

**WETLAND DELINEATION
FOR THE
±3.52-ACRE MORROW LANE STUDY AREA
CITY OF CHICO, BUTTE COUNTY, CALIFORNIA**



Prepared for:
BCM Construction
2990 Highway 32, Suite 100
Chico, CA 95973

Prepared by:

Salix
consulting, inc.
11601 Blocker Drive, Ste. 100
Auburn, California 95603
(530) 888-0130

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WETLAND DELINEATION FOR THE ±3.52-ACRE MORROW LANE STUDY AREA

INTRODUCTION

Location and Setting

Salix Consulting, Inc. (Salix) prepared a wetland delineation for the ±3.52-acre Morrow Lane study area located in the vicinity of Skyway Road and Notre Dame Boulevard, within the city limits of the City of Chico, Butte County, California. The study area is bounded on the north by Morrow Lane, and on the east by Comanche Court. An empty lot borders the study area along its western edge, and industrial properties are located directly to the south. The approximate coordinates for the center of the property are: 39°42'39.07" N and 121°47'35.10" W. It is situated within Section 6 Township 21N Range 2E of the Chico, California 7.5-minute USGS topographic quadrangle (Figure 1).

The site occurs on the valley floor of the northeast edge of Sacramento Valley, directly west of the northern Sierra Nevada mountain range. It is situated near the southeastern edge of the City of Chico, approximately 400 feet northeast of Highway 99 (HWY 99). The site is in a suburban extension surrounded by agricultural land to the southwest and undeveloped land to the northeast. Warehouses and commercial/industrial properties are located north, south, and west of the site within the immediate vicinity, while property directly to the east is mainly suburban residential. The site is mostly flat, with elevations ranging from approximately 220 feet near the northwest corner to 225 feet at the southwest corner (Figure 2).

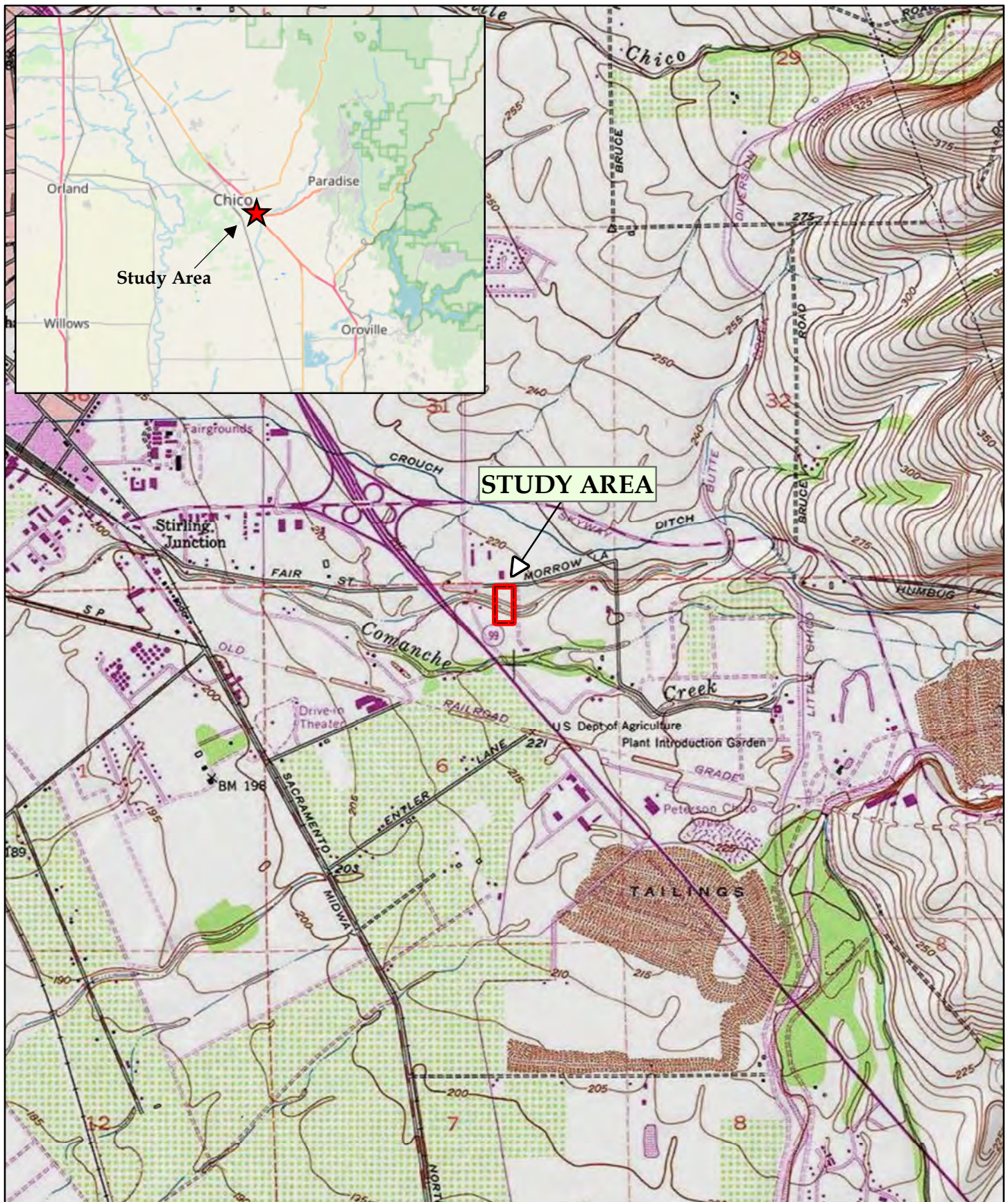
CONTACT INFORMATION

Applicant:

BCM Construction
2990 Highway 32, Suite 100
Chico, CA 95973
Phone: (530) 342-1722
Contact: Gary Graves

Delineated by:

Salix Consulting, Inc.
11601 Blocker Drive, Suite 100
Auburn, California 95603
Phone: (530) 888-0130
Contact: Jeff Glazner



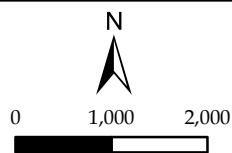
STUDY AREA

Figure 1

SITE AND VICINITY MAP

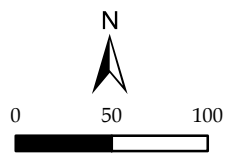
Morrow Lane

City of Chico, Butte County, CA



Source Maps: USGS Topographic Map
Chico Quad 1:24,000
S6 T21N R2E

Initial Study for BCM Construction on Morrow Lane - Appendix B




 Study Area
(±3.52 acres)

Figure 2

AERIAL MAP

Morrow Lane

City of Glendale, Santa Monica, CA

METHODOLOGY

Waters of the United States were delineated on January 20, 2020 by Jeff Glazner. The delineation was conducted according to the 1987 Corps Manual (Environmental Laboratory 1987) as amended by the Arid West Regional Supplement (U.S. Army Corps of Engineers 2008). Potential waters of the U.S. were evaluated and mapped using a Trimble GeoXT 6000 GPS (submeter). Three parameter data sheets (Appendix A) were filled out at two locations as indicated on the Wetland Delineation Map. Biological communities of the study area were mapped, and representative photographs were taken. In addition, the site was flown with an unmanned aerial vehicle (UAV) to obtain an orthomosaic aerial photograph as well as oblique photos of the site.

Information on soils of the study area was obtained from the U.S. Department of Agriculture – National Resource Conservation Service’s online Web Soil Survey (NRCS 2020). In the field, a Munsell Color chart was used to determine moist soil colors. Appendix B is a list of plants observed during the delineation, along with the scientific name and wetland status of each species. Where a plant species observed has a wetland indicator status (not UPL), plant nomenclature follows Lichvar et.al. (2016). Otherwise, species names are aligned with the *The Jepson Manual* (Baldwin et.al. 2012).

Field data collected with the GPS were differentially corrected and were used to create a Wetland Delineation Map using ArcGIS software. The Corps of Engineers Aquatic Resources spreadsheet is included in Appendix C.

FINDINGS

Climate

The study area has a Mediterranean climate with cool, wet winters and hot, dry summers. The average high temperature is 75.3°, with the hottest months being July and August, which each average 94° in high temperature. The low temperatures for these months average 60° and 58°, respectively. The coolest months are December and January, with highs averaging 56° and 55°, respectively. The low temperature for each of these months averages 35°. Annual precipitation averages 26.6 inches, nearly all of which occurs as rainfall between October and April. The wettest months are December, January, and February, each averaging more than 4.5 inches of rainfall.

Soils

Two soil units have been mapped within the study area: Redsluff gravelly loam, 0 to 2 percent slopes, and Redtough-Redswale, 0 to 2 percent slopes. The components of each complex are described below.

Redsluff gravelly loam, 0 to 2 percent slopes

The Redsluff, gravelly loam component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on low fan terraces on Sacramento valleys. The parent material consists of fine-loamy alluvium derived from igneous, metamorphic and

sedimentary rock over gravelly alluvium derived from volcanic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 35 inches during January, February. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 2s. This soil does not meet hydric criteria.

Redtough-Redswale, 0 to 2 percent slopes



Redtough, loam (50%)

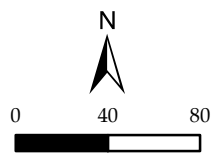
The Redtough, loam component makes up 50 percent of the map unit. Slopes are 0 to 3 percent. This component is on mounds on high fan terraces on Sacramento valleys. The parent material consists of loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock. Depth to a root restrictive layer, duripan, is 10 to 20 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrinkswell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during January, February. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 7s. Irrigated land capability classification is 7s. This soil does not meet hydric criteria.

Redswale, cobbly loam (35%)

The Redswale, cobbly loam component makes up 35 percent of the map unit. Slopes are 0 to 3 percent. This component is on swales on high fan terraces on Sacramento valleys. The parent material consists of cobbly and loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock. Depth to a root restrictive layer, duripan, is 4 to 10 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 8. Irrigated land capability classification is 8 This soil does not meet hydric criteria.

Soil Components

-  300 - Redsluff gravelly loam, 0 to 2 percent slopes
-  302 - Redtough-Redswale, 0 to 2 percent slopes




 Study Area
(±3.52 acres)

Figure 3

SOIL COMPONENTS

Morrow Lane

City of Chico, Butte County CA

Hydrology

The site is in the Comanche Creek HUC12 watershed (180201580301) which is part of the greater Butte Creek HUC8 watershed (18020158). A minor tributary to Comanche Creek flows west, transecting the study area before exiting the parcel along its western boundary. Water continues west for approximately 400 feet before entering a storm drainage system and flowing in a westerly direction underneath Notre Dame Boulevard and HWY 99 for approximately 850 feet. Water exits a culvert on the west side of HWY 99 and flows southwest for approximately 0.25 miles before draining into Comanche Creek. Comanche Creek flows through agricultural property in a southwesterly direction for approximately 10.8 miles before draining into an unnamed intermittent stream. Water in the intermittent stream flows south for approximately 29 miles, joining other tributaries while passing through Eddy Lake and a series of sloughs before ultimately draining into Butte Creek.

Vegetation

Two (2) biological communities are present within the study area – ruderal and oak woodland, while a small portion of the site along the eastern edge is paved. Potential waters of the U.S. are embedded within the oak woodland and are discussed below under “Waters of the U.S.”

Ruderal

A majority of the study area (approximately 2.5 acres in the northern and southern portions) is ruderal. Ruderal habitats are areas of ongoing disturbed ground (such as dirt roads, areas of general vehicular use, and residential and storage areas) dominated by weedy annual species adapted to disturbance. Common species throughout the ruderal areas include Italian ryegrass (*Festuca perennis*), ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), rose clover (*Trifolium hirtum*), dove’s foot geranium (*Geranium molle*), turkey mullein (*Croton setiger*), curly dock (*Rumex crispus*), prickly lettuce (*Lactuca serriola*), ruby sand-spurrey (*Spergularia rubra*), and yellow starthistle (*Centaurea solstitialis*) (Figure 4a).

Oak Woodland

Approximately 0.8 acre of oak woodland bisects the center of the study area from east to west. The overstory in this portion of the study area is composed almost entirely of valley oak (*Quercus lobata*), though some interior live oak (*Quercus wislizeni*), Fremont cottonwood (*Populus fremontii*), and Chinese pistache (*Pistacia chinensis*) are also present. The trees on the property were inventoried, and an arborist report has been prepared under separate cover. A wetland swale feature embedded in the oak woodland is discussed further below under Potential Waters of the U.S.

Paved

Approximately 0.2 acres of the study area, where Comanche Court follows the eastern boundary, contains paved road.

Waters of the United States

One category of potential waters of the United States have been mapped on the study area: ephemeral stream. Figures 4b and 4c show representative site photographs; Figure 5 is the wetland delineation map.

Table 1.
Waters of the United States

Type	Acreage
Other Waters:	
Ephemeral Stream	±0.083
Total	±0.083

Ephemeral Stream

Approximately 0.083 acre of potential waters of the U.S. have been identified on the site in the form of an ephemeral stream. This feature bisects the center of the study area from east to west. The drainage is part of a minor tributary to Comanche Creek that begins approximately 0.6 mile east of the study area. Water enters the swale through two culverts under Comanche Court at the study area's eastern boundary. Water moves northwesterly across the study area and to the west.

The drainage is a remnant of a larger stream that existed before the area was developed decades ago. There is still a minimal amount of water that flows through it during high precipitation events but appear to be dry for most of the time. During the delineation in January, there was no evidence of recent flows although some shallow puddling was present from recent rains. The surface of the drainage is dense with decaying leaf litter and fine sediment. Digging through the litter reveals a very rocky substrate. Soils do not show redoximorphic features and there was virtually no vegetation growing in the channel. This feature therefore does not meet the three criteria for a wetland and is considered an ephemeral stream. The thalweg of the drainage is just under 300 feet long (Figures 4b and 4c).



Looking southeast over study area and wetland swale. *Photo Date 01-20-20.*



Looking south over study area and wetland swale. *Photo Date 01-20-20.*





Looking west along the wetland swale and oak woodland from Comanche Court. *Photo Date 01-20-20.*



Water enters the swale through two culverts underneath Comanche Court at the study area's eastern boundary. *Photo Date 01-20-20.*





Looking east along the wetland swale and oak woodland from the western boundary. *Photo Date 01-20-20.*







View of a remnant pedestrian crossing where the wetland swale exists the study area along the western boundary. *Photo Date 01-20-20.*





Potential Waters of the U.S.	
Other Waters	Acres
Ephemeral Stream	
<div>ES-1</div>	0.083
<hr/>	
Subtotal	0.083
<hr/>	
Total 0.083 Acre	

<div>Prepared By:  DELINEATED BY: J. Glazner DRAWN BY: J. Soch COORDINATE SYSTEM: NAD83 CA State Plane II (0402) (U.S. Ft) IMAGERY: 01-20-20 Salix Consulting, Inc.</div>	<div>Prepared For: BCM Construction 2990 Highway 32, Suite 100 Chico, CA 95973</div> <div><div> Study Area (±3.52 acres)</div><div><div> Other Waters Data Point</div><div><div> Upland Data Point</div></div></div></div>	<div>Figure 5</div> <div>WETLAND DELINEATION</div> <div>Morrow Lane</div> <div>City of Chico, Butte County, CA</div>
		<div>February 13, 2020</div> <div>Initial Study for BCM Construction on Morrow Lane Appendix B</div>

REFERENCES AND OTHER SOURCES

- Baldwin, Bruce G. (ed.). 2012. The Jepson Manual - Vascular Plants of California, Second Edition. University of California Press. Berkeley, CA.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 Wetland Ratings*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Munsell Color. 2015. Munsell Soil Color Charts. Munsell Color, X-Rite. Grand Rapids, MI.
- U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ed. J.S. Wakeley, R.W Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Climate Data.com. 2020.
<https://www.usclimatedata.com/climate/chico/california/united-states/usca0211>
- U.S. Department of Agriculture, NRCS. Web Soil Survey for Butte County Online.
<http://websoilsurvey.nrcs.usda.gov>. Accessed January 2020.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morrow Lane City/County: City of Chico, Butte County Sampling Date: 01-20-20
 Applicant/Owner: BCM Construction State: CA Sampling Point: 01
 Investigator(s): Jeff Glazner Section, Township, Range: Section 6, Township 21N, Range 2E
 Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): _____ Slope (%): 1-2
 Subregion (LRR): LRR C Lat: 39.71056378 Long: -121.79302658 Datum: NAD 83
 Soil Map Unit Name: 302 - Redtough-Redswale, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No _____	
Remarks: Remnant channel. Considered here as an ephemeral stream due to lack of hydrophytic vegetation and prolonged saturation.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>0</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>Quercus lobata</u>	<u>70</u>	<u>X</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>100</u> % Cover of Biotic Crust _____				

Remarks:

No vegetation in channel. Mature valley oak woodland along channel corridor.

Initial Study for BCM Construction on Morrow Lane - Appendix B

SOIL

Sampling Point: 01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-12	10YR 2/1	100						No redox

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Highly organic silty loam soil with very rocky soil. Thick layer of valley oak leaves.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

Remnant stream channel that now carries very little water. Channel lacks saturation in January and evidence of scour is minimal.

Initial Study for BCM Construction on Morrow Lane - Appendix B

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morrow Lane City/County: City of Chico, Butte County Sampling Date: 01-20-20
 Applicant/Owner: BCM Construction State: CA Sampling Point: 02
 Investigator(s): Jeff Glazner Section, Township, Range: Section 6, Township 21N, Range 2E
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 5
 Subregion (LRR): LRR C Lat: 39.71052724 Long: -121.79303959 Datum: NAD 83
 Soil Map Unit Name: 302 - Redtough-Redswale, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: Side slope is adjacent to channel. only area of water flow is bottom of channel.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>0</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>Quercus lobata</u>	<u>80</u>	<u>X</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Stellaria media</u>	<u>10</u>	<u>X</u>	<u>FACU</u>	
2. _____	<u>10</u>	<u>X</u>	<u>FACU</u>	
3. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks:

Very little vegetation along channel. Very high mulch of leaf litter.

Initial Study for BCM Construction on Morrow Lane - Appendix B

SOIL

Sampling Point: 02

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
Side slope. No evidence water reaches this level.		

Appendix B - Morrow Lane Plants Observed - Wetland Status

Taxon	Common Name	Wetland Status
<i>Acmispon americanus</i>	Spanish lotus	UPL
<i>Aristolochia californica</i>	California pipevine	UPL
<i>Brassica nigra</i>	Black mustard	UPL
<i>Bromus diandrus</i>	Ripgut grass	UPL
<i>Bromus hordeaceus</i>	Soft chess	FACU
<i>Camellia sasanqua</i>	Camellia	UPL
<i>Centaurea solstitialis</i>	Yellow starthistle	UPL
<i>Citrus sinensis</i>	Sweet orange	UPL
<i>Croton setiger</i>	Turkey mullein	UPL
<i>Cynodon dactylon</i>	Bermudagrass	FACU
<i>Epilobium brachycarpum</i>	Summer cottonweed	UPL
<i>Erigeron canadensis</i>	Canadian horseweed	FACU
<i>Erodium botrys</i>	Broad-leaf filaree	FACU
<i>Erodium cicutarium</i>	Red-stem filaree	UPL
<i>Festuca perennis</i>	Italian ryegrass	FAC
<i>Frangula californica subsp. californica</i>	California coffeeberry	UPL
<i>Geranium molle</i>	Dove's-foot geranium	UPL
<i>Kickxia elatine</i>	Sharppoint fluvellin	UPL
<i>Lactuca serriola</i>	Prickly lettuce	FACU
<i>Lamium amplexicaule</i>	Deadnettle	UPL
<i>Panicum capillare</i>	Witchgrass	FACU
<i>Pistacia chinensis</i>	Chinese pistachio	UPL
<i>Polygonum aviculare</i>	Common knotweed	FAC
<i>Populus fremontii</i>	Fremont cottonwood	FAC
<i>Pyrus calleryana</i>	Callery pear	UPL
<i>Quercus lobata</i>	Valley oak	FACU
<i>Quercus wislizeni</i>	Interior live oak	UPL
<i>Rumex crispus</i>	Curly dock	FAC
<i>Senecio vulgaris</i>	Common groundsel	FACU
<i>Sonchus asper subsp. asper</i>	Prickly sow-thistle	FAC
<i>Spergularia rubra</i>	Ruby sand-spurrey	FAC
<i>Stellaria media</i>	Common chickweed	FACU
<i>Trifolium hirtum</i>	Rose clover	UPL
<i>Typha latifolia</i>	Broad-leaved cattail	OBL
<i>Vicia sp.</i>	Vetch	UPL
<i>Vitis californica</i>	California wild grape	FACU

Appendix C.
USACOE Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
ES-1	CALIFORNIA	R4	RIVERINE	Area	0.0829749	ACRE	DELINEATE	39.710627	-121.793123	Comanche Creek