APPENDIX A

Air Quality Emissions Modeling Report

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/22/2017 8:02 AM

North Natomas Community and Aquatics Center Project

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.20	Acre	2.20	95,832.00	0
Parking Lot	300.00	Space	2.70	120,000.00	0
City Park	6.26	Acre	6.26	272,685.60	0
Health Club	18.20	1000sqft	0.42	18,200.00	0
Recreational Swimming Pool	18.45	1000sqft	0.42	18,454.72	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - North Natomas Community and Aquatics Center Project. SMAQMD.

Land Use - 12-acre project site includes - 10,700 sf community center, 4,500 locker room building, 3,000 equipment building, and 300 parking spaces.

Construction Phase - 4-month construction schedule.

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Grading -

Vehicle Trips - Updated trip rates

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	300.00	50.00
tblConstructionPhase	NumDays	30.00	15.00
tblConstructionPhase	NumDays	20.00	10.00
tblGrading	AcresOfGrading	37.50	7.50
tblLandUse	LandUseSquareFeet	18,450.00	18,454.72
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblVehicleTrips	ST_TR	22.75	437.70
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	16.74	437.70
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	1.89	437.70
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	33.82	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	23.3991	59.5510	35.4915	0.0629	6.6284	2.6343	9.2627	3.3877	2.4236	5.8112	0.0000	6,329.1643	6,329.1643	1.9469	0.0000	6,377.8365
Maximum	**23.3991**	**59.5510**	**35.4915**	**0.0629**	**6.6284**	**2.6343**	**9.2627**	**3.3877**	**2.4236**	**5.8112**	**0.0000**	**6,329.1643**	**6,329.1643**	**1.9469**	**0.0000**	**6,377.8365**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	23.3991	59.5510	35.4915	0.0629	6.6284	2.6343	9.2627	3.3877	2.4236	5.8112	0.0000	6,329.1643	6,329.1643	1.9469	0.0000	6,377.8365
Maximum	**23.3991**	**59.5510**	**35.4915**	**0.0629**	**6.6284**	**2.6343**	**9.2627**	**3.3877**	**2.4236**	**5.8112**	**0.0000**	**6,329.1643**	**6,329.1643**	**1.9469**	**0.0000**	**6,377.8365**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Energy	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Mobile	6.5017	19.1185	58.6974	0.1437	10.7321	0.1681	10.9002	2.8708	0.1584	3.0291		14,515.5943	14,515.5943	0.7892		14,535.3244
Total	**7.0669**	**19.2938**	**58.8800**	**0.1448**	**10.7321**	**0.1815**	**10.9136**	**2.8708**	**0.1718**	**3.0426**		**14,725.7398**	**14,725.7398**	**0.7934**	**3.8500e-003**	**14,746.7233**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Energy	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Mobile	6.5017	19.1185	58.6974	0.1437	10.7321	0.1681	10.9002	2.8708	0.1584	3.0291		14,515.5943	14,515.5943	0.7892		14,535.3244
Total	**7.0669**	**19.2938**	**58.8800**	**0.1448**	**10.7321**	**0.1815**	**10.9136**	**2.8708**	**0.1718**	**3.0426**		**14,725.7398**	**14,725.7398**	**0.7934**	**3.8500e-003**	**14,746.7233**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**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	Grading	Grading	7/1/2018	7/20/2018	5	15	
2	Building Construction	Building Construction	7/21/2018	9/28/2018	5	50	
3	Paving	Paving	9/29/2018	10/12/2018	5	10	
4	Architectural Coating	Architectural Coating	10/13/2018	10/26/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 4.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,300; Non-Residential Outdoor: 9,100; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
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
Grading	8	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	221.00	86.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	44.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**6.5523**	**2.6337**	**9.1861**	**3.3675**	**2.4230**	**5.7905**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

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	0.0515	0.0292	0.4021	8.5000e-004	0.0761	5.6000e-004	0.0766	0.0202	5.2000e-004	0.0207		84.7359	84.7359	2.9100e-003		84.8087
Total	**0.0515**	**0.0292**	**0.4021**	**8.5000e-004**	**0.0761**	**5.6000e-004**	**0.0766**	**0.0202**	**5.2000e-004**	**0.0207**		**84.7359**	**84.7359**	**2.9100e-003**		**84.8087**

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**6.5523**	**2.6337**	**9.1861**	**3.3675**	**2.4230**	**5.7905**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

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	0.0515	0.0292	0.4021	8.5000e-004	0.0761	5.6000e-004	0.0766	0.0202	5.2000e-004	0.0207		84.7359	84.7359	2.9100e-003		84.8087
Total	**0.0515**	**0.0292**	**0.4021**	**8.5000e-004**	**0.0761**	**5.6000e-004**	**0.0766**	**0.0202**	**5.2000e-004**	**0.0207**		**84.7359**	**84.7359**	**2.9100e-003**		**84.8087**

3.3 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	2.2138	18.7880	13.4912	0.0215		1.1738	1.1738		1.1100	1.1100		2,073.5772	2,073.5772	0.4717		2,085.3704
Total	**2.2138**	**18.7880**	**13.4912**	**0.0215**		**1.1738**	**1.1738**		**1.1100**	**1.1100**		**2,073.5772**	**2,073.5772**	**0.4717**		**2,085.3704**

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	0.4619	10.8838	3.5518	0.0217	0.5177	0.0870	0.6047	0.1490	0.0833	0.2322		2,296.8727	2,296.8727	0.1424		2,300.4329
Worker	1.1389	0.6461	8.8864	0.0188	1.6812	0.0124	1.6935	0.4459	0.0114	0.4573		1,872.6625	1,872.6625	0.0644		1,874.2728
Total	**1.6008**	**11.5299**	**12.4381**	**0.0406**	**2.1988**	**0.0994**	**2.2982**	**0.5949**	**0.0947**	**0.6896**		**4,169.5352**	**4,169.5352**	**0.2068**		**4,174.7057**

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	2.2138	18.7880	13.4912	0.0215		1.1738	1.1738		1.1100	1.1100	0.0000	2,073.5772	2,073.5772	0.4717		2,085.3704
Total	**2.2138**	**18.7880**	**13.4912**	**0.0215**		**1.1738**	**1.1738**		**1.1100**	**1.1100**	**0.0000**	**2,073.5772**	**2,073.5772**	**0.4717**		**2,085.3704**

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	0.4619	10.8838	3.5518	0.0217	0.5177	0.0870	0.6047	0.1490	0.0833	0.2322		2,296.8727	2,296.8727	0.1424		2,300.4329
Worker	1.1389	0.6461	8.8864	0.0188	1.6812	0.0124	1.6935	0.4459	0.0114	0.4573		1,872.6625	1,872.6625	0.0644		1,874.2728
Total	**1.6008**	**11.5299**	**12.4381**	**0.0406**	**2.1988**	**0.0994**	**2.2982**	**0.5949**	**0.0947**	**0.6896**		**4,169.5352**	**4,169.5352**	**0.2068**		**4,174.7057**

3.4 Paving - 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	0.8219	8.7605	7.3982	0.0114		0.4781	0.4781		0.4398	0.4398		1,147.0444	1,147.0444	0.3571		1,155.9716
Paving	1.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1057**	**8.7605**	**7.3982**	**0.0114**		**0.4781**	**0.4781**		**0.4398**	**0.4398**		**1,147.0444**	**1,147.0444**	**0.3571**		**1,155.9716**

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	0.0412	0.0234	0.3217	6.8000e-004	0.0609	4.5000e-004	0.0613	0.0161	4.1000e-004	0.0166		67.7887	67.7887	2.3300e-003		67.8470
Total	**0.0412**	**0.0234**	**0.3217**	**6.8000e-004**	**0.0609**	**4.5000e-004**	**0.0613**	**0.0161**	**4.1000e-004**	**0.0166**		**67.7887**	**67.7887**	**2.3300e-003**		**67.8470**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8219	8.7605	7.3982	0.0114		0.4781	0.4781		0.4398	0.4398	0.0000	1,147.0444	1,147.0444	0.3571		1,155.9716
Paving	1.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1057**	**8.7605**	**7.3982**	**0.0114**		**0.4781**	**0.4781**		**0.4398**	**0.4398**	**0.0000**	**1,147.0444**	**1,147.0444**	**0.3571**		**1,155.9716**

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	0.0412	0.0234	0.3217	6.8000e-004	0.0609	4.5000e-004	0.0613	0.0161	4.1000e-004	0.0166		67.7887	67.7887	2.3300e-003		67.8470
Total	**0.0412**	**0.0234**	**0.3217**	**6.8000e-004**	**0.0609**	**4.5000e-004**	**0.0613**	**0.0161**	**4.1000e-004**	**0.0166**		**67.7887**	**67.7887**	**2.3300e-003**		**67.8470**

3.5 Architectural Coating - 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					
Archit. Coating	22.8737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**23.1724**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

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	0.2268	0.1286	1.7692	3.7500e-003	0.3347	2.4600e-003	0.3372	0.0888	2.2700e-003	0.0911		372.8378	372.8378	0.0128		373.1584
Total	**0.2268**	**0.1286**	**1.7692**	**3.7500e-003**	**0.3347**	**2.4600e-003**	**0.3372**	**0.0888**	**2.2700e-003**	**0.0911**		**372.8378**	**372.8378**	**0.0128**		**373.1584**

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	22.8737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**23.1724**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

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	0.2268	0.1286	1.7692	3.7500e-003	0.3347	2.4600e-003	0.3372	0.0888	2.2700e-003	0.0911		372.8378	372.8378	0.0128		373.1584
Total	**0.2268**	**0.1286**	**1.7692**	**3.7500e-003**	**0.3347**	**2.4600e-003**	**0.3372**	**0.0888**	**2.2700e-003**	**0.0911**		**372.8378**	**372.8378**	**0.0128**		**373.1584**

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	6.5017	19.1185	58.6974	0.1437	10.7321	0.1681	10.9002	2.8708	0.1584	3.0291		14,515.5943	14,515.5943	0.7892		14,535.3244
Unmitigated	6.5017	19.1185	58.6974	0.1437	10.7321	0.1681	10.9002	2.8708	0.1584	3.0291		14,515.5943	14,515.5943	0.7892		14,535.3244

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2,740.00	2,740.00	2740.00	5,055,173	5,055,173
Health Club	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	2,740.00	2,740.00	2,740.00	5,055,173	5,055,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Health Club	10.00	5.00	6.50	16.90	64.10	19.00	52	39	9
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	10.00	5.00	6.50	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Health Club	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Other Asphalt Surfaces	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Parking Lot	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Recreational Swimming Pool	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
NaturalGas Unmitigated	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	1785.59	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0193**	**0.1751**	**0.1471**	**1.0500e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**		**210.0699**	**210.0699**	**4.0300e-003**	**3.8500e-003**	**211.3183**

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	1.78559	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0193**	**0.1751**	**0.1471**	**1.0500e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**		**210.0699**	**210.0699**	**4.0300e-003**	**3.8500e-003**	**211.3183**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Unmitigated	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807

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	0.0627					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-003	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Total	**0.5460**	**3.3000e-004**	**0.0356**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0755**	**0.0755**	**2.0000e-004**		**0.0807**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0627					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-003	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Total	**0.5460**	**3.3000e-004**	**0.0356**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0755**	**0.0755**	**2.0000e-004**		**0.0807**

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/22/2017 8:04 AM

North Natomas Community and Aquatics Center Project

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.20	Acre	2.20	95,832.00	0
Parking Lot	300.00	Space	2.70	120,000.00	0
City Park	6.26	Acre	6.26	272,685.60	0
Health Club	18.20	1000sqft	0.42	18,200.00	0
Recreational Swimming Pool	18.45	1000sqft	0.42	18,454.72	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - North Natomas Community and Aquatics Center Project. SMAQMD.

Land Use - 12-acre project site includes - 10,700 sf community center, 4,500 locker room building, 3,000 equipment building, and 300 parking spaces.

Construction Phase - 4-month construction schedule.

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Grading -

Vehicle Trips - Updated trip rates

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	300.00	50.00
tblConstructionPhase	NumDays	30.00	15.00
tblConstructionPhase	NumDays	20.00	10.00
tblGrading	AcresOfGrading	37.50	7.50
tblLandUse	LandUseSquareFeet	18,450.00	18,454.72
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblVehicleTrips	ST_TR	22.75	437.70
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	16.74	437.70
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	1.89	437.70
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	33.82	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	23.3816	59.5580	35.4375	0.0628	6.6284	2.6343	9.2627	3.3877	2.4236	5.8112	0.0000	6,318.8579	6,318.8579	1.9466	0.0000	6,367.5222
Maximum	**23.3816**	**59.5580**	**35.4375**	**0.0628**	**6.6284**	**2.6343**	**9.2627**	**3.3877**	**2.4236**	**5.8112**	**0.0000**	**6,318.8579**	**6,318.8579**	**1.9466**	**0.0000**	**6,367.5222**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	23.3816	59.5580	35.4375	0.0628	6.6284	2.6343	9.2627	3.3877	2.4236	5.8112	0.0000	6,318.8579	6,318.8579	1.9466	0.0000	6,367.5221
Maximum	**23.3816**	**59.5580**	**35.4375**	**0.0628**	**6.6284**	**2.6343**	**9.2627**	**3.3877**	**2.4236**	**5.8112**	**0.0000**	**6,318.8579**	**6,318.8579**	**1.9466**	**0.0000**	**6,367.5221**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Energy	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Mobile	4.8712	20.5061	56.6669	0.1296	10.7321	0.1708	10.9029	2.8708	0.1610	3.0317		13,105.8898	13,105.8898	0.7919		13,125.6878
Total	**5.4364**	**20.6815**	**56.8495**	**0.1307**	**10.7321**	**0.1842**	**10.9163**	**2.8708**	**0.1744**	**3.0452**		**13,316.0353**	**13,316.0353**	**0.7962**	**3.8500e-003**	**13,337.0867**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Energy	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Mobile	4.8712	20.5061	56.6669	0.1296	10.7321	0.1708	10.9029	2.8708	0.1610	3.0317		13,105.8898	13,105.8898	0.7919		13,125.6878
Total	**5.4364**	**20.6815**	**56.8495**	**0.1307**	**10.7321**	**0.1842**	**10.9163**	**2.8708**	**0.1744**	**3.0452**		**13,316.0353**	**13,316.0353**	**0.7962**	**3.8500e-003**	**13,337.0867**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**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	Grading	Grading	7/1/2018	7/20/2018	5	15	
2	Building Construction	Building Construction	7/21/2018	9/28/2018	5	50	
3	Paving	Paving	9/29/2018	10/12/2018	5	10	
4	Architectural Coating	Architectural Coating	10/13/2018	10/26/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 4.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,300; Non-Residential Outdoor: 9,100; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
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
Grading	8	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	221.00	86.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	44.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**6.5523**	**2.6337**	**9.1861**	**3.3675**	**2.4230**	**5.7905**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

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	0.0475	0.0362	0.3482	7.5000e-004	0.0761	5.6000e-004	0.0766	0.0202	5.2000e-004	0.0207		74.4295	74.4295	2.6000e-003		74.4944
Total	**0.0475**	**0.0362**	**0.3482**	**7.5000e-004**	**0.0761**	**5.6000e-004**	**0.0766**	**0.0202**	**5.2000e-004**	**0.0207**		**74.4295**	**74.4295**	**2.6000e-003**		**74.4944**

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**6.5523**	**2.6337**	**9.1861**	**3.3675**	**2.4230**	**5.7905**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

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	0.0475	0.0362	0.3482	7.5000e-004	0.0761	5.6000e-004	0.0766	0.0202	5.2000e-004	0.0207		74.4295	74.4295	2.6000e-003		74.4944
Total	**0.0475**	**0.0362**	**0.3482**	**7.5000e-004**	**0.0761**	**5.6000e-004**	**0.0766**	**0.0202**	**5.2000e-004**	**0.0207**		**74.4295**	**74.4295**	**2.6000e-003**		**74.4944**

3.3 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	2.2138	18.7880	13.4912	0.0215		1.1738	1.1738		1.1100	1.1100		2,073.5772	2,073.5772	0.4717		2,085.3704
Total	**2.2138**	**18.7880**	**13.4912**	**0.0215**		**1.1738**	**1.1738**		**1.1100**	**1.1100**		**2,073.5772**	**2,073.5772**	**0.4717**		**2,085.3704**

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	0.4860	11.1749	4.0135	0.0212	0.5177	0.0892	0.6069	0.1490	0.0854	0.2343		2,239.9559	2,239.9559	0.1544		2,243.8150
Worker	1.0507	0.7992	7.6941	0.0166	1.6812	0.0124	1.6935	0.4459	0.0114	0.4573		1,644.8913	1,644.8913	0.0574		1,646.3252
Total	**1.5368**	**11.9741**	**11.7076**	**0.0378**	**2.1988**	**0.1016**	**2.3004**	**0.5949**	**0.0968**	**0.6917**		**3,884.8472**	**3,884.8472**	**0.2117**		**3,890.1402**

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	2.2138	18.7880	13.4912	0.0215		1.1738	1.1738		1.1100	1.1100	0.0000	2,073.5772	2,073.5772	0.4717		2,085.3704
Total	**2.2138**	**18.7880**	**13.4912**	**0.0215**		**1.1738**	**1.1738**		**1.1100**	**1.1100**	**0.0000**	**2,073.5772**	**2,073.5772**	**0.4717**		**2,085.3704**

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	0.4860	11.1749	4.0135	0.0212	0.5177	0.0892	0.6069	0.1490	0.0854	0.2343		2,239.9559	2,239.9559	0.1544		2,243.8150
Worker	1.0507	0.7992	7.6941	0.0166	1.6812	0.0124	1.6935	0.4459	0.0114	0.4573		1,644.8913	1,644.8913	0.0574		1,646.3252
Total	**1.5368**	**11.9741**	**11.7076**	**0.0378**	**2.1988**	**0.1016**	**2.3004**	**0.5949**	**0.0968**	**0.6917**		**3,884.8472**	**3,884.8472**	**0.2117**		**3,890.1402**

3.4 Paving - 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	0.8219	8.7605	7.3982	0.0114		0.4781	0.4781		0.4398	0.4398		1,147.0444	1,147.0444	0.3571		1,155.9716
Paving	1.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1057**	**8.7605**	**7.3982**	**0.0114**		**0.4781**	**0.4781**		**0.4398**	**0.4398**		**1,147.0444**	**1,147.0444**	**0.3571**		**1,155.9716**

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	0.0380	0.0289	0.2785	6.0000e-004	0.0609	4.5000e-004	0.0613	0.0161	4.1000e-004	0.0166		59.5436	59.5436	2.0800e-003		59.5955
Total	**0.0380**	**0.0289**	**0.2785**	**6.0000e-004**	**0.0609**	**4.5000e-004**	**0.0613**	**0.0161**	**4.1000e-004**	**0.0166**		**59.5436**	**59.5436**	**2.0800e-003**		**59.5955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8219	8.7605	7.3982	0.0114		0.4781	0.4781		0.4398	0.4398	0.0000	1,147.0444	1,147.0444	0.3571		1,155.9716
Paving	1.2838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1057**	**8.7605**	**7.3982**	**0.0114**		**0.4781**	**0.4781**		**0.4398**	**0.4398**	**0.0000**	**1,147.0444**	**1,147.0444**	**0.3571**		**1,155.9716**

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	0.0380	0.0289	0.2785	6.0000e-004	0.0609	4.5000e-004	0.0613	0.0161	4.1000e-004	0.0166		59.5436	59.5436	2.0800e-003		59.5955
Total	**0.0380**	**0.0289**	**0.2785**	**6.0000e-004**	**0.0609**	**4.5000e-004**	**0.0613**	**0.0161**	**4.1000e-004**	**0.0166**		**59.5436**	**59.5436**	**2.0800e-003**		**59.5955**

3.5 Architectural Coating - 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					
Archit. Coating	22.8737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**23.1724**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

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	0.2092	0.1591	1.5319	3.2900e-003	0.3347	2.4600e-003	0.3372	0.0888	2.2700e-003	0.0911		327.4897	327.4897	0.0114		327.7752
Total	**0.2092**	**0.1591**	**1.5319**	**3.2900e-003**	**0.3347**	**2.4600e-003**	**0.3372**	**0.0888**	**2.2700e-003**	**0.0911**		**327.4897**	**327.4897**	**0.0114**		**327.7752**

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	22.8737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**23.1724**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

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	0.2092	0.1591	1.5319	3.2900e-003	0.3347	2.4600e-003	0.3372	0.0888	2.2700e-003	0.0911		327.4897	327.4897	0.0114		327.7752
Total	**0.2092**	**0.1591**	**1.5319**	**3.2900e-003**	**0.3347**	**2.4600e-003**	**0.3372**	**0.0888**	**2.2700e-003**	**0.0911**		**327.4897**	**327.4897**	**0.0114**		**327.7752**

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	4.8712	20.5061	56.6669	0.1296	10.7321	0.1708	10.9029	2.8708	0.1610	3.0317		13,105.8898	13,105.8898	0.7919		13,125.6878
Unmitigated	4.8712	20.5061	56.6669	0.1296	10.7321	0.1708	10.9029	2.8708	0.1610	3.0317		13,105.8898	13,105.8898	0.7919		13,125.6878

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2,740.00	2,740.00	2740.00	5,055,173	5,055,173
Health Club	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	2,740.00	2,740.00	2,740.00	5,055,173	5,055,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Health Club	10.00	5.00	6.50	16.90	64.10	19.00	52	39	9
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	10.00	5.00	6.50	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Health Club	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Other Asphalt Surfaces	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Parking Lot	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Recreational Swimming Pool	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
NaturalGas Unmitigated	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	1785.59	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0193**	**0.1751**	**0.1471**	**1.0500e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**		**210.0699**	**210.0699**	**4.0300e-003**	**3.8500e-003**	**211.3183**

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	1.78559	0.0193	0.1751	0.1471	1.0500e-003		0.0133	0.0133		0.0133	0.0133		210.0699	210.0699	4.0300e-003	3.8500e-003	211.3183
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0193**	**0.1751**	**0.1471**	**1.0500e-003**		**0.0133**	**0.0133**		**0.0133**	**0.0133**		**210.0699**	**210.0699**	**4.0300e-003**	**3.8500e-003**	**211.3183**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Unmitigated	0.5460	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807

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	0.0627					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-003	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Total	**0.5460**	**3.3000e-004**	**0.0356**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0755**	**0.0755**	**2.0000e-004**		**0.0807**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0627					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-003	3.3000e-004	0.0356	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0755	0.0755	2.0000e-004		0.0807
Total	**0.5460**	**3.3000e-004**	**0.0356**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0755**	**0.0755**	**2.0000e-004**		**0.0807**

APPENDIX B

Biological Resources Assessment

DUDEK

September 1, 2017 10626

Jon Blank
City of Sacramento Department of Parks and Recreation
915 I Street, 3rd Floor
Sacramento, CA 95814

Subject: ***Biological Resources Assessment for the North Natomas Aquatics and Community Center Project, City of Sacramento, Sacramento County, California***

Dear Mr. Blank:

On August 23, 2017, Dudek biologist Lisa Achter conducted a reconnaissance biological field survey at the proposed North Natomas Aquatics and Community Center (NNACC – proposed project) project site in Sacramento, California (Figure 1). The focus of the survey was to characterize existing conditions and biological resources on the site and to summarize potential biological constraints associated with development of the site. A description of the methods and results of the biological survey and related recommendations is provided below.

1. SITE LOCATION AND PROJECT DESCRIPTION

The project site totals approximately 10.15 acres and is located in North Natomas, just north of Del Paso Boulevard in the northern portion of the City of Sacramento (Figure 2). It is bounded on the east by the North Natomas Regional Park (NNRP), on the north and south by undeveloped annual grassland habitat, and on the west by residential development. The NNRP off-leash Dog Park is located in the northeastern portion of the site. The project site is generally flat and sits at an elevation of approximately 20 feet above mean sea level. The site is situated in Sections 2 and 3, Township 9 North, and Range 4 East on the Taylor Monument 7.5 minute quadrangle. The center of the site location corresponds to 38°39’34” north latitude and 121°31’17” west longitude (Figure 3). The site is mostly undeveloped (with the exception of the off-leash Dog Park) and is dominated by non-native annual grassland. No mature trees exist on or adjacent to the site. The project site falls within the Natomas Basin Habitat Conservation Plan (NBHCP).

The proposed project entails development of the site that would include three swimming pools, a community center, an events lawn and pavilion, locker rooms, storage areas, and a 322-space parking lot.

2. METHODS AND SITE EVALUATION

Preliminary Review

Special-status biological resources present or potentially present on the site were identified through a desktop literature search using the following sources: U.S. Fish and Wildlife Service (USFWS) Information, Planning and Conservation (IPaC) Trust Resource Report; California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. The database searches for the CNDDB and CNPS reports included the 7.5' USGS Taylor Monument quadrangle and surrounding eight quadrangles. The IPaC search included the project site and a five-mile buffer surrounding the site. California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search. Following review of these resources, Dudek determined the potential for each species to occur within the site based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species (Appendix A). Species were not expected to occur when the site was clearly outside the known geographic range of the species or if there was no habitat for the species on or adjacent to the site.

Field Assessment

The biological reconnaissance survey was performed by Dudek wildlife biologist Lisa Achter on August 23, 2017, and consisted of walking throughout the site and scanning a 100-foot buffer along the periphery of the site. The project site was evaluated for the potential to support wetlands or waters under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), or CDFW, and special-status plant and wildlife species. Incidental observations of wildlife or wildlife sign and dominant plant species were recorded, and vegetation communities within the site were characterized and mapped.

Dudek performed a constraints-level wetland assessment on the project site, reviewed current and historical aerial photography, and identified potentially jurisdictional features based on aerial signatures and field observations.

The analysis of potentially jurisdictional waters and wetlands was based on criteria provided by the following agencies:

- Waters of the U.S., including wetlands, under the jurisdiction of the ACOE pursuant to Section 404 of the federal Clean Water Act (CWA).

- Wetlands under the jurisdiction of the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.
- Wetlands under the jurisdiction of CDFW, pursuant to Section 1602 of the California Fish and Game Code.

Pursuant to the CWA, ACOE- and RWQCB, jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. RWQCB-jurisdictional areas may also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Act. These areas generally support at least one of the three ACOE wetlands indicators, but are considered isolated through the lack of surface water hydrology/connectivity downstream. The extent of CDFW-regulated areas typically include areas supporting a predominance of hydrophytic vegetation (i.e., 50% cover or greater) where associated with a stream channel that has a defined bed and bank.

3. RESULTS

Soils

According to the Natural Resources Conservation Service (USDA 2017), two soil types are mapped within the project site; Jacktone clay, drained, 0-2% slopes; and San Joaquin silt loam, 0-3% slopes. The Jacktone series consists of moderately deep to hardpan, somewhat poorly drained soils formed in alluvium from mixed sources. The San Joaquin series consists of moderately deep to a duripan, well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources.

Vegetation Communities and Land Cover Types

Two vegetation communities or land cover types were observed during the field assessment. The off-leash Dog Park within the project site is characterized as developed/disturbed and the remainder of the site is characterized as annual grassland (Sawyer et al. 2009).

The off-leash Dog Park is completely fenced and consists of a large area that has been planted with turf grass and some ornamental shrubs, as well as an unvegetated area that contains two shade structures. The grass appears to be watered on a regular basis.

Annual grassland within the site is dominated by a dense to sparse cover of annual, non-native grasses and forbs. The most prolific species within the site is wild oat (*Avena* spp.), which occurs with yellow star-thistle (*Centaurea solstitialis*), alkali mallow (*Malvella leprosa*), and other

ruderal species along the margins of the site. All of the grass species are dormant during the dry summer months. Most of the site was mowed prior to the field assessment.

A total of 22 species of native or naturalized plants, 6 native (27%) and 16 non-native (73%), was recorded on the site (see Appendix C).

Special-Status Plants and Wildlife

Results of the CNDDB, IPaC and CNPS searches indicated that 19 special-status wildlife species and two special-status plant species have been recorded within a five-mile radius of the site, although no occurrences have been recorded on the site (Appendix A). Of these, 14 wildlife species and one of the plant species were removed from consideration due to lack of suitable habitat or soils on the site, or because the site is outside of the species range.

No elderberry (*Sambucus* sp.) shrubs were observed during the survey; therefore, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) was removed from consideration. Steelhead (*Oncorhynchus mykiss irideus*), Chinook salmon (*Oncorhynchus tshawytscha*), eulachon (*Thaleichthys pacificus*), longfin smelt (*Spirinchus thaleichthys*) and delta smelt (*Spirinchus thaleichthys*) were not considered due to lack of stream habitat on the site. Aquatic habitat for California red-legged frog (*Rana draytonii*) and giant gartersnake (*Thamnophis gigas*) is also absent from the site. Although suitable aquatic habitat for California tiger salamander (*Ambystoma californiense*) is present on the site, a lack of small rodent burrows on-site and a lack of nearby occurrences likely precludes this species from occurring on the site. No riparian habitat exists on the site for least Bell's vireo (*Vireo bellii pusillus*) or yellow-billed cuckoo (*Coccyzus americanus occidentalis*). No cliff habitat along a river or stream exists for bank swallow (*Riparia riparia*), and no sandy flats along pond or lake margins occur for western snowy plover (*Charadrius alexandrines nivosus*). Although there is suitable wetland habitat for tricolored blackbird (*Agelaius tricolor*), no tricolored blackbird colonies have been observed in the on-site wetland. Suitable agricultural fields or other foraging habitat for tricolored blackbird is absent from the site and within a one-mile radius, and mowing on and around the site likely precludes this species from occurring.

The large wetland on site provides potential habitat for vernal pool tadpole shrimp (*Lepidurus packardi*) and vernal pool fairy shrimp (*Branchinecta lynchi*), and there are several occurrences of both in the vicinity of the site. There is potential for Swainson's hawk (*Buteo swainsoni*) to forage within or adjacent to the project site, although there are no mature trees that would be suitable for nesting within or adjacent to the project site. Although suitable open grassland habitat occurs for burrowing owl (*Athene cunicularia*) within the project site, no California ground squirrels (*Otospermophilus beecheyi*) or suitable burrows were observed during the

biological survey. Suitable open nesting and foraging habitat for short-eared owl (*Asio flammeus*) occurs within and adjacent to the project site; however, there are no documented occurrences in the vicinity of the site. All of these species have a low potential to occur within the site.

The project site lacks suitable alkaline soils that would support palmate-bracted salty bird's beak (*Chloropyron palmatum*). Although there is suitable aquatic habitat for Boggs Lake hedge-hyssop (*Gratiola heterosepala*) within the site, it has a low potential to occur based on the lack of occurrences in the vicinity of the site.

Common Wildlife Species

Six wildlife species were observed during the August 23, 2017 survey. These included American crow (*Corvus brachyrhynchos*), ring-necked pheasant (*Phasianus colchicus*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), western meadowlark (*Sturnella neglecta*) and black-tailed jackrabbit (*Lepus californicus*).

Common wildlife species adapted to life in proximity to human disturbance such as raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*) and coyote (*Canis latrans*) are likely to move through the site on a regular basis to find food and cover resources. Common native and non-native bird species could use the site for nesting and foraging.

Potentially Jurisdictional Wetlands

A large seasonal wetland that could potentially fall under jurisdiction of the RWQCB, ACOE or CDFW was observed during the survey. The approximately 1.84-acre seasonal wetland was dry at the time of the survey, but appeared to support hydric plant species and contain surface soil cracks indicating hydrology and hydric soils necessary to be considered jurisdictional by the above-named agencies. However, a wetland delineation was not performed during the biological field assessment.

Review of historic aerial photography and topographic maps indicate that the project site has been extensively disturbed by agricultural practices and, more recently, by residential development. An agricultural ditch previously channeled water through the project site prior to the early 2000's when the area was graded for residential development. Remnants of this agricultural ditch are visible on the property south of the project site. The current formation of seasonal wetland at the project site may be the product of grading for development of the off-leash Dog Park. The seasonal wetland does not appear in aerial imagery until around 2009 and is

likely fed from storm water runoff from the dog park and surrounding undeveloped land of the NNRP. Because of the isolated nature of this seasonal wetland, and because it was recently formed in uplands, it is questionable whether or not it would be subject to the jurisdiction of the ACOE under Section 404 of the CWA; however, it could be considered a water of the State and subject to jurisdiction of the Central Valley RWQCB under Section 401 of the CWA. Further review of the wetlands at the project site during the formal delineation of wetlands and waters of the U.S. will analyze the potential connectivity of this feature with other waters of the U.S. and potential jurisdiction.

Several wetted areas were observed along the southern edge of the fenced dog park; however, these features appear to be runoff collected from sprinklers that water the grassy areas within the dog park. No wetland plant species were observed within these features.

4. SUMMARY AND POTENTIAL CONSTRAINTS TO DEVELOPMENT

This section addresses potential impacts to sensitive biological resources that would result from construction of an aquatics and community center on the site.

Vegetation Communities and Land Cover Types

The project site is undeveloped; however, it is within an otherwise mostly developed area of North Natomas that is likely to experience a significant amount of further development in the near future. Although the non-native annual grassland habitat within the site is not considered sensitive by CDFW, the 1.84-acre seasonal wetland likely falls under the jurisdiction of the RWQCB under Section 401 of the CWA.

Special-Status Plants and Wildlife

No special-status animals were detected during this survey. However, all native birds in California are protected by the federal Migratory Bird Treaty Act (MBTA) of 1918 and Section 3503.5 of the California Fish and Game Code, which specifically protects raptors. The site provides suitable foraging habitat for several common raptor species found in California, such as red-tailed hawk (*Buteo jamacensis*), and special-status and common raptor and passerine species such as Swainson's hawk and mourning dove. It also provides nesting habitat for ground nesting species such as killdeer (*Charadrius vociferus*) and western meadowlark (*Sturnella neglecta*).

Dudek recommends a nesting bird survey be completed by a qualified biologist no earlier than two weeks prior to construction during the nesting season (February 1-September 30) to determine if any native birds are nesting on or near the site (including a 250-foot buffer for raptors and ½-mile buffer for Swainson's hawk). If any active nests are observed during surveys,

a suitable avoidance buffer from the nests will be determined by the qualified biologist and consultation with CDFW will be sought if necessary. The nest(s) will be flagged by the qualified biologist based on species, location and planned construction activity. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. Dudek also recommends removing any habitat (i.e. trees and vegetation) outside of the breeding bird season to avoid impacts to nesting birds.

Wildlife Corridors and Nursery Sites

The project site is not considered a wildlife corridor or nursery site; however, common wildlife species adapted to life in urban environments such as raccoon, Virginia opossum and coyote are likely to move through the site regularly between patches of habitat in the vicinity of the project site. The project is situated in an otherwise mostly developed area and construction of the project would not interfere with any movement of any special-status species.

Potentially Jurisdictional Wetlands

Assuming the wetland feature within the site is jurisdictional under Section 404 of the CWA, and because impacts to potentially jurisdictional wetlands would be greater than 0.5 acre, the maximum permanent impact allowable for most Nationwide Permits, a standard (individual) permit would be necessary. The permitting package for an individual permit is more extensive than that for a nationwide permit and must include cultural and biological review pursuant Section 106 of the National Historic Preservation Act and Section 7 or 10 of the Federal Endangered Species Act, respectively. Additionally, processing of the standard permit takes a minimum of 120 days from the time the permit package has been received and deemed complete by the ACOE. A standard permit requires public review with a minimum of a 15-day public notice comment period.

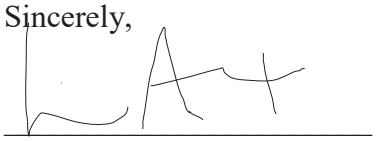
Evaluation of potential for federal endangered species would be required, including protocol-level surveys for listed large branchiopods.

Regardless whether the wetland feature is jurisdictional under the CWA, it is likely jurisdictional under California's Porter Cologne Water Quality Act. Disturbance to the seasonal wetland would require a Waste Discharge Requirement permit (WDR) by the RWQCB. If requested, Dudek would prepare an application to the RWQCB for a WDR.

Dudek recommends a formal wetland delineation be performed at the site to refine potential seasonal wetland boundaries and to analyze potential connectivity/adjacency of the seasonal wetland to other waters of the U.S.

If you have any questions about the survey or this report, please feel free to call me at 530.217.8952 or email lachter@dudek.com.

Sincerely,



Lisa Achter
Wildlife Biologist
DUDEK
lachter@dudek.com
530-217-8952

Att: *Appendix A - Results of CNDDB, IPaC and CNPS Searches*
Appendix B – Species with Potential to Occur in the Vicinity of the Project Site
Appendix C - Plant List

References Cited

California Department of Fish and Wildlife (CDFW) 2017a. Natural Diversity Database. July 2017. Special Animals List. Periodic publication. 51 pp. CDFW. 2017b. California Natural Diversity Database (CNDDB). Rarefind, Version 5 (Commercial Subscription). Sacramento, California. Website https://map.dfg.ca.gov/rarefind/Login.aspx?ReturnUrl=%2frarefind%2fview%2fRareFind.aspx

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org/advanced.html (accessed August 2017).

USDA (U.S. Department of Agriculture). 2017. Natural Resources Conservation Service (NRCS). Web Soil Survey. Accessed August 2017. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Appendix A – Results of CNDDB, IPaC, and CNPS Search Results

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Knights Landing (3812176) OR Pleasant Grove (3812174) OR Verona (3812175) OR Grays Bend (3812166) OR Taylor Monument (3812165) OR Rio Linda (3812164) OR Davis (3812156) OR Sacramento East (3812154) OR Sacramento West (3812155))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)
 AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Candidate Endangered OR Candidate Threatened))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	10 70	951 S:21	1	0	0	0	12	8	14	7	9	7	5
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	20 100	756 S:36	3	10	3	3	1	16	14	22	35	1	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	10 95	2431 S:237	18	56	24	5	2	132	34	203	235	2	0
Charadrius alexandrinus nivosus western snowy plover	G3T3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	40 55	133 S:2	0	0	0	0	0	2	2	0	2	0	0
Chloropyron palmatum palmate-bracted salty bird's-beak	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	30 40	26 S:3	0	0	1	0	1	1	2	1	2	0	1
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	15 25	155 S:4	1	0	0	0	1	2	3	1	3	0	1

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		10 55	271 S:26	0	1	2	0	0	23	13	13	26	0	0
Gratiola heterosepala Boggs Lake hedge-hyssop	G2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive	65 88	94 S:2	0	1	0	0	1	0	1	1	1	1	0
Lepidurus packardi vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	30 90	320 S:10	1	0	1	2	0	6	7	3	10	0	0
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened	20 20	31 S:7	0	0	0	2	0	5	0	7	7	0	0
Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	G5 S1	Threatened Threatened	AFS_TH-Threatened	20 120	13 S:2	0	0	0	1	0	1	0	2	2	0	0
Oncorhynchus tshawytscha chinook salmon - Sacramento River winter-run ESU	G5 S1	Endangered Endangered	AFS_EN-Endangered	20 20	2 S:1	0	0	0	1	0	0	0	1	1	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	12 31	297 S:10	0	1	0	0	0	9	5	5	10	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened	CDFW_SSC-Species of Special Concern	20 30	45 S:2	0	0	0	0	0	2	1	1	2	0	0
Thaleichthys pacificus eulachon	G5 S3	Threatened None			10 S:1	0	0	0	0	0	1	0	1	1	0	0
Thamnophis gigas giant gartersnake	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	10 30	363 S:109	4	49	22	6	7	21	23	86	102	7	0
Vireo bellii pusillus least Bell's vireo	G5T2 S2	Endangered Endangered	IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	15 15	479 S:2	0	1	0	0	0	1	1	1	2	0	0

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sacramento County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

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 from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

[3]. 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. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 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 migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Allen's Hummingbird Selasphorus sasin https://ecos.fws.gov/ecp/species/9637	Migrating
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Year-round

Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Year-round
Costa's Hummingbird Calypte costae https://ecos.fws.gov/ecp/species/9470	Year-round
Fox Sparrow Passerella iliaca	Wintering
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	Breeding
Lesser Yellowlegs Tringa flavipes https://ecos.fws.gov/ecp/species/9679	Wintering
Lewis's Woodpecker Melanerpes lewis https://ecos.fws.gov/ecp/species/9408	Wintering
Loggerhead Shrike Lanius ludovicianus https://ecos.fws.gov/ecp/species/8833	Year-round
Long-billed Curlew Numenius americanus https://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit Limosa fedoa https://ecos.fws.gov/ecp/species/9481	Wintering
Mountain Plover Charadrius montanus https://ecos.fws.gov/ecp/species/3638	Wintering
Nuttall's Woodpecker Picoides nuttallii https://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse Baeolophus inornatus https://ecos.fws.gov/ecp/species/9656	Year-round

Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Wintering
Rufous Hummingbird selasphorus rufus https://ecos.fws.gov/ecp/species/8002	Migrating
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Swainson's Hawk Buteo swainsoni https://ecos.fws.gov/ecp/species/1098	Breeding
Tricolored Blackbird Agelaius tricolor https://ecos.fws.gov/ecp/species/3910	Year-round
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Year-round
Williamson's Sapsucker Sphyrapicus thyroideus https://ecos.fws.gov/ecp/species/8832	Year-round
Yellow-billed Magpie Pica nuttalli https://ecos.fws.gov/ecp/species/9726	Year-round

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT 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.

This location overlaps the following wetlands:

RIVERINE

R2UBKHx

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

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 tuberficid 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.

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

1 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B],
FESA is one of [Endangered, Threatened, Candidate], CESA is one of [Endangered, Threatened], Found in Quads 3812176, 3812175, 3812174, 3812166, 3812165, 3812164, 3812156 3812155 and 3812154;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 29 August 2017].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society

Appendix B. Special-Status Species with Known or Potential Occurrence in the Vicinity of the Proposed North Natomas Aquatics and Community Center Project in Sacramento County, California.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
Invertebrates				
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened/None	Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	Low potential to occur. Suitable aquatic habitat occurs in the seasonal wetland within the site; however, it is unknown whether it is inundated long enough to support this species.
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered/None	Vernal pool tadpole shrimp is associated with low-alkalinity seasonal pools in unplowed grasslands. The vernal pool tadpole shrimp is found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California. Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone. This species inhabits freshwater habitats containing clear to highly turbid water, with water temperatures ranging from 50 to 84 degrees Fahrenheit and pH ranging from 6.2 to 8.5.	Low potential to occur. Suitable aquatic habitat occurs in the seasonal wetland within the site; however, it is unknown whether it is deep enough to support this species.
valley elderberry longhorn beetle	*Desmocerus californicus dimorphis*	Threatened/None	The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus nigra* ssp. *cerulea*), which occurs in riparian and other woodland communities in California's Central Valley and the associated foothills. Female beetles lay their eggs in crevices on the stems or on the leaves of living elderberry plants. When the eggs hatch, larvae bore into the stems. The larval stages last for one to two years. The fifth instar larvae create emergence holes in the stems and then plug the holes and remain in the stems through pupation. Adults emerge through the emergence holes from late March through June. The short-lived adult beetles forage on leaves and flowers of elderberry shrubs.	No potential to occur within the project area due to a lack of elderberry shrubs.
Fish				

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
Delta smelt	*Hypomesus transpacificus*	Threatened/Endangered	Delta smelt are a euryhaline species (tolerant of a wide salinity range). They have been collected from estuarine waters up to 14 ppt (parts per thousand) salinity. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally influenced backwater sloughs and channel edgewaters.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
longfin smelt	*Spirinchus thaleichthys*	Threatened/Threatened, SSC	The longfin smelt is a pelagic estuarine fish. Longfin smelt generally spawn in freshwater and then move downstream to brackish water to mature. The life cycle of most longfin smelt generally requires estuarine conditions. Juvenile and adult longfin smelt have been found throughout the year in salinities ranging from pure freshwater to pure seawater, although once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 to 28 parts per thousand. Longfin smelt are thought to be restricted by high water temperatures, generally greater than 22 degrees Celsius (°C). Most longfin smelt in the San Francisco Bay are believed to breed in the lower reaches of the Sacramento and San Joaquin Rivers.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
eulachon	*Thaleichthys pacificus*	Threatened/None	Eulachon are an anadromous species endemic to the northeastern Pacific Ocean; they range from northern California to southwest and south-central Alaska and into the southeastern Bering Sea. The southern DPS of eulachon is comprised of fish that spawn in rivers south of the Nass River in British Columbia to, and including, the Mad River in California. Adult eulachon typically spawn between the age of 2 and 5 in the lower portions of rivers. Many rivers within the range of eulachon have consistent yearly spawning runs; however, eulachon may appear in other rivers on an irregular or occasional basis.Migration usually occurs between December and June.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Central Valley steelhead	*Oncorhynchus mykiss* (NMFS)	Threatened/None	Central Valley steelhead spawn downstream of dams on every major tributary within the Sacramento and San Joaquin River systems. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
Chinook salmon	*Oncorhynchus tshawytscha (Sacramento River Winter Run, Central Valley Spring Run)*	Endangered/Endangered	Adult winter-run Chinook salmon immigration and holding (upstream spawning migration) through the Delta and into the lower Sacramento River occurs from December through July, with a peak during the period extending from January through April. Winter-run Chinook salmon are sexually immature when upstream migration begins, and they must hold for several months in suitable habitat prior to spawning. Adult Central Valley spring-run Chinook salmon leave the ocean to begin their upstream migration in late January and early February, and enter the Sacramento River between March and September, primarily in May and June. Spring-run Chinook salmon generally enter rivers as sexually immature fish and must hold in freshwater for up to several months before spawning. While maturing, adults hold in deep pools with cold water. Spawning normally occurs between mid-August and early October, peaking in September.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Amphibians				
California red-legged frog	*Rana draytonii*	Threatened/ SSC	California red-legged frogs occur in different habitats depending on their life stage, the season, and weather conditions. Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (*Salix* spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep (≥2 to 3 feet), still or slow moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail (*Typha* sp.) occur adjacent to open water.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
California tiger salamander	*Ambystoma californiense*	Threatened/None	California tiger salamander (CTS) may be found in riparian and wet meadow habitats, but is more common in grasslands. CTS spends most of its life cycle underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They appear to be absent in waters containing predatory game fish.	No potential to occur. Suitable burrows for aestivation are not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
giant gartersnake	*Thamnophis gigas*	Threatened/Threatened	Giant gartersnake is found in isolated populations restricted to the Central Valley of California. It is found in freshwater marsh and wetlands, irrigation ditches, low gradient streams and rice fields containing emergent vegetation. Adjacent upland habitat is necessary for cover and aestivation.	No potential to occur due to lack of a permanent summer water source within 200 feet of suitable upland habitat.
Birds				
bank swallow	*Riparia riparia*	None/Threatened	Restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.	No potential to occur due to lack of suitable cliff habitat within or adjacent to the project area.
burrowing owl	*Athene cunicularia*	None/SSC	The burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	Low potential to occur. Although suitable open grassland habitat occurs within the project area, no California ground squirrels or suitable burrows were observed during the biological survey.
least Bell's vireo	*Vireo bellii pusillus*	Endangered/Endangered	Least Bell's vireo primarily occupies riverine riparian habitats along water, including dry portions of intermittent streams that typically provide dense cover within 1 to 2 meters (3.3 to 6.6 feet) off the ground, often adjacent to a complex, stratified canopy.	No potential to occur due to lack of suitable habitat within or adjacent to the project area.
short-eared owl	*Asio flammeus*	None/SSC	Short-eared owl lives in open terrain such as prairies and marshes. Nests on the ground and eats small mammals.	Low potential to occur. Suitable habitat is found within and adjacent to the project area; however, there are no documented occurrences in the vicinity of the site.
Swainson's hawk	*Buteo swainsoni*	None/Threatened, SSC	Swainson's hawk spends the breeding season in the Central Valley of California and is commonly found in agricultural areas or open grasslands containing solitary trees for nesting. Diet consists of small mammals and reptiles.	Low potential to occur. Suitable foraging habitat for this species occurs within the project area; however, suitable mature trees for nesting do not occur in the vicinity of the site.
tricolored blackbird	*Agelaius tricolor*	None/Candidate Endangered, SSC	Tricolored blackbird is a colonial species found almost exclusively in California. It utilizes wetlands, marshes and agricultural grain fields for foraging and nesting. The tricolored blackbird population has declined significantly in the past 6 years due to habitat loss and harvest of grain fields before young have fledged.	No potential to occur. A small amount of suitable nesting and foraging habitat exists within the project area; however, the disturbed nature of the project area and management practices within suitable adjacent foraging habitat (i.e., mowing) likely precludes tricolored blackbird from occurring.
western snowy plover	*Charadrius alexandrines nivosus*	Threatened/None	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds.	No potential to occur due to lack of suitable habitat within or adjacent to the project area.
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened/Endangered	Western yellow-billed cuckoo inhabits woodlands, thickets, orchards, streamside groves. Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, scrubby oak woods. Often in willow groves around marshes. In the west, mostly in streamside trees, including cottonwood-willow groves in arid country. Forages by scaling through shrubs and trees, gleaning insects from foliage and branches.	No potential to occur due to lack of suitable habitat within or adjacent to the project area.

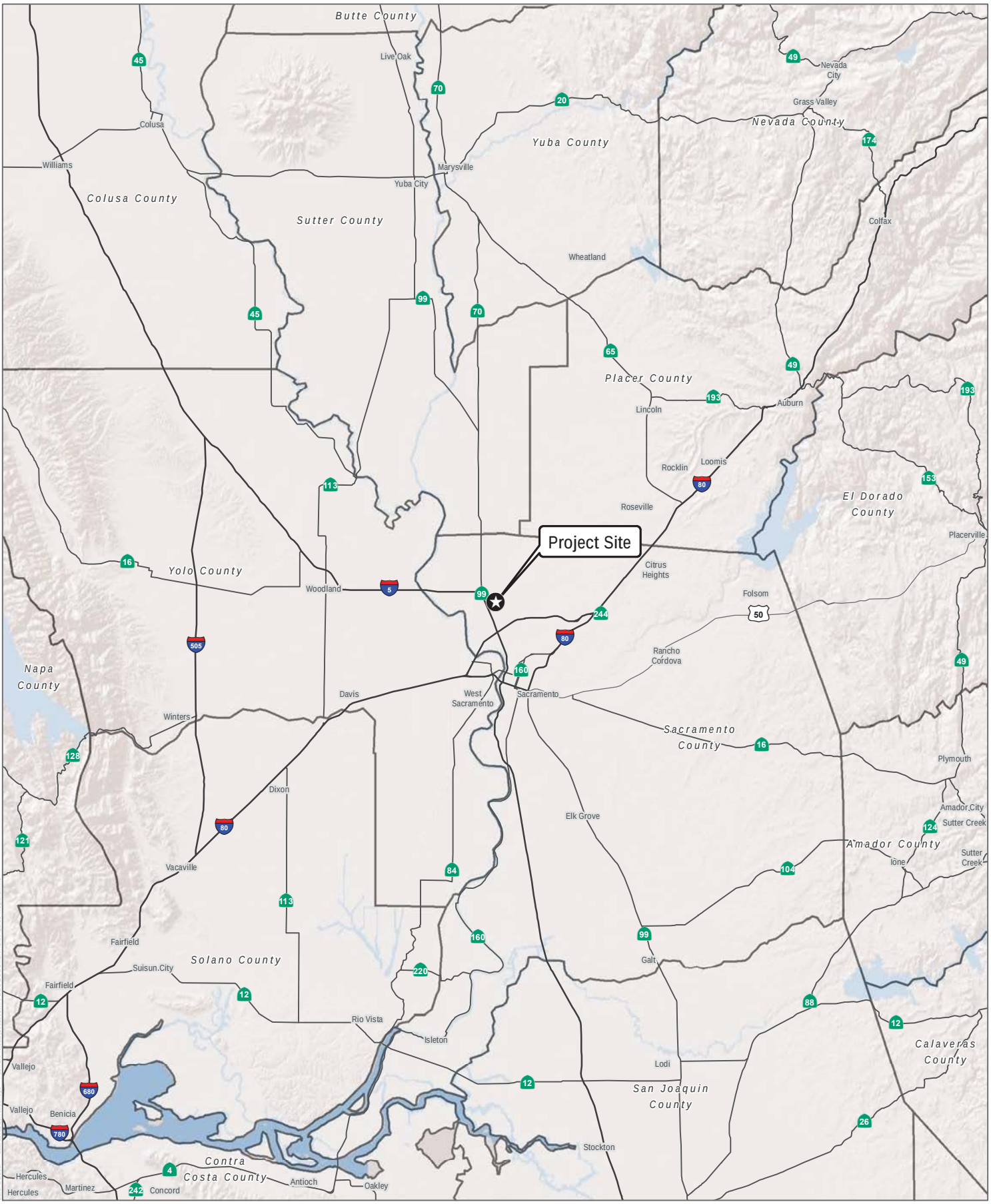
Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
Plants				
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	None/Endangered, CRPR 1B.2	Annual herb found in marshes and swamps (lake margins), vernal pools. Usually clay soils. Elevation 10-2,375 meters. Blooms Apr-Aug.	Low potential to occur. Although there is suitable habitat for this species on the site, a lack of occurrences in the vicinity of the site likely precludes this species from occurring.
palmate-bracted salty bird's beak	*Chloropyron palmatum*	Endangered/Endangered, CRPR 1B.1	Annual herb found in valley and foothill grassland and chenopod scrub in alkaline soils. Elevation 5-155 meters. Blooms May-Oct.	No potential to occur due to lack of suitable habitat within the site.

Appendix C – Plants Observed During the Biological Field Survey at the Proposed North Natomas Aquatics and Community Center Project Site

Family	Scientific Name	Common Name
CYPERACEAE—Sedge Family	*Cyperus eragrostis*	tall flatsedge
POACEAE—Grass Family	**Avena fatua*	wild oat
	**Aira caryophyllea*	silver hairgrass
	**Festuca perennis*	perennial rye grass
ASTERACEAE—Sunflower Family	**Centaurea solstitialis*	yellow star-thistle
	**Dittrichia graveolens*	stinkwort
	**Helminthotheca echioides*	bristly oxtongue
	**Lactuca serriola*	prickly lettuce
	**Silybum marianum*	blessed milkthistle
	**Tragopogon porrifolius*	salsify
	Xanthium strumarium	cocklebur
BRASSICACEAE—Mustard Family	**Brassica nigra*	black mustard
	**Lepidium latifolium*	perennial pepper weed
CHENOPODIACEAE—Goosefoot Family	**Chenopodium murale*	nettleleaf goosefoot
LYTHRACEAE—Loosestrife Family	**Lythrum hyssopifolia*	hyssop loosestrife
MALVACEAE—Mallow Family	*Malvella leprosa*	alkali mallow
ONAGRACEAE—Evening Primrose Family	*Epilobium brachycarpum*	tall annual willowherb
POLYGONACEAE—Buckwheat Family	**Polygonum aviculare ssp. depressum*	prostrate knotweed
	**Rumex crispus*	curly dock
	Persicaria lapathifolia	smartweed
SALICACEAE—Willow Family	*Salix gooddingii*	black willow
SOLANACEAE—Nightshade Family	**Physalis philadelphica*	Mexican groundcherry

* Non-native species

"Latin and common names for plant species with a California Rare Plant Rank (formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2017). For plant species without a California Rare Plant Rank, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2015) and common names follow the United States Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2015)."



SOURCE: Esri Basemaps

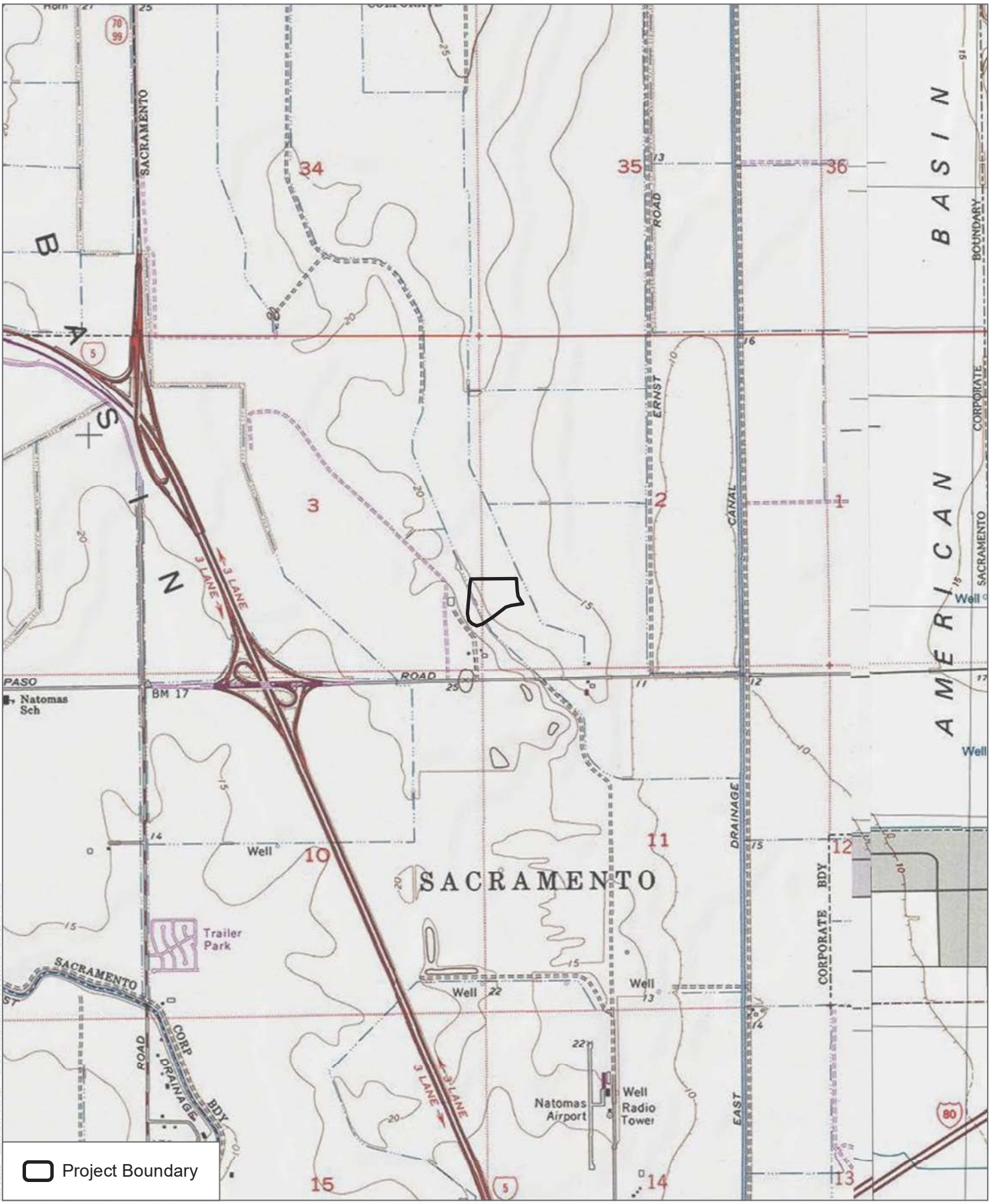
DUDEK

0 5 10 Miles

FIGURE 1

Regional Map

North Natomas Aquatic Center Project



SOURCE: USGS 7.5-Minute Series Taylor Monument Quadrangle
Township 9N; Range 4E; Sections 2, 3

DUDEK

0 1,000 2,000 Feet

FIGURE 2
Vicinity Map
North Natomas Aquatic Center Project

SOURCE: Bing Maps (Accessed 2017)

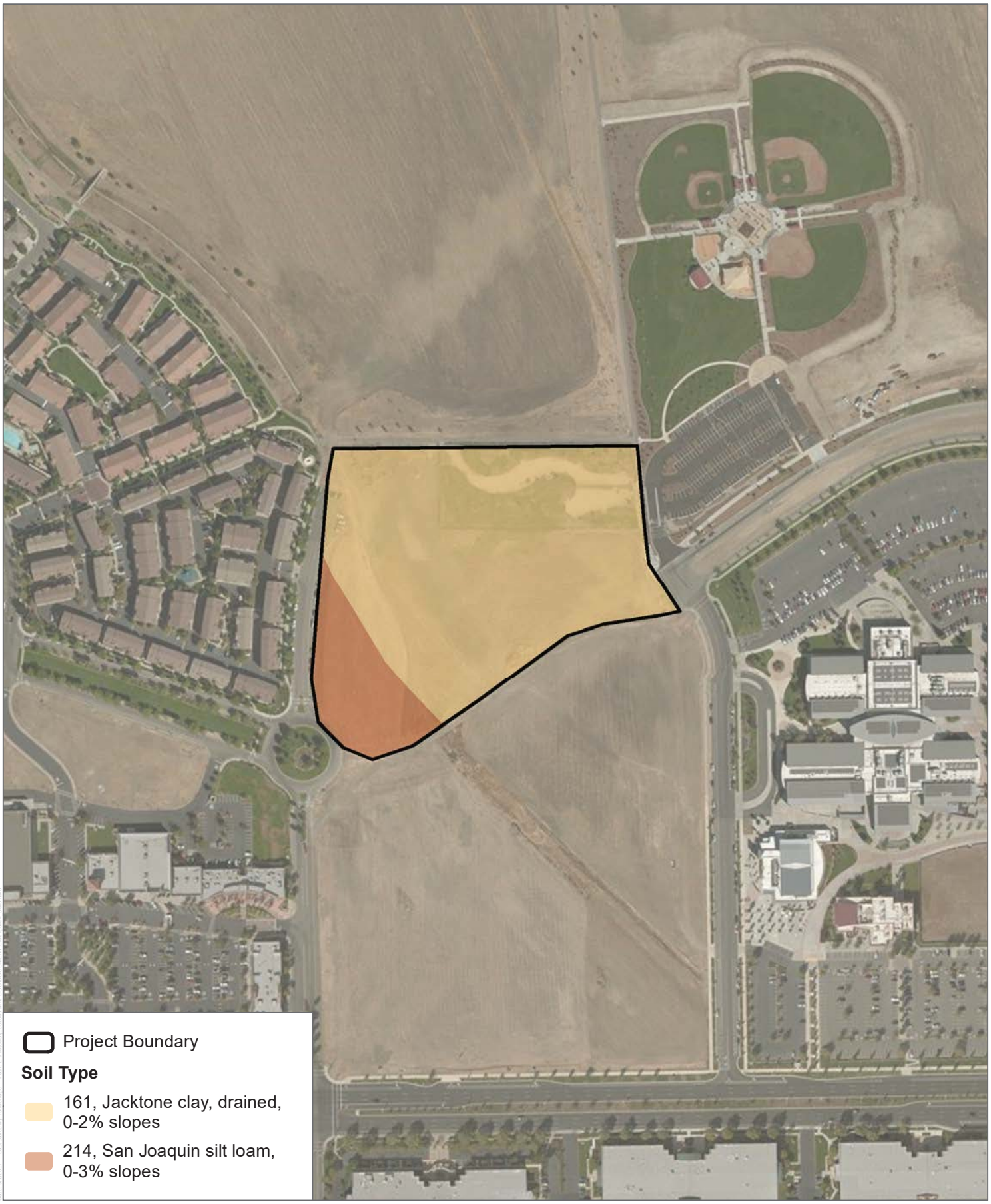
DUDEK

0 150 300 Feet

FIGURE 3

Site Map

North Natomas Aquatic Center Project



SOURCE: Bing Maps (Accessed 2017); USDA NRCS

DUDEK

0 150 300 Feet

FIGURE 4

Soils Map

North Natomas Aquatic Center Project

Looking north across the project site

Looking west across the project site

Seasonal wetland

Western edge of the project site

FIGURE 5

Site Photos

North Natomas Aquatic Center Project

DUDEK

APPENDIX C

Review of Potential Wetlands and Waters of the United States

October 27, 2017 10626

Jon Blank
City of Sacramento Department of Parks and Recreation
915 I Street, 3rd Floor
Sacramento, CA 95814

Subject: ***Review of Potential Wetlands and Waters of the United States at the North Natomas Community and Aquatics Center Project, City of Sacramento, Sacramento County, California***

Dear Mr. Blank:

The purpose of this letter is to describe the methodology, existing conditions, and results of the jurisdictional delineation of waters of the United States (US) for an approximately 10.5-acre proposed North Natomas Community and Aquatics Center (NNACC – proposed project) project site in Sacramento, California (Figure 1).

INTRODUCTION

The study area totals approximately 10.15 acres and is located in North Natomas within then North Natomas Regional Park, north of Del Paso Boulevard in the northern portion of the City of Sacramento (Figure 2). The site is situated in Sections 2 and 3, Township 9 North, and Range 4 East on the Taylor Monument 7.5 minute quadrangle. The center of the study area corresponds to 38°39'34" north latitude and 121°31'17" west longitude (Figure 3). It is bounded on the east by Inderkum High School, on the north and south by undeveloped annual grassland habitat, and on the west by residential development. An off-leash Dog Park is located in the northeastern portion of the study area. The remainder of the study area south and west of the dog park was graded in 2002 as part of preparation for development. Although development has not yet occurred, the project is still active, and the site has been maintained annually since 2002 as part of the development process. Maintenance activities include mowing, discing, and herbicide treatment. In the western portion of this graded area is a somewhat linear depression created by construction activity associated with the grading of the site for development. The project site falls within the Natomas Basin Habitat Conservation Plan (NBHCP) whereas as the site has been disturbed and the habitat mitigation fees have been paid in 2008 and 2015 as part of these activities. The City typically discs the entire area in question as prescribed by the HCP; however, this year (2017) was unusually wet and discing done in dry areas only.

Directions to the Project Site

From Sacramento, California, travel north on U.S. 5 for approximately 5 miles. Take exit 552A onto Del Paso Road and turn right. Turn left on Town Center Drive, which dead-ends in a cul-de-sac at the study area.

Regional Setting

The study area is bounded on the west by Town Center Drive, on the north and northeast by the North Natomas Regional Park, on the south by undeveloped but graded land with Del Paso Boulevard beyond (Figure 2). The study area is currently undeveloped, but has been graded numerous times since 2001 for development, and as part of the Inderkum High School project, storm drain and sewer mains were constructed along the southerly project boundary. Prior to that, it was cropland.

METHODS

Potential wetland waters of the United States were delineated based on methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008a). Non-wetland waters of the United States are delineated based on the presence of an OHWM, as determined using the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2008b) and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010).

It is important to note that the vacant portions study area, including areas that were clearly uplands contained surface soil cracks (Primary Hydrology Indicator B6) which complicated the delineation methodology. After walking the entire study area and adjacent vacant parcels the surface cracking was observed outside of the study area as well, also in areas that were clearly uplands and differing soil types. Based on this observation, a review of historical aerial photographs from 1993 to 2017 and grading history of the study area and adjacent parcels it was determined that this indicator (BC) was not suitable for use in as a primary indicator for hydrology as it is not an indicator of hydrology but instead is a relict effect of past grading of the study area and surrounding parcels starting in the early 2000's and continuing through 2013.

Literature Review

Prior to conducting fieldwork, the following available resources were reviewed to assess the potential for jurisdictional features to occur at the study area:

- 1:200-scale aerial photograph (Bing Maps 2017; Google Earth 2017);
- 1:700-scale aerial photographs (Google Earth 2002, 2006, 2010, 2014, 2017)
- U.S. Geological Survey 7.5-minute topographic quadrangle (USGS 2016);
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (USDA 2017a); and
- National Wetland Inventory (USFWS 2017).

Field Review

Dudek biologist, John Spranza conducted the field survey of the study area on September 22, 2017, to document current site conditions and assess potential wetlands and other waters of the United States. Mr. Spranza collected photographic records that represent the on-site habitats and wetlands (Attachment 1).

RESULTS

Site Characteristics

Topography

The study area is generally flat and sits at an elevation of approximately 20 feet above mean sea level. There is a concave area in the western portion of the study area that receives localized runoff.

Hydrology

The study area is part of the Lower Sacramento Watershed, Hydrologic Unit Code 18020109. The hydrology of the site has been influenced by anthropogenic sources including residential, recreational and educational facilities in the surrounding areas. Sources of hydrology in the study area include precipitation and runoff from the surrounding areas. There is outflow from the site to the adjacent storm drainage system built as part of the Inderkum High School Project. Runoff that enters the study area concentrates in the concave portion of the study area, and excess runoff enters the drainage system that defines the wetland area which is further discussed below and corresponds to DP-1, DP-2 and DP-3.

The National Wetlands Inventory (USFWS 2017) identifies and area within the study area as Riverine. This feature corresponds to a dry, abandoned man-made Reclamation District-1000 agricultural ditch in the western section of the study area that has been partially filled and partially graded to drain as part of a number of development projects. There is no hydrological connection to any nearby waterbodies and the vegetation within the ditch was upland in nature. Based on historic aerial image analysis, the former agricultural ditch was once part of an extensive network of agricultural ditches that was present in the region at least as far back as 1947. As the land use in the area gradually converted from agricultural to residential and commercial, the ditches were steadily filled, in part or completely. Aerial photos within the past decade were reviewed to identify when it was still in use; upon review, it appears the ditch was abandoned sometime between the late 1990s and early 2000s.

Soils

According to the Natural Resources Conservation Service (USDA 2017), two soil types are mapped within the project site; Jacktone clay, drained, 0-2% slopes; and San Joaquin silt loam, 0-3% slopes (Figure 3). Each of these soil types is described in further detail, below.

- ***Jacktone clay, drained, 0-2% slopes***: The Jacktone Clay consists of somewhat poorly drained soils in high areas on basins. These soils are moderately deep over a duripan and are protected against flooding by a system of levees and large upstream dams. They are artificially drained and are formed in fine textured alluvium derived from mixed rock sources. Vegetation found on this soil is mainly composed of grasses and forbs. Jacktone Clay has a slope range of 0 to 2 percent and an annual precipitation of about 16 to 18 inches. Jacktone Clay soil is listed as hydric on the Sacramento County hydric soils list (USDA 1992).
- ***San Joaquin silt loam, 0-3% slopes***. The San Joaquin series consists of moderately deep to a duripan, well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources. They are on undulating low terraces with slopes of 0 to 9 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 61 degrees F. San Joaquin silt loam soil is not listed as hydric on the Sacramento County hydric soils list (USDA 1992).

Vegetation

Two vegetation communities or land cover types were observed during the field assessment. The off-leash Dog Park within the study area is characterized as developed/disturbed with the remainder of the area characterized as annual grassland (Sawyer et al. 2009). The Dog Park is

dominated by non-native turf (*Poa* sp) while the annual grassland is dominated by non-native grasses. Dominant herbaceous species in the non-native annual grassland include: wild oat (*Avena* spp.), Italian rye-grass (*Festuca perennis*), yellow star-thistle (*Centaurea solstitialis*) and alkali mallow (*Malvella leprosa*).

Within the annual grassland there were areas that contained vegetation typical of that found in wetlands, this includes tall flat sedge (*Cyperus eragrostis*) bristly oxtoung (*Helminthotheca echioides*), perennial pepper weed (*Lepidium latifolium*), and curly dock (*Rumex crispus*). This area is discussed further in the "Wetland Delineation" section of this letter report. All plants observed onsite during the survey were documented and are included in this report as Attachment 2.

Wetland Delineation

One wetland type was identified in the study area during the delineation using indicators of wetland hydrology, plants, and soils, the boundaries of which is shown in Figure 5 and within the data forms in Attachment 3. Table 1 provides the acreages and linear footage of the wetland feature, and it is described in more detail, below. The feature is also presented in the Aquatic Resources Spreadsheet included in this report as Attachment 4.

Table 1
Wetlands and Other Waters of the U.S. within the Study Area

Feature ID	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
Seasonal Wetland 01 (SW-1)	PEM2	Non-jurisdictional	0.807	N/A
		Total	**0.807**	**N/A**

PEM2 – Palustrine emergent nonpersistent;

Wetlands

One isolated seasonal wetland (SW-1) was documented within the study area. The seasonal wetland is largely dominated tall flat sedge (*Cyperus eragrostis*) bristly oxtoung (*Helminthotheca echioides*), perennial pepper weed (*Lepidium latifolium*), and curly dock (*Rumex crispus*), and cocklebur (*Xanthium strumarium*) interspersed. The soil profile was characterized in the upper 14 inches by a dark gray (7.5YR 4/2) clay loam matrix with 10 percent redox concentrations.

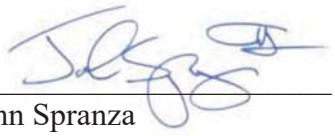
This feature is not connected or adjacent to any other wetlands. Excessive runoff flows into a permitted detention basin that is then pumped into an adjacent RD 1000 drainage canal east of Natomas Boulevard. The wetland area was artificially created by filling in some of the last remnants of the historic drainage ditch that inflows into the drainage system constructed in 2004. Attachment 5 provides historical imagery of the site that shows development of this feature after 2002 as a result of grading for the regional park. It also contains an image from February 21, 2014 after 1.82 inches of rain fell during the previous 2 weeks. It is clear from this photograph that the site is isolated as ponding and is defined by the inlet elevation of the storm drain system that is located at the southern edge of the wetland feature. This, in combination with the area being construction-related ditch dug in uplands for stormwater management, it would not be considered jurisdictional under the Clean Water Act.

CONCLUSIONS

The study area supports a total of 0.807 acres of wetlands that are not anticipated to meet the criteria for jurisdictional waters of the U.S., due to their isolation from other Waters of the U.S. As noted above, all findings herein are preliminary until verified by the Sacramento District of the Army Corps of Engineers.

If there are any questions or concerns regarding the information presented in this letter report, please contact me at 530-863-4568 or jspranza@dudek.com.

Sincerely,



John Spranza
Principal Aquatic Ecologist

Figs: Figure 1 – Regional Map
Figure 2 – Site and Vicinity
Figure 3 – Soils Map
Figure 4 – Wetland Delineation Map

Atts.: Attachment 1 – Representative Site Photographs
Attachment 2 – Plant Compendium
Attachment 3 – Data Sheets
Attachment 4 – Aquatic Resources Spreadsheet
Attachment 5 – Historical Aerial Photographs

cc: Christine Kronenberg, Dudek

REFERENCES CITED

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed June 2015. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

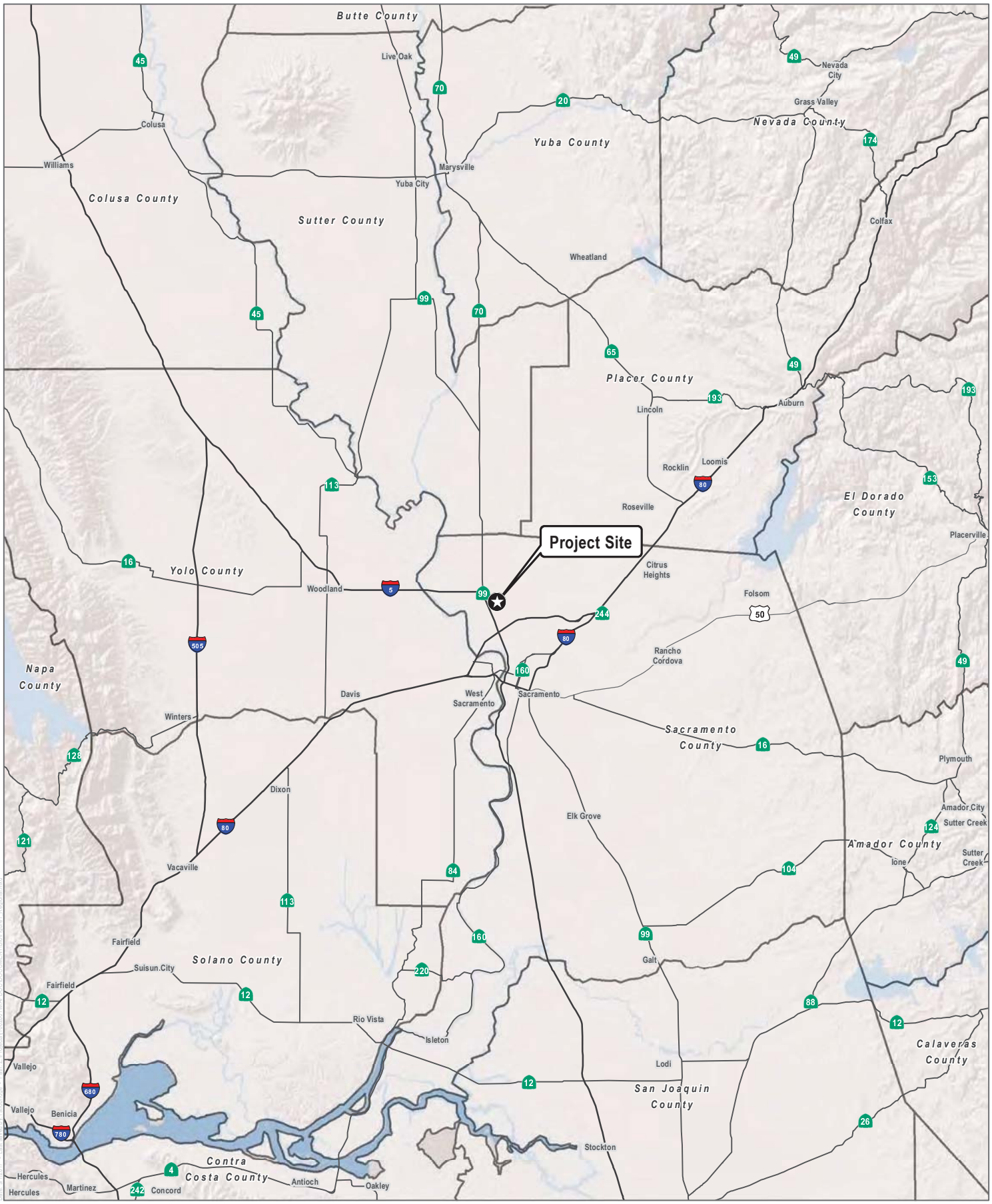
ACOE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. Accessed June 2012. http://el.erdc.usace.army.mil/elpubs/pdf/trel08-28.pdf.

ACOE. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States.* Accessed August 2016. http://www.dtic.mil/dtic/tr/fulltext/u2/a486603.pdf.

Curtis, Katherine E. and R. W. Lichvar. 2010. *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Cold Regions Research and Engineering Laboratory, U.S. Army Engineer Research and Development Center. Hanover, NH. July 2010.

John O. Sawyer, Todd Keeler-Wolf, and Julie M. Evens. 2009. A manual of California Vegetation. Second Edition, California Native Plant Society, Sacramento, California, USA. 1,300 pages

USDA (U.S. Department of Agriculture). 2017. Natural Resources Conservation Service (NRCS). Web Soil Survey. Accessed August 2017. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htmU.S. Fish and Wildlife Service (USFWS). 2017. National Wetlands Inventory Mapper. Available online: https://www.fws.gov/wetlands/data/mapper.html. Accessed October 2017.



SOURCE: Esri Basemaps

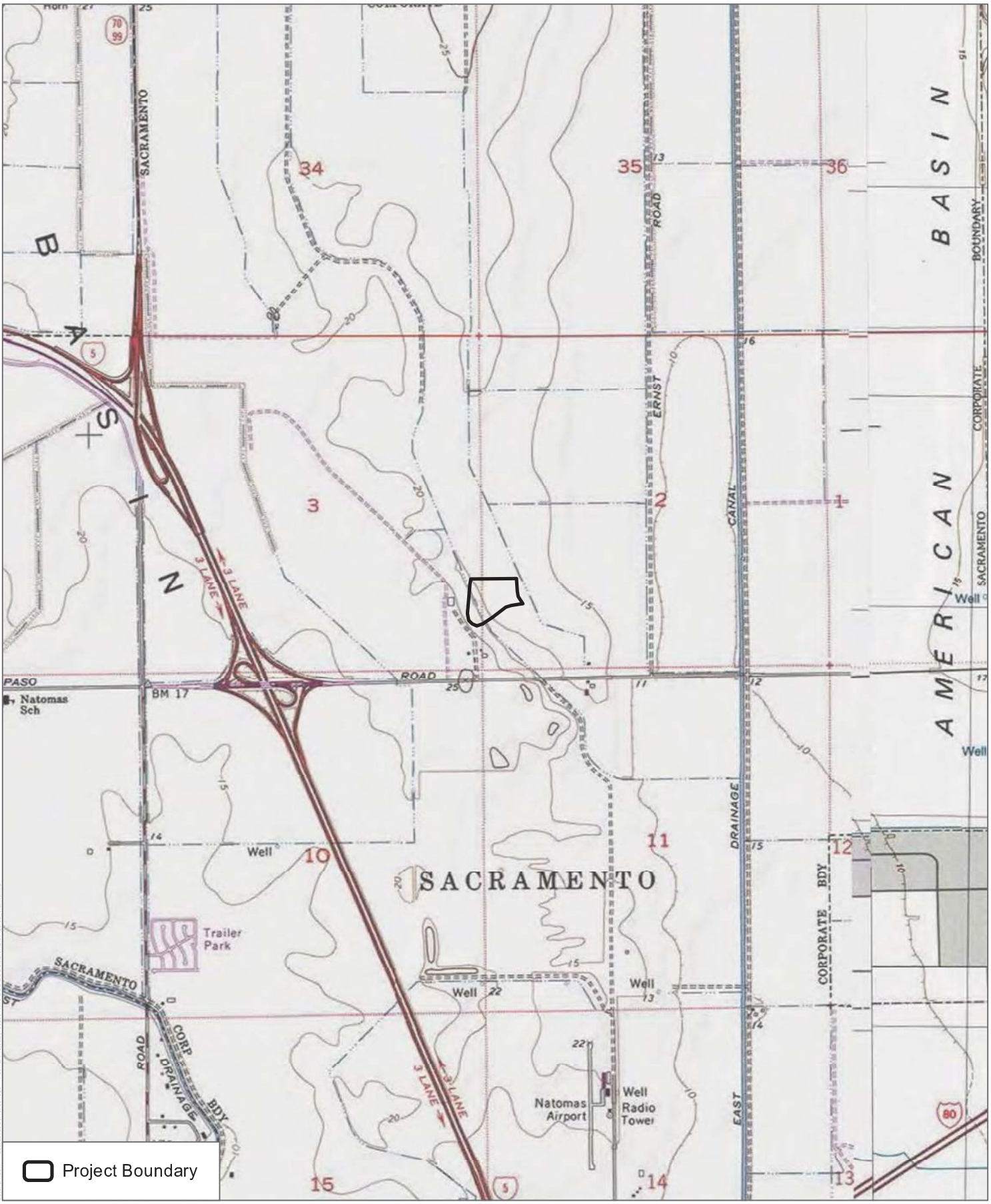
DUDEK

0 5 10 Miles

FIGURE 1

Regional Map

North Natomas Aquatic Center Project



SOURCE: USGS 7.5-Minute Series Taylor Monument Quadrangle
Township 9N; Range 4E; Sections 2, 3

DUDEK

0 1,000 2,000 Feet

FIGURE 2

Vicinity Map

North Natomas Aquatic Center Project

SOURCE: Bing Maps (Accessed 2017)

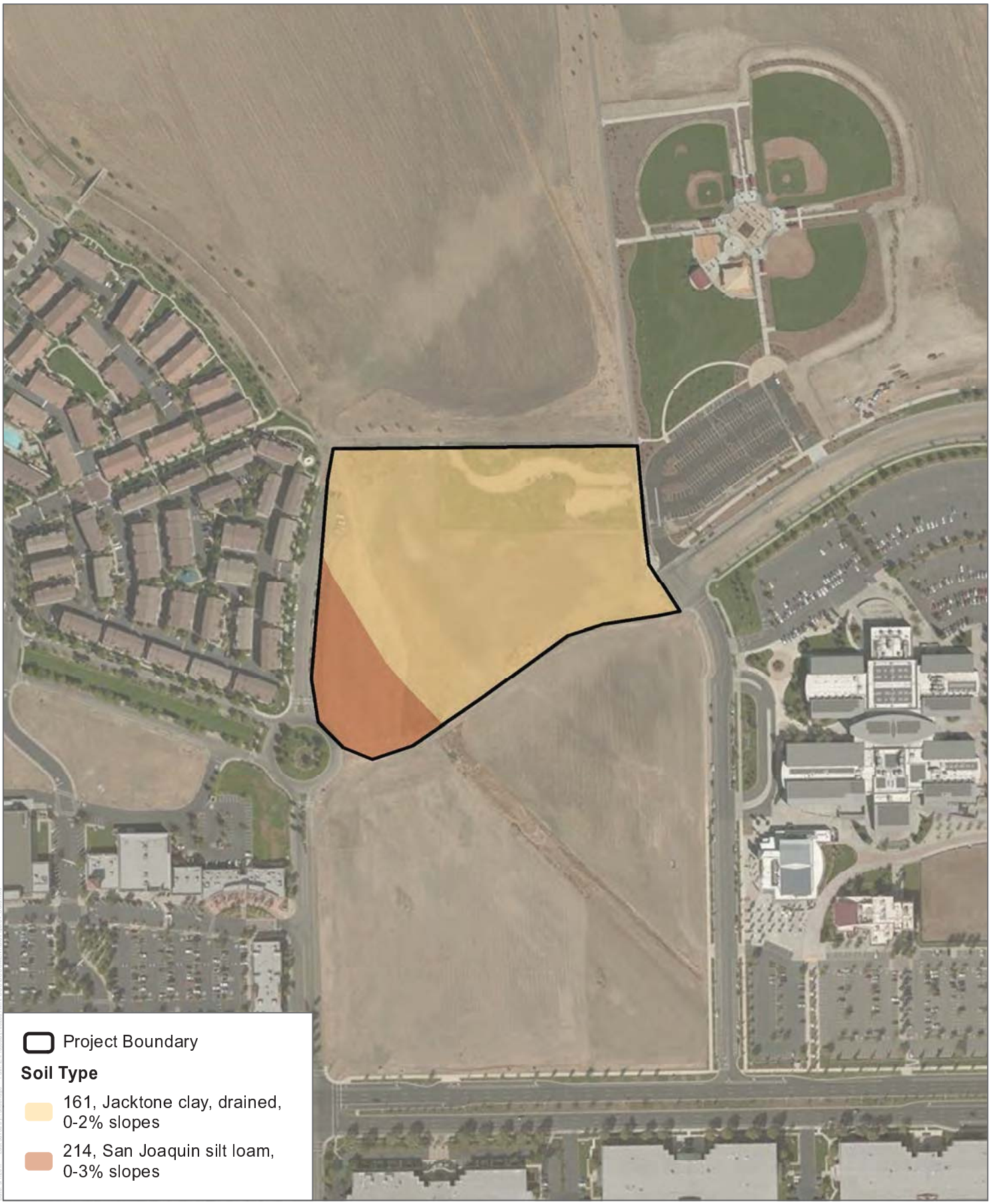
DUDEK

0 150 300 Feet

FIGURE 3

Site Map

North Natomas Aquatic Center Project



SOURCE: Bing Maps (Accessed 2017); USDA NRCS

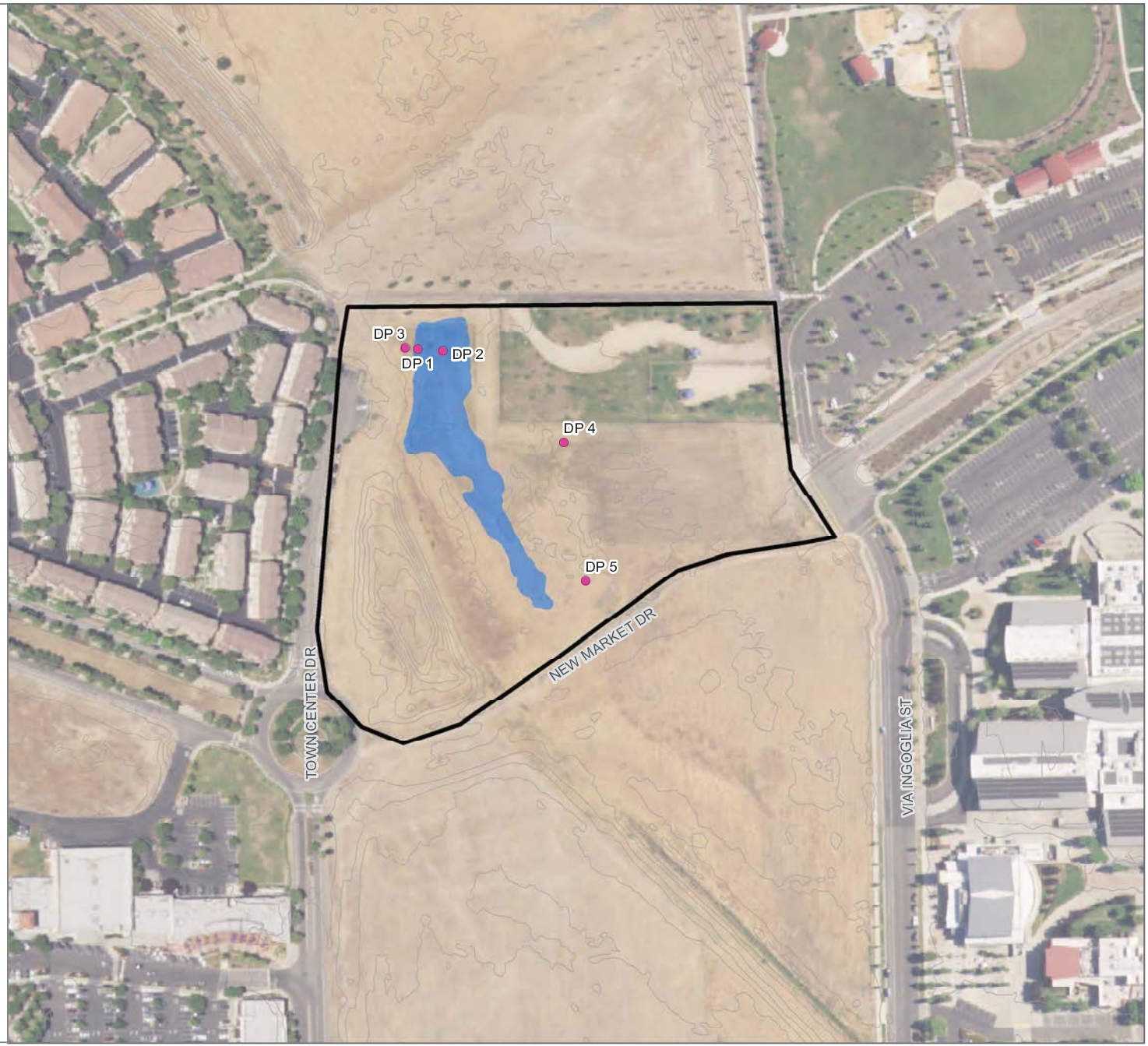
DUDEK

0 150 300 Feet

FIGURE 4

Soils Map

North Natomas Aquatic Center Project



Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 350 feet

Created on October 12th, 2017
Revised on October 12th, 2017

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

SOURCE: USDA NAIP (2016)

FIGURE 5

Delineation of Wetlands and Other Waters of the U.S.

North Natomas Aquatic Center

DUDEK

Attachment 1- Site Photographs

Attachment 1- Representative Site Photos

DP1, 2 and 3 Transect, Looking East

DP-1 Looking East

DP-2

DP-3-Looking East

Attachment 1- Representative Site Photos

DP-4 Looking North

DP-5 Looking West

SW-1 Looking Northeast

SW-1 Looking Southeast

Attachment 2- Plant List for Project Site

Attachment 2
Plants Observed During the Biological Field Survey at the Proposed North Natomas Aquatics and Community Center Project Site

Family	Scientific Name	Common Name
CYPERACEAE—Sedge Family	*Cyperus eragrostis*	tall flatsedge
POACEAE—Grass Family	**Avena fatua*	wild oat
	**Aira caryophyllea*	silver hairgrass
	**Festuca perennis*	perennial rye grass
ASTERACEAE—Sunflower Family	**Centaurea solstitialis*	yellow star-thistle
	**Dittrichia graveolens*	stinkwort
	**Helminthotheca echioides*	bristly oxtongue
	**Lactuca serriola*	prickly lettuce
	**Silybum marianum*	blessed milkthistle
	**Tragopogon porrifolius*	salsify
	Xanthium strumarium	cocklebur
BRASSICACEAE—Mustard Family	**Brassica nigra*	black mustard
	**Lepidium latifolium*	perennial pepper weed
CHENOPODIACEAE—Goosefoot Family	**Chenopodium murale*	nettleleaf goosefoot
LYTHRACEAE—Loosestrife Family	**Lythrum hyssopifolia*	hyssop loosestrife
MALVACEAE—Mallow Family	*Malvella leprosa*	alkali mallow
ONAGRACEAE—Evening Primrose Family	*Epilobium brachycarpum*	tall annual willowherb
POLYGONACEAE—Buckwheat Family	**Polygonum aviculare ssp. depressum*	prostrate knotweed
	**Rumex crispus*	curly dock
	Persicaria lapathifolia	smartweed
SALICACEAE—Willow Family	*Salix gooddingii*	black willow
SOLANACEAE—Nightshade Family	**Physalis philadelphica*	Mexican groundcherry

* Non-native species

"Latin and common names for plant species with a California Rare Plant Rank (formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2017). For plant species without a California Rare Plant Rank, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2015) and common names follow the United States Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2015)."

Attachment 3- Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NN Aquatic Corr City/County: Sacto, Sacto Sampling Date: [illegible]
Applicant/Owner: City of Sacramento State: CA Sampling Point: DP-1-1
Investigator(s): Spranza Section, Township, Range: S-283 T-9N R-4E
Landform (hillslope, terrace, etc.): Flat lowland Local relief (concave, convex, none): concave Slope (%): <1%
Subregion (LRR): ____ Lat: ± 38°39'36 N Long: ±121°31'20 W Datum: ____
Soil Map Unit Name: Sacktone Clay, drained 0-2% Slope NWI classification: Wet
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
wetland met

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.5M)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 0.5m)			
1. N/A	0		
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 0.5M)			
1. C. eragrostis	15	Y	FACW
2. L. latifolium	10	Y	FAC
3. H. echioides	10	Y	FAC
4. Rumex crispus	5	N	FAC
5. L. hyssopifolia	5	N	NL
6. D. graveolens	5	N	NL
7.			
8.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ____)			
1. N/A			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Vegetative mat - desiccated.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	7.5YR 4/2	100	7.5YR 4/6	10	C	M	LoAmy	Some Rocks / Fill in Soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Site was previously graded

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- N/A Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The entire site, including upland areas have surface cracking due to past grading. As a result B6 is excluded as an indicator

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: North Natomas AC City/County: Sacramento, Sac Sampling Date: 9/22/17

Applicant/Owner: City of Sacramento State: CA Sampling Point: DP-2

Investigator(s): John Sprauer Section, Township, Range: S-28 T-9N R-4E

Landform (hillslope, terrace, etc.): lowland Local relief (concave, convex, none): Concave Slope (%): 0/8

Subregion (LRR): Lat: ± 38° 39' 36" Long: ± 121° 31' 20" W Datum:

Soil Map Unit Name: Sacramento Clay 0-2% NWI classification: Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.5m)			
1.	0		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 0.5m)			
1. C. eragrostis	30	Y	FACW
2. M. leprosa	10	Y	FACU
3. L. latifolium	15	Y	FAC
4. H. echioides	5	N	FAC
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 0.5m)			
1.	0		
2.	0		
	= Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
- Desiccated vegetative mat & bare ground
- low point in concave area

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	2.5YR 4/2	100	2.5YR 4/6	20	C	M	loamy	-very hard-cracked

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes Y No ___

Remarks: Soil different from DP-1 - less rocks & fill

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- N/A Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo DP-2 B6 is N/A because Entire site, even uplands has cracks

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NAtomas Agostic Center City/County: SACRAMENTO, SACTO Sampling Date: 9/22/17

Applicant/Owner: City of SACRAMENTO State: CA Sampling Point: DP3

Investigator(s): Gabi SPRANZA Section, Township, Range: S-28 3 T-9N R-4E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): NONE Slope (%): 0

Subregion (LRR): Lat: 38°39'36" N Long: 121°31'20" W Datum:

Soil Map Unit Name: SACRAMENTO clay 0-2% NWI classification: WET

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: UPLAND

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.5)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.5)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 0.5)			
1. A. FATUA	70	Y	NL
2. C. SOLSTITIALIS	20	Y	NL
3. B. DIGITA	5	N	NL
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 0.5)			
1.	0		
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust /

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: UPLAND SAMPLE POINT – AREA HAS BEEN MOWED

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	7.5YR 4/3	85	7.5YR 4/6	5	C	M	LOAMY	
" "	GRAVEL	10	N/A					
" "	PEBBLE	5	N/A					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

APPEARS TO HAVE A SMALL AMOUNT OF FILL W/ NATIVE

- BGL ASPHALT CHUNKS 3-4" FOUND IN MATRIX

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- N/A Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

B6 IS N/A DUE TO SOIL CRACKS ACROSS ENTIRE AREA

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NJAC City/County: Sacramento, SACTO Sampling Date: 9/22/17
Applicant/Owner: City of Sacramento State: CA Sampling Point: DP-4
Investigator(s): John Sprawl Section, Township, Range: S-28 T-9N R4E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 1%
Subregion (LRR): Lat: 38°39'36"N Long: 121°31'20"W Datum:
Soil Map Unit Name: Sacktone Clay 0-2% NWI classification: Wet
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Irrigation Runoff area from dog park. Would otherwise be dry like surrounding area.

VEGETATION – Use scientific names of plants. Photo

Tree Stratum (Plot size: @ GM)	Absolute % Cover	Dominant Species?	Indicator Status
1. NA	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.5)			
1. N/A	0		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 0.5)			
1. H. echioides	50	Y	FAC
2. Poa pretensis	45	Y	FAC
3. Trifolium hirtum	5	N	NL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 0.5)			
1. N/A			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Veg is typical of spring growth watered from dog park & has mix of turf grass.

SOIL

Sampling Point: DRY

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	2.5YR 3/2	100	7.5YR 5/8	2	C	M	Loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks: Soil was saturated due to irrigation runoff. Let soil sample dry for 20 minutes prior to reading color

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0-14"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

+ Irrigation runoff. If irrigation reduced hydrology will no longer be present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Natomas Aquatic Center City/County: Sacto, Sacto Sampling Date: 9/22/17
Applicant/Owner: City of Sacramento State: CA Sampling Point: DP-5
Investigator(s): John Spranza Section, Township, Range: S-28 T-9N R-4E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 1%
Subregion (LRR): Lat: ≈38°39'36"N Long: ≈121°31'26"W Datum:
Soil Map Unit Name: Xerarents clay 0-2% NWI classification: Wet
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.15m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	1 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.15m)			
1.	1		
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 0.15m)			
1. L. hyssopifolia	10	Y	NL
2. A. fatua	15	Y	NL
3. C. solstitialis	10	Y	NL
4. D. graveolens	10	Y	NL
5. L. serriola	5	N	NL
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 0.15)			
1.	1		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
2 photos Area has been mowed

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5YR 4/3	100	NONE	/	/	/	loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- N/A Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

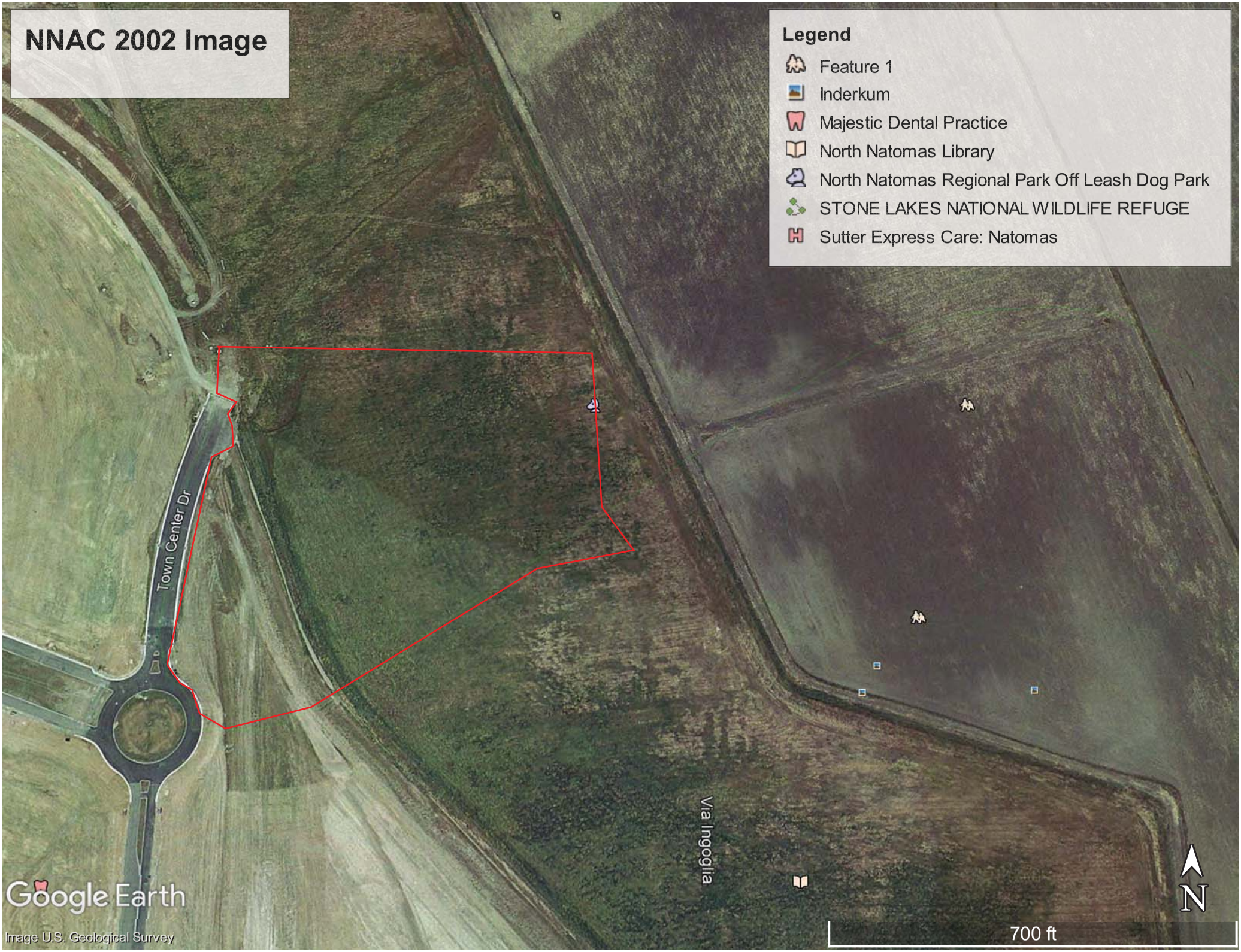
Surface cracks (B6) are discounted as entire site has them.

Attachment 4- Aquatic Resources Spreadsheet

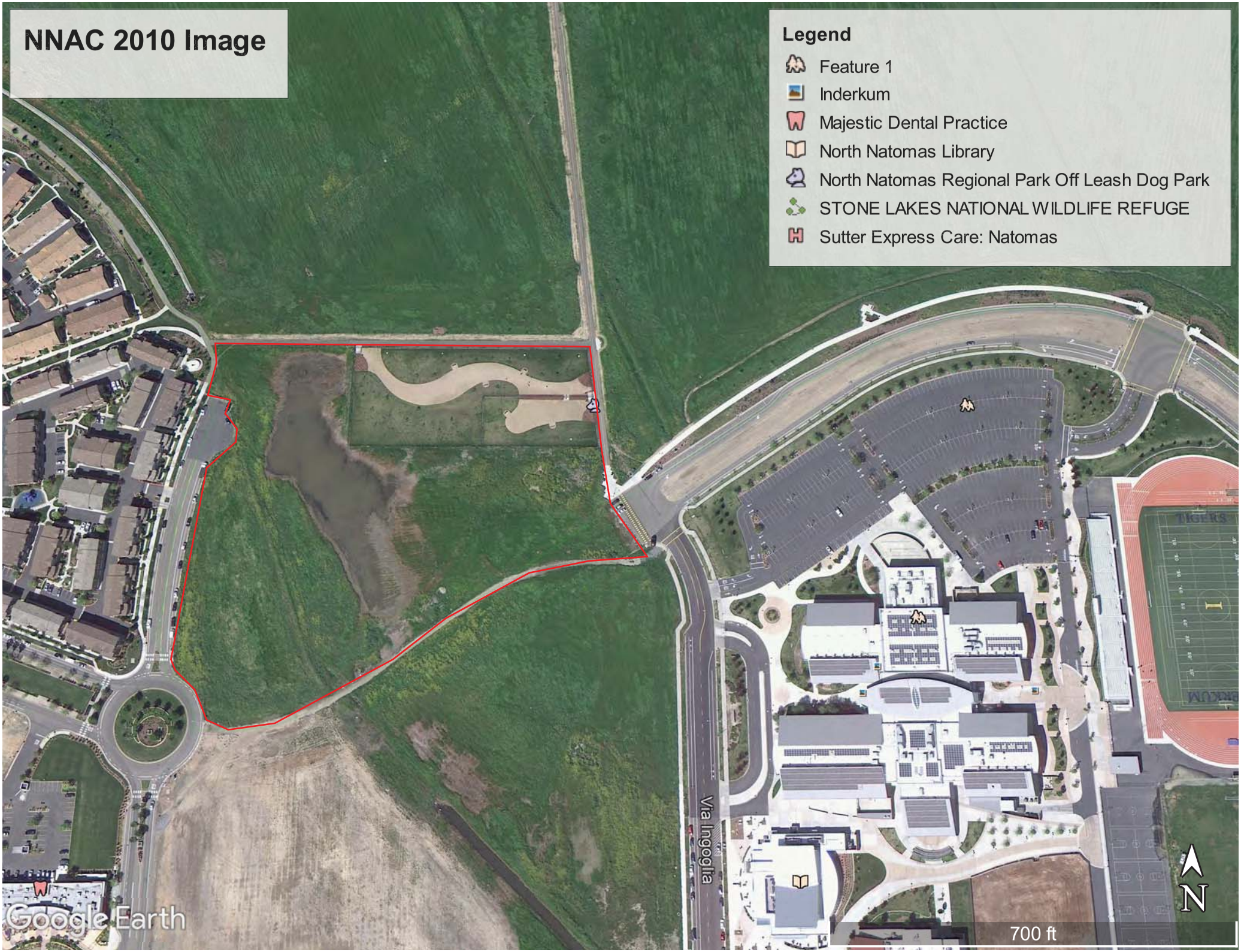
Attachement 4- Aquatic Resources Spreadsheet

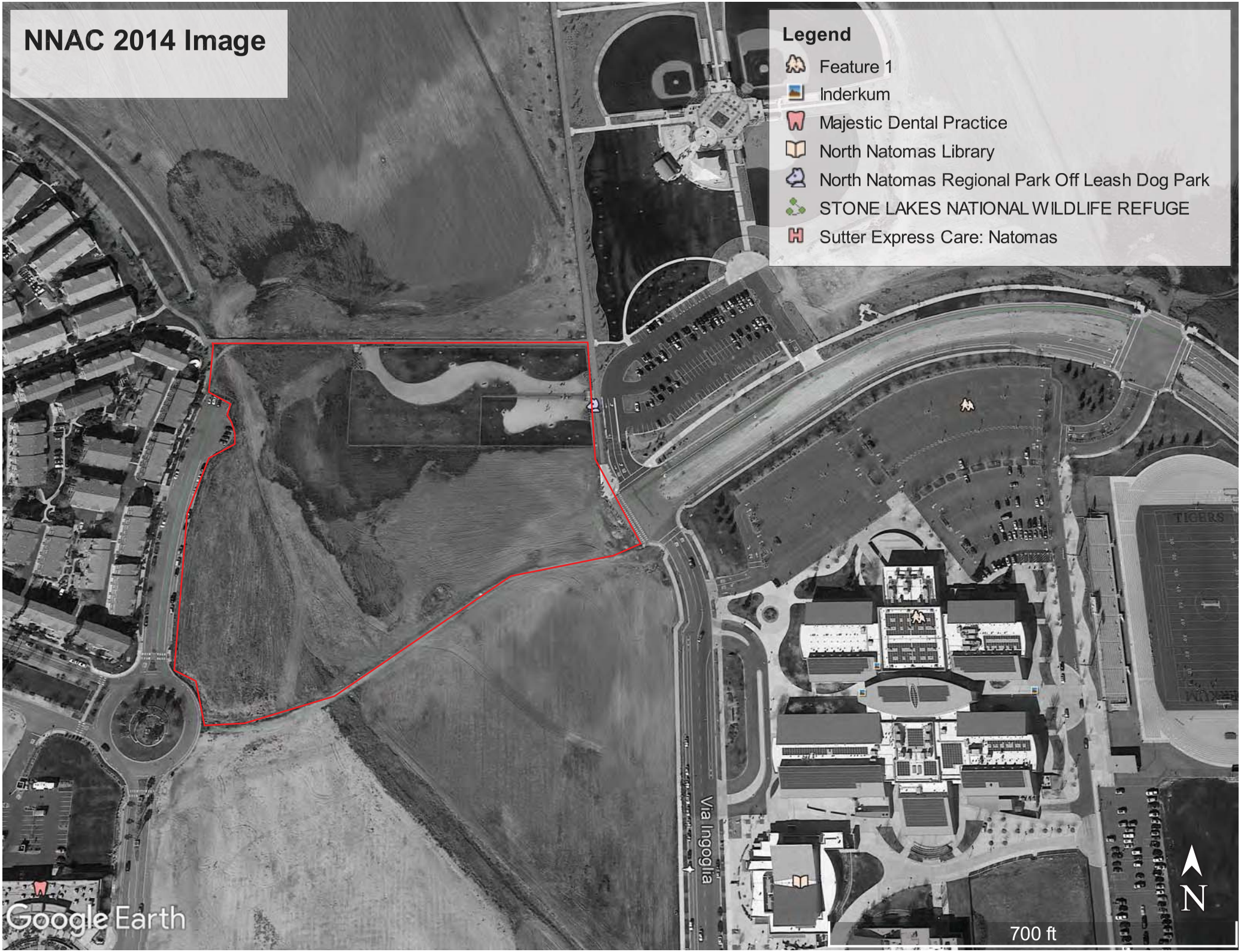
Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-1	CALIFORNIA	PEM	MINSOILFLT	Area	0.807	ACRE	ISOLATE	38.65957800	-121.52110100	Lower Sacramento Watershed, 18020109

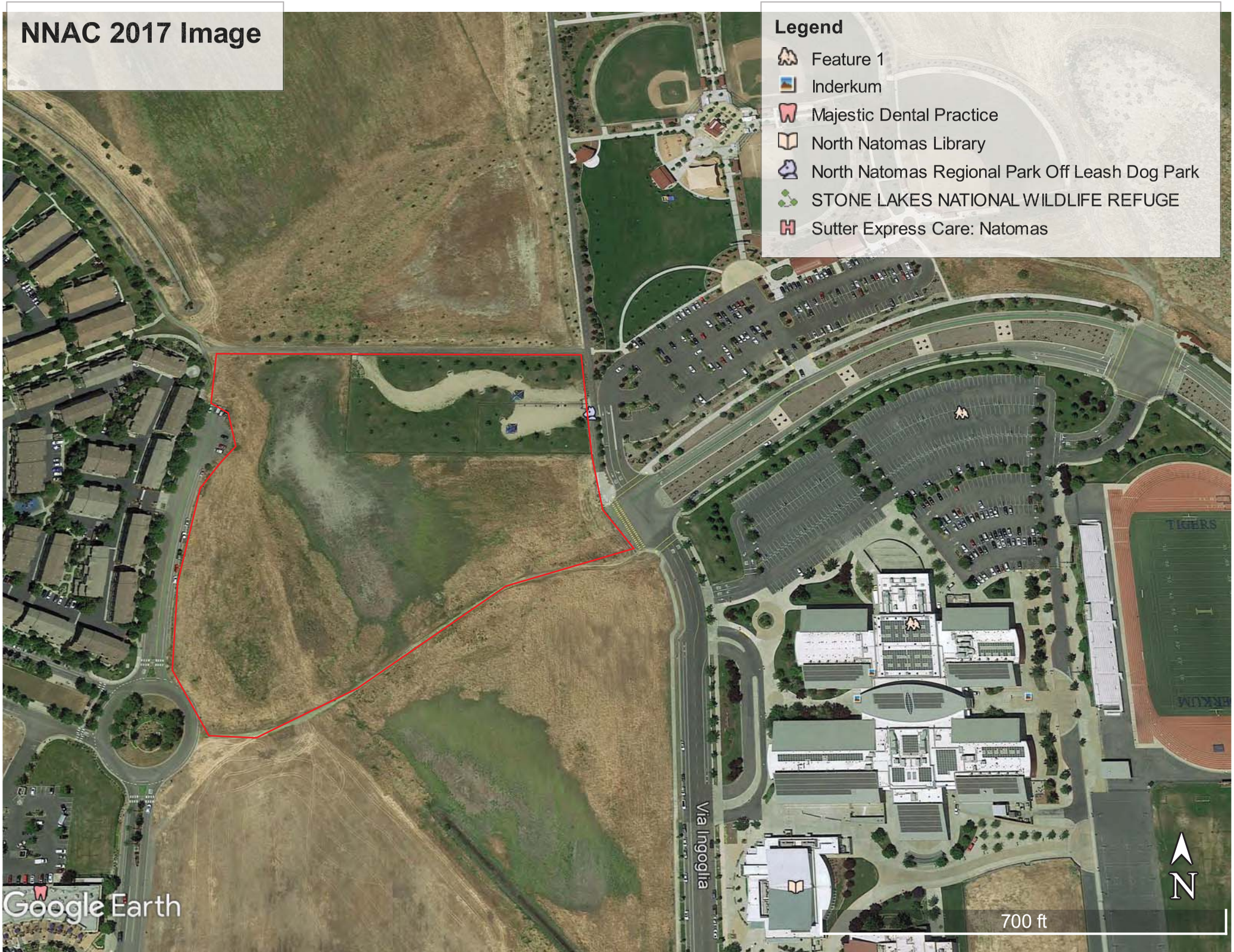
Attachment 5- Historical Aerial Photographs


NNAC 2002 Image
Legend
Feature 1
Inderkum
Majestic Dental Practice
North Natomas Library
North Natomas Regional Park Off Leash Dog Park
STONE LAKES NATIONAL WILDLIFE REFUGE
Sutter Express Care: Natomas
Town Center Dr
Via Ingoglia
Google Earth
Image U.S. Geological Survey
N
700 ft


NNAC 2006 Image
Legend
Feature 1
Inderkum
Majestic Dental Practice
North Natomas Library
North Natomas Regional Park Off Leash Dog Park
STONE LAKES NATIONAL WILDLIFE REFUGE
Sutter Express Care: Natomas
Town Center Dr
Via Ingoglia
Google Earth
Image © 2017 DigitalGlobe
N
700 ft


NNAC 2010 Image
Legend
Feature 1
Inderkum
Majestic Dental Practice
North Natomas Library
North Natomas Regional Park Off Leash Dog Park
STONE LAKES NATIONAL WILDLIFE REFUGE
Sutter Express Care: Natomas
Via Ingoglia
Google Earth
700 ft
N


NNAC 2014 Image
Legend
Feature 1
Inderkum
Majestic Dental Practice
North Natomas Library
North Natomas Regional Park Off Leash Dog Park
STONE LAKES NATIONAL WILDLIFE REFUGE
Sutter Express Care: Natomas
Via Ingoglia
TIGERS
Google Earth
700 ft
N


NNAC 2017 Image
Legend
Feature 1
Inderkum
Majestic Dental Practice
North Natomas Library
North Natomas Regional Park Off Leash Dog Park
STONE LAKES NATIONAL WILDLIFE REFUGE
Sutter Express Care: Natomas
Via Ingoglia
TIGERS
Google Earth
N
700 ft

APPENDIX D

Cultural Resources Report

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8372

January 30, 2018

Jon Blank
City of Sacramento
Department of Parks and Recreation
915 I Street, 3rd Floor
Sacramento, CA 95814

Subject: ***Cultural Resources Letter Report for the North Natomas Aquatics and Community Center Project, City of Sacramento, California***

Dear Mr. Blank:

This letter documents the cultural resources inventory conducted by Dudek for the North Natomas Aquatics and Community Center Project (project; Figure 1). The project consists of construction of a community center, outdoor pools, and the extension of New Market Drive within the 207-acre North Natomas Regional Park (NNRP). The Park currently provides baseball/softball fields, play areas for children, picnic areas with shade structures, a dog park, and a man-made lake feature. The current cultural resources investigation was conducted by Dudek in accordance with the standards and guidelines defined under the California Environmental Quality Act (CEQA). No cultural resources were discovered within the Area of Potential Effects (APE).

PROJECT DESCRIPTION AND LOCATION

The NNRP is included within the North Natomas Community Plan (NNCP) area which includes a total of approximately 9,000 acres between the City of Sacramento (City) and the County of Sacramento. The NNCP is located approximately 3 miles north of downtown Sacramento (Figure 2). The approximately 12-acre project site is located in the southwest portion of the North Natomas Regional Park (Figure 3). Inderkum High School is located to the southwest of the project site, on the east side of Via Ingoglia. Residential apartments are located to the west, across Town Center Drive. Undeveloped land is located to the north and south.

The project site is currently undeveloped with the exception of a dog park located in the northeastern portion of the site. The project site is generally flat and sits at an elevation of approximately 20 feet above mean sea level. The site is situated in Sections 2 and 3, Township 9 North, and Range 4 East on the Taylor Monument 7.5 minute quadrangle.

The proposed project includes a community center, outdoor pools, and the extension of New Market Drive. There is an area to the south of New Market designated for planned event parking to be built in a future phase. Project components included as part of the project include the following:

- Outdoor 50 meter x 25 yard competitive pool.
- Outdoor 25 meter x 25 yard competitive pool suitable for swimming and diving.
- Outdoor zero entry leisure pool and splash pad misting /spray water play area for children.
- Approximately 10,700 square foot community center building that would provide meeting space with a capacity of 200+ people; classroom and office space; restrooms; lobby area; bridal party room; kitchen; and storage space.
- Approximately 4,500 square feet locker room building that would include family, staff, men's and women's locker rooms; lifeguard office; meeting rooms; and ticket office.
- Approximately 3,000 square foot pool equipment/storage and pump room building.
- Covered bleachers to accommodate up to 600 people.
- Party rental area that would include picnic tables and a shade structure to be used for a variety of parties (e.g., birthday party)
- Extension of New Market Drive along the southern boundary of the project site. This will be the continuation of New Marker Drive to the west and will provide a two-lane roadway with a landscaped center median, Class II bike lanes, curb, gutter and sidewalks.

REGULATORY CONTEXT

State of California

The California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In

1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR, enumerated in the following text, were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

(2) Is associated with the lives of persons important in our past

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

(4) Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further in the following text, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

PRC Section 21083.2(g) defines "unique archaeological resource."

PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.

PRC Section 21074(a) defines "tribal cultural resources."

PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor, punishable by up to 1 year in jail, to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the County Coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans. PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

> (1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
>
> (2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
>
> (3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA [CEQA Guidelines Section 15064.5(b)(2)].

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial

adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

Impacts to nonunique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a nonunique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

Assembly Bill (AB) 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that Tribal Cultural Resources (TCR) must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is either:

- On the California Register of Historical Resources or a local historic register; Eligible for the California Register of Historical Resources or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

Native American Human Remains

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC).

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine

the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

NCIC RECORDS SEARCH

An NCIC records search of the APE and the surrounding 0.5-mile was completed y Dudek staff on September 28, 2017 (Appendix A). This records search included their collection of mapped prehistoric, historical, and built-environment resources; California Department of Parks and Recreation Site Records; technical reports; archival resources; and ethnographic references. Additional consulted sources included the NRHP; California Inventory of Historical Resources/CRHR; and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks.

Previously Conducted Studies:

North Central Information Center records indicate that sixteen previous cultural resources technical investigations have been conducted within 0.5 mile of the Project (Table 1). The entirety of the current APE fell within the project area of two previous large scale studies (003469 and 011138) and the western portion of the current APE was previously surveyed in a smaller study (004194).

Table 1. Previous Technical Studies within the Records Search Study Area

Report Number	Author	Year	Proximity to APE	Title
003469	Melinda A. Peak	1997	Intersects	Historic American Engineering Record Reclamation District 1000 HAER NO. CA-187
004194	David Chavez	1985	Intersects	Cultural Resources Evaluation for the North Natomas Community Plan Study Area, Sacramento California
011138	Denise Bradley and Michael Corbett	1995	Intersects	Rural Historic Landscape Report for Reclamation District 1000 for the Cultural Resources Inventory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California
000333	David Chavez	1987	Outside	Cultural Resources Evaluation for the Natomas Area Circulation Improvements Project, Sacramento, California.
000356	Peak & Associates, Inc.	1981	Outside	Cultural Resource Assessment for a Feasibility Study of Three 200 acre sites in Sacramento County, California.

Table 1. Previous Technical Studies within the Records Search Study Area

Report Number	Author	Year	Proximity to APE	Title
001725	Eleanor Derr	1999	Outside	Pacific Bell Mobile Services: 4752 Arco Arena Blvd., Sacramento, Natomas Vicinity, Sac. County: Site #SA-NSC-M1.
001729	Wohlgemuth and McGuire	1989	Outside	Letter Report for the Adams Farms Project
001732	PAR Environmental (Hamusek-McGann)	1997	Outside	Cultural Resource Inventory and Evaluation for the Proposed Kensington Square Development Sacramento County, California.
003440	Susan Lindstrom	1990	Outside	A Preliminary Cultural Resource Evaluation of the Sacramento Regional Transit Systems Planning Study Downtown S acramento/Natomas/Airport Route: EIR
003441	Douglas Davy	1992	Outside	Cultural Resources Survey of the Sacramento Energy Project
003489 & 003489B	Sharon Waechter	1993	Outside	Report on the First Phase of Archaeological Survey For the Proposed SMUD Gas Pipeline Between Winters and Sacramento, Yolo and Sacramento Counties, and Addendum
004185	Peak & Associates	2002	Outside	Cultural Resources Inventory for a Proposed Sure West Tower in Sacramento County
004186	Eleanor Derr	2001	Outside	Historical and Cultural Resource Assessment of a Proposed Telecommunications Facility Site No. SA-750-02
004189	Office of Historic Preservation	2000	Outside	Historic Property Assessment of RCS Wireless Proposed Telecommunications Facility, Site No. 091-C
004204	Blossom Hamusek-McGann	1997	Outside	Cultural Resource Inventory and Evaluation for the Proposed Alleghany Property Development Sacramento County, California
008614	Lorna Billat	2007	Outside	New Tower Submission Packet, Arco-Del Paso, SAC-197A

Previously Identified Cultural Resources:

Records at the North Central Information Center indicate that while no cultural resources have been previously identified within the APE, one cultural resource has been identified outside the APE to the south (P-34-000741). No other cultural resources have been recorded within the surrounding 0.5-mile records search area (Table 2; Appendix A).

Table 2. Previously Recorded Cultural Resources within the Records Search Study Area

Resource Number	Trinomial	Age	CRHR Status	Proximity to APE	Description
P-34-000741	CA-SAC-569H	Historic	7: Not Evaluated	Outside	HP37: Roads/ Trails – Del Paso Road

Dudek reviewed historical aerials (available since 1947) and topographic maps (available since 1907) (NETR 2017). Both aerials and maps displayed previous agricultural use of the land, but no previous structures. These maps and aerial photographs did not indicate the presence of historical built-environment resources within the APE.

NAHC AND TRIBAL CORRESPONDENCE

Dudek requested an NAHC search of their Sacred Lands File on August 13, 2017, for the Project site (Appendix B). Results of this search, provided on October 25, 2017, failed to indicate the presence of Native American resources within the Project APE. This NAHC response letter included a Contact List with tribal representatives that may have additional information pertaining to cultural resources within the area was provided as part of this list

The Project is subject to compliance with AB 52 (California Public Resources Code, Section 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process and requires the CEQA lead agency to notify any groups (who have requested notification) of the Project who are traditionally or culturally affiliated with the geographic area of the Project. Because AB 52 is a government-to-government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the County. The 30-day response period closed on September 11 and the City only received a response from the UAIC. The UAIC did not request consultation with the City, but asked for a copy of the Cultural Resources Letter Report prepared for the project. The City provided this information as requested. No additional communication has occurred since this time, consultation with the Native American tribes is considered complete. No TCRs have been identified that would be impacted by the project.

METHODS

Intensive Pedestrian Survey

Dudek employed an intensive-level survey strategy with parallel survey transects spaced no more than 15 meters apart. This method met the applicable Secretary of Interior Professional Qualifications Standards for archaeological survey. Dudek archaeologist Nicholas Hanten

surveyed the surface of the entire APE on October 12, 2017 for cultural resources. Dudek's archaeologist also looked for evidence of buried cultural deposits by opportunistically inspecting natural or artificial erosion/excavation exposures and the spoils from rodent burrows. Field recording and photo documentation of resources, as appropriate, was completed.

A series of overview photographs was taken to document the current conditions. Ground surface visibility was generally moderate, allowing for approximately half of the ground surface to be directly observed due to low-laying grass cover. No cultural resources were encountered during the survey.

SUMMARY AND MANAGEMENT CONSIDERATIONS

No archaeological resources were identified within the project site or immediate vicinity as a result of intensive pedestrian survey, the CHRIS records search, or Native American coordination. However, it is always possible that intact archaeological deposits are present at subsurface levels. Management recommendations to reduce potential impacts to unanticipated archaeological resources and human remains are provided below.

Unanticipated Archaeological Resources

All construction crew should be alerted to the potential to the potential to encounter archaeological material. In the event that cultural resources (sites, features, artifacts, or fossilized material) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

Unanticipated Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete his/her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

Should you have any questions relating to this report and its findings please contact Adam Giacinto or myself at Dudek.

Respectfully Submitted,

William Burns, MSc, RPA
Archaeologist

cc: Adam Giacinto, Dudek

Att: National Archaeological Database Information Sheet Figure 1. Regional Map
Figure 2. Vicinity Map
Appendix A: North Central Information Center Records Search
Appendix B: NAHC Correspondence

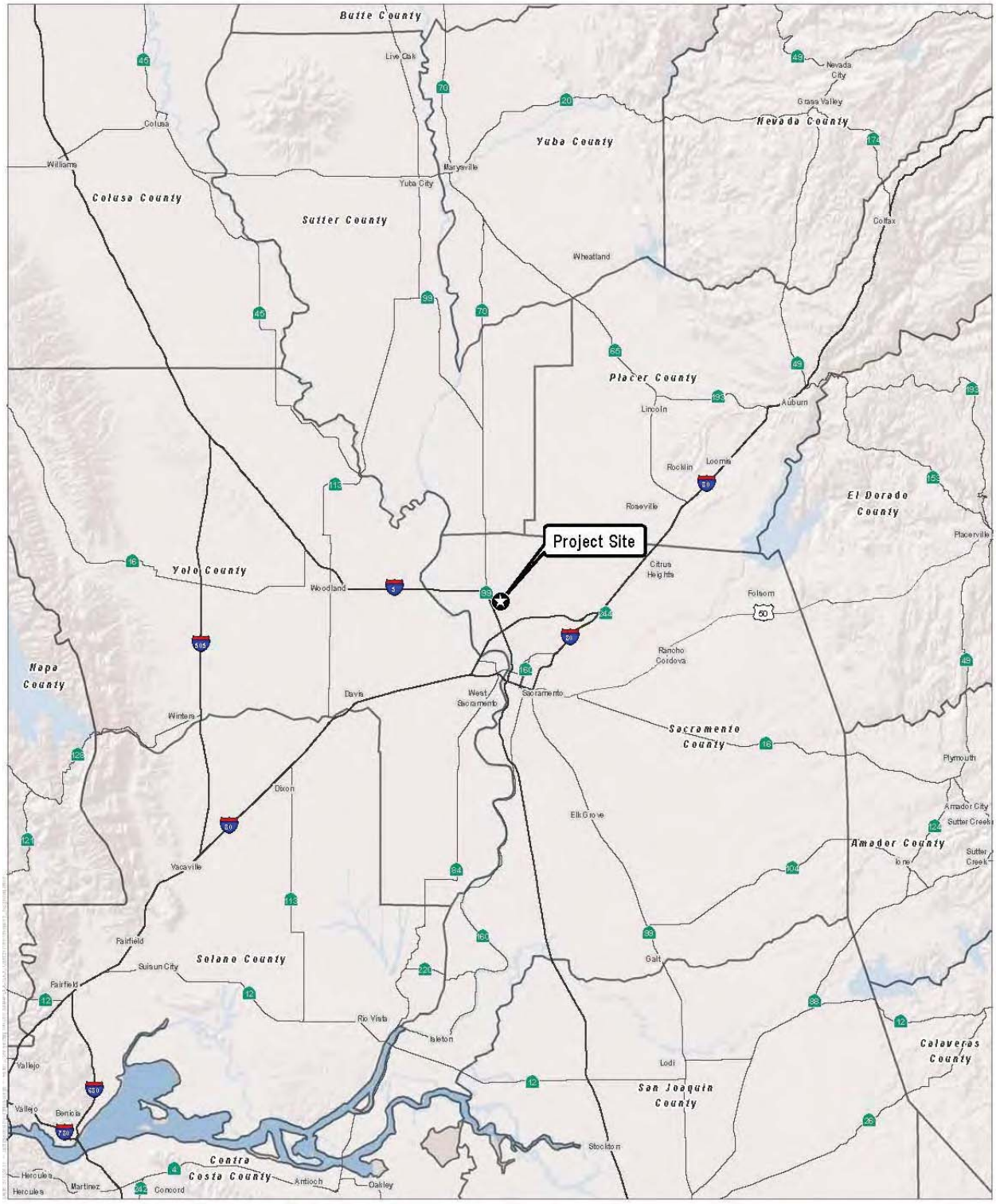
REFERENCES

NETR, 2017. "NETR Online: Historic Aerials." http://www.historicaerials.com/ accessed November 27, 2017.

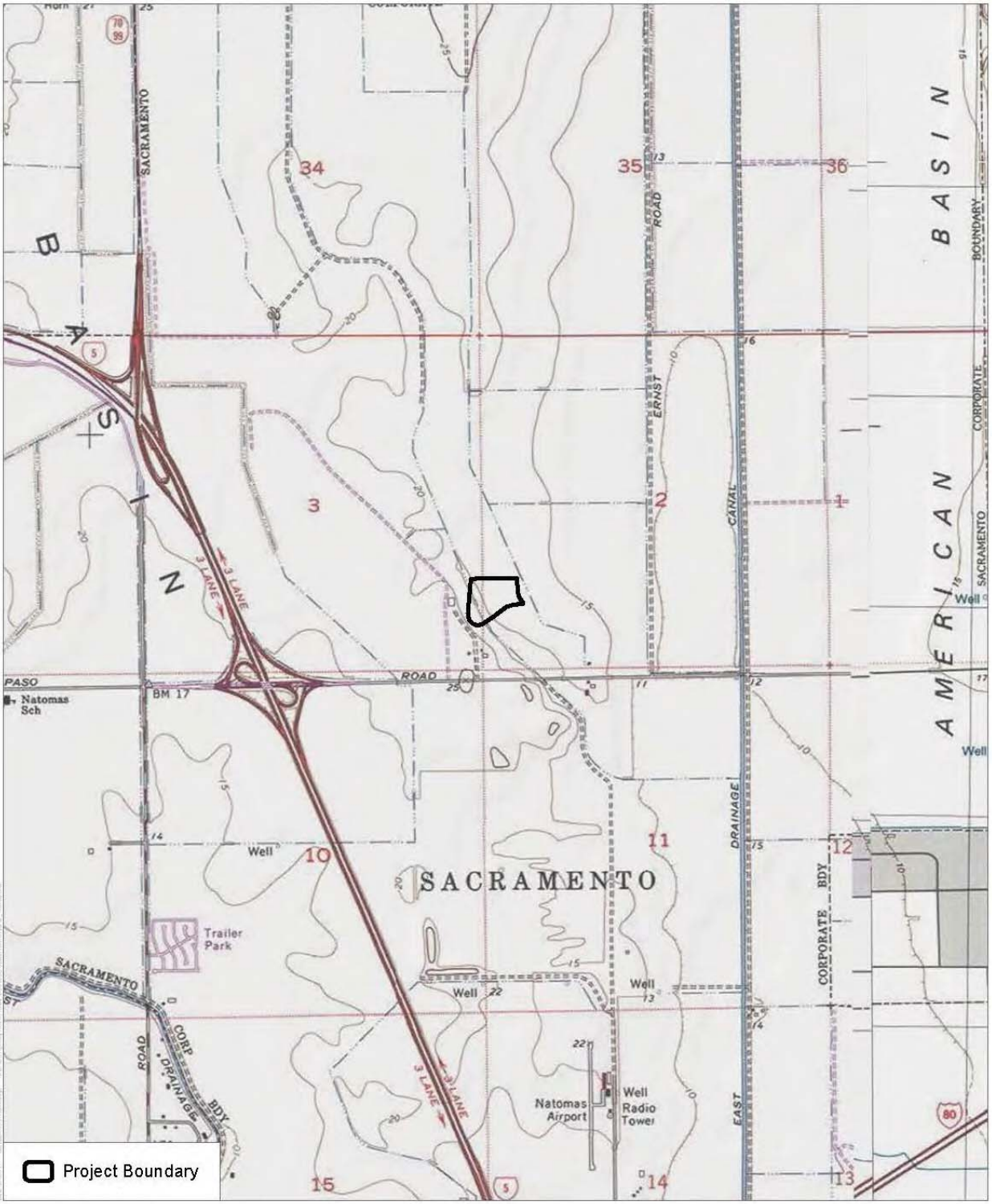
NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Authors:	William Burns M.Sc, RPA. and Adam Giacinto, M.A., RPA
Firm:	Dudek
Client/Project Proponent:	City of Sacramento
Report Date:	1/30/18
Report Title:	Cultural Resources Letter Report for the North Natomas Aquatics and Community Center Project, City of Sacramento, Sacramento County, California
Type of Study:	Cultural Resources Inventory
New Sites:	None
Updated Sites:	None
USGS Quad:	Taylor Monument; Township 9 North, Range 4 East, Sections 2 and 3
Acreage:	12 acres
Permit Numbers:	Pending
Key Words:	Intensive Pedestrian Survey; Negative; North Natomas Regional Park; Sacramento

INTENTIONALLY LEFT BLANK


Project Site
Butte County
Yuba County
Nevada County
Colusa County
Sutter County
Placer County
El Dorado County
Yolo County
Napa County
Sacramento County
Amador County
Solano County
Contra Costa County
San Joaquin County
Calaveras County
Live Oak
Nevada City
Grass Valley
Colusa
Williams
Marysville
Yuba City
Wheatland
Colfax
Lincoln
Auburn
Rocklin
Loomis
Roseville
Placerville
Citrus Heights
Woodland
Folsom
Rancho Cordova
Davis
West Sacramento
Sacramento
Winters
Dixon
Plymouth
Elk Grove
Amador City
Sutter Creek
Ione
Vacaville
Fairfield
Suisun City
Galt
Rio Vista
Isleton
Vallejo
Benicia
Lodi
Stockton
Hercules
Martinez
Concord
Antioch
Oakley

INTENTIONALLY LEFT BLANK



SOURCE: USGS 7.5-Minute Series Taylor Monument Quadrangle
Township 9N; Range 4E; Sections 2, 3

DUDEK 0 1,000 2,000 Feet

FIGURE 2
Vicinity Map
North Natomas Aquatic Center Project

ITENTIONALLY LEFT BLANK

SOURCE: Bing Maps (Accessed 2017)

DUDEK 0 150 300 Feet

FIGURE 3
Site Map
North Natomas Aquatic Center Project

APPENDIX A

NCIC Records Search Results

SOURCE: USGS 7.5-Minute Series Taylor Monument Quadrangle
Township 9N; Range 4E; Sections 2, 3, 10, 11

Records Search Map

North Natomas Aquatic Center Project

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-34-000741	CA-SAC-000569H	Resource Name - Del Paso Rd; Other - CRU-93-SAC-26H	Object	Historic	HP37 (Highway/trail)	1994 (Eleanor Derr, Rick Derr, Cultural Resources Unlimited); 1998 (Eleanor Derr, Richard Derr, Cultural Resources Unlimited)	003409, 003469, 004195

Resource Detail: P-34-000741

Identifying information

Primary No.: P-34-000741
Trinomial: CA-SAC-000569H
Name: Del Paso Rd
Other IDs:

Type	Name
Resource Name	Del Paso Rd
Other	CRU-93-SAC-26H

Cross-refs: See also 34-000885

Attributes

Resource type: Object
Age: Historic
Information base: Survey
Attribute codes: HP37 (Highway/trail)
Disclosure: Unrestricted
Collections: Unknown
Accession no(s):
Facility:

General notes

Recording events

Date	Recorder(s)	Affiliation	Notes
1/11/1994	Eleanor Derr, Rick Derr	Cultural Resources Unlimited	
9/1/1998	Eleanor Derr, Richard Derr	Cultural Resources Unlimited	

Associated reports

Report No.	Year	Title	Affiliation
003409	1994	A Cultural Resources Study for Sacramento Area Flood Control Agency Borrow Sites	
003469	1997	Historic American Engineering Record Reclamation District 1000 HAER NO. CA-187	Peak & Associates, Inc
004195	1997	Cultural Resources Report: North Natomas Comprehensive Drainage Plan; Levee Improvemnts, Canal Widening and Additional Pumping Capacity	

Location information

County: Sacramento
USGS quad(s): RIO LINDA, TAYLOR MONUMENT
Address:

Address	City	Assessor's parcel no.	Zip code
South Natomas area	Sacramento		

PLSS: T9N R5E S½ of Sec. 1 MDBM
UTMs: Zone 10 625967mE 4279394mN NAD27
Zone 10 625269mE 4279422mN NAD27
Zone 10 627176mE 4279375mN NAD27
Zone 10 630013mE 4279473mN NAD27

Management status

Database record metadata

	Date	User
Entered:	11/13/200	jay
Last modified:	6/20/2017	jacobmackey

IC actions:

Date	User	Action taken
11/13/200	jay	Imported data from NCIC Excel spreadsheet
7/11/2008	Machiel	Imported data from resource record

	5/15/2009	kate	plotted in GIS

Record status: Verified

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # [illegible]
HRI #
Trinomial CA-Sac- CA-SAC-569-H
NRHP Status Code P-34-741
Other Listings
Review Code _____ Reviewer _____ Date _____

Page 1 of 5 *Resource Name or #: (Assigned by recorder) Del Paso Road

P1. Other Identifier:

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Sacramento and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Taylor Monument and Rio Linda Date 1967/80 T 9N; R4E/5E;S1/2 of Secs. 1, 6; 2,3,4,5 B.M.

c. Address South Natomas area City Sacramento Zip

d. UTM: (Give more than one for large and/or linear resources) Zone 10, _____ mE/ _____ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Arrow points: (Road, Drainage)

0623967E 0625269E 0627196E 0630013E
4279394N 4279422N 4279375N 4279473N

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
East-west road in North Natomas area, north of downtown Sacramento, between Power Line Road and East Levee Road

*P3b. Resource Attributes: (List attributes and codes) A two-lane, paved road oritinally in farmland.HP37

*P4. Resources Present: ☐ Building ☐ Structure ☒ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

See attached

P5b. Description of Photo: (view, date, accession #) Taken in 9/98; various locations to show current condition and historic appearance as well as possible

*P6. Date Constructed/Age and Source:
☒ Historic
☐ Prehistoric ☐ Both
Pre-1921 - Map, Reclamation District 1000

*P7. Owner and Address:
NA

*P8. Recorded by: (Name, affiliation, and address) Cultural Resources Unlimited
Richard and Eleanor Derr

*P9. Date Recorded: 9/98

*P10. Survey Type: (Describe) Cultural Resource inventory for levee improvements (Reclamation District 1001)

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") 'Cultural Resources Report: North Natomas Comprehensive Drainage Plan; Levee Improvements, Canal Widening and Additional Pumping Capacity'. Derr & Boghosian, Cultutal Resources Unlimited/Historic Environment Consultants for Miriam Green Assoc., Sac. Attachments: ☐NONE ☒Location Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List): Photo sheets

(4195)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary # _____
HRI # _____
Trinomial _____

LINEAR FEATURE RECORD

Page 1 of 5 **Resource Name or #:** (Assigned by recorder) Del Paso Road

L1. Historic and/or Common Name: Del Paso Road

L2a. Portion Described: ☒ Entire Resource ☐ Segment ☐ Point Observation **Designation:** Entirety

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Primarily a narrow two-lane road paved with an asphalt finish (probably repaved on its entirety over time). It extends from Power Line Road eastward to East Levee Road. It crosses Fishermans Lake in the western portion and now crosses over Interestate 5 in its midsection. The road currently has a slight 'S' curve at its easternmost end where it joins Main Street at Northgate Blvd. Originally it ended at East Levee Road. Parts of the road have been widened in recent times.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width 21'
b. Bottom Width N/A
c. Height or Depth N/A
d. Length of Segment Approx.5.5 miles

L4e. Sketch of Cross-Section (include scale) Facing: East

L5. Associated Resources:
None known

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.):
Flat grasslands with a few ranches on most of length; Interstate 5 crosses beneath it on the eastern portion. Modern buildings (Arco Arena, etc.) lie to the immediate south in the central section. Further development is planned on the north.

L8a. Photograph, Map or Drawing

See Attached

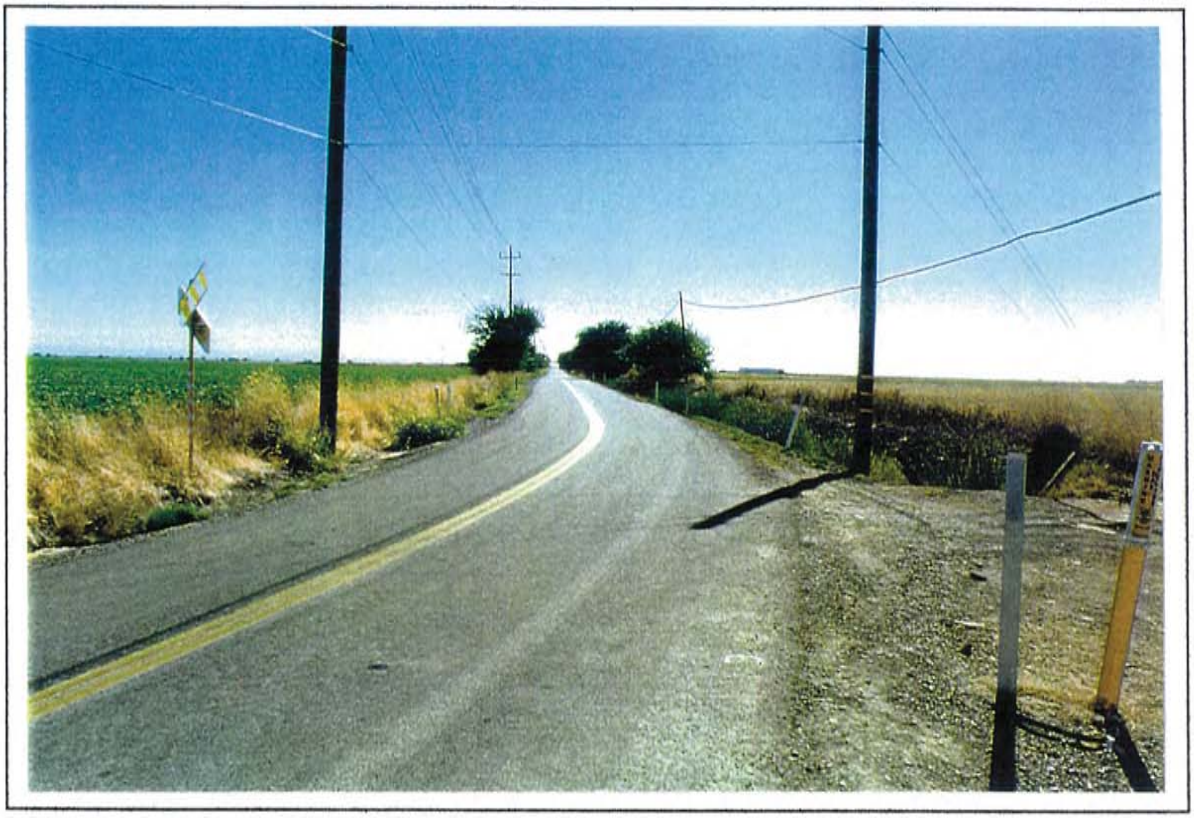
L7. Integrity Considerations:
Has been paved, was probably originally a dirt road. Road and surroundings currently similar to most of historic period

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
See attached sheets.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address) Eleanor Derr, Principal, Cultural Resources Unlimited, Rancho Cordova.

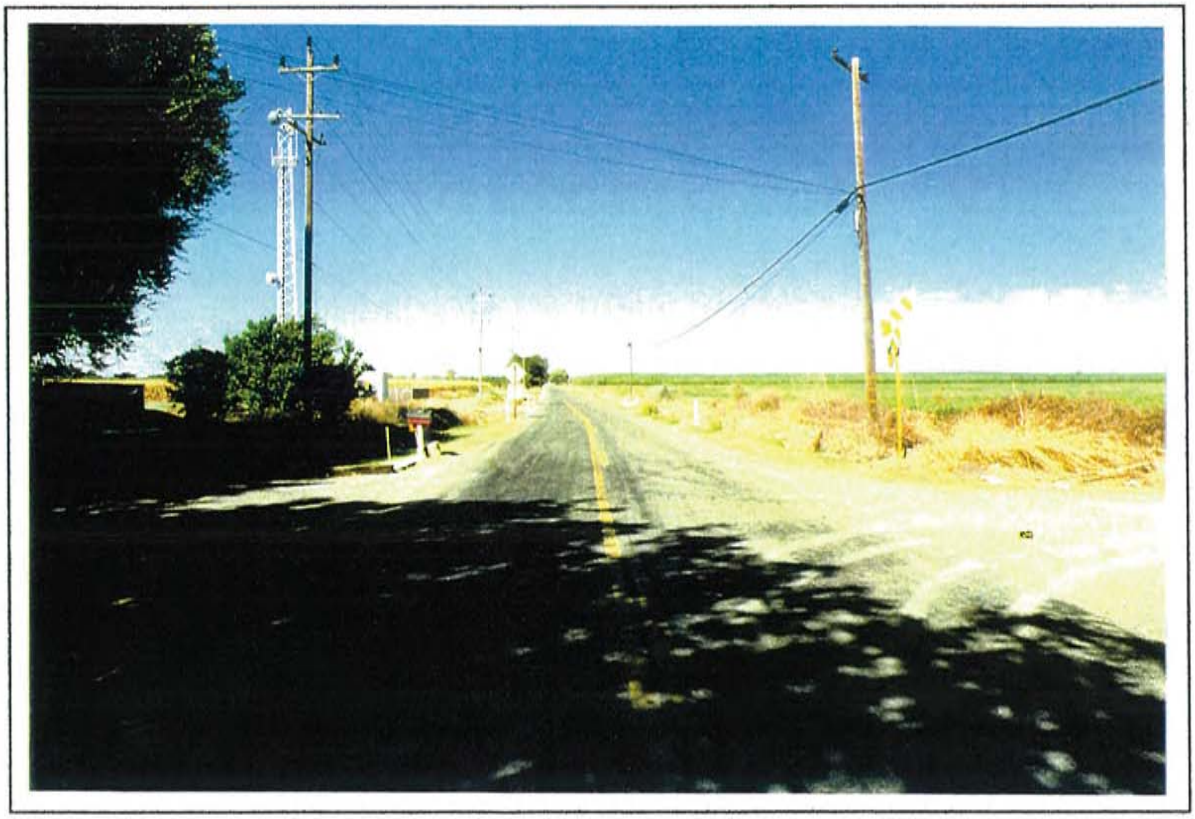
L11. Date: September, 1998



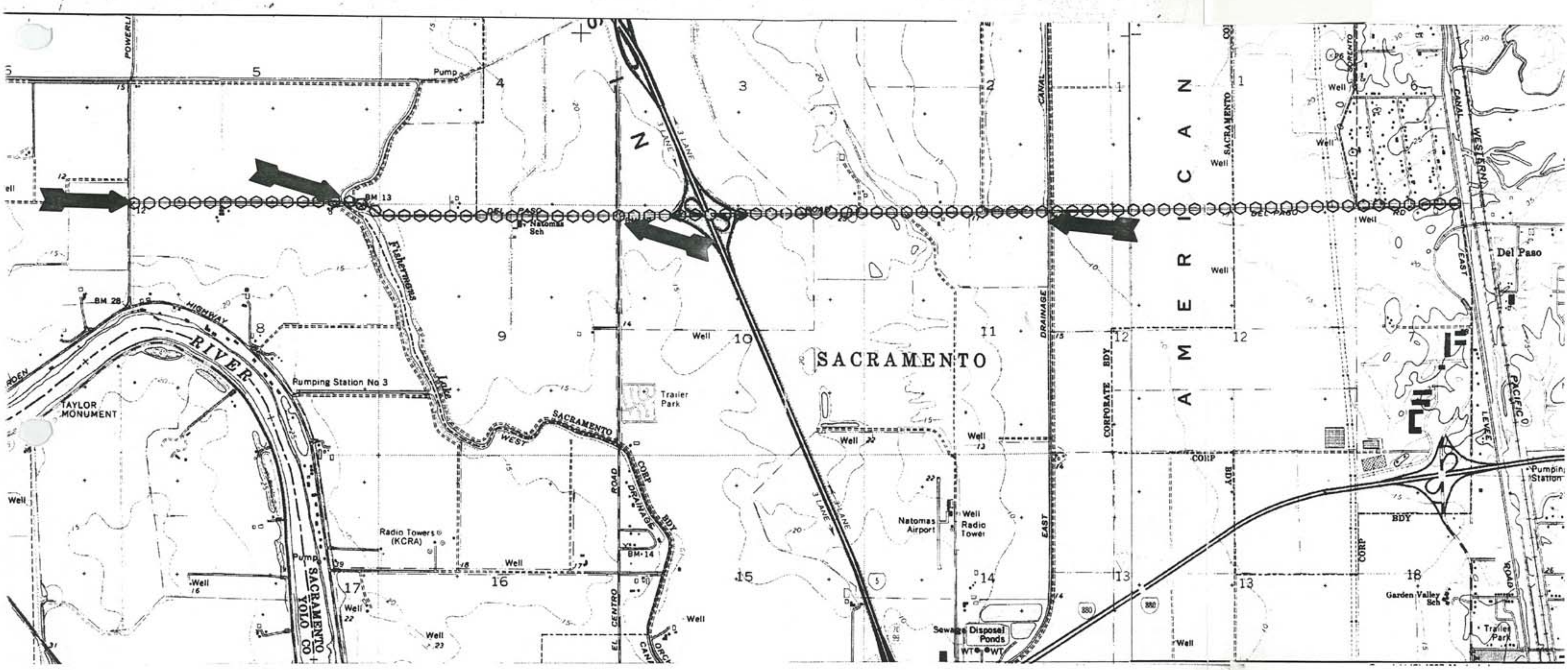
Del Paso Road; view to east from just west of Fisherman's Lake (West Drainage Canal)

Del Paso Road; view to west from El Centro Road.

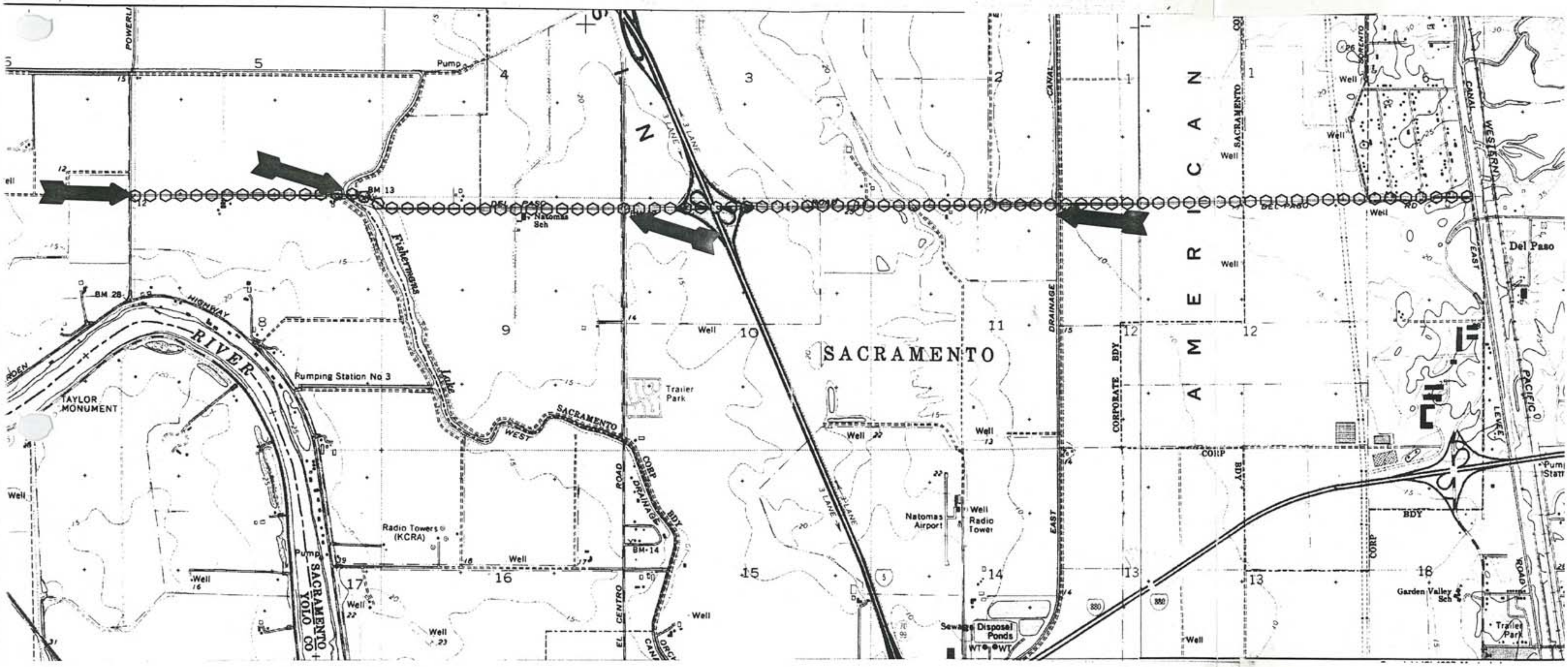
Del Paso Road at Power Line Road, view to east.



Del Paso Road; view to west from East Drainage Canal.



SACRAMENTO
AMERICAN
Del Paso
Natomas Airport
Radio Tower
Sewage Disposal Ponds
Trailer Park
Radio Towers (KCRA)
Pumping Station No 3
TAYLOR MONUMENT
RIVER
HIGHWAY
SACRAMENTO
YOLO CO
Fishermans Lake
Garden Valley Sch
Natomas Sch
CORPORATE BDY
DRAINAGE
EAST
CANAL
WESTERN
PACIFIC
LEVEE
EL CENTRO ROAD
Pumping Station
BM 13
BM 28
BM 14
Pump
Well


SACRAMENTO
AMERICAN
Fishermans Lake
RIVER
SACRAMENTO
YOLO CO
Del Paso
Natomas Airport
Sewage Disposal Ponds
Pumping Station No 3
TAYLOR MONUMENT
Radio Towers (KCRA)
Trailer Park
Garden Valley Sch
Natomas Sch

CA-SAC-569-H

P-34-741

Trinomial CA-___-_____ Supp. ☐

ARCHAEOLOGICAL SITE RECORD

Other Designations CRU-93-Sac-26H_____

Pg. 1 of ___

___Del Paso Road_____

1. **County:** Sacramento_____

2. **USGS Quad:** Rio Linda_____ (7.5') ___1967____ (15') **Photorevised** ___1980____

3. **UTM Coord: Zone** |1|0| |_|_|_|_|_|_| m **Easting** |_|_|_|_|_|_|_| m **Northing** (X)

4. **Township** __9N__ **Range** 5E; __1/_ of __1/_ of _ 1/_ of _ 1/_ of Sect __ **Base Mer.** MDM (X)

5. **Map Coord:**_____430_____**mmS**___62-93_____**mmE (from NW corner of map)** 6. **Elevation:** 20-25'(_)

7. **Location:** Interstate 5 north from Sacramento, exit east on Del Paso Road to Sorrento on left. Historic portion ran from this south end of Sorrento Road east to the north end of Northgate Blvd. _____ (_)

8. **Prehistoric**_____**Historic**__X__**Protohistoric**_____ 9. **Site Description** Historic road, appears on 1880 map of the Sacramento County Assessor. It is also shown on the 1893 U.S.G.S. Sacramento Folio map (1887-88 survey), and on the 1911 U.S.G.S. Arcade quad map. _____ (_)

10. **Area**__ approx. 2200' _____ **m(length)X** __25' (7.64)__ **m(width)** _____5,139._ ___ m^2

Method of Determination: Map calculations (using possible two-lane width)_____ (_)

11. **Depth:** N/A_____ **cm Method of Determination:** _____ (_)

12. **Features:** Flat graveled road bed. Steep, rather deep drainage ditch on north, may also have existed on south (no longer visible due to newer road alignment. (_)

13. **Artifacts:** None noted_____ (_)

14. **Non-Artifactual Constituents and Faunal Remains:** None noted_____

_____ (_)

15. **Date Recorded:** 1/11/94_____ 16. **Recorded By:** Eleanor H. Derr, Rick Derr _____ (_)

17. **Affiliation and Address:** Cultural Resources Unlimited, 2614 Aramon Drive,_____

Rancho Cordova, CA 95670 _____ (_)

See Continuation Sheet (X)

CA-SAC-569-H

Trinomial CA-___-_____ Supp. ☐

ARCHAEOLOGICAL SITE RECORD

Other Designations CRU-93-Sac-26H_____

___Del Paso Road_____

18. **Human Remains:** None noted_____ (_)

19. **Site Disturbance:** Alignment has been changed to curve to southeast to avoid a new commercial development. The first disturbance was the construction of the East (X)

20. **Nearest Water (type, distance and direction):** N/A _____ (_)

21. **Vegetation Community (site vicinity):** Domestic gardens _____ **Plant List** (_)

22. **Vegetation (on site):** Short growth of grasses and forbes in gravels _____ (_)

23. **Site Soil:** Light yellow-brown soils, small sharp gravels introduced_____ (_)

24. **Surrounding Soil:** San Joaquin sandy loam, (Sh), Alamo clay adobe (Aa), primarily (_)

25. **Geology:** Deep alluvial soils _____ (_)

26. **Landform:** Upper level marshland, has probably been levelled _____ (_)

27. **Slope:** Basically level_____(_) 28. **Exposure:** Open, trees on north_____ (_)

29. **Landowner(s) (and/or tenants) and Address:** County of Sacramento, Public Works Department _____ (_)

30. **Remarks:** _____

_____

_____(_)

31. **References:** U.S.D.A. 'Soil Survey Sacramento Area California'. Soil Conservation Service in cooperation with University of California Agricultural Experiment Station, August 1954 ed. 3409 _____ (_)

32. **Name of Project:** A Cultural Resources Study for Sacramento Area Flood Control Agency Borrow Sites Project, Sacramento County. for EIP Associates, Sacramento. ____ (_)

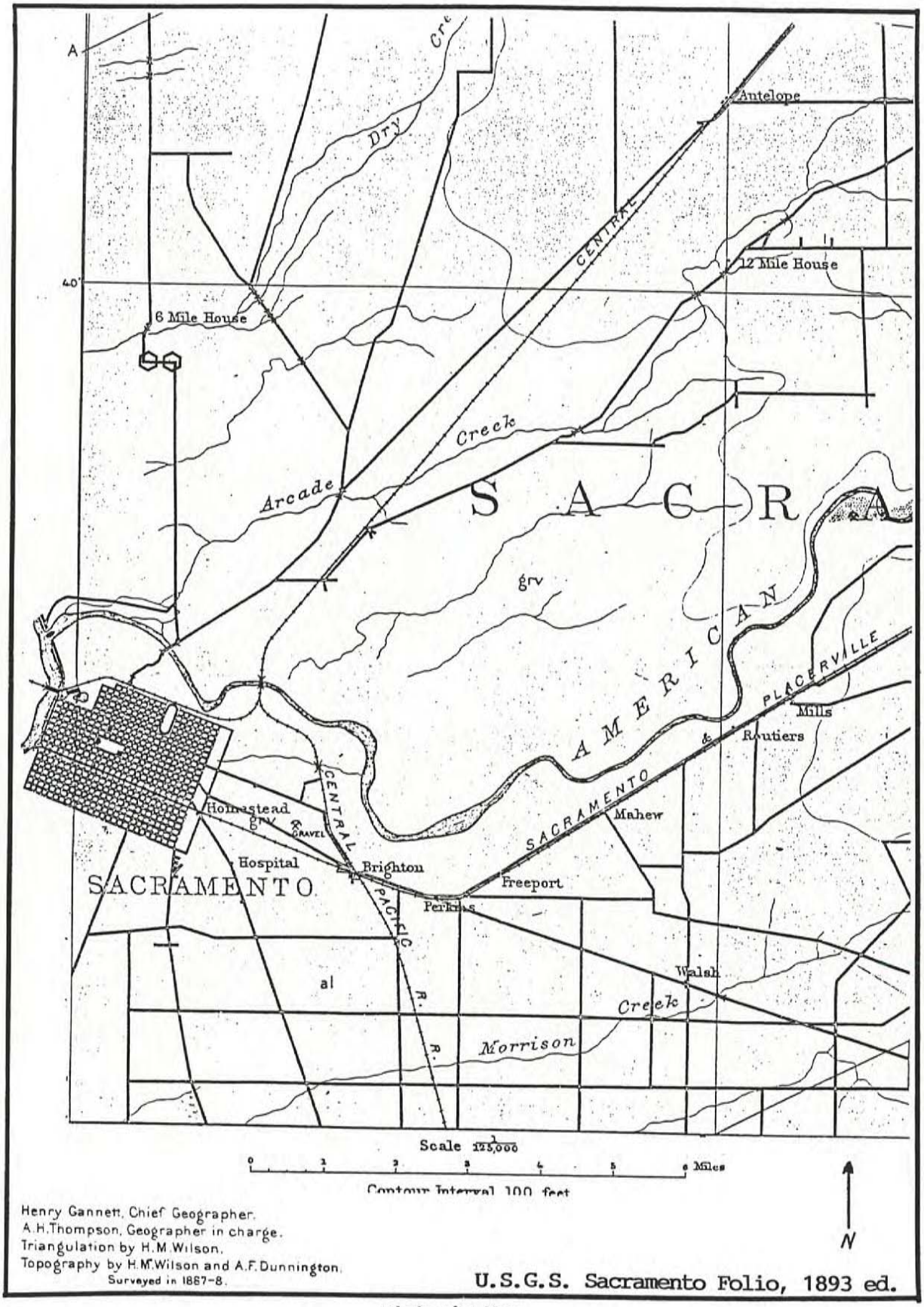
33. **Type of Investigation:** Archival review and field survey for cultural resources. (_)

34. **Site Accession Number:** N/A_____ **Curated At:** _____ (_)

35. **Photos:** Yes - color prints (attached) _____ (_)

See Continuation Sheet (X)

CA-SAC-564-H
CRU-93-Sac-26H
Del Paso Road



Henry Gannett, Chief Geographer.
A.H.Thompson, Geographer in charge.
Triangulation by H.M.Wilson.
Topography by H.M.Wilson and A.F.Dunnington.
Surveyed in 1887-8.

U.S.G.S. Sacramento Folio, 1893 ed.

Historic Map

⬡⬡⬡⬡ Road Alignment

CA-SAC-567-H

Trinomial CA-___-_____ Supp. ☐

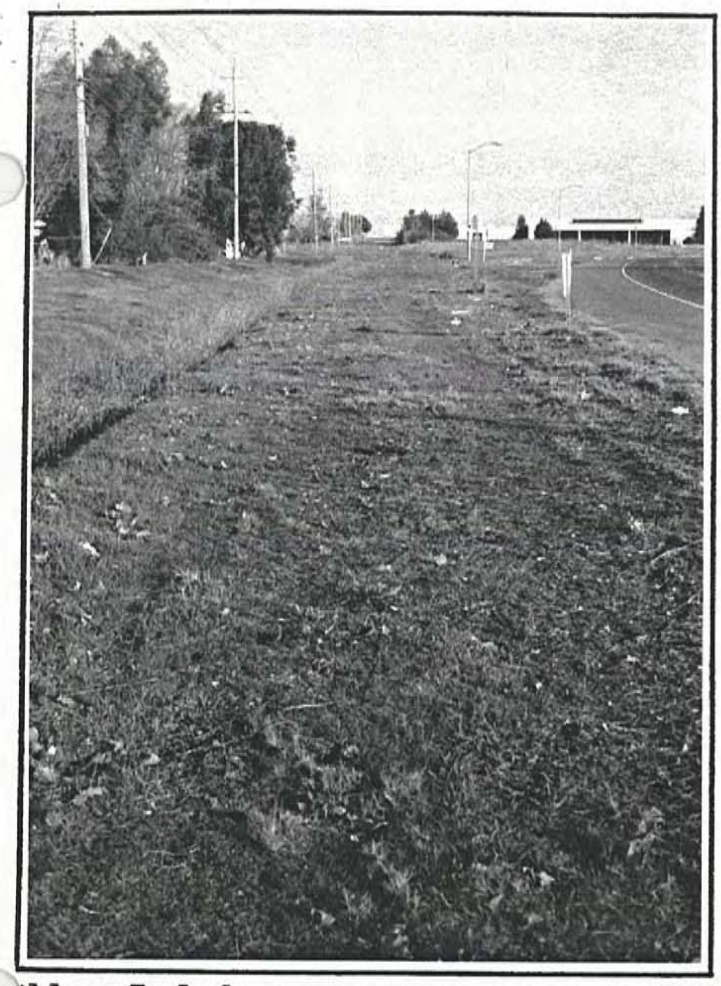
ARCHAEOLOGICAL SITE RECORD

Other Designations CRU-93-Sac-26H_____

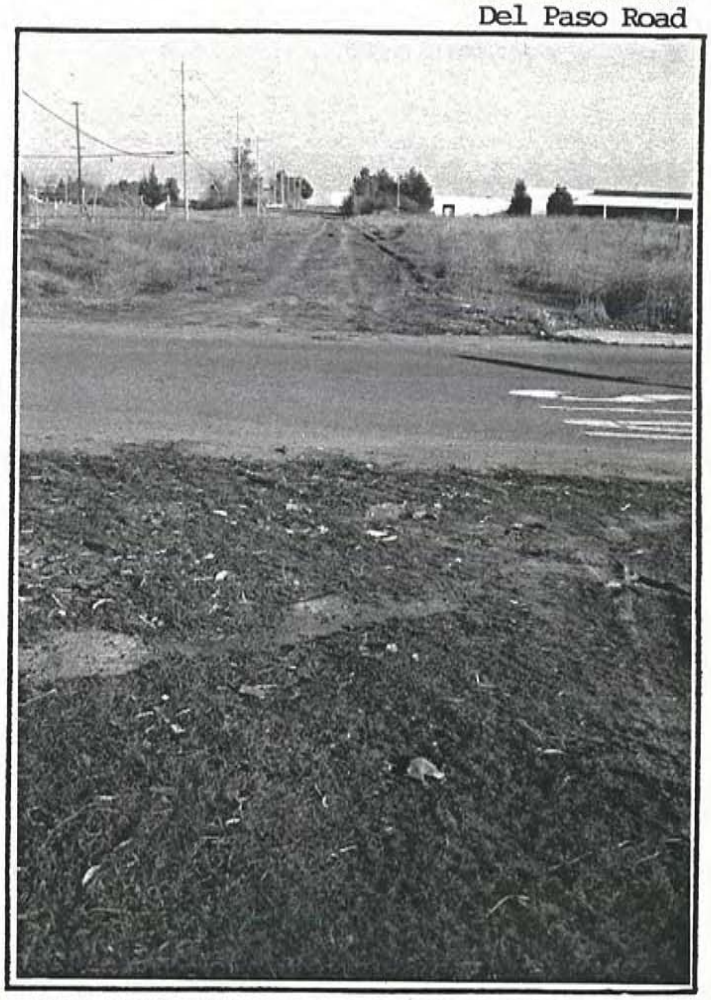
Pg. 3 of ___

____Del Paso Road_____

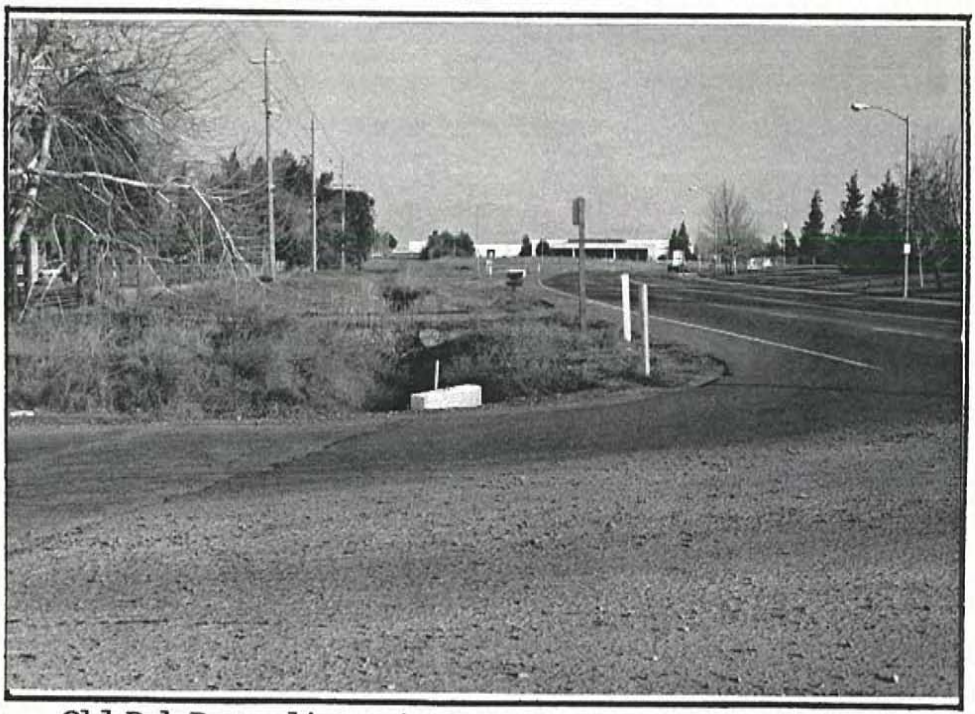
Item No.	Continuation
3.	(West end/east end - original road) UTM Coord: Zone 10 630200 m Easting 4279560 m Northing (see UTM Coord: Zone 10 632760 m Easting 4279580 m Northing #4)
4.	(West end/east end - original road) Township 9N Range 5E; SW1/4 of SW1/4 of SW1/4 of SW1/4 of Sect 6 (Sorrento Rd.) Township 9N Range 5E; SE1/4 of SE1/4 of SE1/4 of SW1/4 of Sect 6 (Northgate Rd.)
19.	Main Drainage Canal, which cut off the eastern intersection with Northgate. The road was subsequently curved to the southeast to meet with the original alignment of Northgate. With the construction of I-80 to the south, Northgate was modified to swerve around that intersection in order to provide on-ramp space. Office parks and other commercial development created a curved alignment, with further modification to allow the current Del Paso Road to align with Main Avenue, which was always located a short distance south of the original Del Paso Road alignment. The original alignment now serves as set-back for several homes in the small subdivision on the north. The east end disappears in the commercial development.



)ld roadbed along current street, V. to E.
(Surface is lightly gravelled)



Dirt road alignment east from Carey Road

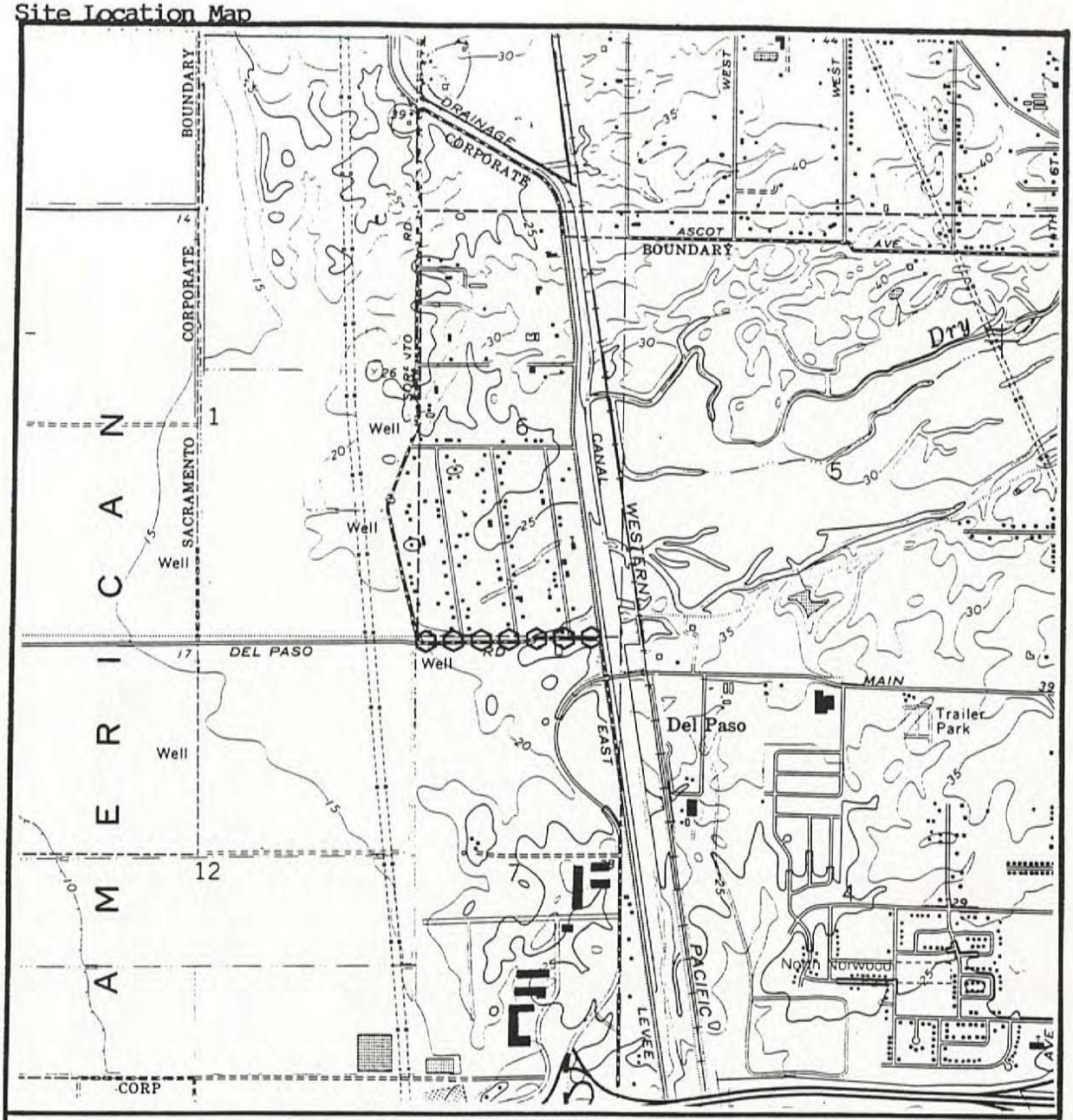


Old Del Paso alignment at south end of Sorrento Road
(Steep drainage ditch on left, view to east)

CA-SAC-367-H

CRU-93-Sac-26H
Del Paso Road

Site Location Map

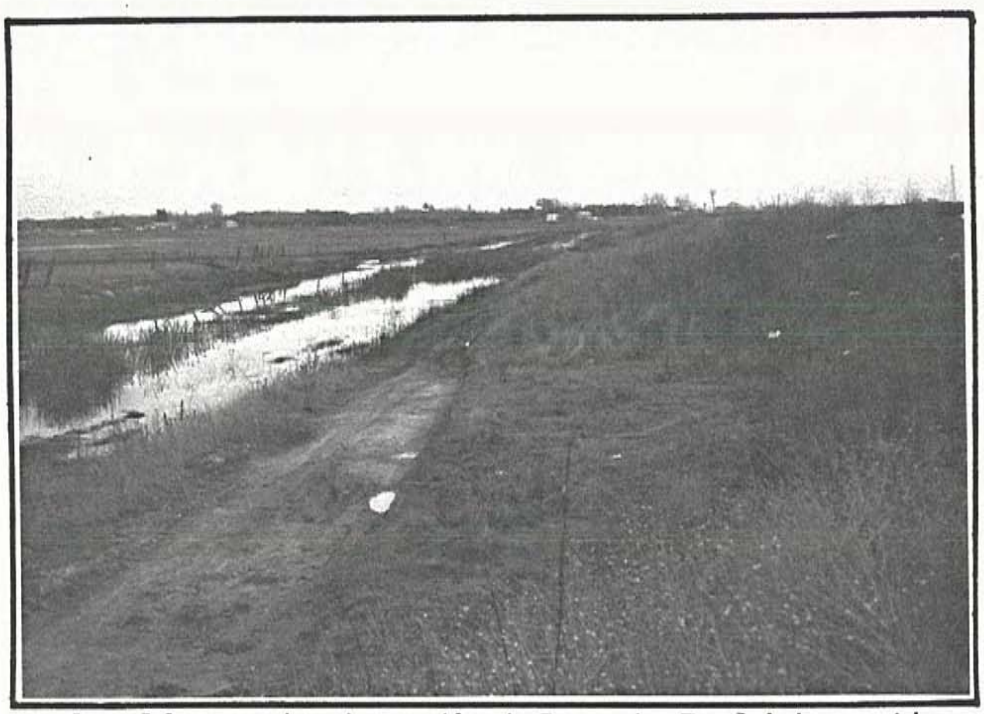


Historic Alignment

CA-SAC-569-H

CA-Sac-_____
Natomas East Main Drainage Canal

Bend at Sorrento Road, canal, view to north



Canal and berm, view to south at Sorrento Road intersection

CA-SAC-569H

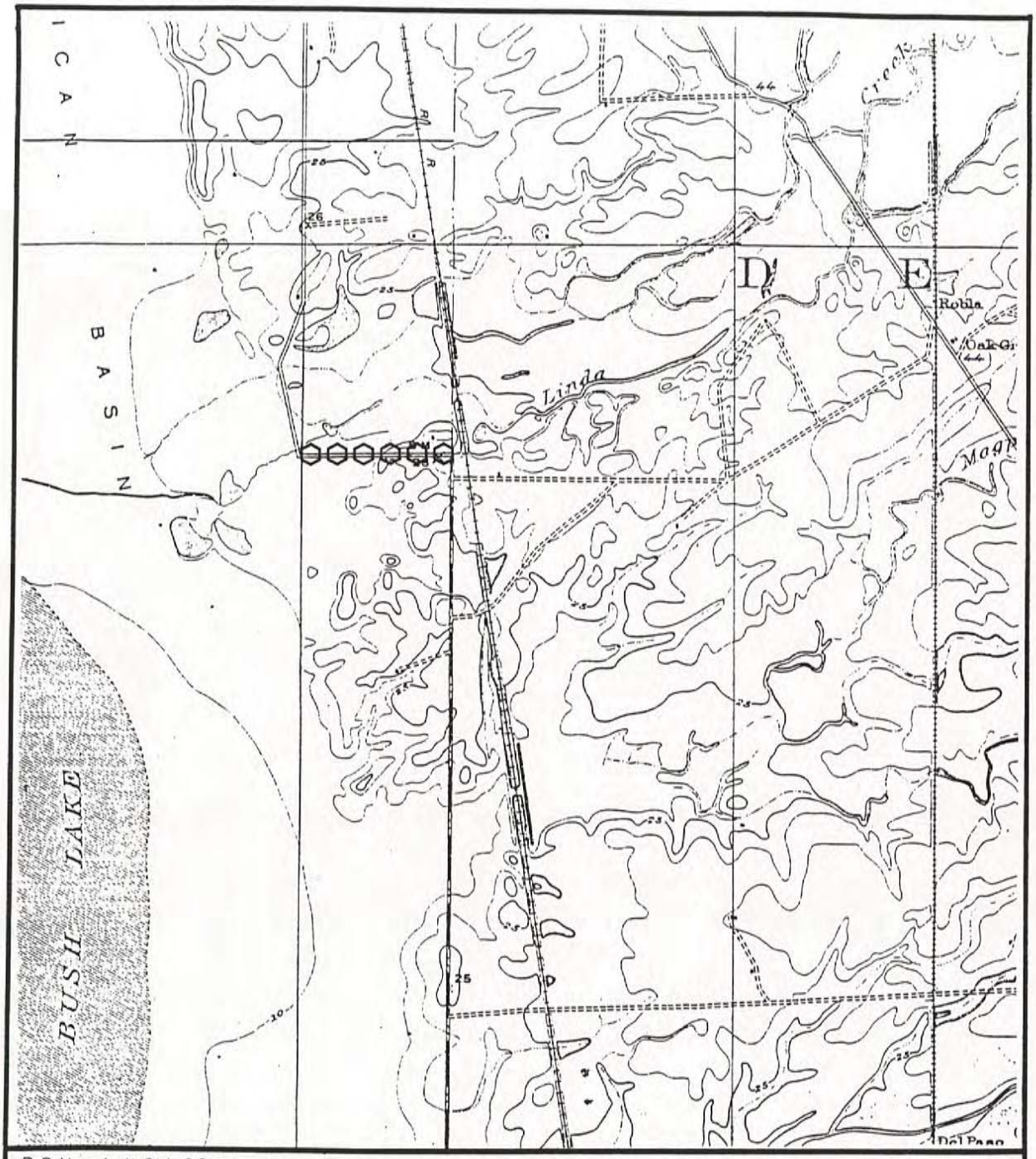
East Main Drainage Canal

Berm, north of I-80 at old Northgate Blvd., view to NE

Berm, just north of I-80, view to east

CA-SAC-569-H

CRU-93-Sac-26H
Del Paso Road



R. B. Marshall, Chief Geographer.
T. G. Gerdine, Geographer in charge.
Topography by T. H. Moncure, M. A. Knock, and A. J. Ogle
Control by C. F. Urquhart, L. F. Biggs, and L. D. Ryus.
Surveyed in 1908-1909.

Arcade quad map
U.S.G.S. 1911 ed.

Historic Map

⬡⬡⬡⬡⬡ Road Alignment

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
000333		1987	Chavez, David	Cultural Resources Evaluation for the Natomas Area Circulation Improvements Project, Sacramento, California.		
000356		1981	Peak & Associates, Inc.	Cultural Resource Assessment for a Feasibility Study of Three 200 acre sites in Sacramento County, California.		
001725		1999	Derr, Eleanor	Pacific Bell Mobile Services: 4752 Arco Arena Blvd., Sacramento, Natomas Vicinity, Sac. County: Site #SA-NSC-M1.		
001729		1989	Wohlgemuth and McGuire	Letter Report for the Adams Farms Project		
001732		1997	PAR Environmental (Hamusek-McGann)	Cultural Resource Inventory and Evaluation for the Proposed Kensington Square Development Sacramento County, California.		
003440		1990	Lindstrom, Susan	A Preliminary Cultural Resource Evaluation of the Sacramento Regional Transit Systems Planning Study Downtown Sacramento/Natomas/Airport Route: EIR		
003441		1992	Davy, Douglas	Cultural Resources Survey of the Sacramento Energy Project		34-000743, 34-000744, 34-000745

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
003469		1997	Melinda A. Peak	Historic American Engineering Record Reclamation District 1000 HAER NO. CA-187	Peak & Associates, Inc	34-000014, 34-000042, 34-000043, 34-000045, 34-000187, 34-000191, 34-000224, 34-000271, 34-000295, 34-000303, 34-000449, 34-000457, 34-000490, 34-000491, 34-000512, 34-000513, 34-000514, 34-000515, 34-000516, 34-000517, 34-000518, 34-000519, 34-000520, 34-000521, 34-000644, 34-000739, 34-000741, 34-000745, 34-000876, 34-000877, 34-000878, 34-000879, 34-000880, 34-000881, 34-000882, 34-000883, 34-000884, 34-000887, 34-000895, 34-001136, 34-001137, 34-001354, 34-001552, 34-001558, 34-001559, 34-001904, 34-002101, 34-002197, 34-002212, 34-002213, 34-002214, 34-002215, 34-002226, 34-003712, 34-003730, 34-003734, 34-003735, 34-003737, 34-003742, 34-003775, 34-003782, 34-003785, 34-003788, 34-003792, 34-003850, 34-003851, 34-003852, 34-003853, 34-003854, 34-003857, 34-003902, 34-003903, 34-003904, 34-003905, 34-004025, 34-004026, 34-004029, 34-004045, 34-004052, 34-004056, 34-004122, 34-004123, 34-004124, 34-004125, 34-004126, 34-004127, 34-004128, 34-004136, 34-004285, 34-004289
003489		1993	Waechter, Sharon	Report on the First Phase of Archaeological Survey For the Proposed SMUD Gas Pipeline Between Winters and Sacramento, Yolo and Sacramento Counties		34-000747
003489B		1993	Waechter, Sharon	Addendum to the Report on the Archaeological Survey for the Proposed SMUD Gas Pipeline Between Winters and Sacramento, Yolo and Sacramento Counties		
004185		2002	Peak & Associates	Cultural Resources Inventory for a Proposed Sure West Tower in Sacramento County		
004186		2001	Derr, Eleanor	Historical and Cultural Resource Assessment of a Proposed Telecommunications Facilty Site No. SA-750-02		

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
004189		2000	Office of Historic Preservation	Historic Property Assessment of RCS Wireless Proposed Telecommunications Facility, Site No. 091-C		
004194		1985	Chavez, David	Cultural Resources Evaluation for the North Natomas Community Plan Study Area, Sacramento California		34-000882
004204		1997	Hamusek-McGann, Blossom	Cultural Resource Inventory and Evaluation for the Proposed Alleghany Property Development Sacramento County, California		34-000882
008614		2007	Lorna Billat	New Tower Submission Packet, Arco-Del Paso, SAC-197A	EarthTouch, Inc.	
011138		1995	Denise Bradley and Michael Corbett	Rural Historic Landscape Report for Reclamation District 1000 for the Cultural Resources Invintory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California	Dames & Moore, Inc	

Report Detail: 000333

Identifiers

Report No.: 000333
Other IDs:
Cross-refs:

Citation information

Author(s): Chavez, David
Year: 1987 (Jan)
Title: Cultural Resources Evaluation for the Natomas Area Circulation Improvements Project, Sacramento, California.
Affliliation:
No. pages:
No. maps:
Attributes: Archaeological, Field study
Inventory size: 285 acres (4 areas)
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): RIO LINDA, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	8/21/2000	Erin Snyder
Last modified:	8/21/2017	wagner

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/12/2008	Machiel	Survey plotted in GIS
	8/21/2017	wagner	Verified

Record status: Verified

Report Detail: 000356

Identifiers

Report No.: 000356
Other IDs:
Cross-refs:

Citation information

Author(s): Peak & Associates, Inc.
Year: 1981 (Nov)
Title: Cultural Resource Assessment for a Feasibility Study of Three 200 acre sites in Sacramento County, California.
Affliliation:
No. pages:
No. maps:
Attributes: Archaeological, Field study
Inventory size: Three locations, approx. 200 acres each (only about 200 acres surveyed on this project)
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): FOLSOM, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	8/22/2000	Erin Snyder
Last modified:	8/21/2017	wagner

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/12/2008	Machiel	Survey plotted in GIS
	8/21/2017	wagner	Verified

Record status: Verified

Report Detail: 001725

Identifiers

Report No.: 001725
Other IDs:
Cross-refs:

Citation information

Author(s): Derr, Eleanor
Year: 1999
Title: Pacific Bell Mobile Services: 4752 Arco Arena Blvd., Sacramento, Natomas Vicinity, Sac. County: Site #SA-NSC-M1.
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: >1 acre
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*	
Entered:	9/21/1999	Mike Thornton	
Last modified:	8/19/2008	Machiel	
IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/12/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 001729

Identifiers

Report No.: 001729
Other IDs:
Cross-refs:

Citation information

Author(s): Wohlgemuth and McGuire
Year: 1989
Title: Letter Report for the Adams Farms Project
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: 90± acres
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	9/21/1999	Mike Thornton
Last modified:	8/19/2008	Machiel

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/12/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 001732

Identifiers

Report No.: 001732
Other IDs:
Cross-refs:

Citation information

Author(s): PAR Environmental (Hamusek-McGann)
Year: 1997
Title: Cultural Resource Inventory and Evaluation for the Proposed Kensington Square Development Sacramento County, California.
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: 112 acres
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*	
Entered:	9/22/1999	Mike Thornton	
Last modified:	8/19/2008	Machiel	
IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/12/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 003440

Identifiers

Report No.: 003440
Other IDs:
Cross-refs:

Citation information

Author(s): Lindstrom, Susan
Year: 1990
Title: A Preliminary Cultural Resource Evaluation of the Sacramento Regional Transit Systems Planning Study Downtown Sacramento/Natomas/Airport Route: EIR
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size:
Disclosure:
Collections:

General notes

overview

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): RIO LINDA, SACRAMENTO EAST, SACRAMENTO WEST, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*	
Entered:	4/25/2002	Sally Torpy	
Last modified:	10/14/200	Monica	
IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/13/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 003441

Identifiers

Report No.: 003441
Other IDs:
Cross-refs:

Citation information

Author(s): Davy, Douglas
Year: 1992 (Sep)
Title: Cultural Resources Survey of the Sacramento Energy Project
Affliliation:
No. pages: 50
No. maps:
Attributes: Archaeological, Field study
Inventory size: 698 acres
Disclosure: Not for publication
Collections: Unknown

General notes

Associated resources

Primary No.	*Trinomial*	*Name*
P-34-000743		
P-34-000744		
P-34-000745		

No. resources: 3
Has informals: No

Location information

County(ies): Sacramento
USGS quad(s): RIO LINDA, SACRAMENTO EAST, SACRAMENTO WEST, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	4/25/2002	Sally Torpy
Last modified:	6/21/2011	kate

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/13/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 003469

Identifiers

Report No.: 003469
Other IDs:
Cross-refs:

Citation information

Author(s): Melinda A. Peak
Year: 1997 (Jun)
Title: Historic American Engineering Record Reclamation District 1000 HAER NO. CA-187
Affliliation: Peak & Associates, Inc
No. pages: 124
No. maps:
Attributes: Archaeological, Evaluation, Field study, Other research
Inventory size: ~87 square miles
Disclosure: Not for publication
Collections: Unknown

General notes

OVERSIZED maps not scanned

Associated resources

Primary No.	*Trinomial*	*Name*
P-34-000014		
P-34-000042	CA-SAC-000015/H	Cahill
P-34-000043	CA-SAC-000016/H	Bennett Mound
P-34-000045	CA-SAC-000018	Beatty
P-34-000187	CA-SAC-000160/H	Richards
P-34-000191	CA-SAC-000164	Sand Cove Site
P-34-000224	CA-SAC-000197	Carpenter
P-34-000271	CA-SAC-000244	
P-34-000295	CA-SAC-000268	
P-34-000303	CA-SAC-000276	
P-34-000449	CA-SAC-000422	
P-34-000457	CA-SAC-000430	East Main Drainage Canal
P-34-000490	CA-SAC-000463H	River Levee
P-34-000491	CA-SAC-000464H	Western Pacific Railway
P-34-000512	CA-SAC-000485/H	
P-34-000513	CA-SAC-000486H	
P-34-000514	CA-SAC-000487H	
P-34-000515	CA-SAC-000488H	
P-34-000516	CA-SAC-000489H	
P-34-000517	CA-SAC-000490H	
P-34-000518	CA-SAC-000491H	
P-34-000519	CA-SAC-000492H	
P-34-000520	CA-SAC-000493H	
P-34-000521	CA-SAC-000494H	
P-34-000644	CA-SAC-000520H	NEMDC Stormwater Pumping Pl
P-34-000739	CA-SAC-000567H	Sorrento Road
P-34-000741	CA-SAC-000569H	Del Paso Rd
P-34-000745		
P-34-000876	CA-SAC-000665H	Lauppe Ranch
P-34-000877		De Matos House
P-34-000878		Barn at 4696 Bayou Way
P-34-000879		Frankini Ranch
P-34-000880		
P-34-000881		
P-34-000882	CA-SAC-000666	
P-34-000883		El Centro Road

P-34-000884		San Juan Road
P-34-000887		
P-34-000895		Sacramento River Docks
P-34-001136		
P-34-001137		
P-34-001354	CA-SAC-000836H	Yuki Pear Farm
P-34-001552		
P-34-001558		
P-34-001559		
P-34-001904		
P-34-002101	CA-SAC-001087H	East Drainage Canal
P-34-002197		Natomas East&West Drainage
P-34-002212	CA-SAC-001112	
P-34-002213	CA-SAC-001113/H	
P-34-002214	CA-SAC-001114/H	
P-34-002215	CA-SAC-001115/H	Novak Farm
P-34-002226	CA-SAC-001116	
P-34-003712	CA-SAC-001130/H	
P-34-003730		
P-34-003734		
P-34-003735		Walter & Leoline Packwood Hou
P-34-003737		Salvador and Margarita O. Cam
P-34-003742		
P-34-003775		
P-34-003782		
P-34-003785		
P-34-003788		
P-34-003792		Carlton B. Sharpe House
P-34-003850	CA-SAC-001131H	
P-34-003851	CA-SAC-001132H	
P-34-003852	CA-SAC-001133H	
P-34-003853	CA-SAC-001134H	
P-34-003854	CA-SAC-001135H	
P-34-003857	CA-SAC-001138H	Bell Farm
P-34-003902	CA-SAC-001142	
P-34-003903	CA-SAC-001143/H	
P-34-003904		
P-34-003905		Vanderford Property
P-34-004025		
P-34-004026		
P-34-004029		Hewitt Property
P-34-004045		7601 Old Auburn Road
P-34-004052		Henrich Property
P-34-004056		Souza Property
P-34-004122	CA-SAC-001147	
P-34-004123		Siddiqui Diversion Pump
P-34-004124		Hewitt Private Diversion Pump
P-34-004125		
P-34-004126		
P-34-004127		
P-34-004128		Novak Diversion Pump
P-34-004136		Riverside Pump Station
P-34-004285	CA-SAC-001148	
P-34-004289		SMUD Tower #456 EVNC

No. resources: 90

Has informals: No

Location information

County(ies): Sacramento

Report Detail: 003469

USGS quad(s): GRAYS BEND, RIO LINDA, SACRAMENTO EAST, SACRAMENTO WEST, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*	
Entered:	6/30/2004	Sally Torpy	
Last modified:	10/11/201	Nathan	
IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/13/2008	Machiel	No survey map to plot in GIS - 22 structures inventoried in report, only district boundaries on maps
	6/23/2011	Ellen	GIS
	6/23/2011	Ellen	scanned

Record status:

Report Detail: 003489

Identifiers

Report No.: 003489
Other IDs:
Cross-refs:

Citation information

Author(s): Waechter, Sharon
Year: 1993
Title: Report on the First Phase of Archaeological Survey For the Proposed SMUD Gas Pipeline Between Winters and Sacramento, Yolo and Sacramento Counties
Affliliation:
No. pages:
No. maps:
Attributes: Archaeological, Field study
Inventory size:
Disclosure: Not for publication
Collections:

Sub-desig.: B
Author(s): Waechter, Sharon
Year: 1993
Title: Addendum to the Report on the Archaeological Survey for the Proposed SMUD Gas Pipeline Between Winters and Sacramento, Yolo and Sacramento Counties
Affiliation:
Report type(s):
Inventory size:
No. pages:
Disclosure:
Collections:
PDF Pages: -

General notes

Associated resources

Primary No.	*Trinomial*	*Name*
P-34-000747	CA-SAC-000572H	JS-Florin-1

No. resources: 1
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): CLARKSBURG, FLORIN, RIO LINDA, SACRAMENTO EAST, SACRAMENTO WEST, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	5/16/2002	Sally Torpy
Last modified:	10/28/201	sally

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/13/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 004185

Identifiers

Report No.: 004185
Other IDs:
Cross-refs:

Citation information

Author(s): Peak & Associates
Year: 2002
Title: Cultural Resources Inventory for a Proposed Sure West Tower in Sacramento County
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: <1 acre
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	7/7/2003	Renee Carter
Last modified:	9/13/2017	joshuaadams2

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/14/2008	Machiel	Survey plotted in GIS
	9/13/2017	joshuaada	Verified GIS

Record status: Verified

Report Detail: 004186

Identifiers

Report No.: 004186
Other IDs:
Cross-refs:

Citation information

Author(s): Derr, Eleanor
Year: 2001
Title: Historical and Cultural Resource Assessment of a Proposed Telecommunications Facilty Site No. SA-750-02
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: <1 acre
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	7/7/2003	Renee Carter
Last modified:	9/13/2017	joshuaadams2

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/19/2008	Machiel	Survey plotted in GIS
	9/13/2017	joshuaada	Verified GIS

Record status: Verified

Report Detail: 004189

Identifiers

Report No.: 004189
Other IDs:
Cross-refs:

Citation information

Author(s): Office of Historic Preservation
Year: 2000
Title: Historic Property Assessment of RCS Wireless Proposed Telecommunications Facility, Site No. 091-C
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: <1 acre
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	7/7/2003	Renee Carter
Last modified:	9/13/2017	joshuaadams2

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/19/2008	Machiel	Survey plotted in GIS
	9/13/2017	joshuaada	Verified GIS

Record status: Verified

Report Detail: 004194

Identifiers

Report No.: 004194
Other IDs:
Cross-refs:

Citation information

Author(s): Chavez, David
Year: 1985
Title: Cultural Resources Evaluation for the North Natomas Community Plan Study Area, Sacramento California
Affliliation:
No. pages:
No. maps:
Attributes: Archaeological, Field study
Inventory size: 14,300 acres
Disclosure:
Collections:

General notes

Associated resources

	Primary No.	*Trinomial*	*Name*
	P-34-000882	CA-SAC-000666	

No. resources: 1
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): RIO LINDA, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	7/7/2003	Renee Carter
Last modified:	9/13/2017	joshuaadams2

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/14/2008	Machiel	Survey plotted in GIS
	9/13/2017	joshuaada	Verified GIS

Record status: Verified

Report Detail: 004204

Identifiers

Report No.: 004204
Other IDs:
Cross-refs:

Citation information

Author(s): Hamusek-McGann, Blossom
Year: 1997
Title: Cultural Resource Inventory and Evaluation for the Proposed Alleghany Property Development Sacramento County, California
Affliliation:
No. pages:
No. maps:
Attributes:
Inventory size: Approx. 120 acres
Disclosure:
Collections:

General notes

Associated resources

Primary No.	*Trinomial*	*Name*
P-34-000882	CA-SAC-000666	

No. resources: 1
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*
Entered:	7/9/2003	Renee Carter
Last modified:	9/18/2017	joshuaadams2

IC actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/15/2008	Machiel	Survey plotted in GIS
	9/18/2017	joshuaada	Verified GIS

Record status: Verified

Report Detail: 008614

Identifiers

Report No.: 008614
Other IDs:
Cross-refs:

Citation information

Author(s): Lorna Billat
Year: 2007 (May)
Title: New Tower Submission Packet, Arco-Del Paso, SAC-197A
Affliliation: EarthTouch, Inc.
No. pages:
No. maps:
Attributes: Archaeological, Field study
Inventory size:
Disclosure:
Collections:

General notes

Associated resources

No. resources: 0
Has informals:

Location information

County(ies): Sacramento
USGS quad(s): TAYLOR MONUMENT

Address:	*Address*	*City*	*Assessor's parcel no.*	*Zip code*
	2500 New Market Road	Sacramento, CA 95834		

PLSS:

Database record metadata

	Date	*User*
Entered:	5/22/2007	nathan
Last modified:	8/19/2008	Machiel

IC actions:	*Date*	*User*	*Action taken*
	8/19/2008	Machiel	Survey plotted in GIS

Record status:

Report Detail: 011138

Identifiers

Report No.: 011138
Other IDs:
Cross-refs:

Citation information

Author(s): Denise Bradley and Michael Corbett
Year: 1995 (Dec)
Title: Rural Historic Landscape Report for Reclamation District 1000 for the Cultural Resources Invintory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California
Affliliation: Dames & Moore, Inc
No. pages: 143
No. maps:
Attributes: Archaeological, Field study
Inventory size:
Disclosure: Not for publication
Collections: Unknown

General notes

related to report #3469

Associated resources

No. resources: 0
Has informals: No

Location information

County(ies): Sacramento
USGS quad(s): GRAYS BEND, RIO LINDA, SACRAMENTO EAST, SACRAMENTO WEST, TAYLOR MONUMENT
Address:
PLSS:

Database record metadata

	Date	*User*	
Entered:	2/25/2013	kate	
Last modified:	2/26/2013	kate	
IC actions:	*Date*	*User*	*Action taken*
	2/25/2013	kate	related to report #3469
	2/26/2013	kate	GIS

Record status:

APPENDIX B

NAHC Correspondence

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8372

October 13, 2017

Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691

Subject: North Natomas Aquatic Center Project, City of Sacramento, California

Dear NAHC Staff,

Improvements are planned in in the City of Sacramento, California for the North Natomas Aquatic Center Project (Figure 1). The proposed project is located in in the City of Sacramento, north of the intersection of Town Center Dr. and New Market Dr. This falls within Public Land Survey System (PLSS) area Township 9N; Range 4E; Sections 2 and 3; and on the Taylor Monument, California United States Geologic Survey (USGS) 7.5-Minute Series Quadrangles.

Dudek is contacting the NAHC as part of the Inventory effort to request a search of the Sacred Lands File for any Native American cultural resources that may fall within a one-half mile buffer of the proposed project location. Please provide contact information for all Native American tribal representatives that should be contacted regarding these project activities. This information can be emailed to me at agiacinto@dudek.com.

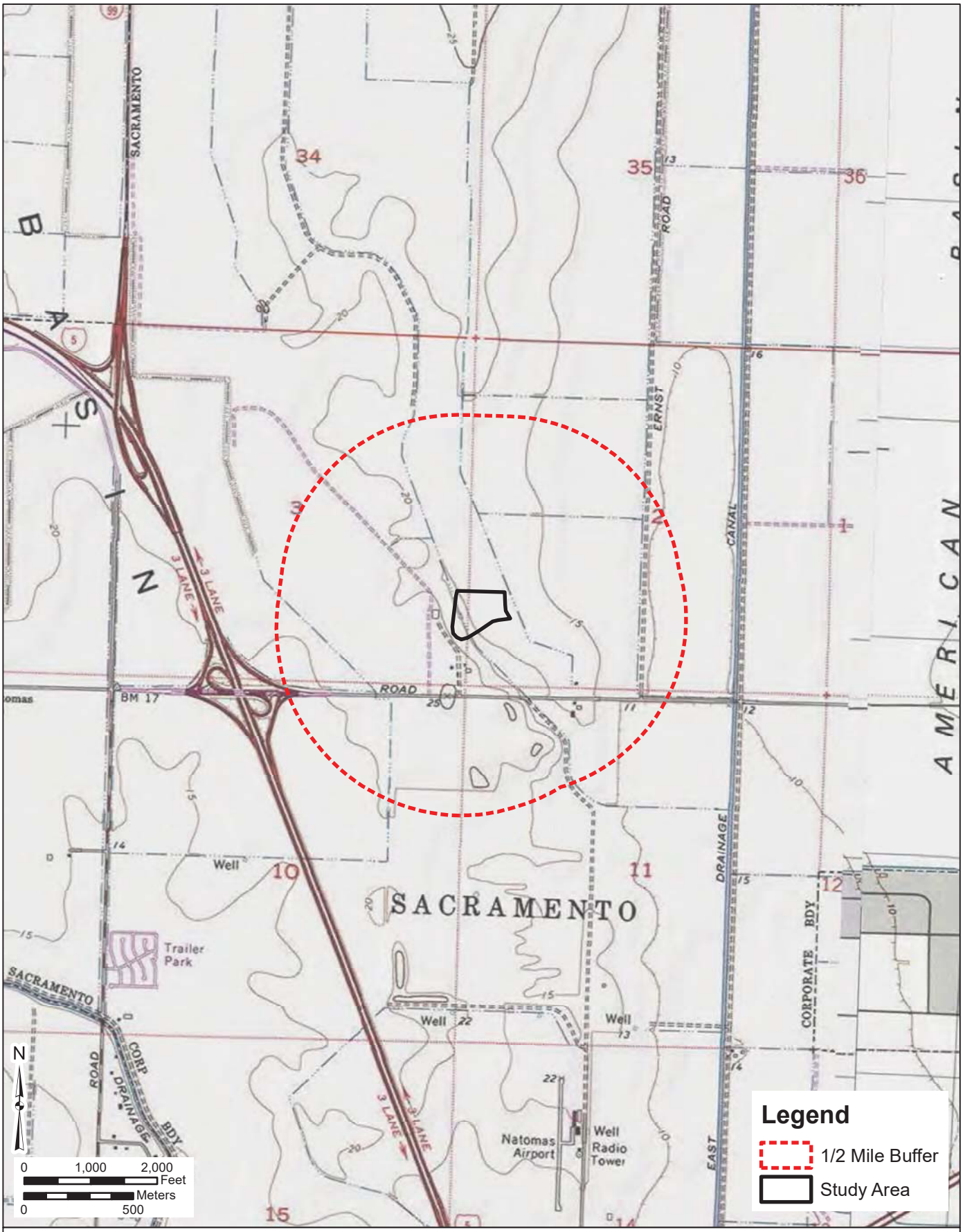
If you have any questions about this investigation, please contact me directly by email or phone.

Regards,

Adam Giacinto, M.A., RPA
Archaeologist

DUDEK
853 Lincoln Way, Suite 208
Auburn, CA 95603
Office: 760.479.4252
Email: agiacinto@dudek.com

Attachments:
Figure 1. Records Search Map



SOURCE: USGS 7.5-Minute Series Taylor Monument Quadrangle
Township 9N; Range 4E; Sections 2, 3, 10, 11

Records Search Map

North Natomas Aquatic Center Project

APPENDIX E

Greenhouse Gas Emissions Modeling Report

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/17/2017 3:50 PM

North Natomas Community and Aquatics Center Project

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.20	Acre	2.20	95,832.00	0
Parking Lot	300.00	Space	2.70	120,000.00	0
City Park	6.26	Acre	6.26	272,685.60	0
Health Club	18.20	1000sqft	0.42	18,200.00	0
Recreational Swimming Pool	18.45	1000sqft	0.42	18,454.72	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2019
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - North Natomas Community and Aquatics Center Project. SMAQMD.

Land Use - 12-acre project site includes - 10,700 sf community center, 4,500 locker room building, 3,000 equipment building, and 300 parking spaces.

Construction Phase - 4-month construction schedule.

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Grading -

Vehicle Trips - Updated trip rates

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	300.00	50.00
tblConstructionPhase	NumDays	30.00	15.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	PhaseEndDate	5/30/2019	10/26/2018
tblConstructionPhase	PhaseEndDate	4/4/2019	9/28/2018
tblConstructionPhase	PhaseEndDate	2/8/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	5/2/2019	10/12/2018
tblConstructionPhase	PhaseStartDate	5/3/2019	10/13/2018
tblConstructionPhase	PhaseStartDate	2/9/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	12/29/2017	7/1/2018
tblConstructionPhase	PhaseStartDate	4/5/2019	9/29/2018
tblGrading	AcresOfGrading	37.50	7.50
tblLandUse	LandUseSquareFeet	18,450.00	18,454.72
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblVehicleTrips	ST_TR	22.75	437.70
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	16.74	437.70

tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	1.89	437.70
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	33.82	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2577	1.2680	0.9400	2.0600e-003	0.1048	0.0548	0.1595	0.0403	0.0513	0.0916	0.0000	188.2696	188.2696	0.0304	0.0000	189.0292
Maximum	**0.2577**	**1.2680**	**0.9400**	**2.0600e-003**	**0.1048**	**0.0548**	**0.1595**	**0.0403**	**0.0513**	**0.0916**	**0.0000**	**188.2696**	**188.2696**	**0.0304**	**0.0000**	**189.0292**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2577	1.2680	0.9400	2.0600e-003	0.1048	0.0548	0.1595	0.0403	0.0513	0.0916	0.0000	188.2695	188.2695	0.0304	0.0000	189.0291
Maximum	**0.2577**	**1.2680**	**0.9400**	**2.0600e-003**	**0.1048**	**0.0548**	**0.1595**	**0.0403**	**0.0513**	**0.0916**	**0.0000**	**188.2695**	**188.2695**	**0.0304**	**0.0000**	**189.0291**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0995	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003
Energy	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	120.0011	120.0011	4.8500e-003	1.5000e-003	120.5705
Mobile	0.9314	3.6258	9.7510	0.0241	1.8869	0.0308	1.9176	0.5062	0.0290	0.5352	0.0000	2,215.2129	2,215.2129	0.1274	0.0000	2,218.3974
Waste						0.0000	0.0000		0.0000	0.0000	42.5165	0.0000	42.5165	2.5127	0.0000	105.3327
Water						0.0000	0.0000		0.0000	0.0000	0.7669	11.1269	11.8938	3.1900e-003	1.7800e-003	12.5041
Total	**1.0344**	**3.6578**	**9.7823**	**0.0243**	**1.8869**	**0.0332**	**1.9201**	**0.5062**	**0.0314**	**0.5376**	**43.2834**	**2,346.3494**	**2,389.6328**	**2.6481**	**3.2800e-003**	**2,456.8139**

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	0.0995	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003
Energy	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	120.0011	120.0011	4.8500e-003	1.5000e-003	120.5705
Mobile	0.9314	3.6258	9.7510	0.0241	1.8869	0.0308	1.9176	0.5062	0.0290	0.5352	0.0000	2,215.2129	2,215.2129	0.1274	0.0000	2,218.3974
Waste						0.0000	0.0000		0.0000	0.0000	42.5165	0.0000	42.5165	2.5127	0.0000	105.3327
Water						0.0000	0.0000		0.0000	0.0000	0.7669	11.1269	11.8938	3.1900e-003	1.7800e-003	12.5041
Total	**1.0344**	**3.6578**	**9.7823**	**0.0243**	**1.8869**	**0.0332**	**1.9201**	**0.5062**	**0.0314**	**0.5376**	**43.2834**	**2,346.3494**	**2,389.6328**	**2.6481**	**3.2800e-003**	**2,456.8139**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	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	Grading	Grading	7/1/2018	7/20/2018	5	15	
2	Building Construction	Building Construction	7/21/2018	9/28/2018	5	50	
3	Paving	Paving	9/29/2018	10/12/2018	5	10	
4	Architectural Coating	Architectural Coating	10/13/2018	10/26/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 4.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,300; Non-Residential Outdoor: 9,100; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38

Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38

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
Architectural Coating	1	44.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	221.00	86.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0382	0.4464	0.2632	4.7000e-004		0.0198	0.0198		0.0182	0.0182	0.0000	42.4864	42.4864	0.0132	0.0000	42.8170
Total	**0.0382**	**0.4464**	**0.2632**	**4.7000e-004**	**0.0491**	**0.0198**	**0.0689**	**0.0253**	**0.0182**	**0.0434**	**0.0000**	**42.4864**	**42.4864**	**0.0132**	**0.0000**	**42.8170**

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	3.3000e-004	2.4000e-004	2.5700e-003	1.0000e-005	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5212	0.5212	2.0000e-005	0.0000	0.5217
Total	**3.3000e-004**	**2.4000e-004**	**2.5700e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5212**	**0.5212**	**2.0000e-005**	**0.0000**	**0.5217**

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					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0382	0.4464	0.2632	4.7000e-004		0.0198	0.0198		0.0182	0.0182	0.0000	42.4863	42.4863	0.0132	0.0000	42.8170
Total	**0.0382**	**0.4464**	**0.2632**	**4.7000e-004**	**0.0491**	**0.0198**	**0.0689**	**0.0253**	**0.0182**	**0.0434**	**0.0000**	**42.4863**	**42.4863**	**0.0132**	**0.0000**	**42.8170**

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	3.3000e-004	2.4000e-004	2.5700e-003	1.0000e-005	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5212	0.5212	2.0000e-005	0.0000	0.5217
Total	**3.3000e-004**	**2.4000e-004**	**2.5700e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5212**	**0.5212**	**2.0000e-005**	**0.0000**	**0.5217**

3.3 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	0.0554	0.4697	0.3373	5.4000e-004		0.0294	0.0294		0.0278	0.0278	0.0000	47.0279	47.0279	0.0107	0.0000	47.2954
Total	**0.0554**	**0.4697**	**0.3373**	**5.4000e-004**		**0.0294**	**0.0294**		**0.0278**	**0.0278**	**0.0000**	**47.0279**	**47.0279**	**0.0107**	**0.0000**	**47.2954**

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	0.0117	0.2791	0.0924	5.4000e-004	0.0126	2.2000e-003	0.0148	3.6300e-003	2.1000e-003	5.7400e-003	0.0000	51.5497	51.5497	3.3300e-003	0.0000	51.6329
Worker	0.0246	0.0178	0.1894	4.3000e-004	0.0406	3.1000e-004	0.0409	0.0108	2.8000e-004	0.0111	0.0000	38.3979	38.3979	1.3100e-003	0.0000	38.4306
Total	**0.0363**	**0.2969**	**0.2818**	**9.7000e-004**	**0.0532**	**2.5100e-003**	**0.0557**	**0.0144**	**2.3800e-003**	**0.0168**	**0.0000**	**89.9476**	**89.9476**	**4.6400e-003**	**0.0000**	**90.0635**

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	0.0554	0.4697	0.3373	5.4000e-004		0.0294	0.0294		0.0278	0.0278	0.0000	47.0279	47.0279	0.0107	0.0000	47.2954
Total	**0.0554**	**0.4697**	**0.3373**	**5.4000e-004**		**0.0294**	**0.0294**		**0.0278**	**0.0278**	**0.0000**	**47.0279**	**47.0279**	**0.0107**	**0.0000**	**47.2954**

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	0.0117	0.2791	0.0924	5.4000e-004	0.0126	2.2000e-003	0.0148	3.6300e-003	2.1000e-003	5.7400e-003	0.0000	51.5497	51.5497	3.3300e-003	0.0000	51.6329
Worker	0.0246	0.0178	0.1894	4.3000e-004	0.0406	3.1000e-004	0.0409	0.0108	2.8000e-004	0.0111	0.0000	38.3979	38.3979	1.3100e-003	0.0000	38.4306
Total	**0.0363**	**0.2969**	**0.2818**	**9.7000e-004**	**0.0532**	**2.5100e-003**	**0.0557**	**0.0144**	**2.3800e-003**	**0.0168**	**0.0000**	**89.9476**	**89.9476**	**4.6400e-003**	**0.0000**	**90.0635**

3.4 Paving - 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	4.1100e-003	0.0438	0.0370	6.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	5.2029	5.2029	1.6200e-003	0.0000	5.2434
Paving	6.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0105**	**0.0438**	**0.0370**	**6.0000e-005**		**2.3900e-003**	**2.3900e-003**		**2.2000e-003**	**2.2000e-003**	**0.0000**	**5.2029**	**5.2029**	**1.6200e-003**	**0.0000**	**5.2434**

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	1.8000e-004	1.3000e-004	1.3700e-003	0.0000	2.9000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2780	0.2780	1.0000e-005	0.0000	0.2782
Total	**1.8000e-004**	**1.3000e-004**	**1.3700e-003**	**0.0000**	**2.9000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2780**	**0.2780**	**1.0000e-005**	**0.0000**	**0.2782**

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	4.1100e-003	0.0438	0.0370	6.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	5.2029	5.2029	1.6200e-003	0.0000	5.2434
Paving	6.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0105**	**0.0438**	**0.0370**	**6.0000e-005**		**2.3900e-003**	**2.3900e-003**		**2.2000e-003**	**2.2000e-003**	**0.0000**	**5.2029**	**5.2029**	**1.6200e-003**	**0.0000**	**5.2434**

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	1.8000e-004	1.3000e-004	1.3700e-003	0.0000	2.9000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2780	0.2780	1.0000e-005	0.0000	0.2782
Total	**1.8000e-004**	**1.3000e-004**	**1.3700e-003**	**0.0000**	**2.9000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2780**	**0.2780**	**1.0000e-005**	**0.0000**	**0.2782**

3.5 Architectural Coating - 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					
Archit. Coating	0.1144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2797
Total	**0.1159**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2797**

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	9.8000e-004	7.1000e-004	7.5400e-003	2.0000e-005	1.6200e-003	1.0000e-005	1.6300e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.5290	1.5290	5.0000e-005	0.0000	1.5303
Total	**9.8000e-004**	**7.1000e-004**	**7.5400e-003**	**2.0000e-005**	**1.6200e-003**	**1.0000e-005**	**1.6300e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.5290**	**1.5290**	**5.0000e-005**	**0.0000**	**1.5303**

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	0.1144					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2797
Total	**0.1159**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2797**

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	9.8000e-004	7.1000e-004	7.5400e-003	2.0000e-005	1.6200e-003	1.0000e-005	1.6300e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.5290	1.5290	5.0000e-005	0.0000	1.5303
Total	**9.8000e-004**	**7.1000e-004**	**7.5400e-003**	**2.0000e-005**	**1.6200e-003**	**1.0000e-005**	**1.6300e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.5290**	**1.5290**	**5.0000e-005**	**0.0000**	**1.5303**

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	0.9314	3.6258	9.7510	0.0241	1.8869	0.0308	1.9176	0.5062	0.0290	0.5352	0.0000	2,215.2129	2,215.2129	0.1274	0.0000	2,218.3974
Unmitigated	0.9314	3.6258	9.7510	0.0241	1.8869	0.0308	1.9176	0.5062	0.0290	0.5352	0.0000	2,215.2129	2,215.2129	0.1274	0.0000	2,218.3974

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2,740.00	2,740.00	2740.00	5,055,173	5,055,173
Health Club	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	2,740.00	2,740.00	2,740.00	5,055,173	5,055,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Health Club	10.00	5.00	6.50	16.90	64.10	19.00	52	39	9
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	10.00	5.00	6.50	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Health Club	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Other Asphalt Surfaces	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Parking Lot	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032
Recreational Swimming Pool	0.547085	0.042365	0.202414	0.127049	0.023381	0.005779	0.018348	0.021363	0.002103	0.002394	0.006067	0.000620	0.001032

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	85.2216	85.2216	4.1900e-003	8.7000e-004	85.5844
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	85.2216	85.2216	4.1900e-003	8.7000e-004	85.5844
NaturalGas Mitigated	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.7794	34.7794	6.7000e-004	6.4000e-004	34.9861
NaturalGas Unmitigated	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.7794	34.7794	6.7000e-004	6.4000e-004	34.9861

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	651742	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.7794	34.7794	6.7000e-004	6.4000e-004	34.9861
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.5100e-003**	**0.0320**	**0.0268**	**1.9000e-004**		**2.4300e-003**	**2.4300e-003**		**2.4300e-003**	**2.4300e-003**	**0.0000**	**34.7794**	**34.7794**	**6.7000e-004**	**6.4000e-004**	**34.9861**

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	651742	3.5100e-003	0.0320	0.0268	1.9000e-004		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	34.7794	34.7794	6.7000e-004	6.4000e-004	34.9861
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.5100e-003**	**0.0320**	**0.0268**	**1.9000e-004**		**2.4300e-003**	**2.4300e-003**		**2.4300e-003**	**2.4300e-003**	**0.0000**	**34.7794**	**34.7794**	**6.7000e-004**	**6.4000e-004**	**34.9861**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Health Club	276276	73.9757	3.6300e-003	7.5000e-004	74.2906
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	42000	11.2459	5.5000e-004	1.1000e-004	11.2938
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**85.2216**	**4.1800e-003**	**8.6000e-004**	**85.5844**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Health Club	276276	73.9757	3.6300e-003	7.5000e-004	74.2906
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	42000	11.2459	5.5000e-004	1.1000e-004	11.2938
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**85.2216**	**4.1800e-003**	**8.6000e-004**	**85.5844**

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	0.0995	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003
Unmitigated	0.0995	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003

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	0.0114					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0876					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003
Total	**0.0995**	**4.0000e-005**	**4.4500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.5600e-003**	**8.5600e-003**	**2.0000e-005**	**0.0000**	**9.1500e-003**

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	0.0114					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0876					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.5600e-003	8.5600e-003	2.0000e-005	0.0000	9.1500e-003
Total	**0.0995**	**4.0000e-005**	**4.4500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.5600e-003**	**8.5600e-003**	**2.0000e-005**	**0.0000**	**9.1500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.8938	3.1900e-003	1.7800e-003	12.5041
Unmitigated	11.8938	3.1900e-003	1.7800e-003	12.5041

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.45867	6.9900	3.4000e-004	7.0000e-005	7.0197
Health Club	1.07641 / 0.659732	2.4352	1.4100e-003	8.5000e-004	2.7235
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	1.09119 / 0.668794	2.4686	1.4300e-003	8.6000e-004	2.7609
Total		**11.8938**	**3.1800e-003**	**1.7800e-003**	**12.5041**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.45867	6.9900	3.4000e-004	7.0000e-005	7.0197
Health Club	1.07641 / 0.659732	2.4352	1.4100e-003	8.5000e-004	2.7235
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	1.09119 / 0.668794	2.4686	1.4300e-003	8.6000e-004	2.7609
Total		**11.8938**	**3.1800e-003**	**1.7800e-003**	**12.5041**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	42.5165	2.5127	0.0000	105.3327
Unmitigated	42.5165	2.5127	0.0000	105.3327

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.54	0.1096	6.4800e-003	0.0000	0.2716
Health Club	103.74	21.0583	1.2445	0.0000	52.1710
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	105.17	21.3486	1.2617	0.0000	52.8902
Total		**42.5165**	**2.5127**	**0.0000**	**105.3327**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.54	0.1096	6.4800e-003	0.0000	0.2716
Health Club	103.74	21.0583	1.2445	0.0000	52.1710
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	105.17	21.3486	1.2617	0.0000	52.8902
Total		**42.5165**	**2.5127**	**0.0000**	**105.3327**

APPENDIX F

Transportation Analysis

Transportation Analysis

North Natomas Community Center and Aquatics Complex

Prepared for

City of Sacramento

October 26, 2017

DKS

8950 Cal Center Drive, Suite 340
Sacramento, California 95628
(916) 368-2000

TABLE OF CONTENTS

INTRODUCTION

This transportation analysis addresses transportation and circulation conditions associated with the proposed North Natomas Community Center and Aquatics Complex (NNCCAC). The analysis focuses on the project's relationship to the City street system, including nearby signalized and unsignalized intersections, the proposed access points, the adjacent freeway interchange, and onsite circulation. The analysis includes consideration of motorized vehicle traffic impacts on roadway capacity, vehicle-miles travelled (VMT), and potential impacts to transit service, bicyclists, and pedestrians. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing (2017)
- Existing Plus Project

PROJECT DESCRIPTION

As illustrated in Figure 1, the project is located on a 12.38-acre (approximate) site in the North Natomas Regional Park in the City of Sacramento. It is bordered to the north by undeveloped park land, to the east by a parking lot, to the south by New Market Drive which will be constructed as part of the project, and to the west by Town Center Drive. Figure 2 illustrates the proposed parking layout and driveway locations associated with the NNCCAC.

The project consists of following elements:

- *A 50 meter x 25 yard competitive pool with either additional warm up lanes or a separate pool, with appropriate support facilities.*

- *A 25 meter x 25 yard competitive pool suitable for swimming and diving with an additional shallow multi-purpose recreational pool with slides and tubes for older children.*

- *A small leisure pool or splash pad misting / spray water play area for small children.*

- *A community complex with an open meeting space with capacity of 200-plus, with an outdoor component leading out to the pool.*

- *The Community complex will also house three rooms to be used as office space.*

- *A Concession area and partial kitchen.*

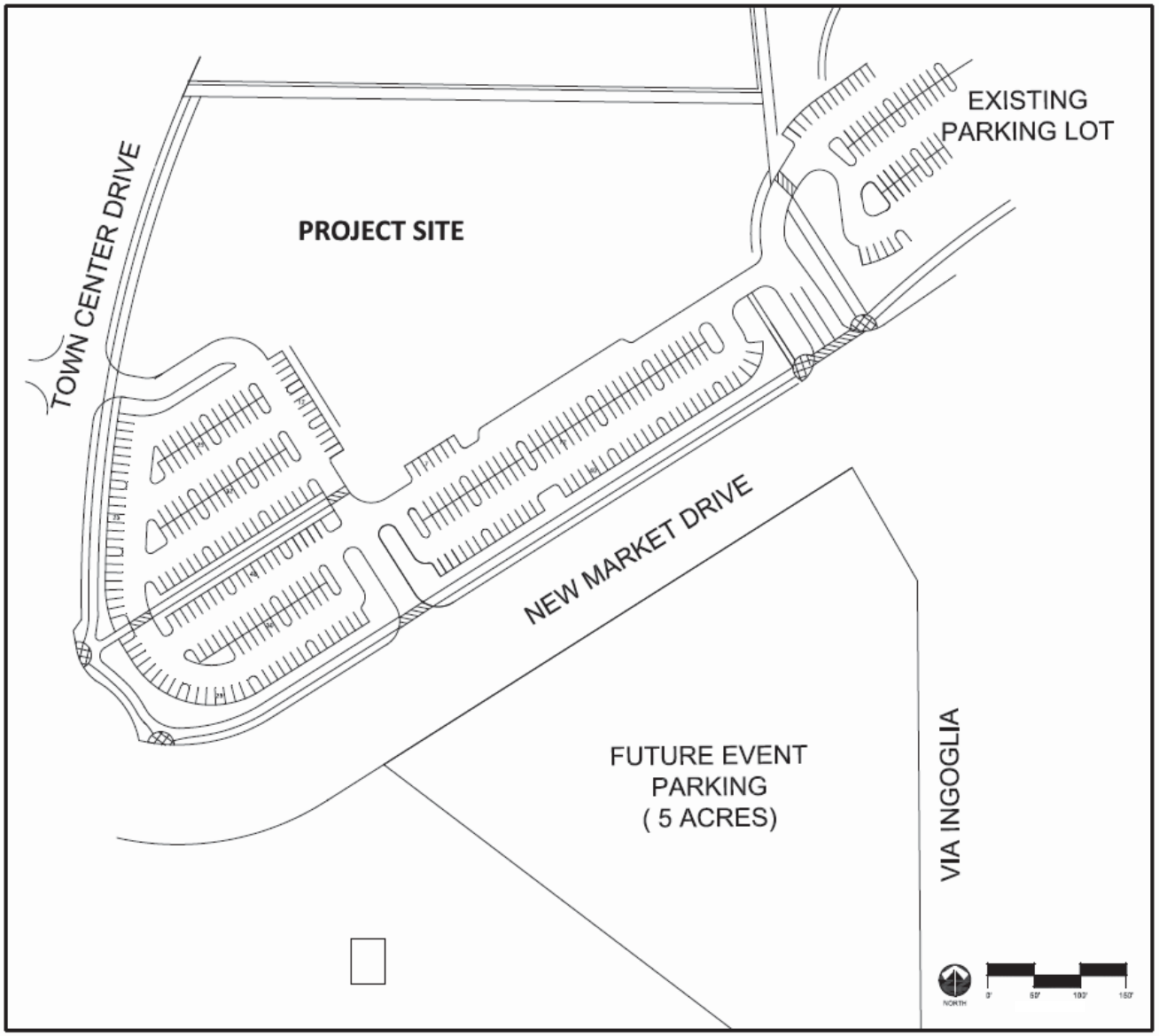
- *Additional parking and covered patio space with seating areas.*[1]

1 *North Natomas Community Center and Aquatics Complex Feasibility Study*, BCA Architects, dated June 8, 2017.

Source: *North Natomas Community Center and Aquatics Complex Feasibility Study*, June 8, 2017, BCA Architects.

DKS

Figure 1
Project Location



Source: *North Natomas Regional Park Aquatics and Recreation Building Complex*, August 2017, City of Sacramento.

DKS

Figure 2
Parking Layout

The project would also include the construction of the segment of New Market Drive between Town Center Drive and Via Ingoglia. Completion of this segment would provide an east-west connection between East Commerce Way and Natomas Boulevard. The roadway cross-section would be similar to the existing New Market Drive segments, with one travel lane in each direction, bike lanes and sidewalks on each side, and a wide median.

Access to the project is proposed at the following locations (see Figure 2):

- Access to Town Center Drive, opposite the existing driveway to the residential complex, about 325 feet north of the roundabout at New Market Drive. Full access would be permitted at this location.

- Access to New Market Drive, approximately 350 feet east of the roundabout at Town Center Drive. As New Market Drive will be median-divided, access would be limited to right-turn-in / right-turn-out.

- Access to existing parking lot, approximately 100 feet north of New Market Drive. Full access would be permitted at this location.

The project proposes parking south of New Market Drive to accommodate large events. As this transportation analysis focuses on traffic operations on a typical weekday, all project parking and access has been assumed to occur in the parking area north of New Market Drive.

ENVIRONMENTAL SETTING

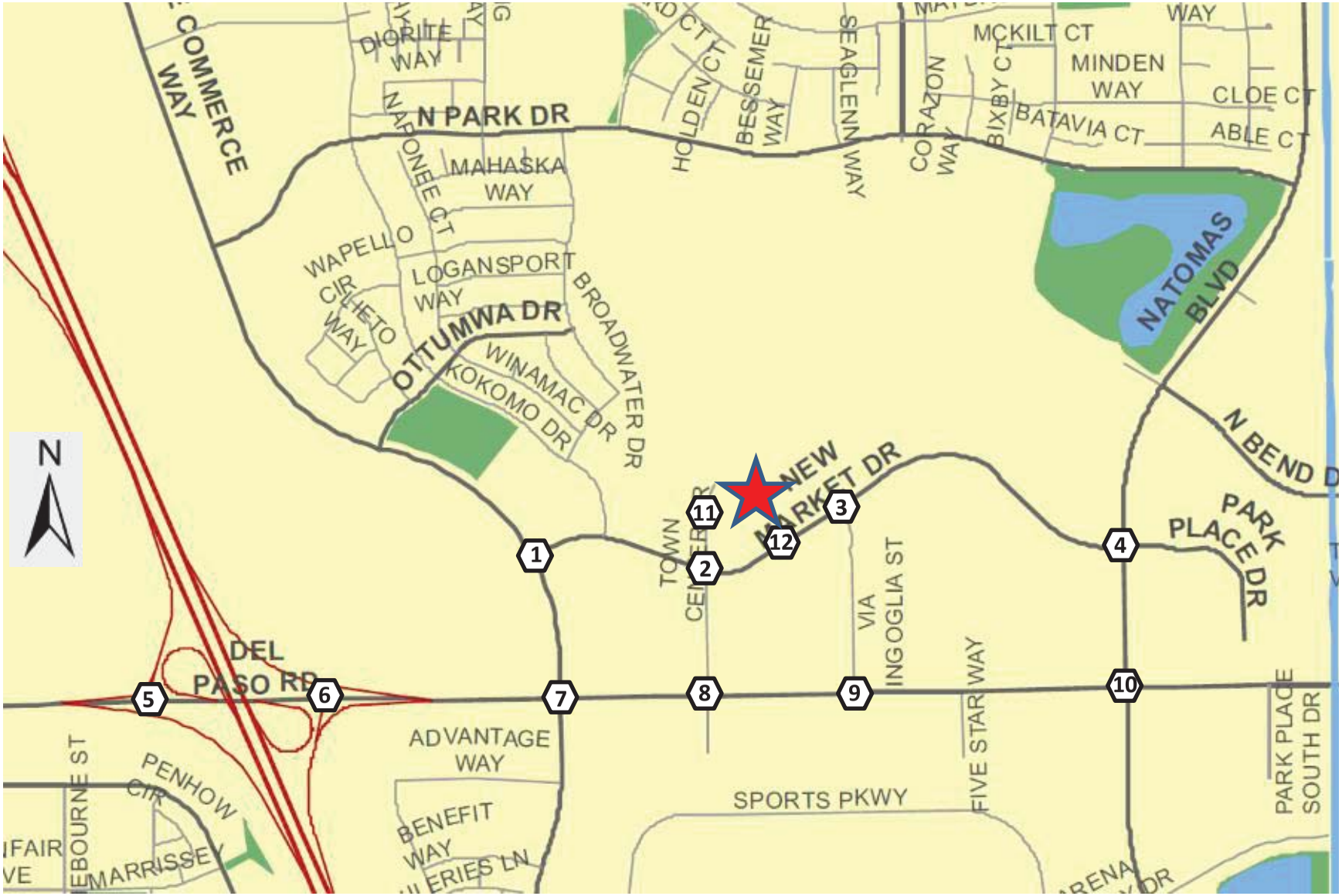
The roadway, transit, bicycle, and pedestrian transportation systems within the study area are described below. Figure 3 illustrates the roadway system near the project site.

ROADWAY SYSTEM

The roadway component of the transportation system near the proposed project is described below.

- Interstate 5 (I-5) is a multi-lane freeway that serves as the commute corridor between Downtown Sacramento and North Natomas. Just north of the Del Paso Road interchange, I-5 curves towards the west and continues to the Sacramento International Airport, Yolo County, and beyond. Site access to I-5 is provided by the Del Paso Road interchange.

- Del Paso Road is an east-west roadway beginning at Power Line Road west of I-5 and continuing easterly to Northgate Boulevard where it becomes Main Avenue. Del Paso Road is primarily a six-lane roadway between I-5 and Blackrock Drive. Westbound Del Paso Road narrows to two lanes between Gateway Park Boulevard and Park Place Drive as it crosses the East Drainage Canal. Del Paso Road provides access to adjacent residential neighborhoods, retail, light industrial and commercial uses.



DKS

Figure 3
Study Area Intersections

- East Commerce Way is a north-south arterial which parallels I-5 to the east. To the north, it extends to Elkhorn Boulevard. It currently terminates south of Natomas Crossing Drive, but is planned to extend to San Juan Road. East Commerce Way is planned to accommodate two to six through lanes.

- Natomas Boulevard is a north-south arterial that extends from Elkhorn Boulevard to Del Paso Road. South of Del Paso Road, it become Truxel Road. Natomas Boulevard is six lanes wide near the site.

- New Market Drive is an east-west minor collector roadway. It begins at East Commerce Way to the west, and continues to Town Center Drive. It begins again at Via Ingoglia, and continues easterly to Natomas Boulevard. East of Natomas Boulevard, it becomes Park Plaza Drive. New Market Drive has one through travel lane in each direction, and a wide median.

- Town Center Drive is a north-south local street. It begins about 600 feet north of New Market Drive and extends to about 400 feet south of Del Paso Road. Town Center Drive has one through travel lane in each direction.

- Truxel Road is a north-south arterial that extends from Del Paso Road to Garden Highway. It is eight lanes wide between Del Paso Road and I-80.

- Via Ingoglia is a north-south local street that extends from New Market Drive to Del Paso Road. It has one through travel lane in each direction.

PEDESTRIAN SYSTEM

The pedestrian system in the site vicinity consists of sidewalks on both sides of all major streets, and marked crosswalks at major intersections.

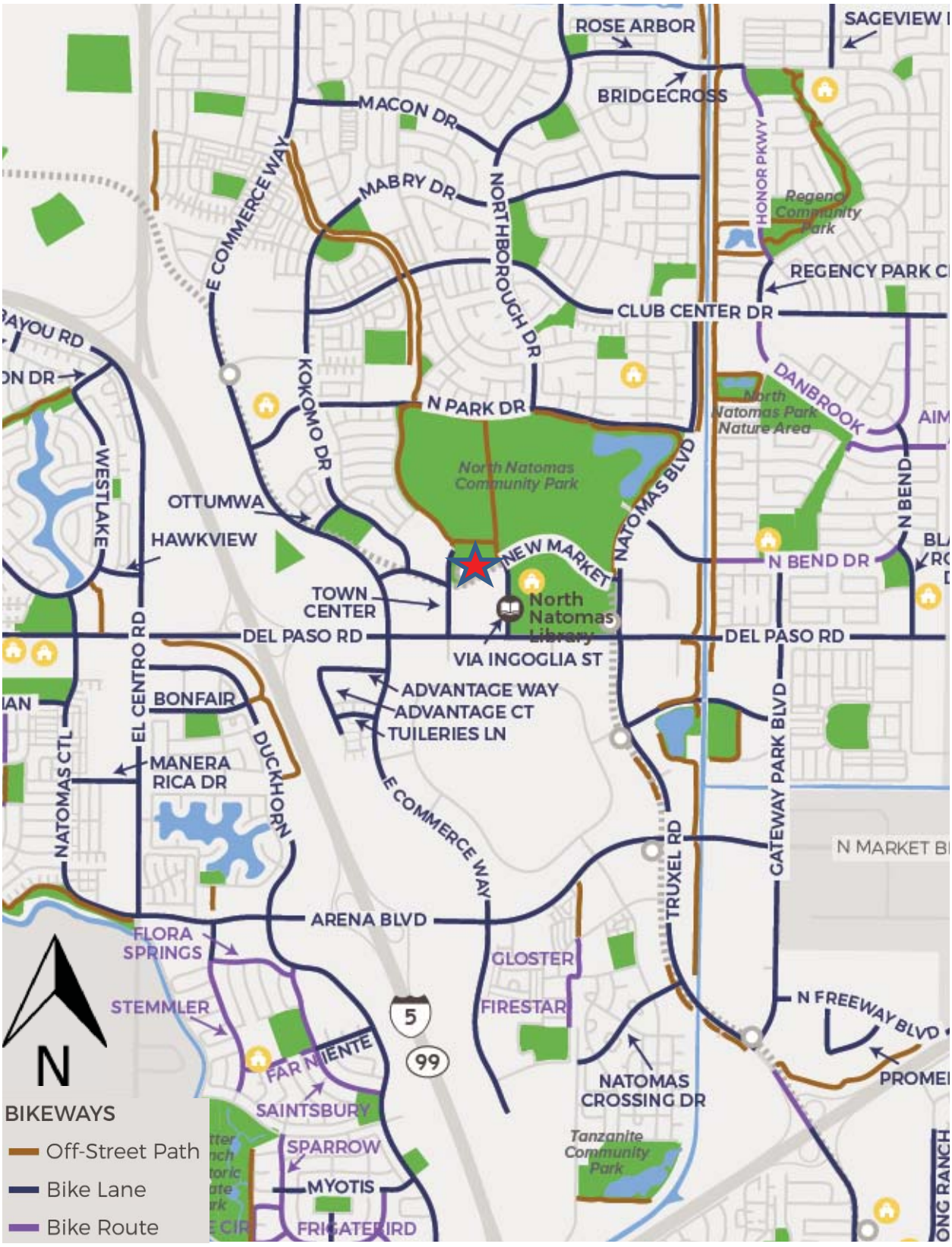
BICYCLE SYSTEM

Figure 4 illustrates the existing and proposed bicycle system in the site vicinity. On-street bikeways currently exist on many study area roadways, including Del Paso Road, Natomas Boulevard, Truxel Road, New Market Drive, Town Center Drive, Via Ingoglia, and East Commerce Way. Off-street bikeways exist surrounding and within the North Natomas Regional Park.

TRANSIT SYSTEM

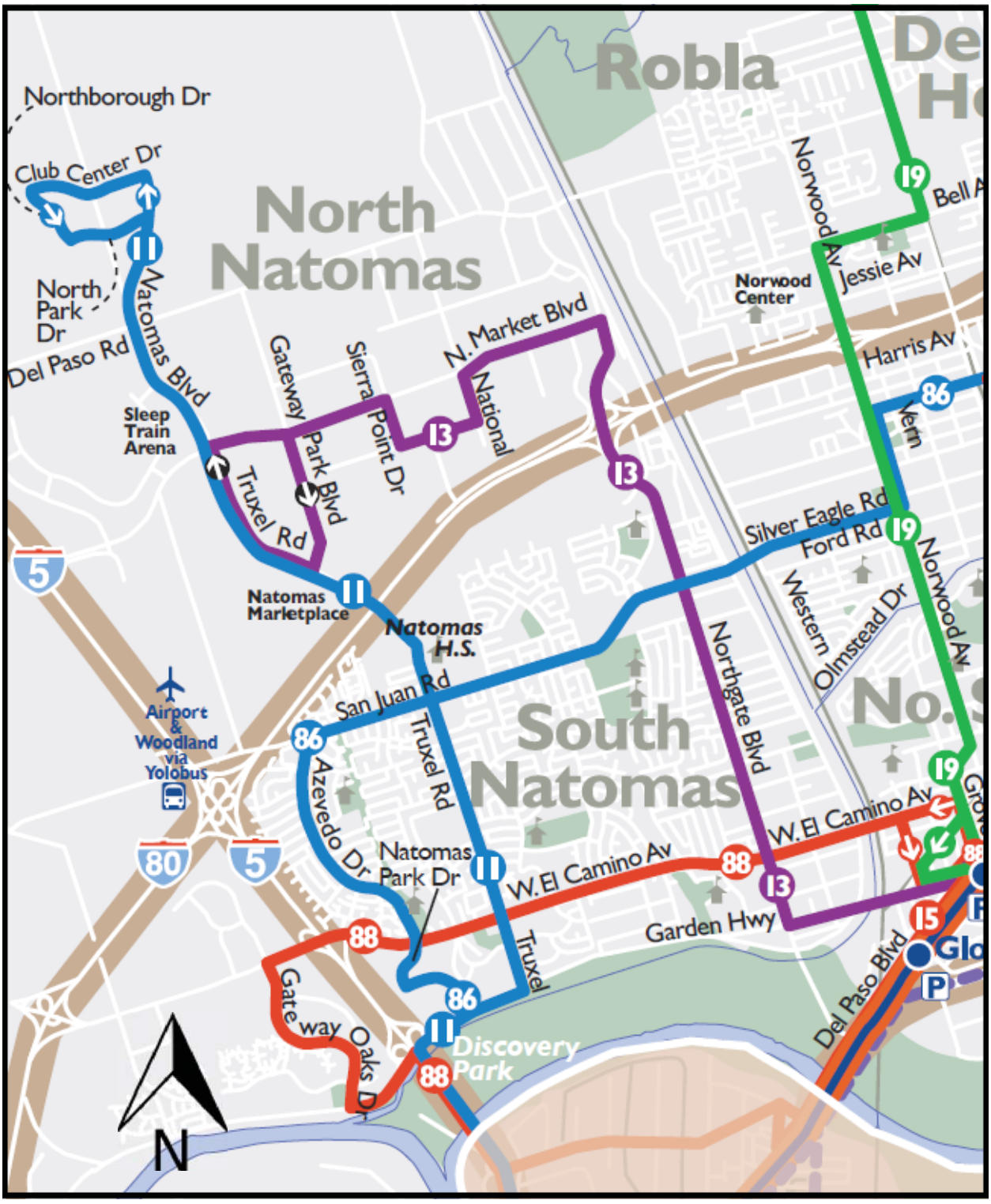
Regional Transit (RT) service in the site vicinity is illustrated in Figure 5.

RT Route 11 (Truxel Road) operates in each direction along Truxel Road. It extends to Club Center Drive and Northborough Drive to the north. To the south, it continues to Downtown via Garden Highway and I-5.



DKS

Figure 4
Bikeways



DKS

Figure 5
Regional Transit Services

As illustrated in Figure 6, the North Natomas Transportation Management Association operates the Flyer Shuttle, a peak period scheduled route transit service between North Natomas and Downtown Sacramento. Each route operates three to four buses to Downtown during the a.m. period, and three to four buses from Downtown during the p.m. period. The Central Route (172) operates along New Market Drive and Town Center Drive adjacent to the site.

STUDY AREA

The following intersections are included in the study area (see Figure 3):

1. New Market Drive and East Commerce Way
2. New Market Drive and Town Center Drive
3. New Market Drive and Via Ingoglia
4. New Market Drive and Natomas Boulevard
5. Del Paso Road and I-5 Southbound Ramps
6. Del Paso Road and I-5 Northbound Ramps
7. Del Paso Road and East Commerce Way
8. Del Paso Road and Town Center Drive
9. Del Paso Road and Via Ingoglia
10. Del Paso Road and Natomas Boulevard / Truxel Road
11. Site Driveway and Town Center Drive
12. New Market Drive and Site Driveway

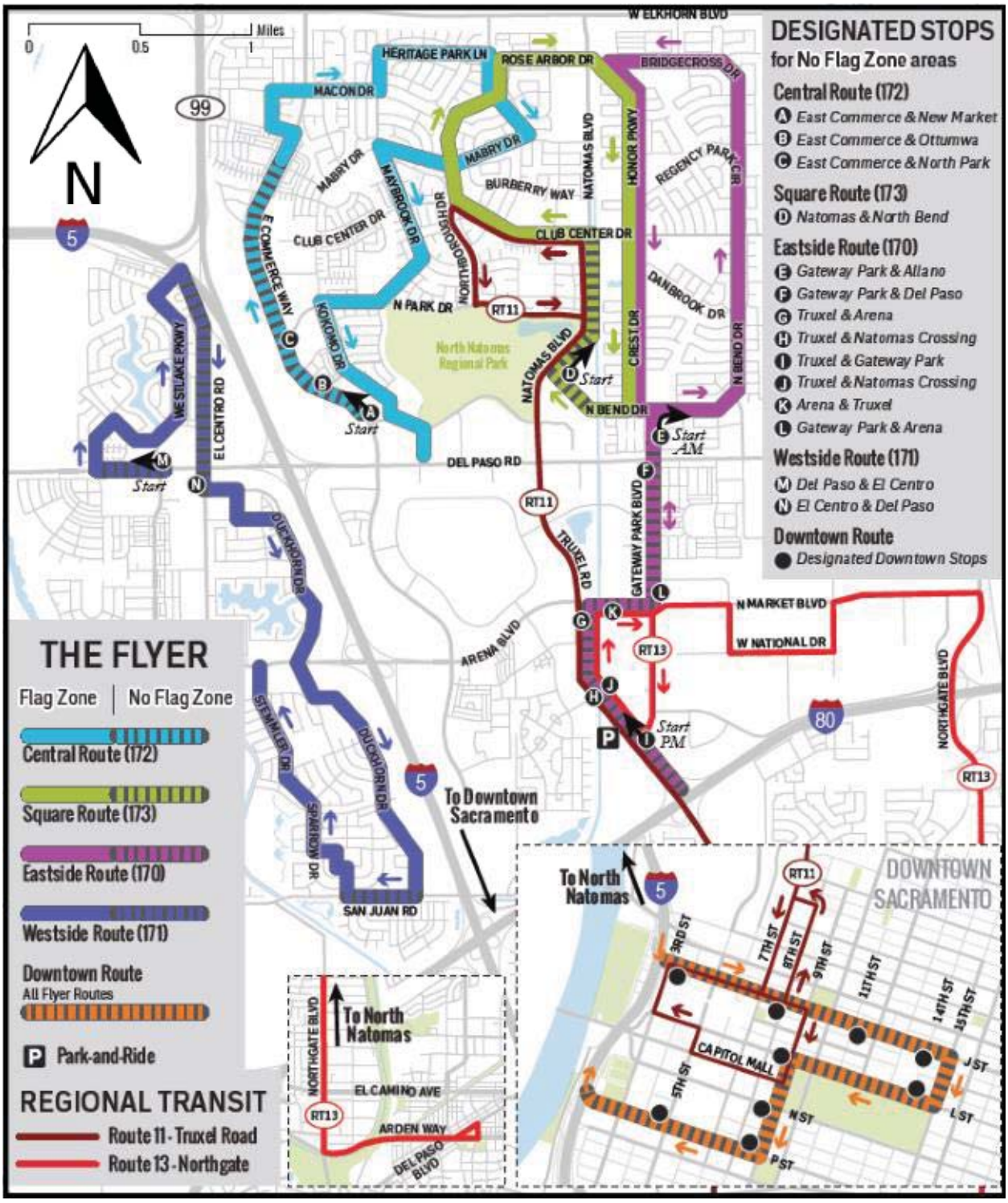
EXISTING INTERSECTION GEOMETRY

Existing intersection geometry (number of approach lanes and traffic control) is illustrated in Figure 7.

EXISTING TRAFFIC VOLUMES

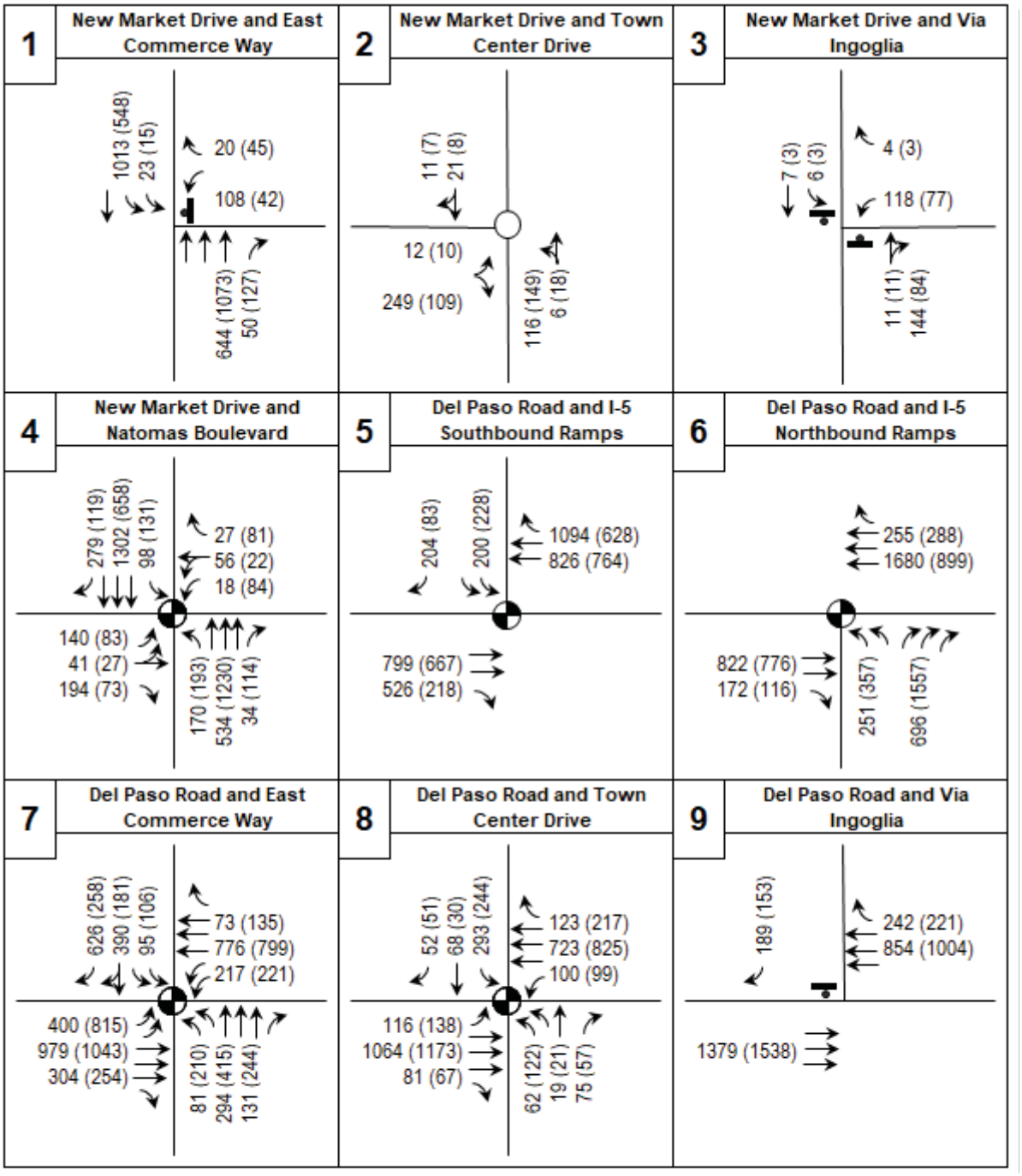
For the two intersections of Del Paso Road with the I-5 freeway ramps, count data was obtained from the North Natomas Freeway Monitoring Program. These counts were conducted on Tuesday March 10, 2015.

For the remaining existing intersections, peak period intersection turning movement counts were conducted for the a.m. weekday peak period (7:00 to 9:00 a.m.) and the p.m. weekday peak period (4:00 to 6:00 p.m.). The intersection of Del Paso Road and Natomas Boulevard / Truxel Road was counted on Tuesday, April 12, 2016. Other intersections were counted on Wednesday, September 27, 2017.



DKS

Figure 6
North Natomas TMA Transit Services



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

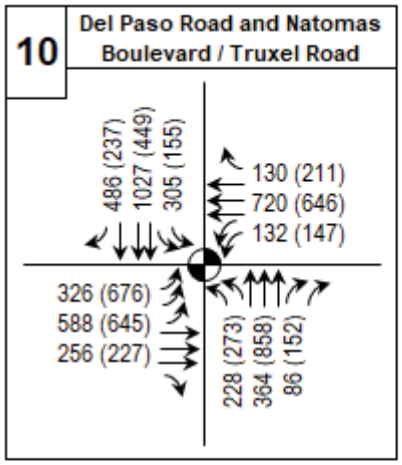
= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

Figure 7
Existing Peak Hour Traffic Volumes and Geometry
Sheet 1 of 2

DKS



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

Figure 7
Existing Peak Hour Traffic Volumes and Geometry
Sheet 2 of 2

DKS

REGULATORY SETTING

City of Sacramento

The Mobility Element of the *Sacramento 2035 General Plan* outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following level of service policy has been used in this study:

> **Policy M 1.2.2 Level of Service (LOS) Standard.** The City shall implement a flexible context sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1:
>
> - Core Area (Central City Community Plan Area) - LOS F allowed
> - Priority Investment Areas – LOS F allowed
> - LOS E Roadways - LOS E is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.
>   - 65th Street: Elvas Avenue to 14th Avenue
>   - Arden Way: Royal Oaks Drive to I-80 Business
>   - Broadway: Stockton Boulevard to 65th Street
>   - College Town Drive: Hornet Drive to La Rivera Drive
>   - El Camino Avenue: I-80 Business to Howe Avenue
>   - Elder Creek Road: Stockton Boulevard to Florin Perkins Road
>   - Elder Creek Road: South Watt Avenue to Hedge Avenue
>   - Fruitridge Road: Franklin Boulevard to SR 99
>   - Fruitridge Road: SR 99 to 44th Street
>   - Howe Avenue: El Camino Avenue to Auburn Boulevard
>   - Sutterville Road: Riverside Boulevard to Freeport Boulevard
>
> LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of light rail stations.

- Other LOS F Roadways - LOS F is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.
    - 47th Avenue: State Route 99 to Stockton Boulevard
    - Arcade Boulevard: Marysville Boulevard to Roseville Road
    - Carlson Drive: Moddison Avenue to H Street
    - El Camino Avenue: Grove Avenue to Del Paso Boulevard
    - Elvas Avenue: J Street to Folsom Boulevard
    - Elvas Avenue/56th Street: 52nd Street to H Street
    - Florin Road: Havenside Drive to Interstate 5
    - Florin Road: Freeport Boulevard to Franklin Boulevard
    - Florin Road: Interstate 5 to Freeport Boulevard
    - Folsom Boulevard: 47th Street to 65th Street
    - Folsom Boulevard: Howe Avenue to Jackson Highway
    - Folsom Boulevard: US 50 to Howe Avenue
    - Freeport Boulevard: Sutterville Road (North) to Sutterville Road (South)
    - Freeport Boulevard: 21st Street to Sutterville Road (North)
    - Freeport Boulevard: Broadway to 21st Street
    - Garden Highway: Truxel Road to Northgate Boulevard
    - H Street: Alhambra Boulevard to 45th Street
    - H Street 45th: Street to Carlson Drive
    - Hornet Drive: US 50 Westbound On-ramp to Folsom Boulevard
    - Howe Avenue: US 50 to Fair Oaks Boulevard
    - Howe Avenue: US 50 to 14th Avenue
    - Raley Boulevard: Bell Avenue to Interstate 80
    - South Watt Avenue: US 50 to Kiefer Boulevard
    - West El Camino Avenue: Northgate Boulevard to Grove Avenue
- If maintaining the above LOS standards would, in the City's judgment be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a

project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

LEVEL OF SERVICE ANALYSIS AND METHODOLOGY

Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections and roadway segments. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine "levels of service." Levels of service (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of several factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. LOS are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions.

Based upon the City's level of service policy, LOS D was utilized as the appropriate criteria in all study analyses.

Intersection Analysis

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, Highway Capacity Manual 2010 (HCM 2010) (TRB 2010). The methodology utilized is known as "operational analysis." This procedure calculates an average control delay per vehicle at an intersection, and assigns a level of service designation based upon the delay. Table 1 presents the level of service criteria for intersections in accordance with the HCM 2010 methodology. At some signalized intersections, traffic signal characteristics cannot be adequately analyzed by the HCM 2010 methodology, due to methodological or software constraints. In these cases, the prior methodology, HCM 2000, was utilized (TRB 2000).

RESULTS OF EXISTING CONDITION ANALYSIS

Table 2 summarizes the existing a.m. and p.m. peak hour operating conditions at the study area intersections. All the intersections operate at LOS D or better.

TABLE 1 INTERSECTION LEVEL OF SERVICE CRITERIA		
Level of Service (LOS)	Total Delay Per Vehicle (seconds)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50
Source: *Highway Capacity Manual 2010, Transportation Research Board.*		

PROJECT TRAVEL CHARACTERISTICS

TRIP GENERATION

Trip Generation Considerations

Trip generation estimates for the project represent the likely use of each project element. For both the aquatic center and community center, the number of people using the facility element will vary dependent upon the scheduled activity. At certain times, event activities will increase the attendance to levels far above average conditions. Such events could be a large swim meet for the aquatic center, or a large meeting / social event for the community center. The aquatic center, which is proposed as an outdoor facility, will also exhibit seasonality, with the highest typical use during the summer months (when school is not in session).

For the transportation review of projects for environmental analysis, the City of Sacramento focuses upon "typical" recurring conditions during the peak a.m. and p.m. weekday commuter periods. Large events do not commonly overlap with these periods. The City also focuses on times of the year when schools are in session, since these time periods include school traffic and lower levels of employee vacations. Thus, the estimation of trip generation summarized in this memorandum is targeted to typical, recurrent conditions. For large events that are not as common, the City will prepare an Event Transportation Management Plan to address traffic operations during major events.

TABLE 2
EXISTING INTERSECTION OPERATING CONDITIONS

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. New Market Drive and East Commerce Way (two-way stop control)	8.9	A	1.6	A
- Southbound Left Turn	11.5	B	15.4	C
- Westbound Left Turn	147.5	F	50.3	F
- Westbound Right Turn	11.5	B	14.6	B
2. New Market Drive and Town Center Drive (roundabout)	5.1	A	4.4	A
3. New Market Drive and Via Ingoglia (two-way stop control)	8.4	A	8.1	A
– Northbound	9.1	A	8.9	A
– Southbound Left Turn	12.1	B	10.5	B
– Southbound Through	10.9	B	10.2	B
– Westbound Left Turn	7.4	A	7.3	A
4. New Market Drive and Natomas Boulevard (signal)	33.1	C	31.8	C
5. Del Paso Road and I-5 Southbound Ramps (signal)	4.2	A	4.4	A
6. Del Paso Road and I-5 Northbound Ramps (signal)	14.0	B	21.7	C
7. Del Paso Road and East Commerce Way (signal)	29.4	C	30.8	C
8. Del Paso Road and Town Center Drive (signal)	40.1	D	33.0	C
9. Del Paso Road and Via Ingoglia	1.2	A	0.9	A
- Southbound Right Turn	16.8	C	17.5	C
10. Del Paso Road and Natomas Boulevard / Truxel Road (signal)	42.0	D	48.6	D

Note: *For unsignalized intersections, the impact threshold is based upon intersection average.*
Source: *DKS Associates, 2017.*

Data Sources

Vehicular trip generation is often estimated based upon data collected and summarized by the Institute of Transportation Engineers (ITE), such as *Trip Generation, Ninth Edition*. For the community center component, ITE land use category 495 (Recreational Community Center) is appropriate. The ITE data does not include an aquatics complex. Research was conducted to determine whether data are available from other sources, and to investigate how other traffic studies estimated trip generation of aquatic centers. Various aquatic facilities in the Sacramento region were considered as similar uses. A limited traffic counting program was undertaken at the Folsom Aquatic Center (Folsom, California). Based upon the research and available information, trip generation for the aquatic center is based upon ITE land use code 493 (Athletic Club). Trip generation for the community center is based upon ITE land use code 495 (Recreation Community Center). Additional information on trip generation is available in the technical appendix.

Vehicular Trip Generation Estimates

Table 3 summarizes the project trip generation estimates. The project is estimated to generate 2,740 vehicle trips daily, 137 trips during the a.m. peak hour, and 253 trips during the p.m. peak hour.

TRIP DISTRIBUTION

The distribution of trips associated with the proposed project was derived from the regional SACSIM travel model, observations of travel patterns near the site, and knowledge of the proposed access locations associated with the site. Trip distribution varies by time of day and direction of travel. Figures 8 and 9 illustrate the trip distribution for new external trips.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, thresholds of significance adopted by the governing jurisdictions in applicable general plans and previous environmental documents, and professional judgement, a significant impact would occur if the proposed project would:

INTERSECTIONS – CITY OF SACRAMENTO

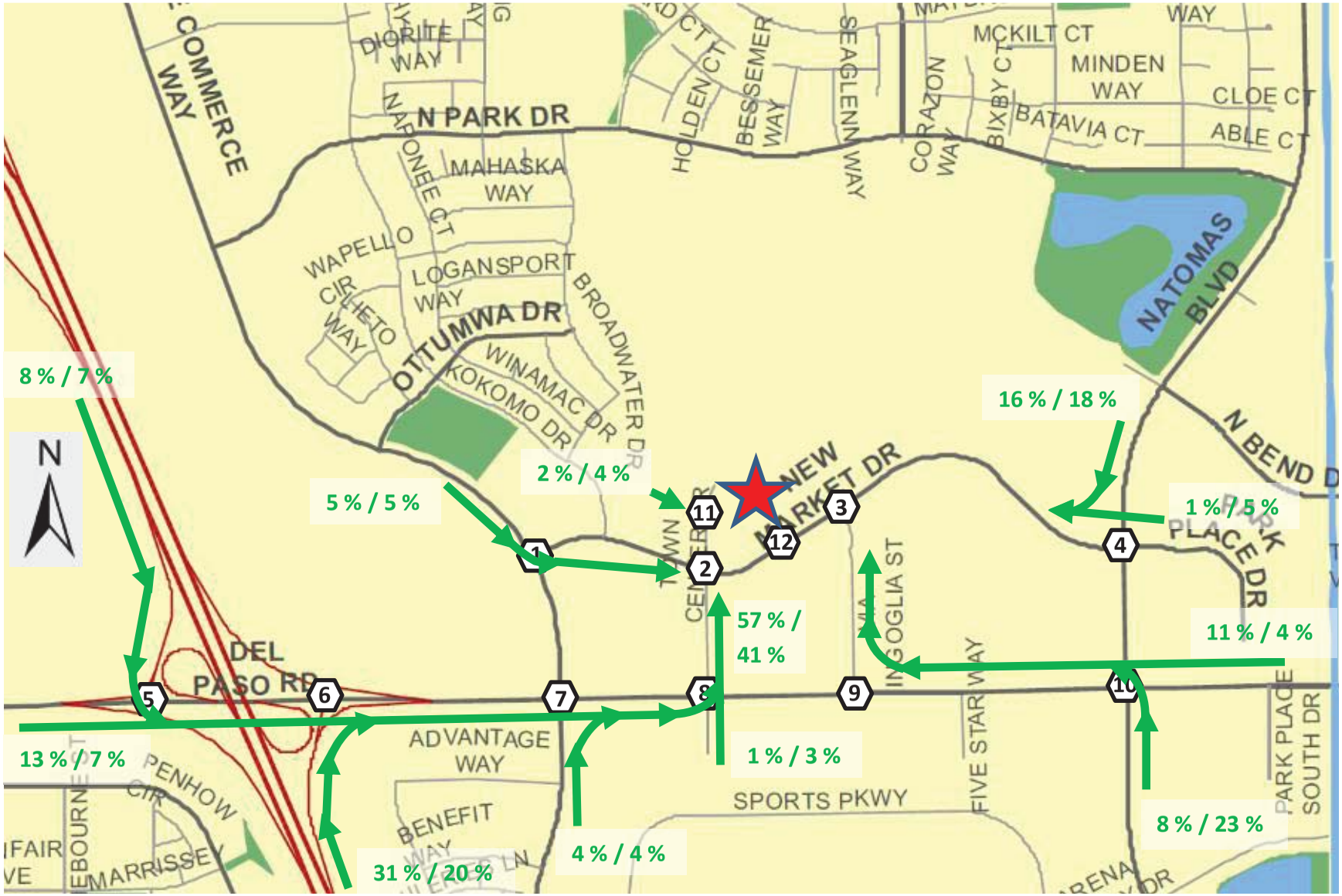
- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.

Note: General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:

TABLE 3
VEHICULAR TRIP GENERATION ESTIMATES

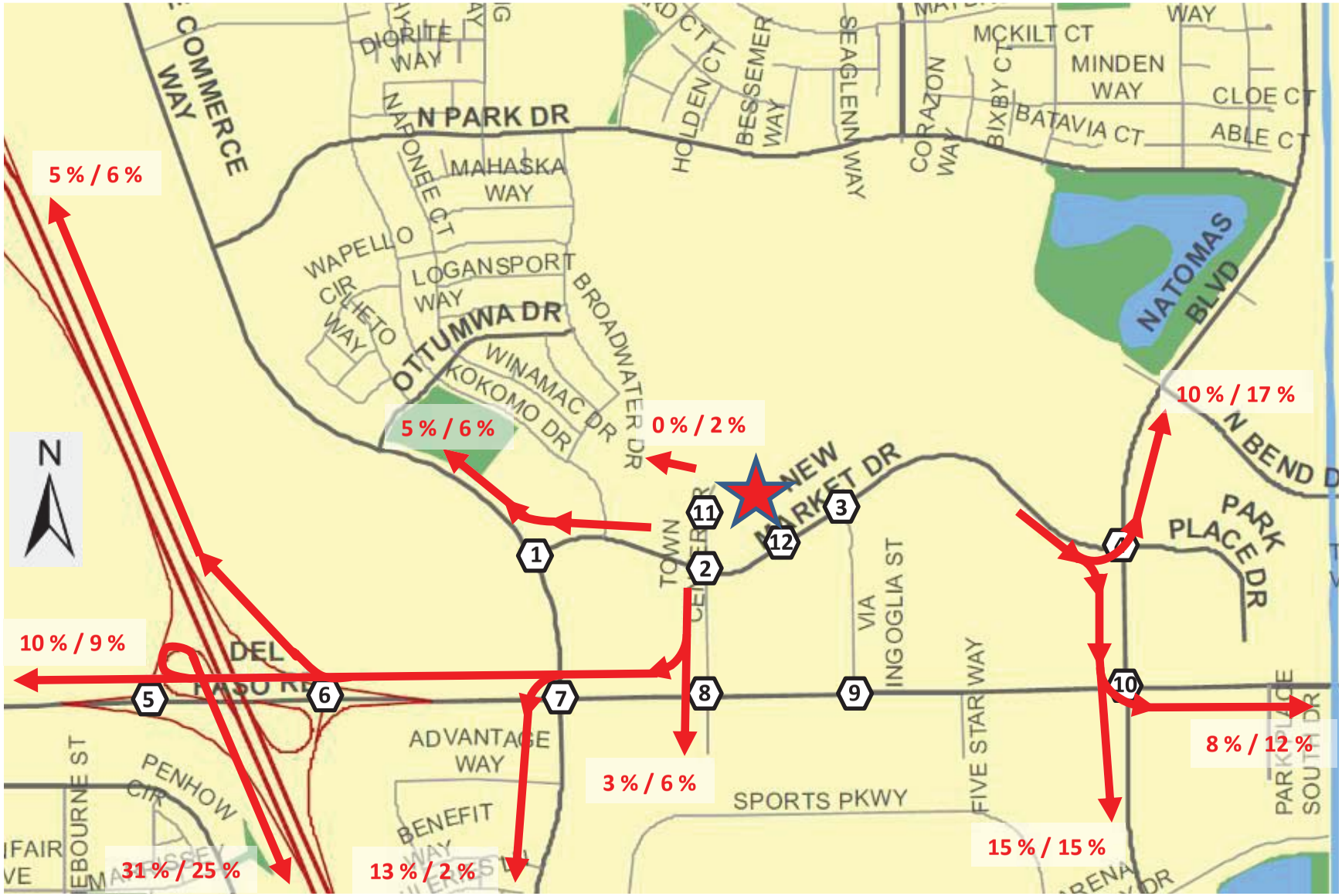
Land Use	Amount	Source	Vehicle Trips Generated (Trip-Ends)						
			Weekday	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Aquatic Center	35,000 square feet	ITE 493 (Athletic Club)	2,199	63	41	104	130	79	209
Community Center	16,000 square feet	ITE 495 (Recreation Community Center)	541	22	11	33	22	22	44
Total Project Trips			2,740	85	52	137	152	101	253

***Source**: DKS Associates, 2017, ITE Trip Generation, Ninth Edition, 2012.*



AM % / PM %

Figure 8
Entering Distribution



AM % / PM %

Figure 9
Exiting Distribution

- LOS A-D is to be maintained at all times; provided, LOS E or F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

TRANSIT

- Adversely affect public transit operations,
- Fail to adequately provide access to transit.

BICYCLE FACILITIES

- Adversely affect existing or planned bicycle facilities,
- Fail to adequately provide for access by bicycle.

PEDESTRIAN CIRCULATION

- Adversely affect existing or planned pedestrian facilities,
- Fail to adequately provide for access by pedestrians.

CONSTRUCTION-RELATED TRAFFIC IMPACTS

- Degrade an intersection or roadway to an unacceptable level,
- Cause inconveniences to motorists due to prolonged road closures, or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

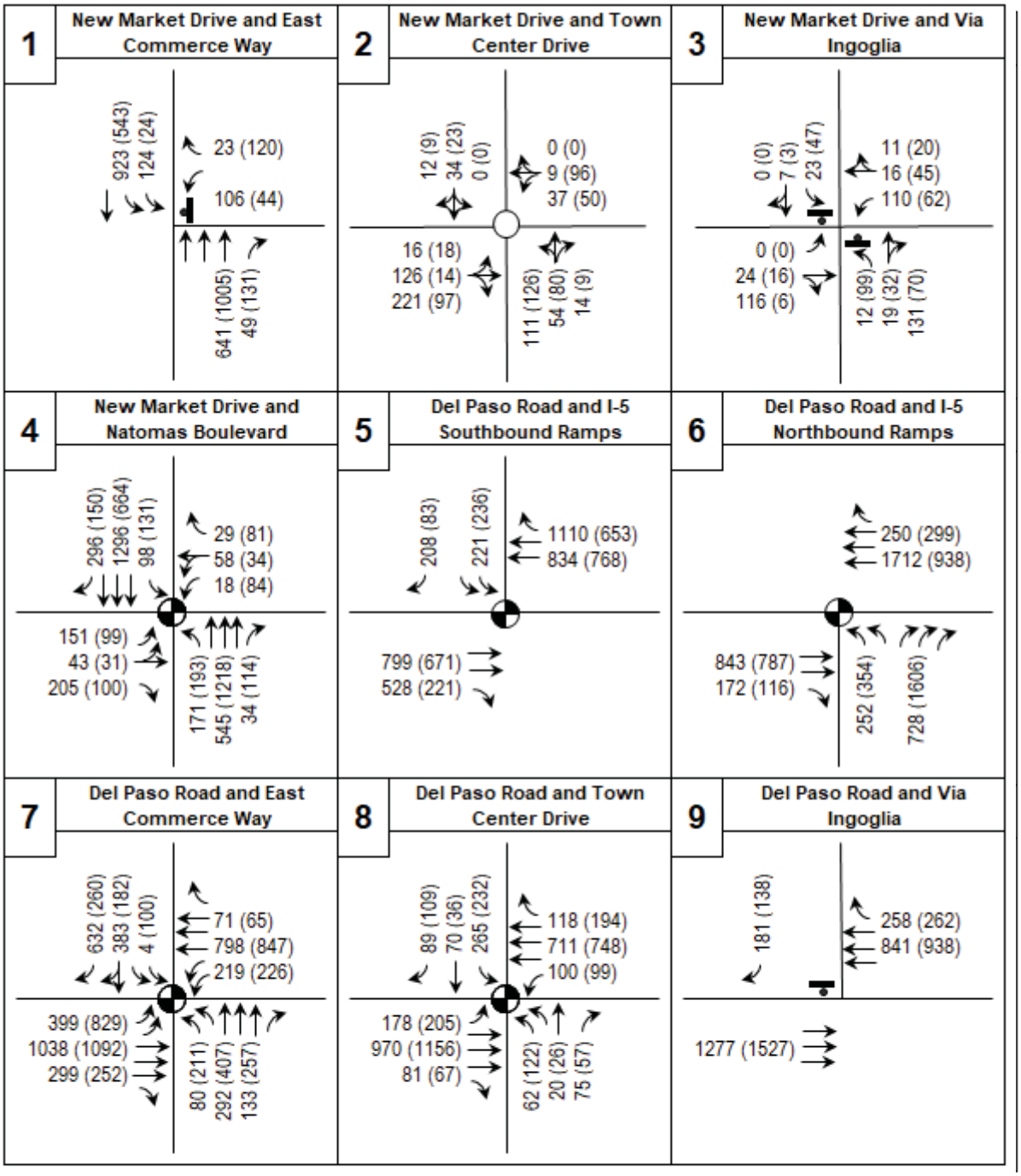
EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Figure 10 illustrates AM peak hour and PM peak hour traffic volumes associated with the existing plus project scenario. The figure also illustrates the intersection geometry of the existing plus project scenario. Table 8 summarizes the results of the existing plus project peak hour intersection analysis.

IMPACTS AND MITIGATION MEASURES

Impact 1: The proposed project could cause potentially significant impacts to study area intersections under the existing plus project scenario. Based on the analysis below the impact is *less than significant.*

As summarized in Table 8, the project would increase travel volumes and change average delay at study area intersections. With the addition of project traffic, all the intersections will continue to operate at LOS D or better.



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

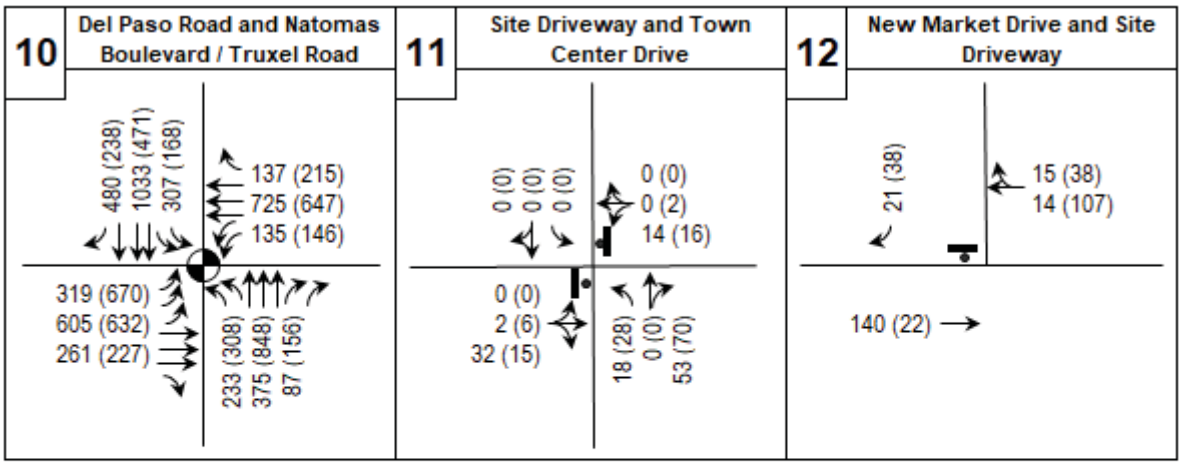
N

W E

S

Figure 10
Existing Plus Project Peak Hour Traffic Volumes and Geometry
Sheet 1 of 2

DKS



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

Figure 10
Existing Plus Project Peak Hour Traffic Volumes and Geometry
Sheet 2 of 2

TABLE 8
EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS

Intersection	Existing				Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. New Market Drive and East Commerce Way (two-way stop control)	8.9	A	1.6	A	18.6	C	2.4	A
- Southbound Left Turn	11.5	B	15.4	C	12.9	B	14.8	B
- Westbound Left Turn	147.5	F	50.3	F	>300	F	48.2	E
- Westbound Right Turn	11.5	B	14.6	B	11.5	B	16.2	C
2. New Market Drive and Town Center Drive (roundabout)	5.1	A	4.4	A	6.3	A	5.2	A
3. New Market Drive and Via Ingoglia (two-way stop control)	8.4	A	8.1	A	6.1	A	7.6	A
- Northbound Left Turn	-	-	-	-	13.5	B	10.7	B
- Northbound Through and Right	9.1	A	8.9	A	12.2	B	9.6	A
- Southbound Left Turn	12.1	B	10.5	B	13.5	B	11.3	B
- Southbound Through and Right	10.9	B	10.2	B	12.2	B	10.4	B
- Eastbound Left Turn	-	-	-	-	-	-	-	-
- Westbound Left Turn	7.4	A	7.3	A	7.7	A	7.4	A
4. New Market Drive and Natomas Boulevard (signal)	33.1	C	31.8	C	32.9	C	34.5	C

TABLE 8
EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS

Intersection	Existing				Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
5. Del Paso Road and I-5 Southbound Ramps (signal)	4.2	A	4.4	A	4.4	A	4.5	A
6. Del Paso Road and I-5 Northbound Ramps (signal)	14.0	B	21.7	C	14.2	B	22.2	C
7. Del Paso Road and East Commerce Way (signal)	29.4	C	30.8	C	28.3	C	31.9	C
8. Del Paso Road and Town Center Drive (signal)	40.1	D	33.0	C	42.9	D	33.0	C
9. Del Paso Road and Via Ingoglia	1.2	A	0.9	A	1.2	A	0.8	A
- Southbound Right Turn	16.8	C	17.5	C	16.3	C	16.0	C
10. Del Paso Road and Natomas Boulevard / Truxel Road (signal)	42.0	D	48.6	D	42.3	D	54.8	D
11. Site Driveway and Town Center Drive	-	-	-	-	4.5	A	4.1	A
- Northbound Left Turn	-	-	-	-	7.2	A	7.3	A
- Southbound Left Turn	-	-	-	-	-	-	-	-
- Eastbound	-	-	-	-	8.5	A	8.8	A
- Westbound	-	-	-	-	9.2	A	9.4	A
12. New Market Drive and Site Driveway	-	-	-	-	0.9	A	1.7	A
- Southbound	-	-	-	-	8.5	A	9.1	A

Note: *For unsignalized intersections, the impact threshold is based upon intersection average.*
Source: *DKS Associates, 2017.*

Mitigation Measure 1

None required.

Impact 2: The proposed project could cause potentially significant impacts to transit. Based on the analysis below, the impact is less than significant.

The proposed project would not adversely affect public transit operations. The project would not modify or impede any existing or planned transit facilities / routes.

Regional Transit's Green Line to the Airport project will extend light rail from Downtown Sacramento to the Sacramento International Airport. One potential alignment is via New Market Drive. The proposed NNCCAC project and the construction of New Market Drive would not impede this planned project if the New Market Drive alignment is implemented.

Mitigation Measure 2

None required.

Impact 3: The proposed project could cause potentially significant impacts to pedestrian facilities. Based on the analysis below, the impact is less than significant.

The proposed project would not adversely affect existing or planned pedestrian facilities. The construction of New Market Drive will include sidewalks and crosswalks at the intersections with Town Center Drive and Via Ingoglia.

Mitigation Measure 3

None required.

Impact 4: The proposed project could cause potentially significant impacts to bicycle facilities. Based on the analysis below, the impact is less than significant.

The proposed project would not adversely affect existing or planned bicycle facilities. The construction of New Market Drive will include on-street bike lanes on both sides of the street. The NNCCAC will include connections to the off-street bikeway system of North Natomas Regional Park.

Mitigation Measure 4

None required.

Impact 5: The proposed project could cause potentially significant impacts due to construction-related activities. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

Construction may include disruptions to the transportation network near the project site, including the possibility of temporary lane closures, street closures, sidewalk closures, and bikeway closures. Pedestrian and bicycle access may be disrupted. Heavy vehicles, equipment and trucks would access the site and may need to be staged for construction. These activities could result in degraded roadway operating conditions. Therefore, the impacts are considered significant.

Mitigation Measure 5

Prior to the beginning of construction, a construction traffic management plan shall be prepared to the satisfaction of the City's Traffic Engineer and subject to review by all affected agencies. The plan shall ensure that acceptable operating conditions on roadways are maintained. At a minimum, the plan shall include:

- Description of trucks including: number and size of trucks per day, expected arrival / departure times, truck circulation patterns.

- Description of staging area including: location, maximum number of trucks simultaneously permitted in staging area, use of traffic control personnel, specific signage.

- Description of street closures and/or bicycle and pedestrian facility closures including: duration, advance warning and posted signage, safe and efficient access routes for emergency vehicles, and use of manual traffic control.

- Description of access plan including: provisions for safe vehicular, pedestrian, and bicycle travel, minimum distance from any open trench, special signage, and private vehicle accesses.

- Provisions for parking for construction workers.

FREEWAY RAMP QUEUING

Queuing data was obtained for existing conditions from the North Natomas Freeway Monitoring Program for the I-5 ramp intersections with Del Paso Road. These observations were made on Tuesday March 10, 2015.

Table 9 presents the estimated freeway ramp queuing for existing and for existing plus project conditions. The addition of project traffic does not result in queues exceeding the available storage during the peak hours.

VEHICLE MILES TRAVELED (VMT)

Travel forecasting for the project VMT analysis was conducted with the use of SACOG's SACSIM travel model. The model was used to calculate regional VMT for three scenarios:

TABLE 9 FREEWAY RAMP TERMINI QUEUING – I-5 AT DEL PASO ROAD				
Peak Hour	**Ramp Direction**	**Available Storage Length (feet / lane)**	**Maximum Queue Length (feet / lane)**	
			Existing	**Existing Plus Project**
AM	Northbound	690	232	238
	Southbound	595	108	113
PM	Northbound	690	264	288
	Southbound	595	197	199
Source: *DKS Associates, 2017.*				

- Existing conditions
- Existing conditions plus construction of New Market Drive
- Existing conditions plus project (New Market Drive and NNCCAC)

Table 10 presents the results of the analysis. The analysis assumes typical weekday conditions without major events at the NNCCAC.

TABLE 10 ESTIMATED PROJECT VMT			
Roadway Type	**Regional Daily Vehicle Miles Travelled**		
	Existing	**Existing Plus New Market Drive**	**Existing Plus Project**
Freeways and Rural Roads	33,641,024	33,625,839	33,630,598
Urban Streets	24,644,504	24,649,277	24,640,543
Total	58,285,528	58,275,115	58,271,142
Source: *DKS Associates, 2017.*			

With the completion of the missing segment of New Market Drive, VMT decreases by 10,412 per day. The one-block missing link provides improved access to the North Natomas Regional Park, Inderkum High School, and nearby residential and commercial development, shortening some vehicle trips.

With the implementation of the project (NNCCAC), VMT decreases by an additional 3,974 per day, for a total decrease of 14,386 compared to existing conditions. The travel model assumes that the trips associated with the NNCCAC (both employment and recreational) would be served at other locations in the region if the NNCCAC were not constructed.

DRIVEWAY THROAT LENGTH

The "throat length" of a driveway is defined as the distance from the outer edge of the traveled way of the intersecting roadway to the first point along the driveway at which there are conflicting vehicular traffic movements. Conflicting movements include turning vehicles and vehicles entering / exiting parking stalls. Adequate throat length is critical to ensure that queued exiting vehicles do not interfere with / block entering vehicles, resulting in entering queues extending onto city sidewalks and / or streets. Throat length requirements for the proposed parking lot (see Figure 2) were determined by the 95th percentile queue of exiting vehicles at each driveway during the a.m. and p.m. peak hours (rounded to the next highest vehicle), with a minimum length adequate to store one vehicle.

- Town Center Drive Driveway – This driveway has a throat length of approximately 150 feet, measured from the back of sidewalk to the first parking aisle. This distance is adequate to accommodate anticipated queues on a typical day. A minimum distance of 50 feet should be provided.

- New Market Drive Driveway – This driveway has a throat length of approximately 90 feet, measured from the back of sidewalk to the first parking aisle. This distance is adequate to accommodate anticipated queues on a typical day. A minimum distance of 50 feet should be provided.

- Via Ingoglia Driveway - This driveway has a throat length of approximately 80 feet, measured from the back of sidewalk to the first parking aisle. This distance is adequate to accommodate anticipated queues on a typical day. A minimum distance of 50 feet should be provided.

TRAFFIC SIGNAL WARRANTS

Peak hour traffic signal warrants were investigated at two intersections based upon existing plus project traffic volumes:

1. New Market Drive and East Commerce Way: Warrant 3, Peak Hour, is met at this intersection for the p.m. peak hour.

3. New Market Drive and Via Ingoglia: Warrant 3, Peak Hour, is not met at this location.

EVENT TRANSPORTATION MANAGEMENT PLAN

The NNCCAC will accommodate events throughout the year. Primarily, these events will be associated with swim meets. However, other community events may occasionally bring many people to the NNCCAC.

In addition to the parking adjacent to the NNCCAC shown in Figure 2, additional parking will be necessary to accommodate maximum anticipated attendance at the facility. Figure 2 shows a parking area south of New Market Drive. In addition, joint parking agreements may be developed

with the Natomas Unified School District and Los Rios Community College District to utilize nearby parking, if available for events.

An event transportation management plan (ETMP) should be developed to address the special transportation conditions created during a major event. The ETMP provides the procedures to be implemented by NNCCAC and City public safety personnel to provide a safe environment for all road users, event participants, and the public.

The objectives of the ETMP are to:

- Provide for a safe environment for all road users, pedestrians and cyclists;
- Provide protection to event participants, organizers and the public from traffic hazards that may arise because of the event activity;
- Minimize the disruption, congestion and delays to all road users;
- To ensure network performance is maintained at an acceptable level throughout the duration of the event. This level may be worse than the City's LOS goals;
- Ensure access to adjacent commercial and residential premises is maintained always.

To achieve the above objectives, the ETMP will:

- Ensure whenever possible, that a sufficient number of traffic lanes to accommodate vehicle traffic volumes are provided;
- Ensure that delays and traffic congestion are kept to a minimum and within acceptable levels;
- Ensure that appropriate / sufficient warning and information signs are installed and that adequate guidance is provided to delineate the travel paths through the event site;
- Ensure that the roads are free of hazards and that all road users are adequately protected from obstructions resulting from the event;
- Ensure that all needs of road users, motorists, pedestrians, cyclists, public transit passengers and people with disabilities are accommodated at and through the event site.

For events at the NNCCAC, planning should focus on the following items:

- Maintain safe paths for pedestrians and bicyclists always. Implement on-site bicycle amenities (such as adequate bicycle parking) to encourage non-automotive travel to the site.

- Separate major pedestrian flows (primarily between the NNCCAC and the parking areas) from the major motor vehicle routes. Pedestrians, bicyclists, and drivers should be actively directed to paths that minimize conflicts. This will increase safety and reduce delay. In the development of the parking area south of New Market Drive, these principles shall be employed in the parking layout, pedestrian paths, and driveway locations.

- For incoming traffic at major events, actively direct drivers to appropriate routes leading to parking lot entrances. Many drivers may be unfamiliar with the area. Manage peak entry flows in the parking areas as appropriate to minimize entry delay and vehicle / pedestrian conflicts. Employ measures such as variable message signs (VMS) as appropriate.

- Before events, distribute travel information (including maps and alternative modes) via the internet and other appropriate means of communication.

- Update the ETMP after each event to reflect lessons learned and changing conditions.