WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 05/10/13

Applicant/Owner: | State: CA | Sampling Point: 2

Investigator(s): K. Muri, T. Liddicoat | Section, Township, Range:

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

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: Cieneba very rocky coarse sandy loam, 30 to 75 % slopes | NWI classification:

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 (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Data pit within ephemeral creek channel bed beneath riparian canopy over

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none in plot*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *none in plot*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus diandrus*	1	Yes	Not Listed
2. *Foeniculum vulgare*	1	Yes	Not Listed
3. *Stipa miliacea var. miliacea*	1	Yes	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	3 %		
Woody Vine Stratum			
1. *none in plot*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 75 % | % Cover of Biotic Crust %

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Bare ground, some leaf litter, rock 2-3-foot in diameter in drainage.

SOIL

Sampling Point: 2

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[3]	Remarks
0-6	7.5 YR 4/4	100	None	-			Sand	roots present
6-12	10 YR 4/3	100	None	-			Sandy clay loam	roots present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☒ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Sandy ephemeral channel, approximately 4 feet wide. Data station within channel bed and below OHWM of defined bed/ bank.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 05/10/13

Applicant/Owner: | State: CA | Sampling Point: 3

Investigator(s): K. Muri, T. Liddicoat | Section, Township, Range:

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

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: Cieneba-Fallbrook rocky sandy loams, 9 to 30 % slopes, eroded | NWI classification:

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 (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Data pit within channel

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none in plot*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *none in plot*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centaurea benedicta*	1	Yes	Not Listed
2. *Anagallis arvensis*	1	Yes	Not Listed
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	2 %		
Woody Vine Stratum			
1. *none in plot*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 95 % % Cover of Biotic Crust %

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: 0.0 % (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 5.00

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.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: 1-foot wide ephemeral, primarily unvegetated , stream channel

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	10 YR 3/2	100	None	-			Loamy sand	
3-14	10 YR 4/3	100	None	-			Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: a lot of leaf litter and organic debris in channel

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☒ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Data station within 1-foot wide unvegetated channel below OHWM of well-defined bed/bank. No evidence of flows despite onsite rains within the past 24 hours.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 07/17/13

Applicant/Owner: | State: CA | Sampling Point: 4a

Investigator(s): V. Joshi, T. Liddicoat | Section, Township, Range:

Landform (hillslope, terrace, etc.): shallow channel depression | Local relief (concave, convex, none): concave | Slope (%): 0-1

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: Cieneba rocky coarse sandy loam, 9 to 30 % slopes, eroded | NWI classification:

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 (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area**
Wetland Hydrology Present?	Yes (●)	No ( )	**within a Wetland?** Yes ( ) No (●)

Remarks: Data pit within shallow (approximately 1-foot deep) channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none in plot*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	15	Yes	FAC
2. *Tamarisk sp.*	5	No	FAC
3. *Salix laevigata*	5	No	FACW
4. *Quercus berberidifolia*	1	No	Not Listed
5.			
Total Cover:	26 %		
Herb Stratum			
1. *Eleocharis macrostachya*	20	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1. *none in plot*			
2.			
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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species	21	x 5 =	105
Column Totals:	46 (A)		175 (B)

Prevalence Index = B/A = 3.80

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.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 4a

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[3]	Remarks
0-6	10 YR 4/3	100	None	-			silty clay	
6-12	7.5 YR 4/3	100	None	-			sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Data station within shallow (6-12 inches deep) channel.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 07/17/13

Applicant/Owner: | State: CA | Sampling Point: 4b

Investigator(s): V. Joshi, T. Liddicoat | Section, Township, Range:

Landform (hillslope, terrace, etc.): adjacent to channel | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: Cieneba rocky coarse sandy loam, 9 to 30 % slopes, eroded | NWI classification:

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 ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Data pit adjacent to shallow (approximately 1-foot deep) channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none in plot*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2. *Isocoma menziesii*	5	No	FAC
3. *Ceanothus tomentosus*	5	No	Not Listed
4. *Cortaderia selloana*	15	Yes	FACU
5.			
Total Cover:	35 %		
Herb Stratum			
1. *Eleocharis macrostachya*	5	No	Not Listed
2. *Bromus hordeaceus*	30	Yes	FACU
3. *Pennisetum setaceum*	1	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	36 %		
Woody Vine Stratum			
1. *none in plot*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species	45	x 4 =	180
UPL species	11	x 5 =	55
Column Totals:	71 (A)		280 (B)

Prevalence Index = B/A = 3.94

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.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 4b

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[3]	Remarks
0-2	7.5 YR 4/3	100	-	-			sandy clay lam	very tough to dig pit

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Data station within flat upland area adjacent to channel

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 07/17/13

Applicant/Owner: | State: CA | Sampling Point: 5

Investigator(s): V. Joshi, T. Liddicoat | Section, Township, Range:

Landform (hillslope, terrace, etc.): channel | Local relief (concave, convex, none): convex | Slope (%): 100

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: Cieneba rocky coarse sandy loam, 9 to 30 % slopes, eroded | NWI classification:

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 ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Data pit within bottom of channel beneath riparian canopy.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	35	Yes	FACW
2.			
3.			
4.			
Total Cover:	35 %		
Sapling/Shrub Stratum			
1. *Toxicodendron diversilobum*	10	Yes	Not Listed
2. *Phoenix canariensis*	5	No	Not Listed
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *none in plot*			
2.			
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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	35	x 2 =	70
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	50 (A)		145 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10 YR 4/3	100	-	-			sandy loam	
4-12	10 YR 3/1	100	-	-			sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Chroma 2 or less and a minimum 6 inches within the upper 10 inches of soil; thus a depleted matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☒ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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: Data station below OHWM of 3-foot wide channel with defined bed/bank.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 07/17/13

Applicant/Owner: | State: CA | Sampling Point: 6a

Investigator(s): V. Joshi, T. Liddicoat | Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 8

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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 ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Data pit within stream-side terrace, approximately 6-feet from perennial stream flow.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	50	Yes	FACW
2. *Alnus rhombifolia*	10	No	FACW
3. *Washingtonia robusta*	1	No	Not Listed
4.			
Total Cover:	61 %		
Sapling/Shrub Stratum			
1. *Washingtonia robusta*	2	Yes	Not Listed
2. *Alnus rhombifolia*	1	No	Not Listed
3.			
4.			
5.			
Total Cover:	3 %		
Herb Stratum			
1. *Ricinus communis*	1	No	FACU
2. *Cyperus eragrostis*	3	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	4 %		
Woody Vine Stratum			
1. *Hedera helix*	20	Yes	Not Listed
2.			
Total Cover:	20 %		

% 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	63	x 2 =	126
FAC species		x 3 =	0
FACU species	1	x 4 =	4
UPL species	24	x 5 =	120
Column Totals:	88 (A)		250 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 6a

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[3]	Remarks
0-8	7.5 YR 3/3	100	-	-			sandy loam	organic material throughout

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☒ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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):	3
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	8

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 07/17/13

Applicant/Owner: | State: CA | Sampling Point: 6b

Investigator(s): V. Joshi, T. Liddicoat | Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 8

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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 (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Data pit within hillslope, approximately 30-feet upslope from perennial stream flow.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	40	Yes	FACW
2. *Alnus rhombifolia*	2	No	FACW
3. *Quercus agrifolia*	35	Yes	Not Listed
4. *Populus fremontii*	10	No	Not Listed
Total Cover:	87 %		
Sapling/Shrub Stratum			
1. *Quercus agrifolia*	10	Yes	Not Listed
2. *Salix laevigata*	5	No	FACW
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Hedera helix*	50	Yes	Not Listed
2.			
Total Cover:	50 %		

% Bare Ground in Herb Stratum 0 % | % 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	47	x 2 =	94
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	105	x 5 =	525
Column Totals:	152 (A)		619 (B)

Prevalence Index = B/A = 4.07

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.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 6b

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[3]	Remarks
0-12	10 YR 5/6	100	-	-			sandy loam	Decomposing Granite in soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 03/31/15

Applicant/Owner: | State: CA | Sampling Point: 7A

Investigator(s): Callie Ford | Section, Township, Range:

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

Subregion (LRR): C - Mediterranean California | Lat: 33°12'56.90"N | Long: 117°10'17.87"W | Datum:

Soil Map Unit Name: Friant rocky fine sandy loam, 30-70% slopes | 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 ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Ongoing drought.
Data station within drainage with willow canopy cover.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	75	Yes	FACW
2.			
3.			
4.			
Total Cover:	75 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia ssp. salicifolia*	20	Yes	FAC
2. *Quercus agrifolia (sapling)*	5	No	Not Listed
3. *Ricinus communis*	5	No	FACU
4. *Schinus molle (sapling)*	1	No	FACU
5.			
Total Cover:	31 %		
Herb Stratum			
1. *Bromus diandrus*	10	No	Not Listed
2. *Pennisetum setaceum*	20	Yes	Not Listed
3. *Sonchus oleraceous*	1	No	FACU
4. *Brassica nigra*	1	No	Not Listed
5. *Stipa miliacea*	20	Yes	Not Listed
6. *Euphorbia peplus*	1	No	Not Listed
7.			
8.			
Total Cover:	53 %		
Woody Vine Stratum			
1. *Vitis sp.*	5	No	Not Listed
2.			
Total Cover:	5 %		

% Bare Ground in Herb Stratum >95% % Cover of Biotic Crust %

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species	20	x 3 =	60
FACU species	7	x 4 =	28
UPL species	62	x 5 =	310
Column Totals:	164 (A)		548 (B)

Prevalence Index = B/A = 3.34

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.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 7A

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[3]	Remarks
0-16	10 YR 4/3	100	None	-			Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Newland Sierra | City/County: San Marcos/San Diego | Sampling Date: 03/31/15

Applicant/Owner: | State: CA | Sampling Point: 7B

Investigator(s): Callie Ford | Section, Township, Range:

Landform (hillslope, terrace, etc.): top of slope | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°12'56.90"N | Long: 117°10'17.40"W | Datum:

Soil Map Unit Name: Friant rocky fine sandy loam, 30-70% slopes | 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 ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Ongoing drought.
Data station outside of drainage.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None in plot*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Ricinus communis*	1	No	FACU
2.			
3.			
4.			
5.			
Total Cover:	1 %		
Herb Stratum			
1. *Bromus diandrus*	1	No	Not Listed
2. *Brassica nigra*	3	No	Not Listed
3. *Malva parviflora*	3	No	Not Listed
4. *Euphorbia albomarginata*	1	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	8 %		
Woody Vine Stratum			
1. *None in plot*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum >90% % Cover of Biotic Crust %

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 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	1	x 4 =	4
UPL species	8	x 5 =	40
Column Totals:	9 (A)		44 (B)

Prevalence Index = B/A = 4.89

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.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 7B

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[3]	Remarks
0-8	10 YR 3/3	100	None	-			Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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)
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- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

APPENDIX J

Conceptual Restoration Plan

CONCEPTUAL ON-SITE AND OFF-SITE MITIGATION RESTORATION PLAN

for the

NEWLAND SIERRA PROJECT

San Diego County, California

Prepared for the County of San Diego

Planning & Development Services
5510 Overland Avenue, Suite 110-310
San Diego, California 92123-1666
Contact: Ashley Smith

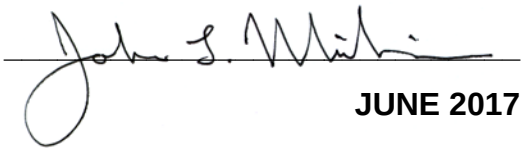
Applicant:

Newland Sierra, LLC
4790 Eastgate Mall, Suite 150
San Diego, California 92121
Contact: Rita Brandin

Prepared by:

Dudek
605 Third Street
Encinitas, California 92024

County Approved Preparer: John L. Minchin, RLA #2225



JUNE 2017

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TABLES

1 PROJECT INTRODUCTION/DESCRIPTION/EXISTING CONDITIONS/MITIGATION REQUIREMENTS

This section provides a project introduction, a description of the proposed project development, a summary of existing site conditions, an outline of the project impacts and mitigation requirements, as well as an overview of the proposed mitigation program.

1.1 Introduction

This report addresses on-site and off-site mitigation/restoration strategies for permanent and temporary impacts to native habitat within the project open space areas associated with the development of the Newland/Sierra Project, located in the County of San Diego, California. The Newland/Sierra Project is a proposed residential development within an approximate 1,983- acre parcel. A portion of the site would be devoted to the residential development with associated roadway improvements to extend and connect to existing roadways; however, approximately 61% of the property would be protected in perpetuity as biological open space. Areas within the open space that would be temporarily impacted by project grading and construction would be revegetated and restored after completion of project construction. Temporary impacts associated with off-site roadways improvements will also be restored/revegetated within the locations where the temporary impacts occur. In addition, some of the old roadways within the property boundaries, that will be abandoned and that occur adjacent to the temporary disturbance areas, or lie adjacent to other proposed mitigation/revegetation treatments, will also be restored and revegetated as part of this effort. The details of the on-site and off-site mitigation restoration/revegetation program are outlined herein.

The purpose of this report is to provide a summary of the biological resources existing within the project site, summarize the anticipated permanent and temporary impacts to biological resources that would be incurred by the development and to outline on-site and off-site upland habitat restoration and revegetation strategies. This report also addresses additional off-site mitigation measures for impacts to wetlands and other resources, as well as preservation strategies to help mitigate for project impacts. This report is intended to outline mitigation requirements suitable for review under the California Environmental Quality Act (CEQA), per County of San Diego requirements, state and federal Endangered Species Acts, as well as other applicable resource agencies that would be involved in the permitting process.

Mitigation for project-related impacts will be provided through on-site and off-site habitat mitigation, including establishment and restoration, on-site preservation and land dedication, as well as off-site mitigation through parcel acquisition. This plan addresses the on-site and off-site upland mitigation strategies for temporary impacts associated with the proposed project, totaling

approximately 28.1 acres, which includes both on-site and off-site resources, which will be temporarily impacted by the proposed project. Of the total 28.1 acres, 14.1 acres of temporary impacts are to sensitive upland habitats, 0.7 acres are to riparian habitat and 13.3 acres of impacts are to non-native communities and land covers. Approximately 9.57 acres of existing habitat areas (i.e., temporarily impacted areas and disturbed habitat areas) will be revegetated onsite to upland habitat. Approximately 5.8 acres of temporarily disturbed native habitat areas off-site will also be restored/revegetated to in-kind habitat. All permanent wetland mitigation and oak woodland mitigation requirements will be compensated for off-site through mitigation parcel acquisition. The acquisition of the 212-acre off-site mitigation parcel located in Ramona, referred to herein as the Ramona Parcel, is discussed in further detail in the biological technical report for the proposed project (Dudek 2017).

The on-site and off-site permanent and temporary impact mitigation program outlined herein is designed to restore and establish upland habitats, which will be suitable for use and occupation by a variety of native plant and wildlife species. Wetland and oak woodland habitats, as well as the remainder of the compensation need to offset upland impacts will be handled in association with the off-site Ramona Parcel.

This conceptual mitigation/restoration plan must be reviewed and approved/permitted by the County of San Diego (County), and the applicable resource agencies prior to implementation.

1.2 Project Description

The proposed Newland Sierra project is composed of a total 1,986.7 acres, with 1,209.1 acres of on-site open space proposed for preservation, 407.7 acres proposed for development, and 369.9 acres of area would be devoted to fuel management zones. The proposed development would include seven neighborhoods (also referred to as planning areas for planning purposes) with a total of 2,135 residential units. The proposed project would include a variety of housing types, some of which would be designed with grade-adaptive architecture, to meet the varied needs of the anticipated residents. Grade-adaptive architecture has resulted in minimized site grading impacts by incorporating one or more steps in the ground floor that conform to the underlying slope of the site.).

The project design has been influenced by prominent landforms, watershed patterns, boulder outcroppings, and other important biological resources known to occur within the property. The proposed project is designed to be consistent with accepted preserve design principles including wildlife movement and connectivity. The project also includes a large block of on-site open space connections within the northern and northwestern portions of the site, with off-site regional linkages to the west toward the San Marcos Mountains and to the north along Gopher Canyon towards the San Luis Rey River.

A Community-wide linear park and trail network is proposed, which will connect with the neighborhood parks and provide both Community, as well as open space trails. This trail network includes approximately 17 total linear miles of trails. The linear greenbelts may contain drainage conveyance creeks and/or bio-swales to provide water quality treatment. Park amenities, open space for active recreation, neighborhood-scale parks and pocket parks, are proposed.

The landscape character of the development will include the natural terrain and boulder outcroppings. Low-water-use, native, and naturalizing plant materials will make up the ornamental landscape plant palette. Low-fuel-volume plant materials will be included in compliance with the Fire Protection Plan. In addition, professionally-managed vineyards will be planted on selective high visibility slopes. Fuel management zones have been identified within the project area as "Limited Building Zone Easements" and range in size from 200 to 250 feet in width.

The project site would have two main access road connections along Deer Springs Road, at Mesa Rock Road and at Sarver Lane, with an additional access point at Camino Mayor, off Twin Oaks Valley Road to the north (Figure 3). On-site roadways would be constructed within and between the different planning areas where development would occur, and would consist of main roadways with a pavement width of 34 feet that provide primary connections between the developed planning areas. Residential streets that are approximately 36 to 40 feet wide and generally traverse within a planning area would also be included, and private paseo roads that typically end at smaller clusters of residential units within a planning area are also planned. Additionally, the project includes bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, and multi-use trails.

1.3 Responsible Parties

Applicant /Permittee

Newland Sierra, LLC
4790 Eastgate Mall, Suite 150
San Diego, California 92121

Habitat Restoration Specialist/ Biological Consultant

Dudek
605 Third Street
Encinitas, California 92024

Restoration Contractor

To be selected. (Criteria for the Restoration Contractor is included in Section 2.3.4)

1.4 Project Location

The Newland Sierra Project (proposed project) is located within the unincorporated portion of the County of San Diego within the Bonsall Community Plan area and North County Metropolitan Sub-regional Plan area. The North County Metropolitan Sub-regional Plan area is comprised of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista, and Oceanside, with the easterly portion adjacent to Valley Center. The North County Metropolitan Sub-regional Plan area includes the communities of Hidden Meadows and Twin Oaks Valley. The majority of the project site is located in the community of Twin Oaks Valley. The project site is directly west of Interstate 15 (I-15), north of State Route 78 (SR-78), and south of State Route 79 (SR-79) (Figures 1 and 2). The cities of Escondido and San Marcos are approximately 1 mile south of the site.

The project site consists of approximately 1,986.7 acres of land and is bounded by I-15 on the east, Deer Springs Road on the south, and North Twin Oaks Valley Road on the west, with a small portion of the northwestern edge of the site traversed by Twin Oaks Valley Road. Gopher Canyon Road is located approximately 1.5 miles north of the site's northern boundary, and approximately 2.5 miles north of proposed site development.

The proposed project lies in the San Marcos U.S. Geological Survey (USGS) 7.5-minute quadrangle, Township 11 West, Range 2 and 3 West, and Sections 11, 12, 13, 14, 15, 18, 19, 23, 24, 25, 30, 35, and 36. The latitude and longitude of the approximate center of the site is 33°12′47″ N and -117°09′07″ W.

1.5 Current Environmental Setting and Site Conditions

The description of the existing site conditions are summarized herein and are described in grerater detail in the *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a).

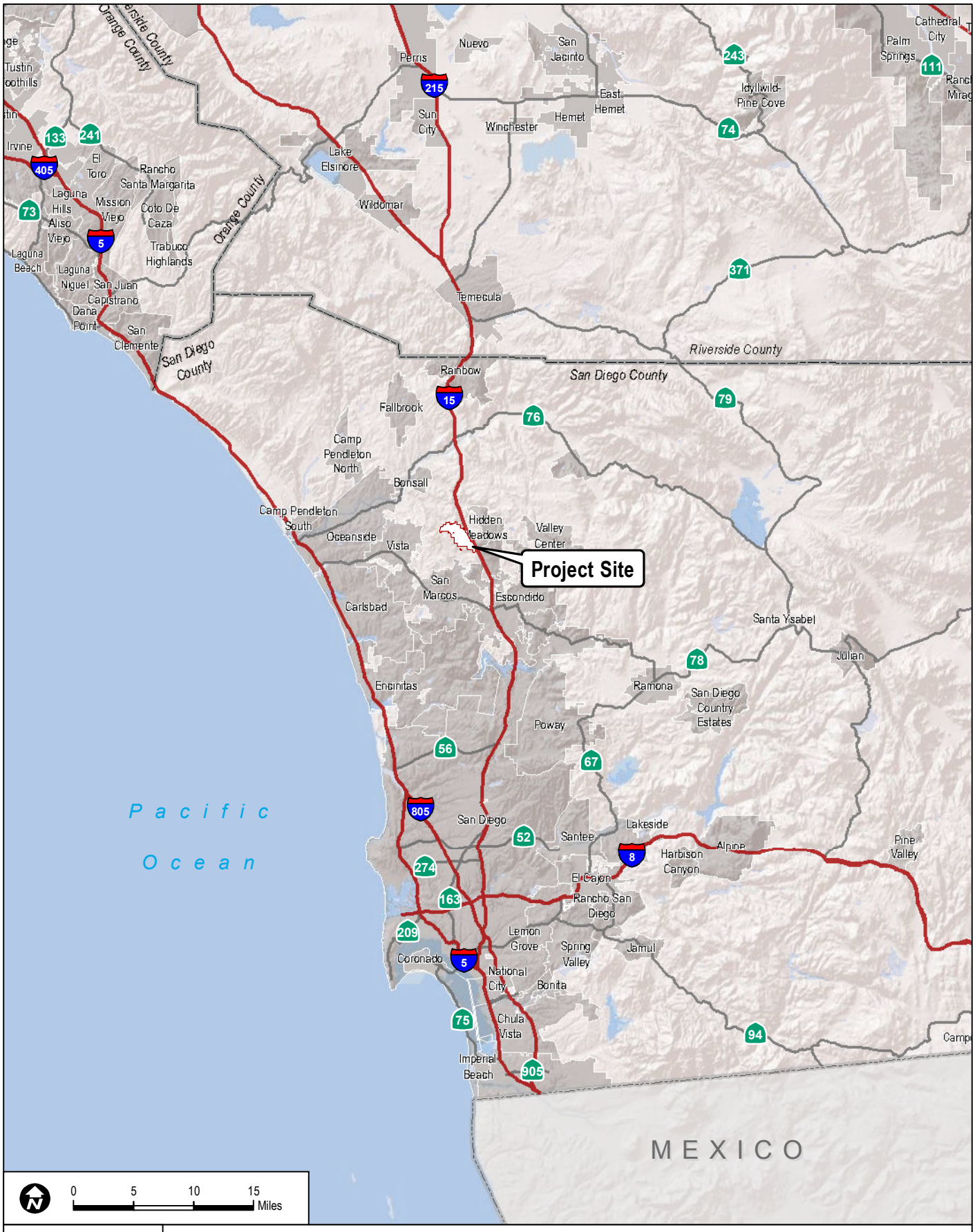

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FIGURE 1

Regional Map

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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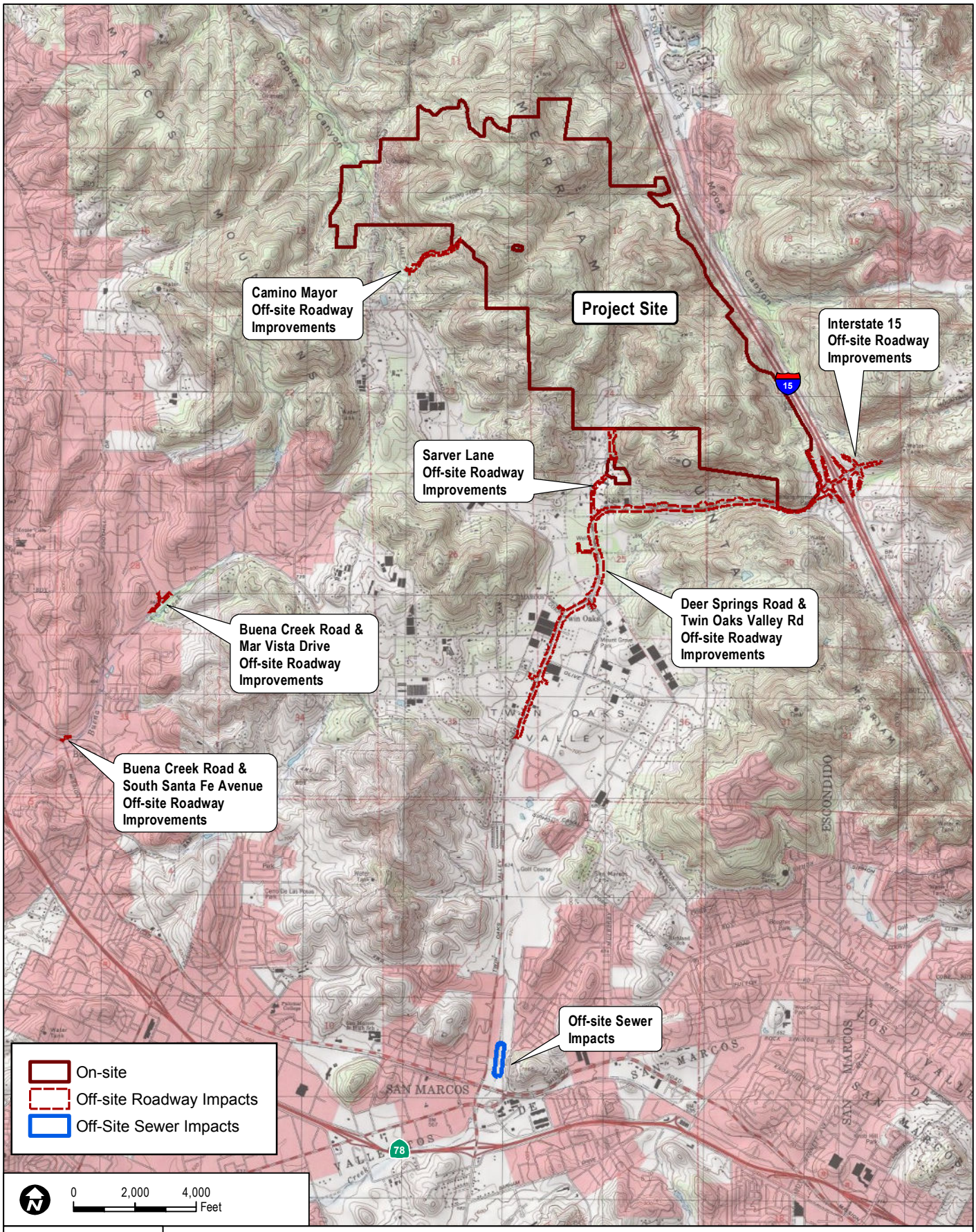

SOURCE: USGS 7.5-Minute Series San Marcos Quadrangle.

DUDEK

FIGURE 2
Vicinity Map

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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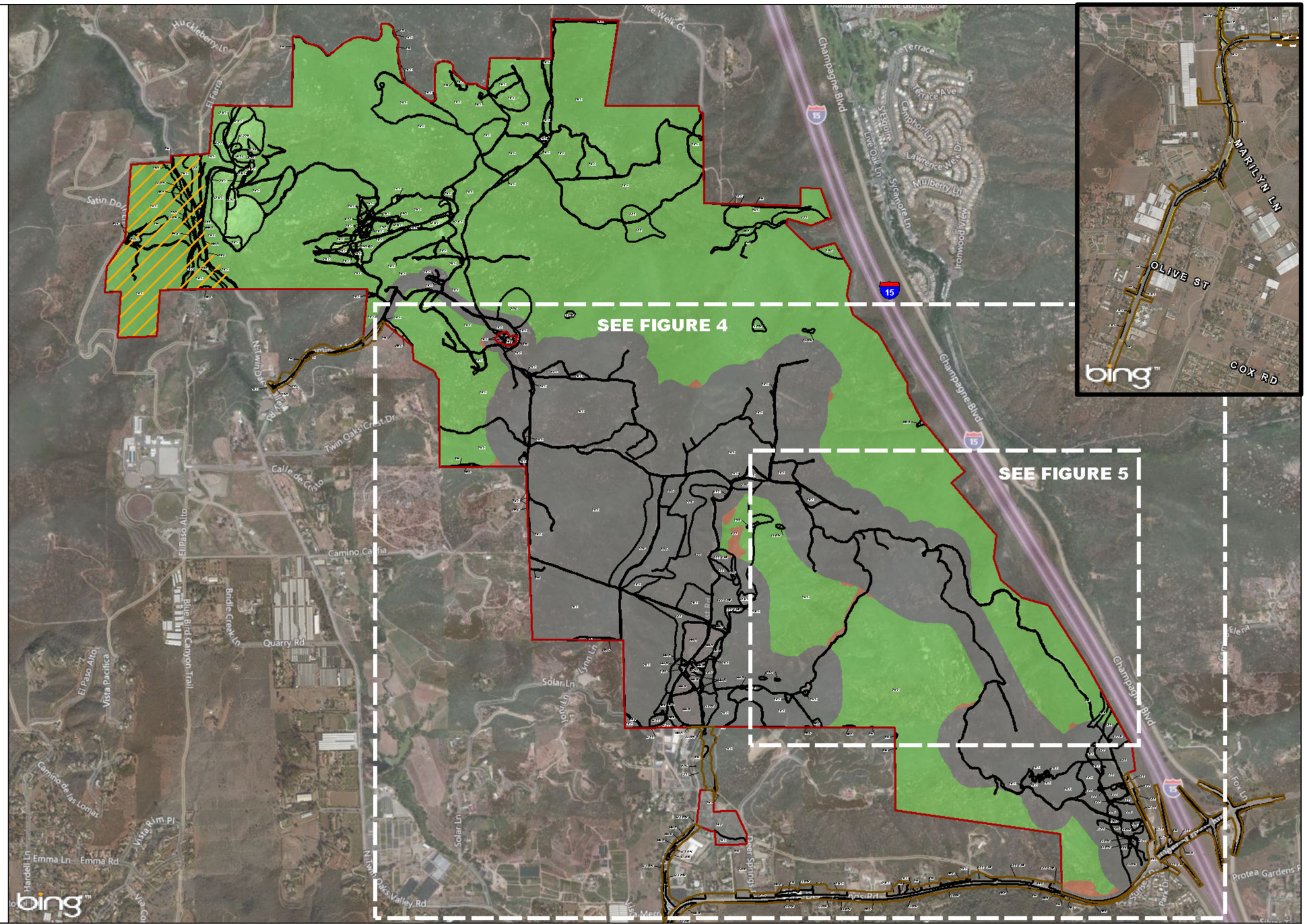
Project Site

- On-site
- Off-site

- Permanent Impact
- Preserve
- Temporary Impact in Preserve

Vegetation Communities

- AGR,
- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- CSSB, Coastal sage scrub - Baccharis dominated
- DEV, Urban/developed
- DH, Disturbed habitat
- DW, Disturbed Wetland
- E-AGR,
- EUC, Eucalyptus woodland
- FWM, Freshwater marsh
- I-AGR, Intensive agriculture
- IA, Intensive agriculture
- MFS, Mulefat scrub
- NNG, Non-native grassland
- NNW, Non-native Woodland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- SWS/TS, Southern willow scrub/tamarisk scrub
- dBSC, Flat-topped buckwheat - disturbed
- dCLOW, Coast Live Oak Woodland - disturbed
- dCSS, Diegan coastal sage scrub - disturbed
- dCSSB, Coastal sage scrub - Baccharis dominated - disturbed
- dSMX, Southern mixed chaparral - disturbed
- Las Posas Soil Series



SOURCE: Bing 2014

FIGURE 3

Overall Biological Resources Vegetation Map

DUDEK

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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1.5.1 Topography and Soils

The undeveloped Newland Sierra site contains natural features of scenic and biological value including rugged topography and rock outcroppings. Much of the vegetation covering the existing site is in a mature stage and has developed based upon solar exposure, existing soil conditions and topography. Elevations on site range widely, from approximately 660 feet above mean sea level (AMSL) along North Twin Oaks Valley Road, traversing the northwestern portion of the site, to 1,750 feet AMSL directly northeast of Twin Oaks Crest Drive. The perimeter of the project site has an overall gentle sloping topography. Within the project site, the topography is more varied. Overall, there are approximately five locations where elevations are above 1,500 feet AMSL (one in the southern portion of the site and four are in the north–central portion of the site). Topography generally increases toward the center of the site, forming a number of ridgelines, with prominent rock outcroppings. In some locations the gentle sloping perimeter gradually rises to higher elevations, and in other areas the slopes are more acute.

Eighteen soils types in ten soil series occur on site, including 78 acres of Los Posas soils. Las Posas soils often support endemic plants that have either evolved to do well on these nutrient-poor soils or can out-compete other plants and thrive on such soils. The Las Posas soils series is the only soil type mapped on site that is known to support mafic conditions, and these soils are thought to occur in the northwestern and southeastern corners of the project site. In the northwest, the soil occurs to the west of and immediately adjacent to Twin Oaks Valley Road. In the southeast, this soil was thought to occur in two small locations directly adjacent to and north of Mesa Rock Road along I-15. However, no mafic soil indicators, or mafic endemic plant species, were observed at the two southeastern locations. Therefore, this area is not considered to support mafic conditions or soils.

To date, only one special-status plant species typically associated with mafic conditions, Ramona horkelia (*Horkelia truncata*), has been identified on site. This species was observed in an area mapped with Cieneba very rocky coarse sandy loam. However, the description of the Cieneba series states that small areas of Fallbrook, Vista, and Las Posas soils are included with this soil type (Bowman 1979). Therefore, it is likely that areas where the Ramona horkelia exist are on small inclusions of Las Posas soil. The mitigation program for impacts to Ramona horkelia is described in this plan in Section 2. There are additional special-status plant species that occur within the site, however Ramona horkelia is the only one associated with mafic soils.

1.5.2 Habitat Vegetation Types/ Vegetation Communities

Twenty-two vegetation communities and non-native communities, or land cover types, were mapped by Dudek within the proposed project site. Native vegetation communities within the

project site include coast live oak woodland, Diegan coastal sage scrub (including disturbed), coastal sage scrub Baccharis dominated (including disturbed), coastal sage scrub-chaparral transition, flat-topped buckwheat scrub (disturbed), granitic southern mixed chaparral (including disturbed), mafic southern mixed chaparral, scrub oak chaparral, freshwater marsh, mulefat scrub, southern coast live oak riparian forest, southern willow scrub, and southern willow scrub/tamarisk scrub. Four non-native vegetation communities including disturbed wetlands, eucalyptus woodland, non-native woodland and non-native grassland, occur within the project site. Five land cover types (non-vegetated areas) occur within the project area including intensive and extensive agriculture, orchards and vineyards, urban/developed, and disturbed habitat. The on-site vegetation communities and land cover types listed above are described further below, their acreages are presented in Table 1, and their spatial distributions throughout the site, as well as within the proximity of the proposed mitigation restoration areas, are shown on Figures 3 and 4.

The site is largely dominated by undisturbed chaparral, which covers 89% of the project site. Pockets of coastal sage scrub habitat are scattered throughout the chaparral and cover approximately 4% of the project site. In general, riparian habitats are minimal on-site (i.e., mulefat scrub, oak riparian forest, southern willow scrub, and southern willow scrub/tamarisk scrub)and are located along North Twin Oaks Valley Road in the northwestern portion of the project. There are also some scattered locations within the old airstrip area in the north, some located directly north of the junction of Gist Road and Sarver Lane, some located adjacent to I-15, with a few additional scattered locations throughout the site. The project site is composed of approximately 3% developed land and disturbed habitat. Disturbed habitat on site is mainly associated with the old quarry located in the northwestern section of the project site and also includes numerous dirt roads and off-road vehicle trails which traverse the site, with major disturbances in the vicinity of the old airstrip. Developed areas are primarily located in the southern portion of the project site and include paved roads and private residences.

Table 1
On-Site Vegetation Communities and Land Cover Types

General Vegetation Community/Land Cover Type	Code[1]	Acres
Coastal Scrub		
Diegan coastal sage scrub (including disturbed) *	32500	68.2
Coastal sage scrub – Baccharis dominated (including disturbed)	32530	2.0
Flat-topped buckwheat – disturbed*	32800	1.7
Coastal sage – chaparral transition*	37G00	7.8
	Subtotal	*79.7*
Chaparral		
Granitic southern mixed chaparral* (including disturbed)	37121	1,700.7
Mafic southern mixed chaparral*	37122	58.8

Table 1
On-Site Vegetation Communities and Land Cover Types

General Vegetation Community/Land Cover Type	Code[1]	Acres
Scrub oak chaparral*	37900	44.3
	Subtotal	*1,803.8*
Woodland		
Coast live oak woodland *	71160	9.1
Riparian		
Freshwater marsh*	52400	0.1
Southern coast live oak riparian forest*	61310	5.2
Mulefat scrub*	63310	0.2
Southern willow scrub*	63320	2.5
Southern willow scrub/tamarisk scrub*	63320/63810	0.3
	Subtotal	*8.3*
Non-native Communities and Land Covers		
Eucalyptus woodland	79100	0.5
Intensive agriculture	18200	<0.0
Orchard and vineyards	18100	2.0
Urban/developed	12000	9.2
Disturbed habitat	11300	57.0
Non-native grassland*	42200	16.1
	Subtotal	*84.8*
	Total [2]	**1,985.6**

Notes:
1 Holland (1986) as modified by Oberbauer et al. (2008)
2 May not total due to rounding
* Considered special-status by the County of San Diego (2010a).

Detailed descriptions of the habitat types and vegetation communities are provided in the *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a).

The current vegetation communities/ land covers within the proposed mitigation/ revegetation locations consist primarily of disturbed habitat associated with existing dirt roads and off-road vehicle trails (Disturbed Habitat, Holland Code 11300) and previous land use, surrounded by existing mature southern mixed chaparral and Diegan coastal sage scrub. The disturbed habitat is a result of repeated vehicular disturbance, and is largely un-vegetated. The Southern Mixed Chaparral (SMX) is dominated by chamise (*Adenostoma fasiculatum*), manzanita (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), and toyon (*Heteromeles arbutifolia*). The Diegan Coastal Sage Scrub (DCSS) is mostly disturbed but still supports native shrub components, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*) and coyote bush (*Baccharis pilularis*). Disturbed SMX and disturbed

DCSS contain a dense layer of non-native weeds and annuals, such as wild oats and bromes, and other non-native invasive species such as tree tobacco (*Nicotiana glauca*), Pampas grass (*Cortaderia selloana*) and black mustard (*Brassica nigra*).

1.5.3 Flora

A total of 230 vascular plant species, consisting of 159 native species (69%), and 71 non-native species (31%), were recorded on site during the 2013 Dudek site surveys (Appendix A).

1.5.4 Fauna

The project area supports habitat for common upland and riparian species. Chaparral, coastal scrub, woodland, riparian, and non-native habitats (e.g., eucalyptus and non-native grassland) within the project area provide foraging and nesting habitat for migratory and resident bird species and other wildlife species. Riparian streams or puddles within the rock quarry may provide refuge for amphibian species. Rock outcroppings, chaparral, coastal scrub, and woodlands within the project area provide cover and foraging opportunities for wildlife species, including reptiles and mammals.

A list of the wildlife species observed within and adjacent to the project area during focused burrowing owl surveys, jurisdictional delineations, raptor surveys, rare plant surveys, riparian bird surveys, and vegetation mapping is provided in in the biological resources report. There were 132 wildlife species observed on the project site. Species richness in the project area is moderate due to the property size and amount of undeveloped native land. Species richness is generally increased with the presence of more habitat types and ecotones, but the project site is primarily one habitat type (89% is chaparral). Although species richness is moderate, the number of species and the wildlife population levels (i.e., number of individuals) is typical for undeveloped areas in this region, particularly those areas that support the habitat types on site.

1.5.5 County List A and B Plant Species

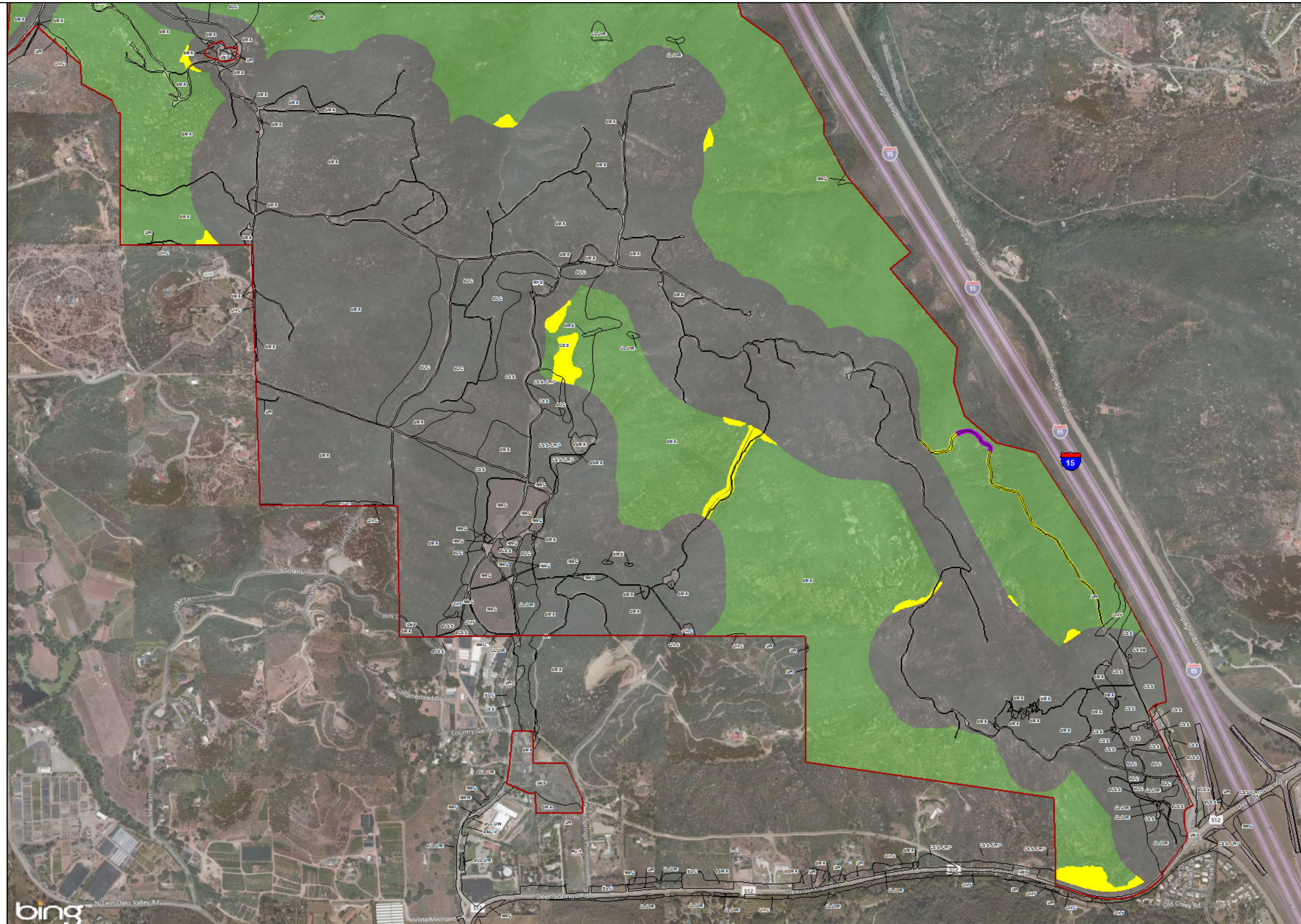
Plants categorized as County List A species are plants that are rare, threatened, or endangered in California and elsewhere. Plants categorized as County List B are rare, threatened, or endangered in California, but more common elsewhere (County of San Diego 2010a). County List A and B species that have been observed in the project area, or have moderate potential to occur based on their life history, are described as follows and included in Table 1-6 of the Biological Resources Technical Report (Dudek 2017a).

Proposed Onsite Mitigation
Proposed Ramona Horkelia Translocation/Revegetation Site
Project Site
Permanent Impact
Preserve

Vegetation Communities

- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- CSSB, Coastal sage scrub - Baccharis dominated
- DEV, Urban/developed
- DH, Disturbed habitat
- EUC, Eucalyptus woodland
- MFS, Mulefat scrub
- NNG, Non-native grassland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- dCSS, Diegan coastal sage scrub - disturbed
- dSMX, Southern mixed chaparral - disturbed

0 250 500 1,000
Feet



SOURCE: Bing 2014

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FIGURE 4

Enlargement of Biological Resources Vegetation Communities and Proposed Mitigation Areas Reference Map

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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Rainbow Manzanita (*Arctostaphylos rainbowensis*), List A

Rainbow manzanita is a CRPR 1B.1 species (CNPS 2014) and a County List A species (County of San Diego 2010a). This evergreen shrub occurs within chaparral at elevations between 740 to 1,770 feet. This species blooms from December to March (CNPS 2014). Rainbow manzanita was not detected during the 2013 focused surveys, however according to County records, a handful of shrubs have been recorded on a chaparral slopes of the Merriam Mountains, west of Interstate 15 near Windsong Lane, south of Mesa Rock Road (CDFW 2015), which is south of all other reported sites. No impacts to this species is anticipated (Dudek 201a).

Summer Holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), List A

Summer holly is a CRPR 1B.2 (CNPS 2014) and County List A species (County of San Diego 2010a). This evergreen shrub blooms from April to June. It occurs in chaparral and cismontane woodlands at elevations of 100 – 1,800 feet (CNPS 2014). There are numerous individuals of summer holly detected throughout the site within southern mixed chaparral and two occurrences in scrub oak chaparral (Figures 3 & 4). Impacts to this species will be mitigated with preservation and management of habitat that supports this species (Dudek 2017a).

Ramona Horkelia (*Horkelia truncata*), List A

Ramona Horkelia is a CRPR 1B.3 and County List A species. This perennial herb blooms from May to June. It occurs in chaparral and cismontane woodlands on clay soils at elevations of 1,312 – 4,265 feet (CNPS 2014). Three locations, two (2) evidenced by single individuals and a third population of approximately 60 individuals, were detected on site within disturbed habitat areas along dirt roadways, located within southern mixed chaparral habitat (Figure 5), generally in a north-easterly orientation. This species was found along existing dirt roadways, in disturbed locations, with most occurrences found on exposed open slopes or in rock crevasses. Impacts to the 62 individual Ramona horkelia plants will be mitigated for through salvaging, relocation and associated revegetation activities, as part of this on-site mitigation program, see Section 2.

Munz's Sage (*Salvia munzii*), List B

Munz's sage is a CRPR 2.3 and County List B species. This perennial evergreen shrub typically blooms from February to April. It occurs in chaparral and coastal scrub habitat types, at elevations of 394 – 3,494 feet (CNPS 2014). One population, consisting of four individuals, was detected in southern mixed chaparral. No impacts to this species are anticipated (Dudek 2017a).

1.5.6 County List C and D Plant Species; Other

Plants categorized as County List C species are plants that may be rare, but more information is needed to determine their true rarity status. Plants categorized as County List D, are of limited distribution and are uncommon, but are not presently rare or endangered (County of San Diego 2010a). County List C and D species that have been observed on-site, or have moderate potential to occur on-site, are described in the Biological Resources Technical Report, Table 1-6.

Chaparral Rein Orchid (*Piperia cooperi*), List D

Chaparral rein orchid is a CNPS 4.2 and County List D species. This perennial herb blooms from March to June. It occurs in chaparral, cismontane woodland, and valley and foothill grasslands at elevations of 50 – 5,200 feet (CNPS 2014). This species had one occurrence (5 individuals) in the east-central portion of the site within southern mixed chaparral, but likely occurs throughout other suitable habitat types. Impacts to this species were not considered significant (Dudek 2017a).

Engelmann Oak (*Quercus engelmannii*), List D

Engelmann oak is a CNPS 4.2 and County List D species. This deciduous tree blooms from March to June. It occurs in chaparral, cismontane, woodland, riparian woodland, and valley and foothill grasslands at elevations of 394 – 4,265 feet. During 2013 surveys, this species had one occurrence in the northwestern corner and several occurrences throughout the north–central portion of the site within southern mixed chaparral (approximately 29 individuals). Several additional individuals occur in coast live oak woodlands in the southeastern corner of the site (includes PSBS 2007 observations) (Figure 3). Impacts to this species were not considered significant (Dudek 2017a).

Ashy Spike-moss (*Selaginella cinerascens*), List D

Ashy spike-moss is a CNPS 4.1 and County List D species. This perennial rhizomatous herb occurs in chaparral and coastal scrub at elevations of 66 – 2,100 feet. This species has two occurrences in the north–central portion and one occurrence in central portion of the site. All occurred within southern mixed chaparral. Impacts to this species were not considered significant (Dudek 2017a).

Sensitive Plant Species

- Ramona horkelia
- Ramona horkelia (Existing population)
- Proposed Ramona Horkelia Translocation/Revegetation Site
- Project Site
- Permanent Impact
- Preserve
- Temporary Impact in Preserve

Vegetation Communities

- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSSB, Coastal sage scrub - Baccharis dominated
- DH, Disturbed habitat
- NNG, Non-native grassland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- dSMX, Southern mixed chaparral - disturbed

0 250 500 Feet

SOURCE: Bing 2014

FIGURE 5

Enlargement of Biological Resources Vegetation Communities with Existing Ramona Horkelia Populations

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Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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1.6 Description of Impacts and Mitigation Requirements

A full description of the project impacts is presented in the *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a). A summary of the permanent on-site impacts, as well as the permanent off-site project impacts, mitigation and open space requirements are provided herein in Table 2. A summary of the temporary on-site and off-site project impacts, and mitigation requirements is provided herein in Table 3. In order to meet the overall mitigation requirements for project impacts, a combination of on-site and off-site mitigation and revegetation will be provided through habitat restoration, enhancement and preservation. In addition, off-site mitigation through habitat acquisition and associated preservation will also be provided. The majority of the on-site mitigation will be in the form of upland habitat restoration and enhancement, coupled with open space habitat preservation. Temporary impacts to native habitats will be addressed through on-site and off-site restoration/revegetation. The entirety of the remaining off-site mitigation credit requirements (i.e., mitigation deficit) for permanent impacts will be provided through the off-site acquisition of the Ramona Parcel, which is approximately 212 acres in size.

Table 2
Summary of Permanent Impacts, Mitigation, and Open Space for Vegetation Communities and Jurisdictional Areas (Acres)

Habitat Types/Vegetation Communities	On-Site Existing Acreage	Total On-Site Impacts[1]	Total Off-Site Impacts[2]	Mitigation Ratio	Mitigation Required	On-Site Open Space[3]	Off-Site Mitigation Area	Mitigation Excess/ (Deficit)
Coastal Scrub								
Diegan coastal sage scrub (including disturbed)*	68.2	45.6	0.5	2:1	92.2	22.6	106.4	36.8
Coastal sage scrub – Baccharis dominated (including disturbed)	2.0	1.5	—	2:1	3.0	0.5	—	(2.5)
Flat-topped buckwheat – disturbed*	1.7	0	—	2:1	0	1.7	—	1.7
Coastal sage – chaparral transition*	7.8	7.4	1.7	2:1	18.2	0.4	—	(17.8)
Subtotal	*79.7*	*54.5*	*2.2*	*N/A*	*113*	*25.2*	*106.4*	18.2
Chaparral								
Chamise chaparral[4]*	—	—	—	—	—	—	19.7	19.7
Granitic southern mixed chaparral (including disturbed)*	1,700.7	626.9	6.3	0.5:1	316.6	1,073.8	—	757.2
Mafic southern mixed chaparral*	58.8	0.8	—	3:1	2.4	58.0	—	55.6

Table 2
Summary of Permanent Impacts, Mitigation, and Open Space for Vegetation Communities and Jurisdictional Areas (Acres)

Habitat Types/Vegetation Communities	On-Site Existing Acreage	Total On-Site Impacts[1]	Total Off-Site Impacts[2]	Mitigation Ratio	Mitigation Required	On-Site Open Space[3]	Off-Site Mitigation Area	Mitigation Excess/ (Deficit)
Scrub oak chaparral*	44.3	39.2	—	0.5:1	19.6	5.1	—	(14.5)
Subtotal	*1,803.8*	*666.9*	*6.3*	*N/A*	*338.6*	*1,136.9*	19.7	*818.0*
Woodland								
Coast live oak woodland*	9.1	6.5	2.8	3:1	27.9	2.6	—	(25.3)
Engelmann Oak Woodland - Open[4]*	—	—	—	N/A	—	—	29.0	29.0
Subtotal	9.1	6.5	2.8	*N/A*	26.1	2.6	29.0	3.7
Riparian								
Freshwater marsh*	0.1	—	—	3:1	—	0.1	—	0.1
Southern coast live oak riparian forest*	5.2	1.9	0.8	3:1	8.1	3.3	—	(4.8)
Mulefat scrub*	0.2	0.1	0.03	3:1	0.4	0.1	—	(0.3)
Southern sycamore-alder riparian woodland*[4]	—	—	—	—	—	—	7.9	7.9
Southern willow scrub*	2.5	0.1	0.5	3:1	1.8	2.4	—	0.6
Southern willow scrub/tamarisk scrub*	0.3	—	—	3:1	—	0.3	—	0.3
Arundo-dominated riparian	—	—	0.1	3:1	0.3	—	—	(0.3)
Subtotal	*8.3*	*2.1*	*1.4*	*N/A*	*10.6*	*6.2*	*7.9*	*3.5*
Grassland								
Valley needlegrass grassland[4]*	—	—	—	—	—	—	8.5	8.5
Non-native grassland*	16.1	15.3	2.6	0.5:1	9.0	0.8	33.8	25.7
Subtotal	16.1	15.3	2.6	N/A	9.0	0.8	42.3	34.2
Non-native Communities and Land Covers								
Agriculture	—	—	2.0	None	—	—	—	(2.0)
Eucalyptus woodland	0.5	—	2.0	None	—	0.5	3.2	1.7
Intensive agriculture	<0.0	<0.0	1.4	None	—	—	—	(1.4)
Extensive agriculture	—	—	4.5	None	—	—	—	(4.5)
Orchard and vineyards	2.0	1.0	1.9	None	—	1.0		(1.9)
Urban/developed	9.2	9.2	40.8	None	—	—	0.1	(49.9)
Disturbed habitat	57.0	21.0	5.1	None	—	36.0	3.3	13.2
Non-native woodland	—	—	0.2	None	—	—	—	(0.2)
Subtotal	*68.7*	*31.2*	*57.9*	—	*0*	*37.5*	*6.6*	*(35.5)*
Total[1]	**1,985.6**	**776.6**	**71.7**	**N/A**	**497.3**	**1,209.1**	**211.8**	**923.6**

Table 2
Summary of Permanent Impacts, Mitigation, and Open Space for Vegetation Communities and Jurisdictional Areas (Acres)

Habitat Types/Vegetation Communities	On-Site Existing Acreage	Total On-Site Impacts[1]	Total Off-Site Impacts[2]	Mitigation Ratio	Mitigation Required	On-Site Open Space[3]	Off-Site Mitigation Area	Mitigation Excess/ (Deficit)
Other								
RPO wetland buffer[5]	30.2	8.7	3.9	N/A	N/A	N/A	—	N/A
Oak Root Zone[5]	32.9	11.2	8.4	3:1	58.8	21.7	16.8	-2.1
Non-wetland waters (ephemeral and intermittent)[5]	5.33	1.41	0.16	1:1	1.59	3.92	—	N/A

1 Totals may not add due to rounding.
2 This includes impacts for Deer Springs Road Option B and all other off-site impacts.
3 The open space acreage includes the on-site temporary impacts since they will be restored and conserved in permanent open space.
4 These communities occur in the off-site Ramona mitigation site and are described in Appendix J.
5 These features are overlays to the vegetation community layer and are not counted toward the total existing acreage.
* Considered special-status by the County (2010b).
3:1 for riparian areas includes a 1:1 creation and 2:1 enhancement requirement.

Table 3
On-Site and Off-Site Temporary Direct Impacts to Vegetation Communities and Land Cover Types By Location

General Vegetation Community/ Land Cover Type	On-Site[1]	Camino Mayor	Mesa Rock Road	Sarver Lane	Buena Creek/Mar Vista	Buena Creek/South Santa Fe	Deer Springs	Total Temporary Impacts[3]
Sensitive Upland Habitats								
Coastal Scrub								
Diegan coastal sage scrub (including disturbed)*	2.6	—	0.2	—	—	—	—	2.8
Coastal sage – chaparral transition*	0.1	—	—	—	—	—	0.6	0.7
Chaparral								
Granitic southern mixed chaparral* (including disturbed)	6.3	1.0	—	0.6	—	—	0.7	8.6
Scrub oak chaparral	<0.1	—	—	—	—	—	—	<0.1
Woodland								
Coast live oak woodland (including disturbed)*	—	—	—	0.4	<0.01	—	1.1	1.5
Grassland								
Non-native grassland*	—	—	—	<0.01	—	—	0.5	0.5
Subtotal Upland	9	1.0	0.2	1.0	<0.01	0	2.9	14.1

Table 3
On-Site and Off-Site Temporary Direct Impacts to Vegetation Communities and Land Cover Types By Location

General Vegetation Community/ Land Cover Type	On-Site[1]	Camino Mayor	Mesa Rock Road	Sarver Lane	Buena Creek/Mar Vista	Buena Creek/South Santa Fe	Deer Springs	Total Temporary Impacts[3]
Habitats								
Riparian Habitats								
Southern willow scrub*	—	<0.01	—	—	—	—	<0.04	<0.05
Mulefat scrub	—	<0.01	—	—	—	—	<0.01	<0.05
Disturbed wetland	—	—	—	—	—	—	0.1	0.1
Oak riparian forest	—	—	—	—	—	—	0.5	0.5
Subtotal Riparian Habitats	—	<0.01	—	—	—	—	0.65	0.7
Non-native Communities and Land Covers								
Agriculture	—	—	—	—	—	0.6	0.6	1.2
Intensive agriculture	—	—	—	0.3	—	—	0.6	0.9
Extensive agriculture	—	—	—	<0.1	—	—	1.7	1.8
Eucalyptus woodland	—	—	—	—	0.3		0.4	0.7
Orchard and vineyards	—	0.1	—	—	—	—	0.8	0.9
Urban/developed	—	0.2	0.3	0.4	0.3	<0.1	5.1	6.4
Disturbed habitat	0.2	0.2	—	0.1	0.1	—	0.7	1.3
Non-native woodland	—	—	—	0.1	—	—		0.1
Subtotal Non-native Communities and Land Covers	0.2	0.5	0.3	1.0	0.7	0.6	9.9	13.3
Total [2]	9.2	1.5	0.5	2.0	0.7	0.6	13.6	28.1

* Vegetation community is considered special-status by the County and requires mitigation (County of San Diego 2010a).
1 Includes onsite temporary impacts associated with Deer Springs Road Option B.
2 Totals may not add due to rounding.
3 Total does not include the I-15 Interchange temporary disturbance areas, as it is assumed that this area will be revegetated separately by CalTrans. All offsite temporary disturbance areas shown on Table 2, amounting to 18.9 acres will be restored/revegetated at those locations to the appropriate native habitat types.

1.7 Proposed Compensatory Mitigation/Revegetation

This conceptual mitigation and revegetation plan provides guidelines for the mitigation and revegetation of various upland and riparian habitats for on-site and off-site areas, as well as mitigation for the sensitive plant species Ramona horkelia, associated with the development of the Newland Sierra project. Mitigation for impacts to wetlands and oak woodland habitat will occur off-site at the Ramona Parcel. Mitigation for project impacts will occur both on-site within available areas, as well as off site at the location of the temporary impacts, and through the

acquisition of the Ramona Parcel. Compensation for the remaining mitigation deficit will be provided at the Ramona Parcel location. The on-site and off-site temporary impact mitigation restoration/revegetation areas will be located directly within the temporary disturbance areas. These areas will be restored to the applicable habitat they lie adjacent to after disturbance has taken place. In addition, select disturbed habitat areas throughout the on-site project open space area will be revegetated to native habitat, and will provide approximately 9.57 acres of combined upland mitigation acreage credit. On-site open space preservation will occur in large contiguous blocks of undeveloped land within the Project site (Figure 6). The acreage of on-site and off-site open space preservation is identified in Table 2. Mitigation in the form of on-site upland restoration/revegetation is shown in Table 4. Off-Site temporary disturbance/revegetation areas amount to 5.8 acres and will correspond with the areas shown within the Biological Resources report, *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a), and as shown on Figures 9 through 11. It should be pointe-out that the revegetation of the permanent slopes along the roadways and bordering the project lots within fuel management zones is not accounted for in these acreage numbers and will be addressed separately as part of the on-site and off-site landscape plan preparation.

Table 4
On-Site Upland Mitigation/Revegetation Summary

On-Site Upland Mitigation		
Mitigation Type and Treatment	*Current Habitat Type*	*Mitigation / Revegetation Acreage On Site*
Uplands CSS Restoration (CSS)	CSS	2.75
Uplands CSS Establishment in DH (CSS)	DH	0.78
Uplands So. Mixed Chap Restoration (SMX)	SMX	5.87
Uplands So. Mixed Chap Establishment in DH (SMX)	DH	0.17
Total Uplands Mitigation/Revegetation		**9.57**
On-Site Upland Preservation		
Additional Upland Habitat Preservation	Existing Upland Habitat Preservation (no revegetation)	1,193.13
Oak Woodland Habitat Preservation	Existing Oak Woodland & Oak Riparian Forest Preservation (no revegetation)	5.94
Total Uplands Preservation		**1,199.07****
Total Uplands Mitigation/Revegetation and Preservation		**1,208.64****
Rare Plant Mitigation		
Rare Plant Species	*Total Number of Plants*	*Mitigation*
Ramona Horkelia (*Horkelia truncata*)*	62	Salvaged and relocated on site to old road revegetation area
Total Plants	**62**	

*** Note:** Seed from Ramona horkelia shall also be collected prior to salvaging and shall be cleaned/processed and stored at a native seed supplier for later seeding in the second year following salvaged plant relocation. An additional 20 container plants shall also be propagated from a portion of the seed, and grown/sored at a native plant nursery to serve as dead plant replacements during the five-year mitigation maintenance period.
**** Note:** Total does not included 0.45 ac. that was subtracted out from this total for the sewer access road that does not receive revegetation treatment. The total hardline preserve area is actually 1209.1 ac.

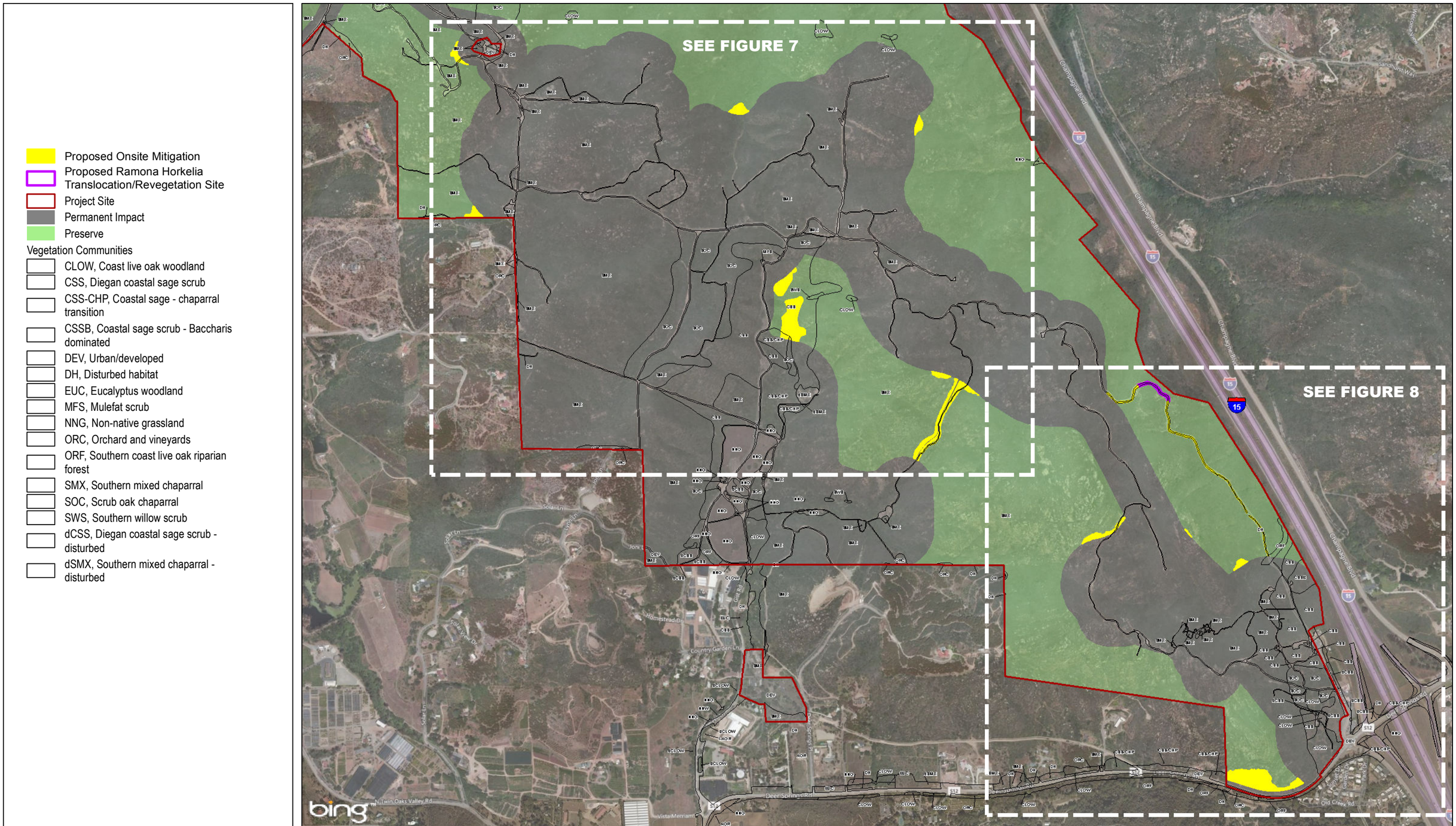
Table 5
Off-Site Temporary Impact Restoration/Revegetation Summary

Off-Site Temporary Upland/ Woodland /Grassland Restoration/Revegetation		
Mitigation Type and Treatment	*Current Habitat Type*	*Mitigation / Revegetation Acreage Off-Site*
Upland - CSS Restoration (CSS)	CSS, dCSS, CSS/CHAP	0.8
Upland - So. Mixed Chap Restoration (SMX)	SMX	2.3
Woodland - Coast Live Oak Woodland Restoration	CLOW, dCLOW	1.5
Grassland - Non-Native Grassland Restoration	NNG	0.5
Total Off-Site Temporary Upland/Woodland/Grassland Restoration/Revegetation		**5.1**
Off-Site Temporary Wetland & Riparian Restoration/Revegetation		
Wetland - Southern Willow Scrub, Mulefat Scrub & Disturbed Wetland	SWS/MFS/DW	0.2
Riparian - Oak Riparian Forest	ORF	0.5
Total Off-Site Temporary Wetland & Riparian Restoration/Revegetation		**0.7**
Total Off-Site Temporary Impact Restoration/Revegetation		**5.8**

1.7.1 Wetland and Riparian Habitat Mitigation

The proposed Newland Sierra project will impact wetland and riparian habitat, both inside and outside of the project boundaries. Wetland and riparian resources within the study area have been categorized as either County of San Diego, Resource Protection Ordinance (RPO) wetlands, or as other jurisdictional waters outside of County jurisdiction. A detailed analysis of wetland resources and impacts incurred by the proposed project are provided in the *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a). On-site and off-site impacts to these resources will result from the proposed development and infrastructure improvements. In addition, impacts will occur off-site due to the road widening improvements along Deer Springs Road, off-site sewer improvements, as well as other roadway improvements. Impacts to wetlands and riparian habitat will require compensatory mitigation at a 3:1 mitigation ratio, per County guidelines.

Permanent impacts to wetlands and riparian habitat will be mitigated for through on-site and off-site preservation of in-kind habitat as shown in Table 2. Temporary impacts to 0.7 acre of riparian habitat will be restored to pre-project conditions within the areas of disturbance.



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0 250 500 1,000 Feet

SOURCE: Bing 2014

FIGURE 6

Overall Onsite Mitigation Revegetation Reference Map

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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1.7.2 Upland Mitigation

As show in Table 2, permanent impacts to sensitive upland habitat will be mitigated through both on-site preservation and the acquisition of the Ramona Parcel. Temporary impacts to sensitive upland habitats will also be mitigated for through on-site and off-site restoration. In addition, in order to support the relocation of Ramona horkelia, an existing abandoned dirt road will be revegetated with native upland habitat and salvaged Ramona horkelia will be translocated to that location.

1.7.3 Coast Live Oak Woodland Mitigation

Mitigation for permanent impacts to coast live oak woodland habitat will be compensated for through the on-site preservation of 2.6 acres of coast live oak woodland and oak riparian forest habitat, as well as through the additional off-site acquisition of 29 acres of Engelmann oak woodland habitat at the Ramona Parcel . Temporary impacts to this habitat will be mitigated for at the locations where the impacts occur.

1.7.4 Rare Plant Mitigation

Per Mitigation Measure MM-9 the following mitigation requirements for impacts to Ramona horkelia (*Horkelia truncata)* area required:

Horkelia Relocation Plan: For any direct loss of Ramona horkelia, the applicant shall prepare and implement a Relocation Plan prior to the issuance of grading permits. The plan shall provide for replacement of individual plants to be removed at a minimum 1:1 ratio, within suitable receptor sites(s) where no future construction-related disturbance will occur. The plan shall specify at minimum the following: (1) the location of the receptors site(s) in protected open space areas within the Project site; (2) appropriate methods for replacement (e.g., harvesting seeds, salvaging and transplantation of impacted plants, and/or nursery propagation); (3) receptor site preparation methods; (4) schedule and action plan for maintaining and monitoring the receptor site(s); (5) list of performance criteria and standards for successful mitigation; (6) measures to protect the receptor site(s) (e.g., trespass and erosion control, weeding); and (7) cost of implementing the plan.

Documentation: The applicant shall prepare the final Horkelia Mitigation Plan and submit it for review with the applicable review fees and deposits (Note: This is considered a Revegetation Plan submittal).

Timing: Prior to the approval of the first associated map and prior to the approval of the first associated plan or issuance of the first associated permit, the Horkelia Mitigation Plan shall be approved.

Monitoring: The PDS shall review the Plan for conformance with this condition and the applicable elements of the most current version of the County of San Diego *Report Format and Content Requirements for Revegetation Plans*. Upon approval of the Plan, security for success of the Plan will be collected and shall provide a confirmation letter-acknowledging acceptance of securities.

Impacts to Ramona Horkelia and Mitigation Implementation: Approximately sixty two (62) individuals of Ramona horkelia, a County List A species with a CRPR 1B.3, would be directly impacted by the proposed project (100% of the previously detected on-site individuals) and will be mitigated for on-site. The mitigation will take place in association with the upland restoration effort, in proximity to the location where the existing populations are located in the southeasterly portion of the project. A portion of an old deserted roadway will be utilized for this effort, as depicted further herein in Figure 5. The mitigation will occur within the old abandoned roadway and will be revegetated accordingly with the translocated Ramona horkelia and an appropriate seed mix. The adjacent abandoned roadways to the north and south of this location, which will also be revegetated with compatible upland CSS species through seeding, are outlined further herein.

The 62 individual Ramona horkelia plants, from three existing locations/populations in the south eastern portion of the development, will be salvaged and translocated to the new proposed on-site location, as part of this mitigation effort. The final exact site specific location for plant translocation will be determined at a later date, as part of the preparation of the final revegetation construction documents (i.e., plans, details and specifications), however, they will be located in the approximate area as depicted on Figure 5. Site selection for the appropriate receptor site for the salvaged individuals was chosen based upon similar soil, drainage and slope aspect/ solar orientation characteristics, in order to provide conditions similar to the current growing conditions of the existing Ramona horkelia populations. A combination of seed salvaging, additional container plant propagation and container planting, individual plant salvaging and translocation, coupled with direct seeding, will take place at the appropriate time of year to help achieve the successful Ramona horkelia establishment.

2 GOALS OF THE COMPENSATORY MITIGATION PROJECT

The goal of this mitigation program is to provide compensatory mitigation for impacts to native habitat and sensitive species resources considered significant and requiring mitigation. The mitigation program includes a combination of establishment, restoration, enhancement, and preservation. Specifically for the on-site and off-site mitigation described in this plan, the program includes restoration of temporarily disturbed areas within the open space area designated for preservation, as well as revegetation of areas temporarily impacted by road construction and improvements (Figure 6). The mitigation program also includes compensation for impacts to the special-status species Ramona horkelia (*Horkelia truncata*). The primary goal of mitigation for Ramona horkelia is to compensate for the quantity of plants being impacted by the project, as a component of the on-site mitigation program.

2.1 Type of Habitat or Species to be Mitigated On-Site and Off-Site

Upland Diegan coastal sage scrub (DCSS) and southern mixed chaparral (SMX) habitats are the primary vegetation communities to be mitigated for and revegetated/restored both on-site and off-site. Additional mitigation credit to satisfy the remainder of the upland, riparian and wetland mitigation requirements will be being handled off-site through the separate habitat acquisition at the Ramona Parcel.

In addition, mitigation for impacts to Ramona horkelia will be provided by salvaging and relocating the Ramona horkelia individuals that would be impacted by the project to the location specified on-site. Mitigation for this species will also include additional seeding and container planting, as a component of the revegetation of an abandoned roadway within the southeastern portion of the project open space. This mitigation location is in proximity to the location of the southerly two occurrences of this species. This location was chosen for compatibility with similar soils type, topographic orientation, solar exposure and growing conditions for this species.

In addition, mitigation for acreage impacts to oak woodland habitat will be handled through on-site preservation of oak woodland and oak riparian forest habitat, as well as the separate off-site habitat acquisition of the Ramona Parcel.

Impacts and mitigation requirements are shown in Tables 2 and 3. The details of the implementation of this mitigation/revegetation program are described further herein.

2.2 Functions and Values

One of the goals of the on-site and off-site mitigation/revegetation program is to improve the functions and values of the existing upland habitat areas being restored, so that they can function as viable native habitat to support native plant and wildlife species.

2.3 Responsibilities

2.3.1 Project Owner

Newland Sierra LLC, is the owner and applicant/permittee for this project, and will be responsible for the successful implementation of this Mitigation Program. Overall project management will be provided by Newland Sierra LLC and, as designated, by the Habitat Restoration Specialist/Project Biologist, Dudek. Newland Sierra LLC shall be financially responsible for implementation and management of this Mitigation Program, including both the on-site and off-site elements of the overall mitigation program.

2.3.2 County of San Diego

The County of San Diego (County) is the primary permitting entity for the upland mitigation component of the mitigation program, with review provided by the Wildlife Agencies. Impacts to wetlands and/or aquatic resources under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), California Regional Water Quality Control Board (RWQCB) and/or California Department of Fish and Wildlife (CDFW) will be permitted separately.

There is potential for special status wildlife species such as CAGN and various raptor species to occur on site, which would be protected under CDFW and U.S. Fish and Wildlife Service (USFWS) Code and the Migratory Bird Treaty Act, however, no formal permits for these components of the project are part of the current upland restoration/revegetation effort. The County and Wildlife Agencies have the authority to review project status, and determine if performance criteria are being adequately met.

2.3.3 Compensatory Mitigation Project Designer

Dudek is acting as the mitigation project designer and Habitat Restoration Specialist/Project Biologist (Designer). The Designer ensures that the design is adequate to accomplish the goals of the project and meets the County requirements per the *County of San Diego Report Format and Content Requirements, Revegetation Plans* (County of San Diego 2007). The Designer will assist the Owner with the mitigation/revegetation installation oversight and coordination efforts with the designated installation contractor.

2.3.4 Habitat Restoration Installation Contractor

The Project Owner will select a qualified Habitat Restoration Installation Contractor to implement the mitigation installation and implement the initial 120-day maintenance program. Restoration installation and associated labor shall be provided by a restoration contractor possessing a valid California Landscape Contractor's license, and who has at least 10 years of previous experience with native habitat restoration project in the region, and who can demonstrate at least five successful restoration projects of similar habitat and size in the Southern California area. The contractor and crew must be able to identify California native plants and common weed species and demonstrate knowledge of habitat restoration techniques.

The installation contractor will be responsible for conformance to this mitigation plan and compliance with the County and regulatory agencies permit conditions/requirements, where applicable. The installation contractor's responsibility for installation will continue until successful completion and final acceptance by project owner and the Habitat Restoration Specialist/Project Biologist at the end of the initial 120-day plant-establishment period (PEP). The installation contractor will not be released from contractual obligations for installation until written notification is received from The Project Owner and the Habitat Restoration Specialist/Project Biologist that all required installation tasks as defined in the installation contract, this mitigation plan, and the project permits have been successfully completed.

After initial installation and completion of the PEP, the Project Owner will contract for an additional five years of maintenance services performed by a qualified landscape restoration maintenance contractor that specializes in native vegetation community restoration and maintenance. Maintenance work shall be performed as indicated herein and per the Habitat Restoration Specialist/Project Biologist's recommendations. The Project Owner may choose to hire a maintenance contractor that is separate from the installation contractor, or they can be the same entity.

2.3.5 Habitat Restoration Specialist/Biological Monitor

The Project Owner will also contract for an additional five years of biological monitoring services to be performed by a qualified habitat restoration specialist/biological monitor. Monitoring work shall be performed as indicated herein and per the requirements of the County of San Diego and the applicable resource agencies. The Project Owner may choose to hire a biological monitor that is separate from the installation restoration monitor, or they can choose to utilize the same entity.

The Habitat Restoration Specialist/Biological Monitor will review all aspects of the mitigation program documents and the installation procedures, to help verify that all work is being done as intended including but not limited to, site protection, submittals review, scheduling of formal site observations, establishing appropriate lines of communication, and adequate coordination between parties prior to project implementation.

The Habitat Restoration Specialist/Biological Monitor will oversee and coordinate implementation of this mitigation plan and installation per the final revegetation construction plans (i.e., drawings), interpret said plans, conduct field monitoring of project installation and perform biological monitoring throughout the installation and maintenance and monitoring periods. The Habitat Restoration Specialist/Biological Monitor shall possess specific knowledge and demonstrate experience with similar mitigation projects. The Habitat Restoration Specialist/Biological Monitor shall possess at least five years of habitat restoration experience in Southern California.

The Habitat Restoration Specialist/Biological Monitor will conduct a mandatory environmental training for all project personnel prior to implementation of this mitigation plan. Training shall include all on-site construction restrictions and conditions. The Habitat Restoration Specialist/ Biological Monitor will inform all project personnel of the presence or potential presence of sensitive species and vegetation communities within or adjacent to the project areas, as well as any potential dangers on site. Information about federal, state, and local laws relating to these biological resources will be discussed as part of personnel education. Access and staging areas outside of environmentally sensitive areas (ESA's) will be established and protection enforced.

Biological monitoring will occur during the mitigation installation and throughout the designated maintenance periods. Monitoring time may increase or decrease as required by field conditions and construction activities. During installation, the Habitat Restoration Specialist/Biological Monitor, via the Project Owner, will have authority to stop work in situations where biological resources not authorized to be impacted are in imminent danger of impacts from adjacent construction activities. Each site visit will be documented in a site observation report that will note mitigation installation activities relating to the mitigation plan and any project deficiencies.

The Habitat Restoration Specialist/Biological Monitor shall conduct on-site monitoring visits throughout the maintenance and monitoring period to assess progress and growth trends, document project deficiencies and provide recommendations for remedial measures. Each monitoring visit will include a qualitative assessment of maintenance work and will include remedial recommendations as necessary to help ensure each year's performance criteria are met. Monitoring of the mitigation program will be performed in accordance with County of San Diego requirements, the resource agency permit conditions and the requirements of this plan.

2.3.6 Habitat Restoration Maintenance Contractor

The Project Owner will select a qualified Habitat Restoration Maintenance Contractor to implement the long-term five-year maintenance program. The maintenance contractor shall have the same qualifications as the habitat restoration installation contractor described in Section 2.3.4. The Owner may choose to hire a maintenance contractor that is separate from the installation contractor, or may retain the same contractor for the five-year period.

2.4 Revegetation Implementation Time Frame

The mitigation/revegetation program will be implemented in a sequential manner, starting with site and soil preparation, installation of temporary irrigation systems, planting/seeding, initiation of a 120-day plant establishment maintenance period and ending in the completion of a five-year maintenance and monitoring period. Site preparation will include salvaging and storage of Ramona horkelia, exotic/invasive plants species treatment and removals where necessary, weed control, ripping and tilling of compacted areas and site/soil preparation of temporary disturbance areas to receive revegetation treatments, grading to establish appropriate finish grade elevations to support the intended habitat types, soil testing and amending soil where necessary. Following site and soil preparation, the irrigation system will be installed. Following completion of the irrigation system, an initial "grow-kill" weed eradication period will be implemented to germinate and eradicate weeds and exotic/ non-native species. Following the site and soil preparation, and the weed eradication period, container plant installation and seed application will be completed, salvaged plants will be translocated and planted, followed by an initial 120-day plant establishment maintenance period and then a five-year maintenance and monitoring period.

Phasing of the mitigation/revegetation program will be necessary to address the various treatment areas. Work that can be implemented prior to impacts occurring, will be conducted first and then work associated with revegetation/restoration of areas disturbed during construction would follow after the construction disturbance is complete. As a result, the five-year maintenance and monitoring period will likely need to be phased over time to correspond with project construction and the phased completion of the revegetation areas, as construction work progresses. Details of the phasing are provided in Section 4.2.

2.5 Estimated Cost for the On-Site and Off-Site Mitigation Program

The estimated cost for the on-site and off-site mitigation/revegetation program has not been calculated yet, as there are several details to be worked-out during the preparation of the final detailed construction plans and final revegetation construction documents. A cost estimate will be prepared at the time of the final revegetation construction document (i.e., Final Revegetation Plans) preparation.

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3 DESCRIPTION OF PROPOSED ON-SITE AND OFF-SITE COMPENSATORY MITIGATION PROGRAM

The on-site mitigation/revegetation sites are shown for reference on Figure 6, with detailed enlargements included in Figures 7 and 8. The off-site restoration of temporary impact areas is shown on Figures 9 through 11. The proposed mitigation program is described in Section 2 and site selection criteria are outlined herein.

3.1 Site Selection

The mitigation/revegetation sites and specified revegetation treatments were selected based on the anticipated temporary impact locations and the type of habitats being impacted, as well as the desire to enhance existing upland habitats. In addition, the ability of the disturbed roadway areas being abandoned to support Ramona horkelia populations, was also evaluated. The on-site mitigation areas will be located in open space preserve areas not proposed for development, as outlined in the *Biological Resources Report for the Newland Sierra Project* (Dudek 2017a). Off-site temporary impacts will be mitigated for at the location in which they occur.

3.1.1 Upland Mitigation Site Selection

The upland mitigation restoration areas were evaluated by Dudek based upon the anticipated locations for temporary impacts, in addition to the type of habitat that will be impacted and the adjacent habitat characteristics. In addition, site conditions in the old roadways to be abandoned, as appropriate to accommodate the populations of salvaged/translocated Ramona horkelia, were also evaluated. The chosen location for the Ramona horkelia translocation offers the best opportunity to achieve appropriate site conditions to help achieve self-sustainability of this rare plant population over time.

Preliminary estimates indicate that there are approximately 3.53 acres of upland CSS restoration/establishment and approximately 6.04 acres of upland SMX restoration/establishment that could be achieved within the temporary disturbance and disturbed habitat areas on-site. Thus, overall there would be a total of approximately 9.57 acres of upland DCSS and SMX mitigation restoration/revegetation acreage that will be provided within the entire on-site biological open space area (see Figures 7 and 8). Temporary habitat impacts off-site will also be revegetated as indicated in figures 9 through 11 and total 5.6 acres. The remainder of the upland and wetland mitigation requirements would be satisfied through the off-site habitat acquisition at the Ramona Parcel, and through on-site preservation.

The mitigation/revegetation goal is to restore Coastal Sage Scrub (CSS) and Southern Mixed Chaparral (SMX) habitat within temporary construction disturbance areas and adjacent disturbed

habitat areas within the biological open space areas both on-site as well as off-site, in order to provide restored native habitat quality and connectivity. The required mitigation for Coastal Sage Scrub would include a mosaic of CSS/SMX restoration within the temporary impact areas and adjacent disturbed habitat areas on-site and off-site, as well as supplemental upland mitigation off-site at the Ramona Parcel.

To achieve the on-site mitigation goals, the mitigation restoration/revegetation program will include removal of the exotic/invasive species, removal of all trash and debris, site preparation/ soil de-compaction and elimination the off-road vehicle trails and roads where indicated. The goal will be to help restore appropriate grades and soil conditions to support the intended upland revegetation efforts. Once this is completed, appropriate upland CSS and SMX plant species will be installed, in order to support the intended habitat restoration for the habitats being impacted. Site preparation and finish grading will be conducted within the upland mitigation restoration/revegetation areas, in order to eliminate compaction and to help restore appropriate soil conditions to facilitate native plant growth. Grades will be modified where necessary to blend better with the adjacent native habitat areas and to eliminate temporary disturbances and any existing erosion scars where necessary. This will thereby allow for the re-connection of the remnant patches of CSS and SMX vegetation, and will help provide a larger contiguous upland open space areas. This will also help provide improved habitat quality for the remnant upland patches and will help restore upland resources throughout the biological open space. This will also help provide important wildlife resources, and habitat connectivity.

3.1.3 Ramona Horkelia Mitigation Site Selection

Site selection for the Ramona horkelia mitigation program was determined based upon similar soil, drainage and slope aspect/orientation characteristics. The primary goal is to provide conditions similar to the current site conditions in which this species occurs. The three locations where Ramona horkelia occur on-site are in locations where there has been previous soil disturbance, a condition which this species appears to be adapted to. The observed plants are growing in SMX habitat along disturbed road edges, in mafic soil conditions mapped as the Cieneba very rocky coarse sandy loam soil type. The Ramona horkelia also appear to be oriented in a general northeastern slope orientation, with some minor influence from surface drainage runoff. The proposed translocation receptor site location is in close proximity to the existing location of the three populations, in the southeastern portion of the project, and offers similar conditions which should be conducive to supporting this species. The salvaging, translocation and re-establishment of the Ramona horkelia population will be implemented in this area, in association with the old deserted road/ trail area upland revegetation effort.

Onsite Mitigation Treatment

- Coastal Sage Scrub Restoration
- Southern Mixed Chaparral Restoration
- Southern Mixed Chaparral Establishment
- Project Site
- Permanent Impact
- Preserve

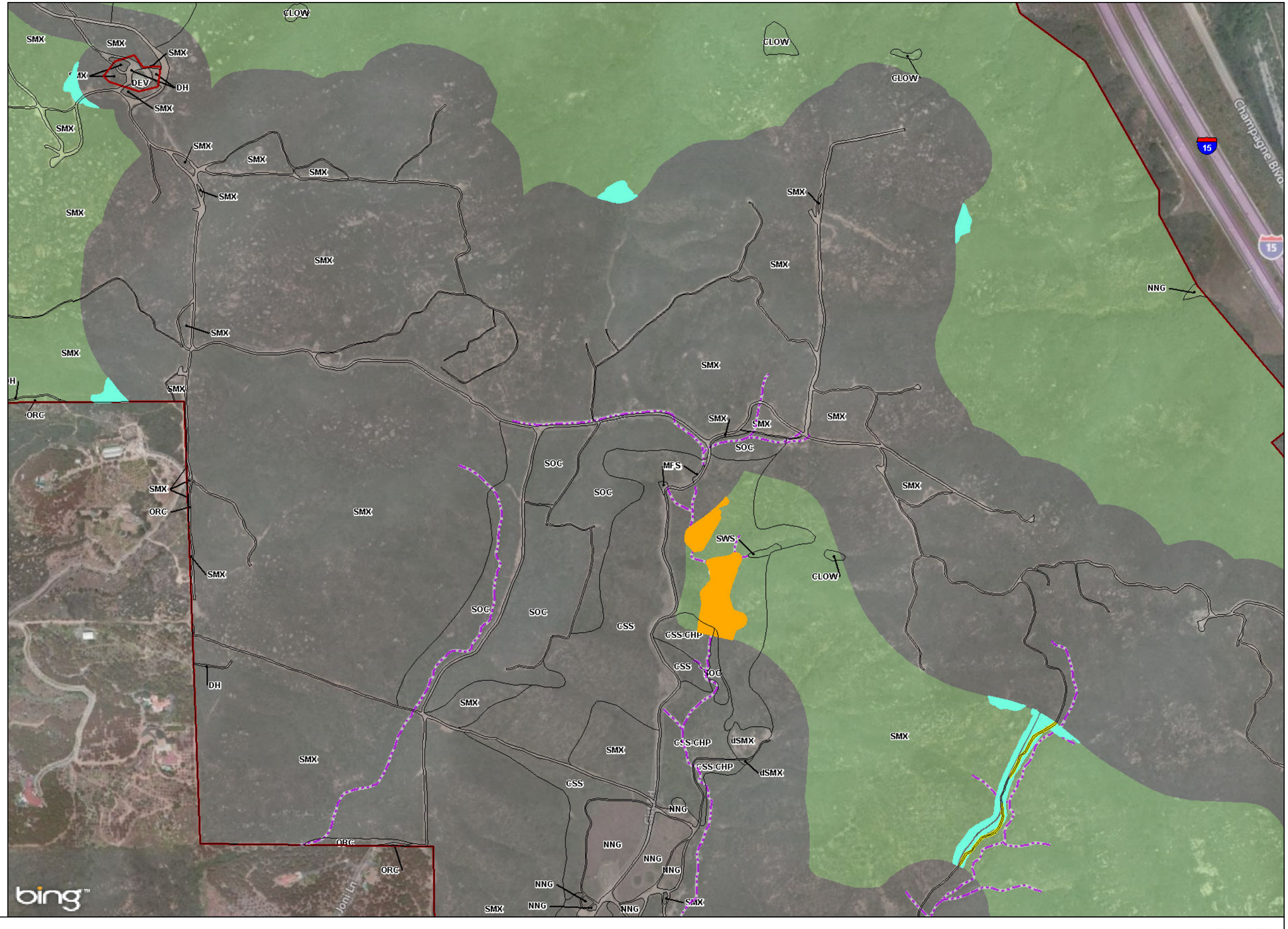
Vegetation Communities

- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- DEV, Urban/developed
- DH, Disturbed habitat
- MFS, Mulefat scrub
- NNG, Non-native grassland
- ORC, Orchard and vineyards
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- dCSS, Diegan coastal sage scrub - disturbed
- dSMX, Southern mixed chaparral - disturbed
- Las Posas Soil Series

Existing Jurisdictional Waters (ACOE/CDFW/RWQCB)

- Ephemeral

0 300 600 1,200 Feet



SOURCE: Bing 2014

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FIGURE 7

Mitigation Revegetation Map (Northerly Area)

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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Onsite Mitigation Treatment

- Coastal Sage Scrub Establishment
- Southern Mixed Chaparral Establishment
- Southern Mixed Chaparral Restoration
- Proposed Ramona Horkelia Translocation/Revegetation Site
- Project Site
- Permanent Impact
- Preserve

Vegetation Communities

- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- CSSB, Coastal sage scrub - Baccharis dominated
- DEV, Urban/developed
- DH, Disturbed habitat
- EUC, Eucalyptus woodland
- NNG, Non-native grassland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- dCSS, Diegan coastal sage scrub - disturbed
- dSMX, Southern mixed chaparral - disturbed

Existing Jurisdictional Waters (ACOE/CDFW/RWQCB)

- Ephemeral
- Intermittent
- Perennial

0 300 600 1,200 Feet

SOURCE: Bing 2014

FIGURE 8

Mitigation Revegetation Map (Southerly Area)

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Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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Project Site

- On-site
- Off-site
- Preserve
- Permanent Impact
- Proposed Offsite Revegetation

Vegetation Communities

- AGR, Agriculture
- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- CSSB, Coastal sage scrub - Baccharis dominated
- DEV, Urban/developed
- DH, Disturbed habitat
- DW, Disturbed Wetland
- E-AGR, Agriculture
- EUC, Eucalyptus woodland
- I-AGR, Intensive agriculture
- MFS, Mulefat scrub
- NNG, Non-native grassland
- NNW, Non-native Woodland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- dCLOW, Coast Live Oak Woodland - disturbed
- dCSS, Diegan coastal sage scrub - disturbed
- dSMX, Southern mixed chaparral - disturbed

0 300 600 1,200 Feet

SEE FIGURE 10

SEE FIGURE 11

SEE FIGURE 11

SOURCE: Bing 2014

FIGURE 9

Overall Offsite Mitigation Revegetation Reference Map

DUDEK

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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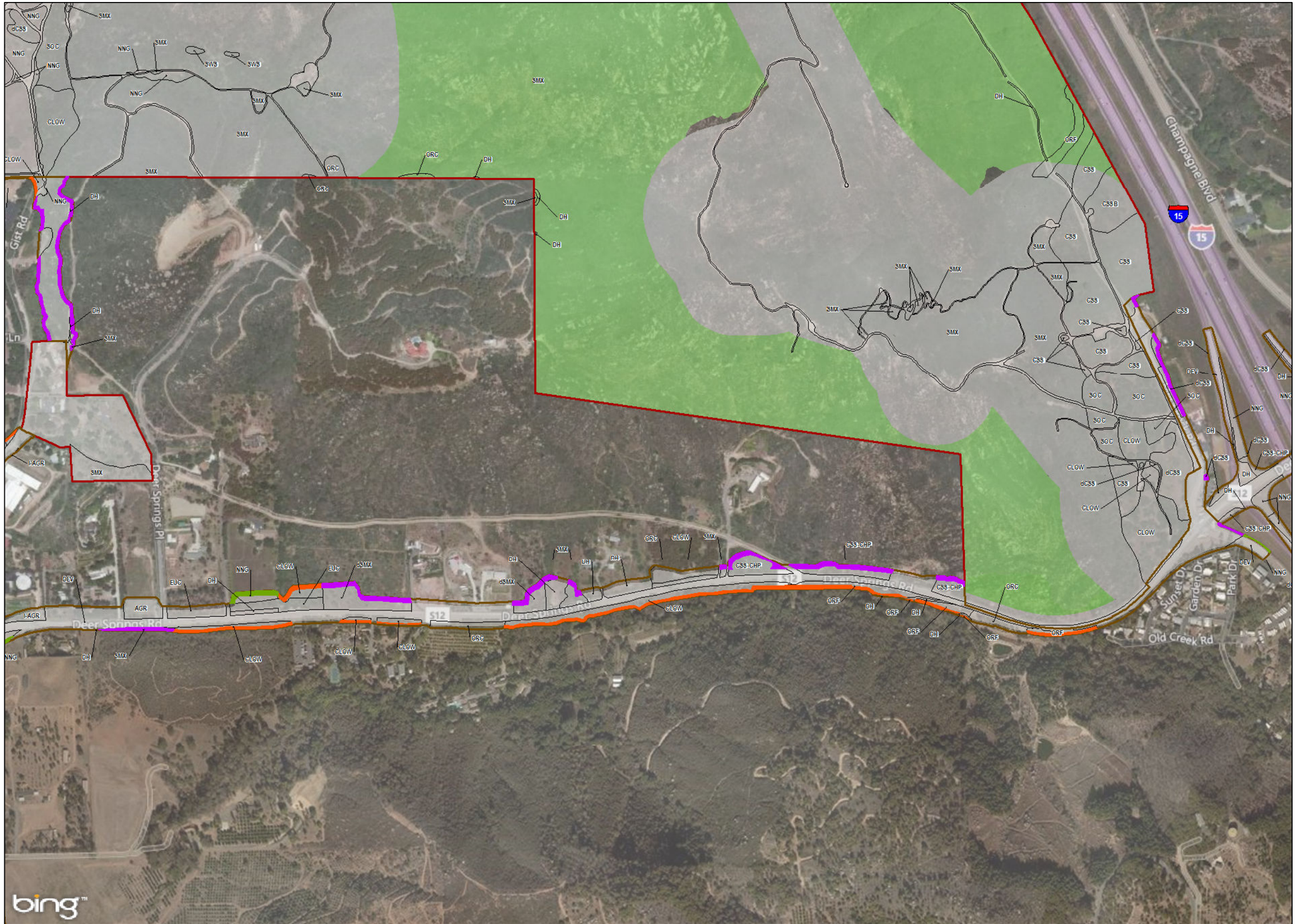
Project Site
- On-site
- Off-site
- Preserve
- Permanent Impact

Off-Site Revegetation Treatments
- Scrub Seed Mix
- Oaks Seed Mix
- Wetlands Seed Mix
- Grassland Seed Mis

Vegetation Communities
- AGR, Agriculture
- CLOW, Coast live oak woodland
- CSS, Diegan coastal sage scrub
- CSS-CHP, Coastal sage - chaparral transition
- CSSB, Coastal sage scrub - Baccharis dominated
- DEV, Urban/developed
- DH, Disturbed habitat
- EUC, Eucalyptus woodland
- I-AGR, Intensive agriculture
- NNG, Non-native grassland
- NNW, Non-native Woodland
- ORC, Orchard and vineyards
- ORF, Southern coast live oak riparian forest
- SMX, Southern mixed chaparral
- SOC, Scrub oak chaparral
- SWS, Southern willow scrub
- dCLOW, Coast Live Oak Woodland - disturbed
- dCSS, Diegan coastal sage scrub - disturbed
- dSMX, Southern mixed chaparral - disturbed

0 300 600 1,200 Feet



SOURCE: Bing 2014

FIGURE 10

Off-Site Mitigation Revegetation Map - Deer Springs Road, Mesa Rock Road, and Sarver Lane

DUDEK

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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Project Site

- On-site
- Off-site
- Permanent Impact

Off-Site Revegetation Treatments

- Scrub Seed Mix
- Oaks Seed Mix
- Wetlands Seed Mix
- Grassland Seed Mis

Vegetation Communities

- AGR, Agriculture
- CLOW, Coast live oak woodland
- DEV, Urban/developed
- DH, Disturbed habitat
- DW, Disturbed Wetland
- E-AGR, Agriculture
- EUC, Eucalyptus woodland
- I-AGR, Intensive agriculture
- MFS, Mulefat scrub
- NNG, Non-native grassland
- NNW, Non-native Woodland
- ORC, Orchard and vineyards
- SMX, Southern mixed chaparral
- SWS, Southern willow scrub
- dCLOW, Coast Live Oak Woodland - disturbed

0 300 600 1,200 Feet

SOURCE: Bing 2014

DUDEK

FIGURE 11

Off-Site Mitigation Revegetation Map - Deer Springs Road, Twin Oaks Valley Road, and Camino Mayor

Conceptual Onsite and Offsite Mitigation Restoration Plan for the Newland Sierra Project

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3.2 Location and Size of Compensatory Mitigation Areas

The project location and size of the proposed mitigation areas are described in Sections 1 and 2. The physical locations and configuration of the on-site mitigation areas are depicted on Figures 6–8. The off-site temporary disturbance restoration/revegetation areas are shown on Figures 9 through 11.

3.3 Baseline Conditions and Functions and Values

Baseline conditions of the sites are described in Section 1. Baseline functions and values were evaluated qualitatively through a review of biological survey data, analysis of physical site conditions, and aerial photography interpretation. Baseline functions and values in the proposed restoration/revegetation areas are currently diminished and are considered poor due to previous site disturbances, as well as form temporary land disturbances from project construction and grading.

3.4 Present Conditions of Mitigation Sites and Proposed Uses

The proposed on-site and off-site mitigation restoration/revegetation sites are composed primarily of existing CSS and SMX habitat. These temporary disturbance areas will be restored to native habitat and all recreational and unauthorized vehicular access will be controlled, with future recreational use restricted only to designated trails and roadways. All mitigation/revegetation areas will be protected from future disturbance through appropriate measures.

The areas to be restored are currently composed of native habitat with some patches of exotic/non-native species that need to be controlled. The proposed mitigation program is intended to restore these areas to functioning native habitat. The site is proposed to be revegetated with appropriate native upland DCSS and SMX species, and will remain as open space following completion of the mitigation program.

The proposed on-site mitigation restoration/revegetation areas will be included in the surrounding open space preserve system and will be protected in perpetuity. As part of the open space preserve system, public access to the mitigation areas will be limited to maintenance and monitoring activities only and direct public access/use will be precluded. Temporary construction fencing, and/or silt fencing will be used to delineate the mitigation/revegetation site boundaries during implementation of the installation and throughout the five-year maintenance and monitoring period. No permanent fencing or signage will be placed within the mitigation areas, except for immediately adjacent to established recreational trails, as the site will be incorporated into the larger, surrounding open space preserve, which will have its' own signage program. Trail signage will be utilized at strategic locations where necessary to preclude trail users from entering the mitigation restoration/revegetation areas. No public access is proposed or anticipated within the mitigation/revegetation sites following project completion.

3.5 Reference Sites

The existing on-site and off-site upland habitat areas surrounding the proposed mitigation areas, will serve as the reference habitats for comparison of vegetation communities, species composition and vegetative coverage to be achieved within the mitigation areas. Given that the proposed native species to be incorporated into the mitigation/revegetation program are species naturally occurring on-site and off-site, and are in close proximity to the proposed mitigation/revegetation sites, it is envisioned that the native species compositions proposed in the mitigation restoration/revegetation plant palettes, will be appropriately suited to the revegetation sites, and will continue to grow and establish over time.

4 IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION AREAS

All on-site and off-site upland mitigation restoration/revegetation areas will be installed per the guidelines established herein, as well as per the detailed requirements outlined in the final revegetation construction documents (i.e., plans, details, and specifications). All areas shall be maintained for an initial 120-day plant establishment maintenance period and then throughout a subsequent long-term five-year period. The implementation and maintenance work shall be conducted by a licensed Landscape Contractor (State of California C-27) experienced with native habitat restoration/revegetation projects. The contractor shall have a minimum of 10 years of experience in native habitat mitigation installation and maintenance, and shall be able to demonstrate the successful completion of a minimum of 5 wetland and upland mitigation projects in Southern California.

The implementation of the on-site and off-site upland mitigation program shall be monitored by a Habitat Restoration Specialist/Biological Monitor familiar with the implementation of native upland habitat mitigation/revegetation programs. The monitor shall verify and document the installation of the revegetation areas and shall monitor the installation and maintenance efforts periodically as necessary during the installation, as well as throughout the initial 120-day plant establishment period and five-year maintenance and monitoring period. The monitor shall provide periodic site observation status reports and a final letter report at the end of the 120-day plant establishment period, in order to document the successful completion of the initial implementation phase, and to officially document the start of the long-term 5-year maintenance and monitoring period.

4.1 Rationale for Expecting Implementation Success

This project proposes to plant and seed the on-site and off-site mitigation/ restoration areas with appropriate native upland CSS and SMX species, which were observed persisting, reproducing, and increasing in cover within the surrounding adjacent native habitat areas. In addition, the rare plant species Ramona horkelia, which is known to occur on site in disturbed soil conditions, particularly along disturbed roadways and trails, will be salvaged and relocated/planted as part of the program to increase this species presence and persistence on-site and to compensate for impacts to individual plants. Given that the proposed rare plant species are observed on-site and are successfully growing within similar habitat areas, it is expected that they will continue to be successful during and following the five-year maintenance and monitoring period, as long as the intended installation and maintenance program is implemented.

To promote success, and maintain genetic integrity, container plants and seed for the intended native species composing the specified plant palettes, will be sourced from propagules within a 50-mile radius of the site. Container plants are anticipated to be sourced from local native plant nurseries/ supplier sources such as Moosa Creek Nursery, Las Palitas Nursery, Tree of Life Nursery, Recon Native Plants, or an approved equal. Seeds are expected to be sourced from a native seed specialty supplier such as S & S Seeds, Stover Seed Company, or an approved equal. If not all species are available from within a 50 mile radius of the site, then a specific nursery plant contract growing agreement and/or special seed collection arrangements will be established ahead of time, by the owner and/or the contractor, in order to assure availability of the container plants and seed at the time of installation. Ramona horkelia seed and individual plants shall be salvaged, stored and propagated adequately ahead of time in order to assist with the intended revegetation program implementation.

4.2 Financial Assurances

Newland Sierra LLC is the owner and permittee of this project, and will be responsible for the successful implementation and management of this mitigation program.

A mitigation/revegetation agreement with the County of San Diego shall be established, signed and notarized by Newland Sierra LLC, following approval of this CMMP, submittal of final revegetation construction documents (i.e., Final Revegetation Plans) and accompanied by the required security as agreed upon by the County.

4.3 Schedule

A tentative schedule for initial project implementation (i.e., initiation of the mitigation/revegetation program) is shown in Table 6, however, actual implementation timeframes may change, based on final approval of the County of San Diego and the permitting agencies, as well as the intended development phasing. This schedule represents the optimum time frame in which to implement the various mitigation/revegetation procedures.

Table 6
Anticipated Project Schedule
(Initial implementation of first phase of the mitigation/revegetation program)

Timeframe	Activity
Late Summer/Early Fall	Site and Soil preparation and exotic plant removals/treatment
Fall ,Winter, Early Spring	Irrigation, seed and container plant installation
120-day plant establishment period (upon completion of installation	Maintenance and biological monitoring during initial 120-day plant establishment period after completion of installation

Table 6
Anticipated Project Schedule
(Initial implementation of first phase of the mitigation/revegetation program)

Timeframe	Activity
5-Year Maintenance and Monitoring Program	Maintenance and biological monitoring upon successful completion of 120-day plant establishment period.
End of 5-year Program	Project completion and final sign-off

Container plant materials will be grown at a native plant nursery for installation according to the proposed schedule and allowing for the necessary lead time for plant propagation from seed and cuttings. Weed control will occur prior to initial plant and seed installation as part of the site preparation work. Container plants, salvaged plants, and seed installation shall occur between October and November, in order to take advantage of winter rainfall, seasonally low temperatures, and the normal growth season for native species. Weed control will continue after plant and seed installation is completed, on an as-needed basis with special attention given to weed and exotics species eradication during the spring period when peak weed and exotic species growth is expected. Biological monitoring will commence upon successful completion of the plant and seed installation and will continue for a minimum of five years until success standards and percent cover goals are achieved.

4.4 Site Preparation

The on-site and off-site mitigation/revegetation areas, which are shown on Figures 6–11, include the previous disturbed/ deserted roadways, areas proposed for temporary impacts from grading, and other disturbed habitat and non-native habitat areas that have been impacted by past site activities, have highly disturbed soil conditions and have been designated for revegetation. Trash and debris, located adjacent to and/or within the disserted roadways and disturbed habitat areas designated for revegetation, will be removed as part of the site preparation procedures outlined herein. In order to prepare these areas for the revegetation effort, machinery (i.e., such as bulldozers, backhoes, and/or skid-steer loaders) and trucks (i.e., such as dump trucks, flatbed trucks and pickup trucks) will be required for the demolition and removal of the old anthropogenic trash and debris, removal of non-native invasive/exotic species, and grading/tilling of the revegetation areas. All trash and debris and exotic/non-native vegetation shall be transported off-site, and shall be disposed of in a legal and appropriate manor. Following trash and debris and exotic species removals, other small-scale earth moving equipment may be used for minor grading, ripping and tilling of the site to reduce soil compaction, to blend grades into existing habitat areas and to establish appropriate grade elevations for the intended

plantings. Old abandoned roadways shall be re-graded to blend grades to existing topography and to restore topsoil and natural grade contours to the degree possible.

Site preparation shall include the removal and treatment of non-native exotics species and weeds. Difficult to control non-native invasive/exotic species, such as salt cedar (*Tamarisk* sp.), Pampas grass (*Cortaderia selloana*), Eucalyptus (*Eucalyptu*s sp.), Acacia (*Acacia* sp.), etc., where physical removal by the rootball's is infeasible, shall be treated by the "Cut and Paint" herbicide application method, with an appropriate herbicide utilized, as specified by a certified Pest Control Advisor. Follow-up treatments will be required until the individual plants are completely eradicated from the mitigation/revegetation areas.

The potential presence of soil contamination and/or hazardous materials currently on-site is unknown. Should hazardous materials and/or contaminated soil conditions be discovered during construction, then removal/remediation may need to occur, per applicable state and federal regulations. Should soil contamination and/or hazardous materials conditions be discovered, they will be dealt with accordingly by the project owner, per applicable standards and shall be remediated prior to, and/or in conjunction with, the mitigation/revegetation effort.

The proposed mitigation/revegetation sites where the revegetation efforts are proposed to take place, are assumed to be accessible by vehicles from the existing dirt roads and trails. The revegetation efforts will be implemented in such a way as to work their way out of the site, so that equipment does not disturb areas already planted/seeded as the revegetation work progresses.

Composted organic matter and/or native mulched material shall be tilled into all ripped areas to improve soil structure, and shall also be amended per results/recommendations from pre-construction soil test analysis. *Mycorrihizal innoculum* may also be incorporated in the backfill of container plants at the time of installation, as recommended by the soils test results, if appropriate soil amendments are not already incorporated into the container stock planting soil medium by the native plant supplier.

For areas not ripped or tilled to reduce soil compaction, rakes, hoes and other tools or machinery may be necessary for the removal of annual weeds and non-native invasive/exotic species, in order to prepare the soil surface for planting and seed application. Seed shall only be applied to exposed mineral soils, not over existing thatch, weeds, mulch or other surfaces that could preclude seed contact with the soil and adequate germination. Once the irrigation system is installed and operational, the irrigation system shall be used to supplement natural rainfall and will be utilized to help implement the "grow-and-kill" cycles to germinate and kill weeds and exotic species. Perennial weed species shall be carefully spot-sprayed with a backpack sprayer to avoid overspray on desirable native species that may be existing or germinating in the adjacent

areas. The "cut and paint" method of herbicide application shall be utilized for larger non-native exotic/invasive species control, where rootball's need to be left in place. In these instances the trunks would be cut and painted with an herbicide, so that it is drawn into the plant tissue to kill the rootball's of the target species. Non-native weeds and exotic plants shall be controlled within all areas to be planted, prior to container plant and seed installation and throughout the maintenance period.

The limits of the mitigation/revegetation areas shall be delineated through the installation of fencing utilizing T-posts with yellow polypropylene rope, orange construction fencing, and/or equivalent. These materials shall be installed along the boundaries of the mitigation/revegetation areas to delineate the work areas from adjacent existing native habitat to be preserved and to help control pedestrian access into the mitigation/revegetation areas. No impacts to native vegetation outside of the proposed mitigation/revegetation limits is authorized herein. The mitigation/revegetation sites will be accessed from existing dirt roads and trails. Enhancement areas shall be primarily accessed by foot traffic only, in order to help avoid additional impacts.

Permanent measures for protecting the mitigation/revegetation sites from disturbance will consist of fencing and signage designating the areas as mitigation/revegetation areas in perpetuity and are considered part of the conservation open space area and trail system, and that no public access is allowed within the mitigation/revegetation areas. Trail signage will likely be required adjacent to the mitigation/revegetation areas and the permanent trail alignment, to help keep trail users from accessing the restricted mitigation/revegetation areas.

All erosion control Best Management Practices (BMP's) materials, such as fiber rolls and gravel bags, with the exception of silt fencing, shall be composed of 100% biodegradable materials. Erosion control measures shall be implemented based on site conditions, per the project SWPPP and per the project Qualified SWPPP Practitioner (QSP) and Habitat Restoration Specialist/Biological Monitor recommendations.

4.5 Grading For Upland Restoration Areas

The areas proposed for upland mitigation restoration/revegetation will be adequately graded to provide appropriate planting elevations relative to the adjacent native habitat areas, as well as to match pre-existing site conditions to the greatest extent possible, based upon the desired habitat to be restored in each location.

All existing habitat areas to be preserved shall be adequately staked, shall be protected from disturbance and shall be adequately protected with BMP's, such silt fencing, fiber rolls and /or sand bags, where deemed appropriate, to protect these areas from inadvertent impact during the

restoration activities. Areas of temporary disturbance, and/or areas to receive grade modifications within the upland mitigation restoration/revegetation areas, shall be adequately staked and/or flagged to determine the limits of work, and will be revegetated with appropriate native upland species. Adequate stability of graded areas and planting locations will be achieved through the use of erosion control measures and BMP's and/or through appropriate planting and seeding, in order to provide adequate soil stability to resist erosion.

4.6 Plant Palettes, Planting Preparation and Installation

Soil conditions in the areas to be revegetated will be sampled, with soil samples tested and evaluated by a soil and plant laboratory, in order to determine soil fertility and agricultural suitability for the intended vegetation and habitat types to be restored. Amending of infertile soils may be necessary if soils analysis results indicate that deficiencies exist within the site soils that could affect the growth of the intended native species. All amending requirements will be specified on the final revegetation construction documents (i.e., Final Revegetation Plans).

Established native species and/or naturally recruiting native species within the areas to be restored shall be left in place where feasible. In areas dominated by annual weeds and non-native species, or areas requiring ripping/tilling and grading/ re-contouring of the soil surfaces, these areas shall be cleared of any existing weeds/exotic species and, or thatch, so that mineral soils are exposed prior to grading. The surfaces shall then be tilled and roughened as necessary to provide optimal soil-seed contact and adhesion. All removed weeds, exotics and non-native plant material shall be disposed of appropriately off-site. Following weed removal and soil preparation, the specified native container plants and seed mixes shall be installed and applied to the appropriate prepared areas. The final configuration of all revegetation areas will be recorded through the use of Global Positioning System (GPS) equipment and will be included in the "as-built" plans following completion of the installation.

Propagules for container plant production shall be sourced from within 50 miles of the site. Container plants shall be sourced from a reputable native plant nursery supplier such as Moosa Creek Nursery, Las Pilitas Nursery, Tree Of Life Nursery, Recon Native Plants, or an approved equal. Seeds are expected to be sourced from a native seed supplier such as S & S Seeds, Stover Seed Company, or an approved equal. If any species are not available at the time of acquisition of plants and seed, and from the sources indicated, then the contractor shall make arrangements for cuttings/seed material to be collected for propagation, contract grown and installed when available, and as approved by, and in coordination with, the Habitat Restoration Specialist/Project Biologist.

Seeds for the Ramona horkelia mitigation program shall be collected from the existing Ramona horkelia population on-site prior to impacts and plant salvaging. Additional container plants of

Ramona horkelia shall also be propagated from a portion of the salvaged seed, as described in the container plant palette and shall be contract grown at an approved native plant nursery for supplemental planting at a later date.

All container plants will be checked for viability and general health upon delivery to the site by the Habitat Restoration Specialist/Project Biologist. Plant materials not meeting acceptable standards will be rejected. Plants delivered to the site shall be free of insect pests, diseases and weeds. Plants shall not be top pruned or root pruned prior to delivery. Any plants wilting upon delivery will be rejected. Plant species and quantities will be confirmed after delivery by the Habitat Restoration Specialist/Project Biologist. Container plants shall be laid-out/flagged by the contractor, and their placement shall be verified and adjusted by the Habitat Restoration Specialist/Project Biologist, as deemed necessary to meet project goals and plant composition requirements.

Standard planting procedures will be employed for the installation of the container plants. Holes approximately twice the width of the rootball of the plant and of the same depth, will be dug using a post hole digger, power auger, or by hand via shovel. Holes will be filled with water and allowed to drain immediately prior to planting. Backfill soil containing amendments (i.e., per formal soils analysis and soil amending recommendations and as directed by the Habitat Restoration Specialist/Project Biologist) will be placed in the backfill of every planting hole following soaking, and container plants will be installed so that the top of the root ball is slightly above finish grade, to allow for minor rootball settling.

Container materials will be grown at a native plant nursery for installation according to the proposed schedule and allowing for the necessary lead-time for plant propagation from seed and/or cuttings as applicable per the various species. Weed control will occur prior to initial plant and seed installation, as part of site preparation procedures. Container planting, salvaged plant relocation and seed installation shall occur between October and November of any given year, in order to take advantage of winter rainfall, seasonally low temperatures, and the normal growth season for native species. Weed control will continue after plant and seed installation is completed, and on an as-needed basis during the maintenance period, with special attention given during spring when peak weed growth is expected. Biological monitoring will commence upon successful completion of plant and seed installation and will continue throughout the initial 120-day maintenance period and then throughout the five-year maintenance and monitoring period.

The specified native container plants and seed mixes to be installed and applied to the appropriate prepared on-site and off-site restoration/ revegetation areas, are shown in Tables 7–12. Container plants and seed will be utilized within the on-site areas and seeding only will be conducted within the off-site areas.

Table 7
Coastal Sage Scrub (CSS) Restoration/Establishment Plant Palette
(On-Site Areas Only)
(3.53 acres = 153,767 sq. ft.)

DCSS Container Plants					
Botanical Name	*Common Name*	*Container Plants*	*Percent Composition (assumes 100% total)*	*Average Spacing (feet on center)*	*Number of Individuals*
Artemisia californica	California sagebrush	1 gallon	20	4	1922
Eriogonum fasciculatum	California buckwheat	1 gallon	20	5	1230
Hazardia squarrosa	sawtooth goldenbush	1 gallon	2	4	192
Heteromeles arbutifolia	toyon	1 gallon	8	10	123
Malosma laurina	laurel sumac	1 gallon	5	12	53
Rhus integrifolia	lemonade berry	1 gallon	10	12	107
Salvia apiana	white sage	1 gallon	10	5	615
Salvia mellifera	black sage	1 gallon	20	5	1230
Yucca schidigera	Mojave yucca	1 gallon	5	15	34
				Total Individuals	**5,506**

Table 8
Southern Mixed Chaparral (SMX) Restoration Plant Palette
(On-Site Areas Only) (6.04 acres = 263,102 sq. ft.)

Chaparral Container Plants					
Botanical Name	*Common Name*	*Container Plants*	*Percent Composition (assumes 75% total)*	*Average Spacing (feet on center)*	*Number of Individuals*
Adenostoma fasciculatum	chamise	1 gallon	2	3	585
Ceanothus tomentosus	Mountain lilac	1 gallon	5	10	132
Cercocarpus betuloides var. *betuloides*	birchleaf mountain mahogany	Deep 1 gallon	2	8	82
Comarostaphylos diversifolia ssp. *diversifolia*	summer holly	Deep 1 gallon	3	6	219
Eriogonum fasciculatum	California buckwheat	1 gallon	5	5	526
Heteromeles arbutifolia	toyon	deep1 gallon	10	10	263
Malosma laurina	laurel sumac	deep 1 gallon	10	12	183

Table 8
Southern Mixed Chaparral (SMX) Restoration Plant Palette
(On-Site Areas Only) (6.04 acres = 263,102 sq. ft.)

Chaparral Container Plants					
Botanical Name	*Common Name*	*Container Plants*	*Percent Composition (assumes 75% total)*	*Average Spacing (feet on center)*	*Number of Individuals*
Quercus berberidifolia	scrub oak	deep 1 gallon	15	15	175
Rhus integrifolia	lemonade berry	deep1 gallon	10	12	183
Salvia apiana	white sage	1 gallon	3	5	316
Salvia mellifera	black sage	1 gallon	5	5	526
Yucca schidigera	Mojave yucca	1 gallon	3	10	79
Xyloccus bicolor	mission manzanita	deep1 gallon	2	8	82
				Total Individuals	**3,351**

Table 9
CSS & SMX Seed Mix (for all On-Site and Off-Site restoration areas)
(9.57 acres = 416,869 sq. ft. On-Site ;
18.9 acres = 823,284 sq. ft. Off-Site)

CSS and Chaparral Seed Mix			
Botanical Name	*Common Name*	*Percent P/G*	*Pounds Per Acre*
Acmispon glaber	deerweed	95/40	3
Artemisia californica	California sagebrush	15/50	6
Baccharis pilularis	coyote bush	2/40	1
Baccharis sarathroiodies	broom baccharis	5/40	1
Bromus carinatus	California brome	95/80	1
Castilleja exserta	owl's clover	50/50	1
Eriogonum fasciculatum	California buckwheat	10/65	6
Eriophyllum confertiflorum	golden yarrow	30/50	1
Eschscholzia californica	California poppy	95/75	2
Hazardia squarrosa	sawtooth goldenbush	10/20	2
Isocoma menziesii	coast goldenbush	20/35	1
Lupinus succulentus	arroyo lupine	95/85	2
Malocothamnus fasciculatus	bushmallow	15/60	3
Mimulus aurantiacus var. *aurantiacus*	orange bush monkey-flower	2/60	1

Table 9
CSS & SMX Seed Mix (for all On-Site and Off-Site restoration areas)
(9.57 acres = 416,869 sq. ft. On-Site ;
18.9 acres = 823,284 sq. ft. Off-Site)

CSS and Chaparral Seed Mix			
Botanical Name	*Common Name*	*Percent P/G*	*Pounds Per Acre*
Stipa lepida	foothill needlegrass	90/60	2
Salvia apiana	white sage	70/30	2
Salvia mellifera	black sage	70/50	3
		Total Pounds per Acre	**45**

Table 10
Grassland Seed Mix (for all Off-Site Temporary Restoration Areas)
(0.50 acres = 21,780 sq. ft. Off-Site)

Botanical Name	Common Name	PLS	Lbs./Acre
Collinsia heterophylla	Chinese houses	88%	2.0
*Encelia californica**	Bush sunflower	24%	3.0
Eschscholzia californica	California poppy	74%	2.0
Lotus scoparius	Deerweed	54%	6.0
Plantago insularis	Plantain	74%	10.0
Sisyrichium bellum	Blue-eyed grass	71%	2.0
Lasthenia glabrata	Goldfields	30%	2.0
Lupinus bicolor	Dove lupine	78%	4.0
*Mimulus aurantiacus**	Sticky monkeyflower	4%	4.0
Nassella pulchra	Purple needlegrass	42%	5.0
	Total Lbs. Per Acre		**40.0**

* Indicates locally collected seed from coastal San Diego County.

Table 11
Oak Woodland Seed Mix (for all Off-Site Temporary Restoration Areas)
(1.50 acres = 65,340 sq. ft. Off-Site)

Oak Woodland Seed Mix			
Botanical Name	*Common Name*	*Percent P/G*	*Pounds Per Acre*
Ambrosia psilostachya	western ragweed	20/40	3
Artemisia douglasiana	Douglas mugwort	15/50	5
Leymus condensatus	giant wild rye	80/80	4
Lasthenia californica	Calif. goldfields	50/60	2
Sisyrinchium bellum	Blue-eyed grass	95/75	1
		Total Pounds per Acre	**15**

Table 12
Wetland/Riparian Seed Mix (for all Off-Site Temporary Restoration Areas)
(0.7 acres = 30,492 sq. ft. Off-Site)

SWS/MFS Seed Mix			
Botanical Name	*Common Name*	*Percent P/G*	*Pounds Per Acre*
Ambrosia psilostachya	western ragweed	20/40	3
Artemisia douglasiana	Douglas mugwort	15/50	5
Leymus condensatus	giant wild rye	80/80	4
Iva hayesiana	San Diego marsh elder	30/50	6
Lasthenia californica	Calif. goldfields	50/60	2
Pluchea odorata	Marsh fleabane	20/50	4
Sisyrinchium bellum	Blue-eyed grass	95/75	1
		Total Pounds per Acre	**25**

Hydroseed Slurry Mixes Shall Consist of the Following Additional Slurry Mix Components Per Acre:

- 2,500 Pounds Virgin Wood Fiber Mulch
- 1,000 Pounds Agricultural Gypsum
- 650 Pounds 6-20-20-XB Fertilizer (or approved equal)
- *150 Pounds "Az-Tac" Commercial Binder (or approved equal)
- Pounds Seed, as shown in Table 7

  * To be incorporated into hydroseed slurry mix for installation between fall or early winter of any given year for additional erosion control protection.

4.7 Hydroseed Application

Once the container plants have been installed, and all non-native exotic species and weeds have been removed, the mitigation/revegetation areas will be hydroseeded with the seed mix specified in Table 9. Alternatively, if specified in the final revegetation construction documents and/or agreed to by the owner and the Habitat Restoration Specialist/Biological Monitor, seed and the specified soil amendments and fertilizer may be applied by hand and raked into the soil surfaces in areas where hydroseed equipment is unable to reach due to width, existing plant density, and/or steepness restrictions. The Habitat Restoration Specialist/Biological Monitor shall be provided with seed tags and slurry mix components to verify that the seed mixes and slurry mix components meet the intended species and project implementation specifications.

The seed mix proposed for this project, composed of one combined mix for both the DCSS and SMX areas, shall be applied to the appropriate areas as shown on the final revegetation construction documents. Labels for individual seed mixes, indicating each seed species delivered to the site will be inspected and approved by the Habitat Restoration Specialist/Project Biologist prior to mixing and application. If the seed is applied as hydroseed instead of hand broadcast, the mix is to include the specified seed mix at the prescribed rates per acre, in addition to the supplemental slurry mix components.

All seeds shall be sourced from cismontane San Diego County, within 50 miles from the site. All seeds will be clearly labeled showing type of seed, test date, the name of the supplier, and percentage of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All materials will be delivered to the site in original, unopened containers bearing the manufacturer's guaranteed analysis. All seed mixes will be stored in a dark, cool place and not be allowed to become damp prior to application.

Installation of the seed during the late fall, early winter is ideal for allowing establishment during the cooler and wetter periods of the year.

While the initial seed application is proposed to consist of either hand broadcast or hydroseeding, additional seed may be hand broadcast, should the seed not be available at the time of initial installation. The contractor should consult the Habitat Restoration Specialist/Biological Monitor in the event that a given species on the plant palette is not available for inclusion into the initial seed mix, so that alternative arrangements can be made for substitute species or follow-up seed applications can be made at a later date when species to be applied by seed become available.

4.8 Irrigation System

A temporary above-ground gear driven rotor, and/or spray irrigation system will be installed to support the native vegetation development until plants are adequately established and deemed self-sustaining, based upon observed and predicted seasonal rainfall, soil moisture and effective plant rooting depth. The water source point of connection for the temporary irrigation systems shall be from the closest available water source locations. If a water source is not available, then the systems shall be designed to temporarily run from a water truck connection. Manual watering via water truck, served from a temporary construction water meter source, from an available fire hydrant location, may be necessary until water services are available within the site. Watering frequency would be adjusted seasonally as necessary to supplement natural rainfall, with the intent to keep the container plant materials and seeded areas alive until sufficient establishment can be achieved to have these areas survive on natural conditions over the long term. The

frequency of water truck watering applications will fluctuate based upon time of year climatic conditions and site moisture content. The revegetation installation contractor shall coordinate the water schedule to meet these variables and to assure the revegetation areas receive sufficient moisture to assure plant growth and survival.

Germination and seedling establishment will also progress more rapidly under irrigation than if left to seasonal rainfall patterns within the first few growing seasons. In addition, the irrigation system may be used for site preparation prior to plant and seed installation to induce germination of non-native species for "grow and kill" cycles. This process would consist of running the irrigation regularly until germination of weed seeds is observed. Once seedlings are big enough to be positively identified, they will be controlled and treated with an appropriate herbicide. Desirable native species which have naturally germinated/recruited will be left in place. This cycle of the "grow and kill" treatments may be repeated until the non-native seed bank within the site has reached a desirable level, (i.e., few newly germinated seedlings are observed). The Habitat Restoration Specialist/Project Biologist shall determine the number of repeat "grow and kill" cycles that will be necessary, based on seedling germination.

All irrigation will be installed by the installation contractor under direction of the Habitat Restoration Specialist/Project Biologist. The irrigation system shall be designed with a buried mainline and valves, but the remaining system above-ground to facilitate removal once the system is decommissioned. Water sources and points of connection shall either be from on-site locations associated with water truck application, existing infrastructure, or from a groundwater well.

The goal of the restoration project is to create native, self-sustaining plant communities that can survive on theory own over time on natural site conditions. Ideally, irrigation use would be discontinued at least 2 years before the end of the maintenance and monitoring period, to demonstrate the vegetation community's ability to survive without supplemental water.

The irrigation system will utilize programmable valves that operate independent irrigation circuits, minimizing irrigation maintenance requirements for the site. All irrigation will consist of UV resistant polyvinyl chloride (UV-PVC) pipe staked on grade, with 100% coverage from the sprinkler heads.

The Restoration Contractor will consult with the Habitat Restoration Specialist/Project Biologist and Project Manager regarding the watering schedule during the monitoring period and the timing for the cessation of irrigation. Irrigation is intended to stop at the earliest possible date when plants are adequately established and deemed sustainable, without risking significant plant mortality.

4.9 Erosion Control Protection

Where needed, appropriate erosion control Best Management Practices (BMP's) measures, such as, but not limited to, jute matting, rice straw wattles, fiber rolls, gravel bags and/or additional hydroseeding, will be installed on the transitional slopes and areas needing erosion protection, and a silt fence shall be placed at the bottom of all slopes adjacent to low lying areas, or existing drainages, to serve as erosion control protection. The location of these applications will be determined by the Habitat Restoration Specialist/Biological Monitor and as shown on the final revegetation construction documents. Soil stability and erosion control problems will be inspected by the Habitat Restoration Specialist/Biological Monitor during the rainy season to determine whether any additional erosion control measures/applications may be necessary.

4.10 Final Revegetation Construction Documents

A set of final revegetation construction documents (i.e., plans, details and specifications) will be prepared by a State of California registered Landscape Architect/habitat restoration designer in order to implement the biological intent for the various mitigation/revegetation areas, as outlined in this conceptual mitigation plan. The revegetation construction documents shall be prepared for all on-site and off-site mitigation/revegetation areas. The plans shall be a comprehensive set of plans showing all sites, or on separate sets of plans (i.e., on-site and off-site), depending upon the intended revegetation/mitigation implementation phasing strategies. The revegetation construction documents shall detail all site preparation and demolition procedures, and all grading, irrigation, planting, seeding, and maintenance requirements for the implementation of the wetland, upland and rare plant mitigation/revegetation areas. The revegetation construction documents shall be of sufficient detail for bidding and construction of the mitigation/revegetation area improvements. The revegetation construction documents shall be reviewed and approved by the County and the appropriate resource agencies, based upon final permitting requirements, prior to actual implementation.

5 MAINTENANCE PROGRAM

All on-site and off-site mitigation/revegetation areas will be maintained during an initial 120-day plant establishment maintenance period following installation and then throughout a 5-year maintenance and monitoring period, until successful fulfillment of the project's success criteria and sign-off by the applicable jurisdictions/agencies. All maintenance procedures shall follow the guidelines established in this conceptual mitigation plan report and per the final permit conditions of the County and the resource agencies. The goal will be to help foster adequate plant establishment, as well as to control non-native weeds and exotic/invasive plant species, so that the intended native species and habitats can develop and establish over time as anticipated. The maintenance contractor shall provide sufficient maintenance to assure survival of the mitigation/revegetation plantings until they can survive on their own without artificial support and can become self-sustaining.

5.1 Maintenance Activities

Site maintenance shall occur regularly throughout the initial 120-day plant establishment period and throughout the five-year maintenance and monitoring period, as directed by the Habitat Restoration Specialist/Biological Monitor. Maintenance activities shall include the following.

5.1.1 Non-Native and Weed Species Control

Non-native/exotic and weed species plant control measures will include the following: (1) hand removal, (2) cutting with mechanical devices and treatment with herbicides (i.e., "cut and paint" treatment), and (3) herbicide application (i.e., "grow and kill" treatment). Hand removal of non-native/ exotic species and weeds is the most desirable method of control and will be used around individual native plants to be preserved. Weeds should be pulled by hand, including rootball's, when plants are 6–12 inches tall, or when they can be positively identified, and prior to the formation of seed heads.

The maintenance contractor shall coordinate with the Restoration Specialist/Biological Monitor to identify weeds for removal as needed. Chemical herbicide control will be used for perennial species that are low growing and are difficult to control by hand pulling. Any herbicide treatment must be specified by a certified Pest Control Advisor and applied by a certified Pest Control Applicator.

5.1.2 Clearing and Trash Removal

Pruning and/or clearing of native vegetation will generally not be allowed within the mitigation/revegetation areas. Deadwood and leaf litter from native species will generally not be

removed, but will be left in place, unless directed otherwise by the Restoration Specialist/Biological Monitor. Downed branches and leaf litter from native species provide valuable mulch and microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals. Trash and debris will be removed from the mitigation areas by hand on a regular basis. Trash and debris consists of all anthropogenic (i.e., man-made) materials, equipment, or debris dumped, thrown, washed, blown, and left within the mitigation/revegetation areas.

5.1.3 Erosion Control BMPs

Erosion control features, including Best Management Practices (BMPs) may need to be repaired or replaced during the maintenance period. The determination of whether or not BMPs need to be repaired or replaced will be made by the Habitat Restoration Specialist/Project Biologist. With the exception of silt fence and perimeter fencing, all BMPs shall be 100% biodegradable and allowed to naturally degrade in place. Silt fence will be removed from the site when no longer needed and as directed by the Habitat Restoration Specialist/Project Biologist.

5.1.4 Pest Management

Weeds and exotic/invasive plants are expected to be the primary pest problem in the restoration area during the first few years. Weeds and exotics shall be controlled so that they will not prevent the establishment of the native species or invade adjacent areas. Weeds and exotics shall be controlled prior to setting seed and shall be removed from the site. The Maintenance Contractor shall control weeds and invasive exotic species within the drainage basin and in the created and enhanced areas on a regular basis. A combination of physical removal and appropriate herbicide treatments shall be used to control the non-native/invasive plant species.

Weeds and non-native grasses shall be adequately controlled during the five-year maintenance period to avoid competition with the revegetated species. Annual weeds will be kept under control (i.e., from less than 20% cover at the end of year 1 to less than 10% cover at the end of years 2–5), so they are not a competitive threat to establishment of the desired native species. Perennial exotic/invasive species shall be 5% or less at the end of year 1 and then 0% from years 2–5.

All perennial, invasive, non-native weeds and exotics will be controlled through a combination of hand removals, as well as herbicide applications, during the long-term maintenance and monitoring period. Properly timed, repeat herbicide applications will likely be required to effectively control these species.

In general, little or no pest control is anticipated for the mitigation/revegetation areas except for weed control. The concepts of integrated pest management (Dreistadt, *et al*. 1994) will be used on this project.

All weeds and native seedlings shall be controlled within 24-inches of container plants until the container plants are well established. The Habitat Restoration Specialist shall determine when weed control around container plants may cease.

Some common invasive exotics that could invade the mitigation/revegetation areas and shall be controlled include: fennel, Pampas grass, salt cedar, castor bean, tree tobacco, and artichoke thistle, among others. The Habitat Restoration Specialist may add species to this list as necessary. These species may be successfully controlled by pulling if discovered early enough at the seedling stage, but may prove impossible to control without herbicides once they become established. The above listed invasive exotic species require 100% control.

Vertebrate pest control is not anticipated as part of this project, nor are insect pests expected to be severe enough to warrant attention. If plant diseases become a problem during the plant establishment period, they can generally be controlled by cultural measures.

Pest control will be conducted following all applicable laws, regulations, label directions, and safety precautions. Should the landscape contractor require specific pest control recommendations, the contractor shall consult a licensed Pest Control Adviser. All pesticide and herbicide applications shall be conducted by a qualified pest control applicator. The landscape contractor shall provide reports of all pest control measures implemented at the site, including details of methods and materials used, including any pesticide applications. Copies of any written recommendations shall also be provided.

5.1.5 Irrigation System Maintenance

Irrigation system maintenance shall take place on an as-needed basis to maintain the irrigation systems and all water source connections in an operative condition throughout the maintenance period for as long as the systems are needed, and as directed by the Habitat Restoration Specialist/Biological Monitor.

5.1.6 Plant Material Maintenance

Plant material maintenance shall take place on a regular basis to assure proper plant establishment, plant health and survival as specified in this plan and as directed by the Habitat Restoration Specialist/Biological Monitor. Dead plant replacements shall occur as necessary to meet project performance standards. Plant species replacements shall be identical to the original

species and sizes installed and/or as determined to be appropriate by the Habitat Restoration Specialist/Biological Monitor.

5.2 Maintenance Schedule

An approximate typical time of year maintenance schedule is shown in Table 13. This schedule is intended to begin with the first phase of revegetation implementation following project installation completion and shall continue throughout the maintenance program. The maintenance schedule hall be coordinated between the maintenance contractor and the Habitat Restoration Specialist/Project Biologist, and shall be adjusted as necessary to address the phasing of the revegetation implementation program.

Table 13
Typical Habitat Revegetation Maintenance Program Schedule (Five Years)

Work Tasks[1]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Weed Abatement		X			X			X				
Erosion Control[2]		X									X	
Fencing and Signage[2]		X			X			X			X	
Pest Control		X			X			X			X	
Irrigation System Maintenance		X			X			X			X	

[1] Maintenance task schedule and frequency will be adjusted, as appropriate, depending on site conditions and in coordination with the Habitat Restoration Specialist/Biological Monitor.

[2] As needed during the 5-year program, depending on site conditions.

Note: This schedule represents the most desirable time of year to conduct the various maintenance activities. Final schedules may vary based upon the phasing and timing of the revegetation installation and actual completion of various phases.

6 MONITORING PLAN FOR COMPENSATORY MITIGATION SITES

All on-site and off-site mitigation/revegetation areas will be monitored during the installation, including throughout the initial 120-day plant establishment period, and then throughout the 5-year maintenance and monitoring period, in order to help assure project success. Monitoring shall be conducted by a qualified Habitat Restoration Specialist/Biological Monitor in order to implement the biological intent for the mitigation/revegetation program. Qualifications for the monitor shall be as outlined in section 2.3.5 herein.

Biological monitoring will be conducted to evaluate the progress of the revegetation/mitigation program, both qualitatively (i.e., visually) and quantitatively (i.e., data collection and analysis) throughout the monitoring program. Periodic monitoring visits and reporting will be conducted as specified herein. The project will be assessed against specific success standards and criteria as outlined in Section 6.1. Year-end monitoring reports will be prepared and submitted to the applicable parties and agencies as documentation of the progress of the project and fulfillment of permit requirements.

At the end of the designated 5-year maintenance and monitoring period, the project will be visited by all appropriate parties and agencies in order to determine completion of the 5-year program and acceptance by the County and the permitting agencies.

6.1 Performance Standards for Target Dates and Success Criteria

The performance standards and success criteria outlined herein provide the intended standards for each year of the program through 5 years, and include percent cover of native species, percent cover of non-native/exotic species, as well as target height and canopy goals for selected representative tree and shrub species. The criteria also outline appropriate remedial measures and procedures that shall be implemented in any given year should the success criteria not be met.

Performance criteria for the various mitigation restoration/revegetation habitat types are shown in Table 14 and are based on expected conditions based on target vegetation communities and the existing context of the land covers/vegetation communities surrounding the sites. Performance goals for Ramona horkelia are shown in Table 15.

Table 14
Performance Criteria for On-Site Upland CSS/SMX Mitigation Restoration Areas

Year	% Survival of Container Plantings*	Minimum Percent Native Cover**	Maximum Percent Non-Native Annual Weed Cover***	Maximum Percent Invasive Exotic Perennials
1	100	30	40	10
2	90	40	35	5
3	90	50	30	5
4	90	60	25	0
5	90	70	20	0

* Denotes container planted species, with percentage based upon original planting quantities.
** Percentages based upon absolute cover values from transect data collected in years 3–5, visual estimates only in years 1 and 2.
*** Percentages are for annual weed species. The site shall also remain free of invasive exotic/noxious weed species as identified by the California Invasive Plant Pest Council (Cal IPPC), and shall have less than 1% cover

Table 15
Performance Criteria for On-Site Ramona Horkelia Restoration

Year	Percent Survival/Minimum Number of Plants*	Evidence of Natural Recruitment/Seeding
1	80%/50	yes
2	90%/56	yes
3	100%/62	yes
4	100%/62	yes
5	100%/62	yes

* Naturally recruiting Ramona horkelia plants sown from seed and/or propagated from seed and then out-planted, can make up for any losses to actual salvaged specimens to achieve 100% replacement by the end of the program.

6.2 Target Functions and Values

The primary functions and services of the restored Diegan coastal sage scrub and southern mixed chaparral habitats, is to provide habitat for a variety of native plant and wildlife species. Within the upland areas the goal is to provide an environment, where appropriate, that provides opportunities for suitable forage and native plant cover for use by coastal California gnatcatcher. To achieve the target functions and services of the proposed mitigation/revegetation program, the plan strives to provide a diverse association of plant species that are typical of similar habitats within the area and that can become self-sustaining native habitat areas over time.

6.3 Target Mitigation/Restoration Acreage

The target acreage of the on-site mitigation restoration/revegetation areas is 9.57 acres of combined upland CSS and SMX acreage, as well as the translocated population of 62 Ramona horkelia plants including the following:

Upland CSS Restoration & Establishment -	3.53 acres
Upland SMX Restoration & Establishment -	6.04 acres
Total On-Site:	**9.57 acres**

Ramona horkelia – 62 individual plants translocated and successfully established.

The target acreage of the off-site temporary impact restoration/revegetation areas is 18.9 acres of combined upland CSS, SMX, CLOW, Wetland/Riparian and Grassland acreage.

Upland CSS Restoration –	0.8 acres
Upland SMX Restoration –	2.3 acres
Coast Live Oak Woodland Restoration -	1.5 acres
Non-Native Grassland Restoration -	0.5 acres
Wetland/Riparian Restoration -	0.7 acres
Total Off-Site:	**5.8 acres**

6.4 Monitoring Methods

Monitoring will consist of qualitative field monitoring visits based upon visual analysis and observations, quantitative transect data collection, and quantitative plant growth data collected by the Habitat Restoration Specialist/Biological Monitor. These monitoring efforts will help determine initial survival rates, percent native and non-native cover, and growth and vigor of the desired native plant species. These assessments will be based on qualitative visual assessment methods, as well as quantitative data collection methods.

Monitoring activities will include regular evaluation of non-native weed and invasive/exotic species establishment and control. No plant species listed as problematic and/or invasive by the California Native Plant Society (CNPS), the California Invasive Plant Council (CAL-IPC), or the State of California shall be allowed to naturalize or persist in the mitigation/revegetation areas. No plant

species listed as a "noxious weed" by the State of California, or the U.S. Federal Government, shall be planted or allowed to naturalize or persist within the mitigation/revegetation areas.

Following each monitoring site visit, the Habitat Restoration Specialist/Biological Monitor shall generate a brief Site Observation Report (SOR), detailing the condition of the site and any maintenance and/or remedial actions needed to ensure that the project remains on track to meet its annual performance goals and success criteria. Copies of the Site Observation Reports shall be provided to the County of San Diego, the project proponent/owner and the contractor.

Monitoring will consist of qualitative field monitoring visits conducted by the Habitat Restoration Specialist/Biological Monitor to determine germination rates and percent cover of native and non-native species. This assessment will be based on qualitative visual assessments using relative methods. These methods will evaluate the progression of the revegetation areas in cover and vegetative structure compared to other areas of the same vegetation type.

Monitoring visits during all years will be conducted to evaluate plant species cover and prescribe any necessary remedial measures to correct project inadequacies. Qualitative evaluations will assess plant mortality, compliance with intended standards, and need for supplemental planting and/or seeding. Remedial measures will be recommended if native cover does not meet the intended performance criteria/success standards.

Permanent vegetation transects will be randomly established within the mitigation/revegetation areas at appropriate representative locations during year one. Transects will be approximately 25 meters long (or based on size and configuration of the selected mitigation restoration/ revegetation areas), and sampling will utilize the point-intercept method, utilizing 0.5 meter intervals along each transect. Permanent photo-documentation stations will be established at the beginning of each permanent data station, to record the progress of the mitigation program and plant establishment over the five-year maintenance and monitoring period. Vegetation transect sampling results will be included in the annual monitoring reports.

All individual translocated and/or container planted Ramona horkelia plants shall be staked and numbered per individual plant location, for identification throughout the five-year maintenance and monitoring period. In addition, Ramona horkelia plants established from seed shall also be staked and labeled for identification and tracking.

6.5 Monitoring Schedule

A typical monitoring schedule for various monitoring tasks is shown in Table 16. (Note: The final monitoring schedule may vary from this based upon when the various phases of the mitigation/revegetation program are completed and when the monitoring periods begin for each phase.)

Table 16
Annual Biological Monitoring Schedule for Years 1 through 5

Work Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Quarterly Biological Monitoring		X			X			X			X	
Annual Transect Data Collection					X							

The schedule may be adjusted as conditions necessitate and as phases of the mitigation/revegetation program are completed. Quantitative data collection will typically occur during the spring and/or summer, depending upon the species being monitored, before plant species have gone drought deciduous, or go dormant for the summer and/or fall season.

6.6 Monitoring Reports

An annual biological monitoring report outlining the results of the progress of the site each year will be submitted to the County of San Diego and the applicable resource agencies, at the end of each years monitoring period, throughout the five-year maintenance and monitoring period, and no later than the first week of January of each year, and /or as specified by the project permits.

The monitoring reports will include the following:

- A list of names, titles and companies of all persons who prepared the content of the annual report and participated in maintenance and monitoring activities.
- Prints of representative monitoring photographs.
- Maps identifying monitoring areas, transect locations, planting zones, etc. as appropriate.
- Results of all qualitative and quantitative monitoring efforts.
- Describe the existing conditions of the mitigation site derived from qualitative and quantitative data,
- Provide a comparison of annual success criteria with field conditions,
- Identify all shortcomings of the mitigation program,
- Recommended remedial measures necessary for the successful completion of the mitigation project.

Each yearly report will provide a summary of the accumulated quantitative data.

Any significant issues or contingencies that arise within the mitigation/revegetation sites (e.g., plant survival issues, fire or flooding) shall be reported in writing to the County of San Diego and the applicable resource agencies 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 for the remedial actions.

7 COMPLETION OF COMPENSATORY MITIGATION

When the results of the monitoring efforts document that the project has met the final performance standards and success criteria, the County of San Diego and the applicable resource agencies will be notified, based upon submittal of the final annual report and a request for final project sign-off and acceptance shall be solicited. Before successful mitigation is considered to have been achieved, the intended native vegetation communities will have become adequately established, will have met their performance standards and success criteria, and will show signs of successful reproduction and long-term sustainability. Additional regulatory agency site meetings for project sign-off may be required for this project, depending upon final permitting requirements.

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8 CONTINGENCY MEASURES AND ADAPTIVE MANAGEMENT

If the final performance standards and success criteria are not met by the end of the designated five-year period, then the Habitat Restoration Specialist/Biological Monitor, in consultation with County of San Diego and the applicable resource agencies, will prepare an analysis of the cause(s) of failure(s), such as drought, fire, landslide, flood, etc., and if determined to be necessary by County of San Diego, and/or the resource agencies, propose remedial actions to correct the problems. then the maintenance and monitoring obligations will continue until final project approval/confirmation is obtained.

An adaptive management approach will be implemented in the event of unforeseen or probable but unpredictable circumstances, or changes in site conditions. Adaptive management is defined, for the purposes of this restoration project, as a flexible, iterative approach to the long-term management of biological resources that is directed over time by the results of ongoing monitoring activities and direct observation of environmental stressors that are producing adverse results within the restoration site.

Adaptive management will include the utilization of regular qualitative visual assessments and rapid qualitative assessment data gathered in the field prior to and/or throughout the monitoring period to assess the health and vigor of habitat within the restoration site. Following an event that causes damage to all or part of the restoration site, these data will be used in part to drive management considerations for repair of the damaged areas. Achieving the key goals of the restoration program and establishment of self-sustaining native habitats will be the focus of all adaptive management decisions. Individual environmental stressors are discussed below, along with an anticipated range of adaptive management responses to correct any damage that may occur to the restoration site.

8.1 Initiating Contingency Procedures

Contingency procedures shall be initiated, as determined by the Habitat Restoration Specialist/Biological Monitor in consultation with County of San Diego and the applicable resource agencies in the event of possible, but unlikely catastrophic event (i.e., fire, flood, landslide, earthquake, etc.). Should such an episode occur, an analysis shall be performed by the Habitat Restoration Specialist/Biological Monitor and a site observation report shall be generated outlining the specific conditions of the site following the catastrophic event, and recommendations for remedial action and/or contingency measures. These actions shall be coordinated with the project owner, the Habitat Restoration Specialist/Biological Monitor, the maintenance contractor, the County and the applicable resource agencies, as necessary to fulfill the projects mitigation/revegetation requirements.

8.2 Alternative Locations for Contingency Compensatory Mitigation

No alternative sites for contingency measures have been currently identified, as the proposed mitigation restoration/revegetation areas outlined herein constitute the extent of the intended restoration/revegetation on-site and off-site. Additional mitigation for project impacts includes the intended preservation of existing native habitat on site. Additional wetland and upland mitigation requirements are being mitigated for through acquisition and/or purchase of off-site mitigation credits at the Ramona Parcel, or through other agreed to compensatory arrangements.

8.3 Funding for Contingency Measures

Newland Sierra is the project owner and permittee of this project, and will be responsible for the successful implementation of this conceptual mitigation/revegetation plan/ program. Newland Sierra shall be financially responsible for implementation, maintenance, monitoring and the long-term management of this project, including implementation of any contingency measures necessitated to address catastrophic events and/or by adaptive management strategies necessary to address project changes over time, and evolving habitat and/or climatic conditions.

9 LONG-TERM HABITAT MANAGEMENT

After successful completion of the five-year maintenance and monitoring period, the on-site and off-site mitigation/ restoration areas are expected to function as naturally regenerating and self-sustaining native habitat and will then fall under the long-term habitat management program. The long-term management of the on-site and off-site open space habitat areas is described in a separate Conceptual Resource Management Plan (CRMP) (Dudek 2017b).

The majority of the site will remain as open space area with protection in perpetuity. The County, or a designee for the County shall maintain the right to inspect the mitigation areas and to inform the Applicant of conditions requiring amelioration and direct them to maintain vegetation and soils on site in qualitatively similar condition to that of the site at the end of the long-term five-year maintenance and monitoring period.

Approximately 1,209 acres of chaparral, riparian, and non-native communities are proposed as part of the on-site open space preservation and management program, as part of the overall mitigation program for the proposed project. The CRMP includes a description of the management tasks involved within the on-site Open Space Preserve.

The purpose of the CRMP is to provide guidance to ensure preservation and long-term management of the Open Space Preserve areas. The objectives of the CRMP include the following:

1. Guide management of vegetation communities/habitats, plant and animal species, cultural resources, and programs described herein to protect and, where appropriate, enhance biological and cultural values.
2. Serve as a descriptive inventory of vegetation communities, habitats, and plant and animal species that occur on or use this property.
3. Serve as a descriptive inventory of archaeological and/or historic resources that occur on this property.
4. Establish the baseline conditions from which adaptive management will be determined and success will be measured.
5. Provide an overview of the operation, maintenance, administrative, and personnel requirements to implement management goals and serve as a budget planning aid.

The long-term management of the mitigation/revegetation areas described in this conceptual on-site mitigation restoration/revegetation plan document will be included as a component of the overall CRMP program (Dudek 2017b).

Additional acreage will also be provided by off-site open space acquisition at the Ramona Parcel, in order to help meet the overall the mitigation requirements for the proposed project. The long-term management of the off-site open space areas is also described in a separate CRMP document titled: *Off-Site Conceptual Resource Management Plan for the Newland Sierra Project* (Dudek 2017c).

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11 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

This report was prepared by Dudek Habitat Restoration Staff John Minchin and Andy Thomson, with senior biological resources review provided by Brock Ortega. Figure preparation was provided by Lesley Terry. Editorial and formatting support was provided by Dudek word processing and publications staff.

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APPENDIX A

Plant Compendium

APPENDIX A
Plant Compendium

VASCULAR SPECIES

DICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

AIZOACEAE—FIG-MARIGOLD FAMILY

* *Aptenia cordifolia*—heartleaf iceplant

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

* *Schinus molle*—Peruvian peppertree
Malosma laurina—laurel sumac
Rhus integrifolia—lemonade sumac
Rhus ovata—sugar sumac
Toxicodendron diversilobum—Pacific poison oak

APIACEAE—CARROT FAMILY

* *Anthriscus caucalis*—bur chervil
* *Foeniculum vulgare*—sweet fennel
Apiastrum angustifolium—mock parsley
Daucus pusillus—American wild carrot
Lomatium dasycarpum—woollyfruit desertparsley
Sanicula bipinnatifida—purple sanicle
Sanicula tuberosa—turkey pea
Tauschia arguta—southern umbrellawort

APOCYNACEAE—DOGBANE FAMILY

* *Nerium oleander*—oleander

ASTERACEAE—SUNFLOWER FAMILY

* *Carduus pycnocephalus* ssp. *pycnocephalus*—Italian plumeless thistle
* *Centaurea melitensis*—Maltese star-thistle
* *Cynara cardunculus* ssp. *cardunculus*—globe artichoke
* *Delairea odorata*—Cape-ivy
* *Hedypnois cretica*—Cretanweed
* *Helminthotheca echioides*—bristly oxtongue
* *Hypochaeris glabra*—smooth cat's ear
* *Lactuca serriola*—prickly lettuce
* *Logfia gallica*—narrowleaf cottonrose

* *Matricaria discoidea*—disc mayweed
* *Pseudognaphalium luteoalbum*—Jersey cudweed
* *Sonchus oleraceus*—common sowthistle
Acourtia microcephala—sacapellote
Ambrosia psilostachya—Cuman ragweed
Artemisia californica—coastal sagebrush
Baccharis pilularis ssp. *consanguinea*—coyotebrush
Brickellia californica—California brickellbush
Chaenactis artemisiifolia—white pincushion
Chaenactis glabriuscula—yellow pincushion
Corethrogyne filaginifolia—common sandaster
Deinandra fasciculata—clustered tarweed
Erigeron canadensis—Canadian horseweed
Erigeron foliosus—leafy fleabane
Eriophyllum confertiflorum var. *confertiflorum*—golden-yarrow
Euthamia occidentalis—western goldentop
Hazardia squarrosa—sawtooth goldenbush
Heterotheca grandiflora—telegraphweed
Isocoma menziesii var. *menziesii*—Menzies' goldenbush
Isocoma menziesii var. *vernonioides*—Menzies' goldenbush
Logfia filaginoides—California cottonrose
Osmadenia tenella—false rosinweed
Porophyllum gracile—slender poreleaf
Pseudognaphalium biolettii—two-color rabbit-tobacco
Pseudognaphalium californicum—ladies' tobacco
Pseudognaphalium leucocephalum—white rabbit-tobacco
Rafinesquia californica—California plumeseed
Stephanomeria virgata—rod wirelettuce
Stylocline gnaphaloides—mountain neststraw
Venegasia carpesioides—canyon sunflower
Baccharis salicifolia—mulefat
* *Sonchus asper*—spiny sowthistle

BORAGINACEAE—BORAGE FAMILY

Cryptantha micromeres—pygmyflower cryptantha
Emmenanthe penduliflora—whisperingbells
Eriodictyon crassifolium var. *crassifolium*—thickleaf yerba santa
Eucrypta chrysanthemifolia var. *chrysanthemifolia*—spotted hideseed
Phacelia cicutaria—caterpillar phacelia

Phacelia grandiflora—largeflower phacelia
Phacelia parryi—Parry's phacelia

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—shortpod mustard
* *Raphanus sativus*—cultivated radish
Cardamine californica—milkmaids
Lepidium virginicum—Virginia pepperweed
Nasturtium officinale—watercress

CACTACEAE—CACTUS FAMILY

* *Opuntia ficus-indica*—Barbary fig

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

Lonicera subspicata—southern honeysuckle

CARYOPHYLLACEAE—PINK FAMILY

* *Silene gallica*—common catchfly
* *Spergula arvensis*—corn spurry
* *Stellaria media*—common chickweed
Silene laciniata—cardinal catchfly
* *Polycarpon tetraphyllum*—fourleaf manyseed

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Salsola tragus*—prickly Russian thistle
*Atriplex canescen*s var. *canescens*—fourwing saltbush
* *Kochia scoparia*—no common name

CISTACEAE—ROCK-ROSE FAMILY

Crocanthemum scoparium—no common name

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia macrostegia—island false bindweed
Cuscuta californica—chaparral dodder

CRASSULACEAE—STONECROP FAMILY

Crassula connata—sand pygmyweed
Dudleya pulverulenta—chalk dudleya

CUCURBITACEAE—GOURD FAMILY

Cucurbita foetidissima—Missouri gourd
Marah macrocarpa—Cucamonga manroot

ERICACEAE—HEATH FAMILY

Arctostaphylos glandulosa ssp. *glandulosa*—Eastwood's manzanita
Arctostaphylos pungens—pointleaf manzanita
Comarostaphylis diversifolia ssp. *diversifolia*—summer holly
Xylococcus bicolor—mission manzanita

EUPHORBIACEAE—SPURGE FAMILY

* *Ricinus communis*—castorbean
Euphorbia albomarginata—whitemargin sandmat

FABACEAE—LEGUME FAMILY

* *Melilotus indicus*—annual yellow sweetclover
* *Vicia villosa* ssp. *villosa*—winter vetch
Acmispon americanus var. *americanus*—American bird's-foot trefoil
Acmispon argophyllus—silver bird's-foot trefoil
Acmispon glaber var. *glaber*—common deerweed
Lupinus bicolor—miniature lupine
Lupinus truncatus—collared annual lupine

FAGACEAE—OAK FAMILY

Quercus agrifolia var. *agrifolia*—California live oak
Quercus berberidifolia—scrub oak
Quercus engelmannii—Engelmann oak

GENTIANACEAE—GENTIAN FAMILY

Zeltnera venusta—charming centaury

GERANIACEAE—GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill
* *Erodium cicutarium*—redstem stork's bill
Geranium carolinianum—Carolina geranium

GROSSULARIACEAE—GOOSEBERRY FAMILY

Ribes californicum—hillside gooseberry
Ribes indecorum—whiteflower currant

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound
Salvia apiana—white sage
Salvia clevelandii—fragrant sage
Salvia mellifera—black sage
Salvia munzii—Munz's sage
Stachys spp. —hedgenettle

MALVACEAE—MALLOW FAMILY

* *Malva parviflora*—cheeseweed mallow
Malacothamnus fasciculatus var. *fasciculatus*—Mendocino bushmallow

MELIACEAE—MAHOGANY FAMILY

* *Melia azedarach*—Chinaberrytree

MONTIACEAE—MONTIA FAMILY

Claytonia parviflora—streambank springbeauty

MYRSINACEAE—MYRSINE FAMILY

* *Anagallis arvensis*—scarlet pimpernel

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus* sp. —no common name

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis—desert wishbone-bush

ONAGRACEAE—EVENING PRIMROSE FAMILY

Clarkia epilobioides—canyon clarkia
Epilobium canum ssp. *canum*—hummingbird trumpet

OROBANCHACEAE—BROOM-RAPE FAMILY

Cordylanthus rigidus—stiffbranch bird's beak

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy

PHRYMACEAE—LOPSEED FAMILY

Mimulus aurantiacus var. *aurantiacus*—orange bush monkeyflower
Mimulus pilosus—false monkeyflower

PLANTAGINACEAE—PLANTAIN FAMILY

* *Plantago lanceolata*—narrowleaf plantain
* *Plantago major*—common plantain
Antirrhinum nuttallianum ssp. *nuttallianum*—violet snapdragon
Antirrhinum nuttallianum—violet snapdragon
Keckiella antirrhinoides—snapdragon penstemon
Keckiella cordifolia—heartleaf keckiella

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamore

POLEMONIACEAE—PHLOX FAMILY

Navarretia hamata ssp. *hamata*—hooked pincushionplant
Navarretia hamata ssp. *leptantha*—hooked pincushionplant

POLYGONACEAE—BUCKWHEAT FAMILY

* *Rumex crispus*—curly dock
Chorizanthe fimbriata—fringed spineflower
Eriogonum fasciculatum var. *fasciculatum*—Eastern Mojave buckwheat
Eriogonum fasciculatum var. *foliolosum*—Eastern Mojave buckwheat
Pterostegia drymarioides—woodland pterostegia
Rumex californicus—toothed willow dock

RANUNCULACEAE—BUTTERCUP FAMILY

Clematis ligusticifolia—western white clematis
Clematis pauciflora—ropevine clematis
Thalictrum fendleri—Fendler's meadow-rue
Delphinium spp. —no common name

RESEDACEAE—MIGNONETTE FAMILY

* *Reseda luteola*—weld

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus tomentosus—woolyleaf ceanothus
Rhamnus ilicifolia—hollyleaf redberry
Rhamnus pilosa—hollyleaf buckthorn

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum var. *fasciculatum*—chamise
Cercocarpus betuloides var. *betuloides*—birchleaf mountain mahogany
Cercocarpus minutiflorus—smooth mountain mahogany

Heteromeles arbutifolia—toyon
Horkelia truncata—Ramona horkelia
Prunus ilicifolia ssp. *ilicifolia*—hollyleaf cherry

RUBIACEAE—MADDER FAMILY

Galium angustifolium—narrowleaf bedstraw
Galium aparine—stickywilly
Galium nuttallii ssp. *nuttallii*—climbing bedstraw

RUTACEAE—RUE FAMILY

Cneoridium dumosum—bush rue

SALICACEAE—WILLOW FAMILY

Populus fremontii ssp. *fremontii*—Fremont cottonwood
Salix gooddingii—Goodding's willow
Salix laevigata—red willow
Salix lasiolepis—arroyo willow

SCROPHULARIACEAE—FIGWORT FAMILY

* *Myoporum laetum*—ngaio tree
Scrophularia californica—California figwort

SIMAROUBACEAE—QUASSIA OR SIMAROUBA FAMILY

* *Ailanthus altissima*—tree of heaven

SOLANACEAE—NIGHTSHADE FAMILY

* *Nicotiana glauca*—tree tobacco
Datura wrightii—sacred thorn-apple
Solanum xanti—chaparral nightshade

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—saltcedar

URTICACEAE—NETTLE FAMILY

* *Urtica urens*—dwarf nettle
Hesperocnide tenella—western stingingnettle

VITACEAE—GRAPE FAMILY

Vitis girdiana—desert wild grape

ZYGOPHYLLACEAE—CALTROP FAMILY

* *Tribulus terrestris*—puncturevine

FERNS AND FERN ALLIES

BLECHNACEAE—DEER FERN FAMILY

Woodwardia fimbriata—giant chainfern

DRYOPTERIDACEAE—WOOD FERN FAMILY

Dryopteris arguta—coastal woodfern

POLYPODIACEAE—POLYPODY FAMILY

Polypodium californicum—California polypody

PTERIDACEAE—BRAKE FAMILY

Cheilanthes clevelandii—Cleveland's lipfern
Pellaea andromedifolia—coffee cliffbrake
Pellaea mucronata—birdfoot cliffbrake
Pentagramma triangularis—goldback fern

SELAGINELLACEAE—SPIKE-MOSS FAMILY

Selaginella cinerascens—ashy spike-moss

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Hesperoyucca whipplei—chaparral yucca
Yucca schidigera—Mojave yucca

ALLIACEAE—ONION FAMILY

Allium praecox—early onion

ARECACEAE—PALM FAMILY

* *Washingtonia robusta*—Washington fan palm

ASPHODELACEAE—ASPHODEL FAMILY

* *Asphodelus fistulosus*—onionweed

CYPERACEAE—SEDGE FAMILY

Carex praegracilis—clustered field sedge
Carex spissa—San Diego sedge
Cyperus eragrostis—tall flatsedge