APPENDIX A
IMPROVEMENT PLAN SET (PROVIDED ON CD)

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APPENDIX B
AIR QUALITY/GREENHOUSE GAS TECHNICAL DATA

New River Improvement Project - Calexico

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.98	Acre	0.82	42,688.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2020
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - project site = 2.27 linear miles (3995 yards)

project consists of a river encasement

Construction Phase - Anticipated construction schedule

Off-road Equipment -

Off-road Equipment - Demolition Construction Equipment List

Off-road Equipment - Earthwork equipment

Off-road Equipment - Project Construction Equipment list

Off-road Equipment - paving equipment

Trips and VMT - Material to be distributed within project limits

Grading - Material to be distributed within project limits

Construction Off-road Equipment Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	200.00
tblConstructionPhase	NumDays	2.00	60.00
tblGrading	AcresOfGrading	52.50	0.00
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialImported	0.00	40,000.00
tblLandUse	LotAcreage	0.98	0.82
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Graders

tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	0.01
tblTripsAndVMT	HaulingTripNumber	5,000.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	0.01
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	30.00	28.00
tblTripsAndVMT	WorkerTripNumber	30.00	25.00

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					
2020	0.5620	5.7349	4.0780	8.1700e-003	21.6320	0.2632	21.8952	2.6456	0.2444	2.8900	0.0000	716.2044	716.2044	0.2070	0.0000	721.3789
Maximum	**0.5620**	**5.7349**	**4.0780**	**8.1700e-003**	**21.6320**	**0.2632**	**21.8952**	**2.6456**	**0.2444**	**2.8900**	**0.0000**	**716.2044**	**716.2044**	**0.2070**	**0.0000**	**721.3789**

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					
2020	0.5620	5.7349	4.0779	8.1700e-003	7.0909	0.2632	7.3541	0.8959	0.2444	1.1403	0.0000	716.2036	716.2036	0.2070	0.0000	721.3780
Maximum	**0.5620**	**5.7349**	**4.0779**	**8.1700e-003**	**7.0909**	**0.2632**	**7.3541**	**0.8959**	**0.2444**	**1.1403**	**0.0000**	**716.2036**	**716.2036**	**0.2070**	**0.0000**	**721.3780**

	ROG	NOx	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**	**67.22**	**0.00**	**66.41**	**66.13**	**0.00**	**60.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	**10-9-2019**	**1-8-2020**	0.0264	0.0264
6	**1-9-2020**	**4-8-2020**	2.1912	2.1912
7	**4-9-2020**	**7-8-2020**	1.8251	1.8251
8	**7-9-2020**	**9-30-2020**	1.4919	1.4919
		Highest	2.1912	2.1912

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	4.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.5900e-003	0.0268	0.0350	9.0000e-005	2.1402	7.0000e-005	2.1403	0.2136	7.0000e-005	0.2137	0.0000	7.9899	7.9899	7.3000e-004	0.0000	8.0082
Waste						0.0000	0.0000		0.0000	0.0000	0.0162	0.0000	0.0162	9.6000e-004	0.0000	0.0402
Water						0.0000	0.0000		0.0000	0.0000	0.0000	7.4783	7.4783	1.7000e-004	4.0000e-005	7.4931
Total	**3.9900e-003**	**0.0268**	**0.0350**	**9.0000e-005**	**2.1402**	**7.0000e-005**	**2.1403**	**0.2136**	**7.0000e-005**	**0.2137**	**0.0162**	**15.4683**	**15.4845**	**1.8600e-003**	**4.0000e-005**	**15.5415**

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	4.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.5900e-003	0.0268	0.0350	9.0000e-005	2.1402	7.0000e-005	2.1403	0.2136	7.0000e-005	0.2137	0.0000	7.9899	7.9899	7.3000e-004	0.0000	8.0082
Waste						0.0000	0.0000		0.0000	0.0000	0.0162	0.0000	0.0162	9.6000e-004	0.0000	0.0402
Water						0.0000	0.0000		0.0000	0.0000	0.0000	7.4783	7.4783	1.7000e-004	4.0000e-005	7.4931
Total	**3.9900e-003**	**0.0268**	**0.0350**	**9.0000e-005**	**2.1402**	**7.0000e-005**	**2.1403**	**0.2136**	**7.0000e-005**	**0.2137**	**0.0162**	**15.4683**	**15.4845**	**1.8600e-003**	**4.0000e-005**	**15.5415**

	ROG	NOx	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	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Earthwork	Grading	2/1/2020	11/6/2020	5	200	
3	Grading	Grading	2/1/2020	4/24/2020	5	60	
4	Building Construction	Building Construction	12/1/2020	12/28/2020	5	20	
5	Paving	Paving	2/1/2020	2/7/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Earthwork	Excavators	3	7.00	158	0.38
Demolition	Concrete/Industrial Saws	1	7.00	81	0.73
Earthwork	Rough Terrain Forklifts	2	7.00	100	0.40
Earthwork	Rubber Tired Dozers	2	7.00	247	0.40
Paving	Paving Equipment	1	7.00	132	0.36
Demolition	Excavators	1	7.00	158	0.38

Demolition	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Bore/Drill Rigs	1	7.00	221	0.50
Grading	Cranes	1	8.00	231	0.29
Earthwork	Rubber Tired Loaders	2	7.00	203	0.36
Earthwork	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Excavators	3	7.00	158	0.38
Grading	Graders	2	7.00	187	0.41
Grading	Rollers	2	7.00	80	0.38
Grading	Signal Boards	1	7.00	6	0.82
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	2	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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
Building Construction	5	18.00	7.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	8.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Earthwork	12	28.00	0.00	0.00	7.30	0.01	0.01	LD_Mix	HDT_Mix	HHDT
Grading	12	25.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	8.9900e-003	0.0826	0.0860	1.4000e-004		4.6200e-003	4.6200e-003		4.3800e-003	4.3800e-003	0.0000	12.0102	12.0102	2.6600e-003	0.0000	12.0767
Total	**8.9900e-003**	**0.0826**	**0.0860**	**1.4000e-004**		**4.6200e-003**	**4.6200e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**12.0102**	**12.0102**	**2.6600e-003**	**0.0000**	**12.0767**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.6000e-004	3.3100e-003	0.0000	0.4159	0.0000	0.4159	0.0415	0.0000	0.0415	0.0000	0.3720	0.3720	3.0000e-005	0.0000	0.3728
Total	**4.6000e-004**	**3.6000e-004**	**3.3100e-003**	**0.0000**	**0.4159**	**0.0000**	**0.4159**	**0.0415**	**0.0000**	**0.0415**	**0.0000**	**0.3720**	**0.3720**	**3.0000e-005**	**0.0000**	**0.3728**

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	8.9900e-003	0.0826	0.0860	1.4000e-004		4.6200e-003	4.6200e-003		4.3800e-003	4.3800e-003	0.0000	12.0102	12.0102	2.6600e-003	0.0000	12.0767
Total	**8.9900e-003**	**0.0826**	**0.0860**	**1.4000e-004**		**4.6200e-003**	**4.6200e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**12.0102**	**12.0102**	**2.6600e-003**	**0.0000**	**12.0767**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.6000e-004	3.3100e-003	0.0000	0.1350	0.0000	0.1350	0.0135	0.0000	0.0135	0.0000	0.3720	0.3720	3.0000e-005	0.0000	0.3728
Total	**4.6000e-004**	**3.6000e-004**	**3.3100e-003**	**0.0000**	**0.1350**	**0.0000**	**0.1350**	**0.0135**	**0.0000**	**0.0135**	**0.0000**	**0.3720**	**0.3720**	**3.0000e-005**	**0.0000**	**0.3728**

3.3 Earthwork - 2020

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					1.0618	0.0000	1.0618	0.5805	0.0000	0.5805	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4266	4.5147	3.0201	6.2700e-003		0.2065	0.2065		0.1915	0.1915	0.0000	549.7113	549.7113	0.1638	0.0000	553.8064
Total	**0.4266**	**4.5147**	**3.0201**	**6.2700e-003**	**1.0618**	**0.2065**	**1.2683**	**0.5805**	**0.1915**	**0.7720**	**0.0000**	**549.7113**	**549.7113**	**0.1638**	**0.0000**	**553.8064**

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	0.0163	0.0125	0.1157	1.5000e-004	14.5548	1.1000e-004	14.5549	1.4540	1.0000e-004	1.4541	0.0000	13.0211	13.0211	1.0600e-003	0.0000	13.0476
Total	**0.0163**	**0.0125**	**0.1157**	**1.5000e-004**	**14.5548**	**1.1000e-004**	**14.5549**	**1.4540**	**1.0000e-004**	**1.4541**	**0.0000**	**13.0211**	**13.0211**	**1.0600e-003**	**0.0000**	**13.0476**

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					0.4141	0.0000	0.4141	0.2264	0.0000	0.2264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4266	4.5147	3.0201	6.2700e-003		0.2065	0.2065		0.1915	0.1915	0.0000	549.7106	549.7106	0.1638	0.0000	553.8057
Total	**0.4266**	**4.5147**	**3.0201**	**6.2700e-003**	**0.4141**	**0.2065**	**0.6206**	**0.2264**	**0.1915**	**0.4179**	**0.0000**	**549.7106**	**549.7106**	**0.1638**	**0.0000**	**553.8057**

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	0.0163	0.0125	0.1157	1.5000e-004	4.7232	1.1000e-004	4.7233	0.4708	1.0000e-004	0.4709	0.0000	13.0211	13.0211	1.0600e-003	0.0000	13.0476
Total	**0.0163**	**0.0125**	**0.1157**	**1.5000e-004**	**4.7232**	**1.1000e-004**	**4.7233**	**0.4708**	**1.0000e-004**	**0.4709**	**0.0000**	**13.0211**	**13.0211**	**1.0600e-003**	**0.0000**	**13.0476**

3.4 Grading - 2020

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0922	0.9965	0.7084	1.3800e-003		0.0452	0.0452		0.0421	0.0421	0.0000	120.7290	120.7290	0.0346	0.0000	121.5939
Total	**0.0922**	**0.9965**	**0.7084**	**1.3800e-003**	**0.0226**	**0.0452**	**0.0678**	**0.0124**	**0.0421**	**0.0545**	**0.0000**	**120.7290**	**120.7290**	**0.0346**	**0.0000**	**121.5939**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3500e-003	3.3300e-003	0.0310	4.0000e-005	3.8986	3.0000e-005	3.8986	0.3895	3.0000e-005	0.3895	0.0000	3.4878	3.4878	2.8000e-004	0.0000	3.4949
Total	**4.3500e-003**	**3.3300e-003**	**0.0310**	**4.0000e-005**	**3.8986**	**3.0000e-005**	**3.8986**	**0.3895**	**3.0000e-005**	**0.3895**	**0.0000**	**3.4878**	**3.4878**	**2.8000e-004**	**0.0000**	**3.4949**

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					8.8100e-003	0.0000	8.8100e-003	4.8400e-003	0.0000	4.8400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0922	0.9965	0.7084	1.3800e-003		0.0452	0.0452		0.0421	0.0421	0.0000	120.7289	120.7289	0.0346	0.0000	121.5937
Total	**0.0922**	**0.9965**	**0.7084**	**1.3800e-003**	**8.8100e-003**	**0.0452**	**0.0540**	**4.8400e-003**	**0.0421**	**0.0469**	**0.0000**	**120.7289**	**120.7289**	**0.0346**	**0.0000**	**121.5937**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3500e-003	3.3300e-003	0.0310	4.0000e-005	1.2651	3.0000e-005	1.2652	0.1261	3.0000e-005	0.1261	0.0000	3.4878	3.4878	2.8000e-004	0.0000	3.4949

Total	**4.3500e-003**	**3.3300e-003**	**0.0310**	**4.0000e-005**	**1.2651**	**3.0000e-005**	**1.2652**	**0.1261**	**3.0000e-005**	**0.1261**	**0.0000**	**3.4878**	**3.4878**	**2.8000e-004**	**0.0000**	**3.4949**

3.5 Building Construction - 2020

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	8.6200e-003	0.0885	0.0739	1.1000e-004		5.2200e-003	5.2200e-003		4.8100e-003	4.8100e-003	0.0000	10.0061	10.0061	3.2400e-003	0.0000	10.0870
Total	**8.6200e-003**	**0.0885**	**0.0739**	**1.1000e-004**		**5.2200e-003**	**5.2200e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**10.0061**	**10.0061**	**3.2400e-003**	**0.0000**	**10.0870**

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	3.1000e-004	8.1400e-003	2.3000e-003	2.0000e-005	0.4437	5.0000e-005	0.4438	0.0444	5.0000e-005	0.0444	0.0000	2.1271	2.1271	1.2000e-004	0.0000	2.1301
Worker	1.0400e-003	8.0000e-004	7.4400e-003	1.0000e-005	0.9357	1.0000e-005	0.9357	0.0935	1.0000e-005	0.0935	0.0000	0.8371	0.8371	7.0000e-005	0.0000	0.8388
Total	**1.3500e-003**	**8.9400e-003**	**9.7400e-003**	**3.0000e-005**	**1.3794**	**6.0000e-005**	**1.3795**	**0.1378**	**6.0000e-005**	**0.1379**	**0.0000**	**2.9642**	**2.9642**	**1.9000e-004**	**0.0000**	**2.9689**

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	8.6200e-003	0.0885	0.0739	1.1000e-004		5.2200e-003	5.2200e-003		4.8100e-003	4.8100e-003	0.0000	10.0060	10.0060	3.2400e-003	0.0000	10.0869
Total	**8.6200e-003**	**0.0885**	**0.0739**	**1.1000e-004**		**5.2200e-003**	**5.2200e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**10.0060**	**10.0060**	**3.2400e-003**	**0.0000**	**10.0869**

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	3.1000e-004	8.1400e-003	2.3000e-003	2.0000e-005	0.1441	5.0000e-005	0.1441	0.0144	5.0000e-005	0.0144	0.0000	2.1271	2.1271	1.2000e-004	0.0000	2.1301
Worker	1.0400e-003	8.0000e-004	7.4400e-003	1.0000e-005	0.3036	1.0000e-005	0.3036	0.0303	1.0000e-005	0.0303	0.0000	0.8371	0.8371	7.0000e-005	0.0000	0.8388
Total	**1.3500e-003**	**8.9400e-003**	**9.7400e-003**	**3.0000e-005**	**0.4477**	**6.0000e-005**	**0.4478**	**0.0447**	**6.0000e-005**	**0.0447**	**0.0000**	**2.9642**	**2.9642**	**1.9000e-004**	**0.0000**	**2.9689**

3.6 Paving - 2020

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	2.8400e-003	0.0273	0.0275	4.0000e-005		1.5100e-003	1.5100e-003		1.4000e-003	1.4000e-003	0.0000	3.6354	3.6354	1.1000e-003	0.0000	3.6629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8400e-003**	**0.0273**	**0.0275**	**4.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**3.6354**	**3.6354**	**1.1000e-003**	**0.0000**	**3.6629**

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	2.6000e-004	2.3800e-003	0.0000	0.2989	0.0000	0.2989	0.0299	0.0000	0.0299	0.0000	0.2674	0.2674	2.0000e-005	0.0000	0.2679
Total	**3.3000e-004**	**2.6000e-004**	**2.3800e-003**	**0.0000**	**0.2989**	**0.0000**	**0.2989**	**0.0299**	**0.0000**	**0.0299**	**0.0000**	**0.2674**	**0.2674**	**2.0000e-005**	**0.0000**	**0.2679**

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	2.8400e-003	0.0273	0.0275	4.0000e-005		1.5100e-003	1.5100e-003		1.4000e-003	1.4000e-003	0.0000	3.6353	3.6353	1.1000e-003	0.0000	3.6629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8400e-003**	**0.0273**	**0.0275**	**4.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**3.6353**	**3.6353**	**1.1000e-003**	**0.0000**	**3.6629**

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	2.6000e-004	2.3800e-003	0.0000	0.0970	0.0000	0.0970	9.6700e-003	0.0000	9.6700e-003	0.0000	0.2674	0.2674	2.0000e-005	0.0000	0.2679
Total	**3.3000e-004**	**2.6000e-004**	**2.3800e-003**	**0.0000**	**0.0970**	**0.0000**	**0.0970**	**9.6700e-003**	**0.0000**	**9.6700e-003**	**0.0000**	**0.2674**	**0.2674**	**2.0000e-005**	**0.0000**	**0.2679**

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	3.5900e-003	0.0268	0.0350	9.0000e-005	2.1402	7.0000e-005	2.1403	0.2136	7.0000e-005	0.2137	0.0000	7.9899	7.9899	7.3000e-004	0.0000	8.0082
Unmitigated	3.5900e-003	0.0268	0.0350	9.0000e-005	2.1402	7.0000e-005	2.1403	0.2136	7.0000e-005	0.2137	0.0000	7.9899	7.9899	7.3000e-004	0.0000	8.0082

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.85	22.30	16.41	11,488	11,488
Total	1.85	22.30	16.41	11,488	11,488

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	6.70	5.00	8.90	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.503420	0.033264	0.160883	0.129541	0.018929	0.005318	0.019165	0.118376	0.003239	0.001168	0.005214	0.000745	0.000738

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	4.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

Unmitigated	4.0000e-004	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.0000e-004**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.0000e-004**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.4783	1.7000e-004	4.0000e-005	7.4931
Unmitigated	7.4783	1.7000e-004	4.0000e-005	7.4931

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.16765	7.4783	1.7000e-004	4.0000e-005	7.4931
Total		**7.4783**	**1.7000e-004**	**4.0000e-005**	**7.4931**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.16765	7.4783	1.7000e-004	4.0000e-005	7.4931
Total		**7.4783**	**1.7000e-004**	**4.0000e-005**	**7.4931**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0162	9.6000e-004	0.0000	0.0402
Unmitigated	0.0162	9.6000e-004	0.0000	0.0402

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

City Park	0.08	0.0162	9.6000e-004	0.0000	0.0402
Total		**0.0162**	**9.6000e-004**	**0.0000**	**0.0402**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.08	0.0162	9.6000e-004	0.0000	0.0402
Total		**0.0162**	**9.6000e-004**	**0.0000**	**0.0402**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

New River Improvement Project - Calexico

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.98	Acre	0.82	42,688.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2020
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - project site = 2.27 linear miles (3995 yards)
project consists of a river encasement

Construction Phase - Anticipated construction schedule

Off-road Equipment -

Off-road Equipment - Demolition Construction Equipment List

Off-road Equipment - Earthwork equipment

Off-road Equipment - Project Construction Equipment list

Off-road Equipment - paving equipment

Trips and VMT - Material to be distributed within project limits

Grading - Material to be distributed within project limits

Construction Off-road Equipment Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	200.00
tblConstructionPhase	NumDays	2.00	60.00
tblGrading	AcresOfGrading	52.50	0.00
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialImported	0.00	40,000.00
tblLandUse	LotAcreage	0.98	0.82
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Graders

tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	0.01
tblTripsAndVMT	HaulingTripNumber	5,000.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	0.01
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	30.00	28.00
tblTripsAndVMT	WorkerTripNumber	30.00	25.00

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					
2020	9.0027	89.6114	68.6490	0.1303	419.8535	4.1793	424.0328	47.0233	3.8811	50.9044	0.0000	12,528.9406	12,528.9406	3.5984	0.0000	12,618.9009
Maximum	**9.0027**	**89.6114**	**68.6490**	**0.1303**	**419.8535**	**4.1793**	**424.0328**	**47.0233**	**3.8811**	**50.9044**	**0.0000**	**12,528.9406**	**12,528.9406**	**3.5984**	**0.0000**	**12,618.9009**

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					
2020	9.0027	89.6114	68.6490	0.1303	136.9870	4.1793	141.1662	15.6368	3.8811	19.5179	0.0000	12,528.9406	12,528.9406	3.5984	0.0000	12,618.9009
Maximum	**9.0027**	**89.6114**	**68.6490**	**0.1303**	**136.9870**	**4.1793**	**141.1662**	**15.6368**	**3.8811**	**19.5179**	**0.0000**	**12,528.9406**	**12,528.9406**	**3.5984**	**0.0000**	**12,618.9009**

	ROG	NOx	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**	**67.37**	**0.00**	**66.71**	**66.75**	**0.00**	**61.66**	**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	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0776	0.4759	0.7275	1.6400e-003	38.2648	1.3200e-003	38.2661	3.8190	1.2500e-003	3.8202		166.9014	166.9014	0.0146		167.2675
Total	**0.0798**	**0.4759**	**0.7276**	**1.6400e-003**	**38.2648**	**1.3200e-003**	**38.2661**	**3.8190**	**1.2500e-003**	**3.8202**		**166.9016**	**166.9016**	**0.0146**	**0.0000**	**167.2677**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0776	0.4759	0.7275	1.6400e-003	38.2648	1.3200e-003	38.2661	3.8190	1.2500e-003	3.8202		166.9014	166.9014	0.0146		167.2675
Total	**0.0798**	**0.4759**	**0.7276**	**1.6400e-003**	**38.2648**	**1.3200e-003**	**38.2661**	**3.8190**	**1.2500e-003**	**3.8202**		**166.9016**	**166.9016**	**0.0146**	**0.0000**	**167.2677**

	ROG	NOx	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	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Earthwork	Grading	2/1/2020	11/6/2020	5	200	
3	Grading	Grading	2/1/2020	4/24/2020	5	60	

4	Building Construction	Building Construction	12/1/2020	12/28/2020	5	20	
5	Paving	Paving	2/1/2020	2/7/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Earthwork	Excavators	3	7.00	158	0.38
Demolition	Concrete/Industrial Saws	1	7.00	81	0.73
Earthwork	Rough Terrain Forklifts	2	7.00	100	0.40
Earthwork	Rubber Tired Dozers	2	7.00	247	0.40
Paving	Paving Equipment	1	7.00	132	0.36
Demolition	Excavators	1	7.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Bore/Drill Rigs	1	7.00	221	0.50
Grading	Cranes	1	8.00	231	0.29
Earthwork	Rubber Tired Loaders	2	7.00	203	0.36
Earthwork	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Excavators	3	7.00	158	0.38
Grading	Graders	2	7.00	187	0.41
Grading	Rollers	2	7.00	80	0.38
Grading	Signal Boards	1	7.00	6	0.82
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Concrete/Industrial Saws	1	8.00	81	0.73

Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	2	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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
Building Construction	5	18.00	7.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	8.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Earthwork	12	28.00	0.00	0.00	7.30	0.01	0.01	LD_Mix	HDT_Mix	HHDT
Grading	12	25.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	0.8989	8.2590	8.6025	0.0138		0.4615	0.4615		0.4385	0.4385		1,323.8965	1,323.8965	0.2933		1,331.2292

Total	**0.8989**	**8.2590**	**8.6025**	**0.0138**		**0.4615**	**0.4615**		**0.4385**	**0.4385**		**1,323.8965**	**1,323.8965**	**0.2933**		**1,331.2292**

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	0.0557	0.0345	0.4051	4.6000e-004	42.9982	3.0000e-004	42.9985	4.2952	2.8000e-004	4.2955		45.3122	45.3122	3.8500e-003		45.4084
Total	**0.0557**	**0.0345**	**0.4051**	**4.6000e-004**	**42.9982**	**3.0000e-004**	**42.9985**	**4.2952**	**2.8000e-004**	**4.2955**		**45.3122**	**45.3122**	**3.8500e-003**		**45.4084**

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	0.8989	8.2590	8.6025	0.0138		0.4615	0.4615		0.4385	0.4385	0.0000	1,323.8965	1,323.8965	0.2933		1,331.2292
Total	**0.8989**	**8.2590**	**8.6025**	**0.0138**		**0.4615**	**0.4615**		**0.4385**	**0.4385**	**0.0000**	**1,323.8965**	**1,323.8965**	**0.2933**		**1,331.2292**

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	0.0557	0.0345	0.4051	4.6000e-004	13.9529	3.0000e-004	13.9532	1.3907	2.8000e-004	1.3910		45.3122	45.3122	3.8500e-003		45.4084
Total	**0.0557**	**0.0345**	**0.4051**	**4.6000e-004**	**13.9529**	**3.0000e-004**	**13.9532**	**1.3907**	**2.8000e-004**	**1.3910**		**45.3122**	**45.3122**	**3.8500e-003**		**45.4084**

3.3 Earthwork - 2020

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					10.6183	0.0000	10.6183	5.8050	0.0000	5.8050			0.0000			0.0000
Off-Road	4.2660	45.1468	30.2009	0.0627		2.0646	2.0646		1.9153	1.9153		6,059.5295	6,059.5295	1.8056		6,104.6705
Total	**4.2660**	**45.1468**	**30.2009**	**0.0627**	**10.6183**	**2.0646**	**12.6830**	**5.8050**	**1.9153**	**7.7203**		**6,059.5295**	**6,059.5295**	**1.8056**		**6,104.6705**

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	0.1950	0.1207	1.4180	1.6100e-003	150.4935	1.0600e-003	150.4946	15.0333	9.8000e-004	15.0342		158.5927	158.5927	0.0135		158.9293
Total	**0.1950**	**0.1207**	**1.4180**	**1.6100e-003**	**150.4935**	**1.0600e-003**	**150.4946**	**15.0333**	**9.8000e-004**	**15.0342**		**158.5927**	**158.5927**	**0.0135**		**158.9293**

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					4.1411	0.0000	4.1411	2.2639	0.0000	2.2639			0.0000			0.0000
Off-Road	4.2660	45.1468	30.2009	0.0627		2.0646	2.0646		1.9153	1.9153	0.0000	6,059.5295	6,059.5295	1.8056		6,104.6705
Total	**4.2660**	**45.1468**	**30.2009**	**0.0627**	**4.1411**	**2.0646**	**6.2058**	**2.2639**	**1.9153**	**4.1793**	**0.0000**	**6,059.5295**	**6,059.5295**	**1.8056**		**6,104.6705**

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	0.1950	0.1207	1.4180	1.6100e-003	48.8350	1.0600e-003	48.8361	4.8674	9.8000e-004	4.8684		158.5927	158.5927	0.0135		158.9293
Total	**0.1950**	**0.1207**	**1.4180**	**1.6100e-003**	**48.8350**	**1.0600e-003**	**48.8361**	**4.8674**	**9.8000e-004**	**4.8684**		**158.5927**	**158.5927**	**0.0135**		**158.9293**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	3.0723	33.2158	23.6122	0.0461		1.5069	1.5069		1.4032	1.4032		4,436.0323	4,436.0323	1.2711		4,467.8095
Total	**3.0723**	**33.2158**	**23.6122**	**0.0461**	**0.7528**	**1.5069**	**2.2597**	**0.4138**	**1.4032**	**1.8170**		**4,436.0323**	**4,436.0323**	**1.2711**		**4,467.8095**

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	0.1741	0.1078	1.2661	1.4300e-003	134.3692	9.5000e-004	134.3702	13.4226	8.8000e-004	13.4234		141.6006	141.6006	0.0120		141.9012
Total	**0.1741**	**0.1078**	**1.2661**	**1.4300e-003**	**134.3692**	**9.5000e-004**	**134.3702**	**13.4226**	**8.8000e-004**	**13.4234**		**141.6006**	**141.6006**	**0.0120**		**141.9012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2936	0.0000	0.2936	0.1614	0.0000	0.1614			0.0000			0.0000
Off-Road	3.0723	33.2158	23.6122	0.0461		1.5069	1.5069		1.4032	1.4032	0.0000	4,436.0323	4,436.0323	1.2711		4,467.8095
Total	**3.0723**	**33.2158**	**23.6122**	**0.0461**	**0.2936**	**1.5069**	**1.8005**	**0.1614**	**1.4032**	**1.5645**	**0.0000**	**4,436.0323**	**4,436.0323**	**1.2711**		**4,467.8095**

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	0.1741	0.1078	1.2661	1.4300e-003	43.6027	9.5000e-004	43.6037	4.3459	8.8000e-004	4.3468		141.6006	141.6006	0.0120		141.9012
Total	**0.1741**	**0.1078**	**1.2661**	**1.4300e-003**	**43.6027**	**9.5000e-004**	**43.6037**	**4.3459**	**8.8000e-004**	**4.3468**		**141.6006**	**141.6006**	**0.0120**		**141.9012**

3.5 Building Construction - 2020

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962

Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0313	0.7929	0.2189	2.2800e-003	45.8800	4.8500e-003	45.8849	4.5861	4.6400e-003	4.5908		238.0525	238.0525	0.0124		238.3624
Worker	0.1253	0.0776	0.9116	1.0300e-003	96.7459	6.8000e-004	96.7465	9.6642	6.3000e-004	9.6649		101.9525	101.9525	8.6600e-003		102.1689
Total	**0.1566**	**0.8705**	**1.1304**	**3.3100e-003**	**142.6259**	**5.5300e-003**	**142.6314**	**14.2504**	**5.2700e-003**	**14.2556**		**340.0049**	**340.0049**	**0.0211**		**340.5312**

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0313	0.7929	0.2189	2.2800e-003	14.8951	4.8500e-003	14.8999	1.4876	4.6400e-003	1.4923		238.0525	238.0525	0.0124		238.3624
Worker	0.1253	0.0776	0.9116	1.0300e-003	31.3940	6.8000e-004	31.3946	3.1291	6.3000e-004	3.1297		101.9525	101.9525	8.6600e-003		102.1689
Total	**0.1566**	**0.8705**	**1.1304**	**3.3100e-003**	**46.2890**	**5.5300e-003**	**46.2945**	**4.6167**	**5.2700e-003**	**4.6219**		**340.0049**	**340.0049**	**0.0211**		**340.5312**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1352	10.9212	10.9871	0.0171		0.6049	0.6049		0.5599	0.5599		1,602.9129	1,602.9129	0.4851		1,615.0413
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1352**	**10.9212**	**10.9871**	**0.0171**		**0.6049**	**0.6049**		**0.5599**	**0.5599**		**1,602.9129**	**1,602.9129**	**0.4851**		**1,615.0413**

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	0.1602	0.0991	1.1648	1.3200e-003	123.6197	8.7000e-004	123.6206	12.3488	8.1000e-004	12.3496		130.2726	130.2726	0.0111		130.5491
Total	**0.1602**	**0.0991**	**1.1648**	**1.3200e-003**	**123.6197**	**8.7000e-004**	**123.6206**	**12.3488**	**8.1000e-004**	**12.3496**		**130.2726**	**130.2726**	**0.0111**		**130.5491**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1352	10.9212	10.9871	0.0171		0.6049	0.6049		0.5599	0.5599	0.0000	1,602.9129	1,602.9129	0.4851		1,615.0413
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1352**	**10.9212**	**10.9871**	**0.0171**		**0.6049**	**0.6049**		**0.5599**	**0.5599**	**0.0000**	**1,602.9129**	**1,602.9129**	**0.4851**		**1,615.0413**

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	0.1602	0.0991	1.1648	1.3200e-003	40.1145	8.7000e-004	40.1154	3.9982	8.1000e-004	3.9990		130.2726	130.2726	0.0111		130.5491
Total	**0.1602**	**0.0991**	**1.1648**	**1.3200e-003**	**40.1145**	**8.7000e-004**	**40.1154**	**3.9982**	**8.1000e-004**	**3.9990**		**130.2726**	**130.2726**	**0.0111**		**130.5491**

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	0.0776	0.4759	0.7275	1.6400e-003	38.2648	1.3200e-003	38.2661	3.8190	1.2500e-003	3.8202		166.9014	166.9014	0.0146		167.2675
Unmitigated	0.0776	0.4759	0.7275	1.6400e-003	38.2648	1.3200e-003	38.2661	3.8190	1.2500e-003	3.8202		166.9014	166.9014	0.0146		167.2675

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.85	22.30	16.41	11,488	11,488
Total	1.85	22.30	16.41	11,488	11,488

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	6.70	5.00	8.90	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.503420	0.033264	0.160883	0.129541	0.018929	0.005318	0.019165	0.118376	0.003239	0.001168	0.005214	0.000745	0.000738

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Unmitigated	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Total	**2.2100e-003**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1000e-004**	**2.1000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Total	**2.2100e-003**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1000e-004**	**2.1000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

New River Improvement Project - Calexico

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.98	Acre	0.82	42,688.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2020
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - project site = 2.27 linear miles (3995 yards)
project consists of a river encasement

Construction Phase - Anticipated construction schedule

Off-road Equipment -

Off-road Equipment - Demolition Construction Equipment List

Off-road Equipment - Earthwork equipment

Off-road Equipment - Project Construction Equipment list

Off-road Equipment - paving equipment

Trips and VMT - Material to be distributed within project limits

Grading - Material to be distributed within project limits

Construction Off-road Equipment Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	200.00
tblConstructionPhase	NumDays	2.00	60.00
tblGrading	AcresOfGrading	52.50	0.00
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialImported	0.00	40,000.00
tblLandUse	LotAcreage	0.98	0.82
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Graders

tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	0.01
tblTripsAndVMT	HaulingTripNumber	5,000.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	0.01
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	30.00	28.00
tblTripsAndVMT	WorkerTripNumber	30.00	25.00

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					
2020	8.8988	89.6275	67.7068	0.1296	419.8535	4.1793	424.0328	47.0233	3.8811	50.9044	0.0000	12,459.5300	12,459.5300	3.5913	0.0000	12,549.3136
Maximum	**8.8988**	**89.6275**	**67.7068**	**0.1296**	**419.8535**	**4.1793**	**424.0328**	**47.0233**	**3.8811**	**50.9044**	**0.0000**	**12,459.5300**	**12,459.5300**	**3.5913**	**0.0000**	**12,549.3136**

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					
2020	8.8988	89.6275	67.7068	0.1296	136.9870	4.1793	141.1662	15.6368	3.8811	19.5179	0.0000	12,459.5300	12,459.5300	3.5913	0.0000	12,549.3136
Maximum	**8.8988**	**89.6275**	**67.7068**	**0.1296**	**136.9870**	**4.1793**	**141.1662**	**15.6368**	**3.8811**	**19.5179**	**0.0000**	**12,459.5300**	**12,459.5300**	**3.5913**	**0.0000**	**12,549.3136**

	ROG	NOx	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**	**67.37**	**0.00**	**66.71**	**66.75**	**0.00**	**61.66**	**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	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0591	0.4745	0.6155	1.4600e-003	38.2648	1.3700e-003	38.2662	3.8190	1.2900e-003	3.8203		149.3847	149.3847	0.0148		149.7539
Total	**0.0613**	**0.4745**	**0.6156**	**1.4600e-003**	**38.2648**	**1.3700e-003**	**38.2662**	**3.8190**	**1.2900e-003**	**3.8203**		**149.3849**	**149.3849**	**0.0148**	**0.0000**	**149.7542**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0591	0.4745	0.6155	1.4600e-003	38.2648	1.3700e-003	38.2662	3.8190	1.2900e-003	3.8203		149.3847	149.3847	0.0148		149.7539
Total	**0.0613**	**0.4745**	**0.6156**	**1.4600e-003**	**38.2648**	**1.3700e-003**	**38.2662**	**3.8190**	**1.2900e-003**	**3.8203**		**149.3849**	**149.3849**	**0.0148**	**0.0000**	**149.7542**

	ROG	NOx	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	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Earthwork	Grading	2/1/2020	11/6/2020	5	200	
3	Grading	Grading	2/1/2020	4/24/2020	5	60	

4	Building Construction	Building Construction	12/1/2020	12/28/2020	5	20	
5	Paving	Paving	2/1/2020	2/7/2020	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Earthwork	Excavators	3	7.00	158	0.38
Demolition	Concrete/Industrial Saws	1	7.00	81	0.73
Earthwork	Rough Terrain Forklifts	2	7.00	100	0.40
Earthwork	Rubber Tired Dozers	2	7.00	247	0.40
Paving	Paving Equipment	1	7.00	132	0.36
Demolition	Excavators	1	7.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Bore/Drill Rigs	1	7.00	221	0.50
Grading	Cranes	1	8.00	231	0.29
Earthwork	Rubber Tired Loaders	2	7.00	203	0.36
Earthwork	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Excavators	3	7.00	158	0.38
Grading	Graders	2	7.00	187	0.41
Grading	Rollers	2	7.00	80	0.38
Grading	Signal Boards	1	7.00	6	0.82
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Earthwork	Concrete/Industrial Saws	1	8.00	81	0.73

Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	2	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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
Building Construction	5	18.00	7.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	8.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Earthwork	12	28.00	0.00	0.00	7.30	0.01	0.01	LD_Mix	HDT_Mix	HHDT
Grading	12	25.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	0.8989	8.2590	8.6025	0.0138		0.4615	0.4615		0.4385	0.4385		1,323.8965	1,323.8965	0.2933		1,331.2292

Total	**0.8989**	**8.2590**	**8.6025**	**0.0138**		**0.4615**	**0.4615**		**0.4385**	**0.4385**		**1,323.8965**	**1,323.8965**	**0.2933**		**1,331.2292**

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	0.0448	0.0362	0.3060	3.8000e-004	42.9982	3.0000e-004	42.9985	4.2952	2.8000e-004	4.2955		38.0058	38.0058	3.1000e-003		38.0834
Total	**0.0448**	**0.0362**	**0.3060**	**3.8000e-004**	**42.9982**	**3.0000e-004**	**42.9985**	**4.2952**	**2.8000e-004**	**4.2955**		**38.0058**	**38.0058**	**3.1000e-003**		**38.0834**

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	0.8989	8.2590	8.6025	0.0138		0.4615	0.4615		0.4385	0.4385	0.0000	1,323.8965	1,323.8965	0.2933		1,331.2292
Total	**0.8989**	**8.2590**	**8.6025**	**0.0138**		**0.4615**	**0.4615**		**0.4385**	**0.4385**	**0.0000**	**1,323.8965**	**1,323.8965**	**0.2933**		**1,331.2292**

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	0.0448	0.0362	0.3060	3.8000e-004	13.9529	3.0000e-004	13.9532	1.3907	2.8000e-004	1.3910		38.0058	38.0058	3.1000e-003		38.0834
Total	**0.0448**	**0.0362**	**0.3060**	**3.8000e-004**	**13.9529**	**3.0000e-004**	**13.9532**	**1.3907**	**2.8000e-004**	**1.3910**		**38.0058**	**38.0058**	**3.1000e-003**		**38.0834**

3.3 Earthwork - 2020

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					10.6183	0.0000	10.6183	5.8050	0.0000	5.8050			0.0000			0.0000
Off-Road	4.2660	45.1468	30.2009	0.0627		2.0646	2.0646		1.9153	1.9153		6,059.5295	6,059.5295	1.8056		6,104.6705
Total	**4.2660**	**45.1468**	**30.2009**	**0.0627**	**10.6183**	**2.0646**	**12.6830**	**5.8050**	**1.9153**	**7.7203**		**6,059.5295**	**6,059.5295**	**1.8056**		**6,104.6705**

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	0.1567	0.1266	1.0709	1.3500e-003	150.4935	1.0600e-003	150.4946	15.0333	9.8000e-004	15.0342		133.0204	133.0204	0.0109		133.2919
Total	**0.1567**	**0.1266**	**1.0709**	**1.3500e-003**	**150.4935**	**1.0600e-003**	**150.4946**	**15.0333**	**9.8000e-004**	**15.0342**		**133.0204**	**133.0204**	**0.0109**		**133.2919**

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					4.1411	0.0000	4.1411	2.2639	0.0000	2.2639			0.0000			0.0000
Off-Road	4.2660	45.1468	30.2009	0.0627		2.0646	2.0646		1.9153	1.9153	0.0000	6,059.5295	6,059.5295	1.8056		6,104.6705
Total	**4.2660**	**45.1468**	**30.2009**	**0.0627**	**4.1411**	**2.0646**	**6.2058**	**2.2639**	**1.9153**	**4.1793**	**0.0000**	**6,059.5295**	**6,059.5295**	**1.8056**		**6,104.6705**

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	0.1567	0.1266	1.0709	1.3500e-003	48.8350	1.0600e-003	48.8361	4.8674	9.8000e-004	4.8684		133.0204	133.0204	0.0109		133.2919
Total	**0.1567**	**0.1266**	**1.0709**	**1.3500e-003**	**48.8350**	**1.0600e-003**	**48.8361**	**4.8674**	**9.8000e-004**	**4.8684**		**133.0204**	**133.0204**	**0.0109**		**133.2919**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	3.0723	33.2158	23.6122	0.0461		1.5069	1.5069		1.4032	1.4032		4,436.0323	4,436.0323	1.2711		4,467.8095
Total	**3.0723**	**33.2158**	**23.6122**	**0.0461**	**0.7528**	**1.5069**	**2.2597**	**0.4138**	**1.4032**	**1.8170**		**4,436.0323**	**4,436.0323**	**1.2711**		**4,467.8095**

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	0.1399	0.1130	0.9561	1.2000e-003	134.3692	9.5000e-004	134.3702	13.4226	8.8000e-004	13.4234		118.7682	118.7682	9.7000e-003		119.0106
Total	**0.1399**	**0.1130**	**0.9561**	**1.2000e-003**	**134.3692**	**9.5000e-004**	**134.3702**	**13.4226**	**8.8000e-004**	**13.4234**		**118.7682**	**118.7682**	**9.7000e-003**		**119.0106**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2936	0.0000	0.2936	0.1614	0.0000	0.1614			0.0000			0.0000
Off-Road	3.0723	33.2158	23.6122	0.0461		1.5069	1.5069		1.4032	1.4032	0.0000	4,436.0323	4,436.0323	1.2711		4,467.8095
Total	**3.0723**	**33.2158**	**23.6122**	**0.0461**	**0.2936**	**1.5069**	**1.8005**	**0.1614**	**1.4032**	**1.5645**	**0.0000**	**4,436.0323**	**4,436.0323**	**1.2711**		**4,467.8095**

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	0.1399	0.1130	0.9561	1.2000e-003	43.6027	9.5000e-004	43.6037	4.3459	8.8000e-004	4.3468		118.7682	118.7682	9.7000e-003		119.0106
Total	**0.1399**	**0.1130**	**0.9561**	**1.2000e-003**	**43.6027**	**9.5000e-004**	**43.6037**	**4.3459**	**8.8000e-004**	**4.3468**		**118.7682**	**118.7682**	**9.7000e-003**		**119.0106**

3.5 Building Construction - 2020

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962

Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0324	0.8077	0.2493	2.2000e-003	45.8800	4.9200e-003	45.8849	4.5861	4.7000e-003	4.5908		229.5405	229.5405	0.0138		229.8854
Worker	0.1007	0.0814	0.6884	8.7000e-004	96.7459	6.8000e-004	96.7465	9.6642	6.3000e-004	9.6649		85.5131	85.5131	6.9800e-003		85.6877
Total	**0.1331**	**0.8891**	**0.9377**	**3.0700e-003**	**142.6259**	**5.6000e-003**	**142.6315**	**14.2504**	**5.3300e-003**	**14.2557**		**315.0536**	**315.0536**	**0.0208**		**315.5730**

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

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	0.0324	0.8077	0.2493	2.2000e-003	14.8951	4.9200e-003	14.9000	1.4876	4.7000e-003	1.4923		229.5405	229.5405	0.0138		229.8854
Worker	0.1007	0.0814	0.6884	8.7000e-004	31.3940	6.8000e-004	31.3946	3.1291	6.3000e-004	3.1297		85.5131	85.5131	6.9800e-003		85.6877
Total	**0.1331**	**0.8891**	**0.9377**	**3.0700e-003**	**46.2890**	**5.6000e-003**	**46.2946**	**4.6167**	**5.3300e-003**	**4.6220**		**315.0536**	**315.0536**	**0.0208**		**315.5730**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1352	10.9212	10.9871	0.0171		0.6049	0.6049		0.5599	0.5599		1,602.9129	1,602.9129	0.4851		1,615.0413
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1352**	**10.9212**	**10.9871**	**0.0171**		**0.6049**	**0.6049**		**0.5599**	**0.5599**		**1,602.9129**	**1,602.9129**	**0.4851**		**1,615.0413**

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	0.1287	0.1040	0.8796	1.1100e-003	123.6197	8.7000e-004	123.6206	12.3488	8.1000e-004	12.3496		109.2668	109.2668	8.9200e-003		109.4898
Total	**0.1287**	**0.1040**	**0.8796**	**1.1100e-003**	**123.6197**	**8.7000e-004**	**123.6206**	**12.3488**	**8.1000e-004**	**12.3496**		**109.2668**	**109.2668**	**8.9200e-003**		**109.4898**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1352	10.9212	10.9871	0.0171		0.6049	0.6049		0.5599	0.5599	0.0000	1,602.9129	1,602.9129	0.4851		1,615.0413
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1352**	**10.9212**	**10.9871**	**0.0171**		**0.6049**	**0.6049**		**0.5599**	**0.5599**	**0.0000**	**1,602.9129**	**1,602.9129**	**0.4851**		**1,615.0413**

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	0.1287	0.1040	0.8796	1.1100e-003	40.1145	8.7000e-004	40.1154	3.9982	8.1000e-004	3.9990		109.2668	109.2668	8.9200e-003		109.4898
Total	**0.1287**	**0.1040**	**0.8796**	**1.1100e-003**	**40.1145**	**8.7000e-004**	**40.1154**	**3.9982**	**8.1000e-004**	**3.9990**		**109.2668**	**109.2668**	**8.9200e-003**		**109.4898**

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	0.0591	0.4745	0.6155	1.4600e-003	38.2648	1.3700e-003	38.2662	3.8190	1.2900e-003	3.8203		149.3847	149.3847	0.0148		149.7539
Unmitigated	0.0591	0.4745	0.6155	1.4600e-003	38.2648	1.3700e-003	38.2662	3.8190	1.2900e-003	3.8203		149.3847	149.3847	0.0148		149.7539

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1.85	22.30	16.41	11,488	11,488
Total	1.85	22.30	16.41	11,488	11,488

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	6.70	5.00	8.90	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.503420	0.033264	0.160883	0.129541	0.018929	0.005318	0.019165	0.118376	0.003239	0.001168	0.005214	0.000745	0.000738

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Unmitigated	2.2100e-003	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Total	**2.2100e-003**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1000e-004**	**2.1000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.1000e-004	2.1000e-004	0.0000		2.3000e-004
Total	**2.2100e-003**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1000e-004**	**2.1000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

New River Operational Energy Calculations

Project Energy Usage	MWh/yr	MWh/day
Gorman-Rupp Self Priming Centrifugal Pump Model T10A3-B (35.2 hp x 2)	458	1.25

	CO_2	CH_4	CH_4 (CO_2eq)	N_2O	N_2O (CO_2eq)	Total $MTCO_2eq$	
GHG Emissions Factors	1,270.90	0.03	--	0.01	--	--	lb/MWh[1]
	0.58	1.32E-05	--	2.80E-06	--	--	MT/MWh
Gorman-Rupp Self Priming Centrifugal Pump Model T10A3-B (35.2 hp x 2)	264.02	0.01	0.15	0.00	0.38	264.56	
Total	**264.02**	**0.01**	**0.15**	**0.00**	**0.38**	**264.56**	

Notes:

1. Based on intensity factors for Imperial Irrigation District (as provided in CalEEMod).
the Gorman-Rupp Self Priming Centrifugal Pump Model T10A3-B

lb/day	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Emissions Factor (lbs/MWh)	**0.01**	**0.27**	**0.20**	**0.12**	**0.09**	**0.06**
Gorman-Rupp Self Priming Centrifugal Pump Model T10A3-B (35.2 hp x 2)	0.01	0.34	0.25	0.15	0.11	0.08
Total	**0.01**	**0.34**	**0.25**	**0.15**	**0.11**	**0.08**
ICAPCD Thresholds	**137**	**137**	**550**	**550**	**150**	**550**
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

tons/year						
Local Project	0.00	0.06	0.05	0.03	0.02	0.01
Total Local	**0.00**	**0.06**	**0.05**	**0.03**	**0.02**	**0.01**

Criteria emissions based on emissions factors from the EPA eGrid Database and the California Energy Commission, *Reference Appendices for the 2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* , revised June 2009.

Energy usage of the Gorman-Rupp Self Priming Centrifugal Pump Model T10A3-B are from Gorman Rump, *Specification Data: Self Priming Centrifugal Pump Model T10 A3-B* , http://www.grpumps.com/spec_sheets/0551400.pdf

Construction Emissions - 2018
CalEEMod Results (Annual)

	Emissions					Total $MTCO_2eq$	
	lbs/day	lbs/yr	MT/yr	MTCO2eq/yr	30 year amortized		23.8733333
CO2		0	716.2	716.2	23.87333333		
CH4		0	0.21	5.25	0.175		
N2O	0	0	0	0	0		
						24.04833333	

CH4 amortized 0.007

Total Construction (const):	24.05	$MTCO_2eq$
Total Operations (energy):	264.56	$MTCO_2eq$
Total Project-Related Emissions	**288.61**	$MTCO_2eq$

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APPENDIX C-1
BIOLOGICAL TECHNICAL LETTER REPORT

BLACKHAWK Environmental

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October 24, 2018

Michael Baker International
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New River Improvement Project
Biological Technical Letter Report

Calexico, Imperial County, California

1.0 INTRODUCTION

Blackhawk Environmental (Blackhawk) was contracted by Michael Baker International (Michael Baker) for the proposed New River Improvement Project (Project). Blackhawk was tasked with conducting a literature review, an onsite reconnaissance level biological survey/special-status species habitat assessment and providing a biological technical letter report (BTLR) to incorporate the results. The Survey Area is comprised of two mesas separated by a ravine through which the New River conveys flows. The Survey Area includes a mix of developed, disturbed and natural areas, and includes the Calexico International Airport at 801 W 2nd St., Calexico, CA 92231. The 373.38-acre Survey Area is on the *Heber, California* 7.5' US Geological Service (USGS) quadrangle, sections 14-15, township 17 south and range 14 east (Attachment A, Figure 1).

Prior to Project construction, as required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the State of California and the United States must first determine if special-status plant or wildlife species occur or have the potential to occur within or adjacent to the Survey Area. This BTLR describes the results of the literature review, onsite reconnaissance-level biological survey and special-status species habitat assessment on the Survey Area. The habitat assessment focused on determining the presence or potential for occurrence of special-status biological resources required under the CEQA and NEPA review processes. This BTLR was prepared to provide all biological findings of these surveys for the Project per CEQA and NEPA standards.

2.0 PROJECT DESCRIPTION AND SETTING

The State of California's Clean Water Act Section 303(d) lists the New River as impaired by numerous constituents and is a State of California priority for cleanup purposes. To address point and nonpoint sources of pollution from the New River, a New River Improvement Project Strategic Plan (Plan) was issued. The Plan identifies recommendations to address public health threats in the Calexico area of the New River. Critical infrastructure components of these recommendations include the following:

- A trash screen near the International Boundary to remove trash from the New River prior to the diversion structure. The trash screen will be located directly upstream from the New River Bypass Encasement diversion structure and shall be automated, self-cleaning and capable of removing one ton of trash per day. The trash screen shall not interfere with the New River flows and will be an integral part of the diversion structure design.

- A bypass encasement to divert the New River into an underground conveyance facility near Second Street and discharge back to the New River east of the All-American Canal New River Bypass Encasement Infrastructure. The diversion structure will commence downstream from the international boundary with Mexico, divert flow into the river bypass encasement, and discharge the flow back into the New River, east of the All-American Canal. The river bypass encasement will be designed to capture an average flow of 160 cubic feet per second (cfs). Flows greater than 160 cfs will continue to be carried in the New River.

- A pump back system to use treated wastewater from the City of Calexico Wastewater Treatment Plant to supplant diverted river flow within the existing river alignment downstream of the river diversion structure, New River Pump Back System (NRPBS). The NRPBS shall be capable of pumping up to 5.0 million gallons per day (MGD) of secondary treated and disinfected wastewater. The NRPBS will be located within the Calexico Wastewater Treatment Plant and will convey, on average, approximately 2.25 MGD (3.5 cfs) back to the New River, near (downstream of) the New River Bypass Encasement diversion structure.

A map of the approved Project alignment and Survey Area is included in Attachment A, Figure 2.

The Project is in the central basin of the Colorado Desert within the Salton Trough (aka Salton Sink), a northwestern landward continuation of the Gulf of California rift that is surrounded by mountains, including the Chocolate Mountains to the east, except on the south side where a barrier formed by the Colorado River Delta separates the Salton Trough from the Gulf of California (Waters 1981). Much of the Salton Trough lies below sea level, and at its lowest elevation in Imperial County lies the Salton Sea, a 376-square mile saltwater lake. The Trough extends 140 miles northwest from the head of the Gulf of California and ranges in width from a few miles at its northwest end to 70 miles at the United States-Mexico border. It was formed by a gradual sinking of the land concurrent with the uplift of the surrounding mountains during the Miocene, Pliocene and Pleistocene eras (Dibble 1954).

The Colorado Desert is a hot, dry desert region that consists of low valleys and high mountainous areas. The average annual rainfall and temperature vary with elevation. Throughout much of the lower region, rainfall is approximately 2 inches per year; but some locations receive as little as 1 inch per year, while others receive as much as 8 to 10 inches of precipitation per year. The marked

elevation changes in the area also reflect variations in temperature. In most of the Colorado Desert, summer high temperatures range between 100° and 120° F, while in the mountainous regions, summer high temperatures tend to hover around 90° F. The winters are windier and more variable in temperature, but rarely reach below freezing (University of California, Santa Barbara 2015).

The vegetation reflects the arid environment, and variations in rainfall and temperature result in regional differences in vegetation. Within the Colorado Desert, the lack of frost enables succulents and other frost-sensitive plants to thrive, such as cholla, ocotillo, agave, barrel cactus and rabbit brush. Creosote bush scrub (including ocotillo and cholla cactus) is the dominant plant cover type throughout the lower elevations of the Colorado and Mojave Deserts, which forms a homogeneous cover over vast areas and surrounds riparian plant communities located in large washes and other locations where water is available. Plant communities around springs, marshes and streambeds include tules, cattails and various grasses. In the washes, mesquite, saltbush, desert ironwood, smoke tree and palo verde are found. In the higher elevations, the creosote bush community gives way to the black bush community, including yuccas and agaves. Fault lines, such as those located east of the Salton Sea, and the high western mountains create many springs that support California fan palm oases, reflecting characteristics of a wetter, past climate (University of California, Santa Barbara 2015).

In addition to the natural environment of the Trough, Colorado River water has been historically diverted to the Imperial Valley through a large network of canals, ditches and troughs to support hundreds of thousands of acres of agriculture. Since then, the Imperial Valley has been among the nation's most productive agricultural regions. Due to its year-round warm to hot climate and its expansive, engineered water distribution system, the Imperial Valley agricultural region produces a wide variety of crops on a year-round basis for the consumption of both humans and livestock.

Locally common fauna consists of coyotes, jackrabbits, desert cottontails, ground squirrels, wood rats and various small rodents, lizards and snakes. Large game animals, such as bighorn sheep and mule deer, are sparse in most places. Many special-status wildlife species are known to occur in the Project vicinity at various times of the year. This BTLR details both common and special-status plant and wildlife species found on and adjacent to the Survey Area, as well as discusses the potential for several other special-status species to occur on or adjacent to the Survey Area.

3.0 REGULATORY SETTING

The proposed Project is subject to a host of State and federal regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including: State and federally listed plants and animals; aquatic resources such as rivers, creeks, ephemeral streambeds, wetlands and riparian areas; other special-status species that are not listed as threatened or endangered by the State or federal governments; and other special-status vegetation communities.

3.1 State and/or Federally Listed Plant and Wildlife Species

3.1.1 State of California Endangered Species Act

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that is in danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the Federal Endangered Species Act (FESA), CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

3.1.2 Federal Endangered Species Act

The FESA of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to

"take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the United States Fish and Wildlife Service (USFWS), through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

3.1.3 State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).

- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

- Sections 2090-2097 of the California Endangered Species Act (CESA) require that the state lead agency consult with CDFW on projects with potential impacts on state-listed species. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state- listed species. In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

3.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA is a comprehensive environmental law that promotes the enhancement of the environment for many projects with a federal nexus. The President's Council on Environmental Quality (CEQ) was established to oversee NEPA. NEPA requires the preparation of environmental assessments (EAs) or environmental impact statements (EISs) for federal agency directives. These reports state the potential environmental effects of proposed federal agency actions.

NEPA has been implemented on many major projects, including federal, state and local levels that include federal funding. NEPA also applies for work conducted by federal entities or if permits are issued by a federal agency. Over time, a number of court decisions have expanded the requirement for NEPA-related environmental studies to include actions where permits issued by a federal agency are required regardless of whether federal funds are spent to implement the action, to include actions that are entirely funded and managed by private-sector entities where a federal permit is required. This legal interpretation is based on the rationale that obtaining a permit from a federal agency requires one or more federal employees (or contractors in some instances) to process and approve a permit application, inherently resulting in federal funds being expended to support the proposed action, even if no federal funds are directly allocated to finance the particular action.

The stated goal of NEPA is as follows:

> "*To declare national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality*."

NEPA contains three sections: the first section outlines national environmental policies and goals; the second establishes provisions for federal agencies to enforce such policies and goals; and the third establishes the CEQ in the Executive Office of the President. Within these three sections, the purpose of NEPA is to ensure that environmental factors are weighted equally when compared to other factors in the decision-making process undertaken by federal agencies and to establish a national environmental policy.

The NEPA process is the evaluation of the relevant environmental effects of a federal project or action mandated by NEPA. This process begins when an agency develops a proposal addressing a need to take action. If it is determined that the proposed action is covered under NEPA, there are three levels of analysis that a federal agency must undertake to comply with the law. These three levels include the preparation of a Categorical Exclusion (CatEx); an environmental assessment (EA); and either a Finding of No Significant Impact (FONSI), or, alternatively, the preparation and drafting of an environmental impact statement (EIS). These documents assess Project-related impacts, analyze alternatives, and address avoidance, minimalization and mitigation measures to reduce impacts to less than significant levels.

3.3 California Environmental Quality Act

Shortly after the United States federal government passed the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA) was passed in 1970 to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision-making process.

3.3.1 Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California to:

> *"Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."*

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Attachment G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> *"The project has the potential to: substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, ..."*

Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the proposed Project.

3.3.2 Criteria for Determining Significance Pursuant to CEQA

Attachment G of the 1998 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

> ***a)*** *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*
>
> ***b)*** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

3.3.3 CEQA Guidelines Section 15380

The CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Sections 5.1.1 and 5.2.2 below set forth these thresholds and guidelines. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW assigns California Rare Plant Ranks (CRPR) to species categorized as List 1A, 1B, or 2 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunctive populations of more common plants, or plants on the CNPS Lists 3 or 4.

3.4 Special Status Species Designations

3.4.1 Federally-Designated Special-Status Species

Some years ago, the USFWS instituted changes in the listing status of candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. All references to federally protected species in this report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS. Additionally, the USFWS *Birds of Conservation Concern 2008* report was published to identify the migratory and non-migratory bird species (beyond those already federally listed) that represent the highest conservation priorities for USFWS.

For this report, the following acronyms are used for federal special-status species:

- **FE**: Federally listed as Endangered
- **FT**: Federally listed as Threatened
- **FPE**: Federally proposed for listing as Endangered
- **FPT**: Federally proposed for listing as Threatened
- **FC**: Federal Candidate species (Former Category 1 candidates)
- **BCC**: USFWS Birds of Conservation Concern

3.4.2 State-Designated Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (FP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern (SSC) are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's California Natural Diversity Database (CNDDB) project. Informally listed taxa are not protected but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For this report the following acronyms are used for State special-status species:

- **SE**: State-listed as Endangered
- **ST**: State-listed as Threatened
- **SCE**: State candidate for listing as Endangered
- **SCT**: State candidate for listing as Threatened
- **FP**: State Fully Protected
- **SSC**: Species of Special Concern

3.4.3 California Rare Plant Rank

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. The California Native Plant Society's *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five categories. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW.

3.5 Additional Applicable State and Federal Regulations

Each of the following regulations bears some applicability toward assessing the natural resources of the Survey Area and any effects that construction and long-term operations and maintenance activities may have upon such resources. These are included for informational and referential purposes only.

3.5.1 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (PL 95-616; 16 USC §§ 668 et seq.) provides for protection of the bald and golden eagles by prohibiting taking, possession, and commerce in the birds.

3.5.2 Clean Water Act

The Clean Water Act (CWA) regulates the discharge of pollutants to waters of the United States to protect water quality and the beneficial uses of these waters. Through a permit application process, CWA Section 404 regulates dredge and fill discharges to waters of the United States.

3.5.3 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980 (PL 96-366; 16 USC §§2901 et seq.) provides for conservation, protection, restoration and propagation of certain species, including migratory birds threatened with extinction.

3.5.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (PL 65-186, as amended; 16 USC §§ 703 et seq.) protects most birds, whether or not they migrate. Birds, their nests, eggs, parts, or products may not be killed or possessed. Game birds are listed and protected except where specific seasons, bag limits, and other features govern their hunting. Exceptions are made for some agricultural pests, which require a USFWS permit (yellow-headed, red-winged, bi-colored red-winged, tri-colored red-winged, Rusty and Brewer's blackbirds, cowbirds, all grackles, crows and magpies). Some other birds that injure crops in California may be taken under the authority of the County Agricultural Commissioner (meadowlarks, horned larks, golden-crowned sparrows, white- and other crowned sparrows, goldfinches, house finches, acorn woodpeckers, Lewis' woodpeckers and flickers). Permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds.

3.5.5 California Fish & Game Codes 3500 Series

California Fish & Game Codes 3500, 3503, 3503.5, 3505, 3511 and 3513 are State regulations that cover resident and non-resident game birds, protected bird nests, protected raptor nests, egrets, ospreys, Fully Protected bird species, and take considerations for Migratory Bird Treaty Act birds.

- **Code 3500:** "(a) Resident game birds are as follows:
  (1) Doves of the genus *Streptopelia*, including, but not limited to, spotted doves, ringed turtledoves, and Eurasian collared-doves.
  (2) California quail and varieties thereof.
  (3) Gambel's or desert quail.
  (4) Mountain quail and varieties thereof.
  (5) Sooty or blue grouse and varieties thereof.
  (6) Ruffed grouse.
  (7) Sage hens or sage grouse.
  (8) Hungarian partridges.
  (9) Red-legged partridges including the chukar and other varieties.
  (10) Ring-necked pheasants and varieties thereof.
  (11) Wild turkeys of the order *Galliformes*.
  (b) Migratory game birds are as follows:
  (1) Ducks and geese.
  (2) Coots and gallinules.
  (3) Jacksnipe.
  (4) Western mourning doves.
  (5) White-winged doves.
  (6) Band-tailed pigeons.
  (c) References in this code to "game birds" means both resident game birds and

migratory game birds."

- **Code 3503:** "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

- **Code 3503.5:** "It is unlawful to take, possess, or destroy any birds in the orders *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

- **Code 3505:** "It is unlawful to take, sell, or purchase any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird."

- **Code 3511:** "(a) (1) Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. Prior to authorizing the take of any of those species, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected species and who has provided an e-mail address, if available, or postal address to the department. Affected and interested parties shall have 30 days after notification is published in the California Regulatory Notice Register to provide any relevant information and comments on the proposed authorization.

  (2) As used in this subdivision, "scientific research" does not include any actions taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

  (3) Legally imported fully protected birds or parts thereof may be possessed under a permit issued by the department.

  (b) The following are fully protected birds:

  (1) American peregrine falcon (*Falco peregrinus anatum*).
  (2) Brown pelican.
  (3) California black rail (*Laterallus jamaicensis coturniculus*).
  (4) California clapper rail (*Rallus longirostris obsoletus*).
  (5) California condor (*Gymnogyps californianus*).
  (6) California least tern (*Sterna albifrons browni*).
  (7) Golden eagle.
  (8) Greater sandhill crane (*Grus canadensis tabida*).
  (9) Light-footed clapper rail (*Rallus longirostris levipes*).
  (10) Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*).
  (11) Trumpeter swan (*Cygnus buccinator*).

(12) White-tailed kite (*Elanus leucurus*).
(13) Yuma clapper rail (*Rallus longirostris yumanensis*)."

- **Code 3513:** "It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."

3.5.6 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and/or with proper notification to the CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

3.5.7 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §§13000 et seq.) is the State's primary water law. It gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards substantial authority to regulate water use of surface and sub-surface waters.

3.6 Local Regulations

3.6.1 City of Calexico, California General Plan

The objectives of the City of Calexico, California General Plan Conservation/Open Space Element include identification, protection, and improvement of significant ecological and biological resources in and around the City of Calexico by:

1) Supporting regional and sub-regional efforts to conserve ecological and biological resources in the City and surrounding areas.
2) Supporting efforts to integrate natural wetlands treatment systems as part of the New River Improvement Project.
3) Requiring projects of one acre or more involving alteration or development of undisturbed land be required to submit a biological survey conducted by a qualified biologist to the City of Calexico. A focused biological study may be required if habitat that could potentially support a listed or threatened species exists on the site.

4.0 METHODS

Initial methods described below focused on determination of potential for occurrence of special-status plant and wildlife species. Species were considered to be special-status, and therefore subject to analysis in this section, if they meet one or more of the following criteria:

- Plant and animal species listed as endangered (FE), threatened (FT), or candidates (FC) for listing under the Federal Endangered Species Act (FESA);
- Plant and animal species listed as endangered (SE), threatened (ST), or candidates (SC) for listing under the California Endangered Species Act (CESA);
- Animals designated as Fully Protected Species (FP), as defined in California Fish and Game Code Sections 3511, 4700, 5050, and 5515;
- Animal species designated as Species of Special Concern (SSC) by the CDFW;
- Bat species designated as High Priority (H) by the Western Bat Working Group;
- Plants that are state-listed as Rare[1]; or
- Plant species ranked by the California Native Plant Society (CNPS) as having a California Rare Plant Rank (CRPR) of 1 or 2.[2]

Special-status natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, special-status natural communities are considered to be any of the following:

- Vegetation communities listed in the California Natural Diversity Database (CNDDB);
- Communities listed in the Natural Communities List with a rarity rank of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable); or
- Imperial County General Plan (ICGP) Sensitive Wildlife Areas

4.1 Literature Review

Blackhawk Environmental conducted a database records search centered on the Calexico International Airport within the USGS 7.5' *Heber, California* quadrangle, and also included the *Calexico, California* quadrangle. Overall, a five-mile radius surrounding the Survey Area was reviewed for special-status biological resources. The CDFW California Natural Diversity Database (CNDDB) RareFind 5 (CDFW 2018), the USFWS Species Occurrence Database (USFWS 2018), and the California Native Plant Society's (CNPS) Electronic Inventory (EI) of Rare and Endangered Vascular Plants of California (CNPS 2018) were reviewed for special-status plant and wildlife species records in the quadrangles containing and surrounding the Survey Area. CNDDB contains records of reported occurrences of federal- and state-listed species, proposed endangered or threatened species, Federal Birds of Conservation Concern, California Species of Special Concern (SSC), or otherwise special-status

[1] Plants that were previously state listed as "Rare" have been re-designated as state threatened.
[2] Under the CEQA review process, only CRPR 1 and 2 species are considered, as these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to List 3 and 4 species do not meet CEQA's definition of "rare" or "endangered."

species or communities that may occur within or in the vicinity of a project area (CNDDB accessed April 11, 2018). The United States Department of Agriculture (USDA) Web Soil Survey was used to review soil types documented to occur within the Survey Area. Available drainage feature and wetland data was reviewed from the National Wetlands Inventory (NWI) database as well as through observing aerial imagery. This database and literature review were used to provide details on special-status biological species and/or aquatic resources that have a potential to occur within and/or adjacent to the Survey Area, prior to conducting the special-status species habitat assessment.

Utilizing the background data described above, a field survey was conducted to assess the Survey Area for its existing conditions and its capacity to potentially harbor special-status biological resources identified in the literature review (target species).

4.2 Habitat Assessment Survey

On April 23, 2018, Blackhawk Environmental biologists Kris Alberts, Seth Reimers and Andrew Steyers and Michael Baker International biologist Dan Rosie performed a pedestrian survey of the entire Survey Area. Methods included the biologists walking meandering transects and pausing where appropriate at select vantage points to provide full visual coverage. During the field survey, all plant and wildlife species observed or detected were recorded in field notebooks. Binoculars were used as-needed to identify wildlife species. Plant species observed were identified to species level when feasible according to the nomenclature in The Jepson Manual: Vascular Plants of California Edition 2 (Baldwin et al. 2012). Vegetation communities were described according to dominant plant(s) species and annotated on high-resolution aerial photographs of the Survey Area. The habitat assessment focused on the potentials for special-status plant and wildlife species to be found on and/or adjacent to the Survey Area, but it did not include other focused or protocol-level surveys for any special-status plant or wildlife species.

Representative photos of the Survey Area, habitats and existing site conditions are included in Attachment B. Habitat assessment conditions are presented below in Table 1.

Table 1. Survey Conditions

	Time	Temperature	Wind Speed	Cloud Cover	Precipitation
Start	0700	72°F	1-3 mph	0%	None
End	1330	99°F	1-4 mph	20%	None

Following the habitat assessment, potentials for special-status species to occur were evaluated based on proximity, recency and abundance of known occurrences, availability of suitable habitats, historic distributions of the species and connectivity to known populations. Potentials for occurrence were generally evaluated based on the following criteria:

- **Present** – The species was observed within the Survey Area during the survey effort.
- **High** – Historic records indicate that the species has been known to occur within the regional vicinity of the Project (5 miles), and suitable habitat occurs onsite.
- **Moderate** – Historic records indicate that the species has been known to occur within the vicinity of the Project, but low-quality suitable habitat occurs onsite, or; no historic records

occur within the vicinity of the Project, but the Survey Area occurs within the historic range of the species, and moderate to high-quality habitat occurs within or adjacent to the Survey Area.

- **Low** – Historic records indicate that the species has not been known to widely occupy the regional vicinity of the Project, and low-quality habitat for the species exists within the Survey Area.
- **Presumed Absent** – The species is restricted to habitats not occurring within or adjacent to the Survey Area, or it is considered extirpated from the vicinity of the Project.

5.0 RESULTS

5.1 Literature Review Results

The literature review resulted in a total of seven special-status wildlife species and four special-status plant species known to occur within five miles of the Project (Attachment A, Figure 3). Of these, none were state- or federally-listed species. The resulting special-status species lists are included in Tables 3 and 4 below.

Two areas classified as wetlands were identified within the Survey Area in a search of the NWI database; the New River riparian area and the treatment basins at the wastewater treatment plant.

No special-status natural communities were found to occur within five miles of the Project.

5.2 Habitat Assessment Results

This section includes results for soil types, vegetation communities and land use types within the Survey Area along with their associated acreages, special-status natural communities, special-status wildlife species and special-status plant species potentials for occurrence, as well as common plant and wildlife species observed during the field survey.

5.2.1 Soil Types

Six distinct soil series occur within the Survey Area (Attachment A, Figure 4). Soil units found within the Survey Area are included in Table 2.

Table 2. Soils Occurring Within the Survey Area

Map Unit Symbol	Map Unit Name	Acres in Survey Area	Percent of Survey Area
102	Badland	19.63	5.30%
104	Fluvaquents, saline	124.36	33.58%
114	Imperial silty clay, wet	17.31	4.67%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	12.01	3.24%
116	Imperial-Glenbar silty clay loams, 2 to 5 percent slopes	13.64	3.68%
119	Indio-Vint complex	15.66	4.23%
122	Meloland very fine sandy loam, wet	167.19	45.15%
145	Water	0.53	0.14%

5.2.2 Vegetation Communities

A total of 13 vegetation communities and/or land cover types occur in the Survey Area and were described according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), further refined according to *A Manual of California Vegetation Second Edition* (Sawyer and Keeler-Wolf 2009), and ultimately characterized based on a site-specific analysis of the existing conditions. Specific vegetation communities were described based on dominant and sub-dominant plant species present at given locations as compared to adjacent species compositions. All observed vegetation communities were mapped directly onto a high-resolution aerial photograph during the field survey (Attachment A, Figure 2). The 13 vegetation communities and/or land cover types and their acreages include:

- 4.03 acres of Arrow Weed Scrub
- 0.32 acres of Bush Seepweed Scrub
- 55.69 acres of Desert Sink Scrub
- 185.07 acres of Developed areas
- 73.55 acres of Disturbed areas

- 9.42 acres of Disturbed Big Saltbush Scrub
- 6.61 acres of Disturbed Desert Sink Scrub
- 22.28 acres of Disturbed Riparian Scrub
- 0.75 acres of Mesquite Bosque
- 0.86 acres of Non-native Grassland
- 6.70 acres of Open Water
- 7.93 acres of Salt Pan
- 0.16 acres of Un-vegetated Channel

Arrow Weed Scrub (Arrow Weed Series)

Arrow Weed Scrub is characterized as moderate to dense thickets within major drainages in the drier parts of southern California that are dominated by arrow weed (*Pluchea sericea*) and may include sub-dominant species such as saltgrass (*Distichlis spicata*), rushes (*Juncus* spp.), cattails (*Typha* spp.), sandbar willow (*Salix exigua*) and tamarisk (*Tamarix* spp.) (Holland 1986). Within the Survey Area, Arrow Weed Scrub is characterized by a dominance of arrow weed with associated sub-dominant annual and perennial vegetation, including big saltbush (*Atriplex lentiformis*). No permanent impacts to Arrow Weed Scrub will occur as a result of Project implementation.

Bush Seepweed Scrub (Bush Seepweed Series)

Bush Seepweed Scrub is characterized by a dominance of bush seepweed and associated scant coverage of additional vegetation, such as tamarisk and saltgrass. Overall bush seepweed shrub coverage within the Survey Area was less than 10 percent cover consisting of only a few individual bush seepweed shrubs. No permanent impacts to Bush Seepweed Scrub will occur as a result of Project implementation.

Desert Sink Scrub (Iodine Bush Series)

Desert Sink Scrub is typically composed of low-growing, widely spaced succulent chenopods within poorly drained soils of valley bottoms and lakebeds scattered throughout the Sonoran Desert (Holland 1986). Within the Survey Area, Desert Sink Scrub is characterized by a dominance of iodine bush (*Allenrolfea occidentalis*) with associated annual and perennial vegetation such as shadscale (*Atriplex canescens*), saltgrass and bush seepweed. Permanent impacts to Desert Sink Scrub associated with implementation of the preferred alignments of the bypass encasement and pump back line total 1.41 acres, whereas permanent impacts associated with implementation of the optional alignment of the bypass encasement and the preferred alignment of the pump back line total 1.64 acres.

Disturbed Desert Sink Scrub (Iodine Bush Series)

Disturbed Desert Sink Scrub is consistent with Desert Sink Scrub but has less shrub coverage and a higher presence of bare ground or non-native annual grasses and/or forbaceous species as a result of natural and/or anthropogenic disturbances. Within the Survey Area, Disturbed Desert Sink Scrub is characterized by a dominance of iodine bush with significantly larger

degrees of open, bare ground and associated annual and perennial vegetation such as shadscale, saltgrass and bush seepweed. The nature of the disturbance within the Survey Area includes vehicular tracks, trash and debris dumping and pollution. Permanent impacts to Disturbed Desert Sink Scrub associated with Project implementation total 0.25 acre.

Disturbed Riparian Scrub (Common Reed - Tamarisk Series)

Disturbed Riparian Scrub is characterized by riparian zones dominated by non-native small trees or shrubs that lack taller riparian trees along major river systems where flood scour occurs and is expanded from increased urban and agricultural runoff (Holland 1986). Within the Survey Area, Disturbed Riparian Scrub is characterized by a dominance of common reed (*Phragmites australis*) and tamarisk (*Tamarix ramosissima*). Associated perennial vegetation includes sub-dominant non-native species such as big saltbush. The nature of the disturbance within the Survey Area is relative to the prevalence of non-native species within this vegetation community, trash and debis, and source pollution in the New River. Permanent impacts to Disturbed Riparian Scrub associated with Project implementation total 0.13 acre.

Mesquite Bosque (Mesquite Series)

Mesquite Bosque is an open to fairly dense, drought-deciduous streamside thorn forest dominated by mesquite (*Prosopis* spp.) that also occurs on higher alluvial terraces away from perennial streams that support riparian forests closer to the water (Holland 1986). Within the Survey Area, Mesquite Bosque is characterized by a dominance of honey mesquite (*P. glandulosa*) with reduced coverage of big saltbush and shadscale in some areas. No permanent impacts to Mesquite Bosque will occur as a result of Project implementation.

Non-native Grassland (California Annual Grassland Series)

Non-native Grasslands are a dense to sparse cover of annual grasses with flowering culms 0.2 to 0.5 meters high that can be associated with numerous showy-flowered, native annual forbs, especially in years of favorable rainfall (Holland 1986). Within the Survey Area, Non-native Grassland is characterized by a dominance of non-native annual grasses such as Bermuda grass (*Cynodon dactylon*). No permanent impacts to Non-native Grassland will occur as a result of Project implementation.

Disturbed Big Saltbush Scrub (Big Saltbush Series)

Disturbed Big Saltbush Scrub consists of low-growing, grayish, microphyllous shrubs, up to 1 meter tall, found within poorly drained soils with high alkalinity and/or salinity; in the surrounding playas on slightly higher ground than Desert Sink Scrub but has less shrub coverage and a higher presence of non-native annual grasses and/or forbaceous species as a result of natural and/or anthropogenic disturbances. Within the Survey Area, Disturbed Big Saltbush Scrub is characterized by a dominance of big saltbush with scant annual and perennial vegetation that includes a significant level of non-native, weedy species present in some areas. Evidence of vehicular disturbance trash and/or debris dumping and pollution are also present. Permanent impacts to Disturbed Big Saltbush Scrub associated with Project implementation total 0.004 acre.

Open Water

Open Water is comprised of year-round bodies of fresh water in the form of lakes, streams, ponds or rivers (Holland 1986). Within the Survey Area, Open Water is characterized by the permanent flowing water of the New River. Permanent impacts to Open Water associated with Project implementation total 0.0004 acre.

Salt Pan

Salt Pan is characterized by a lack of vegetation of any kind, bare ground, highly saline soils and muddy areas immediately adjacent to open water, wetlands and riparian areas. These areas are at least partially covered in salt crust that is formed from evaporating water following periods of inundation. No permanent impacts to Salt Pan will occur as a result of Project implementation.

Un-vegetated Channel

Un-vegetated Channel is simply the sandy, gravelly, or rocky portion of a waterway that remains unvegetated on a permanent or relatively permanent basis due to frequent scouring and/or variable water lines that inhibit the growth of vegetation (Holland 1986). Weedy species and/or grasses may grow sparsely on the fringes, but total cover is typically less than 10%. Within the Survey Area, the Un-vegetated Channel is generally defined by the OHWM between the banks of drainage features. Permanent impacts to Un-vegetated Channel associated with Project implementation total 0.01 acre.

Disturbed

Disturbed areas are characterized by predominantly non-native species introduced and established through human action (Holland 1986). Within the Survey Area, Disturbed areas are illustrated by the absence or near absence of native vegetation communities and high levels of anthropogenic disturbance, such as off-road vehicle use, trash and debris dumping and pollution. Dominant plant species included Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), curly dock (*Rumex crispus*), fountain grass (*Pennisetum setaceum*) and Bermuda grass. Disturbed areas also include uncompacted dirt roads, previously graded uplands and other areas within the Survey Area that were historically altered by past grading activities; many of these areas contain little to no vegetation. Permanent impacts to Disturbed areas associated with implementation of the preferred alignments of the bypass encasement and pump back line total 2.4 acres, whereas permanent impacts associated with implementation of the optional alignment of the bypass encasement and the preferred alignment of the pump back line total 1.9 acres.

Developed

Developed areas consist of man-made structures, an absence of native vegetation communities and high levels of anthropogenic disturbance, with little to no chance for natural succession without human intervention. Within the Survey Area, numerous Developed areas exist, including the Calexico International Airport, Calexico Wastewater Treatment Plant and

various paved roads, compacted dirt/gravel roads, sidewalks and other forms of infrastructure. Permanent impacts to Developed areas associated with implementation of the preferred alignments of the bypass encasement and pump back line total 2.4 acres, whereas permanent impacts associated with implementation of the optional alignment of the bypass encasement and the preferred alignment of the pump back line total 2.49 acres.

5.2.3 Special-Status Plant Species

The literature review resulted in a list of four special-status plant species with the potential to occur within the Project vicinity. These species and their potential for occurrence are further described in Table 3 below. A complete list of plant species observed is included in Attachment C.

Table 3. Special-Status Plant Species Potentially Occurring Within the Survey Area

Species Name	Status	Habitat Requirements	Potential for Occurrence
Abram's spurge *Euphorbia abramsiana*	Federal: None State: None CRPR: **2B.2**	Annual herb that occurs in sandy areas. • Mojavean desert scrub • Sonoran desert scrub Blooms: (Aug) Sep – Nov Elevation: -5 – 1310 m	**Absent.** Historical occurrences were recorded 3.41 miles from the Survey Area and at the Survey Area. Suitable habitat is no longer present at the Survey Area.
California satintail *Imperata brevifolia*	Federal: None State: None CRPR: **2B.1**	Perennial rhizomatous herb that occurs in mesic habitat. • Chaparral • Coastal scrub • Mojavean desert scrub • Meadows & seeps (often alkali) • Riparian scrub Blooms: Sep – May Elevation: 0 – 1215 m	**Low.** One historical occurrence was recorded 3.28 miles from the Survey Area. Although this species was not found during the survey, some suitable habitat is present at the Survey Area along the New River disturbed riparian scrub corridor.
Chaparral sand-verbena *Abronia villosa* var. *aurita*	Federal: None State: None CRPR: **1B.1**	Annual herb occurs in sandy areas. • Chaparral • Coastal scrub • Desert dunes Blooms: (Jan) Mar – Sep Elevation: 75 – 1600 m	**Absent.** A single historical occurrence was recorded at the Survey Area, however suitable habitat is no longer present at the Survey Area.
Gravel milk-vetch *Astragalus sabulonum*	Federal: None State: None CRPR: **2B.2**	Annual herb occurs in sandy, sometimes gravelly, flats, washes, & roadsides. • Desert dunes • Mojavean desert scrub • Sonoran desert scrub Blooms: Feb – Jun Elevation: -60 – 930 m	**Absent.** A single occurrence was recorded at the Survey Area, however suitable habitat is no longer present on or adjacent to the Survey Area

The habitat assessment survey was conducted within the typical blooming period for three of the special-status plant species identified in the literature review (chaparral sand-verbena, gravel milk-

vetch and California satintail), but none of these three species were found during the survey. Due to their absence during the survey and the lack of suitable habitat within the Survey Area, chaparral sand-verbena and gravel milk-vetch were determined to be absent. While California satintail was also not detected during the survey, there is some suitable habitat present within the Survey Area along the New River disturbed riparian-scrub corridor; therefore, the potential for occurrence of this species was determined to be low. The survey occurred outside the Abram's spurge known blooming period, and this species was also not detected during the survey. While two historical records were found of Abram's spurge occurring in the area, there is no longer suitable habitat present within the Survey Area; therefore, this species was also determined to be absent. Since chaparral sand-verbena, gravel milk-vetch and Abram's spurge are assumed absent from the Survey Area, and California satintail has a low potential for occurrence and was not observed during the initial field survey or associated follow-on surveys, no further focused rare plant survey effort should be required for these species.

5.2.4 Special-Status Wildlife Species

The literature review resulted in a list of seven special-status wildlife species with the potential to occur within the Survey Area. These species and their potentials for occurrence are further described in Table 4 below. A complete list of wildlife species observed is included in Attachment D.

Table 4. Special-Status Wildlife Species Potentially Occurring Within the Survey Area

Species Name	Status	Habitat Requirements	Potential for Occurrence
BIRDS			
Burrowing owl (burrow sites and some wintering sites) *Athene cunicularia*	Federal: **BCC** State: None CDFW: **SSC**	Shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and some artificial, open areas as a year-long resident. Occupies abandoned ground squirrel burrows as well as artificial structures such as culverts and underpasses.	**Present.** Several burrowing owls were observed within the Survey Area during the survey. Three historical records were found of occurrences within five miles of the Project, and suitable habitat is found on and adjacent to the Survey Area.
Yellow warbler (nesting) *Setophaga petechia*	Federal: **BCC** State: None CDFW: **SSC**	Mature, riparian vegetation in proximity to water along streams and in wet meadows.	**Absent.** A single historical record was found of an occurrence within the Survey Area, but the site lacks enough suitable riparian vegetation to support this species.
Reptiles			
Flat-tailed horned lizard *Phrynosoma mcallii*	Federal: None State: None CDFW: **SSC**	Fine, wind-blown sand and sparse vegetation in desert scrub, wash, succulent shrub, and alkali scrub habitats, with ample ant colonies in the area.	**Absent.** A single historical record was found of an occurrence within the Survey Area, but the area lacks windblown sands, connectivity to occupied areas and suitable habitat.

Species Name	Status	Habitat Requirements	Potential for Occurrence
MAMMALS			
American badger *Taxidea taxus*	Federal: None State: None CDFW: **SSC**	Found in a variety of open grassland, savannah and scrub habitats, fallow agricultural lands, meadows and prairies where rodent prey is ample.	**Low.** A single historical record was found of an occurrence within the Survey Area. Possible connectivity to fallow agricultural habitat via the New River riparian corridor creates a low potential for occurrence.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	Federal: None State: None CDFW: **SSC**	Colonial species that roosts primarily in crevices of rugged cliffs, high rocky outcrops and slopes. It has been found in a variety of plant associations, including desert shrub and pine-oak forests. The species may also roost in buildings, caves, and under roof tiles. Found from 0 – 2250 m.	**High (foraging) Absent (roosting).** One record of occurrence within the Survey Area was found. This species has a high potential to forage around the riparian area, but no potential to roost due to a lack of suitable roosting habitat.
Western mastiff bat *Eumops perotis californicus*	Federal: None State: None CDFW: **SSC** WBWG: **H**	Requires significant rock features offering suitable roosting habitat. Found in a variety of habitats, from desert scrub to chaparral to oak woodland and into the ponderosa pine belt and high elevation meadows of mixed conifer forests 0 – 3050 m.	**High (foraging) Absent (roosting).** One record of occurrence within the Survey Area was found. This species has a high potential to forage around the riparian area, but no potential to roost due to a lack of suitable roosting habitat.

Species Name	Status	Habitat Requirements	Potential for Occurrence
Western yellow bat *Lasiurus xanthinus*	Federal: None State: None CDFW: **SSC** WBWG: **H**	Roosts in palm trees in foothill riparian, desert wash and palm oasis habitats with access to water for foraging.	**High (foraging) Moderate (roosting).** One record of occurrence within the Survey Area, and another 3.41 miles from the Project were found. This species has a high potential to forage around the riparian area, and a moderate potential to roost in palm trees on site.

No additional special-status species were observed during the field survey within the Survey Area that were not identified during the literature review.

Of the seven special-status wildlife species identified during the literature review, only burrowing owls were observed to be present within the Survey Area during the habitat assessment survey. Two species were found to be absent from the Survey Area due to insufficient habitat (yellow warbler; nesting) and due to lacking windblown sands, connectivity to occupied areas and suitable habitat (flat-tailed horned lizard). American badger habitat onsite was found to be low-quality, but potential connectivity through the New River riparian corridor to suitable habitat in nearby agricultural fields creates a low potential of occurrence within the Survey Area. Pocketed free-tailed bat, western mastiff bat and western yellow bat all have high potentials to forage over the New River riparian corridor and/or the Survey Area. However, suitable roosting habitat was found only for western yellow bat, with a moderate potential to roost in the Mexican fan palms (*Washingtonia robusta*) growing onsite. No suitable roosting habitat was observed for the other two assessed special-status bat species.

5.3 Existing Survey Area Conditions Analysis

The proposed Project site is located within 373.38 acres of disturbed, developed and natural habitats in Calexico, California. The site is comprised of two mesas separated by a floodplain ravine containing the New River channel, which conveys flows roughly southeast-to-northwest through the area. Elevations on the Survey Area range from 6 feet above mean sea level (amsl) at the highest point of the south mesa, to -43 feet amsl at the bottom of the west end of the ravine. At the Project's east end, the New River crosses the international border into the U.S. and conveys flows through an area of disturbed unpaved lots and developed parking areas. The river is bounded on either side throughout the Survey Area by a narrow border of disturbed riparian scrub and disturbed areas. On

the way into the Survey Area, the river passes through a pair of trash racks, under a bridge at 2nd Street, and under an elevated pipeline before entering the ravine that characterizes most of the Survey Area. The elevated pipeline runs southwest-to-northeast within a protective earthen berm that ends at the river crossing before resuming on the other side. Just past the pipeline, the river passes through several developed bare-ground storage yards on either side. To the north, the yards contain numerous piles of dirt, debris, and broken concrete, and on the mesa above stand a group of large water storage tanks.

During the survey, a burrowing owl pair was observed utilizing a void beneath some broken concrete as a burrow, and a second pair was seen using the open end of a drain pipe. Numerous suitable burrowing owl burrows were found throughout the Survey Area, including the many piles of broken concrete and debris, and in drain pipes and rodent burrows in the earthen berms and ravine slopes.

Beyond the disturbed riparian scrub border, the ravine flood terraces are covered by a patchwork of desert sink scrub, disturbed desert sink scrub, disturbed riparian scrub, salt pan and disturbed bare-ground areas, with much of the soil bearing a thin, white alkaline crust. The sloped sides of the channel are intermittently vegetated with patches of disturbed riparian scrub, arrow weed scrub and mesquite bosque. Two small concrete spillways to the north and northwest, and a series of erosional gullies/drainage features to the southwest provide drainage from the surrounding mesas to the New River below. The largest drainage feature extends halfway into the airport grounds and is vegetated with bush seepweed scrub and disturbed riparian scrub. As the New River flows out of the west end of the Survey Area, it passes under a second elevated pipeline that conveys the waters of the All-American Canal as it crosses over the New River. The New River disturbed riparian scrub area continues to the northwest after leaving the Survey Area, providing a potential avenue of connectivity for wildlife utilizing the agricultural fields and natural habitats beyond.

The disturbed riparian area was observed to be used by numerous native bird species, including red-winged blackbird (*Agelaius phoeniceus*), semi-palmated plover (*Charadrius semipalmatus*), black-necked stilt (*Himantopus mexicanus*) and killdeer (*Charadrius vociferans*), some of which use the area to nest. During the survey, an active black-necked stilt nest with four eggs was found along the southern terrace on a mudflat adjacent to the riparian area, and a killdeer adult and fledgling were observed foraging together on the riverbank. The riparian area also likely serves as a foraging area for pocketed free-tailed bat, western mastiff bat, western yellow bat and other bat species.

The north mesa is primarily composed of a flat strip of disturbed bare ground with occasional patches of disturbed big saltbush scrub, mesquite bosque and arrow weed scrub, which separates the ravine from a residential neighborhood to the north and a commercial/industrial area to the northeast.

The south mesa is mostly developed land, containing the 155-acre Calexico International Airport and a 27-acre wastewater treatment facility. The majority of the airport is composed of two developed bare ground runways, with occasional patches of non-native grasses, and an area of disturbed big saltbush scrub at its west end. To the west, the airport is bordered by the All-American Canal, beyond which are extensive agricultural lands. The airport is bordered by Anza Road to the south, past which a shopping mall and an area of disturbed bare ground separates the airport from the International Border fence and the densely developed residential, commercial and industrial areas of Mexicali, Mexico. The wastewater treatment facility adjacent to the north side of the airport is made up of

developed bare ground containing the wastewater treatment facility storage yard, aerators, clarifiers and a series of treatment basins. Effluent from the treatment facility is discharged through an underground pipeline to the New River below and east. Several active black-necked stilt nests were observed on the bare-ground walkways between the wastewater treatment basins during the survey. Mexican fan palms (*Washingtonia robusta*) growing at the entrance to the facility may be used as roosts by western yellow bats.

The New River provides habitat for non-native freshwater fish species that include common carp (*Cyprinus carpio*) and mosquitofish (*Gambusia affinis*). No native fish species are known to occur in the New River.

6.0 RECOMMENDATIONS & CONCLUSION

Blackhawk Environmental biologists conducted a literature review for the Survey Area resulting in a list of seven special-status wildlife species and four special-status plant species to evaluate during the ensuing habitat assessment survey. The habitat assessment determined that of the seven special-status wildlife species evaluated, one was determined to be present (burrowing owl), while three were determined to have a high potential for foraging occurrence (pocketed free-tailed bat, western mastiff bat, western yellow bat), one was determined to have a moderate potential for roosting (western yellow bat), and one was determined to have a low potential for occurrence (American badger). The two remaining special-status wildlife species evaluated were determined to be absent from the Survey Area due to insufficient suitable habitat (yellow warbler), and a lack of windblown sands, connectivity to occupied areas and suitable habitat (flat-tailed horned lizard). The only wildlife species that will require additional focused surveys for this Project is burrowing owl.

Three of the evaluated special-status plant species were determined to be absent from the Survey Area (chaparral sand-verbena, gravel milk-vetch and Abram's spurge) due to going undetected during the survey and a lack of suitable habitat. Despite going undetected during the initial field survey and associated follow-on surveys, one species (California satintail) was determined to have a low probability of occurrence in limited suitable habitat found onsite. Considering the low potential for occurrence of this single species, focused rare plant surveys should not be required; however, a pre-construction biological sweep by an approved biological monitor is recommended to identify and avoid impacting this species.

The Project would include permanent impacts associated with the construction and installation of the trash screen, bypass encasement infrastructure and pump back system within the overall 373.38-acre Survey Area. The Survey Area was analyzed for both direct and indirect impacts that would be associated through the construction, operations and maintenance phases of the proposed Project. Direct impacts are correlated with the construction footprints for the three Project elements (i.e., Bypass Encasement Optional Alignment – Limit of Disturbance, Bypass Encasement Preferred Alignment – Limit of Disturbance, Pump Back Line Preferred Alignment), while indirect impacts are correlated with the altered hydrological regimes that the Project would entail for the New River and its floodplain. However, no indirect impacts are anticipated for the remainder of the Survey Area above the floodplain and outside of the construction footprint. Indirect impacts would include reduced and/or altered water flows of the New River within the Survey Area that could alter the existing vegetative composition within the floodplain. After the construction phase of the Project and

over the long term, wetland and riparian vegetation within the New River and its floodplain could feasibly shift to include a greater degree of upland vegetation, resulting in a reduction of wetland vegetation and function. As such, indirect impacts within the Survey Area include all of the open water and natural vegetation communities within the New River and its floodplain that are outside the construction footprints for the three Project elements.

Permanent and direct impacts to undeveloped, native and natural vegetation communities will require mitigation to offset the loss of habitat. Mitigation can be achieved in a number of ways, including but not limited to: establishment of on-site mitigation (i.e., habitat restoration) and/or purchase of mitigation credits from a regulatory-approved mitigation bank. Mitigation ratios would likely be 2:1 for directly impacted, undeveloped, native and natural vegetation communities, including Desert Sink Scrub, Disturbed Big Saltbush Scrub, Disturbed Desert Sink Scrub, Disturbed Riparian Scrub and Unvegetated Channel. If onsite or offsite habitat restoration is to occur, success criteria parameters would be established in conjunction with CDFW and other Project stakeholders to achieve vegetative cover thresholds within five years of initial planting. Habitat restoration activities would be specified within a Habitat Mitigation & Monitoring Plan (HMMP).

The proposed Project may constitute changes in land use that may require further review under CEQA and NEPA. Under the CEQA and NEPA review processes, special-status species with the potential to occur may require additional surveys and/or mitigation measures to comply with CEQA, NEPA, CESA and/or FESA.

In addition to conducting focused burrowing owl surveys, the following mitigation measures are proposed for the avoidance, minimization and/or mitigation of special-status biological resources that occur, or that may occur, on or adjacent to the Survey Area:

- **MM-BIO 1:** To the extent feasible, conduct vegetation removal outside of the nesting bird season (generally between February 1 and August 31). If vegetation removal is required during the nesting bird season, conduct pre-construction avoidance surveys for MBTA and CDFW-protected nesting birds within 100 feet of areas proposed for vegetation removal and/or initial grading activities; additionally, surveys shall be extended to 500 feet for raptors and be included from January 1 to July 15; note that burrowing owl surveys (also a raptor) are to be conducted according to MM-BIO 2 and MM-BIO 3. Surveys shall be conducted by a qualified biologist(s) within four days (=96 hours) of vegetation removal and/or initial grading activities. If active, protected nests are observed within the survey area(s), a qualified biologist will determine appropriate minimum disturbance buffers or other adaptive mitigation techniques (e.g., biological monitoring of active nests during construction-related activities, staggered work schedules, altered work locations, sound walls, noise abatement, etc.) to ensure that direct and indirect impacts to all protected nesting birds are avoided until such nests are no longer active.

- **MM-BIO 2:** Conduct focused burrowing owl surveys within the Project site and 150-meter survey area surrounding the Project site according to the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). A total of four surveys shall occur as follows; 1) conduct at least one site visit between 15 February and 15 April, and 2) conduct a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after

15 June. The surveys should occur during favorable weather conditions, during early morning hours (one hour before sunrise until two hours after sunrise) or during late afternoon hours (two hours before sunset until one hour after sunset). After completion of the appropriate surveys, a final report shall be prepared for CDFW review that discusses survey methods, transect widths, duration, conditions and results of the survey. The report will discuss any additional required mitigation for CEQA adequacy.

- **MM-BIO 3:** Conduct one 14-Day and one 24-Hour pre-construction burrowing owl survey within the Area of Potential Effects (APE) and 150-meter survey area surrounding the APE. The surveys should occur during the breeding season between February 15 and July 15 but may be conducted any time of year. The surveys should occur during favorable weather conditions, during early morning hours (one hour before sunrise until two hours after sunrise) or during late afternoon hours (two hours before sunset until one hour after sunset). The first pre-construction survey must occur from 30 to 14 days of initiating construction activities, after which a report shall be submitted to the appropriate Project parties that discusses survey methods, transect widths, survey duration, survey conditions, survey results and any mitigation recommendations. Following the 24-Hour preconstruction survey, a memo report shall be sufficient that will further discuss any additional required mitigation per CEQA standards. Such follow-up mitigation may include passive relocation procedures, "shelter in place" procedures, the development of a Burrowing Owl Mitigation Plan, and or/ the usage of sound walls, visual barriers, biological monitoring during construction, or other methods to avoid and minimize indirect and direct impacts to burrowing owls.

- **MM-BIO 4:** Develop a Storm Water Pollution Prevention Plan (SWPPP) for the Project to implement Best Management Practices (BMPs) during construction activities to avoid unanticipated impacts to adjacent, potentially jurisdictional irrigation ditches, drainage features and water bodies. All BMPs shall be regularly inspected for integrity and repaired or replaced as-needed.

- **MM-BIO 5**: Keep onsite speed limits below 15 miles per hour to reduce fugitive dust levels during construction. Fugitive dust levels must be kept below 20% opacity, per Imperial County Air Pollution Control District (ICAPCD) standards.

- **MM-BIO 6:** No Project personnel may litter on or adjacent to the Project site. Keep trash in secured containers onsite with regular disposal timelines to approved facilities, and/or in Project vehicles.

- **MM-BIO 7:** No Project personnel may bring pets or firearms to the Project site.

- **MM-BIO 8:** To prevent the accidental introduction of non-native, invasive plant material and/or seed stock to the Project environment, all vehicles must arrive to the Project site clean and free of mud and debris.

- **MM-BIO 9:** All Project vehicles must be kept in good maintenance and shall not leak fluids onto the Project site. In such cases, spills and leaks are to be cleaned up and disposed of properly, following Imperial County guidelines, and the causes of such spills and leaks shall

be immediately repaired. When staging Project-related construction equipment overnight, spill kits, secondary containment devices, spill mats and/or other measures should be employed to catch unanticipated leaks or spills.

- **MM-BIO 10:** Develop a HMMP in conjunction with the jurisdictional delineation results and directly impacted Desert Sink Scrub, Disturbed Big Saltbush Scrub, Disturbed Desert Sink Scrub, Disturbed Riparian Scrub and Unvegetated Channel vegetation community acreages. The HMMP would be intended to guide habitat restoration efforts as mitigation for direct and indirect impacts associated with Project construction, operations and maintenance phases.

If there are any questions or concerns regarding the findings of this report, please contact me at 619-972-8714 or kris@blackhawkenv.com.

Sincerely,

Kris Alberts

Kris Alberts
Principal Biologist

BLACKHAWK Environmental

ATTACHMENTS

A: Figures
B: Representative Site Photos
C: Plant Species Observed List
D: Wildlife Species Observed List

7.0 REFERENCES

Albert A. Webb Associates
2007 City of Calexico General Plan Update. Available: http://www.calexico.ca.gov. Accessed August 2018.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors.
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

Calflora
2018 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed April 24, 2018.

California Department of Fish and Wildlife (CDFW)
2012 Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. March 7, 2012.

California Department of Fish and Wildlife (CDFW)
2018 California Natural Diversity Database (CNDDB). RareFind Version 5 Database Query for the *Heber,* and *Calexico,* California, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch. Accessed April 11, 2018.

California Native Plant Society, Rare Plant Program.
2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 April 2018].

Dibble, T. W. Jr.
1954 Geology of the Imperial Valley region, California. Jahns, R.G. (ed) Geology of Southern California, California Division of Mines and Geology, Bulletin 170:21-28.

University of California, Santa Barbara
2015 Colorado Desert Climate and Vegetation. Electronic document, http://www.geog.ucsb.edu/~joel/g148_f09/lecture_notes/colo_desert/colorado_desert2.html, accessed April 13, 2017.

Google
2018 Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. *earth.google.com/*

Holland, R.
1986 Preliminary descriptions of the terrestrial natural communities of California. Unpublished document, California Department of Fish and Game, Natural Heritage Division. Sacramento, California.

Sawyer, J.O., Jr., and T. Keeler-Wolf
2009 *A Manual of* California *Vegetation Second Edition*. California Native Plant Society, Sacramento, California.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
2016 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed April 26, 2018]

United States Fish & Wildlife Service (USFWS)
2018 National Wetlands Inventory. https://www.fws.gov/wetlands/data/mapper.html.

United States Geological Survey (USGS)
2011 7.5-minute topographic quadrangle maps for *Heber* and *Calexico,* California.

Waters, Michael R.
1981 Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla, California. Ph.D. dissertation, Department of Geosciences, University of Arizona.

ATTACHMENT A

Figures

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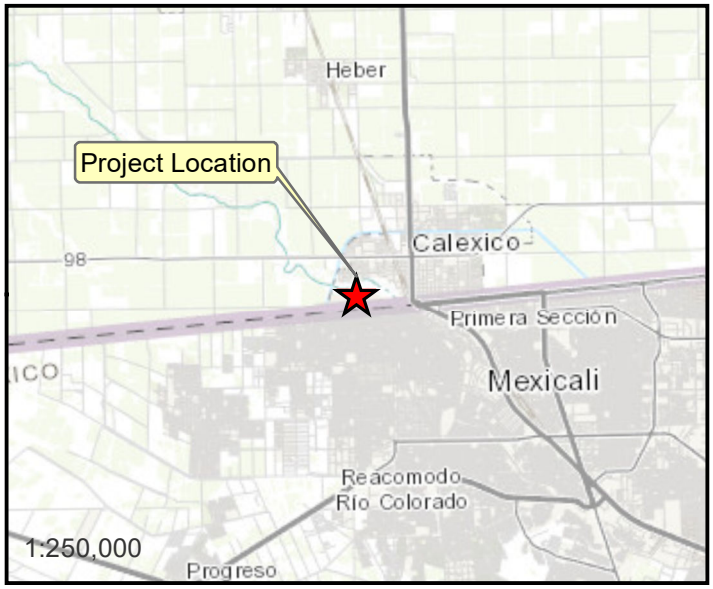






Legend

Survey Area

N

0 1,000 2,000

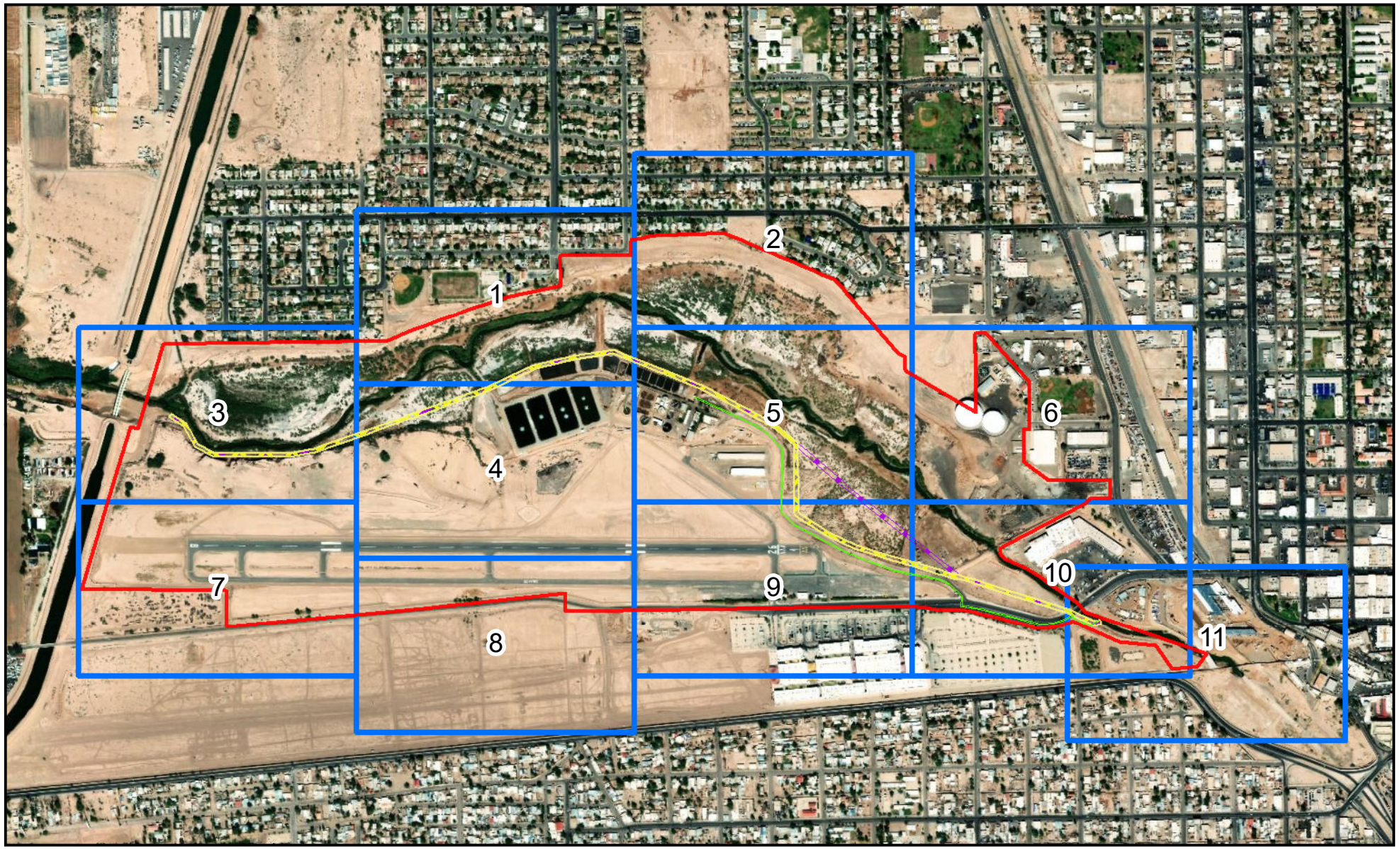
Feet

Figure 1

Project Location & Vicinity Map

Name: 20733 p168 Fig 1 Loc & Vicin.Mxd
Print Date: 10/24/2018, Author: msimmons

BLACKHAWK Environmental



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Map Page

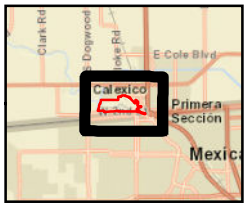


Figure 2

Vegetation Communities

Overview Map

N

0 525 1,050 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

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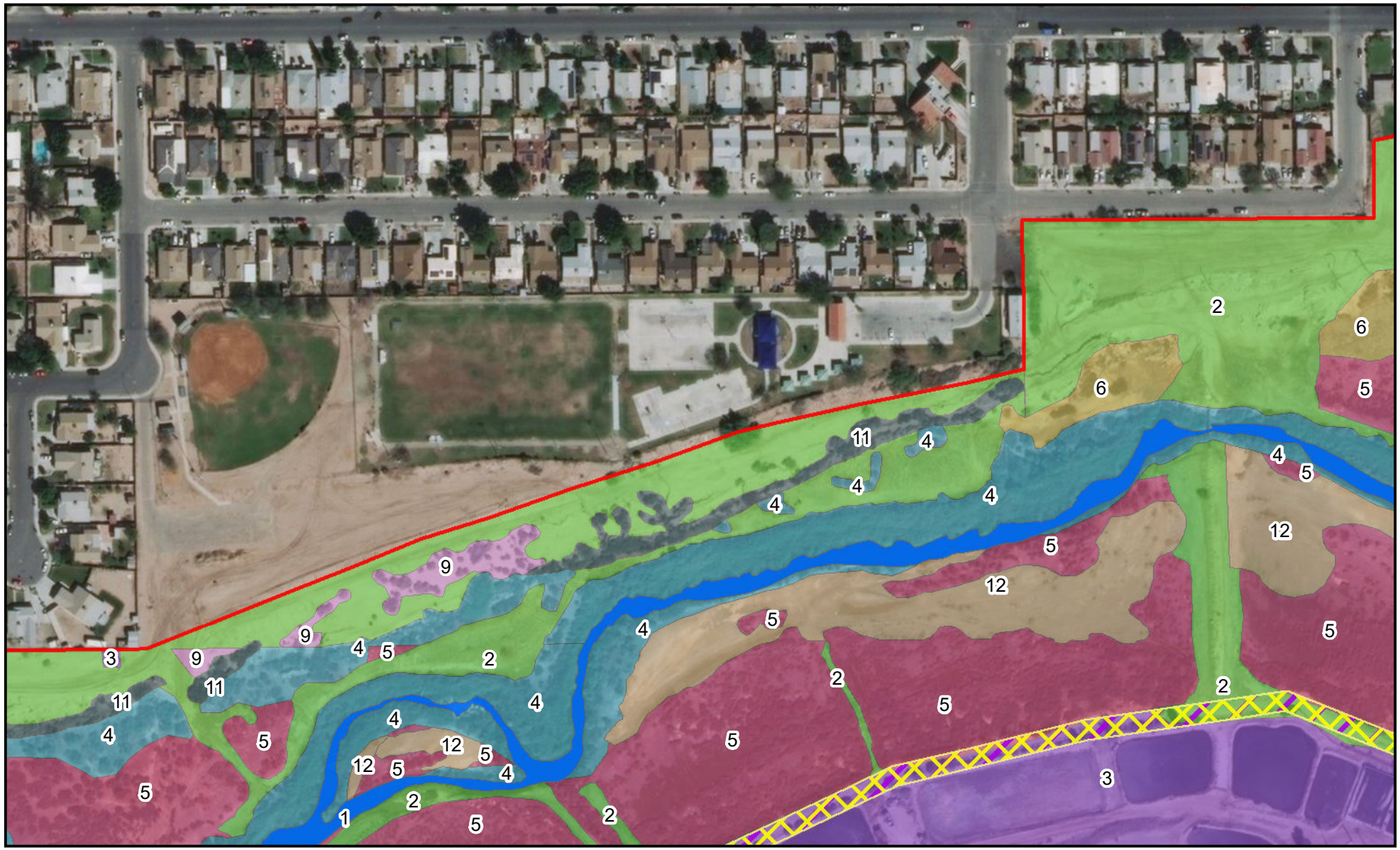


Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 6- Disturbed Desert Sink Scrub
- 9- Disturbed Big Saltbush Scrub
- 11- Arrowweed Scrub
- 12- Salt Pan

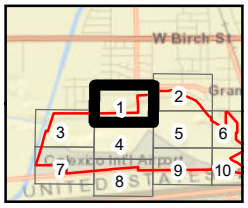


Figure 2

Vegetation Communities

Map 1

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 6- Disturbed Desert Sink Scrub
- 9- Disturbed Big Saltbush Scrub
- 11- Arrowweed Scrub
- 12- Salt Pan

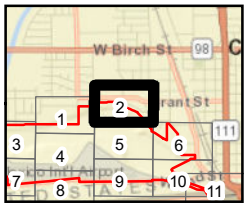


Figure 2

Vegetation Communities

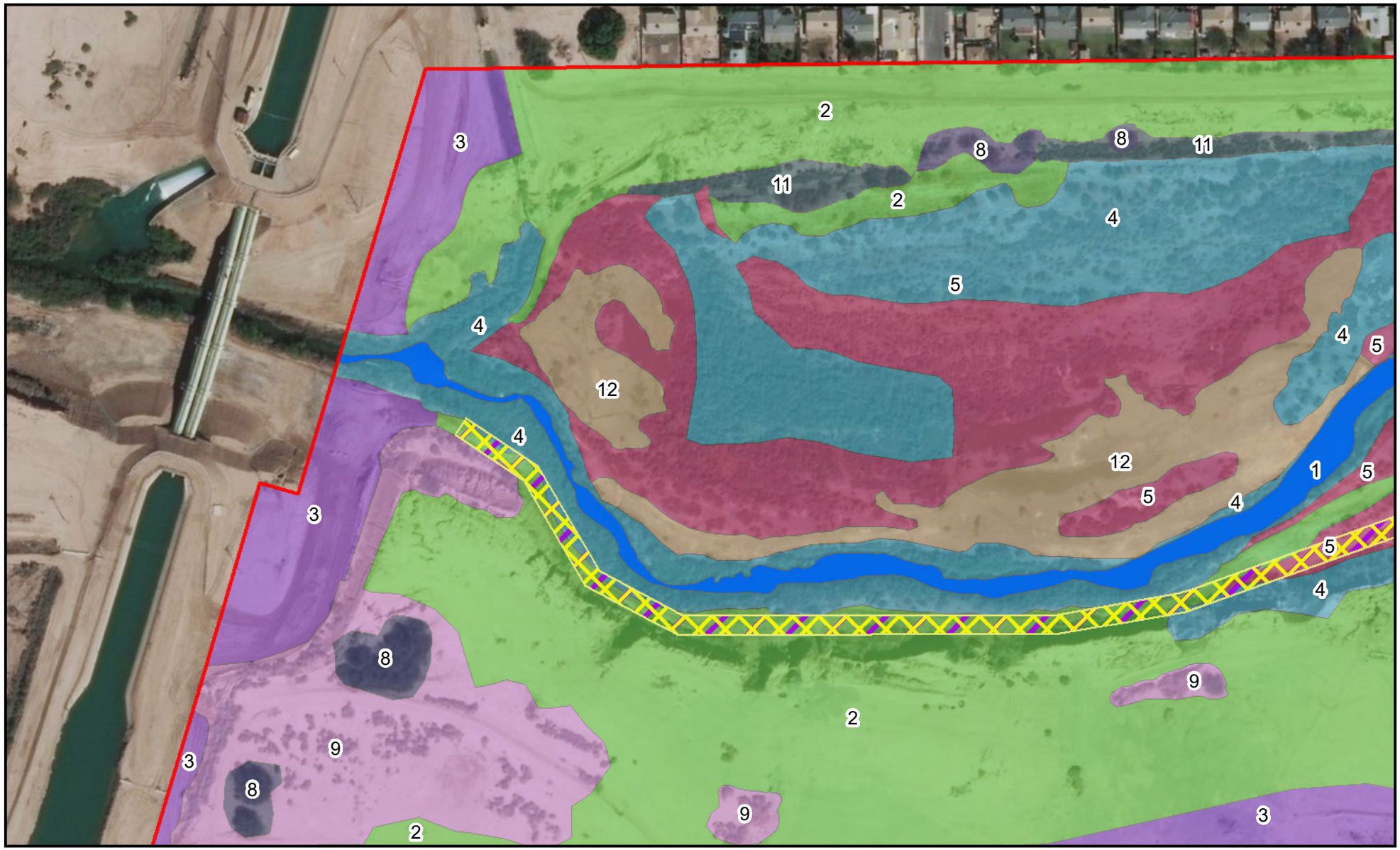
Map 2

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 8- Mesquite Bosque
- 9- Disturbed Big Saltbush Scrub
- 11- Arrowweed Scrub
- 12- Salt Pan

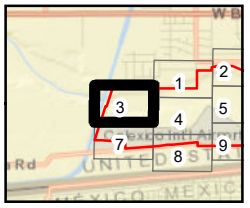


Figure 2

Vegetation Communities

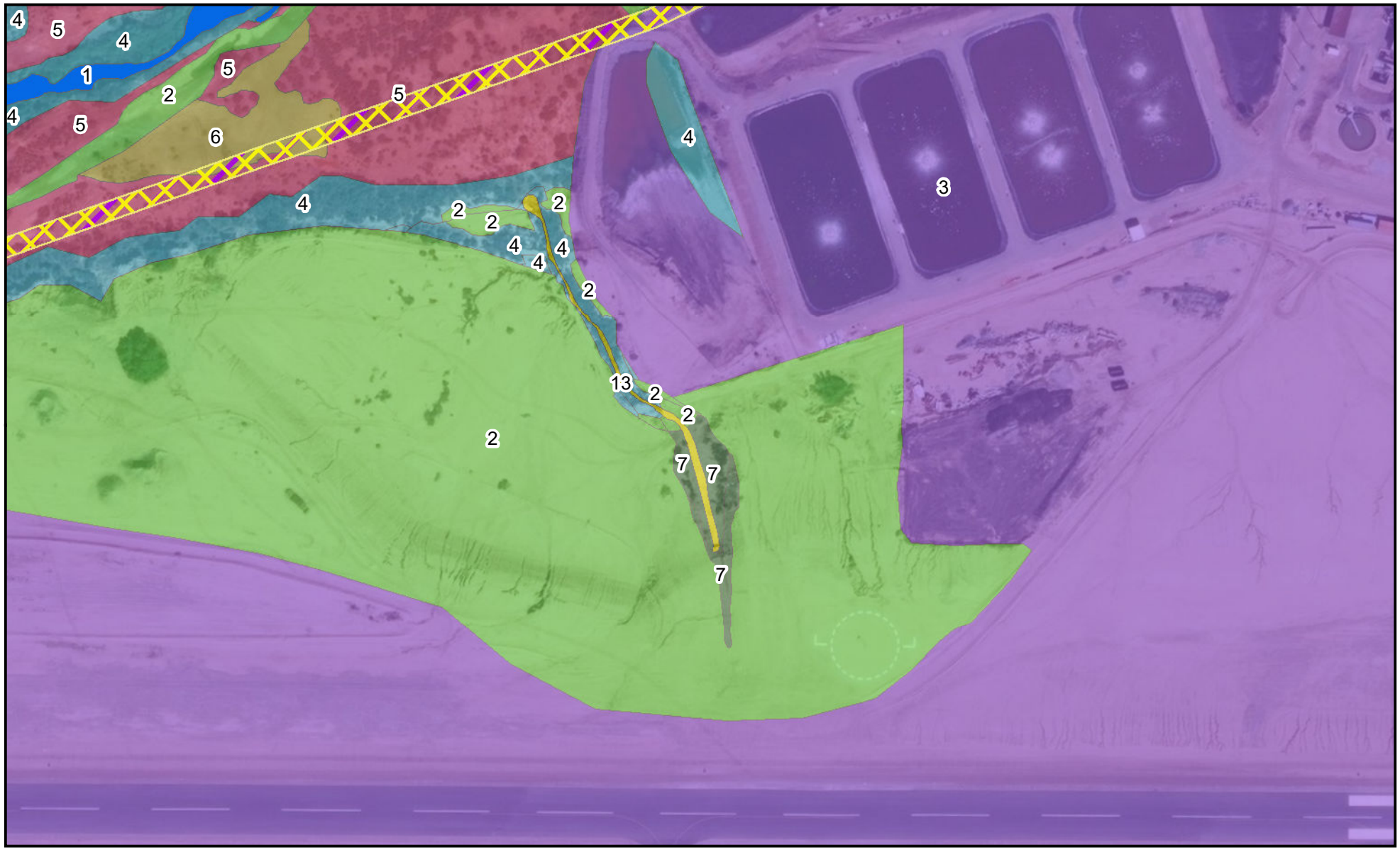
Map 3

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 6- Disturbed Desert Sink Scrub
- 7- Bush Seepweed Scrub
- 13- Unvegetated Channel

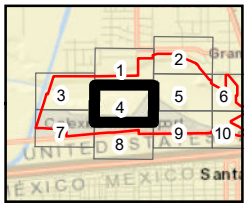


Figure 2

Vegetation Communities

Map 4

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

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Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 6- Disturbed Desert Sink Scrub
- 11- Arrowweed Scrub
- 12- Salt Pan
- 13- Unvegetated Channel

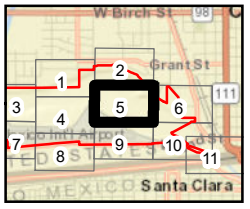


Figure 2

Vegetation Communities

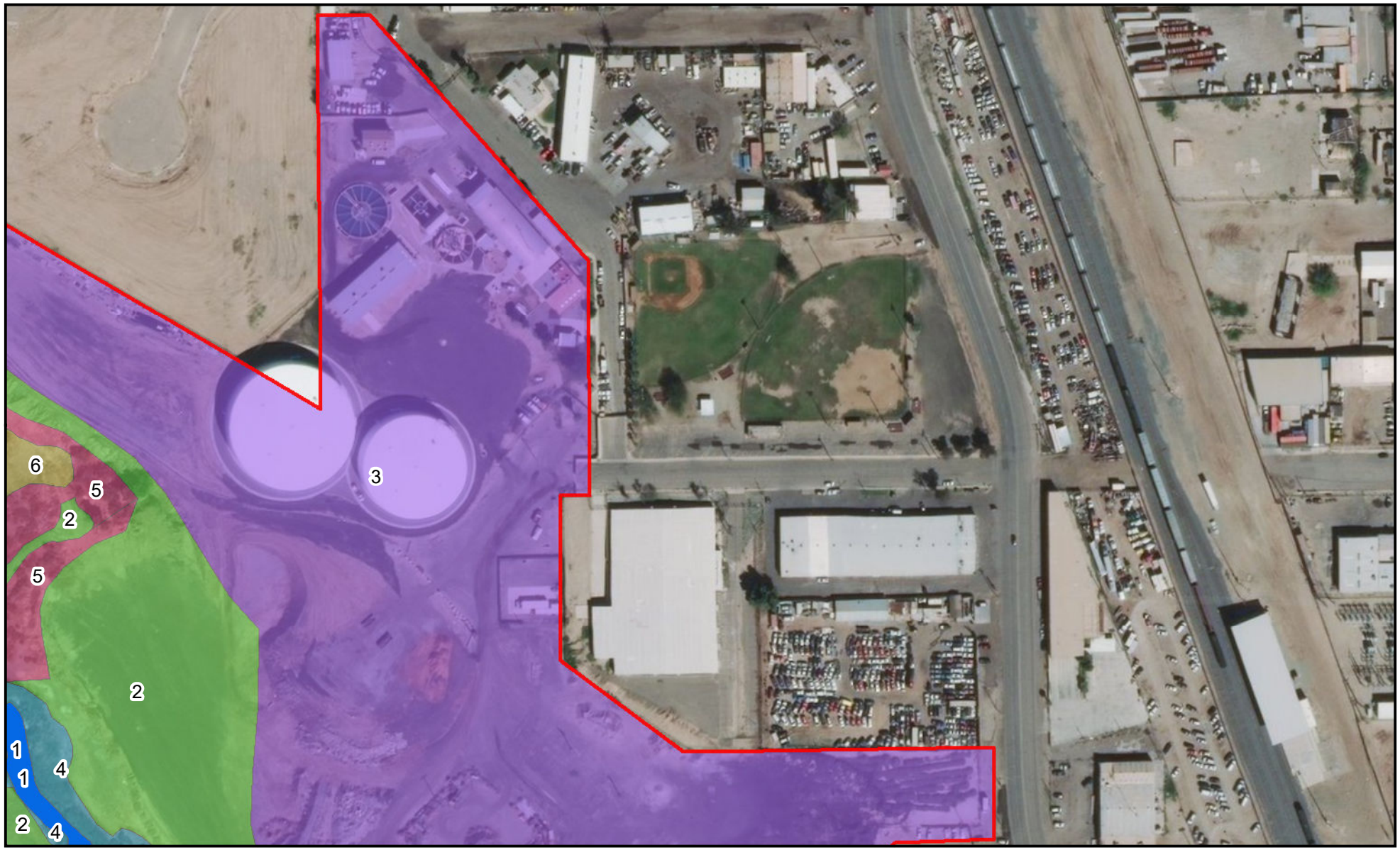
Map 5

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub
- 6- Disturbed Desert Sink Scrub

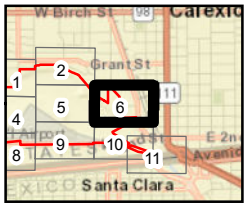


Figure 2

Vegetation Communities

Map 6

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

Survey Area

Vegetation Community

2- Disturbed

3- Developed

9- Disturbed Big Saltbush Scrub

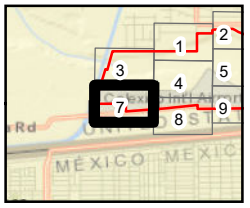


Figure 2

Vegetation Communities

Map 7

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

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Legend

Survey Area

Vegetation Community

3- Developed

10- Non-native Grassland

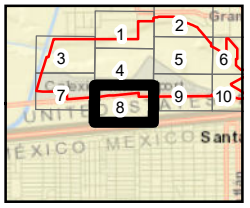

Figure 2

Vegetation Communities

Map 8

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

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Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment

Vegetation Community

- 2- Disturbed
- 3- Developed
- 5- Desert Sink Scrub

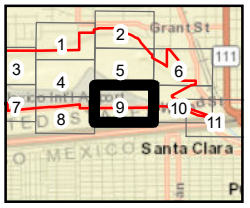


Figure 2

Vegetation Communities

Map 9

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed
- 4- Disturbed Riparian Scrub
- 5- Desert Sink Scrub

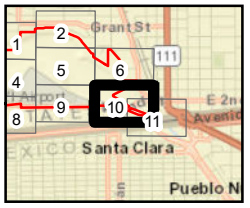


Figure 2

Vegetation Communities

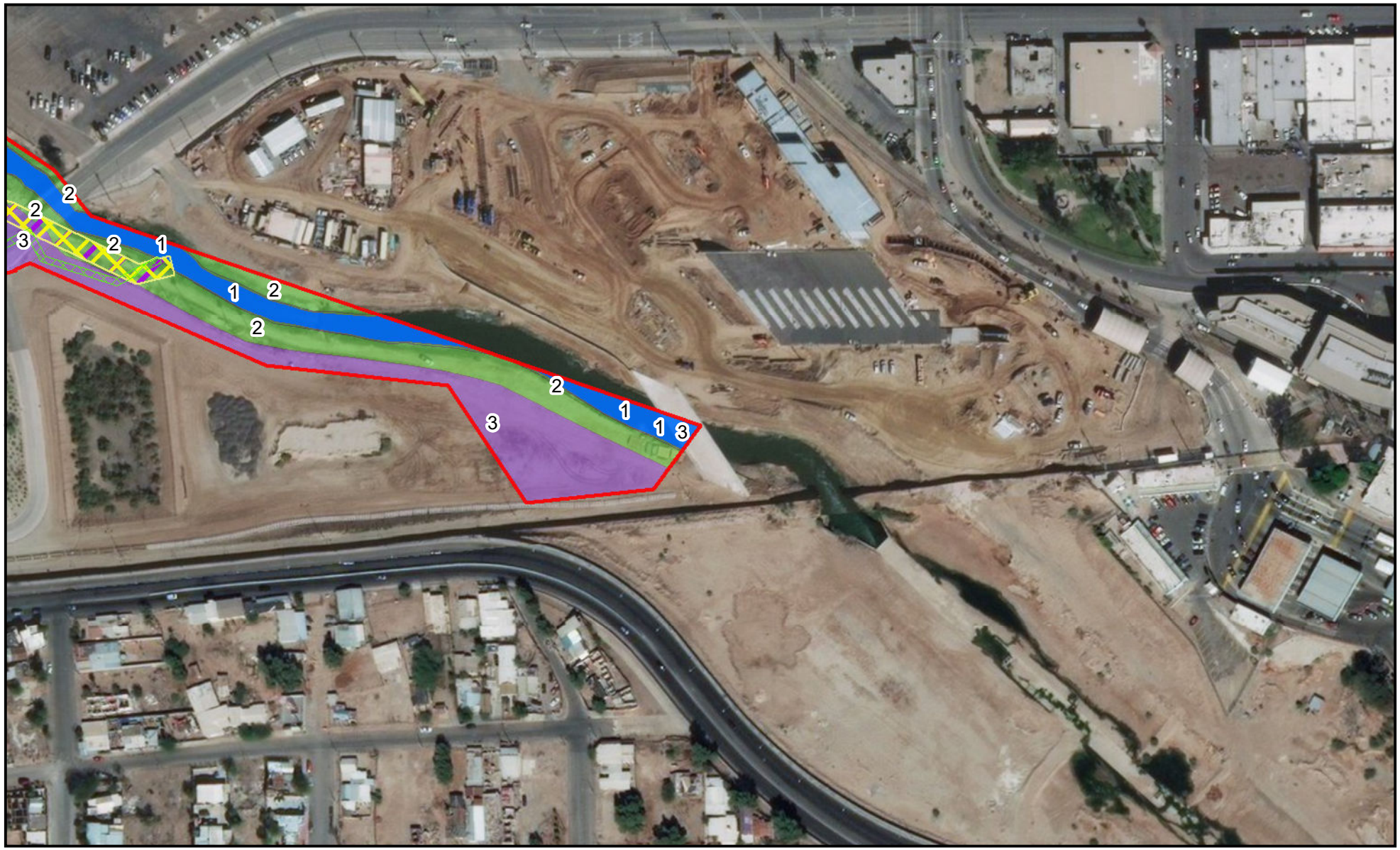
Map 10

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

Blackhawk Environmental



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment

Vegetation Community

- 1- Open Water
- 2- Disturbed
- 3- Developed

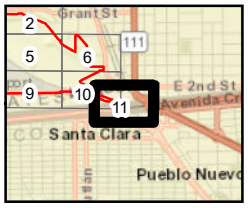


Figure 2

Vegetation Communities

Map 11

N

0 100 200 Feet

Name: 20733 p168 Fig 2 Veg Comm.Mxd
Print Date: 10/23/2018, Author: msimmons

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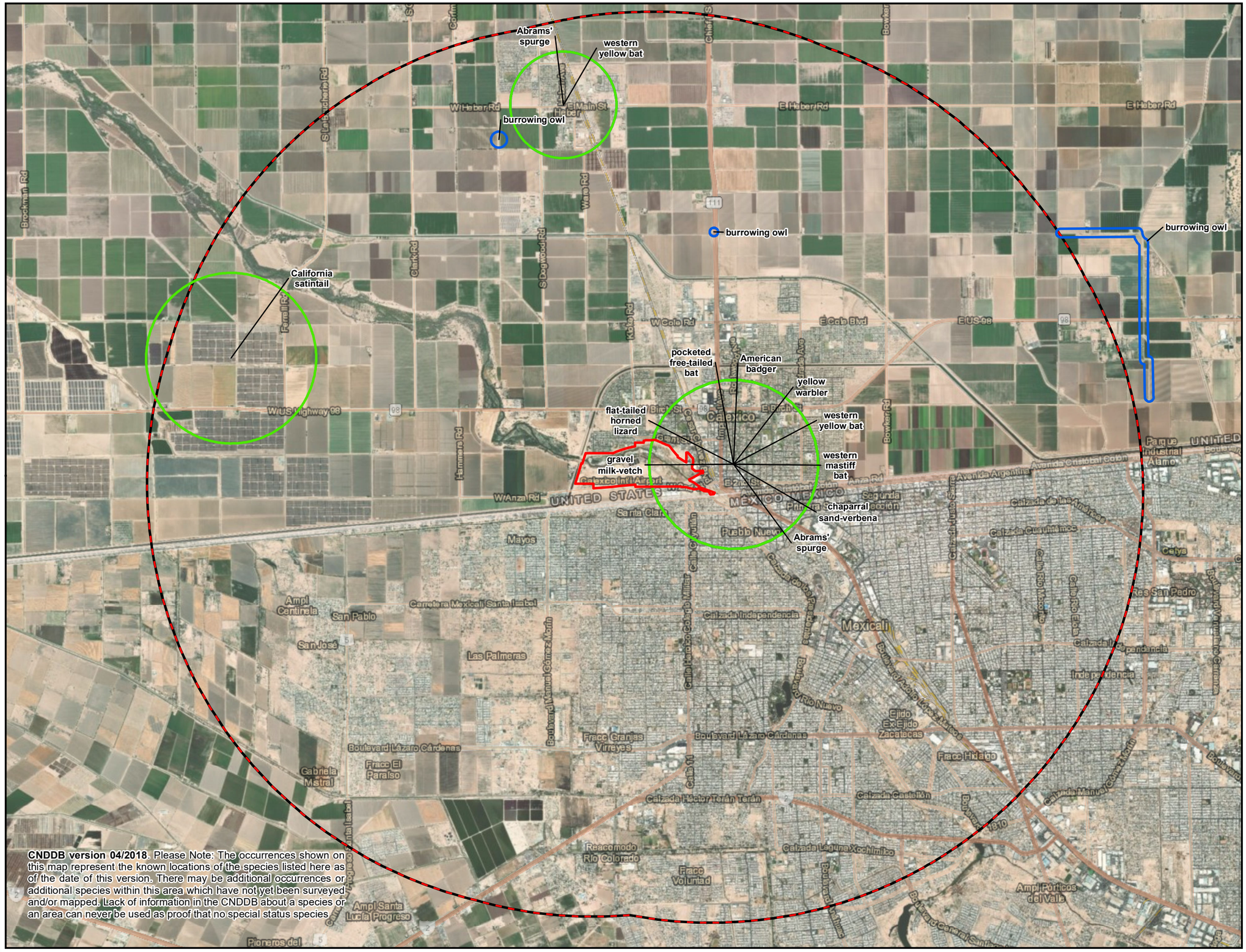
Figure 3
CNDDB Results Map



CNDDB version 04/2018. Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species

Legend

- Survey Area
- Project Location 5-mile Buffer

CNDDB Results

- Animals
- Plants

N

0 0.5 1 2
Miles



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Name: 20733 p168 Fig 3 CNDDB.Mxd
Print Date: 10/24/2018, Author: msimmons

Figure 4
Soils Map

Legend

- Survey Area

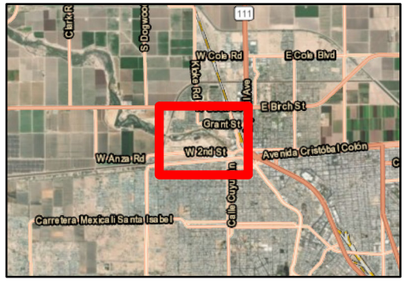
Mapped Sols Unit

- 102: BADLAND
- 104: FLUVAQUENTS, SALINE
- 114: IMPERIAL SILTY CLAY, WET
- 115: IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES
- 116: IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S
- 119: INDIO-VINT COMPLEX
- 122: MELOLAND VERY FINE SANDY LOAM, WET
- 145: WATER

N

0 630 1,260

Feet



BLACKHAWK Environmental

Name: 20733 p168 BTR Fig 4 Soils.Mxd
Print Date: 10/24/2018, Author: msimmons

ATTACHMENT B

Site Photographs

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Photo 1: Looking east at an existing trash rack on the New River and a disturbed area at the far southeast end of the Project site.



Photo 2: Looking west at the existing trash rack on the New River and a sign reading "**WARNING** -- CONTAMINATED SOIL AND NEW RIVER WATER -- KEEP OUT" in a developed area at the southeast end of the Project site. Soil stockpiles are visible outside the Project site east boundary.



Photo 3: Looking northwest at a developed area at the east end of the Project site where an existing pipeline crosses the New River. A business and parking lot lie outside the northeast boundary of the Project site.



Photo 4: Looking north at a developed area within the east end of the Project site with the New River riparian area running northwest-southeast through it. Visible are several large storage tanks on a bluff within the northeast boundary of the Project site and an earthen berm which protects a pipeline that crosses above the New River riparian area.



Photo 5: Looking northwest along the New River riparian area with developed bare-ground storage areas to either side. On the right side is a storage area containing piles of soil and broken asphalt, and several large water storage tanks are located on the bluff above.



Photo 6: Looking northwest across desert sink scrub habitat toward airplane hangars at the Calexico International Airport.



Photo 7: Looking southwest across desert sink scrub habitat to a disturbed area with piles of broken concrete on the left and airport hangars on the right.



Photo 8: Looking northwest across disturbed desert sink scrub habitat to outbuildings and fenced storage areas of the airport, and an adjacent water treatment facility.



Photo 9: Looking west at a water treatment facility adjacent to the north side of the airport.



Photo 10: Looking north across a disturbed area with piles of broken concrete toward the New River riparian area.



Photo 11: A black-necked stilt nest found adjacent to the New River riparian area during the survey.



Photo 12: Looking southwest across a disturbed area toward desert sink scrub habitat. On the bluff in the background is the west end of the airport.



Photo 13: Looking southwest across desert sink scrub habitat toward the west end of the airport.



Photo 14: Looking southeast across a water treatment pond toward the east end of the airport. During the survey, several active black-necked stilt nests were observed around the wastewater treatment basins.



Photo 15: Looking west across an erosional gully in the foreground and the west end of the airport in the background.



Photo 16: Looking east at the water treatment facility on the left and across a storage area with piles of dirt, lumber and debris on the right, toward the hangars at the east end of the airport.



Photo 17: Looking west at an elevated pipeline that carries the waters of the All-American Canal as it crosses above the New River riparian area at the west end of the project.



Photo 18: Looking west across an erosional gully (left). The elevated pipeline that conveys the All-American Canal across the New River is visible in the background.



Photo 19: Looking toward the west end of the airport, with the pipeline conveying the All-American Canal over the New River visible at the right.



Photo 20: Looking northwest at a pipeline that conveys the All-American Canal across the New River riparian area at the west end of the project. Several artificial burrowing-owl burrows were observed during the survey at the top of the slope from which this photo was taken.



Photo 21: Looking south along an access road just outside the west end of the project site, with the airport boundary fence visible to the left and the All-American Canal to the right.



Photo 22: Looking east at the airport fence marking the west boundary of the Project site. The end of the airport runway and hangars are visible in the background.



Photo 23: Looking east along Anza Road and the airport fence marking the south boundary of the Project site (on the left).



Photo 24: Looking over the south fence of the airport across a patch of non-native grassland toward the airport runway.



Photo 25: Looking east along Anza Road and the airport fence marking the south boundary of the Project site (left), with the airport hangars visible in the background.



Photo 26: From atop the bluff at the northwest corner of the Project site looking southeast over the New River riparian area.



Photo 27: From atop the bluff at the midpoint of the north Project boundary looking southeast toward the New River riparian area. Visible in the background are storage tanks at the northeast end of the site (left) and the airport hangars and wastewater treatment facility (right).



Photo 28: Looking southeast toward the storage tanks at the east end of the Project site. Several homeless encampments occur in the area and are visible here in the foreground and background.



Photo 29: Looking southeast toward a storage area with multiple piles of soil, rocks and debris, adjacent to the New River riparian area.



Photo 30: Looking northeast at a developed storage area with soil piles and debris. On the right is a raised earthen berm that protects an elevated pipeline that crosses the New River at the east end of the site.



Photo 31: Looking west at the road that runs along the north side of the airport and leads to the entrances for the airport and water treatment plant. The airport hangars are visible in the background. A pair of burrowing owls where observed during the survey at the outflow pipe in the slope to the right.



Photo 32: Looking west at the entrance to the airport (left) and wastewater treatment facility (center-right).



Photo 33: During the survey, a burrowing owl pair was found utilizing a gap among some broken concrete set in the slope of the bluff north of the New River. The numerous piles of broken concrete and holes in the surrounding bluffs observed during the survey provide an abundance of suitable burrowing-owl burrows throughout the Project site.

ATTACHMENT C

Plant Species Observed List

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PLANT SPECIES LIST

ANGIOSPERMS
MONOCOTS

ARECACEAE	**Palm Family**
***Washingtonia robusta*	Mexican fan palm
POACEAE	**Grass Family**
***Cynodon dactylon*	Bermuda grass
Distichlis spicata	salt grass
***Pennisetum setaceum*	fountain grass
Phragmites australis	common reed
TYPHACEAE	**Cattail Family**
Typha latifolia	broadleaf cattail

DICOTS

AIZOACEAE	**Fig Marigold Family**
Sesuvium verrucosum	western sea-purslane
ASTERACEAE	**Sunflower Family**
**Lactuca serriola*	prickly lettuce
Pluchea sericea	arrow weed
CHENOPODIACEAE	**Goosefoot Family**
Allenrolfea occidentalis	iodine bush
Atriplex canescens	shadscale
Atriplex lentiformis	big saltbush
**Salsola tragus*	Russian thistle
Suaeda nigra	bush seepweed
BORAGINACEAE	**Forget-me-not Family**
Heliotropium curassavicum	salt heliotrope
FABACEAE	**Pea Family**
Prosopis glandulosa	honey mesquite
Parkinsonia aculeata	Mexican palo verde
Parkinsonia florida	blue palo verde
MALVACEAE	**Mallow Family**
Sphaeralcea ambigua	desert mallow
Malvella leprosa	alkali mallow
POLYGONACEAE	**Buckwheat Family**
***Rumex crispus*	curly dock
SANTALACEAE	**Sandalwood Family**
Phoradendron californicum	desert mistletoe
TAMARICACEAE	**Tamarisk Family**
***Tamarix aphylla*	athel tree
***Tamarix ramosissima*	tamarisk

Key to Symbols: * Non-native; ** Non-native and Invasive according to the California Invasive Plant Council

ATTACHMENT D

Wildlife Species Observed List

Blackhawk Environmental

WILDLIFE SPECIES LIST

AVES	BIRDS
ANATIDAE	**Ducks, Geese & Swans**
Anas platyrhynchos	mallard
Spatula cyanotera	cinnamon teal
ARDEIDAE	**Egrets & Herons**
Ardea herodias	great blue heron
Butorides virescens	green heron
Egretta thula	snowy egret
Nycticorax nycticorax	black-crowned night heron
CAPRIMULGIDAE	**Goatsuckers**
Chordeiles acutipennis	lesser nighthawk
CHARADRIIDAE	**Plovers, Dotterels & Lapwings**
Charadrius semipalmatus	semipalmated plover
Charadrius vociferus	killdeer
Limnodromus scolopaceus	long-billed dowitcher
CATHARTIDAE	**Storks & Relatives**
Cathartes aura	turkey vulture
COLUMBIDAE	**Pigeons & Doves**
* *Columba livia*	rock pigeon
* *Streptopelia decaocto*	Eurasian collared-dove
* *Streptopelia* sp.	domestic dove
Zenaida macroura	mourning dove
CUCULIDAE	**Cuckoos, Roadrunners & Anis**
Geococcyx californianus	greater roadrunner
FALCONIDAE	**Falcons**
Falco sparverius	American kestrel
FRINGILLIDAE	**Fringilline & Cardueline Finches**
Haemorhous mexicanus	house finch
HIRUNDINIDAE	**Swallows**
Petrochelidon pyrrhonota	cliff swallow
Stelgidopteryx serripennis	northern rough-winged swallow
ICTERIDAE	**New World Blackbirds, Orioles & Allies**
Agelaius phoeniceus	red-winged blackbird
Molothrus ater	brown-headed cowbird
Quiscalus mexicanus	great-tailed grackle
LARIDAE	**Gulls**
Larus delawarensis	ring-billed gull
MIMIDAE	**Mockingbirds & Thrashers**
Mimus polyglottos	northern mockingbird
ODONTOPHORIDAE	**New World Quail**
Callipepla gambelii	Gambel's quail
PARULIDAE	**Wood Warblers**

Geothlypis trichas	common yellowthroat
Cardelina pusilla	Wilson's warbler
Setophaga coronata	yellow-rumped warbler
PASSERIDAE	**Old World Sparrows**
* *Passer domesticus*	house sparrow
PASSERELIDAE	**New World Sparrows & Towhees**
Melospiza melodia	song sparrow
Melozone aberti	Abert's towhee
POLIOPTILLIDAE	**Gnatcatchers & Gnatwrens**
Polioptila melanura	black-tailed gnatcatcher
PHALACROCORACIDAE	**Cormorants**
Phalacrocorax auritus	double-crested cormorant
RALLIDAE	**Rails, Coots, Gallinules & Allies**
Fulica americana	American coot
Galinula chloropus	common moorhen
RECURVIROSTRIDAE	**Avocets & Stilts**
Himantopus mexicanus	black-necked stilt
REMIZIDAE	**Verdins**
Auriparus flaviceps	verdin
SCOLOPACIDAE	**Waders & Shorebirds**
Actitis macullariushu	spotted sandpiper
Caladris mauri	western sandpiper
Caladris minutilla	least sandpiper
STURNIDAE	**Starlings**
* *Sturnus vulgaris*	European starling
STRIGIDAE	**Owls**
⊕ *Athene cunicularia*	burrowing owl
TROCHILIDAE	**Hummingbirds**
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird

MAMMALIA	**MAMMALS**
CANIDAE	**Foxes, Wolves & Allies**
* *Canis lupus familiaris*	domestic dog
FELIDAE	**Cats**
* *Felis silvestris catus*	domestic cat
LEPORIDAE	**Rabbits & Hares**
Sylvilagus audubonii	desert cottontail

OSTEICHTHYES	**BONY FISH**
CYPRINIDAE	**Carp, Minnows & Allies**
* *Cyprinus carpio*	common carp

REPTILIA	**REPTILES**
EMYDIDAE	**Pond Turtles**
* *Trachemys scripta elegans*	red-eared slider
IGUANIDAE	**Iguanas & Related Spiny Lizards**
Sceloporus occidentalis	western fence lizard

* *Non-native species*
⊕ *CDFW Species of Special Concern*

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APPENDIX C-2
JURISDICTIONAL DELINEATION REPORT

Blackhawk Environmental, Inc.
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San Diego, CA 92105
Phone: 619.972.7932
Phone: 619.972.8714
www.blackhawkenv.com

NEW RIVER IMPROVEMENT PROJECT
JURISDICTIONAL DELINEATION REPORT

CITY OF CALEXICO, IMPERIAL COUNTY, CALIFORNIA

Prepared for:

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October 24, 2018

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EXECUTIVE SUMMARY

Blackhawk Environmental, Inc. (Blackhawk Environmental) and Michael Baker International (MBI) aquatic resource specialists conducted a jurisdictional delineation in support of the proposed New River Improvement Project (Project) in the City of Calexico, Imperial County, California. The Project is located within the City of Calexico General Plan (Plan) area immediately north of the United States and Mexico international border. There are no Natural Community Conservation Planning (NCCP) or Habitat Conservation Planning (HCP) documents in effect for the Project site.

A jurisdictional assessment conducted by Blackhawk Environmental and MBI biologists during a habitat assessment on April 23, 2018 identified potentially jurisdictional areas requiring delineation for Project development. Methods for delineating wetlands followed guidelines set forth by the U.S. Army Corps of Engineers ([USACE] 1987), including the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid Supplement; USACE 2008). All figures depicting the Survey Area and delineation results are shown in Attachment A. Representative photographs of the Survey Area are shown in Attachment B. Data forms are included in Attachment C.

In addition to the New River itself, three drainage features were delineated: Drainage Feature A, Drainage Feature B and Drainage Feature C. All three drainage features were mapped as jurisdictional due to their connectivity to the New River, a Traditionally Navigable Water (TNW) (USACE 2018).

A total of 87.90 acres of USACE jurisdictional waters were delineated within the Survey Area. Of these, 6.70 acres are Open Water non-Wetland Waters of the U.S, 81.04 acres are Wetland Waters of the U.S., and 0.16 acres are Dry Tributary non-Wetland Waters of the U.S.

A total of 87.90 acres of Regional Water Quality Control Board (RWQCB) Waters of the State were delineated within the Survey Area. Of these, 6.70 acres are Open Water non-Wetland Waters of the State, 81.04 acres are Wetland Waters of the State, and 0.16 acres are Dry Tributary non-Wetland Waters of the State.

A total of 88.65 acres of California Department of Fish and Wildlife (CDFW) jurisdictional streambed and banks were delineated within the Survey Area. Included in this acreage is 6.70 acres of Open Water, 81.04 acres of Wetlands, and a remainder of 0.91 acres of CDFW Bank to Bank jurisdiction.

Direct impacts associated with the implementation of the *preferred* bypass encasement alignment total 1.83 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 1.83 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and 1.84 acres of CDFW-jurisdictional open water, wetlands and streambeds. Indirect impacts associated with the implementation of the *preferred* bypass encasement alignment may total an additional 85.97 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 85.97 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and 85.98 acres of CDFW-jurisdictional open water, wetlands and streambeds. Therefore, a total of 87.80 acres of USACE/RWQCB jurisdictional area and 87.82 acres of CDFW jurisdictional area would be directly or indirectly impacted by the *preferred* alignment of the Project.

Direct impacts associated with the implementation of the *optional* bypass encasement alignment total 2.04 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 2.04 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and

2.05 acres of CDFW-jurisdictional open water, wetlands and streambeds. Implementation of the optional bypass encasement alignment may indirectly impact a total of 85.74 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 85.74 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and 85.75 acres of CDFW-jurisdictional open water, wetlands and streambeds. Therefore, a total of 87.78 acres of USACE/RWQCB jurisdictional area and 87.80 acres of CDFW jurisdictional area would be directly or indirectly impacted by the optional alignment of Project.

Unavoidable direct and indirect impacts to jurisdictional waters would require that USACE, RWQCB and CDFW permits be obtained before Project construction, such as a Clean Water Act (CWA) Section 404 permit from USACE, a CDFW Section 1602 Streambed Alteration Agreement, and/or a CWA Section 401 Permit from RWQCB.

1.0 INTRODUCTION

Blackhawk Environmental was contracted under Michael Baker International (MBI) to conduct environmental surveys and provide a Jurisdictional Delineation Report for the proposed New River Improvement Project (Project) located on previously developed and undeveloped lands between the Calexico International Airport (CXL), the New River itself and adjacent residential and industrial/commercial areas in the City of Calexico, Imperial County, California. A habitat assessment that included a jurisdictional assessment of the entire Survey Area, totaling approximately 373.38 acres, was conducted by Blackhawk Environmental and MBI on April 23, 2018. Potentially jurisdictional areas were identified in proximity to the proposed Project impact areas. These areas were determined to potentially contain federal and state jurisdictional waters, as described by the United States Army Corps of Engineers' (USACE) Wetland Delineation Manual and Arid West Regional Supplement. The jurisdictional delineation survey effort focused on documenting existing site conditions, such as soils, topography, hydrology, vegetation and potentially jurisdictional aquatic resources, in the areas proposed for Project development and/or direct and indirect impacts.

The purpose of the jurisdictional delineation was to identify and document waters occurring within the Survey Area and surrounding areas that may be considered jurisdictional by the USACE, California Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Wildlife (CDFW), and to provide necessary background information for avoidance measures by engineering and for analysis by USACE, CDFW and the RWQCB, if permits are required.

No potential vernal pools, seasonal depressions or fairy shrimp habitat were observed during the initial habitat assessment. Therefore, no further assessment of vernal pools or fairy shrimp habitat was performed during the jurisdictional delineation survey.

1.1 Project Description

The State of California's Clean Water Act Section 303(d) lists the New River as impaired by numerous constituents and is a State of California priority for cleanup purposes. To address point and nonpoint sources of pollution from the New River, a New River Improvement Project Strategic Plan (Plan) was issued. The Plan identifies recommendations to address public health threats in the Calexico area of the New River. Critical infrastructure components of these recommendations include the following:

- A trash screen near the International Boundary to remove trash from the New River prior to the diversion structure. The trash screen will be located directly upstream from the New River Bypass Encasement diversion structure and shall be automated, self-cleaning and capable of removing one ton of trash per day. The trash screen shall not interfere with the New River flows and will be an integral part of the diversion structure design.

- A bypass encasement to divert the New River into an underground conveyance facility near Second Street and discharge back to the New River east of the All-American Canal New River Bypass Encasement Infrastructure. The diversion structure will commence downstream from the international boundary with Mexico, divert flow into the river bypass encasement, and discharge the flow back into the New River, east of the All-American Canal. The river bypass encasement will be designed to capture an average flow of 160 cubic feet per second (cfs). Flows greater than 160 cfs will continue to be carried in the New River.

- A New River Pump Back System (NRPBS) to use treated wastewater from the City of Calexico Wastewater Treatment Plant to supplant diverted river flow within the existing river alignment downstream of the river diversion structure. The NRPBS shall be capable of pumping up to 5.0 million gallons per day (MGD) of secondary treated and disinfected wastewater. The NRPBS will be located within the Calexico Wastewater Treatment Plant and will convey, on average, approximately 2.25 MGD (3.5 cfs) back to the New River, near (downstream of) the New River Bypass Encasement diversion structure.

2.0 REGULATORY SETTING

2.1 USACE Waters of the U.S.

According to the USACE Wetland Delineation Manual, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions."

2.1.1 Regulatory Definition

In accordance with Section 404 of the Clean Water Act (CWA), USACE regulates the discharge of dredged or fill material into Waters of the United States. The term "Waters of the United States" is defined as:

- All traditional navigable waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce;
- All other impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified above;
- The territorial seas; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3[a]).

Non-navigable tributaries that do not constitute relatively permanent waters (RPW; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

2.1.2 Wetland Parameters

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland.

2.1.2.1 Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). Potential wetland areas were surveyed by walking through the Survey Area and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands.

Vegetation units with potential wetland areas were examined, and data for each vegetation stratum (i.e., tree, shrub, herb and vine) were recorded on the datasheet provided in the Arid West Supplement (USACE 2008). The percent absolute cover of each species present was visually estimated and recorded.

The wetland indicator status of each species recorded was determined by using the National Wetland Plant List (Lichvar, et. al. 2016). An obligate (OBL) indicator status refers to plants that are almost always hydrophytic and rarely in uplands. A facultative wet (FACW) indicator status refers to plants that usually are hydrophytic but are occasionally found in non-wetlands. A facultative (FAC) indicator status refers to plants that commonly occur as either a hydrophyte or non-hydrophyte. Facultative upland (FACU) species occasionally are hydrophytic but usually occur in uplands. Upland (UPL) species almost always occur in uplands and are rarely hydrophytic. A not indicated (NI) status refers to species that have insufficient data available to determine an indicator status at this time for the local region.

Plant species nomenclature follows that contained in *the Jepson Online Interchange* (Jepson Flora Project 2018). Dominant species with an indicator status of NI or not listed in the 2016 National Wetland Plant List were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats characteristic of southern California.

2.1.2.2 Hydric Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (USACE 1987). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur or carbon compounds (USACE 2008). The hydric soil criterion is considered fulfilled at a location if soils in the area can be inferred to have a high groundwater table, evidence of prolonged soil saturation exists, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile are present. Additionally, soils mapped by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) as hydric were referenced prior to field verification.

A sampling point was selected within a potential wetland area where the apparent boundary between wetland and upland was inferred based on changes in the composition of the vegetation and topography. The soil pit was dug to a depth of at least 10 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, oxidation, gleying, sulfidic odor).

2.1.2.3 Wetland Hydrology

The presence of wetland hydrology indicators confirm that inundation or saturation has occurred on a site, but may not provide information about the timing, duration, or frequency of the event. Hydrology features are generally the most ephemeral of the three wetland parameters (USACE 2008). Hydrologic information for the site was obtained by reviewing USGS topographic maps, historic and current aerial photographs, and by directly observing hydrology indicators in the field. The wetland hydrology criterion is considered fulfilled at a location if, based upon the conclusions inferred from the field observations, an area has a high probability of being periodically inundated or has soils saturated to the surface at some time during the growing season to develop anaerobic conditions in

the surface soil environment, especially the root zone (USACE 1987). If at least one primary indicator or at least two secondary indicators are found at a sample point, the wetland hydrology criterion is considered fulfilled.

2.1.3 Atypical Situations

Because there are situations in which one or more of the wetland parameters has been removed or altered as a result of recent natural events or human activities, the definition of a wetland includes the phrase "under normal circumstances" (USACE 1987). To describe these conditions, USACE uses definitions for atypical situations and problem areas. They are as follows:

> Atypical situation: . . . refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter (USACE 1987).
>
> Problem areas: . . . wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events. Representative examples of problem areas include seasonal wetlands, wetlands on drumlins, prairie potholes, and vegetated flats (USACE 1987).

Atypical situations and problem areas may lack one or more of the three criteria, yet still may be considered wetlands. Background information on the previous condition of the area, field observations and/or the identification of undisturbed reference sites adjacent to atypical sites may indicate that the site met the wetland criteria prior to disturbance. Additional delineation procedures would be employed if normal circumstances did not occur on a site.

2.1.4 Vernal Pools

Vernal pools are considered "problem areas" because vegetation or hydric soils may be lacking due to seasonal filling by rainfall and eventual drying. As described in the Arid Supplement, "the species composition of some wetland plant communities in the Arid West can change in response to seasonal weather patterns and long-term climatic fluctuations. Wetland types that are influenced by these shifts include vernal pools, playa edges, seeps and springs. Lack of hydrophytic vegetation during dry periods should not immediately eliminate a site from further consideration as a wetland." In addition, since they support seasonally ponded soils, when soil investigations are performed within vernal pools, they may lack hydric soil indicators. The USACE includes problem soils as "seasonally ponded, depressional wetlands (that) occur in basins and valleys throughout the Arid West. Most are perched systems, with water ponding above a restrictive soil layer, such as a hardpan or clay layer, that is at or near the surface (e.g., in Vertisols). Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions or other factors."

2.2 USACE Non-Wetland Waters of the U.S.

The USACE also requires the delineation of non-wetland jurisdictional Waters of the U.S. These waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). An ordinary high watermark is defined as:

> . . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

2.3 CDFW Jurisdictional Waters

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters are delineated by the distances between the outer edges of riparian vegetation or at the tops of the banks of streams or lakes, whichever is wider. Although CDFW does not regulate vernal pools under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if California state threatened and/or endangered species are present via the California Endangered Species Act, or which provide resources directly or indirectly to fish and wildlife of the region. CDFW may also assert jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. For clarification, of features that may be subject to CDFW jurisdiction, the CDFW Legal Advisor has prepared the following opinion (CDFG ESD 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by [CDFW] as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank or channel.

2.4 RWQCB Jurisdictional Waters

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes Waters of the State as mandated by the federal CWA Section 401. When CWA Section 404 jurisdiction is not present for isolated water, the RWQCB may assert jurisdiction via the California Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The Porter-Cologne Water Quality Control Act provides a regulatory framework to provide comprehensive

protections for surface and groundwater within the State of California. Waters subject to jurisdiction under the Porter-Cologne Water Quality Control Act require that any discharge that may negatively impact or otherwise affect a Water of the State must coordinate with RWQCB. During coordination, RWQCB may require implementation of mitigation measures or other requirements to protect overall water quality.

3.0 METHODS

A jurisdictional delineation, following the guidelines set forth by USACE (1987, 2008), was performed to gather field data at potential wetlands and Waters of the U.S. and State in the Survey Area. To account for all potential Project impact areas and provide a greater landscape context to sensitive aquatic resources, all areas inside the Survey Area were initially assessed for jurisdictional resources, including all areas proposed for Project development and/or impact (Figure 2). Wetlands were then delineated within the Survey Area based on commonality among vegetation community characteristics and three-parameter testing methodology. Blackhawk Environmental wetland specialists Kris Alberts, Seth Reimers and MBI wetland specialist Dan Rosie, delineated jurisdictional waters in the Survey Area on August 20, 2018. Mr. Alberts and Mr. Reimers completed the delineation survey on August 31, 2018.

Prior to conducting the field delineation, the following sources were consulted to identify land use history and provide additional context to potentially atypical and problematic jurisdictional wetlands within the Survey Area, including:

- USGS *Heber, California* quadrangle topographic map (USGS 2011)
- Historical aerial photographs (NETR 1947)
- Current and historical aerial photographs (Google 2018)
- National Wetland Inventory (USFWS 2018)
- California Natural Diversity Database (CNDDB) search for sensitive riverine, riparian and/or aquatic species (CDFW 2018)

Once on site, the potential wetland locations were examined to determine the presence of any of the three wetland parameters or drainage channels. Soil type and classification data used in the delineation were provided by the Natural Resource Conservation Service's web soil survey (U.S. Department of Agriculture [USDA] 2010) (Figure 3).

Potential waters and wetland locations observed within the Survey Area were evaluated using the methodology set forth in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008). Wetland hydrology indicators included evidence of inundation, saturation, watermarks, drainage patterns, oxidized soils, drift lines and sediment deposits. Vegetation was analyzed using dominant species wetland indicator status (USDA 2018). Suspected jurisdictional areas were evaluated for the presence of definable channels, wetland vegetation, an ordinary high-water mark and connectivity to a traditional navigable waterway (TNW).

As the survey was conducted during a period of relative drought, potential wetland areas without persistent wetland vegetation may have been treated as "problem areas", and analysis was adjusted accordingly.

4.0 RESULTS

A description of the major vegetation units observed in delineated areas within the Survey Area, soil types encountered and a discussion of the local hydrology in the Survey Area are presented below. Copies of the field data forms summarizing information on vegetation, soils, and hydrology observed at each sample site are provided in Attachment C.

4.1 Vegetation

A total of 14 vegetation communities and land cover types occur in the Survey Area: Desert Sink Scrub (Iodine Bush Series), Disturbed Desert Sink Scrub (Iodine Bush Series), Disturbed Riparian Scrub (Common Reed – Tamarisk Series), Bush Seepweed Scrub (Bush Seepweed Series), Arrow Weed Scrub (Arrow Weed Series), Mesquite Bosque (Mesquite Series), Non-native Grassland (California Annual Grassland Series), Big Saltbush Scrub, Disturbed Big Saltbush Scrub, Open Water, Salt Pan, Un-vegetated Channel, Disturbed and Developed areas. Vegetation communities were described according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), further refined according to *A Manual of California Vegetation Second Edition* (Sawyer and Keeler-Wolf 2009), and ultimately characterized based on a site-specific analysis of the existing conditions. Of the 14 vegetation communities/land cover types in the Survey Area, six support open water, hydrophytic vegetation and/or riparian vegetation: Open Water, Desert Sink Scrub (Iodine Bush Series), Disturbed Desert Sink Scrub (Iodine Bush Series), Disturbed Riparian Scrub (Common Reed – Tamarisk Series), Bush Seepweed Scrub (Bush Seepweed Series) and Disturbed.

4.1.1 Areas Supporting Hydrophytic Vegetation and/or Open Water

4.1.1.1 Open Water

Within the Survey Area, open water is characterized by the permanent flowing water of the New River. Total coverage within the Survey Area includes 6.70 acres (10,371 linear feet), all of which is considered jurisdictional by the USACE, RWQCB and CDFW.

4.1.1.2 Disturbed Riparian Scrub (Common Reed – Tamarisk Series)

Disturbed Riparian Scrub (Common Reed – Tamaerisk Series) is characterized by a co-dominance of common reed (*Phragmites australis*) and tamarisk (*Tamarix ramosissima*). Associated perennial vegetation includes sub-dominant native species such as narrow-leaved cattail (*Typha domingensis*) and arrow weed (*Pluchea sericea*). The nature of the disturbance on the Survey Area is relative to the prevalence of non-native species within this vegetation community, as well as signs of trash, dumping, pollution and mechanical disturbances within the riparian scrub. Within the Survey Area, this community is found along the banks of the New River and scattered throughout the flood plain. Total coverage within the Survey Area includes 22.28 acres, 21.53 acres of which are considered jurisdictional wetlands by the USACE, RWQCB and CDFW.

4.1.1.3 Desert Sink Scrub (Iodine Bush Series)

Desert Sink Scrub (Iodine Bush Series) is characterized by a dominance of iodine bush (*Allenrolfea occidentalis*) with associated annual and perennial vegetation such as shadscale (*Atriplex canescens*), saltgrass (*Distichlis spicata*) and bush seepweed (*Suaeda nigra*). This community is established in lowlands where water flows or collects for some portion of a typical year. Within the

Survey Area, Desert Sink Scrub is found in the lowland floodplains between the Developed areas of the Calexico International Airport and Waste Water Treatment Plant along the west and south banks of the New River to the residential/commercial/industrial areas above the east and north banks of the New River. Both Drainage Feature A and Drainage Feature B wind through this community on their way to connecting with the New River. Total coverage within the Survey Area includes 55.69 acres, all of which are considered jurisdictional wetlands by the USACE, RWQCB and CDFW.

4.1.1.4 Disturbed Desert Sink Scrub (Iodine Bush Series)

Disturbed Desert Sink Scrub within the Survey Area exhibits the same species composition as Desert Sink Scrub only with an increased level of anthropogenic disturbances, such as off-road vehicular traffic, trash/debris dumping and pollution leading to decreased shrub coverage. Absent these disturbances, these areas would be expected to eventually naturally revegetate. Total coverage within the Survey Area includes 6.61 acres, all of which are considered jurisdictional wetlands by the USACE, RWQCB and CDFW.

4.1.1.5 Bush Seepweed Scrub (Bush Seepweed Series)

Within the Survey Area, bush seepweed scrub (Bush Seepweed Series) is characterized by a dominance of bush seepweed. Associated scant coverage of additional vegetation, such as tamarisk and saltgrass, is also present in some areas. Overall bush seepweed shrub coverage within the mapped area was less than 10 percent cover consisting of only a few individual shrubs. Total coverage within the Survey Area includes 0.32 acre in Drainage Feature C, which are considered CDFW Bank to Bank jurisdictional, with a reduced acreage of 0.12 acre considered USACE/RWQCB jurisdictional for the OHWM present within the banks.

4.1.1.6 Disturbed

Within the Survey Area, Disturbed areas that support hydrophytic vegetation are characterized by the dominance of wetland-associated native vegetation and high levels of anthropogenic disturbance, such as regular mowing and/or trimming. Dominant plant species include saltgrass and common reed. Total coverage within the Survey Area includes 73.55 acres. However, the jurisdictional portion of the Disturbed areas includes 0.18 acre, confined to the eastern end of the Survey Area along the New River banks and outside the boundaries of the Desert Sink Scrub floodplain, where an approximate two-foot fringe of wetlands exist. This Disturbed wetland fringe is considered a jurisdictional wetland by the USACE, RWQCB and CDFW.

4.1.2 Areas Lacking Hydrophytic Vegetation or Hydric Soils

Seven upland vegetation communities and/or land cover types occur within the Survey Area: Arrow Weed Scrub (Arrow Weed Series), Mesquite Bosque (Mesquite Series), Non-native Grassland (California Annual Grassland Series), Big Saltbush Scrub, Disturbed Big Saltbush Scrub, Disturbed and Developed areas. While some of these communities/land cover types contain hydrophytic vegetation, hydric soils were not observed (except for the Disturbed areas discussed in Section 4.1.1.6), meaning that these communities are not considered wetlands.

Three lowland vegetation communities/land cover types lacking a dominance of hydrophytic vegetation also occur within the Survey Area: Salt Pan, Un-vegetated Channel and Disturbed. These vegetation communities/land cover types are generally composed of upland plant species or bare

ground or no to very sparse hydrophytic vegetative cover and do not meet the hydrophytic vegetation criteria for wetlands. Complete descriptions of these vegetation communities/land cover types are provided in the *New River Improvement Project Biological Technical Letter* (Blackhawk Environmental 2018).

4.1.2.1 Salt Pan

Within the Survey Area, Salt Pan is characterized by a lack of vegetation of any kind, bare ground, highly saline soils and muddy areas immediately adjacent to open water, wetlands and riparian areas. These areas are at least partially covered in salt crust that is formed from evaporating water following periods of inundation. Total coverage within the Survey Area includes 7.93 acres. None of this acreage is considered jurisdictional by the USACE, RWQCB or CDFW.

4.1.2.2 Un-vegetated Channel

Un-vegetated Channel is simply the sandy, gravelly, or rocky portion of a waterway that remains unvegetated on a permanent or relatively permanent basis due to frequent scouring and/or variable water lines that inhibit the growth of vegetation (Holland 1986). Weedy species and/or grasses may grow sparsely on the fringes, but total cover is typically less than 10%. Within the Survey Area, the Un-vegetated Channel is generally defined by the OHWM between the banks of Drainage Features A, B and C. Total coverage within the Survey Area includes 0.16 acre and is considered jurisdictional by the USACE, RWQCB and CDFW.

4.1.2.3 Disturbed

Disturbed areas lacking hydrophytic vegetation are similar to disturbed areas that do exhibit hydrophytic vegetation, with the exception that they do not have a dominance of hydrophytic vegetation and generally appear to have undergone longer periods of prolonged anthropogenic disturbance, including but not limited to off-road vehicle use, trash dumping and grading/grubbing activities. Total coverage within the Survey Area includes 73.55 acres, 73.37 acres of which are considered non-jurisdictional by the USACE, RWQCB or CDFW.

4.2 Soils

A total of six soil series mapped by USDA (1973) occur in the Survey Area: Badland, Fluvaquents, Imperial, Imperial-Glenbar, Indio-Vint and Meloland (Figure 3). Of these, only Fluvaquents are described as hydric. The acreages of these soil series are listed in Table 1.

Table 1. Soils Occurring Within the Survey Area

Map Unit Symbol	Map Unit Name	Acres in Survey Area	Percent of Survey Area
102	Badland	19.63	5.30%
104	Fluvaquents, saline	124.36	33.58%
114	Imperial silty clay, wet	17.31	4.67%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	12.01	3.24%
116	Imperial-Glenbar silty clay loams, 2 to 5 percent slopes	13.64	3.68%
119	Indio-Vint complex	15.66	4.23%
122	Meloland very fine sandy loam, wet	167.19	45.15%
145	Water	0.53	0.14%

4.3 Hydrology

The portions of the Survey Area proposed for new water diversion infrastructure occur along the western bank and flood plain areas of the New River, in the southeast corner of the City of Calexico. The New River, a TNW, flows year-round from the south to the north, terminating in the Salton Sea, also a TNW. The New River supports riparian and wetland-associated vegetation along its banks and floodplains within the Survey Area. Hydrological input is derived from the City of Mexicali, Mexico, immediately south of Calexico, as well as water treatment outfall, storm drains, ditches, culverts and dry tributaries in and around the City of Calexico.

Elevations within the Survey Area decrease gently from east to west, facilitating gentle river flows. The immediately surrounding areas are largely developed or highly disturbed, and contain residential, commercial, industrial and agricultural facilities, as well as Calexico International Airport. The large New River riverine system within the Survey Area generally contains wetlands and riparian scrub vegetation bordering the open water of the river itself, while smaller drainage systems in the area typically contain ephemeral drainages or vegetated swales with intermittent evidence of wetland hydrology. The Survey Area is exclusively located within the New River watershed. The delineated

features have direct hydrologic connectivity to the Salton Sea, approximately 31 miles north of the Survey Area.

4.3.1 Tributaries & Natural Drainages

The focal point of the survey centered around the New River, a river that flows year-round from near Cerro Prieto, Baja California, Mexico, through the City of Mexicali, Baja California, Mexico, through the Survey Area and ultimately terminating in the Salton Sea. Water flowing in the New River is not natural, consisting primarily of agricultural runoff, municipal discharge and industrial dumping. In addition, the Survey Area contains three unnamed intermittent drainage features, all of which exist on the south side of the New River.

Drainage feature A is an approximately 414-foot long ephemeral drainage that runs north from Animal Shelter Drive before connecting with the New River via sheet flow. This feature is considered intermittent, as it is expected to only convey surface water in short durations following rain events. Drainage feature A is almost entirely un-vegetated but is situated mostly within a wetland that is subject to various jurisdictions by federal, state and local jurisdictions. Disturbed Desert Sink Scrub, bearing USACE three-parameter wetland characteristics, and an un-vegetated channel characterize this drainage feature. Drainage feature A is primarily fed by urban runoff and storm water from the Calexico Wastewater Treatment Plant, Calexico International Airport and storm culvert systems along Animal Shelter Drive to the south.

The majority of the channel of Drainage feature A is un-vegetated and exhibits an OHWM that is 2 feet wide and a stream bed approximately 3 feet wide. Hydrological indicators observed at the time of the survey indicated evidence of periodic fresh water flows of varying intensity, including destruction of terrestrial vegetation, drift deposits, sediment sorting and shelving.

A second drainage feature (Drainage feature B) within the Survey Area is an approximately 340-foot long ephemeral drainage that also runs north from Animal Shelter Drive before connecting with the New River. This feature is considered ephemeral, as it is expected to only convey surface water in short durations following rain events. Drainage feature B is almost entirely un-vegetated but is situated mostly within a wetland that is subject to various jurisdictions by federal, state and local jurisdictions. Disturbed Desert Sink Scrub, bearing USACE three-parameter wetland characteristics, and an un-vegetated channel compose this drainage feature. Drainage feature B is primarily fed by urban runoff and storm water from the Calexico Wastewater Treatment Plant, Calexico International Airport and storm culvert systems along Animal Shelter Drive to the south.

The majority of the channel of Drainage feature B is un-vegetated and exhibits an OHWM that is 2 feet wide and a stream bed approximately 5 feet wide. Hydrological indicators observed at the time of the survey indicated evidence of periodic fresh water flows of varying intensity, including destruction of terrestrial vegetation, drift deposits, sediment sorting and shelving.

The last tributary drainage feature (Drainage feature C) within the Survey Area is an approximately 636-foot long ephemeral drainage that runs north from a culvert in a headwall near the northern boundary fence of the Calexico International Airport ultimately connecting with the New River flood plain. This feature is considered ephemeral, as it is expected to only convey surface water in short durations following rain events. Drainage feature C contains both vegetated and un-vegetated areas that meet jurisdictional criteria stipulated by CDFW, RWQCB and USACE.

4.3.2 Man-made Features

Man-made features that also convey or store water within the Survey Area include concrete channels, culverts, storm drain outlets and sewage treatment ponds. Some of the sewage treatment ponds are hydrologically connected to the New River via an outfall pipe that emits treated water. The ponds exist as excavated uplands just north of Calexico International Airport.

5.0 JURISDICTIONAL DELINEATION

Figure 2 identifies the locations of USACE, CDFW and RWQCB jurisdictional waters within the Survey Area. Table 2 summarizes the acreages of each jurisdiction.

Table 2. Existing Jurisdictional Waters Within the Survey Area

Jurisdictional Waters	Acres
USACE Jurisdiction	
Open water	6.70
Wetland Waters of the U.S.	81.04
Non-Wetland Waters of the U.S.	0.16
USACE Total Jurisdiction	**87.90**
RWQCB Jurisdiction	
Open water	6.70
Wetland Waters of the U.S.	81.04
Non-Wetland Waters of the U.S.	0.16
RWQCB Total Jurisdiction	**87.90**
CDFW Jurisdiction	
Open water	6.70
Wetlands	81.04
Bank to Bank	0.91
CDFW Total Jurisdiction	**88.65**

5.1 USACE Jurisdiction

USACE jurisdictional waters within the Survey Area total 87.90 acres within the New River, its associated wetlands and its associated non-Relatively Permanent Waters (RPWs) (i.e., dry tributaries). The New River includes 6.70 acres (10,371 linear feet) of USACE-jurisdictional open water, while its adjacent wetlands include a total of 81.04 acres, spread intermittently throughout the entire floodplain, all considered USACE-jurisdictional. An additional 0.16 acres (1,011 linear feet) of ephemeral features of the OHWM in Drainage Features A, B and C are considered USACE-jurisdictional via their direct connectivity to the New River and its floodplain. All of these USACE-jurisdictional features ultimately connect to and have a significant nexus with a TNW (the New River and the Salton Sea) (USACE 2018). Project-related impacts to the New River, its associated wetlands and its associated non-RPWs would be subject to regulation under Section 404 of the CWA.

5.2 RWQCB Jurisdiction

RWQCB jurisdictional waters within the Survey Area total 87.90 acres of Waters of the State within the New River, its associated wetlands and its associated non-Relatively Permanent Waters (RPWs) (i.e., dry tributaries). The New River includes 6.70 acres (10,371 linear feet) of RWQCB-jurisdictional open water, while its adjacent wetlands include a total of 81.04 acres, spread intermittently throughout the entire floodplain, all considered RWQCB-jurisdictional. An additional 0.16 acres (1,011 linear feet) of non-RPWs in Drainage Features A, B and C are considered RWQCB-jurisdictional via their direct connectivity to the New River and its floodplain. All of these RWQCB-jurisdictional features ultimately connect to and have a significant nexus with a TNW (the New River and the Salton Sea). Project-

related impacts to the New River, its associated wetlands and its associated non-RPWs would be subject to regulation under Section 401 of the CWA.

5.3 CDFW Jurisdiction

CDFW jurisdictional waters within the Survey Area total 88.65 acres within the New River, its associated wetlands and its associated ephemeral streambeds. The New River includes 6.70 acres (10,371 linear feet) of CDFW-jurisdictional open water, while its adjacent wetlands include a total of 81.04 acres, spread intermittently throughout the entire floodplain, all considered CDFW-jurisdictional. An additional 0.91 acres (1,011 linear feet) of dry streambeds in Drainage Features A, B and C are considered CDFW-jurisdictional by evidence of active streambed and banks. Project-related impacts to the New River, its associated wetlands and its associated non-RPWs would be subject to the terms and conditions of a CDFW Section 1602 Streambed Alteration Agreement.

5.4 Non-Jurisdictional Features

Road ruts, swales, storm water conveyance systems, erosional features/rills, excavated ditches, isolated features and man-made features do not meet the definition of an USACE Water of the U.S. (i.e., contain an OHWM or three parameter wetland), as they typically dissipate within uplands, are constructed entirely within uplands, and/or do not exhibit connectivity to a RPW and/or TNW. These features are also not considered RWQCB jurisdictional, as RWQCB follows USACE guidance for delineation of Waters of the U.S. In addition, these features do not support bed and bank formations, nor do they provide significant ecological function, and therefore, are likely not considered jurisdictional by CDFW.

6.0 PROJECT IMPACTS

The Project would include permanent impacts associated with the construction and installation of the trash screen, bypass encasement infrastructure and pump back system within the overall 373.38-acre Survey Area. The Study Area was analyzed for both direct and indirect impacts that would be associated through the construction, operations and maintenance phases of the proposed Project. Direct impacts are correlated with the construction footprints for the three Project elements (i.e., Bypass Encasement Optional Alignment – Limit of Disturbance, Bypass Encasement Preferred Alignment – Limit of Disturbance, Pump Back Line Preferred Alignment), while indirect impacts are correlated with the altered hydrological regimes that the Project would entail for the New River and its floodplain. However, no indirect impacts are anticipated for the remainder of the Study Area above the floodplain and outside of the construction footprint. Indirect impacts would include reduced and/or altered water flows of the New River within the Study Area that could reduce wetland functions and alter the existing vegetative composition within the floodplain. After the construction phase of the Project and over the long term, wetland and riparian vegetation within the New River and its floodplain could feasibly shift to include a greater degree of upland vegetation, resulting in a reduction of wetland vegetation and function. As such, indirect impacts within the Study Area include all of the open water and wetland acreage within the New River and its floodplain that are outside the construction footprints for the three Project elements. Therefore, a total of 88.65 jurisdictional acres of currently undeveloped, native, non-native and/or disturbed open water/wetland/riparian vegetation communities within the 373.38-acre Survey Area would be hydrologically altered, temporarily impacted and/or permanently impacted by the proposed New River Improvement Project. Drainage feature C would not be impacted by the proposed Project.

Both the proposed preferred and optional alignments for the bypass encasement Project elements include the preferred alignment of the proposed pump back line. As such, direct impact calculations include the preferred alignment of the pump back line with both the preferred and optional bypass encasement alignments. As shown in Tables 3a and 3b, implementation of the *preferred* bypass encasement alignment will directly and may indirectly impact a total of 87.80 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 87.80 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and 87.82 acres of CDFW-jurisdictional open water, wetlands and streambeds. Implementation of the *optional* bypass encasement alignment will directly and may indirectly impact a total of 87.78 acres of USACE-jurisdictional open water, wetlands and non-wetland Waters of the U.S., 87.78 acres of RWQCB-jurisdictional open water, wetlands and non-wetland Waters of the State, and 87.80 acres of CDFW-jurisdictional open water, wetlands and streambeds.

Table 3a. Summary of Impacts to Jurisdictional Waters – Preferred Bypass Encasement Alignment

Jurisdictional Waters	Acres
USACE Jurisdiction	
Direct Impacts	
Open Water Non-Wetland Waters of the U.S.	0.004
Wetland Waters of the U.S.	1.82
Dry Tributary Non-Wetland Waters of the U.S.	0.01
USACE Direct Impacts Subtotal	1.834
Indirect Impacts	
Open Water Non-Wetland Waters of the U.S.	6.696
Wetland Waters of the U.S.	79.24
Dry Tributary Non-Wetland Waters of the U.S.	0.03
USACE Indirect Impacts Subtotal	85.966
USACE Total Jurisdictional Impacts = 87.80 acres	

RWQCB Jurisdiction	
Direct Impacts	
Open Water Non-Wetland Waters of the State	0.004
Wetland Waters of the State	1.82
Dry Tributary Non-Wetland Waters of the State	0.01
RWQCB Direct Impacts Subtotal	1.834
Indirect Impacts	
Open Water Non-Wetland Waters of the State	6.696
Wetland Waters of the State	79.24
Dry Tributary Non-Wetland Waters of the State	0.03
RWQCB Indirect Impacts Subtotal	85.966
RWQCB Total Jurisdictional Impacts = 87.80 acres	

CDFW Jurisdiction	
Direct Impacts	
Open Water	0.004
Wetlands	1.82
Bank to Bank Streambeds	0.015
CDFW Direct Impacts Subtotal	1.839
Indirect Impacts	
Open Water	6.696
Wetlands	79.24
Bank to Bank Streambeds	0.041
CDFW Indirect Impacts Subtotal	85.977
CDFW Total Jurisdictional Impacts = 87.82 acres	

Table 3b. Summary of Impacts to Jurisdictional Waters – Optional Alignment

Jurisdictional Waters	Acres
USACE Jurisdiction	
Direct Impacts	
Open Water Non-Wetland Waters of the U.S.	0.004
Wetland Waters of the U.S.	2.03
Dry Tributary Non-Wetland Waters of the U.S.	0.01
USACE Direct Impacts Subtotal	2.044
Indirect Impacts	
Open Water Non-Wetland Waters of the U.S.	6.696
Wetland Waters of the U.S.	79.01
Dry Tributary Non-Wetland Waters of the U.S.	0.03
USACE Indirect Impacts Subtotal	85.736
USACE Total Jurisdiction = 87.78 acres	

RWQCB Jurisdiction	
Direct Impacts	
Open Water Non-Wetland Waters of the State	0.004
Wetland Waters of the State	2.03
Dry Tributary Non-Wetland Waters of the State	0.01
RWQCB Direct Impacts Subtotal	2.044
Indirect Impacts	
Open Water Non-Wetland Waters of the State	6.696
Wetland Waters of the State	79.01
Dry Tributary Non-Wetland Waters of the State	0.03
RWQCB Indirect Impacts Subtotal	85.736
RWQCB Total Jurisdiction = 87.78 acres	

CDFW Jurisdiction	
Direct Impacts	
Open Water	0.004
Wetlands	2.03
Bank to Bank Streambeds	0.015
CDFW Direct Impacts Subtotal	2.049
Indirect Impacts	
Open Water	6.696
Wetlands	79.01
Bank to Bank Streambeds	0.041
CDFW Indirect Impacts Subtotal	85.747
CDFW Total Jurisdiction = 87.80 acres	

6.1 Permit Authorization

USACE, RWQCB and CDFW jurisdictional waters are regulated by the U.S. and State of California governments. To avoid permitting requirements of these agencies, all impacts to jurisdictional waters would need to be avoided.

Unavoidable direct and indirect impacts to jurisdictional Waters of the U.S. may be authorized by USACE through the issuance of a CWA Section 404 permit or Nationwide Permit. Unavoidable direct and indirect impacts to Waters of the State would require a CWA Section 401 Permit and/or Waste Discharge Permit (WDP) from the RWQCB. Unavoidable direct and indirect impacts to CDFW-jurisdictional waters may be authorized by CDFW through a Section 1602 Streambed Alteration Agreement.

7.0 SURVEYOR CERTIFICATION

This report was prepared for Michael Baker International. All data, statements, analyses, findings and attachments within this report are accurate and truthful in terms of describing the existing conditions and the Project as proposed to Blackhawk Environmental and are based on best available knowledge at the time of the report. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Blackhawk Environmental accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Kris Alberts
Principal Biologist & Vice President

REFERENCES

Albert A. Webb Associates
2007 City of Calexico General Plan Update. Available: http://www.calexico.ca.gov. Accessed August 2018.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors.
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

Blackhawk Environmental, Inc.
2018 New River Improvement Project Biological Technical Letter Report. Calexico, Imperial County, CA. September 20, 2018.

Calflora
2018 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed April 2018.

California Department of Fish and Game (CDFG) Environmental Services Division (ESD)
1994 A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

California Department of Fish and Wildlife (CDFW)
2018 California Natural Diversity Database (CNDDB). RareFind Version 5.0. Database Query for the *Heber*, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch. Version dated April, 2018.

Google
2018 Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. *earth.google.com/*

Holland, R.
1986 Preliminary descriptions of the terrestrial natural communities of California. Unpublished document, California Department of Fish and Game, Natural Heritage Division. Sacramento, California.

Jepson Online Interchange
2018 Jepson Flora Project 2018. http://ucjeps.berkeley.edu/jepson_flora_project.html.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Munsell Color
2009 Munsell Soil Color Charts. X-rite. Grand Rapids, Michigan.

NETR Online
1947 Available on www.historicaerials.com. Accessed April 2018.

Sawyer, J.O., Jr., and T. Keeler-Wolf
2009 *A Manual of* California *Vegetation Second Edition*. California Native Plant Society, Sacramento, California.

United States Army Corps of Engineers (USACE)
1987 *Wetlands Delineation Manual, Technical Report* Y-87-1, U.S. Army Engineer Waterways Experiment Station Vicksburg, MS.

2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

2018 Navigable Waters in Los Angeles District. Available URL: https://www.spl.usace.army.mil/Missions/Regulatory/Jurisdictional-Determination/Navigable-Waterways/ [Accessed September 2018].

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
2010 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed August 2018].

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed [August 2018].

2018 Natural Resources Conservation Service. Wetland Indicator Status Plants Databse. https://plants.usda.gov/wetinfo.html

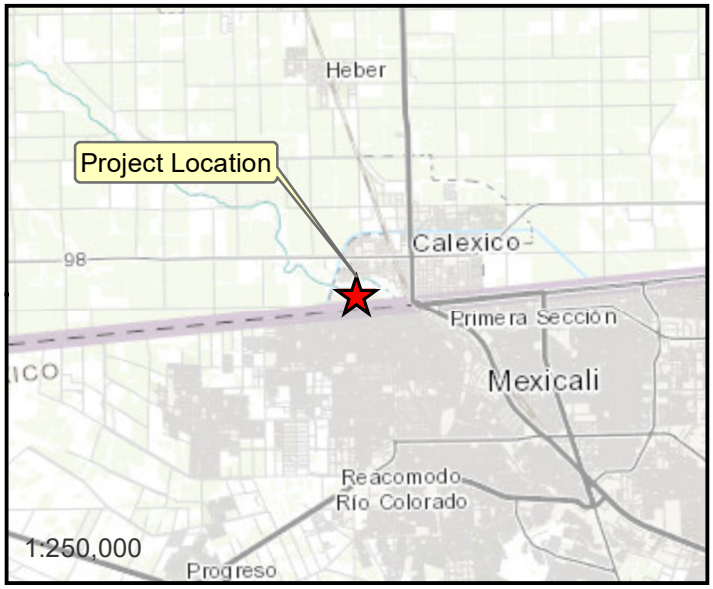
United States Fish & Wildlife Service (USFWS)
2018 National Wetlands Inventory. https://www.fws.gov/wetlands/data/mapper.html.

United States Geological Survey (USGS)
2011 7.5-minute topographic quadrangle map for *Heber*, California.

ATTACHMENT A

Figures

Blackhawk Environmental







Legend

Survey Area

N

0 1,000 2,000

Feet

Figure 1

Project Location & Vicinity Map

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Print Date: 10/24/2018, Author: msimmons

BLACKHAWK Environmental

Figure 2
Jurisdictional
Delineation Results

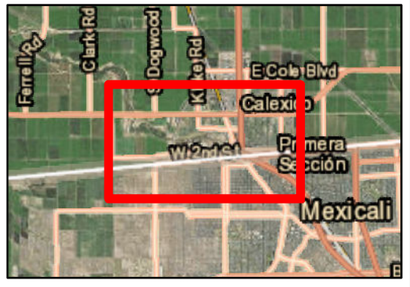
Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Map Page

Map 1
Map 2
Map 3
Map 4
Map 5
Map 6
Map 7
Map 8
Map 9

N

0 750 1,500
Feet



Overview Map

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons

Figure 2
Jurisdictional Delineation Results

Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Culvert
- Soil Pit

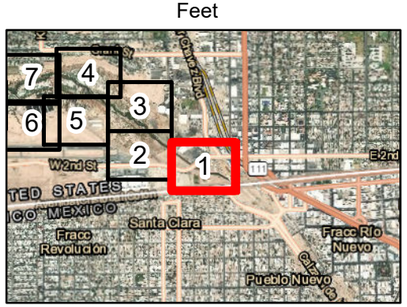
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)

N

0 160 320

Feet



Map 1

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons

Figure 2
Jurisdictional Delineation Results



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Culvert
- Soil Pit

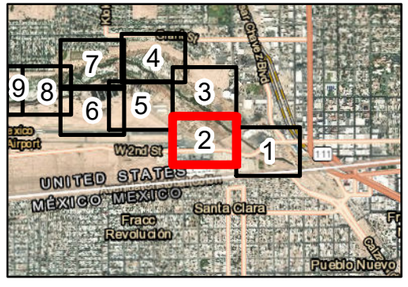
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)

N

0 160 320

Feet



Map 2

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
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Figure 2
Jurisdictional Delineation Results

TP-A
Drainage B
New River
Drainage A
SP-3
551 Sherman Ct
501
689
399
W 7th
Pierce Ave

Legend

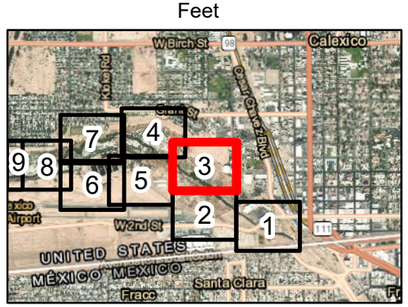
- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Soil Pit
- Test Pit

Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320
Feet



Map 3

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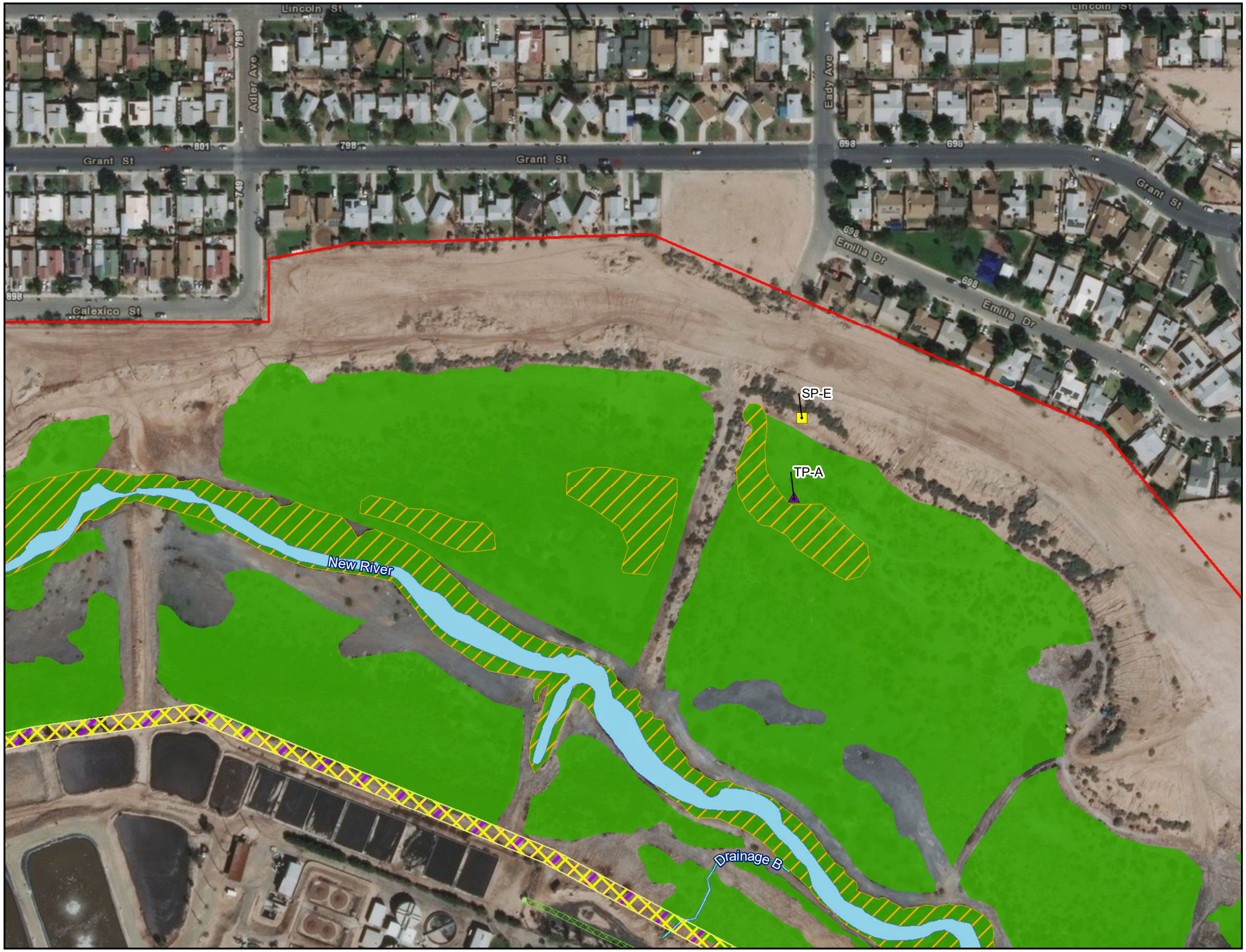
Print Date: 10/23/2018, Author: msimmons

Figure 2
Jurisdictional Delineation Results



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment
- Soil Pit
- Test Pit

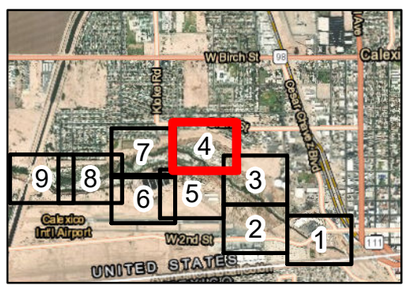
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320

Feet



Map 4

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons

Figure 2
Jurisdictional Delineation Results

Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Pump Back Line Preferred Alignment

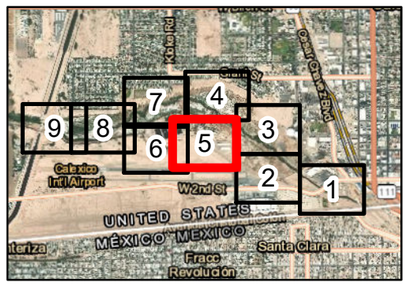
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320

Feet



Map 5

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons



Figure 2
Jurisdictional Delineation Results

Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Culvert
- Soil Pit
- Test Pit

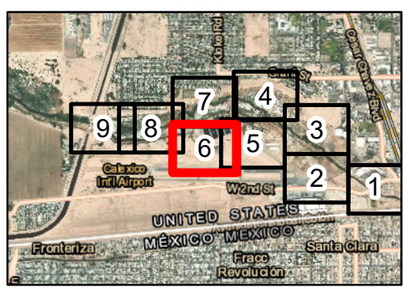
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320

Feet



Map 6

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons



Figure 2
Jurisdictional Delineation Results

Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Culvert
- Soil Pit
- Test Pit

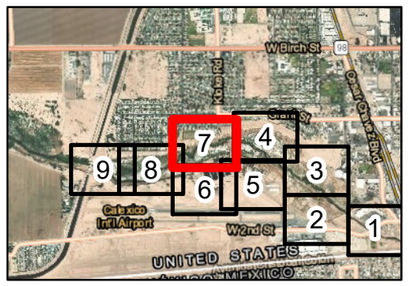
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320

Feet



Map 7

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
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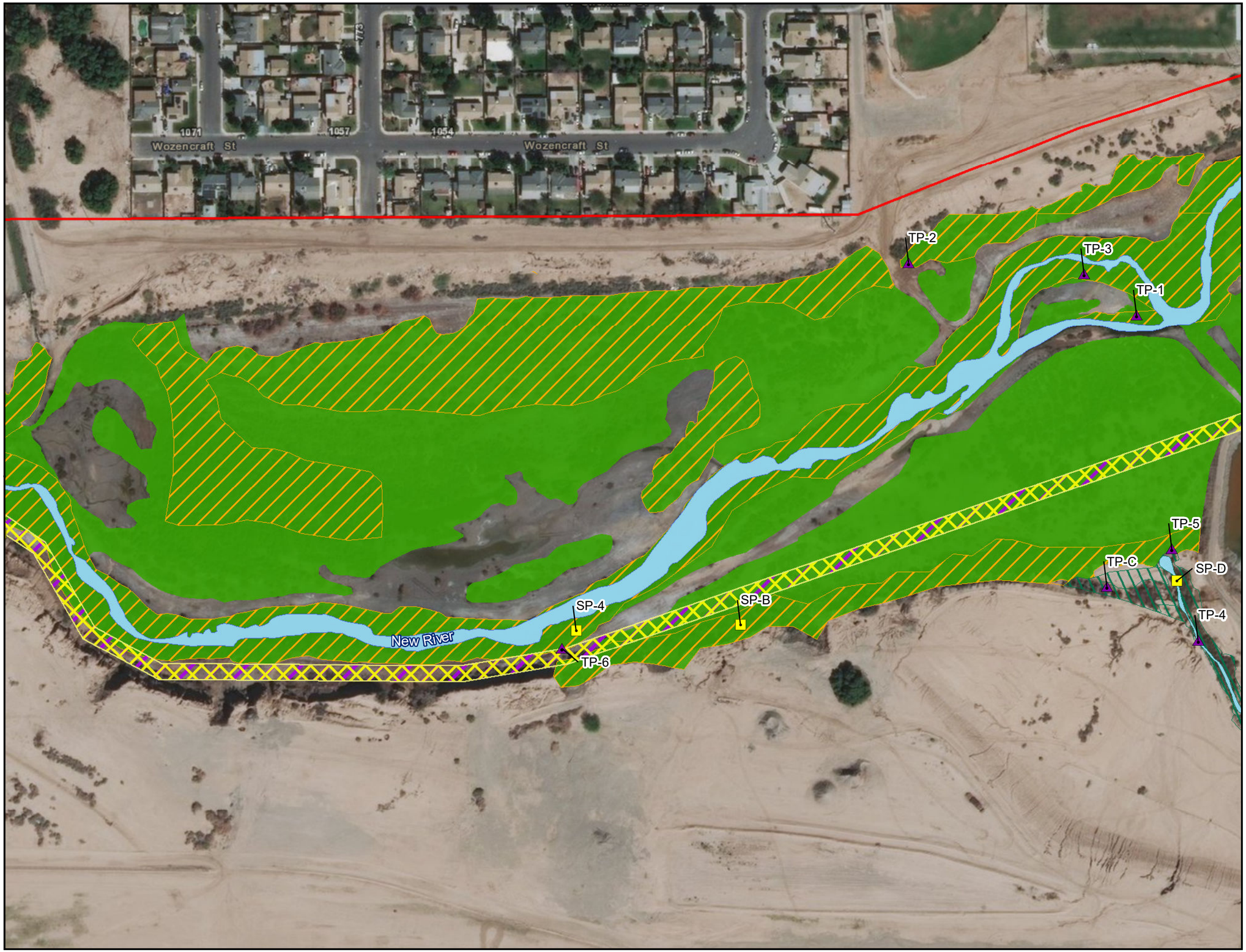
Figure 2
Jurisdictional Delineation Results



Legend

- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Soil Pit
- Test Pit

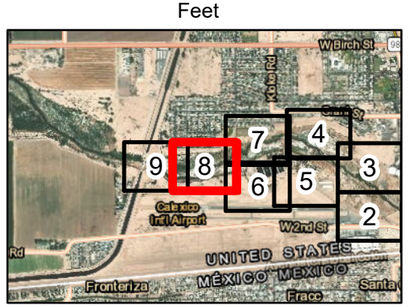
Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)
- CDFW Bank to Bank

N

0 160 320

Feet



Map 8

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons

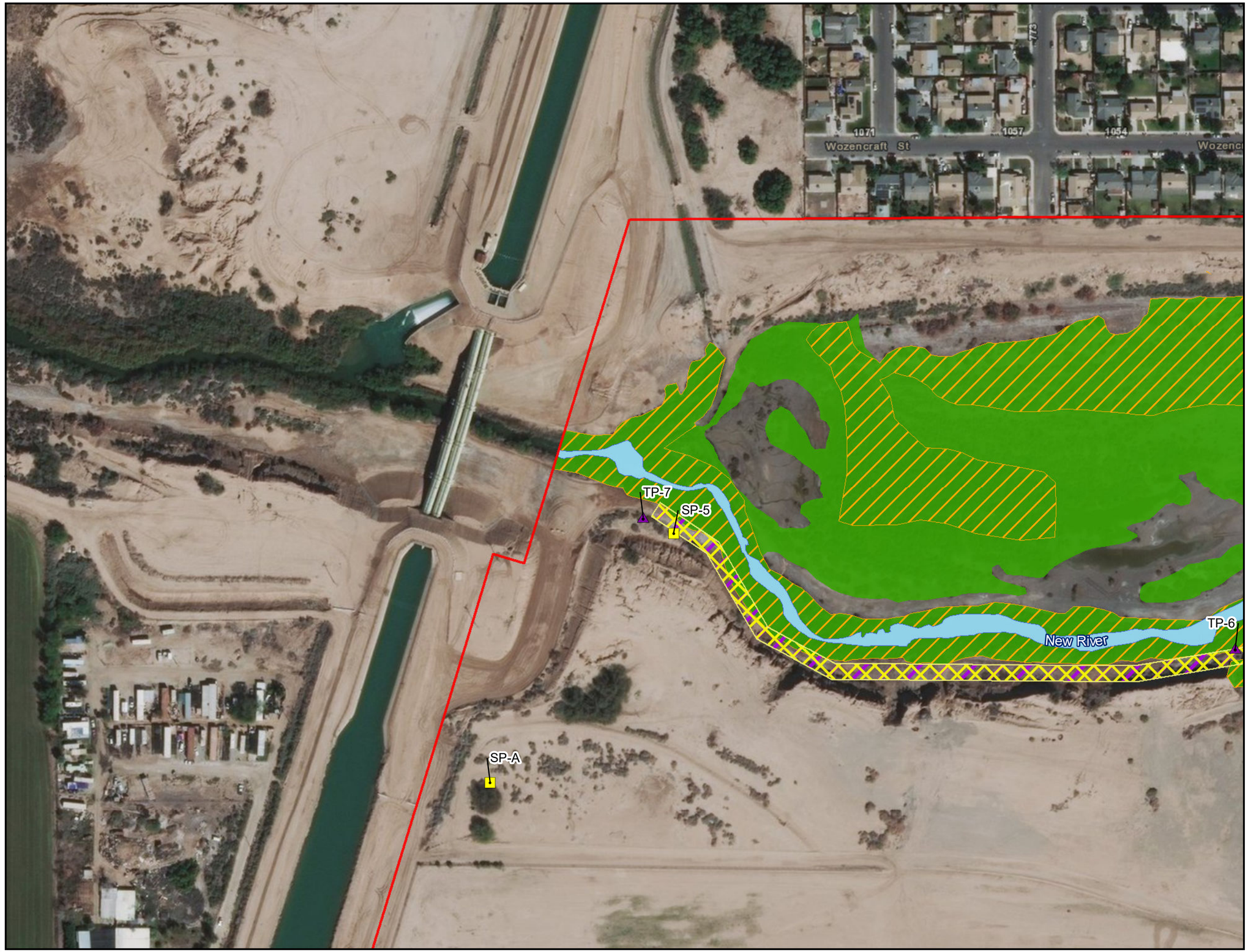


Figure 2
Jurisdictional Delineation Results

Legend

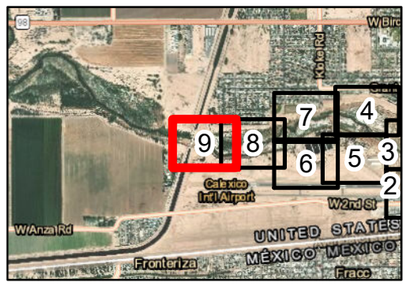
- Survey Area
- Bypass Encasement Preferred Alignment – Limit of Disturbance
- Bypass Encasement Optional Alignment – Limit of Disturbance
- Soil Pit
- Test Pit

Jurisdiction

- OHWM (USACE/RWQCB/CDFW)
- Wetlands (USACE/RWQCB/CDFW)
- Wetlands/Riparian (USACE/RWQCB/CFDW)

N

0 160 320
Feet



Map 9

BLACKHAWK Environmental

Name: 20733 p168 Fig 2 JD Results.Mxd
Print Date: 10/23/2018, Author: msimmons

Figure 3
Soils Map

Legend

- Survey Area

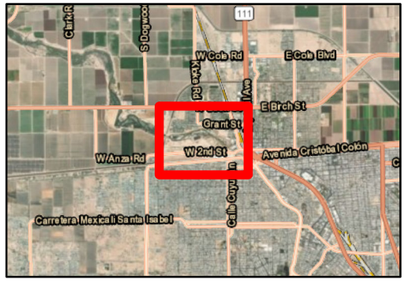
Mapped Soil Unit

- 102: BADLAND
- 104: FLUVAQUENTS, SALINE
- 114: IMPERIAL SILTY CLAY, WET
- 115: IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES
- 116: IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S
- 119: INDIO-VINT COMPLEX
- 122: MELOLAND VERY FINE SANDY LOAM, WET
- 145: WATER

N

0 630 1,260

Feet



BLACKHAWK Environmental

Name: 20733 p168 JD Fig 3 Soils.Mxd
Print Date: 10/24/2018, Author: msimmons

ATTACHMENT B

Site Photographs

Blackhawk Environmental



Photo 1: Loamy mucky mineral hydric soil found at Soil Pit 1, consistent with the 2-foot wetland fringe in Disturbed Habitat on either side of the New River banks south of the Disturbed Riparian Scrub that borders the New River.



Photo 2: Hydric soil found at Soil Pit 3, consistent with Desert Sink Scrub and Disturbed Desert Sink Scrub vegetation communities in the New River flood plain.



Photo 3: Hydric soil found at Soil Pit 4, consistent with Disturbed Riparian Scrub vegetation communities in the New River flood plain.



Photo 4: Representative photograph depicts cracked soil surface consistent with numerous vegetated and unvegetated areas within the New River floodplain.



Photo 5: Overview of Desert Sink Scrub, Disturbed Riparian Scrub, Disturbed Habitat and Salt Pan vegetation communities/land cover types at the western end of the Project site.



Photo 6: Representative photograph depicts debris within the New River floodplain caused by periodic flooding. Note the visibly moist soils.



Photo 7: Desert Sink Scrub vegetation at Soil Pit 3, consistent with Desert Sink Scrub found throughout the New River floodplain within the Project site.



Photo 8: Unvegetated channel (Drainage Feature B) that courses through Disturbed Habitat and Desert Sink Scrub communities in the New River floodplain within the Project site.



Photo 9: Representative photograph depicts Open Water of the New River surrounded by Disturbed Riparian Scrub.



Photo 10: Representative photograph depicts the 2-foot wetland fringe in Disturbed Habitat at Soil Pit 1. This saltgrass-dominant wetland fringe was present along both sides of the New River from the eastern end of the Project to the Disturbed Riparian Scrub further downstream.



Photo 11: Storm drain inlet along Animal Shelter Drive carries water from the Developed area of the Calexico International Airport uplands down to the New River floodplain below.



Photo 12: Representative photograph depicts a culvert headwall in Disturbed Habitat near the New River floodplain.



Photo 13: Representative photograph depicts a PVC pipe culvert in Disturbed Habitat near the New River floodplain.



Photo 14: Representative photograph depicts a large storm drain headwall culvert in Disturbed Habitat near the New River by 2nd Street.



Photo 15: Representative photograph depicts a PVC pipe outlet below the 2nd Street bridge that empties into the New River.



Photo 16: Representative photograph depicts a PVC pipe outlet in Disturbed Habitat that empties into the New River flood plain. Note the erosional rills present along the road side embankment.



Photo 17: Representative photograph depicts Soil Pit E and non-jurisdictional Arrow Weed Scrub above the New River floodplain at the toe of the northern bank.



Photo 18: Representative photograph depicts Test Pit SP-F and jurisdictional Disturbed Riparian Scrub within the floodplain of the New River.



Photo 19: Representative photograph depicts Soil Pit B and jurisdictional Disturbed Riparian Scrub found along the southern embankment of the New River floodplain.



Photo 20: Representative photograph depicts Bush Seepweed Scrub and Soil Pit C in jurisdictional Drainage Feature C.



Photo 21: Representative photograph depicts non-jurisdictional erosional ruts from within the previously graded, leveled Disturbed Habitat area above the New River floodplain and Drainage Feature C.



Photo 22: Representative photograph depicts non-jurisdictional erosional ruts from within the previously graded, leveled Disturbed Habitat area above the New River floodplain and Drainage Feature C.

ATTACHMENT C

Jurisdictional Delineation Data Forms

Blackhawk Environmental

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NEW RIVER City/County: Calexico / IMPERIAL Sampling Date: 8/20/18

Applicant/Owner: State: CA Sampling Point: 1

Investigator(s): K. Alberts, S. Reimers, D. Rosie Section, Township, Range:

Landform (hillslope, terrace, etc.): channel slope Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): California Lat: 32.66575200 Long: -115.5026398 3 Datum: NAD 83

Soil Map Unit Name: 116: IMPERIAL-GLENBAR SILTY CLAY LOAMS 2-5% SLOPES NWI classification:

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Distichlis spicata	70	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		210 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X 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:

SOIL

Sampling Point: 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
0-2	10YR 4/3	99	2.5YR 3/4	1	PL	M	Clay loam	
2-10	GLEY1 2.5/N	100	—	—	—		Clay loam	black

[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)
- X 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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- ___ 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 X No ___ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 3

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NEW RIVER City/County: Calexico / Imperial Sampling Date: 8/20/18

Applicant/Owner: State: CA Sampling Point: 2

Investigator(s): K Albertz, D. Rosie, S. Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): Channel Slope Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): California Lat: 32.666575717 Long: -115.502665883 Datum: NAD83

Soil Map Unit Name: 116: IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2-5% NWI classification:

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Distichlis spicata	15	YES	FAC
2. Phragmites australis	1	NO	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	16 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 84 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	16 (A)		47 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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:

SOIL

Sampling Point: _____

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
0-10	10YR 3/4	100					Clay loam	

[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)**
- ___ 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)**
- ___ 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NEW RIVER City/County: Calexico/Imperial Sampling Date: 8/20/18

Applicant/Owner: State: CA Sampling Point: 3

Investigator(s): K. Alhaty, D. Rojo, S. Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): California Lat: 32.66870200 Long: -115.50891600 Datum: NAD83

Soil Map Unit Name: 107: BADLAND NWI classification:

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Allenrolphia occidentalis	60	YES	FACW
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		120 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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:

SOIL

Sampling Point: 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
0-6	10YR 4/3	40	5YR 4/6	3	C	PL, M	Clay loam	Salt crust
	10YR 4/1	25	5YR 5/8	6	C	PL, M	"	
	10YR 6/4	15	"				"	
	10YR 2/1	IT					"	Manganese masses
6-16	10YR 4/3	95	5YR 3/4	2	C	PL		
			5YR 5/6	3	C	M		

[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)
- X 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 X No ___

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)**
- X 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)**
- X 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NEW RIVER City/County: Calexico / Imperial Sampling Date: 8/20/19

Applicant/Owner: State: CA Sampling Point: 4

Investigator(s): K. Alberts, D. Rosie, S. Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): California Lat: 32.670330467 Long: -115.525268017 Datum: NAD83

Soil Map Unit Name: 104: FLUVAQUENTS, SALINE NWI classification:

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. n/a	0		
2.			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1. Typha dominguensis	40	YES	FACW
2. Pluchea sericea	40	YES	FAC
3. Tamarix ramosissima	15	NO	FAC
4.			
5.			
	95 = Total Cover		

Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 40	x 2 =	80
FAC species 55	x 3 =	165
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 95 (A)		245 (B)

Prevalence Index = B/A = 2.57

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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:

SOIL

Sampling Point: 4

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	10YR 4/4	60					"	
	10YR 3/1	38	5YR 5/4	2	C	PL,M	Silty Clay	

[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)
- X 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 X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- ___ 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 X No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 9

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: NEW RIVER City/County: Calexico / Imperial Sampling Date: 8/20/18

Applicant/Owner: State: CA Sampling Point: 5

Investigator(s): K. Mbirke D. Rosio S. Reynolds Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): California Lat: 32.61022067 Long: -115.52549467 Datum: NAD83

Soil Map Unit Name: 104. FLUVAQUENTS, SALINE NWI classification:

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Atriplex lentiformis	50	YES	UPL
2. Tamarix ramosissima	10	NO	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 10	x 3 =	30
FACU species 0	x 4 =	0
UPL species 50	x 5 =	250
Column Totals: 60 (A)		280 (B)

Prevalence Index = B/A = 4.66

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:

SOIL

Sampling Point: 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
0-6								FILL
6-12	10YR 3/6	98	5YR 5/8	2	C	PL,M	Silty loam	

[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)**
- ___ 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)**
- ___ 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: New River City/County: Calexico, Imperial Sampling Date: 8/31/18

Applicant/Owner: State: CA Sampling Point: A

Investigator(s): K Albrits, S. Reinert Section, Township, Range:

Landform (hillslope, terrace, etc.): mesa Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): California Lat: 32.6689353° Long: -115.52662983 Datum: NAD 83

Soil Map Unit Name: 172 Meloland Very Fine Sandy loam, WET NWI classification:

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: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis glandulosa	50	Y	FAC U
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Atriplex lentiformis	50	Y	FAC
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.5

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: Shrink/swell – cracking of clay soils nearby Pit

SOIL

Sampling Point: A

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
0-16	10YR 3/4	100	—	—	—	—	Clay loam	Upland

[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)**
- X 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)**
- ___ 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: New River City/County: Calexico, Imperial Sampling Date: 8/31/18

Applicant/Owner: State: CA Sampling Point: B

Investigator(s): V. Alberts, S. Primers Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): California Lat: 32.6697201 Long: -115.52095983 Datum: NAD 83

Soil Map Unit Name: 104: FLUVAQUENTS, SALINE NWI classification:

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 X, 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 V No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	100	Y	FACW
2.			
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Pluchea sericea	10	Y	FACW
2. Allenrolfea occidentalis	30	Y	FACW
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 100	x 2 = 200
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 100 (A)	200 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- X 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:

SOIL

Sampling Point: B

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
0-4	10YR 3/2	100	—	—	—	—	clay loam	
4-12	10YR 3/2	35	5YR 4/6	3	RM	PL	clay loam	
4-12	10YR 2/2	65	10YR 6/8	2	RM	PL	clay loam	
12-20	10YR 4/2	100	—	—	—	—	clay loam	Salt present

[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)
- X 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)
- X 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 X No ___

Remarks: White salt line @ 12"
- soil pit is on slope. Top 4" is from erosion from upland soils.

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)
- ___ 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)
- X Oxidized Rhizospheres along Living Roots (C3)
- X 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)
- ___ 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: Moist

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: New River City/County: Calexico, Imperial Sampling Date: 8/31/18

Applicant/Owner: State: CA Sampling Point: C

Investigator(s): K. Alberts S. Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): California Lat: 32.668997317 Long: -115.51761033 Datum: NAD 83

Soil Map Unit Name: 102: BADLAND NWI classification:

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

Are Vegetation ____, Soil X, 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 ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Tamarix ramosissima	30	Y	FACW
2. Suaeda nigra	50	Y	OBL
3. Atriplex lentiformes	20	Y	FAC
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 50	x 1 = 50
FACW species 30	x 2 = 60
FAC species 20	x 3 = 60
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 100 (A)	170 (B)

Prevalence Index = B/A = 1.7

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:

SOIL

Sampling Point: C

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
0-16	7.5YR 4/4	100	—	—	—	—	clay	
16-20	7.5YR 4/4	93	7.5YR 4/6	7	RM	M	clay	

[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)
- X 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:

- thin bands of stratification where the redox features appear at the fractures
- additional sedimentation brought on by historical grading dumping and sediment outflow from culvert in head wall.

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)
- X 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)
- X 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)
- X 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: New River City/County: Calexico, Imperial Sampling Date: 8/31/18

Applicant/Owner: State: CA Sampling Point: D

Investigator(s): K. Albers, S. Reimers Section, Township, Range:

Landform (hillslope, terrace, etc.): dry wash Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): California Lat: 32.66993333 Long: -115.51828100 Datum: NAD 83

Soil Map Unit Name: 119: INDIO-VINT COMPLEX NWI classification:

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	100	Y	FACW
2.			
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 100	x 2 = 200
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 1 (A)	200 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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:

SOIL

Sampling Point: D

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
0-20	7.5YR 4/4	100	—	—	—	—	clay loam	

[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: – Soils within the OHWM between Pits C and D are not visibly moist and are consistent through Cont D. – visibly moist soils just down stream are consistent w/ Soil Pit B. Wetland boundary in this area was mapped by following the line of visibly moist soil and the vegetation consistent w/ Pit B.

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)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X 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)**
- X 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: New River City/County: Calexico, Imperial Sampling Date: 8/31/18

Applicant/Owner: State: CA Sampling Point: E

Investigator(s): K. Alberts, S. Reimer Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): California Lat: 32.673106150 Long: -115.51083783 Datum: NAD 83

Soil Map Unit Name: 104: ELVIAQUENTS, SALINE NWI classification:

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

Are Vegetation ____, Soil X, 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 ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A	0		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Pluchea Sericea	100	Y	FACW
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: ____)			
1. N/A	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. N/A	0		
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 100	x 2 = 200
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 100 (A)	200 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X 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:

SOIL

Sampling Point: E

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
0-70	10YR 3/4	100	—	—	—	—	silty clay loam	

[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: Fill soils - uniformly within PLUSER covered slope on north side.

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)**
- ___ 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)**
- ___ 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 ____ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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APPENDIX D
CULTURAL RESOURCES STUDY

CULTURAL RESOURCES STUDY FOR THE NEW RIVER IMPROVEMENT PROJECT STRATEGIC PLAN

CITY OF CALEXICO, IMPERIAL COUNTY, CALIFORNIA

Prepared for:

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CITY OF CALEXICO
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OCTOBER 2018

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APPENDICES

Appendix A – Figures

Figure 1: Project Location & Vicinity
Figure 2: Area of Potential Effects/Project Area
Figure 3: Cultural Resources Locations
Figure 4: Cultural Resources Sensitivity Map
Figure 5: Survey Coverage Map

Appendix B – Native American Heritage Commission Consultation
Appendix C – Photographs

ABSTRACT

The State Water Resources Control Board and the Colorado River Basin Regional Water Quality Control Board (collectively referred to as the Water Boards) propose completing Phase 1 and Phase 2 of the New River Improvement Project Strategic Plan (project) (**Appendix A: Figures 1** through **3**). The California-Mexico Border Relations Council (Council) adopted the plan in 2011 and approved subsequent revisions to the project in 2016, for the New River in the Calexico area, to address the public health threat that the condition of the New River poses to people in the Calexico area. The plan calls for implementation of structural and nonstructural recommendations to address New River impairments and identifies recommendations to address public health threats in the Calexico area of the New River.

The revised recommendations call for completing the design and environmental documentation (Phase 1) for the construction (Phase 2) of the following three components: (1) a trash screen at the international boundary with Mexico; (2) encasing the river from a point downstream of the international boundary to a point downstream from where the river crosses the west branch of the All-American Canal; and (3) a pump-back system to take treated wastewater from the City of Calexico Wastewater Treatment Plant and discharge it into the New River channel at a point near and downstream from the international boundary with Mexico.

The project is partially funded by the State Revolving Fund loan program administered by the State Water Resources Control Board (SWRCB). Since the project will be funded using federal monies, the project is considered an undertaking as defined at 36 Code of Federal Regulations (CFR) Section 800.16(y) and is subject to Section 106 of the National Historic Preservation Act (NHPA). Further, since the project will affect waters of the United States, the project must meet the requirements of Sections 401 and 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act as well as Section 106 of NHPA, which requires that every federal agency account for the effects of its undertakings on historic properties. This Cultural Resources Study was prepared in compliance with SWRCB and USACE Section 106 guidelines and the California Environmental Quality Act (CEQA).

This study consists of background and archival research, a records search at the South Coastal Information Center, a Native American Heritage Commission Sacred Lands File search, and an archaeological field survey. A large Study Area was delineated before the CEQA Project Area and USACE/SWRCB Area of Potential Effect were identified, these areas appear on all figures (see **Appendix A**). Two historic-period archaeological sites, MBI-1 and MBI-2, were identified adjacent to the CEQA Project Area but outside the USACE/SWRCB Area of Potential Effects. Both sites are characterized as 1950s domestic refuse dumps.

Agency	Area	Resources Present	Impact/Effect
City of Calexico	CEQA Project Area	Yes	No impact
USACE	USACE/SWRCB Area of Potential Effect	No	No potential to effect
Water Boards	USACE/SWRCB Area of Potential Effect	No	No potential to effect

The project does not propose any ground-disturbing activities that would impact MBI-1 or MBI-2. Therefore, a finding of no historic properties affected appears appropriate for this undertaking, and no historical resources for purposes of CEQA appear to be impacted by this project.

1.0 PROJECT INFORMATION

The State Water Resources Control Board and the Colorado River Basin Regional Water Quality Control Board (collectively referred to as the Water Boards) propose completing Phase 1 and Phase 2 of the New River Improvement Project Strategic Plan (project) (**Appendix A: Figures 1** through **3**). The California-Mexico Border Relations Council (Council) adopted the plan in 2011 and approved subsequent revisions to the project in 2016, for the New River in the Calexico area, to address the public health threat that the condition of the New River poses to people in the Calexico area. The plan calls for implementation of structural and nonstructural recommendations to address New River impairments and identifies recommendations to address public health threats in the Calexico area of the New River.

The project site generally following the alignment of the existing alignment of the river starting at the intersection of 2nd Street and New River to the eastern boundary of the City of Calexico, just east of the All-American Canal. All improvements are south of the riverhead, north of the airport, and on the north side of the City of Calexico Wastewater Treatment Plant (WWTP).

The project covers approximately 2.27 linear miles and is in the southernmost portion of Imperial County, California, entirely within the incorporated boundaries of the City of Calexico. Calexico is located approximately 230 miles southeast of Los Angeles, 125 miles east of San Diego, and is adjacent to the City of Mexicali, Baja California, Mexico. Calexico is located within a developing rural area with agricultural fields surrounding the City to the north, east, and west.

The revised recommendations call for completing the design and environmental documentation (Phase 1) for the construction (Phase 2) of the following three components: (1) a trash screen at the international boundary with Mexico; (2) encasing the river from a point downstream of the international boundary to a point downstream from where the river crosses the west branch of the All-American Canal; and (3) a pump-back system to take treated wastewater from the City of Calexico Wastewater Treatment Plant and discharge it into the New River channel at a point near and downstream from the international boundary with Mexico.

Trash Screen / Diversion Structure

The Trash Screen design focuses on the recommended location and material type of an automated, self-cleaning trash screen for the New River. The Trash Screen will be located directly upstream from the New River Bypass Encasement diversion structure and will can remove one ton of trash per day. The trash screen will not interfere with the New River flows and will be an integral part of the diversion structure design.

New River Bypass Encasement Infrastructure

The New River Bypass Encasement would intercept flows just north of the International Border in an above ground pipe, carrying flow along the southern edge of the river bank, north of the City of Calexico WWTP and continuing west along the southern edge of the river bank to outfall just east of the All-American Canal. The river bypass encasement will be designed to capture an average flow of 160 cubic feet per second (cfs). Flows greater than 160 cfs will continue to be carried in the New River.

New River Pump Back System

The New River Pump Back System (NRPBS) would accept flows from the WWTP, just south of the river bank and carry secondary treatment effluent along Animal Shelter Drive to the outfall just

south of 2nd Street at the Diversion Structure. The NRPBS will be capable of pumping up to 5.0 million gallons per day (MGD) of secondary treated and disinfected wastewater. The NRPBS will be located within the Calexico Wastewater Treatment Plant and will convey, on average, approximately 2.25 MGD (3.5 cfs) back to the New River, just north of the New River Bypass Encasement diversion structure.

1.2 AREA OF POTENTIAL EFFECTS

The USACE/SWRCB Area of Potential Effects (APE) 88.6 acres, defined by Blackhawk Environmental as the projects potential to effect Waters of the US (**Appendix A: Figures 1** through **3**).

1.3 PROJECT AREA

The CEQA project area is defined as the maximum area of ground disturbance as depicted in **Appendix A: Figures 1** through **3**.

2.0 ENVIRONMENTAL

The APE is located within the Salton Trough of the Colorado Desert Geomorphic Province, which is dominated by the Salton Sea and is a depressed block between active faults (CGS 2006; AGI 2018). Many times, over unknown millennia, the Colorado River has diverted and flowed into the Salton Trough, causing the river to fill a basin known as the Ancient Lake Cahuilla, which dried up when the river returned to its normal flow pattern (Love and Dahdul 2002:66). The lake is currently dry, and the most recent filling of the lake may have occurred in the 1600s (Love and Dahdul 2002:66).

Geologic deposits at the surface of the APE consist of soil types that accumulated between the latest Pleistocene and late Holocene eras. Soils in the project area include Imperial silty clay, Indio-Vint complex, Fluvaquents, Meloland very fine sandy loam, and Imperial-Glenbar silty clay loam (California Soil Resource Laboratory 2018). The geoarchaeological (buried archaeological resource) sensitivity of the APE has not been mapped, but because the APE is located at the edge of the ancient Cameron Lake where buried archaeological resources are likely, portions of the APE have a high likelihood of buried archaeological resources (see **Appendix A: Figure 4**).

3.0 ARCHAEOLOGY

The region's prehistory can be characterized in four broad cultural periods: Paleo-Indian, Pinto (or Archaic), Amargosa (or Gypsum), and Patayan.

The Paleo-Indian Period lasted from approximately 12,000 to 7,000 years ago and is believed to have been a hunting-gathering lifestyle without trade networks. Love and Dahdul (2002:65) have taken a contemporary look at the Archaic Period and note, "A wide range of environmental settings, site size, artifact densities and artifact types suggests a diverse, perhaps large population with multiple living strategies occupying numerous environments." The Pinto Period (7,000 to 3,500 years ago) included a diverse hunting-gathering tradition with settlements found along the desert margins in drier times and in the interior valleys during periods of rain. The Amargosa Period (3,500 to 1,100 years ago) marked changes in technology, food production, and trade. Food milling increased, a gradual shift from dart points to bow and arrow use occurred, and trade increased with neighboring groups. The Patayan Period began 1,100 years ago and lasted until approximately 1774 when the first Spanish explorers reached the area. This period includes wide settlement distribution across the Colorado Desert and is best identified by its distinct ceramic technology (Cordell 1997; Reid and Whittlesey 1997).

4.0 ETHNOGRAPHY

Ethnographically, the project area is in the Tipai-Ipai tribal territory (Luomala 1978).

4.1 TIPAI-IPAI

The Tipai-Ipai occupied the southern two-thirds of Imperial and San Diego counties. Their traditional lands included the southern Imperial Valley from the Salton Sea to well below the US–Mexico international border. Their language, Diegueno, is classified in the Yuman language family, Hokan stock. They lived in semi-sedentary, politically autonomous villages. Settlement systems typically consisted of two or more seasonal villages with temporary camps scattered away from the central settlements. The basic social and economic unit was the patrilocal extended family (Luomala 1978:592–597).

The Tipai-Ipai were hunter-gatherers who focused on small game, such as rabbits, fish, sheep, and deer, and plant resources such as acorns, screwbean, and mesquite, as well as grass seeds. During the Coachella Valley flood season, the Tipai-Ipai gathered fish, shellfish, and marsh plants not available during other periods of the year. Further, they farmed the floodplain mud after the flood waters receded. Lake Cahuilla, now extinct, was a lake formed during yearly flooding (Luomala 1978:599–601).

A wide range of tools used by the Tipai-Ipai included scrapers, choppers, flake-based cutting tools, and biface knives. Groundstone implements include granite mortars and pestles for processing soft seeds and small animals, and manos and metates for processing hard seeds. The Tipai-Ipai made fine baskets using both coiled and twined techniques; they also made pottery using the paddle-and-anvil technique (Luomala 1978:599–601).

Trade with coastal groups included salt, dried seafood, dried greens, and abalone shells to inland and desert groups for products such as acorns, agave, mesquite beans, and gourds. Travel and trade were accomplished by means of an extensive network of trails. These trails were used when traveling between the mountain settlements of eastern San Diego County and their desert settlements (Luomala 1978:601).

5.0 HISTORICAL OVERVIEW

5.1 GOLD RUSH AND EARLY STATEHOOD

Beginning in the eighteenth century, California was a territory of Spain, and later of Mexico. In the mid-1840s, Mexico's interest in developing and strengthening its hold on California decreased as the Mexican government became distracted by political developments in central Mexico. The native-born Spanish speakers of Alta California, known as Californios, long accustomed to governmental neglect, experienced relative peace and enjoyed minimal intrusion into their social, political, and economic affairs (Monroy 1990:113–116). During this period, the United States aggressively sought access to the Pacific Ocean, resulting in the Mexican-American War.

Following the American victory and ratification of the Treaty of Guadalupe Hidalgo in 1848, California became a United States territory and, on September 9, 1850, formally joined the Union as the thirty-first state. Imperial County was created in 1907 from a portion of San Diego County (Coy 1923:113).

Following the discovery of gold at Sutter's Mill in January 1848, gold seekers and homesteaders traveled through the Colorado Desert along the Southern Emigrant Trail en route to Northern California. However, settlement in the area remained scant until around the turn of the twentieth century during the rise of agriculture in the region (UltraSystems 2014:25).

Camp Salvation

In September 1849, Lieutenant Cave Johnson Couts of the 1st U. S. Dragoons, leading the escort for the United States-Mexico Boundary Survey, established an aid station for emigrants along the Southern Emigrant trail called Camp Salvation on the New River at the border in one or perhaps two locations. The original location was likely within the former Cameron Lake (within the APE and project area) which would have been at a low level, exposing a wetland and grassland that would have attracted travelers. The former Cameron Lake basin fills quickly during storm water events and reportedly flooded campers several times, forcing them to higher ground in modern day Calexico. Water arrives in the desert as fast as it goes, Camp Salvation was short lived because the water source proved to be inconsistent. The Camp consisted of an emigrants' camp

and a soldiers' camp and offered good grazing. The survey's commander, topographical engineer Lieutenant Amiel W. Whipple, noted that at its height, the site resembled an expansive tent village. Lt. Couts detailed a squad of troopers to maintain the station while he proceeded across the "Grand Sahara Desert of California," described as "no water, no grass, no nothing" to the Colorado River. The Camp was abandoned in 1849 when the Couts expedition returned to San Diego, and by 1852, when the Boundary Commission made a second trip to San Diego over the desert trail, the oasis had completely disappeared. (California Department of Parks and Recreation, Archaeology, History and Museums Division 2012)

The great influx of abandoned livestock onto the desert, because of the thousands of immigrants that traveled the Southern Overland Trail between 1848 and 1851, provided a previously scarce source of food, in what seemed to be never ending quantities, for Native Americans. Benjamin Hayes wrote of his observations of Native Americans on the New River, in January 1850, "There were a good many of them altogether at this place – we could see their smoke among the mesquite from our camp. They call themselves San Diego's. They seem to prowl about here, depending in a measure for subsistence on mules, oxen, etc., which give out on the road. They get the seeds of a large weed, which grows abundantly here, grind it & soften it, and make bread of it [amaranth]. There was a horse just killed and cut up at their camp. In the hollow at our camp at Camp Salvation we found some of them cutting up a mule which had mired. (California Department of Parks and Recreation 2009)

5.2 IMPERIAL COUNTY

The first person to propose bringing Colorado River water into the Salton Trough was Dr. O. M. Wozencraft. In 1859, the California Legislature offered him a sizeable potential land grant in the Imperial and Coachella valleys if he could create a secure and permanent water supply to the area. Wozencraft was unsuccessful in his efforts, but C. R. Rockwood, a seasoned irrigation engineer who arrived in Yuma in 1892, explored the possibility of using Colorado River water for agricultural irrigation in Sonora, Mexico. He realized that it would be more sensible to convey water into the Salton Trough instead and formed the Colorado River Irrigation Company. In 1900, George Chaffey, a Canadian engineer, agreed to finance and direct the project (ESA 2011:3.3-5).

At this time, Rockwood created the name "Imperial Valley," replacing the existing names of Colorado Desert, Salton Basin, and Salton Trough, to attract more people to the area. With financing, construction of the Imperial Canal began. The headgates of the canal were constructed near the Mexican border, immediately south of Pilot Knob. From this point, the canal continued south for 4 miles, then headed west within the old Alamo River Channel through Mexico for some 40 miles. Near Mexicali, the canal headed north and re-entered the United States (ESA 2011:3.3-5).

In 1900, the town of Imperial was established (approximately 12 miles north/northwest of Calexico). Initially, the only source of water for the area was small lakes, including Mesquite Lake and French Lake, on the Alamo River. Water from the Colorado River arrived in Imperial via the new Imperial Canal in the fall of 1901. Rapid development of the irrigation system continued. By 1905, 80 miles of main canals and 700 miles of distribution canals had been constructed. In addition, in 1903, the Southern Pacific Railway extended a line from Niland (near the Salton Sea) to Imperial, which was further extended to Calexico in 1902. Between 12,000 to 14,000 people lived in the valley at this time (ESA 2011:3.3-5).

The Imperial County cities of Brawley, El Centro, and Holtville were incorporated in 1911. That year, county voters also approved the organization of the Imperial Irrigation District (IID). Thereafter, the

IID floated bond issues and purchased 13 small mutual water companies in the valley, thus consolidating Imperial County's water delivery system into one entity (ESA 2011:3.3-6).

The construction of the All-American Canal, which replaced the Imperial Canal, began in 1934. The first delivery of water through the canal began in 1940. Hydroelectric plants on the All-American Canal began producing power for the Imperial Valley the following year. The irrigation system comprises approximately 230 miles of main canals, 1,438 miles of secondary canals and laterals, and 1,406 miles of concrete-lined or piped drains. The IID is reputed to be the largest irrigation district in the United States (ESA 2011:3.3-6).

5.3 CALEXICO

Developing irrigation canals was also part of the area's colonization efforts. In 1900, under the Desert Land Act, the Imperial Land Company was organized by a Mr. Chaffey. Canal construction began in December 1900 with a work crew. The first of the work camps was located at Flowing Wells, and shortly moved to Cameron Lake, an enlargement of the New River. Cameron Lake was name after a San Diego rancher who grazed his cattle there. Because the water was unsuitable for drinking, the work camp site moved a number of times, but it returned to the eastern side of the New River where Calexico was eventually formed (Romer 1923: 15–18).

The Imperial Land Company laid out the Calexico townsite in the fall of 1900. The community was composed of residential tents for its first year. There was one school until 1905; classes were held in a tent also shared by a Methodist church (Romer 1923:19–24).

The first US immigrations and customs station was established in 1902. That same year, the South Pacific Railroad was constructed from Niland to Calexico. The railroad allowed for commercial and residential expansion. The post office formed in 1904, and land agricultural development began. After irrigation began, crops of sorghum, milo maze, wheat, barley, cotton, and cantaloupe were grown around Calexico (Romer 1923:19, 24–25).

Calexico was incorporated in 1908. Minimal growth happened throughout the twentieth century but included commercial, industrial, residential, public utilities, agricultural, and civic services (Romer 1923:49–69).

Two larger developments within the APE/project area included the Calexico International Airport and the International Country Club. Both were constructed circa 1945. The airport originally included two runways and three buildings (USGS 1947, 1953). Currently the airport includes one runway, a terminal/administration building, a restaurant, and two hangar buildings (Calexico 2018). The International Country Club was a golf course with clubhouse. It closed in 1987 and all remains were razed during the circa 2013 construction of the Gran Plaza shopping center (Google Earth 2018).

6.0 RESEARCH METHODOLOGY

Michael Baker International conducted background research for the project. Research consisted of background and archival research, a records search at the South Coastal Information Center, and a Native American Heritage Commission Sacred Lands File search. This research was conducted to identify known cultural resources in the APE and Project Area, as well as to develop the historic context.

6.1 RECORDS SEARCH

Staff at the South Coastal Information Center (SCIC) conducted a records search at the request of Michael Baker International on April 20, 2018. The records search was conducted for the Study Area with a quarter-mile search radius. The SCIC of the California Historical Resources Information System, California State University, San Diego, an affiliate of the California Office of Historic Preservation, is the official state repository of cultural resource records and reports for Imperial County. As part of the records search, the following federal and state inventories were provided and reviewed:

- California Inventory of Historic Resources (OHP 1976).
- California Points of Historical Interest (OHP 1992 and updates).
- California Historical Landmarks (OHP 1996).
- Directory of Properties in the Historic Property Data File (HPD) (OHP 2013). The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.
- Archaeological Determinations of Eligibility (ADOE) (OHP 2012), the directory of eligibility determinations for archaeological resources in Imperial County.

6.1.1 Results

One cultural resource was identified adjacent to the APE and CEQA Project Area. A brief description is as follows:

> *All-American Canal* (P-13-007130/CA-IMP-7130H) – The All-American Canal was constructed by the Bureau of Reclamation between 1934 and 1940 as part of the Yuma Water Project. The concrete-lined, 82-mile-long canal transports water from the Colorado River to the Imperial and Coachella valleys. The All-American Canal was determined eligible for listing in the National Register of Historic Places (National Register) under Criterion A for its association with agricultural development of Imperial County, and under Criterion C for its engineering and construction (Carmack 2015).

Thirteen cultural resources were identified within a quarter-mile of the APE and Project Area. The table below includes a brief overview of the resources.

Resource Name/Number	Description	OHP Status Code
P-13-003311/CA-IMP-003311H	US military telegraph line	N/A
P-13-003319/CA-IMP-003319H	Road segment	N/A
P-13-003320/CA-IMP-003320H	US military telegraph line	N/A
P-13-003499/CA-IMP-003499H	US military telegraph line	N/A
P-13-007699/CA-IMP-007594H	Southern Pacific Railroad Calexico Spur	N/A

Resource Name/Number	Description	OHP Status Code
Camp Salvation P-13-008015 California Historical Landmark #808	Plaque, located in Calexico, memorializing the refugee center established in 1849 for distressed gold-seeking emigrants. **The actual location of the Camp may be within the Project Area/APE**	7L – State Historical Landmarks 1-769 and Points of Historical Interest designated prior to January 1998 – Needs to be reevaluated using current standards
Chinese American Community P-13-008020	Site of historic Chinese American community	7R – Identified in Reconnaissance Level Survey: Not evaluated
P-13-008682/CA-IMP-008166	Niland to Calexico Railroad	N/A
P-13-008913	Water conveyance features	N/A
P-13-008914	Water conveyance features	N/A
P-13-008915	Fence	N/A
P-13-014488/ CA-IMP-012183	Circa 1915-post 1945 historic dump site	N/A
P-13-014745	Circa 1955 bridge	N/A

Ten cultural resources studies have been conducted within portions of the Study Area. Approximately 50 percent of the Study Area has been previously studied. An additional 39 cultural resources studies have been completed with a quarter mile of the Study Area. The following table summarizes the studies within the Study Area.

Author	Date	Title
Jay von Werlhof	1974	*Environmental Impact Report – Proposed Lago Del Sol Recreation Lake, City of Calexico, Imperial County*
Imperial Valley College Museum	1977	*Archaeological, Historical, and Paleontological Assessment of Certain Properties Located West of Calexico, California*
Bob Stuart	1982	*Draft Environmental Impact Report Airport Land Use Plan*
Urban Futures, Inc.	1982	*Draft Environmental Impact Report – Calexico Central Business District Redevelopment Project*
Jay von Werlhof	1999	*Archaeological Examinations of the Proposed Ramirez RV Park in Calexico, California*
Ray Wilcox	1992	*Records Search and Physical Site Survey for New Water Mains in Calexico, California*
Donna M. Meyer	2011	*City of Calexico, Replace New River Sewer Crossing, FEMA-1911-Dr-Ca-Pw#71*
GSA	2011	*Final Environmental Impact Statement for Expansion and Reconfiguration of the Land Port of Entry in Downtown Calexico, California*
Jennifer Haas	2012	*Section 106 Consultation for Installation of New Technologies and Security Elements at Calexico East, Andrade and Otay Mesa Land Ports of Entry, Imperial and San Diego Counties*
ESA	2011	*Calexico Gran Plaza Final Environmental Impact Report*

6.2 LITERATURE REVIEW

Michael Baker International reviewed publications, maps, and websites for archaeological, ethnographic, historical, and environmental information about the APE and Project Area and the vicinity. Literature reviewed includes the following:

- Online Soil Survey (California Soil Resource Laboratory 2018)
- California Place Names: The Origin and Etymology of Current Geographical Names (Gudde and Bright 2010)
- Historical Atlas of California (Hayes 2007)
- Historic Spots in California (Hoover et al. 2002)
- Handbook of the Indians of California (Kroeber 1925)
- California 1850: A Snapshot in Time (Marschner 2000)
- Blackburn's Map of Imperial Valley California, 1:50k (O.V. Blackburn 1936-1955-1964)
- Irrigation District and Road Map, Imperial Valley (Western Map and Publishing Company 1914)
- Township 17 South, Range 14 East, San Bernardino Meridian (BLM 1880)
- Imperial County Tract Map (Thurston 1914)
- Map of Imperial California Area, including Calexico, CA and Mesquite Lake, Lithograph (USGS 1901)
- Heber, Calif. 15-minute topographic quadrangle (USGS 1940)
- Heber, Calif. 7.5-minute topographic quadrangle (USGS 1957)

6.2.1 Results

No features are depicted on historic maps or aerials until 1940 when the Study Area includes the All-American Canal, a bridge over the canal, and two bridges over the New River (USGS 1940). Prior to 1940, the Study Area is mostly covered by the prehistoric Cameron Lake (BLM 1880; USGS 1901; Thurston 1914; Western Map and Publishing Company 1914). By 1957, the Study Area also includes the Calexico airport, two water tanks, a border patrol observation tower, and the since-demolished International Country Club (the current location of the Gran Plaza shopping center).

6.3 NATIVE AMERICAN HERITAGE COMMISSION CONSULTATION

Michael Baker International submitted a Sacred Lands File and Native American Contacts List Request to the Native American Heritage Commission (NAHC) on April 5, 2018. The NAHC responded on April 17, 2018, stating that the Sacred Lands File search had negative results. The NAHC also provided a list of tribes culturally affiliated with the APE (**Appendix B**).

6.4 ARCHAEOLOGICAL FIELD SURVEY

On April 23, 2018, Michael Baker International archaeologist Nichole Jordan Davis completed a field survey of the entire APE and a cursory survey of the vicinity of the former Cameron Lake. Today, Cameron Lake is a depression filled with wetland vegetation associated with New River. Because the location of Camp Salvation may have been within the Study Area, special attention was expended to identify any artifacts associated with this resource, but none were found. Two historic-period archaeological sites were identified and are described as follows:

- MBI-1 is located in the Study Area but outside the CEQA Project Area and USACE/SWRCB APE, south of the wastewater treatment facility ponds and north of the airport runway. This historic-period archaeological site consists of historic refuse debris, most of which dates to the 1950s. Constituents include fragmented: burnt bone; milk glass ointment/cream jars (1890s to the mid-20th century) (U. of U. 1992 *in* Bureau of Land Management 2018); cobalt, amethyst, olive, clear, green, and brown glass; porcelain, earthenware, terracotta brick; nails, wood, ferrous metal, burned glass, ceramic and glass insulators, solarized molded glass fragments. Yuma, Arizona, Coca Cola bottle fragments dating from 1917-1947 (Lockhart 2008). This resource was not recorded on California Department of Parks and Recreation 523 Forms; however, photographs are provided in **Appendix C** and location is provided in **Appendix 1: Figure 3**.

- MBI -2 is located in the Study Area but outside the CEQA Project Area and USACE/SWRCB APE, along the Animal Shelter Road, outside the chain link fence that the project will stay within. This is also a 1950s domestic refuse dump matching the description of MBI-1 but also includes asphalt. This resource was not recorded on California Department of Parks and Recreation 523 Forms; however, photographs are provided in **Appendix C** and location is provided in **Appendix 1: Figure 3**.

7.0 FINDINGS AND RECOMMENDATIONS

While no historic properties for purposes of NEPA or historical resources for purposes of CEQA were observed, an archaeological sensitivity map was created of the Study Area utilizing data from the records search, map search and field survey (**Appendix A: Figure 4**). An area of "high" prehistoric and historic-period archaeological sensitivity was identified at the highest elevation in the Study Area, where Camp Salvation might have been located and where Native Americans likely would have occupied. MBI-1 and MBI-2 were identified in the zone of "high" sensitivity but these resources are consistent with 1950's historic refuse debris and are not associated with Camp Salvation or Native American uses. Further, the project does not propose ground disturbance within MBI-1, MBI-2, or within the "high" sensitivity zone. Because no historic properties for purposes of NEPA or historical resources for purposes of CEQA were observed and the project does not propose ground disturbance within a zone of "high" prehistoric and historic-period archaeological sensitivity, a finding of no historic properties affected appears appropriate for the undertaking, and no historical resources for purposes of CEQA appear to be impacted by this project. Late discovery mitigation measures for cultural resources with special consideration of the potential for encountering archaeology associated with Camp Salvation are appropriate for the CEQA environmental document, these are provided below.

7.1 ENCOUNTERING ARCHAEOLOGICAL DEPOSITS

If deposits of prehistoric or historical materials are encountered during project construction, it is recommended that all work within 50 feet be halted until an archaeologist can evaluate the findings and make recommendations. Prehistoric materials can include flaked-stone tools (e.g.,

projectile points, knives, choppers) or obsidian, chert, or quartzite toolmaking debris; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash, and charcoal, shellfish remains, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Historical materials might include wood, stone, or concrete footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, metal, glass, ceramics, and other refuse.

7.2 ENCOUNTERING HUMAN REMAINS

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined whether the remains are subject to the coroner's authority. If human remains are encountered, work should halt within 50 feet of the find and the county coroner notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendent to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

8.0 PREPARERS' QUALIFICATIONS

This report was prepared by Michael Baker International cultural resources manager's Nichole Jordan Davis and Margo Nayyar. Ms. Davis has a BA in anthropology from California State University, Sacramento, and an MA in applied anthropology from California State University, East Bay. She is a registered professional archaeologist (#989208) and a member of the Society for California Archaeology, Society for American Archaeology, Association of Environmental Professionals, and the California Council for the Promotion of History. She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Mrs. Jordan Davis has 15 years of experience in cultural resources management, including project management; personnel management; archival research; laboratory analysis; ethnographic and historical research; field survey; prehistoric and historical excavation; laboratory analysis; collections management; and GIS applications in environmental planning, spatial analysis in archaeological site modeling, and surface analysis in cultural resource management. She has experience in the preparation of archaeological research, built environment, and archaeological evaluations for inclusion in the National Register of Historic Places and the California Register of Historical Resources, and survey, testing, excavation, and monitoring reports pursuant to the requirements of CEQA, Section 106 of the NHPA, and the National Environmental Policy Act (NEPA).

Margo Nayyar is an architectural historian with seven years of cultural resources management experience in California. Her experience includes built environment surveys, historic context development, archival research, evaluation of historic-era resources using guidelines outlined in the National Register of Historic Places, California Register of Historical Resources, and various local registers; preparation of cultural resources technical studies pursuant to CEQA and Section 106 of the NHPA; municipal preservation planning; and providing Certified Local Government (CLG) training to interested local governments. She also specializes in producing HABS/HAER/HALS (Historic American Buildings Survey, the Historic American Engineering Record, and Historic American Landscapes Survey) heritage documentation. Ms. Nayyar meets the Secretary of the Interior's Professional Qualification Standards for history and architectural history.

9.0 REFERENCES CITED

AGI (American Geosciences Institute). 2018. *Fact Sheets Describing California's Geomorphic Provinces.* Electronic document, www.americangeosciences.org/sites/default/files/earthcomm-edg-ca-c1a6q2r1.doc, accessed multiple.

BLM (Bureau of Land Management). 1880. Township 17 South, Range 14 East, San Bernardino Meridian Public Land Survey Map. Electronic resource, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=289499&sid=w3fnovwo.c1r&surveyDetailsTabIndex=1, accessed multiple.

———. 2018. Bottle Colors. Electronic Resource, https://sha.org/bottle/colors.htm, accessed September 23, 2018.

California Department of Parks and Recreation, Archaeology, History and Museums Division. 2012. An Isolated Frontier Outpost: Historical and Archaeological Investigations of the Carrizo Creek Stage Station. Anza-Borrego Desert State Park.

California Department of Parks and Recreation. 2009. 240 Years of Ranching Historical Research, Field Surveys, Oral Interviews, Significance Criteria, and Management Recommendations for Ranching Districts and Sites in the San Diego Region

California Soil Resource Laboratory. 2018. Online Soil Survey. Electronic resource, http://casoilresource.lawr.ucdavis.edu/drupal/node/902, accessed multiple.

Calexico, City of. 2018. "Calexico International Airport." Electronic resource, http://www.calexico.ca.gov/?SEC=531EF4A5-0975-43B0-9A41-3FAC5DBE4774, accessed multiple.

Carmack, Shannon. 2015. DPR form for All American Canal (P-13-007130). On file at the South Coastal Information Center.

CGS (California Geological Survey). 2006. Simplified Geologic Map of California. Electronic document, http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms057.pdf, accessed multiple.

Cordell, Linda. 1997. *Archaeology of the Southwest,* 2nd ed. Left Coast Press: California.

Coy, Owen C. 1923. *California County Boundaries: A Study of the Division of the State into Counties and Subsequent* Changes *in their Boundaries*. Sacramento: California State Printing Office.

ESA. 2011. *Calexico Gran Plaza Final Environmental Impact Report*. Prepared for the City of Calexico. On file at the South Coastal Information Center.

Google Earth. 2018. Historic and contemporary views of Calexico, California. Electronic resource, www.googleearth.com, accessed multiple.

GSA. 2011. *Final Environmental Impact Statement for Expansion and Reconfiguration of the Land Port of Entry in Downtown Calexico, California.* On file at the South Coastal Information Center.

Gudde, Erwin G., and William Bright. 2010. *California Place Names: The Origin and Etymology of Current Geographical Names*. Fourth edition revised and enlarged by William Bright. Berkeley, CA: University of California Press.

Haas, Jennifer. 2012. *Section 106 Consultation for Installation of New Technologies and Security Elements at Calexico East, Andrade and Otay Mesa Land Ports of Entry, Imperial and San Diego Counties*. US Customs and Border Protection. On file at the South Coastal Information Center.

Hayes, Derek. 2007. *Historical Atlas of California: With Original Maps*. Berkeley, CA: University of California Press.

Hoover, Mildred Brooke, Hero Eugene Rensch, Ethel Grace Rensch, and William N. Abeloe. 2002. *Historic Spots in California*. Fifth edition, revised by Douglas E. Kyle. Stanford, CA: Stanford University Press.

Imperial Valley College Museum. 1977. *Archaeological, Historical, and Paleontological Assessment of Certain Properties Located West of Calexico, California*. On file at the South Coastal Information Center

Kroeber, Alfred L. 1925. "Handbook of the Indians of California." *Bulletin of American Ethnology Bulletin 78*. Washington, DC: Smithsonian Institution. Reprinted 1976 by Dover, New York.

Lockhart, Bill. 2008. The Bottles, Marks, and History of the Southwestern Coca-Cola Bottling Co., New Mexico and Arizona, 1917-1947. Self-Published.

Love, Bruce, and Mariam Dahdul. 2002. "Desert Chronologies and the Archaic Period in the Coachella Valley." *Pacific Coast Archaeological Society Quarterly*, Volume 38, Numbers 2 and 3. Electronic document, http://www.pcas.org/assets/documents/desertchronologies.pdf, accessed multiple.

Luomala, Katharine. 1978. "Tipai-Ipai." In *California*, edited by R. F. Heizer, Volume 8. *Handbook of North American Indians,* W. G. Sturtevant, general editor, pp. 592–609. Washington, DC: Smithsonian Institution.

Marschner, Janice. 2000. *California* 1850*: A Snapshot in Time*. Sacramento: Coleman Ranch Press.

Meyer, Donna M. 2011. *City of Calexico, Replace New River Sewer Crossing, FEMA-1911-Dr-Ca-Pw#71*. US Department of Homeland Security. On file at the South Coastal Information Center.

Monroy, Douglas. 1990. *Thrown Among Strangers: The Making of Mexican Culture in Frontier California*. Berkeley, CA: University of California Press.

OHP (California Office of Historic Preservation). 1976. California Inventory of Historic Resources. Sacramento: California Department of Parks and Recreation.

———. 1992. California Points of Historical Interest. Sacramento: California Department of Parks and Recreation.

———. 1996. California Historical Landmarks. Sacramento: California Department of Parks and Recreation.

———. 2012. Archaeological Determinations of Eligibility for Imperial County. On file at the South Coastal Information Center.

———. 2013. Historic Property Data File for Imperial County. On file at the South Coastal Information Center.

Reid, Jefferson, and Stephanie Whittlesey. 1997. *The Archaeology of Ancient Arizona*. Tucson, AZ: University of Arizona Press.

Romer, Margret. 1923. *A History of Calexico.* Thesis presented to the Department of History, University of Southern California. Electronic document, http://digitallibrary.usc.edu/cdm/ref/collection/p15799coll39/id/289482, accessed multiple.

Stuart, Bob. 1982. *Draft Environmental Impact Report Airport Land Use Plan*. Imperial County Planning Department. On file at the South Coastal Information Center.

Thurston, Albert G. 1914. Imperial Valley Tract Map. Electronic resource, https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~258895~5522241:Imperial-Valley-tract-map, accessed multiple.

UltraSystems. 2014. *Phase 1 Cultural Resources Inventory Report: Wistaria Ranch Solar Energy Center, Imperial County, California*. Prepared for Wistaria Ranch Solar, LLC.

Urban Futures, Inc. 1982. *Draft Environmental Impact Report – Calexico Central Business District Redevelopment Project*. On file at the South Coastal Information Center.

USGS (US Geological Survey). 1901. Map of Imperial California Area, including Calexico, CA and Mesquite Lake, Lithograph.

———. 1940. *Heber, Calif*. 1:62,500 scale topographic quadrangle.

———. 1947. Earth Explorer. Single Frame Aerial Photograph H283000011250. Electronic database, https://earthexplorer.usgs.gov/, accessed multiple.

———. 1953. Earth Explorer. Single Frame Aerial Photograph 1YQ0000030045. Electronic database, https://earthexplorer.usgs.gov/, accessed multiple.

———. 1957. *Heber, Calif*., 1:24,000 topographic quadrangle.

von Werlhof, Jay. 1974. *Environmental Impact Report – Proposed Lago Del Sol Recreation Lake, City of Calexico, Imperial County*. On file at the South Coastal Information Center.

———. 1999. *Archaeological Examinations of the Proposed Ramirez RV Park in Calexico, California*. Imperial Valley College Desert Museum. On file at the South Coastal Information Center.

Western Map and Publishing Company. 1914. Irrigation District and Road Map, Imperial Valley. El Centro, CA. Electronic resource, https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~258905~5522242:Irrigation-district-and-road-map,-I, accessed multiple.

Wilcox, Ray. 1992. *Records Search and Physical Site Survey for New Water Mains in Calexico, California*. Imperial Valley College Museum. On file at the South Coastal Information Center.

Appendix A

Figures

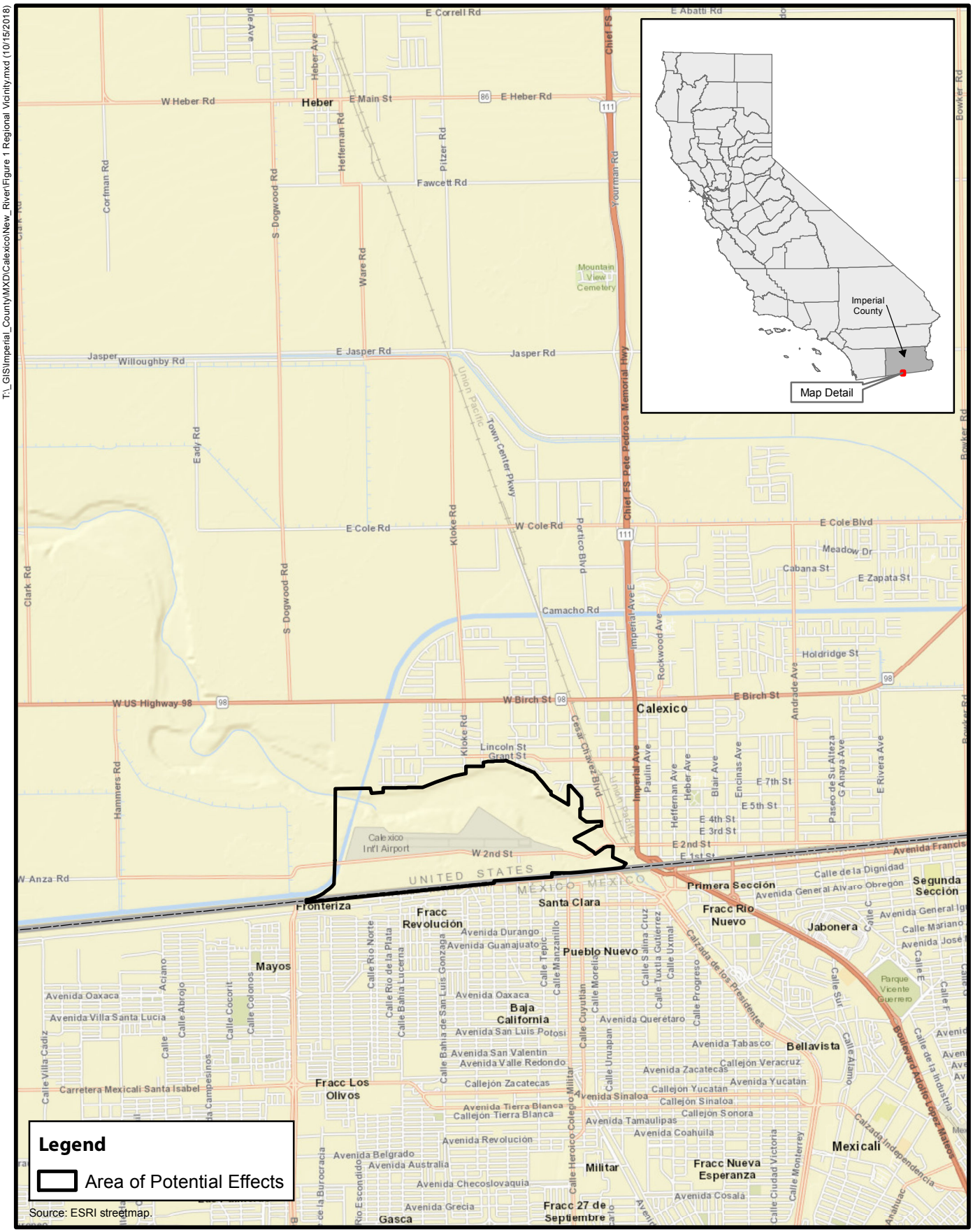


FIGURE 1

Project Location & Vicinity

Michael Baker INTERNATIONAL

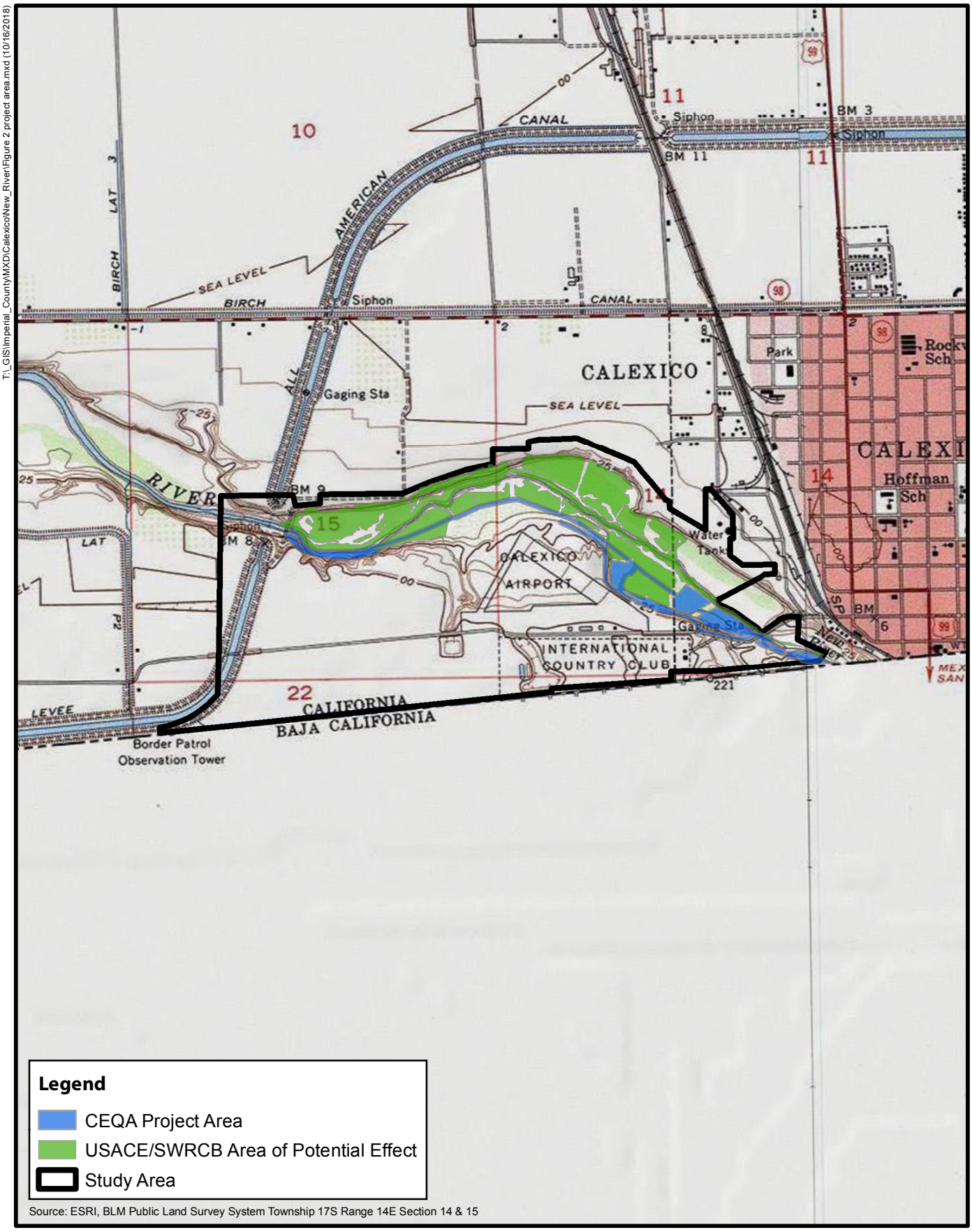


FIGURE 2

Area of Potential Effect/Project Area

Michael Baker INTERNATIONAL

T:_GIS\Imperial_County\MXD\CalexicoNew_River\Figure 3 project area.mxd (10/29/2018)

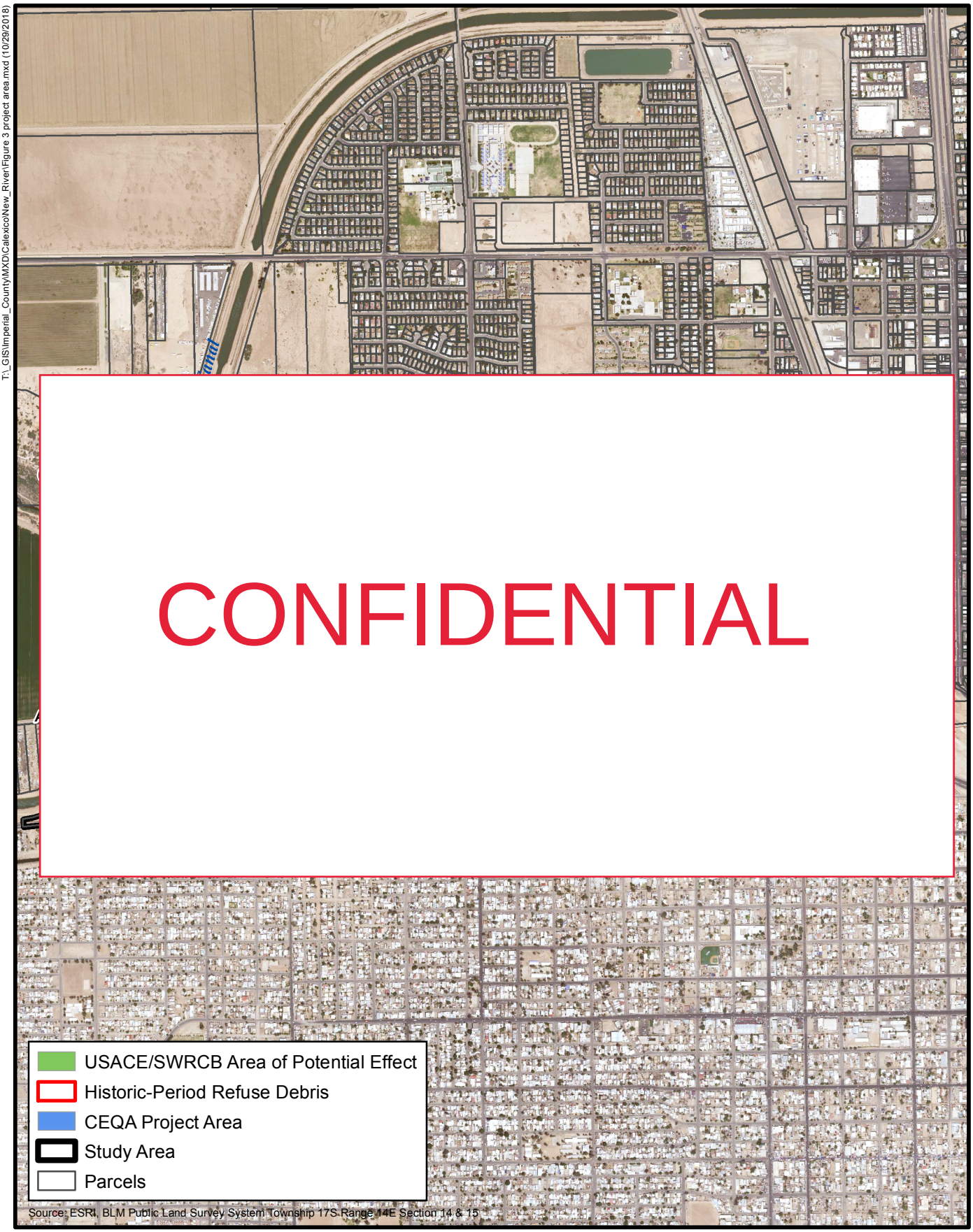


FIGURE 3

Cultural Resource Locations

Michael Baker INTERNATIONAL

T:_GIS\Imperial_County\MXD\Calexico\New_River\Figure 4 Cultural Resources Constraints_update.mxd (10/29/2018)



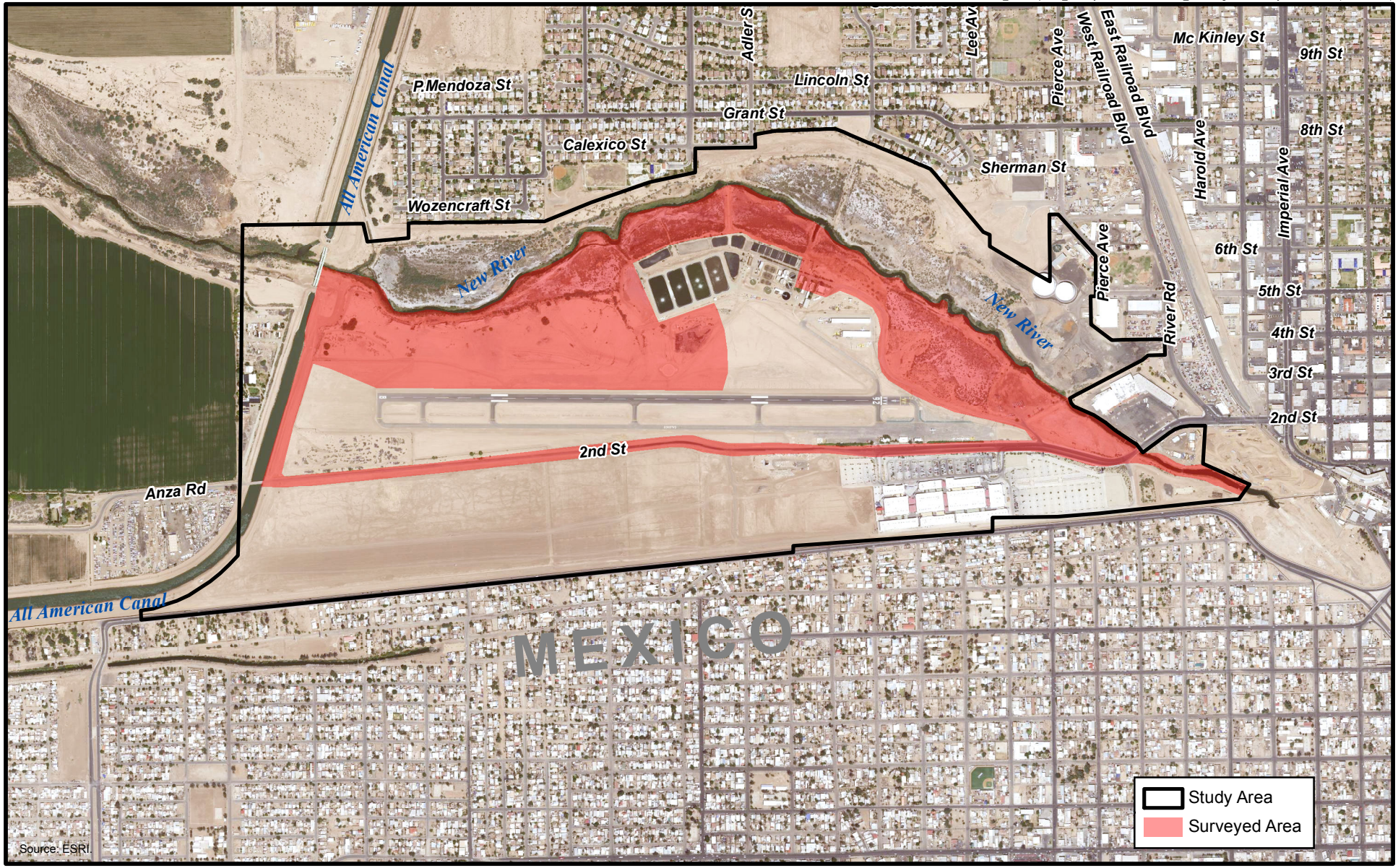
N

0 500 1,000
FEET

FIGURE 4
Cultural Resources Sensitivity Map

Michael Baker INTERNATIONAL

T:_GIS\Imperial_County\MXD\Calexico\New_River\Figure 5 Surveyed Area.mxd (10/29/2018)



0 500 1,000
FEET

FIGURE 5
Survey Coverage Map

Michael Baker INTERNATIONAL

Appendix B
Native American Heritage Commission Consultation

From: Davis, Nichole
To: nahc@nahc.ca.gov
Subject: SLF and contacts request - New River project, Imperial county
Date: Thursday, April 05, 2018 12:46:24 PM
Attachments: ATP Scan In Progress.msg

See attached, thank you!

Nichole Davis | Senior Cultural Resources Manager | Michael Baker International
2729 Prospect Park Drive, Suite 220 | Rancho Cordova, CA 95670 | 916-231-2254
nichole.davis@mbakerintl.com | www.mbakerintl.com



Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: New River

County: Imperial

USGS Quadrangle Name: Heber

Township: 17S Range: 14E Section(s): 14 and 15

Company/Firm/Agency: Michael Baker International

Contact Person: Nichole Jordan Davis

Street Address: 2729 Prospect Park Drive, Suite 220

City: Rancho Cordova Zip: 95670

Phone: 916-231-2254

Fax:

Email: nichole.davis@mbakerintl.com

Project Description:

Pipeline and water purification

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

April 17, 2018

Nichole Davis
Michael Baker International

Sent by E-mail: nichole.davis@mbakerintl.com

RE: Proposed New River Project, City of Calexico; Heber USGS Quadrangle, Imperial County, California

Dear Ms. Davis:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

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Native American Heritage Commission
Native American Contact List
Imperial County
4/17/2018

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Cocopah Indian Reservation
H. McCormick, Cultural Resources Manager
14515 S. Veterans Drive — Cocopah
Sommerton, AZ, 85350
Phone: (928) 722 - 7521
mccormickj@cocopah.com

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Kumeyaay
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
mohusky@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kumeyaay
Pine Valley, CA, 91962
Phone: (619) 709 - 4207

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed New River Project, Imperial County.

Native American Heritage Commission
Native American Contact List
Imperial County
4/17/2018

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Mission Indians
Mario Morales, Cultural Resources Representative
PMB 366 35008 Pala Temecula Rd. Kumeyaay
Pala, CA, 92059
Phone: (760) 622 - 1336

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365 Kumeyaay
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 Kumeyaay
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 312 - 1935
lhaws@sycuan-nsn.gov

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed New River Project, Imperial County.

Appendix C
Photographs

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APPENDIX E
GEOTECHNICAL REPORT

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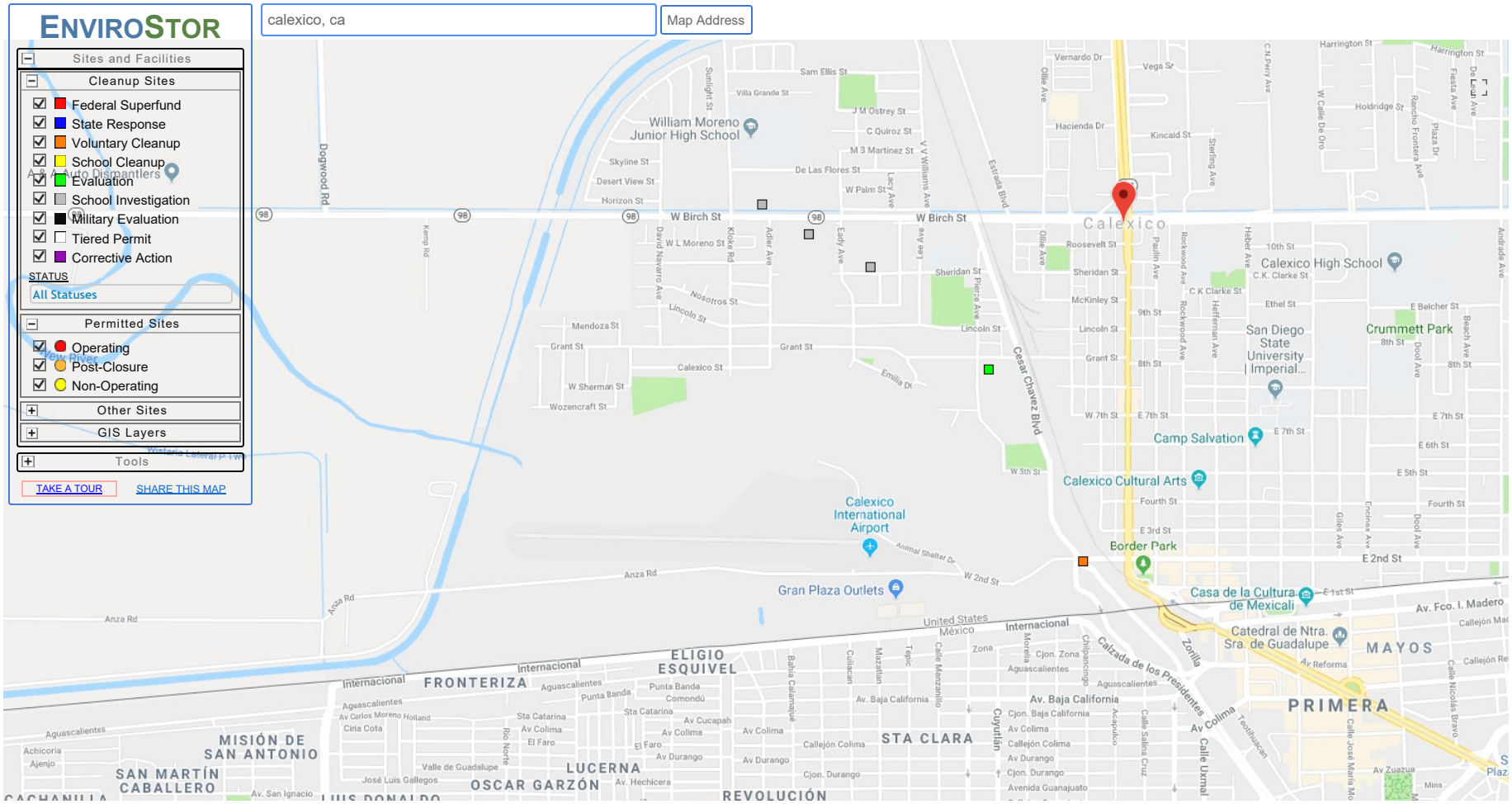
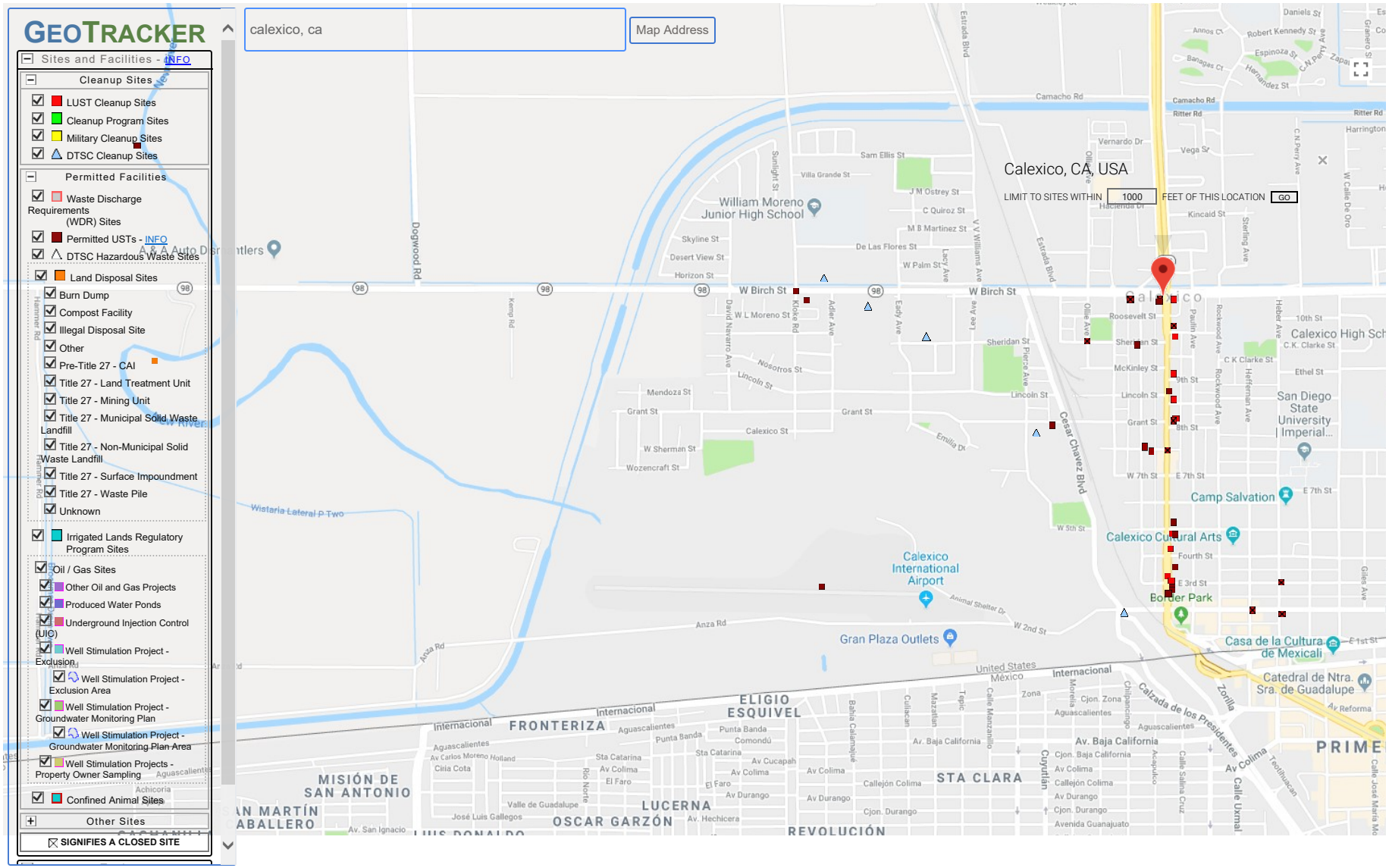
APPENDIX F
HAZARDOUS RECORDS DATABASE RESULTS



SITES CURRENTLY VISIBLE ON MAP — 7 SITES LISTED — EXPORT THIS LIST TO EXCEL

PROJECT NAME	STATUS	PROJECT TYPE	ADDRESS	CITY
CALEXICO GUN CLUB	NO FURTHER ACTION	VOLUNTARY CLEANUP	270 WEST 2ND STREET	CALEXICO
CALEXICO PROPERTY	ACTIVE	EVALUATION	751 CESAR CHAVEZ BOULEVARD.	CALEXICO
CM PROPERTY JUNIOR HIGH SCHOOL	NO FURTHER ACTION	SCHOOL INVESTIGATION	PALO VERDE ROAD/MAPLE STREET	CALEXICO
LAS BRISAS ELEMENTARY	NO FURTHER ACTION	SCHOOL INVESTIGATION	PALO VERDE ROAD/MAPLE STREET	CALEXICO
MAINS ELEMENTARY SCHOOL	NO FURTHER ACTION	SCHOOL INVESTIGATION	655 SHERIDAN ROAD	CALEXICO
REMINGTON JUNIOR HIGH SCHOOL	INACTIVE - WITHDRAWN	SCHOOL INVESTIGATION	249 WEST HIGHWAY 98	CALEXICO
WILLIAM MORENO JUNIOR HIGH SCHOOL	NO FURTHER ACTION	SCHOOL INVESTIGATION	1202 KLOKE ROAD	CALEXICO


GEOTRACKER
calexico, ca
Map Address
Sites and Facilities - INFO
Cleanup Sites
LUST Cleanup Sites
Cleanup Program Sites
Military Cleanup Sites
DTSC Cleanup Sites
Permitted Facilities
Waste Discharge Requirements (WDR) Sites
Permitted USTs - INFO
DTSC Hazardous Waste Sites
Land Disposal Sites
Burn Dump
Compost Facility
Illegal Disposal Site
Other
Pre-Title 27 - CAI
Title 27 - Land Treatment Unit
Title 27 - Mining Unit
Title 27 - Municipal Solid Waste Landfill
Title 27 - Non-Municipal Solid Waste Landfill
Title 27 - Surface Impoundment
Title 27 - Waste Pile
Unknown
Irrigated Lands Regulatory Program Sites
Oil / Gas Sites
Other Oil and Gas Projects
Produced Water Ponds
Underground Injection Control (UIC)
Well Stimulation Project - Exclusion
Well Stimulation Project - Exclusion Area
Well Stimulation Project - Groundwater Monitoring Plan
Well Stimulation Project - Groundwater Monitoring Plan Area
Well Stimulation Projects - Property Owner Sampling
Confined Animal Sites
Other Sites
SIGNIFIES A CLOSED SITE
Calexico, CA, USA
LIMIT TO SITES WITHIN 1000 FEET OF THIS LOCATION GO
William Moreno Junior High School
Calexico International Airport
Gran Plaza Outlets
Camp Salvation
Border Park
Calexico Cultural Arts
Casa de la Cultura de Mexicali
Catedral de Ntra. Sra. de Guadalupe
San Diego State University Imperial...
Calexico High Sch
FRONTERIZA
ELIGIO ESQUIVEL
MISIÓN DE SAN ANTONIO
LUCERNA
OSCAR GARZÓN
STA CLARA
REVOLUCIÓN
PRIME
Google
200 m
Map data ©2018 Google, INEGI
SITES CURRENTLY VISIBLE ON MAP

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APPENDIX G
NOISE TECHNICAL DATA

New River Project

dBA2 = dBA1 + 10Log10 (d1/d2)2

New River Project

where:
dBA 2 = Estimated Construction Noise Level;
dBA1 = Reference noise level at 25 feet (from Construction dBA Noise Levels By Distance and Construction Phase);
d1 = reference distance of 25 feet;
d2 = Approximate Receptor Location Distance

	dBA1	d1	d2	dBA2
Concrete Saw	84.0	100	700	67.1
Concrete Mixer Truck	73.0	100	700	56.1
Backhoe	72.0	100	700	55.1
Dozer	76.0	100	700	59.1
Excavator	75.0	100	700	58.1
Forklift	72.0	100	700	55.1
Paver	71.0	100	700	54.1
Roller	74.0	100	700	57.1
Tractor	78.0	100	700	61.09804
Water Truck	74.0	100	700	57.09804
Grader	79	100	700	62.09804
General Industrial Equipment	79	100	700	62.09804

Source: Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)* , January 2006.

New River Project

Equipment		PPV at 25 feet (in/sec)	Calculated distance (feet) 100
Pile Driver (impact)	upper range	1.518	0.1898
	typical	0.644	0.0805
Pile Driver (sonic)	upper range	0.734	0.0918
	typical	0.17	0.0213
Clam shovel drop (slurry wall)		0.202	0.0253
Hydromill (slurry wall)	in soil	0.008	0.0010
	in rock	0.017	0.0021
Vibratory Roller		0.21	0.0263
Hoe Ram		0.089	0.0111
Large bulldozer		0.089	0.0111
Caisson drilling		0.089	0.0111
Loaded trucks		0.076	0.0095
Jackhammer		0.035	0.0044
Small bulldozer		0.003	0.0004
Rock Breaker		0.059	0.0074

Source: Federal Transit Administration, T*ransit Noise and Vibration Impact Assessment Guidelines* , May 2006.

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