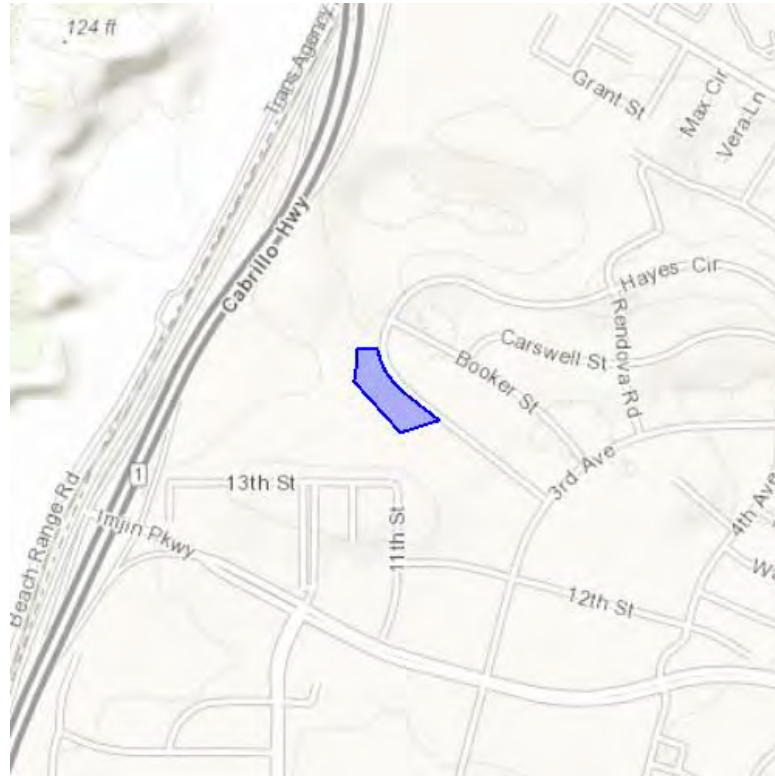
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-121.80695414543152 36.672590395830916, -121.80743426084518 36.672592547127316, -121.80745571851729 36.67208699081506, -121.80748522281647 36.67198372784061, -121.80645525455473 36.671054354834645, -121.80555403232574 36.67127379114, -121.80635869503021 36.67177505015679, -121.80658400058748 36.67196651733141, -121.80677980184554 36.672181648419865, -121.80690586566926 36.67237526588525, -121.80695414543152 36.672590395830916)))

Project Counties: Monterey, CA



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Endangered Species Act Species List

There are a total of 19 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog (<i>Rana draytonii</i>) Population: Entire	Threatened	Final designated	
California tiger Salamander (<i>Ambystoma californiense</i>) Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
Santa Cruz Long-Toed salamander (<i>Ambystoma macrodactylum croceum</i>) Population: Entire	Endangered		
Birds			
California Least tern (<i>Sterna antillarum browni</i>)	Endangered		
California condor (<i>Gymnogyps californianus</i>) Population: Entire, except where listed as an experimental population	Endangered	Final designated	
Least Bell's vireo (<i>Vireo bellii pusillus</i>) Population: Entire	Endangered	Final designated	



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Marbled murrelet (<i>Brachyramphus marmoratus</i>) Population: CA, OR, WA	Threatened	Final designated	
Southwestern Willow flycatcher (<i>Empidonax traillii extimus</i>) Population: Entire	Endangered	Final designated	
western snowy plover (<i>Charadrius nivosus ssp. nivosus</i>) Population: Pacific coastal pop.	Threatened	Final designated	
Crustaceans			
Vernal Pool fairy shrimp (<i>Branchinecta lynchi</i>) Population: Entire	Threatened	Final designated	
Fishes			
Tidewater goby (<i>Eucyclogobius newberryi</i>) Population: Entire	Endangered	Final designated	
Flowering Plants			
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	Endangered	Final designated	
Marsh Sandwort (<i>Arenaria paludicola</i>)	Endangered		
Menzies' wallflower (<i>Erysimum menziesii</i>)	Endangered		
Monterey gilia (<i>Gilia tenuiflora ssp. arenaria</i>)	Endangered		
Monterey spineflower (<i>Chorizanthe pungens var. pungens</i>)	Threatened	Final designated	



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Yadon's piperia (<i>Piperia yadonii</i>)	Endangered	Final designated	
Insects			
Smith's Blue butterfly (<i>Euphilotes enoptes smithi</i>) Population: Entire	Endangered		
Mammals			
Southern Sea otter (<i>Enhydra lutris nereis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Veterans Transition Center

Critical habitats that lie within your project area

There are no critical habitats within your project area.



Appendix C

Historic and Cultural Resources Evaluation

Historic & Cultural Resources Evaluation

HISTORIC RESOURCES EVALUATION FOR SECTION 106 REVIEW

VETERANS TRANSITION CENTER

229 Hayes Circle
Marina, Monterey County, CA 93933



NOVEMBER 2015

AEM CONSULTING

310 Pacific Heights Drive
Santa Rosa, California 95403
(707) 523-3710

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BACKGROUND

Monterey County Housing Authority has awarded U.S. Department of Housing and Urban Development (HUD), Veterans Affairs Supportive Housing (HUD-VASH) vouchers to EAH Housing, Inc. to develop Veterans Transition Center – Marina project, an affordable housing project for homeless veterans. The project will demolish existing improvements and construct 71 units of housing with parking and amenities, including supportive services, on a 2.38-acre site. To secure HUD release of funds for the project, Monterey County Housing Authority must provide a suitable federal Environmental Review Record to HUD prepared according to the requirements of the National Environmental Policy Act (NEPA) and HUD's own Environmental Regulations found in 24 CFR Part 58. The appropriate level of federal environmental review in this case is an Environmental Assessment, presumably leading to a Finding of No Significant Impact.

The Environmental Assessment must be prepared for signature by the Certifying Officer for the County of Monterey. To complete the review, HUD requires that the Environmental Review demonstrate that the project complies with all applicable federal laws and regulations, including Section 106 of the National Historic Preservation Act. Regulations pertaining to Section 106 Review are found in 36 CFR Part 800.

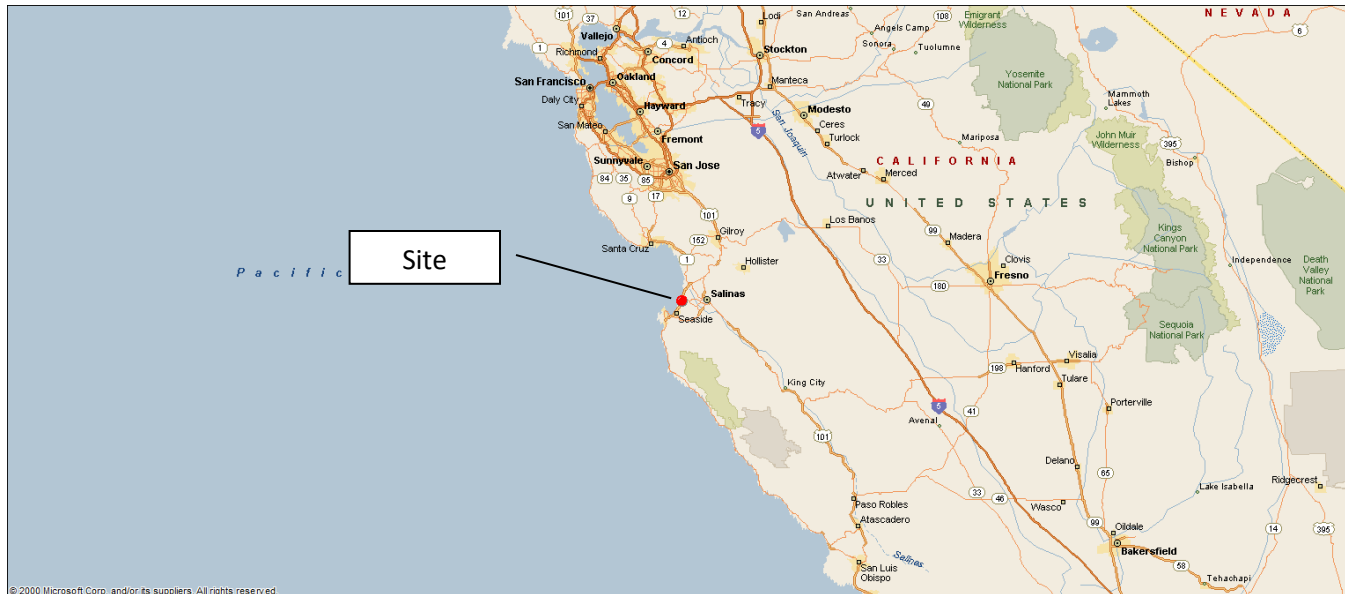
PROJECT DESCRIPTION/UNDERTAKING

EAH Housing, Inc. and the Veterans Transition Center (VTC) of Monterey have partnered to develop permanent rental housing for veterans, with a specific priority for homeless veterans on a 2.38-acre parcel located at 229 Hayes Circle, Marina, Monterey County, California 93933 (APN 031-021-040-000). The undertaking consists of demolition of four duplexes that currently occupy the site and new construction of a three-story building to house 71 residential housing units comprised of 64 studio apartments and 7 two-bedroom apartments, including a manager's unit. Amenities will include a community room, leasing office, onsite laundry, tenant lounges, a 54-space parking lot, community garden and an office to provide the critical services for formerly homeless veteran population.

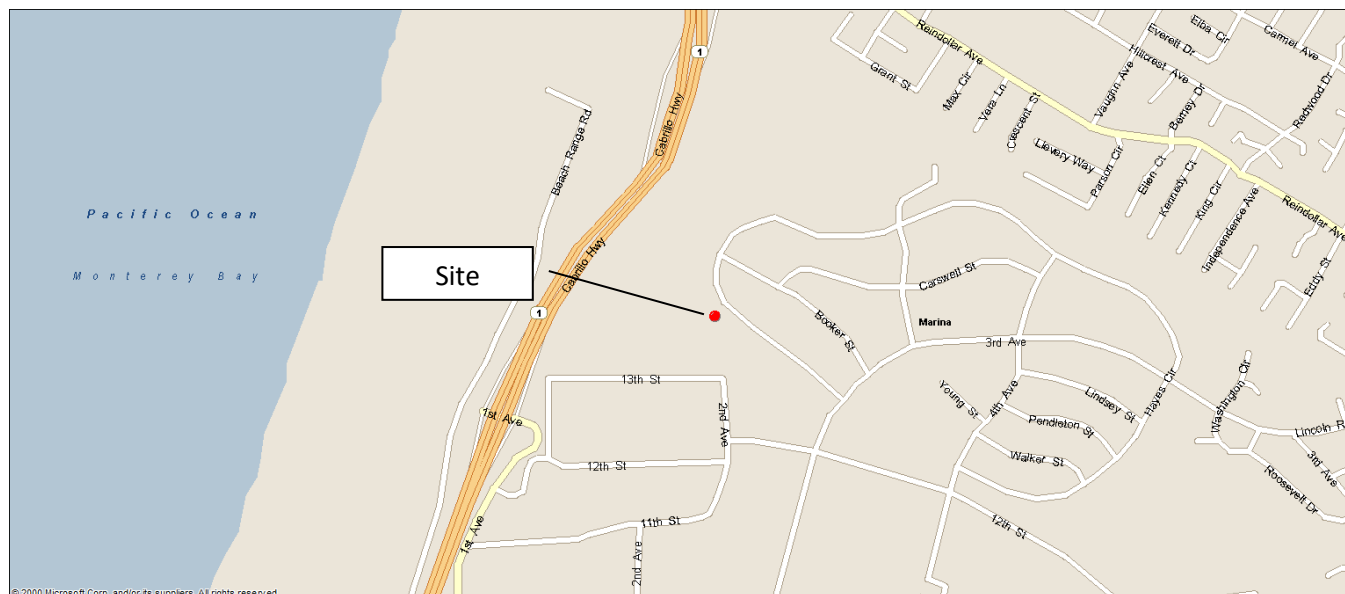
The project site is located on the former Fort Ord Base. VTC acquired ownership of the land through a quitclaim deed from the US Department of Health and Human Services. The site currently houses four duplex buildings, which would be demolished as part of the project. The site does have a significant slope, where one quarter of the site is roughly 10 feet lower than the rest. The project is considering a split level to accommodate the grade change without displacing a considerable amount of soil. Some trees may need to be removed in order to facilitate the placement of the building and parking lot, but a full landscape plan will be implemented to ensure any net loss of trees is mitigated. EAH has taken a notable step towards increased energy efficiency in its developments, and this project will set out to achieve a LEED Platinum rating.

Half of the units will operate at 30% of area median income (AMI) and the other half will operate at 50% AMI.

PROJECT LOCATION

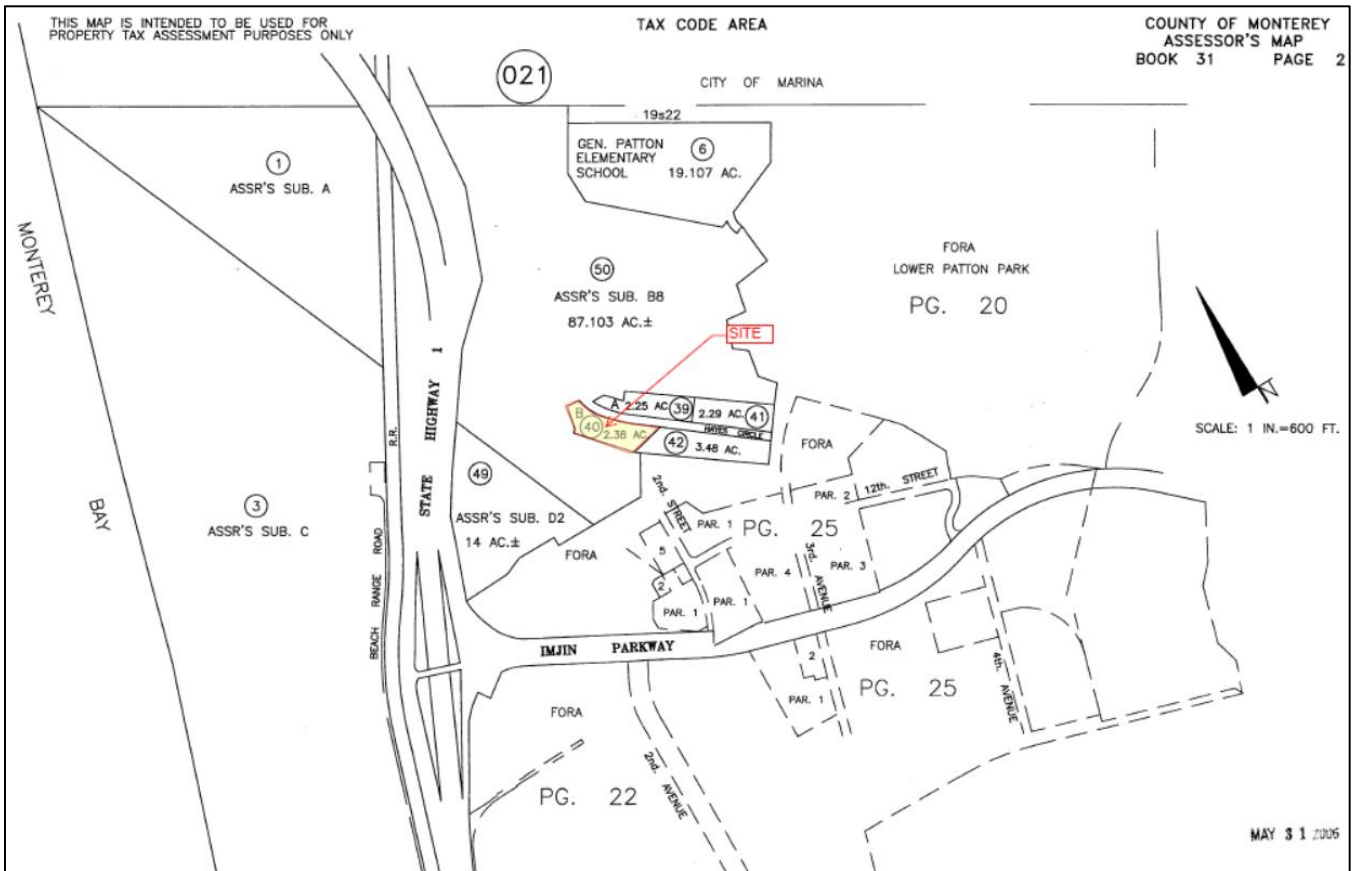


MAP 1 REGION



MAP 2 DETAIL

Project Location is in Township 14 South, Range 1 East, Section 36



MAP 3 ASSESSOR PARCEL MAP



MAP 4 USGS MARINA 7.5" QUAD

REGULATORY CONTEXT FOR EVALUATION OF HISTORICAL AND ARCHITECTURAL SIGNIFICANCE

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties. The section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and other interested parties, beginning at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. To evaluate the significance of an historical resource and its integrity, the ability of a property to convey that significance, a building is evaluated according to the National Register Criteria for Evaluation. According to the guidelines of the National Register Criteria for Evaluation, the quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- 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 has yielded or may be likely to yield, information important in prehistory or history.

Section 106 compliance requires the County of Monterey to obtain the views of the State Historic Preservation Officer (SHPO) as to whether any of the project activities could have an “adverse effect” to the setting or character-defining features of any historically significant property in the Area of Potential Effects (APE). A historically significant property is one that would be eligible for listing on the National Register of Historic Places, whether it is currently listed or not.

In addition to meeting one or more of the above criteria, eligibility for the National Register requires that a resource retains sufficient integrity to convey a sense of its significance or importance. Seven elements are considered key in considering a property’s integrity: location, design, setting, materials, workmanship, feeling, and association.

SITE CONDITIONS/CONTEXT

Marina is a city in Monterey County, California, United States. The United States Census Bureau estimated its 2013 population at 20,370. Marina is located along the central coast of California, 8 miles (13 km) west of Salinas, and 8 miles north of Monterey, at an elevation of 43 feet (13 m). Marina was incorporated in 1975 and is the newest city on the Monterey Peninsula. The city includes part of a California State University, Monterey Bay, the UCMBEST branch research center of UC Santa Cruz, and the Veterans Transition Center (VTC). The Fort Ord Station Veterinary Hospital, built in 1941 to provide healthcare for U.S. Army horses and mules, was listed on the National Register of Historic Places in 2014. This is the first such official recognition on old Fort Ord.

Site Characteristics

The site does have a significant slope, where one quarter of the site is roughly 10 feet lower than the rest. The project is considering a split level to accommodate the grade change without displacing a considerable amount of soil. Some trees may need to be removed in order to facilitate the placement of the building and parking lot.

AREA OF POTENTIAL EFFECTS

The project involves demolition and new construction. The Area of Potential Effects (APE) for the built environment is the subject property and all surrounding and facing properties.

Construction of the building will require some excavation into previously undisturbed substrata; therefore the APE for archaeology is the limit of the subject parcel.

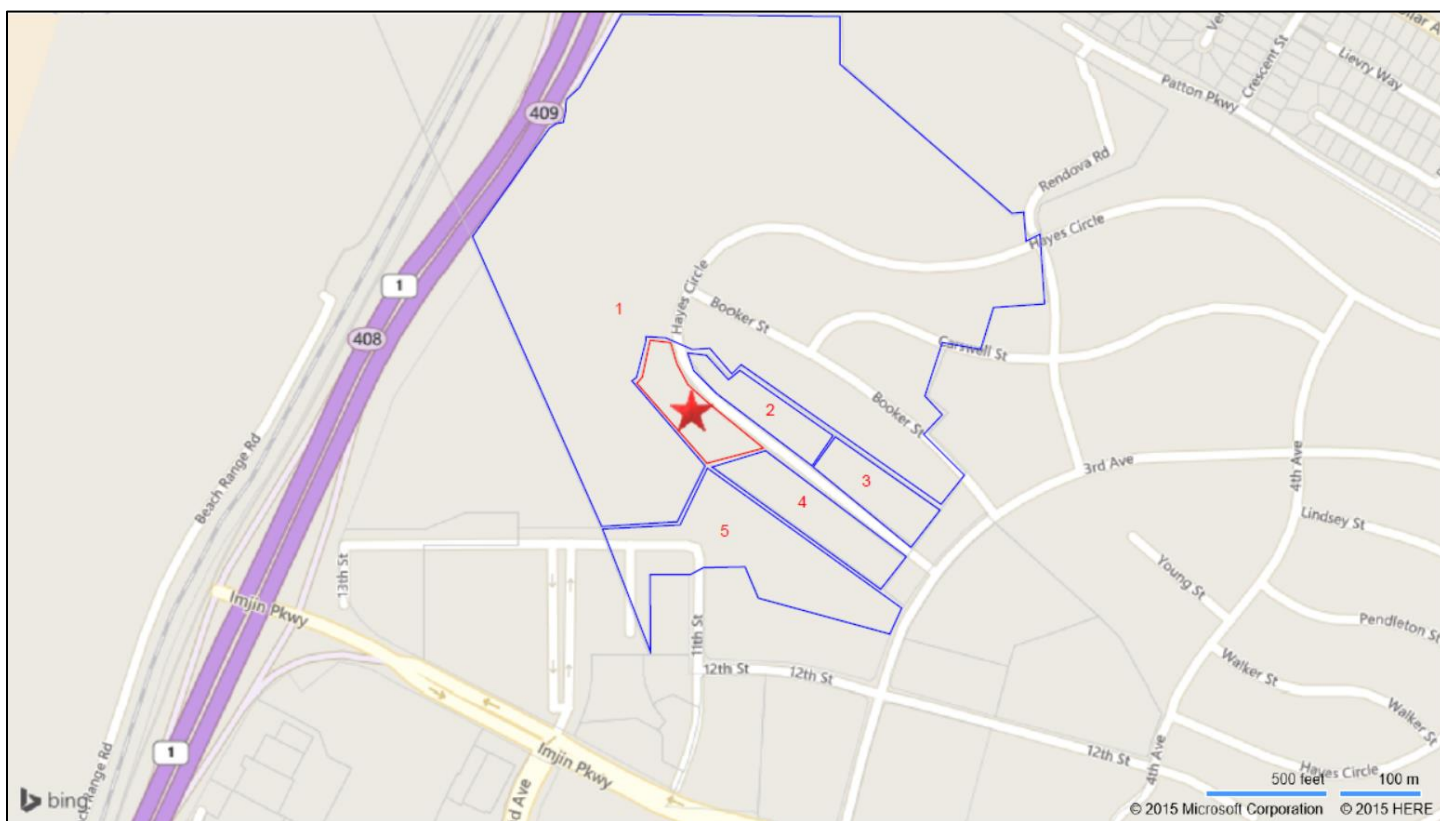



FIGURE 1 AREA OF POTENTIAL EFFECTS (APE) MAP

The Area of Potential Effects for the built environment is depicted in the figure above. The subject property and APE for archaeology is shaded in yellow with a red star. Surrounding and facing properties that comprise the APE are numbered and all are shown in greater detail in the table that follows. It should be noted, that the entire APE lies within the Ford Ord former US Army post on Monterey Bay, which closed in 1994.


(Each APE property contains multiple duplex units and each APE parcel in the table has multiple photos.)



TABLE 1 SUMMARY OF APE PROPERTIES – VETERANS TRANSITION CENTER

APE #	APN	Address	Owner	Year built	Comments	Photo
★	031-021-040-000	229 Hayes Circle Marina, CA 93933	Veterans Transition Center of Monterey County		Subject property (four duplexes to be demolished) Circa 1960's (est.)	

APE #	APN	Address	Owner	Year built	Comments	Photo
						


APE #	APN	Address	Owner	Year built	Comments	Photo
						

APE #	APN	Address	Owner	Year built	Comments	Photo
1	031-021-050-000	None	City of Marina	N/A	87 acres of public land (odd shaped parcel) Vacant portion of the parcel is adjacent to subject; other homes built at same time as subject and adjacent as former Ford Ord housing (typical). Circa 1960's (est.)	 <p>PHOTO 1 APPROXIMATE PARCEL LINES (NOT TO SCALE)</p>

APE #	APN	Address	Owner	Year built	Comments	Photo
						 <p>PHOTO 2 DUPLEX ON PARCEL/TYPICAL</p>
2	031-021-039-000	None	Veterans Transition Center of Monterey County		Duplexes Circa 1960's (est.)	

APE #	APN	Address	Owner	Year built	Comments	Photo
						

APE #	APN	Address	Owner	Year built	Comments	Photo
3	031-021-041-000	None	Veterans Transition Center		Duplexes Circa 1960's (est.)	
4	031-021-042-000	None	Veterans Transition Center		Duplexes Circa 1960's (est.)	

APE #	APN	Address	Owner	Year built	Comments	Photo
5	031-251-018-000	None	City of Marina		20 acres of vacant public land	

EVALUATION

The APE consists of the subject parcel and five of the surrounding and facing properties or six properties in all. All are located in the County of Monterey. The National Register of Historic Places contains historic buildings, but the nearest one to the site is approximately 1.87 miles southeast (not within the APE).

HISTORIC DISTRICTS

None of the APE properties lie within, or are contributors to, an historic district.

SUBJECT PROPERTY

The subject property contains four duplex units to be demolished. The units were originally developed as base housing for Fort Ord Military families. It is estimated they were constructed in the early 1960's. None of the existing structures are associated with events that have made a significant contribution to the broad patterns of our history (Criteria A); or That are associated with the lives of persons significant in our past (Criteria B); or 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; (Criteria C); or has yielded or may be likely to yield, information important in prehistory or history (Criteria D).

As such, it appears that the duplex structures on the site do not meet the criteria for inclusion in the National Register of Historic Places.

SURROUNDING PROPERTIES

APE 1, 3, 4, 5, 6, 7 and 10 are less than 50 years old. APE 9 is vacant.

APE 2 is a warehouse building constructed in 1960, making it 55 years old as of the date of this report (2015). It is a simple, one-story building and not remarkable in any way. It is a common style and type of construction. The building is not associated with any persons or patterns of history important in our past. It does not appear likely to yield information important in history or prehistory. The building does not appear eligible for the National Register.

APE 8 is listed as land use 'Farm & Heavy Equipment' and contains a single-story warehouse building constructed in 1958, making it 57 years old. The building is on a triangular shaped lot and surrounded by a fenced commercial yard area. It is a common style and type of construction. The building is not associated with any persons or patterns of history important in our past. It does not appear likely to yield information important in history or prehistory. The building does not appear eligible for the National Register.

APE 11-18 is a development of single family homes constructed in 1961 and 1962. They are all similar one-story homes of average design and construction. Some have been modified heavily; a few are mostly intact. They are typical and a common style and type of construction. There are numerous examples in this development beyond the ones that abut the subject property. The homes themselves are not associated with any persons or patterns of history important in our past. None appear likely to yield information important in history or prehistory. None of APE 11-18s buildings appear eligible for the National Register.

ARCHAEOLOGY

A Geotechnical Investigation was conducted for the proposed project in November 2015 by Moore Twining Associates, Inc. At the time of field exploration, the site was occupied by four (4) residential (duplex) structures on separate pads which are used for military housing. The existing building pads appear to have been constructed by cut and fill type grading. In general, the existing building areas are relatively flat and are bordered by graded slopes on the northern and southern sides. The developments included asphalt concrete paving for driveways and parking areas, concrete walks, propane tanks and underground utilities. The ground surface in areas outside the existing improvements was generally covered with ice plant, scrub brush and some mature trees. Underground utilities marked at the site included water, sewer and propane gas.

A dirt access road is located in the southwesterly portion of the site and trends across the site in a northwest to southeast orientation. The site generally slopes from the southwest to the northeast or west to east toward Hayes Circle. Site elevations range from about 94 feet above mean sea level (AMSL) in the southern portion of the site to about 70 feet AMSL in the northern portion of the site. ⁽¹⁾

CALIFORNIA HISTORIC RESOURCES INFORMATION SYSTEM - RECORDS SEARCH

A search of the California Historic Resources Information System (CHRIS) was conducted by the Northwest Information Center in December 2015 for archaeological resources on or near the subject property. A search was conducted by reviewing pertinent Northwest Information Center (NWIC) base maps that reference cultural resources records and reports, historic-period maps, and literature for Monterey County. Review of this information indicates that there has been one archaeological study covering approximately 5% of the Veterans Transition Center project area. This Veterans Transition Center project area may contain one recorded Native American archaeological resource: P-27-000385 (CA-MNT-000280) is described as an occupation site located within the Fort Ord Military Reservation. The exact location of this resource is unknown.

Review of historical literature and maps gave no indication of historic-period activity within the Veterans Transition Center project area. With this in mind, there is a low potential for unrecorded historic-period archaeological resources to be within the proposed Veterans Transition Center project area. ⁽²⁾

NATIVE AMERICAN TRIBES

At the time of Euroamerican contact, the Native Americans that lived in the area were speakers of the Rumsen language, part of the Costanoan language family. There are no Native American resources in or adjacent to the proposed Veterans Transition Center project area referenced in the ethnographic literature.

Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of Monterey County have been found adjacent to freshwater sources, along the coastline, near the interface between low-lying terrain and foothills, and along ridgelines. The Veterans Transition Center project area is located adjacent to the coast. Given the similarity of one or more of these environmental factors, there is a moderate

potential for unrecorded Native American resources to be within the proposed Veterans Transition Center project area.⁽²⁾

The undertaking involves excavation that constitutes significant digging.⁽³⁾ There are no Federally-recognized Tribes in the County of Monterey.⁽⁴⁾ Therefore, consultation with Native American Tribes is not required.

The Native American Heritage Commission was contacted on November 12, 2015 in an effort to identify any known sacred sites in the project area.⁽⁵⁾ To date, a response has not been received.

CONCLUSION

Buildings within the Area of Potential Effects lack the potential for inclusion on the National Register of Historic Places.

There is a moderate potential for unrecorded Native American resources to be within the proposed Veterans Transition Center project area.

The potential to encounter historic resources appears to be low.

RECOMMENDED DETERMINATION

For purposes of Section 106 Review of this undertaking, AEM Consulting recommends that the Agency Official determine that that no historic properties will be affected by the undertaking. The reason is there are no historic properties in the Area of Potential Effects of this undertaking.

The following are mitigations to be carried out upon accidental discovery of human remains or artifacts.

- CR1. If during project construction activities previously unidentified archaeological resources are discovered, all project activities in the immediate vicinity of the discovery would be halted and the procedures of 36 CFR Part 800.13(b) and (c) would be followed. [Paragraph I.A. Inadvertent Archaeological Resource Discovery]
- CR2. Upon discovery of Native American human remains and associated or unassociated funerary objects, the County of Monterey shall treat them in accordance with provisions of California Public Resources Code Section 5097.94, 5097.98, and 5097.99 and the California Health and Safety Code Section 7050.5 or as provided in federal implementing regulations found in 36 CFR 800.13(b)(2). [Paragraph I.B. Treatment of Native American human remains and cultural properties]
- CR3. For any archaeological resources discovered during the excavation and construction phase, all project activities in the immediate vicinity of the discovery would halt. Procedures of 36 CFR Part 800.13(b) and (c); PRC Sections 5097.94, 5097.98 and 5097.99; and the California Health and Safety Code Section 7050.5 would be followed, including calling an archaeologist or paleontologist to evaluate the materials.
- CR4. If paleontological resources were found during site excavation and construction, work would be halted until a paleontologist could evaluate the nature and significance of the resources. If significant resources were confirmed, the OHP and the California Department of State Parks would be contacted for further guidance on documentation and preservation. Protocol for the discovery of paleontological resources during construction would be the same as that for archaeological resources: project activities in the immediate vicinity of the discovery would halt, and procedures of 36 CFR Part 800.13(b) and (c); PRC Sections 5097.94, 5097.98 and 5097.99; and the California Health and Safety Code Section 7050.5 would be followed, including calling an archaeologist or paleontologist to evaluate the materials.

WORKS CITED

1. **Moore Twining Associates, Inc.** *Geotechnical Engineering Investigation, Proposed VTC Veterans Development, 180 Hayes Circle, Marina, California.* Fresno, CA : s.n., November 19, 2015. Project Number: D22202.01.
2. **McGaughey, Scott.** *Record search results for the proposed Veterans Transition Center.* Rohnert Park, CA : Northwest Information Center, December 10, 2015. NWIC File No.: 15-0725.
3. **Miller, Vern.** *Appendix A: When to consult with Tribes under Section 106, Veterans Transition Center - Marina, 229 Hayes Circle, Marina, CA 93933.* Santa Rosa, CA : AEM Consulting, November 12, 2015.
4. **U.S. Department of Housing and Urban Development.** *Tribal Directory Assessment Information, Contact Information for Tribes of Monterey County, California.* November 12, 2015.
5. **Miller, Vern.** *Letter to Debbie Pilas-Treadway, Native American Heritage Commission.* Santa Rosa, CA : AEM Consulting, November 12, 2015.

CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM



ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE

HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO

SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
<http://www.sonoma.edu/nwic>

10 December 2015

NWIC File No.: 15-0725

Cinnamon Crake
AEM Consulting
310 Pacific Heights Drive
Santa Rosa, CA 95403

Re: Record search results for the proposed Veterans Transition Center.

Dear Ms. Crake:

Per your request received by our office on 12 November 2015, a records search was conducted for the above referenced project for archaeological resources only by reviewing pertinent Northwest Information Center (NWIC) base maps that reference cultural resources records and reports, historic-period maps, and literature for Monterey County. An Area of Potential Effects (APE) map was not provided; in lieu of this, the location map provided depicting the Veterans Transition Center project area will be used to conduct this records search. Please note that use of the term cultural resources includes both archaeological resources and historical buildings and/or structures.

Review of this information indicates that there has been one archaeological study covering approximately 5% of the Veterans Transition Center project area (S-29932: Darcangelo 2004). This Veterans Transition Center project area may contain one recorded Native American archaeological resource: P-27-000385 (CA-MNT-000280) is described as an occupation site located within the Fort Ord Military Reservation. The exact location of this resource is unknown.

At the time of Euroamerican contact, the Native Americans that lived in the area were speakers of the Rumsen language, part of the Costanoan language family (Levy 1978:285). There are no Native American resources in or adjacent to the proposed Veterans Transition Center project area referenced in the ethnographic literature.

Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of Monterey County have been found adjacent to freshwater sources, along the coastline, near the interface between low-lying terrain and foothills, and along ridgelines. The Veterans Transition Center project area is

located adjacent to the coast. Given the similarity of one or more of these environmental factors, there is a moderate potential for unrecorded Native American resources to be within the proposed Veterans Transition Center project area.

Review of historical literature and maps gave no indication of historic-period activity within the Veterans Transition Center project area. With this in mind, there is a low potential for unrecorded historic-period archaeological resources to be within the proposed Veterans Transition Center project area.

RECOMMENDATIONS:

1) There is a moderate potential for Native American archaeological resources and a low potential for historic-period archaeological resources to be within the project area. Additionally, one recorded Native American resource, P-27-000385 may be located within the Veterans Transition Center project area. We recommend a qualified archaeologist conduct further archival and field study to identify cultural resources. Field study may include, but is not limited to, pedestrian survey, hand auger sampling, shovel test units, or geoarchaeological analyses as well as other common methods used to identify the presence of archaeological resources. Please refer to the list of consultants who meet the Secretary of Interior's Standards at <http://www.chrisinfo.org>.

2) We recommend you contact the local Native American tribes regarding traditional, cultural, and religious heritage values. For a complete listing of tribes in the vicinity of the project, please contact the Native American Heritage Commission at (916)373-3710.

3) If archaeological resources are encountered **during construction**, work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. **Project personnel should not collect cultural resources.** Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

4) It is recommended that any identified cultural resources be recorded on DPR 523 historic resource recordation forms, available online from the Office of Historic Preservation's website: http://ohp.parks.ca.gov/default.asp?page_id=1069.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

Thank you for using our services. Please contact this office if you have any questions, (707) 588-8455.

Sincerely,



Scott McGaughey
Researcher



November 12, 2015

Debbie Pilas-Treadway
Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
VIA EMAIL: NAHC@nahc.ca.gov

Dear Ms. Treadway:

Our firm is conducting a cultural resources evaluation for new construction project in Marina, Monterey County, California. We are seeking information from the Native American Heritage Commission regarding possible sacred lands and other cultural sites within the project area. We would also like to obtain a list of individuals whom it would be appropriate to contact regarding this project.

County: Stanislaus County
USGS Map: Marina 7.5' Quadrangle
Township: T – 14 S
Range: R – 1 E
Section: 36

The project will be funded in part with federal funding from the Veterans Affairs Supportive Housing program, a program of U.S. HUD, as administered by Monterey County Housing Authority. EAH Housing, Inc. proposes to demolish existing improvements (four duplexes) and construct 71 units of affordable housing and 54 parking spaces on a 2.38-acre parcel with address 229 Hayes Circle, Marina, California 93933 (APN 031-021-040-000).

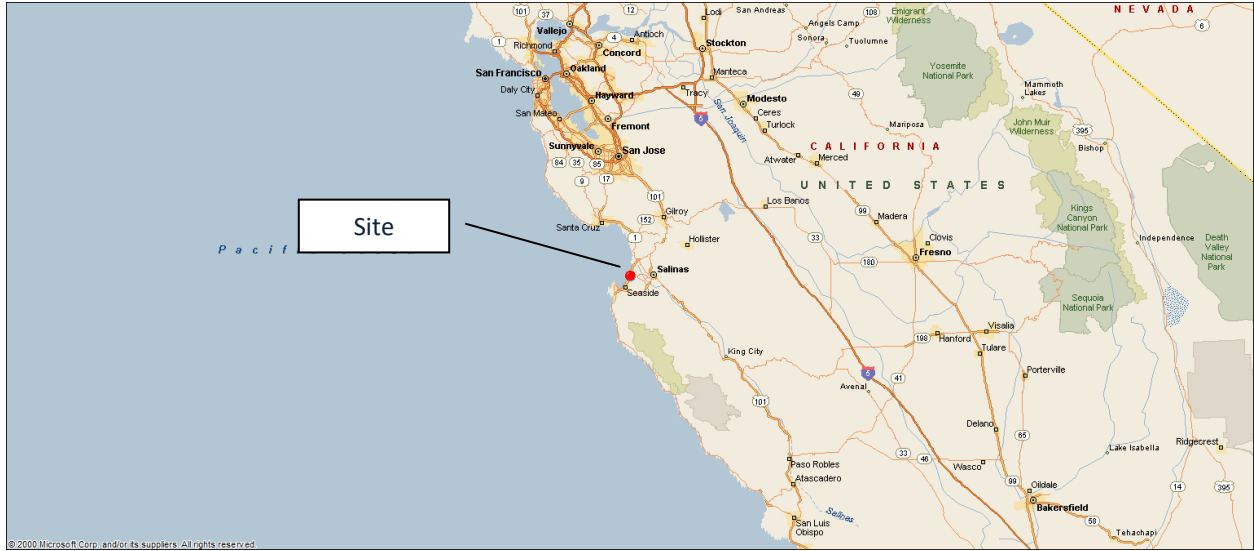
Please contact me by phone (707) 523-3710, our new FAX number (707) 595-5098, or email ccrake@aemconsulting.net if you have any questions or need additional information. Thank you for your time and attention to this matter.

Sincerely,

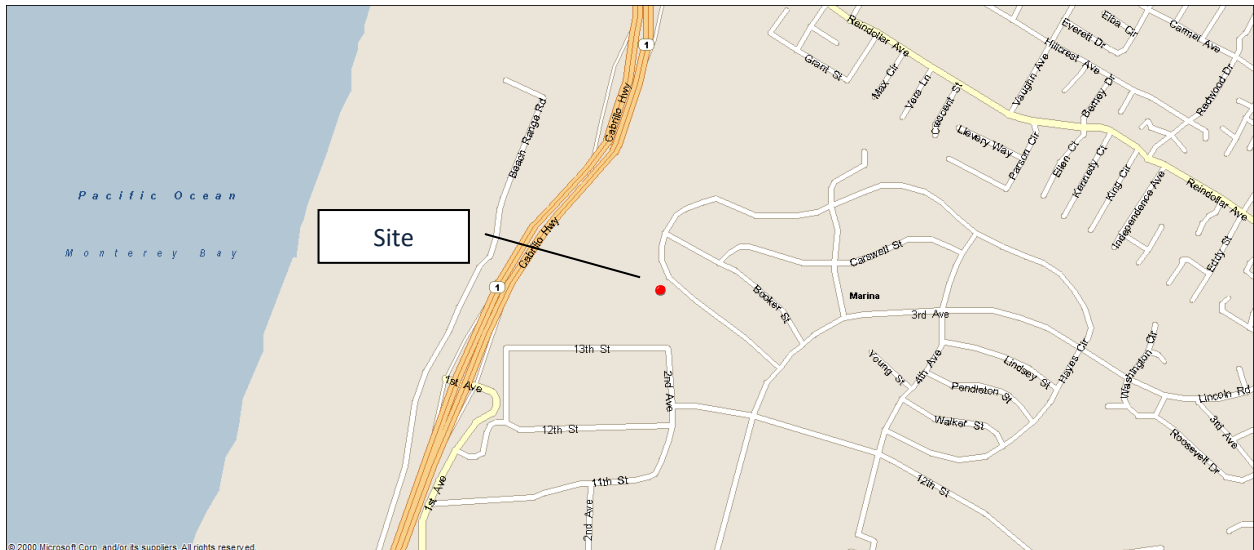
Cinnamon Crake

Cinnamon Crake, Associate
AEM Consulting

Veterans Transition Center – Marina
229 Hayes Circle, Marina, Monterey County, California 93933

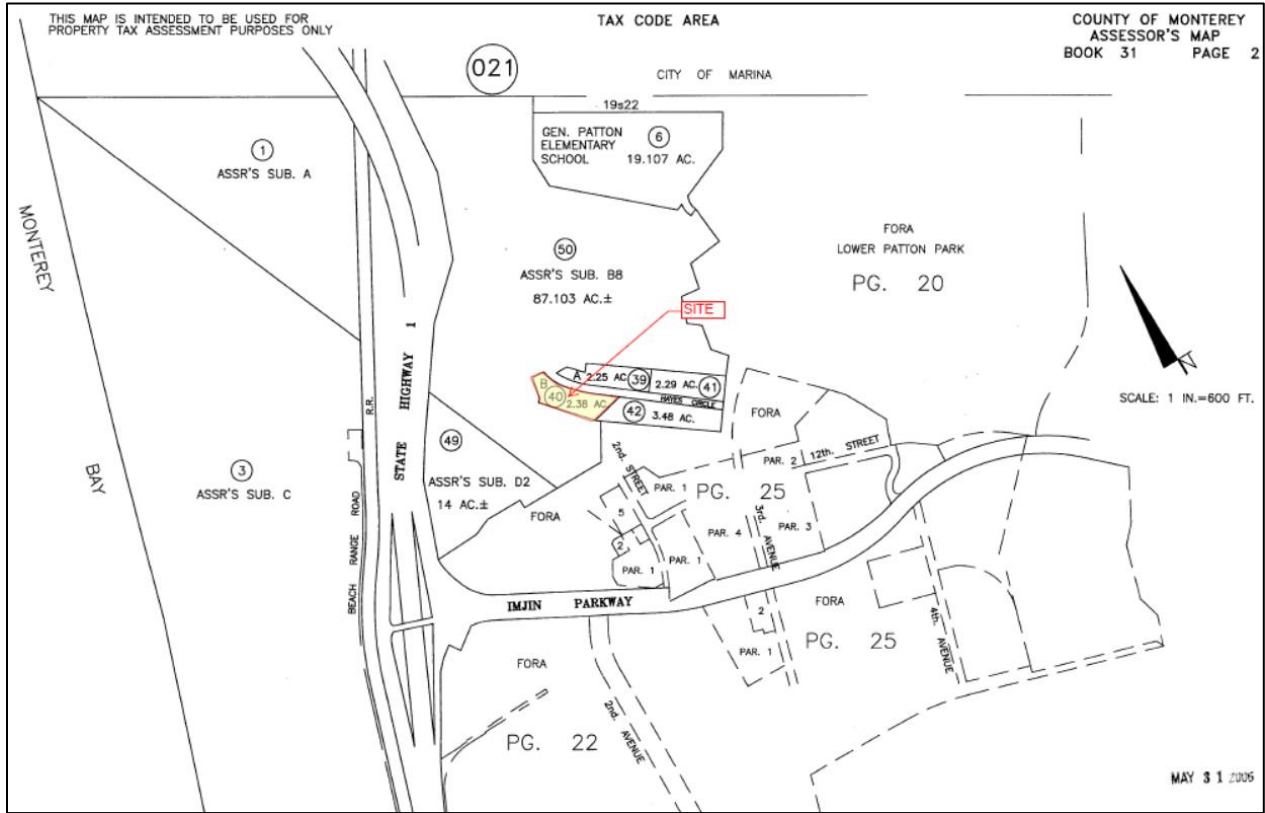


Map 1 Region



Map 2 Detail

Veterans Transition Center – Marina
229 Hayes Circle, Marina, Monterey County, California 93933



Map 3 Assessor Parcel Map (APN 031-021-040-000)



Map 4 USGS Marina 7.5" Quad

Additional location information:

Latitude/Longitude 36.6721°N, 121.8067°W (36°, 40', 19.4" N; 121°, 48', 24.2" W)

The legal description is: California, Mt. Diablo Meridian T14S,R1E,sec36

UTM zone 10 (X,Y) 606631 , 4059156

The elevation is 20 m (67 ft)

The gradient is: 1.5 percent

The aspect direction is: 111.5 degrees or E

The local roughness is: 1.5 or average

The location as decimal degrees (X,Y;Z) = -121.8067, 36.6721; 20 m

The state and county are California: Monterey County 6053

The HUC is Carmel [18060012](#); [Place point in HUC](#)

The Omernik ecoregion is Southern and Central California Plains and Hills (less typical) 6

[The 1:100,000 map \(if available\)](#); [Switch to TerraServer](#)

Zoom on that location with radius = [2 km](#); [5 km](#); [10 km](#); [20 km](#); [30 km](#); [custom](#).



Tribal Directory Assessment Information

Contact Information for Tribes of Monterey County, California



1

	<u>Tribal Name</u>	<u>County Name</u>
--	--------------------	--------------------

1

Appendix A

When To Consult With Tribes Under Section 106

Section 106 requires consultation with federally-recognized Indian tribes when a project may affect a historic property of religious and cultural significance to the tribe. Historic properties of religious and cultural significance include: archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places, traditional cultural landscapes, plant and animal communities, and buildings and structures with significant tribal association. The types of activities that may affect historic properties of religious and cultural significance include: ground disturbance (digging), new construction in undeveloped natural areas, introduction of incongruent visual, audible, or atmospheric changes, work on a building with significant tribal association, and transfer, lease or sale of properties of the types listed above.

If a project includes any of the types of activities below, invite tribes to consult:

- significant ground disturbance (digging)**
Examples: new sewer lines, utility lines (above and below ground), foundations, footings, grading, access roads
- new construction in undeveloped natural areas**
Examples: industrial-scale energy facilities, transmission lines, pipelines, or new recreational facilities, in undeveloped natural areas like mountaintops, canyons, islands, forests, native grasslands, etc., and housing, commercial, and industrial facilities in such areas
- incongruent visual changes**
Examples: construction of a focal point that is out of character with the surrounding natural area, impairment of the vista or viewshed from an observation point in the natural landscape, or impairment of the recognized historic scenic qualities of an area
- incongruent audible changes**
Examples: increase in noise levels above an acceptable standard in areas known for their quiet, contemplative experience
- incongruent atmospheric changes**
Examples: introduction of lights that create skyglow in an area with a dark night sky
- work on a building with significant tribal association**
Examples: rehabilitation, demolition or removal of a surviving ancient tribal structure or village, or a building or structure that there is reason to believe was the location of a significant tribal event, home of an important person, or that served as a tribal school or community hall
- transfer, lease or sale of a historic property of religious and cultural significance**
Example: transfer, lease or sale of properties that contain archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, plant and animal communities, or buildings and structures with significant tribal association
- None of the above apply**

Veterans Transition Center – Marina
229 Hayes Circle, Marina, CA 93933

Vern Miller, AEM Consulting

November 12, 2015

Project

Reviewed By

Date



Appendix D
Cultural Resources Study

EAH Housing

Veterans Transition Center Project

Cultural Resources Study

U.S.G.S. *Marina*, CA quadrangle

Prepared for:
EAH Housing
2169 East Francisco Boulevard, Suite B
San Rafael, CA 94901

Prepared by:
Rincon Consultants, Inc.
437 Figueroa, Suite 203
Monterey, CA 93940

Authors:
Ashlee M. Bailey, M.A. and
Christopher Duran, M.A., RPA

February 2016



Keywords: USGS Marina, CA quadrangle; Monterey County;
Central Coast; Fort Ord; intensive pedestrian survey;
negative; finding of no effects

A. M. Bailey and C. Duran

2016 *Phase I Cultural Resources Survey for the Veterans Transition Center Project, Marina, Monterey County, California.* Rincon Consultants Report No. 16-02413. Report on file at the Northwest Information Center, Sonoma, California.

Veterans Transition Center Project

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EXECUTIVE SUMMARY

Ecumenical Association for Housing (EAH Housing) retained Rincon Consultants, Inc. (Rincon) to conduct a Phase I cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The area of potential effects (APE) is depicted on Township 14 S, Range 1 E, Section 36 of the U.S. Geological Survey Marina, CA 7.5-minute topographic quadrangle. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The City of Marina will conduct environmental reviews of the project in accordance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). This study presents the results of a background records search, Native American scoping, and intensive pedestrian survey.

The records search indicated that no studies have been previously conducted within the APE; the search yielded 11 reports for projects conducted within a 0.5-mile radius of the APE. One archaeological resource (P-27-000385) was identified within the APE through the records search, with none identified within the 0.5-mile radius of the APE. No evidence of site P-27-000385 was identified within the APE during the field investigation. The record for P-27-000385 indicates that the site was destroyed in the 1940s. There is no evidence that the site ever existed within the APE. Native American scoping revealed no known Native American cultural resources in the APE. Based on the negative findings for the APE, Rincon recommends a finding of no effect to historic properties under the NHPA. The following measures are recommended in the case of unanticipated discoveries.

UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's *Professional Qualifications Standards* for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for National Register of Historic Places eligibility. If the discovery proves to be significant under the National Historic Preservation Act and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any adverse effects to historic properties.

UNANTICIPATED DISCOVERY OF HUMAN REMAINS

The discovery of human remains is always a possibility during ground disturbing activities; if human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Monterey County Sheriff-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 Monterey County Sheriff-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 within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.



1.0 INTRODUCTION

Ecumenical Association for Housing (EAH Housing) retained Rincon Consultants, Inc. (Rincon) to conduct a Phase I cultural resources study for the Veterans Transition Center Project (project), located on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California (Figure 1). The area of potential effects (APE) encompasses four duplex buildings on 2.38 acres located approximately at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve construction of 71 residential housing units with parking and amenities for homeless veterans. The City of Marina will conduct environmental reviews of the project in accordance with the Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). This study presents the results of a records search, Native American scoping, and an intensive pedestrian survey.

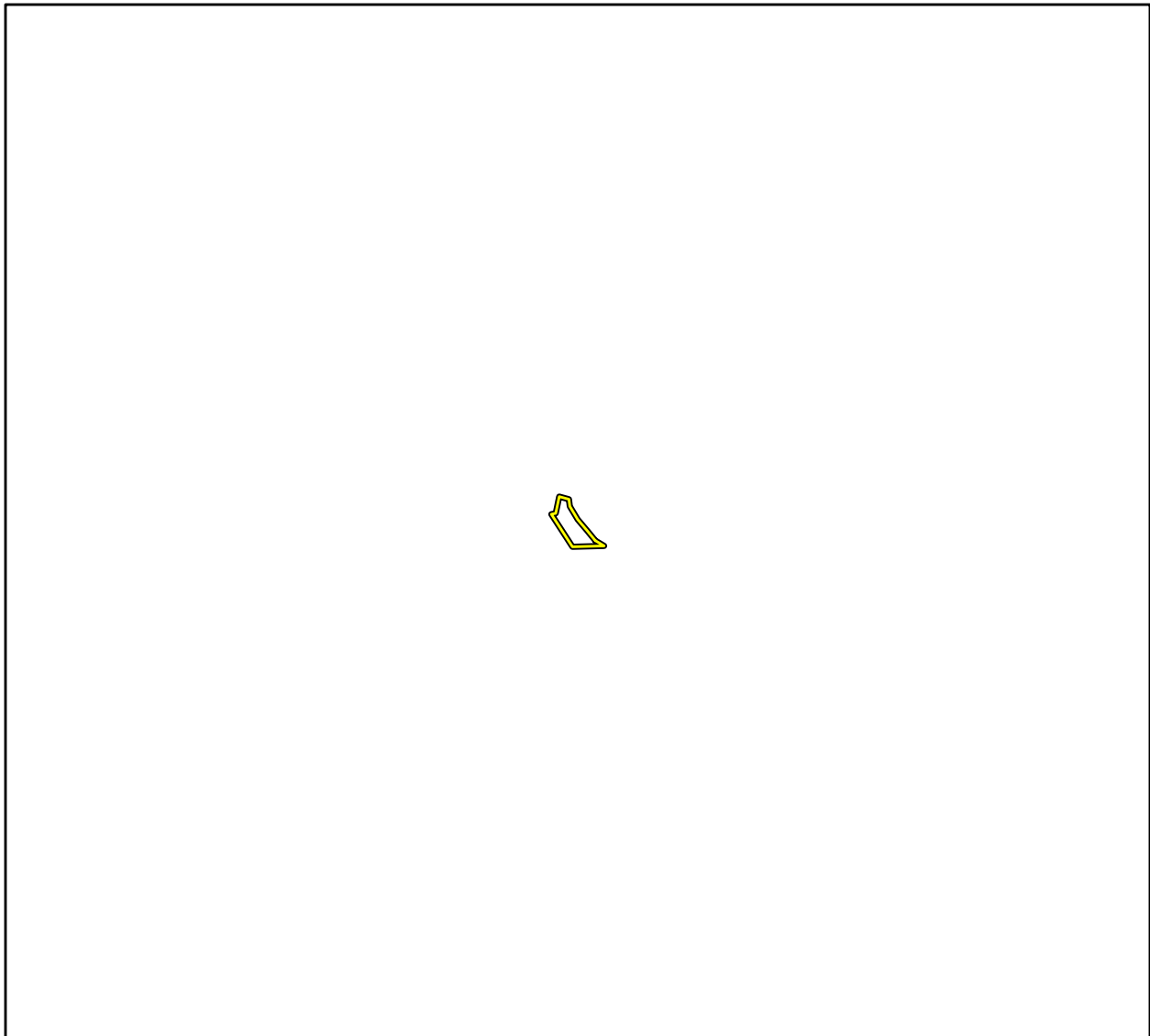
1.1 AREA OF POTENTIAL EFFECTS

36 CFR 800.16(d) defines the APE of an undertaking as the “geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.” The Veterans Transition Center Project APE is located in Township 14 S, Range 1 E, Section 36 of the United States Geological Survey (USGS) *Marina, CA* 7.5-minute topographic quadrangle (Figure 2). The direct APE encompasses the entirety of the 2.38-acre subject property, which includes four duplex buildings, at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The indirect APE includes all buildings located one parcel out from the subject property. AEM Consulting examined the effects of the project on the historic built environment, which included the indirect APE, in their 2015 “Historic and Cultural Resources Evaluation for the Veterans Transition Center” report. The indirect APE is thus considered evaluated in accordance with Section 106 of the NHPA (Section 106). The current study evaluates cultural resources within the direct APE only; the direct APE will hereafter be referred to as the APE.

1.2 PROJECT DESCRIPTION

The project involves the construction of 71 affordable housing units for homeless veterans. Four occupied duplex buildings are located on the subject property. The project would involve the demolition of the existing duplex buildings and construction of 71 housing units with parking and amenities for homeless veterans. The housing units would include 64 studio apartments and seven 2-bedroom apartments, including a manager’s unit, constructed within a three-story building on the subject property. Amenities would include a community room, a leasing office, onsite laundry, tenant lounges, a 54-space parking lot, a community garden, and an office where veterans can seek support. Construction activities may include grading of the APE, as one quarter of the APE is approximately 10 feet lower than the remainder of the property; however, the project may result in the design and construction of split-level housing to accommodate the difference in grade.





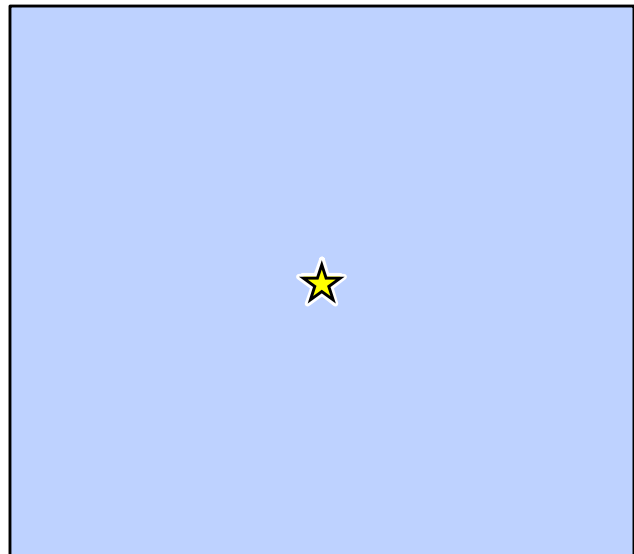
*Imagery provided by National Geographic Society, ESRI and its licensors © 2016.
Marina Quadrangle. T14S R01E S25. The topographic representation
depicted in this map may not portray all of the features currently found in the
vicinity today and/or features depicted in this map may have changed since the
original topographic map was assembled.*



 Project Site

0 1,000 2,000
Feet

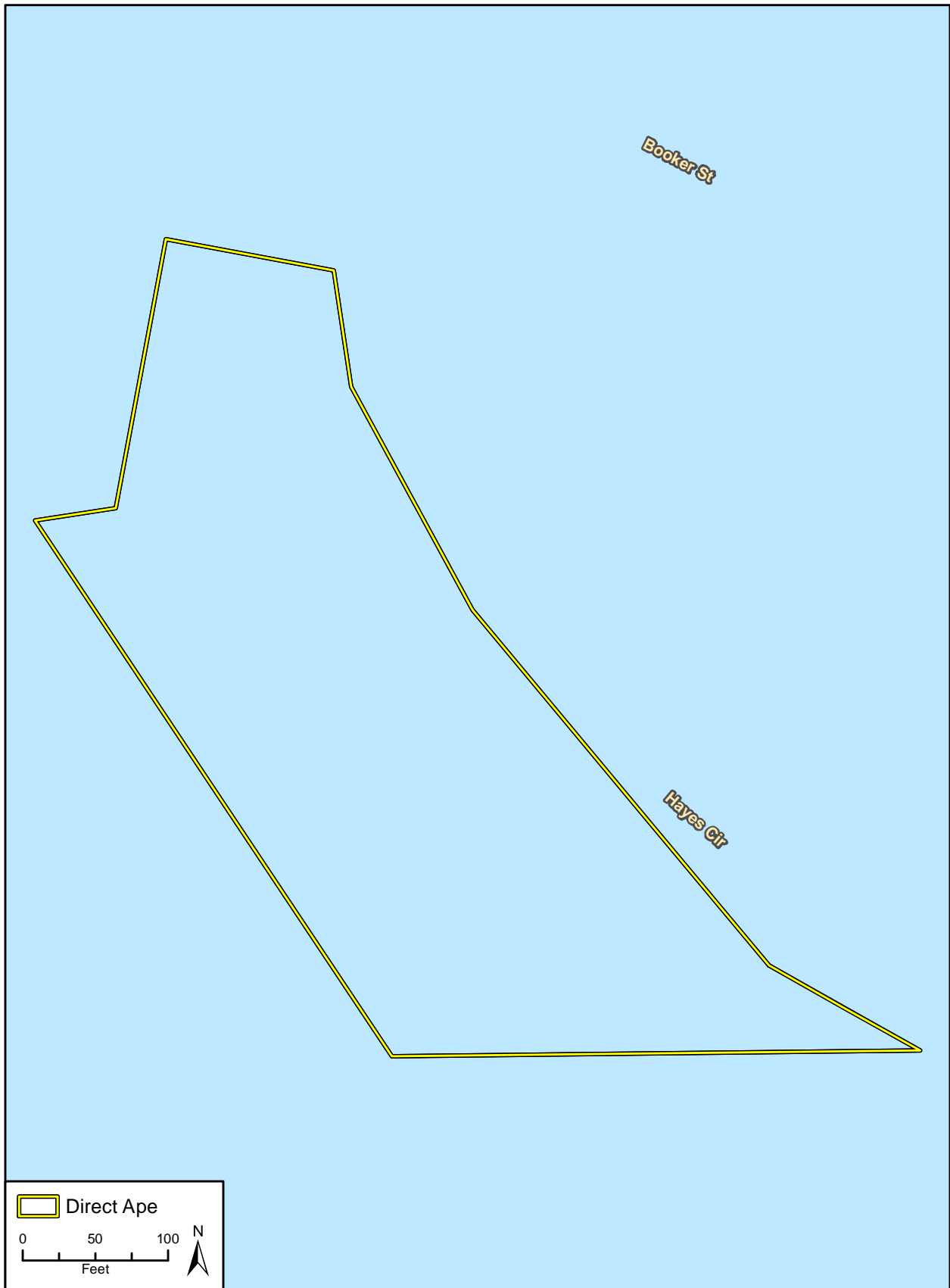
1:24,000



Project Location Map

Figure 1





Imagery provided by Google and its licensors, 2016.

Area of Potential Effects Map

Figure 2
EAH Housing



1.3 PERSONNEL

Rincon Cultural Resources Specialist Ashlee M. Bailey, M.A. managed the cultural resources study, which included the background records search, Native American scoping, intensive pedestrian survey, and preparation of the report. Cultural Resources Principal Investigator Christopher Duran, M.A., Registered Professional Archaeologist (RPA), coauthored the report and served as principal investigator. GIS Analyst Doug Carreiro prepared the figures for the background records searches and for this report. Rincon Principal Joe Power, AICP CEP, reviewed this report for quality control.

2.0 REGULATORY SETTING

EAH Housing was awarded funding from the U.S. Department of Housing and Urban Development, Veterans Affairs Supportive Housing (HUD-VASH) for the design and construction of the Veterans Transition Center Project. The project, therefore, is considered a federal undertaking subject to Section 106 of the NHPA and NEPA.

The definition of a federal undertaking in 36 Code of Federal Regulations (CFR) 800.16(y) includes projects requiring a Federal permit, license or approval. Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as NEPA. Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the NHPA, and Section 106 36 CFR 800.3–800.10. Other federal laws include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act (AIRFA) of 1978, the Archaeological Resources Protection Act (ARPA) of 1979, and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1989, among others.

Section 106 of the NHPA (16 United States Code [USC] 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected historic property is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Historic properties are those significant cultural resources that are listed in or are eligible for listing in the NRHP per the criteria listed below (36 CFR 60.4; Advisory Council on Historic Preservation 2000).

The quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

- (a) Are associated with events that have made a significant contribution to the broad patterns of our history; or*
- (b) Are associated with the lives of persons significant in our past; or*



- (c) *Embody the distinctive characteristics of a type, period, or method of installation, 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) *Have yielded, or may be likely to yield, information important in prehistory or history.*

EAH Housing was awarded funding from the U.S. HUD-VASH for the design and construction of the project, which is considered a federal undertaking subject to Section 106 and NEPA. This cultural resources study has been prepared to provide documentation for an Environmental Assessment (EA) and for a potential Finding of No Significant Impact (FONSI) in accordance with Section 106 and NEPA.

3.0 BACKGROUND

The APE is located within the City of Marina on the coast of Monterey Bay in California. The APE is at an approximate elevation of 25 meters (82 feet) above mean sea level within the California Coast Ranges of the Pacific Border province within the Pacific Mountain physiographic region (USGS 2009). Modern development has disturbed and altered the natural landscape within the project area. Native vegetation would have included plants such as cypress, oak, and beach wild rye. The City of Marina is underlain by stabilized sands of the Baywood series (U.S. Department of Agriculture 1978).

3.1 PREHISTORIC CONTEXT

The project area lies in what is generally described as the Central Coast archaeological region, one of eight organizational divisions of the state (Jones and Klar 2007, Moratto 1984:Fig. 1). The Central Coast archaeological region extends from Monterey Bay to Morro Bay, and includes all of Monterey County. Following Jones and Klar (2007:137), the prehistoric cultural chronology for the Central Coast can be generally divided into six periods: Paleo-Indian (ca. 10000–8000 B.C.), Millingstone/Early Archaic (8000-3500 B.C.), Early (3500-600 B.C.), Middle (600 B.C.- A.D. 1000), Middle-Late Transition (A.D. 1000-A.D. 1250), and Late (A.D. 1250-contact [ca. A.D. 1769]).

Several chronological sequences have been devised to understand cultural changes within the Central Coast region from the Milling Stone period to contact. Jones (1993) and Jones and Waugh (1995) presented a Central Coast sequence that integrated the data results of cultural resource management since the 1980s. Three periods are presented in their prehistoric sequence subsequent to the Milling Stone period: Early, Middle, and Late periods. More recently, Jones and Ferneau (2002:213) updated the sequence following the Milling Stone period as follows: Early, Early-Middle Transition, Middle, Middle-Late Transition, and Late periods. The archaeology of the Central Coast region subsequent to the Milling Stone period is distinct from that of the Bay Area and Central Valley. The Central Coast region has more in common with the Santa Barbara Channel area during the Middle and Middle-Late Transition periods, but few similarities with the Santa Barbara Channel during the Late period (Jones & Ferneau 2002:213).



3.1.1 Paleo-Indian Period (ca. 10,000 – 6,000 B.C.)

When Wallace (1955, 1978) developed the Early Man horizon in the 1950s (referred to herein as the Paleo-Indian Period), little evidence of human presence was known for the southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified a number of sites older than this date, including coastal and Channel Islands sites (e.g., Erlandson 1991; Johnson et al. 2002; Moratto 1984).

The earliest accepted dates for human occupation along the Central Coast were recovered from archaeological sites on two of the Northern Channel Islands, located off the southern coast of Santa Barbara County. On San Miguel Island, archaeological evidence from the Daisy Cave site establishes the presence of people in this area approximately 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002). In San Luis Obispo County, archaeological sites CA-SLO-1764 (Lebow et al. 2001), Cross Creek (CA-SLO-1797; Fitzgerald 2000), and CA-SLO-832 (Jones et al. 2001) yielded radiocarbon dates from approximately 9,000 years ago (Jones and Ferneau 2002).

Recent data from Paleo-Indian sites in southern California indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones and Ferneau 2002). Although few Clovis-like or Folsom-like fluted projectile points have been found in southern California (e.g., Erlandson et al. 1987), it is generally considered that the emphasis on hunting may have been greater during the Paleo-Indian period than during later periods. A fluted projectile point fragment was recovered from site CA-SBA-1951 on the Santa Barbara Channel coastal plain (Erlandson 1994:44; Erlandson et al. 1987). Another fluted projectile point was reportedly found on the surface in Nipomo, San Luis Obispo County (Mills et al. 2005; Jones and Klar 2007).

Large side-notched projectile points of the Central Coast Stemmed series in this area date to as early as 8,000 years ago (Justice 2002). Points of this type have been recovered along the Central Coast from sites such as Diablo Canyon (CA-SLO-2; Greenwood 1972), Cross Creek (CA-SLO-1797; Fitzgerald 2000), Little Pico Creek (CA-SLO-175; Jones and Waugh 1995), and the Honda Beach site (CA-SBA-530; Glassow 1997), among others. The Metcalf site (CA-SCL-178; Hildebrandt 1983), in southern Santa Clara Valley, yielded two large side-notched projectile points associated with charcoal dates ranging from 9,960 – 8,500 years ago.

3.1.2 Milling Stone Horizon (6000–3000 B.C.)

The Milling Stone Horizon, as described by Wallace (1955, 1978), is characterized by an ecological adaptation to collecting plant resources. The dominance of ground stone implements generally associated with the horizontal motion of grinding small seeds lends to the name Milling Stone Horizon. These ground stone implements include milling stones (also, metates or milling slabs) and shaped hand stones (also, manos or mullers; Wallace 1955, 1978; Warren 1968). Milling stones occur in high frequencies for the first time in the archaeological record of the Central Coast region, and become even more prevalent near the end of the Milling Stone Horizon. Flaked stone assemblages and shell middens in coastal sites suggest that people



during this period practiced a mixed food procurement strategy. Faunal remains identified at Milling Stone sites point to broad-spectrum hunting and gathering of shellfish, fish, birds, and mammals, though large faunal assemblages are uncommon.

Along the Central Coast, Millingstone period sites are most common on terraces and knolls, typically set back from the current coastline (Erlandson 1994:46). However, 42 sites have been identified in various settings, including rocky coasts, estuaries, and nearshore interior valleys (Jones and Klar 2007). The larger sites usually contain extensive midden deposits, possible subterranean house pits, and cemeteries. Most of these sites probably reflect intermittent use over many years of local cultural habitation and resource exploitation.

3.1.3 Early Period and Early-Middle Transition Period (3000-600 B.C.)

Although Jones and Ferneau (2002:213) have distinguished an Early-Middle Transition period, it is not well defined and is difficult to observe. Thus the transition phase is included in the following discussion of the sites and characteristics recognized for the Early Period in the Central Coast region.

A high frequency of shoreline midden deposits has been identified in the Central Coast region dating to the Early Period. This suggests that population numbers increased from the Milling Stone Horizon to the Early Period along the Central Coast (Jones 1995; Jones and Waugh 1995, 1997). Archaeological sites dating to the Early Period include CA-SLO-165 in Estero Bay, and CA-MNT-73, CA-MNT-108, and CA-MNT-1228 in Monterey Bay.

The material culture recovered from Early Period sites within the Central Coast region provides evidence for continued exploitation of inland plant and coastal marine resources. Artifacts include milling slabs and handstones, as well as mortars and pestles, which were used for processing a variety of plant resources. Bipointed bone gorge hooks were used for fishing. Assemblages also include a suite of *Olivella* beads, bone tools, and pendants made from talc schist. Square abalone shell (*Haliotis* spp.) beads have been found in Monterey Bay (Jones and Waugh 1997:122).

Shell beads and obsidian are hallmarks of the trade and exchange networks of the central and southern California coasts. The archaeological record indicates that there was a substantial increase in the abundance of obsidian at Early Period sites in the Monterey Bay and San Luis Obispo areas (Jones and Waugh 1997:124-126). Flaked stone artifact assemblages from Early Period sites include Central Coast Stemmed Series and side-notched projectile points. Obsidian trade continued to increase during the following Middle period.

3.1.4 Middle Period (600 B.C. -A.D. 1000)

A pronounced trend toward greater adaptation to regional or local resources occurred during the Middle period. The remains of fish, land mammals, and sea mammals are increasingly abundant and diverse in archaeological deposits along the coast. Flaked stone tools used for hunting and processing – such as large side-notched, stemmed, lanceolate or leaf-shaped projectile points, large knives, edge modified flakes, and drill-like implements – occurred in



archaeological deposits in higher frequencies and are more morphologically diversified during the Middle Period. Bone tools, including awls, are more numerous than in the preceding period, and the use of asphaltum adhesive became common. Shell fishhooks also became part of the toolkit during this period.

Complex maritime technology, such as circular fish hooks, compound bone fish hooks, and the tule reed or balsa raft, also proliferated during this period. Notable technological introductions include circular shell fishhooks that date from between 1000 and 500 B.C. (Jones and Klar 2005:466). Compound bone fishhooks appear in deposits dating between A.D. 300 and 900 (Arnold 1995; Jones and Klar 2005:466; Kennett 1998:357; King 1990:87-88). Populations continued to follow a seasonal settlement pattern until the end of the Middle Period. Large, permanently occupied settlements, particularly in coastal areas, appear to have been the norm by the end of the Middle Period (Kennett 1998).

3.1.5 Middle-Late Transition Period (A.D. 1000-1250)

The Middle-Late Transition period is marked by relative instability and change, with major changes in diet, settlement patterns, and interregional exchange. Middle Period shell midden sites found along the Central Coast were abandoned by the end of the Middle-Late Transition Period (Jones and Ferneau 2002:213, 219).

During the Middle to Late Transition period, projectile points diagnostic of both the Middle and Late periods are found within the Central Coast region (Jones and Ferneau 2002:217). These projectile points include large, contracting-stemmed types typical of the Middle Period, as well as small, leaf-shaped Late Period projectile points, which likely reflect the introduction of the bow and arrow.

3.1.6 Late Period (A.D. 1250 - Historic Contact)

Late Period sites are distinguished by small, finely-worked projectile points and temporally diagnostic shell beads. Although shell beads were typical of coastal sites, trade brought many of these maritime artifacts to inland locations, especially during the latter part of the Late Period. Small, finely-worked projectile points are typically associated with bow and arrow technology, which is believed to have been introduced to the area by the Takic migration from the deserts into southern California.

Common artifacts identified at Late Period sites include bifacial bead drills, bedrock mortars, hopper mortars, lipped and cupped *Olivella* shell beads, and steatite disk beads. The presence of beads and bead drills suggest that low-level bead production was widespread throughout the Central Coast region (Jones and Klar 2007).

Unlike the large Middle period shell middens, Late Period sites are more frequently single-component deposits. There are also more inland sites, with fewer and less visible sites along the Pacific shore during the Late Period. The settlement pattern and dietary reconstructions indicate a lesser reliance on marine resources than observed for the Middle and Middle-Late Transition periods, as well as an increased preference for deer and rabbit (Jones 1995). An increase in the



number of sites with bedrock mortar features that date to the Late Period suggests that nuts and seeds began to take on a more significant dietary role in Late Period populations.

3.2 ETHNOGRAPHIC CONTEXT

The project area lies within an area traditionally occupied by the Ohlone (or Costanoan) people. Ohlone territory extends from the point where the San Joaquin and Sacramento Rivers issue into the San Francisco Bay to Point Sur, with the inland boundary most likely constituted by the interior Coast Ranges (Kroeber 1925:462). The Ohlone language belongs to the Penutian family, with several distinct dialects throughout the region (Kroeber 1925: 462).

The pre-contact Ohlone were semi-sedentary, with a settlement system characterized by base camps of tule reed houses and seasonal specialized camps (Skowronek 1998). Villages were divided into small polities, each of which was governed by a chief responsible for settling disputes, acting as a war leader (general) during times of war, and supervising economic and ceremonial activities (Kroeber 1925:468, Skowronek 1998). Social organization appeared flexible to ethnographers and an established social hierarchy was not apparent to mission priests (Skowronek 1998).

Ohlone subsistence was based on hunting, gathering, and fishing (Kroeber 1925: 467, Skowronek 1998). Mussels were a particularly important food resource (Kroeber 1925: 467). Sea mammals were also important; sea lions and seals were hunted and beached whales were exploited (Kroeber 1925: 467). The acorn nut was an important staple and was prepared by leaching acorn meal both in openwork baskets and in holes dug into the sand (Kroeber 1925: 467). The Ohlone also practiced controlled burning to facilitate plant growth (Kroeber 1925: 467, Skowronek 1998).

Seven Franciscan missions were built within Ohlone territory in the late 1700s, and all members of the Ohlone group were eventually brought in to the mission system (Kroeber 1925: 462, Skowronek 1998). After the establishment of the missions, Ohlone population dwindled from roughly 10,000 people in 1770 to 1,300 by 1814 (Skowronek 1998). In 1973, the population of people with Ohlone descent was estimated at fewer than 300 (Levy 1978:487). The descendants of the Ohlone united in 1971, and have since arranged political and cultural organizations to revitalize aspects of their culture (Skowronek 1998).

3.3 HISTORIC CONTEXT

The Monterey County coast was first visited by Europeans in 1542 with the expedition of Juan Rodriguez Cabrillo and later in 1602 by Sebastian Vizcaino (Hoover et al. 2002:225; Gudde 1998: 246). The Spanish presidio and mission were established in Monterey in 1770, and served as the capital of the California missions until 1803 (Johnson 1979:83). In 1791, Comandante General Pedro de Nava authorized the establishment of presidial pueblos (civilian lands around military forts) with detailed regulations for their organization (Crane 1991). The Pueblo of Monterey, whose lands included the future city of Marina, grew in population as Spanish soldiers married and raised families or retired to this location.



California received word of Mexico's independence from Spain in 1882. At this time, the Pueblo of Monterey had a population of several hundred. The newly established Mexican government decreed the California ports open to increased trade with foreigners under the constitution of 1824 (Bean 1968; Crane 1991). Hallmarks of the Mexican Period in California are the secularization of mission lands, which was fully accomplished by 1836, and the issuance of large and numerous land grants to soldiers and prominent citizens. During the Mexican Period the present city of Marina was within Pueblo of Monterey lands.

The Treaty of Guadalupe Hidalgo was signed in 1848, ending the Mexican-American War and officially making California a territory of the United States. U.S. jurisdiction over California had really begun two years earlier, when on July 7, 1846, Commodore John D. Sloat raised the U.S. flag after the "Battle of Monterey," after 50 U.S. Marines and 100 Navy sailors landed unopposed and captured the city without firing a shot (Crane 1991). The Gold Rush brought a multitude of new settlers to California in 1848, and the construction of the transcontinental railroad in 1869 contributed further to California's population boom.

Since that time, California has experienced tremendous growth to become one of the dominant economies in the world. Monterey County is a popular tourist destination, famous for its golf courses, resorts, the Monterey Bay Aquarium, and Cannery Row, which was made famous by John Steinbeck in his titular novel. Steinbeck was born in the city of Salinas, roughly twenty miles from Marina, and Monterey County has served as the setting for several of his books.

3.3.1 City of Marina

The city of Marina was part of a 9,000 acre block of land owned by David Jacks and James Bardin circa 1868. In 1885, the land block began to be divided, with parcels of land sold to various farms and ranches and the San Francisco Sand Company in 1906 for the construction of a sand plant. The Southern Pacific Railroad laid tracks through this area around this time. In 1915 the area was purchased by real estate salesman William Locke-Paddon, who resold five-acre plots of land and renamed the community "Marina." The Marina Post Office was established in April 1919. By 1926, the community was home to approximately 70 families. The Seventh Division of the United States Army began training troops at Fort Ord in June 1940, and Marina became a place where troops went to relax. By this time, Marina's population numbered approximately 6,000 people (City of Marina 2016).

In the early 1950s, Del Monte Boulevard became the center of commercial activity in Marina as home to the post office, stores, and gas stations. At this time, Reservation Road was a "sand-dune" road. In the later 1950s, Reservation Road grew to be more of a commercial area with the establishment of a shopping center and other businesses. The development of Reservation Road was the catalyst for additional housing development on nearby streets, such as Hayes Circle (City of Marina 2016).

In 1975 Marina residents voted to incorporate into a city. Since its incorporation, Marina has grown and thrived. Recreational facilities, such as city parks, a sports complex, and Marina State Beach, have been established (City of Marina 2016).



4.0 BACKGROUND RESEARCH

Background research for the current study encompassed both the APE and a 0.5-mile radius surrounding the APE. Background research was conducted to determine if previously recorded or other known cultural resources are present within the project area. The research conducted for this study includes a review of cultural resource records at the California Historic Resources Information System (CHRIS) Northwest Information Center (NWIC), a review of the Sacred Lands File maintained by the Native American Heritage Commission, and Native American scoping for information regarding any Native American cultural resources within or immediately adjacent to the APE.

4.1 CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

Rincon requested a search of the cultural resource records housed at the CHRIS NWIC located at Sonoma State University on February 1, 2016. The search was conducted to identify all previous cultural resources work and previously recorded cultural resources within the APE as well as within a 0.5-mile radius of the APE. The CHRIS search included a review of the NRHP, the CRHR, the California State Historical Landmarks list, the California Points of Historical Interest list, historic building surveys, the Archaeological Determinations of Eligibility list, and the California Inventory of Historical Resources list. The search provided information about any archaeological resources, historic resources, and reports within the APE as well as within a 0.5-mile radius of the APE. The records search also included a review of available historic USGS 7.5- and 15-minute quadrangle maps. Rincon received the cultural resource record search results from the NWIC on February 24, 2016 (Appendix A).

The cultural resource records search of the NWIC inventory identified no reports from within the APE and 11 reports resulting from projects conducted within a 0.5-mile radius of the APE. One archaeological resource (P-27-000385) was identified within the APE, and no other resources were identified within the 0.5-mile radius of the APE. The NWIC inventory identified 11 historic addresses within the City of Marina; none of these historic addresses, however, fall within the APE or a 0.5-mile radius of the APE. The NWIC provided three historical maps that depict the APE.

4.1.1 Previous Studies

The cultural resource records search of the NWIC inventory identified no reports from within the APE. The search, however, yielded 11 reports for projects conducted within a 0.5-mile radius of the APE. Table 1 summarizes the reports for projects conducted within a 0.5-mile radius of the Veteran's Transition Center Project APE.

Table 1. Previous Studies Within a 0.5-Mile Radius of the Project Site.

Study No.	Author	Year	Title
S-003345	Weber, Tony F. and S. Peak	1976	<i>Monterey Peninsula Regional Wastewater Treatment System Expansion Project</i>



Table 1. Previous Studies Within a 0.5-Mile Radius of the Project Site.

Study No.	Author	Year	Title
S-003418	Unknown	1978	<i>Cultural Resource Assessment of the Proposed Effluent Disposal System, Fort Ord, Monterey County, California</i>
S-005439	Unknown	1978	<i>Cultural Resource Assessment of the Selected Alternative of the Monterey Regional Wastewater Treatment System, Monterey County, California</i>
S-014001	Runnings, Anna and Gary S. Breschini	1992	<i>Preliminary Cultural Resources Reconnaissance for the MPWMD Desalinization Pipeline, Monterey County, California</i>
S-022537	Wilson, Kelda	2000	<i>Negative Archaeological Survey Report, 05-MON-1 PM R80.7-R85.3 CU 05-168 EA 05-0A3301, Proposal to Place an Asphalt Concrete Overlay on the Class I Bike Path on State Route 1 in Seaside and Marina, Monterey County</i>
S-022657	Sawyer, Izaak, Laurie Pfeiffer, Karen Rasmussen, and Judy Berryman	2000	<i>Phase I Archaeological Survey Along Onshore Portions of the Global West Fiber Optic Cable Project</i>
S-033677	Doane, Mary and Trudy Haversat	1999	<i>Preliminary Archaeological Reconnaissance of the Marina Coast Water District Recycled Water Pipeline Project, Monterey County, California</i>
S-036412	Doane, Mary and Gary S. Breschini	2009	<i>Preliminary Archaeological Reconnaissance for the Marina Middle School, High School, and Joint Use Community Recreational Facilities Project in Marina, Monterey County, California</i>
S-036412a	Doane, Mary and Gary S. Breschini	2009	<i>Phase I Archaeological Survey Report for the Marina Middle School, High School, and Joint Use Community Recreational Facilities Project in Marina, Monterey County, California</i>
S-037725	Ruby, Allika	2010	<i>Archaeological Survey Report for the Monterey Light Rail Transit Project</i>
S-045823	Doane, Mary and Gary S. Breschini	2014	<i>Phase I Archaeology Survey for the Proposed Monterey Peninsula Groundwater Replenishment Project, Northern Monterey County, California</i>

Source: Central Coast Information Center, February 2016.

4.1.2 Previously Recorded Resources

The NWIC identified previously recorded cultural resource (P-27-000385[CA-MNT-280]) as potentially present within the APE (Appendix B). Consequently, the NWIC recommended intensive pedestrian survey of the APE to identify if portions of P-27-000385 are present within the APE.

4.1.2.1 P-27-000385

The mapped location for resource P-27-000385 encompasses a large area of land both within the APE as well as within a 0.5-mile radius of the APE. The archaeological site record for resource P-27-000385, however, does not contain a map of the site. The site record indicates that the approximate location of the site was drawn using the Fort Ord Boundary on the Marina,



Salinas, Seaside, and Spreckels quadrangle maps, but was described as destroyed by bulldozing circa 1940.

The site may have been identified through correspondence between a reporter from the Monterey County newspaper formerly known as *The Monterey Peninsula Herald* (now known as *The Monterey County Herald*) and an individual named Jesse Neusbaum. The site information was then likely provided to A.R. Pilling, who recorded the site in August 1950. Pilling (1950) describes the site as an occupation site on the Fort Ord Military Reservation. The site record appears to have been produced as a placeholder for a previously identified prehistoric archaeological site that was located in the area of Fort Ord in the early to mid-twentieth century.

4.1.3 Historical Maps

The 1869 Plat of the City Lands of Monterey map depicts the APE as part of Lot Number 38. The 1913 USGS *Monterey, CA* topographic quadrangle map depicts the Southern Pacific Railroad tracks, which are still present within a 0.5-mile radius of the APE. The 1941 Army Corps map of Monterey depicts road developments within the City of Marina. No additional information was gleaned about the APE during review of the historical maps.

4.2 NATIVE AMERICAN HERITAGE COMMISSION AND NATIVE AMERICAN SCOPING

Rincon Cultural Resources Specialist Ashlee M. Bailey, M.A. contacted the Native American Heritage Commission (NAHC) on January 28, 2016 to request a follow-up concerning the request to review the Sacred Lands File (SLF) and obtain contact information for Native American scoping originally submitted by Cinnamon Crake of AEM Consulting on November 12, 2015. The NAHC responded by email on February 3, 2016. The response stated, "A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area," and provided a list of Native American groups and individuals with whom to communicate regarding the project.

Ms. Bailey initiated Native American scoping on February 4, 2016 by mailing letters to each of the individuals listed on the results from the NAHC (Appendix C). The letters briefly described the purpose of the project and the project location, and inquired about knowledge of any Native American resources that may be present within the project site. Ms. Bailey conducted follow-up consultation by telephone to the individuals listed on the results from the NAHC on February 24, 2016. Ms. Bailey reached three Native American individuals during the follow-up, with their comments described below. Voicemail messages were left for the remaining contacts. As of February 25, 2016, Rincon has not received any additional responses to the letters.

Valentin Lopez, Chairperson of the Amah Mutsun Tribal Band, stated that the City of Marina is outside of their territory, which is bounded by the Salinas River. Consequently, they have no comment concerning the project.

Tony Cerda, Chairperson of the Coastanoan Rumsen Carmel Tribe, stated that the project is very important to his tribe. Members of the tribe are veterans who desire to be involved in the



project. Ms. Bailey contacted Cinnamon Crake to identify who might be the best contact for involvement in the project.

Irenne Zwierlein, Chairperson of the Amah Mutsun Tribal Band of Mission San Juan Bautista, stated that Fort Ord has been grazed so much that she doesn't think that any cultural resources would be identified within the APE. The tribe requests the presence of a Native American cultural resources monitor at the APE, however, if Native American cultural resources are discovered during the project.

5.0 METHODS

Rincon Cultural Resources Specialist Ashlee M. Bailey, M.A. conducted the intensive pedestrian survey of the APE on February 22, 2016. Ms. Bailey examined the ground using transects spaced no greater than 15 meters apart and oriented from the east to west in unpaved areas and where vegetation was sparse enough to allow it. Approximately one quarter of the project area is paved and developed with military housing (i.e., duplexes) and associated infrastructure for the former U.S. Army Fort Ord. Much of the APE has been disturbed by the construction of the military housing. The APE surrounding the duplexes has been disturbed by the installation of water conveyance, sewage, propane tanks, sidewalks, and driveways. The majority of the APE (approximately 60 percent) is covered with dense vegetation – primarily iceplant (*Carpobrotus edulis*), seasonal grasses, and scrub; consequently, ground visibility was poor to fair (0-40 percent) for the unpaved portions of the APE.

Ms. Bailey examined all exposed ground surface for artifacts (e.g. flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock [FAR]), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g. standing exterior walls, postholes, foundations) or historic debris (e.g. metal, glass, ceramics). Ground disturbances, such as animal burrows and drainages, were visually inspected as these disturbances can expose subsurface deposits.

6.0 RESULTS AND DISCUSSION

The cultural resources records search identified one previously recorded prehistoric resource (P-27-000385) both within the APE and within a 0.5-mile radius of the APE. Ms. Bailey did not, however, identify any portions of archaeological resource P-27-000385 during the intensive pedestrian survey of the APE. No other cultural resources were identified within the project area as a result of the records search, Native American scoping, or intensive pedestrian survey.

According to the results of the background research conducted for the project, one archaeological site (P-27-000385) was mapped within and around the APE. The site record indicates that the approximate location of the site was drawn using the Fort Ord Boundary on the Marina, Salinas, Seaside, and Spreckels quadrangle maps, but was described as destroyed by bulldozing circa 1940. The site record appears to have been produced as a placeholder for a previously identified prehistoric archaeological site that was located in the vicinity of Fort Ord in the early to mid-twentieth century, but was destroyed by development. The actual



boundaries, extent, and components of the site, therefore, remain unknown; however, no evidence of the site was identified within the current APE. The method and reasoning for the site mapping may also be incorrect and may not have been near the vicinity of the mapped location prior to destruction.

7.0 CONCLUSION AND RECOMMENDATIONS

EAH Housing retained Rincon to conduct a cultural resources study for the Veterans Transition Center Project in the City of Marina, Monterey County, California. The cultural resources study included a background records search, Native American scoping, and an intensive pedestrian survey. Background research conducted at the CHRIS NWIC noted the presence of one prehistoric archaeological site (P-27-000385) both within the APE and within a 0.5-mile radius of the APE. The SLF indicated that no recorded Native American cultural resources are present either within the APE or within a 0.5-mile radius of the APE. The pedestrian survey of the highly disturbed APE resulted in the discovery of no newly identified archaeological resources.

7.1 RECOMMENDATIONS

Although one previously identified prehistoric archaeological site (P-27-000385) was identified both within the APE, Rincon did not identify any cultural resources within the APE during the intensive pedestrian survey. The site record for P-27-000385 indicated a general boundary for the site, but has never been confirmed. It is possible that the site never existed within the APE. The site record appears to have been produced as a placeholder for an archaeological site that was subsequently destroyed by the development of Fort Ord circa 1940.

No archaeological resources were identified within the APE during the intensive pedestrian survey. Based on the disturbed nature of the project area as well as the paucity of known resources in the project vicinity, the project is considered to have a low sensitivity for buried archaeological deposits. Based on the current findings, Rincon recommends a finding of no effect to historic properties. Rincon recommends no further cultural resources work for the Veteran's Transition Center Project. While unlikely, the following measures are recommended in case of unanticipated discoveries.

WORKERS ENVIRONMENTAL AWARENESS PROGRAM

Prior to project construction, the project operator shall retain a qualified archaeologist meeting the Secretary of the Interior's Standards for historic archaeology to conduct a Worker's Environmental Awareness Program (WEAP) for all construction personnel working on the project. The training shall include an overview of potential cultural resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and notification to a qualified archaeologist in the event of unanticipated discoveries.

7.2 UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

If cultural resources are encountered during ground-disturbing activities, work in the



immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for NRHP eligibility. If the discovery proves to be significant under the NHPA and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any adverse effects to historic properties.

7.3 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 Monterey County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.



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Appendix A

Records Search Results Summary

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-000848	Other - Contract AA550-CT6-52	1977	David A. Fredrickson	A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources	The Anthropology Laboratory, Sonoma State College; Winzler & Kelly Consulting Engineers	
S-002164	Voided - S-4868	1978	Gary S. Breschini and Trudy Haversat	The Monterey County Archaeological Resource Project: A Project-Specific Research Design.		27-000100, 27-000148, 27-000180, 27-000224, 27-000236, 27-000356, 27-000386
S-003671	Voided - E-579 MNT	1980	Jack L. Zahniser and Lois J. Roberts	Cultural Resources Literature Search and Overview, Fort Ord, California	Environmental Research Archaeologists	27-000139, 27-000307, 27-000510, 27-000849
S-005590	Voided - E-401 MNT	1979	Lois J. Roberts, Gary Stickel, Jack Zahniser, Janice Findley Fisher, Ivan Show, Rod Brown, William Chilner, James Baldwin, and John Douglas	Cultural Resources Reconnaissance, Survey, and Overview, Fort Hunter Leggett, Fort Ord, and Presidio of Monterey, California.	Environmental Research Archaeologists	
S-015529		1993	Robert L. Gearhart II, Clell L. Bond, Steven D. Hoyt, James H. Cleland, James Anderson, Pandora Snethcamp, Gary Wesson, Jack Neville, Kim Marcus, Andrew York, and Jerry Wilson	California, Oregon, and Washington: Archaeological Resource Study	Espey, Huston & Associates, Inc.; Dames & Moore	01-000033, 01-000034, 01-000084, 01-000086, 01-000104, 07-000133, 07-000173, 07-000175, 07-000177, 17-000072, 17-000392, 21-000048, 21-001915, 23-001704, 27-000100, 27-000236, 27-000335, 27-000356, 27-000386, 27-000485, 38-000028, 38-000072, 38-000085, 38-000098, 41-000080, 41-000265, 44-000179

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-030789		2004	Gary S. Breschini and Trudy Haversat	Radiocarbon Dating and Cultural Models on the Monterey Peninsula, California (Pacific Coast Archaeological Society Quarterly, Volume 38, Number 1, Winter 2002)	Archaeological Consulting	27-000091, 27-000139, 27-000148, 27-000152, 27-000153, 27-000169, 27-000231, 27-000234, 27-000236, 27-000238, 27-000239, 27-000240, 27-000241, 27-000242, 27-000243, 27-000244, 27-000245, 27-000246, 27-000248, 27-000252, 27-000253, 27-000255, 27-000262, 27-000272, 27-000273, 27-000275, 27-000277, 27-000280, 27-000283, 27-000284, 27-000285, 27-000286, 27-000334, 27-000335, 27-000340, 27-000346, 27-000348, 27-000368, 27-000395, 27-000401, 27-000481, 27-000485, 27-000528, 27-000809, 27-000888, 27-000898, 27-000901, 27-001028, 27-001054, 27-001140, 27-001282, 27-001293, 27-001299, 27-001377, 27-001591, 27-001882, 27-002154, 27-002301, 27-002623
S-032596	Caltrans - EA No. 447600; Other - Contract #04A2098	2006	Randall Milliken, Jerome King, and Patricia Mikkelsen	The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways	Consulting in the Past; Far Western Anthropological Research Group, Inc.	
S-045010	Other - MS. No. 74	1949	A.R. Pilling	Tulare Indians at Monterey: Ethnographic notes collected by A.R. Pilling	University of California, Berkeley; The California Archaeological Survey	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-003345	Voided - E-48 MNT	1976	Tony F. Weber and Ann S. Peak	Monterey Peninsula Regional Wastewater Treatment System Expansion Project	Ann S. Peak & Associates	27-000777
S-003418	Voided - E-128 MNT	1978		Cultural Resource Assessment of the Proposed Effluent Disposal System, Fort Ord, Monterey County, California	Ann S. Peak & Associates	
S-005439	Voided - E-224 MNT	1978		Cultural Resource Assessment of the Selected Alternative of the Monterey Regional Wastewater Treatment System, Monterey County, California.	Ann S. Peak and Associates	
S-014001	Submitter - Project 2004	1992	Anna Runnings and Gary S. Breschini	Preliminary Cultural Resources Reconnaissance for the MPWMD Desalinization Pipeline, Monterey County, California	Archaeological Consulting	27-002767
S-022537	Caltrans - EA 05-0A3301	2000	Kelda Wilson	Negative Archaeological Survey Report, 05-MON-1 PM R80.7-R85.3 CU 05-168 EA 05-0A3301, Proposal to Place an Asphalt Concrete Overlay on the Class 1 Bike Path on State Route 1 in Seaside and Marina, Monterey County	Caltrans	
S-022657		2000	Izaak Sawyer, Laurie Pfeiffer, Karen Rasmussen, and Judy Berryman	Phase 1 Archaeological Survey Along Onshore Portions of the Global West Fiber Optic Cable Project	Science Applications International Corporation	27-000334, 27-000335, 27-000706, 27-000806, 27-001207, 27-001227, 27-001228, 27-001393, 27-001408, 27-001482, 41-000410, 43-000449, 44-000047, 44-000155, 44-000156, 44-000157, 44-000174, 44-000270
S-033677	Submitter - AC Project 2783B1; Submitter - AC Project 2783B2; Submitter - AC Project 2783C; Submitter - AC Project 2783D; Submitter - Project 2783; Voided - S-22432; Voided - S-32385; Voided - S-32921; Voided - S-33994; Voided - S-33999	1999	Mary Doane and Trudy Haversat	Preliminary Archaeological Reconnaissance of the Marina Coast Water District Recycled Water Pipeline Project, Monterey County, California	Archaeological Consulting	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-033677a		2006	Mary Doane and Trudy Haversat	Phase 1 Archaeological Reconnaissance for the Marina Coast Water District Regional Urban Water Augmentation Project, Recycled Water Component, Northern Segment, In Marina and Seaside, Monterey County, California	Archaeological Consulting	
S-033677b		2007	Mary Doane and Gary S. Breshini	Phase I Archaeological Reconnaissance for the Marina Coast Water District, Regional Urban Water Augmentation Project, Recycled Water Component, in Marina, Ord Community, Seaside and Monterey, Monterey County, California (Revised May 22, 2007)	Archaeological Consulting	
S-033677c		2006	Mary Doane and Gary S. Breschini	Phase 1 Archaeological Reconnaissance for the Marina Coast Water District, Regional Urban Water Augmentation Project, Recycled Water Component, in Marina, Ord Community, Seaside and Monterey, Monterey County, California	Archaeological Consulting	
S-033677d		2007	Mary Doane and Gary S. Breschini	Phase 1 Archaeological Reconnaissance for Two Additional Alignments for the Marina Coast Water District Regional Urban Water Augmentation Project, Recycled Water Component, In Marina, Monterey County, California	Archaeological Consulting	
S-033677e		2007	Mary Doane and Gary S. Breschini	Preliminary Archaeological Reconnaissance for the Marina Coast Water District Well 34 Project, In Marina, Monterey County, California	Archaeological Consulting	
S-035072	Submitter - Project 4170	2008	Mary Doane and Gary Breschini	Preliminary Archaeological Reconnaissance for APN 032-201-004, Marina, Monterey County, California	Archaeological Consulting	
S-036412	Submitter - Project 4315; Voided - S-36637	2009	Mary Doane and Gary Breschini	Preliminary Archaeological Reconnaissance for the Marina Middle School, High School, and Joint Use Community Recreational Facilities Project in Marina, Monterey County, California	Archaeological Consulting	
S-036412a		2009	Mary Doane and Gary S. Breschini	Phase 1 Archaeological Survey Report for the Marina Middle School, High School, and Joint Use Community Recreational Facilities Project in Marina, Monterey County, California	Archaeological Consulting	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-037725		2010	Allika Ruby	Archaeological Survey Report for the Monterey Light Rail Transit Project	Far Western Anthropological Research Services, Inc.	27-001207, 27-002923
S-045823	Submitter - AC Project 4642B	2014	Mary Doane and Gary S. Breschini	Phase I Archaeology Survey for the Proposed Monterey Peninsula Groundwater Replenishment Project, Northern Monterey County, California	Archaeological Consulting	27-000580, 27-001408, 27-002416, 27-002417, 27-003057

Appendix B

Archaeological Site Record P-27-000385

ARCHAEOLOGICAL SITE SURVEY RECORD

1. Site Mnt. 2. Map Mnt 280 3. County Monterey
 4. Twp. ~~MOSS LAANDING QUAD~~ Range ; $\frac{1}{4}$ of $\frac{1}{4}$ of Sec.
 5. Location On the Fort Ord Military Reservation
 (approximate location using Fort Ord Boundary Marina, Salinas, Seaside, and Spreckels quads)
 6. On contour elevation
 7. Previous designations for site
 8. Owner U. S. Govt. 9. Address Dept. of War
 10. Previous owners, dates
 11. Present tenant
 12. Attitude toward excavation
 13. Description of site Occupation site
 14. Area 15. Depth 16. Height
 17. Vegetation 18. Nearest water
 19. Soil of site 20. Surrounding soil type
 21. Previous excavation Destroyed by bull - dozing in ca. 1940
 22. Cultivation 23. Erosion
 24. Buildings, roads, etc.
 25. Possibility of destruction
 26. House pits
 27. Other features
 28. Burials
 29. Artifacts
 30. Remarks Jesse Neusbaum had correspondence with Lovejoy of Mnt. Pen. Herald about site.
 31. Published references
 32. UCMA Accession No. 33. Sketch map
 34. Date Aug. 15, 1950 35. Recorded by A.R. Pilling 36. Photos

Appendix C

Native American Correspondence



Rincon Consultants, Inc.

5005 La Mart Drive, Suite 201

Riverside, California 92507

951 782 0061

FAX 782 0097

info@rinconconsultants.com

www.rinconconsultants.com

February 4, 2016

Amah Mutsun Tribal Band
Valentin Lopez
P.O. Box 5272
Galt, CA 95632

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Chairperson Valentin Lopez:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

AEM Consulting (AEM) conducted a historic built-environment evaluation for the project. AEM contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF) on November 12, 2015. The NAHC responded on February 3, 2016 stating, "A record search of the SLF has failed to indicate the presence of Native American cultural resources within the immediate project area." The NAHC recommended that we consult with you directly regarding your knowledge of the presence of cultural resources that may be impacted by this project. Rincon will be conducting the archaeological survey in mid to late February 2016. We are aware that the present project site is within your area of concern. If you have knowledge of cultural resources that may exist within or near the project site, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Ashlee M. Bailey". The signature is written in a cursive, flowing style.

Ashlee Bailey
Cultural Resources Specialist

Enclosure: Project Location Map



Rincon Consultants, Inc.

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February 4, 2016

Coastanoan Rumsen Carmel Tribe
Tony Cerda
240 E 1st Street
Pomona, CA 91766

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Chairperson Tony Cerda:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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February 4, 2016

Amah Mutsun Tribal Band
Mark Mondragon
18114 Stonehaven Drive
Salinas, CA 93908

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Mark Mondragon:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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February 4, 2016

Esselen Tribe of Monterey County
Tom Little Bear Nason
38655 Tassajara Road
Carmel Valley, CA 93924

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Tom Little Bear Nason:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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Cultural Resources Specialist

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February 4, 2016

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irene Zwielerin
789 Canada Road
Woodside, CA 94062

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Chairperson Irene Zwielerin:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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Cultural Resources Specialist

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Riverside, California 92507

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February 4, 2016

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers
P.O. Box 28
Hollister, CA 95024

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Chairperson Ann Marie Sayers:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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Ashlee Bailey
Cultural Resources Specialist

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February 4, 2016

Ohlone/Coastanoan-Esselen Nation
Louise Miranda-Ramirez
P.O. Box 1301
Monterey, CA 93942

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Chairperson Louise Miranda-Ramirez:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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Ashlee Bailey
Cultural Resources Specialist

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February 4, 2016

Trina Marine Ruano Family
Ramona Garibay
30940 Watkins Street
Union City, CA 94587

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Representative Ramona Garibay:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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February 4, 2016

Ohlone/Coastanoan-Esselen Nation
Christianne Arias
519 Viejo Gabriel
Soledad, CA 93960

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Vice Chairperson Christianne Arias:

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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February 4, 2016

Ohlone/Coastanoan-Esselen Nation
Pauline Martinez-Arias
1116 Merlot Way
Gonzales, CA 93926

**RE: Cultural Resources Study for the Veterans Transition Center Project in
the City of Marina, Monterey County, California**

Dear Tribal Council Woman Pauline Martinez-Arias :

Rincon Consultants, Inc. (Rincon) is preparing a cultural resources study for the Veterans Transition Center Project on a portion of the former U.S. Army Fort Ord in the City of Marina, Monterey County, California. The APE encompasses four duplex buildings on 2.38 acres located at 180 Hayes Circle, Marina, California (APN 031-021-040-000). The project will involve the demolition of the existing duplex buildings and construction of 71 residential housing units with parking and amenities for homeless veterans. The project is expected to use Department of Housing and Urban Development funds.

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Ashlee Bailey
Cultural Resources Specialist

Enclosure: Project Location Map



Appendix E

Geotechnical Engineering Investigation Report



**GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED VTC VETERANS DEVELOPMENT
180 HAYES CIRCLE
MARINA, CALIFORNIA**

Project Number: D22202.01

For:

EAH Housing
2169 East Francisco Boulevard, Suite B
San Rafael, CA 94901

November 19, 2015



November 19, 2015

D22202.01

Mr. Ethan Daniels
EAH Housing
2169 East Francisco Boulevard, Suite B
San Rafael, CA 94901

Subject: **Geotechnical Engineering Investigation
Proposed VTC Veterans Development
180 Hayes Circle
Marina, California**

Dear Mr. Daniels:

We are pleased to submit this geotechnical engineering investigation report prepared for the proposed VTC Veterans Development to be located at the subject property.

The contents of this report include the purpose of the investigation, scope of services, background information, investigative procedures, our findings, evaluation, conclusions, and recommendations. It is recommended that those portions of the plans and specifications that pertain to earthwork, pavements, and foundations be reviewed by Moore Twining Associates, Inc. (Moore Twining) to determine if they are consistent with our recommendations. This service is not a part of this current contractual agreement; however, the client should provide these documents for our review prior to their issuance for construction bidding purposes.

In addition, it is recommended that Moore Twining be retained to provide inspection and testing services for the excavation, earthwork, pavement, and foundation phases of construction. These services are necessary to determine if the subsurface conditions are consistent with those used in the analyses and formulation of recommendations for this investigation, and if the construction complies with our recommendations. These services are not, however, part of this current contractual agreement. A representative with our firm will contact you in the near future regarding these services.

**Geotechnical Engineering Investigation
Proposed VTC Veterans Development
180 Hayes Circle
Marina, California**

D22202.01

November 19, 2015

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We appreciate the opportunity to be of service to EAH Housing. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience.

Sincerely,

MOORE TWINING ASSOCIATES, INC.

Geotechnical Engineering Division



Allen H. Harker
Professional Geologist

EXECUTIVE SUMMARY

This report presents the results of a geotechnical engineering investigation for the proposed VTC Veterans Development to be located at the property addressed as 180 Hayes Circle in Marina, California.

The site comprises approximately 2.38 acres and borders the southwest side of Hayes Circle. At the time of our field exploration, the site was occupied by four (4) residential (duplex) structures on separate pads which are used for military housing and included parking areas, and landscaped areas that included grass, ice plant, scrub brush and mature trees. The existing building pads appear to have been constructed by cut and fill type grading. Underground utilities marked at the site included water, sewer and propane gas.

Based on our review of the concept site plan, dated April 22, 2015, prepared by HKIT Architects, it is our understanding that the project will include a 3-story building with sixty-four (64) studio apartments and a second multi-story building with 7 to 8 two-bedroom apartments and an attached community room. Appurtenant construction is anticipated to include concrete flatwork, an asphaltic concrete parking lot, underground utilities and landscaped type improvements.

On October 29, 2015, five (5) test borings were drilled which included three (3) borings in the proposed building footprint to depths of about 16½ to 51½ feet below site grade (BSG), and two (2) boring in the proposed parking and drive areas to a depth of about 5 to 11½ feet BSG.

The near surface soils encountered in the borings conducted for this investigation included loose to medium dense, poorly graded sands with silt overlying loose to dense poorly graded sands extending to the maximum depth explored, about 51½ feet BSG.

The existing building pads appear to have been constructed by cut and fill type grading. The approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A. The extent and depth of the undocumented fills are not known. The undocumented fill soils should be completely removed during site preparation for the proposed improvements and backfilled with moisture conditioned and compacted engineered fill in accordance with the recommendations of this report.

Groundwater was not encountered in any of the borings to the maximum depth explored, about 51½ feet BSG, during our October 29, 2015 field exploration.

Based on our field and laboratory investigation, the near surface soils tested possess a very low expansion potential, high compressibility characteristics, slight collapse potential, moderate shear strength and good support characteristics for pavements when compacted as engineered fill.

Based on our analysis of the assumed structural loads and the soil conditions encountered within the footprint of the proposed buildings, this report recommends the near surface soils that are disturbed from removal of the existing surface and subsurface improvements be over-excavated and compacted to support the foundations and slab on grade on a compacted subgrade condition.

EXECUTIVE SUMMARY (Continued)

After stripping and removal of existing surface and subsurface improvements, the building and all new foundations should be over-excavated to at least 24 inches below preconstruction site grades, to at least 12 inches below the bottom of the improvements to be removed, to the depth to remove all disturbed and undocumented fill soils, and to at least 12 inches below the bottom of the footings, whichever is greater.

Structures, foundations and improvements above the top of a descending native, cut or fill slope should be setback a minimum distance from the top of the slope equal to one-third of the height ($H/3$) of the slope, and not less than 5 feet, whichever is the most stringent. For slopes 10 feet high or greater, the minimum structural setback from the structures to ascending cut or fill slopes is 10 feet or $1/2$ the slope height ($H/2$), whichever is greater. For slopes less than 10 feet high, the minimum structural setback from ascending slopes is 5 feet.

Chemical testing of soil samples indicated the soils exhibit an “essentially non-corrosive” corrosion potential.

Chemical analyses indicated a “negligible” potential for sulfate attack on concrete placed in contact with the near surface soils.

This Executive Summary should not be used for design or construction and should be reviewed in conjunction with the attached report.

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**GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED VTC VETERANS DEVELOPMENT
180 HAYES CIRCLE
MARINA, CALIFORNIA**

Project Number: D22202.01

1.0 INTRODUCTION

This report presents the results of a geotechnical engineering investigation for the proposed VTC Veterans Development to be located at the property addressed as 180 Hayes Circle in Marina, California. Moore Twining Associates, Inc. (Moore Twining) was authorized by Mr. Errol Dominguez, Deputy Director of Real Estate Development and Assistant Secretary of EAH Inc. to perform this geotechnical engineering investigation.

The contents of this report include the purpose of the investigation and the scope of services provided. The site history, previous studies, site description, and anticipated construction are discussed. In addition, a description of the investigative procedures used and the subsequent findings obtained are presented. Finally, the report provides an evaluation of the findings, general conclusions, and related recommendations. The report appendices contain the drawings (Appendix A), the logs of borings (Appendix B), and the results of laboratory tests (Appendix C).

The Geotechnical Engineering Division of Moore Twining, headquartered in Fresno, California, performed the investigation.

2.0 PURPOSE AND SCOPE OF INVESTIGATION

2.1 Purpose: The intent of this investigation is to satisfy the requirements of the 2013 California Building Code (CBC), as related to geotechnical investigations. The purpose of the investigation was to conduct an exploration program, evaluate the data collected during the field investigation and laboratory testing, and provide geotechnical engineering recommendations for project design.

- 2.1.1 Evaluation of the near surface soils within the zone of influence of the proposed foundations with regard to the anticipated foundation loads;
- 2.1.2 Recommendations for 2013 California Building Code seismic coefficients and earthquake spectral response acceleration values;
- 2.1.3 Geotechnical parameters for use in design of foundations and slabs-on-grade, (e.g., soil bearing capacity, settlement, lateral resistance);

- 2.1.4 Recommendations for site preparation including placement, moisture conditioning, and compaction of engineered fill soils;
- 2.1.5 Recommendations for temporary excavations, trench excavation, and trench backfill;
- 2.1.6 Recommendations for slab-on-grade floors and exterior concrete flatwork;
- 2.1.7 Recommendations for asphalt concrete; and
- 2.1.8 Conclusions regarding soil corrosion potential.

This report is provided specifically for the proposed improvements described in the Anticipated Construction section of this report. This investigation did not include a geologic/seismic hazards evaluation, flood plain investigation, compaction tests, environmental investigation, or environmental audit.

2.2 Scope: Our proposal, reference MTP 4415-1013, dated October 2, 2015, outlined the scope of our services. The actions undertaken during the investigation are summarized as follows.

- 2.2.1 A Concept Site Plan, dated April 22, 2015, for the VTC Veterans Development in Marina, prepared by HKIT Architects, was reviewed.
- 2.2.2 A visual site reconnaissance and subsurface exploration were conducted.
- 2.2.3 Satellite images of the site from 1998 to 2015 from online sources, were reviewed.
- 2.2.4 Laboratory tests were conducted to determine selected physical and engineering properties of the subsurface soils encountered.
- 2.2.5 A report in progress entitled, "Phase I Environmental Site Assessment, Housing Development, 185 Hayes Circle, Marina, California, APN: 310-210-400," prepared by Moore Twining's Environmental Division, was reviewed.
- 2.2.6 An aerial image of the subject site with topographic contours overlaid on the image, provided by Mr. Richard Weber (Whitson Engineers), was reviewed.

- 2.2.7 Mr. Ethan Daniels (EAH Housing) and Mr. Richard Weber (Whitson Engineers) were consulted during the investigation.
- 2.2.8 The data obtained from the investigation were evaluated to develop an understanding of the subsurface soil conditions and the engineering properties of the subsurface soils.
- 2.2.9 This report was prepared to present the purpose and scope, background information, field exploration procedures, findings, evaluation, conclusions, and recommendations.

3.0 BACKGROUND INFORMATION

The site description, site history, previous studies, and the anticipated construction are summarized in the following subsections.

3.1 Site Description: The proposed building is to be located at 180 Hayes Circle in Marina, Monterey County, California. The subject site comprises approximately 2.38 acres and borders the southwest side of Hayes Circle. The site is bound to the northeast by Hayes Circle, to the northwest by existing military housing and to the southeast and southwest by vacant land.

At the time of our field exploration, the site was occupied by four (4) residential (duplex) structures on separate pads which are used for military housing. The existing building pads appear to have been constructed by cut and fill type grading. In general, the existing building areas are relatively flat and are bordered by graded slopes on the northern and southern sides. The developments included asphalt concrete paving for driveways and parking areas, concrete walks, propane tanks and underground utilities. The ground surface in areas outside the existing improvements was generally covered with ice plant, scrub brush and some mature trees. Underground utilities marked at the site included water, sewer and propane gas.

A dirt access road is located in the southwesterly portion of the site and trends across the site in a northwest to southeast orientation.

The site generally slopes from the southwest to the northeast or west to east toward Hayes Circle. Based on our review of an aerial image of the site with topographic contours overlaid on the image, provided by Mr. Richard Weber (Whitson Engineers), site elevations range from about 94 feet above mean sea level (AMSL) in the southern portion of the site to about 70 feet AMSL in the northern portion of the site.

3.2 Site History: Our review of online satellite images of the site indicates that the site has been occupied by the existing military housing dating back to at least 1998.

A report in progress entitled, “Phase I Environmental Site Assessment, Housing Development, 185 Hayes Circle, Marina, California, APN: 310-210-400,” prepared by Moore Twining’s Environmental Division, was reviewed. Based on our review of the in progress Phase I Environmental Site Assessment (ESA) report, the aerial photographs reviewed dating back to 1937 indicate that the site appeared as undeveloped land in 1937. Based on review of a 1956 aerial photograph of the site, the site appears to have been developed as a firing range and ammunition testing range. No structures appear in the 1956 aerial photograph in the area of the proposed apartments for the VTC Veterans development. The Phase I ESA report indicates that based on review of a 1968 aerial photograph of the site, the site appears to have been developed with the residential housing which was present at the time of our site observations. Thus, the residential housing was constructed at the site sometime between 1956 and 1968.

3.3 Previous Studies: A report in progress entitled, “Phase I Environmental Site Assessment, Housing Development, 185 Hayes Circle, Marina, California, APN: 310-210-400,” prepared by Moore Twining’s Environmental Division, was reviewed. Pertinent information from this in progress report regarding the historical use of the site is noted above in the Site History section of this report. At the time of preparation of this report, no other previous geotechnical engineering, geological, or compaction test reports conducted for this site were provided for review. If these reports become available, the reports should be provided for review and consideration for this project.

3.4 Anticipated Construction: Based on our review of the concept site plan, dated April 22, 2015, prepared by HKIT Architects, it is our understanding that the project will include a 3-story building with sixty-four (64) studio apartments (approximately 10,500 square feet in plan area) and a second multi-story building with 7 to 8 two-bedroom apartments (approximately 3,500 square feet in plan area) and an attached community room (approximately 1,000 square feet in plan area). Appurtenant construction is anticipated to include concrete flatwork, an asphaltic concrete parking lot, underground utilities and landscaped type improvements.

Structural loads were not available at the time this report was prepared. For the purpose of this report, maximum column loads of about 60 kips and maximum wall loads of about 3 kips per linear foot were assumed.

Based on the sloping terrain adjacent to the existing pads, it is anticipated that cuts and fills will be required to achieve design site grades for the buildings and parking lot improvements. Neither a grading plan nor a topographic map were available for our review at the time this report was prepared. Finished floor elevations for the buildings also were not known at the time this report was prepared. Based on our review of elevations from a satellite image of the site, the elevations within the proposed building pad areas appear to range from about 71 to 89 feet AMSL. Thus, cuts and fills of up to about 9 feet are anticipated to achieve design site grades.

4.0 INVESTIGATIVE PROCEDURES

The field exploration and laboratory testing programs conducted for this investigation are summarized in the following subsections.

4.1 Field Exploration: The field exploration consisted of a site reconnaissance, drilling test borings, conducting standard penetration tests, soil sampling and percolation tests.

4.1.1 Site Reconnaissance: The site reconnaissance consisted of walking the site and noting visible surface features. The reconnaissance was conducted by Mr. Jose Diaz of Moore Twining on October 29, 2015. The features noted are described in the background information section of this report.

4.1.2 Drilling Test Borings: Prior to drilling, the site was marked for Underground Service Alert for members to mark out the locations of existing public utilities.

The depths and locations of the test borings were selected based on the size of the structure, type of construction, estimated depth of influence of the anticipated foundation loads, and the subsurface soil conditions encountered.

On October 29, 2015, five (5) test borings were drilled which included three (3) borings in the proposed building footprint to depths of about 16½ to 51½ feet below site grade (BSG), and two (2) borings in the proposed parking and drive areas to a depth of about 5 to 11½ feet BSG. The test borings were drilled using a truck-mounted CME-75 drill rig equipped with 6-5/8 inch outside diameter (O.D.) hollow-stem augers.

During the drilling of the test borings, bulk and relatively undisturbed samples of soil were obtained for laboratory testing. The test borings were drilled under the direction of a Moore Twining professional geologist. The soils encountered in the test borings were logged during drilling by a representative of our firm. The field soil classification was in accordance with the Unified Soil Classification System consisted of particle size, color, and other distinguishing features of the soil.

The presence and elevation of free water, if any, in the borings were noted and recorded during drilling and immediately following completion of the borings.

Test boring locations were determined with reference to existing site features shown on the site plan. The locations, as described, should be considered accurate to within about 10 feet. After completion of drilling, the boring holes were backfilled with soil cuttings. Some settlement of the backfill should be expected at the boring locations. The locations of the borings are shown on Drawing No. 2 in Appendix A of this report.

4.1.3 Soil Sampling: Standard penetration tests were conducted in the test borings, and both disturbed and relatively undisturbed soil samples were obtained.

The standard penetration resistance, N-value, is defined as the number of blows required to drive a standard split barrel sampler into the soil. The standard split barrel sampler has a 2-inch O.D. and a 1 $\frac{3}{8}$ -inch inside diameter (I.D.). The sampler is driven by a 140-pound weight free falling 30 inches. The sampler is lowered to the bottom of the bore hole and set by driving it an initial 6 inches. It is then driven an additional 12 inches and the number of blows required to advance the sampler the additional 12 inches is recorded as the N-value.

Relatively undisturbed soil samples for laboratory tests were obtained by pushing or driving a California modified split barrel ring sampler into the soil. The soil was retained in brass rings, 2.5 inches O.D. and 1-inch in height. The lower 6-inch portion of the samples were placed in close-fitting, plastic, airtight containers which, in turn, were placed in cushioned boxes for transport to the laboratory. Soil samples obtained were taken to Moore Twining's laboratory for classification and testing.

4.2 Laboratory Testing: The laboratory testing was programmed to determine selected physical and engineering properties of selected samples of the soils encountered. The tests were conducted on disturbed and relatively undisturbed samples considered representative of the subsurface soils encountered.

The results of laboratory tests are summarized in Appendix C. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

5.0 FINDINGS AND RESULTS

The findings and results of the field exploration and laboratory testing are summarized in the following subsections.

5.1 Surface and Subsurface Conditions: At the time of our field exploration, the site was occupied by four (4) residential (duplex) structures on separate pads which are used for military housing. Other surface improvements included pavements, sidewalks and underground utilities. The ground surface was covered in most areas with grass, ice plant, scrub brush and some large mature trees were present.

Additional information regarding the existing site conditions is noted in the Background Information section of this report.

5.2 Soil Profile: The near surface soils encountered in the borings conducted for this investigation included loose to medium dense, poorly graded sands with silt overlying loose to dense poorly graded sands extending to the maximum depth explored, about 51½ feet BSG.

Due to the granular nature of the subsurface soils, fill soils could not be differentiated from the native soils in the samples collected from the borings. However, based on visual observations, the existing building pads appear to have been constructed by cut and fill type grading and fill soils are generally present on the downslope sides of the existing graded pads. The approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A.

The foregoing is a general summary of the soil conditions encountered in the test borings drilled for this investigation. Detailed descriptions of the soils encountered at each test boring location are presented in the logs of borings in Appendix B. The stratification lines in the logs represent the approximate boundary soil types; the actual in-situ transition may be gradual.

5.3 Soil Engineering Properties: The following is a description of the soil engineering properties of the soils encountered as determined from our field exploration and laboratory testing.

Poorly Graded Sands and Poorly Graded Sands with Silt: The poorly graded sands and poorly graded sands with silt encountered were described as loose to dense, as determined by standard penetration resistance, N-values, ranging from 9 to 36 blows per foot. The moisture content of the samples tested ranged from about 1 to 3 percent. The results of testing of five (5) relatively undisturbed samples indicated dry densities of 100.2, 101.7, 102.2, 102.6, and 103.1 pounds per cubic foot. A sieve analysis conducted on a near surface poorly graded sand with silt sample indicated the sample had 8.3 percent fines. A sieve analysis conducted on a sample of poorly graded sand collected from depths of 3½ to 5 feet BSG indicated the sample had 0.6 percent fines. Three (3) consolidation tests conducted on poorly graded sand samples indicated medium to high compressibility characteristics (about 6.9, 7.5, and 6.3 percent consolidation under a load of 8 kips per square foot). Upon inundation, the samples exhibited slight collapse potential (about 1.4, 2.0 and 1.8 percent collapse when wetted under a load of 2 kips per square foot). A direct shear test conducted on a poorly graded sand sample indicated an internal angle of friction of 31 degrees and 170 pounds per square foot of cohesion.

R-value: The result of an R-value test conducted on a sample of poorly graded sand collected from boring B-4 from depths of 0 to 3½ feet BSG indicated an R-value of 59.

Chemical Tests: Chemical tests were performed on near surface soil samples collected at depths of 2½ to 4 feet BSG from boring B-1 and at depths of 0 to 3½ feet BSG from boring B-4. The tests indicated pH values of 5.8 and 5.2; minimum resistivity values of 22,000 and 22,000 ohms-centimeter; not-detected percent by weight concentrations of sulfate (reporting limit of at least 0.00060 percent by weight); and 0.0071 and 0.0040 percent by weight concentrations of chloride, respectively.

5.4 Groundwater Conditions: Groundwater was not encountered in any of the borings to the maximum depth explored, about 51½ feet BSG, during our October 29, 2015 field exploration. Based on our review of the Department of Water Resources website, the closest well to the site is located about 1¾ miles southwest of the site indicates that groundwater has ranged from about 90 to 91 feet BSG between the years 2011 and 2015.

It should be recognized; however, that groundwater elevations fluctuate with time, since they are dependent upon seasonal precipitation, irrigation, land use, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered both during the construction phase and the design life of the project. The evaluation of such factors was beyond the scope of this investigation and report.

6.0 EVALUATION

The data and methodology used to develop conclusions and recommendations for project design and preparation of construction specifications are summarized in the following subsections. The evaluation was based upon the subsurface soil conditions encountered during this investigation and our understanding of the proposed construction. The conclusions obtained from the results of our evaluations are described in the Conclusions section of this report.

6.1 Existing Surface and Subsurface Improvements: At the time of our field exploration, the site was occupied by four (4) residential (duplex) structures which were sited on separate building pads. The existing improvements also included asphalt concrete paving, concrete sidewalks, and unimproved areas that included grass, ice plant, scrub brush and mature trees. During site preparation, all surface and subsurface improvements and associated fill/disturbed soils should be over-excavated as recommended in this report and the excavations should be backfilled with on-site or imported soils that are compacted as engineered fill as recommended in this report. The existing building pads appear to have been constructed by cut and fill type grading and undocumented fill soils are present at the site from this prior grading. Based on our visual observations, the approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A. However, the actual extent and depth of the undocumented fills are not known. As part of the site preparation, the undocumented fill soils should be completely removed during site preparation for the proposed improvements.

As part of site preparation, trees, scrub brush, ice plant and other vegetation will also need to be removed in the areas of the proposed improvements. The root systems of all trees, bushes and other vegetation to be removed should be removed in their entirety under the observation of Moore Twining and per the recommendations of this report. Vegetation, roots and organic matter should not be mixed with soils to be used as engineered fill.

6.2 Expansive Soils: The near surface soils are anticipated to have a very low expansion potential. Due to the very low expansion potential, special procedures to address an expansive soils condition are not anticipated for the project, provided the materials used to construct the building pads are consistent with those encountered and tested during this investigation. However, for constructability purposes, this report does recommend that interior and exterior slab-on-grade areas be underlain by 4 inches of Class 2 aggregate base.

6.3 Static Settlement and Bearing Capacity of Shallow Foundations: The potential for excessive total and differential static settlement of foundations and slabs-on-grade is a geotechnical concern that was evaluated for this project. The increases in effective stress to underlying soils which can occur from new foundations and structures, placement of fill, withdrawal of groundwater, etc. can cause vertical deformation of the soils, which can result in damage to the overlying structures and improvements. The differential component of the settlement is often the most damaging. In addition, the allowable bearing pressures of the soils supporting the foundations were evaluated for shear and punching type failure of the soils resulting from the imposed foundation loads.

Based on our analysis of the assumed structural loads and the soil conditions encountered within the footprint of the proposed building, this report recommends the near surface soils that are disturbed from removal of the existing surface and subsurface improvements be over-excavated and compacted to support the foundations and slab on grade on a compacted subgrade condition. In addition, the existing undocumented fill soils throughout the site will need to be over-excavated and engineered fill placed below the new foundations in order to reduce the potential for excessive differential static settlement. Provided the site preparation recommendations included in this report are followed, a net allowable soil bearing pressure of 2,500 pounds per square foot, for dead-plus-live loads, may be used for design.

The net allowable soil bearing pressure is the additional contact pressure at the base of the foundations caused by the structure. The weight of the soil backfill and weight of the footing may be neglected.

A structural engineer experienced in foundation and slab-on-grade design should determine the thickness, reinforcement, design details and concrete specifications for the proposed building foundations and slabs-on-grade based on the anticipated settlements estimated in this report.

6.4 Seismic Ground Rupture and Design Parameters: The project site is not located in an Alquist-Priolo Earthquake Fault Zone. Based on our review, the “Blanco Section” of the Reliz Fault Zone is the closest active or potentially active fault to the site and is located approximately 0.6 miles northeast of the site as determined by our review of its dashed (inferred) location shown on the “Map of Rinconada and Reliz Fault Zones, Salinas River Valley, California,” prepared by Rosenberg and Clark (2009) in the USGS Quaternary Fault Database. The potential for surface fault rupture at the site is considered low. This fault is considered potentially active as it is referenced as offsetting Salinian block crystalline basement rocks and locally juxtaposing Pliocene-Pleistocene age Paso Robles Formation against basement rocks (Rosenberg and Clark, 2009). The 2010 Fault Activity Map of California, prepared by the California Geological Survey, shows that the Reliz Fault is considered potentially active (with displacement during the past 700,000 years). Rosenberg and Clark (2009) also indicate that the Reliz Fault Zone is capable of producing a magnitude 7.3 earthquake and has a slip rate of 1 millimeter/year (mm/yr).

It is assumed that the 2013 CBC will be used for structural design, and that seismic site coefficients are needed for design.

Based on the 2013 CBC, a Site Class D represents the on-site soil conditions with standard penetration resistance, N-values averaging between 15 and 50 blows per foot in the upper 100 feet below site grade.

A table providing the recommended seismic coefficients and earthquake spectral response acceleration values for the project site is included in the Foundation Recommendations section of this report. A Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M) of 0.564g was determined for the site using the Ground Motion Parameter Calculator provided by the United States Geological Survey (<http://earthquake.usgs.gov/designmaps/us/application.php>). A Maximum Considered Earthquake magnitude of 8.0 was determined for the site based on deaggregation analysis (United States Geological Survey deaggregation website).

6.5 Liquefaction and Seismic Settlement: Liquefaction and seismic settlement are conditions that can occur under seismic shaking from earthquake events. Liquefaction describes a phenomenon in which a saturated, cohesionless soil loses strength during an earthquake as a result of induced shearing strains. Lateral and vertical movements of the soil mass, combined with loss of bearing usually results. Fine, well sorted, loose sand, shallow groundwater conditions, higher intensity earthquakes, and particularly long duration of ground shaking are the requisite conditions for liquefaction.

Due to groundwater depth greater than 50 feet below site grade (See Section 5.4 of this report), the potential for liquefaction is not considered a significant potential impact for the subject project. Since “loose” to “medium dense” poorly graded sands were encountered in the borings, the magnitude of potential dry seismic settlement was estimated. The analyses was conducted based on the soils encountered in boring B-3, which extended to a depth of 51½ feet BSG. The analyses were conducted using the computer program LIQUEFYPRO by Civiltech. An earthquake horizontal ground acceleration of 0.564g and magnitude of 8.0 were used for the evaluation. The N-values from the SPT data were relied upon in the evaluations. Soil parameters, such as wet unit weight, N-value, and fines content were input for the soil layers encountered throughout the depths explored (see test boring logs, Appendix B).

The results of the seismic settlement analysis indicate a total seismic settlement estimate of about 1 inch. It is recommended that ½ inch differential seismic settlement in 40 feet be considered for design.

6.6 Asphaltic Concrete (AC) Pavements: Recommendations for asphaltic concrete pavement structural sections are presented in the "Recommendations" section of this report for proposed asphaltic concrete (AC) pavements. The structural sections were designed using the gravel equivalent method in accordance with the California Department of Transportation Highway Design Manual. The analysis was based on traffic index values ranging from 5.0 to 8.0. The appropriate paving section should be determined by the project civil engineer or applicable design professional based on the actual vehicle loading (traffic index) values. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

It should be noted that if pavements are constructed prior to the construction of the building, the additional construction traffic should be considered in the selection of the traffic index value. If more frequent or heavier traffic is anticipated and higher Traffic Index values are needed, Moore Twining should be contacted to provide additional pavement section designs.

The anticipated subgrade soils are silty sands. Based on the results of the R-value testing conducted for this report, an R-value of 50 was used for design of the asphaltic concrete pavements.

6.7 Soil Corrosion: The risk of corrosion of construction materials relates to the potential for soil-induced chemical reaction. Corrosion is a naturally occurring process whereby the surface of a metallic structure is oxidized or reduced to a corrosion product such as iron oxide (i.e., rust). The metallic surface is attacked through the migration of ions and loses its original strength by the thinning of the member.

Soils make up a complex environment for potential metallic corrosion. The corrosion potential of a soil depends on numerous factors including soil resistivity, texture, acidity, field moisture and chemical concentrations. In order to evaluate the potential for corrosion of metallic objects in contact with the onsite soils, chemical testing of soil samples was performed by Moore Twining as part of this report. The test results are included in Appendix C of this report. Conclusions regarding the corrosion potential of the soils tested are included in the Conclusions section of this report based on the National Association of Corrosion Engineers (NACE) corrosion severity ratings listed in the Table No. 1, below.

**Table No. 1
Association of Corrosion Engineers (NACE) Corrosion Severity Ratings**

Soil Resistivity (ohm cm)	Corrosion Potential Rating
>20,000	Essentially non-corrosive
10,000 - 20,000	Mildly corrosive
5,000 - 10,000	Moderately corrosive
3,000 - 5,000	Corrosive
1,000 - 3,000	Highly corrosive
<1,000	Extremely corrosive

The results of soil sample analyses indicate that the near-surface soils exhibit an “essentially non-corrosive” corrosion potential to buried metal objects. Appropriate corrosion protection should be provided for buried improvements based on the “essentially no-corrosive” corrosion potential of the soils tested. If piping or concrete are placed in contact with imported soils, these soils should be analyzed to evaluate the corrosion potential of these soils.

If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to provide design parameters. Moore Twining does not provide corrosion engineering services.

6.8 Sulfate Attack of Concrete: Degradation of concrete in contact with soils due to sulfate attack involves complex physical and chemical processes. When sulfate attack occurs, these processes can reduce the durability of concrete by altering the chemical and microstructural nature of the cement paste. Sulfate attack is dependent on a variety of conditions including concrete quality, exposure to sulfates in soil/groundwater and environmental factors. The standard practice for geotechnical engineers in evaluation of the soils anticipated to be in contact with concrete is to perform testing to determine the sulfates present in the soils. The test results are then compared with the provisions of ACI 318, section 4.3 to provide guidelines for concrete exposed to sulfate-containing solutions. Common methods used to resist the potential for degradation of concrete due to sulfate attack from soils include, but are not limited to the use of sulfate-resisting cements, air-entrainment and reduced water to cement ratios. The test results are included in Appendix C of this report. Conclusions regarding the sulfate test results are included in the Conclusions section of this report.

The soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to provide design parameters.

7.0 CONCLUSIONS

Based on the data collected during the field and laboratory investigations, our geotechnical experience in the vicinity of the project site, and our understanding of the anticipated construction, the following general conclusions are presented.

- 7.1 The site is considered suitable for the proposed construction with regard to support of the proposed improvements, provided the recommendations contained in this report are followed. It should be noted that the recommended design consultation and observation of clearing, and earthwork activities by Moore Twining are integral to this conclusion.
- 7.2 The near surface soils encountered in the borings conducted for this investigation included loose to medium dense, poorly graded sands with silt overlying loose to dense poorly graded sands extending to the maximum depth explored, about 5 1/2 feet BSG.

- 7.3 The existing building pads appear to have been constructed by cut and fill type grading and undocumented fill soils are present at the site from this prior grading. The existing fill soils are not considered suitable for support of the proposed improvements. Based on our visual observations, the approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A. However, the actual extent and depth of the undocumented fills are not known. As part of the site preparation, the undocumented fill soils will need to be completely removed and recompacted as engineered fill.
- 7.4 Based on our field and laboratory investigation, the near surface soils tested possess a very low expansion potential, medium to high compressibility characteristics, slight collapse potential, moderate shear strength and good support characteristics for pavements when compacted as engineered fill.
- 7.5 Based on our analysis of the assumed structural loads and the soil conditions encountered within the footprint of the proposed buildings, this report recommends the near surface soils be over-excavated and compacted to support the foundations and slab on grade on a compacted subgrade condition. Site preparation should also include over-excavation and compaction of the undocumented fill soils.
- 7.6 Groundwater was not encountered in any of the borings to the maximum depth explored, about 51½ feet BSG, during our October 29, 2015 field exploration.
- 7.7 Chemical testing of the near surface soil samples indicated the soils exhibit an “essentially non-corrosive” corrosion potential.
- 7.8 Chemical analyses indicated a “negligible” potential for sulfate attack on concrete placed in contact with the near surface soils.
- 7.9 The potential for surface fault rupture at the site is considered low.
- 7.10 The potential for liquefaction is not considered a significant potential impact for the subject project. A total seismic settlement of 1 inch and a differential seismic settlement of ½ inch was estimated.

8.0 RECOMMENDATIONS

Based on the evaluation of the field and laboratory data and our geotechnical experience in the vicinity of the project, the following recommendations are presented for use in the project design and construction. However, this report should be considered in its entirety. When applying the recommendations for design, the background information, procedures used, findings, evaluation, and conclusions should be considered. The recommended design consultation and construction monitoring by Moore Twining are integral to the proper application of the recommendations. The Contractor is required to comply with the requirements and recommendations presented in this report.

Where the requirements of a governing agency, utility agency or pipe manufacturer differ from the recommendations of this report, the more stringent recommendations should be applied to the project.

8.1 General

- 8.1.1 The foundation loads anticipated for the purpose of this report are based on the assumed structural loads noted in section 3.4 of this report. When the foundation loads are known, this information should be provided to Moore Twining for review to confirm the recommendations for site preparation are suitable. In the event the foundation loads are different than anticipated, the recommendations in this report may need to be revised.
- 8.1.2 A preconstruction meeting including, as a minimum, the owner, developer, general contractor, earthwork contractor, foundation and paving subcontractors, and Moore Twining should be scheduled by the general contractor at least one week prior to the start of clearing and grubbing. The purpose of the meeting should be to discuss project requirements and scheduling.
- 8.1.3 Based on our visual observations, the approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A. However, the actual extent and depth of the undocumented fills are not known. As part of the site preparation, the undocumented fill soils will need to be completely removed and recompacted as engineered fill.

- 8.1.4 The Contractor(s) bidding on this project should determine if the information included in the construction documents are sufficient for accurate bid purposes. If the data are not sufficient, the Contractor should conduct, or retain a qualified geotechnical engineer to conduct, supplemental studies and collect information as required to prepare accurate bids.
- 8.1.5 The contractor should be required to protect existing improvements in place that are to remain.
- 8.1.6 Appropriate construction methods and equipment, such as low vibration equipment, should be used adjacent to the existing improvements so as not to damage existing improvements which are to remain.

8.2 Site Grades and Drainage

- 8.2.1 It is critical to develop and maintain site grades which will drain surface and roof runoff away from foundations and floor slabs - both during and after construction. Adjacent exterior finished grades should be sloped a minimum of two percent for a distance of at least five feet away from the structure, or as necessary to preclude ponding of water adjacent to foundations, whichever is more stringent. Adjacent exterior grades which are paved should be sloped at least 1 percent away from the foundations for a distance of at least five feet from the building foundations.
- 8.2.2 It is recommended that landscape planted areas, etc. not be placed adjacent to the building foundations and/or interior slabs-on-grade. Trees should be setback from the proposed structure at least 10 feet or a distance equal to the anticipated drip line radius of the mature tree. For example, if a tree has an anticipated drip-line diameter of 30 feet, the tree should be planted at least 15 feet away (radius) from proposed or existing buildings.
- 8.2.3 Landscaping after construction should direct rainfall and irrigation runoff away from the structure and should establish positive drainage of water away from the structure. Care should be taken to maintain a leak-free sprinkler system.
- 8.2.4 The curbs where pavements meet irrigated landscape areas or uncovered open areas should be extended to the bottom of the aggregate base section. This should reduce subgrade moisture from irrigation and runoff from migrating into the aggregate base and reducing the life of the pavements.

- 8.2.5 Landscape and planter areas should be irrigated using low flow irrigation (such as drip, bubblers or mist type emitters). The use of plants with low water requirements are recommended.
- 8.2.6 Rain gutters and roof drains should be provided, and connected directly to the site storm drain system.
- 8.2.7 In the event subsurface storm water systems, bioswales or similar designs are planned, the proposed locations and details of these features should be provided to Moore Twining for review and comment. Sufficient setbacks to existing and proposed improvements should be maintained, and/or specific measures such as deepened curbs, cutoffs, liners, etc. should be incorporated in the designs to reduce the potential for excessive settlement of improvements due to moisture and free-water migration from storm water disposal systems.

8.3 Slope Grades, Protection, and Maintenance

- 8.3.1 Moore Twining should be afforded the opportunity to review structural design details to further evaluate the setbacks, grading, and drainage. Structures should be setback from cut, fill, and native slopes to provide adequate foundation support and protection. Structures, foundations and improvements above the top of a descending native, cut or fill slope should be setback a minimum distance from the top of the slope equal to one-third of the height ($H/3$) of the slope, and not less than 5 feet, whichever is the most stringent. For slopes 10 feet high or greater, the minimum structural setback from the structures to ascending cut or fill slopes is 10 feet or $\frac{1}{2}$ the slope height ($H/2$), whichever is greater. For slopes less than 10 feet high, the minimum structural setback from ascending slopes is 5 feet. Pavements, exterior flatwork and landscaping improvements may be placed within the setback area; however, these improvements may be subject to damage from future shallow slope movement or erosion.
- 8.3.2 In order to reduce the potential for erosion of the side slopes, positive rooting vegetation should be established and maintained on all graded slopes. If future erosion or instability in the form of slides, debris or earth flow, accelerated erosion, or other forms of slope instability occur on slopes, our firm should be contacted to provide recommendations for repair, and the distressed areas should be repaired as soon as possible under the observation of our firm.

- 8.3.3 Irrigation systems in the sloped areas should be of a drip type system without surface runoff.
- 8.3.4 All irrigation lines and sprinklers should be periodically monitored for leaks and to ensure over-irrigation does not occur. All leaks, damage, etc. should be repaired promptly.

8.4 Site Preparation

- 8.4.1 Existing surface and subsurface improvements (i.e., pavements, foundations, underground utilities, etc.) in the areas of new construction, should be excavated and removed from the site and all soils disturbed from the demolition and removal of these improvements should be over-excavated to expose undisturbed soils. Trench backfill soils should be excavated from within a zone extending from 1 foot below the pipe at a 1H to 1V slope to the ground surface. The existing structures and underground utilities to be removed should be completely removed and disposed of off-site. Excavations to remove existing improvements should extend to at least 12 inches below the bottom of the improvements to be removed or to the depth required to remove all soils disturbed from demolition, whichever is greater. After over-excavation, prior to backfill, the bottom of the excavation should be scarified to a depth of 8 inches, moisture conditioned, and compacted as engineered fill.
- 8.4.2 Stripping should be conducted in all areas of existing improvements to remove surface vegetation and root systems (if any). The general depth of stripping should be sufficiently deep to remove the root systems and organic topsoils. The actual depth of stripping should be reviewed by our firm at the time of construction. Deeper stripping may be required in localized areas. Stripping and clearing of debris should extend laterally a minimum of 10 feet outside areas of planned excavation. These materials will not be suitable for use as engineered fill; however, stripped topsoil may be stockpiled and reused in landscape areas at the discretion of the owner.
- 8.4.3 For trees to be removed, all roots larger than ¼ inch in diameter and any accumulation of organic matter that will result in an organic content more than 3 percent by weight should be removed and not used as engineered fill. The bottom of the excavation should be scarified to a minimum depth of 8 inches and compacted as engineered fill prior to backfilling operations. Moore Twining should be contacted to observe removal of the tree roots.

- 8.4.4 The existing building pads appear to have been constructed by cut and fill type grading. The approximate interpreted areas of undocumented fill in the areas of the existing building pads and adjacent slopes are shown on Drawing No. 3 in Appendix A. However, the extent and depth of the undocumented fills are not known. As part of the site preparation, all existing undocumented fill soils should be completely removed and compacted engineered fill.
- 8.4.5 After stripping and removal of existing surface and subsurface improvements, the building and all new foundations should be over-excavated to at least 24 inches below preconstruction site grades, to at least 12 inches below the bottom of the improvements to be removed, to the depth to remove all disturbed and undocumented fill soils, and to at least 12 inches below the bottom of the footings, whichever is greater. The over-excavation limits should include the entire building footprint, all foundations, and a minimum of 5 feet beyond the foundations, or 5 feet beyond walkways adjacent to the building, whichever is further. After approval of the over-excavation by Moore Twining Associates, Inc., the bottom of the excavation should be scarified 8 inches in depth, moisture conditioned to within optimum to three (3) percent above optimum moisture content and compacted as engineered fill.
- 8.4.6 The plans should show the minimum limits of over-excavation for the building pad as described in section 8.4.5.
- 8.4.7 It is recommended that extra care be taken by the contractor to ensure that the horizontal and vertical extent of the over-excavation and compaction conform to the site preparation recommendations presented in this report. Moore Twining is not responsible for surveying and measuring to verify the horizontal and vertical extent of over-excavation and compaction. The contractor should verify in writing to the owner and Moore Twining that the horizontal and vertical over-excavation limits were completed in conformance with the recommendations of this report, the project plans, and the specifications (the most stringent applies). It is recommended that this verification be performed by a licensed surveyor. This verification should be provided prior to requesting pad certification from Moore Twining or excavating for foundations.

- 8.4.8 Following stripping and removal of existing surface and subsurface improvements, exterior slabs-on-grade, pavements and areas to receive fill outside the building pad over-excavation limits should be prepared by over-excavation to a minimum of 12 inches below preconstruction site grade, to the bottom of the aggregate base, to the depth to remove disturbed soils and undocumented fill soils, or to at least 12 inches below the bottom of improvements to be removed, whichever is greater. Over-excavation should extend a minimum of 3 feet beyond exterior slabs on grade and pavements, or up to the improvements to remain, whichever occurs first. After approval of the over-excavation by Moore Twining Associates, Inc., the bottom of the over-excavation should be scarified to a minimum depth of 12 inches, moisture conditioned to between optimum and three (3) percent above optimum moisture content and compacted as engineered fill. All soils should be compacted to at least 92 percent of the maximum dry density as determined by ASTM Test Method D1557, except the upper 12 inches of subgrade below the aggregate base for pavements should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557.
- 8.4.9 Structural loads for miscellaneous, lightly loaded foundations (such as retaining walls, sound walls, screen walls, monument signs, etc.) should be evaluated on a case by case basis to present supplemental recommendations for site preparation and foundation design. In lieu of a case by case evaluation, the areas of miscellaneous foundations should be over-excavated to the bottom of spread or continuous footings, to at least 12 inches below preconstruction site grades, to the depth required to remove disturbed and undocumented fills, or to at least 12 inches below subsurface structures to be removed, whichever provides the deeper fill. After approval of the over-excavation by Moore Twining Associates, Inc., the bottom of the over-excavation should be scarified to a depth of 8 inches, moisture conditioned and compacted as engineered fill. The over-excavation should extend a minimum of 5 feet beyond the limits of the foundations on all sides, or to property lines, or to improvements to remain, whichever occurs first.
- 8.4.10 All fill required to bring the site to final grades should be placed as engineered fill. In addition, all native soils over-excavated should be compacted as engineered fill.

- 8.4.11 The contractor should locate all on-site water wells (if any). All wells scheduled for demolition should be abandoned per state and local requirements. The contractor should obtain an abandonment permit from the local environmental health department, and issue certificates of destruction to the owner and Moore Twining upon completion. At a minimum, wells in building areas (and within 5 feet of building perimeters) should have their casings removed to a depth of at least 8 feet below preconstruction site grades or finished pad grades, whichever is deeper. In parking lot or landscape areas, the casings should be removed to a depth of at least 5 feet below site grades or finished grades. The wells should be capped with concrete and the resulting excavations should be backfilled as engineered fill.
- 8.4.12 The moisture content and density of the compacted soils should be maintained until the placement of concrete. If soft or unstable soils are encountered during excavation or compaction operations, our firm should be notified so the soils conditions can be examined and additional recommendations provided to address the pliant areas.
- 8.4.13 Final grading shall produce a building pad ready to receive a slab-on-grade which is smooth, planar, and resistant to rutting. The finished pad (before aggregate base is placed) shall not depress more than one-half ($\frac{1}{2}$) inch under the wheels of a fully loaded water truck, or equivalent loading. If depressions more than one-half ($\frac{1}{2}$) inch occur, the contractor shall perform remedial grading to achieve this requirement at no cost to the owner.
- 8.4.14 The Contractor should be responsible for the disposal of concrete, asphaltic concrete, soil, spoils, etc. (if any) that must be exported from the site. Individuals, facilities, agencies, etc. may require analytical testing and other assessments of these materials to determine if these materials are acceptable. The Contractor should be responsible to perform the tests, assessments, etc. to determine the appropriate method of disposal.

8.5 Engineered Fill

- 8.5.1 The near surface soils encountered are considered suitable for use as engineered fill, provided that the soils are free of debris, do not contain material greater than 6 inches in maximum dimension, and are moisture conditioned in accordance with the recommendations of this report. During site preparation, debris, roots and unsuitable materials encountered should be removed from soils to be used as engineered fill. Concrete slabs on grade for the buildings, attached walkway areas, and new flatwork (exterior slabs on grade outside the building pad preparation limits) should be supported on a minimum of 4 inches of non-recycled Class 2 aggregate base, over the prepared subgrade soils.
- 8.5.2 If soils other than those considered in this report are encountered, Moore Twining should be notified to provide alternate recommendations.
- 8.5.3 The compactability of the native soils is dependent upon the moisture contents, subgrade conditions, degree of mixing, type of equipment, as well as other factors. The evaluation of such factors was beyond the scope of this report; therefore, it is recommended that they be evaluated by the contractor during preparation of bids and construction of the project.
- 8.5.4 Import fill soil used for the building pad preparation (if any) should be non-recycled, non-expansive and granular in nature with the following acceptance criteria recommended.

Percent Passing 3-Inch Sieve	100
Percent Passing No. 4 Sieve	85 - 100
Percent Passing No. 200 Sieve	10 - 40
Expansion Index (ASTM D4829)	Less than 20
Plasticity Index (ASTM D4318)	Less than 12
Organics	Less than 3 percent by weight
Corrosion Potential	*

* - the soils imported to the site should possess similar corrosion characteristics as the onsite soils

Prior to importing fill, the import material shall be certified by the Contractor and the supplier (to the satisfaction of the Owner) that the soils do not contain any environmental contaminants regulated by local, state or federal agencies having jurisdiction. The Contractor shall pay for the environmental testing required to determine compliance with the requirements of this report. This certification shall consist of, as a minimum, recent analytical data specific to the source of the import material including proper chain-of-custody documentation. Moore Twining will sample and test the material after the environmental certification submittal is approved to verify that the proposed material complies with the geotechnical engineering recommendations of this report. The Contractor shall allow a minimum of seven (7) working days for each import source to be tested for the geotechnical properties.

- 8.5.5 Native and imported engineered fill and utility trench backfill should be placed in loose lifts approximately 8 inches thick, moisture-conditioned to between optimum moisture content and three (3) percent above optimum moisture content, and compacted to a dry density of at least 92 percent of the maximum dry density as determined by ASTM Test Method D1557. The upper 12 inches of subgrade below the aggregate base for pavements should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.
- 8.5.6 Utility trenches should be a minimum of 24 inches in width to allow for in-place density testing by traditional (nuclear density test) methods and the backfill should be compacted in accordance with the recommendations for engineered fill.
- 8.5.7 In-place density testing should be conducted in accordance with ASTM D 6938 (nuclear methods) at the minimum frequency listed in Table No. 2, below.

**Table No. 2
Minimum In-place Density Test Frequency**

Area	Minimum Test Frequency
Mass Fills or Subgrade	1 test per 5,000 square feet per compacted lift, but not less than 2 tests per building pad per lift
Pavement Areas	1 test per 10,000 square feet per compacted lift
Utility Lines	1 test per 150 feet per compacted lift

- 8.5.8 Open graded gravel and rock material such as $\frac{3}{4}$ -inch crushed rock or $\frac{1}{2}$ -inch crushed rock should not be used as backfill including trench backfill. In the event gravel or rock is required by a regulatory agency for use as backfill, all open graded materials shall be fully encased in a geotextile filter fabric, such as Mirafi 140N, to prevent migration of fine grained soils into the porous material. Gravel and rock cannot be used without the written approval of Moore Twining. If the contractor elects to use crushed rock (and if approved by Moore Twining), the contractor will be responsible for slurry cut off walls at the locations directed by Moore Twining. Materials such as crushed rock should be placed in thin (less than 8 inches) lifts and each lift should be compacted with a minimum of three (3) passes with a vibratory compactor.
- 8.5.9 Aggregate base below the building slab should comply with State of California Department of Transportation requirements for a non-recycled Class 2 aggregate base, with exception that the aggregate base used below the building slab should not contain recycled materials. Aggregate base should be compacted to a minimum relative compaction of 95 percent. Prior to importing the aggregate base material, the contractor should submit documentation demonstrating that the material meets all the quality requirements (i.e., gradation, R-value, sand equivalent, durability, etc.) for the applicable aggregate base. Documentation should be provided to the Owner, Architect and Moore Twining and reviewed and approved prior to delivery of the aggregate base to the site.

8.6 Conventional Shallow Spread Foundations and Concrete Slabs on Grade

- 8.6.1 A structural engineer experienced in foundation design should recommend the thickness, design details and concrete specifications for the foundations and slabs on grade based on the estimated settlements. The following should be anticipated for design: 1) a total static settlement of 1 inch; 2) a differential static settlement of $\frac{1}{2}$ inch in 40 feet; 3) a total seismic settlement of 1 inch; and 4) a differential seismic settlement of $\frac{1}{2}$ inch in 40 feet.
- 8.6.2 Structures, foundations and improvements above the top of a descending native, cut or fill slope should be setback a minimum distance from the top of the slope equal to one-third of the height (H/3) of the slope, and not less than 5 feet, whichever is the most stringent. For slopes 10 feet high or greater, the minimum structural setback from the structures to ascending cut or fill slopes should be 10 feet or $\frac{1}{2}$ the slope height (H/2), whichever is greater. For slopes less than 10 feet high, the minimum structural setback from ascending slopes should be 5 feet.

- 8.6.3 Foundations supported on engineered fill soils prepared as recommended in the Site Preparation section of this report may be designed for a maximum net allowable soil bearing pressure of 2,500 pounds per square foot for dead-plus-live loads. This value may be increased by one-third for short duration wind or seismic loads.
- 8.6.4 All perimeter footings for the new building and canopy footings should have a minimum depth of 24 inches below the lowest adjacent grade. All interior foundations should have a minimum depth of 12 inches below the bottom of the floor slab. All footings for the new building should have a minimum width of 12 inches, regardless of load.
- 8.6.5 The foundations should be continuous around the perimeter of the structure to reduce moisture migration beneath the structure. Continuous perimeter foundations should be extended through doorways and/or openings that are not needed for support of loads.
- 8.6.6 Structural loads for miscellaneous, lightly loaded foundations (such as retaining walls, sound walls, screen walls, monument signs, etc.) should be supported on subgrade soils prepared as recommended in the Site Preparation section of this report. Spread and continuous footings for miscellaneous foundations extending a minimum depth of 12 inches below grade may be designed for a maximum net allowable soil bearing pressure of 1,500 pounds per square foot for dead-plus-live loads. These values may be increased by one-third for short duration wind or seismic loads. The weight of the footing and the soil backfill may be ignored in design.
- 8.6.7 The values in Table No. 3 were developed using the Ground Motion Parameter Calculator provided by the United States Geological Survey (<http://earthquake.usgs.gov/>) in accordance with the 2013 CBC, a site latitude of 36.67199 degrees, and a longitude of -121.80688 degrees.

**Table No. 3
Seismic Factors**

Seismic Factor	2013 CBC Value
Site Class	D
Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M)	0.564
Mapped Maximum Considered Earthquake (geometric mean) peak ground acceleration ASCE 7-10 (PGA)	0.564
Spectral Response At Short Period (0.2 Second), S_s	1.504
Spectral Response At 1-Second Period, S_1	0.537
Site Coefficient (based on Spectral Response At Short Period), F_a	1.0
Site Coefficient (based on spectral response at 1-second period) F_v	1.5
Maximum considered earthquake spectral response acceleration for short period, SM_s	1.504
Maximum considered earthquake spectral response acceleration at 1 second, SM_1	0.805
Five percent damped design spectral response accelerations for short period, SD_s	1.003
Five percent damped design spectral response accelerations at 1-second period, SD_1	0.537

8.6.8 Foundation excavations or exposed soils should not be left uncovered and allowed to dry such that the moisture content of the soils is less than optimum moisture content or drying produces cracks in the soils. The exposed soils, such as sidewalls, excavation bottoms, etc. should be periodically moistened to maintain the moisture content at least optimum until concrete is placed. It should be noted that the contractor should take precautions not to allow the exposed soils to dry, including weekends and holidays.

- 8.6.9 Foundation excavations should be observed by Moore Twining prior to the placement of steel reinforcement and concrete to verify conformance with the intent of the recommendations of this report. The Contractor is responsible for proper notification to Moore Twining and receipt of written confirmation of this observation prior to placement of steel reinforcement.
- 8.6.10 The bottom surface area of concrete footings or concrete slabs in direct contact with engineered fill can be used to resist lateral loads. An allowable coefficient of friction of 0.40 can be used for design. In areas where slabs are underlain by a synthetic moisture barrier, an allowable coefficient of friction of 0.10 can be used for design.
- 8.6.11 For spread foundations, the allowable passive resistance of the engineered fill may be assumed to be equal to the pressure developed by a fluid with a density of 250 pounds per cubic foot. The upper 6 inches of subgrade in landscaped areas should be neglected in determining the total passive resistance.

8.7 Interior Concrete Slabs on Grade and Moisture Vapor Retarder

The recommendations provided herein are intended only for design of interior concrete slabs-on-grade, and their proposed uses, which do not include construction loading. The building contractor should assess the slab section and determine its adequacy to support any proposed construction traffic.

- 8.7.1 The concrete slabs on grade should be reinforced for the anticipated temperature and shrinkage stresses, settlement and swell. A structural engineer experienced in slab-on-grade design should recommend the thickness, design details and concrete specifications for the proposed slabs-on-grade as well as any reinforcement for temperature and shrinkage stresses based on the settlements noted in this report.
- 8.7.2 Subgrade soils for interior slabs, including walkways attached to the building, should be prepared as recommended in the "Site Preparation" section of this report. Upon completion of the over-excavation and compaction of subgrade soils, the interior slabs on grade should be supported on 4 inches of aggregate base over the prepared subgrade soils.
- 8.7.3 ACI recommends that the interior slab-on-grade should be placed directly on a vapor retarder when the potential exists that the underlying subgrade or sand layer could be wet or saturated prior to placement of the slab-on-grade. It is recommended that Stegowrap 15 should be used where floor coverings, such as carpet and tile, are anticipated or where moisture could permeate into

the interior and create problems. The vapor retarder should overlay the compacted engineered fill soils. It should be noted that placing the PCC slab directly on the vapor barrier will increase the potential for cracking and curling; however, ACI recommends the placement of the vapor retarding membrane directly below the slab to reduce the amount vapor emission through the slab-on-grade. Based on discussions with Stego Industries, L.L.C. (telephone 949-493-5460), the Stegowrap can be placed directly on the engineered fill soils and the concrete can be placed directly on the Stegowrap. It is recommended that the design professional obtain written confirmation from Stego Industries that this product is suitable for the specific project application. It is recommended that the slab be moist cured for a minimum of 7 days to reduce the potential for excessive cracking. The underslab membrane should have a high puncture resistance (minimum of approximately 2,400 grams of puncture resistance), high abrasion resistance, rot resistant, and mildew resistant. It is recommended that the membrane be selected in accordance with the current ASTM C 755, Standard Practice For Selection of Vapor Retarder For Thermal Insulation and conform to the current ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Waters, or as Ground Cover. It is recommended that the vapor barrier selection and installation conform to the current ACI Manual of Concrete Practice, Guide for Concrete Floor and Slab Construction (302.1R), Addendum, Vapor Retarder Location and current ASTM E 1643, Standard Practice for Installation of Water Vapor Retarders Used In Contact with Earth or Granular Fill Under Concrete Slabs. In addition, it is recommended that the manufacturer of the floor covering and floor covering adhesive be consulted to determine if the manufacturers have additional recommendations regarding the design and construction of the slab-on-grade, testing of the slab-on-grade, slab preparation, application of the adhesive, installation of the floor covering and maintenance requirements. It should be noted that the recommendations presented in this report are not intended to achieve a specific vapor emission rate.

- 8.7.4 The slabs and underlying subgrade should be constructed in accordance with current American Concrete Institute (ACI) standards.
- 8.7.5 The membrane should be installed so that there are no holes or uncovered areas. All seams should be overlapped and sealed with the manufacturer approved tape continuous at the laps so they are vapor tight. All perimeter edges of the membrane, such as pipe penetrations, interior and exterior footings, joints, etc., should be caulked per manufacturer's recommendations.

- 8.7.6 Tears or punctures that may occur in the membrane should be repaired prior to placement of concrete per the manufacturer's recommendations. Once repaired, the membrane should be inspected by the contractor and the owner to verify adequate compliance with manufacture's recommendations.
- 8.7.7 The moisture retarding membrane is not required beneath exposed concrete floors, such as exposed warehouses floors, provided that moisture intrusion into the structure is permissible for the design life of the structure.
- 8.7.8 Additional measures to reduce moisture migration should be implemented for floors that will receive moisture sensitive coverings. These include: 1) constructing a less pervious concrete floor slab by maintaining a low water-cement ratio of 0.52 or less in the concrete for slabs-on-grade, 2) ensuring that all seams and utility protrusions are sealed with tape to create a "water tight" moisture barrier, 3) placing concrete walkways or pavements adjacent to the structure, 4) providing adequate drainage away from the structure, 5) moist cure the slabs for at least 7 days, and 6) locating lawns, irrigated landscape areas, and flower beds away from the structure.
- 8.7.9 To reduce the potential for damaging slabs during construction, the following recommendations are presented: 1) design for a differential slab movement of ½ inch relative to perimeter foundations; 2) provide an aggregate base layer below the slabs; and 3) the suitability of the loads from construction equipment which will operate on slabs or pavements should be evaluated by the contractor prior to loading the slab.
- 8.7.10 If construction traffic will be traveling over the aggregate base material, or the aggregate base will be used as a working surface, the contractor should determine an adequate aggregate base section thickness for the type and methods of construction proposed for the project. The proposed compacted subgrade can experience instability under construction traffic resulting in heaving and depressions in the subgrade. Often the aggregate base can reduce the potential for instability under the construction traffic.
- 8.7.11 The Contractor shall test the moisture vapor transmission through the slab, the pH, internal relative humidity, etc., at a frequency and method as specified by the flooring manufacturer or as required by the plans and specifications, whichever is most stringent. The results of vapor transmission tests, pH tests, internal relative humidity tests, ambient building conditions, etc. should be within floor manufacturer's and adhesive manufacturer's specifications at the time the floor is placed. It is recommended that the floor manufacturer and subcontractor review and approve the test data prior to floor covering installation.

8.7.12 Backfill the zone above the top of footings at interior column locations, building perimeters, and below the bottom of slabs with an approved backfill as recommended herein for the area below interior slabs-on-grade. This procedure should provide more uniform support for the slabs which may reduce the potential for cracking.

8.8 Exterior Slabs-On-Grade

The recommendations for exterior slabs provided below are not intended for use for slabs subjected to vehicular traffic, rather lightly loaded sidewalks, curbs, and planters, etc.

8.8.1 Exterior improvements that subject the subgrade soils to a sustained load greater than 150 pounds per square foot should be prepared in accordance with recommendations presented in this report for interior slabs-on-grade. Moore Twining can provide alternative design recommendations for exterior slabs, if requested.

8.8.2 Subgrade soils for exterior slabs should be prepared as recommended in the "Site Preparation" section of this report. Upon completion of the over-excavation and compaction of subgrade soils, the exterior slabs should be supported on 4 inches of aggregate base over the prepared subgrade soils.

8.8.3 The moisture content of the subgrade soils should be verified to be near optimum moisture content within 48 hours of placement of the slab-on-grade. If necessary to achieve the recommended moisture content, the subgrade could be over-excavated, moisture conditioned as necessary and compacted as engineered fill.

8.8.4 The exterior slabs-on-grade adjacent to landscape areas should be designed with thickened edges which extend to 6 inches below the bottom of the slabs-on-grade.

8.8.5 Since exterior sidewalks, curbs, etc. are typically constructed at the end of the construction process, the moisture conditioning conducted during earthwork can revert to natural dry conditions. Placing concrete walks and finish work over dry or slightly moist subgrade should be avoided. It is recommended that the general contractor notify Moore Twining to conduct in-place moisture and density tests prior to placing concrete flatwork. Written test results indicating passing density and moisture tests should be in the general contractor's possession prior to placing concrete for exterior flatwork.

8.9 Asphaltic Concrete (AC) Pavements

Recommendations are provided below for new asphaltic concrete pavements planned as part of the new construction.

- 8.9.1 The subgrade soils for asphaltic concrete pavements should be prepared as recommended in the “Site Preparation” section of the recommendations in this report.
- 8.9.2 The following pavement sections are based on an R-value of 50, traffic index values ranging from 5.0 to 8.0, and a minimum 3 inches of asphaltic concrete and 4 inches of aggregate base. It should be noted that if pavements are constructed prior to construction of the building, the traffic index value should account for construction traffic. The actual traffic index values applicable to the site should be determined by the project civil engineer.

Table No. 4
Two-Layer Asphaltic Concrete Pavements

Traffic Index	AC thickness, inches	AB thickness, inches	Compacted Subgrade, inches
5.0	3.0	4.0	12
5.5	3.0	4.0	12
6.0	3.0	4.0	12
6.5	3.5	4.5	12
7.0	3.5	5.5	12
7.5	4.0	6.0	12
8.0	4.5	6.0	12

AC - Asphaltic Concrete compacted as recommended in this report
AB - Class II Aggregate Base with minimum R-value of 78 and compacted to at least 95 percent relative compaction (ASTM D1557)
Subgrade - Subgrade soils compacted to at least 95 percent relative compaction (ASTM D1557)

- 8.9.3 The curbs where pavements meet irrigated landscape areas or uncovered open areas should extend at least to the bottom of the aggregate base section. This should reduce subgrade moisture from irrigation and runoff from migrating into the base section and reducing the life of the pavements.
- 8.9.4 If actual pavement subgrade materials are significantly different from those tested for this study due to unanticipated grading or soil importing, the pavement sections should be re-evaluated for the changed subgrade conditions.
- 8.9.5 If the paved areas are to be used during construction, or if the type and frequency of traffic are greater than assumed in design, the pavement sections should be re-evaluated for the anticipated traffic.
- 8.9.6 Pavement section design assumes that proper maintenance, such as sealing and repair of localized distress, will be performed on an as needed basis for longevity and safety.
- 8.9.7 Pavement materials and construction method should conform to the State of California Standard Specifications.
- 8.9.8 It is recommended that the base course of asphaltic concrete consist of a $\frac{3}{4}$ inch maximum medium gradation. The top course or wear course should consist of a $\frac{1}{2}$ inch maximum medium gradation.
- 8.9.9 The asphaltic concrete, including the joint density, should be compacted to an average relative compaction of 93 percent, with no single test value being below a relative compaction of 91 percent and no single test value being above a relative compaction of 97 percent of the referenced laboratory density according to ASTM D2041.
- 8.9.10 The asphalt concrete should comply with Type "B" asphalt concrete as described in Section 39 of the State of California Standard Specification Requirements.

8.10 Temporary Excavations

- 8.10.1 It is the responsibility of the Contractor to provide safe working conditions with respect to excavation slope stability. The Contractor is responsible for site slope safety, and classification of materials for excavation purposes, and maintaining slopes in a safe manner during construction. The grades classification and height recommendations presented for temporary slopes are for consideration in preparing budget estimates and evaluating construction procedures.
- 8.10.2 Temporary excavations should be constructed in accordance with CAL OSHA requirements. Temporary cut slopes should not be steeper than 1.5 to 1, horizontal to vertical, and flatter if possible. If excavations cannot meet these criteria, the temporary excavations should be supported by engineered shoring systems.
- 8.10.3 In no case should non-shored excavations extend below a 1.5H to 1V zone below existing utilities, top of foundations and/or floor slabs which are to remain after construction. Excavations which are required to be advanced below the 1.5 H to 1V envelope should be shored to support the soils, foundations, and slabs.
- 8.10.4 Shoring systems should be designed by an engineer with experience in designing shoring systems and registered in the State of California. Moore Twining should be provided with the shoring plan to assess whether the plan incorporates the recommendations in the geotechnical report.
- 8.10.5 Surface sheet flow drainage shall be directed away from the tops of all excavations. Positive drainage shall be established and maintained throughout the construction process.
- 8.10.6 Excavation and shoring stability should be monitored by the Contractor. Slope gradient estimates provided in this report do not relieve the Contractor of the responsibility for excavation safety. In the event that tension cracks or distress to the structure occurs, during or after excavation, the owners and Moore Twining should be notified immediately and the Contractor should take appropriate actions to minimize further damage or injury.

8.11 Utility Trenches

- 8.11.1 The utility trench subgrade should be prepared by excavation of a neat trench without disturbance to the bottom of the trench. If sidewalls are unstable, the Contractor shall either slope the excavation to create a stable sidewall or shore the excavation. All trench subgrade soils disturbed during excavation, such as by accidental over-excavation of the trench bottom, or by excavation equipment with cutting teeth, should be compacted to a minimum of 92 percent relative compaction prior to placement of bedding material. The Contractor is responsible for notifying Moore Twining when these conditions occur and arrange for Moore Twining to observe and test these areas prior to placement of pipe bedding. The Contractor shall use such equipment as necessary to achieve a smooth undisturbed native soil surface at the bottom of the trench with no loose material at the bottom of the trench. The Contractor shall either remove all loose soils or compact the loose soils as engineered fill prior to placement of bedding, pipe and backfill of the trench.
- 8.11.2 The trench width, type of pipe bedding, the type of initial backfill, and the compaction requirements of bedding and initial backfill material for utility trenches (storm drainage, sewer, water, electrical, gas, cable, phone, irrigation, etc.) should be specified by the project Civil Engineer or applicable design professional in compliance with the manufacturer's requirements, governing agency requirements and this report, whichever is more stringent. The contractor is responsible for contacting the governing agency to determine the requirements for pipe bedding, pipe zone and final backfill. The contractor is responsible for notifying the Owner and Moore Twining if the requirements of the agency and this report conflict, the most stringent applies. For flexible polyvinylchloride (PVC) pipes, these requirements should be in accordance with the manufacturer's requirements or ASTM D-2321, whichever is more stringent, assuming a hydraulic gradient exists (gravel, rock, crushed gravel, etc. cannot be used as backfill on the project). The width of the trench should provide a minimum clearance of 8 inches between the sidewalls of the pipe and the trench, or as necessary to provide a trench width that is 12 inches greater than 1.25 times the outside diameter of the pipe, whichever is greater. As a minimum, the pipe bedding should consist of 4 inches of compacted (92 percent relative compaction) select sand with a minimum sand equivalent of 30 and meeting the following requirements: 100 percent passing the 1/4 inch sieve, a minimum of 90 percent passing the No. 4 sieve and not more than 10 percent passing the No.

200 sieve. The haunches and initial backfill (12 inches above the top of pipe) should consist of a select sand meeting these sand equivalent and gradation requirements that is placed in maximum 6-inch thick lifts and compacted to a minimum relative compaction of 92 percent using hand equipment. The final fill (12 inches above the pipe to the surface) should be on-site or imported, non-expansive materials moisture conditioned to between optimum and three (3) percent above optimum moisture content and compacted to a minimum of 92 percent relative compaction. The project civil engineer should take measures to control migration of moisture in the trenches such as slurry collars, etc.

- 8.11.3 If ribbed or corrugated HDPE or metal pipes are used on the project, then the backfill should consist of select sand with a minimum sand equivalent of 30, 100 percent passing the 1/4 inch sieve, a minimum of 90 percent passing the No. 4 sieve and not more than 10 percent passing the No. 200 sieve. The sand shall be placed in maximum 6-inch thick lifts, extending to at least 1 foot above the top of pipe, and compacted to a minimum relative compaction of 92 percent using hand equipment. Prior to placement of the pipe, as a minimum, the pipe bedding should consist of 4 inches of compacted (92 percent relative compaction) sand meeting the above sand equivalent and gradation requirements for select sand bedding. The width of the trench should meet the requirements of ASTM D2321 listed in Table No. 5 (minimum manufacturer requirements), or as necessary to provide sufficient space to achieve the required compaction, whichever is greater. As an alternative to the trench width recommended above and the use of the select sand bedding, a lesser trench width for HDPE pipes may be used if the trench is backfilled with a 2-sack sand-cement slurry from the bottom of the trench to 1 foot above the top of the pipe.

**Table No. 5
Minimum Trench Widths for HDPE Pipe with
Sand Bedding Initial Backfill**

Inside Diameter of HDPE Pipe (inches)	Outside Diameter of HDPE Pipe (inches)	Minimum Trench Width (inches) per ASTM D2321-00
12	14.2	30
18	21.5	39
24	28.4	48
36	41.4	64
48	55	80

- 8.11.4 Open graded gravel and rock material such as $\frac{3}{4}$ -inch crushed rock or $\frac{1}{2}$ -inch crushed rock should not be used as backfill including trench backfill. In the event gravel or rock is required by a regulatory agency for use as backfill (Contractor to obtain a letter from the agency stating the requirement for rock and/or gravel as backfill), all open graded materials shall be fully encased in a geotextile filter fabric, such as Mirafi 140N, to prevent migration of fine grained soils into the porous material. Gravel and rock cannot be used without the written approval of Moore Twining. If the contractor elects to use crushed rock (and if approved by Moore Twining), the contractor will be responsible for slurry cut off walls at the locations directed by Moore Twining. Crushed rock should be placed in thin (less than 8 inch) lifts and densified with a minimum of three (3) passes using a vibratory compactor.
- 8.11.5 Utility trench backfill placed in or adjacent to building areas, exterior slabs or pavements should be placed in 8 inch lifts, moisture conditioned to between optimum and three (3) percent above the optimum moisture content and compacted to at least 92 percent of the maximum dry density as determined by ASTM Test Method D1557. Lift thickness can be increased if the contractor can demonstrate the minimum compaction requirements can be achieved. The contractor should use appropriate equipment and methods to avoid damage to utilities and/or structures during placement and compaction of the backfill materials.
- 8.11.6 On-site soils and approved imported engineered fill may be used as final backfill (12 inches above the pipe to the ground surface) in trenches
- 8.11.7 Jetting of trench backfill is not allowed to compact the backfill soils.
- 8.11.8 Where utility trenches extend from the exterior to the interior limits of a building, lean concrete should be used as backfill material for a minimum distance of 2 feet laterally on each side of the exterior building line to prevent the trench from acting as a conduit to exterior surface water.
- 8.11.9 Storm drains and/or utility lines should be designed to be “watertight.” If encountered, leaks should be immediately repaired. Leaking storm drain and/or utility lines could result in trench failure, sloughing and/or soil movement causing damage to surface and subsurface structures, pavements, flatwork, etc. In addition, landscaping irrigation systems should be monitored for leaks. The Contractor is required to video inspect or pressure test the wet utilities prior to placement of foundations, slabs-on-grade or pavements to verify that the pipelines are constructed properly and are “watertight.” The Contractor shall provide the Owner a copy of the results of the testing. The Contractor is required to repair all noted deficiencies at no cost to the owner.

8.11.10 The plans should note that all utility trenches, including electrical lines, irrigation lines, etc. should be compacted to a minimum relative compaction of 92 percent per ASTM D-1557 except for the upper 12 inches below pavements which should be compacted to at least 95 percent relative compaction.

8.11.11 Utility trenches should not be constructed within a zone defined by a line that extends at an inclination of 2 horizontal to 1 vertical downward from the bottom of building foundations.

8.12 Corrosion Protection

8.12.1 Based on the resistivity values, the soils are considered to have an “essentially non-corrosive” corrosion potential. Therefore, buried metal objects should be protected in accordance with the manufacturer’s recommendations based on an “essentially non-corrosive” corrosion potential. The evaluation was limited to the effects of soils to metal objects; corrosion due to other potential sources, such as stray currents and groundwater, was not evaluated. If piping or concrete are placed in contact with deeper soils or engineered fill, these soils should be analyzed to evaluate the corrosion potential of these soils.

8.12.2 Corrosion of concrete due to sulfate attack is not anticipated based on the concentration of sulfates determined for the near-surface soils (not-detected percent by dry weight concentration of sulfate). According to provisions of ACI 318, section 4.3, the sulfate concentration falls in the negligible classification (0.00 to 0.10 percent by weight) for concrete. Therefore, no restrictions are required regarding the type, water-to-cement ratio, or strength of the concrete used for foundation and slabs due to the sulfate content. However, a low water to cement ratio is recommended for slabs on grade as recommended in section 8.7.8 of this report.

8.12.3 These soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to design parameters. Moore Twining is not a corrosion engineer; thus, cannot provide recommendations for mitigation of corrosive soil conditions. It is recommended that a corrosion engineer be consulted for the site specific conditions.

9.0 DESIGN CONSULTATION

- 9.1 Moore Twining should be provided the opportunity to review those portions of the contract drawings and specifications that pertain to earthwork operations and foundations prior to finalization to determine whether they are consistent with our recommendations. This service is not part of this current contractual agreement.
- 9.2 It is the client's responsibility to provide plans and specification documents for our review prior to their issuance for construction bidding purposes.
- 9.3 If Moore Twining is not afforded the opportunity for review, we assume no liability for the misinterpretation of our conclusions and recommendations. This review is documented by a formal plan/specification review report provided by Moore Twining.

10.0 CONSTRUCTION MONITORING

- 10.1 It is recommended that Moore Twining be retained to observe the excavation, earthwork, and foundation phases of work to determine that the subsurface conditions are compatible with those used in the analysis and design. In the event Moore Twining does not conduct the observations and testing of the building pad preparation, reports signed by a registered geotechnical engineer documenting the earthwork inspections, in-place density testing and certification of the pad as meeting the project requirements should be provided to our firm for review.
- 10.2 Moore Twining can conduct the necessary observation and field testing to provide results so that action necessary to remedy indicated deficiencies can be taken in accordance with the plans and specifications. Upon completion of the work, a written summary of our observations, field testing and conclusions will be provided regarding the conformance of the completed work to the intent of the plans and specifications. This service is not, however, part of this current contractual agreement.
- 10.3 In the event that the earthwork operations for this project are conducted such that the construction sequence is not continuous, (or if construction operations disturb the surface soils) it is recommended that the exposed subgrade that will receive floor slabs be tested to verify adequate compaction and/or moisture conditioning. If adequate compaction or moisture contents are not verified, the fill soils should be over-excavated, scarified, moisture conditioned and compacted are recommended in the Recommendations of this report.

- 10.4 The construction monitoring is an integral part of this investigation. This phase of the work provides Moore Twining the opportunity to verify the subsurface conditions interpolated from the soil borings and make alternative recommendations if the conditions differ from those anticipated.
- 10.5 If Moore Twining is not afforded the opportunity to provide engineering observation and field-testing services during construction activities related to earthwork, foundations, pavements and trenches; then, Moore Twining will not be responsible for compliance of the earthwork preparation with our recommendations or performance of the structures or improvements if the recommendations of this report are not followed. It is recommended that if a firm other than Moore Twining is selected to conduct these services that they provide evidence of professional liability insurance of at least \$3,000,000 and review this report. After their review, the firm should, in writing, state that they understand and agree with the conclusions and recommendations of this report and agree to conduct sufficient observations and testing to ensure the construction complies with this report's recommendations. Moore Twining should be notified, in writing, if another firm is selected to conduct observations and field-testing services prior to construction.
- 10.6 Upon the completion of work, a final report should be prepared by Moore Twining. This report is essential to ensure that the recommendations presented are incorporated into the project construction, and to note any deviations from the project plans and specifications. The client should notify Moore Twining upon the completion of work to prepare a final report summarizing the observations during site preparation activities relative to the recommendations of this report. This service is not, however, part of this current contractual agreement.

11.0 NOTIFICATION AND LIMITATIONS

- 11.1 The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of the field and laboratory investigation, combined with interpolation of the subsurface conditions between boring locations. The nature and extent of subsurface variations between borings may not become evident until construction.
- 11.2 If variations or undesirable conditions are encountered during construction, Moore Twining should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. It should be noted that unexpected conditions frequently require additional expenditures for proper construction of the project.

- 11.3 If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work (over 12 months) at the site, or if conditions have changed due to natural cause or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing.
- 11.4 Changed site conditions, or relocation of proposed structures, may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.
- 11.5 The conclusions and recommendations contained in this report are valid only for the project discussed in the Anticipated Construction section of this report. The use of the information and recommendations contained in this report for structures on this site not discussed herein or for structures on other sites not discussed in this report is not recommended. The entity or entities that use or cause to use this report or any portion thereof for other structures or site not covered by this report shall hold Moore Twining, its officers and employees harmless from any and all claims and provide Moore Twining's defense in the event of a claim.
- 11.6 This report is issued with the understanding that it is the responsibility of the client to transmit the information and recommendations of this report to developers, owners, buyers, architects, engineers, designers, contractors, subcontractors, and other parties having interest in the project so that the steps necessary to carry out these recommendations in the design, construction and maintenance of the project are taken by the appropriate party.
- 11.7 This report presents the results of a geotechnical engineering investigation only and should not be construed as an environmental audit or study.
- 11.8 Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally-accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.
- 11.9 Reliance on this report by a third party (i.e., that is not a party to our written agreement) is at the party's sole risk. If the project and/or site are purchased by another party, the purchaser must obtain written authorization and sign an agreement with Moore Twining in order to rely upon the information provided in this report for design or construction of the project.

**Geotechnical Engineering Investigation
Proposed VTC Veterans Development
180 Hayes Circle
Marina, California**

D22202.01

**November 19, 2015
Page No. 41**

We appreciate the opportunity to be of service to EAH Housing. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience.

Sincerely,

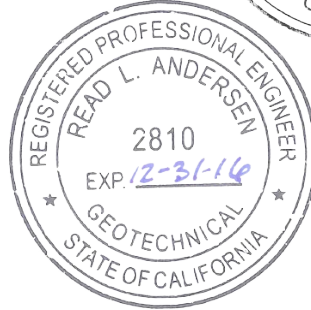
MOORE TWINING ASSOCIATES, INC.
Geotechnical Engineering Division

Allen H. Harker

Allen H. Harker, PG
Professional Geologist

Read L. Andersen

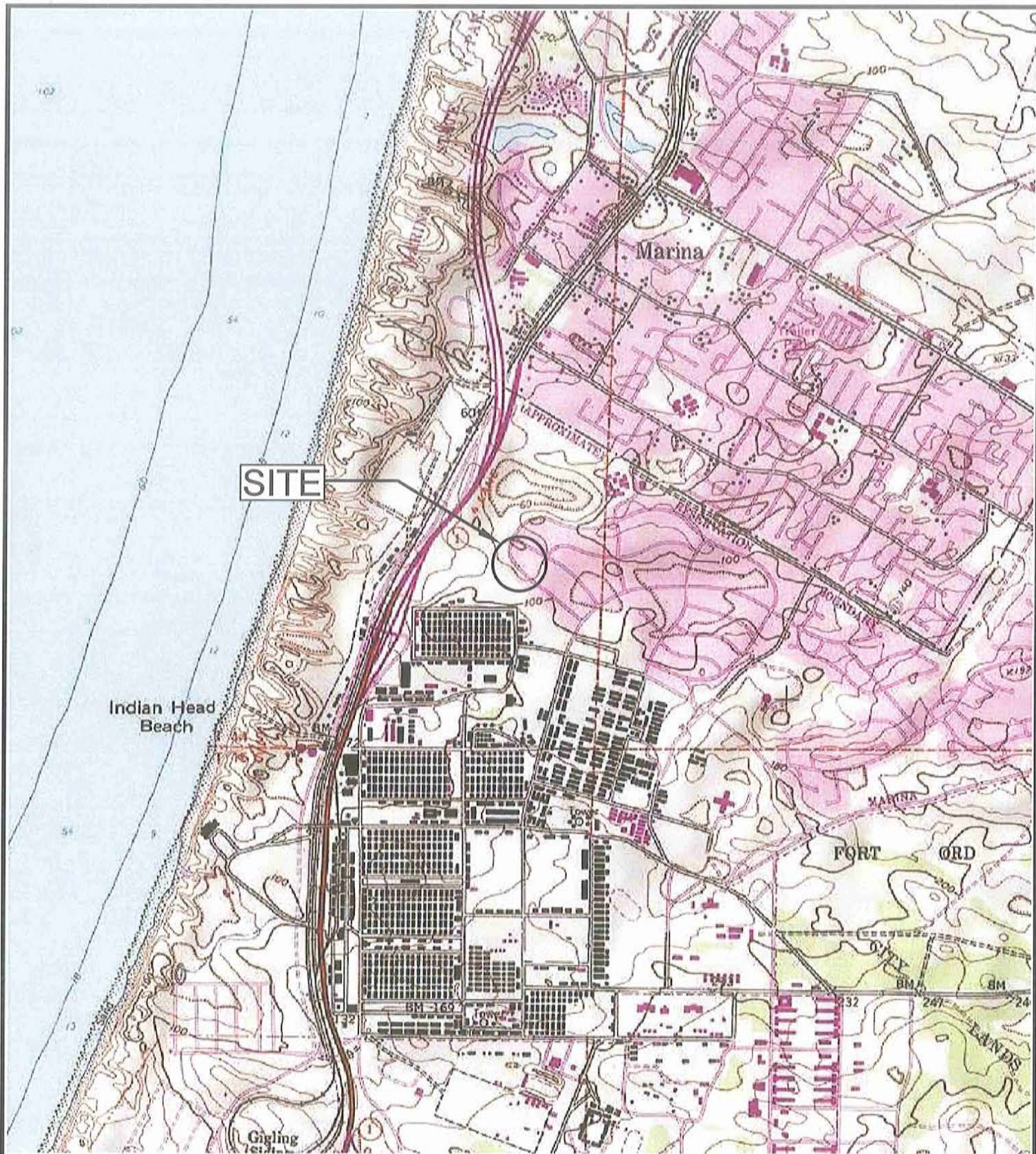
Read L. Andersen, RGE
Manager



APPENDIX A

DRAWINGS

- Drawing No. 1 - Site Location Map
- Drawing No. 2 - Test Boring Location Map
- Drawing No. 3 - Interpreted Areas of Undocumented Fills



SOURCE: U.S.G.S. TOPOGRAPHIC MAP, 7 1/2 MINUTE SERIES
 MARINA, CALIFORNIA QUADRANGLE 1981, PHOTOREVISED 1983



SITE LOCATION MAP
 PROPOSED VTC VETERANS DEVELOPMENT
 180 HAYES CIRCLE
 MARINA, CALIFORNIA

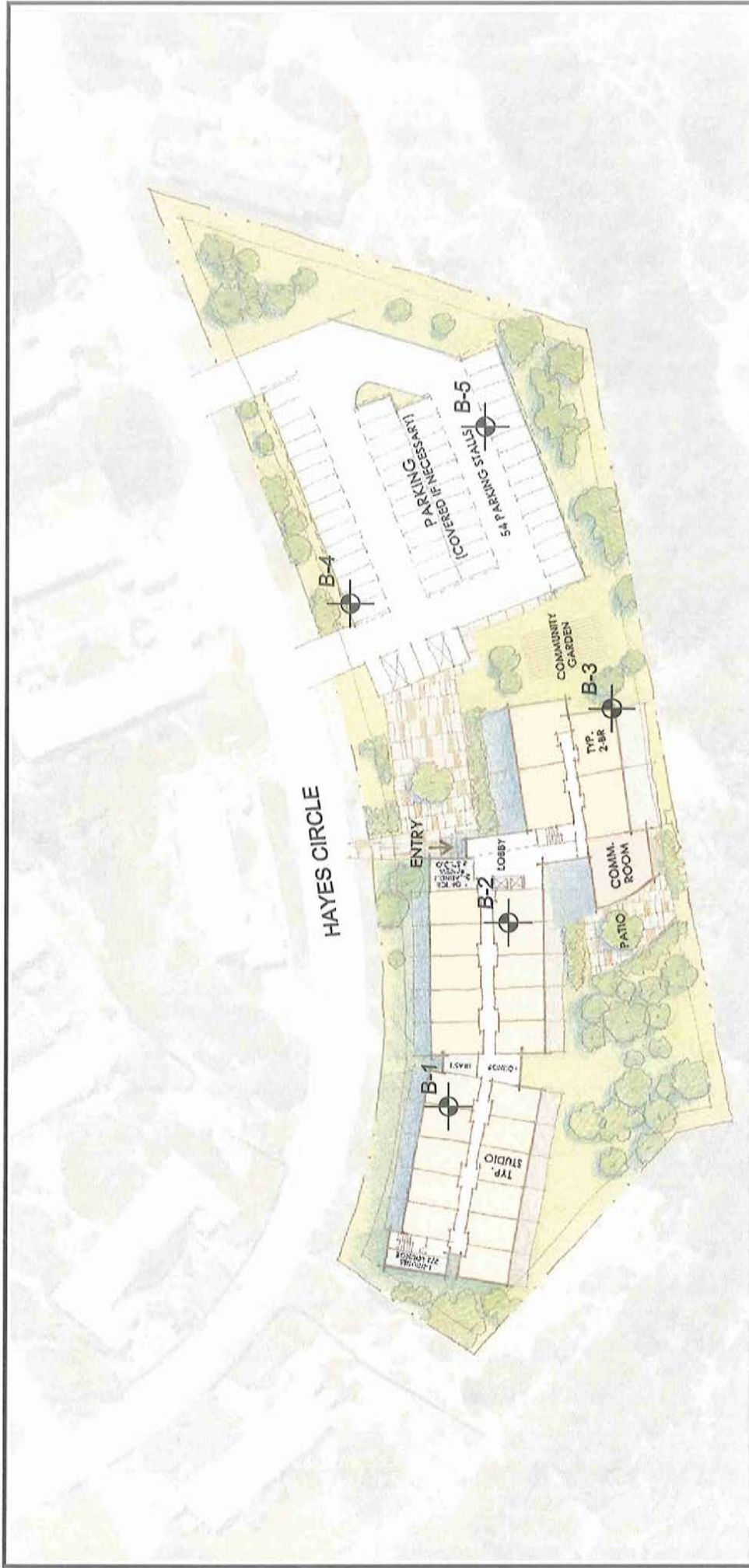
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 RM
 PROJECT NO.
 D22202.01

DATE:
 11/13/15
 APPROVED BY:

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**MOORE TWINING
 ASSOCIATES, INC.**



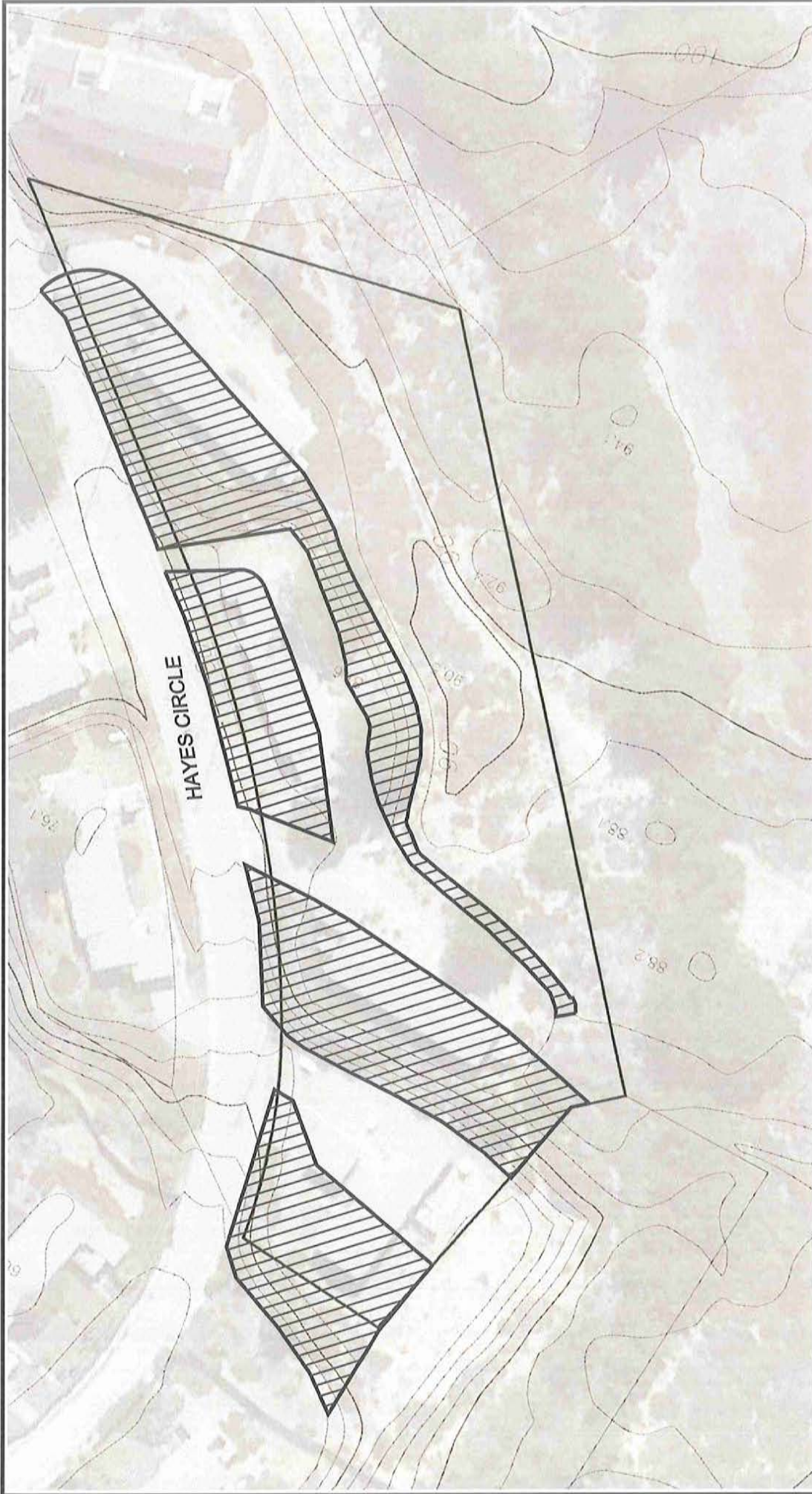
⊕ APPROXIMATE TEST BORING LOCATION



TEST BORING LOCATION MAP
 PROPOSED VTC VETERANS DEVELOPMENT
 180 HAYES CIRCLE
 MARINA, CALIFORNIA

FILE NO.	22202-01-02	DATE DRAWN:	11/13/15
DRAWN BY:	RM	APPROVED BY:	
PROJECT NO.	D22202.01	DRAWING NO.	2





0 80
APPROXIMATE SCALE
IN FEET

 INTERPRETED AREAS OF UNDOCUMENTED FILL

INTERPRETED AREAS OF UNDOCUMENTED FILL
PROPOSED VTC VETERANS DEVELOPMENT
180 HAYES CIRCLE
MARINA, CALIFORNIA

FILE NO. 22202-01-02	DATE DRAWN: 11/18/15
DRAWN BY: RM	APPROVED BY:
PROJECT NO. D22202.01	DRAWING NO. 3



APPENDIX B

LOGS OF BORINGS

This appendix contains the final logs of borings. These logs represent our interpretation of the contents of the field logs and the results of the field and laboratory tests.

The logs and related information depict subsurface conditions only at these locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these test boring locations. Also, the passage of time may result in changes in the soil conditions at these test boring locations.

In addition, an explanation of the abbreviations used in the preparation of the logs and a description of the Unified Soil Classification System are provided at the end of Appendix B.



MOORE TWINING ASSOCIATES, INC.

Test Boring: B-1

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
0	5/6 7/6 13/6	SP-SM	POORLY GRADED SAND WITH SILT; damp, fine to medium grained, light brown	No recovery of rings	20	0.8
	5/6 7/6 8/6	SP	Medium dense POORLY GRADED SAND; medium dense, damp, fine to medium grained, yellowish-brown	From 2.5-4': pH = 5.8 SR = 22,000 ohms-cm CI = 0.0071% SS = Not Detected	15	
5	8/6 16/6 20/6		Fine to coarse grained, brown		36	3.1
10	5/6 7/6 11/6		Yellowish-brown	From 5-6.5': DD = 102.2 pcf	18	
15	7/6 11/6 18/6				29	
20	9/6 12/6 15/6				27	
25			Bottom of Boring B-1 at 21.5 feet			

Notes:

Figure Number



MOORE TWINING ASSOCIATES, INC.

Test Boring: B-2

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
0	2/6 6/6 6/6	SP-SM	POORLY GRADED SAND WITH SILT; medium dense, damp, fine to medium grained, brown	Non-viscous Non-plastic	12	1.5
	5/6 14/6 16/6 4/6 3/6 6/6	SP	POORLY GRADED SAND; medium dense, damp, fine to medium grained, yellowish-brown Loose	DD = 103.1 pcf	30 9	0.9
	7/6 11/6 14/6 5/6 7/6 12/6		Medium dense	DD = 102.6 pcf	25 19	1.5
	7/6 11/6 13/6				24	
			Bottom of Boring B-2 at 16.5 feet			

Notes:

Figure Number



Test Boring: B-3

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
0	4/6 7/6 9/6	SP-SM	POORLY GRADED SAND WITH SILT; medium dense, damp, fine to medium grained, brown	-200 = 8.3%	16	1.7
5	5/6 9/6 11/6 3/6 7/6 9/6	SP	POORLY GRADED SAND; medium dense, damp, fine to medium grained, yellowish-brown	DD = 100.2 pcf -200 = 0.6% ϕ = 31° c = 170 psf	20 16	2.0
10	9/6 16/6 24/6		Fine to coarse grained	DD = 101.7 pcf	40	1.7
15	6/6 14/6 15/6				29	
20	8/6 14/6 22/6		Dense, damp to moist		36	
25	8/6 13/6 16/6		Medium dense		29	

Notes:

Figure Number



MOORE TWINING ASSOCIATES, INC.

Test Boring: B-3

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
30	7/6 13/6 13/6				26	
35	5/6 8/6 14/6		Fine to medium grained		22	
40	5/6 12/6 19/6		Dense		31	
45	5/6 13/6 16/6		Medium dense, fine to coarse grained		29	
50	4/6 11/6 17/6				28	
55			Bottom of Boring B-3 at 51.5 feet			

Notes:

Figure Number



Test Boring: B-4

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
0		SP-SM	POORLY GRADED SAND WITH SILT; medium dense, damp, fine to medium grained, brown	From 0-3.5': R-value = 59 pH = 5.2 SR = 22,000 ohms-cm	19	1.9
5		SP	POORLY GRADED SAND; medium dense, damp, fine to medium grained, brown Bottom of Boring B-4 at 5 feet	CI = 0.0040% SS = Not Detected	15	

Notes:

Figure Number



Test Boring: B-5

Project: Proposed VTC Veterans Development

Project Number: D22202.01

Drilled By: J.S.

Logged By: J.D.

Drill Type: CME 75

Date: October 29, 2015

Auger Type: 6-5/8" O.D. Hollow Stem Augers

Elevation:

Hammer Type: 140 Pound Auto Trip Hammer

Depth to Groundwater: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
0		SP-SM	POORLY GRADED SAND WITH SILT; loose, damp, fine to medium grained, brown		10	1.7
5		SP	POORLY GRADED SAND; medium dense, damp, fine to coarse grained, yellowish-brown		12	
10					20	
			Bottom of Boring B-5 at 11.5 feet			


Notes:


Figure Number

KEY TO SYMBOLS


Symbol Description

Strata symbols


 Poorly graded sand
with silt


 Poorly graded sand

Misc. Symbols

 Boring continues

Soil Samplers

 California Modified
split barrel ring
sampler

 Standard penetration test

Notes:

1. Exploratory borings were drilled on 10-29-15 using a CME 75 drill rig equipped with 6-5/8 inch outside diameter hollow stem augers.
2. Groundwater was not encountered in the borings.
3. Boring locations were measured or paced from existing features.
4. These logs are subject to the limitations, conclusions, and recommendations in this report.
5. The "N-Value" reported for the California Modified Split Barrel Sampler is the uncorrected field blow count. This value should not be interpreted as an SPT equivalent N-Value.
6. Results of tests conducted on samples recovered are reported on the logs.

DD = Natural dry density (pcf)
-4 = Percent passing #4 sieve (%)
-200 = Percent passing #200 sieve (%)
SS = Soluble sulfates (%)
SR = Soil Resistivity (ohms-cm)
ø = Angle of Internal Friction (degrees)
pcf = pounds per cubic foot
N/A = Not Applicable
EI = Expansion Index

LL = Liquid Limit (%)
PI = Plasticity Index (%)
pH = Soil pH
Cl = Soluble chlorides (%)
AMSL = Above Mean Sea Level
c = Cohesion (psf)
O.D. = Outside Diameter
N/E = Not Encountered

APPENDIX C**RESULTS OF LABORATORY TESTS**

This appendix contains the individual results of the following tests. The results of the moisture content and dry density tests are included on the test boring logs in Appendix B. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

These Included:

Moisture Content
(ASTM D2216)

Dry Density
(ASTM D2216)

Grain-Size
Distribution
(ASTM D422)

Liquid and Plastic
Limits
(ASTM D4318)

Consolidation
(ASTM 2435)

Direct Shear
(ASTM D3080)

R-Value
(CTM 301)

Sulfate Content
(ASTM D4327)

Chloride Content
(ASTM D4327)

Resistivity
(ASTM D1125)

pH (ASTM D4972)

To Determine:

Moisture contents representative of field conditions at the time the sample was taken.

Dry unit weight of sample representative of in-situ or in-place undisturbed condition.

Size and distribution of soil particles, i.e., sand, gravel and fines (silt and clay).

Determines the moisture content at which the soil behaves as a viscous material (liquid limit) and the moisture content at which the soil reaches a plastic state.

The amount and rate at which a soil sample compresses when loaded, and the influence of saturation on its behavior.

Soil shearing strength under varying loads and/or moisture conditions.

The capacity of a subgrade or subbase to support a pavement section designed to carry a specified traffic load.

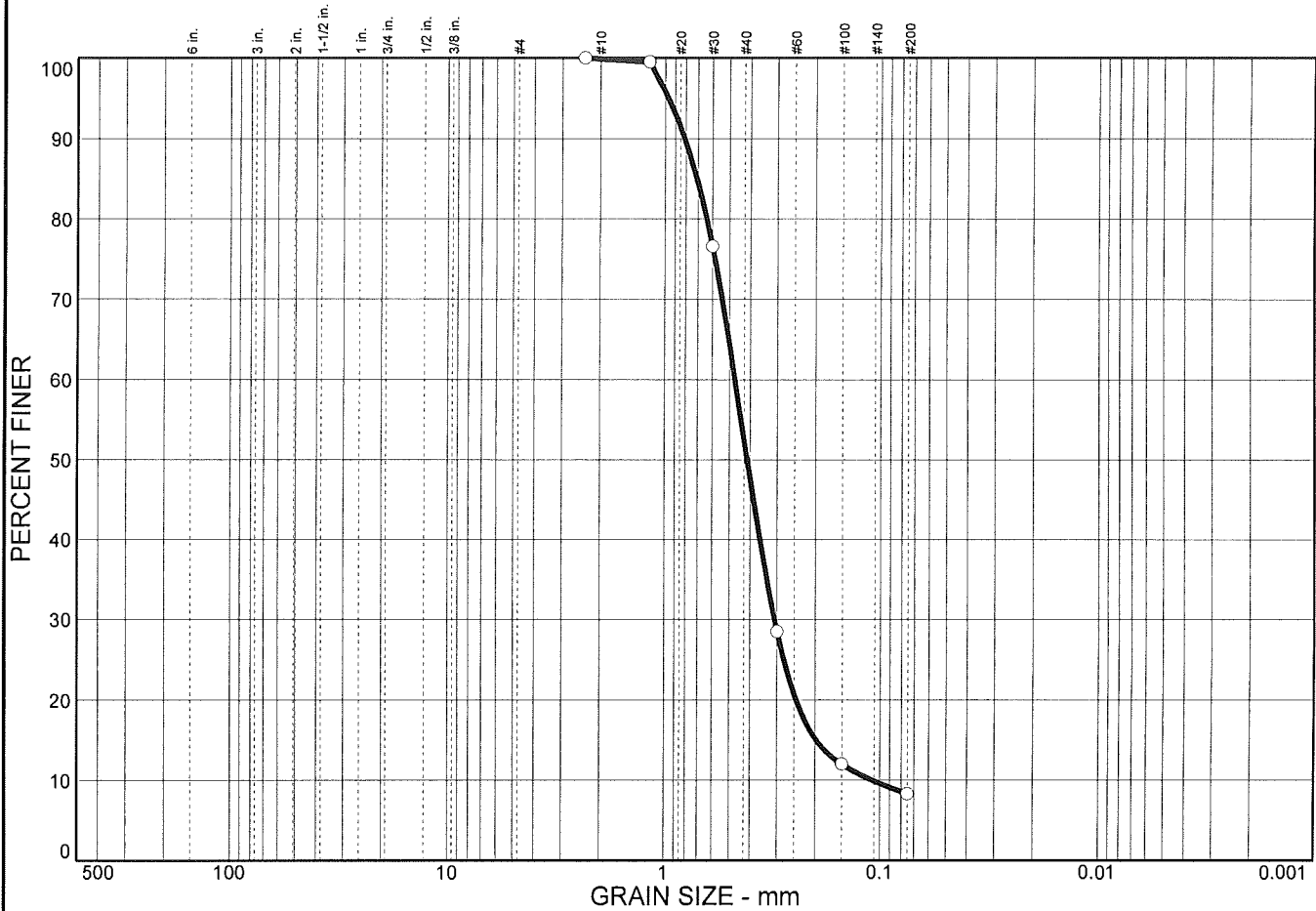
Percentage of water-soluble sulfate as (SO₄) in soil samples. Used as an indication of the relative degree of sulfate attack on concrete and for selecting the cement type.

Percentage of soluble chloride in soil. Used to evaluate the potential attack on encased reinforcing steel.

The potential of the soil to corrode metal.

The acidity or alkalinity of subgrade material.

Particle Size Distribution Report



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	91.7	8.3	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.5		
#30	76.6		
#50	28.5		
#100	12.0		
#200	8.3		

Material Description

Poorly graded sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.710 D₆₀= 0.471 D₅₀= 0.413
D₃₀= 0.308 D₁₅= 0.198 D₁₀= 0.109
C_u= 4.33 C_c= 1.86

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Sample No.: B-3
 Location:

Source of Sample:

Date: 10/29/15
 Elev./Depth: 0-1.5'

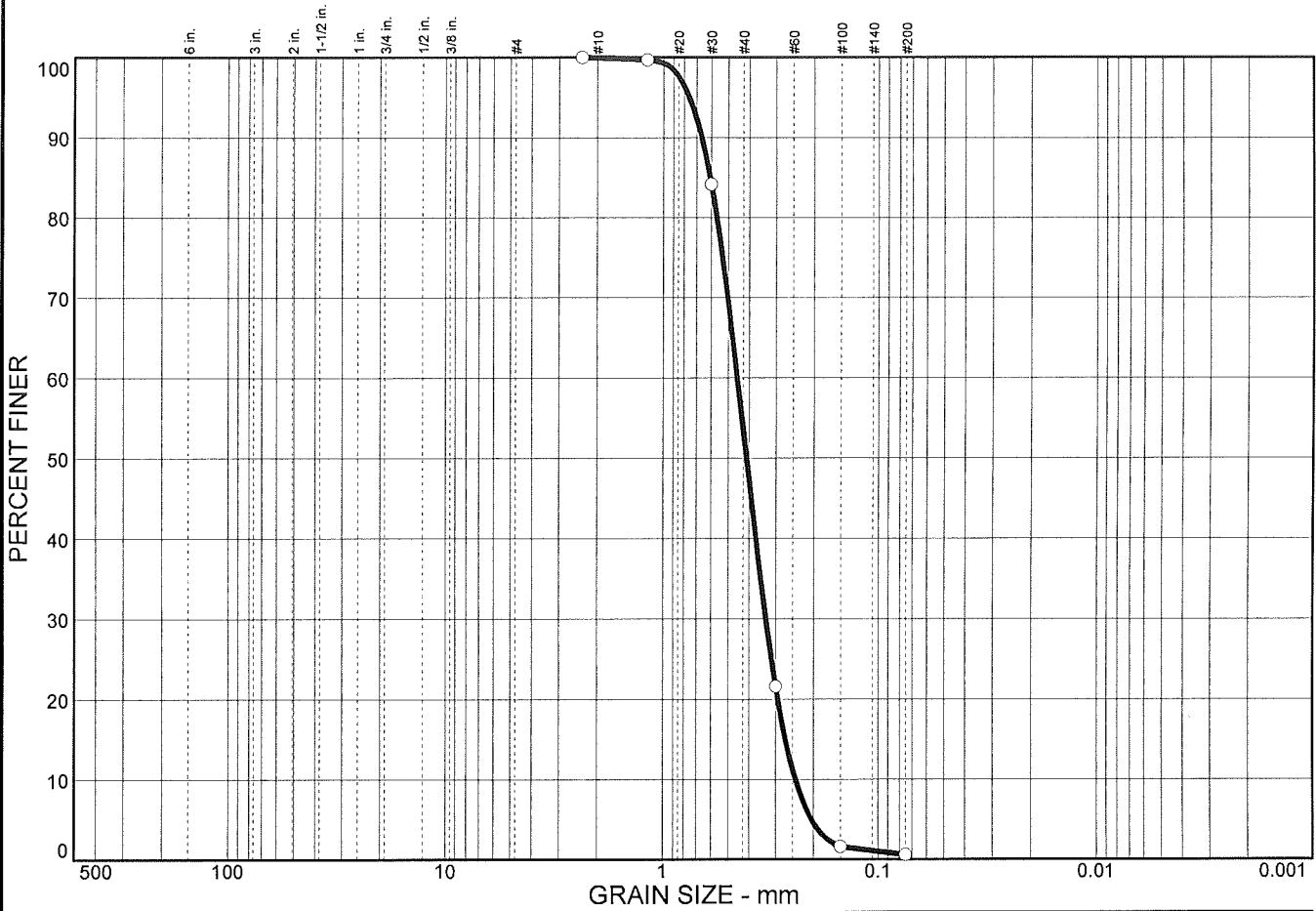
Moore Twining Associates, Inc.
 Fresno, CA

Client: EAH Housing
 Project: Proposed VTC Veterans Development

Project No: D22202.01

Figure

Particle Size Distribution Report



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	99.4	0.6	0.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.7		
#30	84.2		
#50	21.6		
#100	1.6		
#200	0.6		

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.607 D₆₀= 0.453 D₅₀=
D₃₀= 0.333 D₁₅= 0.270 D₁₀= 0.242
C_u= 1.87 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Sample No.: B-3
 Location:

Source of Sample:

Date: 10/29/15
 Elev./Depth: 3.5-5'

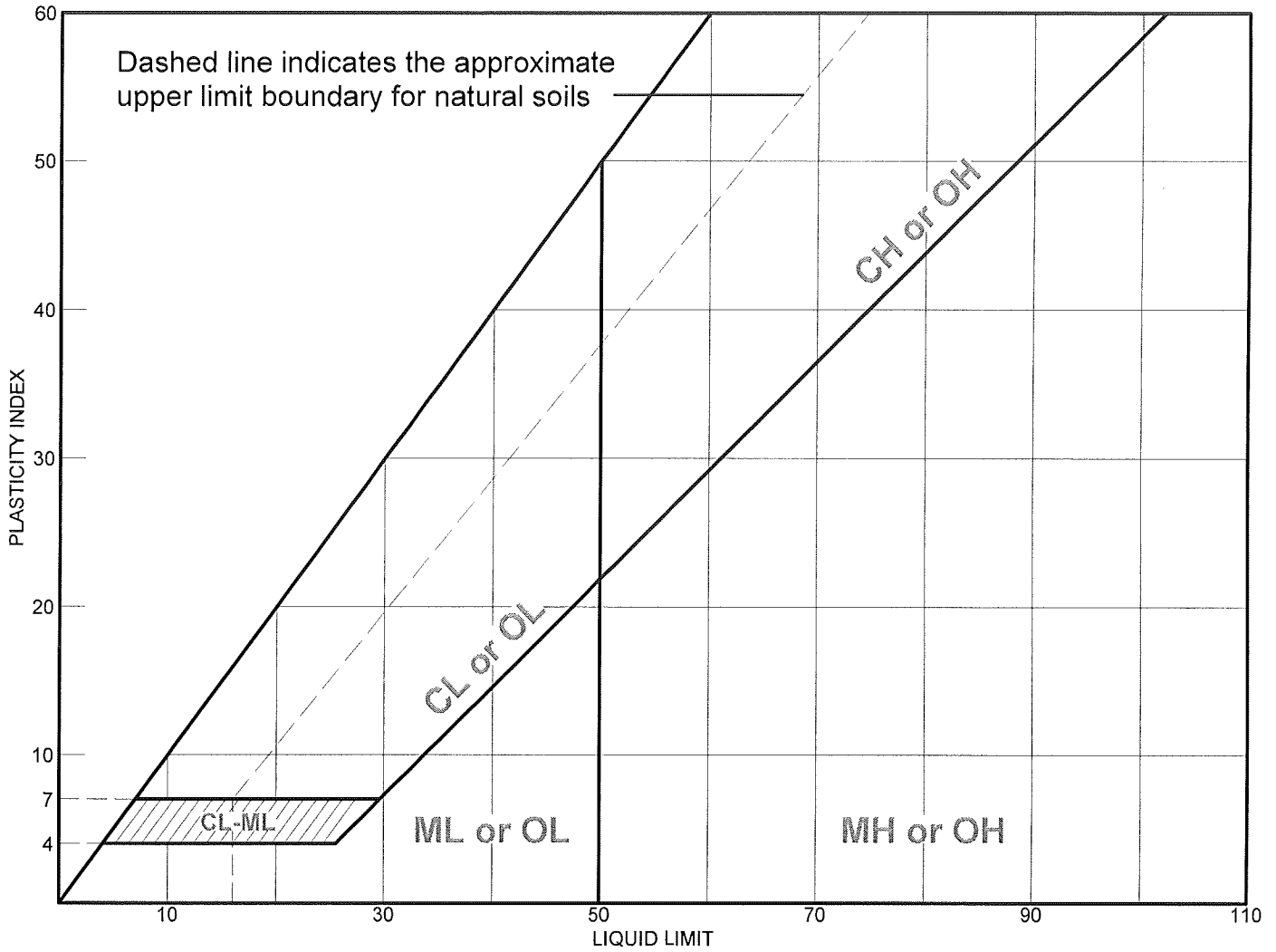
Moore Twining Associates, Inc.
 Fresno, CA

Client: EAH Housing
 Project: Proposed VTC Veterans Development

Project No: D22202.01

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silty sand	NV	NP	NP			SM

Project No. D22202.01 Client: EAH Housing
 Project: Proposed VTC Veterans Development

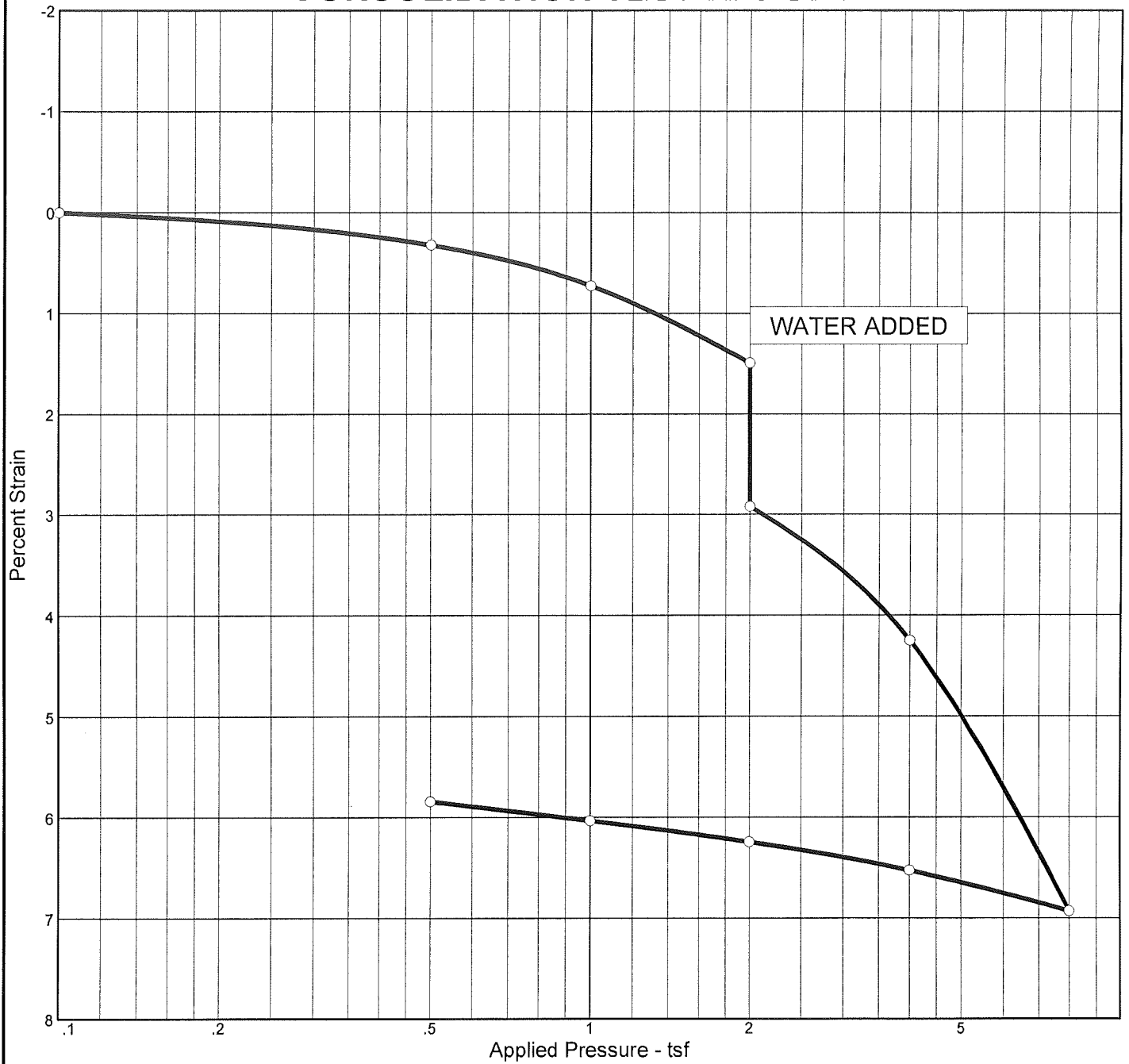
● Source: Sample No.: B-2 Elev./Depth: 0-1.5'

Remarks:
 ●

Moore Twining Associates, Inc.
 Fresno, CA

Figure

CONSOLIDATION TEST REPORT

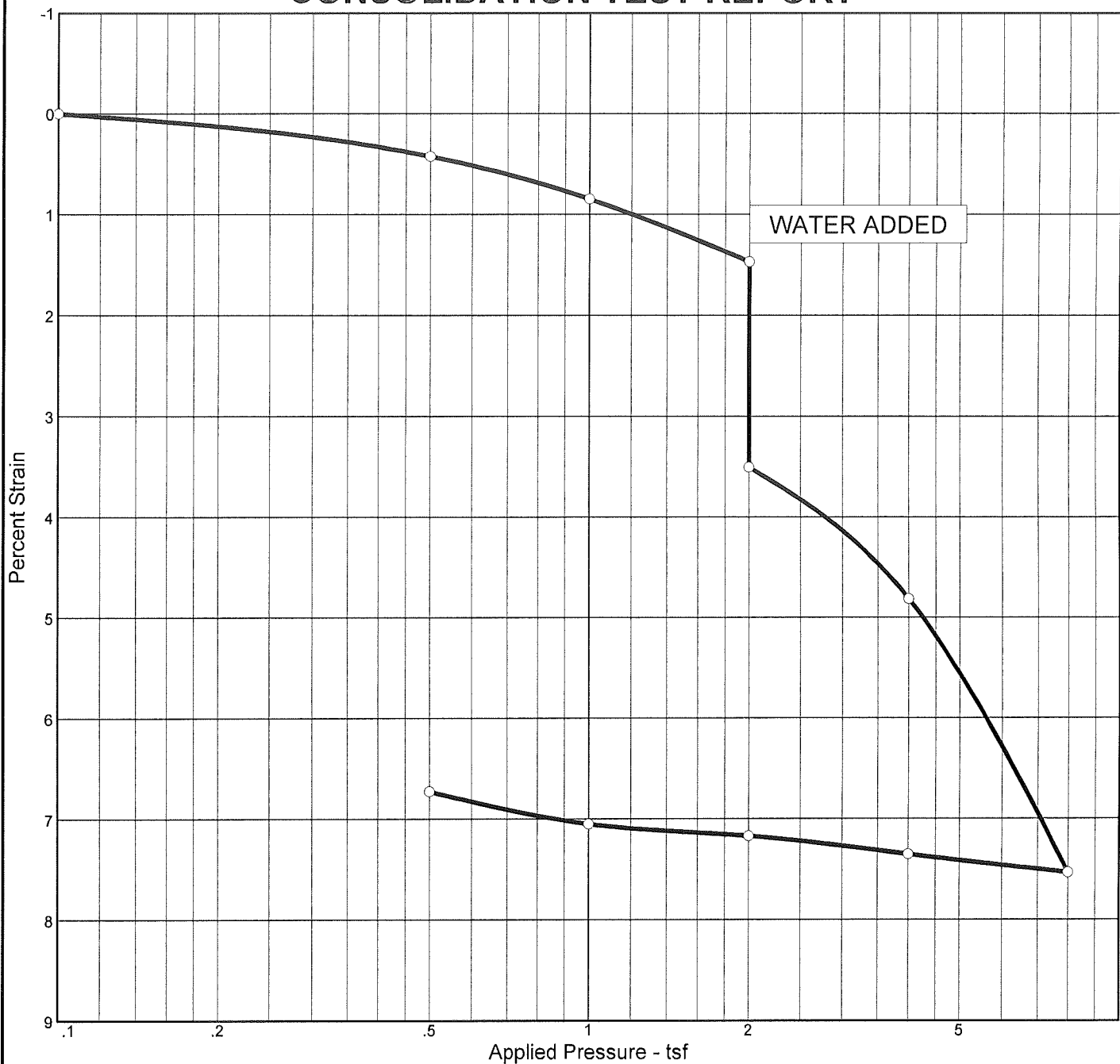


Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _c (tsf)	C _c	C _s	Swell Press. (tsf)	Clpse. %	e ₀
Sat.	Moist.											
13.0 %	3.0 %	102.3			2.65		4.01	0.15	0.01		1.4	0.616

MATERIAL DESCRIPTION										USCS		AASHTO	
Poorly graded sand										SP			

Project No. D22202.01 Client: EAH Housing Project: Proposed VTC Veterans Development Source: Sample No.: B-1 Elev./Depth: 5-6.5' <div style="text-align: center; border: 1px solid black; padding: 5px;"> Moore Twining Associates, Inc. Fresno, CA </div>	Remarks: <div style="text-align: right; padding-top: 20px;"> Figure </div>
--	---

CONSOLIDATION TEST REPORT

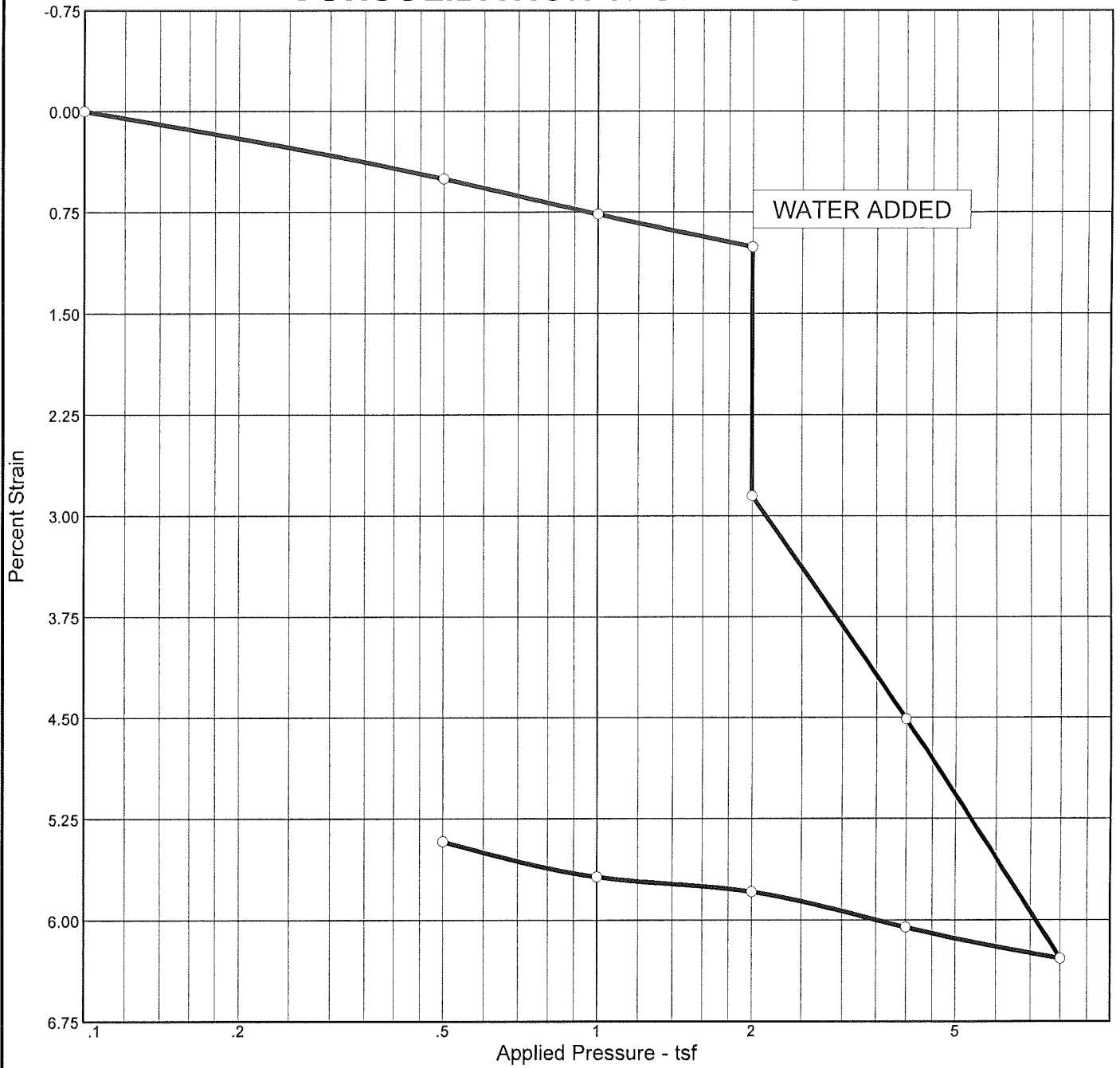


Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _c (tsf)	C _c	C _s	Swell Press. (tsf)	Clpse. %	e _o
Sat.	Moist.											
4.3 %	1.0 %	104.3			2.65		4.05	0.15	0.01		2.0	0.587

MATERIAL DESCRIPTION	USCS	AASHTO
Poorly graded sand	SP	

Project No. D22202.01 Client: EAH Housing Project: Proposed VTC Veterans Development Source: Sample No.: B-2 Elev./Depth: 2-3.5' <div style="text-align: center; padding: 5px;"> Moore Twining Associates, Inc. Fresno, CA </div>	Remarks: <div style="text-align: right; padding-right: 10px;"> Figure </div>
---	---

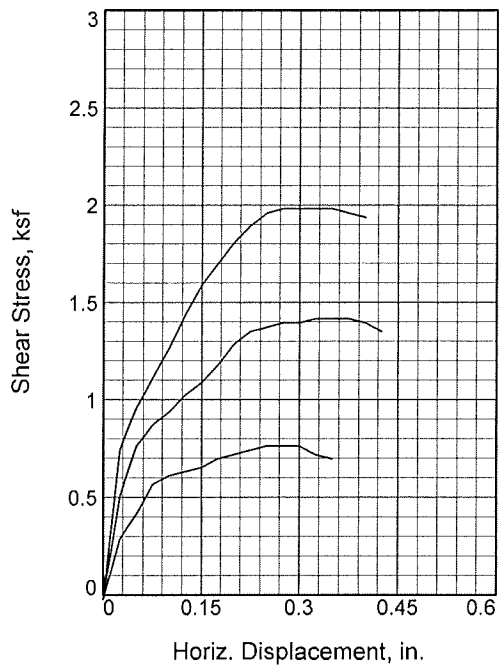
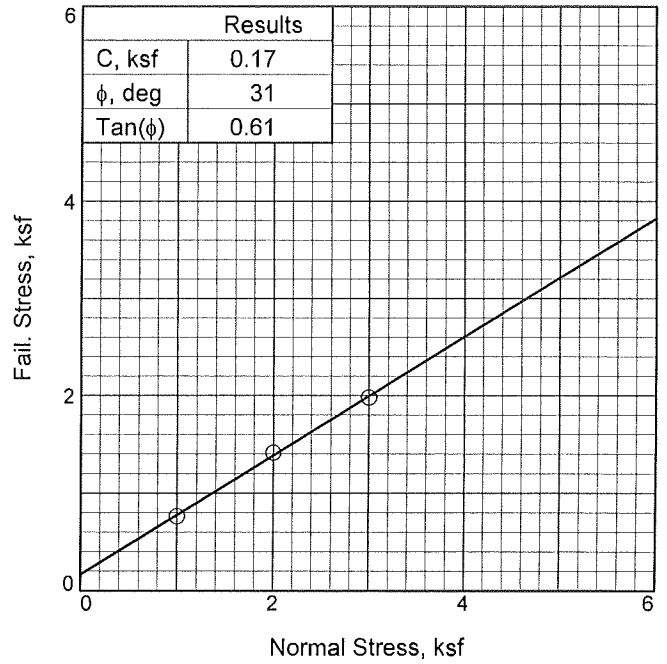
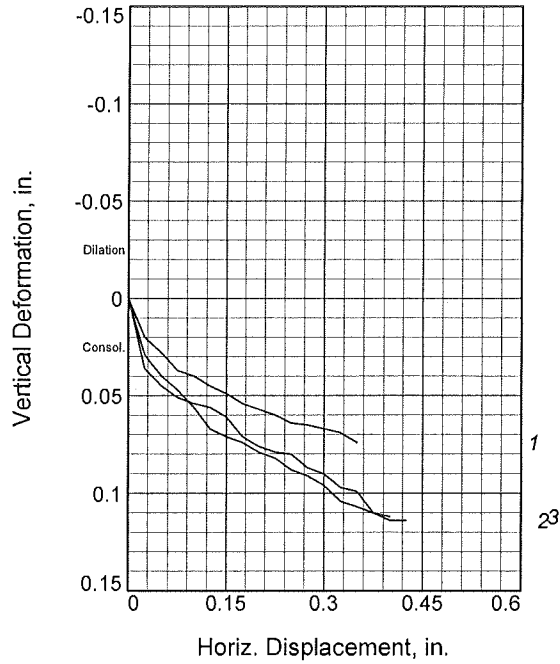
CONSOLIDATION TEST REPORT



Natural Sat.	Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P _c (tsf)	C _c	C _r	Swell Press. (tsf)	Clpse. %	e ₀
					2.65		4.04				1.8	

MATERIAL DESCRIPTION	USCS	AASHTO
Poorly graded sand	SP	

Project No. D22202.01 Client: EAH Housing Project: Proposed VTC Veterans Development Source: Sample No.: B-3 Elev./Depth: 3.5-5' <div style="text-align: center; border-top: 1px solid black; padding-top: 5px;"> Moore Twining Associates, Inc. Fresno, CA </div>	Remarks: <div style="text-align: right; margin-top: 20px;">Figure</div>
--	---



Sample No.	1	2	3	
Initial	Water Content, %	1.9	2.0	1.4
	Dry Density, pcf	99.2	100.3	99.9
	Saturation, %	7.6	8.1	5.7
	Void Ratio	0.6673	0.6494	0.6563
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	23.0	21.1	22.0
	Dry Density, pcf	100.3	103.2	103.9
	Saturation, %	94.1	92.5	98.3
	Void Ratio	0.6486	0.6030	0.5926
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.99	0.97	0.96
Normal Stress, ksf	1.00	2.00	3.00	
Fail. Stress, ksf	0.76	1.42	1.98	
Displacement, in.	0.25	0.33	0.28	
Ult. Stress, ksf				
Displacement, in.				
Strain at peak, %	10.3	13.4	11.4	

Sample Type:

Description: Poorly graded sand

Assumed Specific Gravity= 2.65

Remarks:

Figure _____

Client: EAH Housing

Project: Proposed VTC Veterans Development

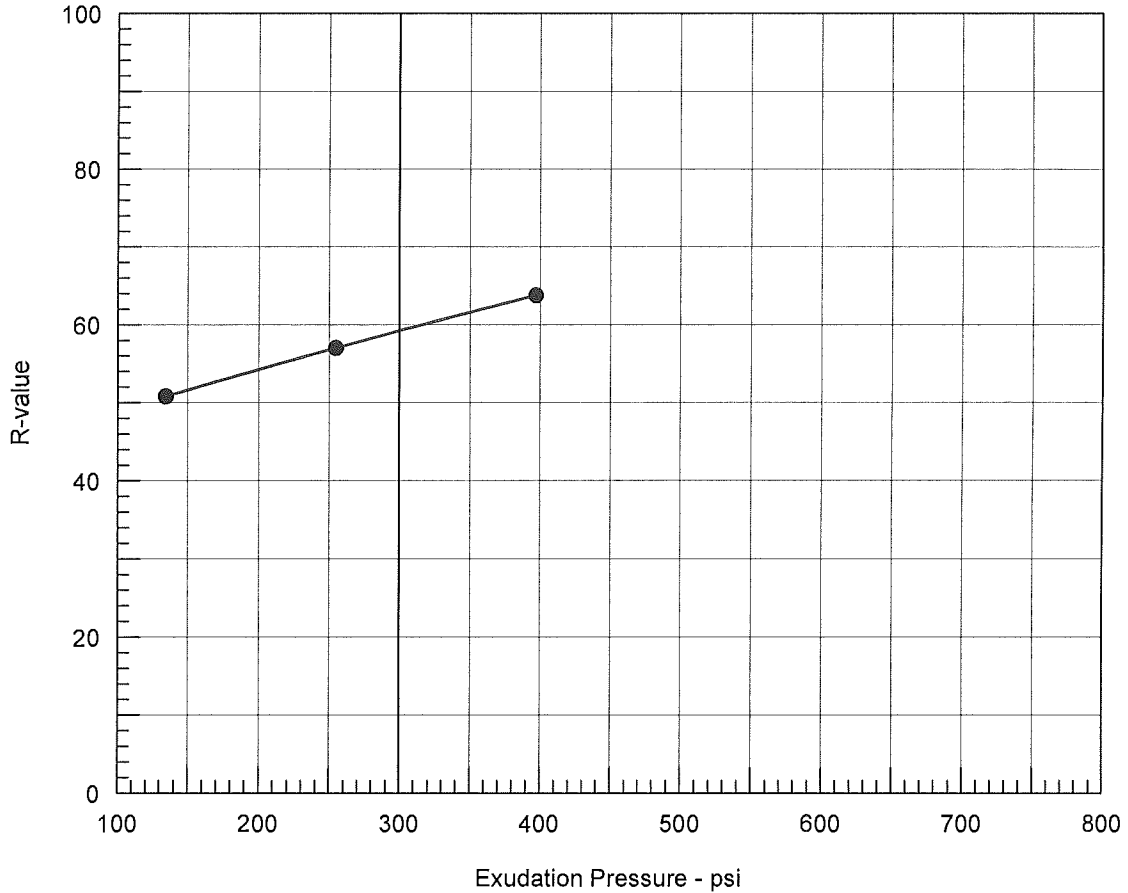
Sample Number: B-3 **Depth:** 3.5-5'

Proj. No.: D22202.01

Date Sampled: 10/29/15

DIRECT SHEAR TEST REPORT
 Moore Twining Associates, Inc.
 Fresno, CA

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	300	124.9	8.5	0.00	36	2.51	397	64	64
2	250	123.4	9.5	0.00	42	2.54	255	57	57
3	250	122.6	10.4	0.00	51	2.56	134	49	51

Test Results	Material Description
R-value at 300 psi exudation pressure = 59	Poorly graded sand with silt
Project No.: D22202.01 Project: Proposed VTC Veterans Development Sample Number: B-4 Depth: 0-3.5' Date: 11/9/2015	Tested by: Checked by: Remarks:
R-VALUE TEST REPORT Moore Twining Associates, Inc.	Figure _____



California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

November 09, 2015

Work Order #: BK02035

Allen Harker
MTA Geotechnical Division
2527 Fresno Street
Fresno, CA 93721

RE: Proposed VTC Veterans Development

Enclosed are the analytical results for samples received by our laboratory on 11/02/15 . For your reference, these analyses have been assigned laboratory work order number BK02035.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

A handwritten signature in black ink, appearing to read 'Julio Morales', is written over a horizontal line.

Julio Morales
Client Services Supervisor



2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

California ELAP Certificate #1371

MTA Geotechnical Division
2527 Fresno Street
Fresno CA, 93721

Project: Proposed VTC Veterans Development
Project Number: D22202.01
Project Manager: Allen Harker

Reported:
11/09/15 16:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1 @ 2.5-4	BK02035-01	Soil	10/29/15 00:00	11/02/15 13:40
B4 @ 0-3.5	BK02035-02	Soil	10/29/15 00:00	11/02/15 13:40



2527 Fresno Street
 Fresno, CA 93721
 (559) 268-7021 Phone
 (559) 268-0740 Fax

California ELAP Certificate #1371

MTA Geotechnical Division
 2527 Fresno Street
 Fresno CA, 93721

Project: Proposed VTC Veterans Development
 Project Number: D22202.01
 Project Manager: Allen Harker

Reported:
 11/09/15 16:42

B1 @ 2.5-4

BK02035-01 (Soil)

Sampled: 10/29/15 00:00

Analyte	Notes	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Chloride		71	6.0	mg/kg	3	U5K0318	11/03/15	11/06/15	ASTM D4327-84
Chloride		0.0071	0.00060	% by Weight	3	[CALC]	11/06/15	11/06/15	ASTM D4327-84
Sulfate as SO4		ND	0.00060	% by Weight	3	[CALC]	11/06/15	11/06/15	ASTM D4327-84
pH		5.8	0.10	pH Units	1	U5K0318	11/03/15	11/06/15	ASTM D4972-89 Mod
Resistivity		22000		ohms-cm	1	U5K0318	11/03/15	11/06/15	ASTM D1125-82
Sulfate as SO4		ND	6.0	mg/kg	3	U5K0318	11/03/15	11/06/15	ASTM D4327-84



2527 Fresno Street
 Fresno, CA 93721
 (559) 268-7021 Phone
 (559) 268-0740 Fax

California ELAP Certificate #1371

MTA Geotechnical Division
 2527 Fresno Street
 Fresno CA, 93721

Project: Proposed VTC Veterans Development
 Project Number: D22202.01
 Project Manager: Allen Harker

Reported:
 11/09/15 16:42

B4 @ 0-3.5

BK02035-02 (Soil)

Sampled: 10/29/15 00:00

Analyte	Notes	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method
			Limit							
Inorganics										
Chloride		40	6.0		mg/kg	3	U5K0318	11/03/15	11/06/15	ASTM D4327-84
Chloride		0.0040	0.00060		% by Weight	3	[CALC]	11/06/15	11/06/15	ASTM D4327-84
Sulfate as SO4		ND	0.00060		% by Weight	3	[CALC]	11/06/15	11/06/15	ASTM D4327-84
pH		5.2	0.10		pH Units	1	U5K0318	11/03/15	11/06/15	ASTM D4972-89 Mod
Resistivity		22000			ohms-cm	1	U5K0318	11/03/15	11/06/15	ASTM D1125-82
Sulfate as SO4		ND	6.0		mg/kg	3	U5K0318	11/03/15	11/06/15	ASTM D4327-84

Notes and Definitions

- ug/L micrograms per liter (parts per billion concentration units)
- mg/kg milligrams per kilogram (parts per million concentration units)
- mg/L milligrams per Liter (parts per million concentration units)
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- Analysis of pH, filtration, and residual chlorine is to take place immediately after sampling in the field.
- If the test was performed in the laboratory, the hold time was exceeded. (for aqueous matrices only)



Appendix F
Parking Memorandum

Memorandum

To: Taven M. Kinison Brown, Acting Planning Services Manager
From: Ron Marquez, Traffic Engineer
CC: Nourdin Khayata, Megan Jones
Date: March 21, 2016
Re: Veterans Transitional Center Project Parking

This memorandum documents the findings of a parking analysis of the proposed development of 71 units of supportive housing dedicated for veterans in the City of Marina. The proposed project is intended to provide permanent housing for veterans on a 2.38 acre parcel along Hayes Circle. The project site plan includes the provision of 60 parking spaces for the 71 units. The objective of this analysis is to review the adequacy of the proposed parking.

To estimate the parking demand for a facility of this type I have used "Parking Generation 4th Edition" an Institute of Transportation Engineers (ITE) report,. The nature of the proposed project best fits the Senior Adult Housing land use 252. Based on this reference the project's 85 percentile demand would be 0.66 vehicles per dwelling unit for a total parking demand of 47 spaces. However to insure this level of parking it is recommended a parking management program be implemented for the tenants of this facility. Management should include monitoring the vehicle ownership of the tenants. Attached is a copy of the reference page used to estimate the demand.

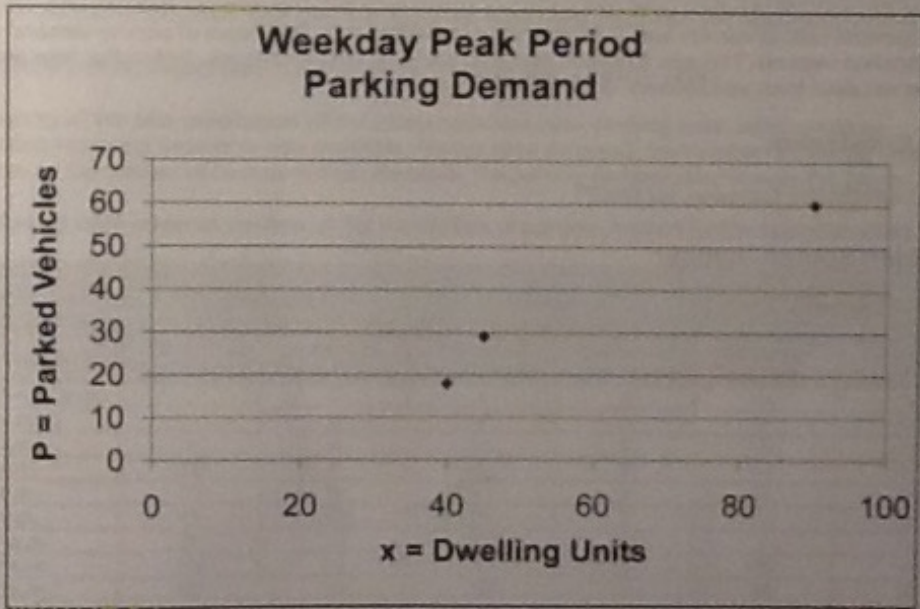
Hayes Circle is a relatively narrow local road of 24 feet in width. Parking is currently allowed only on the south side of the street adjacent the subject property. There is approximately 500 feet of frontage along the property that could accommodate parking for about 20 vehicles. Some parking demand on the street could result from the uses across the street from the project but is likely to be minimal. This on street parking capacity should be sufficient to provide for visitors to the project site.

Let me know if you have any questions.

Land Use: 252 Senior Adult Housing—Attached

**Average Peak Period Parking Demand vs. Dwelling Units
On a Weekday**

Statistic	Peak Period Demand
Peak Period	11:00 p.m.–5:00 a.m.
Number of Study Sites	3
Average Size of Study Sites	58 dwelling units
Average Peak Period Parking Demand	0.59 vehicles per dwelling unit
Standard Deviation	0.12
Coefficient of Variation	20%
Range	0.45–0.67 vehicles per dwelling unit
85th Percentile	0.66 vehicles per dwelling unit
33rd Percentile	0.58 vehicles per dwelling unit



• Actual Data Points



Appendix G

Ambient Noise Survey Data Sheets

AMBIENT NOISE SURVEY DATA SHEET

Project: Marina Veteran's Supportive Housing IS Job Number: 15-02203
 Date: 1/12/15
 Operator: CS

Station: A Begin: 4:19pm
 Measurement No. 1 Finish: 4:34
 Wind: 0 mph Direction: n/a
 Temperature: 65.8
 Cloud Cover Class
 Daytime 1 - Overcast >80%
 2 - Light 20-80%
 3 - Sunny <20%
 Nighttime 4 - Clear <50%
 5 - Overcast >50%
 Primary Noise Source: Hwy 1
 Distance: [circled]
 Secondary Noise Sources: ambulance from Imjim Pkwy
 Notes: No cars active on Hayes
 Traffic LDA/T: (Hwy 1 traffic)
 MDT: (air plane went overhead)
 HDT: (ambulance on Imjim)
 Leq: 54.7 L(10): _____
 Lmin: _____ L(33): _____
 Lmax: _____ L(50): _____
 Peak: _____ L(90): _____
 Calibration Start: 94 dB
 End: _____ dB
 Response: Slow Fast
 Peak Impulse
 Weighting: A B
 C Linear
 Octave Filter: NA _____ Hz

Station: B Begin: 4:40
 Measurement No. 2 Finish: 4:55
 Wind: 0 mph Direction: n/a
 Temperature: 65.4°F
 Cloud Cover Class
 Daytime 1 - Overcast >80%
 2 - Light 20-80%
 3 - Sunny <20%
 Nighttime 4 - Clear <50%
 5 - Overcast >50%
 Primary Noise Source: Hwy 1
 Distance: [circled]
 Secondary Noise Sources: Imjim Pkwy
 Notes: Hayes
 Traffic LDA/T: (1 ambulance on Imjim)
 MDT: (no car traffic on Hayes)
 HDT: (dog barking 4:52 due to no presence)
 Leq: 58.1 L(10): _____
 Lmin: _____ L(33): _____
 Lmax: _____ L(50): _____
 Peak: _____ L(90): _____
 Calibration Start: 94 dB
 End: _____ dB
 Response: Slow Fast
 Peak Impulse
 Weighting: A B
 C Linear
 Octave Filter: NA _____ Hz

yes filter

Note: Provide Sketch of Location on Back.

AMBIENT NOISE SURVEY DATA SHEET

Project: _____
 Date: _____
 Operator: _____

Job Number: _____

Station: <u>C</u> Measurement No. <u>3</u> Wind: <u>0</u> mph Temperature: <u>64.2</u> Cloud Cover Class Daytime <input type="checkbox"/> 1 - Overcast >80% <input checked="" type="checkbox"/> 2 - Light 20-80% <input type="checkbox"/> 3 - Sunny <20% Nighttime <input type="checkbox"/> 4 - Clear <50% <input type="checkbox"/> 5 - Overcast >50% Primary Noise Source: <u>Hwy 1</u> Distance: _____ Secondary Noise Sources: <u>Imjim</u> Notes: <u>birds</u> <u>1 golf cart on Hays</u> Traffic LDA/T: _____ MDT: _____ HDT: _____ Leq: <u>56.7</u> L(10): _____ Lmin: _____ L(33): _____ Lmax: _____ L(50): _____ Peak: _____ L(90): _____ Calibration Start: <u>94</u> dB End: _____ dB Response: <input type="checkbox"/> Slow <input checked="" type="checkbox"/> Fast <input type="checkbox"/> Peak <input type="checkbox"/> Impulse Weighting: <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> Linear Octave Filter: <input type="checkbox"/> NA <input type="checkbox"/> _____ Hz	Station: _____ Measurement No. _____ Wind: _____ mph Temperature: _____ Cloud Cover Class Daytime <input type="checkbox"/> 1 - Overcast >80% <input type="checkbox"/> 2 - Light 20-80% <input type="checkbox"/> 3 - Sunny <20% Nighttime <input type="checkbox"/> 4 - Clear <50% <input type="checkbox"/> 5 - Overcast >50% Primary Noise Source: _____ Distance: _____ Secondary Noise Sources: _____ Notes: _____ Traffic LDA/T: _____ MDT: _____ HDT: _____ Leq: _____ L(10): _____ Lmin: _____ L(33): _____ Lmax: _____ L(50): _____ Peak: _____ L(90): _____ Calibration Start: _____ dB End: _____ dB Response: <input type="checkbox"/> Slow <input type="checkbox"/> Fast <input type="checkbox"/> Peak <input type="checkbox"/> Impulse Weighting: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> Linear Octave Filter: <input type="checkbox"/> NA <input type="checkbox"/> _____ Hz
---	--

P. Brv

Note: Provide Sketch of Location on Back.

Noise Measurement Locations



PROJECT DATA
64 STUDIOS
8 2-BEDROOMS
72 PARKING STALLS



CONCEPT SITE PLAN
December 2, 2015

MARINA VETERAN'S SUPPORTIVE HOUSING
EAH Housing / Veteran's Transition Center



Appendix H
Traffic Impact Memorandum

Memorandum

To: Taven M. Kinison Brown, Acting Planning Services Manager
 From: Ron Marquez, Traffic Engineer
 CC: Nourdin Khayata
 Date: March 21, 2016
 Re: Veterans Transitional Center Project

This memorandum documents the findings of a traffic analysis of the effects of the proposed development of 71 units of supportive housing dedicated for veterans in the City of Marina. The proposed project is intended to provide permanent housing for veterans on a 2.38 acre parcel along Hayes Circle. The project site currently includes four duplexes 8 units which will be demolished for the proposed project. For purposes of study the duplexes are assumed to be vacant. The objective of this analysis is to estimate the total number of new trips that will be attributed to the project and to identify the effect of those trips to one of the City of Marina's critical intersections at Imjin Parkway and Third Avenue.

To estimate trip generation I have used "Trip Generation 8th Edition" an Institute of Transportation Engineers (ITE) report,. The nature of the proposed project best fits the Senior Adult Housing land use 252. The following table presents the calculations made for this trip generation estimate.

	ITE Land Use Code	Project Size	Units	Daily Trip Rate	Daily Trips	AM Peak Hr. Rate	AM Peak Hr. Trips	PM Peak Hr. Rate	PM Peak Hr. Trips
Proposed Project									
Veterans Housing	252	71 units		3.44	244	0.20	14	0.25	18
Added New Trips					244		14		18

Based on this analysis the proposed project will generate:

- 244 new trips per day
- 14 new trips during the morning peak hour, and
- 18 new trips during the evening peak hour.

The criteria for further analysis of adjacent intersections is if they are affected by 25 or more new trips per hour. However per you request I am analyzing the effect of these trips at the intersection of Imjin Parkway and Third Avenue. This intersection has been identified as impacted in previous traffic impact studies. It is anticipated that the predominant travel direction from this proposed project will be directed to this intersection. For puposes of this study all new traffic will be directed to the study intersection. The morning distribution is 35% incoming and 65% outgoing. The evening distribution is 60% incoming and 40% outgoing.

The existing turning movement counts at the study intersection were taken from the Cypress Knolls Traffic Impact Analysis and corroborated against 2015 counts made by the Transportation Agency of Monterey County for both morning and evening peak hours. The level of service for existing conditions and existing conditions with the project added traffic was calculated for both morning and evening peak hours. Synchro Software was used to calculate the level of service (LOS). The following table presents the results of that analysis.

LOS Calculations				
Intersection	Existing AM	Existing PM	Project Added AM	Project Added PM
	LOS/ Approach Delay	LOS/ Approach Delay	LOS/ Approach Delay	LOS/ Approach Delay
Imjin Parkway at 3rd Avenue	D / 30.4 sec.	D / 30.1 sec	D / 32.2 sec.	D / 31.9 sec.

The intersection of Imjin Parkway and Third Avenue is a two way stop controlled intersection with stop controls on the minor north south street, Third Avenue. The level of service identified for a two way stop controlled intersection is based on the delay associated with the minor street. As noted in the table above the LOS remains unchanged for the conditions evaluated with a very minimal increase in the delay. The average delay for all the approaches to the intersection is less than two seconds for all of the above conditions. The worksheets for these calculations are attached.

The cumulative effects of this project with potential development in the area is addressed through the City of Marina's Impact Fee Program which includes mitigation measures to address cumulative traffic impacts. In the traffic impact studies for developments in the City of Marina the study intersection is impacted. The mitigation measure identified for this intersection is signalization. This mitigation is included in the Marina Impact Fee program.

Let me know if you have any questions.

HCM Unsignalized Intersection Capacity Analysis
3: Imjin Pkwy & Third Avenue

Veterans Facility
3/16/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↕	↷	↶	↕	↷	↶	↕	↷	↶	↕	↷
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	47	647	52	39	1105	3	9	10	7	3	13	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	703	57	42	1201	3	10	11	8	3	14	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							Raised			Raised		
Median storage (veh)							1			1		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1204			760			1565	2123	380	1754	2149	602
vC1, stage 1 conf vol							834	834			1288	1288
vC2, stage 2 conf vol							732	1289			487	852
vCu, unblocked vol	1204			760			1565	2123	380	1754	2149	602
IC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
IC, 2 stage (s)							6.5	5.5			6.5	5.5
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			95			94	91	99	97	89	91
cM capacity (veh/h)	575			848			152	121	618	125	134	443
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2			
Volume Total	51	489	291	42	801	404	28	3	53			
Volume Left	51	0	0	42	0	0	10	3	0			
Volume Right	0	0	57	0	0	3	8	0	39			
cSH	575	1700	1700	848	1700	1700	170	125	274			
Volume to Capacity	0.09	0.28	0.17	0.05	0.47	0.24	0.17	0.03	0.19			
Queue Length 95th (ft)	7	0	0	4	0	0	15	2	18			
Control Delay (s)	11.9	0.0	0.0	9.5	0.0	0.0	30.4	34.7	21.3			
Lane LOS	B			A			D	D	C			
Approach Delay (s)	0.7			0.3			30.4	22.0				
Approach LOS							D	C				
Intersection Summary												
Average Delay				1.5								
Intersection Capacity Utilization				52.1%			ICU Level of Service			A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis
3: Imjin Prkwy & Third Avenue

Veterans Facility
3/18/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑			↘	↑
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	5	1104	18	17	760	2	32	2	28	5	2	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	1200	20	18	826	2	35	2	30	5	2	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							Raised			Raised		
Median storage (veh)							1			1		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	828			1220			1682			2086		
vC1, stage 1 conf vol							1221			1221		
vC2, stage 2 conf vol							461			865		
vCu, unblocked vol	828			1220			1682			2086		
tC, single (s)	4.1			4.1			7.5			6.5		
tC, 2 stage (s)							6.5			5.5		
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	99			97			76			99		
cM capacity (veh/h)	799			568			146			155		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2			
Volume Total	5	800	420	18	551	278	67	5	12			
Volume Left	5	0	0	18	0	0	35	5	0			
Volume Right	0	0	20	0	0	2	30	0	10			
cSH	799	1700	1700	568	1700	1700	210	187	382			
Volume to Capacity	0.01	0.47	0.25	0.03	0.32	0.16	0.32	0.03	0.03			
Queue Length 95th (ft)	1	0	0	3	0	0	33	2	2			
Control Delay (s)	9.5	0.0	0.0	11.6	0.0	0.0	30.1	24.8	14.7			
Lane LOS	A			B			D			C		
Approach Delay (s)	0.0			0.3			30.1			17.9		
Approach LOS							D			C		
Intersection Summary												
Average Delay				1.2								
Intersection Capacity Utilization				48.0%			ICU Level of Service			A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis
3: Imjin Prkwy & Third Avenue

Veterans Facility
3/18/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations	↶	↷		↶	↷			↶	↷		↶	↷								
Sign Control	Free			Free			Stop			Stop										
Grade	0%			0%			0%			0%										
Volume (veh/h)	51	647	52	39	1105	4	9	11	7	3	18	42								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	55	703	57	42	1201	4	10	12	8	3	17	46								
Pedestrians																				
Lane Width (ft)																				
Walking Speed (ft/s)																				
Percent Blockage																				
Right turn flare (veh)																				
Median type							Raised			Raised										
Median storage (veh)							1			1										
Upstream signal (ft)																				
pX, platoon unblocked																				
vC, conflicting volume	1205				760				1582		2133		380		1764		2159		603	
vC1, stage 1 conf vol									842		842				1288		1288			
vC2, stage 2 conf vol									740		1290				476		871			
vCu, unblocked vol	1205				760				1582		2133		380		1764		2159		603	
tC, single (s)	4.1				4.1				7.5		6.5		6.9		7.5		6.5		6.9	
tC, 2 stage (s)									6.5		5.5				6.5		5.5			
tF (s)	2.2				2.2				3.5		4.0		3.3		3.5		4.0		3.3	
p0 queue free %	90				95				93		90		99		97		87		90	
cM capacity (veh/h)	575				848				144		118		618		123		132		442	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2											
Volume Total	55	469	291	42	801	405	29	3	63											
Volume Left	55	0	0	42	0	0	10	3	0											
Volume Right	0	0	57	0	0	4	8	0	46											
cSH	575	1700	1700	848	1700	1700	162	123	269											
Volume to Capacity	0.10	0.28	0.17	0.05	0.47	0.24	0.18	0.03	0.23											
Queue Length 95th (ft)	8	0	0	4	0	0	16	2	22											
Control Delay (s)	11.9	0.0	0.0	9.5	0.0	0.0	32.2	35.0	22.5											
Lane LOS	B			A			D	D	C											
Approach Delay (s)	0.8				0.3				32.2		23.1									
Approach LOS							D		C											
Intersection Summary																				
Average Delay				1.8																
Intersection Capacity Utilization				52.2%			ICU Level of Service			A										
Analysis Period (min)				15																

HCM Unsignalized Intersection Capacity Analysis
3: Imjin Prkwy & Third Avenue

Veterans Facility
3/18/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↘	↙	↕	↘		↕	↙	↘	↕	↘
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	12	1104	18	17	760	4	32	4	28	7	3	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	1200	20	18	826	4	35	4	30	8	3	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage (veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	830			1220			1702	2103	610	1524	2111	415
vC1, stage 1 conf vol							1236	1236		865	865	
vC2, stage 2 conf vol							466	867		659	1246	
vCu, unblocked vol	830			1220			1702	2103	610	1524	2111	415
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			97			75	97	93	96	98	98
cM capacity (veh/h)	797			568			141	151	438	182	145	588
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2			
Volume Total	13	800	420	18	551	280	70	8	17			
Volume Left	13	0	0	18	0	0	35	8	0			
Volume Right	0	0	20	0	0	4	30	0	14			
cSH	797	1700	1700	568	1700	1700	202	182	373			
Volume to Capacity	0.02	0.47	0.25	0.03	0.32	0.16	0.34	0.04	0.05			
Queue Length 95th (ft)	1	0	0	3	0	0	36	3	4			
Control Delay (s)	9.6	0.0	0.0	11.6	0.0	0.0	31.9	25.6	15.1			
Lane LOS	A			B			D	D	C			
Approach Delay (s)	0.1			0.3			31.9	18.3				
Approach LOS							D	C				
Intersection Summary												
Average Delay				1.4								
Intersection Capacity Utilization				48.1%			ICU Level of Service		A			
Analysis Period (min)				15								



Appendix I
Water Transfer Agreement

2018007762

Stephen L. Vagnini
Monterey County Clerk-Recorder

02/23/2018 04:01 PM

Recorded at the request of:
FORT ORD REUSE AUTHORITY

Titles: 1 Pages: 101

Fees: \$0.00
Taxes: \$0.00
AMT PAID: \$0.00

**FORT ORD REUSE AUTHORITY
OFFICIAL BUSINESS
REQUEST DOCUMENT TO BE RECORDED
AND EXEMPT FROM RECORDING FEES
PER GOVERNMENT CODE 6103**



**Recording requested by and
when recorded mail to:**

Michael Houlemard
Executive Officer
Fort Ord Reuse Authority
920 2nd Avenue - Suite A
Marina, CA 93933

Space Above This Line Reserved for Recorder's Use

Documentary Transfer Tax \$0-government agency, exempt from DTT

____ Computed on full value of property conveyed
____ Computed on full value less liens and encumbrances
remaining at time of sale

AGREEMENT

(Fort Ord Reuse Authority to the City of Marina)

THIS AGREEMENT is made and entered into this 12th day of December, 2017 ("Effective Date") between the **FORT ORD REUSE AUTHORITY** (the "Grantor") and the **CITY OF MARINA** (the "Grantee").

WITNESSETH THAT:

WHEREAS, on May 1, 2001, the Grantor and the Grantee entered into that certain Implementation Agreement (the "Implementation Agreement"); and

WHEREAS, pursuant to that certain agreement attached as Exhibit A ("Government Agreement"), the United States of America acting by and through the Deputy Assistant Secretary of the Army (Installations, Housing and Partnerships) pursuant to a delegation of authority from the Secretary of the Army, transferred fifteen (15) acre feet of potable water per year to the Grantor; and

WHEREAS, consistent with Amendment No. 7 to that certain *Memorandum of Agreement between the United States of America acting by and through the Secretary of the Army, United States Department of the Army, and the Fort Ord Reuse Authority for the Sale of Portions of the Former Fort Ord Located in Monterey County, California*, dated June 20, 2000, as amended (the "Agreement"), the purpose of such transfer of fifteen (15) acre feet of potable water per year is for use at the Veterans Transition Center of Monterey County located in

FORA/CITY OF MARINA AGREEMENT

Marina, California (the "VTCM") to support housing for veterans and related service programs, as more particularly described in Exhibit B attached hereto and incorporated by reference; and

WHEREAS, the Grantor desires to make available and the Grantee desires to use up to fifteen (15) acre feet per year of potable water at the VTCM for the Project (as defined below).

NOW, THEREFORE, the Grantor, for good and valuable consideration, does hereby authorize the Grantee to use up to fifteen (15) acre feet per year of potable water acquired by Grantor pursuant to the Government Agreement for use at the VTCM housing project and related veteran service programs ("Project"). Such water may be used only for the Project, and in the event that the VTCM does not require the use of all or any portion of such water for the Project, such water shall not be used for any other purpose and shall be available for reallocation by the Grantor. Such reallocation of water from Grantee to Grantor, if any, shall occur at the earliest possible time after Project approval by the City and based upon the water supply assessment for the Project.

A. **SEVERABILITY**. If any provision of this Agreement, or the application of it to any person or circumstance, is found to be invalid, the remainder of the provisions of this Agreement, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, shall not be affected thereby.

B. **IMPLEMENTATION AGREEMENT**. This Agreement is entered into pursuant to the Implementation Agreement and is subject to the terms and conditions of the Implementation Agreement.

C. **CAPTIONS**. The captions in this Agreement have been inserted solely for convenience of reference and are not a part of this Agreement and shall have no effect upon construction or interpretation.

D. **RECORDATION**. The parties shall cause this Agreement to be recorded in the official records of the County Recorder's Officer for the County of Monterey, California and a copy shall be provided for the official records of the Monterey County Water Resources Agency ("MCWRA").

E. **EXHIBITS**. The following listed Exhibits are made a part of this Agreement:

Exhibit A: Government Agreement
Exhibit B: Legal Description of the VTCM

[Signature Pages Follow]

FORA/CITY OF MARINA AGREEMENT

IN WITNESS WHEREOF, the GRANTOR has caused this Agreement to be executed in its name by the Executive Officer as of the Effective Date set forth above.

FORT ORD REUSE AUTHORITY
By: *Michael A. Houlemard, Jr.*
Michael A. Houlemard, Jr.
Executive Officer

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

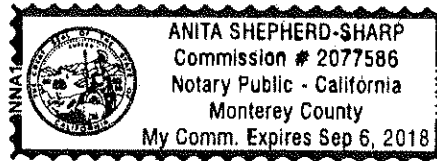
State of California)
County of Monterey)

On 12-12-17 before me, Anita Shepherd-Sharp, Notary Public, (name of notary public) personally appeared Michael A. Houlemard, Jr. who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and who acknowledged to me that he executed the same in his authorized capacity, and by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the state of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Anita Shepherd-Sharp



FORA/CITY OF MARINA AGREEMENT

ACCEPTANCE:

IN WITNESS WHEREOF, the GRANTEE has caused this Agreement to be executed in its name as of the Effective Date set forth above.

CITY OF MARINA

By: *[Signature]*
Name: LAYNE CONLEY
Title: CITY MANAGER

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Monterey)

On 12-12-17 before me, Anita Shepherd-Sharp, Notary Public (name of notary public) personally appeared Layne Long who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and who acknowledged to me that he executed the same in his authorized capacity, and by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the state of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Anita Shepherd-Sharp

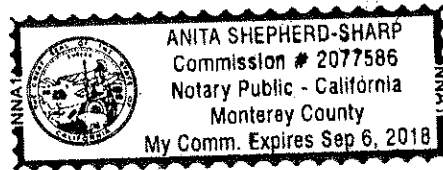


Exhibit "A"

Government/Authority Water Agreement

**AMENDMENT NO. 7
TO THE MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES OF AMERICA
ACTING BY AND THROUGH
THE SECRETARY OF THE ARMY
UNITED STATES DEPARTMENT OF THE ARMY
AND
THE FORT ORD REUSE AUTHORITY
FOR THE SALE OF PORTIONS OF THE FORMER FORT ORD
LOCATED IN MONTEREY COUNTY, CALIFORNIA**

THIS AMENDMENT NO. 7 (“Amendment No. 7”) to the Memorandum of Agreement between the United States of America acting by and through the Secretary of the Army, United States Department of the Army, and the Fort Ord Reuse Authority for the Sale of Portions of the Former Fort Ord Located in Monterey County, California dated June 20, 2000 (“Agreement”) is entered into on this 5th day of January 2018 ~~2017~~ by and between **THE UNITED STATES OF AMERICA**, acting by and through the Department of the Army (“Government”), and **THE FORT ORD REUSE AUTHORITY**, recognized as the local redevelopment authority for the former Fort Ord, California, by the Office of Economic Adjustment on behalf of the Secretary of Defense (“Authority”). The Government and the Authority are sometimes referred to herein collectively as a “Party” or, collectively, as the “Parties.”

RECITALS

WHEREAS, the Parties did enter into the Agreement for the Economic Development Conveyance (“EDC”) to the Authority of a portion of the former Fort Ord, California (“Property”) pursuant to Section 2905(b)(4) of the Defense Base Closure and Realignment Act of 1990, as amended, and the implementing regulations of the Department of Defense (32 CFR Part 174); and

WHEREAS, pursuant to Article 5.02 of the Agreement, the Government reserved 1,729 acre feet per year of water exclusively for Government use (“Government Water Rights”); and

WHEREAS, pursuant to Amendment No. 1 to the Agreement dated October 23, 2001, that certain Exchange Agreement Between the City of Seaside and the Army dated May 9, 2008, and other Government actions, the Government reduced its reserved Government Water Rights to 1,582 acre feet per year of Government Water Rights, and such reservation was further reduced to 1,577 acre feet per year pursuant to Amendment No. 6 to the Agreement dated July 29, 2014; and

WHEREAS, pursuant to Article 5.02 of the Agreement, the Authority is granted the right of first refusal to negotiate with the Government for use of the Government Water Rights not utilized by the Government (“Unutilized Government Water Rights”); and

WHEREAS, the Government has determined that it has such Unutilized Government Water Rights within the meaning of the Agreement; and

WHEREAS, the Authority desires to have permanent access to fifteen (15) acre feet per year of Unutilized Government Water Rights for purposes of assigning such fifteen (15) acre feet per year of Unutilized Government Water Rights (the “VTCM Water Rights”) to the City of Marina, California (the “City”) to support housing for veterans and related service programs at the Veterans Transition Center of Monterey County, a non-profit organization located in the City (“VTCM”); and

WHEREAS, the Government desires to make the VTCM Water Rights available to the Authority in exchange for the Authority making such VTCM Water Rights available to the City.

NOW THEREFORE, in consideration of the foregoing water rights and the respective representations, agreements, covenants and conditions herein contained, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

AGREEMENTS

Article 1. Availability of VTCM Water Rights:

1.01. Out of the Government’s Unutilized Government Water Rights, the Government shall assign to the Authority, and its successors and assigns, the right to use up to fifteen (15) acre feet of potable water per year pursuant to the Government/Authority Water Agreement in substantially the form attached hereto as Exhibit “A” to this Amendment No. 7.

1.02. The Authority shall make such fifteen (15) acre feet of potable water per year available to the City for use at the VTCM housing project and related veteran service programs pursuant to an Authority/City Water Agreement in substantially the form attached hereto as Exhibit “B” to this Amendment No. 7.

Article 2. Closing:

2.01. Requirements for Closing: The transfer of water rights (the “Closing”) shall occur as follows:

a. Time and Place. The Closing shall take place within thirty (30) days following the execution of this Amendment No. 7. If Closing does not occur within one

year of the execution of this Amendment No. 7, this Amendment No. 7 shall be void, and the Parties shall have no further obligations to each other under this Amendment No. 7.

- b. Army Deliveries. The Army shall deliver to the Authority:
 - (i) Executed signature page for the Government/Authority Water Agreement in substantially the form set forth in Exhibit "A" to Amendment No. 7; and
 - (ii) Such additional documents as might be required by California law, subject to applicable Federal law.

- c. Authority Deliveries. The Authority shall:
 - (i) Accept the Government/Authority Water Agreement in substantially the form set forth in Exhibit "A" to Amendment No. 7;
 - (ii) Execute the Authority/City Water Agreement in substantially the form set forth in Exhibit "B" to Amendment No. 7;
 - (iii) Obtain the City's acceptance of the Authority/City Water Agreement in substantially the form set forth in Exhibit "B" to Amendment No. 7;
 - (iv) Record the Government/Authority Water Agreement and the Authority/City Water Agreement described above in the official land records of Monterey County and the official records of the Monterey County Water Resources Agency;
 - (v) Deliver copies of the recorded Government/Authority Water Agreement and Authority/City Water Agreement to the Government and the City; and
 - (vi) Prepare such additional documents as might be required by California law, or as may reasonably be required by the Parties.

Article 3. Survival and Benefit:

- a. Unless defined separately, the terms used in this Amendment No. 7 shall be the same as used and defined in the Agreement, as amended.

- b. Except as set forth herein, and unless modified specifically by this Amendment No. 7, the terms and conditions contained in the Agreement, as amended, shall remain binding upon the Parties and their respective successors and assigns as set forth in the Agreement, as amended.

Article 4. Exhibits:

The following exhibits are attached and made a part hereof:

Exhibit "A": Government/Authority Water Agreement

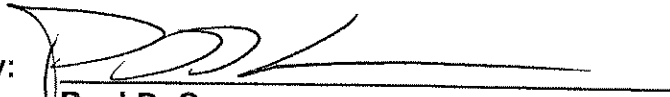
Exhibit "B": Authority/City Water Agreement

[Signature Page Follows]

In Witness Whereof, the Parties, intending to be legally bound, have caused their duly authorized representatives to execute and deliver this Amendment No. 7 as of the date first above written.

**UNITED STATES OF AMERICA,
Acting by and through the Department of the Army**

By:


Paul D. Cramer

Deputy Assistant Secretary of the Army
(Installations, Housing and Partnerships)

**FORT ORD REUSE AUTHORITY
LOCAL REDEVELOPMENT AUTHORITY**

By:


Michael A. Houlemard, Jr.
Executive Officer

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Monterey)

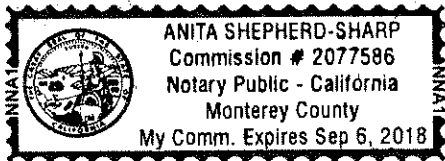
On December 13, 2017 before me, Anita Shepherd-Sharp, Notary Public
Date Here Insert Name and Title of the Officer

personally appeared Michael Houlemard
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Anita Shepherd-Sharp
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____ Document Date: _____

Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

Corporate Officer — Title(s): _____

Partner — Limited General

Individual Attorney in Fact

Trustee Guardian or Conservator

Other: _____

Signer Is Representing: _____

Signer's Name: _____

Corporate Officer — Title(s): _____

Partner — Limited General

Individual Attorney in Fact

Trustee Guardian or Conservator

Other: _____

Signer Is Representing: _____

2018007761

Stephen L. Vagnini
Monterey County Clerk-Recorder

02/23/2018 04:01 PM

Recorded at the request of:
FORT ORD REUSE AUTHORITY

Titles: 1 Pages: 70

Fees: \$0.00
Taxes: \$0.00
AMT PAID: \$0.00

**FORT ORD REUSE AUTHORITY
OFFICIAL BUSINESS
REQUEST DOCUMENT TO BE
RECORDED
AND EXEMPT FROM RECORDING FEES
PER GOVERNMENT CODE 6103**



**Recording requested by and
when recorded mail to:**

Michael A. Houlemard, Jr.
Executive Officer
Fort Ord Reuse Authority
920 2nd Avenue - Suite A
Marina, CA 93933

Space Above This Line Reserved for Recorder's Use

Documentary Transfer Tax \$0-government agency, exempt from DTT
____ Computed on full value of property conveyed
____ Computed on full value less liens and encumbrances
remaining at time of sale

**AGREEMENT
(Army to the Fort Ord Reuse Authority)**

THIS AGREEMENT is made and entered into this 5th day of January, 2018 ("Effective Date") between the **UNITED STATES OF AMERICA**, acting by and through the Deputy Assistant Secretary of the Army (Installations, Housing and Partnerships), pursuant to a delegation of authority from the **SECRETARY OF THE ARMY** (the "Grantor"), and the **FORT ORD REUSE AUTHORITY** (the "Grantee").

WITNESSETH THAT:

WHEREAS, Grantor and Grantee have entered into that certain *Memorandum of Agreement between the United States of America acting by and through the Secretary of the Army, United States Department of the Army, and the Fort Ord Reuse Authority for the Sale of Portions of the Former Fort Ord Located in Monterey County, California*, dated June 20, 2000, as amended (the "Agreement"); and

ARMY/FORA AGREEMENT IN ACCORDANCE WITH AMENDMENT NO. 7

WHEREAS, on _____, 2016, Grantor and Grantee entered into that certain Amendment No. 7 to the Agreement ("Amendment No. 7"); and

WHEREAS, pursuant to Amendment No. 7 to the Agreement, Grantor agreed to transfer to Grantee fifteen (15) acre feet of potable water per year for purposes of Grantee making such fifteen (15) acre feet of water per year available to the City of Marina, California (the "City") for use at the Veterans Transition Center of Monterey County located in Marina, California, as more particularly described in Exhibit A attached hereto and incorporated by reference (the "VTCM"); and

WHEREAS, the Grantor desires to transfer and the Grantee desires to acquire such fifteen (15) acre feet of water per year for use by (i) the City of Marina, California at the VTCM housing project, and/or (ii) veteran service programs.

NOW, THEREFORE, the Grantor, for good and valuable consideration, does hereby **remit, release, and forever quitclaim** unto the Grantee, its successors and assigns, all such interest, rights, title, and claim as the Grantor has in and to the fifteen (15) acre feet per year of potable water, being a portion of its Water Rights, as hereinafter defined.

I. GENERAL PROVISIONS

A. **WATER RIGHTS.** Grantor controlled six thousand, six hundred (6,600) acre-feet of certain water rights ("Water Rights") pursuant to that certain *County Agreement No. A-06404, between Grantor and Monterey County Water Resources Agency* ("MCWRA"), dated September 21, 1993 ("Water Agreement"), which Water Agreement is attached hereto and made a part hereof as Exhibit B. Pursuant to Section 4.i of the Water Agreement, the MCWRA agreed that Grantor could transfer Water Rights to a successor, and Section 7 of the Water Agreement provides that the Water Agreement shall be binding and shall inure to the benefit of the non-federal successors and assigns of the Grantor's interest in the former Fort Ord.

B. **TRANSFERABILITY OF WATER RIGHTS.** As reflected in the letter attached as Exhibit C hereto, the MCWRA confirms the transferability of this portion of the Grantor's Water Rights and consents to the permanent transfer of the fifteen (15) acre feet per year of Grantor's Water Rights to Grantee as provided for in this Agreement for the perpetual benefit of Grantee and Grantee's successors and assigns ("Grantee Water Rights").

C. **REPRESENTATIONS.** Grantor represents that it controls the Grantee Water Rights and that these Grantee Water Rights are not subject to any lien, claim or encumbrance. Grantor has not alienated, encumbered, transferred, optioned, leased,

assigned, or otherwise conveyed its interest or any portion of its interest in the Grantee Water Rights to be transferred to Grantee as provided for in this Agreement.

D. SEVERABILITY. If any provision of this Agreement, or the application of it to any person or circumstance, is found to be invalid, the remainder of the provisions of this Agreement, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, shall not be affected thereby.

E. NO FORFEITURE. Nothing contained herein will result in a forfeiture or reversion of title in any respect.

F. CAPTIONS. The captions in this Agreement have been inserted solely for convenience of reference and are not a part of this Agreement and shall have no effect upon construction or interpretation.

G. RECORDATION. The parties shall cause this Agreement to be recorded in the official records of the County Recorder's Officer for the County of Monterey, California and a copy shall be provided for the official records of MCWRA.

II. LIST OF EXHIBITS

The following listed Exhibits are made a part of this Agreement:

- Exhibit A: Legal Description of VTCM
- Exhibit B: Water Agreement
- Exhibit C: MCWRA Letter

[Signature Pages Follows]

FORT ORD REUSE AUTHORITY

By: _____
Michael A. Houlemard, Jr.
Executive Officer

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Monterey)

On _____ before me, _____, (name of notary public) personally appeared Michael A. Houlemard, Jr. who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and who acknowledged to me that he executed the same in his authorized capacity, and by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

Exhibit "B"

Authority/City Water Agreement

**FORT ORD REUSE AUTHORITY
OFFICIAL BUSINESS
REQUEST DOCUMENT TO BE
RECORDED
AND EXEMPT FROM RECORDING FEES
PER GOVERNMENT CODE 6103**

**Recording requested by and
when recorded mail to:**

Michael Houlemard
Executive Officer
Fort Ord Reuse Authority
920 2nd Avenue - Suite A
Marina, CA 93933

Space Above This Line Reserved for Recorder's Use

Documentary Transfer Tax \$0-government agency, exempt from DTT
_____ Computed on full value of property conveyed
_____ Computed on full value less liens and encumbrances
_____ remaining at time of sale

**AGREEMENT
(Fort Ord Reuse Authority to the City of Marina)**

THIS AGREEMENT is made and entered into this _____ day of August, 2016 (“Effective Date”) between the **FORT ORD REUSE AUTHORITY** (the “Grantor”) and the **CITY OF MARINA** (the “Grantee”).

WITNESSETH THAT:

WHEREAS, on May 1, 2001, the Grantor and the Grantee entered into that certain Implementation Agreement (the “Implementation Agreement”); and

WHEREAS, pursuant to that certain agreement attached as Exhibit A (“Government Agreement”), the United States of America acting by and through the Deputy Assistant Secretary of the Army (Installations, Housing and Partnerships) pursuant to a delegation of authority from the Secretary of the Army, transferred fifteen (15) acre feet of potable water per year to the Grantor; and

WHEREAS, consistent with Amendment No. 7 to that certain Memorandum of Agreement between the United States of America acting by and through the Secretary of the Army, United States Department of the Army, and the Fort Ord Reuse Authority for the Sale of Portions of the Former Fort Ord Located in Monterey County, California, dated June 20, 2000, as amended (the “Agreement”), the purpose of such transfer of fifteen (15) acre feet of potable water per year is for use at the Veterans Transition Center of Monterey County located in Marina, California (the “VTCM”) to support housing for

veterans and related service programs, as more particularly described in Exhibit B attached hereto and incorporated by reference; and

WHEREAS, the Grantor desires to make available and the Grantee desires to use up to fifteen (15) acre feet per year of potable water at the VTCM for the Project (as defined below).

NOW, THEREFORE, the Grantor, for good and valuable consideration, does hereby authorize the Grantee to use up to fifteen (15) acre feet per year of potable water acquired by Grantor pursuant to the Government Agreement for use at the VTCM housing project and related veteran service programs ("Project"). Such water may be used only for the Project, and in the event that the VTCM does not require the use of all or any portion of such water for the Project, such water shall not be used for any other purpose and shall be available for reallocation by the Grantor. Such reallocation of water from Grantee to Grantor, if any, shall occur at the earliest possible time after Project approval by the City and based upon the water supply assessment for the Project.

A. **SEVERABILITY**. If any provision of this Agreement, or the application of it to any person or circumstance, is found to be invalid, the remainder of the provisions of this Agreement, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, shall not be affected thereby.

B. **IMPLEMENTATION AGREEMENT**. This Agreement is entered into pursuant to the Implementation Agreement and is subject to the terms and conditions of the Implementation Agreement.

C. **CAPTIONS**. The captions in this Agreement have been inserted solely for convenience of reference and are not a part of this Agreement and shall have no effect upon construction or interpretation.

D. **RECORDATION**. The parties shall cause this Agreement to be recorded in the official records of the County Recorder's Officer for the County of Monterey, California and a copy shall be provided for the official records of the Monterey County Water Resources Agency ("MCWRA").

E. **EXHIBITS**. The following listed Exhibits are made a part of this Agreement:

- Exhibit A: Government Agreement
- Exhibit B: Legal Description of the VTCM

[Signature Pages Follow]

IN WITNESS WHEREOF, the **GRANTOR** has caused this Agreement to be executed in its name by the Executive Officer as of the Effective Date set forth above.

FORT ORD REUSE AUTHORITY

By: _____
Michael A. Houlemard, Jr.
Executive Officer

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Monterey)

On _____ before me, _____, (name of notary public) personally appeared Michael A. Houlemard, Jr. who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and who acknowledged to me that he executed the same in his authorized capacity, and by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

ACCEPTANCE:

In Testimony Whereof witness the signature of the City of Marina as of the Effective Date set forth above and hereby accepts and approves this Agreement for itself, its successors and assigns, and agrees to all the conditions, reservations, restrictions, and terms contained therein.

CITY OF MARINA

By: _____
Name:
Title:

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)

County of Monterey)

On _____, before me, _____, (name of notary public), personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

WHEN RECORDED MAIL TO:

VETERANS TRANSITION CENTER
c/o RONN RYGG
P.O. Box 1333
MARINA, CA 93933-1333

Bruce A. Reeves
Monterey County Recorder
Recorded at the request of
Filor

CRPATTJ
10/19/1998
11:00:59

DOCUMENT: 9872025

Titles: 1 / Pages: 21

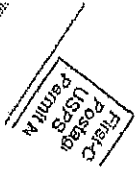


Fees.... 68.00
Taxes...
Other... 23.00
AMT PAID 91.00

98009872025*

TITLE OF DOCUMENT

QUIT CLAIM DEED FOR PROPERTY AT FTORD
TRANSFERRED TO VETERANS TRANSITION CENTER
UNDER THE MCKINNEY ACT



Contract No. 09-CA-2115

QUITCLAIM DEED

THIS INDENTURE, made this 2nd day of October, 1998, between the United States of America, acting through the Secretary of Health and Human Services, by the Chief, Real Property Branch, Division of Property Management, Program Support Center, U.S. Department of Health and Human Services, under and pursuant to the power and authority provided by the Federal Property and Administrative Services Act of 1949 (40 U.S.C. § 484[k]), as amended (hereinafter called the Act), and regulations promulgated pursuant thereto at 45 C.F.R. Part 12, and the Stewart B. McKinney Homeless Assistance Act (42 U.S.C. § 11411), as amended, and regulations promulgated thereto at 45 C.F.R. Part 12a, and the Veterans Transition Center (hereinafter called the Grantee).

WITNESSETH

WHEREAS, by letter dated January 20, 1998, from the Department of the Army, certain surplus property consisting of 10.80 acres, more or less, hereinafter described (hereinafter called the Property), was assigned to the Department of Health and Human Services (hereinafter called the Grantor) for disposal upon the recommendation of the Grantor that the Property is needed for health purposes in accordance with the provisions of the Act; and

WHEREAS, said Grantee has made a firm offer to purchase the Property under the provisions of the Act, has made application for a public benefit allowance, and proposes to use the Property for said purposes; and

WHEREAS, the Grantor has accepted the offer of the Grantee,

NOW, THEREFORE, the Grantor, for and in consideration of the foregoing and of the observance and performance by the Grantee of the covenants, considerations and restrictions hereinafter contained and other good and valuable consideration, the receipt of which is hereby acknowledged, has remised, released and quitclaimed and by these presents does remise, release and quitclaim to the Grantee, its successors and assigns, all right, title, interest, claim and demand, excepting and reserving such rights as may arise from the operation of the conditions subsequent hereinafter expressed, which the United States of America has in and to the Property, situate, lying, and being in the County of Monterey, State of California, and more particularly described as follows:

PARCEL 1

All of that certain 3.994 acre Parcel 1 shown on map filed in Volume 19 of Surveys at page 126, records of said county, described as follows:

Beginning at a 1" diameter iron pipe tagged LS 5992 at the northeasterly corner of said Parcel 1, said point being in the southerly line of 12th Street, a 60 foot wide street at this point; thence leave said street line and along the boundary line of said Parcel 1

1. S 4°37'12" W, 585.05 feet at 282.76 feet a 3/4" line pipe tagged LS 5992, 585.05 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
2. N 85°35'35" W, 390.85 feet to a 3/4" diameter iron pipe tagged LS 5992 in the easterly line of 11th Street, a 45 foot wide street at this point; thence along said street line, non-tangentially
3. curving to the left on a circular arc of 165 foot radius (the center of the circle of which said arc is a part bears N 50°20'57" W) through an angle of 7°51'06" for a distance of 22.61 feet to a 3/4" diameter iron pipe tagged LS 5992 at a point of compound curvature; thence tangentially
4. curving to the left on a circular arc of 1015 foot radius (the center of the circle of which said arc is a part bears N 58°12'03" W) through an angle of 23°51'21" for a distance of 422.61 feet to a chiseled "V" in concrete; thence non-tangentially
5. N 8°22'24" E, 43.52 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
6. N 2°51'38" E, 86.74 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
7. N 39°05'31" E, 25.17 feet to a 3/4" diameter iron pipe tagged LS 5992 in the southerly line of said 12th Street; thence leave said line of 11th Street and along said last mentioned line
8. S 88°16'30" E, 198.89 feet to a 3/4" diameter iron pipe tagged LS 5992; thence tangentially

9. curving to the right of a circular arc of 1142 feet radius through an angle of $2^{\circ}47'53''$, for a distance of 55.77 feet to the point of beginning.

Containing an area of 3.994 acres of land, more or less.

PARCEL 2

All of that certain 1.042 acre Parcel 2 shown on map filed in Volume 19 of Surveys at page 126, records of said county, described as follows:

Beginning at a 3/4" diameter iron pipe tagged LS 5992 at the northeasterly corner of said Parcel 2, said point being in the westerly line of 3rd Avenue, a 50 foot wide road at this point; thence along said road line and the boundary of said Parcel 2

1. S $16^{\circ}45'08''$ W, 299.60 feet to a 3/4" diameter iron pipe tagged LS 5992; thence leave said road line
2. N $73^{\circ}14'52''$ W, 85.92 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
3. N $16^{\circ}14'58''$ E, 32.73 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
4. N $73^{\circ}06'18''$ W, 73.23 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
5. N $16^{\circ}40'58''$ E, 266.65 feet to a 3/4" diameter iron pipe tagged LS 5992; thence
6. S $73^{\circ}14'52''$ E, 159.76 feet to the point of beginning.

Containing an area of 1.042 acres of land, more or less.

PARCELA

Real property located in Parcel 1, Fort Ord Military Reservation, as shown on the map filed in Volume 19 of Surveys Page 1, Monterey County Records, being more particularly described as follows:

Beginning at a found 6 inch diameter concrete monument with metal cap marked "R.E. 515" on the northerly property line of said Parcel 1 as shown on said map; thence, leaving said northerly line, S 18°28'28" E, 3288.69 Feet to the **True Point of Beginning**; thence the following courses:

- 1) N 52°26'36" W, 542.08 Feet; thence
- 2) S 39°30'51" W, 173.70 Feet; thence
- 3) S 50°29'09" E, 548.34 Feet; thence
- 4) N 37°33'34" E, 192.33 Feet to the **True Point of Beginning**.

Herein described parcel contains 2.29 Acres, more or less.

The bearing S 57°42'54" E for the northerly property line of said Parcel 1 was taken as the basis of bearings for this description.

PARCEL B

Real property located in Parcel 1, Fort Ord Military Reservation, as shown on the map filed in Volume 19 of Surveys Page 1, Monterey County Records, being more particularly described as follows:

Beginning at a found 6 inch diameter concrete monument with metal cap marked "R.E. 515" on the northerly property line of said Parcel 1 as shown on said map; thence, leaving said northerly line, S 12°51'41" E, 3538.86 Feet to the **True Point of Beginning**; thence the following courses:

- 1) N 37°33'24" E, 165.00 Feet; thence
- 2) N 50°29'09" W, 762.58 Feet; thence
- 3) S 78°38'18" W, 253.46 Feet; thence
- 4) S 52°26'36" E, 928.69 Feet to the **True Point of Beginning**.

Herein described parcel contains 3.48 Acres, more or less.

The bearing S 57°42'54" E for the northerly property line of said Parcel 1 was taken as the basis of bearings for this description.

RESERVING unto the Department of the Army, all transferable easements, interests, and access rights for all Government and non-Government-owned utility systems on the Property; and

SUBJECT to any and all other valid and existing recorded and unrecorded outstanding liens, licenses, leases, easements, and any other encumbrances made for the purpose of roads, streets, railroads, utility systems, rights-of-way, pipelines, and/or covenants, exceptions, interest, liens, reservations, and agreements of record and applicable restrictions including building heights and land use; and

The Grantee, its successors and assigns are herein advised that the Property has been assigned Department of Defense Environmental Condition Category 3. The Property has been determined to be suitable for transfer under CERCLA § 120(h)(3).

**COMPREHENSIVE ENVIRONMENTAL RESPONSE,
COMPENSATION AND LIABILITY ACT (CERCLA) NOTICE.**

The Department of the Army has concluded that all remedial action under CERCLA necessary to protect human health and the environment with respect to hazardous substances remaining on the Property has been taken. Pursuant to CERCLA § 120(h)(4)(D)(i) and (ii), the Department of the Army hereby warrants that any response action or corrective action that it is required to undertake after the date of this conveyance by applicable law shall be conducted by the Department of the Army. The United States of America hereby reserves a right of access to the Property as may be necessary to carry out a response action on adjoining property. The Department of the Army shall give the Grantee and its successors and assigns, reasonable notice of its response action or corrective action requiring access to the Property and the Department of the Army shall, consistent with feasible methods for complying with these actions, endeavor to minimize the disruption of use of the Property.

FEDERAL FACILITIES AGREEMENT (FFA). By accepting this Deed, the Grantee acknowledges that the Grantor has provided the Grantee with a copy of the Federal Facilities Agreement (FFA) between the Grantor and the U.S. Environmental Protection Agency (EPA); dated July 23, 1990. The Department of the Army shall provide the Grantee with a copy of any future amendments to the FFA.

a. The Department of the Army, Environmental Protection Agency (EPA), and the State of California Department of Toxic Substances Control, and their agents, employees, and contractors, shall have access to and over the Property as may be necessary for any investigation, response, or corrective action pursuant to CERCLA or the FFA found to be necessary before or after the date of this Deed on the Property or on other property comprising the Fort Ord National Priorities List (NPL) site. This reservation includes the right of access to and use of, to the extent permitted by law, any available utilities at reasonable cost to the United States of America.

b. In exercising the rights hereunder, the Department of the Army and the State of California shall give the Grantee or its successors or assigns reasonable notice of actions taken on the Property under the FFA and shall, to the extent reasonable, consistent with the FFA, and at no additional cost to the United States of America, endeavor to minimize the disruption to the Grantee's, its successors' or assigns' use of the Property.

c. The Grantee agrees that notwithstanding any other provision of this Deed, the United States of America assumes no liability to the Grantee, its successors, or assigns, or any other person should implementation of the FFA interfere with the use of the Property. The Grantee and its successors and assigns shall have no claim on account of any such interference against the United States of America or the State of California (State) or any officer, agent, employee, or contractor thereof.

d. Prior to the determination by the United States of America that all remedial action is complete under CERCLA clean-up at the Fort Ord NPL site, (1) the Grantee, its successors and assigns, shall not undertake activities on the Property that would interfere with or impede the completion of the CERCLA clean-up at the Fort Ord NPL site and shall give prior written notice to the Department of the Army, EPA, and the State of any construction, alterations, or similar work on the Property that may interfere with or impede said clean-up; and (2) the Grantee shall comply with any institutional controls established or put in place by the Department of the Army relating to the Property which are required by any record of decision (ROD) or amendments thereto, related to the Property, which ROD was issued by the Army pursuant to the National Environmental Policy Act (NEPA) or the FFA

before or after the date of this Deed. Additionally, the Grantee shall ensure that any leasehold it grants in the Property or any fee interest conveyance of any portion of the Property, all of which must have the prior consent of the Grantor, provides for legally binding compliance with the institutional controls required by any such ROD.

e. For any portion of the Property subject to a response action under the CERCLA or the FFA, prior to the conveyance of an interest therein, the Grantee shall include in all conveyances provisions for allowing the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA on said portion of the Property and shall notify the Department of the Army, EPA, and the State by certified mail, at least sixty (60) days prior to any such conveyance of an interest in said property, which notice shall include a description of said provisions allowing for the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA.

f. Prior to the determination by the Department of the Army that all remedial action under CERCLA and the FFA is complete under CERCLA and the FFA for the Fort Ord NPL site, the Grantee and all subsequent transferees of an interest in any portion of the subject Property will provide copies of the instrument evidencing such transaction to the State, EPA, and the Department of the Army by certified mail within fourteen (14) days after the effective date of such transaction.

g. The Grantee and all subsequent transferees shall include the provisions of this section in all subsequent leases, transfer, or conveyance documents relating to the Property for any portion thereof that are entered into prior to a determination by the Department of the Army that all remedial action is complete at the Fort Ord NPL site. The provisions of this section shall bind and run with the land and are forever hereinafter enforceable by the Department of the Army, EPA or the State.

NOTICE OF THE PRESENCE OF ASBESTOS

a. The Grantee, its successors and assigns are hereby informed and do acknowledge that friable and nonfriable asbestos or

asbestos-containing material (ACM) have been found on the Property, as described in the EBS and referenced asbestos surveys. A numerical condition assessment rating from 1 to 13 (with the rating of 1 indicating the highest concern) was assigned. The ACM does not present a "release or threat of release into the environment" as defined by CERCLA.

b. Building No. 2798 contains friable and nonfriable ACM in the form of pipe insulation with localized damage, both rated 5 (immediate repair, management with 1-year cycle recommended). Building No. 2990 contains nonfriable ACM, in the form of flexible HVAC tubing with a rating of 2. It is in good condition, but because the HVAC tubing could potentially release asbestos into the air, immediate repair or short-term removal is recommended. The remaining buildings contain friable and nonfriable ACM rated 6 to 13. Detailed information is contained in the EBS and referenced asbestos surveys.

c. The Grantor has agreed to convey said buildings and structures to the Grantee, prior to remediation of the asbestos hazards described above, in reliance upon the Grantee's expressed representation and promise that the Grantee will, prior to use or occupancy of said buildings, control or abate ACM in said buildings or the portions thereof containing friable asbestos, disposing of ACM in accordance with applicable laws and regulations. With respect to the friable asbestos in said buildings and structures, the Grantee specifically agrees to be responsible for any future remediation of ACM, as identified in the EBS and referenced survey, or found within buildings or structures on the Property.

The Grantee, its successors and assigns covenant and agree that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos; and that the Grantor assumes no liability for any future remediation of asbestos or damages for personal injury, illness, disability, or death, to the Grantee, its successors or assigns, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos or ACM on the Property, whether the Grantee, its successors or assigns have properly warned or failed to properly warn the individual(s) injured. The

Grantee assumes no liability for damages for personal injury, illness, disability, death or property damage arising from (i) any exposure or failure to comply with any legal requirements applicable to asbestos on any portion of the Property arising prior to the Grantor's conveyance of such portion of the Property to the Grantee pursuant to this Deed, or (ii) any disposal, prior to the Grantor's conveyance of the Property of any asbestos or ACM. The Grantee acknowledges that the consideration for the conveyance of the Property was negotiated based upon the Grantee's agreement to the provisions contained in this Subsection.

d. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard, building construction workplaces have been associated with asbestos-related diseases. Both Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers. Both OSHA and EPA have determined that such exposure increases the risk of asbestos-related diseases, which include certain cancers and which can result in disability or death.

e. The Grantee acknowledges that it has inspected the property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto prior to accepting the responsibilities imposed upon the Grantee under this section. The failure of the Grantee to inspect, or to be fully informed as to the asbestos condition of all or any portion of the property offered, will not constitute grounds for any claim or demand against the United States, or any adjustment under this Deed.

f. The Grantee further agrees to indemnify and hold harmless the Grantor, its officers, agents and employees, from and against all suits, claims, demands or actions, liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, exposure to asbestos on any portion of the Property after this conveyance of the Property to the Grantee or any future remediation or abatement of asbestos or the need therefor. The Grantee's obligation hereunder shall apply whenever the United States incurs costs or liabilities for actions giving rise to liability under this section.

ENDANGERED SPECIES. The Grantee and its successors and assigns shall comply with the following requirements, as applicable, relative to endangered species:

a. The Property is within a Habitat Management Plan (HMP) Development Area. No resource conservation requirements are associated with the HMP for these parcels. However, small pockets of habitat may be preserved within and around the Property.

b. The Biological Opinion identified sensitive biological resources that may be salvaged for use in restoration activities within reserve areas, and allows for development of the Property.

c. The HMP does not exempt the Grantee or its successors or assigns from complying with the environmental regulations enforced by the Federal, State, or local agencies. These regulations could include obtaining the Endangered Species Act (ESA) (16 U.S.C. §§ 1531 - 1544 et seq.) Section 7 or Section 10(a) permits from the U. S. Fish and Wildlife Service (USFWS); complying with prohibitions against take of listed animals under ESA Section 9; complying with prohibitions against the removal of listed plants occurring on Federal land or the destruction of listed plants in violation of any state laws; complying with measures for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA, or California Environmental Quality Act (CEQA); and, complying with local land use regulations and restrictions.

d. The HMP serves as a management plan for both listed and candidate species.

e. Implementation of the HMP would be considered suitable mitigation for impacts to HMP species within HMP prevalent areas and would facilitate the USFWS procedures to authorize incidental take of these species by participating entities as required under ESA Section 10. No further mitigation will be required to allow development on the Property unless species other than HMP target species are proposed for listing or are listed.

f. The HMP does not authorize incidental take of any species listed as threatened or endangered under the ESA by entities acquiring land at the former Fort Ord. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for ESA Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. The definition of "take" under the ESA includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species. To apply for a Section 10(a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22[b]).

NOTICE OF THE PRESENCE OF LEAD-CONTAINING PAINT.

a. Every purchaser of any interest in residential real property (target housing) on which a residential dwelling was built prior to 1978 is notified that such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory. Lead poisoning also poses particular risk to pregnant women. The seller of any interest in target housing is required to provide the buyer with any information on lead-based paint hazards from risk assessments or inspections in the seller's possession and notify the buyer of any known lead-based paint hazards. A risk assessment or inspection for possible lead-based paint hazards is recommended prior to purchase. "Target housing" means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than six years of age resides or is expected to reside in such housing) or any zero-bedroom dwelling.

b. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is

contained in the "Community Environmental Response Facilitation Act Report, dated April 1994," which has been made available to the Grantee, and the Finding of Suitability to Transfer. No other records or reports pertaining to lead-based paint or lead-based paint hazards are available. The Grantee hereby acknowledges receipt of the information described in this paragraph and the Federally required lead-hazard pamphlet.

c. The Grantee acknowledges that it has received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards as required by law or regulation.

d. The Grantee and its successors and assigns shall not permit the occupancy of any target housing without first abating and eliminating lead-based paint hazards by treating any defective lead-based paint surface in accordance with all applicable laws and regulations. The Grantee and its successors and assigns shall be responsible for any remediation of lead-based paint hazards on the Property found to be necessary after this conveyance.

NOTICE OF THE PRESENCE OF CONTAMINATED GROUNDWATER. The groundwater beneath the Property may be contaminated with volatile organic compounds (VOCs). The maximum estimated total VOC concentration in the groundwater beneath the Property is 5 micrograms per liter. This notice is provided pursuant to CERCLA § 120(h)(1) and (3). A pump-and-treat groundwater remediation system is in place and shown to be operating properly and successfully. No well drilling or use of groundwater will be permitted on the Property. Neither the Grantee, its successors or assigns, nor any other person or entity acting for or on behalf of the Grantee, its successors or assigns, shall interfere with any response action being taken on the Property by or on behalf of the United States of America, or interrupt, relocate or otherwise interfere with any Remediation System now or in the future located on, over, through, or across an portion of the Property.

NOTICE OF THE POTENTIAL FOR THE PRESENCE OF ORDNANCE AND EXPLOSIVES (OE). OE investigations, consisting of the Archive Search Report and Supplement No. 1 (November 1994), Data Summary and Work Plan (February 1994), OE

Contractor After Action Reports (December 1994 and November 1995), working maps, Fort Ord Training Facilities Map, and associated interviews from various ordnance-related community relations activities identified no potential OE locations within or immediately adjacent to the Property. However, because this is a former military installation with a history of OE use, there is a potential for OE to be present on the Property. In the event the Grantee, its successors or assigns, should discover any ordnance on the Property, it shall not attempt to remove or destroy it, but shall immediately notify the local police department and the Directorate of Law Enforcement at the Presidio of Monterey.

AIR NAVIGATION RESTRICTION. The Monterey Airport and Marina Airport are in close proximity of the Property. The Grantee, by acceptance of this Deed, covenants and agrees for itself, its successors and assigns, and every successor in interest to the Property herein described, or any part thereof, that any construction or alteration is prohibited unless a determination of no hazard to air navigation is issued by the Federal Aviation Administration in accordance with Title 14, Code of Federal Regulations, Part 77, entitled "Objects Affecting Navigable Airspace." or under the authority of the Federal Aviation Act of 1958, as amended.

COASTAL ZONE MANAGEMENT ACT (CZMA). The Grantee recognizes that should any conflict arise between the provisions of the CZMA, 16 USC § 1451, et. Seq., and the terms of this document, the CZMA will take precedence. Notwithstanding any other provisions of this conveyance, the Grantor assumes no liability to the Grantee if implementation of the CZMA interferes with the Grantee's use of the Property. The Grantee shall have no claim on account of any such interference against the Grantor or any officer, agent, employee, or contractor thereof.

ANTI-DEFICIENCY ACT. The Army's obligation to pay or reimburse any money under this Deed is subject to the availability of appropriated funds, and nothing in this Deed shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

INDEMNIFICATION.

a. The Department of the Army recognizes its obligation to hold harmless, defend, and indemnify the Grantee and any successor, assignee, transferee, lender, or lessee of the Grantee or its successors and assigns, as required by Section 330 of the Department of Defense Authorization Act of 1993, as amended, and to otherwise meet its obligation under law.

b. The Grantee shall indemnify and hold the United States of America harmless from all claims, liability, loss, cost of environmental contamination, or damage arising out of or resulting from any improvements made to or work conducted on the Property conveyed herein by the Grantee, its agents, employees, or contractors prior to the date of this Deed, except where such claims, liability, loss, cost, environmental contamination, or damage is the result of negligence, gross negligence, or willful misconduct of the Department of the Army or its employees, agents, or contractors.

IMMUNITIES. The Grantee is not entitled to any of the immunities which the United States of America may have had in using the Property while it was part of Fort Ord, California. The Grantee is not exempt from acquiring the necessary permits and authorizations from, or from meeting the requirements of, the local, county, and state jurisdictions before using the Property for any purpose. The Property, immediately after conveyance to the Grantee, will be subject to all local county, and state laws, regulations and ordinances. The Grantee shall comply with the applicable environmental laws and regulations and all other Federal, state, and local laws, regulations, and standards that are or may become applicable to the Grantee's proposed activity on the Property. The Grantee shall be solely responsible for the fulfilling, at its own cost and expense, the requirements of the new governing authorities, independent of any existing permits or United States usages.

The conditions, restrictions, and covenants set forth above are a binding servitude on the herein conveyed property and will be deemed to run with the land in perpetuity.

TO HAVE AND TO HOLD the Property subject, however, to each of the following conditions subsequent, which shall be binding upon and enforceable against the Grantee, its successors and assigns, as follows:

1. That for a period of thirty (30) years from the date hereof the Property herein conveyed will be used continuously for health purposes in accordance with the proposed program and plan of the Grantee as set forth in its application dated the 28th day of January, 1998, amended on February 19, 1998, and for no other purpose.
2. That during the aforesaid period of thirty (30) years the Grantee will not resell, lease, mortgage, or encumber or otherwise dispose of any part of the Property or interest therein except as the Grantor or its successor in function may authorize in writing.
3. Where construction or major renovation is not required or proposed, the Property must be placed into use within twelve (12) months from the date of this deed. Where construction or major renovation is contemplated at the time of transfer, the Property must be placed into use within thirty-six (36) months from the date of this deed.
4. That one year from the date hereof and annually thereafter for the aforesaid period of thirty (30) years, unless the Grantor or its successor in function directs otherwise, the Grantee will file with the Grantor or its successor in function reports on the operation and maintenance of the Property and will furnish, as requested, such other pertinent data evidencing continuous use of the Property for the purposes specified in the above-identified application.
5. That during the aforesaid period of thirty (30) years the Grantee will at all times be and remain a tax-supported organization or a nonprofit institution, organization, or association exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986.
6. That, for the period during which the Property is used for the purpose for which the Federal assistance is hereby extended by the Grantor or for another purpose involving the provision of similar services or benefits, the Grantee hereby agrees that it will comply with the requirements of section 606 of the Act (40 U.S.C. § 476); the Fair Housing Act (42 U.S.C. § 3601-19) and implementing regulations; and, as applicable, Executive Order 11063 (Equal Opportunity in Housing) and implementing regulations; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d to d-4) (Nondiscrimination in Federally Assisted Programs) and implementing regulations; Title IX of the Education Amendments of 1972 (20 U.S.C. § 1681) and implementing regulations; the prohibitions against

discrimination on the basis of age under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07) and implementing regulations; the prohibitions against otherwise qualified individuals with handicaps under Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794) and implementing regulations, and all requirements imposed by or pursuant to the regulations of the Grantor (45 CFR Parts 12, 80, 84, 86, and 91) issued pursuant to said Acts and now in effect, to the end that, in accordance with said Acts and regulations, no person in the United States shall, on the ground of race, color, national origin, sex, age, or handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under the program and plan referred to in condition numbered 1 above or under any other program or activity of the Grantee, its successors or assigns, to which said Acts and regulations apply by reason of this conveyance.

In the event of a breach of any of the conditions subsequent set forth above, whether caused by the legal or other inability of the Grantee, its successors and assigns, to perform any of the obligations herein set forth, the Grantor or its successor in function will, at its option, have an immediate right of reentry thereon, and to cause all right, title, and interest in and to the Property to revert to the United States of America, and the Grantee, its successors and assigns, shall forfeit all right, title, and interest in and to the Property and to any and all of the tenements, hereditaments, and appurtenances thereunto belonging; PROVIDED, HOWEVER, that the failure of the Grantor or its successor in function to insist in any one or more instance upon complete performance of any of the said conditions subsequent shall not be construed as a waiver of or a relinquishment of the future performance of any of said conditions subsequent, but the obligations of the Grantee with respect to such future performance shall continue in full force and effect; PROVIDED FURTHER, that, in the event the Grantor or its successor in function fails to exercise its option to reenter the premises and to revert title thereto for any such breach of conditions numbered 1, 2, 3, 4, or 5 herein within thirty-one (31) years from the date of this conveyance, conditions numbered 1, 2, 3, 4, and 5 herein, together with all rights to reenter and revert title for breach of condition, will, as of that date, terminate and be extinguished; and PROVIDED FURTHER, that the expiration of conditions numbered 1, 2, 3, 4, and 5 and the right to reenter and revert title for breach thereof, will not affect the obligation of the Grantee, its successors and assigns, with respect to condition numbered 6 herein or the right reserved to the Grantor, or its successor in function, to reenter and revert title for breach of condition numbered 6.

The Grantee, by acceptance of this deed, covenants and agrees for itself, its successors and assigns, with respect to the Property -- which covenant shall attach to and run with the land -- that the Property will be used for only secular purposes.

The Grantee, by acceptance of this deed, covenants and agrees for itself, its successors and assigns, that in the event the Grantor exercises its option to revert all right, title, and interest in and to the Property to the Grantor, or the Grantee voluntarily returns title to the Property in lieu of a reverter, then the Grantee shall provide protection to and maintenance of the Property at all times until such time as the title is actually reverted or returned to and accepted by the Grantor. Such protection and maintenance shall, at a minimum, conform to the standards prescribed by the General Services Administration in FPMR 101-47.4913 (41 CFR Part 101) now in effect, a copy of which is attached to the Grantee's aforementioned application.

The Grantee, by acceptance of this deed, covenants and agrees for itself, its successors and assigns, with respect to the Property or any part thereof--which covenant shall attach to and run with the land for so long as the Property is used for a purpose for which Federal assistance is hereby extended by the Grantor or for another purpose involving the provision of similar services or benefits, and which covenant shall in any event, and without regard to technical classification or designation, legal or otherwise, be binding to the fullest extent permitted by law and equity, for the benefit of and in favor of and enforceable by the Grantor or its successor in function against the Grantee, its successors and assigns for the Property, or any part thereof--that it will comply with the requirements of section 606 of the Act (40 U.S.C. § 476); the Fair Housing Act (42 U.S.C. § 3601-19) and implementing regulations; Executive Order 11063 (Equal Opportunity in Housing) and implementing regulations; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d to d-4) (Nondiscrimination in Federally Assisted Programs) and implementing regulations; the prohibitions against discrimination on the basis of age under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07) and implementing regulations; and the prohibitions against otherwise qualified individuals with handicaps under Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794) and implementing regulations; and all requirements imposed by or pursuant to the regulations of the Grantor (45 CFR Parts 12, 80, 84, 86 and 91) issued pursuant to said Acts and now in effect, to the end that, in accordance with said Acts and regulations, no person in the United States shall, on the ground of race, color, national origin, sex, age, or handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under the program and plan referred to in condition numbered 1 above or under any other program or activity of the Grantee, its successors or assigns, to which such Acts and regulations apply by reason of this conveyance.

The Grantee, by acceptance of this deed, covenants and agrees for itself, its successors and assigns, that the Property is transferred on an "as is, where is," basis, without warranty of any kind, either expressed or implied, including as to the condition of the Property. The Grantee also covenants and agrees for itself, its successors and assigns, that the Grantor has no obligation to provide any additions, improvements, or alterations to the Property.

In the event title to the Property or any part thereof is reverted to the United States of America for noncompliance or is voluntarily reconveyed in lieu of reverter, the Grantee, its successors or assigns, at the option of the Grantor, or its successor in function, shall be responsible for and shall be required to reimburse the United States of America for the decreased value thereof that is not the result of reasonable wear and tear, an act of God, or alterations and conversions made by the Grantee, its successors or assigns, to adapt the property to the health use for which the property was transferred. The United States of America shall, in addition thereto, be reimbursed for such damage, including such costs as may be incurred in recovering title to or possession of the above-described property, as it may sustain as a result of such noncompliance.

The Grantee may secure abrogation of the conditions subsequent numbered 1, 2, 3, 4, and 5 herein by:

- a. Obtaining the consent of the Grantor, or its successor in function, therefor; and
- b. Payment to the United States of America of 1/360th of the percentage public benefit allowance granted of the fair market value as of the date of such requested abrogation, exclusive of the value of improvements made by the Grantee to the extent that they add to the value of that portion of the Property to be released, for each month of the period to be abrogated.

The Grantee, by acceptance of this deed, further covenants and agrees for itself, its successors and assigns, that in the event the Property or any part thereof is, at any time within the period of thirty (30) years from the date of this conveyance, sold, leased, disposed of, or used for purposes other than those designated in condition numbered 1 above without the consent of the Grantor, or its successor in function, all revenues therefrom or the reasonable value, as determined by the Grantor, or its successor in function, of benefits to the Grantee, deriving directly or indirectly from such sale, lease, disposal, or use, shall be considered to have been received and held in trust by the Grantee for the United States of America and shall be subject to the direction and control of the Grantor, or its successor in function; but the provisions of this paragraph shall not impair or affect the rights reserved to the Grantor under any other provision of this deed. The Grantee, its successors or assigns, shall be solely liable for all costs relating to any damage to property, personal injury, illness, disability, or death, of the Grantee, or of the Grantee's successors, assigns, employees, invitees, or any other person, including members of the general public, arising from or incident to the purchase, transportation, handling, storage, use, release, or disposal or other activity causing or leading to contact of any kind whatsoever with hazardous or toxic substances, during use of the property by said Grantee, its successors or assigns.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed as of the day and year first above written.

UNITED STATES OF AMERICA
Acting through the Secretary
of Health and Human Services

By: Brian J. Rooney
Brian J. Rooney
Chief, Real Property Branch
Division of Property Management
Administrative Operations Service
Program Support Center

ACKNOWLEDGMENT

STATE OF MARYLAND)
COUNTY OF MONTGOMERY) SS

On this 2nd day of October, 1998, before me the undersigned officer, personally appeared Brian J. Rooney, known to me to be the Chief, Real Property Branch, Division of Property Management, Department of Health and Human Services, and known to me to be the person who executed the foregoing instrument on behalf of the Secretary of Health and Human Services, for the United States of America, and acknowledged to me that he subscribed to the said instrument in the name of the Secretary of Health and Human Services and on behalf of the United States of America.

Witness my hand and official seal.

(SEAL)

Paula M. Samuel
Notary Public

My commission expires

March 10, 1999

ACCEPTANCE

The Veterans Transition Center hereby accepts this deed and thereby accepts and agrees to all the terms, covenants, conditions and restrictions contained therein.

By [Signature]

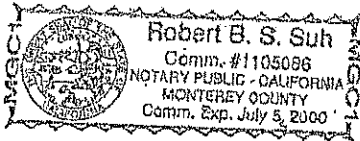
ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF MONTEREY) SS

On this 17th day of October, 1998, before me, Robert B.S. Suh a Notary Public in and for the City of Monterey, County of Monterey, State of California, personally appeared Thomas Griffin, known to me to be the Chairman, Board of Directors, Veterans Transitional Center of Monterey County, and known to me to be the person who executed the foregoing instrument on behalf of the Veterans Transition Center of Monterey County, and acknowledged to me that he executed the same as the free act and deed of the Board of Directors of the Veterans Transition Center of Monterey County.

Witness my hand and official seal.

(SEAL)



[Signature]
Notary Public

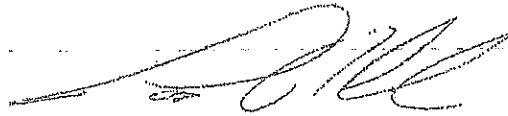
My commission expires 7/5/2000

END OF DOCUMENT.

CERTIFICATION OF RECORDATION

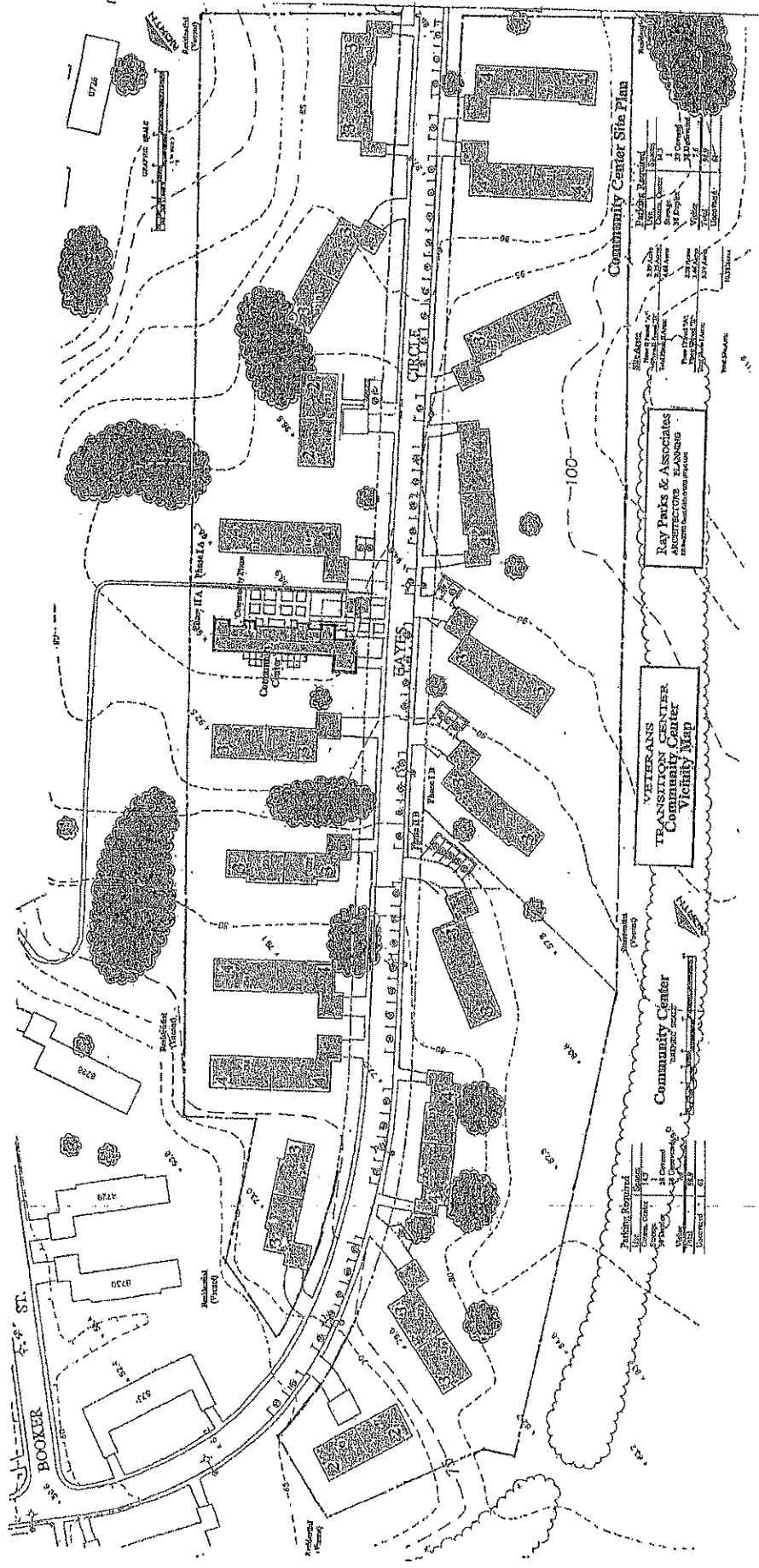
I, Patti Conkin, of the Office
of the County Recorder of the County of Montgomery,
State of CA, did receive on the 19
day of October, 1998, for filing and
recordation, the following instrument: 9872025

I further certify that the same has been recorded in Book
NA, at Page NA, of the Official Records of the said
County.



(Signature)

Senior Typist Clerk
(Title)



VETERANS
TRANSITIONAL
Community Center
Vicinity Map

Community Center
Site Plan

Community Center

Category	Quantity
Public Building	1
Office	1
Living Room	1
Dining Room	1
Kitchen	1
Bedroom	1
Bathroom	1
Storage	1
Workshop	1
Other	1

Veterans Transitional Community Center

Category	Quantity
Public Building	1
Office	1
Living Room	1
Dining Room	1
Kitchen	1
Bedroom	1
Bathroom	1
Storage	1
Workshop	1
Other	1

Ray Parks & Associates

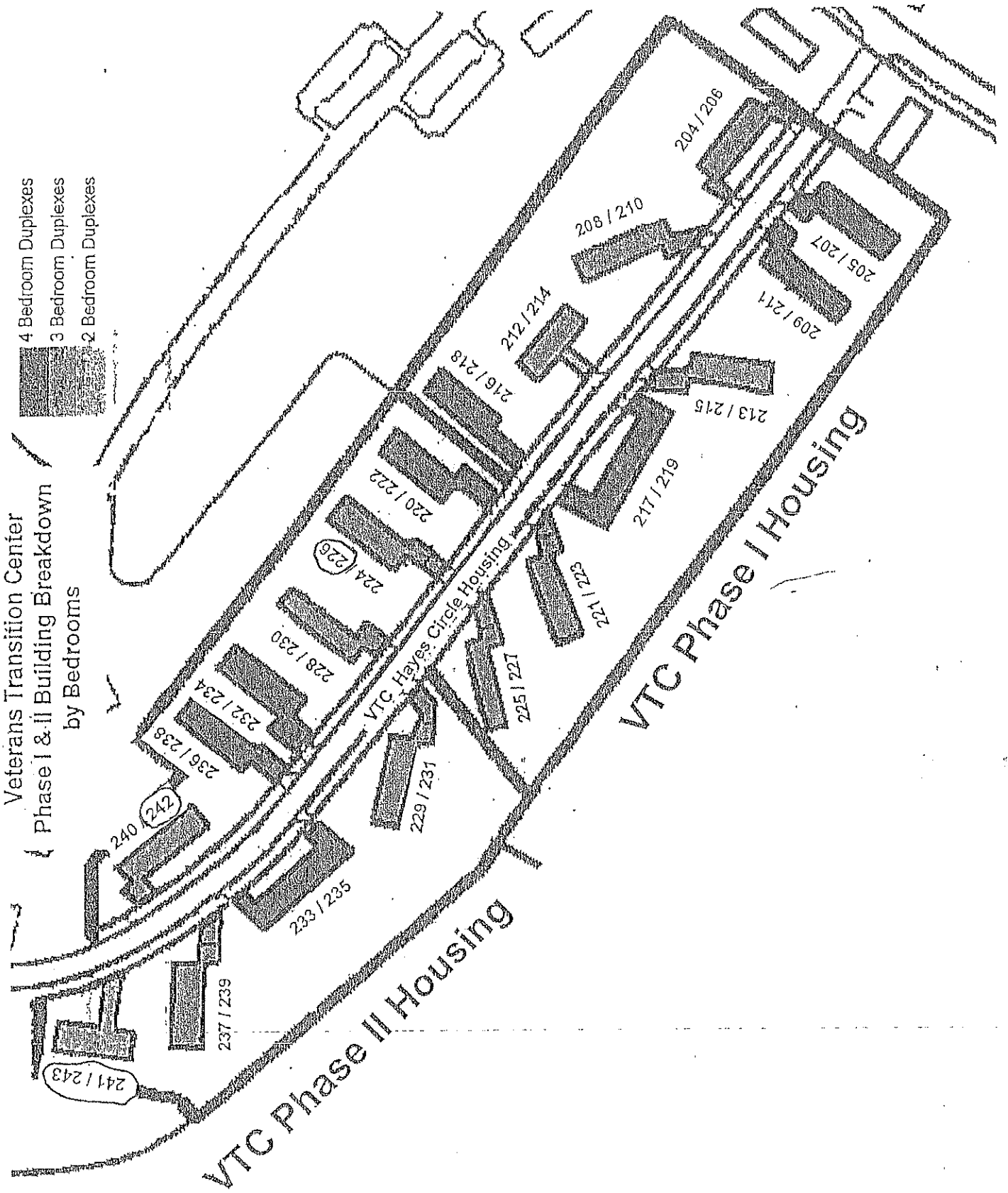
Category	Quantity
Public Building	1
Office	1
Living Room	1
Dining Room	1
Kitchen	1
Bedroom	1
Bathroom	1
Storage	1
Workshop	1
Other	1

Community Center Site Plan

Category	Quantity
Public Building	1
Office	1
Living Room	1
Dining Room	1
Kitchen	1
Bedroom	1
Bathroom	1
Storage	1
Workshop	1
Other	1

Veterans Transition Center
 Phase I & II Building Breakdown
 by Bedrooms

- 4 Bedroom Duplexes
- 3 Bedroom Duplexes
- 2 Bedroom Duplexes



VTC Phase II Housing

VTC Phase I Housing

Hayes Circle Housing

Dulles Circle

241 / 243

237 / 239

238 / 235

236 / 238

232 / 234

228 / 230

224 / 226

220 / 222

216 / 218

212 / 214

208 / 210

204 / 208

209 / 211

205 / 207

213 / 215

217 / 219

221 / 223

225 / 227

229 / 231

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