APPENDIX B-5
JURISDICTIONAL
WETLAND DELINEATION

CLEAN WATER ACT PRELIMINARY JURISDICTIONAL DELINEATION

CAVALLO HIGHLANDS

HAYWARD, ALAMEDA COUNTY, CALIFORNIA

LSA

March 2017

CLEAN WATER ACT PRELIMINARY JURISDICTIONAL DELINEATION

CAVALLO HIGHLANDS

HAYWARD, ALAMEDA COUNTY, CALIFORNIA

Submitted to:

Erik Hayden
Hayden Land Company LLC
15732 Los Gatos Boulevard, #101
Los Gatos, California 95032

and

Carrie Aitken
192 Carrick Circle
Hayward, California 94542

Prepared by:

LSA
157 Park Place
Point Richmond, California 94801
510.236.6810

Project No. HLC1601

LSA

March 2017

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INTRODUCTION

At the request of the landowner, Carrie Aitken, LSA has completed a preliminary delineation of potential waters of the United States (U.S.) within the proposed Cavallo Highlands development project site (Study Area) on Assessor's Parcel Number (APN) 85A-6428-002. The landowner proposes to develop a subdivision for single family homes on the property.

PROJECT DESCRIPTION

Overview

The approximately 8.8-acre project site is located at 29080 Fairview Avenue in the City of Hayward within a rapidly developing residential area. The project proposes to demolish the residence and associated structures on the site and subdivide the property into 32 lots in order to construct 28 single-family residences.

Proposed Development

The project proposes to subdivide the property into 32 lots comprised of 28 single-family residential lots, two open space lots, and private roadways. The proposed lots on the site would range in size from 5,000 to 10,000 square feet (s.f.). The proposed residences would range in size from approximately 2,450 s.f. to 3,450 s.f.

Building Heights and Setbacks. Conceptual elevations for the proposed residences show up to two-story residences reaching 34 feet in height. The residences would be set back approximately 20 feet along the private street frontage to allow for driveway apron parking. The residences would be set back approximately five feet on the sides, and approximately 15 to 20 feet from the backyards of the small internal lots. The setbacks for residences along the outer site boundary would be much larger.

Site Access and Parking. A private 26-foot roadway would provide vehicular and pedestrian access to the site. A second 20-foot entrance located in the northwestern corner of the property would connect to Country Club Drive and serve as an emergency vehicle access road.

The proposed residences would be constructed with two- to three-car garages to provide parking for residents of the site. In addition, project driveways of each unit would accommodate a minimum of two (2) cars and guest parking would also be available along the private internal roadways.

STUDY AREA DESCRIPTION

Site Location

The 8.88-acre Study Area consists of the entire Cavallo Highlands project site, which is located on the east side of Carden Lane, in Hayward, California. The irregular-shaped property is approximately 8.88 acres in area and is identified with APN 85A-6428-002.The Study Area is situated on the 7.5-

minute USGS Hayward, California quadrangle, and is centered at UTM 4167727 Northing / 586959 Easting. Figures 1 and 2 depict the regional location and vicinity of the Study Area, respectively.

Soils

The soils are mapped by NRCS as predominantly "Gaviota rocky sandy loam, 5 to 40 percent slopes, eroded." A small portion of the site is mapped as "Los Osos loam, seeped variant, 3 to 15 percent slopes." No serpentine soils occur on or near the property.

Elevation

Elevations on the Study Area range from approximately 1,153 feet above sea level (ASL) at the property boundary at Carden Lane to approximately 1,275 feet ASL at the southern corner of the parcel.

Plant Communities

Plant communities at the Study Area include non-native annual grassland, scattered planted ornamental and fruit trees, a grove of blue-gum eucalyptus (*Eucalyptus globulus*) trees, a grove of California bay laurel (*Umbellularia californica*) trees, and other native trees including trees including coast live oak (*Quercus agrifolia*). Coyote brush (*Baccharis pilularis*) is the most common shrub species on the property, followed by poison oak (*Toxicodendron diversilobum*). Italian thistle (*Carduus pycnocephalus*) is abundant throughout, most dominantly in the flat parts of the valley on the north side of the property.

Non-native Annual Grassland. Most of the property is covered in non-native annual grasslands typical of historically grazed ranches in the area, including soft chess (*Bromus hordeaceous*), wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), and Italian ryegrass (*Festuca perennis*). Intermixed are common forbs, including rose clover (*Trifolium hirtum*), sweetclover (*Melilotus indicus*), lupine (*Lupinus* sp.), burclover (*Medicago polymorpha*), bristly ox-tongue (*Helminthotheca echioides*), poison hemlock (*Conium maculatum*), California poppy (*Eschscholzia californica*), and vetch (*Vicia* sp.). The most common broad-leaved plant species of this community is Italian thistle. A small patch of bracken fern (*Pteridium aquilinum pubescens*) grows out of the grassland on the north side of the property, on the steep north-facing slope on the southern side of the drainage. Several rock outcroppings are scattered throughout the grasslands. The grassland is currently grazed by horses.

Eucalyptus Woodland. A grove of approximately 50 blue-gum eucalyptus trees with a diameter-at-breast-height (DBH) of 8 inches or more is located on the eastern side of the property.

California Bay Laurel Woodland. A small grove of California bay laurels are growing in a rock outcrop in the southern corner of the property, as shown in Photograph 3. Most of the trees in the grove have multiple trunks. The largest trunk had a total DBH of approximately 200 inches.

Ornamental Plants. An approximately 100-square foot patch of blue lily (*Agapanthus praecox*) is growing on the toe of a slope on the east side of the Study Area. In addition to the aforementioned blue-gum eucalyptus, planted ornamental trees on the property include one blackwood acacia (*Acacia melanoxylon*), one deodar cedar (*Cedrus deodara*), one olive (*Olea europaea*), four pines (*Pinus* sp.), and three plum (*Prunus* x *domestica*).

Hydrogeomorphology

The most prominent feature of the Study Area is the main ridge that divides the property into two sub-watersheds. The larger of the two watersheds consists of slopes that drain to the west via a man-made roadside ditch and a naturally occurring tributary that is located outside the property boundary and Study Area to the southwest.

The second, smaller watershed consists of a steep north-facing slope that drains flows from the main ridge, and a south and west facing slope that collects flow from the south and southwest-facing embankment of Stonebrae Country Club Drive. Both slopes drain to a swale in the northwest corner of the Study Area, which historically collected additional runoff from a large watershed to the north. The swale appears to have been hydrologically disconnected from this additional large watershed in 2006, when the Stonebrae Country Club Drive and associated embankment was constructed. Stonebrae Country Club Drive is aligned around the northern and eastern property boundary and is constructed on an embankment that is elevated approximately 15 feet above the valley bottom to the south.

Flows from the northern sub-watersheds appear to be drain off site into a detention basin and then to Dry Creek. Flows from the southern sub-watershed appear to drain through an off-site culvert underneath Carden Lane, which connects flow through an unnamed headwater to Dry Creek. Dry Creek is tributary to Alameda Creek, and ultimately to the San Francisco Bay, a navigable water of the U.S.

REGULATORY BACKGROUND

Clean Water Act Jurisdiction

The U.S. Army Corps of Engineers (Corps) is responsible under Section 404 of the Clean Water Act (CWA) to regulate the discharge of fill material into waters of the U.S. Waters of the U.S. and their lateral limits are defined in 33 CFR Part 328.4[1] and include streams that are tributaries to navigable waters and their adjacent wetlands. The lateral limits of jurisdiction for a non-tidal stream are measured at the line of the Ordinary High Water Mark (OHWM) or the limit of adjacent wetlands. Any permanent extension of the limits of an existing water of the U.S., whether natural or man-made, results in a similar extension of Corps jurisdiction.

Waters of the U.S. fall into two categories: wetlands and non-wetland waters. Wetlands include marshes, meadows, seep areas, floodplains, basins, and other areas experiencing extended seasonal soil saturation and dominated by wetland plant cover. Non-wetland waters include waterbodies and watercourses such as rivers, streams, lakes, springs, ponds, coastal waters, and estuaries.
Waters and wetlands that are not adjacent to or that cannot trace a continuous hydrological connection to navigable water of the U.S. are not tributary to waters of the U.S. These features are termed "isolated wetlands." Isolated wetlands are jurisdictional when their destruction or degradation can affect interstate or foreign commerce.

[1] Department of the Army, Corps of Engineers, 33 CFR Part 328, Vol. 80, No. 124 (June 29, 2015), pp. 37054-37127.

In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit depends on the acreage involved and the purpose of the proposed fill.

METHODS

LSA biologist Bernhard Warzecha investigated the Study Area on May 6, 2016.

The presence of potential wetlands was determined by applying the parameters outlined in the *Corps of Engineers Wetlands Delineation* Manual (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008). This method assesses the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. All of these parameters must be satisfied for an area to be considered a jurisdictional wetland. Wetland indicator status of vegetation follows the *2016 National Wetland Plant List for the Arid West Region* (Lichvar et al. 2016).

LSA established three sample points in the Study Area; the field data sheets are included in Appendix B. CWA jurisdictional boundaries (if present), watercourse lines and sample point locations were mapped using a global positioning system (GPS) receiver with the ability of sub-meter accuracy.

OBSERVATIONS

Potential jurisdictional features and sample point locations are shown on Figure 3. The dimensions of features likely to be found to be subject to CWA jurisdiction are presented in Table A. All other hydrological features on the property are described in the text below.

Potential Jurisdictional Other Waters of the U.S.

Photo 1: Northern Swale draining the watershed to the north of the central ridge in the Study Area. The swale is lined with a black tarp, which is disintegrating at places.

Northern Swale. A 280-foot-long swale on the north side of the Study Area conveys ephemeral to intermittent flows of the northern sub-watershed towards a storm drain gutter off site to the west. The swale is covered with a 6 to 8 foot-wide black tarp. The fabric of the tarp is disintegrating at places, giving views of an on average 1 foot-wide bed with cut banks and an OHWM, with clear evidence of concentrated flow, including recent bank erosion, destruction of terrestrial vegetation, and the presence of litter and debris (Photo 1). The swale may qualify as a jurisdictional tributary, classified as a non-relatively permanent water, intermittent riverine (Cowardin Code R4). The potential jurisdictional area of this tributary is approximately 280 square feet.

Other Features Investigated

Photo 3: The downslope section of the roadside ditch. Ongoing erosion is transforming this ditch to a gully. This ditch is constructed entirely in uplands, does not drain wetlands, and is not connected to a tributary.

Roadside Ditch. A 280-foot-long artificial roadside ditch runs on the north side of the access road. Ongoing erosion is transforming this feature from a ditch to a gully (Photo 3). The ditch and gully convey intermittent flow, draining an approximate 2.5-acre watershed to the north. The ditch has an (on average) 1-foot-wide bed with eroding, undercut banks and an OHWM with evidence of concentrated flow, including sediment scour.

Bed, banks and the OHWM of the ditch end abruptly at the toe of the slope 20 feet east of the access gate (Figure 3). Flows conveyed by this ditch then appear to sheet-flow across the vegetated toe of the slope and across the paved access road towards the south and off site to culvert that travels under Carden Lane. No continuous bed, banks or OHWM connect the roadside ditch to potential jurisdictional features downstream.

Where vegetation occurs within the OHWM of the roadside ditch, the vegetation community is dominated by a mix of facultative wetland and upland species. The three species with the highest percent cover in Sample Point 3 were *Festuca perennis* (FAC), *Avena fatua* (N/A), and *Erigeron canadensis* (FACU). Although *Avena fatua* is not treated in the 2016 wetland indicator plant list (Lichvar et al. 2016), it is generally considered to be an upland species. Please refer to the data sheet for Sample Point 3 in Appendix A for a qualitative evaluation of a representative plant community within the OHWM.

The extent and abundance of occurring hydrophytic species does not indicate a hydrophytic vegetation community as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*.

The roadside ditch is entirely constructed in uplands, it is not a wetland, it does not drain a wetland, and it is not connected to a potential jurisdictional water of the U.S.

Northeast Gully. A 50-foot-long partially overgrown gully conveys ephemeral flow from parts of the west-facing slopes of the embankment of Stonebrae Country Club Drive and parts of the northeast-facing slopes of the main ridge (Photo 4). The gully has a 1-foot-wide bed and banks, but bed and banks are not continuous over the entire 50 feet. The gully ends more than 200 feet upslope from the start of the closest potential jurisdictional feature (Northern Swale).

Photo 4: Northeast Gully. Vegetation within the gully is dominated by Italian thistle.

Where vegetation occurs within this gully and along the banks, the vegetation community is dominated by non-hydrophytic species, including Italian thistle, soft chess and ripgut brome (Sample Point 2).

This gully is a purely erosional feature entirely located in uplands, it is not a wetland, does not drain wetlands, and it is not connected to a potential jurisdictional water of the U.S.

Access Road Culvert. A 10-inch-wide, 13-foot-long metal pipe runs underneath the access road where the access road connects with Carden Lane. However, there are no indicators of concentrated flow to or from the culvert, no OHWM is present, and the culvert does not appear to be hydrologically connected to a potential jurisdictional feature.

Table A: Potential Jurisdictional Waters of the U.S. within the Study Area

WETLANDS	Type	Width (ft.)	Length (ft.)	Area (sq. ft.)*	Area (acres)
None	Wetland	-	-	-	-
WATERCOURSE					
Tributary					
Northern Swale	Tributary	1	280	280	0.006
TOTAL POTENTIAL WATERS		-	-	280	0.006

***** Rounded to the nearest 10 square feet

Table B: Other Features Investigated within the Study Area

Ditches and Erosional Features	Width (ft.)*	Length (ft.)	Area (sq. ft.)**	Area (acres)
Roadside Ditch	1	280	280	0.006
Northeast Gully	1	50	50	0.001
Access Road Culvert	1	13	13	< 0.001
TOTAL			**330**	**< 0.008**

* Average width rounded to the nearest foot

** Rounded to the nearest 10 square feet

CONCLUSIONS

Potential Clean Water Act Section 404 waters of the U.S. identified on the Study Area total 280 square feet (0.006 acres) of a tributary, which may qualify as a potential jurisdictional other water of the U.S.

Three other features in the Study Area were investigated: a 280-foot-long roadside ditch, a 50-foot-long gully and a 13-foot-long culvert. These features are entirely located in uplands, are not connected to potential jurisdictional features downstream, are not wetlands, and do not drain wetlands. The Study Area boundaries, all hydrological features, and sample point locations are shown on Figure 3.

The findings and conclusions presented in this report, including the location and extent of waters subject to regulatory jurisdiction, represent the professional opinion of LSA. These conclusions should be considered preliminary until verified by the Corps.

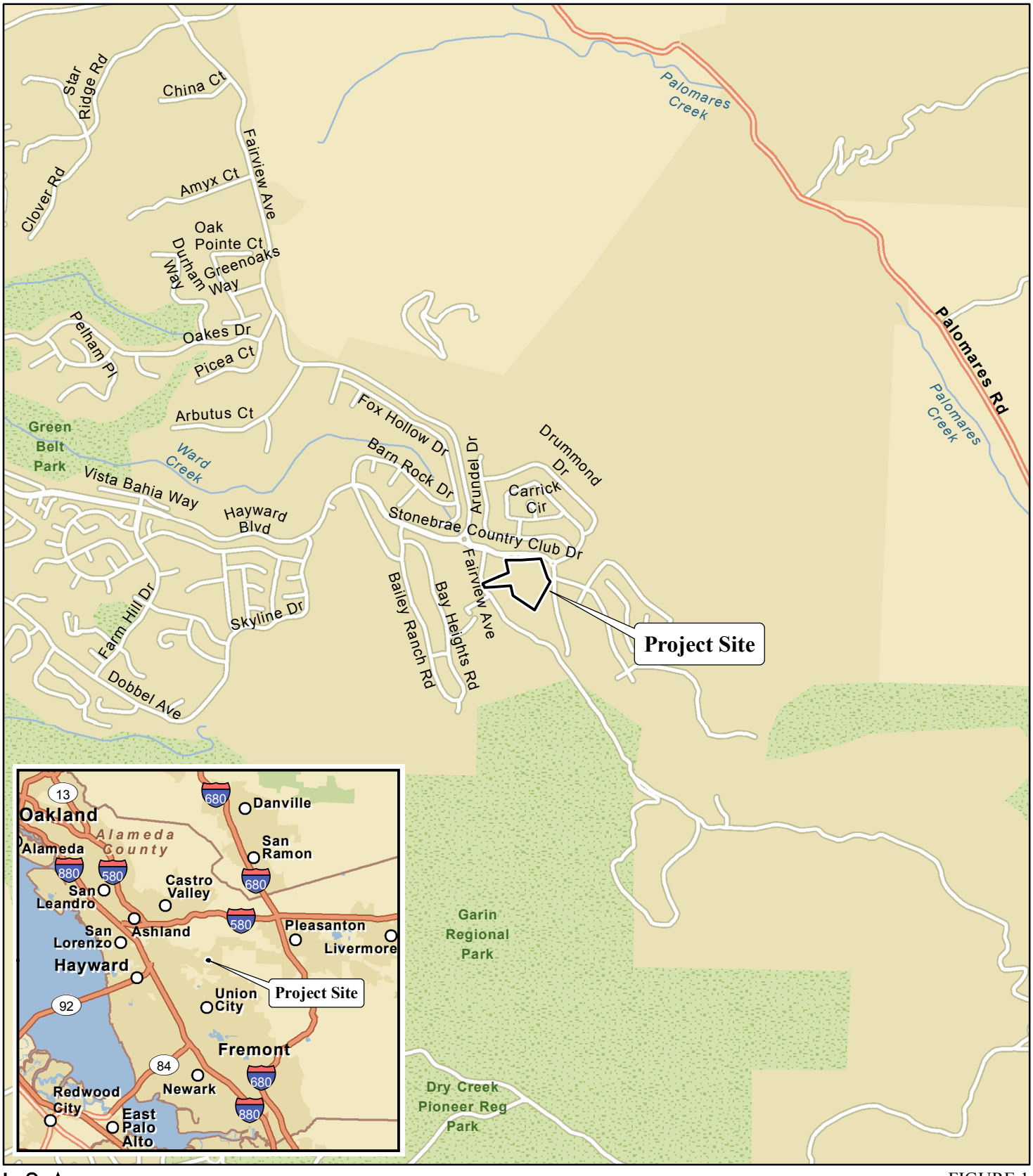
REFERENCES

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi.

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.

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 April 28, 2016. ISSN 2153 733X

FIGURES



LSA

FIGURE 1

N

0 1000 2000
FEET

SOURCE: ESRI StreetMap North America (2012).

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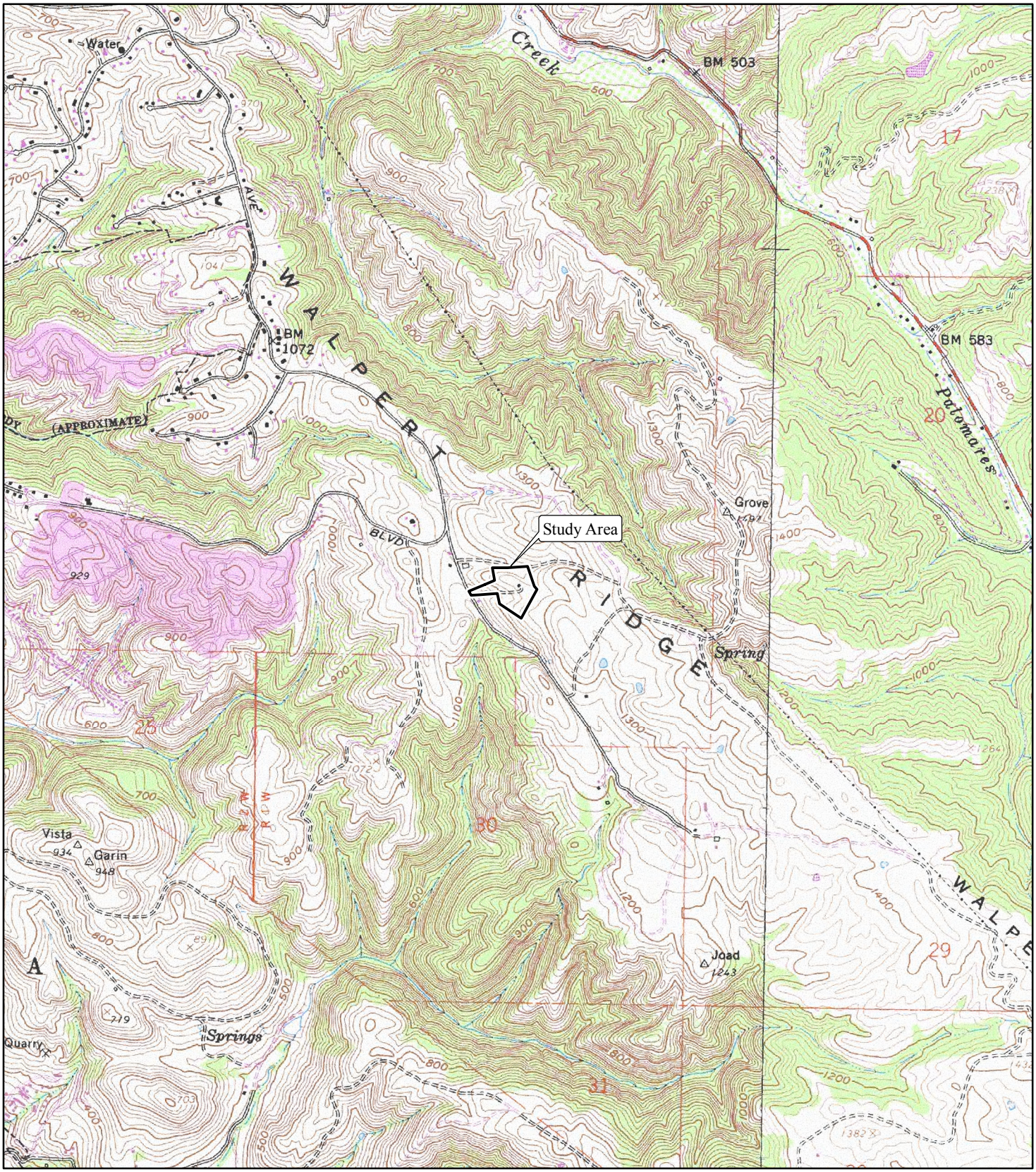
Cavallo Highlands
Hayward, Alameda County, California

Regional Location



LSA

LEGEND

Study Area

FIGURE 2

N

0 1000 2000

FEET

Cavallo Highlands
Hayward, Alameda County, California

Study Area Location

SOURCE: USGS 7.5-minute Topo Quads - *Hayward, Calif.* (1980) and *Dublin, Calif.* (1980).

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LSA

LEGEND

Delineation Study Area

Non-wetland Sample Point

POTENTIAL WATERS OF THE UNITED STATES

Tributary

FIGURE 3

1 INCH = 100 FEET

0 50 100

FEET

MAP PREPARER: Greg Gallaugher

SOURCE: USFWS (10/2006 and 03/2010); USDA NAIP Imagery (06/2014).

Cavallo Highlands

Hayward, Alameda County, California

Potential Waters of the United States

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APPENDIX A

FIELD DATA SHEETS (1-3)

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Aitken Property City/County: Alameda Co Sampling Date: May 6, 2016

Applicant/Owner: Carrie Aitken State: CA Sampling Point: 1

Investigator(s): Bernhard Warzecha Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0-5

Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation _____ Soil _____ or Hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____ Soil _____ or Hydrology _____ Naturally problematic? (If needed, explain any answers in Remarks.)

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

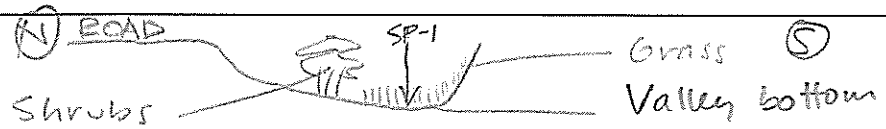
Hydrophytic Vegetation Present? Yes _____ No X

Hydric Soil Present? Yes _____ No X

Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area within a Wetland? Yes _____ No X

Remarks:



VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 30' rad)			
1. BACCHARIS PILULARIS	50	Y	N/A
2.			
3.			
4.			
5.			
Total Cover: 50			
Herb Stratum (Plot size: 5'-rad)			
1. CARDUUS PYCNOCEPHALUS	25	Y	N/A
2. BROMUS HORDEACEOUS	60	Y	FACU
3. BROMUS DIANDRUS	15	N	N/A
4. AVENA FATUA	5	N	N/A
5.			
6.			
7.			
8.			
Total Cover: 100			
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
Total Cover: _____			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____.

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%

— Prevalence Index is ≤3.0[1]

— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)

— Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
1-12	10YR 4/4	100	—				gr, L	Fill ?

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

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

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

Soil very dry

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C5)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Soil very dry despite >18 in rain during season

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Aitken Property City/County: Alameda Co Sampling Date: May 6, 2016

Applicant/Owner: Carrie Aitken State: CA Sampling Point: 2

Investigator(s): Bernhard Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Slope (%): 0-5 %

Subregion (LRR): LRR C Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ____ Soil ____ or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Sample Point is located in a 6" gully, erosional feature

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 5'-r)			
1. CARDUUS PYCNOCEPHALUS	30	Y	N/A
2. BROMUS DIANDRUS	15	Y	N/A
3. BROMUS HORDEACEOUS	15	N	FACU
4. AVENA FATUA	15	N	N/A
5. VICIA AMERICANA	10	N	FAC
6. TRIFOLIUM HIRTUM	5	N	N/A
7.			
8.			
Total Cover: 90%			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species		x 5 =	
Column Totals:	25 (A)		90 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

— Dominance Test is >50%

— Prevalence Index is ≤3.0[1]

— Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)

— Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (**Nonriverine**)
- ____ Sediment Deposits (B2) (**Nonriverine**)
- ____ Drift Deposits (B3) (**Nonriverine**)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C5)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Aitken Property City/County: Alameda Co Sampling Date: May 6, 2016

Applicant/Owner: Carrie Aitken State: CA Sampling Point: 3

Investigator(s): Bernhard Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): Slope (%): 15-30%

Subregion (LRR): LRR C Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ____ Soil ____ or Hydrology ____ Significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ Soil ____ or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Sample Point is located in a 1'- gully / roadside ditch

VEGETATION

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: ____)			
1. FESTUCA PERENNIS	24	Y	FAC
2. AVENA FATUA	5	Y	N/A
3. ERIGERON CANADIENSIS	4	N	FACU
4. PLANTAGO LANCEOLATA	2.5	N	FAC
5. LYTHRUM HYSSOPIFOLIUM	2.5	N	OBL
6. TRIFOLIUM HIRTUM	2.5	N	N/A
7. CYNOSURUS ECHINATOS	2.5	N	N/A
8. 11 OTHER TRACE SPECIES	7	N	
Total Cover: 50%			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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— Prevalence Index is ≤3.0[1]

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— Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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- ____ Loamy Gleyed Matrix F2)
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- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

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- ____ Red Parent Material (TF2)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** _____

Remarks:

Fill from road construction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) **(Nonriverine)**
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- ____ Recent Iron Reduction in Plowed Soils (C5)
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Secondary Indicators (2 or more required)

- ____ Water Marks (B1) **(Riverine)**
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- ____ Drift Deposits (B3) **(Riverine)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
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- ____ Shallow Aquitard (D3)
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Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks: