APPENDIX J

SAN ELIJO LAGOON RESTORATION PROJECT CALIFORNIA RAPID ASSESSMENT METHOD ANALYSIS

SAN ELIJO LAGOON RESTORATION PROJECT
YEAR 1 - RESTORATION
CALIFORNIA RAPID ASSESSMENT METHOD ANALYSIS

Prepared for:

San Elijo Lagoon Conservancy
P.O. Box 230634
Encinitas, California 92023
Phone: (760) 436-3944

Prepared by:

AECOM
401 West A Street, Suite 1200
San Diego, California 92101
Phone: (619) 610-7600

July 2022

TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY v

1.0 INTRODUCTION 1
1.1 San Elijo Lagoon Setting 1
1.2 California Rapid Assessment Method for Wetlands Overview 1

2.0 METHODS 5
2.1 Selection of Assessment Area Locations 5
2.2 Determination of CRAM Wetland Type 5
2.3 Field Determination of Assessment Area Boundaries 6
2.3.1 Estuarine 6
2.3.2 Depressional 6
2.4 CRAM Scoring 33

3.0 RESULTS 35
3.1 Attribute 1: Buffer and Landscape Context 35
3.1.1 Metric 1: Aquatic Area Abundance 35
3.1.2 Metric 2: Buffer 36
3.2 Attribute 2: Hydrology 41
3.2.1 Metric 1: Water Source 41
3.2.2 Metric 2: Hydroperiod 42
3.2.3 Metric 3: Hydrologic Connectivity 43
3.3 Attribute 3: Physical Structure 44
3.3.1 Metric 1: Structural Patch Richness 44
3.3.2 Metric 2: Topographic Complexity 45
3.4 Attribute 4: Biotic Structure 46
3.4.1 Metric 1: Plant Community Composition 46
3.4.2 Metric 2: Horizontal Interspersion 49
3.4.3 Metric 3: Vertical Biotic Structure 50

4.0 DISCUSSION 51

5.0 REFERENCES 53

APPENDICES

A	AA Site Photos
B	AA Data Sheets

LIST OF TABLES

Table **Page**

1	CRAM Attributes and Metrics 33
2	Expected Relationship among CRAM Attributes, Metrics, and Key Services 34
3	CRAM Scores by AA 37
4	Average Attribute and Overall CRAM Scores 51

LIST OF FIGURES

Figure **Page**

1	SELRP Project Area 3
2	Spatial Distribution of CRAM Index and Attribute Scores 7
3.1	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – W-1 8
3.2	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – W-4 9
3.3	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – W-5 10
3.4	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-4 11
3.5	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-6 12
3.6	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-8 13
3.7	CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-12 14

LIST OF FIGURES
(Continued)

Figure **Page**

3.8 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-13 15
3.9 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-31 16
3.10 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-33 17
3.11 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-37 18
3.12 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-38 19
3.13 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-48 20
3.14 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-60 21
3.15 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-64 22
3.16 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-72 23
3.17 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – C-73 24
3.18 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-2 25
3.19 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-33 26
3.20 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-34 27
3.21 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-36 28
3.22 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-63 29
3.23 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-65 30

LIST OF FIGURES
(Continued)

Figure **Page**

3.24 CRAM Assessment Area Boundaries and Landscape Metrics Assessment Area (AA) – E-75 31
4 Aquatic Area Abundance 35
5 Percent of AA with Buffer 36
6 Average Buffer Width 39
7 Buffer Condition 40
8 Water Source 41
9 Hydroperiod 42
10 Hydrologic Connectivity 43
11 Structural Patch Richness 44
12 Topographic Complexity 45
13 Number of Plant Layers 46
14 Number of Codominant Species 47
15 Percent Invasion 48
16 Horizontal Interspersion 49
17 Vertical Biotic Structure 50
18 Distribution of Metric/Submetric Scores (A–D) as Percent of AAs 52

EXECUTIVE SUMMARY

San Elijo Lagoon and adjacent uplands provide habitats that support sensitive species, including federally threatened and endangered plants and animals, and resident and migratory wildlife. The lagoon has three basins: west, central, and east. Over the past several decades, the lagoon system gradually degraded over time due to the influence of urban development within the watershed. This development altered the sediment supply, nutrient levels, and hydrology and, subsequently, the physical and biological functions of the lagoon system. Water quality was impaired due to historical accumulation of nutrients in lagoon sediments, lack of circulation in the lagoon, and sedimentation in areas of impounded water. Muted tidal conditions, changes in inundation frequency, and increasing freshwater inputs from upstream development resulted in homogenizing of habitats with the loss of mudflats and an increase in freshwater marsh habitat. The overarching goal of the San Elijo Restoration Project (SELRP) is to protect and restore, then maintain via adaptive management, the San Elijo Lagoon ecosystem and its adjacent uplands to sustain and perpetuate native flora and fauna that are characteristic of southern California, and restore and maintain estuarine and brackish marsh hydrology. The SELRP is part of a mitigation strategy for transportation infrastructure projects associated with comprehensive, system-wide improvements in the North Coast Corridor.

After restoration implementation, San Elijo Lagoon was assessed using the California Rapid Assessment Method for Wetlands (CRAM) to determine the Year 1 wetland condition of San Elijo Lagoon. CRAM is a rapid assessment method that requires collecting Level 2 data (coarse data) for monitoring wetland conditions. Post-restoration CRAM scores will be compared against pre-restoration (baseline) condition CRAM scores to determine success of the restoration activities. CRAM scores are expected to be the same or better than the pre-restoration CRAM scores within 10 years of the restoration completion.

CRAM was performed by AECOM CRAM certified practitioners on October 28 and 29, 2021. Twenty-four assessment areas (AAs) distributed across the lagoon were assessed to determine the condition of the lagoon in 2022 after restoration activities concluded. The locations of 21 of the 24 AAs were the same as those used in the pre-restoration assessment conducted by AECOM in 2016. Three of the AA locations were adjusted to better align with the post-restoration landscape.

Overall CRAM scores in the lagoon ranged from a low of 61 to a high of 92. The highest scoring AA was C48, an estuarine AA in the central basin. The lowest scoring AAs were the estuarine AAs C33 (central basin) and W-4 (west basin) with a 61 and 63 overall score, respectively. The lowest attribute scores for the entire lagoon were received in the hydrology and physical structure attributes and their associated metrics.

Year 1 post-restoration CRAM score results confirmed the lack of significant change in Buffer and Landscape attribute/metric scores after restoration implementation. Within the Hydrology attribute, Water Source is influenced by the level of development surrounding the lagoon and did not change after restoration. However, Hydroperiod and Hydrological Connectivity metric scores increased after restoration, resulting in a 2.4% increase from pre-restoration conditions in the average overall Hydrology attribute. Following these hydrological changes, positive changes in Physical and Biotic Structure attribute/metric scores will continue to occur at the 24 AAs assessed within San Elijo Lagoon. The overall estuarine scores are the same in 2021 as they were in 2016 at 72, while the overall depressional wetland score of 75.8 in 2016 is slightly higher than the score of 72.6 in 2021. This is most likely related to several years of drought as the depressional AAs are all in fairly high and dry locations that rely entirely on seasonal rain. These AAs will only be affected by the project improvements in the long term and sea level rise over time. With a resulting CRAM score for the estuarine AAs the same as the baseline CRAM score, the monitoring variable for Wetland Function is considered met for the project.

1.0 INTRODUCTION

1.1 SAN ELIJO LAGOON SETTING

San Elijo Lagoon (Figure 1) and adjacent uplands provide habitats that support sensitive species, including federally threatened and endangered plants and animals, and resident and migratory wildlife. The lagoon is composed of three basins: west, central, and east. The west basin is between the train tracks and Highway 101 and is the westernmost basin, closest to the coast. The central basin is between the train tracks and Interstate 5. The east basin is east of Interstate 5 and is the easternmost basin of the lagoon. San Elijo Lagoon has a relatively narrow connection to the ocean, and a confluence of freshwater flows from upstream sources. Transportation infrastructure traverses the lagoon, inhibiting freshwater flow to the ocean and tidal flow into the lagoon. Maintenance of the lagoon inlet is routinely performed to maintain a predominantly open system and allow for regular tidal flushing within the lagoon. While an open inlet allows freshwater and saltwater exchange to occur more frequently, tidal muting occurs in the far eastern portions of the east basin.

1.2 CALIFORNIA RAPID ASSESSMENT METHOD FOR WETLANDS OVERVIEW

The California Rapid Assessment Method for Wetlands (CRAM) was developed over a period of 10-plus years in collaboration with the resource agencies and scientists throughout California. The overall goal of CRAM is to "provide rapid, scientifically defensible, standardized, cost-effective assessments of the status and trends in the condition of wetlands and related policies, programs, and projects throughout California" (CWMW 2013a). CRAM is a rapid assessment method that requires collecting Level 2 data (coarse data) for monitoring wetland conditions.

One of the benefits of CRAM is that it does not require an intensive watershed-level assessment to calibrate variable scores. Instead, CRAM has been calibrated throughout California and in various wetland types. CRAM is an ambient monitoring and assessment tool that can be performed on different scales, ranging from an individual wetland to across a watershed or a larger region. CRAM is designed to collect a coarse assessment of a site's ambient conditions, but it can be used to measure progress toward meeting success criteria established for wetland function/condition and can be repeated over the long term if necessary or desired. Level 3 (fine scale) data are not necessary to complete a CRAM assessment, but are useful when determining many of the CRAM attribute scores and interpreting the final CRAM scores. CRAM is being used to assess the changes in wetland conditions of San Elijo Lagoon after restoration implementation. CRAM scores will be used in conjunction with other performance standards to help determine success of the restoration over time as the lagoon is expected to achieve similar or better condition scores than the 2016 baseline.

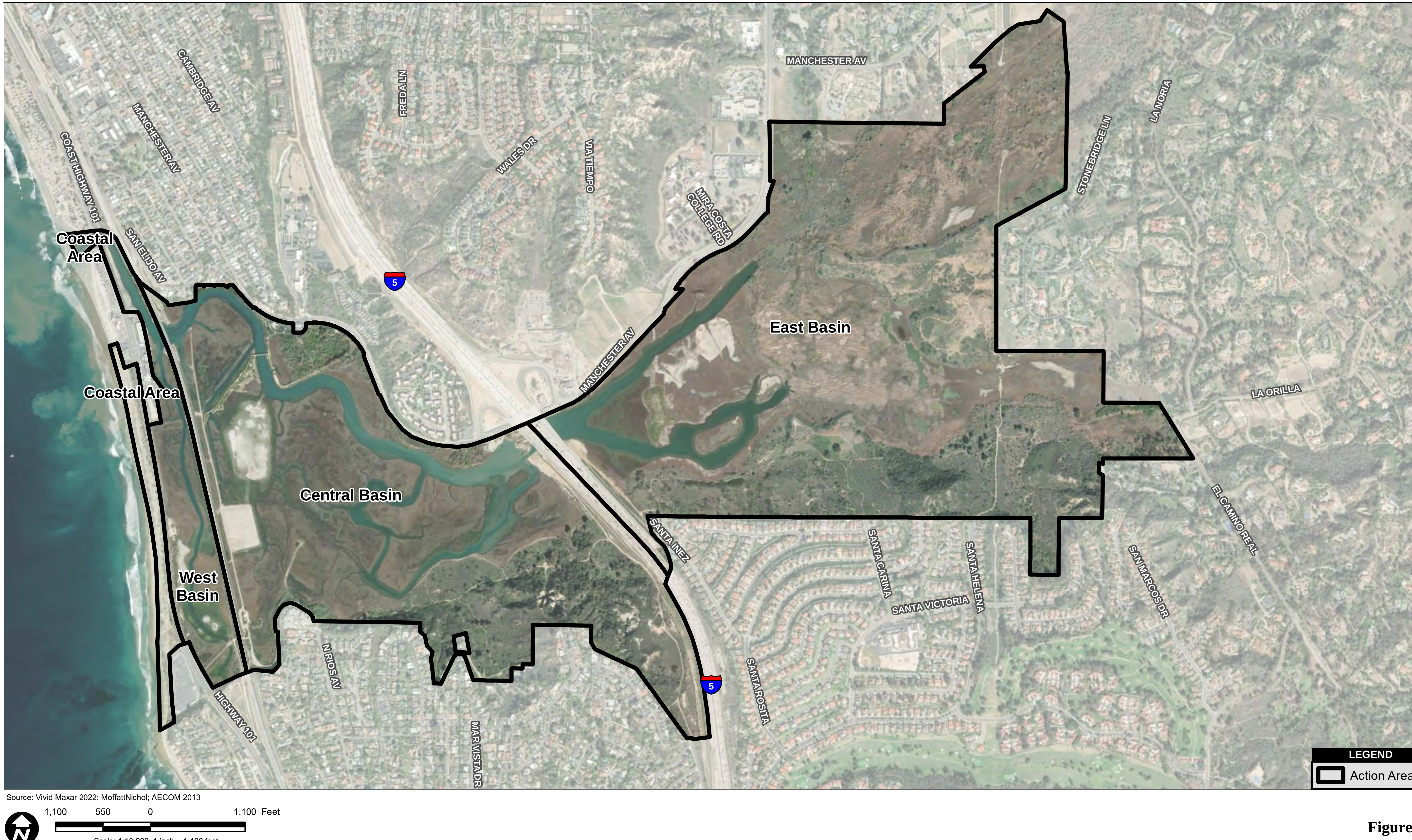


Figure 1
San Elijo Lagoon

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\Restoration_Plan\San Elijo Lagoon.mxd, 7/14/2022, daniel.arellano

This page intentionally left blank.

2.0 METHODS

2.1 SELECTION OF ASSESSMENT AREA LOCATIONS

The San Elijo Lagoon Conservancy completed a CRAM assessment of the lagoon in 2010. Twenty-five assessment areas (AAs) were distributed across the lagoon to determine the condition of the lagoon in 2010. These same AAs were surveyed for the 2016 baseline condition assessment (AECOM 2016) before restoration activities began at the lagoon. Twenty-four of these AAs were surveyed during the Year 1 post-restoration CRAM surveys during 2021; the removal of one AA was necessary because the pre-restoration location of the AA was no longer appropriate to assess post-restoration conditions. The location of three AAs was slightly adjusted to better align with the post-restoration landscape (i.e., not be placed in a location that will be open water post-restoration) (Figure 2). CRAM was performed by AECOM CRAM certified practitioners on October 28 and 29, 2021, following the latest guidelines, currently version 6.1 (CWMW 2013a), and appropriate field books for the wetland module types (CWMW 2013b, 2013c).

2.2 DETERMINATION OF CRAM WETLAND TYPE

One of the first steps in CRAM is determining the wetland type to be assessed and using the appropriate field manual to assess a feature. Following the pre-restoration methodology, two different wetland types, and therefore two different modules, were used for this assessment: estuarine and depressional. The majority of the AAs (19) were estuarine wetlands, found in the west, central, and westernmost portions of the east Basin. However, five AAs in the east basin did not fit the CRAM definition of estuarine wetlands and were assessed using the depressional module. The following summarizes these wetland types as defined by CRAM:

- **Estuarine** wetlands consist of aquatic (i.e., sub-tidal) and semi-aquatic (i.e., intertidal) environments that are strongly influenced by mixtures of ocean water and upland runoff due to tidal processes operating through an ocean inlet. Estuaries are mostly enclosed by land. Their inlets may be natural or unnatural.
- **Depressional** wetlands occur in topographic lows (i.e., closed-elevation contours) that allow the accumulation of surface water and, in some cases, groundwater. These systems can be natural or artificial in origin, and can occur on the landscape as isolated basins with distinct boundaries, as a complex of shallows and seasonally wet depressions created by the slight topographic relief with indistinct boundaries, or as a large complex of interconnected basins.

2.3 FIELD DETERMINATION OF ASSESSMENT AREA BOUNDARIES

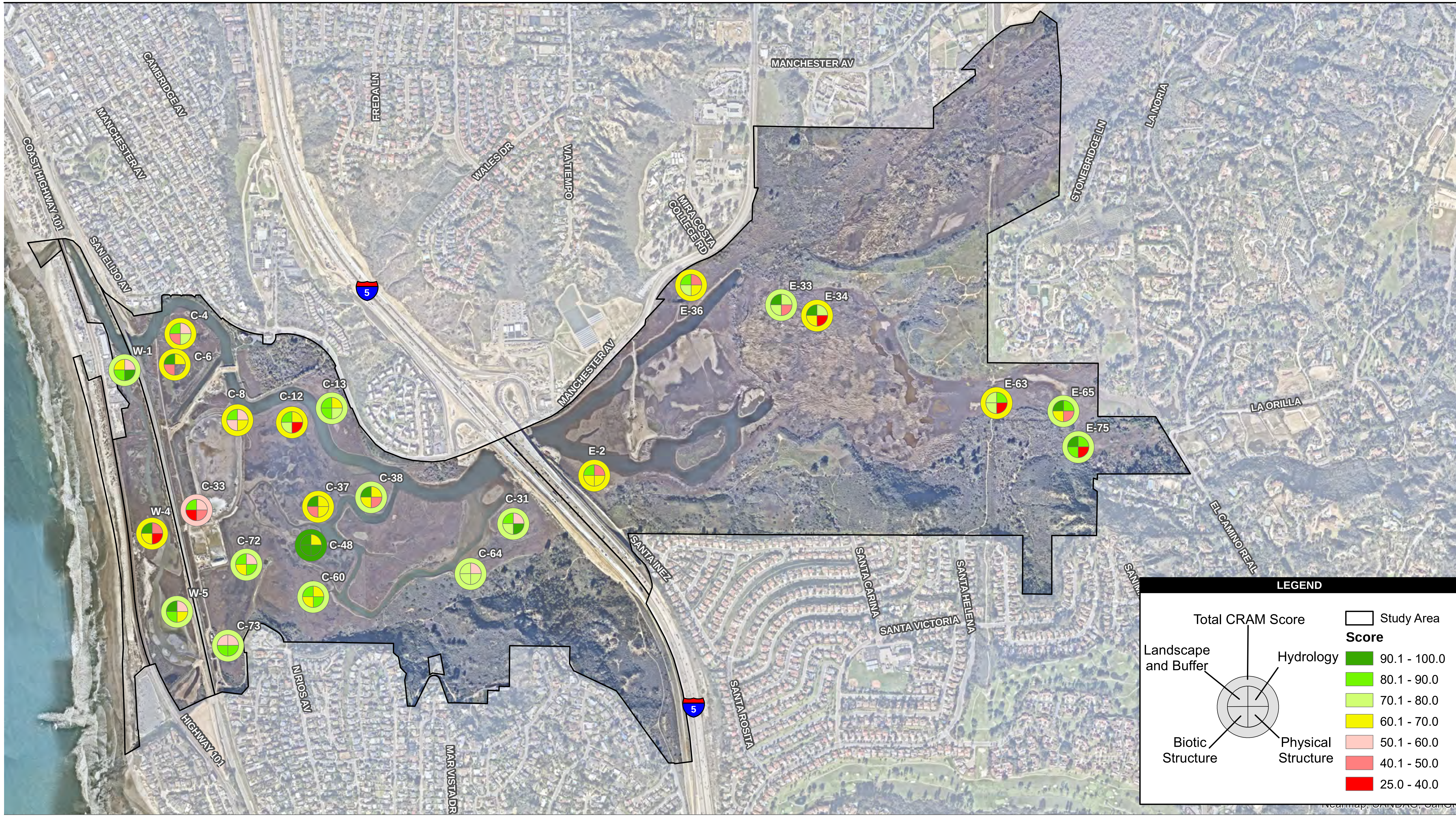
The boundaries of each AA were determined in the field using the guidance provided in the appropriate wetland type field manual. Figures 3.1 through 3.24 show the boundary of each AA.

2.3.1 Estuarine

The boundary of an estuarine wetland AA should be determined during low tide. The AA should not extend above the backshore, and it should not extend more than 10 meters across a non-vegetated tidal flat that adjoins the foreshore. The backshore is typically indicated by wrack lines and transitions from intertidal to upland vegetation. The AA should not extend across any tidal channel that is wider than 30 meters or cannot be safely crossed at low tide. The boundary of the AA can extend along the midline of such channels but not across them. The AA can incorporate any smaller channels that can be safely crossed on the ground. The AA will, therefore, include all of the intertidal marsh plain and associated features, such as pannes and natural levees, plus all of the tidal channels that can be crossed, plus the exposed banks and beds of channels that border the AA. The recommended size and shape for estuarine wetlands is a 1-hectare circle, but the shape can be non-circular, if necessary, to fit the wetland with a minimum size of 0.1 hectare (CWMW 2013b).

2.3.2 Depressional

As a general rule, the AA should extend from the backshore, as indicated by high-water marks or a transition from wetland to upland plants, to the foreshore, the boundary between the vegetated wetland and any adjoining semi-aquatic, non-wetland area, or a fully aquatic area such as open water. If open water is present, the AA should extend 10 meters beyond the foreshore into open water. The backshore (landward boundary) of the AA will include any adjacent riparian vegetation that directly overhangs the wetland, including the entire footprint of individual trees or plants that overhang the wetland. If riparian vegetation does not overhang the wetland, an area 2 meters wide extending landward from the backshore as part of the AA is included. The recommended AA size for depressional wetlands is 1 hectare, and no larger than 2 hectares (CWMW 2013c). !!



Sources: MoffattNichol (2015-18); AECOM (2018-2021), SanGIS (2018).

1,100 550 0 1,100 Feet

Scale: 1:13,200; 1 inch = 1,100 feet

Figure 2
Spatial Distribution of CRAM Index and Attribute Scores

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Results_v3.mxd, 5/2/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
W1	N	30	W1	25
	S	40		15
	E	100		15
	W	75		15
	Average	**61.25**		15
				5
				5
				5
			Average	**12.5**

Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.1
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - W-1

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_W1.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
W4	N	91	W4	250
	S	76		50
	E	73		30
	W	88		120
	Average	**82**		250
				50
				20
				75
			Average	**105.625**

Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.2
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - W-4

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_W4.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
W5	N	91	W5	160
	S	53		20
	E	97		15
	W	88		25
	Average	**82.25**		250
				105
				75
				150
			Average	**100**

Source: SANDAG, MoffattNichol; AECOM.

Figure 3.3
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - W-5

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_W5.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C4	N	15	C4	75
	S	100		88
	E	40		200
	W	75		250
	Average	**57.5**		250
				147
				147
				60
			Average	**152.125**

Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.4
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-4

AA		Aquatic Area Abundance	AA	Buffer
C6	N	40	C6	200
	S	91		176
	E	98		250
	W	74		250
	Average	**75.75**		250
				191
				162
				250
			Average	**216.125**

Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.5
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-6

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C6.mxd, 7/13/2022, daniel.arellano

C8	Aquatic Area Abundance		Buffer
N	55	W	245
S	100	NW	250
E	69	N	250
W	76	NE	250
Average	**75**	E	250
		SE	250
		S	250
		SW	250
		Average	**249**

Sources: MoffattNichol (2015-18); AECOM (2018-2021), SanGIS (2018).

50 0 50 100 150 200 250 Meters

Scale: 1:5,904; 1 in = 150 meters

Figure 3.6
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-8

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C8_2022.mxd, 5/3/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C12	N	50	C12	250
	S	100		200
	E	40		220
	W	95		250
	Average	**71.25**		250
				250
				250
				250
			Average	**240**

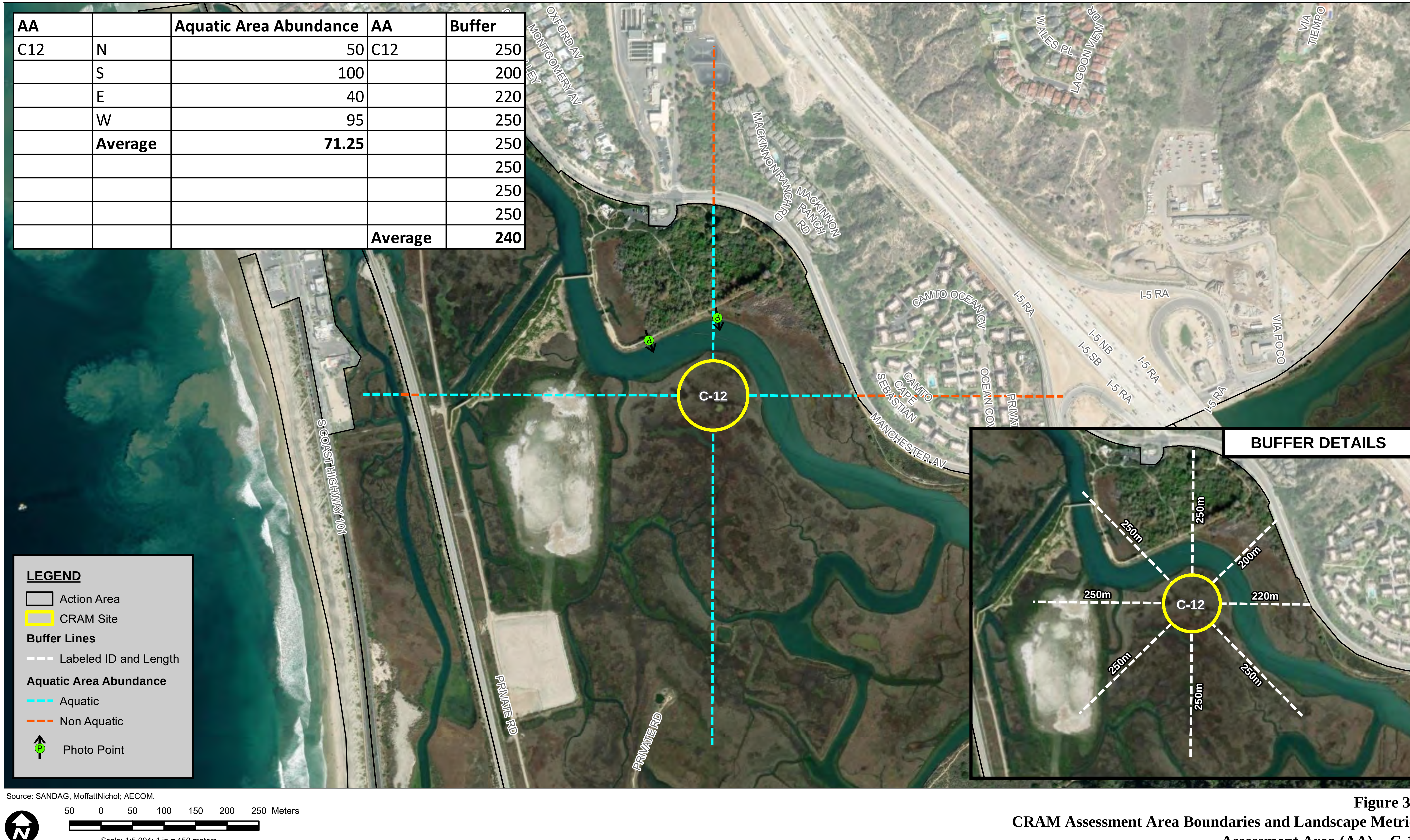


Figure 3.7
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-12

AA		Aquatic Area Abundance	AA	Buffer
C13	N	24	C13	118
	S	100		25
	E	3		15
	W	100		250
	Average	**56.75**		250
				250
				250
				250
			Average	**176**

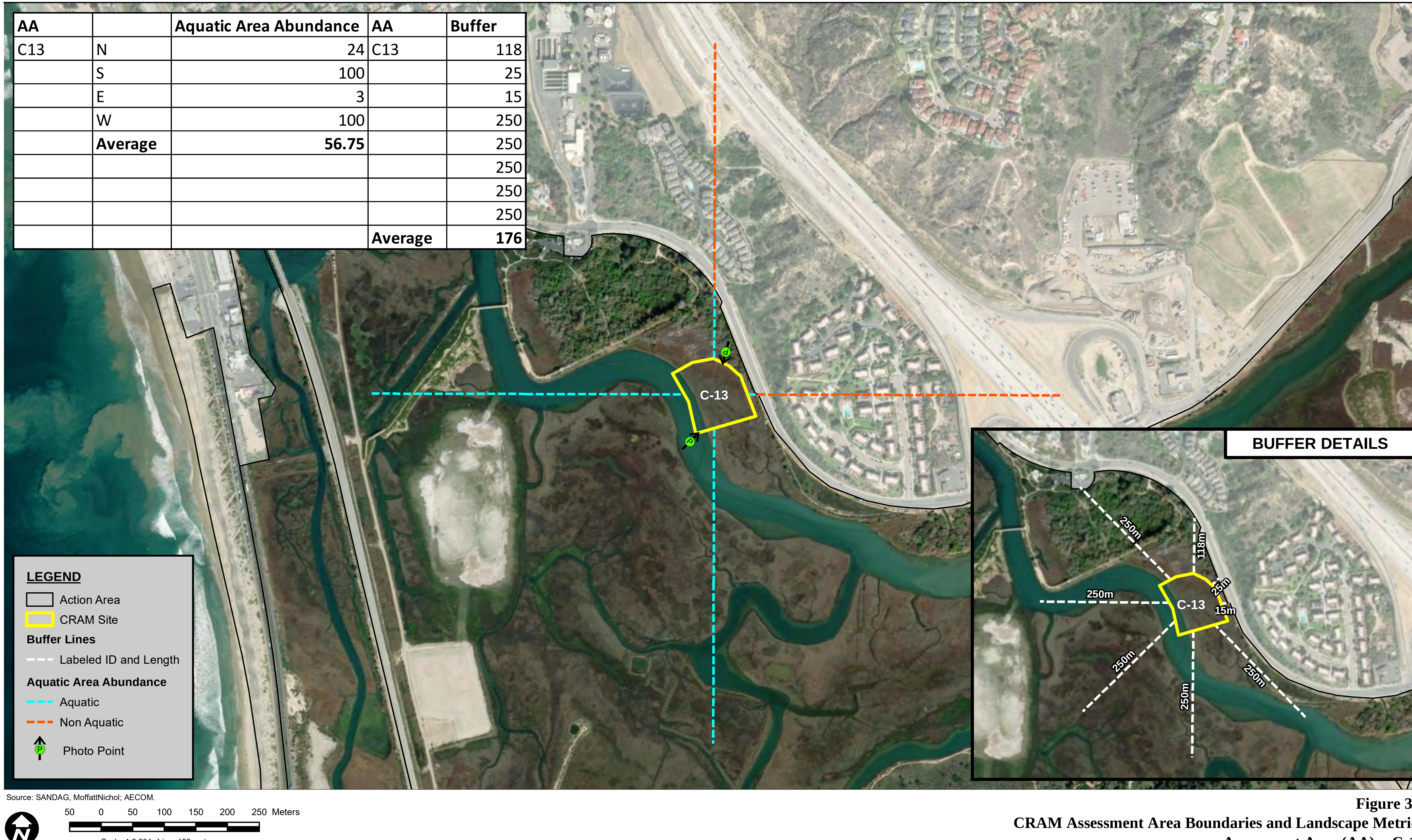


Figure 3.8
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-13

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C13.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C31	N	38	C31	162
	S	12		103
	E	88		162
	W	100		250
	Average	**59.5**		250
				250
				250
				250
			Average	**209.625**

Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.9
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-31

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C31.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C33	N	100	C33	250
	S	56		250
	E	100		250
	W	85		250
	Average	**85.25**		250
				50
				50
				75
			Average	**178.125**

Source: SANDAG, MoffattNichol; AECOM.

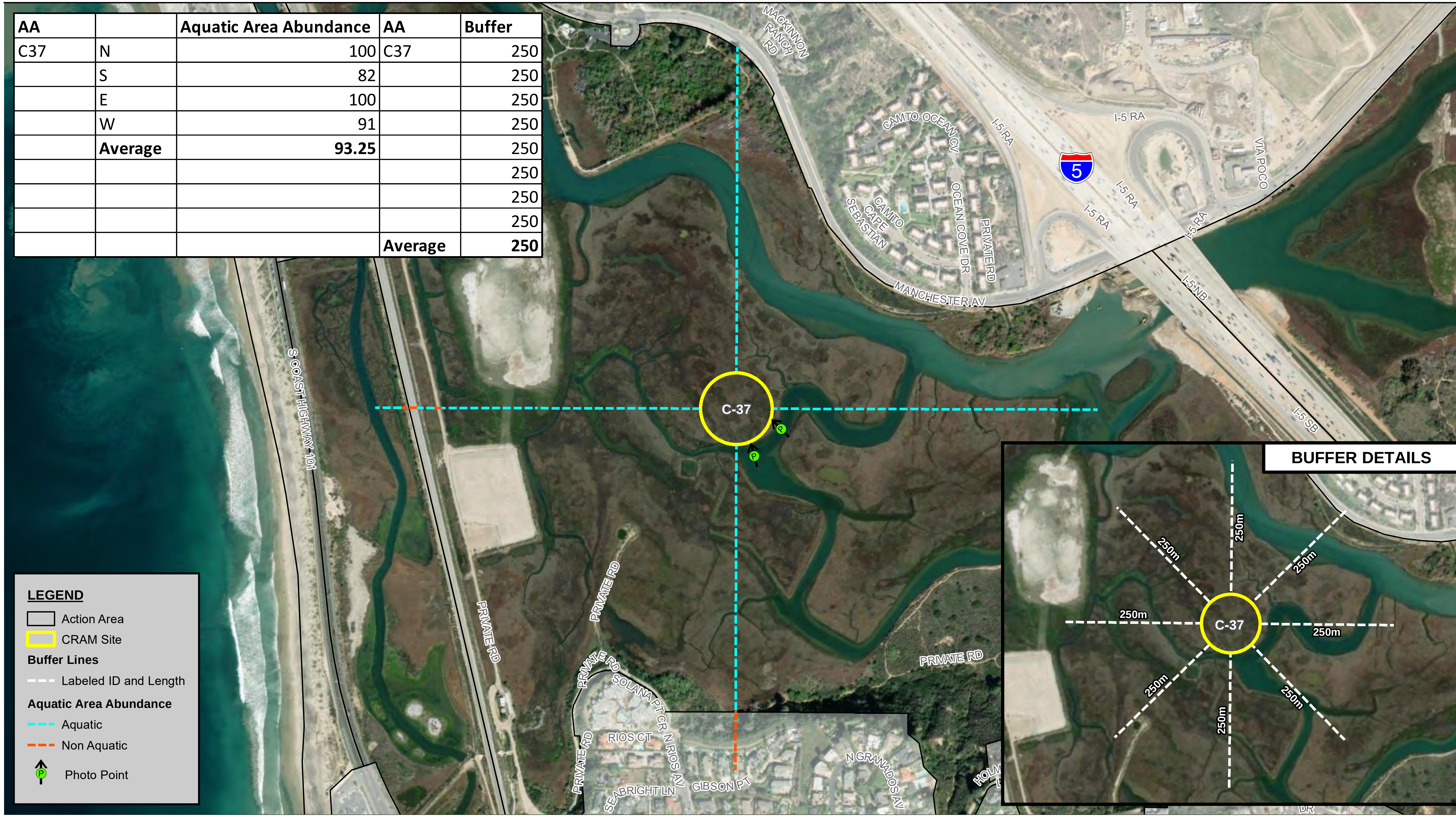
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.10
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-33

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C33.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C37	N	100	C37	250
	S	82		250
	E	100		250
	W	91		250
	Average	**93.25**		250
				250
				250
				250
			Average	**250**



Source: SANDAG, MoffattNichol; AECOM.

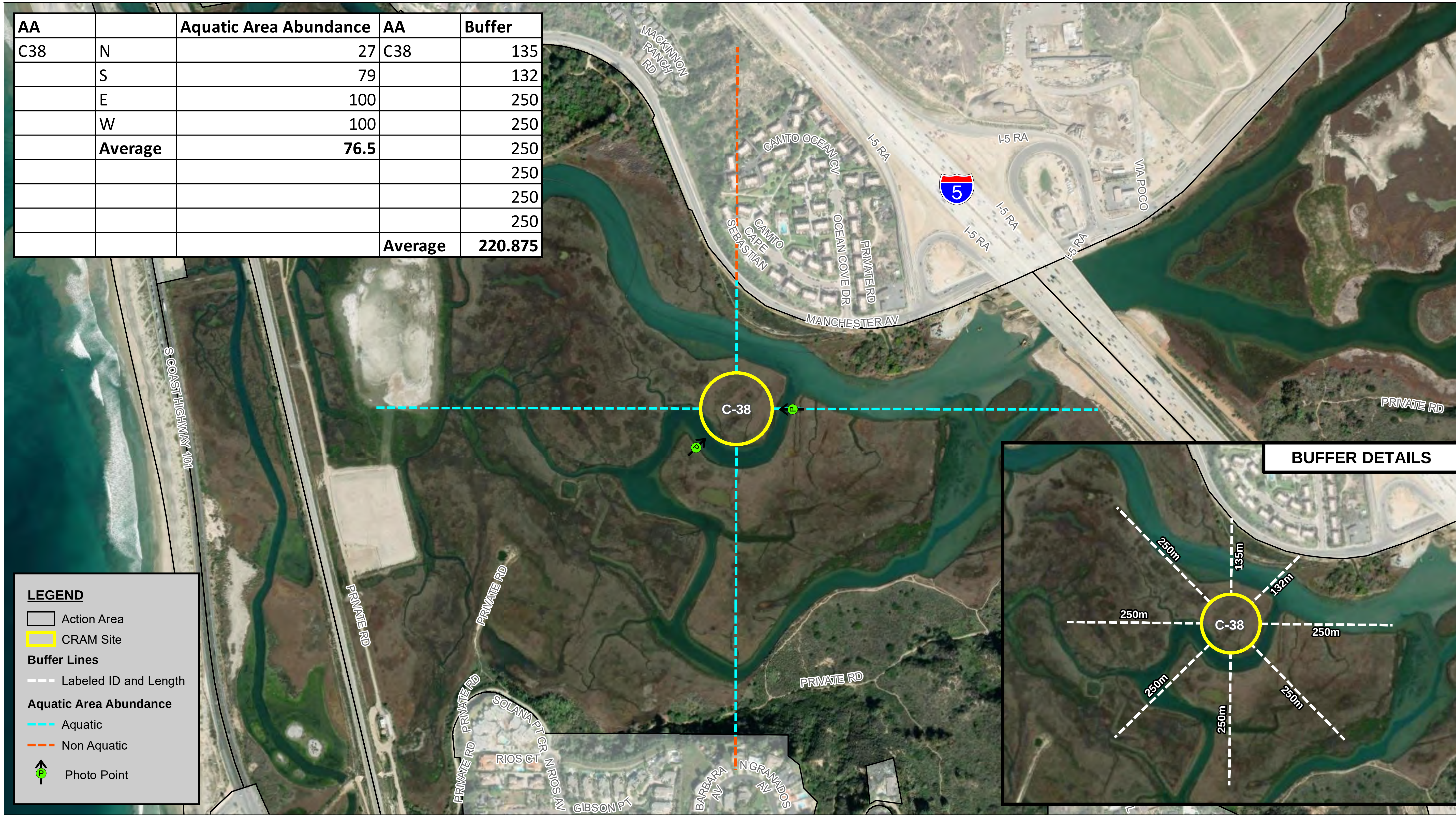
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.11
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-37

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C37.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C38	N	27	C38	135
	S	79		132
	E	100		250
	W	100		250
	Average	**76.5**		250
				250
				250
				250
			Average	**220.875**



Source: SANDAG, MoffattNichol; AECOM.

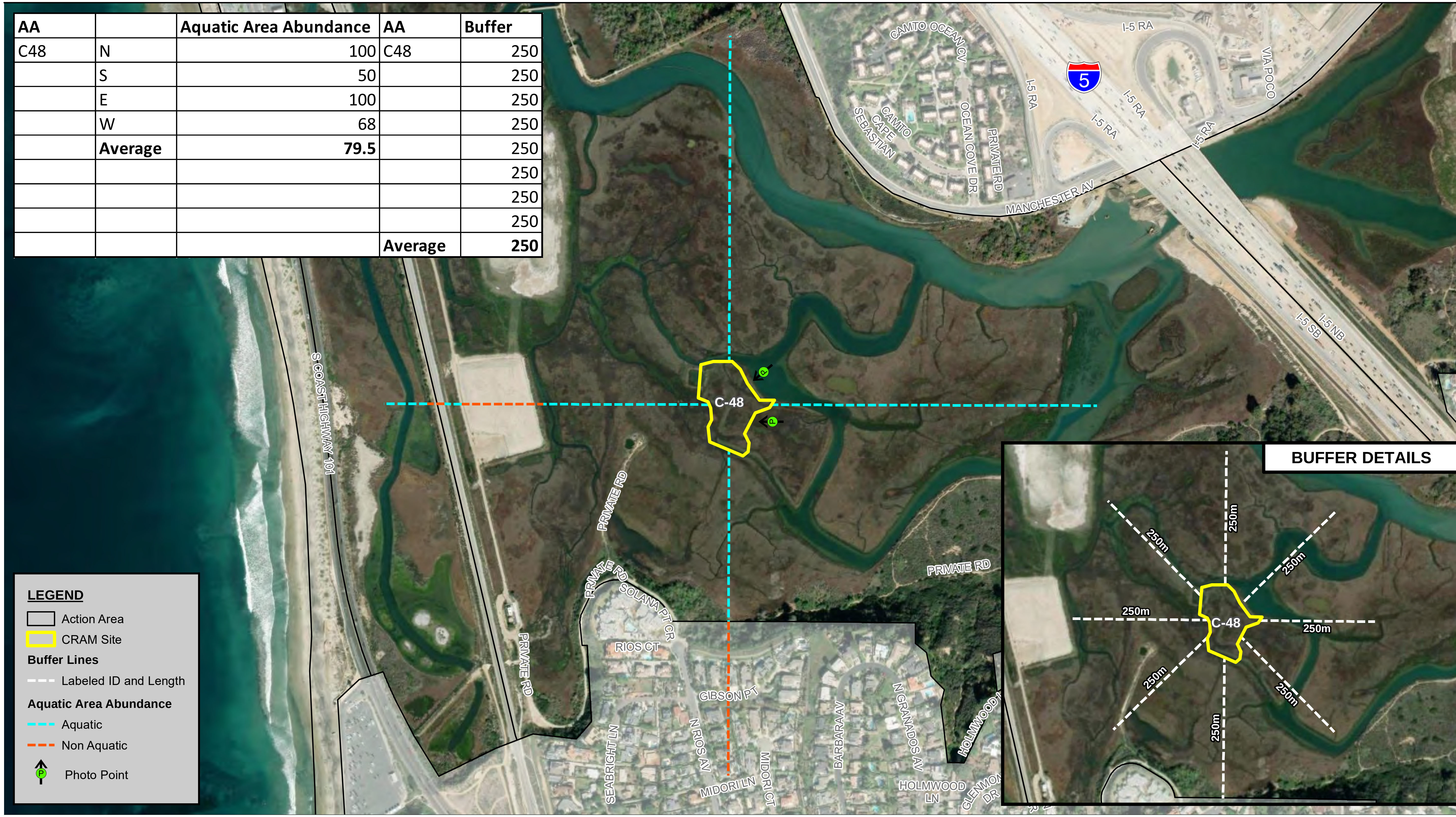
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.12
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-38

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C38.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C48	N	100	C48	250
	S	50		250
	E	100		250
	W	68		250
	Average	**79.5**		250
				250
				250
				250
			Average	**250**



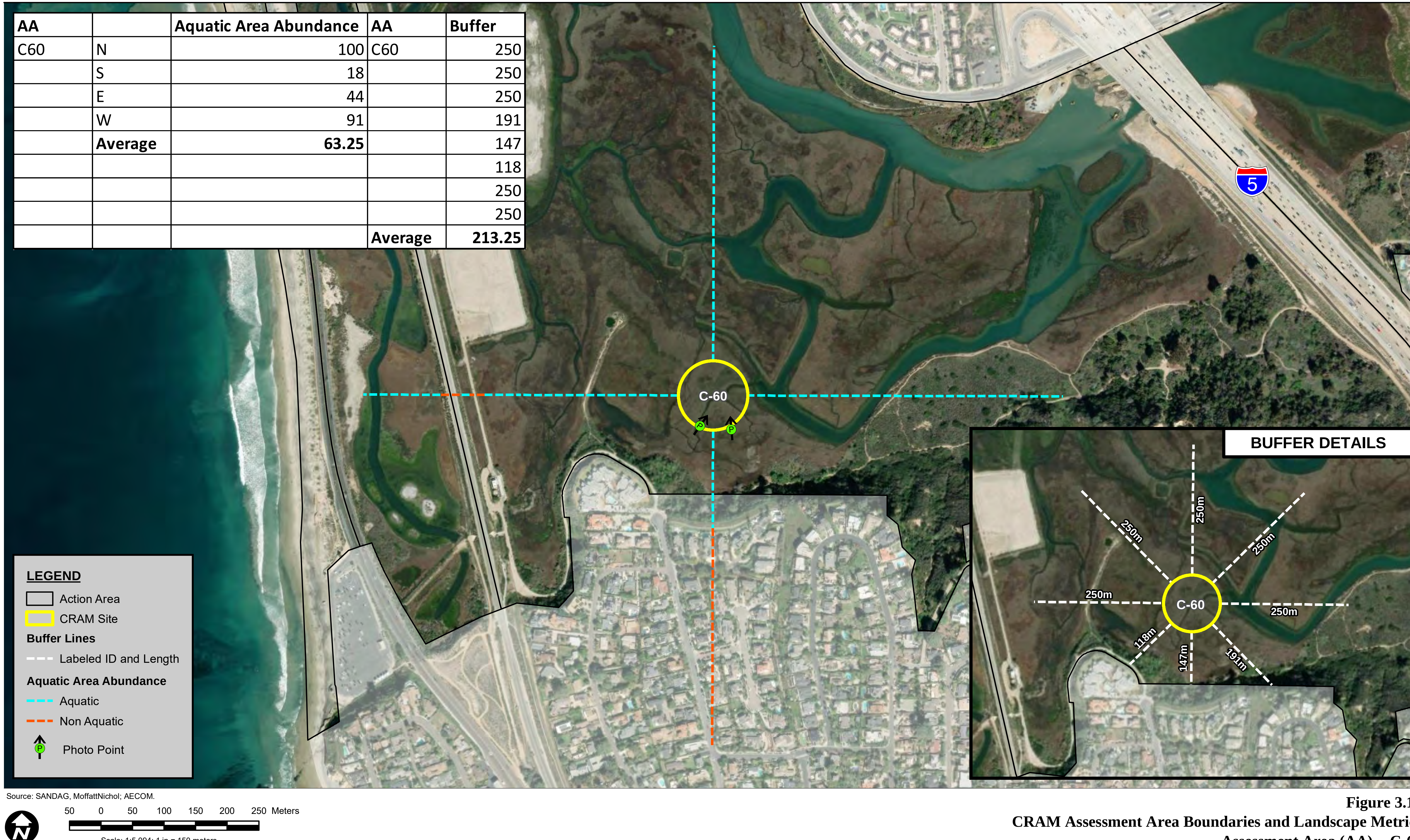
Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.14
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-48

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C48.mxd, 7/13/2022, daniel.arellano



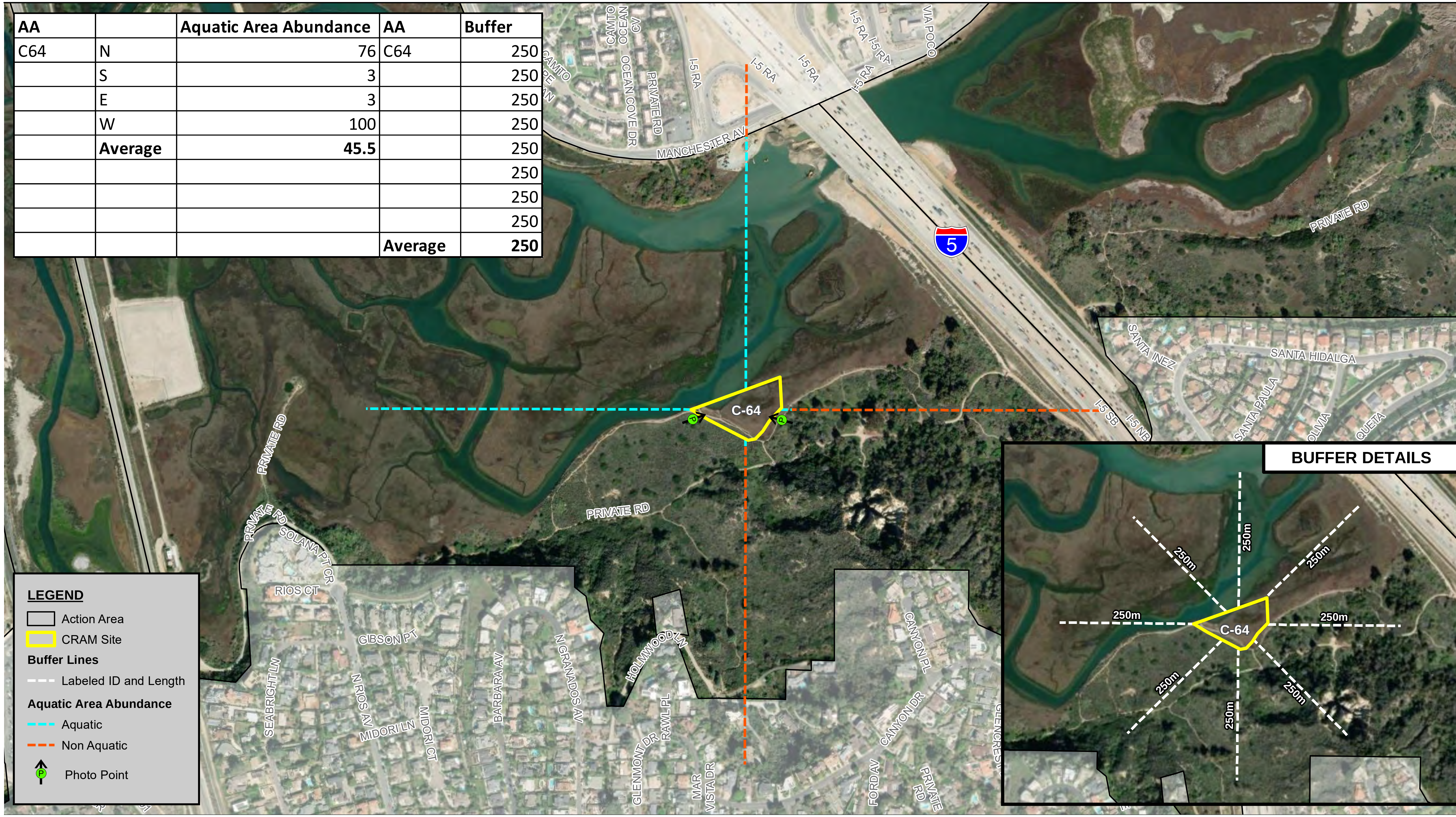
AA		Aquatic Area Abundance	AA	Buffer
C60	N	100	C60	250
	S	18		250
	E	44		250
	W	91		191
	Average	**63.25**		147
				118
				250
				250
			Average	**213.25**

Source: SANDAG, MoffattNichol; AECOM.

Figure 3.14
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-60

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C60.mxd, 7/13/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C64	N	76	C64	250
	S	3		250
	E	3		250
	W	100		250
	Average	**45.5**		250
				250
				250
				250
			Average	**250**



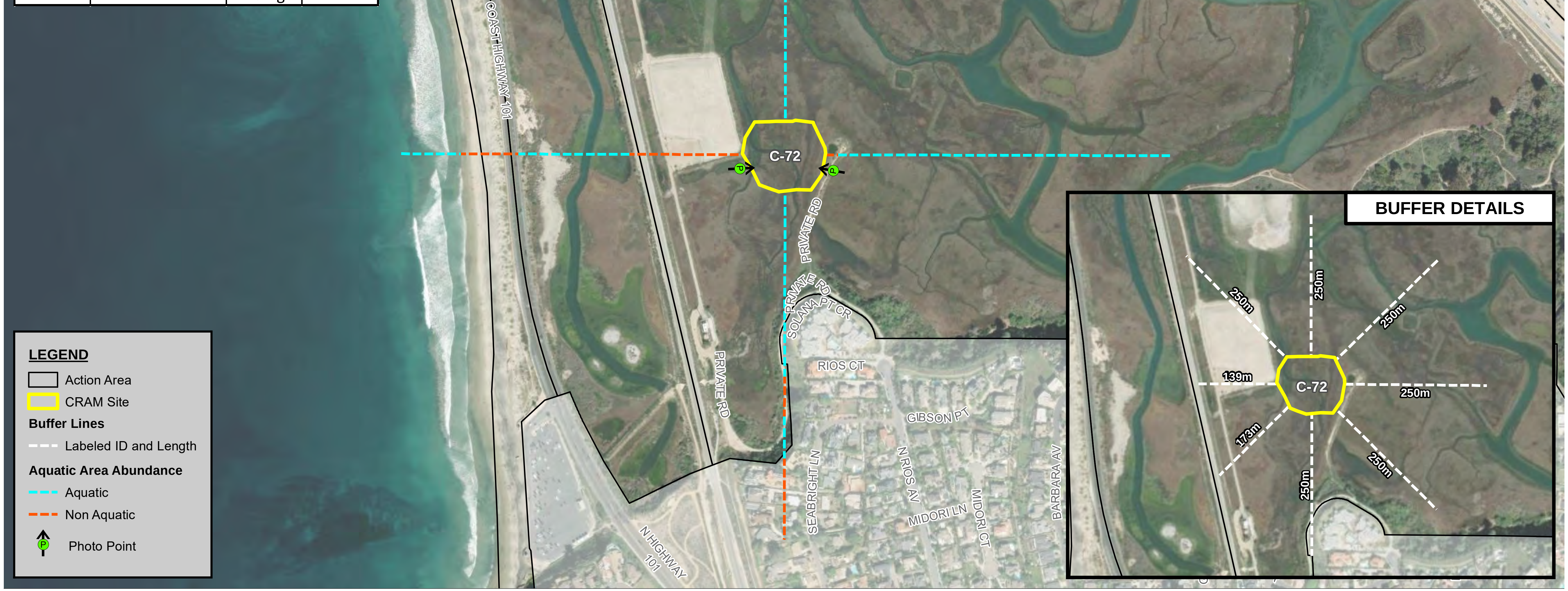
Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.15
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-64

C72	Aquatic Area Abundance		Buffer
N	100	W	139
S	65	NW	250
E	97	N	250
W	47	NE	250
Average	**77**	E	250
		SE	250
		S	250
		SW	173
		Average	**227**



Sources: MoffattNichol (2015-18); AECOM (2018-2021), SanGIS (2018).

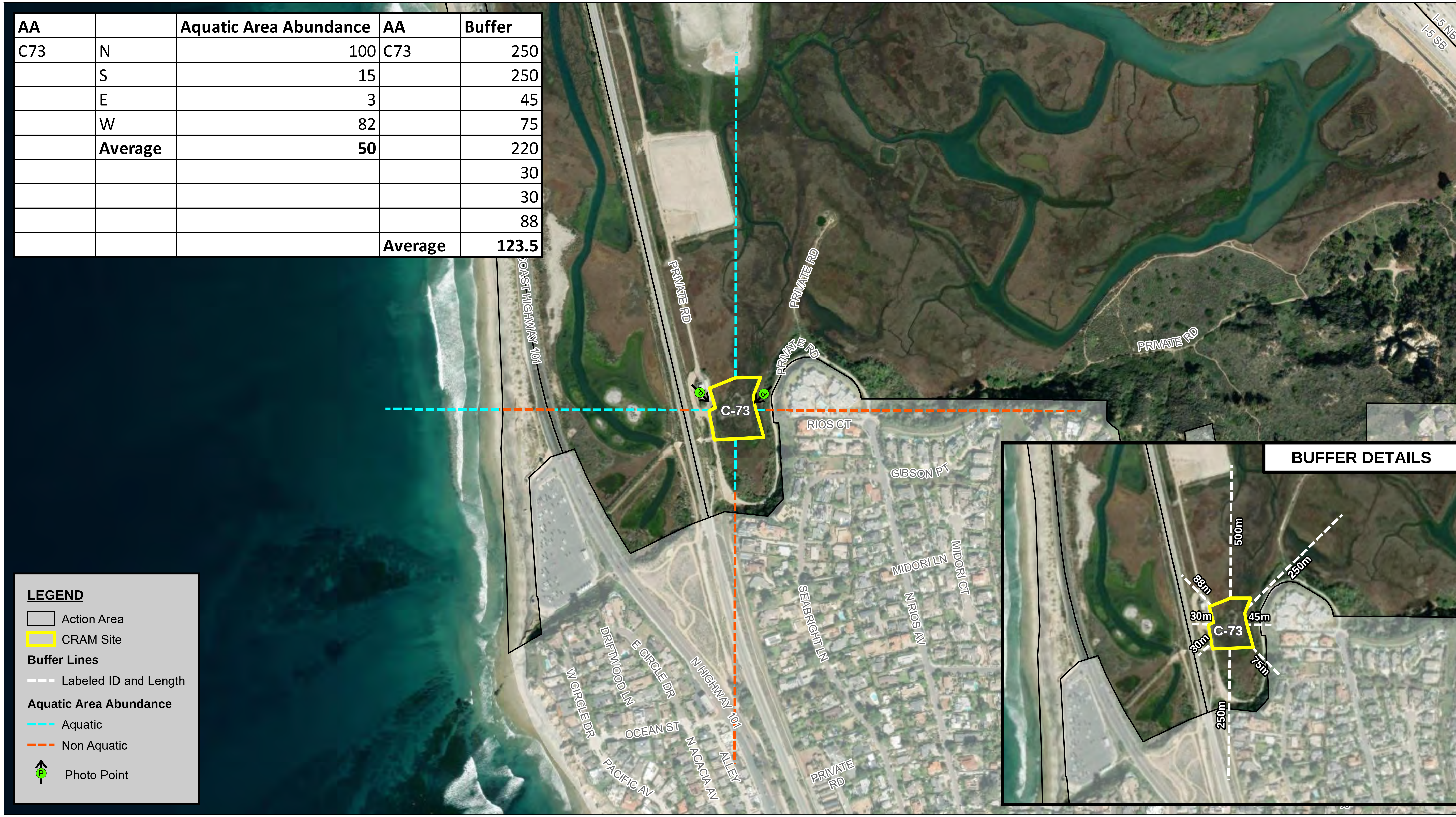
50 0 50 100 150 200 250 Meters

Scale: 1:5,904; 1 in = 150 meters

Figure 3.16
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-72

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C72_2022.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
C73	N	100	C73	250
	S	15		250
	E	3		45
	W	82		75
	Average	**50**		220
				30
				30
				88
			Average	**123.5**



Source: SANDAG, MoffattNichol; AECOM.

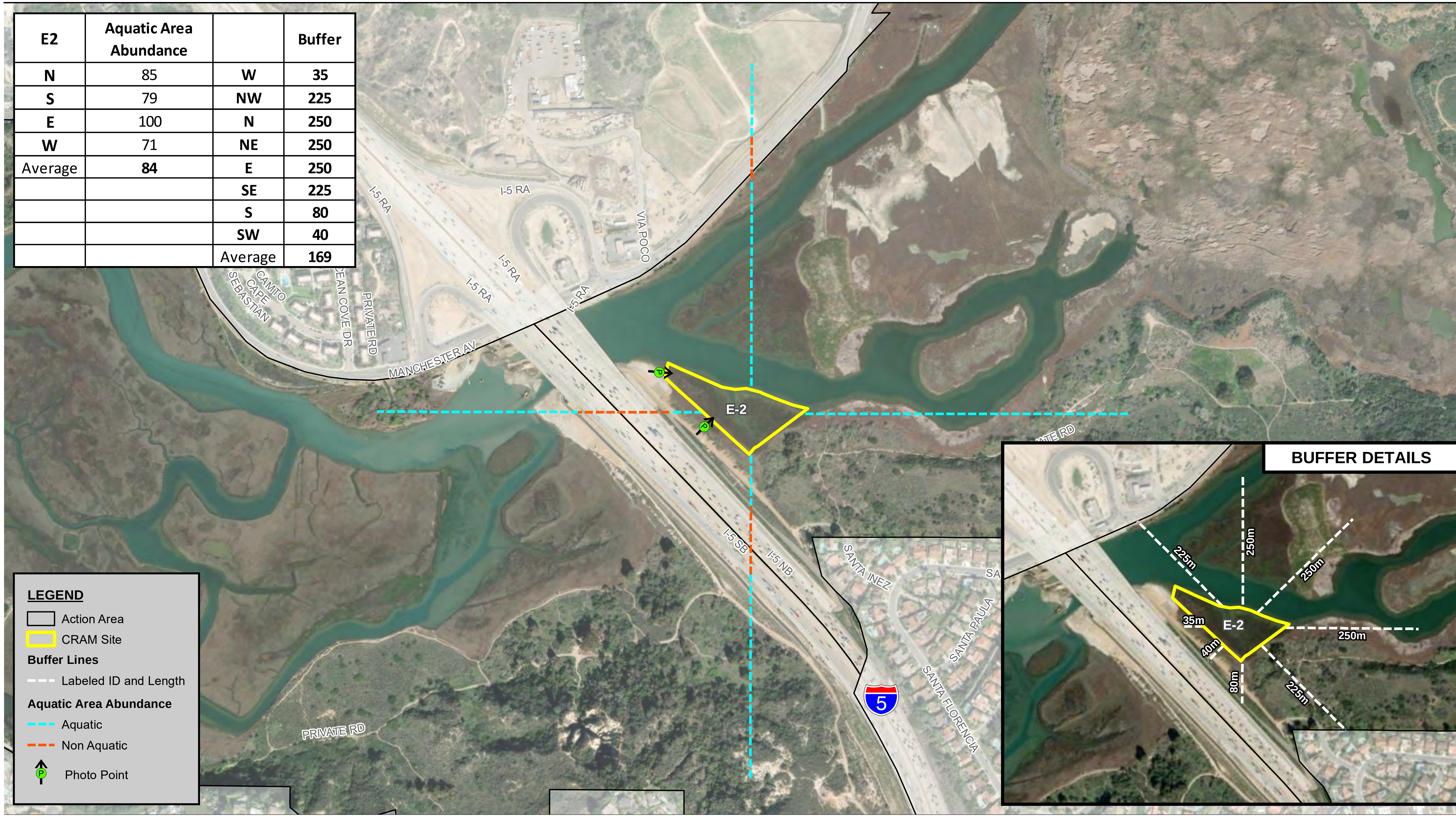
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.17
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - C-73

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_C73.mxd, 7/14/2022, daniel.arellano

E2	Aquatic Area Abundance		Buffer
N	85	W	35
S	79	NW	225
E	100	N	250
W	71	NE	250
Average	84	E	250
		SE	225
		S	80
		SW	40
		Average	169



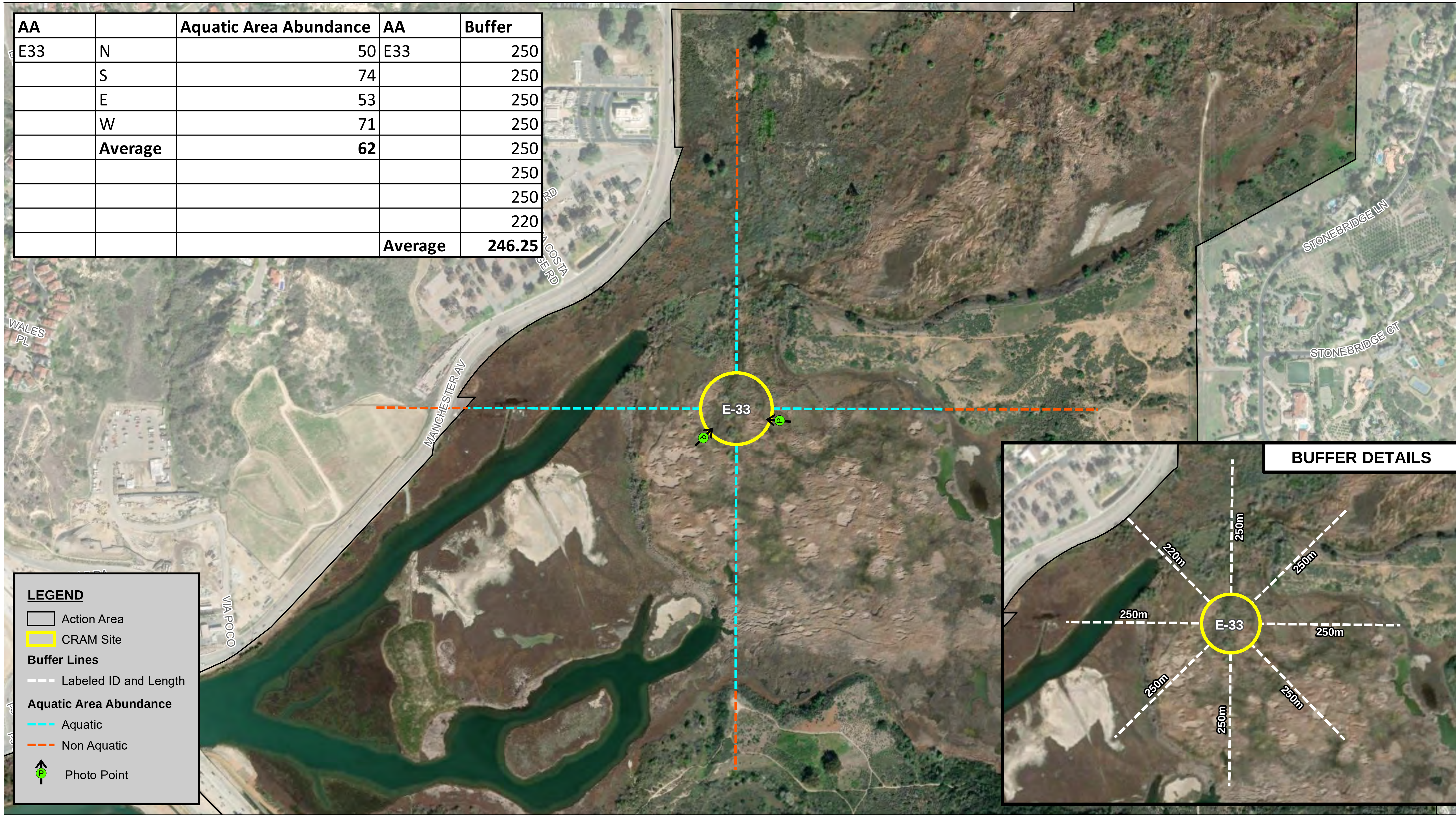
Sources: MoffattNichol (2015-18); AECOM (2018-2021), SanGIS (2018).

50 0 50 100 150 200 250 Meters

Scale: 1:5,904; 1 in = 150 meters

Figure 3.18
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-2

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E2_2022.mxd, 7/14/2022, daniel.arellano



AA		Aquatic Area Abundance	AA	Buffer
E33	N	50	E33	250
	S	74		250
	E	53		250
	W	71		250
	Average	**62**		250
				250
				250
				220
			Average	**246.25**

Source: SANDAG, MoffattNichol; AECOM.

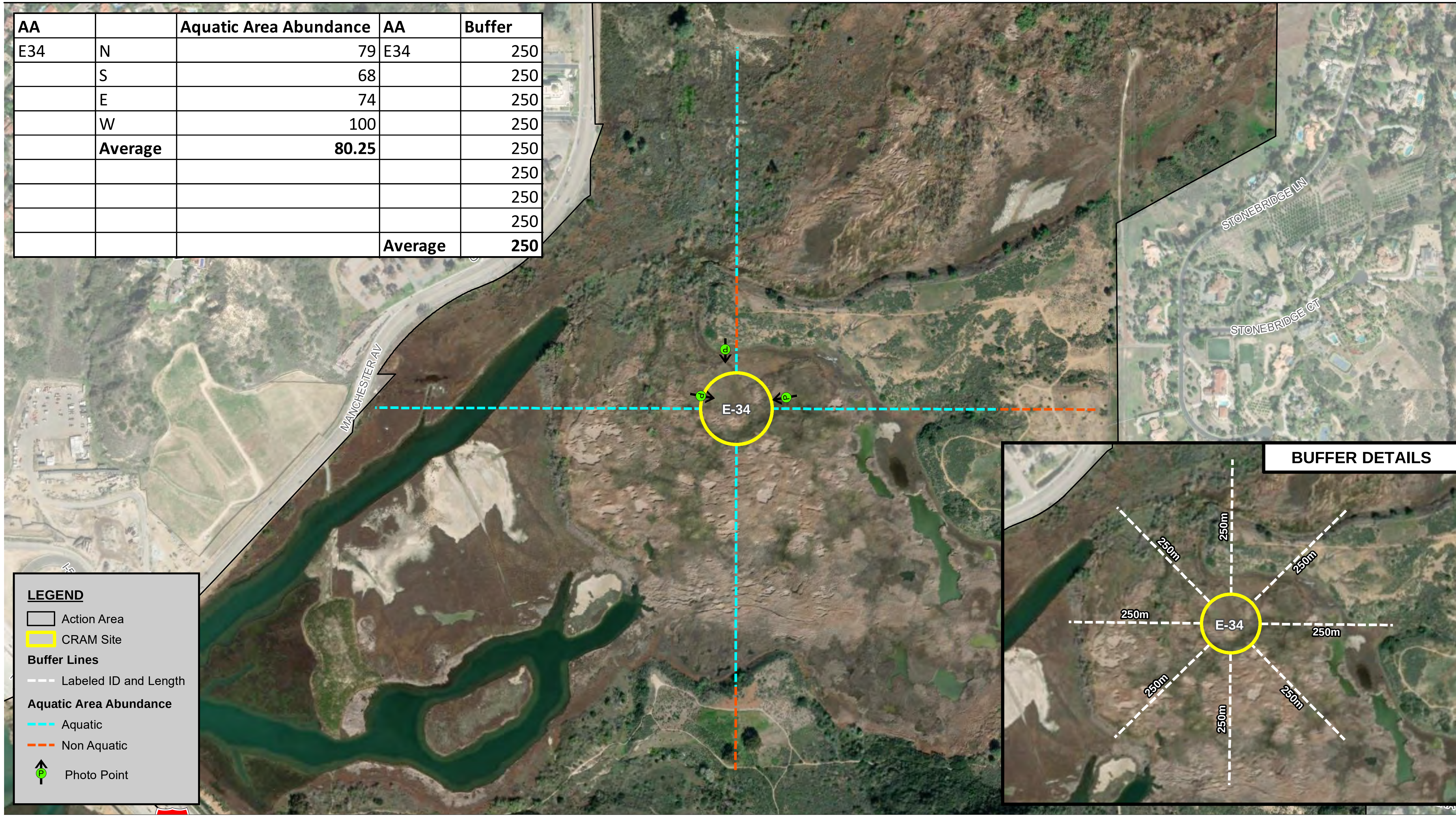
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.19
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-33

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E33.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
E34	N	79	E34	250
	S	68		250
	E	74		250
	W	100		250
	Average	**80.25**		250
				250
				250
				250
			Average	**250**



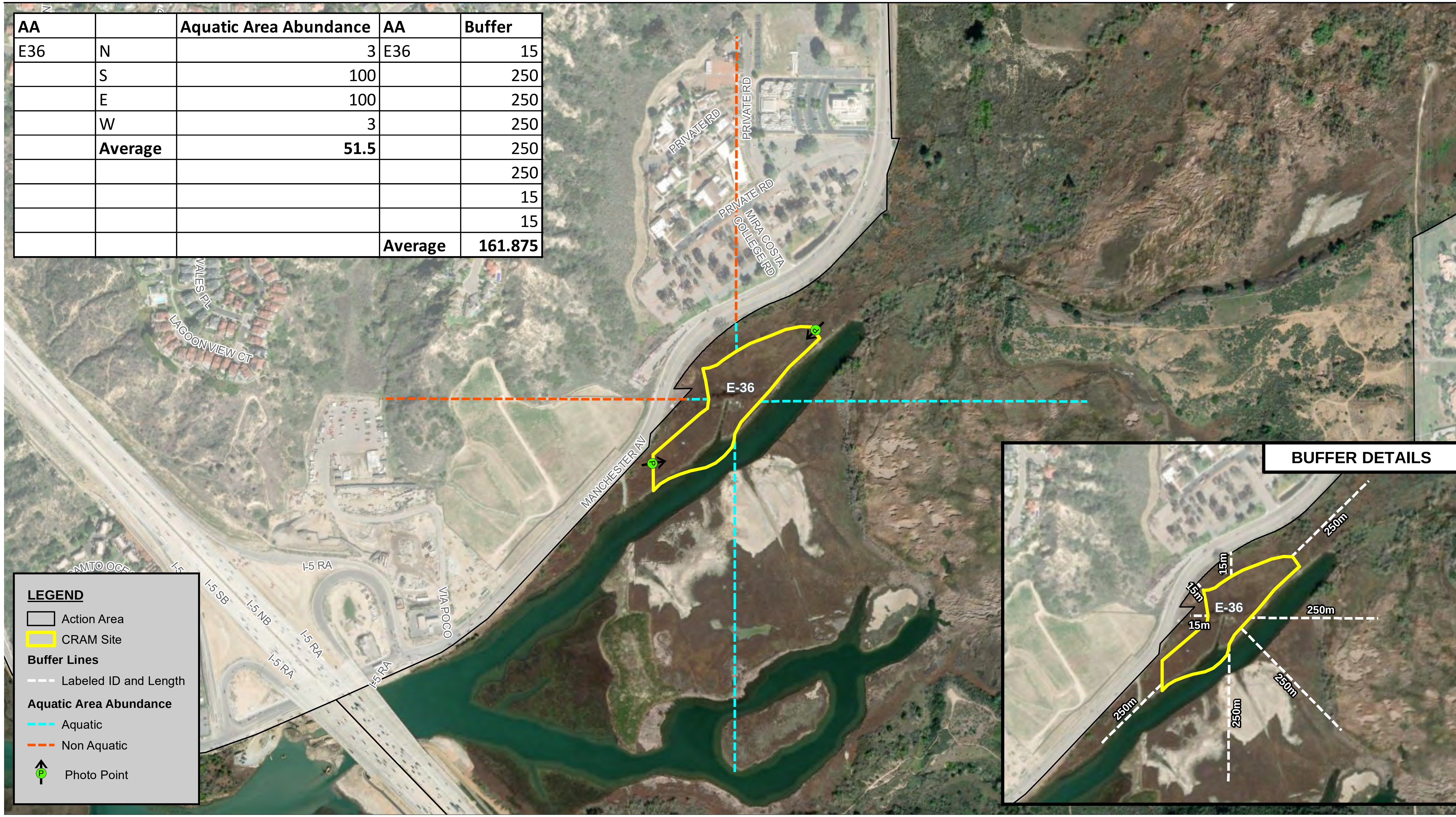
Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.20
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-34

AA		Aquatic Area Abundance	AA	Buffer
E36	N	3	E36	15
	S	100		250
	E	100		250
	W	3		250
	Average	**51.5**		250
				250
				15
				15
			Average	**161.875**



Source: SANDAG, MoffattNichol; AECOM.

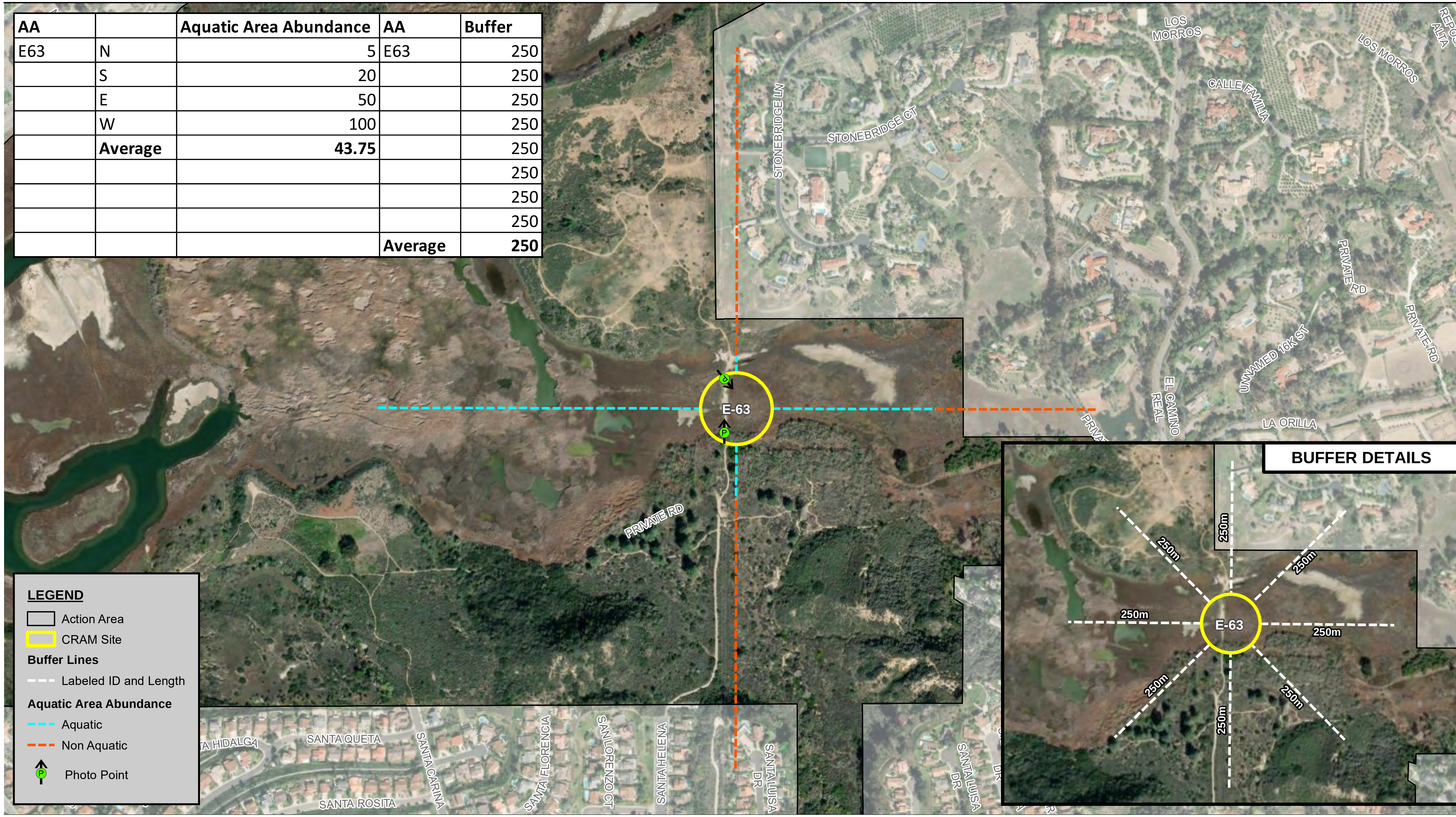
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.21
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-36

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E36.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
E63	N	5	E63	250
	S	20		250
	E	50		250
	W	100		250
	Average	**43.75**		250
				250
				250
				250
			Average	**250**

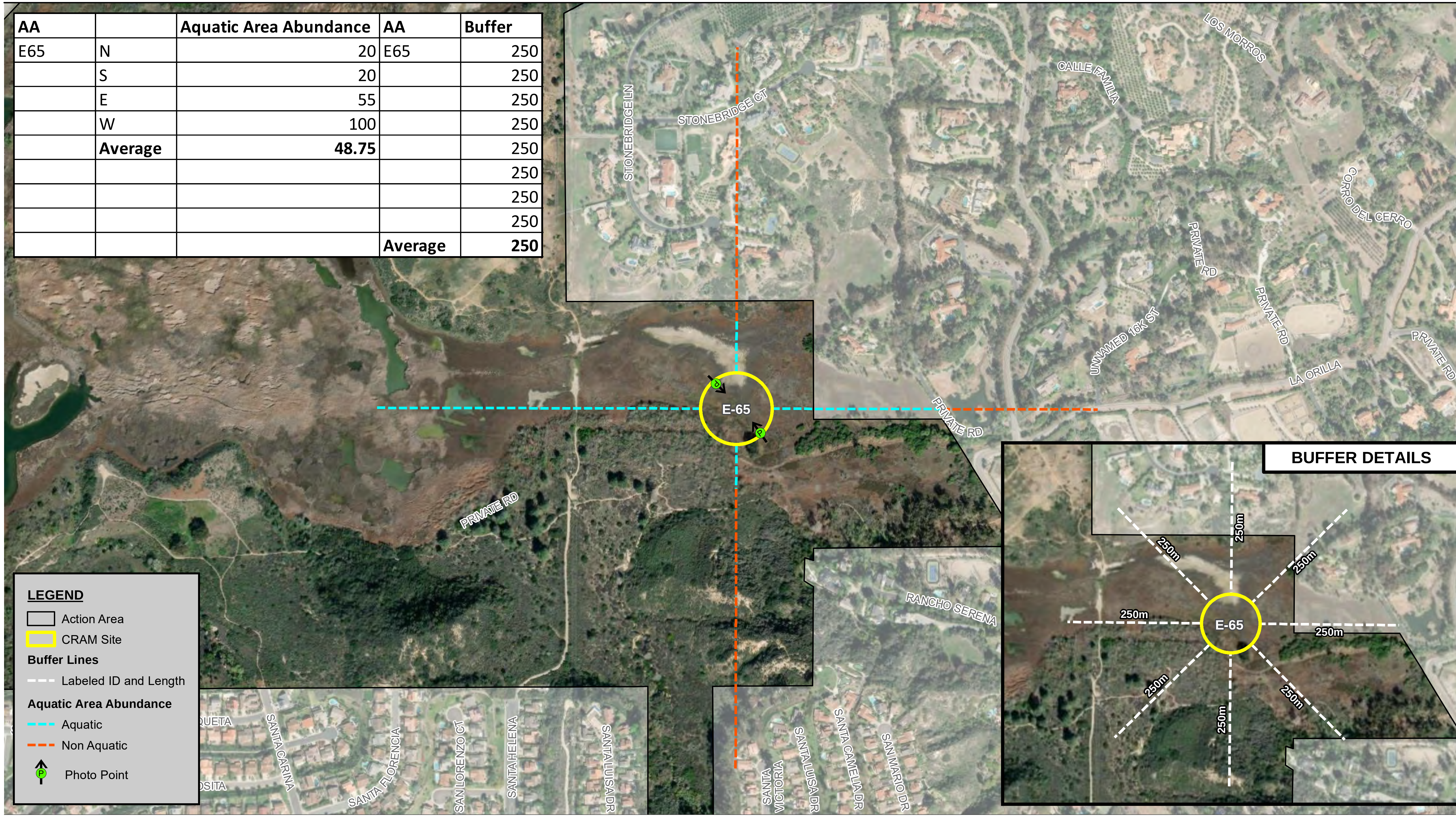


Source: SANDAG, MoffattNichol; AECOM.

Figure 3.22
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-63

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E63.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
E65	N	20	E65	250
	S	20		250
	E	55		250
	W	100		250
	Average	**48.75**		250
				250
				250
				250
			Average	**250**



Source: SANDAG, MoffattNichol; AECOM.

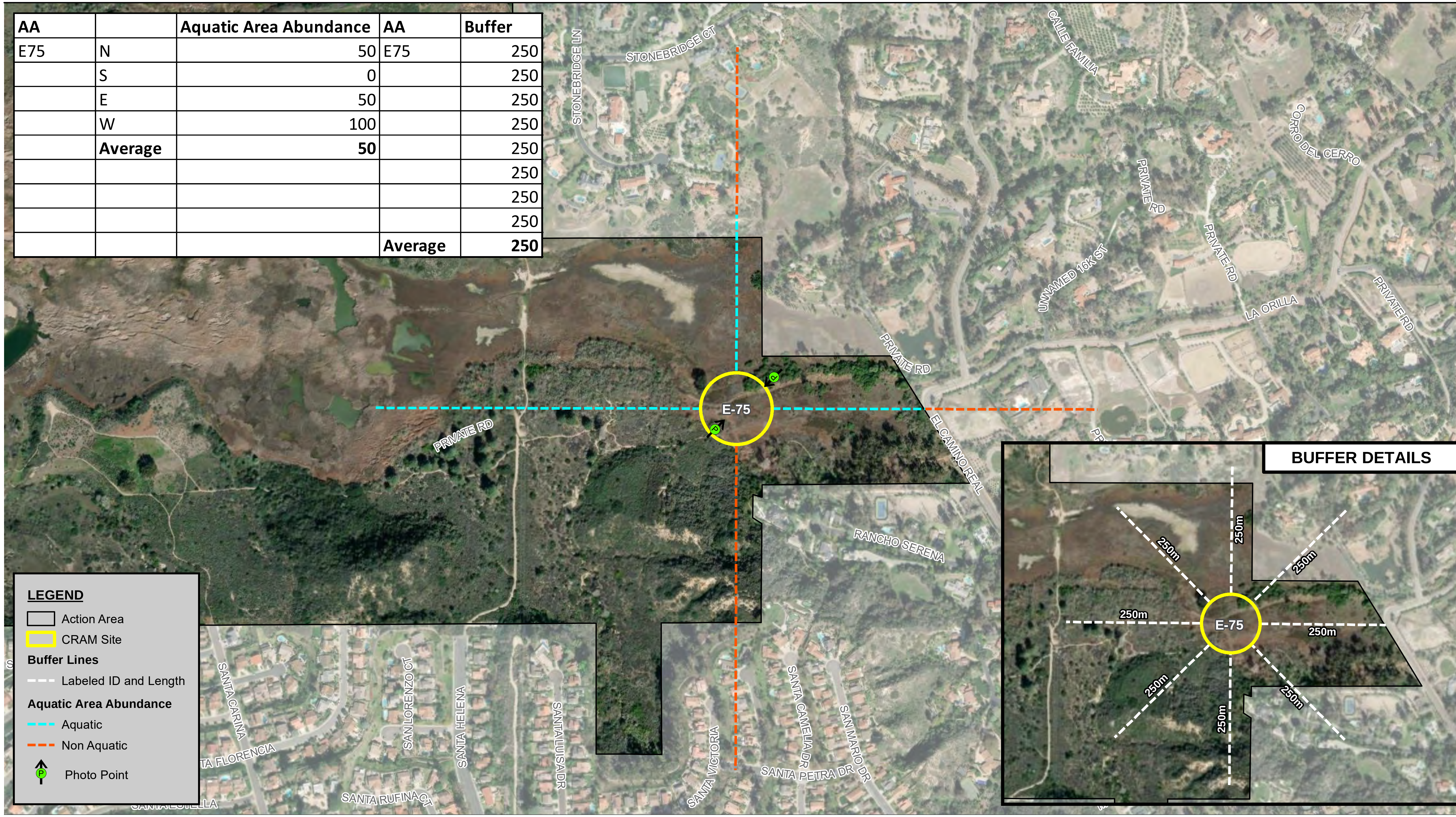
50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.23
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-65

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E65.mxd, 7/14/2022, daniel.arellano

AA		Aquatic Area Abundance	AA	Buffer
E75	N	50	E75	250
	S	0		250
	E	50		250
	W	100		250
	Average	**50**		250
				250
				250
				250
			Average	**250**



Source: SANDAG, MoffattNichol; AECOM.

50 0 50 100 150 200 250 Meters

Scale: 1:5,094; 1 in = 150 meters

Figure 3.24
CRAM Assessment Area Boundaries and Landscape Metrics
Assessment Area (AA) - E-75

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\2009\09080064_SELRP_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM_Field_Map_E75.mxd, 7/14/2022, daniel.arellano

This page intentionally left blank.

2.4 CRAM SCORING

The final CRAM score for each AA is composed of four main attribute scores (buffer and landscape context, hydrology, physical structure, and biotic structure), which are based on the metric and submetric scores (a measurable component of an attribute) (Table 1). The anticipated relationships between the CRAM attributes and metrics, and various ecological services expected from conceptual models of wetland form and function, are presented in Table 2. CRAM practitioners assign a letter rating (A–D) for each metric/submetric based on a defined set of condition brackets ranging from an "A" as the theoretical best case achievable for the wetland class across California, to a "D," the worst case achievable. Each metric/submetric condition level (A–D) has a fixed numerical value (A=12, B=9, C=6, D=3), which, when combined with the other metrics, results in a score for each attribute. That number is then converted to a percentage of the maximum score achievable for each attribute and represents the final attribute score, ranging from 25 to 100%. The final overall CRAM score is the sum of the four final attribute scores, ranging from 25 to 100%.

Table 1
CRAM Attributes and Metrics

<table>
<tr><th colspan="2">Attributes</th><th>Metrics and Submetrics</th></tr>
<tr><td colspan="2" rowspan="5">Buffer and Landscape Context</td><td>Aquatic Area Abundance</td></tr>
<tr><td>Buffer:</td></tr>
<tr><td>– Percent of Assessment Area with Buffer</td></tr>
<tr><td>– Average Buffer Width</td></tr>
<tr><td>– Buffer Condition</td></tr>
<tr><td colspan="2" rowspan="3">Hydrology</td><td>Water Source</td></tr>
<tr><td>Hydroperiod</td></tr>
<tr><td>Hydrologic Connectivity</td></tr>
<tr><td rowspan="8">Structure</td><td rowspan="2">Physical</td><td>Structural Patch Richness</td></tr>
<tr><td>Topographic Complexity</td></tr>
<tr><td rowspan="6">Biotic</td><td>Plant Community Composition:</td></tr>
<tr><td>– Number of Plant Layers</td></tr>
<tr><td>– Number of Codominant Species</td></tr>
<tr><td>– Percent Invasion</td></tr>
<tr><td>Horizontal Interspersion and Zonation</td></tr>
<tr><td>Vertical Biotic Structure</td></tr>
</table>

Table 2
Expected Relationship among CRAM Attributes, Metrics, and Key Services

Attributes		**Buffer and Landscape Context**	**Hydrology**			**Physical Structure**		**Biotic Structure**				
Metrics or Submetrics		Buffer and Landscape Connectivity Metrics	Water Source	Hydroperiod	Hydrologic Connectivity	Structural Patch Richness	Topographic Complexity	Number of Plant Layers	Number of Codominant Species	Percent Invasion	Horizontal Interspersion	Vertical Biotic Structure
KEY SERVICES	Short- or long-term surface water storage	√		√	√	√	√				√	√
	Subsurface water storage		√	√	√		√					
	Moderation of groundwater flow or discharge	√	√									
	Dissipation of energy					√	√	√			√	√
	Cycling of nutrients	√		√	√	√	√	√	√	√		√
	Removal of elements and compounds	√		√	√		√	√			√	
	Retention of particulates			√	√	√	√	√	√		√	
	Export of organic carbon			√	√			√		√	√	√
	Maintenance of plant and animal communities	√		√	√	√	√	√	√	√	√	√

3.0 RESULTS

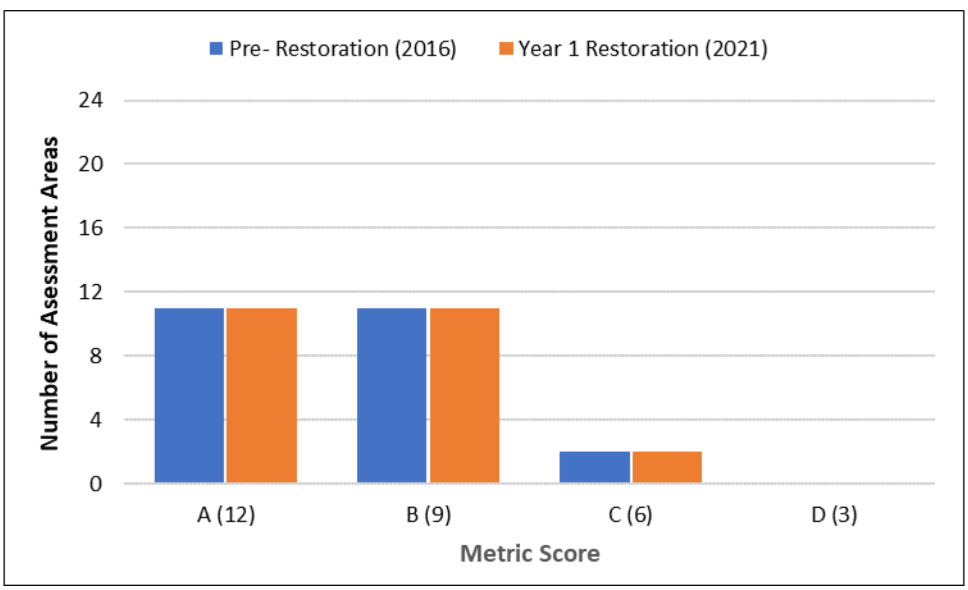
The CRAM scores for current wetland conditions at each AA are provided in Table 3, and CRAM data sheets are provided in Appendix B. Based on the known precision for overall CRAM scores, AAs that differ by more than 11 CRAM points represent a significant difference in condition. Overall CRAM scores in the lagoon ranged from a low of 61 to a high of 92 (Table 3). The highest scoring AA was C48, an estuarine AA in the central basin. The lowest scoring AAs were the estuarine AAs C33 (central basin) and W-4 (west basin) with a 61 and 63 overall score, respectively. Scoring for each metric and submetric is discussed below. Based on the known precision for attribute scores, attribute scores that differ by 6 or more CRAM points represent a significant difference in condition.

3.1 ATTRIBUTE 1: BUFFER AND LANDSCAPE CONTEXT

3.1.1 Metric 1: Aquatic Area Abundance

Aquatic area abundance is assessed in terms of its spatial association with other areas of aquatic resources, such as other wetlands, lakes, streams, etc. Wetlands close to each other have a greater potential to interact ecologically and hydrologically, and interactions are generally beneficial. As observed in the pre-restoration surveys, almost all AAs scored an A or B (Figure 4), indicating a high level of connectivity to nearby aquatic features. This makes sense given the lagoon setting.

Figure 4
Aquatic Area Abundance



3.1.2 Metric 2: Buffer

The buffer is the area adjoining the AA that is in a natural or semi-natural state and currently is not dedicated to anthropogenic uses that would severely detract from its ability to entrap contaminants, discourage entry into the AA by people and non-native predators, or otherwise protect the AA from adjacent stress and disturbance. This metric is composed of three submetrics that assess various elements of the buffer habitat: presence, width, and condition (see below). The scoring for these submetrics is combined with the landscape connectivity metric score (above) in a simple algorithm that results in the overall buffer and landscape attribute score.

Submetric: Percent of Assessment Area with Buffer

This submetric is based on the relationship between the extent of the buffer and the functions the buffer provides to wetland areas. The percentage of buffer surrounding the AA is obtained by calculating the percentage of the area adjoining the AA that is in a natural or semi-natural state and is at least 5 meters wide. This submetric is calculated the same regardless of wetland module used. As observed during the pre-restoration assessments, every AA scored an A (Figure 5), indicating each of the 24 AAs had at least 5 meters of buffer along 75% to 100% of its perimeter.

Figure 5
Percent of AA with Buffer

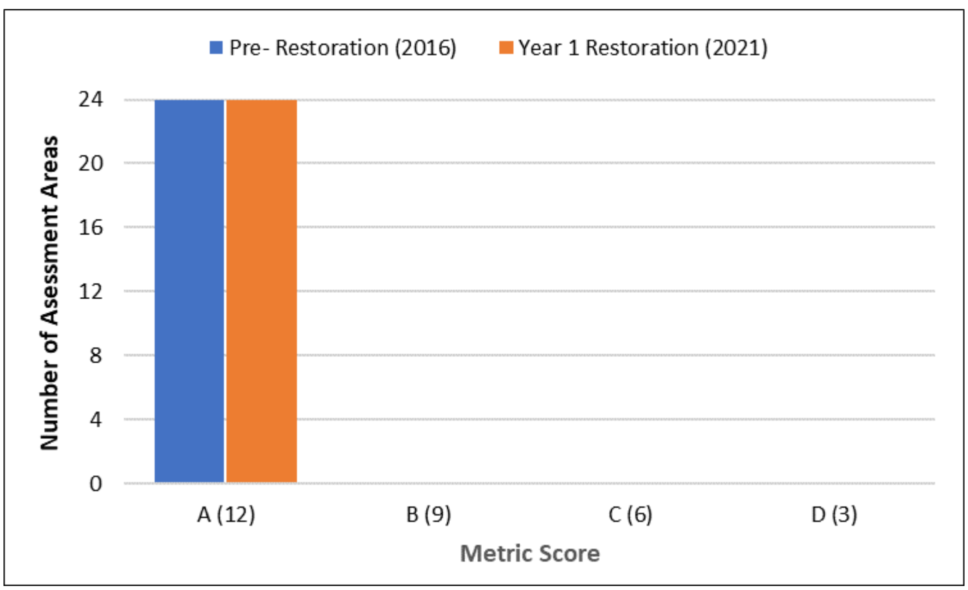


Table 3
CRAM Scores by AA

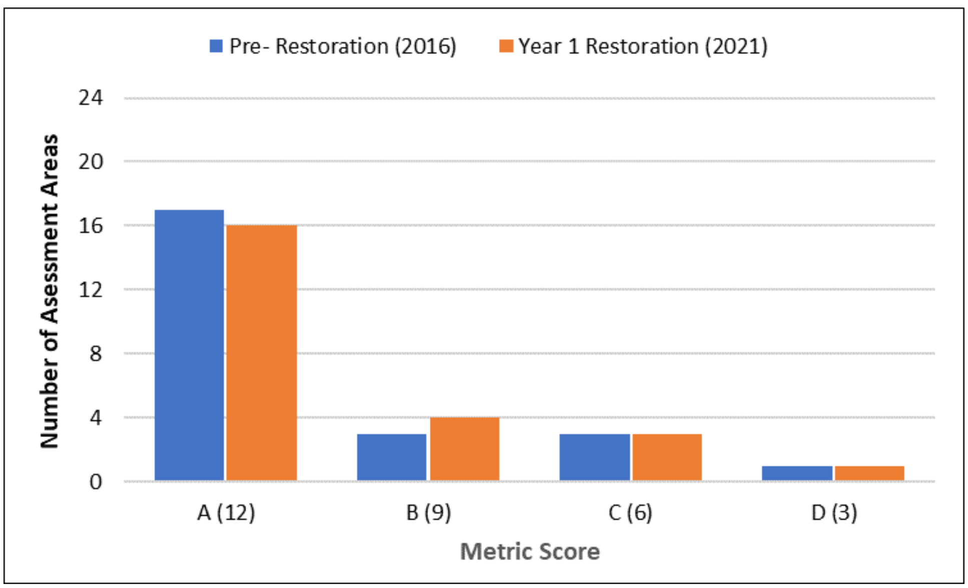
	Wetland Type	Estuarine																			Depressional				
Attribute	**AA Name**	**W1**	**W4**	**W5**	**C4**	**C6**	**C8**	**C12**	**C13**	**C31**	**C33**	**C37**	**C38**	**C48**	**C60**	**C64**	**C72**	**C73**	**E2**	**E36**	**E33**	**E34**	**E63**	**E65**	**E75**
Buffer & Landscape Connectivity	Aquatic Area Abundance	9	12	12	9	12	9	9	9	9	12	12	12	12	9	6	9	6	9	9	12	12	9	12	12
	% AA with Buffer	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Average Buffer Width	3	6	6	9	12	12	12	9	12	9	12	12	12	12	12	12	6	12	9	12	12	12	12	12
	Buffer Condition	9	12	12	12	12	12	12	12	9	9	12	12	12	12	12	12	6	9	12	12	12	9	9	9
	Attribute Score Raw	16	22	22	20	24	21	21	20	19	22	24	24	24	21	18	21	13	19	20	24	24	19	22	22
	Attribute Score Final	**67**	**92**	**92**	**84**	**100**	**88**	**88**	**84**	**80**	**92**	**100**	**100**	**100**	**88**	**75**	**88**	**55**	**80**	**84**	**100**	**100**	**80**	**92**	**92**
Hydrology	Water Source	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Hydroperiod/Channel Stability	12	9	12	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	6	12	12	12	12	12
	Hydrologic Connectivity	3	3	3	6	9	6	9	9	6	6	9	9	9	9	6	6	6	6	6	9	9	12	12	12
	Attribute Score Raw	21	18	21	21	24	21	24	24	21	21	24	24	24	24	21	21	21	18	18	27	27	30	30	30
	Attribute Score Final	**59**	**50**	**59**	**59**	**67**	**59**	**67**	**67**	**59**	**59**	**67**	**67**	**67**	**67**	**59**	**59**	**59**	**50**	**50**	**75**	**75**	**84**	**84**	**84**
Physical Structure	Structural Patch Richness	12	6	6	9	6	9	6	9	12	9	9	6	12	9	9	12	12	9	6	6	3	3	6	3
	Topographic Complexity	12	3	9	9	3	6	3	9	12	3	6	6	12	12	9	9	9	6	9	6	6	6	6	6
	Attribute Score Raw	24	9	15	18	9	15	9	18	24	12	15	12	24	21	18	21	21	15	15	12	9	9	12	9
	Attribute Score Final	**100**	**38**	**63**	**75**	**38**	**63**	**38**	**75**	**100**	**50**	**63**	**50**	**100**	**88**	**75**	**88**	**88**	**63**	**63**	**50**	**38**	**38**	**50**	**38**
Biotic Structure	Number of Plant Layers	9	9	9	9	9	9	9	9	12	9	9	9	12	9	9	9	9	6	9	12	9	12	12	12
	Number of Co-dominant Species	6	9	12	9	12	6	9	12	6	6	6	6	9	9	9	6	12	3	9	6	6	6	6	9
	Percent Invasion	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	3	12	12	12
	Plant Community Metric	9	10	11	10	11	9	10	11	10	9	9	9	11	10	10	9	11	7	10	9	6	10	10	11
	Horizontal Interspersion & Zonation	9	3	6	3	6	3	9	6	9	3	9	6	12	6	9	9	9	3	6	6	6	9	9	12
	Vertical Biotic Structure	12	12	12	3	3	9	9	12	9	3	9	9	12	9	9	6	9	12	12	12	12	9	6	6
	Attribute Score Raw	30	25	29	16	20	21	28	29	28	15	27	24	35	25	28	24	29	22	28	27	24	28	25	29
	Attribute Score Final	**84**	**70**	**81**	**45**	**56**	**59**	**78**	**81**	**78**	**42**	**75**	**67**	**98**	**70**	**78**	**67**	**81**	**62**	**78**	**75**	**67**	**78**	**70**	**81**
	OVERALL AA SCORE:	**78**	**63**	**74**	**66**	**66**	**68**	**68**	**77**	**80**	**61**	**77**	**71**	**92**	**79**	**72**	**76**	**71**	**64**	**69**	**75**	**70**	**70**	**74**	**74**

This page intentionally left blank.

Submetric: Average Buffer Width

The average width of contiguous buffer adjoining the AA is estimated, with a maximum width of 250 meters. This submetric is assessed using straight lines extending out from the AA boundary at regular intervals. The lines are placed in the area already determined to be buffer habitat and are extended from the AA boundary until they hit non-buffer land cover (urban development, parking, large road, etc.) or until they reach the maximum evaluation length of 250 meters. The number of lines and the direction of those lines vary by wetland module used, but the general approach is the same. As observed during the pre-restoration assessments, most AAs scored an A for this submetric (Figure 6), indicating that the average buffer width around these AAs was between 190 and 250 meters. Except for those AAs near the edge of the lagoon or transportation infrastructure, most of the AAs have a large expanse of quality buffer habitat surrounding them.

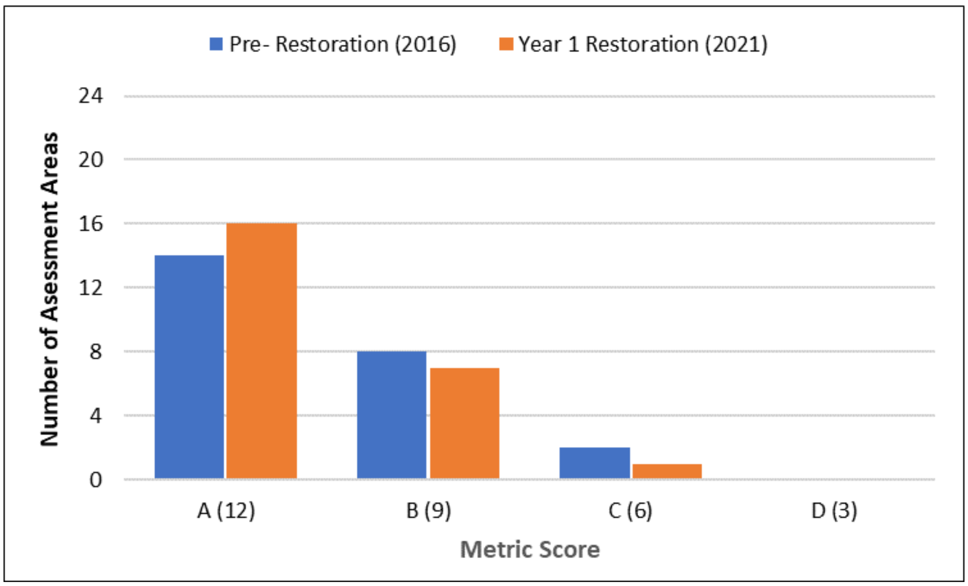
Figure 6
Average Buffer Width



Submetric: Buffer Condition

The condition of the buffer area is determined by the quality of its vegetation cover (native versus non-native species), the overall condition of its substrate (disturbed or undisturbed soils), and intensity of human use. This submetric is scored the same regardless of wetland module used. As observed during pre-restoration assessments, most AAs scored an A or B (Figure 7), with more AAs scoring A during Year 1 assessments. These results indicate that the buffer area surrounding the AAs is characterized by native or intermediate mix of native and non-native vegetation, mostly undisturbed soils, with little or low impact human visitation. As with buffer width, these scores are reasonable and characteristic for wetlands occurring in the lagoon.

Figure 7
Buffer Condition

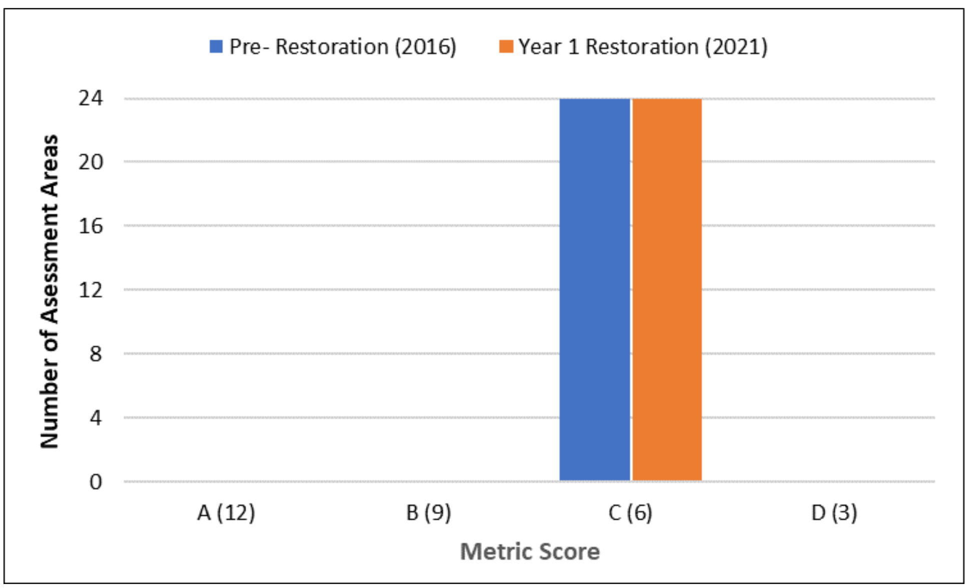


3.2 ATTRIBUTE 2: HYDROLOGY

3.2.1 Metric 1: Water Source

Water sources directly affect the extent, duration, and frequency of the hydrological dynamics within an AA. This metric is assessed based on water sources that enter the AA and their overall effect on the dry-season hydrology of the AA. This metric looks at both artificial inputs (urban runoff) and diversions (dams and drop structures). This metric is scored the same regardless of wetland module used. Mirroring pre-restoration assessment results, every AA scored a C for this metric during Year 1 restoration assessments (Figure 8) because freshwater sources that affect the dry-season condition of the AAs are primarily unnatural, as they are dominated by urban runoff. Much of the immediate drainage basin (2 kilometers upstream) of each AA consists of residential development and commercial lands, although open space areas occur as well. The developed lands contribute urban freshwater to the AAs throughout the year, including during the dry season.

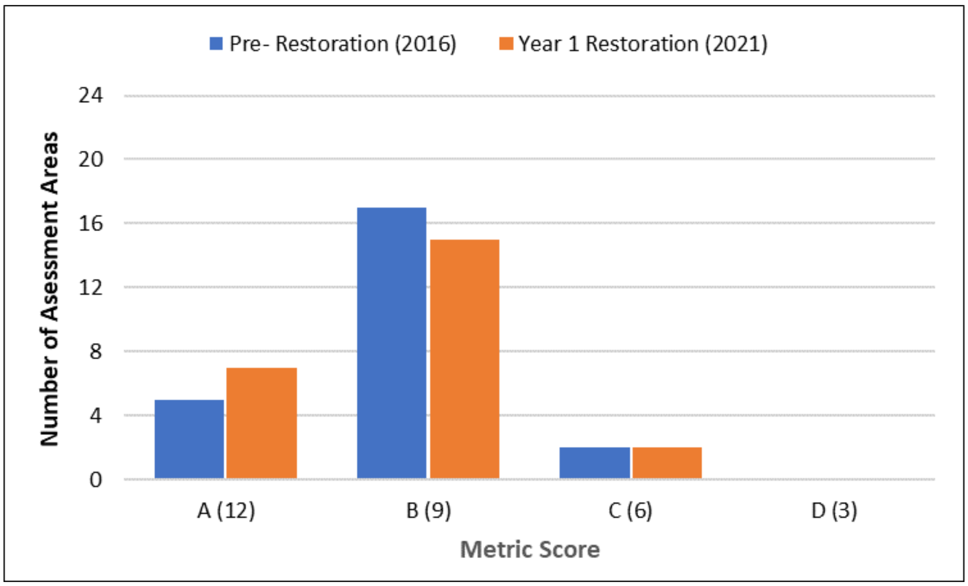
Figure 8
Water Source



3.2.2 Metric 2: Hydroperiod

Hydroperiod is the characteristic frequency and duration of inundation or saturation of a wetland during a typical year. Similar to pre-restoration assessment results, most AAs scored a B for this metric (Figure 9); however, more AAs scored A during Year 1 assessments. This indicates that there are some artificial (usually human-caused) alterations to inundation and tidal prisms, but they are not severe. The lagoon does have tidal muting but is still exposed to two daily minima and maxima.

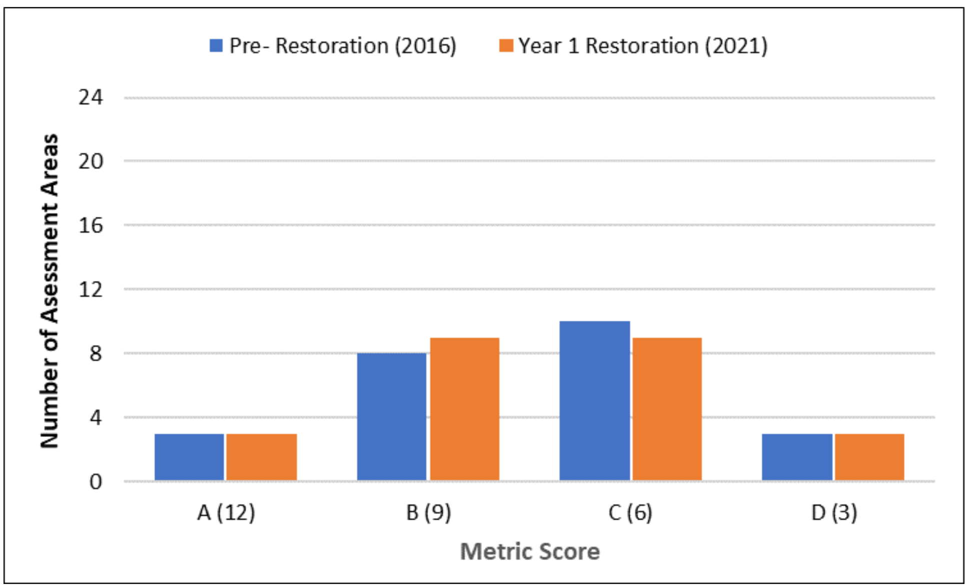
Figure 9
Hydroperiod



3.2.3 Metric 3: Hydrologic Connectivity

Hydrologic connectivity describes the ability of water to flow into or out of the wetland, or to accommodate rising floodwaters without dramatic changes in water level that can result in stress to wetland plants and animals. This metric is scored by assessing the degree to which the lateral movement of rising tides or flood waters is restricted by unnatural features in the AA, its encompassing wetland, or the associated upland transition zone. As observed during pre-restoration assessments, most AAs scored a B or C for this metric (Figure 10), indicating that there are unnatural features such as steep banks, levees, roadgrades, etc. that restrict the lateral movement of flood waters within 500 meters of the AA.

Figure 10
Hydrologic Connectivity

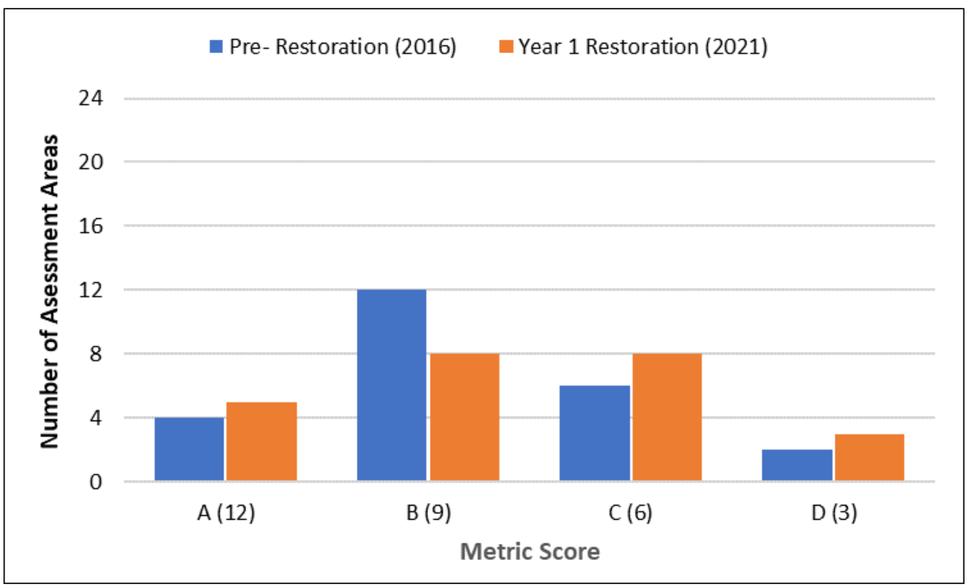


3.3 ATTRIBUTE 3: PHYSICAL STRUCTURE

3.3.1 Metric 1: Structural Patch Richness

Patch richness is the number of different, obvious types of physical surfaces or features (i.e., patch types) that may provide habitat for aquatic, wetland, or riparian species. Each wetland type has different patch types that could be present, differences in total number of patches possible, and different "bins" for scoring. Patch types include features such as wrackline or organic debris, animal mounds, secondary channels, soil cracks, and submerged vegetation. The patch types and definitions for each wetland type can be found in the CRAM User's Manual and field books (CWMW 2013a, 2013b, 2013c). Most AAs scored a B or C for this metric (between three and eight patches were found at most AAs; Figure 11) during Year 1 restoration, matching the pattern observed during pre-restoration surveys; however, four more AAs scored a B during pre-restoration than during year 1. The expectation is for this metric's scores to get higher as restoration progresses.

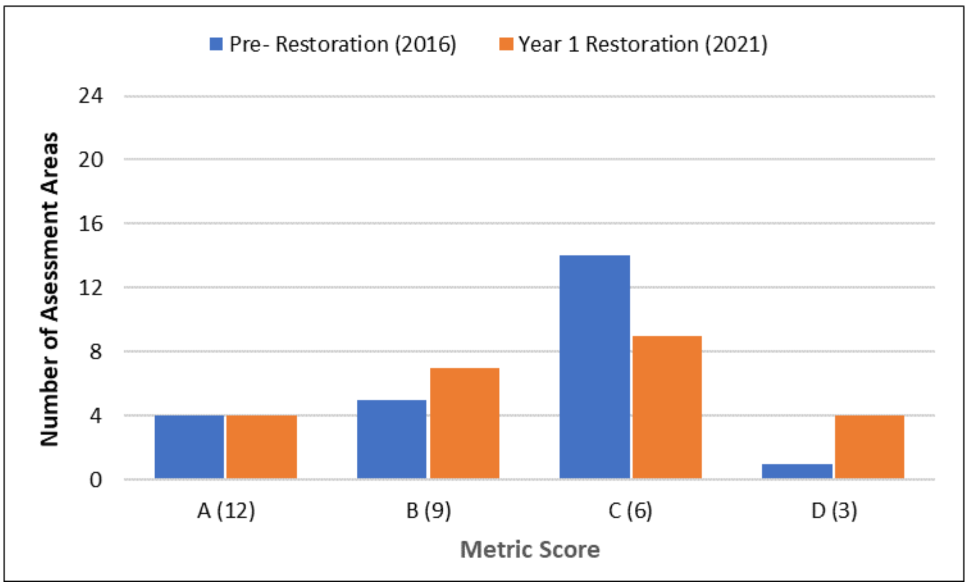
Figure 11
Structural Patch Richness



3.3.2 Metric 2: Topographic Complexity

Topographic complexity refers to micro- (patches) and macro-topographic (benches) relief and the variety of elevations within a wetland due to physical features and elevation gradients that affect moisture gradients or that influence the path of flowing water. As with Structural Patch Richness, most AAs scored a B or C for this metric (Figure 12) and pre-restoration scores are moderately higher than Year 1 restoration scores. The depressional features did not have benches, which leads to a score of C, and many of the estuarine features had micro-topography but not the macro-topographic complexity to garner an A score. The expectation is for this metric's scores to get higher as restoration progresses.

Figure 12
Topographic Complexity



3.4 ATTRIBUTE 4: BIOTIC STRUCTURE

The biotic structure attribute is composed of three metrics, one of which (plant community composition) is further divided into three submetrics: plant community composition, horizontal interspersion, and vertical biotic structure.

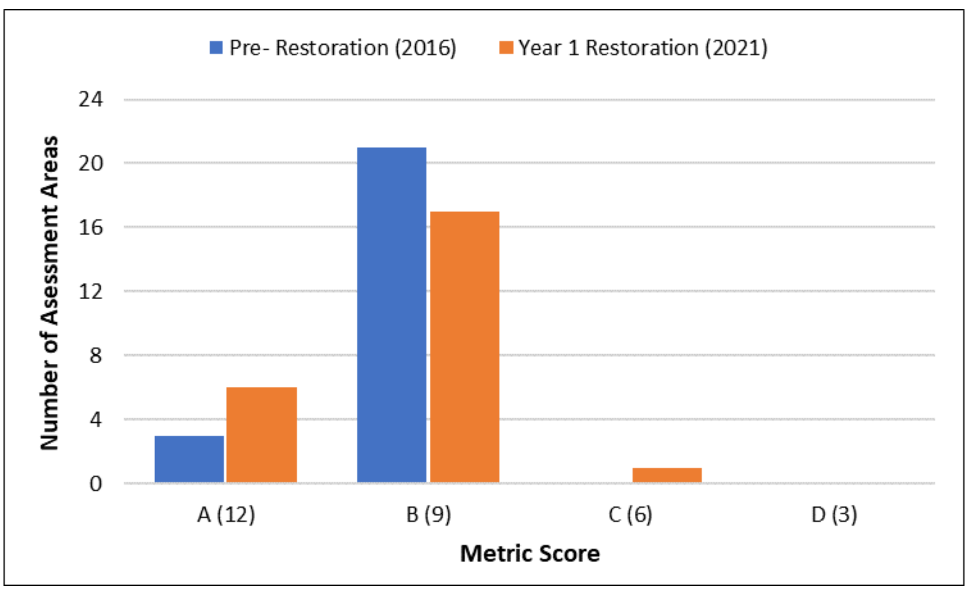
3.4.1 Metric 1: Plant Community Composition

The plant community composition metric is composed of three submetrics. The scoring for these submetrics is averaged for an overall metric score that is combined with the other biotic structure metric scores to get an overall attribute score.

Submetric: Number of Plant Layers

To be counted in CRAM, a layer must cover at least 5% of the portion of the AA that is suitable for the layer. The height of vegetation composing a layer and the number of layers expected is different for each wetland module. As observed in pre-restoration surveys, most AAs scored an A or B for this metric (Figure 13), with only one AA scoring a C during Year 1 restoration surveys. This indicates that the AAs had between two and four layers (A and B scores).

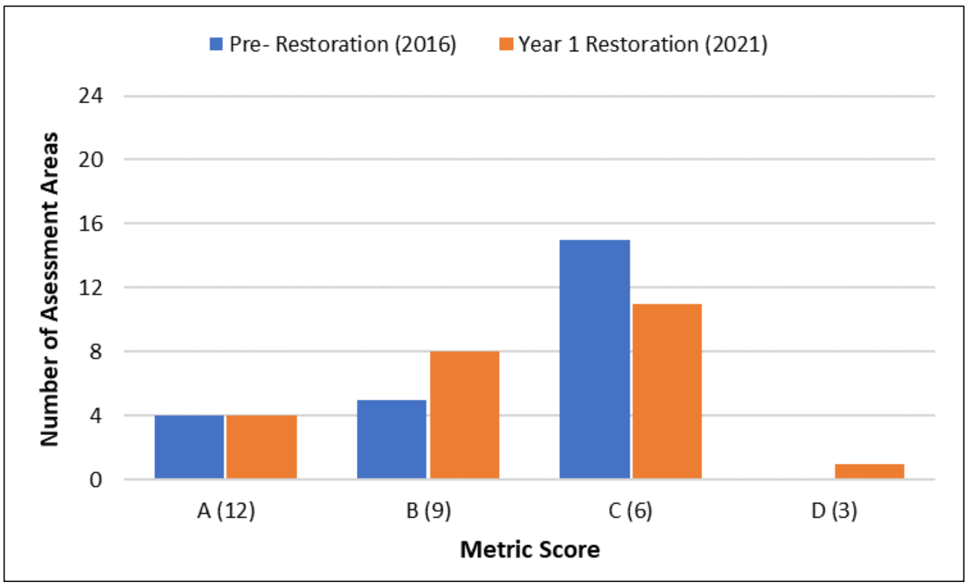
Figure 13
Number of Plant Layers



Submetric: Number of Codominant Species

All living plant species that compose at least 10% relative cover within each plant layer are considered dominant species. Although species may and often do occur as dominant species in multiple layers, an individual species is only counted once for the total number of codominants. The number of codominant species in each "bin" for scoring is dependent on the wetland module used. Most AAs scored a C for this metric during Year 1 restoration assessments (Figure 14), indicating that between two and six codominant species were observed; however, when compared to pre-restoration scores, a higher number of AAs scored a B during Year 1 restoration.

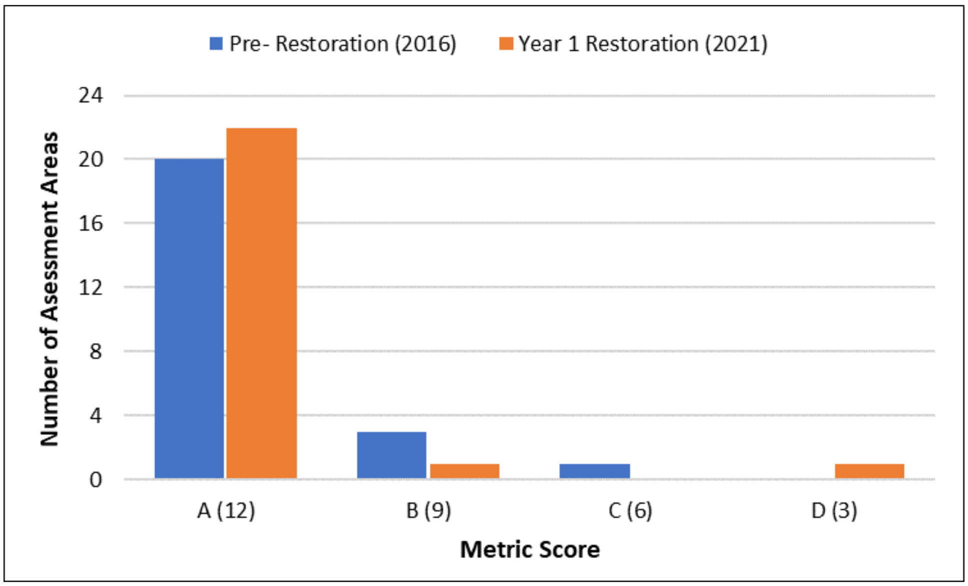
Figure 14
Number of Codominant Species



Submetric: Percent Invasion

The number of invasive codominant species for all plant layers combined is assessed as a percentage of the total number of codominants in the AA. This is true for all wetland modules used. As observed in pre-restoration surveys, most AAs scored an A for this metric (<15% invasion; Figure 15). Only one AA scored a D this monitoring season but is expected to increase its score in subsequent years.

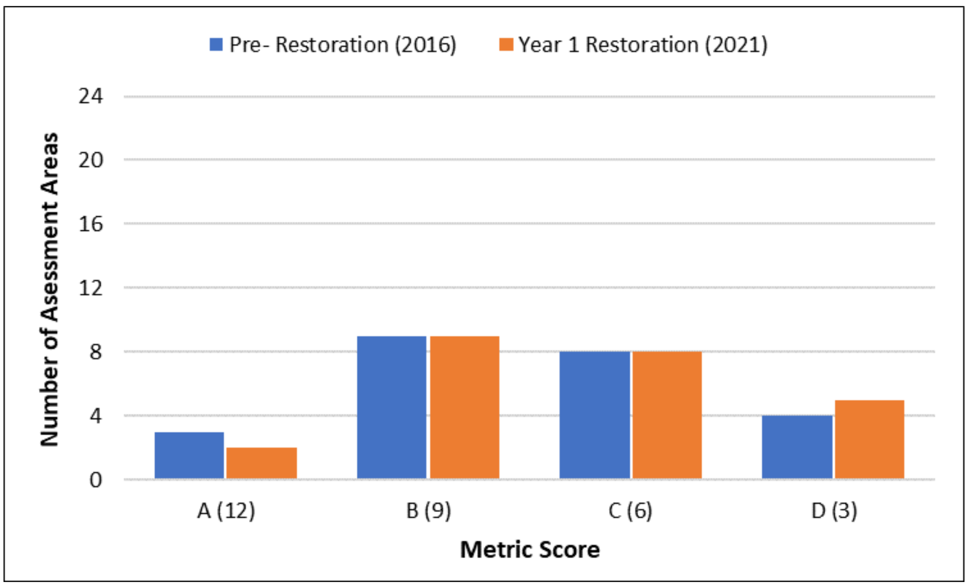
Figure 15
Percent Invasion



3.4.2 Metric 2: Horizontal Interspersion

This metric is a measure of horizontal biotic structure, which refers to the variety and interspersion of plant "zones." Plant zones are often plant monocultures or obvious multispecies associations that are arrayed along gradients of elevation, moisture, or other environmental factors that seem to affect the plant community organization in a two-dimensional plan view. Interspersion is essentially a measure of the number of distinct plant zones and the amount of edge between them. This is true for all wetland modules used. Most AAs scored a B or C for this metric (Figure 16), mirroring the patterns observed during pre-restoration assessments. These results indicate that most AAs had a moderate to low plan view interspersion.

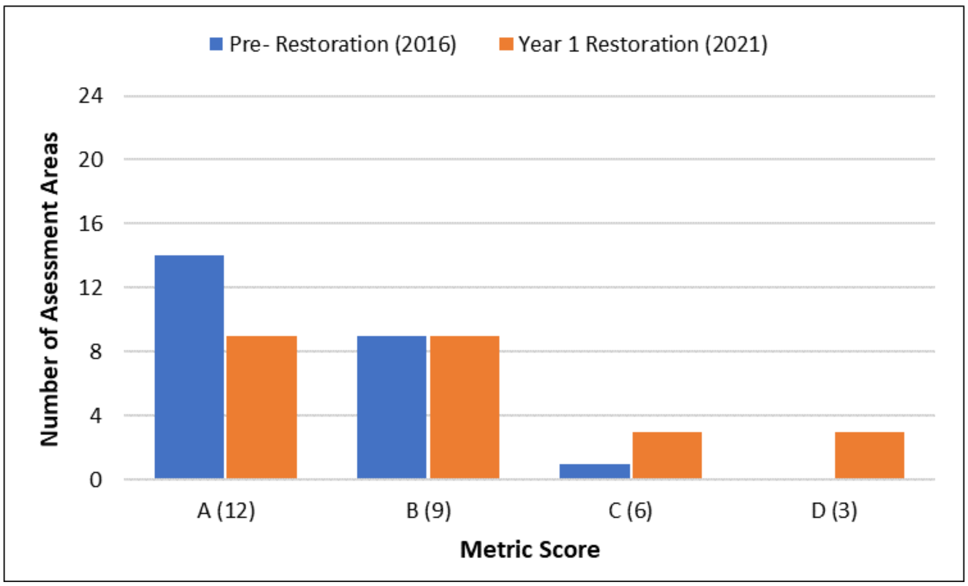
Figure 16
Horizontal Interspersion



3.4.3 Metric 3: Vertical Biotic Structure

The vertical component of biotic structure for estuarine wetlands and the depressional AAs in the lagoon consists of the interspersion and complexity of plant layers. It is assessed as the amount of living vegetation, entrained litter, or detritus across the wetland plain and the amount of space beneath it. Most AAs scored an A or B for this metric (Figure 17). This indicates that most AAs had dense living canopies forming ceilings with varying amounts (half to most) of the plain covered by this dense living canopy (difference between A and B). Although pre-restoration assessments scored higher number of As than Year 1 restoration, a score increase is expected as the restoration program progresses.

Figure 17
Vertical Biotic Structure



4.0 DISCUSSION

The average attribute scores and overall CRAM scores for the lagoon are provided in Table 4. Figure 18 shows the distribution of metric and submetric scores as a percent of the total AAs evaluated. Both Table 4 and Figure 18 indicate that the lowest scores were received in the hydrology and physical structure attributes and associated metrics.

The average overall CRAM scores varied slightly between pre- and post-restoration assessments (Table 4), suggesting that the restoration implementation activities had the anticipated effects on wetland condition across San Elijo Lagoon. The Hydrology attribute experienced the biggest positive change in average overall attribute score (+2.4%, Table 4) from pre-restoration conditions, with increases mainly in hydroperiod and hydrological connectivity metrics, whereas Biotic Structure scored the greatest decrease in the average overall attribute score from pre-restoration conditions with -6.1%. Positive changes in the biotic structure of these AAs are anticipated as the restoration program progresses, resulting in smaller differences between pre- and post-restoration assessment in subsequent years.

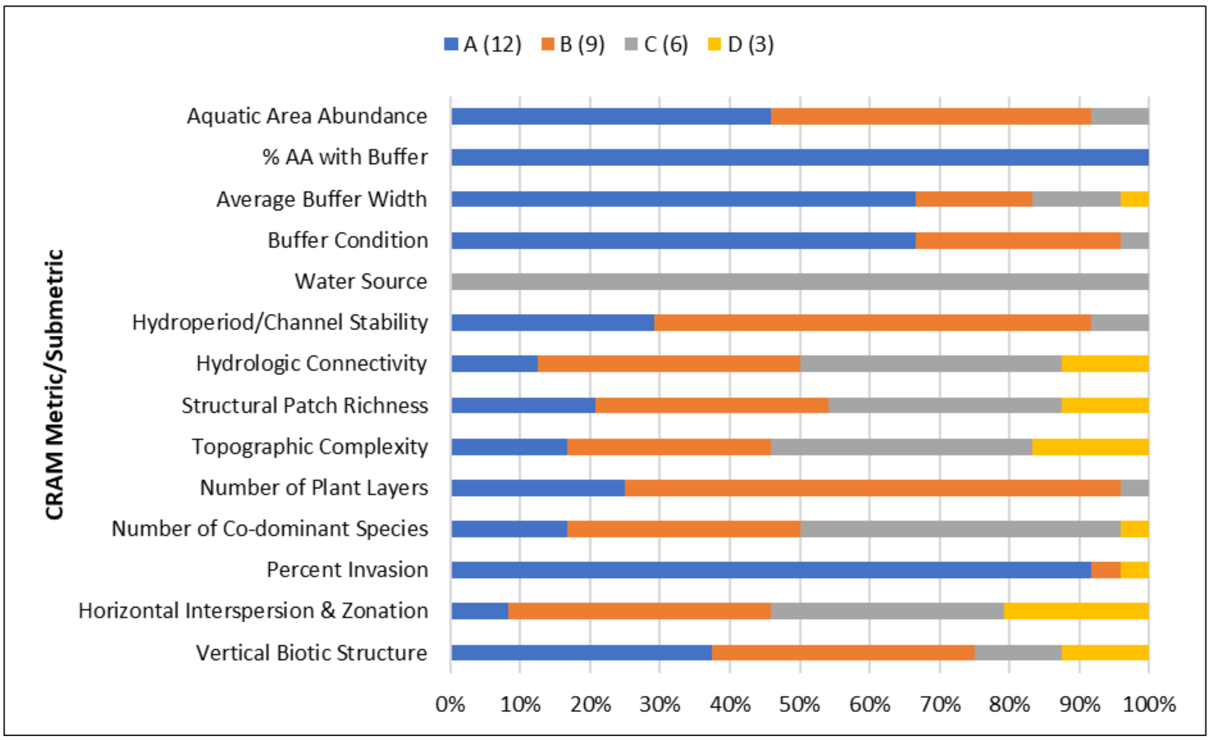
Year 1 post-restoration CRAM score results confirmed the lack of significant change in Buffer and Landscape Context attribute/metric scores after restoration implementation. Within the Hydrology attribute, Water Source is influenced by the level of development surrounding the lagoon and did not change after restoration. However, Hydroperiod and Hydrological Connectivity metric scores increased after restoration, resulting in a 2.4% increase from pre-restoration conditions in the average overall Hydrology attribute. Following these hydrological changes, positive changes in Physical and Biotic Structure attribute/metric scores are likely to occur at the 24 AAs assessed within San Elijo Lagoon; however, current wetland condition scores for these two attributes are still below the pre-restoration levels observed in 2016 (AECOM 2016).

Table 4
Average Attribute and Overall CRAM Scores

CRAM Attributes	Pre-Restoration Average CRAM Score (%)	Year 1 - Restoration Average CRAM Score (%)	Relative Change (%)
Buffer and Landscape Context	87	88	0.4%
Hydrology	63	65	2.4%
Physical Structure	66	64	-3.2%
Biotic Structure	76	72	-6.1%
Overall CRAM Score	**73**	**72**	-1.0%

Almost 70% of all CRAM metric/submetric scores recorded during Year 1 restoration for the SELRP AAs were A or B, almost matching the percentage observed during the pre-restoration CRAM monitoring in 2016 (70.5%). Other than a few outliers, current CRAM scores for the 24 AAs included in this analysis are consistent with the Year 1 post-restoration expectations; in fact, A score frequency was slightly higher during Year 1 than in pre-restoration assessment. As described earlier and based on the results of this CRAM analysis, it is anticipated that during the next few years the lagoon AAs will achieve pre-restoration CRAM score levels at a minimum.

Figure 18
Distribution of Metric/Submetric Scores (A–D) as Percent of AAs



5.0 REFERENCES

AECOM. 2016. San Elijo Lagoon Restoration Project. Pre-Restoration California Rapid Assessment Method Analysis. November.

California Wetlands Monitoring Workgroup (CWMW). 2013a. *California Rapid Assessment Method (CRAM) for Wetlands, User's Manual*, Version 6.1, pp. 67.

---------. 2013b. *California Rapid Assessment Method (CRAM) for Wetlands, Perennial Estuarine Wetlands Field Book*, Version 6.1 pp. 38.

---------. 2013c. *California Rapid Assessment Method (CRAM) for Wetlands, Depressional Wetlands Field Book*, Version 6.1 pp. 43.

This page intentionally left blank.

APPENDIX A

AA SITE PHOTOS

W-1

W-1

Appendix A. Representative Photographs
CRAM - Estuarine Module

W-4

W-4

W-5

W-5

Appendix A. Representative Photographs
CRAM - Estuarine Module

C-4

C-4

Appendix A. Representative Photographs
CRAM - Estuarine Module

C-6

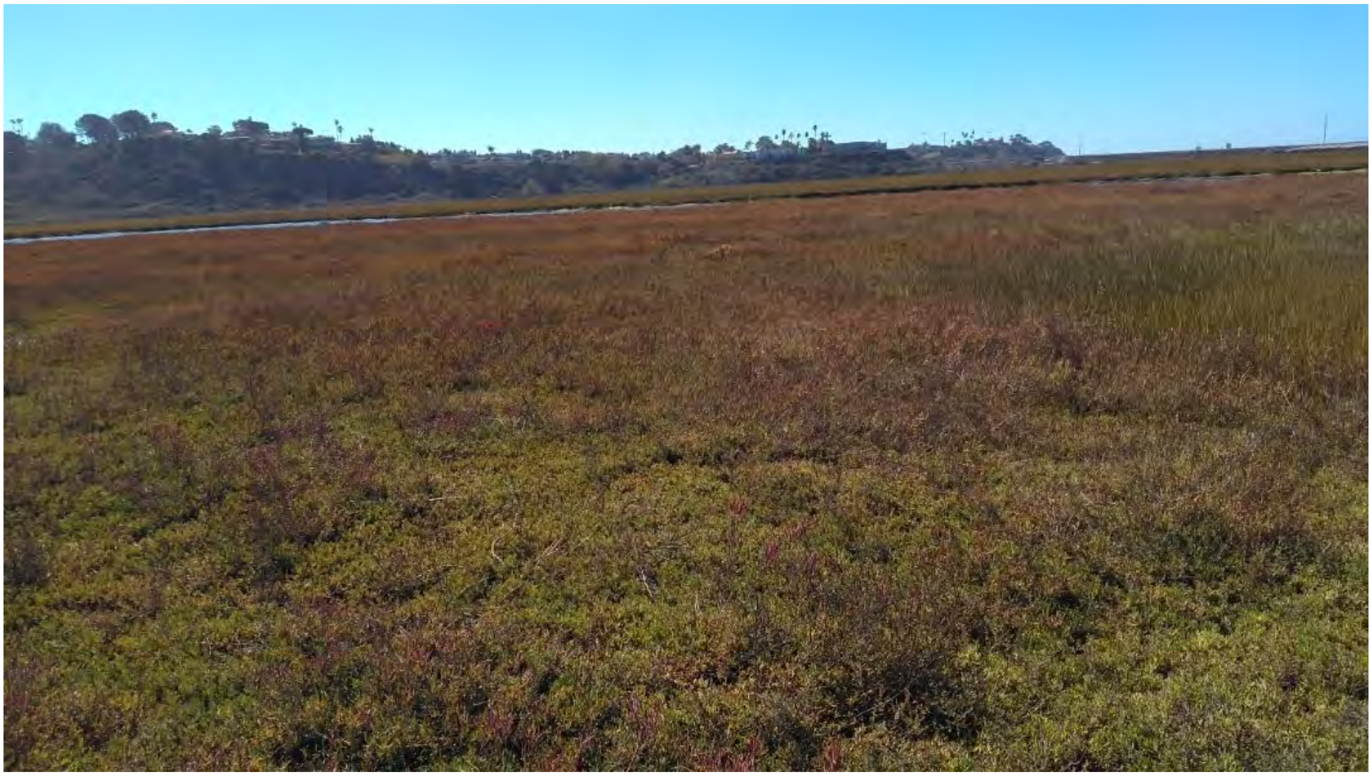
C-6

C-8

C-8

C-12

C-12



C-13

C-13

C-31

C-31

Appendix A. Representative Photographs
CRAM - Estuarine Module

C-33

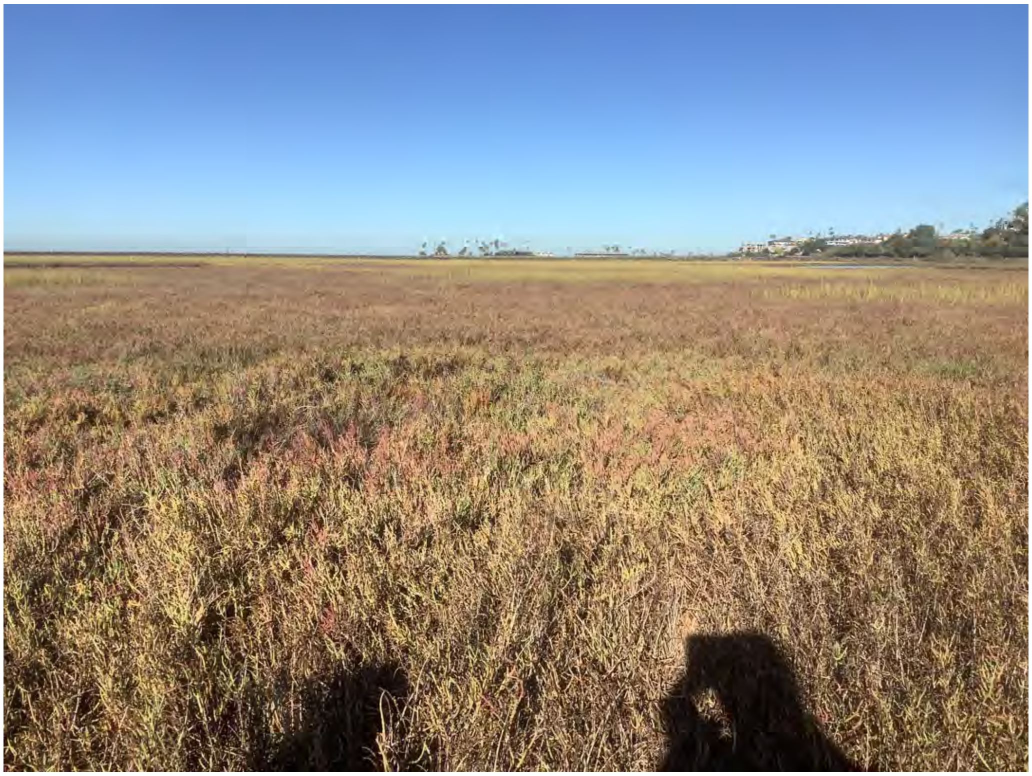
C-33

C-37

C-37

Appendix A. Representative Photographs
CRAM - Estuarine Module

C-38



C-38

C-48

C-48

C-60

C-60

C-64

C-64

Appendix A. Representative Photographs
CRAM - Estuarine Module

C-72

C-72

C-73

C-73

E-2

E-2

E-36

E-36

E-33

E-33

Appendix A. Representative Photographs
CRAM - Depressional Module

E-34

E-34

Appendix A. Representative Photographs
CRAM - Depressional Module

E-63

E-63

E-65

E-65

E-75

E-75

APPENDIX B

AA DATA SHEETS

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: West Basin 01
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: W-1
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Aaron Andrews

Center of AA

Latitude: 33.0111496 **Longitude:** -117.2784451

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	WestBasin01_N_1.jpg		33.0125426	-117.278861111	D_WGS_1984
2	WestBasin01_N_2.jpg		33.011312	-117.2783084	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: West Basin 01				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer		Alpha.	Numeric		
		A	12		
Buffer submetric B: Average Buffer Width		D	3		
Buffer submetric C: Buffer Condition		B	9		
Raw Attribute Score = $D+[C \times (A \times B)^{½}]^{½}$			16	**Final Attribute Score = (Raw Score/24) x 100**	67
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		A	12		
Hydrologic Connectivity		D	3		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		A	12		
Topographic Complexity		A	12		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community Submetric A: Number of plant layers	B	9			
Plant Community submetric B: Number of Co-dominant species	C	6			
Plant Community submetric C: Percent Invasion	A	12			
Plant Community Composition *(numeric average of submetrics A-C)*			9		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		A	12		
Raw Attribute Score = sum of numeric scores			30	**Final Attribute Score = (Raw Score/36) x 100**	84
Overall AA Score (average of four final Attribute Scores)				78	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	30
South	40
East	100
West	75
Average Percentage of Transect Length that is an Aquatic Feature	61

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	25
B	15
C	15
D	15
E	15
F	5
G	5
H	5
Average Buffer Width *Round to the nearest integer*	13

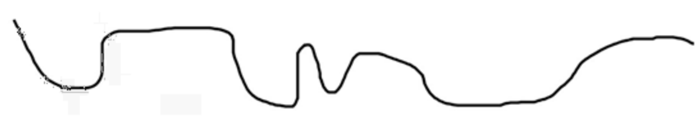
Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	**X**
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**9**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South



East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Jaumea carnosa	
		Frankenia salina	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Frankenia salina			
Salicornia pacifica			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		X
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: West Basin 04	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: W-4	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Aaron Andrews

Center of AA

Latitude: 33.0070957 **Longitude:** -117.2775446

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	WestBasin04 _N_1.jpg		33.0076476	-117.2774219	D_WGS_1984
2	WestBasin04 _N_2.jpg		33.006895	-117.2776481	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: West Basin 04					**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)					**Comments**	
			Alpha.	Numeric		
Aquatic Area Abundance (D)			A	12		
Buffer (based on sub-metrics A-C)						
	Alpha.	Numeric				
Buffer submetric A: Percent of AA with Buffer	A	12				
Buffer submetric B: Average Buffer Width	C	6				
Buffer submetric C: Buffer Condition	A	12				
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$				22	**Final Attribute Score = (Raw Score/24) x 100**	92
Attribute 2: Hydrology Attribute (pp. 15-19)						
			Alpha.	Numeric		
Water Source			C	6		
Hyroperiod			B	9		
Hydrologic Connectivity			D	3		
Raw Attribute Score = sum of numeric scores				18	**Final Attribute Score = (Raw Score/36) x 100**	50
Attribute 3: Physical Structure Attribute (pp. 20-25)						
			Alpha.	Numeric		
Structural Patch Richness			C	6		
Topographic Complexity			D	3		
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 26-34)						
Plant Community Composition (based on sub-metrics A-C)						
	Alpha.	Numeric				
Plant Community Submetric A: Number of plant layers	B	9				
Plant Community submetric B: Number of Co-dominant species	B	9				
Plant Community submetric C: Percent Invasion	A	12				
Plant Community Composition *(numeric average of submetrics A-C)*				10		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			A	12		
Raw Attribute Score = sum of numeric scores				25	**Final Attribute Score = (Raw Score/36) x 100**	70
Overall AA Score (average of four final Attribute Scores)					63	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	91
South	76
East	73
West	88
Average Percentage of Transect Length that is an Aquatic Feature	82

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	50
C	30
D	120
E	250
F	50
G	20
H	75
Average Buffer Width *Round to the nearest integer*	106

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**3**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Frankenia salina	
		Cressa truxillensis	
		Distichlis spicata	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Frankenia salina			
Salicornia pacifica			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: West Basin 05
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: W-5
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Aaron Andrews

Center of AA

Latitude: 33.0054231 **Longitude:** -117.2769577

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	WestBasin05_N_1.jpg		33.0056092	-117.2764377	D_WGS_1984
2	WestBasin05_N_2.jpg		33.0041128	-117.2759032	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: West Basin 05				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		A	12		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / A	Numeric / 12			
Buffer submetric B: Average Buffer Width	C	6			
Buffer submetric C: Buffer Condition	A	12			
Raw Attribute Score = D+[C x (A x B)½]½			22	**Final Attribute Score = (Raw Score/24) x 100**	92
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		A	12		
Hydrologic Connectivity		D	3		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		C	6		
Topographic Complexity		B	9		
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/24) x 100**	63
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community Submetric A: Number of plant layers	B	9			
Plant Community submetric B: Number of Co-dominant species	A	12			
Plant Community submetric C: Percent Invasion	A	12			
Plant Community Composition *(numeric average of submetrics A-C)*			11		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		A	12		
Raw Attribute Score = sum of numeric scores			29	**Final Attribute Score = (Raw Score/36) x 100**	81
Overall AA Score (average of four final Attribute Scores)				74	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	91
South	53
East	97
West	88
Average Percentage of Transect Length that is an Aquatic Feature	82

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	160
B	20
C	15
D	25
E	250
F	105
G	75
H	150
Average Buffer Width *Round to the nearest integer*	100

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	
Shellfish beds (living)	
Soil cracks	**X**
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**5**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Jaumea carnosa	
		Frankenia salina	
		Distichlis littoralis	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Frankenia salina		Juncus acutus subsp. leopoldii	
Salicornia pacifica			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

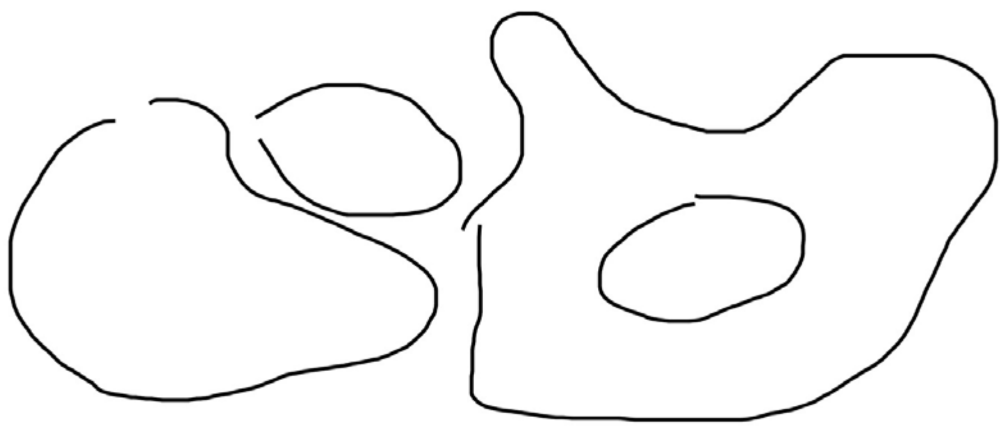


Table 21: Wetland disturbances and conversions.

Has a major disturbance occured at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide or other?	flood	fire	landslide	other
If yes, how severe is this disturbance?	likely to affect site for next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	
	Other:			

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control	X	
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 04	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-4	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Izzy Santarsieri (NC), Rachel Chen

Center of AA

Latitude: 33.0132280290434 **Longitude:** -117.276904620339

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin04_NE_1.jpg	NE	33.0132416667	-117.2769	D_WGS_1984
2	CentralBasin04_SW_2.jpg	SW	33.013225	-117.276869444	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 04				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			
Buffer submetric B: Average Buffer Width	B	9			
Buffer submetric C: Buffer Condition	A	12			
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$			20	**Final Attribute Score = (Raw Score/24) x 100**	84
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		B	9		
Topographic Complexity		B	9		
Raw Attribute Score = sum of numeric scores			18	**Final Attribute Score = (Raw Score/24) x 100**	75
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community Submetric A: Number of plant layers	B	9			
Plant Community submetric B: Number of Co-dominant species	B	9			
Plant Community submetric C: Percent Invasion	A	12			
Plant Community Composition *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		D	3		
Vertical Biotic Structure		D	3		
Raw Attribute Score = sum of numeric scores			16	**Final Attribute Score = (Raw Score/36) x 100**	45
Overall AA Score (average of four final Attribute Scores)				66	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	15
South	100
East	40
West	75
Average Percentage of Transect Length that is an Aquatic Feature	58

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	75
B	88
C	200
D	250
E	250
F	147
G	147
H	60
Average Buffer Width *Round to the nearest integer*	152

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	**X**
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**6**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
Zostera sp.		Jaumea carnosa	
		Frankenia salina	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

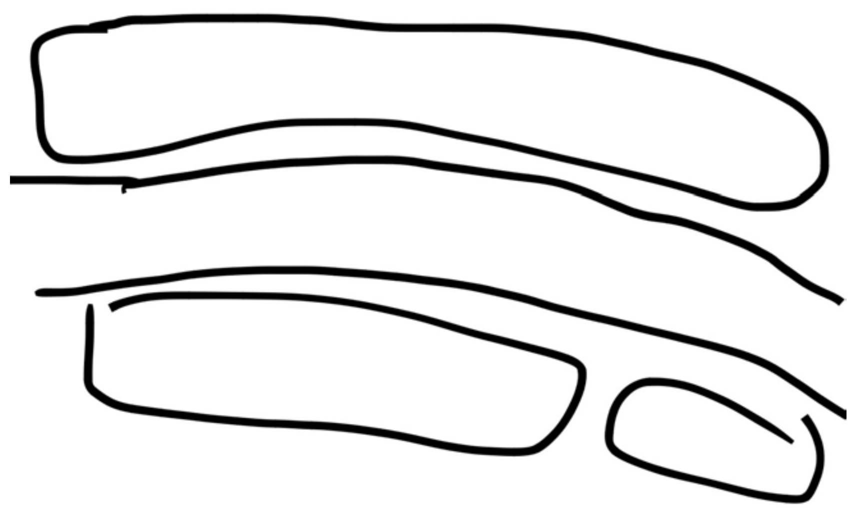


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	X	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**	X	
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)	X	
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)	X	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 06	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-6	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Izzy Santarsieri (NC), Rachel Chen

Center of AA

Latitude: 33.0121334363083 **Longitude:** -117.277320446556

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin06_NE_1.jpg	NE	33.0120361111	-117.277313889	D_WGS_1984
2	CentralBasin06_SE_2.jpg	Moved point to SE	33.0122888889	-117.277397222	D_WGS_1984
3	CentralBasin06_SW_3.jpg	SW	33.0128444444	-117.276708333	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 06					**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)					**Comments**	
			Alpha.	Numeric		
Aquatic Area Abundance (D)			A	12		
Buffer (based on sub-metrics A-C)						
Buffer submetric A: Percent of AA with Buffer	Alpha.	Numeric				
	A	12				
Buffer submetric B: Average Buffer Width	A	12				
Buffer submetric C: Buffer Condition	A	12				
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}				24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 2: Hydrology Attribute (pp. 15-19)						
			Alpha.	Numeric		
Water Source			C	6		
Hyroperiod			B	9		
Hydrologic Connectivity			B	9		
Raw Attribute Score = sum of numeric scores				24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)						
			Alpha.	Numeric		
Structural Patch Richness			C	6		
Topographic Complexity			D	3		
Raw Attribute Score = sum of numeric scores				9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 26-34)						
Plant Community Composition (based on sub-metrics A-C)						
	Alpha.	Numeric				
Plant Community Submetric A: Number of plant layers	B	9				
Plant Community submetric B: Number of Co-dominant species	A	12				
Plant Community submetric C: Percent Invasion	A	12				
Plant Community Composition *(numeric average of submetrics A-C)*				11		
Horizontal Interspersion			C	6		
Vertical Biotic Structure			D	3		
Raw Attribute Score = sum of numeric scores				20	**Final Attribute Score = (Raw Score/36) x 100**	56
Overall AA Score (average of four final Attribute Scores)					66	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	40
South	91
East	98
West	74
Average Percentage of Transect Length that is an Aquatic Feature	76

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	200
B	176
C	250
D	250
E	250
F	191
G	162
H	250
Average Buffer Width *Round to the nearest integer*	216

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**3**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Jaumea carnosa	
		Frankenia salina	
		Distichlis spicata	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Frankenia salina			
Salicornia pacifica			
Spartina foliosa			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

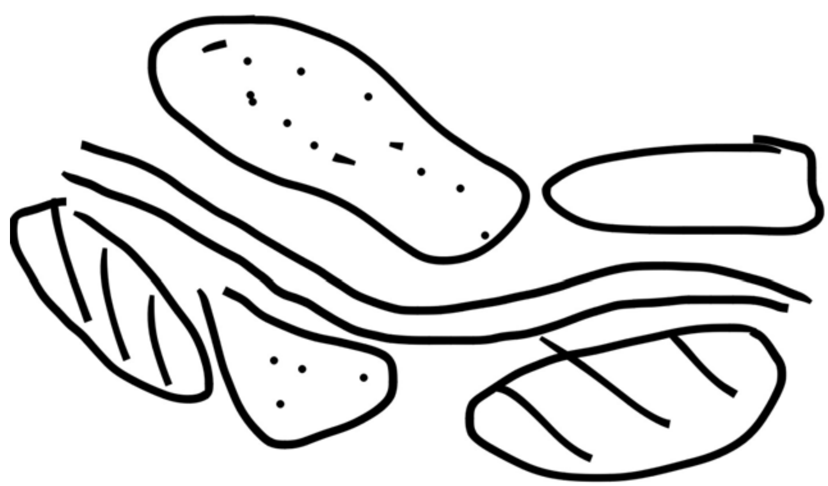


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	X	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**	X	
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)	X	
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)	X	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 08	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-8	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Izzy Santarsieri (NC), Rachel Chen

Center of AA

Latitude: 33.0112412246252 **Longitude:** -117.27536628965

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin08_SW_1.jpg	SW	33.0112416667	-117.275366667	D_WGS_1984
2	CentralBasin08_W_2.jpg	West	33.0102666667	-117.274402778	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 08			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	B	9		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	A	12		
Raw Attribute Score = $D+[C \times (A \times B)^{½}]^{½}$		21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	B	9		
Hydrologic Connectivity	C	6		
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	B	9		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		15	**Final Attribute Score = (Raw Score/24) x 100**	63
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	C	6		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		9		
Horizontal Interspersion	D	3		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/36) x 100**	59
Overall AA Score (average of four final Attribute Scores)			68	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	35
South	90
East	80
West	60
Average Percentage of Transect Length that is an Aquatic Feature	66

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	220
B	220
C	250
D	250
E	250
F	240
G	220
H	250
Average Buffer Width *Round to the nearest integer*	238

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	**X**
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**7**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa		Spartina foliosa	
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	2
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

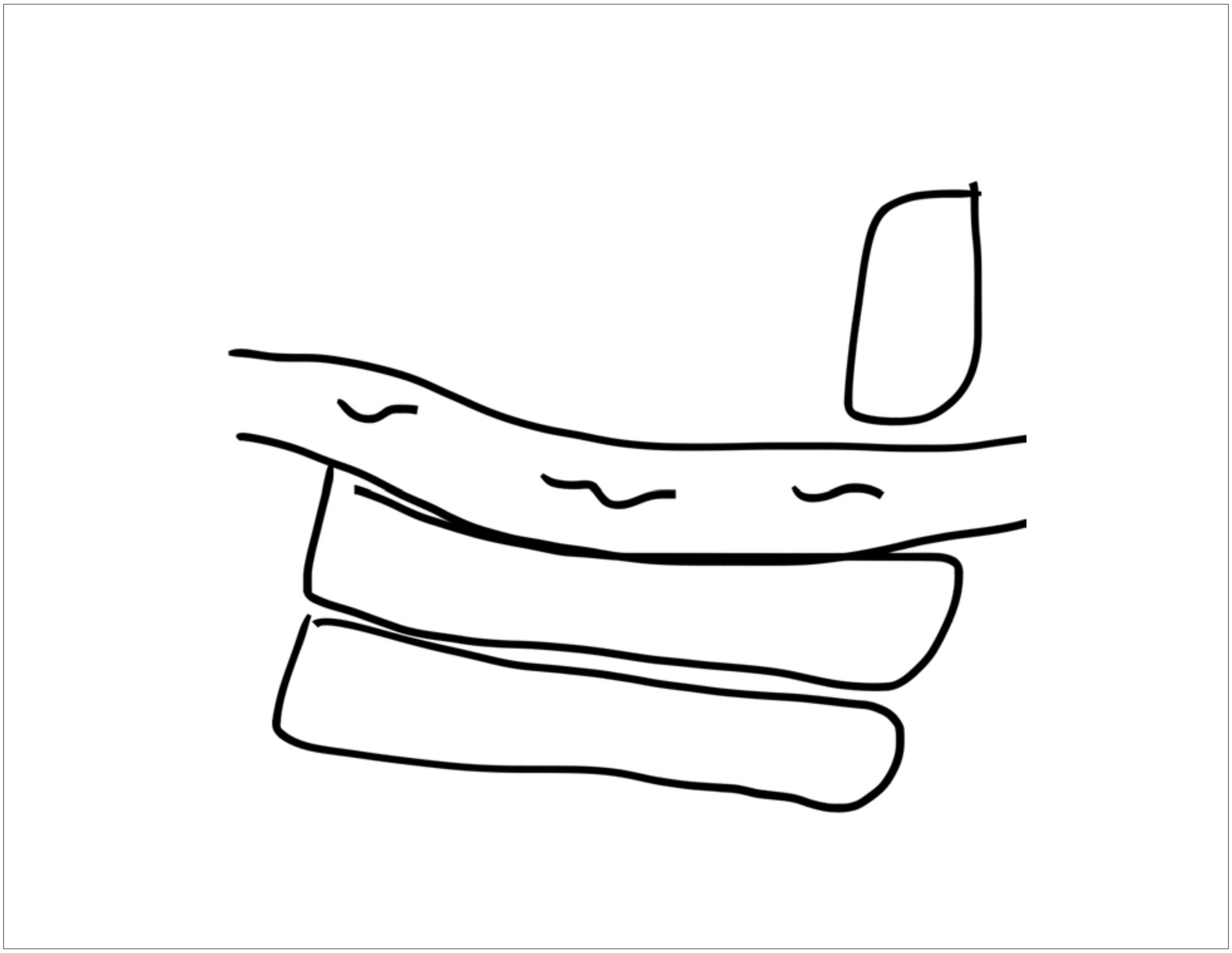


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	X	
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**	X	
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)	X	
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)	X	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 12
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: C-12
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Izzy Santarsieri (NC), Rachel Chen

Center of AA

Latitude: 33.0118295923183 **Longitude:** -117.272901758661

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin12_S_1.jpg		33.0114472222	-117.273830556	D_WGS_1984
2	CentralBasin12_S_2.jpg	South	33.0114472222	-117.273830556	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 12				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	A	12			
Raw Attribute Score = D+[C x (A x B)½]½			21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		C	6		
Topographic Complexity		D	3		
Raw Attribute Score = sum of numeric scores			9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community Submetric A: Number of plant layers	B	9			
Plant Community submetric B: Number of Co-dominant species	B	9			
Plant Community submetric C: Percent Invasion	A	12			
Plant Community Composition *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			28	**Final Attribute Score = (Raw Score/36) x 100**	78
Overall AA Score (average of four final Attribute Scores)				68	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	50
South	100
East	40
West	95
Average Percentage of Transect Length that is an Aquatic Feature	71

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	200
C	220
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	240

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**3**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Jaumea carnosa	
		Salicornia pacifica	
		Frankenia salina	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

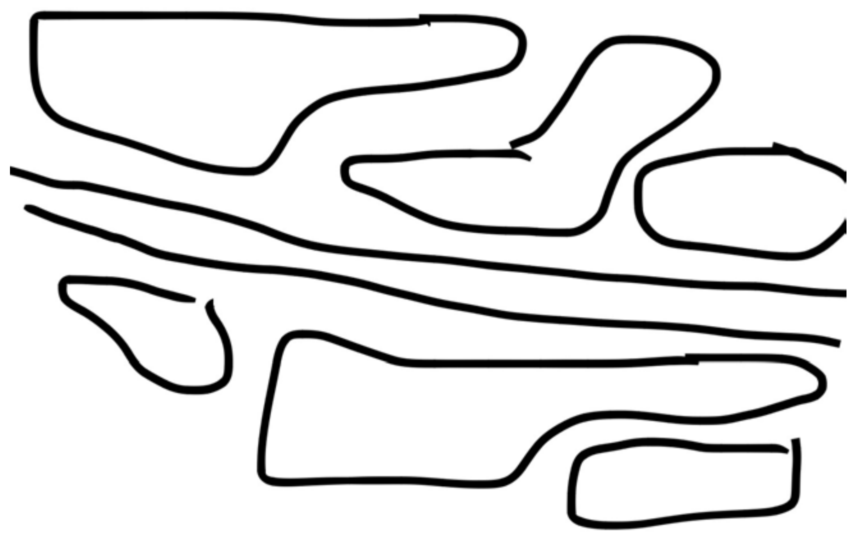


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)	X	
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)	X	
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 13
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: C-13
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Aaron Andrews

Center of AA

Latitude: 33.0104852 **Longitude:** -117.2703305

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin13 _N_1.jpg		33.0104856	-117.2703306	D_WGS_1984
2	CentralBasin13 _N_2.jpg		33.0104187	-117.2709964	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 13				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / Numeric: A / 12				
Buffer submetric B: Average Buffer Width	B / 9				
Buffer submetric C: Buffer Condition	A / 12				
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			20	**Final Attribute Score = (Raw Score/24) x 100**	84
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		B	9		
Topographic Complexity		B	9		
Raw Attribute Score = sum of numeric scores			18	**Final Attribute Score = (Raw Score/24) x 100**	75
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community Submetric A: Number of plant layers	Alpha. / Numeric: B / 9				
Plant Community submetric B: Number of Co-dominant species	A / 12				
Plant Community submetric C: Percent Invasion	A / 12				
Plant Community Composition *(numeric average of submetrics A-C)*			11		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		A	12		
Raw Attribute Score = sum of numeric scores			29	**Final Attribute Score = (Raw Score/36) x 100**	81
Overall AA Score (average of four final Attribute Scores)				77	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	24
South	100
East	3
West	100
Average Percentage of Transect Length that is an Aquatic Feature	57

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	118
B	25
C	15
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	176

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**6**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Distichlis spicata	
		Jaumea carnosa	
		Frankenia salina	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa			
Salicornia pacifica			
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

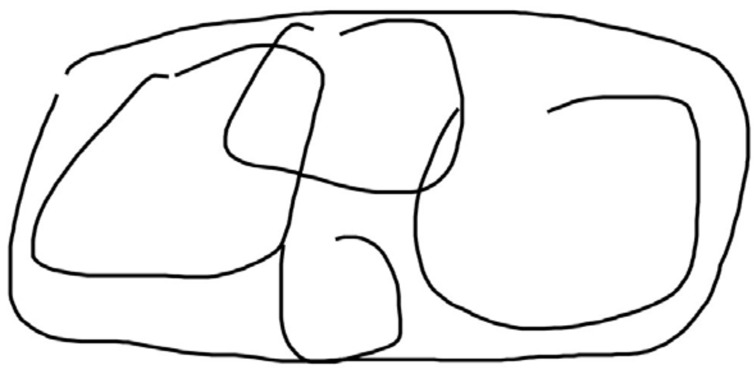


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 31	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-31	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Derrick Mathews, Tito Marchant (NC)

Center of AA

Latitude: 33.0075727783246 **Longitude:** -117.26435474024

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other: Pre-restoration

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin31_W_1.jpg		33.0075583333	-117.264344444	D_WGS_1984
2	CentralBasin31_NW_2.jpg		33.0075833333	-117.264358333	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 31				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / Numeric	A	12		
Buffer submetric B: Average Buffer Width		A	12		
Buffer submetric C: Buffer Condition		B	9		
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			19	**Final Attribute Score = (Raw Score/24) x 100**	80
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		A	12		
Topographic Complexity		A	12		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community Submetric A: Number of plant layers	Alpha. / Numeric	A	12		
Plant Community submetric B: Number of Co-dominant species		C	6		
Plant Community submetric C: Percent Invasion		A	12		
Plant Community Composition *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			28	**Final Attribute Score = (Raw Score/36) x 100**	78
Overall AA Score (average of four final Attribute Scores)				80	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	38
South	12
East	88
West	100
Average Percentage of Transect Length that is an Aquatic Feature	60

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	162
B	103
C	162
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	210

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	**X**
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	**X**
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	**X**
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**11**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
Phyllospadix scouleri		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa		Spartina foliosa	
Salcornia pacifica			
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	5
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)	X	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 33

Project Name: San Elijo Lagoon Restoration Project

Assessment Area ID #: C-33

Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Alexandra Fowler, Jordan Luts (NC)

Center of AA

Latitude: 33.007560689033 **Longitude:** -117.276135999819

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	C33_NW_ 1.jpg	Looking NW	33.0076555556	-117.275269444	D_WGS_1984
2	C33_N_2.jpg		33.0076555556	-117.275269444	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 33					**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)					**Comments**	
			Alpha.	Numeric		
Aquatic Area Abundance (D)			A	12		
Buffer (based on sub-metrics A-C)						
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12				
Buffer submetric B: Average Buffer Width	B	9				
Buffer submetric C: Buffer Condition	B	9				
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$				22	**Final Attribute Score = (Raw Score/24) x 100**	92
Attribute 2: Hydrology Attribute (pp. 15-19)						
			Alpha.	Numeric		
Water Source			C	6		
Hyroperiod			B	9		
Hydrologic Connectivity			C	6		
Raw Attribute Score = sum of numeric scores				21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)						
			Alpha.	Numeric		
Structural Patch Richness			B	9		
Topographic Complexity			D	3		
Raw Attribute Score = sum of numeric scores				12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure Attribute (pp. 26-34)						
Plant Community Composition (based on sub-metrics A-C)						
	Alpha.	Numeric				
Plant Community Submetric A: Number of plant layers	B	9				
Plant Community submetric B: Number of Co-dominant species	C	6				
Plant Community submetric C: Percent Invasion	A	12				
Plant Community Composition *(numeric average of submetrics A-C)*				9		
Horizontal Interspersion			D	3		
Vertical Biotic Structure			D	3		
Raw Attribute Score = sum of numeric scores				15	**Final Attribute Score = (Raw Score/36) x 100**	42
Overall AA Score (average of four final Attribute Scores)					61	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	56
East	100
West	85
Average Percentage of Transect Length that is an Aquatic Feature	85

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	50
G	50
H	75
Average Buffer Width *Round to the nearest integer*	178

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**6**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Spartina foliosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa		Spartina foliosa	
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	2
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

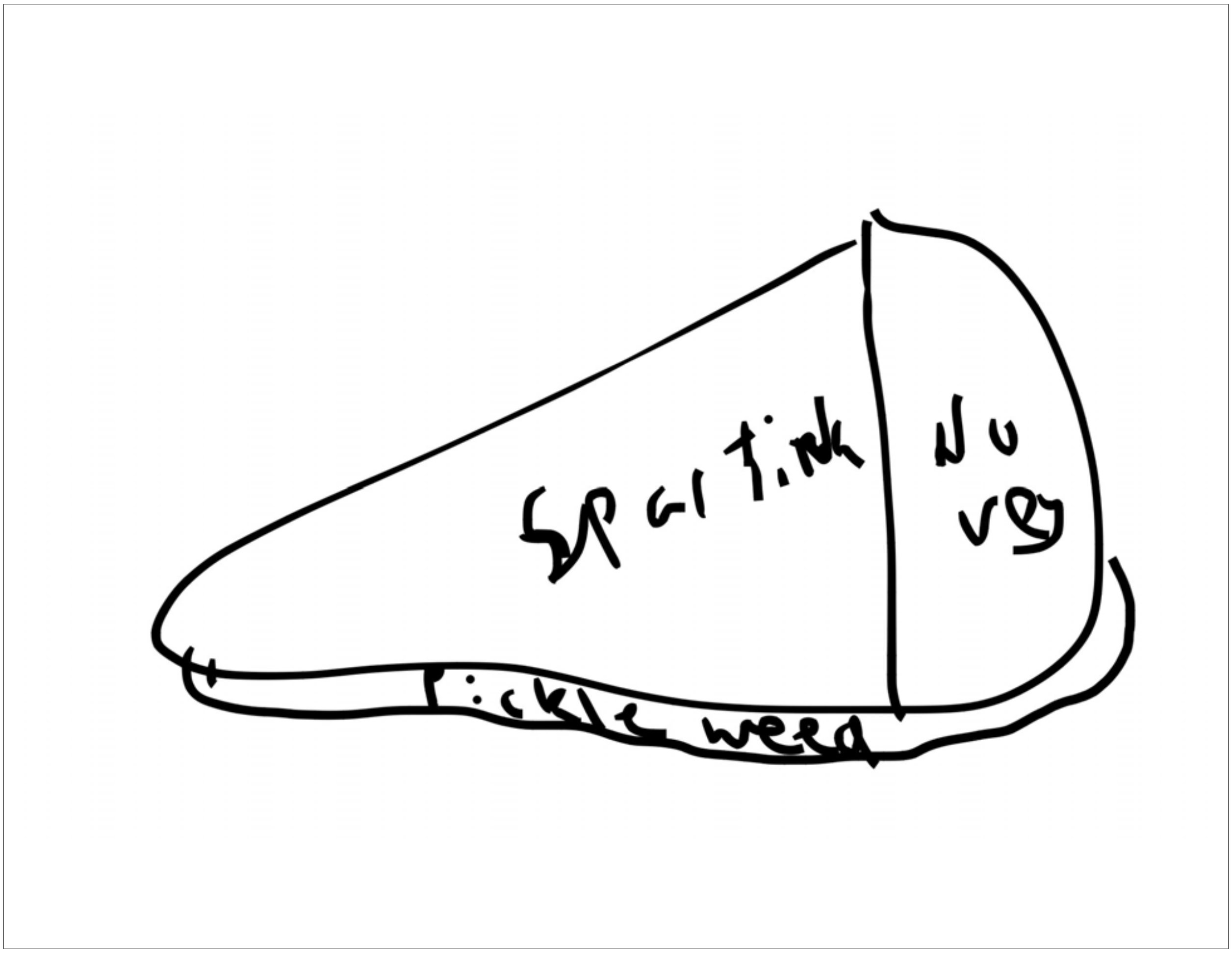


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">Construction</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 37

Project Name: San Elijo Lagoon Restoration Project

Assessment Area ID #: C-37

Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Alexandra Fowler, Jordan Luts (NC)

Center of AA

Latitude: 33.0084537389064 **Longitude:** -117.271895762642

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	C37_S_1.jpg	Looking south	33.0084055556	-117.271880556	D_WGS_1984
2	C37_N_2.jpg	Looking north	33.0083638889	-117.271841667	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 37			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	A	12		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	A	12		
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}		24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	B	9		
Hydrologic Connectivity	B	9		
Raw Attribute Score = sum of numeric scores		24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	B	9		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		15	**Final Attribute Score = (Raw Score/24) x 100**	63
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	C	6		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		9		
Horizontal Interspersion	B	9		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		27	**Final Attribute Score = (Raw Score/36) x 100**	75
Overall AA Score (average of four final Attribute Scores)			77	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	82
East	100
West	91
Average Percentage of Transect Length that is an Aquatic Feature	93

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	250

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**7**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica		Spartina foliosa	
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

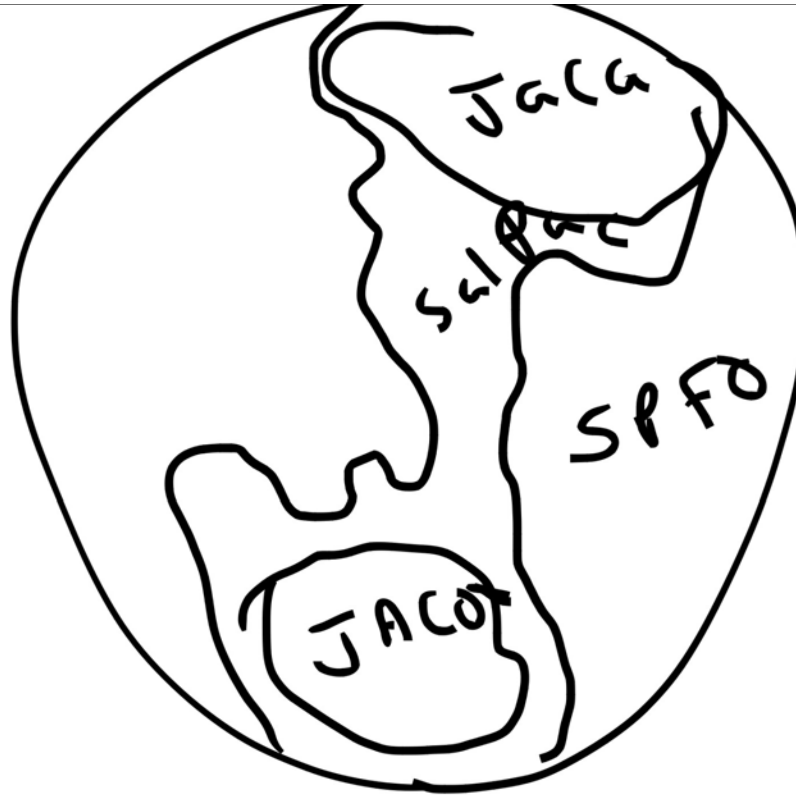


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="2">Yes</td><td colspan="2">No</td><td colspan="2"></td><td></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="2">flood</td><td colspan="2">fire</td><td colspan="2">landslide</td><td>other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="3">likely to affect site for next 5 or more years</td><td colspan="3">likely to affect site next 3-5 years</td><td>likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="3">depressional</td><td colspan="3">vernal pool</td><td>vernal pool system</td></tr>
<tr><td colspan="3">non-confined riverine</td><td colspan="3">confined riverine</td><td>seasonal estuarine</td></tr>
<tr><td colspan="3">perennial saline estuarine</td><td colspan="3">perennial non-saline estuarine</td><td>wet meadow</td></tr>
<tr><td colspan="3">lacustrine</td><td colspan="3">seep or spring</td><td>playa</td></tr>
<tr><td colspan="7">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 38	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-38	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Alonso Gonzalez Cabello, Fabiola Lario (NC)

Center of AA

Latitude: 33.0083573283226 **Longitude:** -117.268909684007

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin38_NE_1.jpg	Facing Northeast	33.0082972222	-117.269908333	D_WGS_1984
2	CentralBasin38_W_2.jpg	Facing West	33.0083472222	-117.268919444	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 38			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	A	12		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	A	12		
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}		24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	B	9		
Hydrologic Connectivity	B	9		
Raw Attribute Score = sum of numeric scores		24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	C	6		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		12	**Final Attribute Score = (Raw Score/24) x 100**	50
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	C	6		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		9		
Horizontal Interspersion	C	6		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		24	**Final Attribute Score = (Raw Score/36) x 100**	67
Overall AA Score (average of four final Attribute Scores)			71	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	27
South	79
East	100
West	100
Average Percentage of Transect Length that is an Aquatic Feature	77

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	135
B	132
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	221

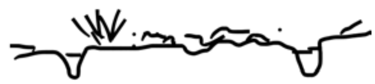
Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**5**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South



East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Jaumea carnosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Spartina foliosa			
Salicornia pacifica			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 48	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: C-48	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Derrick Mathews, Tito Marchant (NC)

Center of AA

Latitude: 33.0074528438099 **Longitude:** -117.27173464864

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other: Pre-restoration

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin48_S_1.jpg		33.006925	-117.271691667	D_WGS_1984
2	CentralBasin48_S_2.jpg		33.0069222222	-117.271697222	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central basin 48				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		A	12		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. A	Numeric 12			
Buffer submetric B: Average Buffer Width	A	12			
Buffer submetric C: Buffer Condition	A	12			
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}			24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		A	12		
Topographic Complexity		A	12		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community Submetric A: Number of plant layers	A	12			
Plant Community submetric B: Number of Co-dominant species	B	9			
Plant Community submetric C: Percent Invasion	A	12			
Plant Community Composition *(numeric average of submetrics A-C)*			11		
Horizontal Interspersion		A	12		
Vertical Biotic Structure		A	12		
Raw Attribute Score = sum of numeric scores			35	**Final Attribute Score = (Raw Score/36) x 100**	98
Overall AA Score (average of four final Attribute Scores)				92	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	50
East	100
West	68
Average Percentage of Transect Length that is an Aquatic Feature	80

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	250

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	**X**
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	**X**
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**10**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Salicornia pacifica	
		Frankenia salina	
		Spartina foliosa	
		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica		Spartina foliosa	
Spartina foliosa			
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
Spartina foliosa		**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

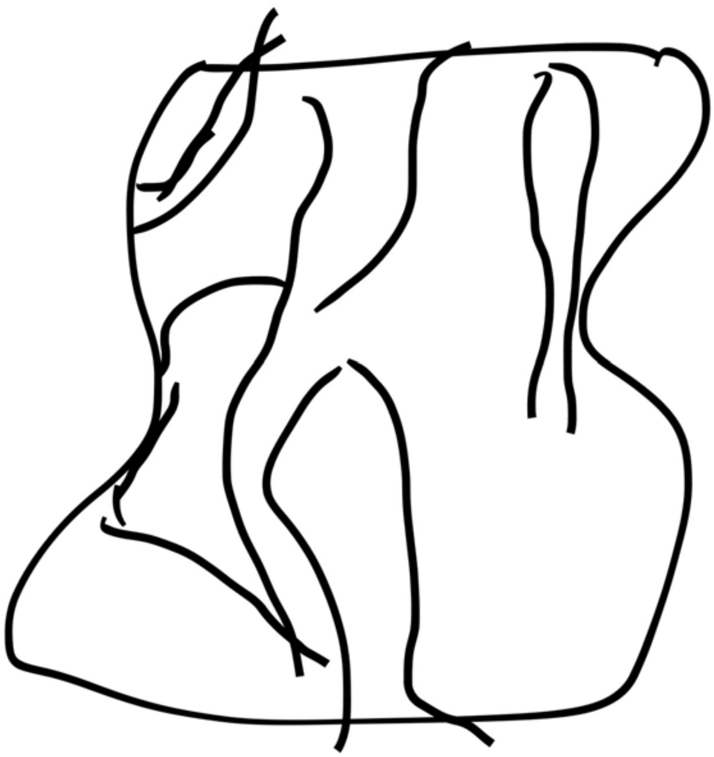


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 60

Project Name: San Elijo Lagoon Restoration Project

Assessment Area ID #: C-60

Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Derrick Mathews, Tito Marchant (NC)

Center of AA

Latitude: 33.005290580351 **Longitude:** -117.271485349923

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other: Pre-restoration

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin60_N_1.jpg		33.0052194444	-117.271472222	D_WGS_1984
2	CentralBasin60_NE_2.jpg		33.0052611111	-117.271488889	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 60				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / Numeric	A	12		
Buffer submetric B: Average Buffer Width		A	12		
Buffer submetric C: Buffer Condition		A	12		
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}			21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		B	9		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	67
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		B	9		
Topographic Complexity		A	12		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community Submetric A: Number of plant layers	Alpha. / Numeric	B	9		
Plant Community submetric B: Number of Co-dominant species		B	9		
Plant Community submetric C: Percent Invasion		A	12		
Plant Community Composition *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			25	**Final Attribute Score = (Raw Score/36) x 100**	70
Overall AA Score (average of four final Attribute Scores)				79	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	18
East	44
West	91
Average Percentage of Transect Length that is an Aquatic Feature	63

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	191
E	147
F	118
G	250
H	250
Average Buffer Width *Round to the nearest integer*	213

Structural Patch Type Worksheet for Estarine Wetlands

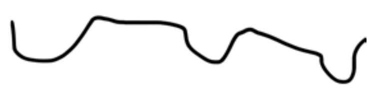
STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	
Plant hummocks and/or sediment mounds	**X**
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	**X**
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**6**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West



Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Salicornia pacifica	
		Frankenia salina	
		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica		Spartina foliosa	
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

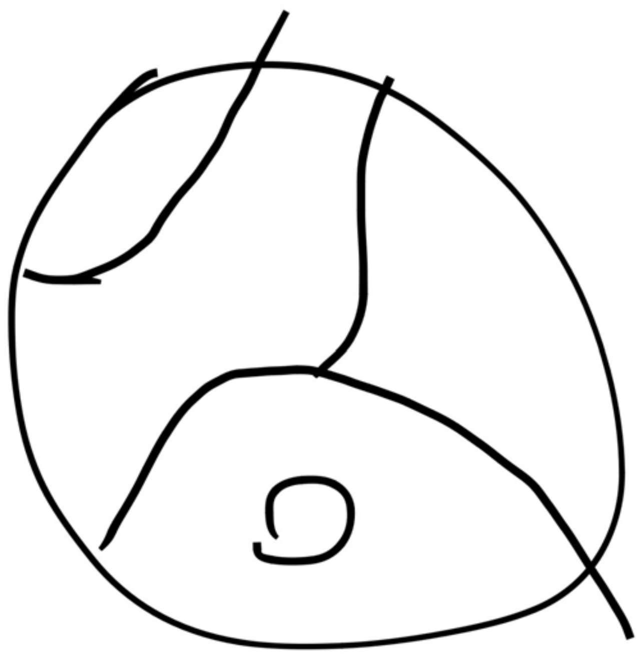


Table 21: Wetland disturbances and conversions.

Has a major disturbance occured at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide or other?	flood	fire	landslide	other
If yes, how severe is this disturbance?	likely to affect site for next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	
	Other:			

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 64

Project Name: San Elijo Lagoon Restoration Project

Assessment Area ID #: C-64

Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Derrick Mathews, Tito Marchant (NC)

Center of AA

Latitude: 33.00603757242 **Longitude:** -117.265857388891

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other: Pre-restoration

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	CentralBasin64_W_1.jpg		33.0060111111	-117.265858333	D_WGS_1984
2	CentralBasin64_E_2.jpg		33.0060027778	-117.265827778	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 64			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	C	6		
Buffer (based on sub-metrics A-C)				
	Alpha.	Numeric		
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	A	12		
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}		18	**Final Attribute Score = (Raw Score/24) x 100**	75
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	B	9		
Hydrologic Connectivity	C	6		
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	B	9		
Topographic Complexity	B	9		
Raw Attribute Score = sum of numeric scores		18	**Final Attribute Score = (Raw Score/24) x 100**	75
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	B	9		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		10		
Horizontal Interspersion	B	9		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		28	**Final Attribute Score = (Raw Score/36) x 100**	78
Overall AA Score (average of four final Attribute Scores)			72	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	76
South	3
East	3
West	100
Average Percentage of Transect Length that is an Aquatic Feature	46

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width *Round to the nearest integer*	250

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	**X**
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**7**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Distichlis spicata	
		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica		Spartina foliosa	
Spartina foliosa			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

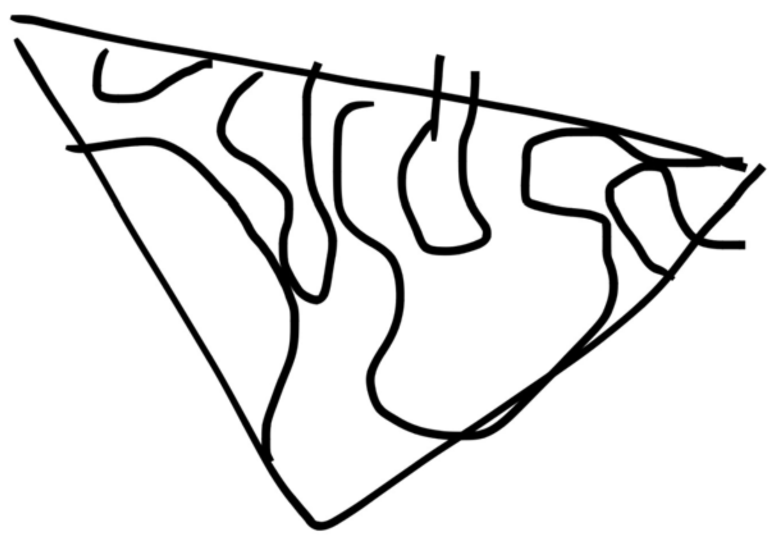


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation	X	
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 72
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: C-72
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Alexandra Fowler, Jordan Luts (NC)

Center of AA

Latitude: 33.0064365081796 **Longitude:** -117.27474653173

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	C72_E_1.jpg		33.0064305556	-117.274741667	D_WGS_1984
2	C72_W_2.jpg		33.0060222222	-117.273797222	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 72				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / Numeric: A / 12				
Buffer submetric B: Average Buffer Width	A / 12				
Buffer submetric C: Buffer Condition	A / 12				
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$			21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		B	9		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		A	12		
Topographic Complexity		B	9		
Raw Attribute Score = sum of numeric scores			21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
Plant Community Submetric A: Number of plant layers	Alpha. / Numeric: B / 9				
Plant Community submetric B: Number of Co-dominant species	C / 6				
Plant Community submetric C: Percent Invasion	A / 12				
Plant Community Composition *(numeric average of submetrics A-C)*			9		
Horizontal Interspersion		B	9		
Vertical Biotic Structure		C	6		
Raw Attribute Score = sum of numeric scores			24	**Final Attribute Score = (Raw Score/36) x 100**	67
Overall AA Score (average of four final Attribute Scores)				76	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	12
East	9
West	100
Average Percentage of Transect Length that is an Aquatic Feature	55

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	250
D	250
E	103
F	220
G	250
H	250
Average Buffer Width *Round to the nearest integer*	228

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**$3 \ m^3$**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	**X**
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	**X**
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**9**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Jaumea carnosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica		Spartina foliosa	
Spartina foliosa			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	3
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

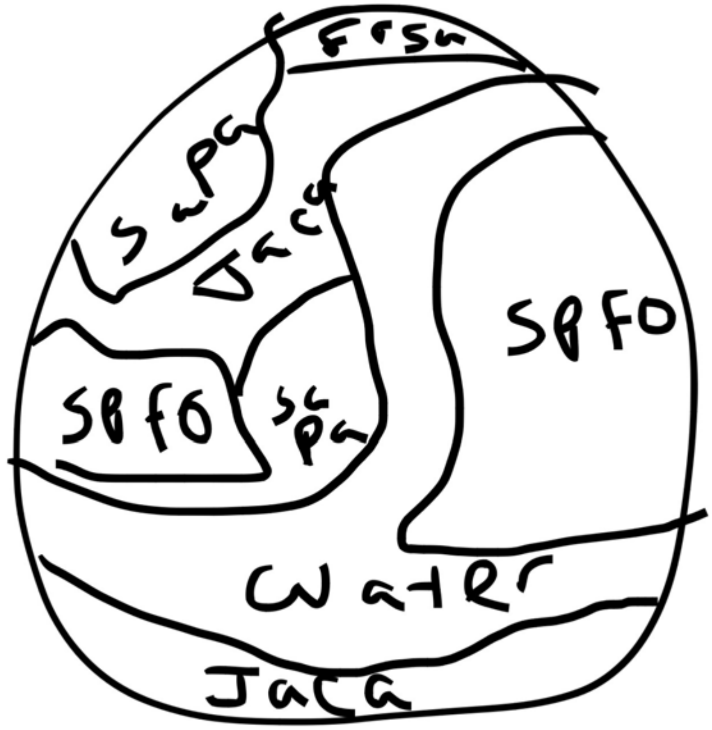


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: Central Basin 73
Project Name: San Elijo Lagoon Restoration Project
Assessment Area ID #: C-73
Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Alexandra Fowler, Jordan Luts (NC)

Center of AA

Latitude: 33.0036102142492 **Longitude:** -117.275139642989

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	C73_E_1.jpg		33.0035416667	-117.275138889	D_WGS_1984
2	C73_W_2.jpg		33.0035527778	-117.274127778	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: Central Basin 73			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	C	6		
Buffer (based on sub-metrics A-C)				
	Alpha.	Numeric		
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	C	6		
Buffer submetric C: Buffer Condition	C	6		
Raw Attribute Score = $D+[C \text{ x } (A \text{ x } B)^{1/2}]^{1/2}$		13	**Final Attribute Score = (Raw Score/24) x 100**	55
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	B	9		
Hydrologic Connectivity	C	6		
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/36) x 100**	59
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	A	12		
Topographic Complexity	B	9		
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/24) x 100**	88
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	A	12		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		11		
Horizontal Interspersion	B	9		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		29	**Final Attribute Score = (Raw Score/36) x 100**	81
Overall AA Score (average of four final Attribute Scores)			71	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	100
South	15
East	3
West	82
Average Percentage of Transect Length that is an Aquatic Feature	50

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	**Buffer Width (m)**
A	250
B	250
C	45
D	75
E	220
F	30
G	30
H	88
Average Buffer Width *Round to the nearest integer*	124

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	**X**
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	**X**
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**9**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Frankenia salina	
		Distichlis spicata	
		Cuscuta sp.	
		Jaumea carnosa	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Frankenia salina		Spartina foliosa	
Salicornia pacifica			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	6
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: East Basin 02	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-2	
Project Site ID #:	**Date:** 10/28/2021

Assessment Team Members for this AA

Alonso Gonzalez Cabello, Fabiola Lario (NC)

Center of AA

Latitude: 33.008922509534 **Longitude:** -117.260288337891

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	EastBasin02 _NW_1.jpg	Facing Northwest	33.0089444444	-117.260230556	D_WGS_1984
2	EastBasin02 _E_2.jpg	Facing East	33.0087027778	-117.261216667	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: East Basin 02			**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	B	9		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	B	9		
Raw Attribute Score = $D+[C \times (A \times B)^{½}]^{½}$		19	**Final Attribute Score = (Raw Score/24) x 100**	80
Attribute 2: Hydrology Attribute (pp. 15-19)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	C	6		
Hydrologic Connectivity	C	6		
Raw Attribute Score = sum of numeric scores		18	**Final Attribute Score = (Raw Score/36) x 100**	50
Attribute 3: Physical Structure Attribute (pp. 20-25)				
	Alpha.	Numeric		
Structural Patch Richness	B	9		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		15	**Final Attribute Score = (Raw Score/24) x 100**	63
Attribute 4: Biotic Structure Attribute (pp. 26-34)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	C	6		
Plant Community submetric B: Number of Co-dominant species	D	3		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition *(numeric average of submetrics A-C)*		7		
Horizontal Interspersion	D	3		
Vertical Biotic Structure	A	12		
Raw Attribute Score = sum of numeric scores		22	**Final Attribute Score = (Raw Score/36) x 100**	62
Overall AA Score (average of four final Attribute Scores)			64	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	59
South	6
East	100
West	62
Average Percentage of Transect Length that is an Aquatic Feature	57

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	132
F	74
G	118
H	235
Average Buffer Width *Round to the nearest integer*	195

Structural Patch Type Worksheet for Estarine Wetlands

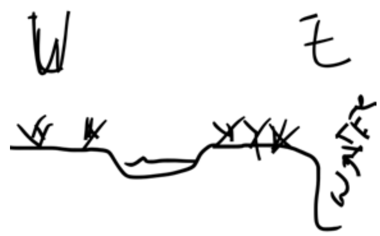
STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	**X**
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**6**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West



Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica			
Spartina foliosa			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	2
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

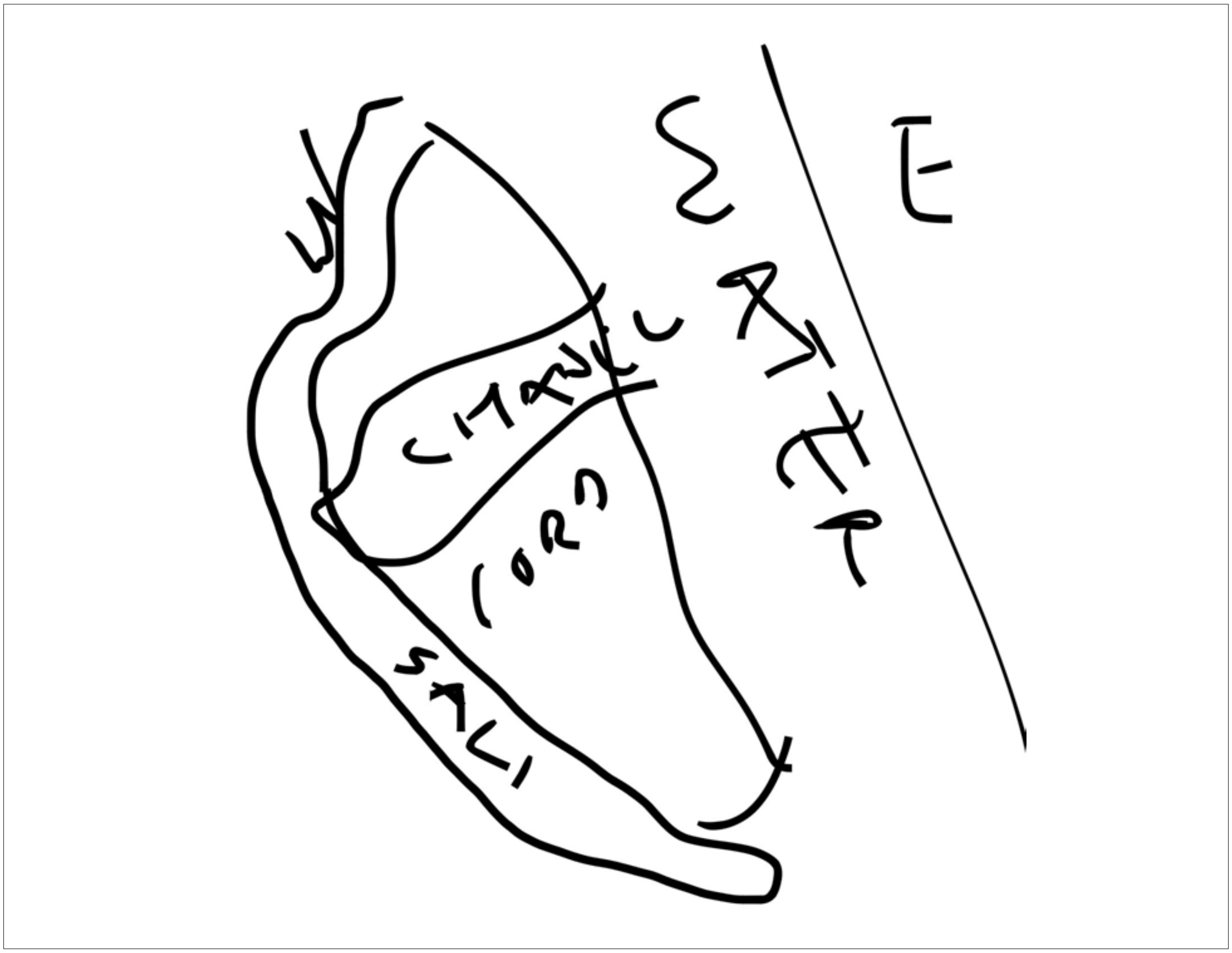


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other: Seasonal salt marsh</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel	X	
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet Perennial Estuarine Wetlands

Assessment Area Name: East Basin 36

Project Name: San Elijo Lagoon Restoration Project

Assessment Area ID #: E-36

Project Site ID #: **Date:** 10/28/2021

Assessment Team Members for this AA

Alonso Gonzalez Cabello, Fabiola Lario (NC)

Center of AA

Latitude: 33.0147323750411 **Longitude:** -117.260270728162

Wetland Sub-type:

Perennial Saline Perennial Non-saline

AA Category:

Restoration Mitigation Impacted Ambient Reference Training

Other:

What best describes the tidal stage over the course of the time spent in the field?
Note: It is recommened that the assesment be conducted during low tide.

high tide low tide

Photographic Identification Numbers and Descrption:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	EastBasin36 _E_1.jpg	Facing East	33.0133333333	-117.259677778	D_WGS_1984
2	EastBasin36 _W_2.jpg	Facing West	33.015675	-117.256294444	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Perennial Estuarine Wetlands

AA Name: East Basin 36				**Date:** 10/28/2021	
Attribute 1: Buffer and Landscape Context (pp. 8-14)				**Comments**	
		Alpha.	Numeric		
Aquatic Area Abundance (D)		B	9		
Buffer (based on sub-metrics A-C)					
Buffer submetric A: Percent of AA with Buffer	Alpha. / Numeric	A	12		
Buffer submetric B: Average Buffer Width		B	9		
Buffer submetric C: Buffer Condition		A	12		
Raw Attribute Score = $D+[C \times (A \times B)^{½}]^{½}$			20	**Final Attribute Score = (Raw Score/24) x 100**	84
Attribute 2: Hydrology Attribute (pp. 15-19)					
		Alpha.	Numeric		
Water Source		C	6		
Hyroperiod		C	6		
Hydrologic Connectivity		C	6		
Raw Attribute Score = sum of numeric scores			18	**Final Attribute Score = (Raw Score/36) x 100**	50
Attribute 3: Physical Structure Attribute (pp. 20-25)					
		Alpha.	Numeric		
Structural Patch Richness		C	6		
Topographic Complexity		B	9		
Raw Attribute Score = sum of numeric scores			15	**Final Attribute Score = (Raw Score/24) x 100**	63
Attribute 4: Biotic Structure Attribute (pp. 26-34)					
Plant Community Composition (based on sub-metrics A-C)					
		Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers		B	9		
Plant Community submetric B: Number of Co-dominant species		B	9		
Plant Community submetric C: Percent Invasion		A	12		
Plant Community Composition *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		C	6		
Vertical Biotic Structure		A	12		
Raw Attribute Score = sum of numeric scores			28	**Final Attribute Score = (Raw Score/36) x 100**	78
Overall AA Score (average of four final Attribute Scores)				69	

Worksheet for Aquatic Area Abundance Metric for Estuarine Wetlands

Percentage of Transect Lines that Contains an Aquatic Feature of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	3
South	100
East	100
West	3
Average Percentage of Transect Length that is an Aquatic Feature	52

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerialimagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	15
B	250
C	250
D	250
E	250
F	250
G	15
H	15
Average Buffer Width *Round to the nearest integer*	162

Structural Patch Type Worksheet for Estarine Wetlands

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackline or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Debris jams	
Filamentous macroalgae or algal mats	**X**
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Pannes or pools on floodplain	**X**
Plant hummocks and/or sediment mounds	
Point bars and in-channel bars	
Pools or depressions in channels (wet or dry channels)	
Secondary channels	**X**
Shellfish beds (living)	
Soil cracks	
Standing snags (at least 3 m tall)	
Submerged vegetation	
Total Possible	**16**
No. Observed Patch Types (enter here and use in Table 14 below)	**5**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major channels, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 8, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

North to South

East to West

Plant Community Metric Worksheet: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

Special Note:

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Jaumea carnosa	
		Salicornia pacifica	
		Distichlis spicata	
		Frankenia salina	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Salicornia pacifica			
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	4
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Each zone should comprise as least 5% of the AA. Based on the sketch, choose a single profile from Figure 10 that best represents the AA overall.

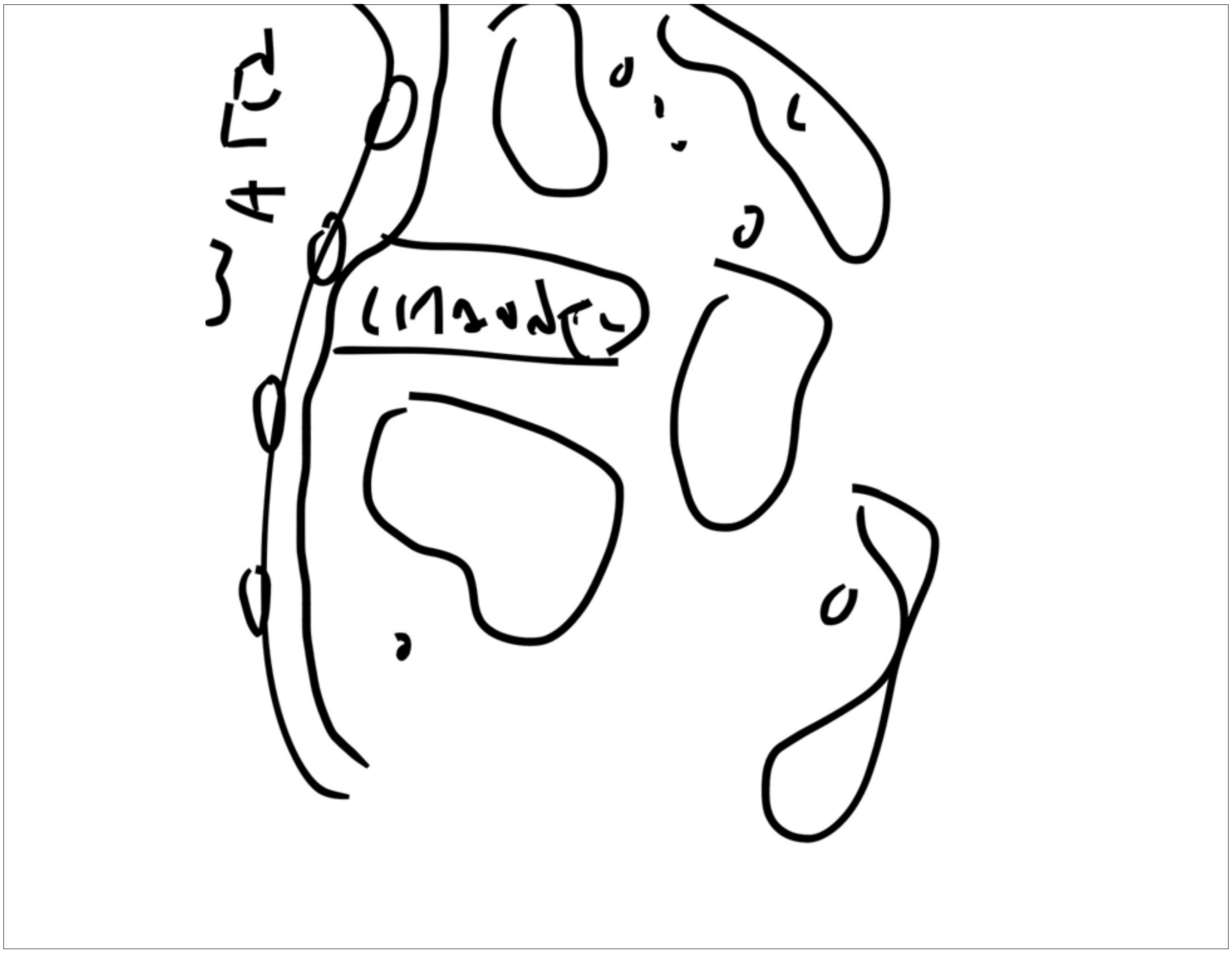


Table 21: Wetland disturbances and conversions.

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site for next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="5">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool system</td></tr>
<tr><td colspan="4">non-confined riverine</td><td colspan="4">confined riverine</td><td colspan="4">seasonal estuarine</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
<tr><td colspan="12">Other:</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: East Basin 33	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-33	
Project Site ID #:	**Date:** 2021-10-28
Assessment Team Members for this AA	
Alexandra Fowler, Jordan Luts (NC)	

AA Category:

☐ Pre-Restoration ☑ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation
☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient
☐ Reference ☐ Other

Orgin of Wetland (if known):

☑ Natural system ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater
☐ water supply (agriculture) ☐ water supply (livestock) ☑ not managed ☐ other

Which best describes the type of depressional wetland?

☐ freshwater marsh ☑ alkaline marsh ☐ brackish marsh
☐ other (specify):

AA Encompasses:

☐ entire wetland ☑ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/innundated ☑ saturated soil, but no surface water ☐ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☑ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? yes no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined outlet? defined undefined

Does the wetland have a defined on undefined inlet? defined undefined

Are the inlet and outlet at the same location? ☐ yes ☑ no

Is the topographic basin of the wetland distinct **or** indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1	E33_S_1.jpg		33.0151	-117.253697222	D_WGS_1984
2	E33_SW_2.jpg		33.0151194444	-117.253477778	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Depressional Wetlands

<table>
<tr><td colspan="4">AA Name: East Basin 33</td><td colspan="2">Date: 2021-10-28</td></tr>
<tr><td colspan="4">Attribute 1: Buffer and Landscape Context (pp. 8-15)</td><td colspan="2">Comments</td></tr>
<tr><td colspan="2" rowspan="2">Aquatic Area Abundance (D)</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="2">Buffer (based on sub-metrics A-C)</td><td colspan="2" rowspan="4"></td><td colspan="2"></td></tr>
<tr><td>Buffer submetric A:
Percent of AA with Buffer</td><td>Alpha.
A</td><td>Numeric
12</td><td colspan="2"></td></tr>
<tr><td>Buffer submetric B:
Average Buffer Width</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td>Buffer submetric C:
Buffer Condition</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="3">Raw Attribute Score = D+[C x (A x B)½]½</td><td>24</td><td>Final Attribute Score = (Raw Score/24) x 100</td><td>100</td></tr>
<tr><td colspan="4">Attribute 2: Hydrology Attribute (pp. 16-21)</td><td colspan="2"></td></tr>
<tr><td colspan="2" rowspan="2">Water Source</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="2">Hyroperiod</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="2">Hydrologic Connectivity</td><td>B</td><td>9</td><td colspan="2"></td></tr>
<tr><td colspan="3">Raw Attribute Score = sum of numeric scores</td><td>27</td><td>Final Attribute Score = (Raw Score/36) x 100</td><td>75</td></tr>
<tr><td colspan="4">Attribute 3: Physical Structure Attribute (pp. 22-28)</td><td colspan="2"></td></tr>
<tr><td colspan="2" rowspan="2">Structural Patch Richness</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="2">Topographic Complexity</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="3">Raw Attribute Score = sum of numeric scores</td><td>12</td><td>Final Attribute Score = (Raw Score/24) x 100</td><td>50</td></tr>
<tr><td colspan="4">Attribute 4: Biotic Structure Attribute (pp. 29-39)</td><td colspan="2"></td></tr>
<tr><td colspan="4">Plant Community Composition (based on sub-metrics A-C)</td><td colspan="2"></td></tr>
<tr><td>Plant Community Submetric A:
Number of plant layers</td><td>Alpha.
A</td><td>Numeric
12</td><td rowspan="3"></td><td colspan="2"></td></tr>
<tr><td>Plant Community submetric B:
Number of Co-dominant species</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td>Plant Community submetric C:
Percent Invasion</td><td>B</td><td>9</td><td colspan="2"></td></tr>
<tr><td colspan="3">Plant Community Composition Metric
(numeric average of submetrics A-C)</td><td>9</td><td colspan="2"></td></tr>
<tr><td colspan="2">Horizontal Interspersion</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="2">Vertical Biotic Structure</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="3">Raw Attribute Score = sum of numeric scores</td><td>27</td><td>Final Attribute Score = (Raw Score/36) x 100</td><td>75</td></tr>
<tr><td colspan="4">Overall AA Score (average of four final Attribute Scores)</td><td colspan="2">75</td></tr>
</table>

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	50
South	74
East	53
West	71
Average Percentage of Transect Length that is an Aquatic Feature	62

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	220
Average Buffer Width ***Round to the nearest integer***	246

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackl or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Open water	
Plant hummocks and/or sediment mounds	**X**
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	**X**
Submerged vegetation	
Swales on floodplain or along shoreline	**X**
Variegated, convoluted, or crenulated foreshore	
Woody vegetation in water	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	**5**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South

East to West

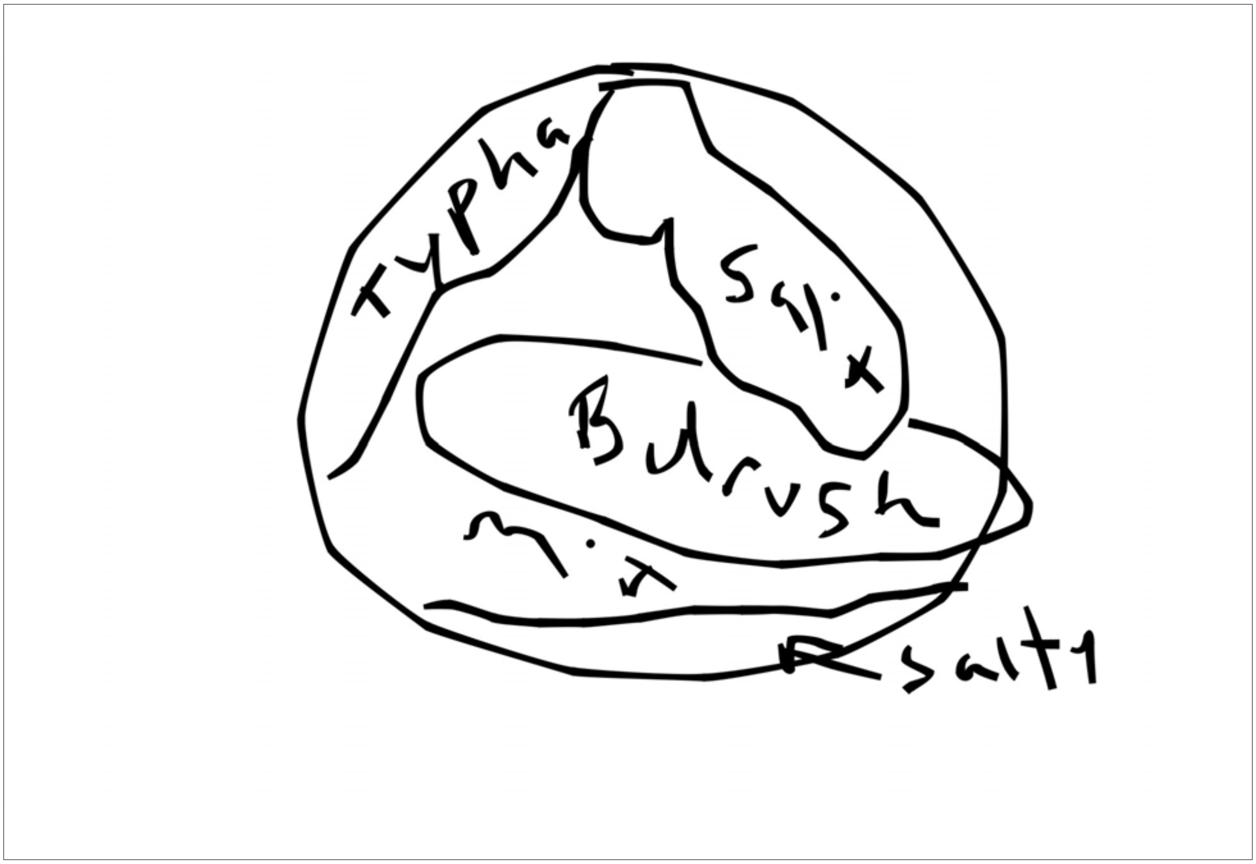
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Frankenia salina	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Chenopodium sp.	X	Pluchea odorata var. odorata	
Frankenia salina		Schoenoplectus californicus	
Pluchea odorata var. odorata		Typha domingensis	
Very Tall (>1.5 m)	**Invasive?**		
Salix lasiolepis		**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	6
		Percent Invastion *Round to the nearest whole number (integer)*	17

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td>Yes</td><td>No</td><td></td><td></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td>flood</td><td>fire</td><td>landslide</td><td>other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td>likely to affect site next 5 or more years</td><td colspan="2">likely to affect site next 3-5 years</td><td>likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="4">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td>depressional</td><td colspan="2">vernal pool</td><td>vernal pool</td></tr>
<tr><td>non-confined</td><td colspan="2">confined</td><td>seasonal</td></tr>
<tr><td>perennial saline estuarine</td><td colspan="2">perennial non-saline estuarine</td><td>wet meadow</td></tr>
<tr><td>lacustrine</td><td colspan="2">seep or spring</td><td>playa</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		X
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: East Basin 34	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-34	
Project Site ID #:	**Date:** 2021-10-28
Assessment Team Members for this AA	
Alexandra Fowler, Jordan Luts (NC)	

AA Category:

☐ Pre-Restoration ☑ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other

Orgin of Wetland (if known):

☑ Natural system ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☑ not managed ☐ other

Which best describes the type of depressional wetland?

☐ freshwater marsh ☑ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☑ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☑ ponded/innundated ☐ saturated soil, but no surface water ☐ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☑ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? yes no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined outlet? defined undefined

Does the wetland have a defined on undefined inlet? defined undefined

Are the inlet and outlet at the same location? ☐ yes ☑ no

Is the topographic basin of the wetland distinct **or** indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1	E34_E_1.jpg		33.0143138889	-117.253588889	D_WGS_1984
2	E34_W_2.jpg		33.0148333333	-117.251902778	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Depressional Wetlands

AA Name: East Basin 34			**Date:** 2021-10-28	
Attribute 1: Buffer and Landscape Context (pp. 8-15)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	A	12		
Buffer (based on sub-metrics A-C)				
	Alpha.	Numeric		
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	A	12		
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$		24	**Final Attribute Score = (Raw Score/24) x 100**	100
Attribute 2: Hydrology Attribute (pp. 16-21)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	A	12		
Hydrologic Connectivity	B	9		
Raw Attribute Score = sum of numeric scores		27	**Final Attribute Score = (Raw Score/36) x 100**	75
Attribute 3: Physical Structure Attribute (pp. 22-28)				
	Alpha.	Numeric		
Structural Patch Richness	D	3		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 29-39)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	B	9		
Plant Community submetric B: Number of Co-dominant species	C	6		
Plant Community submetric C: Percent Invasion	D	3		
Plant Community Composition Metric *(numeric average of submetrics A-C)*		6		
Horizontal Interspersion	C	6		
Vertical Biotic Structure	A	12		
Raw Attribute Score = sum of numeric scores		24	**Final Attribute Score = (Raw Score/36) x 100**	67
Overall AA Score (average of four final Attribute Scores)			70	

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	79
South	68
East	74
West	100
Average Percentage of Transect Length that is an Aquatic Feature	80

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackl or organic debris in channel, on floodplain, or across depressional wetland plain	
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Open water	**X**
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	**X**
Variegated, convoluted, or crenulated foreshore	
Woody vegetation in water	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	2

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

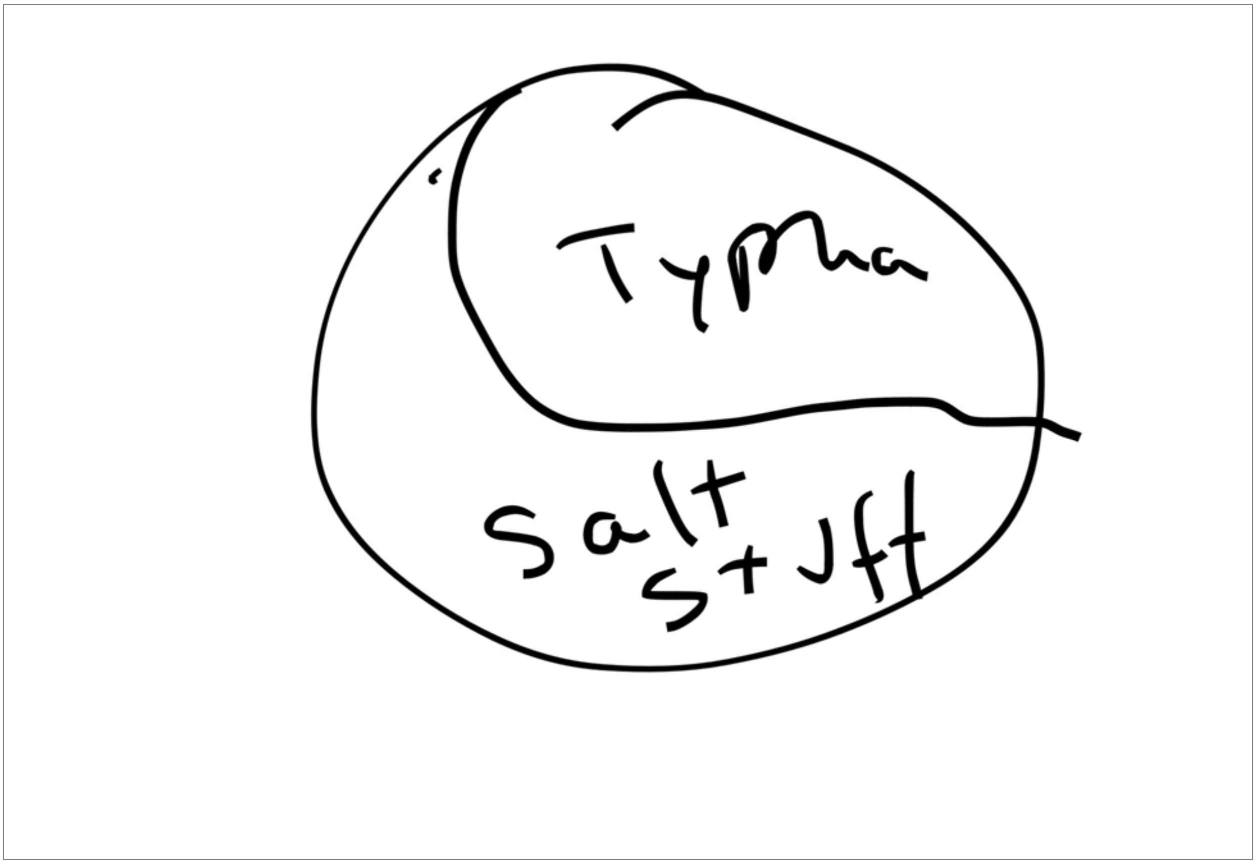
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% ***relative*** cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Frankenia salina	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Apium graveolens	X	Schoenoplectus californicus	
Atriplex sp.	X	Typha domingensis	
Frankenia salina			
Very Tall (>1.5 m)	**Invasive?**		
		Total number of co-dominant species for all layers combined (enter here and use in Table 18)	6
		Percent Invastion *Round to the nearest whole number (integer)*	33

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="2">Yes</td><td colspan="2">No</td><td colspan="2"></td><td></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="2">flood</td><td colspan="2">fire</td><td colspan="2">landslide</td><td>other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="3">likely to affect site next 5 or more years</td><td colspan="3">likely to affect site next 3-5 years</td><td colspan="2">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="4">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="3">depressional</td><td colspan="3">vernal pool</td><td colspan="2">vernal pool</td></tr>
<tr><td colspan="3">non-confined</td><td colspan="3">confined</td><td colspan="2">seasonal</td></tr>
<tr><td colspan="3">perennial saline estuarine</td><td colspan="3">perennial non-saline estuarine</td><td colspan="2">wet meadow</td></tr>
<tr><td colspan="3">lacustrine</td><td colspan="3">seep or spring</td><td colspan="2">playa</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential		X
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: East Basin 63	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-63	
Project Site ID #:	**Date:** 2021-10-28
Assessment Team Members for this AA	
Derrick Mathews, Tito Marchant (NC)	

AA Category:

☐ Pre-Restoration ☑ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other

Orgin of Wetland (if known):

☑ Natural system ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☑ not managed ☐ other

Which best describes the type of depressional wetland?

☐ freshwater marsh ☑ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☑ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/innundated ☐ saturated soil, but no surface water ☑ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☑ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? yes no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined outlet? defined undefined

Does the wetland have a defined on undefined inlet? defined undefined

Are the inlet and outlet at the same location? ☐ yes ☑ no

Is the topographic basin of the wetland distinct **or** indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1	EastBasin63 _N_1.jpg		33.0109388889	-117.246752778	D_WGS_1984
2	EastBasin63 _S_2.jpg		33.0118666667	-117.246730556	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Depressional Wetlands

AA Name: East Basin 63			**Date:** 2021-10-28	
Attribute 1: Buffer and Landscape Context (pp. 8-15)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	B	9		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	B	9		
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$		19	**Final Attribute Score = (Raw Score/24) x 100**	80
Attribute 2: Hydrology Attribute (pp. 16-21)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	A	12		
Hydrologic Connectivity	A	12		
Raw Attribute Score = sum of numeric scores		30	**Final Attribute Score = (Raw Score/36) x 100**	84
Attribute 3: Physical Structure Attribute (pp. 22-28)				
	Alpha.	Numeric		
Structural Patch Richness	D	3		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 29-39)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	A	12		
Plant Community submetric B: Number of Co-dominant species	C	6		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition Metric *(numeric average of submetrics A-C)*		10		
Horizontal Interspersion	B	9		
Vertical Biotic Structure	B	9		
Raw Attribute Score = sum of numeric scores		28	**Final Attribute Score = (Raw Score/36) x 100**	78
Overall AA Score (average of four final Attribute Scores)			70	

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	5
South	20
East	50
West	100
Average Percentage of Transect Length that is an Aquatic Feature	44

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackl or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	**X**
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Open water	
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
Woody vegetation in water	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	**3**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

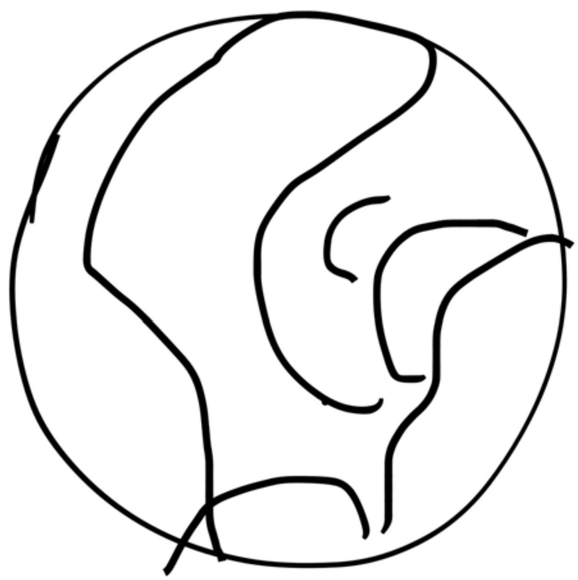
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	**Invasive?**	**Short (<0.3 m)>**	**Invasive?**
		Jaumea carnosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Bolboschoenus maritimus subsp. paludosus		Bolboschoenus maritimus subsp. paludosus	
Very Tall (>1.5 m)	**Invasive?**		
Juncus acutus subsp. leopoldii		**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	6
Typha domingensis			
Salix gooddingii			
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occured at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide or other?	flood	fire	landslide	other
If yes, how severe is this disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool	
	non-confined	confined	seasonal	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	X	
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: East Basin 65	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-65	
Project Site ID #:	**Date:** 2021-10-28
Assessment Team Members for this AA	
Derrick Mathews, Izzy Santarsieri (NC), Rachel Chen, Tito Marchant (NC)	

AA Category:

☐ Pre-Restoration ☑ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other

Orgin of Wetland (if known):

☑ Natural system ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☑ not managed ☐ other

Which best describes the type of depressional wetland?

☐ freshwater marsh ☑ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☑ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/innundated ☐ saturated soil, but no surface water ☑ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☑ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? yes no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined outlet? defined undefined

Does the wetland have a defined on undefined inlet? defined undefined

Are the inlet and outlet at the same location? ☐ yes ☑ no

Is the topographic basin of the wetland distinct **or** indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1	EastBasin65_E_1.jpg		33.0115027778	-117.244669444	D_WGS_1984
2	EastBasin65_E_2.jpg		33.0115027778	-117.244669444	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Depressional Wetlands

<table>
<tr><td colspan="5">AA Name: East Basin 65</td><td colspan="2">Date: 2021-10-28</td></tr>
<tr><td colspan="5">Attribute 1: Buffer and Landscape Context (pp. 8-15)</td><td colspan="2">Comments</td></tr>
<tr><td colspan="3" rowspan="2">Aquatic Area Abundance (D)</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="3">Buffer (based on sub-metrics A-C)</td><td colspan="2" rowspan="4"></td><td colspan="2"></td></tr>
<tr><td>Buffer submetric A:
Percent of AA with Buffer</td><td>Alpha.
A</td><td>Numeric
12</td><td colspan="2"></td></tr>
<tr><td>Buffer submetric B:
Average Buffer Width</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td>Buffer submetric C:
Buffer Condition</td><td>B</td><td>9</td><td colspan="2"></td></tr>
<tr><td colspan="4">Raw Attribute Score = D+[C x (A x B)^½]^½</td><td>22</td><td>Final Attribute Score = (Raw Score/24) x 100</td><td>92</td></tr>
<tr><td colspan="5">Attribute 2: Hydrology Attribute (pp. 16-21)</td><td colspan="2"></td></tr>
<tr><td colspan="3" rowspan="2">Water Source</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="3">Hyroperiod</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="3">Hydrologic Connectivity</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="4">Raw Attribute Score = sum of numeric scores</td><td>30</td><td>Final Attribute Score = (Raw Score/36) x 100</td><td>84</td></tr>
<tr><td colspan="5">Attribute 3: Physical Structure Attribute (pp. 22-28)</td><td colspan="2"></td></tr>
<tr><td colspan="3" rowspan="2">Structural Patch Richness</td><td>Alpha.</td><td>Numeric</td><td colspan="2"></td></tr>
<tr><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="3">Topographic Complexity</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="4">Raw Attribute Score = sum of numeric scores</td><td>12</td><td>Final Attribute Score = (Raw Score/24) x 100</td><td>50</td></tr>
<tr><td colspan="5">Attribute 4: Biotic Structure Attribute (pp. 29-39)</td><td colspan="2"></td></tr>
<tr><td colspan="5">Plant Community Composition (based on sub-metrics A-C)</td><td colspan="2"></td></tr>
<tr><td>Plant Community Submetric A:
Number of plant layers</td><td>Alpha.
A</td><td>Numeric
12</td><td colspan="2" rowspan="3"></td><td colspan="2"></td></tr>
<tr><td>Plant Community submetric B:
Number of Co-dominant species</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td>Plant Community submetric C:
Percent Invasion</td><td>A</td><td>12</td><td colspan="2"></td></tr>
<tr><td colspan="4">Plant Community Composition Metric
(numeric average of submetrics A-C)</td><td>10</td><td colspan="2"></td></tr>
<tr><td colspan="3">Horizontal Interspersion</td><td>B</td><td>9</td><td colspan="2"></td></tr>
<tr><td colspan="3">Vertical Biotic Structure</td><td>C</td><td>6</td><td colspan="2"></td></tr>
<tr><td colspan="4">Raw Attribute Score = sum of numeric scores</td><td>25</td><td>Final Attribute Score = (Raw Score/36) x 100</td><td>70</td></tr>
<tr><td colspan="5">Overall AA Score (average of four final Attribute Scores)</td><td colspan="2">74</td></tr>
</table>

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	20
South	20
East	55
West	100
Average Percentage of Transect Length that is an Aquatic Feature	49

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackl or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large Woody Debris	
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	**X**
Open water	
Plant hummocks and/or sediment mounds	
Soil cracks	**X**
Standing snag(s) (1 or more at least 3 m tall)	
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	**X**
Woody vegetation in water	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	4

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

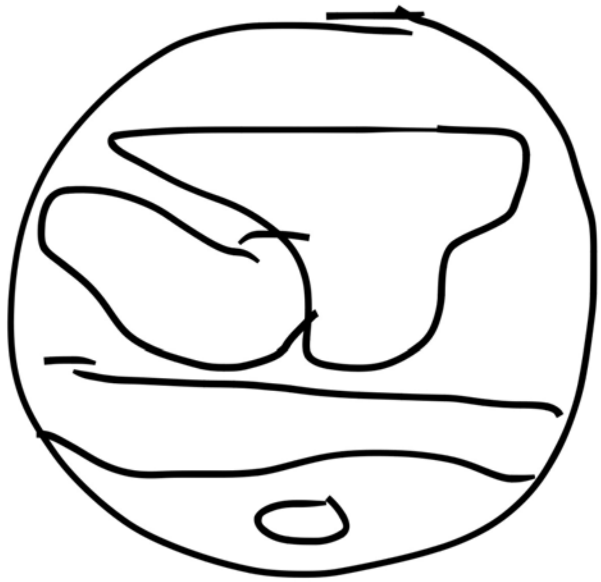
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% ***relative*** cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Frankenia salina	
		Jaumea carnosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
		Juncus acutus subsp. leopoldii	
		Schoenoplectus californicus	
Very Tall (>1.5 m)	**Invasive?**		
Salix gooddingii		**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	6
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

Has a major disturbance occured at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide or other?	flood	fire	landslide	other
If yes, how severe is this disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool	
	non-confined	confined	seasonal	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	**Present**	**Significant negative effect on AA**
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: East Basin 75	
Project Name: San Elijo Lagoon Restoration Project	
Assessment Area ID #: E-75	
Project Site ID #:	**Date:** 2021-10-28
Assessment Team Members for this AA	
Izzy Santarsieri (NC), Rachel Chen	

AA Category:

☐ Pre-Restoration ☑ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other

Orgin of Wetland (if known):

☑ Natural system ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☑ not managed ☐ other

Which best describes the type of depressional wetland?

☐ freshwater marsh ☑ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☑ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/innundated ☐ saturated soil, but no surface water ☑ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☑ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? yes no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined outlet? defined undefined

Does the wetland have a defined on undefined inlet? defined undefined

Are the inlet and outlet at the same location? ☐ yes ☑ no

Is the topographic basin of the wetland distinct **or** indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1	EastBasin75_SW_1.jpg	SW	33.0104194444	-117.243352778	D_WGS_1984
2	EastBasin75_NW_2.jpg	NW	33.0101583333	-117.242813889	D_WGS_1984

Site Location Description:

Comments:

Scoring Sheet: Depressional Wetlands

AA Name: East Basin 75			**Date:** 2021-10-28	
Attribute 1: Buffer and Landscape Context (pp. 8-15)			**Comments**	
	Alpha.	Numeric		
Aquatic Area Abundance (D)	A	12		
Buffer (based on sub-metrics A-C)				
Buffer submetric A: Percent of AA with Buffer	A	12		
Buffer submetric B: Average Buffer Width	A	12		
Buffer submetric C: Buffer Condition	B	9		
Raw Attribute Score = D+[C x (A x B)^{½}]^{½}		22	**Final Attribute Score = (Raw Score/24) x 100**	92
Attribute 2: Hydrology Attribute (pp. 16-21)				
	Alpha.	Numeric		
Water Source	C	6		
Hyroperiod	A	12		
Hydrologic Connectivity	A	12		
Raw Attribute Score = sum of numeric scores		30	**Final Attribute Score = (Raw Score/36) x 100**	84
Attribute 3: Physical Structure Attribute (pp. 22-28)				
	Alpha.	Numeric		
Structural Patch Richness	D	3		
Topographic Complexity	C	6		
Raw Attribute Score = sum of numeric scores		9	**Final Attribute Score = (Raw Score/24) x 100**	38
Attribute 4: Biotic Structure Attribute (pp. 29-39)				
Plant Community Composition (based on sub-metrics A-C)				
	Alpha.	Numeric		
Plant Community Submetric A: Number of plant layers	A	12		
Plant Community submetric B: Number of Co-dominant species	B	9		
Plant Community submetric C: Percent Invasion	A	12		
Plant Community Composition Metric *(numeric average of submetrics A-C)*		11		
Horizontal Interspersion	A	12		
Vertical Biotic Structure	C	6		
Raw Attribute Score = sum of numeric scores		29	**Final Attribute Score = (Raw Score/36) x 100**	81
Overall AA Score (average of four final Attribute Scores)			74	

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	50
South	0
East	50
West	100
Average Percentage of Transect Length that is an Aquatic Feature	50

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 100 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	250
B	250
C	250
D	250
E	250
F	250
G	250
H	250
Average Buffer Width ***Round to the nearest integer***	250

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE	Estuarine
Minimum Patch Size	**3 m^3**
Abundant wrackl or organic debris in channel, on floodplain, or across depressional wetland plain	**X**
Animal mounds and burrows	
Bank slumps or undercut banks in channels or along shoreline	
Cobbles and Boulders	
Concentric or parallel high water marks	
Filamentous macroalgae or algal mats	
Islands (mostly above high-water)	
Large Woody Debris	**X**
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	
Open water	
Plant hummocks and/or sediment mounds	
Soil cracks	
Standing snag(s) (1 or more at least 3 m tall)	**X**
Submerged vegetation	
Swales on floodplain or along shoreline	
Variegated, convoluted, or crenulated foreshore	
Woody vegetation in water	
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	**3**

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South 
East to West 

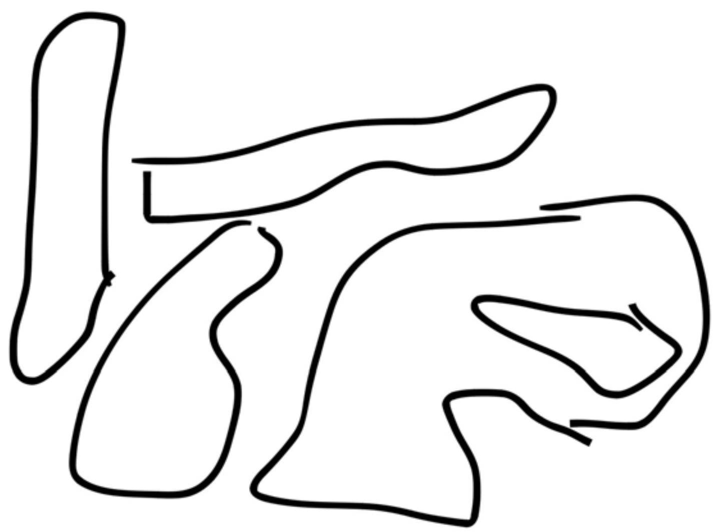
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness (A dominant species represents ≥10% *relative* cover)

** Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.3 m)>	Invasive?
		Frankenia salina	
		Jaumea carnosa	
		Malvella leprosa	
		Salicornia pacifica	
Medium (0.3 - 0.75m)	**Invasive?**	**Tall (0.75 - 1.5m)**	**Invasive?**
Ambrosia psilostachya		Isocoma menziesii	
		Typha latifolia	
Very Tall (>1.5 m)	**Invasive?**		
Salix sp.		**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	8
		Percent Invastion *Round to the nearest whole number (integer)*	0

Horizontal Interspersion Complexity Worksheet.

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.



Wetland disturbances and conversions Worksheet

<table>
<tr><td>Has a major disturbance occured at this wetland?</td><td colspan="3">Yes</td><td colspan="3">No</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>If yes, was it a flood, fire, landslide or other?</td><td colspan="3">flood</td><td colspan="3">fire</td><td colspan="3">landslide</td><td colspan="3">other</td></tr>
<tr><td>If yes, how severe is this disturbance?</td><td colspan="4">likely to affect site next 5 or more years</td><td colspan="4">likely to affect site next 3-5 years</td><td colspan="4">likely to affect site next 1-2 years</td></tr>
<tr><td rowspan="4">Has this wetland been converted from another type? If yes, then what was the previous type?</td><td colspan="4">depressional</td><td colspan="4">vernal pool</td><td colspan="4">vernal pool</td></tr>
<tr><td colspan="4">non-confined</td><td colspan="4">confined</td><td colspan="4">seasonal</td></tr>
<tr><td colspan="4">perennial saline estuarine</td><td colspan="4">perennial non-saline estuarine</td><td colspan="4">wet meadow</td></tr>
<tr><td colspan="4">lacustrine</td><td colspan="4">seep or spring</td><td colspan="4">playa</td></tr>
</table>

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g.,		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)	X	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		