Appendix E

Jurisdictional Delineation Datasheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP1

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 W

Landform (hillslope, terrace, etc.): man-made basin Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR): C; Mediterranean California Lat: 32.7397775 Long: -116.92880491 Datum: NAD83

Soil Map Unit Name: Visalia Sandy Loam, 2-5% NWI classification: PUBHx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Sample point located in man-made basin (dry) which was excavated in an upland and was previously artificially filled. Hydric soil and wetland hydrology indicators are historic. Current vegetation indicates present non-wetland status. NWI: Freshwater pond, surface flooding, excavated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1. Tamarix parviflora	25	Yes	FAC
2.			
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Salsola tragus	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 50

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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation.

SOIL

Sampling Point: SP1

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	10 YR 3/1	97	7.5 YR 3/4	3	C	M	Clay	
4-14	10 YR 2.5/2	80	7.5 YR 4-6	2	C	M	Clay	
	10 YR 4/2	18						

[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 ✓

Remarks:

Historic hydric soil indicators.

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 ✓

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

Remarks:

Formerly had artificial hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP2

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 W

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

Subregion (LRR): C: Mediterranean California Lat: 32.7408405 Long: -116.9287870 Datum: NAD83

Soil Map Unit Name: Visalia Sandy Loam, 2-5% NWI classification: PFOC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓ No	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

NWI: Palustrine, forested, seasonally flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	14	Yes	FACW
2. Salix laevigata	6	Yes	FACW
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1. Tamarix parviflora	30	Yes	FAC
2. Baccharis salicifolia	10	Yes	FAC
3. Salix laevigata	10	Yes	FACW
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Polypogon monspeliensis	35	Yes	FACW
2. Sonchus asper	2	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	37 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Located within southern riparian forest.

SOIL

Sampling Point: SP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/2	100					SiL	
6-16	10 YR 2/2	100					LSa	

[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** _____

Remarks:

No hydric soil indicators, however aerial photos show this area floods regularly and meets the NTCHS definition of a hydric soil.

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** _____

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

Remarks:

FAC-neutral Test; W:U=4:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP3

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

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

Subregion (LRR): C: Mediterranean California Lat: 32.73973490 Long: -116.92385267 Datum: NAD83

Soil Map Unit Name: Tujunga Sand, 0-5% NWI classification: PSSA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

NWI: Palustrine scrub-shrub, temporarily flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix parviflora	3	No	FAC
2.			
3.			
4.			
	3 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1. Tamarix parviflora	60	Yes	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Atriplex prostrata	60	Yes	FACW
2. Rumex crispus	1	No	FAC
3. Hirschfeldia incana	1	No	UPL
4.			
5.			
6.			
7.			
8.			
	62 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust 60

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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 2/2	95	5 YR 4/6	5	C	PL	SiC	
8-18	10 YR 2/2	100					LSa	

[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** _____

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP4

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 5%

Subregion (LRR): C: Mediterranean California Lat: 32.739636384 Long: -116.9215531 Datum: NAD83

Soil Map Unit Name: Visalia Sandy Loam, 2-5% NWI classification: PSSA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

NWI: Palustrine, scrub-shrub, temporary flooded.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	10	Yes	FACW
2. Salix laevigata	25	Yes	FACW
3. Populus fremontii	5	No	FAC
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1. Salix laevigata	10	Yes	FACW
2. Baccharis salicifolia	20	Yes	FAC
3. Baccharis sarothoides	3	No	FACU
4.			
5.			
	33	= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Ambroisa psilostachya	12	Yes	FACU
2. Datura wrightii	3	No	UPL
3. Xanthium strumarium	3	No	FAC
4. Brassica nigra	2	No	UPL
5.			
6.			
7.			
8.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern riparian forest

SOIL

Sampling Point: SP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					Sa	
3-6	10 YR 3/3	100					LSa	
6-15	10 YR 4/3	100					Sa	

[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** _____

Remarks:

Bottom layer coarser than top layer. Problem area: vegetated sand and gravel bars within flood plain.

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** _____

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

Remarks:

FAC-neutral Test; W:U=3:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP5

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

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

Subregion (LRR): C: Mediterranean California Lat: 32.74090912 Long: -116.92087176 Datum: NA83D

Soil Map Unit Name: Tujunga Sand, 0-5% NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

NWI: Palustrine, emergent, persistent, seasonally flooded.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1. Baccharis salicifolia	30	Yes	FAC
2. Salix gooddingii	1	No	FACW
3. Salix laevigata	1	No	FACW
4. Tamarix parviflora	3	No	FAC
5.			
	35 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Heliotropium curassavicum	35	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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	x 1 =	
FACW species 2	x 2 =	4
FAC species 33	x 3 =	99
FACU species 35	x 4 =	140
UPL species	x 5 =	
Column Totals: 70 (A)		243 (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 _____

Remarks:

Problem area: Managed plant communities. Channel has been cleared/mowed. Vegetation consists of resprouts.

SOIL

Sampling Point: SP5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	100					Sand	
5-8	10 YR 3/3	100					LSa	
8-18	10 YR 4/3	100					Sand	

[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** _____

Remarks:

Problem area:Vegetated sand and gravel bars within floodplain. Coarse sand in bottom and top layers.

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** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP6

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR): C: Mediterranean California Lat: 32.74474368 Long: -116.91639184 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

NWI: Palustrine, emergent, persistent, seasonally flooded.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Ambrosia psilostachya	3	Yes	FACU
2. Erigeron canadensis	2	No	FACU
3. Cynodon dactylon	5	Yes	FACU
4. Salsola tragus	2	No	FACU
5. Cyperus sp. (seedling)	1	No	FACW
6.			
7.			
8.			
	13 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

✓ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Problem area: Managed plant communities. Channel has been cleared/mowed.

SOIL

Sampling Point: SP6

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	10 YR 3/2	100					Sa	coar sandse
10-18	10 YR 2/2	95	7.5YR 3/4	5	C	M	SaL	

[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** _____

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=O:2

Soil damp but not saturated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP7

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

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

Subregion (LRR): C: Mediterranean California Lat: 32.7447846 Long: -116.9164365 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

SP located on 1st terrace above pilot channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Cynodon dactylon	15	Yes	FACU
2. Salsola tragus	4	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	19 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 55 % 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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation.

SOIL

Sampling Point: SP7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10 YR 2/2	100					L	
1-14	10 YR 1/2	100					LSA	

[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** ✓

Remarks:

No hydric soil indicators.

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** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:2

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 9/18/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP8

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

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

Subregion (LRR): C: Mediterranean California Lat: 32.7462179 Long: -116.9112025 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: PEM1Cx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

SP located on 1st terrace above pilot channel. Unvegetated low flow channel to west. NWI: Palustrine, emergent, persistent, seasonally flooded, excavated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	3	No	FAC
2.			
3.			
4.			
	3 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5)			
1. Cynodon dactylon	90	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10 % 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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

✓ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Problem area: Managed plant communities. Channel irrigated and mowed.

SOIL

Sampling Point: SP8

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	7.5 YR 2.5/1	100					SaL	
2-16	10 YR 122	90	7.5 YR 3/4	10	C	M	LSA	

[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** _____

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/5/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP9

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): C: Mediterranean California Lat: 32.75381102 Long: -116.90532144 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: R4SBC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

SP located in low flow channel. NWI: Riverine, intermittent, streambed, seasonally flooded. SP is not in an NWI polygon but would be if NWI mapping was in correct landscape position. Non-wetland WUS/CDFW streambed 15' wide.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 18'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 18'X30')			
1. Baccharis salicifolia	1	No	FAC
2. Tamarisk parviflora	3	No	FAC
3.			
4.			
5.			
	4 = Total Cover		
Herb Stratum (Plot size: r=5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 70 % 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: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Location is unvegetated.

SOIL

Sampling Point: SP9

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
								coarse sand sprays in SP

[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 ✓

Remarks:

No pit dug.

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 _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/05/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP10

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 6%

Subregion (LRR): C: Mediterranean California Lat: 32.75386 Long: -116.90545 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

SP located on 1st terrace above pilot channel. Unvegetated low flow channel to south. Non-wetland WUS.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'X30')			
1. Tamarix parviflora	30	Yes	FAC
2. Baccharis salicfolia	2	No	FAC
3. Baccharis sarothroides	5	No	FACU
4. Isocoma menziesii	1	No	FAC
5.			
	38 = Total Cover		
Herb Stratum (Plot size: r=5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 55 % Cover of Biotic Crust 35

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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP10

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
0-8	10YR 2.5/2	100					LSa	
8-12	7.5YR 3/2	100					SaL	
12-15	7.5YR 3/4	100					SaCL	

[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 ✓

Remarks:

Top layer likely Tujunga sand. Soil effervescence on soil surface. No hydric soil indicators.

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 _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/05/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP11

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 40%

Subregion (LRR): C: Mediterranean California Lat: 32.75390 Long: -116.90543 Datum: NA83D

Soil Map Unit Name: Riverwash NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

SP located on a slope above river's hydrology. Upland. SP is within NWI Riverine mapping. It would not be if NWI mapping was in correct landscaping position.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1. Schinus molle	7	Yes	FACU
2. Eucalyptus sp.	4	Yes	FAC(?)
3.			
4.			
	11	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20'X30')			
1. Tamarix parviflora	3	Yes	FAC
2. Schinus molle	4	Yes	FACU
3.			
4.			
5.			
	7	= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Salsola tragus	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 15 % 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation.

SOIL

Sampling Point: SP11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic layer
2-14	7.5YR 2.5/3	100					SaCL	

[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 ✓

Remarks:

No hydric soil indicators.

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 ✓

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:3

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/5/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP12

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 7-10%

Subregion (LRR): C: Mediterranean California Lat: 32.75326347 Long: -116.90596 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: PEM1Cx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

SP is located just south of grouted rock low-flow channel and north of golf course maintained turf. Location receives irrigation directly or from runoff. NWI: Palustrine, emergent, persistent, seasonally flooded, excavated. SP not located in NWI feature but would be if NWI was in proper landscape position.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10'X30')			
1. Baccharis salicifolia	30	Yes	FAC
2. Tamarisk parviflora	2	No	FAC
3. Salix lasiolepis	45	Yes	FACW
4. Populus fremontii	5	No	FAC
5.			
	82	= Total Cover	
Herb Stratum (Plot size: 10'X10')			
1. Muhlenbergia rigens	70	Yes	FAC
2. Ambrosia psilostachya	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: 10'X20')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 5 % 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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Vegetation at this location is partly dependent upon irrigation. Evidence for this is location of SP next to irrigated slope, vegetation more xeric on the opposite side (north) of channel at the same elevation above the low-flow channel.

SOIL

Sampling Point: SP12

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	5 YR 3/2	100					SaL	coarse
6-13	10 YR 2/2	90	7.5 YR 3/4	10	C	M	LSA	

[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** _____

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/5/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP13

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

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

Subregion (LRR): C: Mediterranean California Lat: 32.75073 Long: -116.90832 Datum: NAD83

Soil Map Unit Name: Tujunga sand, 0-5% NWI classification: PEM1Cx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

NWI: Palustrine, emergent, persistent, seasonally flooded, excavated. SP not in NWI polygon but would be if NWI mapping was in correct landscape position.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Salsola tragus	11	Yes	FACU
2. Cynodon dactylon	13	Yes	FACU
3. Polygonum aviculare	1	No	FACW
4. Euphorbia maculata	5	No	UPL
5. Erigerion canadensis	1	No	FACU
6. Cyperus erythrorhizos	1	No	FACW
7.			
8.			
	32	= Total Cover	
Woody Vine Stratum (Plot size: R=10')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 70% % 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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

✓ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Problem area: Managed plant community. Irrigated and mowed portion of golf course. Vegetation appears to be riparian on 1953 and 1994 aerial photos.

SOIL

Sampling Point: SP13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 2.5/2	100					SaL	
7-17	10 YR 3/2	100					Sa	coarse

[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** _____

Remarks:

Problem area: Vegetated sand and gravel bars within flood plains.

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** _____

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:2

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/5/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP14

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): streambed Local relief (concave, convex, none): none Slope (%): 25%

Subregion (LRR): C: Mediterranean California Lat: 32.7463628 Long: -116.9112968 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

SP approximately 6' above channel bottom. Upland location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5')			
1. Salsola tragus	25	Yes	FACU
2. Cynodon dactylon	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	27 = Total Cover		
Woody Vine Stratum (Plot size: R=10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 60% % 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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation.

SOIL

Sampling Point: SP14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 2/1.5	100					Sa	coarse
8-16	10 YR 2/2	100					Sa	coarse

[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 ✓

Remarks:

No hydric soil indicators.

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 ✓

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:1

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Cottonwood Golf Course City/County: El Cajon/San Diego Sampling Date: 10/5/18

Applicant/Owner: HELIX JO# SIR-02 State: CA Sampling Point: SP15

Investigator(s): Larry Sward, Erica Harris Section, Township, Range: N/A; T16 S; R1 E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 25%

Subregion (LRR): C: Mediterranean California Lat: 32.74066 Long: -116.92885 Datum: NAD83

Soil Map Unit Name: Visalia sandy loam, 2-5% NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

SP located on terrace adjacent to riparian forest. Formerly part of golf course. Upland location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Erigeron canadensis	3	Yes	FACU
2. Cynodon dactylon	8	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	11	= Total Cover	
Woody Vine Stratum (Plot size: R=10')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 80% % 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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Upland vegetation. Location did not appear to ever support riparian vegetation on historical aerial photos.

SOIL

Sampling Point: SP15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					Sa	coarse
8-17	10 YR 3/2	100					Sa	coarse

[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 ✓

Remarks:

No hydric soil indicators.

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 ✓

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

Google Earth.

Remarks:

FAC-neutral Test; W:U=0:2

No wetland hydrology indicators.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Cottonwood Golf Course **Project Number:** SLR-02 **Stream:** Sweetwater River **Investigator(s):** E. Harris + L Sward	**Date:** 5 Oct 2018 **Time:** 12:42 **Town:** El Cajon **State:** CA **Photo begin file#:** **Photo end file#:** 12:39 + 12:42
Y [x] / N [ ] Do normal circumstances exist on the site?	**Location Details:** At SP13
Y [ ] / N [x] Is the site significantly disturbed?	**Projection:** **Datum:** NAD83 **Coordinates:** 32,74636, -116,91130

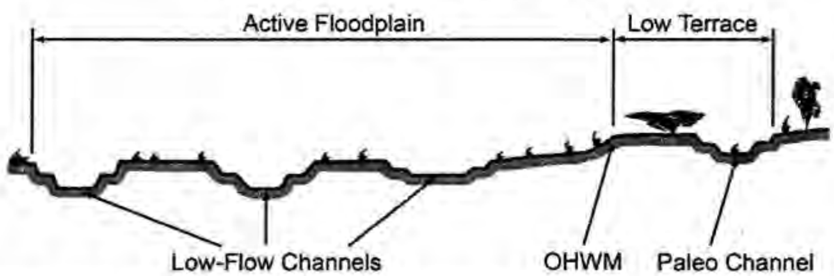
Potential anthropogenic influences on the channel system:
Possibly has vegetation cleared periodically - # of non-native pioneer species indicates past vegetation impacts

Brief site description:
Broad trapezoidal channel
Sweetwater River

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [x] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [ ] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

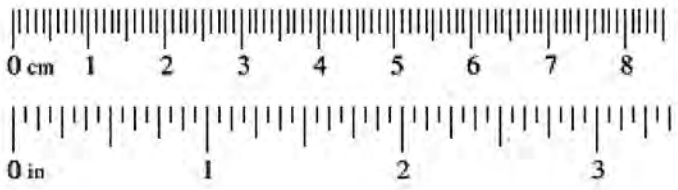


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [x] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [x] GPS
   - [ ] Other:

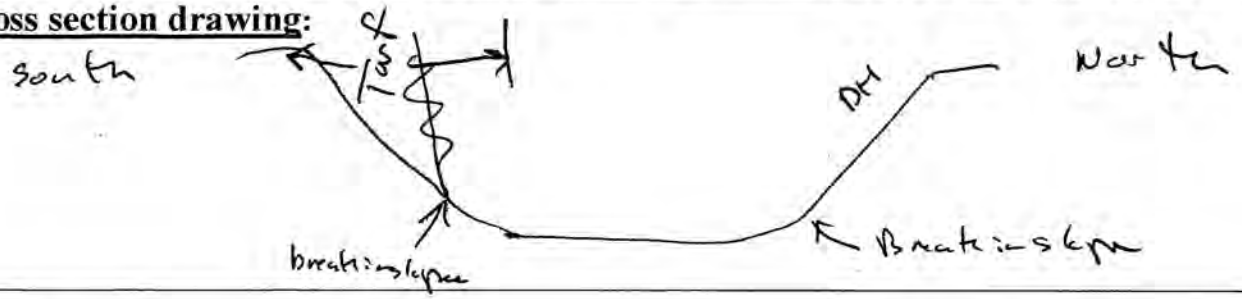
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: SIR-02 **Cross section ID:** 2 **Date:** 5 Oct 2018 **Time:** 12:40

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 25 % Tree: ____ % Shrub: ____ % Herb: 25 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: distribution of coarse sand in stream bed
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: SCR-02 **Cross section ID:** 2 **Date:** 5 Oct 08 **Time:** 12:42

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: _____ LT SLOPE

Characteristics of the floodplain unit:

Average sediment texture: Sandy loam

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 90 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Turf

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____ ☑ SLOPE

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- None
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Above Sweetwater River's flood plain

Turf

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Cottonwood Golf Course
Project Number: SIR-02
Stream: Sweetwater River
Investigator(s): E. Harris + C. Sward

Date: 5 Oct 2018 **Time:** 2:10 pm.
Town: El Cajon **State:** CA
Photo begin file#: **Photo end file#:**
Photo @ 2:10 pm.

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
SP8 + SP14

Projection: **Datum:** NAD83
Coordinates: 32.74636, -116.91130

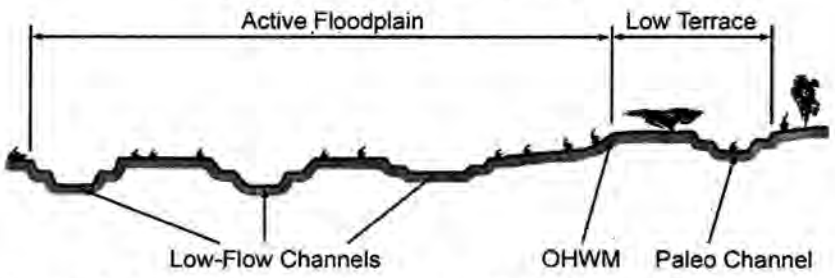
Potential anthropogenic influences on the channel system:
Possibly has vegetation cleared periodically

Brief site description:
Large, natural bottom trapezoidal channel
Sweetwater River

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

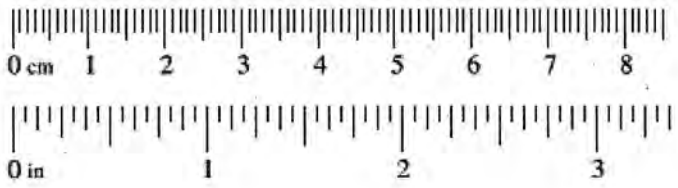


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

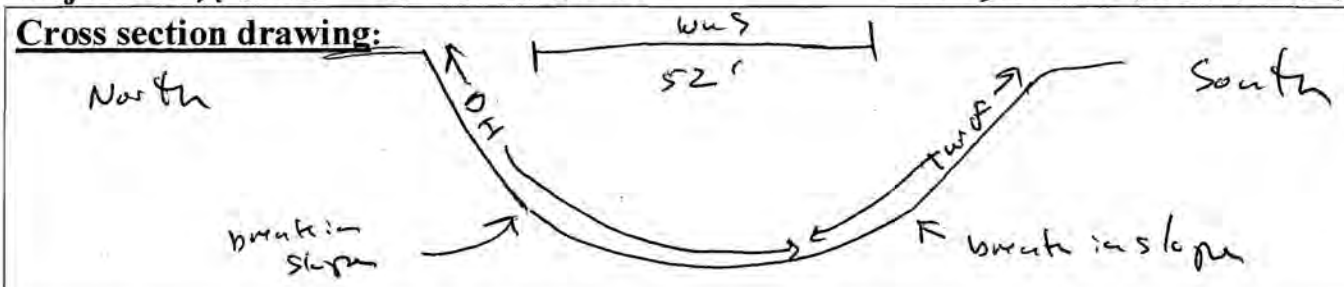
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: SIR-02 **Cross section ID:** 3 **Date:** 5 Oct 2018 **Time:** 2:10 pm.

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: see SP8

Characteristics of the floodplain unit:

Average sediment texture: Sandy loam

Total veg cover: 50 % Tree: 2 % Shrub: ____ % Herb: 90 %

Community successional stage:

- ☑ NA Turf
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: SCR-02 **Cross section ID:** 3 **Date:** 5Oct2008 **Time:** 2:10 pm.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

→ Slope

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 15 % Tree: ____% Shrub: ____% Herb: 15 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks None.
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Above Sweetwater River's floodplain

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____% Tree: ____% Shrub: ____% Herb: ____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Cottonwood Golf Course
Project Number:
Stream: Sweetwater River
Investigator(s): E. Harris & L. Swand

Date: [redacted] Oct **Time:** 2:56 p.m.
Town: El Cajon 2018 **State:** CA
Photo begin file#: **Photo end file#:**

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:
Tributary to Sweetwater River

Projection: **Datum:** NAD83
Coordinates: 32.74636, -116.91130

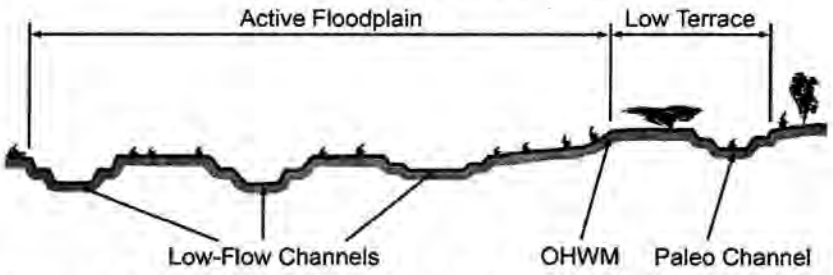
Potential anthropogenic influences on the channel system:

Brief site description:
Irrigation in use upstream
creek passes through a detention basin upstream

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

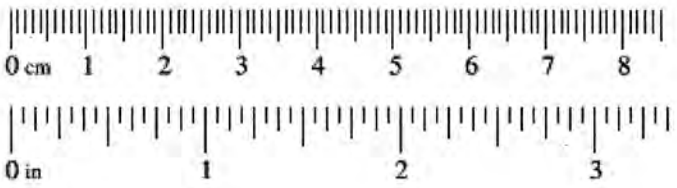


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

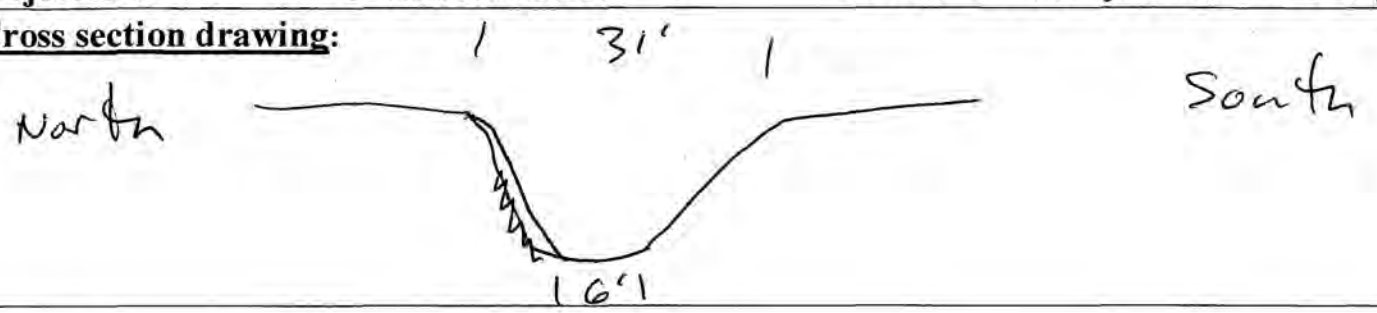
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: SIR-02 **Cross section ID:** 4 **Date:** 5 Oct 2018 **Time:** 2:56 p.m.

Cross section drawing:



OHWM

GPS point: 32.7411825°, -116.5200051 Point for center of drainage

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 32.7411825°, -116.5200051

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 20 % Tree: ____% Shrub: ____% Herb: 20 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

DH: Salsola tragus, Eriog cana, Ambr. psil.

Project ID: SIR-02 **Cross section ID:** 4 **Date:** 5 Oct 2018 **Time:** 2:56

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

No indicators

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Terrace above stream channel

PH - formerly maintained as a golf course

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Cottonwood Golf Course **Date:** 5 Oct. 2018 **Time:** 3:05
Project Number: SIR-02 **Town:** El Cajon **State:** CA
Stream: Sweetwater River **Photo begin file#:** **Photo end file#:**
Investigator(s): E. Harris & C. Svend Photo Time 3:05

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [x] / N [ ] Is the site significantly disturbed?

Location Details: Sweetwater River streambed

Projection: **Datum:** NAD83
Coordinates: 32.74636, -116.91130

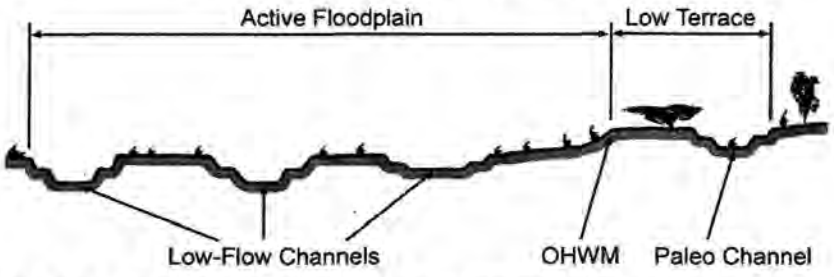
Potential anthropogenic influences on the channel system:
Vegetation & cleared

Brief site description:
Sweetwater River streambed

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [x] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [ ] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

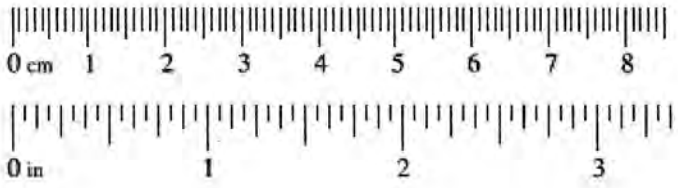


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [x] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [ ] GPS
   - [ ] Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: SIR-02 **Cross section ID:** **Date:** 5 Oct 2018 **Time:** 3:05 pm.

Cross section drawing:

OHWM

GPS point: at edge of channel bottom

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: Center of drainage 32.74048775°, -116.52108555°

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 35 % Tree: ____ % Shrub: 5 % Herb: 30 %

Community successional stage: N/A

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☒ Surface relief: Trapezoidal channel
- ☒ Other: inundation on aerial imagery
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: SLR-02 **Cross section ID:** 5 **Date:** 5 Oct 2018 **Time:** 3:05 p.m.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: ~~south side of channel~~ see below

Characteristics of the floodplain unit:

Average sediment texture: ~~sand~~

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☑ ~~NA~~
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators: None

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 40 % Tree: _____% Shrub: _____% Herb: 40 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Areas adjacent to & streambed are abandoned golf course -

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Cottonwood Golf Course
Project Number: SLR-02
Stream: Sweetwater River
Investigator(s): E Harris & L. Sward

Date: 5 Oct. 2018 **Time:** 11:56
Town: El Cajon **State:** CA
Photo begin file#: 2 Photos @ 11:58 **Photo end file#:**

Y ☐ / N ☑ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: At SP 12 | Sweetwater River

Projection: **Datum:** NAD83

Coordinates: 32.74636, -116.91130

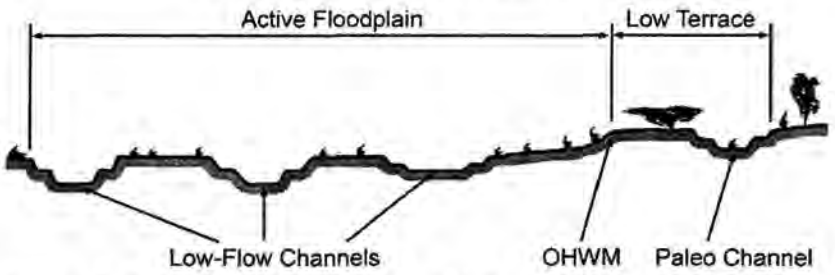
Potential anthropogenic influences on the channel system:
Rock & grouted concrete lined low-flow channel; Irrigation on S. side of creek

Brief site description:
Stream bed is situated between golf course and Willow Glen Drive. Road alignment unchanged for 60+ yrs.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

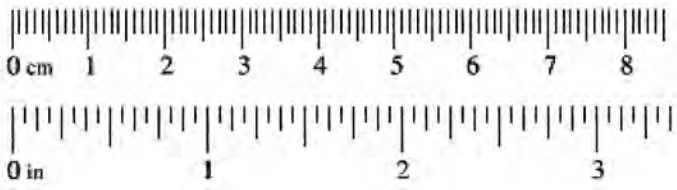


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

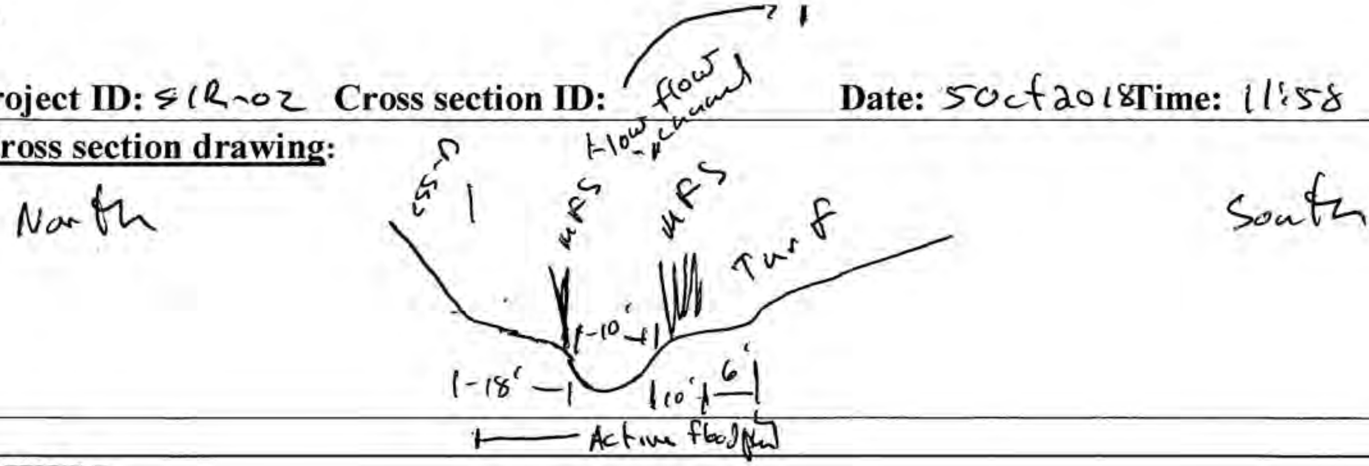
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
		Coarse sand	
0.020	0.50		
1/2 0.0098	0.25	Medium sand	Sand
		Fine sand	
1/4 0.005	0.125		
1/8 0.0025	0.0625	Very fine sand	
		Coarse silt	
1/16 0.0012	0.031		
		Medium silt	
1/32 0.00061	0.0156		Silt
		Fine silt	
1/64 0.00031	0.0078		
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: SLR-02 **Cross section ID:** Low flow channel **Date:** 5Oct2018 **Time:** 11:58

Cross section drawing:



OHWM

GPS point: ______________________

Indicators:

- [ ] Change in average sediment texture
- [x] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: ______________
- [ ] Other: ______________

Comments:
* North side of channel likely presents the "natural" condition for this x.s., as it is not influenced by irrigation

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: ______________________

Characteristics of the floodplain unit:
Average sediment texture: rock & grouted concrete
Total veg cover: 0 % Tree: ___ % Shrub: ___ % Herb: ___ %
Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: ______________
- [ ] Other: ______________
- [ ] Other: ______________

Comments:

Project ID: SIR-02 **Cross section ID:** 1 **Date:** 5 Oct 2018 **Time:** 11:58

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:
Average sediment texture: Sand
Total veg cover: _____ % Tree: _____ % Shrub: 50% Herb: _____ %
↗ Average for both sides w/ S. side influenced by irrigation from golf course
Community successional stage:
☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Indicators:
☐ Mudcracks ☐ Soil development
☐ Ripples ☐ Surface relief
☐ Drift and/or debris ☐ Other: _____
☐ Presence of bed and bank ☐ Other: _____
☐ Benches ☐ Other: _____

Comments:
South side OHWM corresponds to North side where there are no ongoing anthropogenic influences

---

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

☑ Slope

GPS point: _____

Characteristics of the floodplain unit:
Average sediment texture: Sandy loam
Total veg cover: 40 % Tree: 1 % Shrub: 25 % Herb: 20 %
Community successional stage:
☐ NA ☑ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☑ Late (herbaceous, shrubs, ~~mature trees~~)

Indicators:
☐ Mudcracks None ☐ Soil development
☐ Ripples ☐ Surface relief
☐ Drift and/or debris ☐ Other: _____
☐ Presence of bed and bank ☐ Other: _____
☐ Benches ☐ Other: _____

Comments:
Above OHWM Sweetwater River's floodplain

Appendix F

Representative Site Photographs

Sampling Point Photos

Sampling Point 1. Sample point is located in a man-made basin located in southwestern portion of the site. The hydrology for this feature was formerly maintained anthropogenically (i.e., via a pipe). This is a non-jurisdictional feature.

Sampling Point 2. Photo looking west (downstream) in southern cottonwood-willow riparian forest. Location is wetland Waters of the U.S. (WUS)/Waters of the State (WS), and California Department of Fish and Wildlife (CDFW) jurisdictional habitat. Soils at this location were deemed problematic. Sample point is located in the southwestern portion of the site along Sweetwater River, in western portion of site.

Sampling Point 3. Photo is looking southwest (downstream) in southern cottonwood-willow riparian forest. Location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in the southwestern portion of the site along Sweetwater River.

Sampling Point 4. Photo is looking north in southern cottonwood-willow riparian forest. Location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in the southwestern portion of the site along Sweetwater River.

Sampling Point 5. Photo is looking south, with streambed in foreground and channel slopes in background. This location is periodically maintained. Vegetation at this location was deemed problematic (managed plant communities). Location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in the western portion of the site along Sweetwater River.

Sampling Point 6. Photo is looking southeast in a maintained section of streambed. This location is periodically maintained. Vegetation at this location was deemed problematic (managed plant communities). This location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in the central portion of the site, east of Steele Canyon Drive, along Sweetwater River.

Sampling Point 7. Photo is looking northeast (upstream) in a maintained section of the Sweetwater River's streambed. This location is CDFW jurisdictional habitat. Sample point is located on terrace that is north of the Sweetwater River's active floodplain. This sample point is north of Sample Point 6.

Sampling Point 8. Photo is looking northeast (upstream) in a maintained section of the Sweetwater River's streambed. This location is periodically maintained. Vegetation at this location was deemed problematic (managed plant communities). This location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in central portion of the site.

Sampling Point 9. Photo is looking northeast (upstream) in the active floodplain of the Sweetwater River. This location is non-wetland WUS/WS and CDFW jurisdictional habitat. Sample point is near the eastern boundary of the site.

Sampling Point 10. Photo is looking northeast (upstream) on a terrace within the active floodplain of the Sweetwater River. This location is a non-wetland WUS/WS and CDFW jurisdictional habitat. Sample point is near the eastern boundary of the site.

Sampling Point 11. Photo is looking northwest (upslope) at an upland location. This location is an upland and not subject to wetland regulations. Sample point is above Sample Points 9 and 10.

Sampling Point 12. Photo is looking southwest (downstream) in a small stand of mule fat (Baccharis salicifolia). The low flow channel of the Sweetwater River is located to the right in this photo. To the left is a maintained slope within the golf course. This location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is located in the northeastern portion of the site.

Sampling Point 13. Photo is looking northeast (upstream) in the active floodplain of the Sweetwater River. This location is periodically maintained. Vegetation at this location was deemed problematic (managed plant communities). Soils at this location are also deemed problematic (vegetated sand and gravel bars within flood plains). This location is wetland WUS/WS and CDFW jurisdictional habitat. Sample point is in northeastern portion of the site.

Sampling Point 14. Photo is looking south within trapezoidal channel containing the Sweetwater River. This location is above the OHWM and therefore not a WUS but is within CDFW jurisdiction as a streambed. Sample point is located in central portion of the site.

Sampling Point 15. Photo is looking west, along the interface between the riparian forest and abandoned golf course. This location is an upland and not subject to wetland regulations. Sample point is located near the western boundary of the study area.

Site Photos

Photo 1. Northeastern portion of site where Sweetwater River enters the project boundary. Photo is facing northeast (upstream).

Photo 2. Upstream portion of Sweetwater River where low-flow channel has grouted rock. In northeastern portion of site. Photo is facing southwest (downstream).

Photo 3. Overview of Sweetwater River within developed portion of golf course that is actively maintained. Photo is facing northeast (upstream).

Photo 4. Overview of Sweetwater River within closed portion of the site to the east of Steele Canyon Road. Photo is facing northeast (upstream). This section of the river is periodically mowed.

Photo 5. Overview of Sweetwater River within closed portion of the site in the southwestern portion of the site. Photo is facing northeast (upstream). This section of the river is periodically mowed.

Photo 6. Overview of riparian forest habitat along Sweetwater River in the southwestern portion of the site. Photo is facing east (upstream).

Photo 7. Man-made pond in the eastern portion of the site. Photo is facing east. Water is from an anthropogenic source.

Photo 8. Developed golf course in the western portion of the site. Photo is facing east.

Photo 9. Disturbed habitat in the western portion of the site where golf course maintenance was discontinued. Photo is facing east.

Photo 10. Overview of disturbed habitat in the western portion of the site where golf course maintenance was discontinued. Riparian habitat along the downstream portion of Sweetwater River is on the left side of the photo, which is facing east.

Appendix G

Plant Species Observed

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Adoxaceae	*Sambucus nigra*	blue elderberry	DCSS, DH
Agavaceae	*Agave attenuata*	foxtail agave	DH
Aizoaceae	*Aptenia cordifolia**	dew plant	DEV, DH
	*Carpobrotus edulis**	iceplant	DH, NNV
	*Mesembryanthemum crystallinum**	crystalline ice plant	DH, DEV
	*Mesembryanthemum nodiflorum**	small flowered iceplant	DH, DEC
Amaranthaceae	*Amaranthus* sp.*	amaranth	DH, DW
Anacardiaceae	*Rhus integrifolia*	lemonade berry	DCSS
	*Schinus molle**	Peruvian pepper tree	DH, NNV, NNW
	*Schinus terebinthifolius**	Brazilian pepper tree	DH, DEV
	Toxicodendron diversilobum	poison oak	SCWRF
Apiaceae	*Apium graveolens**	celery	DW
	*Conium maculatum**	poison hemlock	DW
	Daucus pusillus	wild carrot	DW
	*Foeniculum vulgare**	fennel	DH, NNW
Apocynaceae	*Asclepias* sp.	milk weed	DCSS
	*Vinca major**	vinca	DW
Araceae	*Lemna minuta*	least duckweed	DW, SCWRF
Arecaceae	*Phoenix canariensis**	canary island date palm	DH, DEV, SCWRF
	*Washingtonia robusta**	Mexican fan palm	DH, DEV
Asparagaceae	*Asparagus asparagoides**	African asparagus fern	DH
Asphodelaceae	*Asphodelus fistulosus**	onionweed	DH, DEC
Asteraceae	*Achillea millefolium*	yarrow	DH, DEC
	Amblyopappus pusillus	pineapple weed	DH
	Ambrosia monogyra+	singlewhorl burrobrush	DCSS
	Ambrosia psilostachya	ragweed	SCWRF, SWS, DW, DH, DEV
	Artemisia californica	coastal sage brush	DCSS, NNW
	Artemisia palmeri+	San Diego sagewort	SCWRF
	Baccharis pilularis	coyote brush	DH, DEC
	Baccharis salicifolia	mule fat	DH, DEV, SCWRF, SWS, DW
	Baccharis sarothroides	broom baccharis	DH
	Bahiopsis laciniata+	san diego county viguiera	DH
	Bebbia juncea var. *aspera*	rough sweetbush	DCSS
	*Carduus pycnocephalus**	italian thistle	DH, DEV
	*Centaurea melitensis**	tocalote	DH, DEV
	Chaenactis glabriuscula var. *glabriuscula*	common yellow chaenactis	DCSS
	Cirsium vulgare	bullthistle	DH, DW
	Coreopsis sp.*	coreopsis	DH
	*Cotula coronopifolia**	brass buttons	DH, DEV
	*Cynara cardunculus**	cardoon	DH
	Deinandra fasciculata	clustered tarweed	DCSS

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Asteraceae	*Ditrichia graveolens**	stinkwort	DH, DEC
	Encelia californica	bush sunflower	DCSS
	Erigeron canadensis	canada horseweed	DH, DEV, SCWRF
	Eriophyllum confertiflorum	yellow yarrow	DCSS
	*Glebionis coronaria**	crown daisy	DCSS, DEV, DH
	Helianthus annuus	hairy leaved sunflower	DH
	Heterotheca grandiflora	telegraph weed	DH
	*Hypochaeris glabra**	smooth cats ear	DH
	Isocoma menziesii	white flowered goldenbush	DCSS, DH, NNV
	*Lactuca serriola**	prickly lettuce	DH
	*Logfia gallica**	narrowleaf cottonrose	DCSS
	Matricaria discoidea	pineapple weed	DH, DEV
	Pluchea odorata	salt marsh fleabane	SCWRF, FWM
	Pluchea sericea	arrow weed	SCWRF, FWM, MFS
	Pseudognaphalium biolettii	two-color rabbit-tobacco	DCSS
	*Senecio vulgaris**	common groundsel	DH
	*Silybum marianum**	milk thistle	DH
	*Sonchus asper**	spiny sowthistle	DH, DW
	*Sonchus oleraceus**	sow thistle	DCSS, DH
	Stephanomeria virgata	twiggy wreath plant	DCSS, DH
	Xanthium strumarium	cocklebur	NNW
Bignoniaceae	*Tecoma capensis**	cape honeysuckle	DEV
Boraginaceae	*Amsinckia intermedia*	common fiddleneck	DCSS
	Amsinckia menziesii	fiddleneck	DCSS
	Cryptantha sp.	popcorn flower	DCSS
	Heliotropium curassavicum var. *oculatum*	seaside heliotrope	DH
	Pectocarya sp.	combseed	DCSS
	Phacelia distans	common phacelia	CLOW
	Phacelia sp.	phacelia	DCSS
Brassicaceae	*Brassica nigra**	black mustard	DCSS, DH
	*Hirschfeldia incana**	short-pod mustard	DH
	*Lobularia maritima**	sweet alyssum	DEV
	Nasturtium officinale	watercress	DW
	*Raphanus sativus**	jointed charlock	DH
	*Sisymbrium irio**	London rocket	DH
Caryophyllaceae	*Stellaria pallida**	pale starwort	DW
Chenopodiaceae	*Atriplex semibaccata**	Australian saltbush	DH, DEV
	*Chenopodium album**	lamb's quarters	DH, DW
	*Salsola tragus**	Russian thistle	DH, DEV
Convolvulaceae	*Calystegia* sp.	morning glory	DCSS
Euphorbiaceae	*Croton setigerus*	doveweed	DH

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Euphorbiaceae	*Euphorbia maculata*	spotted spurge	DH
Fabaceae	*Acmispon glaber*	deerweed	DCSS, DH
	Astragalus trichopodus var. *trichopodus*	Santa Barbara milk vetch	DH
	*Medicago polymorpha**	California burclover	DH, DEV
	*Melilotus albus**	white sweetclover	DH
	*Melilotus indicus**	annual yellow sweetclover	DEV
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	SCWRF, CLOW
Geraniaceae	*Erodium cicutarium**	coastal heron's bill	DH, DEV
Hydrophyllaceae	*Heliotropium curassavicum*	salt heliotrope	DH
Juncaceae	*Juncus acutus* ssp. *leopoldii*+	wire grass	DW
	Schoenoplectus acutus var. *occidentalis*	common tule	DW
Lamiaceae	*Marrubium vulgare**	white horehound	DH
Meliaceae	*Melia azedarach**	Chinaberry tree	DH
Moraceae	*Ficus carica**	common fig	DEV
	*Morus alba**	mulberry	DEV
Myrsinaceae	*Lysimachia arvensis**	scarlet pimpernel	DH, DEV, DW
Myrtaceae	*Callistemon citrinus**	crimson bottlebrush	DEV
	*Eucalyptus camaldulensis**	red gum	EW
	Eucalyptus sp.*	eucalyptus	DH, DEV, EW
Oleaceae	*Fraxinus uhdei**	shamel ash	DEV
	*Olea europaea**	olive	DH
Oxalidaceae	*Oxalis pes-caprae**	Bermuda buttercup	DH
Papaveraceae	*Eschscholzia californica*	California poppy	DH
Passifloraceae	*Passiflora caerulea**	passion fruit	DEV
Phrymaceae	*Diplacus puniceus*	sticky monkeyflower	DCSS
Phytolaccaceae	*Phytolacca americana**	pokeweed	DH
Plantaginaceae	*Plantago coronopus**	cut leaf plantain	DW
	*Plantago major**	common plantain	DW
Platanaceae	*Platanus racemosa*	California sycamore	DH, SCWRF
Plumbaginaceae	*Limonium* sp.*	sea lavender	DEV
	*Plumbago auriculata**	cape leadwort	DEV
Poaceae	*Arundo donax**	giant reed	ADR, NNV
	*Avena barbata**	slim oat	DH, DCSS, NNG
	Bromus carinatus	California bromegrass	NNG
	*Bromus diandrus**	ripgut brome	NNG
	*Bromus hordeaceus**	soft chess	NNG
	*Bromus madritensis**	foxtail chess	NNG
	*Cynodon dactylon**	Bermuda grass	NNG
	Distichlis spicata	salt grass	DW
	*Hordeum murinum**	foxtail barley	DEV
	*Lamarckia aurea**	goldentop	NNG

Appendix G
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Poaceae	*Polypogon monspeliensis**	annual beard grass	DW
	*Stipa miliacea**	smilo grass	DH, NNG, DEV
Polygonaceae	*Eriogonum fasciculatum*	california buckwheat	DCSS
	*Polygonum aviculare**	prostrate knotweed	DEV, DH
	*Rumex crispus**	curly dock	DW, DH
Portulacaceae	*Portulaca* sp.*	purslane	DH, DW
Proteaceae	*Grevillea robusta**	silkoak	DEV
Ranunculaceae	*Clematis* sp.	clematis	DCSS
Rosaceae	*Pyracantha* sp.*	firethorn	DEV, DH
Rubiaceae	*Galium angustifolium*	narrow leaved bedstraw	DCSS
	Galium aparine	cleavers	DW
Salicaceae	*Populus fremontii*	Fremont cottonwood	DH, DEV, SCWRF
	Salix exigua	narrowleaf willow	SCWRF, SWS
	Salix gooddingii	Gooding's willow	SCWRF, SWS
	Salix laevigata	red willow	SCWRF, SWS
	Salix lasiolepis	arroyo willow	SCWRF, SWS
Scrophulariaceae	*Myoporum laetum**	ngaio tree	DH, DEV
Solanaceae	*Datura wrightii*	jimsonweed	DCSS
	*Nicotiana glauca**	tree tobacco	DH, SCWRF
	Solanum sp.	solanum	DCSS, DH
Tamaricaceae	*Tamarix ramosissima**	tamarisk	DCSS, DH, SCWRF, TS
Tropaeolaceae	*Tropaeolum majus**	garden nasturtium	DEV, DW
Typhaceae	*Typha latifolia*	broadleaf cattail	FWM, DW
Urticaceae	*Urtica urens**	annual stinging nettle	CLOW, SCWRF, EW
Verbenaceae	*Lantana camara**	lantana	DWV
	Verbena sp.	verbena	DH, DEV
Viscaceae	*Phoradendron* sp.*	mistletoe	SCWRF
Vitaceae	*Vitis girdiana*	Southern California grape	DEV

[1] FWM = Freshwater Marsh; SCWRF = Southern Cottonwood-Willow Riparian Forest (including disturbed); SWS = Southern Willow Scrub (including disturbed); DW = Disturbed Wetland; DCSS = Diegan coastal sage scrub (including disturbed); EW = Eucalyptus Woodland; OW = Open Water; MMP = Man-Made Pond; NNW = Non-Native Woodland; ADR = Arundo-Dominated Riparian; NNV = Non-Native Vegetation; TS = Tamarisk Scrub; DH = Disturbed Habitat; DEV = Developed.

* Non-native Species.

† Special Status Species.

Appendix H

Animal Species Observed or Detected

Appendix H
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
INVERTEBRATES			
Lepidoptera	Nymphalidae	*Danaus gilippus*	Queen
		Danaus plexippus†	Monarch
		Junonia coenia	Common blueBuckeye
		Nymphalis antiopa	Mourning Cloak
		Vanessa cardui	Painted Lady
	Papilionidae	*Papilio rutulus*	Western Tiger Swallowtail
	Pieridae	*Colias eurytheme*	Orange Sulphur
		Pieris rapae	Cabbage White
		Pontia protodice	Checkered White
		Pontia sisymbrii	Spring White
Odonata	unidentified	*unidentified*	unidentified dragonfly
VERTEBRATES			
Amphibians			
Anura	Bufonidae	*Anaxyrus boreas*	western toad
	Hylidae	*Pseudacris hypochondriaca*	Baja California treefrog
		Pseudacris cadaverina	California treefrog
	Ranidae	*Lithobates catesbeianus*	American bullfrog
Reptiles			
Cryptodira	Emydidae	*Trachemys scripta elegans*	red-eared slider
Squamata	Phrynosomatidae	*Sceloporus occidentalis*	western fence lizard
		Uta stansburiana	common side-blotched lizard
	Teiidae	*Aspidoscelis hyperythra beldingi*†	Belding's orange-throated whiptail
Birds			
Accipitriformes	Accipitridae	*Accipiter cooperii*†	Cooper's Hawk
		Buteo jamaicensis	Red-tailed Hawk
		Buteo lineatus†	Red-shouldered Hawk
	Cathartidae	*Cathartes aura*†	Turkey Vulture
Anseriformes	Anatidae	*Anas platyrhynchos*	Mallard
Apodiformes	Trochilidae	*Calypte anna*	Anna's Hummingbird
		Selasphorus sasin	Allen's Hummingbird
Charadriiformes	Charadriidae	*Charadrius vociferus*	Killdeer
	Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope
Columbiformes	Columbidae	*Zenaida macroura*	Mourning Dove
Cuculiformes	Cuculidae	*Geococcyx californianus*	Greater Roadrunner
Falconiformes	Falconidae	*Falco peregrinus*†	Peregrine Falcon
	Falconidae	*Falco sparverius*	American Kestrel
Galliformes	Odontophoridae	*Callipepla californica*	California Quail
Gruiformes	Rallidae	*Fulica americana*	American Coot
Passeriformes	Aegithalidae	*Psaltriparus minimus*	Bushtit
	Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing
	Cardinalidae	*Pheucticus melanocephalus*	Black-headed Grosbeak
	Corvidae	*Corvus brachyrhynchos*	American Crow
	Estrildidae	*Lonchura punctulata*	Scaly-breasted Munia
	Fringillidae	*Haemorhous mexicanus*	House Finch
		Spinus lawrencei†	Lawrence's Goldfinch
		Spinus psaltria	Lesser Goldfinch
	Hirundinidae	*Hirundo rustica*	Barn Swallow

Appendix H
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
Birds (cont.)			
Passeriformes	Hirundinidae	*Petrochelidon pyrrhonota*	Cliff Swallow
		Tachycineta bicolor	Tree Swallow
	Icteria	*Icteria virens*†	Yellow-breasted Chat
	Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird
		Euphagus cyanocephalus	Brewer's Blackbird
		Icterus bullockii	Bullock's Oriole
		Icterus cucullatus	Hooded Oriole
		Molothrus ater	Brown-headed Cowbird
		Quiscalus mexicanus	Great-tailed Grackle
	Mimidae	*Mimus polyglottos*	Northern Mockingbird
		Toxostoma redivivum	California Thrasher
	Paridae	*Baeolophus inornatus*†	Oak Titmouse
	Parulidae	*Cardellina pusilla*	Wilson's Warbler
		Geothlypis trichas	Common Yellowthroat
		Oreothlypis celata	Orange-crowned Warbler
		Setophaga coronata	Yellow-rumped Warbler
		Setophaga petechia†	Yellow Warbler
	Passerellidae	*Melospiza melodia*	Song Sparrow
		Melozone crissalis	California Towhee
		Pipilo maculatus	Spotted Towhee
		Zonotrichia leucophrys	White-crowned Sparrow
	Polioptilidae	*Polioptila caerulea*	Blue-gray Gnatcatcher
		Polioptila californica californica†	Coastal California Gnatcatcher
	Ptilogonatidae	*Phainopepla nitens*	Phainopepla
	Regulidae	*Regulus calendula*	Ruby-crowned Kinglet
	Sittidae	*Sitta carolinensis*	White-breasted Nuthatch
	Sturnidae	*Sturnus vulgaris*	European Starling
	Troglodytidae	*Thryomanes bewickii*	Bewick's Wren
	Troglodytidae	*Troglodytes aedon*	House Wren
	Turdidae	*Sialia mexicana*†	Western Bluebird
		Turdus migratorius	American Robin
	Tyrannidae	*Empidonax difficilis*	Pacific-slope Flycatcher
		Myiarchus cinerascens	Ash-throated Flycatcher
		Pyrocephalus rubinus†	Vermilion Flycatcher
		Sayornis nigricans	Black Phoebe
		Sayornis saya	Say's Phoebe
		Tyrannus verticalis	Western Kingbird
		Tyrannus vociferans	Cassin's Kingbird
	Vireonidae	*Vireo bellii pusillus*†	Least Bell's Vireo
		Vireo huttoni	Hutton's Vireo
Pelecaniformes	Ardeidae	*Ardea alba*	Great Egret
		Ardea herodias†	Great Blue Heron
		Butorides virescens†	Green Heron
		Egretta thula	Snowy Egret
		Nycticorax nycticorax	Black-crowned Night-Heron
Piciformes	Picidae	*Dryobates nuttallii*	Nuttall's Woodpecker
		Dryobates pubescens	Downy Woodpecker

Appendix H
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
Birds (cont.)			
Piciformes	Picidae	*Melanerpes formicivorus*	Acorn Woodpecker
Podicipediformes	Podicipedidae	*Podilymbus podiceps*	Pied-billed Grebe
Strigiformes	Tytonidae	*Tyto alba*†	Barn Owl
MAMMALS			
Carnivora	Procyonidae	*Procyon lotor*	raccoon
Lagomorpha	Leporidae	*Sylvilagus audubonii*	desert cottontail
Rodentia	Geomyidae	*Thomomys bottae*	Botta's pocket gopher
	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

† Special Status Species

Appendix I

Special Status Plant Species Observed or with Potential to Occur

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
San Diego thorn-mint *(Acanthomintha ilicifolia)*	FT/CE CRPR 1B.1 County List A MSCP Covered MSCP NE	Annual herb. Typically found on clay soils within chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Flowering period: April to June. Elevation: below 3150 feet (960 meters).	**None**. Suitable clay soils are absent from the project site. The closest records of the species are located over 1.6 miles southeast of the site at McGinty Mountain within the SDNWR.
California adolphia (*Adolphia californica*)	--/-- CRPR 2B.1 County List B	Perennial shrub. Most often found in sage scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks on clay soils. Flowering period: December to April. Elevation: below 1,312 feet (400 meters).	**Low**. Very little sage scrub occurs on site and clay soils are absent. This perennial shrub was not observed on site during biological surveys to date.
Singlewhorl burrobrush (*Ambrosia monogyra*)	--/-- CRPR 2B.2	Perennial shrub. Found on sandy soils within washes and dry riverbeds within chaparral communities. Flowering period: September to November. Elevation: below 1,640 feet (500 meters).	**Present.** Approximately 151 individuals were mapped within Diegan coastal sage scrub at the extreme southeastern portion of the site.
San Diego ambrosia (*Ambrosia pumila*)	FE/-- CRPR 1B.1 County List A MSCP NE	Perennial herb. Occurs on sandy loam or clay, sometimes alkaline, soils. Found in native grassland, valley bottoms, dry drainages, stream floodplain terraces, and vernal pool margins. Also occurs on slopes, disturbed places, and in coastal sage scrub or chaparral. Flowering period: April to July. Elevation: 164 to 1,969 feet (50 to 600 meters).	**High.** Critical habitat for this species occurs in the extreme southwestern portion of the site along Sweetwater River. Several recent observations of the species occur just south of the site within coastal sage scrub in the SDNWR.
Otay manzanita (*Arctostaphylos otayensis*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Found in chaparral and cismontane woodland on metavolcanics soils. Flowering period: January to April. Elevation: 900 to 5,580 feet (275 to 1,700 meters).	**None**. Suitable soils and habitat are absent from the site. The site is located below the elevation range for the species.
San Diego sagewort (*Artemisia palmeri*)	--/-- CRPR 4.2 County List D	Perennial herb. Typically found along stream courses, often beneath riparian woodland, on sandy and mesic soils. May occur in coast live oak woodland, coastal sage scrub, and southern mixed chaparral. Flowering period: June to October. Elevation: below 1,969 feet (600 meters).	**Present.** Two individuals were observed at the western project boundary at the edge of southern riparian forest along Sweetwater River.
Western spleenwort (*Asplenium vespertinum*)	--/-- CRPR 4.2 County List D	Perennial rhizomatous herb. Occurs in chaparral, cismontane woodland, and coastal scrub along rocky bluffs. Flowering period: February to June. Elevation: 180 to 1,000 meters.	**None**. Suitable rocky habitat does not occur on site and no records of the species occur within the project vicinity.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Dean's milk-vetch (*Astragalus deanei*)	--/-- CRPR 1B.1 County List A	Perennial herb. Found on open, shrubby slopes in chaparral. Also occurs within coastal scrub, cismontane woodland, and riparian forest. Flowering period: February to May. Elevation: 246 to 2,280 feet (75 to 695 meters).	**Moderate.** Suitable habitat on site is limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site, and within riparian habitat located along Sweetwater River. Few recent records of the species are present within the project vicinity.
South coast saltscale (*Atriplex pacifica*)	--/-- CRPR 1B.2 County List A	Annual herb. Found coastally on dunes and within playas in alkali sinks, sage scrub and wetland riparian communities. Flowering period: March to October. Elevation: below 984 feet (300 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. No records of the species occur within the project vicinity.
Encinitas baccharis (*Baccharis vanessae*)	FT/SE CRRP 1B.1 County List A MSCP Covered NE	Perennial shrub. Grows on sandstone within chaparral, maritime chaparral, woodlands, and Torrey-pine forest understory. Found in San Diego County. Flowering period: August to December. Elevation: 195 to 2,360 feet (60 to 720 meters).	**None**. Suitable habitat and soils are not present within the project site. No records of the species occur within the project vicinity.
San Diego County viguiera (*Bahiopsis laciniata*)	--/-- CRPR 4.3 County List D	Perennial shrub. Occurs on a variety of soil types within coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Flowering period: February to August. Elevation: 295 to 2,461 feet (90 to 750 meters).	**Present.** Scattered individuals observed at the northwestern portion of the project site within disturbed coastal sage scrub and disturbed habitat.
San Diego goldenstar (*Bloomeria clevelandii*)	--/-- CRPR 1B.1 MSCP Covered	Perennial bulbiferous herb. Occurs in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools, on clay soils. Flowering period: April to May. Elevation: 164 to 1,526 (50 to 465 meters).	**Low**. Limited suitable coastal sage scrub habitat occurs on site, but the site lacks suitable clay soils. The closest occurrence of this species is from 1991 and located approximately 0.7 mile west of the site along Sweetwater River at Campo Road.
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).	**Low**. Suitable mesic soils occur along Sweetwater River but the site likes habitats associated with the species. The closest record of the species is from 1995 and located 2.8 miles south of the project within Proctor Valley.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Often associated with vernal pools. Also occurs within playas, grasslands, coastal scrub, openings in chaparral, and cismontane woodland; often on clay soils. Found in Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties. Flowering period: March to June. Elevation: 80 to 3,675 feet (25 to 1,120 meters).	**Low.** Suitable vernal pool habitat and clay soils typically associated with the species are not present within the project site. No records of the species occur within the project vicinity.
Brewer's calandrinia (*Calandrinia breweri*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs within chaparral or coastal scrub on sandy or loamy soil, disturbed sites, and after burns. Flowering Period: January to June. Elevation: 32 to 4,000 feet (10 to 1,220 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. However, no records of the species occur within the project vicinity.
Round leaved filaree (*California macrophylla*)	--/-- County List B	Annual herb. Occurs in open sites on clay, occasionally serpentine, soils within grasslands and cismontane woodlands. Found along the central and southern coast; Sacramento and San Joaquin Valleys; North Coast, South Coast, western Transverse, and Peninsular Ranges; San Francisco Bay area; southern Sierra Nevada foothills; Tehachapi and San Jacinto mountains; and the Channel Islands. Flowering Period: March to July. Elevation: below 3,940 feet (1,200 meters).	**None.** Suitable clay or serpentine soils are not present within the project site. No records of the species occur within the project vicinity.
Cataline mariposa (*Calochortus catalinae*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs within grasslands, coastal scrub, chaparral, and cismontane woodlands. Found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties. Flowering period: March to June. Elevation: 50 to 2,300 feet (15 to 700 meters).	**Low.** Suitable coastal sage scrub habitat on site is limited and highly disturbed. No records of the species occur within the project vicinity.
Dunn's mariposa lily (*Calochortus dunnii*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial bulbiferous herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland, typically on gabbroic, metavolcanics, or rocky soils. Flowering Period: Feb to June. Elevation: 600 to 6,000 feet (185 to 1,830 meters).	**None**. Suitable soils do not occur on site and the project site is below the known elevation range for the species.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Lewis' evening-primrose (*Camissoniopsis lewisii*)	--/-- CRPR 3 County List C	Annual herb. Occurs on sandy or clay soils within grasslands, coastal scrub, cismontane woodland, and coastal bluffs and dunes. Flowering period: March to June. Elevation: below 984 feet (300 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site. However, no records of the species occur within the project vicinity.
Mojave paintbrush (*Castilleja plagiotoma*)	--/-- CRPR 4.3	Perennial herb. Occurs in dry Great Basin sagebrush scrub, Joshua Tree woodland, lower montane coniferous forests, and pinyon woodland. Flowering Period: April to June. Elevation: 980 to 8,200 feet (300 to 2,500 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.
Slender pod jewelflower (*Caulanthus [stenocarpus] heterophyllus*)	--/-- MSCP Covered	Annual herb. Grows on dry sites within open coastal scrub and chaparral. Often occurs in burned and disturbed areas. Found along the coast of southern California; South Coast, western Transverse, and Peninsular Ranges; San Gabriel and San Bernardino mountains; and the Channel Islands. Flowering period: March to May. Elevation: below 4,600 feet (1,400 meters).	**Moderate.** Suitable coastal sage scrub habitat on site is limited. Documented occurrences are located further southeast of the project within the SDNWR. The species was not observed during rare plant survey conducted in 2019.
Lakeside ceanothus (*Ceanothus cyaneus*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial shrub. Occurs on slopes and ridgelines in closed cone coniferous forest and chaparral. Flowering Period: April to June. Elevation: 770 to 2,540 feet (235-755 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for this species. This conspicuous perennial shrub would have been observed if present.
Otay Mountain ceanothus (*Ceanothus otayensis*)	--/-- CRPR 1B.2	Perennial shrub. Found in chaparral dominated by chamise and ceanothus species on metavolcanics or gabbroic soils. Mild soil disturbances may enable this plant to pioneer on road cuts and in burn areas. Only known from Otay Mountain in San Diego County. Flowering Period: January to April. Elevation: 1,960 to 3,600 feet (600 to 1,100 meters).	**None**. Suitable habitat and soils are absent from the project site. Furthermore, the site is outside of the known distribution and elevation range for the species.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CRPR 2B.2 County List B MSCP Covered	Perennial shrub. Found on rocky slopes within chaparral, particularly southern maritime chaparral. Found in Riverside and San Diego Counties. Flowering period: December to May. Elevation: below 1,245 feet (380 meters).	**None.** Suitable rocky soils and chaparral habitat are not present within the project site. No records of the species occur within the project vicinity.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Southern tarplant (*Centromadia parryi* ssp. *australis*)	--/-- CRPR 1B.1 County List A	Annual herb. Found at the margins of salt marshes, vernally mesic areas within grasslands, and vernal pools. Found in the coastal regional from Santa Barbara County south to San Diego County and the Channel Islands. Flowering Period: May to November. Elevation: below 1,575 feet (480 meters).	**Low.** Vernally mesic areas occur within the project site along the Sweetwater River. However, there are no records of the species occur within the project vicinity.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	--/-- CRPR 1B.1 County List A	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Flowering Period: April to September. Elevation: below 2,100 feet (640 meters).	**Low**. Potentially suitable habitat occurs along the Sweetwater River but alkaline soils are not known to occur within the project site. No known occurrences of the species occur within the project vicinity.
Southern mountain misery (*Chamaebatia australis*)	--/-- CRPR 4.2 County List D	Perennial shrub. Occurs in chaparral on gabbroic or metavolcanics soils. Flowering Period: November to May. Elevation: 980 to 3,350 feet (300 to 1,020 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.
Long-spined spineflower *(Chorizanthe polygonoides* var. *longispina)*	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often in sandy soils. Flowering period: April to June. Elevation: 98 to 4,920 feet (30 to 1,500 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity.
Delicate clarkia (*Clarkia delicata*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in shaded areas or the periphery of oak woodlands and cismontane chaparral, often on gabbroic soils. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**None**. Suitable habitats and soils are not present on site.
San Miguel savory (*Clinopodium chandleri*)	--/-- CRPR 1B.2 MSCP Covered	Perennial shrub. Occurs within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic, or metavolcanic soils. Flowering Period: March to July. Elevation: 390 to 3,530 feet (120 to 1,075 meters.	**None**. Suitable rocky, gabbroic, and metavolcanic soils are absent from the project site. Furthermore, the is below the species' preferred elevation range.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in chaparral and cismontane woodland. Flowering period: May to June. Elevation: 328 to 1,804 feet (100 to 550 meters).	**None**. Suitable habitats do not occur on site and the project is below the known elevation range for the species.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Small-flowered morning-glory (*Convolvulus simulans*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. Flowering period: April to June. Elevation: 98 to 2,871 feet (30 to 875 meters).	**Low**. Suitable clay soils are absent from the project site and no known records of the species occur within the project vicinity.
San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*)	--/-- CRPR 1B.1 County List A	Perennial herb. Occurs within grasslands, coastal bluff scrub, coastal scrub, and chaparral. Flowering period: June to September. Elevation: 15 to 2,362 feet (5 to 720 meters).	**Moderate.** Suitable habitat on site us limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Few records of the species occur within the project vicinity with the closest occurrence found to the east in the foothills of the McGinty Mountain Ecology Reserve.
Snake cholla (*Cylindropuntia californica* var. *californica*)	--/-- CRPR 1B.1 MSCP Covered MSCP NE	Perennial herb (stem succulent). Occurs within coastal sage scrub and coastal chaparral communities. Flowering period: April to July. Elevation: below 820 feet (250 meters).	**Presumed Absent**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. This conspicuous perennial species would have been observed if present.
Otay tarplant (*Deinandra conjugens*)	FT/SE CRPR 1B.1 County List A MSCP Covered MSCP NE	Annual herb. Grows in clay soils within coastal scrub openings and grasslands. Flowering period: May to June. Elevation: 65 to 980 feet (20 to 300 meters).	**Low**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site.
Paniculate tarplant (*Deinandra paniculata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in vernally mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools with sandy soil. Flowering Period: March to December. Elevation: 80 to 3,100 feet (25 to 940 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Western dichondra (*Dichondra occidentalis*)	--/-- CRPR 4.2 County List D	Perennial herb. Found among rocks and shrubs within grasslands, coastal sage scrub, chaparral, and oak woodlands. Often proliferates on recently burned slopes. Flowering period: March to June. Elevation: below 1,706 feet (520 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Orcutt's bird's-beak (*Dicranostegia orcuttiana*)	--/-- CRPR 2B.1 County List B MSCP Covered	Annual herb. Found coastally within coastal sage scrub. Flowering period: March to August. Elevation: below 1,148 feet (350 meters).	**Low**. All records of the species occur further southwest outside of the project vicinity within Otay and Chula Vista.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Variegated dudleya (*Dudleya variegata*)	--/-- CRPR 1B.2 County List A MSCP Covered MSCP NE	Perennial herb succulent. Occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland and coastal sage scrub communities. Flowering period: April to June. Elevation: below 984 feet (300 meters).	**Low**. Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site. Furthermore, the nearest occurrence of the species is approximately 1.8 miles southwest within SDNWR.
Sticky dudleya (*Dudleya viscida*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs in rocky areas within coastal bluffs, coastal sage scrub, chaparral, and woodlands. Grows primarily on very steep north-facing slopes. Found in Orange, Riverside, and San Diego Counties. Flowering period: May to June. Elevation: 30 to 1,805 feet (10 to 550 meters).	**None.** Suitable rocky areas and steep slopes are absent from the project site. No records of the species occur within the project vicinity.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	--/-- CRPR 1B.1 County List B MSCP Covered MSCP NE	Perennial Shrub. Found in mesic areas within coastal sage scrub and chaparral. Flowering period: September to November. Elevation: below 1,968 feet (600 meters).	**Presumed Absent.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
San Diego button celery (*Eryngium aristulatum* var. *parishii*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Flowering period: May to June. Elevation: below 2,313 feet (705 meters).	**None**. No vernal pools occur within the project site. Potentially suitable mesic areas along Sweetwater River have been highly disturbed as part of previous mining activities and golf course development and operation. Furthermore, no records of the species occur within the project vicinity. The closest occurrence is over 5 miles southwest of the site, just south of Sweetwater Reservoir.
Palomar monkeyflower (*Erythranthe diffusua*)	--/-- CRPR 4.3 County List D	Annual herb. Grows in sandy or gravelly areas within chaparral and lower montane coniferous forests. Found in Riverside, Orange, and San Diego Counties. Flowering period: April to June. Elevation: 4,000 to 6,005 feet (1,220 to 1,830 meters).	**None.** The project site is outside the known elevation range of this species. No records of the species occur within the project vicinity.

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Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
San Diego barrel cactus (*Ferocactus viridescens*)	--/-- CRPR 2B.1 County List B MSCP Covered	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within chaparral, valley grassland and coastal sage scrub communities. Flowering period: May to June. Elevation: 33 to 492 feet (10 to 150 meters).	**Presumed Absent**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
Mexican flannelbush (*Fremontodendron mexicanum*)	FE/SR CRPR 1B.1 County List A	Perennial shrub. Occurs on gabbroic, metavolcanic, and serpentinite soils within chaparral, foothill woodland and closed-cone pine forest communities. Flowering period: March to June. Elevation: 33 to 2,349 feet (10 to 716 meters).	**None**. Suitable soils and habitats for this species do not occur within the project site.
Mission Canyon bluecup (*Githopsis diffusa* ssp. *filicaulis*)	--/-- CRPR 3.1 County List C	Annual herb. Grows in mesic and disturbed areas within chaparral. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 1,475 to 2,300 feet (450 to 700 meters).	**None.** Suitable chaparral habitat is absent from the project site. No records of the species occur within the project vicinity.
Palmer's grapplinghook (*Harpagonella palmeri*)	--/-- CRPR 4.2 County List D	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering Period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).	**Low.** Suitable habitat on site limited to coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, clay soils are absent from the project site.
Tecate cypress (*Hesperocyparis forbesii*)	--/-- CRPR 1B.1 MSCP Covered	Perennial tree. Found within closed-cone coniferous forest and chaparral on clay, gabbroic, or metavolcanics soils. Elevation: 262 to 4,900 feet (80 to 1500 meters).	**None**. Suitable soils and habitats do not occur within the project site. Additionally, the site is located below the known elevation range of the species.
Graceful tarplant (*Holocarpha virgata* ssp. *elongata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. Flowering period: May to November. Elevation: 195 to 3,600 feet (60 to 1,100 meters).	**Low.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur in the project vicinity.
Vernal barley (*Hordeum intercedens*)	--/-- CRPR 3.2 County List C	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Flowering period: March to June. Elevation: below 3.280 feet (1,000 meters).	**None**. No vernal pools, or suitable alkaline and saline habitats occur within the project site. The nearest record of the species is located over 6 miles south of the site within the Rancho Jamul Ecological Reserve.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in sandy soil and disturbed areas on the inland side of dunes, hillsides, and arroyos within coastal sage scrub and chaparral communities. Flowering period: July to November. Elevation: below 656 feet (200 meters).	**Moderate.** Suitable habitat on site is limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the site, and along undisturbed areas of Sweetwater River. Few recent records of the species are present within the project vicinity. This perennial shrub would most likely have been observed if present.
San Diego marsh-elder (*Iva hayesiana*)	--/-- CRPR 2B.2 County List B	Perennial herb. Found in alkaline flats, depressions, and streambanks within wetland communities. Flowering period: April to October. Elevation: 32 to 1,640 feet (10 to 500 meters).	**None**. Suitable habitat alkaline soils are not found within the project site.
Southern California black walnut (*Juglans californica*)	--/-- CRPR 4.2 County List D	Perennial tree. Grows in alluvial soils within coast sage scrub, chaparral, riparian woodlands, and cismontane woodlands. Found along the southern California coast; Coast, western Transverse, and Peninsular Ranges; and San Gabriel and San Jacinto mountains. Flowering period: March to August. Elevation: 165 to 2,955 feet (50 to 900 meters).	**Presumed Absent.** No individuals were observed within the project site during rare plant surveys conducted in 2019. This conspicuous perennial species would most likely have been observed if present.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	--/-- CRPR 4.2 County List D	Perennial herb. Found in moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps. Flowering period: May to June. Elevation: below 984 feet (300 meters).	**Present**. Suitable saline and alkaline soils do not occur on site, and the species is not known to occur within the project vicinity.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	--/-- CRPR 1B.1 County List A	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Low**. Potentially suitable habitat occurs along the Sweetwater River and associated riparian habitat within the project site. However, no records of the species occur within the project vicinity.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	--/-- CRPR 4.3 County List A	Annual herb. Grows in openings in sage scrub and chaparral at the coastal and foothill elevations. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	**High**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Occurrences of the species are reported to the southeast within McGinty Mountain and further west near Mt. San Miguel.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Willowy monardella (*Monardella viminea*)	FE/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Associated with riparian scrub, usually at sandy locales in seasonally dry washes. Generally, there is no canopy cover and river cobbles may lie in close proximity. Found in San Diego County Flowering period: June to August. Elevation: 160 to 740 feet (50 to 225 meters).	**Low.** Suitable sandy locales and seasonally dry washes occur on site; however, the species was not detected during rare plant surveys conducted in 2019. No records of the species occur within the project vicinity.
Little mousetail (*Myosurus minimus* ssp. *apus*)	--/-- CRPR 3.1 County List C	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Elevation: 65 to 2,100 feet (20 to 640 meters).	**None**. Suitable vernal pool habitat does not occur on site.
Mud nama (*Nama stenocarpa*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs in intermittently wet areas such as streambanks and muddy lake edges. Flowering period: March to October. Elevation: below 2,657 feet (810 meters).	**Low**. Marginal suitable habitat occurs within the project site along Sweetwater River. However, the site has been heavily disturbed and altered by previous mining activities and golf course development. Additionally, the closest occurrence of the species is over 4 miles west at the Sweetwater Reservoir.
Spreading navarretia (*Navarretia fossalis*)	FT/-- CRPR 1B.1 County List A	Annual herb. Occurs in vernal pools, chenopod scrub, marshes, swamps, and playas. Flowering period: April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).	**None**. Vernal pools and other potentially suitable habitat does not occur within the project site. No occurrences of the species have been reported in the project vicinity.
chaparral nolina (*Nolina cismontana*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Grows on sandstone or gabbro soils within coastal scrub and chaparral. Found in the coastal regions of southern California from Ventura south to San Diego County and extreme western Riverside County. Flowering period: May to July. Elevation: 455 to 4,185 feet (140 to 1,275 meters)	**None.** Suitable sandstone and gabbro soils are not present within the project site. No records of the species occur within the project vicinity.
Dehesa nolina (*Nolina interrata*)	--/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Grows on gabbroic, metavolcanics, or serpentine soils within chaparral. Found in San Diego County. Flowering period: June to July. Elevation: 605 to 2,805feet (185 to 855 meters).	**None.** Suitable chaparral habitat and gabbro, metavolcanic, and serpentine soils absent from the project site. No records of the species occur within the project vicinity.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
California adder's-tongue (*Ophioglossum californicum*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on the marginals of vernal pools and mesic areas within grasslands and chaparral. Found within the Sacramento and San Joaquin Valleys, Sierra Nevada and Peninsular Ranges, and along the central and southern coasts. Flowering period: January to June. Elevation: 195 to 1,725 feet (60 to 525 meters)	**None.** Suitable vernal pool, grassland, and chaparral habitat is absent from the project site. No records of the species occur within the project vicinity.
Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grassy areas within coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest, riparian woodland. Flowering period: March to July. Elevation: 260 to 6,100 feet (80 and 1,850 meters).	**Low**. Suitable grassy habitats are absent from the site. The site is largely characterized by disturbed and developed lands associated with golf course development and operations. Furthermore, there are no known occurrences of the species with the project vicinity.
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows in vernal pools and other vernally mesic places within grasslands, chaparral, and upland forests. Found along the coast and the North Coast Ranges in northwestern California. Flowering period: June to October. Elevation: below 2,000 feet (610 feet).	**None.** The site located outside the known distribution of this species. No records of the species occur within the project vicinity.
Woolly chaparral-pea (*Pickeringia montana* var. *tomentosa*)	--/-- CRPR 4.3	Evergreen shrub. Occurs in chaparral on gabbroic, granitic, or clay soils. Flowering period: May to August. Elevation: below 5,600 feet (1,700 meters).	**None**. Suitable soils and chaparral habitat do not occur within the project site.
Chaparral rein orchid (*Piperia cooperi*)	--/-- CRPR 4.2 County List D	Perennial herb. Generally found on dry sites within grasslands, chaparral, and cismontane woodland. Flowering period: March to June. Elevation: 50 to 5,200 feet (15 to 1,585 meters).	**Low**. Suitable habitat habitats are absent from the project site and no there are no known occurrences of the species within the project vicinity.
Narrow-petaled rein orchid (*Piperia leptopetala*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on generally dry sites within cismontane woodland and coniferous forests. Found in the Coast, Klamath, Cascade, and Sierra Nevada Ranges and associated foothills; Tehachapi mountains; San Francisco Bay area; South Coast, western Transverse, and Peninsular Ranges; and the San Gabriel, San Bernardino, and San Jacinto mountains. Flowering period: May to July. Elevation: 1,245 to 7,300 feet (380 to 2,225 meters).	**None.** The site is located outside of the known elevation range for this species. No records of the species occur within the project vicinity.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Otay mesa mint (*Pogogyne nudiuscula*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Grows in vernal pools of San Diego County. Flowering period: May to July. Elevation: 295 to 820 feet (90 to 820 meters).	**None.** Suitable vernal pool habitat is absent from the project site. No records of the species occur within the project vicinity.
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	--/-- CRPR 2B.2	Perennial herb. Occurs on sandy or gravelly soils of benches, dry stream bottoms, and canyon bottoms within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: July to November. Elevation: below 6,890 feet (2,100 meters).	**Low.** Though potentially suitable habitat occurs on site along Sweetwater River, the site has been highly disturbed by previous mining activities and golf course development and operation. Additionally, recorded occurrences of the species are well over 7 miles north of the site within Santee and Lakeside, within habitat associated with the San Diego River.
Cedros Island oak (*Quercus cedrosensis*)	--/-- CRPR 2B.2 County List B	Perennial tree. Occurs within closed-cone coniferous forest, chaparral, and coastal scrub of San Diego County. Flowering period: April to May. Elevation: 835 to 3,150 feet (255 to 960 meters).	**Presumed Absent.** This conspicuous perennial tree would most likely have been observed if present. Majority of documented occurrences of this species are found further south of the site along the U.S./Mexico border.
Nuttall's scrub oak (*Quercus dumosa*)	--/-- CRPR 1B.1 County List A	Perennial shrub. Occurs on sandy or clay loam soils near the coast within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: March to May. Elevation: below 656 feet (200 meters).	**Presumed Absent.** Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, this conspicuous perennial species would have been observed if present.
Engelmann oak (*Quercus engelmannii*)	--/-- CRPR 4.2 County List D	Perennial tree. Occurs on slopes and foothills within grasslands, chaparral, oak woodland, and riparian woodlands. Flowering period: March to June. Elevation: 160 to 4,300 feet (50 to 1,300 meters).	**Presumed Absent.** This conspicuous perennial tree would have been observed if present. No records of the species occur within the project vicinity and are generally located further east or south of the site in higher elevation areas.
Coulter's matilija poppy (*Romneya coulteri*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs in dry washes and canyons coastal scrub chaparral. Often in burned areas. Flowering period: March to August. Elevation: 65 to 3,900 feet (20 to 1,200 meters).	**Presumed Absent**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity. This conspicuous perennial species would have been observed if present.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Munz's sage (*Salvia munzii*)	--/-- CRPR 2B.2 County List B	Perennial shrub. Occurs within chaparral and coastal scrub of San Diego County. Flowering period: February to April. Elevation: 370 and 3,500 feet (115 to 1,065 meters).	**Low**. Suitable coastal sage scrub habitat on site is limited and highly disturbed. Documented occurrences of the species are located further southwest of the site within Otay Mesa.
Ashy spike-moss (*Selaginella cinerascens*)	--/-- CRPR 4.1 County List D	Fern. Grows in sunny spots or under shrubs within coastal sage scrub and chaparral. Often associated with "red clay" soils. Elevation: below 1,804 feet (550 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity.
Chaparral ragwort (*Senecio aphanactis*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs on alkali flats and dry, open, rocky areas within grasslands, coastal scrub, and cismontane woodland. Flowering period: February to May. Elevation: 33 to 1,804 feet (10 to 550 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. The project site lacks suitable associated with the species. No recent records of the species occur within the project vicinity.
Purple stemodia (*Stemodia durantifolia*)	--/-- CRPR 2B.1 County List B	Perennial herb. Grows on wet sand or rocks within riparian habitats or drying streambeds. Flowering period: year-round. Elevation: 1,312 feet (400 meters).	**Low.** Suitable habitat occurs along Sweetwater River, but the project site has been highly disturbed from past mining activities and golf course development and operation. The closet occurrence is over 5 miles to the west, just west of Sweetwater Reservoir.
San Diego County needle grass (*Stipa diegoensis*)	--/-- CRPR 4.2	Perennial herb. Found in rocky, mesic soils near streams or the coast within coastal scrub and chaparral. Flowering period: February to June. Elevation: 30 to 2,600 (10 and 800 meters).	**Low**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. However, no records of the species occur within the project vicinity. The closest occurrence of the species is over 4.5 miles south of the site within Proctor Valley.
Estuary seablite (*Suaeda esteroa*)	--/-- CRPR 1B.2 County List A	Perennial herb. Found in coastal salt marshes and swamps. Flowering period: May to October. Elevation: below 16 feet (5 meters).	**None**. Suitable habitat does not occur on site and the species is not known to occur within the project vicinity. Observations of the species are concentrated in coastal areas such as the San Diego Bay and Tijuana River Estuary.

Appendix I
Special Status Plant Species Observed or with Potential to Occur

Species	Status[1]	Habit, Ecology and Life History	Potential to Occur[2]
Parry's tetracoccus (*Tetracoccus dioicus*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Occurs on dry slopes within coastal sage scrub and chaparral. Usually, conditions are quite xeric with only limited annual growth. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Moderate**. Suitable habitat on site limited to remnant patches of coastal sage scrub in the extreme northeastern and southwestern portions of the project. Recorded occurrences of the species are located over 1.8 miles southeast of the site on the southeastern facing slopes of McGinty Mountain. This perennial shrub would most likely have been observed if present.

[1] F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare

CRPR = California Native Plant Society Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – more information needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

County of San Diego Sensitivity Status: Plant species are divided into Lists A through D on the County Rare Plant List. **Lists A and B** Plants include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Lists C and D** Plants include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County MSCP Subarea Plan; NE = Narrow Endemic Species under County MSCP Subarea Plan.

[2] Potential to Occur is assessed as follows. **None**: There are no present or historical records of the species occurring on or in the immediate vicinity of the project site and the diagnostic habitats and soils associated with the species do not occur on or in the immediate vicinity of the project; **Low**: Suitable habitat is present in the project site and a historical record of the species occurs in the immediate vicinity but existing conditions such as elevation, soils, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation substantially reduce the possibility that the species may occur; **Moderate**: The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project site, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat occurs in the project site and the species has been recorded recently on or in the immediate vicinity but the species was not observed during project surveys; **Present**: The species was observed within the project site during biological surveys for the project; **Presumed Absent**: Species would be visible all year and would have been observed if present.

Appendix J

Special Status Animal Species Observed or with Potential to Occur

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
INVERTEBRATES			
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/-- County Group 1 MSCP NE MSCP Covered	Restricted to vernal pools and other ephemeral basins in southern California from coastal Orange County to San Diego County. Found in seasonally astatic pools which occur in tectonic swales or earth slump basins and other areas of shallow, standing water often in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.	**None**. No vernal pools or other suitable habitat to support the species is present within the project site. The closest reported occurrence of the species is located over 2.8 miles southwest of the site.
Thorne's hairstreak (*Callophrys thornei*)	--/-- County Group 1 MSCP Covered MSCP NE	Occupies Tecate cypress forests, which larvae exclusively feed upon. Tecate cypress is a relict species from a time when southern California's climate was cooler and wetter. There are five remaining populations of the species, all are located within the Otay Mountain wilderness.	**None**. The species' host plant does not occur within the project site, or within adjacent areas. The project is located outside of the known range of the species, Otay Mountain wilderness, which occurs approximately 10 miles to the south.
Monarch butterfly (*Danaus plexippus*)	--/-- County Group 2	The population west of the Rocky Mountains migrates to, and overwinters, along the coast of central and southern California. Inhabits a wide variety of open habitats including fields, meadows, marshes, and roadsides and roosting on wind-protected tree groves (such as eucalyptus [*Eucalyptus* spp.], Monterey pine [*Pinus radiata*], cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby. Breeds in areas that have a suitable abundance of their host plant, milkweed (*Asclepias* sp.).	**Present.** A single individual was observed flying within non-native woodland in the southeastern portion of the project site in August 2018. An additional individual was observed just outside of the project boundary, to the south of the patch of riparian habitat east of Steele Canyon Road, in July 2019.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/-- County Group 1 MSCP NE	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [*Plantago erecta*], woolly plantain [*Plantago patagonia*] but also Coulter's snapdragon [*Antirrhinum coulterianum*], and rigid bird's beak [*Cordylanthus rigidus*]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.	**None**. The project site is a developed golf course lacking suitable habitat for the species. Potential habitat for the species occurs outside of the project boundary to the southwest and southeast of the site within lands preserved by the SDNWR and other open space areas.
Dun skipper (*Euphyes vestris harbisoni*)	--/-- County Group 1 MSCP NE	Occurs in the foothills of northern and southern San Diego County, extreme western Riverside County, and southern Orange County. Prefers oak woodlands but is also found within chaparral or riparian areas that have narrow canyons or drainages where the species host plant, San Diego sedge (*Carex spissa*) is found. Generalist feeder with a preference for milkweeds and thistle. Nectaring resources include morning glory (*Calystegia macrostegia tenuifolia*), red thistle (*Cirsium occidentale*), loosestrife (*Lythrum californicum*), and less frequently golden yarrow (*Eriophyllum confertiflorum*) and black mustard (*Brassica nigra*).	**None**. The site lacks narrow canyons and drainages where the species is typically found, and the host plant was not documented within the project site.
Hermes copper butterfly (*Lycaena hermes*)	--/-- County Group 1	Found in coastal sage scrub and southern mixed chaparral habitats with mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*). This species appears to utilize redberry stands growing in deeper, well drained soils of canyon bottoms and north-facing hillsides. Nectaring resources include California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and California sunflower (*Encelia californica*), among others.	**None**. The species host plant, redberry, does not occur within the project site. Potentially suitable habitat for the species occurs to the southeast and southwest of the site within the SDNWR and other open space areas.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Robinson's rain scarab beetle (*Phobetus robinsoni*)	--/-- County Group 2	Only known from three localities in San Diego (Scissor's crossing) and Orange County (O'Neill Park and Laguna Beach).	**None**. The project site is located outside of the known range of the species.
VERTEBRATES			
Amphibians			
Arroyo toad (*Anaxyrus californicus*)	FE/SSC County Group 1 MSCP NE MSCP Covered	Inhabits low gradient, medium to large streams and rivers with intermittent and perennial flow in coastal and desert drainages of central and southern California. Breeding habitat specialists that require slow-moving streams composed of sandy soils with sandy streamside terraces. May occupy first-order streams, though most populations inhabit second-sixth-order streams that have extensive braided channels and sediment deposits of sand, gravel, or pebbles that are redistributed by flooding. Utilizes shallow pools (at least 1-inch deep) for breeding, egg-laying, and tadpole development. Vulnerable to habitat destruction and alteration due to changes in hydrology, including construction of dams and water diversions. Impacted by the presence of non-native predators such as American bullfrog (*Lithobates catesbeianus*).	**Low.** The species was not detected during the 2019 protocol surveys. Though Sweetwater River is within the historical range of the species and potentially suitable habitat is present on site, the site has been significantly degraded by previous mining activities and golf course development. Furthermore, the hydrological regime of the region has been heavily altered by development of artificial impoundments upstream (Loveland Reservoir) and downstream (Sweetwater Reservoir) of the site. Arroyo toads have been observed downstream of Loveland Reservoir but have not been documented west of Sloan Canyon Road since 1997. Focused surveys for the species were conducted at the site in 2003 by USGS; no arroyo toads were observed (USGS 2005).
California red-legged frog (*Rana draytonii*)	FT/SSC County Group 1 MSCP Covered MSCP NE	The species has been extirpated from 70 percent of its former range. Current distribution includes coastal drainages of central California, from Marin County south to northern Baja California, and in isolated drainages in the Sierra Nevada, northern Coast, and northern Transverse Ranges at elevations below 5,000 feet. Inhabits a variety of aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. Breeds in artificial impoundments such as stock ponds.	**None.** Though the site contains suitable aquatic habitat that could potentially support the species, there are no known occurrences of the species within the region.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western spadefoot toad (*Spea hammondii*)	--/SSC County Group 2	Occurs from northern California southward to San Diego County, and west of the Sierra Nevada at elevations below 4,500 feet. This terrestrial species requires temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains, but also found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	**High.** Potentially suitable habitat occurs within the project site along the Sweetwater River. However, the site has been heavily degraded and disturbed by previous mining activities and golf course development and operations. Occurrences of the species are reported just south of the site within the SDNWR.
Reptiles			
Southwestern pond turtle (*Actinemys pallida*)	--/SSC County Group 1 MSCP Covered	Found in California from the central coast south of the San Francisco Bay area to San Diego County, including the Mojave River. Habitat generalist that occurs within many types of water from freshwater to brackish environments and permanent to intermittent waterbodies. Inhabit creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants. Prefers habitats with slow flowing water particularly where basking sites (such as rocks, downed logs, or emergent vegetation), deep water retreats, and egg laying areas are readily available.	**Low**. Man-made ponds could potentially provide suitable habitat for the species. However, no records of the species occur within the project vicinity. The closest location is over 5 miles northeast of the site, along Sweetwater River, downstream of Loveland Reservoir near the river's confluence with Lawson Creek. Furthermore, USGS conducted visual and trapping surveys for the species in 2002 throughout the local area. No pond turtles were detected along portions of the Sweetwater River within the SDNWR, or at Sweetwater Reservoir during surveys (USGS 2005b and 2003).

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
San Diegan legless lizard (*Anniella stebbinsi*)	--/SSC County Group 2	Occurs in sparsely vegetated areas with moist warm, loose soil with plant cover; moisture is essential. Common in several habitats but especially in beach dunes, coastal scrub, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Sometimes found in suburban gardens in southern California.	**Moderate.** Potentially suitable habitat occurs along the Sweetwater River. However, the site has been heavily degraded by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	--/WL County Group 2 MSCP Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego Counties on the western slopes of the Peninsular ranges below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	**Present.** Individuals were observed on several occasions in the northeastern portion of the site between Willow Glen Drive and Sweetwater River, and adjacent to the patch of riparian habitat east of Steele Canyon Road.
San Diego tiger whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC County Group 2	Occurs along the coastal region of southern California from San Luis Obispo south to San Diego County. Inhabits a wide variety of habitats, primarily in hot and dry open areas with sparse vegetation, from sea level to 4,900 feet. Associated habitats include coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas with sandy or gravel substrates.	**Moderate.** Potentially suitable coastal sage scrub habitat occurs in the extreme southwestern and southeastern portions of the project site. However, these remnant patches have been disturbed by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site within the SDNWR.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
San Diego banded gecko (*Coleonyx variegatus abbotti*)	--/SSC County Group 1	Occurs in the coastal regions of southern California from interior Ventura County to San Diego County, although the species is absent from the extreme outer coast. Inhabits coastal sage scrub and chaparral habitats, most often occurring in granite or rocky outcrops.	**Low.** Two remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development, and lack suitable structural habitat (i.e., rocky areas) associated with this species. No occurrences of the species are reported in the project vicinity.
Red diamond rattlesnake (*Crotalus ruber*)	--/SSC County Group 2	Occurs in southwestern portion of California from San Bernardino County southward to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.	**Low.** Two remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development, and lack suitable structural habitat (i.e., rocky areas) associated with this species.
San Diego ring-necked snake (*Diadophis punctatus similis*)	--/-- County Group 2	Found mainly in San Diego County along the coast to the west of the mountain and desert regions, and in extreme southwestern Riverside County. Prefers moist habitats and often found near intermittent streams. Suitable habitat includes wet meadows, rocky hillsides, farmland, grassland, chaparral, mixed coniferous forests, and woodlands. Secretive with individuals usually found under the cover of rocks, wood, boards and other surface debris, but occasionally seen moving on the surface on cloudy days, dusk, or at night.	**Moderate.** Potentially suitable riparian habitat occurs along the Sweetwater River. However, the site has been disturbed by previous mining activities and golf course development and operations. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Blainville's horned lizard (*Phrynosoma blainvillii*)	--/SSC County Group 2 MSCP Covered	Occurs from southern California to northern Baja California. In California, the species predominately occurs from Kern County south to San Diego County west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (*Pogonmyrmex* sp.) and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**Low.** Though the species has been observed within the project vicinity, potentially suitable coastal sage scrub habitat is limited to remnant patches of habitat along the site's southern boundary that has been disturbed by golf course development and operations. No harvester ants were observed during the biological surveys.
Rosy boa (*Lichanura orcutti*)	--/-- County Group 2	Occurs in throughout southern California south of Los Angeles County from the coast east towards the Mojave and Colorado deserts, and south to San Diego County, though the species is absent from most of Imperial County. Inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. Appears to be common in riparian areas but does not require permanent water.	**Low.** Potentially suitable coastal sage scrub and riparian habitats occur within the project site but lacks rocky areas associated with the species. The site has also been heavily disturbed by previous mining activities and golf course development. The species is reported to occur over 1 mile west of the site along Sweetwater River within the SDNWR.
Coronado skink (*Plestiodon skiltonianus interparietalis*)	--/WL County Group 2	Occurs from in coastal and inland portions of southern San Diego County, though can occur up into Riverside County where it intergrades with Skilton's skink (*Plestiodon skiltonianus skiltonianus*). Suitable habitats include grassland, woodlands, pine forests, and chaparral, especially in open sunny areas such as clearings and edges of creeks or rivers. Prefers rocky areas near streams with lots of vegetation but can also be found in areas away from water. Occasionally seen foraging in leaf litter but more commonly found underneath surface objects, such as bark or rocks, where it lives in extensive burrows.	**Low.** Potentially suitable coastal sage scrub and riparian habitats occur within the project site but lacks rocky areas associated with the species. The site has also been heavily disturbed by previous mining activities and golf course development. No occurrences of the species are reported in the project vicinity.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	--/SSC County Group 2	Occurs in the coastal regions of California from the northern Carrizo Plains in San Luis Obispo County south to San Diego County at elevations below 7,000 feet. Inhabits semi-arid shrubby areas such as chaparral and desert scrub. Also found along washes, sandy flats, canyons, and rocky areas. Takes refuge and overwinters in burrows and woodrat nests.	**Low.** Remnant patches of coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. However, these areas are small in size, have been previously disturbed by golf course development. The nearest reported occurrences of the species are located over 3 miles southwest of the project near Sweetwater Reservoir.
Two-striped garter snake (*Thamnophis hammondii*)	--/SSC County Group 1	Found in California from Monterey County south along the coast to San Diego County at elevations below 7,000 feet. Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows and other dense vegetation. The species has also been found in stock ponds and other artificially created aquatic habitats if bordered by dense vegetation and potential prey, such as amphibians and fish, are present.	**High.** Potentially suitable riparian habitats occur within the project site along Sweetwater River, but the site lacks rocky streambed habitat typically associated with the species. Artificial ponds within the site are open, lacking sufficient vegetative cover for the species. The patch of riparian habitat east of Steele Canyon Road along the southern boundary contains potentially suitable ponded areas bordered by dense riparian habitat. The species is reported to occur west of the site along Sweetwater River within the SDNWR, and a single SanBIOS record from 2003 is located within or adjacent to the southwestern portion of the site.
South Coast garter snake (*Thamnophis sirtalis infernalis*)	--/SSC County Group 2	This unformal subspecies occurs within scattered localities of California from Ventura County south San Diego County at elevations below 2,880 feet. Inhabits marsh and uplands habits near permanent water sources and suitable riparian habitats.	**low.** Potentially suitable riparian habitats occur within the project site along Sweetwater River, but the site lacks rocky streambed habitat typically associated with the species. There are no reported occurrences of the species within the project vicinity.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Birds			
Cooper's Hawk (*Accipiter cooperii*)	--/WL County Group 1 MSCP Covered	In California, the species breeds from Siskiyou County south to San Diego County and east towards Owens Valley at elevations below 9,000 feet. Inhabits forests, riparian areas, and more recently suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.	**Present.** Species observed on multiple occasions perched in trees within the developed golf course and riparian habitat and flying over the site. Species has the potential to nest within, or in the vicinity of, the project site.
Sharp-shinned Hawk (*Accipiter striatus*)	--/WL County Group 1	Primarily winters and migrates throughout California with breeding records in the northern and central portions of the State, but the species breeding range in California is poorly known. Breeds within most closed-canopy woodlands and forests, including riparian habitats, from sea level to near alpine elevations, generally nesting in trees near openings. Wintering habitat similar to breeding habitat but more expansive to include suburban and agricultural areas.	**High**. Species would only be present as a wintering or migrating individual. Multiple eBird sightings of the species occur within the surrounding area, including the SDNWR to the southwest. The species would likely utilize preserved and open space areas found to the east, south, and west of the site that provide higher quality foraging habitat.
Tricolored Blackbird (*Agelaius tricolor*)	BCC/SCE, SSC County Group 1 MSCP Covered	Highly colonial, nomadic species occurring as a year-round resident of California from Sonoma County to San Diego. Common locally in the Central Valley and sporadically throughout the state. Breeds in dense colonies. Breeding habitat typically characterized by emergent freshwater marsh dominated by tall, dense cattails and bulrush (*Schoenoplectus* spp.; *Scirpus* ssp.), though also utilizes willows, blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* sp.), and agricultural crops. Forages in grasslands and cropland habitats adjacent to breeding areas.	**Low.** Freshwater marsh habitat on site is limited and too small in size to support the species. The most recent documented occurrences of this species are located further west of the site at Sweetwater Reservoir.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	--/WL County Group 1 MSCP Covered	Restricted to southwestern California occurring from Santa Barbara County southwards to San Diego County at elevations below 5,000 feet. Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefer areas with California sagebrush but are generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.	**None.** The project site is generally flat, lacking suitable sloped hillsides inhabited by the species. Occurrences of the species are found further southeast and southwest of the site along the foothills and hillsides of Mt. San Miguel and McGinty Mountain.
Grasshopper Sparrow (*Ammodramus savannarum*)	--/SSC County Group 1	Occurs west of the Cascade and Sierra Nevada mountains from Mendocino County south to San Diego County at elevations below 5,000 feet. Prefers moderately open grasslands and prairies with scattered shrubs. Generally avoids grasslands with extensive shrub cover.	**None**. The site lacks grassland habitat that is required by the species.
Golden Eagle (*Aquila chrysaetos*)	BCC/WL, FP County Group 1 MSCP Covered	Uncommon permanent resident and migrant throughout California, except the center of the Central Valley. More common in southern California than in northern regions. Inhabits a variety of habitats, nesting in cliffs or trees and rugged terrain and foraging over plains, grasslands, or low and open shrublands including chaparral and coastal sage scrub. Typically absent from heavily forested areas or on the immediate coast and are almost never detected in urbanized environments.	**Low.** The site lacks suitable nesting habitat for the species, and no known nests occur within 4,000 feet of the project site. The species has been observed within the surrounding area but would not be expected to utilize the site for foraging opportunities based on the presence of development and other human disturbances. Additionally, extensive, higher quality habitat is present within preserved and open space areas off site, including the SDNWR.
Great Blue Heron (*Ardea herodias*)	--/-- County Group 2	Year-round resident of California occurring throughout most of the State in saline and freshwater wetlands and shallow estuaries. Nests as single pairs and in small colonies with nests located on the ground, in trees and bushes, and on artificial structures that are usually adjacent to water and secluded from human disturbance. Found in a wide variety of habitats foraging in various wetland habitats, water bodies, and occasionally uplands.	**Present.** Individuals observed foraging in two separate locations within the project site. One individual was detected within the patch of riparian habitat just east of Steele Canyon Road and another was detected at the edge of a man-made pond to the west of Steele Canyon Road.

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Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Bell's sparrow (*Artemisiospiza belli*)	BCC/WL County Group 1	Non-migratory resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, they tend toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	**Low.** Small patches of remnant coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site. The closest records of the species are over 2.5 miles south within higher quality coastal sage and chaparral habitat in the SDNWR.
Long-eared Owl (*Asio otus*)	--/SSC County Group 1	Occurs throughout California, particularly in the Central Valley and southern California deserts. Found in dense riparian habitats and oak woodlands adjacent to open foraging areas. Typically nests in abandoned raptor nests in willows and oaks and atop woodrat nests and accumulations of debris trapped in the crotches of large oaks. Winters in communal roosts in dense willow thickets, tamarisk groves, palo verde, and conifers.	**Low**. Suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. However, no records of the species occur within the project vicinity.
Burrowing Owl (*Athene cunicularia*)	BCC/SSC County Group 1 MSCP NE MSCP Covered	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Species can also occupy agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as California ground squirrel (*Spermophilus beecheyi*). Also utilizes natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.	**Low**. The site consists of a developed golf course that is subject to on-going maintenance activities (such as irrigation and mowing) and human disturbance. There are no observations of the species within the project vicinity. The closest occurrence record for the species is located over 5 miles west, to the south of Sweetwater Reservoir.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
Oak Titmouse (*Baeolophus inornatus*)	BCC/--	Year-round resident found from southern Oregon south through California to northwestern Baja California, Mexico. Occurs throughout most of California but is generally absent from the northwestern coastal region and San Joaquin Valley. Inhabits dry oak and oak-pine woodlands and may use scrub oaks and other scrub habitat near woodlands. Also found in juniper woodlands and open pine forests.	**Present.** One individual foraging within trees in the developed golf course to the west of Steele Canyon Road.
Canada Goose (*Branta canadensis*)	--/-- County Group 2 MSCP Covered	Winters in southern California within mixed fresh and brackish water habitats with low grass or succulent leaves. Typically roosts on open water of lakes or ponds. Feeds mainly on cultivated grains, wild grasses, and forbs, but also aquatic plants. Often seen in flocks.	**High.** Artificial ponds and developed golf course areas provide suitable overwintering and foraging habitat for the species and the species is known to occur within the project vicinity.
Red-shouldered Hawk (*Buteo lineatus*)	--/-- County Group 1	In California, the species occurs to the west of Sierra Nevada occupying mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas. Nests in trees, both native and non-native, often located near a water source such as stream or pond.	**Present.** Multiple individuals observed perched in trees or flying overhead within both the eastern and western portions of the site.
Ferruginous Hawk (*Buteo regalis*)	BCC/WL County Group 1 MSCP Covered	Relatively uncommon wintering visitor to California. Occurs at lower elevations in the Modoc Plateau, Central Valley, and Coast Ranges. Inhabits open terrains including grasslands, agricultural areas, and deserts.	**Low**. The species would only occur as wintering and migrating individuals. Suitable foraging habitat for the species in generally absent from the site as it is occupied by a developed golf course. Furthermore, there are no reported sightings of the species within the project vicinity. The nearest occurrence of the species is located over 5 miles west, near the Sweetwater Reservoir.
Green Heron (*Butorides virescens*)	--/-- County Group 2	In California, the species is a year-round found generally west of the Sierra Nevada and within the southern deserts. Found in a wide variety of wetland habitats such as swamps, marshes, riparian habitat along creeks and streams, lake edges, and man-made ditches, canals, and ponds preferring thick vegetation and avoiding open areas.	**Present.** Detected in three separate locations within the project site. A pair was observed at a man-made pond at the eastern boundary, an individual was observed perched within riparian habitat just east of Steele Canyon Road, and another individual was detected at the edge of man-made pond to the west of Steele Canyon Road.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC/SSC County Group 1 MSCP NE MSCP Covered	One of seven subspecies occurring in southern California from southern Orange County south to San Diego County. Occupies native scrub vegetation with thickets of mature cacti consisting of cholla (*Cylindropuntia* spp.) or prickly-pear cactus (*Opuntia littoralis*). Cacti must be tall enough to support and protect the bird's nest (typically 3 feet or more in height). Surrounding vegetation usually consists of coastal sage scrub habitat with shrubs normally below the level of nest placement.	**Not expected.** Small patches of remnant coastal sage scrub occur in the extreme southwestern and southeastern portions of the project site but lack mature cacti stands required by the species for nesting. The closest documented location of the species is over 2 miles west of the site, adjacent to the SDNWR.
Turkey Vulture (*Cathartes aura*)	--/-- County Group 1	Observed throughout San Diego County with the exception of extreme coastal San Diego where development is heaviest. Foraging habitat includes most open habitats with breeding occurring in crevices among boulders. Roosts communally preferring stands of large trees or hilly areas, usually away from human disturbance.	**Present**. A single individual was observed soaring overhead in the southwestern portion of the site. No potentially suitable breeding habitat is present on site.
Northern Harrier (*Circus cyaneus*)	--/SSC County Group 1 MSCP Covered	Occurs as a year-round resident in California. Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, and pastures and agricultural areas. Breeding populations in southern California from Ventura County to San Diego County are highly fragmented with many local populations extirpated mostly likely as a result of habitat loss and degradation. Nests on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas.	**Moderate.** Potentially suitable riparian habitat occurs along Sweetwater River, but the site has been heavily disturbed and degraded by previous mining activities and golf course development. Individuals would likely utilize higher quality habitat located offsite within the SDNWR. There are multiple occurrences of the species are reported within the surrounding area.
Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	FT, BCC/SE County Group 1 MSCP NE	Uncommon summer resident of California. Current breeding distribution is restricted to isolated sites in Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys. Riparian obligates that nest in riparian woodlands with native broadleaf trees and shrubs, such as cottonwoods and willows, at least 50 acres or more in size within the arid to semiarid landscapes. Most likely to be found in patches of riparian habitat greater than 200 acres.	**None**. The site does not contain a sufficient amount of suitable riparian habitat to support this species. Additionally, there are no known breeding records of the species within the project vicinity or greater region.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
White-tailed Kite (*Elanus leucurus*)	--/FP County Group 1	Year-long resident of California residing along the coasts and valleys west of the Sierra Nevada foothills and southeast deserts, though the species has also been documented breeding in arid regions east of the Sierra Nevada and within Imperial County. Inhabits low elevation grasslands, wetlands, oak woodlands, open woodlands, and is associated with agricultural areas. Breeds in riparian areas adjacent to open spaces nesting in isolated or relatively large stands of trees.	**High.** Suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River and the species is known to occur in the local area. However, the species would most likely nest in more extensive higher quality habitat off site, such as riparian habitat within the SDNWR.
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	FE/SE County Group 1 MSCP NE MSCP Covered	Breeds in southern California, Arizona, New Mexico, southwestern Colorado, and extreme southern portions of Nevada and Utah. Riparian obligates that breed in relatively dense riparian habitats along rivers, streams, or other wetlands where surface water is present, or soils are very saturated. Breeding habitat can consist of monotypic stands of willows, a mixture of native broadleaf trees and shrubs, monotypic stands of exotics such as tamarisk (*Tamarix* spp.) or Russian olive (*Elaeagnus angustifolia*), or mixture of native broadleaf trees and shrubs with exotics. Restricted in San Diego County to two modest colonies at San Luis Rey River and Santa Margarita River, with a few scattered pairs.	**Low.** Critical habitat for the species is mapped to the west of the site along the Sweetwater River; however, the species was not detected to protocol surveys conducted in 2019. Low quality riparian habitat occurs in the southwestern portion of the project along Sweetwater River; however, there are no reported sightings of the species in the area. The last recorded breeding occurrence in the project vicinity was over 2.5 miles west of the site along Sweetwater River, east of Sweetwater Reservoir. Migrating individuals may utilize the site or adjacent off site areas as stop-over habitat, but breeding pairs are not anticipated based on the lack of recent observations and declining status of the species.
California Horned Lark (*Eremophila alpestris actia*)	--/WL County Group 2	In California occurs along the coastal ranges of from San Joaquin Valley south to U.S./Mexico border. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	**High.** Active and abandoned golf course areas provide suitable foraging habitat for the species and the species is known to occur within the project vicinity.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
Merlin (*Falco columbarius*)	--/WL County Group 2	Uncommon winter migrant in California occurring from September to May at elevations below 5,000 feet. Often found in open woodland, grasslands, cultivated fields, marshes, estuaries and seacoasts; rarely found in heavily wooded areas or over open deserts.	**High.** The project site provides suitable overwintering and foraging habitat for this species which can also be found within urbanized areas. There are numerous eBird sightings of the species in the project vicinity.
Prairie Falcon (*Falco mexicanus*)	BCC/WL County Group 1	In California, the species is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner coastal mountains and Sierra Nevada but is absent from northern coastal fog belt. Primary habitats include grasslands, savannahs, alpine meadows, some agricultural fields during the winter season, and desert scrub areas where suitable cliffs or bluffs are present for nest sites. Requires sheltered cliff ledges for cover and nesting which may range in height from low rock outcrops of thirty feet to cliffs up to and higher than 400 feet.	**Low**. The project site does not contain suitable nesting habitat for the species. The site consists of a developed golf course that would provide limited foraging habitat for the species. Few occurrences of the species are present to the west of the site within SDNWR lands surrounding Sweetwater Reservoir.
American Peregrine Falcon (*Falco peregrinus anatum*)	BCC/FP County Group 1 MSCP NE MSCP Covered	In California, the species is a very uncommon breeding resident and migrant throughout the State. Active nesting sites of this species within California are known from along the coast north of Santa Barbara, in the Sierra Nevada, and other mountains of northern California. Few nest sites are known anecdotally for southern California mostly at coastal estuaries and inland oases. Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands but is generally absent from desert areas. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on man-made structures.	**Present**. A pair was observed flying overhead on May 5, 2019. The pair flew north and perched on a transmission tower located the hillside north of the project site. An individual was later observed perched on a tree in the western portion of the site before flying further west and off-site. The pair is presumed to have been foraging individuals moving through the area. No suitable nesting habitat for the species is present within or immediately adjacent to the project site, and no nesting individuals were observed during project surveys.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
Yellow-breasted Chat (*Icteria virens*)	--/SSC County Group 1	In California, occurs as a migrant and summer resident breeding from the coastal regions in northern California, east of the Cascades, and throughout the central and southern portions of the State. Breeds in early successional riparian habitats with well-developed shrub layer and an open canopy nesting on the borders of streams, creeks, rivers, and marshes.	**Present.** A single individual was heard signing in the southwestern portion of the site within the patch of riparian habitat along Sweetwater River. Additional individuals were detected further west of the site within the SDNWR.
Loggerhead Shrike (*Lanius ludovicianus*)	BCC/SSC County Group 1	In California, found year-round throughout the foothills and lowlands from coastal regions to the dessert. Winter migrants found coastally north of Mendocino County. Inhabits a variety of habitats seen foraging over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs. Individuals forage by perching to search for prey (such as large insects, small mammals, amphibians, reptiles, and fish) and using impaling as a means of handling prey.	**High.** The site contains suitable habitat for the species. Reported eBird sightings of the species occur to the west of the site within the SDNWR.
California Gull (*Larus californicus*)	--/WL County Group 2	In California, winters along coastal regions with breeding populations localized at Mono Lake and southern San Francisco Bay. Breeding colonies nearly always occur on islands in natural lakes, rivers, or reservoirs. In the winter, the species is found along coastal California at beaches, rocky coasts, mudflats, coastal estuaries, and deltas of rivers and streams.	**Low.** Suitable wintering and breeding habitat is absent from the project site. Reported sightings of the species are located further west at Sweetwater Reservoir.

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Species	Status[1]	Habitat Associations	Potential to Occur[2]
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT/SSC County Group 1 MSCP Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east within the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently sloping hillsides to relatively flat areas at elevations below 3,000 feet. The composition of sage scrub in which gnatcatchers are found varies; however, California sagebrush is at least present as dominant or co-dominant species. Mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though may occur more regularly in inland regions dominated by black sage.	**Present.** A female gnatcatcher was observed foraging with and feeding one fledgling in the extreme southwestern portion of the site on June 11, 2019. Additional observations of the species include a single juvenile calling within the patch of riparian habitat along Sweetwater River in the southwestern portion of the site on July 1 and another female/juvenile type foraging in the same general area on July 17. Though the species was observed within the project site, suitable habitat present is limited to small remnant patches of coastal sage scrub in the extreme southwestern and southeastern portions of the site that connect to larger blocks of coastal sage scrub that continue off site. The species may utilize these areas for foraging opportunities but would most likely breed off site in more extensive, higher quality habitat.
Vermilion Flycatcher (*Pyrocephalus rubinus*)	--/SSC County Group 1	Scarce breeding records occur in southern California with a few individuals wintering regularly along the California coast from Ventura County south to San Diego County. Suitable habitat includes arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodland, usually near water. Wintering individuals can be found in open and semi-open areas with hedges, scattered trees and bushes, and often near water. The species is known to breed and winter at selected sites within San Diego.	**Present.** Multiple individuals and pairs were observed within and throughout the project site during project surveys. At least 2 breeding pairs were confirmed to occupy the site during 2019. A pair with at least on fledging was observed in the eastern portion of the site, just southwest of the clubhouse. Another pair with 2 fledglings was observed in the western portion of the site, to the east of Sweetwater River.
Yellow Warbler (*Setophaga petechia*)	BCC/SSC County Group 2	Common to locally abundant species breeding throughout California at elevations below 8,500 feet, excluding most of the Mojave Desert, and all of the Colorado Desert. Breeds in riparian areas dominated by willows and cottonwoods, near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests at higher elevation areas.	**Present.** Multiple individuals were detected throughout the project site within riparian habitat and the developed golf course. Observations include both migrating and breeding individuals.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western Bluebird (*Sialia mexicana*)	--/-- County Group 2 MSCP Covered	Common year-round resident throughout California, but absent from the higher mountains and eastern deserts. Breeds in open woodlands, riparian habitats, grasslands, and farmlands. Nests and roosts in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Winters in a wider variety of habitats.	**Present.** Multiple individuals were detected throughout the project site within riparian habitat and the developed golf course. Suitable breeding habitat is present on site.
Lawrence's Goldfinch (*Spinus lawrencei*)	BCC/--	Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts. Found year-round in areas south of Kern County with wintering individuals observed further east into the desert regions and Colorado River valley. Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet.	**Present.** A small flock was observed foraging within the eastern portion of the project along the southern boundary. The species is highly nomadic, flocking to areas where food sources are abundant, and most likely utilizes the site for foraging opportunities.
Barn Owl (*Tyto alba*)	--/-- County Group 2	Common, yearlong resident of California found in open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats. Also found in urban and suburban areas. Nest in sheltered areas of cliffs or man-made structures, on ledges, in crevices, culverts, nest boxes, and in cavities in trees. Roosts in dense vegetation, cliffs, and buildings and other man-made structures.	**Present.** A single individual was observed foraging in the eastern portion of the site during an evening toad survey.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Least Bell's Vireo (*Vireo bellii pusillus*)	FE/SE County Group 1 MSCP NE MSCP Covered	In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite (*Prosopis glandulosa*) and arrowweed (*Pluchea sericea*) within desert habitats. The species can be tolerant of the presence of non-native species such as tamarisk.	**Present.** A total of two vireo pairs, and six additional male vireos were detected during the 2019 protocol surveys. One LBVI pair and three male vireos were detected within the project site. The LBVI pair was observed foraging with and feeding three fledglings on May 30, 2019 in the patch of riparian habitat directly east of Steele Canyon Road. Additionally, one LBVI pair and three male vireos were detected outside of the project site. The pair was observed to the west within the San Diego National Wildlife Refuge, two of the males were detected within the Steele Canyon Golf Course, and one male was observed to the west within the San Diego National Wildlife Refuge. Critical habitat for the species occurs both on-site and off-site along Sweetwater River.
Mammals			
Pallid bat (*Antrozous pallidus*)	--/SSC County Group 2	Locally common species found at low elevations in California. Associated with arid and open habitats including grasslands, shrublands, woodlands, and forests, often with open water nearby. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts in caves, crevices, mines, and occasionally hollow trees and buildings. Appears to be intolerant of most human disturbances, being mostly absent from urban and suburban areas.	**Low.** Potentially suitable roosting and foraging habitat occurs within the project site. However, the site is subject to anthropogenic disturbances related to golf course activities and residential development occurs within much of the surrounding region.
Ringtail (*Bassariscus astutus*)	--/FP County Group 2	Wide-ranging species found throughout California. Inhabits riparian areas and stands of most forest and shrub habitats in close association with rocky areas or riparian habitats.	**Low.** Though suitable habitat occurs on site, there are few documented occurrences of the species west of the Cuyamaca and Laguna Mountains. The nearest sighting of the species is located further east near Crestwood Ecological Reserve and Harbison Canyon.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC County Group 2	Occurs in the foothills and mountains of San Diego County, although can also be found on the upper portions of mountain slopes extending into the desert regions. Ranges from the coastal regions (Oceanside to Del Mar, and possibly south to the Tijuana River Valley), eastwards to the Palomar and Cuyamaca Mountains, and extends to the desert slopes of San Felipe Valley, Cigarette Hills, and McCain Valley. Prefers gravelly substrates with sun exposure and can be found within open to dense vegetation. Inhabits chaparral habitats, but is occurs within coastal sage scrub, oak woodland, and at the edge of grasslands.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further west within the SDNWR.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC County Group 2	Occurs throughout southwestern California from western Riverside County south to San Diego County at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forage for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further west within the SDNWR.
Mexican long-tongued bat (*Choeronycteris mexicana*)	--/SSC County Group 2	Found in arid habitats at elevations from sea level to 1,640 feet in San Diego County. This species is associated with urban coastal areas and inland valleys. Found near ornamental plants that offer nectar as a food source. Primarily roosts in caves, but can also be found roosting in crevices, mines, buildings, and under exposed roots of trees.	**High.** Occurrences of the species in small numbers are found approximately 3 miles northwest of the site within the communities of El Cajon and Mt. Helix. Suitable nectaring resources occur on site and within adjacent areas.
Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)	--/SSC County Group 2	Occurs throughout California but distribution is strongly correlated with the availability of caves and cave-like roosting habitat. Found in a variety of habitats with presence of caves or cave-like structures (such as buildings). In San Diego County, presumed absent from coastal areas being found more commonly in historic mining districts and boulder-strewn regions (i.e., Escondido, Lakeside, Dulzura, Jacumba, etc.).	**Low.** Buildings within the project site and adjacent areas may provide suitable roosting habitat. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River. Majority of the occurrences for this species are found further east of the site.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST County Group 1	Occurs in southern California within the San Jacinto Valley, western Riverside County, and southwestern San Bernardino County, and northwestern San Diego county at elevations between 4,100 feet. Inhabits native to open grasslands and sparse coastal sage scrub (less than 30 percent cover) on relatively flat or gently sloping ground. Dominant species include native and non-native herbaceous species such as filaree (*Erodium* sp.), non-native grasses (*Bromus* ssp.), California sagebrush, and California buckwheat.	**None.** The project site occurs outside of the known range of the species and lacks suitable grassland habitat in which the species occurs.
Spotted bat (*Euderma maculatum*)	--/SSC County Group 2	In California, found in a small number of localities in the foothills, mountains, and desert regions at elevations below 10,000 feet. Inhabits rocky arid and semi-arid environments including forested mountains, open shrublands, and deserts. Roosts in rock crevices along cliffs adjacent to wide expanses of open habitat. Occasionally roosts in caves and buildings.	**None.** Suitable rocky habitats for the species are absent from the project site and there are no documented occurrences of the species within the project vicinity.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC County Group 2	In California, the species occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.	**Moderate.** Suitable roosting habitat is absent from the project site. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River. May utilize the site for foraging opportunities.
Mountain lion (*Felis concolor*)	--/-- County Group 2 MSCP Covered	Uncommon permanent resident found throughout California in nearly all habitats, expect xeric regions of Mojave and Colorado deserts. Requires extensive riparian vegetation and brushy habitats with interspersed irregular terrain, rocky outcrops, and tree or brush edges. Main prey is mule deer.	**Low**. The project is an active golf course with residential development to the north and south. The site is not located within a high functioning wildlife corridor or linkage and in its current condition is unlikely to facilitate movement and connect the species to adjacent open spaces areas in the region.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Western red bat (*Lasiurus blossevillii*)	--/SSC County Group 2	In California, the species is locally common occurring from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts. Mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in non-native vegetation such as tamarisk, eucalyptus, and orchards. Primarily roosts in trees preferring heavily shaded areas which are open underneath.	**Low.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	--/SSC County Group 2	Occurs along the coastal regions of southern California south to northern Baja California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking gravelly and rocky substrates and preferred shrub cover. Recorded observations of the species occur further southeast and southwest within the SDNWR.
California leaf-nosed bat (*Macrotus californicus*)	--/SSC County Group 2	In California, ranges from Ventura County south to the U.S./Mexico Border. Within San Diego County, primarily occurs as a desert species within the Anza-Borrego Desert, but has also been documented in the western foothills along the Santa Margarita River and inland valley of Dulzura. Uses caves and similar structures for roosting including buildings, bridges, and fallen palm trunks. Forages along desert washes and floodplains in the east, and sandy river valleys along the coast.	**None.** The project site is located outside of the known habitat and distribution of the species.
Small-footed myotis (*Myotis ciliolabrum*)	--/-- County Group 2	Found throughout California occurring in desert, chaparral, riparian areas, and forests. Presence of riparian areas and waters appears to be important in distribution. Strongly associated with chaparral and montane habitats in San Diego County. Roosts solitarily or in small numbers in rocky crevices, caves, mines, snags, buildings, and bridges.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Long-eared myotis (*Myotis evotis*)	--/-- County Group 2	Widespread in California, but generally believed to be uncommon in most of its range. Avoids the arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and coastal mountain ranges below 9,000 feet. Occurs in riparian zones and chaparral but is found primarily in oak woodlands and pine forests in the foothills and mountains. It roosts in crevices and cavities in rocks and trees and is sometimes found in man-made structures such as buildings, bridges, and mines.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2003 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.
Yuma myotis (*Myotis yumanensis*)	--/-- County Group 2	Widespread in California but uncommon in the Mojave and Colorado Deserts, except in the mountain ranges bordering the Colorado River valley. Found in a variety of habitats including juniper and riparian woodlands, riparian forests, and desert regions where bodies of water (i.e., rivers, streams, ponds, lakes, etc.) are present. Closely associated with water which it uses for foraging and sources of drinking water. Roosts in caves, attics, buildings, mines, underneath bridges, and other similar structures.	**Moderate.** Limited suitable riparian habitat occurs in the southwestern portion of the site along Sweetwater River. More extensive higher quality habitat occurs off site within the SDNWR. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along Sweetwater River.
San Diego Bryant's (formerly desert) woodrat (*Neotoma bryanti [formerly lepida] intermedia*)	--/SSC County Group 2	Occurs along the coastal regions of California being found as far north as San Luis Obispo County, south to San Diego County, and in the western portions of San Bernardino and Riverside Counties. Inhabits a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland among others. Often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti using various materials such as twigs, sticks, and other debris.	**Low.** The project site is an active golf course. Though remnant patches of coastal sage scrub occur at the extreme southeastern and southwestern portions of the site, these areas are small in size lacking preferred shrub cover and rocky areas inhabited by the species.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	--/SSC County Group 2	Rare in California occurring from Los Angeles County eastwards to San Bernardino County, and southwards to San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Sometimes roosts under tiled roofs and observed utilizing bat boxes. Habitat generalists foraging in grasslands, shrublands, riparian areas, oak woodlands, forests, meadows, and ponds favoring larger water bodies for drinking.	**Low.** The site lacks suitable roosting habitat, though the species may utilize the site for foraging opportunities. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
Big free-tailed bat (*Nyctinomops macrotis*)	--/SSC County Group 2	Rare in California with species found in urban areas of San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Also roosts in buildings and occasionally holes in trees. Associated with coastal and desert scrub, forests, riparian zones, and montane woodlands. Probably does not breed in California.	**Low.** The site lacks suitable roosting habitat, though the species may utilize the site for foraging opportunities. The species was recorded in 2002 approximately 1 mile west of the site adjacent to Campo Road along the Sweetwater River.
Southern mule deer (*Odocoileus hemionus fuliginatus*)	--/-- County Group 2 MSCP Covered	Found throughout California with the species lacking from only completely urbanized areas and the desert floor. Distribution determined by vegetation type, water availability, and quality and quantity of foraging habitat. Inhabits a wide array of habitats from grasslands, meadows, coastal sage scrub, chaparral, riparian and montane forests. Crepuscular activity and movements are along routes that provide the greatest amount of protective cover.	**Low**. The project is an active golf course with residential development to the north and south. The site is not located within a high-functioning wildlife corridor or linkage and in its current condition is unlikely to facilitate movement and connect the species to adjacent open spaces areas in the region.
Southern grasshopper mouse (*Onychomys torridus ramona*)	--/SSC County Group 2	Ranges from the San Joaquin Valley of Los Angeles County south to northwest Baja California. Typically found in open valleys on the coastal side of the mountains but may extend a short distance onto the eastern desert slopes. Within San Diego County, has only been found on the eastern desert slopes within Dameron Valley, San Felipe Valley, and Scissors Crossing. Prefers open habitats with soft terrain and friable soils within grasslands, coastal sage scrub, alluvial fans, and desert scrub.	**None.** The project site is located outside of the known distribution of the species.

Appendix J
Special Status Animal Species Observed or with Potential to Occur

Species	Status[1]	Habitat Associations	Potential to Occur[2]
American badger (*Taxidea taxus*)	--/SSC County Group 2 MSCP Covered	Uncommon, permanent resident found through California, except for the extreme north coast areas. Associated with large blocks of undeveloped land composed of open valleys, alluvial fans, meadows, grasslands, and sandy desert. Dens function as sites for resting and parturition. Friable, easily crumbled soils are important for denning.	**Low.** The project site is an active golf course with residential development occurs to the north and south. There are no recent records of the species within the project vicinity.

F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List

County of San Diego Sensitivity Status: Animals are divided into Groups I and II on the Sensitive Animal List. **Group I** Animals include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Group 2** Animals include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County's Subarea Plan.

[2] Potential to Occur is assessed as follows. **None**: The project site is located outside of the species known range and distribution, or the species is so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur in the project site; **Not Expected**: There are no present or historical records of the species occurring on or in the immediate vicinity of the project site. The species moves freely and might disperse through or across the study area, but suitable habitat for residence or breeding does not occur; **Low**: Suitable habitat is present in the project site and there is a historical record of the species in the project vicinity, but no sign of the species was observed during surveys. Existing conditions such as elevation, species composition, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation may substantially reduce the possibility that the species may occur; **Moderate:** Diagnostic habitats associated with the species occur on or adjacent to the project site, but there is no recent documented occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat associated with the species occurs in the project site and the species has been recorded recently on or near the project but was not observed during biological surveys; **Present**: The species was observed during biological surveys for the project and is assumed to occupy the project site.

Appendix K

Explanation of Status Codes for Plant and Animal Species

Appendix K
Explanation of Status Codes for Plant and Animal Species

FEDERAL, STATE, AND LOCAL CODES

U.S. FISH AND WILDLIFE SERVICE (USFWS)

FE Federally listed endangered
FT Federally listed threatened
BCC Birds of Conservation Concern (discussed in more detail below)
BGEPA Bald and Golden Eagle Protection Act (discussed in more detail below)

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW)

SE State listed endangered
ST State listed threatened
SSC State species of special concern
WL Watch List

Fully Protected — Fully Protected species refer to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.

COUNTY OF SAN DIEGO

Plant sensitivity

List A — Plants rare, threatened, or endangered in California or elsewhere
List B — Plants rare, threatened, or endangered in California but more common elsewhere
List C — Plants that may be quite rare, but more information is needed to determine rarity status
List D — Plants of limited distribution and are uncommon, but not presently rare or endangered

Animal sensitivity

Group 1 — Animals that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met
Group 2 — Animals that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types

MULTIPLE SPECIES CONSERVATION PROGRAM (MSCP) COVERED

Multiple Species Conservation Program covered species for which the County has take authorization within the MSCP area.

Appendix K
Explanation of Status Codes for Plant and Animal Species

MSCP NARROW ENDEMIC (NE)

Narrow endemic species are native species that have "restricted geographic distributions, soil affinities, and/or habitats." The MSCP participants' subarea plans have specific conservation measures to ensure impacts to narrow endemics are avoided to the maximum extent practicable.

OTHER CODES AND ABBREVIATIONS

USFWS BIRDS OF CONSERVATION CONCERN (BCC)

The primary legal authority for Birds of Conservation Concern (2008) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 USC §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The 2008 BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. Birds of Conservation Concern 2008 lists are available online at https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.

USFWS BALD AND GOLDEN EAGLE PROTECTION ACT (BGEPA)

In 1782, Continental Congress adopted the bald eagle as a national symbol. During the next one and a half centuries, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner."

In 1962, Congress amended the Eagle Act to cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. The golden eagle, however, is accorded somewhat lighter protection under the Act than the bald eagle. Another 1962 amendment authorizes the Secretary of the Interior to grant permits to Native Americans for traditional religious use of eagles and eagle parts and feathers.

Appendix K
Explanation of Status Codes for Plant and Animal Species

CALIFORNIA NATIVE PLANT SOCIETY (CNPS) CALIFORNIA RARE PLANT RANKING (CRPR)

Lists

1A = Presumed extinct.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Distribution, endangerment, ecology, and/or taxonomic information needed. Some eligible for state listing.

4 = A watch list for species of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 – Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 – Fairly endangered in California (20 to 80 percent occurrences threatened)

.3 – Not very endangered in California (less than 20 percent of occurrences threatened, or no current threats known)

A "CA Endemic" entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

Appendix L

Conceptual Revegetation Plan

Cottonwood Sand Mine

Conceptual Revegetation Plan

November 2021 | 02975.00002.002

PDS2018-MUP-18-023
PDS2018-RP-18-001
PDS2018-ER-18-19-007

Prepared for:

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 310
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Prepared for:

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HELIX Environmental Planning, Inc.
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County-approved Revegetation
Planning Consultant

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Cottonwood Sand Mine Project

Conceptual Revegetation Plan

PDS2018-MUP-18-023
PDS2018-RP-18-001
PDS2018-ER-18-19-007

Prepared for:

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November 2021 | 02975.00002.002

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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
BTR	Biological Technical Report
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CFG	California Fish and Game
County	County of San Diego
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
CY	cubic yards
DCSS	Diegan Coastal Sage Scrub
GPS	global positioning system
ft	feet
HELIX	HELIX Environmental Planning, Inc.
m	meter
MSCP	Multiple Species Conservation Program
MUP	Major Use Permit
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
POC	Point of Connection
Project	Cottonwood Sand Mine Project
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SDNWR	San Diego National Wildlife Refuge
SHBs	shot-hole borers
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a revegetation plan for impacts resulting from the Cottonwood Sand Mine Project (project) located in the unincorporated community of Rancho San Diego in eastern San Diego County, California. This plan addresses revegetation of areas temporarily impacted as part of mining activities pursuant to the Surface Mining and Reclamation Act (SMARA) and Sections 1810 and 6550-6556 of the County of San Diego (County) Zoning Ordinance, as well as restoration of wetland buffer areas disturbed as part of mining activities in accordance with Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011). Included in this document is an implementation, maintenance, and monitoring plan for the on-site revegetation of approximately 109.51 acres of wetland and riparian associated habitat, 11.91 acres of Diegan coastal sage scrub (DCSS) habitat, and 96.09 acres of stabilized non-sensitive uplands. This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans (County 2007).

Revegetation is proposed to ensure that areas disturbed as part of mining activities are reclaimed (i.e., adequately revegetated and stabilized) in accordance with SMARA and County requirements, and that existing wetland buffer areas are appropriately restored pursuant to the County RPO (County 2011). A portion of the reclaimed site will also provide compensatory mitigation for impacts to wetland and water resources under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and to areas considered County RPO wetlands. Restoration of the mitigation area is addressed separately from this plan within the project's Conceptual Wetland Mitigation Plan (HELIX Environmental Planning, Inc. [HELIX] 2021a). The wetland mitigation area and native revegetation areas will be concurrently preserved within the project's biological open space area.

Nomenclature used in this report follows Holland (1986) and Oberbauer (2008) for vegetation; Jepson eFlora (2020) and Baldwin et al. (2012) for plants; Pelham (2020) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2020) for reptiles and amphibians; American Ornithological Society (2020) for birds; and Bradley et al. (2014) and Tremor et al. (2017) for mammals.

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

New West Investment, Inc. (or its successor in interest) will be responsible for financing the installation and maintenance and monitoring of the revegetation proposed in this plan. Contact information is provided below:

Contact: Jim Conrad, Owner's Representative
New West Investment, Inc.
565 N. Magnolia
El Cajon, CA 92020
619-441-1463

2.2 PROJECT LOCATION

The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 west and 1 east of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial Vicinity*). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

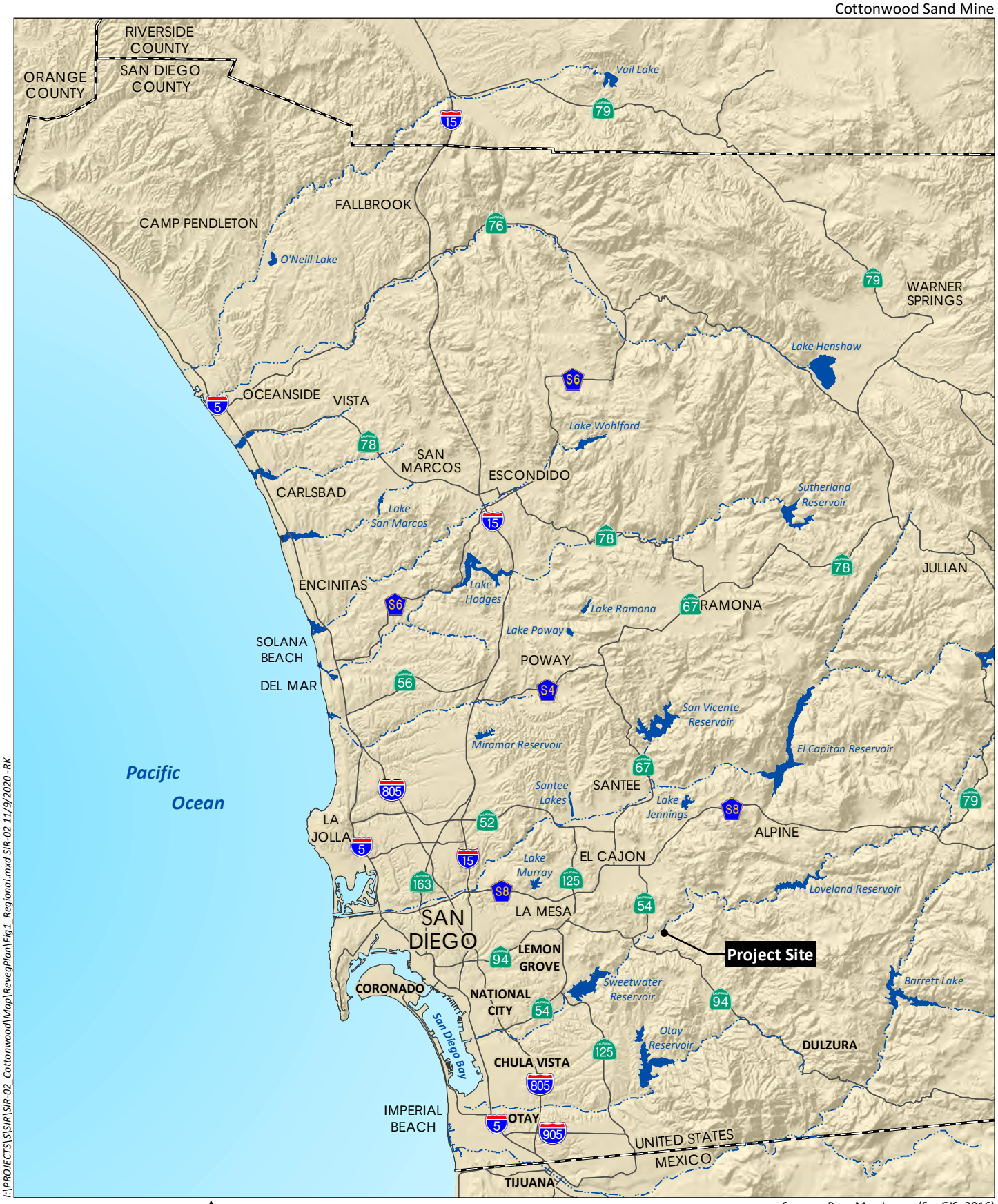
The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.3 PROJECT SUMMARY

2.3.1 Project Description

The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. Currently, only the eastern course is operational; operation of the western course was suspended in 2017. The project proposes to convert the two golf courses to a sand mining operation that would be conducted in three phases over 10 years, with a fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Site Plan and Mine Phasing*). The project's mining operations would extract, process, and transport sand using conventional earth moving and processing equipment. Approximately 4.3 million cubic yards (CY; 6.40 million tons) of material are proposed to be extracted, with approximately 3.8 million CY (5.7 million tons) sand and gravel for market use, with a 10 percent waste factor from the total amount extracted that includes wash fines and materials undesirable for processing. Extraction operations would be limited to a maximum production of 380,000 CY (570,000 tons) of construction grade aggregate (sand) per calendar year. Material extracted and processed at the site would be suitable for construction uses and would be available to customers in San Diego County. Approximately 214 acres of the approximately 250-acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement through the removal of invasive species. The existing Sweetwater River channel and the majority of native habitat that currently exists on the site would be retained.

The project would be mined in three incremental, and partially overlapping phases, with three to four sub-phases in each major phase. Reclamation would begin after the first sub-phase of mining is complete, and also be conducted on a continuous basis following the completion of each mining sub-phase. Pre-mining activities proposed prior to the initiation of Phase 1 include the restriping of Willow



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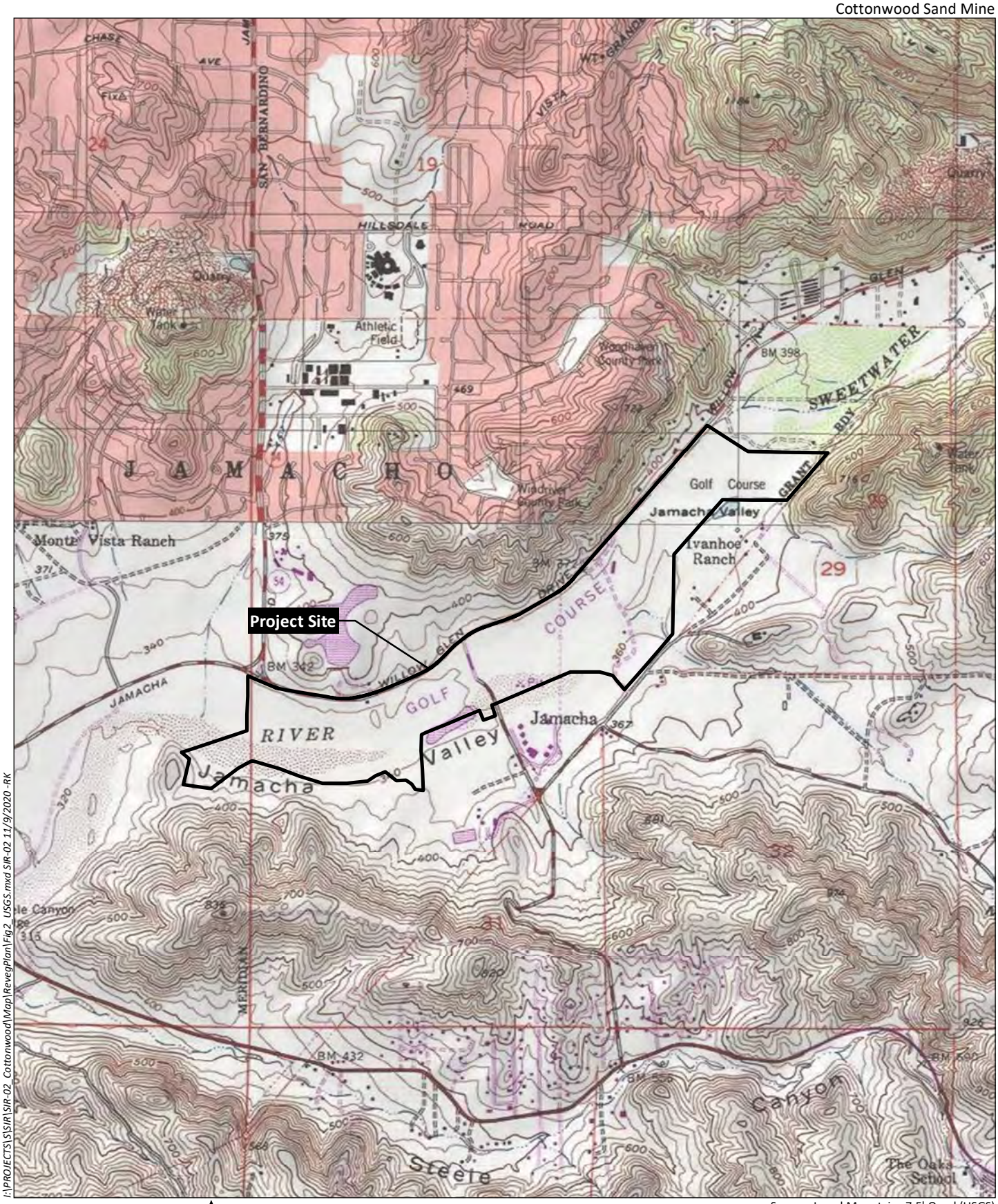
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



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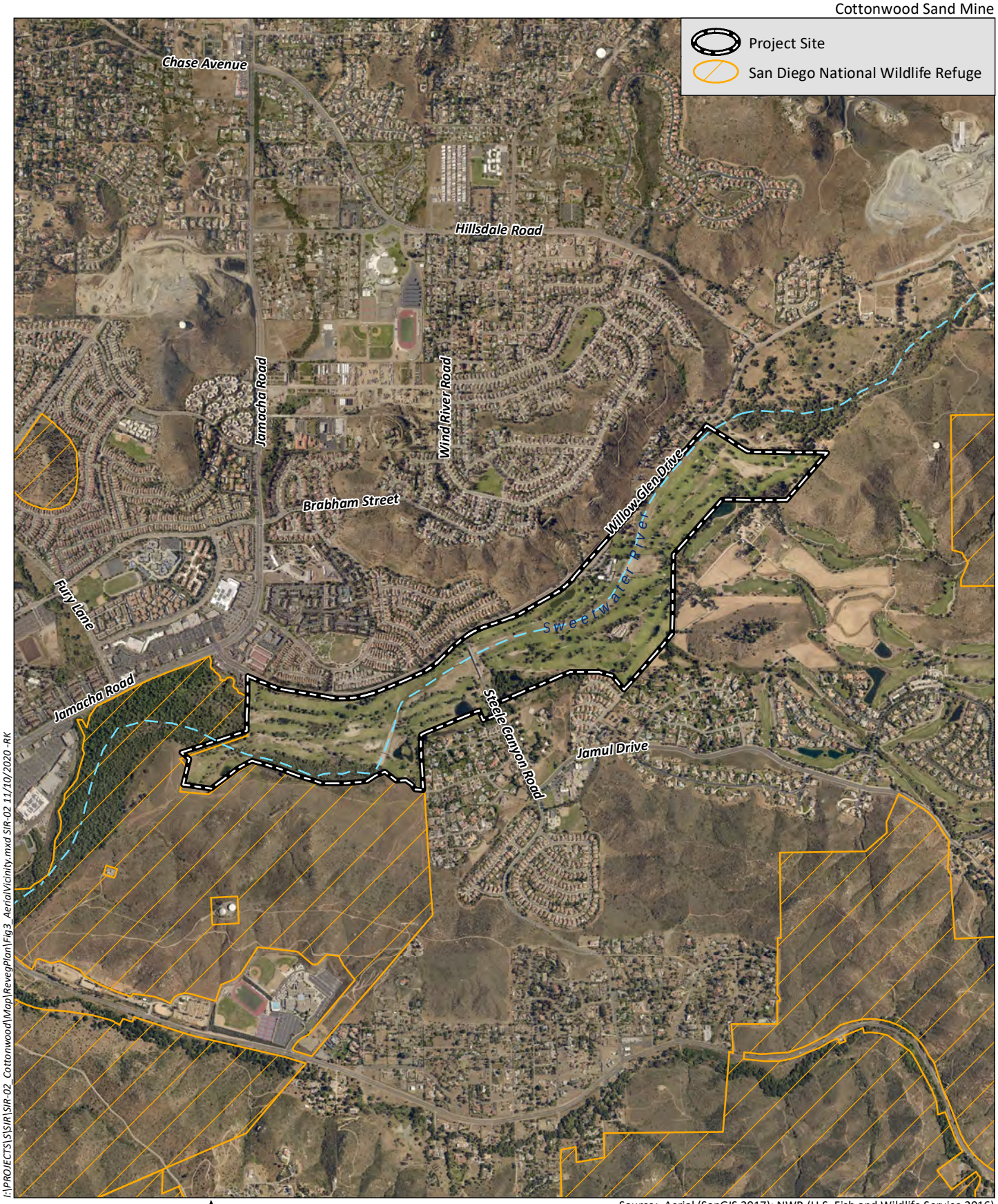
Source: Jamul Mountains 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

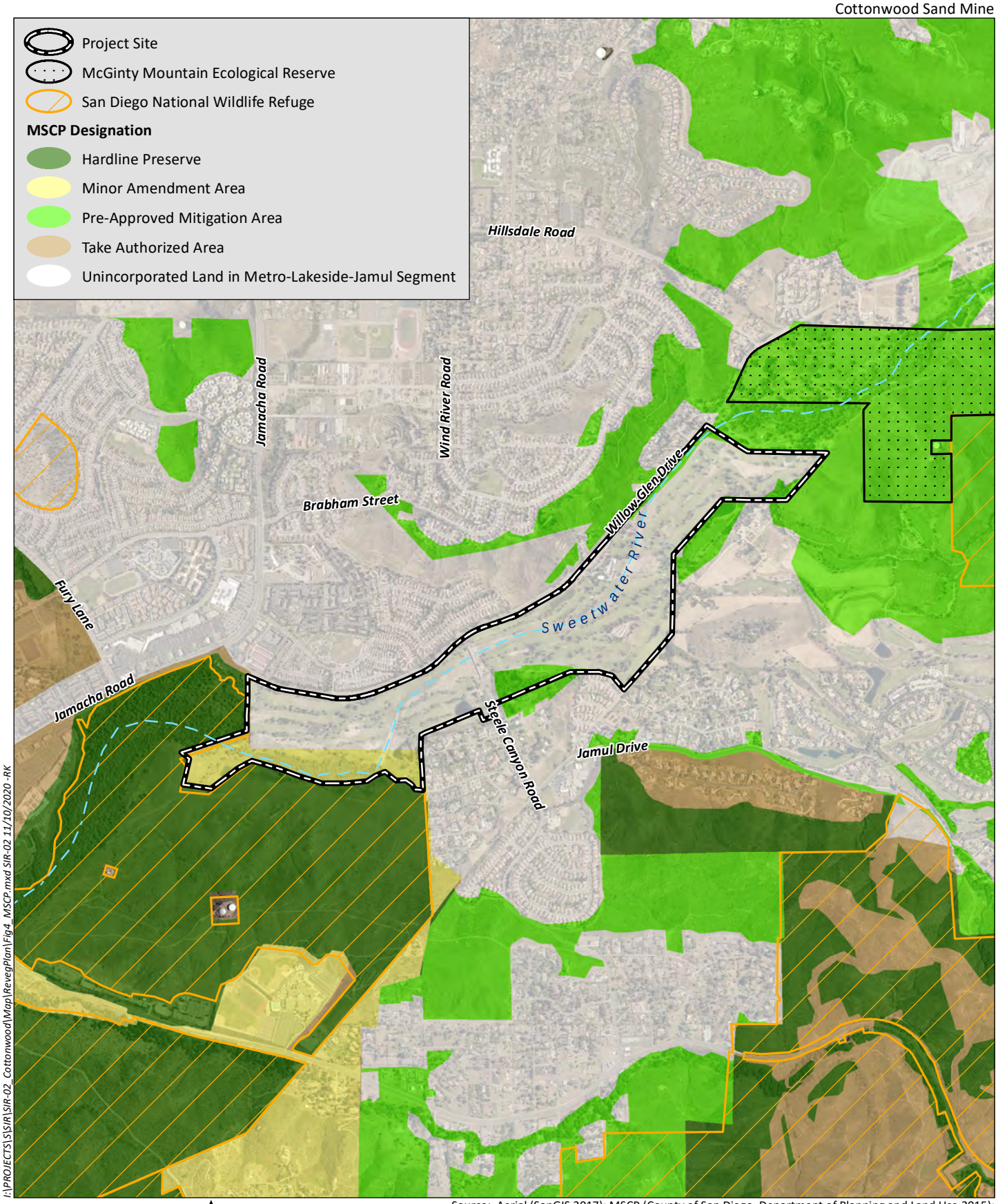


Source: Aerial (SanGIS 2017); NWR (U.S. Fish and Wildlife Service 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3



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Source: Aerial (SanGIS 2017); MSCP (County of San Diego, Department of Planning and Land Use 2015); NWR (U.S. Fish and Wildlife Service 2016); Ecological Reserves (CDFW 2013)

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MSCP Designations

Figure 4

Project Site
Major Use Permit Boundary
Subphase 1
Subphase 2
Subphase 3
Phase 4/Processing Plant
Easements and Rights-of-way
San Diego Gas & Electric Towers

Jamacha Way
Private Road
Seca Street
Sonett Street
Wind River Road
Brabham Street
Hilton Head Road
Via Hacienda
Jamacha Road
Via Rancho San Diego
Willow Glen Drive
Sweetwater River
Processing Plant
Bridge
Right-of-way
Proposed Permanent
Site Access Point
SDG&E
Easement
Access Road
Heatherwood Drive
Steele Canyon Road
Par Four Drive
Ivanhoe Ranch Road
Cottonwood Springs Lane
Wentworth Drive
Jamul Drive
Greystone Drive

3a
3b
3c
3d
2a
2b
2c
1a
1a-1
1b
1c

0 700 Feet

N

Source: Aerial (SanGIS 2017)

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Site Plan and Mine Phasing

Figure 5

Glen Drive from Steele Canyon Road to the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway, improvements to the access point from Willow Glen Drive to the Phase 1 excavation area, and installation of screening landscaping and a pedestrian pathway. To facilitate the deceleration of right-turning vehicles into the project ingress driveway, a dedicated right-turn lane would be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. Additionally, a pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. Phase 1 would begin with the placement of the processing plant and the conveyor line from the plant to the western portion of the property where excavation would begin. Processing facilities would be located near the center of the project area, adjacent to Willow Glen Drive and west of the existing golf course parking lot. The plant site would consist of the aggregate processing and washing facilities, three settling ponds, a loadout area, and support structures and buildings (e.g., scale, kiosk, and office trailer). A portable conveyor line would be installed to minimize the use of on-site roads to transport excavated materials from the excavation area to the processing plant.

Mining operations would commence in the western portion of the site as part of Phase 1 and proceed east as subsequent phases are initiated: Phase 1 would be located within the area currently occupied by the closed Lakes Course to the west of Steele Canyon Road; Phase 2 would be located in the center of the site, east of Steele Canyon Road, on the currently operating Ivanhoe Course; Phase 3 would be located to the east of Phase 2. Existing vegetation and infrastructure within the golf courses would be incrementally removed as mining operations proceed, with approximately 20 to 30 acres subject to mining at any one time. Each phase would include three to four sub-phases that are less than 30 acres each and would begin reclamation as soon as possible following the completion of extraction activities. Excavation in each sub-phase would be completed before moving the conveyor and excavation equipment to the next sub-phase, and reclamation would begin in the completed sub-phase. Upon approval of the project, the Ivanhoe Course would be closed. The existing golf clubhouse would be demolished near the end of Phase 2 mining. As each phase of mining is completed final contours would be established via grading, all final clean-up would be conducted and equipment removed, and the mined area would be reclaimed and revegetated. Following completion of Phase 3 mining, the processing plant would be removed as part of a final Phase 4 consisting of final clean-up and equipment removal from the project site.

Prior to initiating work in a sub-phase, existing vegetation will be cleared, topsoil will be salvaged, and an approximately five-foot-high berm will be installed on either side of the existing low-flow channel to both protect the channel and contain stream flows. To maintain living soil microorganisms, topsoil will be stored on-site in windrows not more than three feet tall, in an area cleared of existing vegetation. The maximum excavation depth is proposed to be 40 feet below the existing land surface, with the average depth of excavation outside the main Sweetwater River channel expected to be approximately 20 feet below the existing land surface. Excavation would not occur within the bottom of the existing low-flow channel in order to retain existing hydrologic characteristics. Up to three temporary channel crossings would be utilized to transport heavy equipment across the low-flow channel during mining operations. Channel crossings would only be used when there is no water flow in the channel. An operating procedure would be established to maintain communication with Sweetwater Authority prior to, and during, water transfers to ensure channel crossings during water flows are avoided. As soon as excavation within a sub-phase is completed, the conveyor and excavation equipment would be moved to the next sub-phase, and reclamation of the completed sub-phase would begin.

The project proposes to restripe Willow Glen Drive between Steele Canyon Road and the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway per the County Roadway Standards and the General Plan Mobility Element roadway classification. To facilitate the deceleration of right-turning vehicles into the Project ingress driveway, a dedicated right-turn lane would also be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. A new egress point would be established in the approximate center of the existing parking lot. The project also proposes to construct a two-way left-turn lane between the ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver. A pedestrian pathway would be provided along the northern Project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the Project vicinity where there are no existing sidewalks. In addition, a new access point to the property from Willow Glen Drive west of the Steele Canyon Road (Phase 1 area) would be necessary as the clearance height of the bridge that crosses the Sweetwater River on Steele Canyon Road would not allow most large trucks used by service vendors to pass beneath the bridge. Additional access points are proposed to be constructed at the intersection of Willow Glen Drive and Muirfield Drive. The new driveway would be restricted to servicing the mining operations.

The site would be progressively reclaimed following the completion of extraction activities within each subphase area in accordance with the mining and reclamation plan (EnviroMINE 2021). Reclamation would include: (1) removal of all artificial structures; (2) backfilling and grading to achieve final landforms; (3) incorporation of accumulated wash fines and salvaged topsoil (as applicable); (4) establishment of graded pads that would be hydroseeded with an erosion control mix; (5) revegetation of the expanded Sweetwater River floodplain and constructed cut slopes using appropriate native vegetation; and (6) weed control and monitoring of the revegetation areas for a period of five years. Reclamation would be an ongoing process that immediately commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

Post-reclamation, the final landform of the overall mining area is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain bisecting the length of the site and graded pads located above the new floodplain. The expanded floodplain is expected to average approximately 250 to 300 feet in width. The existing low-flow channel shall generally be retained in place; this channel is expected to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the Sweetwater Authority. Reclaimed areas would be restored to an end-use of native vegetation within a widened floodplain, recreational trails, and land suitable for uses allowed by the Open Space land use designation and existing zoning classifications. Maintenance and monitoring of the restored and revegetated native habitat areas would continue until final performance standards are met in all revegetation areas. Following revegetation completion, nearly 52 percent of the project site (142.8 acres) will be preserved in a biological open space (BOS) easement, which will protect these lands in perpetuity, and will restrict future uses to protect their biological value.

2.3.2 Current Environmental Setting and Site Conditions

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between

14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

Approximately 243.6 acres (88 percent) of the site is currently occupied by a public golf course, or is otherwise disturbed by past land uses, including 0.8 acre of non-native woodland, 3.0 acres of eucalyptus woodland, 4.2 acres of non-native vegetation, 3.5 acres of man-made pond, and 232.1 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping.

Undeveloped areas are concentrated along the western and eastern edges of the site and consist primarily of native upland scrub and riparian forest communities. The dominant native habitat type present on-site is southern cottonwood-willow riparian forest, which covers approximately 12.97 acres (five percent) of the site. The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan (County 1997). Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries (Figure 4). Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

Prior to the 1940s, the site was used for commercial ranching and agriculture. In the 1950s, mining for construction aggregates was conducted to the south of Sweetwater River, west of Steele Canyon Road, and adjacent to Willow Glen Drive at the western end of the site. Since the 1960s, the project site has operated as a public golf course. Mineral extraction activities within the site initially occurred to the east of Steele Canyon Road and later expanded to the east side of Steele Canyon Road in the 1960s continuing into the 1970s, as both golf courses were developed and expanded. Construction of the golf course initially began in 1962 and was completed in 1964. Sand extraction activities have continued within the site throughout the years, allowing for the creation of water hazards and expanded fairways associated with golf course improvements.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is present in the hills south, east, and west of the site. The San Diego National Wildlife Refuge (SDNWR) abuts the western end of the site along the Sweetwater River.

2.3.3 Topography and Soils

Elevations on-site generally decrease from east to west across the site, with the lowest elevations (approximately 320 feet (ft) above mean sea level [amsl]) occurring along the southwestern boundary, and the highest elevations (approximately 380 ft amsl) along the northeastern boundary. The Sweetwater River runs through the length of the site entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2016; Figure 6, *Soils*), with the majority classified as sandy loams. Soil types covering the most area on-site includes Riverwash and those in the Tujunga series.

2.3.4 Vegetation Communities

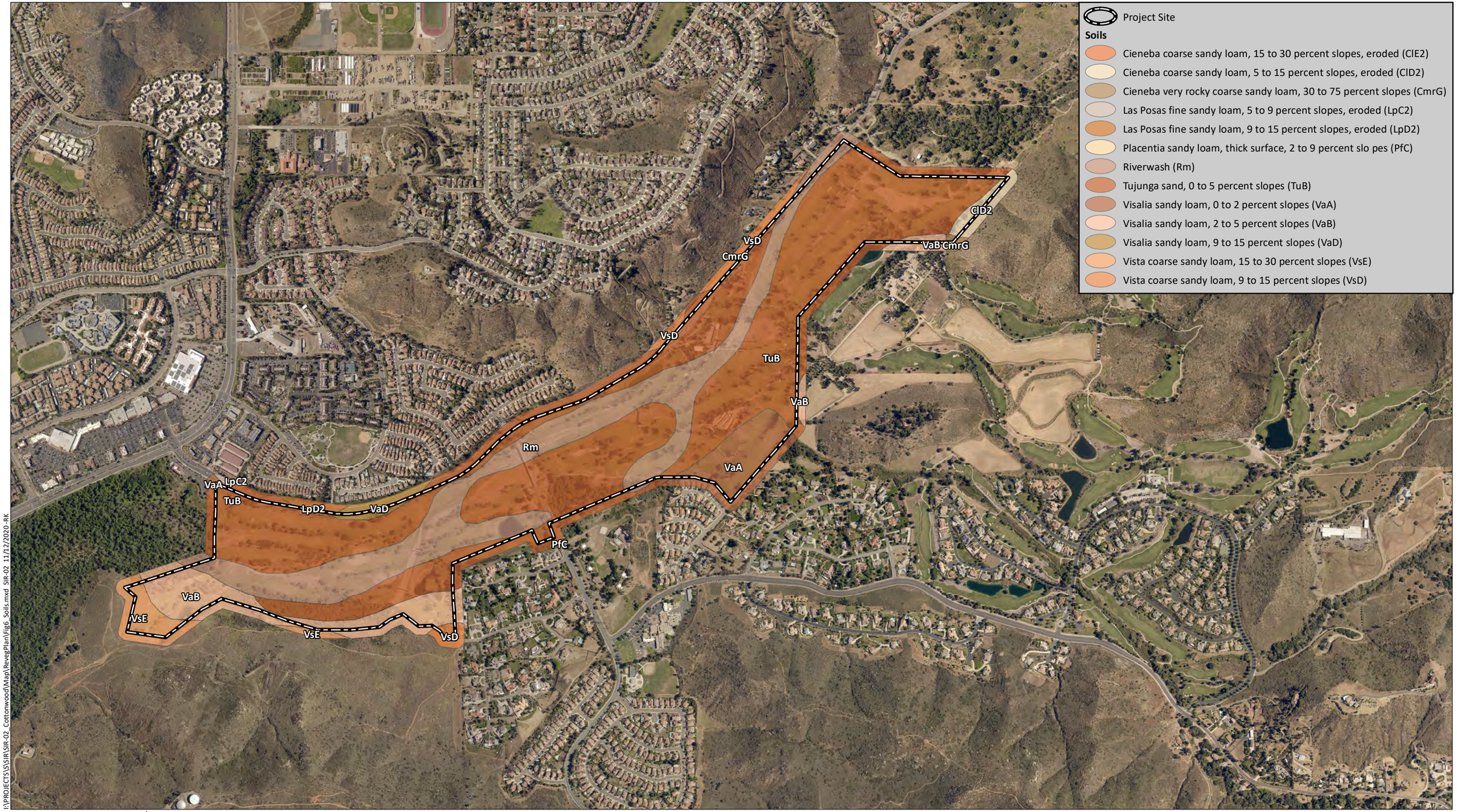
Fourteen vegetation communities/land use types occur on the project site (Table 1, *Existing Vegetation Communities/Land Use Types*; Figure 7, *Vegetation and Sensitive Resources/Impacts*). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Tier I[3]			
Disturbed Wetland (11200)	10.41	0	10.41
Freshwater Marsh (52400)	0.31	0	0.31
Southern Cottonwood-willow Riparian Forest (61330)	10.73	2.24	12.97
Southern Cottonwood-willow Riparian Forest - disturbed (61330)	0.86	0.13	0.99
Southern Willow Scrub (63320)	0.80	0	0.80
Southern Willow Scrub - disturbed (63320)	3.87	0	3.87
Tamarisk Scrub (63810)	0.62	0	0.62
Open Water (64140)	0.82	0	0.82
Arundo-dominated Riparian (65100)	0.47	0.07	0.54
Tier II			
Diegan Coastal Sage Scrub (32500)	0.6	0.5	1.1
Diegan Coastal Sage Scrub –disturbed (32500)	0.6	0	0.6
Tier IV			
Non-native Woodland (79000)	0.8	0	0.8
Eucalyptus Woodland (79100)	2.2	0.8	3.0
Non-native Vegetation (11000)	4.2	0	4.2
Disturbed Habitat (11300)	80.7	12.4	93.1
N/A			
Man-made Pond (64140)	3.5	0	3.5
Developed Land (12000)	124.2	14.8	139.0
TOTAL	**245.69**	**30.94**	**276.63**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.
[3] County Subarea Habitats and Tiers within the MSCP.

Sensitive vegetation communities/habitat types mapped on the project site include disturbed wetland, freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub (including disturbed), tamarisk scrub, open water, arundo-dominated riparian, and DCSS (including disturbed). Non-native woodland, eucalyptus woodland, non-native vegetation, disturbed habitat, man-



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Source: Aerial (SanGIS 2017)

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Soils

Figure 6

- Project Site
- Major Use Permit Boundary
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Impact Area
- Impact Neutral Area
- Roadway Improvement Impacts
- Trail Impacts
- Easements and Rights-of-way
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)

Special Status Species

Plants

- San Diego County Viguiera (*Bahiopsis laciniata*)
- San Diego Sagewort (*Artemisia palmeri*)
- Singlewhorl Burrobrush (*Ambrosia monogyra*)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

Animals

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- Monarch Butterfly (*Danaus plexippus*)
- Coastal California Gnatcatcher(*Polioptila californica californica*)
- Barn Owl (*Tyto alba*)
- Cooper's Hawk (*Accipiter cooperii*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Lawrence's Goldfinch (*Spinus lawrencei*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Oat Titmouse (*Baeolophus inornatus*)
- Peregrine Falcon (*Falco peregrinus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Turkey Vulture (*Cathartes aura*)
- Vermilion Flycatcher (*Pyrocephalus rubinus*)
- Western Bluebird (*Sialia mexicana*)
- Yellow Warbler (*Setophaga petechia*)
- Yellow-breasted Chat (*Icteria virens*)

Trail Impacts
Sonett Street
Pair
150
3a
3b
3c
3d
2c
Willow Glen Drive
Bridge
Right-of-way
2a
Sweetwater River
2b
SDG&E
Easement
Trail Impacts
Trail Impacts
Trail Impacts
Jamacha Road
1a-1
1a
1c
1b
Heatherwood Drive
Steele Canyon Road
Par Four Drive
Ivanhoe Ranch Road
Cottonwood Springs Lane
Indian Mills Lane
Jamul Drive
Greystone Drive

Vegetation*

- Freshwater Marsh (52400)
- Coast Live Oak Woodland (71160)
- Southern Cottonwood-willow Riparian Forest (61330)
- Southern Cottonwood-willow Riparian Forest - Disturbed (61330)
- Southern Willow Scrub (63320)
- Southern Willow Scrub - Disturbed (63320)
- Disturbed Wetland (11200)
- Mule Fat Scrub (63310)
- Diegan Coastal Sage Scrub (32500)
- Diegan Coastal Sage Scrub - Disturbed (32500)
- Eucalyptus Woodland (79100)
- Open Water (64140)
- Man-made Pond (64140)
- Non-native Woodland (79000)
- Arundo-dominated Riparian (65100)
- Non-native Grassland (42200)
- Non-native Vegetation (11000)
- Tamarisk Scrub (63810)
- Disturbed Habitat (11300)
- Developed (12000)

**Numeric codes following the vegetation community names are from the County's Biological Resources Guidelines (County 2010) and are based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1996, Oberbauer 2008).*

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N

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Vegetation and Sensitive Resources/Impacts

Figure 7

made pond, and developed lands do not meet the definition of sensitive habitat under the County's Biology Guidelines (County 2010).

2.3.5 Flora

A total of 151 plant species were identified within the project site, of which 69 (46 percent) are native species, and 82 (54 percent) are non-native species (HELIX 2021b).

2.3.6 Wildlife

A total of 97 animal species were observed or otherwise detected on the project site during recent biological surveys, including 11 invertebrate, four amphibian, four reptile, 74 bird, and four mammal species (HELIX 2021b).

2.3.7 Special Status Species

No federal- or state-listed plant species were observed within the project site during recent surveys (HELIX 2021b); however, four species with other special status were observed: singlewhorl burrobrush (*Ambrosia monogyra*), San Diego sagewort (*Artemisia palmeri*), San Diego County viguiera (*Bahiopsis laciniata*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Additionally, although not found on-site, U.S. Fish and Wildlife Service (USFWS) critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site (Figure 8, *Critical Habitat*).

Two federal- and/or state-listed wildlife species were observed within the project site during recent surveys (HELIX 2021b): coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*). An additional 15 other special status animal species were observed or detected on or directly adjacent to the project site: barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), Monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*). Additionally, USFWS critical habitat for the coastal California gnatcatcher and least Bell's vireo occur in the southwestern portion of the site, and critical habitat for the southwestern willow flycatcher is present immediately adjacent to the site (Figure 8).

2.3.8 Project Impacts

2.3.8.1 Sensitive Vegetation

The project would permanently impact 1.63 acres of sensitive vegetation communities, including 0.8 acre of uplands and 0.83 acres of wetlands. Impacts to 0.8 acre of sensitive upland vegetation communities consist entirely of DCSS (Table 2, *Project Impacts to Vegetation Communities/Habitat Types*; Figure 7; HELIX 2021b).

Table 2
PROJECT IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation Community[2]	Impact Neutral Areas (Acres)[1]	On-Site Impacts (Acres)[1]					Off-Site Road Improvement Impacts (Acres)[1]	Total Impacts (Acres)[1]
		Phase 1	Phase 2	Phase 3	Phase 4	Total On-Site		
Sensitive Vegetation Communities								
Tier I[3]								
Disturbed Wetland (11200)	0	0.15	0.26	0.09	0	0.50	0	0.50
Freshwater Marsh (52400)	0	0	0	0	0	0	0	0
Southern Cottonwood-willow Riparian Forest – including disturbed (61330)	0.27	0.27	0	0	0.05	0.32	0	0.32
Southern Willow Scrub – including disturbed (63320)	0	0	0	0	0	0	0	0
Tamarisk Scrub (63810)	0	0	0	0	0	0	0	0
Open Water (64140)	0	0	0	0	0	0	0	0
Arundo-dominated Riparian (65100)	0.07	0.01	0	0	0	0.01	0	0.01
Tier II								
Diegan Coastal Sage Scrub – including disturbed (32500)	0.4	0.2	0	0.4	0	0.6	0.2	0.8
Subtotal Sensitive Communities	***0.74***	***0.63***	***0.26***	***0.49***	***0.05***	***1.43***	***0.2***	***1.63***
Non-Sensitive Vegetation Communities								
Tier IV								
Non-native Woodland (79000)	0	0	0	0.8	0	0.8	0	0.8
Eucalyptus Woodland (79100)	0.8	0.1	0	2.1	0	2.2	<0.1	2.2
Non-native Vegetation (11000)	0	2.0	0.6	1.0	0.3	4.0	1.7	5.7
Disturbed Habitat (11300)	14.3	73.3	1.9	1.4	0	76.6	0.1	76.7
N/A								
Man-made Pond (64100)	0	1.8	0	0.7	1.0	3.5	0	3.5
Developed Land (12000)	15.6	0.5	47.1	66.0	7.5	121.1	2.8	123.9
Subtotal Non-Sensitive Communities	***30.7***	***77.7***	***49.6***	***72.0***	***8.8***	***208.2***	***4.6***	***212.8***
TOTAL	**31.44**	**78.33**	**49.86**	**72.49**	**8.85**	**209.63**	**4.80**	**214.43**

[1] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total does not reflect rounding.

[2] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).

[3] County Subarea Habitats and Tiers within the MSCP.

Cottonwood Sand Mine

Project Site

Critical Habitat

- Coastal California gnatcatcher
- Least Bell's vireo
- San Diego ambrosia
- Southwestern willow flycatcher

Sweetwater River

0 1,000 Feet

N

Source: Aerial (SanGIS 2017)

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HELIX Environmental Planning

Critical Habitat

Figure 8

2.3.8.2 Special Status Plants

The project would result in impacts to one special status plant species: San Diego County viguiera, a California Rare Plant Rank 4.3, and County List D species. All other special status plant species observed on-site would either remain undisturbed or be conserved in biological open space. Four San Diego viguiera shrubs observed within the project site would be impacted by the proposed project and would be considered a significant impact. Project impacts to special status plant species would be mitigated through on-site habitat re-establishment, rehabilitation, revegetation, and preservation.

2.3.8.3 Special Status Wildlife

The project would result in impacts to suitable breeding or foraging habitat for 17 special status animal species observed or detected on or adjacent to the site, including coastal California gnatcatcher, least Bell's vireo, Cooper's hawk, oak titmouse, red-shouldered hawk, turkey vulture, peregrine falcon, yellow-breasted chat, vermilion flycatcher, Lawrence's goldfinch, monarch butterfly, Belding's orange-throated whiptail, great blue heron, green heron, yellow warbler, western bluebird, and barn owl. The project site provides limited habitat to coastal California gnatcatcher. Suitable gnatcatcher breeding habitat within the project site is limited to small patches of DCSS in the extreme southwestern and southeastern portions of the site that are contiguous with larger blocks of DCSS that continue off-site within the SDNWR. These areas will not be directly impacted by the proposed project; alternatively, these areas would be preserved and placed within the project's biological open space easement. The project would result in impacts to 0.8 acre of disturbed Diegan coastal sage scrub, which provides potential foraging habitat for the species. Impacts to potential gnatcatcher foraging habitat would be significant. The project site provides suitable breeding habitat for least Bell's vireo and multiple individuals were detected within, and adjacent to, the project site during protocol surveys conducted in 2019 (HELIX 2021b). The project would impact 0.32 acre of southern cottonwood-willow riparian forest (including disturbed) in the southwestern portion of the site. Impacts to suitable vireo breeding habitat would be significant.

Project impacts to special status wildlife would be mitigated through on-site habitat re-establishment, rehabilitation, revegetation, and preservation, combined with other project-specific mitigation measures to address potential impacts, such as restrictions on clearing and grubbing during the avian breeding season. Mitigation for impacts to wetland and riparian habitats are addressed separately from this plan in the Conceptual Wetland Mitigation Plan (HELIX 2021a).

2.3.9 Required Compensatory Mitigation

A summary of project impacts to biological resources and required mitigation is provided in the Biological Technical Report (BTR; HELIX 2021b). The project would result in impacts to a total of 1.63 acres of riparian habitat or other sensitive natural communities (Table 2; Figure 9, *Conceptual Reclamation Revegetation and Compensatory Mitigation Areas*), including 0.50 acre of disturbed wetland, 0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.8 acre of DCSS (including disturbed). This plan addresses mitigation for impacts to sensitive upland vegetation communities (i.e., DCSS) and revegetation of areas temporarily disturbed as part of mining activities. Mitigation for impacts to sensitive wetland and riparian habitats are addressed in the Conceptual Wetland Mitigation Plan (HELIX 2021a). As required by the County's Report Format and Content Requirements for Revegetation Plans (County 2007), relevant sections of the BTR

(i.e., mitigation requirements and habitat being impacted) will be included as an appendix to the Final Revegetation Plan.

BIO-1 Mitigation for 0.8 acre of potential foraging habitat for coastal California gnatcatcher, comprised solely of Diegan coastal sage scrub, shall occur at a 1.5:1 ratio for a total mitigation requirement of 1.2 acres. Mitigation shall occur through on-site preservation of 0.72 acre of Diegan coastal sage scrub and on-site revegetation of 11.28 acres of Diegan coastal sage scrub for a total of 12.00 acres of Diegan coastal sage scrub to be preserved within the biological open space easement.

BIO-3 Mitigation for impacts to 0.32 acre of potential nesting and foraging habitat for least Bell's vireo (southern cottonwood-willow riparian forest) shall occur at a minimum 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 0.96 acre. Mitigation shall occur through on-site preservation of 15.01 acres of wetland and riparian habitat, on-site rehabilitation of 6.13 acres of riparian habitat, and on-site re-establishment and revegetation of 107.93 acres of riparian habitat for a total of 129.07 acres of wetland riparian habitat to be preserved within the biological open space easement.

BIO-7 Upon completion of all extraction activities, reclamation and final grading to establish the final landform shall occur in accordance with the approved Reclamation Plan. Revegetation with native species will occur within the expanded Sweetwater River floodplain and constructed bordering slopes according to a revegetation plan to be approved by the County.

BIO-8 Mitigation for impacts to 0.32 acre of southern cottonwood-willow riparian forest, 0.01 acre of arundo-dominated riparian, and 0.50 acre of disturbed wetland shall occur at a 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 0.96 acre. Mitigation shall occur through on-site preservation of 15.01 acres of wetland and riparian habitat, on-site rehabilitation of 6.13 acres of riparian habitat, and on-site re-establishment and revegetation of 107.93 acres of riparian habitat for a total of 129.07 acres of wetland riparian habitat to be preserved within the biological open space easement.

BIO-9 Mitigation for 0.8 acre of impacts to Diegan coastal sage scrub shall occur at a 1.5:1 ratio with 1.2 acres of Tier II or Tier I habitat in the South County MSCP area within a biological resource core area. Mitigation shall occur through on-site preservation of 0.72 acre of Diegan coastal sage scrub and on-site revegetation of 11.28 acres of Diegan coastal sage scrub for a total of 12.00 acres of Tier II Diegan coastal sage scrub to be preserved within the biological open space easement.

Table 3, *Project Impacts to Sensitive Vegetation Communities and Required Mitigation Summary*, provides a summary of project impacts to sensitive vegetation communities and required mitigation. The applicable conditions of the Resolution of Approval will be attached to the Final Revegetation Mitigation Plan submitted after discretionary approval and prior to issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit.

Cottonwood Sand Mine

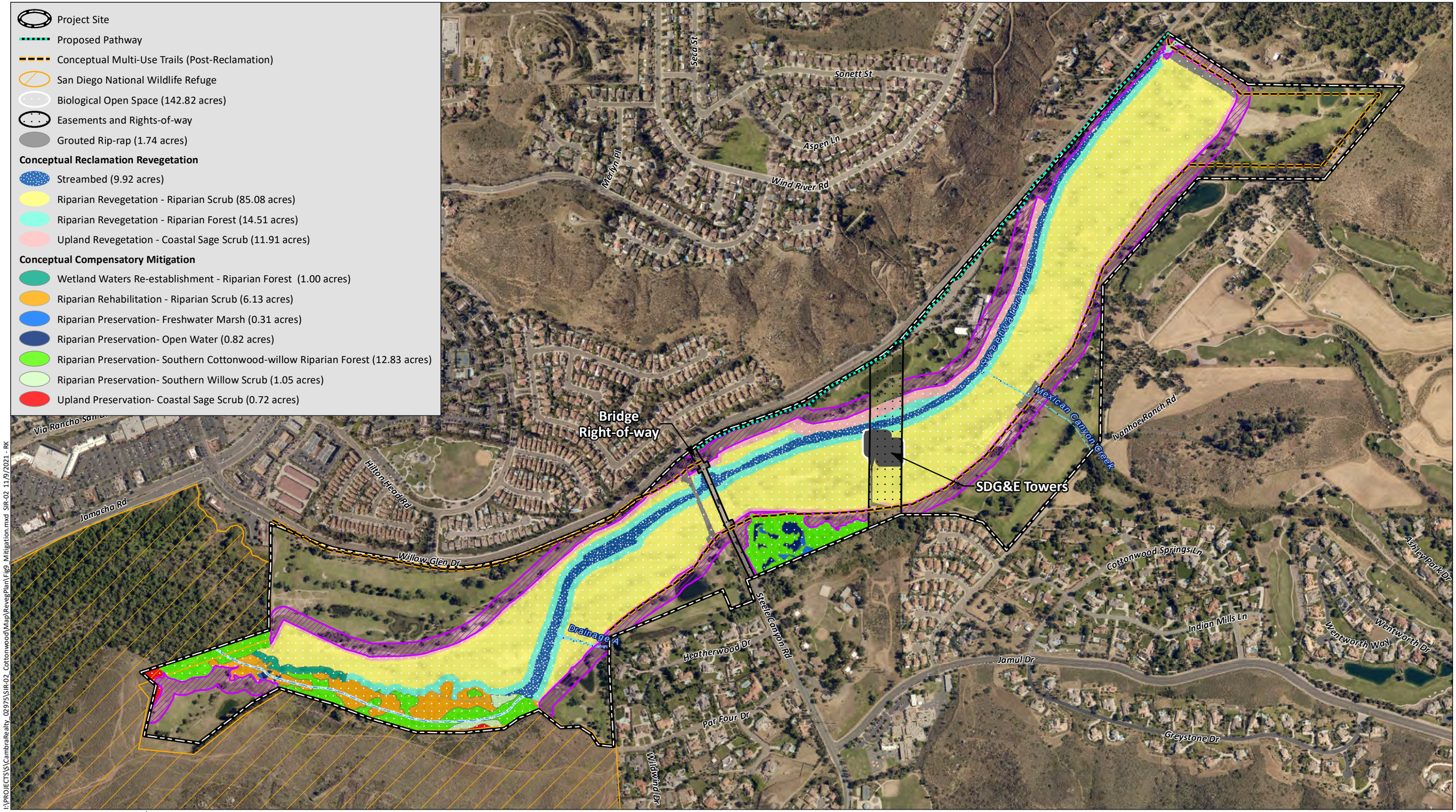
- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space (142.82 acres)
- Easements and Rights-of-way
- Grouted Rip-rap (1.74 acres)

Conceptual Reclamation Revegetation

- Streambed (9.92 acres)
- Riparian Revegetation - Riparian Scrub (85.08 acres)
- Riparian Revegetation - Riparian Forest (14.51 acres)
- Upland Revegetation - Coastal Sage Scrub (11.91 acres)

Conceptual Compensatory Mitigation

- Wetland Waters Re-establishment - Riparian Forest (1.00 acres)
- Riparian Rehabilitation - Riparian Scrub (6.13 acres)
- Riparian Preservation- Freshwater Marsh (0.31 acres)
- Riparian Preservation- Open Water (0.82 acres)
- Riparian Preservation- Southern Cottonwood-willow Riparian Forest (12.83 acres)
- Riparian Preservation- Southern Willow Scrub (1.05 acres)
- Upland Preservation- Coastal Sage Scrub (0.72 acres)



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Source: Aerial (SanGIS, 2017)

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Conceptual Reclamation Revegetation and Compensatory Mitigation Areas

Figure 9

Table 3
IMPACTS TO SENSITIVE VEGETATION COMMUNITIES AND REQUIRED MITIGATION SUMMARY (acre[s])[1]

Habitat	Impacts	Required Mitigation			
		Ratio	Establishment	Establishment, Re-establishment, Rehabilitation, and/or Enhancement	Total
Tier I					
Disturbed Wetland	0.50	3:1	0.50	1.00	**1.50**
Southern Cottonwood-willow Riparian Forest – including disturbed	0.32	3:1	0.32	0.64	**0.96**
Arundo-Dominated Riparian	0.01	3:1	0.01	0.02	**0.03**
Subtotal	***0.83***	**--**	***0.83***	***1.66***	***2.49***
Tier II					
Diegan Coastal Sage Scrub – including disturbed (32500)	0.8	1.5:1	--	1.20	**1.20**
Subtotal	***0.8***	**--**	**--**	***1.2***	***1.2***
TOTAL	**1.63**	**--**	**0.83**	**2.86**	**3.69**

[1] Rounded to the nearest 0.01 acre; totals do not reflect rounding.

Mitigation for impacts to Tier I riparian habitats and jurisdictional waters and wetlands are addressed separately in the Conceptual Wetland Mitigation Plan (HELIX 2021a). Mitigation for impacts to Tier II upland sensitive habitats (DCSS [including disturbed]) will be met through on-site preservation of 0.72 acre of existing DCSS and the preservation of 11.28 acres of DCSS revegetated as part of site reclamation within a biological open space easement, with no restoration component. The Resolution of Approval, including applicable conditions of approval, will be attached to the Final Revegetation Plan submitted after discretionary approval and prior to grading permit issuance.

2.3.10 Mining Reclamation

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Extraction activities will temporarily approximately 214.03 acres which are required to be reclaimed. Reclamation includes revegetation of areas that contained vegetation prior to mining.

Additionally, Section 86.605(d) of the County RPO (County 2011) requires that the project implement the following mitigation measures as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas in order to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and

- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Currently, wetland buffer areas within the project site consist of patches of existing riparian habitat and extensive areas of golf course development bordering the Sweetwater River. To meet the requirements of the RPO, wetland buffer areas disturbed by mining will be restored via a combination of re-establishment of wetland waters and riparian habitat addressed in the Conceptual Wetland Mitigation Plan (HELIX 2021a) and native habitat revegetation addressed in this plan (Figures 10a through 10e, *Conceptual Reclamation Revegetation Areas*).

The proposed project would involve the widening of the Sweetwater River floodplain by lowering existing upland elevations to a final height of four feet above the existing Sweetwater River low-flow channel. The expanded floodplain will be revegetated with wetland and riparian forest and scrub habitat resulting in a net gain of functional wetlands and riparian habitat. Cut slopes constructed along the margins of the expanded floodplain will be revegetated with native upland habitat (i.e., DCSS), improving upon the current site conditions and resulting in a biologically superior condition.

Existing RPO wetlands within the project site shall be preserved in place and their existing environmental values shall be enhanced through the rehabilitation of existing riparian habitat addressed in the Conceptual Wetland Mitigation Plan (HELIX 2021a). All riparian re-establishment and rehabilitation addressed in the mitigation plan, combined with the revegetation addressed in this plan, shall be preserved within a biological open space easement and managed in perpetuity in accordance with the Conceptual Resource Management Plan (HELIX 2021c).

3.0 GOALS OF REVEGETATION

The goal of this revegetation plan is to provide sufficient vegetative cover to the reclaimed site such that the soil surface is stabilized, existing wetland buffer areas are restored, long-term erosion is prevented, and the post extractive land use objectives of the site are met.

3.1 RESPONSIBILITIES

3.1.1 Project Proponent

New West Investment, Inc. (or its successor in interest, in the event a sale of the property takes place) will be responsible for financing the installation, maintenance, and monitoring of the proposed on-site revegetation effort. Ultimately, the native habitat revegetation areas, together with all biological open space designated on-site, may be transferred in fee title (subject to County approval) to a public or private entity specializing in the long-term management of open space. If such a transfer were to occur prior to County sign-off of the implemented mitigation and revegetation effort, this entity would become responsible for the maintenance program described herein.

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space (142.82 acres)
- Easements and Rights-of-way
- Erosional Control Seed Mix (96.09 acres)
- Grouted Rip-rap (1.74 acres)

Conceptual Reclamation Revegetation

- Streambed (9.92 acres)
- Riparian Revegetation - Riparian Scrub (85.08 acres)
- Riparian Revegetation - Riparian Forest (14.51 acres)
- Upland Revegetation - Coastal Sage Scrub (11.91 acres)

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Seca St
Sonett St
Aspen Ln
Wind River Rd
Greencrest Dr
Greencrest Ct
Marlyn Pl
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Jamul Dr
Greystone Dr
Indian Mills Ln
Cottonwood Springs Ln
Wentworth Way
Wentworth Dr
Ashley Park Dr
Ivanhoe Ranch Rd

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Source: Aerial (SanGIS, 2017)

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Conceptual Reclamation Revegetation Areas - Overview

Figure 10a

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Seca St
Sonett St
Aspen Ln
Wind River Rd
Marlyn Pl
Greencrest Dr
Greencrest Ct
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Sweetwater River
Ivanhoe Ranch Rd
Cottonwood Springs Ln
Ashley Park Dr
Indian Mills Ln
Wentworth Way
Wentworth Dr
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Jamul Dr
Greystone Dr

0 700 Feet

N

Source: Aerial (SanGIS, 2017)

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Conceptual Reclamation Revegetation Areas - Phase 1

Figure 10b

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Conceptual Multi-Use Trails (Post-Reclamation)
- Proposed Pathway
- San Diego National Wildlife Refuge
- Biological Open Space
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Greencrest Dr
Greencrest Ct
Woodpine Dr
Marlyn Pl
Seca St
Sonett St
Aspen Ln
Wind River Rd
Ivanhoe Ranch Rd
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Ashley Park Dr
Wentworth Way
Wentworth Dr

0 700 Feet

N

Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 2

Figure 10c

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Seca St
Sonett St
Aspen Ln
Wind River Rd
Marlyn Pl
Greencrest Dr
Greencrest Ct
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Ivanhoe Ranch Rd
Cottonwood Springs Ln
Indian Mills Ln
Ashley Park Dr
Wentworth Way
Wentworth Dr
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Jamul Dr
Greystone Dr

0 700 Feet

N

Source: Aerial (SanGIS, 2017)

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HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 3

Figure 10d

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Biological Open Space
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Streambed

Bridge Right-of-way

SDG&E Towers

Seca St
Sonett St
Greencrest Dr
Greencrest Ct
Marlyn Pl
Aspen Ln
Wind River Rd
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Sweetwater River
Ivanhoe Ranch Rd
Cottonwood Springs Ln
Ashley Park Dr
Indian Mills Ln
Wentworth Way
Wentworth Dr
Steele Canyon Rd
Heatherwood Dr
Jamul Dr
Par Four Dr
Greystone Dr
Wildwind Dr

0 700 Feet

N

Source: Aerial (SanGIS, 2017)

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Conceptual Reclamation Revegetation Areas - Phase 4

Figure 10e

3.1.2 County of San Diego

As part of the monitoring program, annual reports prepared by the Restoration Specialist will be submitted to the County and Wildlife Agencies (USFWS and CDFW). The County will review these reports for completeness and will determine the success of the revegetation effort together with the Wildlife Agencies.

3.1.3 Revegetation Project Designer

The Final Revegetation Plans (i.e., revegetation construction drawings) will consist of construction drawings, including irrigation and planting plans, prepared by a California registered landscape architect. These plans will meet the requirements set forth in Section 2.11 of the County's Report Format and Content Requirements for Revegetation Plans (County 2007). The landscape architect will inspect the irrigation system prior to seeding and planting, as needed, to help ensure proper installation and complete coverage of the revegetation area while minimizing runoff into the adjacent habitat.

3.1.4 Grading Contractor

Following the completion of all mining activities in each mining subphase, the grading contractor will establish final grades and install salvaged topsoil per the Final Revegetation Plans (grading plans). This contractor will have at least five years of experience in successful mine reclamation grading. Final grading and topsoil application will be coordinated with the Restoration Specialist.

3.1.5 Installation Contractor

The installation contractor will have at least five years of experience in successful native upland and wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the installation of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the revegetation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. Installation may include, but is not limited to, ordering plantings and seed, removing non-native plants and trash, mulching dead trees, installing irrigation lines, container plants, and seed.

3.1.6 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of this revegetation effort will be the responsibility of a qualified Restoration Specialist with at least five years of experience with successful native upland and wetland habitat restoration in Southern California. The Restoration Specialist will oversee the efforts of the installation and maintenance contractor(s) for the duration of the revegetation effort. Specific tasks of the Restoration Specialist include educating all participants with regard to revegetation goals and requirements, as well as directly overseeing final grading, topsoil application, weeding, planting, and seeding, as well as maintenance activities for the duration of the five-year maintenance period. The Restoration Specialist will explain to the contractor how to avoid impacts to existing sensitive habitat and sensitive species. When necessary to keep the revegetation effort on track to meeting final success criteria, the Restoration Specialist will provide the project proponent and contractor with a written monitoring memorandum, including a list of items in need of attention. The Restoration Specialist also will conduct annual assessments of the revegetation effort and

prepare and submit an annual report to the County and Wildlife Agencies each year during the five-year maintenance and monitoring period.

3.1.7 Maintenance Contractor

The maintenance contractor will have at least five years of experience in successful native upland and wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the maintenance of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the revegetation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. The contractor will service the entire revegetation area as required, meet the Restoration Specialist at the site when requested, and perform all checklist items in a timely manner as directed by the project proponent. The maintenance contractor will be knowledgeable regarding the maintenance of native habitat and the difference between native and non-native plants. Maintenance would include but not be limited to non-native plant species control, trash removal, irrigation adjustments and repairs, and potentially re-seeding and/or re-planting. All maintenance activities would be seasonally appropriate and approved by the Restoration Specialist.

3.1.8 Nursery (Seed/Plant Procurement)

Plants and seed may be purchased from a nursery or supplier specializing in native plants or contract grown. Plant and seed material should be locally propagated and collected from central San Diego County, within 25 miles of the site. Plant/seed orders should be placed by the installation contractor at least six months prior to installation.

3.2 TYPES AND AREAS OF HABITAT TO BE REVEGETATED

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Additionally, wetland buffer areas disturbed as part of mining activities are required to be restored in accordance with Section 86.605(d) of the County RPO (County 2011). A portion of the reclaimed area, totaling 1.00 acre, will be re-established to wetland and riparian in order to fulfill compensatory mitigation requirements as described in the Conceptual Wetland Mitigation Plan (HELIX 2021a). The remaining areas to be reclaimed shall consist of 109.51 acres of wetland and riparian forest and riparian scrub revegetation located within the widened Sweetwater River floodplain, 11.91 acres of cut slopes that will be revegetated with native upland vegetation (DCSS), and 96.09 acres of level pads to be seeded with an erosion control seed mix (Figure 9; Table 4, *Reclamation Revegetation by Mining Phase*).

Table 4
RECLAMATION REVEGETATION BY MINING PHASE (acre[s])[1]

Habitat Type	Mining Phase				Total
	Phase 1	Phase 2	Phase 3	Phase 4	
Native Habitat Revegetation					
Diegan Coastal Sage Scrub	2.93	3.26	5.72	0	11.91
Upland Revegetation Subtotal	*2.93*	*3.26*	*5.72*	*0*	*11.91*
Riparian Forest	7.81	3.64	3.06	0	14.51
Riparian Scrub	28.94	28.11	28.03	0	85.08
Streambed (Emergent Wetland)	3.86	3.40	2.66	0	9.92
Wetland/Riparian Revegetation Subtotal	*40.61*	*35.15*	*33.75*	*0*	*109.51*
Native Habitat Revegetation Total	**43.54**	**38.41**	**39.47**	**0**	**121.42**
Erosion Control Mix	39.63	12.34	34.79	9.33	96.09
TOTAL	**83.17**	**50.75**	**74.26**	**9.33**	**217.51**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

3.3 FUNCTIONS AND VALUES

Native habitat revegetation will (1) increase the value of the existing riparian corridor for native flora and fauna; (2) improve areas mapped as USFWS critical habitat for San Diego ambrosia, least Bell's vireo, and coastal California gnatcatcher; (3) provide additional cover for wildlife movement; and (4) provide foraging and nesting habitat for riparian species known from the area, many of which are sensitive, such as least Bell's vireo, yellow warbler, and yellow-breasted chat (HELIX 2021b). The expanded floodplain is expected to provide functions and services typical of naturally occurring intermittent stream channels, such as stream-energy dissipation, to reduce erosion and improve water quality, groundwater recharge, sediment transport, water purification, and foraging, breeding, live-in, and dispersal habitat for wildlife. At the end of five years of maintenance and monitoring, the native revegetation area is expected to provide self-sustaining native habitat (i.e., capable of self-regeneration without continued dependence on irrigation, soil amendments, or fertilizer) that continues on the trajectory toward developing functions and values of adjacent native habitat without further active management.

3.4 TIME LAPSE

Mining operations will occur in three separate phases, in addition to a fourth phase for final reclamation, site cleanup, and equipment removal. It is anticipated that all four phases of mining and final reclamation will be completed in approximately 16 years (Table 5, *Approximate Timing of Mining and Reclamation Activities*). Each of the three main mining phases will include multiple subphases, with each subphase totaling less than 30 acres per phase. Each subphase will begin with vegetation removal, followed by topsoil salvage, resource extraction, backfilling, and finally reclamation of the impacted area. While the precise location and timing of mining and reclamation subphases are subject to market demand and variations in geologic conditions encountered in the field, overall mining followed by reclamation for each subphase will progress, as shown on Figure 5. Reclamation, and subsequent revegetation, will occur within each subphase immediately following the completion of mining activities. Reclamation shall consist of backfilling of excavated areas, grading of final contours, application of salvaged topsoil, and planting of container stock and/or application of seed mix. Sign off of the revegetation effort is expected by the end of the five-year maintenance and monitoring period for each individual subphase.

Table 5
APPROXIMATE TIMING OF MINING AND RECLAMATION ACTIVITIES

Mining Phase	Acres	Mining			Reclamation	
		Mining Duration (Years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Revegetation Initiation Date (est.)	Revegetation Completion Date (est.)
Phase 1						
Subphase 1A	24.00	1	2022	2023	2023	2028
Subphase 1B	24.43	1	2023	2024	2024	2029
Subphase 1C	29.90	1	2024	2025	2025	2030
Phase 1 Total	***78.33***	***3***	***2022***	***2025***	***2023***	***2030***
Phase 2						
Subphase 2A	15.38	1	2025	2026	2026	2031
Subphase 2B	20.50	1	2026	2027	2027	2032
Subphase 2C	13.98	1	2027	2028	2028	2033
Phase 2 Total	***49.86***	***3***	***2025***	***2028***	***2026***	***2033***
Phase 3						
Subphase 3A	28.60	1	2028	2029	2029	2034
Subphase 3B	14.60	1	2029	2030	2030	2035
Subphase 3C	13.99	1	2030	2031	2031	2036
Subphase 3D	15.30	1	2031	2032	2032	2037
Phase 3 Total	***72.49***	***4***	***2028***	***2032***	***2029***	***2037***
Phase 4	8.85	1	20312	2032	2032	2037
TOTAL	**209.63**	**11**	**2022**	**2032**	**2023**	**2037**

Compensatory mitigation for impacts to riparian habitat, other sensitive vegetation communities, and jurisdictional waters and wetlands will occur prior to or concurrent with initiation of project grading for Phase 1 (Table 6, *Compensatory Mitigation and Reclamation Revegetation Phasing*). Preservation of existing native riparian habitat and riparian habitat rehabilitation will occur prior to or concurrent with initiation of project grading for Subphase 1A. Initiation of wetland waters re-establishment would occur prior to or during the fall of the year in which project reclamation is completed, and revegetation is initiated for Subphase 1B. Sign off of the on-site wetland mitigation effort is expected by the end of the five-year maintenance and monitoring period.

Table 6
COMPENSATORY MITIGATION AND RECLAMATION PHASING

Habitat	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]	M[1]	R[1]
Conceptual Reclamation Revegetation										
Native Habitat Revegetation										
Riparian Forest	0	7.81	0	3.64	0	3.06	0	0	0	14.51
Riparian Scrub	0	28.94	0	28.11	0	28.03	0	0	0	85.08
Streambed (Emergent Wetland)	0	3.86	0	3.40	0	2.66	0	0	0	9.92
Coastal Sage Scrub	0	2.93	0	3.26	0	5.72	0	0	0	11.91
Subtotal	*0*	*43.54*	*0*	*35.15*	*0*	*33.75*	*0*	*0*	*0*	*121.42*
Other Reclamation										
Erosion Control Mix	0	39.63	0	12.34	0	34.79	0	9.33	0	96.09
Revegetation Total	***0***	***83.17***	***0***	***50.75***	***0***	***74.26***	***0***	***9.33***	***0***	***217.51***
Conceptual Compensatory Mitigation										
Wetland Waters Re-Establishment										
Riparian Forest	1.00	0	0	0	0	0	0	0	1.00	0
Rehabilitation										
Riparian Scrub	6.13	0	0	0	0	0	0	0	6.13	0
Preservation										
Open Water	0.31	0	0	0	0	0	0	0	0.31	0
Freshwater Marsh	0.82	0	0	0	0	0	0	0	0.82	0
Southern Cottonwood-Willow Riparian Forest	12.83	0	0	0	0	0	0	0	12.83	0
Southern Willow Scrub	1.05	0	0	0	0	0	0	0	1.05	0
Coastal Sage Scrub	0.72	0	0	0	0	0	0	0	0.72	0
Mitigation Total	**22.86**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22.86**	**0**
TOTAL	**22.86**	**83.17**	**0**	**50.71**	**0**	**74.26**	**0**	**9.33**	**22.86**	**217.51**

[1] M = Compensatory Mitigation; R = Reclamation Native Habitat Revegetation

3.5 COST

A draft cost of $450,000 for the life of the project for biological monitoring and reporting, and approximately $100,000 per acre on average for the installation and maintenance for five years was estimated for the overall reclamation addressed in this plan (averaged for irrigated and non-irrigated areas). Due to the extended nature of this project, this cost is preliminary and does not include the cost of inflation. This cost also does not include any grading, topsoil application, maintenance during the construction period, fencing installation/repairs, or erosion control.

4.0 DESCRIPTION OF THE REVEGETATION SITE

4.1 SITE SELECTION

Target habitat types to be revegetated within the portions of the site disturbed by mining activities were selected based on proposed final landform contours, landscape position, hydrology, existing habitats, and other biological factors. Post-reclamation, the site's final landform will be a relatively flat plain that gently slopes downward from east to west, with a widened river floodplain bisecting the length of the

site. The widened floodplain is expected to average approximately 250 to 300 feet in width, with the existing channel remaining in the center. The existing channel is expected to accommodate most flows from annual water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site). Cut slopes bordering the widened river channel shall be constructed at no greater than a 3:1 slope and shall slope up to the level pads located outside of the widened river. The top of the slope to the bottom of the channel may be up to 25 feet in areas.

The widened river floodplain shall be vegetated with riparian forest habitat within approximately 50 feet of the existing channel, and riparian scrub habitat in the remainder of the floodplain (Figure 9). Riparian habitat occurs immediately upstream and downstream of the project site, indicating that the site contains suitable hydrology to support riparian habitat. Sweetwater River conveys intermittent flows that are artificially modified by the Sweetwater Authority, which conducts controlled releases and water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site). An existing low flow channel shall be generally retained in place along the current Sweetwater River flow line to convey these flows. Non-native vegetation within the current channel would be removed, and the streambed would be seeded with an emergent wetland seed mix. The broadened floodplain area bordering the river shall be graded to an elevation approximately four feet above the low flow channel bottom which will allow floodwaters that breach the low flow channel to spread out in the adjacent floodplain area. Mapped soils within the widened river channel are primarily Riverwash and Visalia Sandy Loam (Figure 6), which are frequently found in alluvial floodplains within and near wetlands. The slopes bordering the widened river channel shall be vegetated with DCSS (Figure 10a), which occurs within the project site and surrounding area (Figure 7). The flat graded pads outside of the widened river floodplain shall be seeded with an erosion control seed mix in an effort to stabilize soils and prevent erosion.

4.2 LOCATION AND SIZE OF REVEGETATION SITE

The revegetation area is located on-site, between approximately 32.753919 and 32.740810 north latitude, and between -116.905365 and -116.928629 west longitude. A total of 217.51 acres of disturbed areas will be reclaimed and revegetated; 109.51 acres of wetland and riparian forest and riparian scrub revegetation located within the widened Sweetwater River floodplain, 11.91 acres of cut slopes that will be revegetated with native upland vegetation (DCSS), and 96.09 acres of level pads to be seeded with an erosion control seed mix (Figure 11, *Conceptual Biological Open Space*). Additionally, 1.00 acre of wetland waters re-establishment will be complete as addressed within the Conceptual Wetland Mitigation (HELIX 2021a).

In addition to the revegetation areas, wetland restoration to fulfill the project's compensatory mitigation requirements will occur contiguously with the proposed revegetation, at the downstream portion of Sweetwater River, in the southwestern portion of the site (Figure 9). The wetland mitigation effort, which includes a total of 22.14 acres of wetland waters re-establishment, rehabilitation, and preservation of wetland and riparian habitat on-site, is detailed in the Conceptual Wetland Mitigation Plan (HELIX 2021a).

4.3 FUNCTIONS AND VALUES

The areas proposed for revegetation are currently characterized by golf course fairways and associated infrastructure (i.e., cart paths, artificial ponds, clubhouse, etc.), ruderal vegetation and disturbed habitat associated with previous golf course development and operation, and a mixture of native and non-

native planted landscaped trees. The existing functions and values of these areas are limited as a result of previous development into a golf course; the area is currently dominated by Bermuda grass (*Cynodon dactylon*) or bare ground. Planted trees within the golf course currently provide potential breeding habitat for bird species such as the sensitive western bluebird, which was observed throughout the project site (HELIX 2021b). Patches of existing riparian habitat located east of Steele Canyon Road and in the downstream portion of Sweetwater River provide habitat for some birds, small rodents and mammals, and lizards and amphibians for both foraging, breeding, and live-in habitat. The least Bell's vireo was detected within this area during protocol surveys conducted in 2019 and confirmed to be breeding within existing riparian habitat located to the east of Steele Canyon Road (HELIX 2021b).

4.4 PRESENT AND PROPOSED USES

The site currently contains one operational and one abandoned public golf course (golf play and maintenance of landscaped turf in the western portion of the site was discontinued in 2017). Prior sand mining activities within the project site started in the early 1950s to the south of Sweetwater River and continued through the 1970s. Golf courses were constructed in the 1960s and 1970s. Intermittent mining within portions of the site have been ongoing concurrently with golf course operations. The most recent mining activities occurred in the western and southwestern portions of the site between 2007 and 2009, and in the extreme eastern portion of the site in 2016.

Following mining and reclamation activities, the project site will be characterized by an expanded Sweetwater River floodplain and associated riparian corridor that will be preserved within the project's biological open space (Figure 11) that will be managed over the long term by a habitat manager according to a Resource Management Plan (HELIX 2021c). Hiking trails are proposed to be established around the perimeter of the biological open space area following site reclamation; no hiking trails are proposed within the expanded Sweetwater River floodplain or associated DCSS slopes.

There are two easements that bisect the biological open space that will remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's biological open space in a generally north to south direction across Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the biological open space; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the biological open space.

The second easement consists of a San Diego Gas & Electric (SDG&E) easement, which occurs within the central portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site, where reclamation and revegetation activities are proposed to occur (Figure 9). The SDG&E easement bisects the project's biological open space area. The easement consists of overhead utility lines that run in a north/south direction across the Sweetwater River. Three transmission towers poles and other associated infrastructure have been excluded from the biological open space; therefore, the presence of the SDG&E easement is not expected to affect the long-term viability and management of the biological open space. A small portion of the area to be revegetated following extraction activities, approximately 3.20 acres, is proposed to occur within the SDG&E where temporary impacts would occur as a result of mining activities. The easement will be revegetated with the same plant palette as the rest of the revegetation area. Existing elevations would be lowered by 15 to 20 feet, but the three transmission towers would remain at their current elevation, leaving a raised "island" within the

expanded Sweetwater River floodplain. An access ramp would be constructed on the western side of the island to connect to a 28-foot-wide access road within the existing SDG&E right-of-way easement that runs from the towers to the top of the constructed southern slope at the southern boundary of the expanded floodplain. The ramp, access road, and slopes surrounding the towers would be compacted and lined, as needed, for access and to prevent erosion. It is expected that periodic trimming of vegetation to facilitate vehicle access by SDG&E maintenance crews would need to be conducted within the access road. This work would be conducted as needed by SDG&E. Fencing and signage would be installed along the ramp and access road to prevent unauthorized access and impacts to the native habitat revegetation area and biological open space located adjacent to the access road.

4.5 REFERENCE SITE

Native habitat within the southwestern portion of the site shall be used as a reference site for DCSS habitat. Revegetation goals for riparian forest and riparian scrub revegetation areas have been based on visual estimates of native cover noted in similar habitat in San Diego County.

5.0 IMPLEMENTATION PLAN

This section provides the details for the execution of the proposed revegetation.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The proposed revegetation effort is anticipated to be successful based on the following: (1) occurrence of healthy native upland and wetland vegetation within the project site; (2) the presence of appropriate soils within the riparian forest and riparian scrub revegetation areas; (3) flows through the nearby existing Sweetwater River channel, and associated groundwater levels, combined with natural rainfall and periodic surface flooding following major rain events, are expected to provide sufficient hydrology to support riparian vegetation within the riparian forest and riparian scrub revegetation areas; (4) the use of plantings and seed of native species known to occur on-site; (5) the use of temporary irrigation to aid plant establishment; and (6) a financial commitment to ensure the long-term management of the revegetated areas.

5.2 FINANCIAL ASSURANCES

A revegetation agreement shall be signed and notarized by the property owner following the approval of this Revegetation Plan and be accompanied by the required security as agreed upon by the County.

5.3 SCHEDULE

Plant and seed orders should be placed at least six months prior to targeted installation because some species may need to be specially collected and/or grown for the project. Topsoil salvage should occur prior to extraction activities within each mining subphase area. Revegetation activities will be initiated for each subphase immediately following the completion of mining activities in that area, as detailed above in Tables 5 and 6. Reclamation grading of the revegetation area and topsoil application using heavy equipment will follow the bird breeding season timing restrictions outlined in more detail further below. Irrigation (as applicable), plantings, and seed will be installed after final grades have been established. Maintenance of the revegetation area will begin following the completion of installation

- Project Site
- Conceptual Multi-Use Trails (Post-Reclamation)
- Proposed Pathway
- Open Space Conceptual Signage Location
- Existing Fencing
- Proposed Fencing
- Easements and Rights-of-way
- Limited Building Zone Easement
- Biological Open Space
- Non-Biological Open Space
- Additional Reclaimed Areas*
- Retained in Existing Condition

**Additional reclaimed areas are composed of graded upland pads located outside of the expanded Sweetwater River floodplain that will be seeded with an erosion control seed mix.*

Jamacha Way
Sonett St
Aspen Ln
Wind River Rd
Sweetwater River
Sea Pines Rd
Via Rancho San Diego
Bridge Right-of-way
Augusta Ct
SDG&E Towers
Ivanhoe Ranch Rd
Jamacha Rd
Hilton Head Rd
Access Road
Willow Glen Dr
SDG&E Easement
Cottonwood Springs Ln
Ashley Park Dr
Steele Canyon Rd
Indian Mills Ln
Wentworth Way
Heatherwood Dr
Jamul Dr
Par Four Dr
Greystone Dr

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0 700 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Proposed Biological Open Space

Figure 11

and will continue for five years within each individual subphase. Monitoring and coordination will begin during topsoil salvage and will continue during site preparation and through the five years after revegetation has been installed.

5.4 SITE PREPARATION

5.4.1 Protective Fencing

As part of the project design, temporary fencing will be installed around the perimeter of the project site where fencing is currently not present or in need of repair. In addition, during mining, temporary environmental fencing shall be installed around active work areas to protect sensitive biological resources, such as Sweetwater River and native vegetation communities. All construction-related fencing would be removed within an area that is being actively revegetated. No temporary fencing is proposed to be installed along the boundaries of the wetland and riparian forest and riparian scrub revegetation areas since it would be located within the Sweetwater River floodplain and is expected to periodically flood.

5.4.2 Topsoil Salvage

Prior to mining a subphase, the top two inches of soil will be scraped off and removed from the site. The next 6 to 12 inches of soil, as determined by the Restoration Specialist during salvage operations, would then be collected and stored on-site in windrows that are no more than three feet in height in an area that had been prepared for topsoil storage by clearing all vegetation and scraping away the top two inches. Stored topsoil should not be disturbed until it is installed in the revegetation area. Salvaged topsoil will be applied to the revegetated floodplain, as well as upland slopes around the floodplain perimeter.

5.4.3 Weed Control

Weed control shall be implemented during mining operations as directed in the project's Reclamation Plan (EnviroMINE 2021). Periodic monitoring through visual observations shall be conducted to identify and monitor non-native and invasive plant species populations within the project site. Weed control shall be implemented, if determined to be necessary, to control invasive weed species within the site. Non-native vegetation will be removed by hand or through the use of the wetland-approved herbicide.

5.4.4 Reclamation Grading and Salvaged Topsoil Application

Grading the revegetation area shall be completed as part of site reclamation immediately following the completion of mining operations within each subphase. Grading would include the establishment of all final slopes and topographic features and incorporation of accumulated wash fines and salvaged topsoil. The existing Sweetwater River low-flow channel shall be generally retained in place along the current Sweetwater River flow line to convey these flows and accommodate controlled releases and water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site), as operated by the Sweetwater Authority. The riparian forest and riparian scrub revegetation areas will be graded in accordance with the grading sheets of the Final Revegetation Plans. Final grade is expected to be approximately four feet above the existing low-flow channel. Graded areas within the expanded Sweetwater River floodplain shall be left in a rough grade state with micro

topographic relief that mimics natural topography. Planting and irrigation should not be installed until the Restoration Specialist has approved the grading.

Rip rap energy dissipation structures are proposed as part of the reclamation (Figures 9 and 10a through 10e). The purpose of the rip rap energy dissipation structures would be to dissipate stream flow energy, protect downstream areas from erosion, and protect existing infrastructure (i.e., Steele Canyon Road bridge and SDG&E transmission towers and powerlines). A rock drop structure is proposed to be installed downstream (west) of the Steele Canyon Road bridge within the widened Sweetwater River channel perpendicular to stream flows. Rock rip rap would be installed in two areas along the cut fill slopes: along the eastern slope of the widened channel where Sweetwater River enters the project site, and along the southern slope to the east of Steele Canyon Road at the confluence of Mexican Canyon Creek and Sweetwater River.

Reclamation grading and installation of salvaged topsoil will occur outside of the general bird nesting season (February 15 to August 31), coastal California gnatcatcher nesting season (March 1 to August 15), and least Bell's vireo nesting season (March 15 to September 15) to avoid impacts to nesting birds. If grading and reclamation activities must occur during one of these bird breeding seasons, the relevant mitigation measures contained in the project's BTR (HELIX 2021b), such as pre-construction surveys, shall be implemented.

5.4.5 Initial Weed Control

The native habitat revegetation areas will have been recently graded following mining and reclamation activities and are not expected to require any initial weed control.

5.4.6 Soil Amendments

No soil amendments are recommended for the native habitat revegetation area due to the proximity of healthy native riparian habitat and soils mapping, indicating that soils in this area consist of Riverwash and Tujunga sand (Figure 6; NRCS 2016), both appropriate for riparian forest and riparian scrub habitat. Soil amendments are likewise not expected for the DCSS habitat area due to the use of salvaged topsoil.

5.4.7 Erosion Control

Erosion control measures will be installed upstream of active revegetation areas wherever deemed necessary to prevent sediment movement to prevent sediment movement into the areas from nearby mining. Potential erosion control measures may include, but are not limited to, windrows of cut vegetation, organic matting, fiber rolls (straw wattles), and silt fencing. Any installed erosion control materials will be removed from the site once sufficient native plant cover is established. In addition, a hydro-slurry containing tackifier and wood fiber/mulch will be applied with the seed mixture to provide erosion control across the site.

5.5 PLANTING PLAN

5.5.1 Planting Palettes/Seed Mixes

After site preparation and irrigation installation have been completed within each reclaimed subphase, native plantings and/or seed will be installed within the riparian forest (Table 7, *Riparian Forest Plant*

Palette), riparian scrub (Table 8, *Riparian Scrub Plant Palette*), emergent wetland (Table 9, *Streambed (Emergent Wetland) Plant Palette*),and upland (Table 10, *Diego Coastal Sage Scrub Plant Palette*) revegetation areas, and an erosion control seed mix (Table 11, *Erosion Control Seed Mix*) will be applied to the graded pads located outside of the widened Sweetwater River floodplain (Figures 10a through 10e). Plantings will be irrigated with well water. The existing low-flow channel will be seeded with low growing herbaceous wetland vegetation to facilitate channel stability while not impeding potential channel maintenance activities.

The species selected for planting and seeding within native revegetation areas have been observed within the on-site habitat or are known to occur within the surrounding area. All plants and seed should be obtained from southern San Diego County, whenever possible. Container stock orders or production from seed may be needed up to 12 months prior to the anticipated installation date. Species substitutions, quantity changes, or use of commercial seed may be allowed, if necessary, at the discretion of the Restoration Specialist. The Restoration Specialist must approve all seed and container stock orders, including source locations, prior to ordering. The Restoration Specialist must inspect all plant material prior to installation; root bound material, any material with Argentine ants or other pests, and any other plants deemed damaged will not be accepted. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.

Table 7
RIPARIAN FOREST PLANT PALETTE[1]
(14.51 acres)

CONTAINER STOCK[2]				
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**
Artemisia dracunculus	tarragon	5	5	100
Baccharis salicifolia	mule fat	6	10	230
Distichlis spicata	saltgrass	10	3	150
Iva hayesiana	San Diego marsh elder	5	5	120
Platanus racemosa	western sycamore	15	3	50
Populus fremontii ssp. *fremontii*	western cottonwood	15	3	50
Salix exigua	sand bar willow	8	5	120
Salix gooddingii	black willow	12	5	150
Salix laevigata	red willow	12	5	200
Salix lasiolepis	arroyo willow	12	5	200
Sambucus nigra	blue elderberry	10	3	50
			Total	**1,420**

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Ambrosia psilostachya	western ragweed	45/45	4
Ambrosia pumila	San Diego ambrosia	-	0.5[3]
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Croton californicus	California croton	90/40	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Isocoma menziesii	goldenbush	18/40	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**22.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.

[2] Substitutions require approval of the Restoration Specialist.

[3] San Diego ambrosia (*Ambrosia pumila*) will only be installed within the 1.00 acre of wetland re-establishment area as detailed in the Conceptual Wetland Mitigation Plan based on availability.

* No less than 20 lbs. per acre of seed shall be installed.

Table 8
RIPARIAN SCRUB PLANT PALETTE[1]
(85.08 acres)

	CONTAINER STOCK[2]			
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**
Artemisia dracunculus	tarragon	5	5	200
Baccharis salicifolia	mule fat	6	10	250
Croton californicus	California croton	5	5	200
Distichlis spicata	saltgrass	10	3	200
Iva hayesiana	San Diego marsh elder	5	5	200
Platanus racemosa	western sycamore	15	3	30
Populus fremontii ssp. *fremontii*	western cottonwood	15	3	30
Salix exigua	sand bar willow	8	5	200
Salix gooddingii	black willow	12	5	100
Salix laevigata	red willow	12	5	30
Salix lasiolepis	arroyo willow	12	5	30
Sambucus nigra	blue elderberry	10	3	100
			Total	**1,570**

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Ambrosia psilostachya	western ragweed	45/45	4
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Croton californicus	California croton	90/40	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Isocoma menziesii	goldenbush	18/40	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**21.0***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.

[2] Substitutions require approval of the Restoration Specialist.

* No less than 20 lbs. per acre of seed shall be installed.

Table 9
STREAMBED (EMERGENT WETLAND) SEED MIX[1]
(9.92 acres)

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Bolboschoenus maritimus	alkali bulrush	90/60	1
Cyperus eragrostis	tall flatsedge	80/75	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Euthamia occidentalis	western goldenrod	24/45	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**10.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.

[2] Substitutions require approval of the Restoration Specialist.

* No less than 10 lbs. per acre of seed shall be installed.

Table 10
DIEGAN COASTAL SAGE SCRUB PLANT PALETTE[1]
(11.91 acres)

CONTAINER STOCK[2]				
Scientific Name	**Common Name**	**Spacing on Center**	**Grouping Size**	**Number per Acre**
Artemisia californica	California sagebrush	5	25	250
Bebbia juncea	rough sweetbush	10	3	50
Encelia californica	coast sunflower	5	20	100
Eriogonum fasciculatum	flat top buckwheat	5	25	250
Hazardia squarrosa	saw-toothed goldenbush	5	10	100
Hesperoyucca whipplei	chaparral yucca	3	3	50
Heteromeles arbutifolia	toyon	10	3	150
Mimulus aurantiacus	bush monkey flower	5	10	100
Rhus integrifolia	lemonadeberry	10	5	50
Salvia apiana	white sage	5	10	250
			TOTAL	**1,350**

SEED MIX[2]			
Scientific Name	**Common Name**	**Percent Purity/ Germination**	**Pounds Per Acre**
Acmispon glaber	deerweed	95/80	0.5
Amsinckia intermedia	common fiddleneck	45/65	1
Artemisia californica	California sagebrush	30/60	4
Deinandra fasciculata	fascicled tarplant	25/65	3
Encelia californica	California encelia	30/45	2
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	N/A	2
Eriogonum fasciculatum	flat top buckwheat	50/20	7
Eriophyllum confertiflorum	golden-yarrow	N/A	2
Eschscholzia californica	California poppy	98/80	2
Lupinus bicolor	miniature lupine	98/85	1
Phacelia parryi	Parry's phacelia	95/80	1
Salvia apiana	white sage	88/30	3
Stipa lepida, deawned	foothill needlegrass	90/71	3
Stipa pulchra, deawned	purple needlegrass	90/75	3
		TOTAL	**34.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.

[2] Substitutions require approval of the Restoration Specialist.

* No less than 30 lbs. per acre of seed shall be installed.

Table 11
EROSION CONTROL SEED MIX[1,2]
(96.09 acres)

Scientific Name	Common Name	Percent Purity/ Germination	Pounds Per Acre
Ambrosia psilostachya	western ragweed	45/45	6
Bromus carinatus	California bromegrass	95/90	8
Plantago insularis	plantain	98/75	20
Vulpia microstachys	small fescue	90/80	20
		TOTAL	**54***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.
[2] Substitutions require approval of the Restoration Specialist.
* No less than 50 lbs. per acre of seed shall be installed.

5.5.2 Container Plantings

Container stock should be one-gallon size, rooted appropriately (i.e., neither root bound nor insufficiently developed), and should be installed in holes that are the same size as the planting container and backfilled afterward. Holes will be dug with mechanical augers where possible and by hand elsewhere. Plants should be installed in a way that mimics natural plant distribution; therefore, container plantings will be installed in groupings proportional to their density per acre. Upland planting holes should be filled with water twice before plantings are installed, and then watered in after planting.

5.5.3 Cuttings

Any riparian tree or shrub cuttings would be in addition to the container plantings and seed specified in Table 7 and Table 8. If feasible, cuttings should be collected from within the existing riparian corridor or the same watershed by personnel experienced in cutting collection and installation. Any species listed for planting can also be readily grown from cuttings installed directly into the ground, with the exception of blue elderberry (*Sambucus nigra*) and western sycamore (*Platanus racemosa*).

Prior to taking cuttings, it is essential that all equipment being used, typically consisting of a bucket of water and wood cutters, is sterilized so no pathogen cross-contamination occurs. To maintain genetic diversity within the restored areas, no more than 10 cuttings should be taken from any one plant. Ideally, cuttings should be stored in water for approximately one week to encourage root development following planting.

In general, willow (*Salix* spp.) and cottonwood (*Populus fremontii*) pole cuttings should be at least three feet long and 0.75 to 1.25 inches in diameter, with the end that will be inserted into the ground (snipped closest to the tree trunk) cut at a 45-degree angle to facilitate soil penetration and maximize surface area for root growth. Mule fat (*Baccharis salicifolia*) cuttings can be slightly smaller. Any foliage or side branches should be stripped from each cutting to minimize water translocation and allow the cutting to put its energy into root growth.

Cuttings should be installed a few feet into the ground such that the base of the cutting is at the water table. If the cutting is not in the water table or getting surface water (e.g., from supplemental irrigation), it will quickly dry out and die. Typically, a pole cutting is installed two to three feet deep. Cuttings should

be installed in groupings according to the spacing recommendations made in Tables 6 and 7. Smaller species such as mule fat can be interspersed between larger over-story plants such as willows and cottonwoods.

5.5.4 Seed

Within the riparian forest and riparian scrub revegetation areas, as well as within the existing channel streambed, seed will be dispersed by hand and/or with the use of a rotary seed applicator and raked into the soil as needed. The DCSS revegetation area and other reclaimed areas (i.e., erosion control seed mix areas) will be hydroseeded with a tackifier to add ground stabilization.

5.6 IRRIGATION PLAN

Temporary, above-ground irrigation lines will be installed in the native habitat revegetation areas (i.e., riparian forest, riparian scrub, and DCSS), which will be temporarily irrigated with well water, if accessible, otherwise, other irrigation connections will need to be established. The project landscape architect, together with the installation contractor, will inspect the irrigation system as well as coverage prior to plant/seed installation. Irrigation will not be installed on the graded pads located outside of the expanded Sweetwater River floodplain or within the existing channel.

Irrigation plan sheets included with the Final Revegetation Plans will show the Point of Connection (POC), available pressure, controller location, valves, piping, and head locations. If the POC is beyond the limits of the native habitat revegetation areas, the off-site irrigation service line to the POC will be identified. Irrigation plans will provide the required backflow protection at the POC, and identify the power source for the irrigation controller, if applicable.

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE ACTIVITIES

A five-year maintenance program, which will be initiated immediately following revegetation installation, is proposed to ensure the successful establishment and persistence of riparian forest/riparian scrub and DCSS habitat within the revegetated portions of the project site. The five-year period will start separately for each sub-phase as revegetation is completed in that area. The maintenance program will involve the removal of non-native species and trash, irrigation maintenance, and any remedial measures deemed necessary for the success of the revegetation program (e.g., re-seeding and re-planting). Maintenance activities will be directed by the Restoration Specialist and implemented by the maintenance contractor.

The maintenance guidelines specified herein are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the revegetation effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise maintenance. It is the maintenance contractor's responsibility to keep seeded and planted areas free of debris, to monitor irrigation function and scheduling as well as plant material condition and health, and to remove non-native vegetation. The maintenance contractor will also be responsible for replacing any dead or terminally stressed plants, at the direction of the Restoration Specialist. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be

repaired as directed by the Restoration Specialist. The cost of such repairs will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of irrigation systems, as determined by the Restoration Specialist.

6.1.1 Irrigation

The goal is to obtain germination and growth with the least amount of irrigation. Too much irrigation results in abnormal habitat and encourages invasion by non-native plants, leaches nutrients from the soil, and can increase erosion; therefore, water will be applied infrequently and only as needed to prevent plant mortality.

The irrigation system within the riparian forest, riparian scrub and DCSS revegetation areas will be maintained until the Restoration Specialist determines that supplemental water is no longer required. At that time, irrigation will be permanently disconnected (e.g., the mainline will be cut), but not removed. Above-ground portions of irrigation will be removed when directed by the Restoration Specialist, or following restoration sign off by the County.

6.1.2 Non-native Plant Control

Particular emphasis will be placed on the proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the Restoration Specialist). The Restoration Specialist will oversee non-native plant control by the maintenance contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species, the maintenance contractor will be responsible for rectifying the damage, at the direction of the Restoration Specialist.

Non-native plants considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2020) shall be eradicated within the boundaries of all native habitat revegetation areas for all five years of maintenance. Examples of invasive plants observed on-site, include but are not limited to, tamarisk (*Tamarix* spp.), giant reed (*Arundo donax*), Mexican fan palm (*Washingtonia robusta*), fennel (*Foeniculum vulgare*), Italian thistle (*Carduus pycnocephalus*), stinkwort (*Dittrichia graveolens*), pampas grass (*Cortaderia selloana*), and purple fountain grass (*Pennisetum setaceum*). Additional species may be added to this list, at the discretion of the Restoration Specialist. Non-native grasses listed as moderately or highly invasive will be controlled on-site, but due to their abundance in the local area, total eradication is not considered feasible.

6.1.3 Pruning

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist. For example, if it is necessary to remove an obstruction from or for the repair of the irrigation system.

6.1.4 Trash

All trash observed within the native habitat revegetation area should be removed for the duration of maintenance work in the respective sub-phase. All trash will be properly disposed of at a licensed landfill.

6.1.5 Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to restoration success. If deemed necessary, a licensed pest control adviser will make specific pest control recommendations. All applicable federal and state laws and regulations will be closely followed. The Restoration Specialist will be consulted on any pest control matters and will specifically monitor the native habitat revegetation areas for evidence of invasive shot-hole borers (*Euwallacea* sp.; SHBs). The Restoration Specialist will evaluate any regional methods for control of SHBs to determine if they are necessary at the revegetation area.

6.1.6 Fertilization

Fertilizer will not be applied in the maintenance phase, except in extraordinary circumstances and only at the written direction of the Restoration Specialist.

6.1.7 Special Status Species Issues

Maintenance activities are not anticipated to include the use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on sensitive species. However, mechanical line trimmers may be used if deemed necessary by the Restoration Specialist, and all maintenance activities will be carried out under the direction of the Restoration Specialist, as necessary, to avoid any impacts to sensitive species.

6.1.8 Remedial Installation

Areas with low seed germination and establishment of native cuttings/plantings within the riparian forest and riparian scrub revegetation areas or associated DCSS slopes will be re-seeded and/or re-planted, at the direction of the Restoration Specialist. Areas seeded with the erosion control mix outside of the widened Sweetwater River channel will not be re-seeded.

6.2 SCHEDULE

6.2.1 Maintenance Schedule

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons. The schedule outlined herein (Table 12, *5-Year Maintenance Schedule*) serves only as a guideline, and more frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to meet interim cover limits for non-native vegetation. The maintenance contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request.

At a minimum, the maintenance contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the Restoration Specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The maintenance

contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report.

Table 12
5-YEAR MAINTENANCE SCHEDULE[1]

Phase	Schedule
Maintenance Contractor	
Year 1 through Year 3 January to June July to December	Total Eight Visits/Year Every Month (six Visits) Two Visits Total
Years 4 and 5	Total Four Visits/Year (three in Spring and one in Summer)

[1] This schedule is only a guideline; maintenance will be performed as necessary and as directed by the Restoration Specialist.

6.2.2 Irrigation Schedule

Following the start of the maintenance period, irrigation shall be applied daily (unless directed otherwise by the Restoration Specialist) to stimulate seed germination and ensure the survival of installed plantings. Once container plantings, cuttings, and seed are established, irrigation should become less frequent and deeper (usually accomplished with several consecutive irrigation events in a 24-hour period followed by several days with no irrigation). Native plants that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful long-term. Irrigation will be minimized to limit runoff and will be turned off during and following natural rainfall events. In the absence of rain events, irrigation will occur at a minimum of three times per week for the first two years to ensure plant establishment. By Year 3, irrigation shall be reduced and occur mainly during the natural rainy season (October through April), as needed to mimic an average rainy season. If the Restoration Specialist determines that there is sufficient native cover and plants are well-established, irrigation may be deactivated prior to the end of Year 3. To demonstrate that vegetation is self-sustaining, the irrigation system must be turned off for at least two years prior to the end of the five-year maintenance/monitoring period.

7.0 MONITORING PLAN

7.1 PERFORMANCE STANDARDS

Success criteria provide specific standards to evaluate the progress of the revegetation effort. Attainment of these standards indicates that an area is progressing toward the goals and habitat functions and services specified by this plan. Success of the native habitat revegetation area will be determined by comparing planting survivorship, vegetative cover, and species richness within the native habitat revegetation area to targets that have been established based on visual observations of similar native habitat in San Diego County (Table 13, *Success Criteria Milestones for the Native Habitat Revegetation Area*). Success criteria shall only apply to native habitat revegetation areas; no success criteria shall be applied to the erosion control pad.

Table 13
SUCCESS CRITERIA MILESTONES FOR THE NATIVE HABITAT REVEGETATION AREAS

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Diegan Coastal Sage Scrub Revegetation					
Minimum planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	40	50	60
Minimum native species richness (number of species)	4	4	5	6	7
Maximum non-native forb cover (percent)	5	5	5	5	5
Maximum non-native annual grass cover (percent)	5	5	10	15	20
Maximum target invasive cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Riparian Forest Revegetation					
Planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	40	50	60
Minimum native species richness (number of species)	7	6	5	5	5
Maximum non-native cover (percent)	10	10	10	10	10
Maximum target invasive cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Riparian Scrub Revegetation					
Planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	30	35	40
Minimum native species richness (number of species)	8	7	6	6	6
Maximum non-native cover (percent)	10	10	10	10	10
Maximum target invasive cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Streambed (Emergent Wetland) Seeding[2]					
Maximum non-native forb cover (percent)	5	5	5	5	5
Maximum target invasive cover[1] (percent)	0	0	0	0	0

[1] Seedlings of invasive species are expected to volunteer each year; however, no target invasive species should be allowed to persist, or drop seed within the native habitat revegetation areas; excludes invasive annual grasses.

[2] Sweetwater River is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of unvegetated streambed and vegetated streambed and no minimum native cover requirement is required.

7.1.1 Survivorship

Container plant survival within the riparian forest, riparian scrub, and DCSS revegetation areas should be 90 percent of the initial plantings in Year 1 and 80 percent in Year 2 (Table 13). If these targets are not met, dead plants should be replaced unless their function has been replaced by natural recruitment.

7.1.2 Native Cover

Cover by native vegetation within the riparian forest and shrub habitat revegetation area should increase over time and ultimately approach that of the similar native habitat that occurs on-site and within adjacent areas. By the end of the five years, native cover in the riparian forest revegetation areas and on the DCSS slopes should be at least 60 percent, while native cover in the relatively dry but periodically scoured riparian scrub revegetation area should be at least 40 percent (Table 13). No native cover criterion has been established for the Sweetwater River low-flow channel (i.e.,

streambed/emergent wetland) as the river is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of the unvegetated streambed and vegetated streambed.

7.1.3 Native Species Richness

Species richness is the number of native species present in a given area. During the annual monitoring, species richness within the native habitat revegetation area will be determined by visual assessment only in Years 1 and 2 and within the belt and point intercept transects in Years 3 through 5. Annual success criteria for species richness for native species vary by year with at least seven native species present on the DCSS slopes, five species in riparian forest revegetation areas, and six native species present in the riparian scrub revegetation areas at the end of Year 5 (Table 13). If the species richness goal for a given year is not met, corrective measures (e.g., reseeding, planting, etc.), will be taken to ensure the eventual achievement of the five-year goal.

7.1.4 Non-Native Cover

Non-native cover is typically a problem with habitat restoration, particularly at the outset of a restoration effort. However, as the revegetation effort takes hold, and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the maintenance schedule for the site, non-native cover (including invasive annual grasses) within the existing Sweetwater River low-flow channel and riparian forest and riparian scrub revegetation areas should not exceed 10 percent for all five years of the revegetation effort (Table 13). On DCSS slopes, non-native annual grasses are expected to slightly increase over time within a native shrub understory, up to a maximum of 20 percent cover. Cover by non-native forbs, however, should be kept to no more than five percent throughout the five-year maintenance effort (Table 13).

7.1.5 Target Invasive Cover

Target invasive non-native plants ranked as moderately or highly invasive by the Cal-IPC (2020) should be completely eradicated from the native habitat revegetation area each year. New seedlings of invasive plants are expected since these species occur in surrounding open space; however, no target invasive species shall be allowed to persist, or drop seed, within the Sweetwater River low-flow channel, riparian forest, riparian scrub, or DCSS revegetation areas. Annual grasses listed as highly or moderately invasive do not need to be eradicated, rather they are included within the non-native annual grass cover success criterion (Table 13). Perennial invasive grasses, such as Bermuda grass, should be counted as invasive species and be targeted for eradication.

7.1.6 Irrigation

To provide evidence that native vegetation is self-sufficient, irrigation of the native habitat revegetation area must be shut off at least two years prior to the end of the maintenance/monitoring period.

7.2 TARGET FUNCTIONS AND VALUES

Upon meeting success criteria, the native habitat revegetation area will have a net functional lift in habitat values over the existing condition by providing higher quality foraging and breeding habitat as well as greater vegetative cover and microhabitat features.

7.3 TARGET ACREAGES

The native habitat revegetation area target acreages addressed in this plan include revegetation of 11.99 acres of DCSS, 99.59 acres of riparian forest and riparian scrub habitat, and 9.92 acres of streambed (i.e., Sweetwater River) over five years.

7.4 MONITORING METHODS

Monitoring will be carried out by the Restoration Specialist, beginning with plant/seed orders as well as all site preparation and habitat installation, and continuing through final sign-off of the revegetation areas, approximately five years after initial installation activities are completed. Monitoring of the native habitat revegetation area will include: (1) site preparation/installation monitoring; (2) maintenance monitoring; and (3) annual technical monitoring. The methods for the annual technical monitoring are provided below. During each visit, the Restoration Specialist will inspect the site to ensure that the revegetation effort is progressing as planned and identify any problems that may affect the effort.

7.4.1 Site Preparation/Installation Monitoring

The Restoration Specialist will coordinate with the installation contractor regarding all plant and seed orders/contract growing. In addition, they will coordinate with the installation contractor to help direct the harvest of native cuttings, as needed. The Restoration Specialist will be on-site regularly during grading of the final landforms and application of salvaged topsoil, and installation of erosion control measures, irrigation, and plantings/seed to ensure that activities are being conducted per this plan. The Restoration Specialist must inspect and authorize each phase of work before the next phase may begin. The monitoring schedule is outlined in Table 14, *Maintenance Monitoring Schedule*; additional monitoring may be needed if there are problems with the installation contractor's performance or unexpected difficulties with site preparation.

Table 14
MAINTENANCE MONITORING SCHEDULE[1]

Phase	Schedule
Site Preparation/Installation Monitoring	
Site preparation and installation	Daily, or as needed
Maintenance Monitoring	
Year 1 through Year 3 November to April May to October	8 visits Monthly June and August
Years 4 and 5	4 visits
Annual Technical Monitoring	
Once per year	Upland: April/May Wetland: August/September

[1] This schedule is the minimum monitoring frequency; additional monitoring may be required if there are problems with installation or maintenance contractor performance, unexpected difficulties with site preparation, or issues with habitat establishment.

Prior to the start of mining, and again prior to the start of installation for each subphase, the Restoration Specialist will document existing site conditions by taking photographs and noting any special conditions within the proposed native habitat revegetation area. To document the progress of the revegetation effort, the Restoration Specialist will identify at least four photographic documentation locations in each sub-phase area, though additional locations may be established, depending on the exact size of the subphase area. Photo stations will be mapped with a sub-meter accuracy global positioning system (GPS) and plotted on a map. These photos will be used for future comparison with post-installation and annual assessment photos.

7.4.2 Maintenance Monitoring

Maintenance monitoring of the native habitat revegetation area will consist of general site inspections focused on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, erosion, etc.), and will document all wildlife observed during each site visit for inclusion in the annual report. Following the installation of irrigation and plantings in the native habitat revegetation area, the Restoration Specialist will monitor and direct maintenance activities for the 5-year maintenance and monitoring period. In Years 1 through 3, visits will be conducted monthly from November through April (to cover the peak establishment and growth period for upland vegetation) and twice in the remainder of the year, for a total of eight visits per year (Table 14). During Years 4 and 5, monitoring will be conducted four times per year, with an emphasis on the spring and summer growing season. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the installation/maintenance contractor(s) and the project proponent.

7.4.3 Annual Technical Monitoring

The Restoration Specialist will conduct annual technical monitoring of the native habitat revegetation area each year during the five-year maintenance and monitoring period. Annual monitoring will occur in the spring (April/May) for the DCSS slopes, and in late summer (August/September) for the riparian forest and riparian scrub habitats. The assessments are scheduled to coincide with the peak of the

growing season for the respective target habitat types. The exact timing of the visits will depend on on-site and weather conditions.

Technical monitoring of both the DCSS slopes and riparian areas will include both qualitative (visual) and quantitative (based on data collection) sampling, depending on the year. In Years 1 and 2, only qualitative monitoring will be conducted, consisting of the following: (1) photo documentation; (2) visual estimates of container planting survivorship, cover by native and non-native plants, target invasive species cover, and the average height of tree and shrub species; (3) a complete list of plant and animal species observed and detected; (4) general observations of plant health; and (5) observations of site hydrology and erosion. Starting in Year 3, quantitative sampling consisting of transect sampling will be conducted. The success of the wetland mitigation effort will be evaluated by comparing the habitat development with success criteria milestones (Table 13).

7.4.3.1 Photo Documentation

Photos will be taken as part of all five annual monitoring events and will be included in the respective year's annual report. Photos will be taken at the same photo locations that are established prior to the start of the revegetation effort. To visually demonstrate the progress of the revegetation effort, photos taken immediately after installation of each sub-phase will be included in each report for comparison with the respective year's annual assessment photos.

7.4.3.2 General Wildlife

During each of the five annual assessments, all wildlife incidentally observed or detected will be documented. No focused wildlife surveys will be conducted.

7.4.3.3 Transect Sampling

Starting in Year 3, 50-meter (m) transects will be used to collect quantitative data within the native habitat revegetation areas. These transects will be randomly located during the Year 3 annual assessment, marked in the field with PVC pipes, and mapped onto an aerial figure using a GPS. Plant cover data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Native, non-native, and invasive plant cover data will be collected by recording all of the plant species intercepted at each 0.5-m interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 m), shrub (0.6 to 2 m), and tree (greater than 2 m) layers. Species richness (the number of native species present in a given area) data will be collected by noting all species occurring along a 5-m belt transect centered on each line transect. A minimum of two 50-meter transects will be installed within both riparian forest and riparian scrub habitat in each sub-phase for a total of 40, 50-meter transects. At least one additional 50-meter transect will be sampled in each sub-phase that contains DCSS revegetation on upland slopes. Additional transects may be installed within a given sub-phase depending on the overall size of the revegetation area.

7.5 MONITORING REPORTS

7.5.1 As-Built Report

The Restoration specialist shall submit a brief as-built letter report to the County within 45 days of completion of revegetation of each individual sub-phase. The report will describe revegetation site preparation, installation methods, and the as-built status of the site. To document the implementation of the revegetation plan and baseline site conditions, the letter will include an as-built graphic on an aerial photo base as well as photos taken from the designated photo stations before and after the revegetation installation. The as-built letter will serve as the "time zero" report, noting when the five-year maintenance and monitoring period began.

7.5.2 Annual Reports

An annual report including qualitative and quantitative analysis will be prepared each year during the five-year monitoring period and submitted to the County and Wildlife Agencies. A single report will be submitted for the project site and shall clearly present the current revegetation status and monitoring results for each active individual sub-phase with active revegetation. Monitoring and maintenance field data shall be included as an addendum to each report.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

8.0 COMPLETION OF REVEGETATION

Revegetation of the project site will be conducted in a staggered timeline as individual sub-phases are progressively reclaimed and revegetated following the completion of mining activities. As such, completion of the revegetation effort will be similarly accomplished in a staggered effort as each sub-phase is successfully revegetated. The County and Wildlife Agencies will be notified of revegetation completion within each sub-phase through the submittal of annual reports.

When sign-off is recommended for a particular project sub-phase, the County and Wildlife Agencies may inspect that area to determine the success of that revegetation effort. If an area meets all success standards, then the revegetation effort will be considered a success; if final success criteria are not met by the end of Year 5, the maintenance and monitoring program for that area may be extended until the standards are met, subject to County and Wildlife Agencies discretion. Specific remedial measures (approved by the County and Wildlife Agencies) will be used during any extension. Monitoring extensions will be done only for areas that fail to meet final success criteria. This process will continue until all Year 5 success criteria are attained or until the County, together with the Wildlife Agencies, determines that supplemental measures are appropriate. Should the revegetation effort meet all goals prior to the end of the five-year monitoring period, the County and Wildlife Agencies, at their discretion, may terminate the monitoring effort.

9.0 CONTINGENCY MEASURES

9.1 INITIATING CONTINGENCY MEASURES

If the County or Wildlife Agencies determine upon receipt of any of the annual monitoring reports that the revegetation effort is not meeting success standards, they shall notify the project proponent in writing that the revegetation effort may require additional measures for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives with the County and Wildlife Agencies.

9.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY COMPENSATORY MITIGATION

Sufficient area for contingency restoration is present at the project site. If the success criteria are not being met, the County and Wildlife Agencies will work together with the project proponent to reach an alternative mutually acceptable solution.

The project proponent, New West Investment, Inc., shall be responsible for all costs associated with any remedial measures.

9.3 NATURAL DISTASTER

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

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