Preliminary Jurisdictional Delineation Report

201 Kimberly Lane, 161, 141, & 139 Miles Lane
Watsonville, Santa Cruz County, CA
APNs: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Prepared for
MidPen Housing Corporation
275 Main Street, Suite 204
Watsonville, CA 95076

Prepared by
Ecological Concerns Incorporated
125 Walk Circle
Santa Cruz, CA 95060

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INTRODUCTION

Project Description

MidPen Housing proposes to develop on four parcels located in the City of Watsonville. Site analysis indicated that features under the jurisdiction of the United States Army Corps of Engineers (ACOE) exist on the site.

Project Location

The proposed project occurs on four parcels located in the City of Watsonville, Santa Cruz County, CA. Figure 1 provides the project location, while Figure 2 shows the four parcels included in this study.

The project APNs are: 016-111-44, 016-491-01, 016-491-02, and 016-491-03

Site Description

The proposed project will occur on an approximately 4.8-acre site. The western section of the site is developed, with a vacant lot and several structures. The site slopes down from west to east until it flattens out into a low point where an intermittent stream runs from north to south. From the stream going east, the flat area eventually begins rising.

Purpose of Report

This report is meant to provide analysis and delineation boundaries sufficient for the ACOE to make a Preliminary Jurisdictional Determination over the site. In the event that the final project will require the filling or dredging in a jurisdictional water, this report is meant to provide the basis for obtaining a permit under Section 404 of the Clean Water Act.

Report Limitations

Because jurisdiction is determined by ACOE, ECI makes no claims, either explicit or implicit, concerning the final determination of jurisdiction over wetlands within the project area. While every attempt has been made to identify and delineate all wetlands found within the study area, new observations and changing conditions on the project site may cause changes to the final wetland boundary determination.

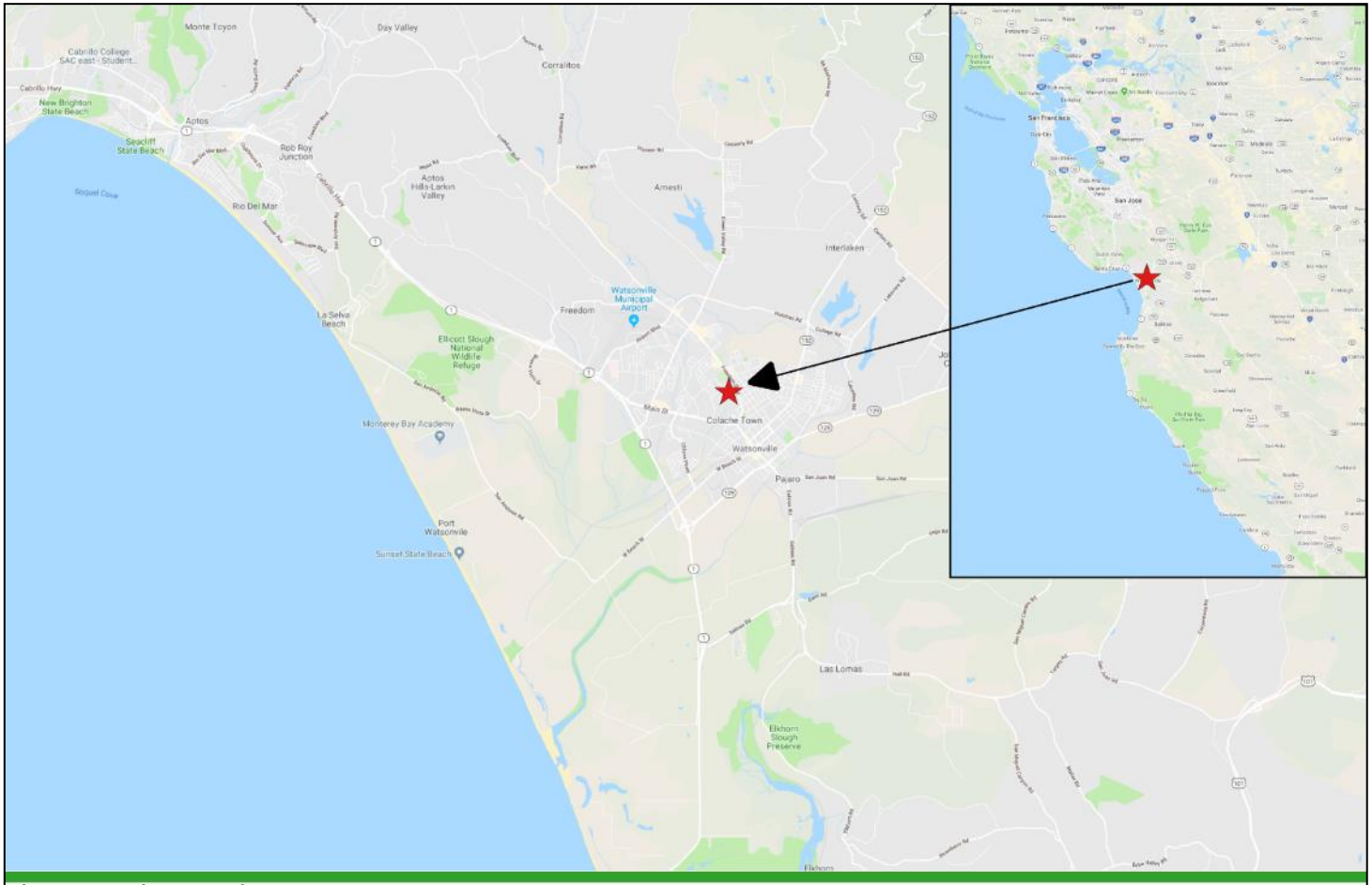

Figure 1: Project Location
Watsonville, Santa Cruz County, CA
APN: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Source Data: Google Maps, ECI

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Ecological Landscapes | Habitat Restoration | California Native Plants
125 Walk Circle, Santa Cruz CA 95060 Office: (831) 459-9666 Fax: (831) 457-1606
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Figure 2: Project Area, Showing APNs
Watsonville, Santa Cruz County, CA
APN: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Source Data: Google Satellite Hybrid, Santa Cruz County APN, santa Cruz County Contours

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REGULATORY CONTEXT

The U.S. Army Corps of Engineers (ACOE) is responsible under Section 404 of the Clean Water Act to regulate the discharge of fill material into the waters of the United States and their lateral limits as defined in 33 CPR Part 328.3 (a) which includes 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 ordinary high water (33 CFR Part 328.3 (e)) or the limit of adjacent wetlands (33 CFR Part 328.3 (b)). Permanent extension of the limits of an existing water of the United States, whether natural or man-made, results in a similar extension of ACOE jurisdiction (33 CFR Part 328.5).

Other Waters of the U.S. may, under certain conditions, include "wetlands," which are defined as those areas that maintain wet conditions for a sufficient period to develop soils that support hydrophilic (water-loving) plants.

On August 28, 2015, the EPA issued new regulations concerning the definition of Waters of the U.S. designed to be consistent with two Supreme Court Decisions: *Rapanos v. United States* and *Carabell v. United States*. These regulations are referred to as the 2015 WOTUS Rules.

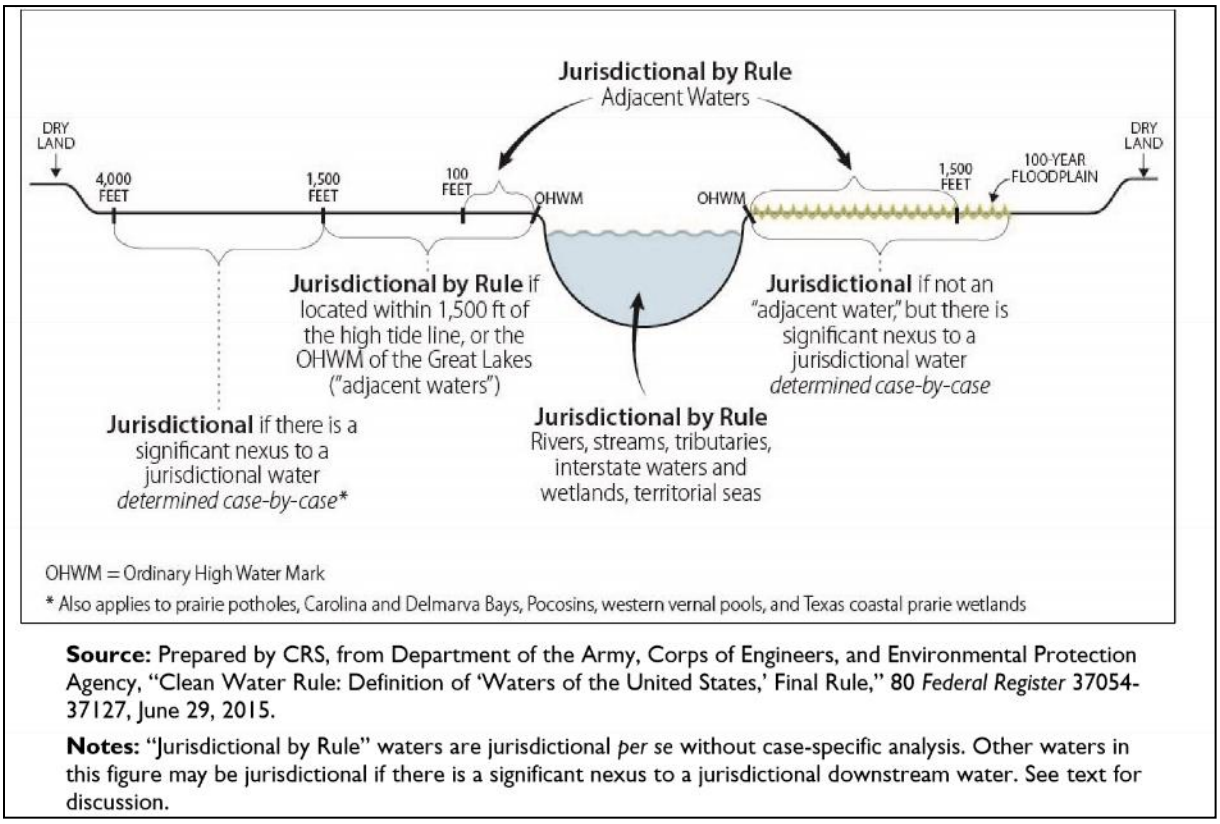
After several rounds of litigation, still ongoing, the 2015 WOTUS Rule currently applies to some states, including California. Therefore, discussion of the regulatory definition of Waters of the U.S. will be based on the 2015 WOTUS Rule, however it should be noted that ongoing litigation as well as administrative rule making by the U.S Administration may change the definition.

Areas included as Waters of the U.S. under the 2015 WOTUS Rule are:

1) Traditional navigable waters
2) Interstate waters
3) Territorial seas
4) Impoundments of WOTUS
5) Tributaries of (1)-(3) waters
6) Waters adjacent to (1)-(5) waters
7) Regional types of wetlands provided they have a significant nexus to a (1)-(3) waters
8) Waters in the 100-yr floodplain or within 4,000 ft of a (1)-(5) water provided they have significant nexus to a (1)-(3) water

Adjacency in (6) above is defined as:

- Within the 100-year floodplain up to 1,500 feet from the ordinary high water mark (OHWM)
- Within 100 feet of the OHWM (non-tidal) of a (1)-(5) water
- Within 1,500 feet of the high tide line (HTL) (tidal) of a (1)-(3) water or the OHWM of the Great Lakes



Source: Prepared by CRS, from Department of the Army, Corps of Engineers, and Environmental Protection Agency, "Clean Water Rule: Definition of 'Waters of the United States,' Final Rule," 80 *Federal Register* 37054-37127, June 29, 2015.

Notes: "Jurisdictional by Rule" waters are jurisdictional *per se* without case-specific analysis. Other waters in this figure may be jurisdictional if there is a significant nexus to a jurisdictional downstream water. See text for discussion.

Figure 3: Illustration of 2015 WOTUS Rule (CRS 2017, pg. 5)

Figure 3 provides a graphic illustration of the 2015 WOTUS Rule definition.

The 2015 WOTUS Rule does not define the term "significant nexus," as this is not a scientific term but rather a determination made by the agencies in light of law, science, and the agencies' experience and expertise. In the rule, it is noted that a hydrological connection is not necessary to demonstrate a significant nexus.

METHODS

Literature Review

Plant identification was validated utilizing *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin 2012).

Prior to beginning the field delineation, the following references were examined to determine the locations of known or potential areas of jurisdiction:

- U.S. Department of Interior Fish and Wildlife Service National Wetlands Inventory (NWI) map (USFWS 2018). (The NWI uses nomenclature to describe water and wetland characteristics, not jurisdictional classification. Nomenclature is based on Cowardin, 1979).
- Aerial photo obtained from Google Earth™
- Soils report obtained from Natural Resource Conservation Service Web Soil Survey website (NRCS 2018).
- *Wetland/U.S. Waters Delineation for the 141 Miles Ln. Property* (OEI 2003). Report included in Appendix C, however, note that the delineation map referenced in the report was not included in the electronic copy received by ECI.

Field Surveys

Field investigations of potential wetlands on the project site applied the routine determination method described in the ACOE Wetlands Delineation Manual (Environmental Laboratory 1987) and the ACOE Supplemental Manual for the Arid West (Environmental Laboratory2008). This methodology includes examination of specific sample sites within suspected wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three of these parameters must be present for an area to be considered a wetland.

Preliminary site visits occurred on June 6 and 8, 2018. Field investigations for potential wetland areas occurred on November 26, 2018. Upon peer review it was determined that additional information was required, leading to additional field investigations on August 12 and 13, 2019. Copies of the Wetland Determination Forms are included in Appendix A. Sampling points were selected based on the presence/absence of wetland indicator vegetation. After points were selected, pits were dug to examine subsurface hydrology and soil characteristics based on the ACOE guidelines. In order to define the wetland boundaries of the seep, sampled points were paired. In order to address the potential for adjacent wetlands on the fringe of the identified Water of the US, two transects representative were placed across the water's boundary, and sampling points were taken along the transect in areas without hydrophytic vegetation, with hydrophilic vegetation, and at the ordinary high water mark. Delineation boundaries for the were mapped on November 26, 2018. Boundaries were determined based primarily on ordinary high-water mark or, in the case of adjacent wetlands, the presence of wetland vegetation. GPS coordinates were taken for each delineation point using a Trimble GEO GPS unit with submeter accuracy in the field. Data was digitally analyzed using qGIS software.

RESULTS

Features Analyzed

Four features were considered as potentially under the jurisdiction of the Army Corps of Engineers, as indicated in Figures 3, 4, and 6, and as described below:

1. An intermittent stream within the lowest elevation portion of the property. Based on the presence of standing and flowing water in this feature, it was determined that this qualifies as a Water of the U.S. based on the presence of an Ordinary High-Water Mark. This feature is included on the Delineation Map provided in Figure 7, and partially indicated in Figure 8.

2. Potential fringe wetlands along the Water of the U.S. The presence of FAC and FACW wetland vegetation indicated that potential adjacent wetlands were present along the edge of this water. In order to evaluate this, two representative transects were placed perpendicular to the water, and six points were taken along each transect: two on either side with no hydrophytic vegetation dominant, two on either side with hydrophytic vegetation dominant, and two at the Ordinary High-Water mark. As described below and shown on the delineation forms (see sampling points ML03 – ML10 in Appendix A), none of the points sampled showed sufficient indicators to be determined wetlands. The locations of the transects are shown on the Delineation Map provided in Figure 7, and the locations of individual sampling points is provided in Figure 8. An additional point was sampled at the north end of the property at the edge of the Water of the U.S. It also was determined not to be a wetland; however no data sheet was filed for this point. It is shown on Figure 7.

3. Habitat Areas dominated by *Salix lasiolepis* (arroyo willow) and *S. laevigata* (red willow), both FACW species (usually occurs in wetlands). Neither hydric soil nor hydrological indicators were observed in this habitat area at two locations indicated on Figure 7. Because of the lack of indicators other than vegetation, no additional analysis was performed at these sites, nor were sampling forms filled out for these sites, as no boundary determination was made. These features were preliminarily determined not to be jurisdictional, and thus were not included on the Delineation Map provided in Figure 7.

4. Seep wetland on the central, eastern section of the property. Field sampling, as described below, provided clear wetland indicators for this site, and so paired sampling points were analyzed in order to determine the boundary of this wetland feature. This feature is included on the Delineation Map provided in Figure 7.

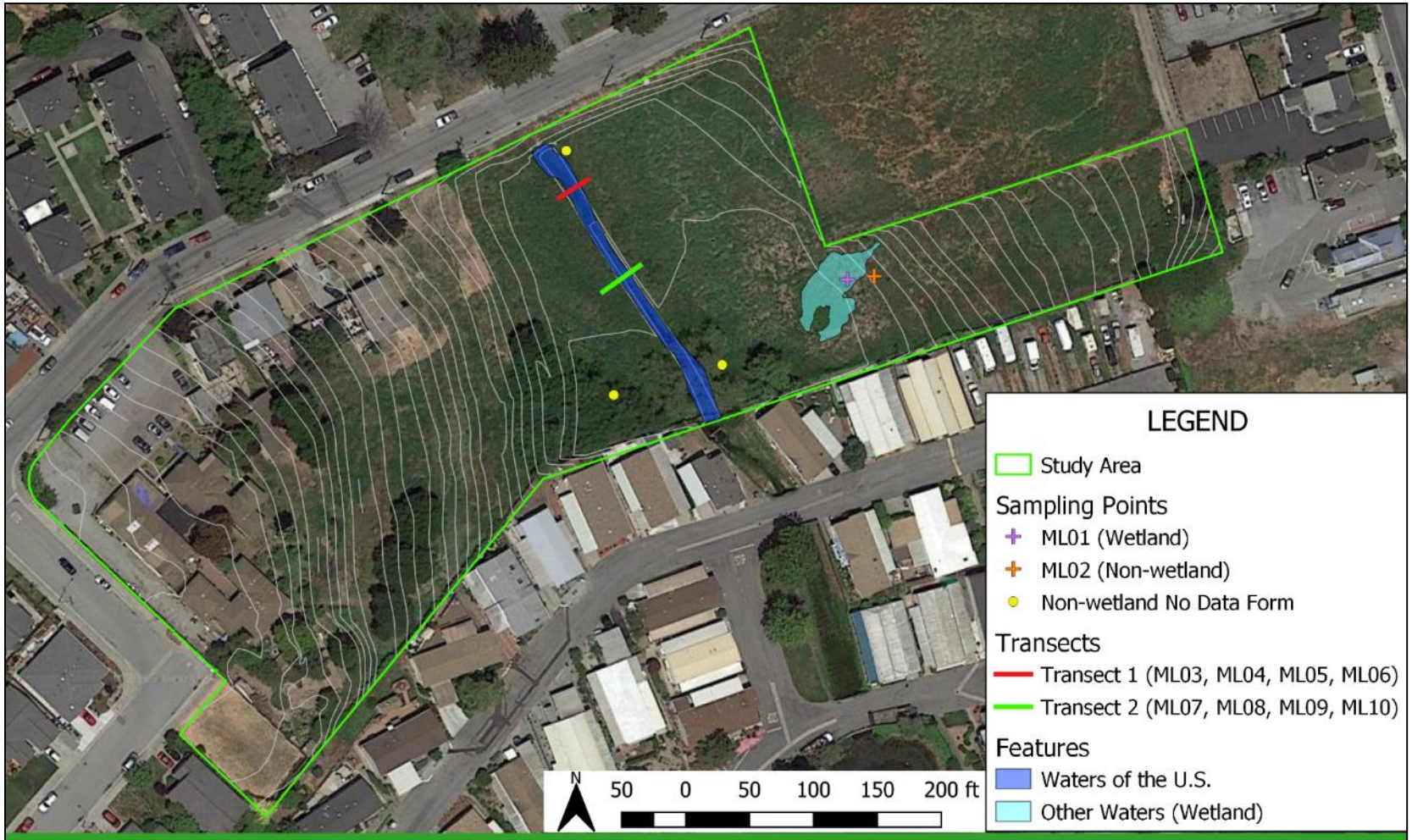


Figure 3: Features and Sampling Locations
Watsonville, Santa Cruz County, CA
APN: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Source Data: Google Sattelite, Santa Cruz County APN, Santa Cruz County Contours, ECI

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Sampling Points

Ten sampling points were surveyed using the ACOE wetland delineation method, locations of which are listed in Table 2. Sampling points were analyzed by ocular estimation of absolute percent cover within a using a 1m by 1m quadrat. Sampling points ML01 and ML02 were paired such that the first is within a wetland and the second is outside. Sampling Points ML03 – 10 were all placed on two transects in order to evaluate the presence/absence of fringe wetlands along the boundary of the identified Water of the U.S. Copies of all Wetland Determination Data Forms are included in Appendix A. Figures 4 and 5 show the locations of the sampling points. Photos 1 – 10 show all quadrats.

Sampling Point	Latitude	Longitude	Wetland
ML01	36.9217098	-121.762916	Y
ML02	36.9217169	-121.762845	N
ML03	36.9219227	-121.763614	N
ML04	36.9219138	-121.763627	N
ML05	36.9218959	-121.763672	N
ML06	36.9218874	-121.763690	N
ML07	36.9217389	-121.763473	N
ML08	36.9217294	-121.763496	N
ML09	36.9217052	-121.763537	N
ML10	36.9216833	-121.763573	N

Table 2: Locations of Wetland Delineation Points

Vegetation

Table 3 summarizes the results of vegetation sampling at all sampling points. All vegetation observed is listed. Photos 1 and 2 show the vegetation at each sampling point. The Wetland Indicator Status was determined using the *Arid West 2016 Regional Wetland Plant List* (Lichvar *et. al.* 2016). Using the methods outlined by the Army Corps of Engineers, wetland vegetation indicators were observed at one sampling point – ML01.

Table 3: Vegetation Observed at Sampling Points
* = Hydrophytic vegetation dominant at sampling point

Sampling Point	Scientific Name[1]	Common Name	Stratum	Absolute Cover	Dominant Species[2]	Wetland Indicator Status
ML01*	*Juncus effusus*	Soft Rush	Herb	30%	Y	FAC
	Festuca arundinacea (=Schedonorus arundinaceus)	Tall Fescue	Herb	10%	Y	FACU
	Symphyotrichum chilense (=Aster chilensis)	California Aster	Herb	5%	N	FAC
	Oenanthe sarmentosa	Water Parsley	Herb	5%	N	OBL
ML02	*Festuca arundinacea (=Schedonorus arundinaceus)*	Tall Fescue	Herb	70%	Y	FACU
ML03	*Phalaris aquatica*	Harding Grass	Herb	60%	Y	NL
	Epilobium cilulatum	Willow Herb	Herb	5%	N	FACW
	Rubus armeniacus	Himalayan Blackberry	Vine	1%	Y	FAC
ML04*	*Elymus triticoides (= Leymus triticoides)*	Creeping Wild Rye	Herb	40%	Y	FAC
	Phalaris aquatica	Harding Grass	Herb	5%	N	NL
	Epilobium cilulatum	Willow Herb	Herb	5%	N	FACW
	Festuca arundinacea (=Schedonorus arundinaceus)	Tall Fescue	Herb	1%	N	FACU

Table 3: Vegetation Observed at Sampling Points
* = Hydrophytic vegetation dominant at sampling point

Sampling Point	Scientific Name[1]	Common Name	Stratum	Absolute Cover	Dominant Species[2]	Wetland Indicator Status
ML05*	*Elymus triticoides (= Leymus triticoides)*	Creeping Wild Rye	Herb	2%	N	FAC
	Phalaris aquatica	Harding Grass	Herb	15%	N	NL
	Epilobium cilulatum	Willow Herb	Herb	10%	Y	FACW
	Rubus armeniacus	Himalayan Blackberry	Vine	10%	Y	FAC
ML06	*Phalaris aquatica*	Harding Grass	Herb	50%	Y	NL
	Rubus armeniacus	Himalayan Blackberry	Vine	5%	Y	FAC
ML07	*Phalaris aquatica*	Harding Grass	Herb	30%	Y	NL
	Rubus armeniacus	Himalayan Blackberry	Vine	40%	Y	FAC
ML08*	*Helminthotheca echioides*	Bristly ox-tongue	Herb	7%	Y	FAC
	Euthamia occidentalis	Western Goldenrod	Herb	10%	Y	FACW
	Cyperus eragrostis	Tall Cyperus	Herb	7%	Y	FACW
	Rubus armeniacus	Himalayan Blackberry	Vine	3%	Y	FAC
	Phalaris aquatica	Harding Grass	Herb	2%	N	NL
	Festuca arundinacea (=Schedonorus arundinaceus)	Tall Fescue	Herb	2%	N	FACU

Table 3: Vegetation Observed at Sampling Points
* = Hydrophytic vegetation dominant at sampling point

Sampling Point	Scientific Name[1]	Common Name	Stratum	Absolute Cover	Dominant Species[2]	Wetland Indicator Status
ML09*	*Phalaris aquatica*	Harding Grass	Herb	2%	N	NL
	Helminthotheca echioides	Bristly ox-tongue	Herb	2%	N	FAC
	Epilobium cilulatum	Willow Herb	Herb	15%	Y	FACW
	Rubus armeniacus	Himalayan Blackberry	Vine	2%	Y	FAC
	Drymocallis glandulosa	Sticky Cinquefoil	Herb	15%	Y	FAC
ML10	*Phalaris aquatica*	Harding Grass	Herb	40%	Y	NL
	Festuca arundinacea (=Schedonorus arundinaceus)	Tall Fescue	Herb	5%	N	FACU

Wetland Indicator Status Codes:
OBL = Almost always occurs in wetlands under natural conditions
FACW = Usually occur in wetlands, but occasionally found in non-wetlands.
FAC = Equally likely to occur in wetlands or non-wetlands.
FACU = Usually occur in non-wetlands but occasionally found in wetlands.
UPL = Almost always occurs in non-wetlands under natural conditions
NL = No Wetland Indicator Status Listed; Presumed to Be UPL
Notes:
1 – The current accepted scientific name for species is provided. In the event that the species is listed in the National Wetland Plant List under a different name, that name is provided in parenthesis (Lichvar *et al* 2016, Baldwin *et al* 2012)
2 – Dominance determined by 50/20 rule

Photo 1: Vegetation at ML01

Photo 2: Vegetation at ML02

Photo 3: Vegetation at ML03

Photo 4: Vegetation at ML04

Photo 5: Vegetation at ML05

Photo 6: Vegetation at ML06

Photo 7: Vegetation at ML07

Photo 8: Vegetation at ML08

Photo 9: Vegetation at ML09

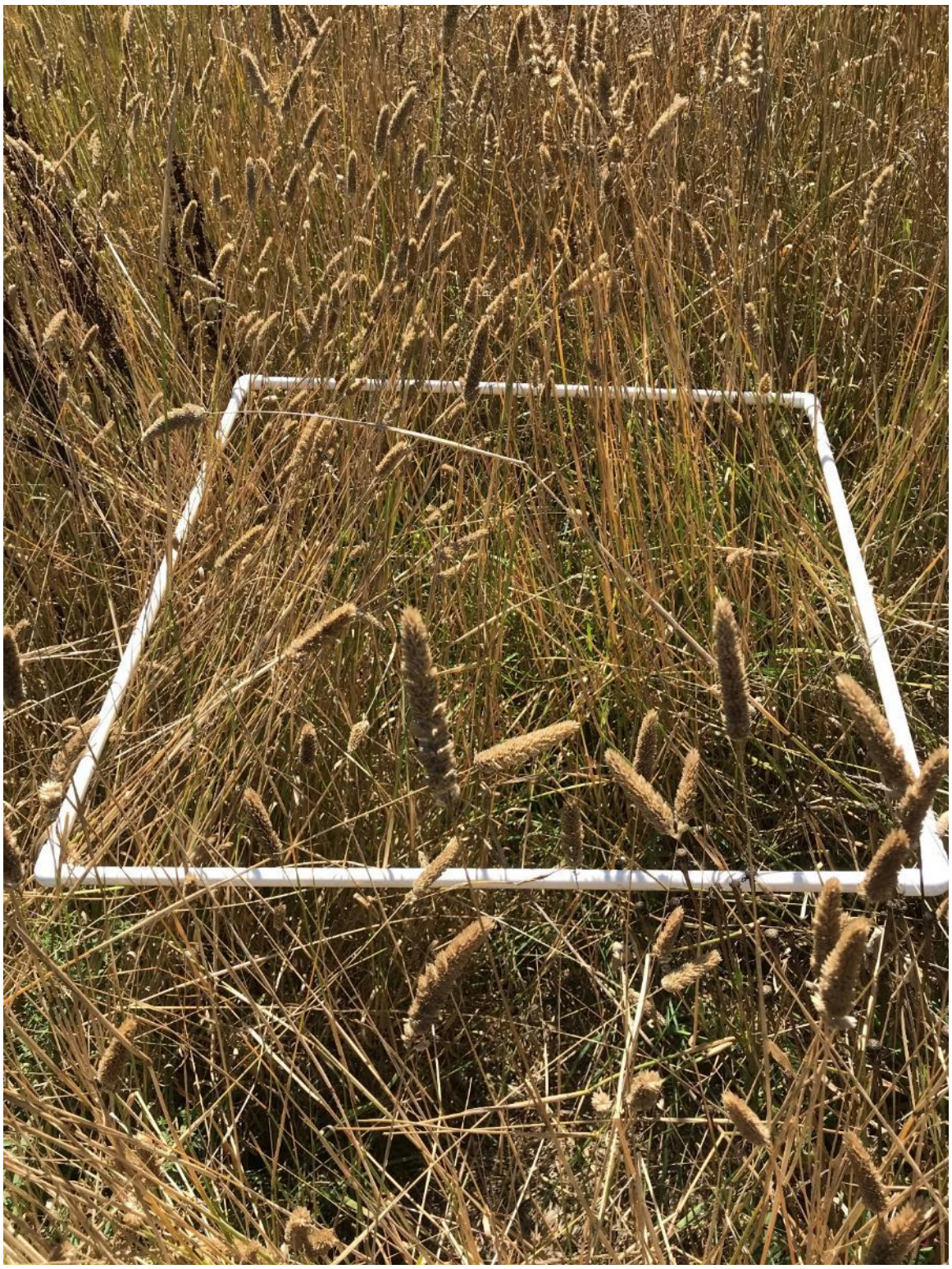

Photo 10: Vegetation at ML10

Soils

Prior to the site visit, a preliminary soils report was produced using the NRCS Web Soil Survey too. (NRCS 2018), which is included as Appendix B. Two soil pits were dug based on observed vegetation in the seep area. Eight pits were dug along two transects across the Water of the U.S. feature. Table 4 summarizes the results of the soil samples taken at each sampling point. Photos 11-19 show the soils, however due to an error in the field no photo of soil at ML 03 was taken.

One series appears to occur at all the sampling points according to the soil survey: Tierra-Watsonville Complex, 15-30% slope. This soil is rated as hydric, in group D. Group D soils have high runoff potential when wet and are clayey in texture. Soils at ML01 below 8 inches are clayey, and so do conform to group D. The soils at ML02 were found to be sandy rather than clayey, and so do not conform to hydric soils in Group D. In addition, ML02 had gravelly material, indicating that it may be Pfeiffer soil type, a minor component of the Tierra-Watsonville Complex found in the soil survey.

The soils at ML 03 – 10 were all sandy loam or loam, and so do not conform to group D. In addition, all these sampling points occurred on slopes of 5% or less, and so do not conform to the predominant soil type indicated by the soil survey. The Tierra-Watsonville complex does contain other minor soil types, including Los Osos (loam) and Elkhorn (sandy loam), neither of which is rated as hydric. This is consistent with the observed soils at ML 03-10, none of which had hydric soil indicators.

Table 4: Soil Observed at Sampling Points
* Sampling Point had hydric soil indicator

Sampling Point	Depth (inches)	Matrix	Redox Features	Texture	Hydric Indicator
ML01*	0-8	10YR2/2 100%	None	Silty Clay Loam	Saturated to Surface
	8-16	Gley 1 2.5/10Y 100%	Reduced Matrix	Clay	Reduced Matrix
ML02*	0-8	10YR3/2 100%	None	Sandy Clay	None
	8-16	10YR3/2 70%	10YR5/8 30% Depleted Matrix	Sandy Clay Loam	Redox Dark Surface
ML03	0-12	5YR3/1 95%	None	Sandy Loam	None
ML04	0-12	5YR3/1 95%	10R3/6 <1% Depleted Matrix	Loam	None
ML05	0-12	5YR3/1 90%	None	Sandy Loam	None
ML06	0-12	5YR3/1 95%	None	Sandy Loam	None
ML07	0-12	5YR3/1 95%	None	Sandy Loam	None
ML08	0-12	5YR3/1 95%	None	Sandy Loam	None
ML09	0-12	5YR3/1 95%	None	Loam	None
ML10	0-12	5YR3/1 95%	None	Sandy Loam	None

Photo 11: Soil at ML01

Photo 12: Soil at ML02

Photo 13: Soil at ML04

Photo 14: Soil at ML05

Photo 15: Soil at ML06

Photo 16: Soil at ML07

Photo 17: Soil at ML08

Photo 18: Soil at ML09

Photo 19: Soil at ML10

Hydrology

Channel

According to the National Wetland Inventory (NWI), a feature occurs on the site categorized as PEM1Cx (See Figure 4). This classification is defined as:

> **System Palustrine (P)**: The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.
>
> **Class Emergent (EM)**: Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
>
> **Subclass Persistent (1)**: Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.
>
> **Water Regime Seasonally Flooded (C)**: Surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.
>
> **Water Chemistry Excavated (x)**: This Modifier is used to identify wetland basins or channels that were excavated by humans.

Field observations confirmed that such a feature occurs on the site, though the exact location is somewhat different than mapped by the NWI. This feature has a clear Ordinary High-Water Mark, and so is considered a Potential Water of the U.S. No wetland sampling occurred in this feature.

Figure 4: National Wetlands Inventory Map (NWI 2018)

Sampling Points
The seep feature on which sampling occurred does not appear in the NWI. However, clear hydrological indicators were present within this feature at ML01, as summarized in Table 5. ML02 had no hydrology indicators. Photos 20 and 22 show the soil pits dug at these two sampling points, and Photo 21 shows the high-water table at ML01.

An additional eight sampling points surveyed on two transects across the central channel on the project site. No hydrological indicators were observed at any of these points. Photos 23 – 30 show the pits dug at each of these sampling points.

Sampling Point	Hydrologic Indicator
ML01	High Water Table, Saturation, Oxidized Rhizospheres along Living Roots
ML02	None
ML03	None
ML04	None
ML05	None
ML06	None
ML07	None
ML08	None
ML09	None
ML10	None
Table 5: Hydrological Indicators at Sampling Points	

Summary of Sampling Points
Table 6 provides a summary of wetland indicators observed at each sampling point. Only sampling point ML01 showed evidence of wetlands under the jurisdiction of ACOE

Sampling Point	Hydric Vegetation Present	Hydric Soil Present	Hydrology Present	Jurisdictional Wetland
ML01	Y	Y	Y	Y
ML02	N	Y	N	N
ML03	N	N	N	N
ML04	Y	N	N	N
ML05	Y	N	N	N
ML06	N	N	N	N
ML07	N	N	N	N
ML08	Y	N	N	N
ML09	Y	N	N	N
ML10	N	N	N	N
Table 6: Summary of Hydric Indicators at Each Sampling Point				

Photo 20: Pit at ML01

Photo 21: Standing Water at ML01

Photo 22: Pit at ML02

Photo 23: Pit at ML03

Photo 24: Pit at ML04

Photo 25: Pit at ML05

Photo 26: Pit at ML06

Photo 27: Pit at ML07

Photo 28: Pit at ML08

Photo 29: Pit at ML09

Photo 30: Pit at ML10

DISCUSSION

Connection to Waters of the US

The intermittent channel in the study area connects, through a storm drain to Watsonville Slough, which drains through the slough system to the Pajaro River, which drains to the Pacific Ocean. Watsonville Slough, Pajaro River, and the Pacific Ocean are all navigable waters, and so the stream is a tributary to a Water of the U.S., and so by extension also a Water of the U.S.

The seep feature in the study area is within 150ft of the channel, and so is an Other Water of the U.S. under the 2015 WOTUS Rule by adjacency.

Potential Jurisdictional Features

A total of two features were identified that appear to fall under the jurisdiction of ACOE: One potential Water of the US, and one potential Other Waters of the US. Descriptions of the features are provided below. Feature locations on an aerial map are provided in Figure 3. A delineation map is provided in Figures 7 and 8.

Although hydrophytic vegetation was observed growing on the fringe of the potential Water of the U.S., no other wetland indicators (i.e. soils or hydrology) were observed along this fringe, and so these areas are not considered under ACOE jurisdiction.

It should be noted that in the previous delineation report performed for this site, a feature is described as a "seasonal wetland" in a swale (OEI 2003 – See Appendix C). No such feature was observed during this study, and since the delineation map was not included with the report provided to ECI, there is no way to determine where this purported feature existed. No further consideration is given to this feature.

The boundaries of the jurisdictional features were staked in the field and a GPS polygon feature was drawn. For the Water of the U.S. feature, boundaries were based on the Ordinary High-Water Mark. For the Other Water of the U.S., boundaries were determined based on vegetation features, specifically the presence/absence of dominant hydrophilic vegetation. Table 7 provides a summary of the length and area of the jurisdictional features in the study area.

Table 7: Length and Area of Delineated Features

Section	Length	Area
Water of the U.S. (Intermittent Stream)	253 lf.	3,010 sf. / 0.07 acre
Other Water of the U.S. (Wetland)	Not Applicable	2,208 sf. / 0.05 acre

Potential Waters of the US
One feature appears to qualify as a Water of the U.S. The feature the center of the property from north to south has a direct connection to a navigable water, and so would be considered a tributary.

The feature is 235 l.f. and is entirely contained within a ditch. According to aerial imagery available, the ditch has been on the site since at least 1993. The likelihood is that it is an artificial drainage ditch as evidenced by 1) steep sides lacking clear bank development; and 2) it is perfectly straight across the landscape. This is consistent with the feature as defined in the National Wetland Inventory (NWI 2018).

The stream enters the property through a culvert that runs under Miles Ln. The first 183 l.f. is dominated by emergent obligate wetland vegetation such as *Typha* sp. (cat tail) and *Schoenoplectus* sp. (bull rush) (Photos 31 and 32). The final 70 l.f. is under *S. laevigata* and has *R. armeniacus* along the banks (Photos 33 and 34). The feature drains onto the adjacent property into a storm water structure (Photo 35). This structure acts as a small impoundment, causing the ditch to fill with water during the summer season.

The feature is widest at its northern end (approximately 18 ft. wide), where is empties from the culvert. For most of the rest of the length, it is about 10 ft. wide. The impoundment at the southern end causes water to back up into the ditch, however the water appears to never over top the sides of the ditch.

For the delineation of this feature, the Ordinary High-Water Mark (OHWM) was determined to occur at a point on the side of the ditch. The boundaries of the feature were therefore based on the OHWM.

The previous delineation report developed for this site called this feature a “Watsonville Slough Channel” (OEI 2003 – See Appendix C). ECI disagrees with this determination, based upon 1) U.S. Geological Survey Topographic Maps, 2) observations made on the site, and 3) professional best judgement. This reasoning is described below. It should be noted that while this previous report called the area a slough channel, no analysis or justification for this determination is provided within the report.

USGS topographic maps for the site from 2018 and 1954 are provided in Figures 5 and 6 below. The 2018 map shows that the slough stops south of Crespi Ave, thus before the project location. While some small blue dots indicating some presence of water on the site are evident, it is difficult to determine exactly what this symbol represents. Based on the presence of similar symbols south of the project site, ECI assumes the symbol indicates a marsh land. Looking at the historic topographic map from 1954, it is evident that the line for Harkin’s Slough also ends south of the project site, in a similar location to the 2018 map. At this time, the water feature

was clearly indicated as an intermittent stream where it crosses the property boundary. In both cases, Harkin's Slough is clearly not shown to cross the property boundary.

ECI noted that the upper water source appeared to be intermittent, running primarily in the winter and spring. The lower section of the channel is impounded by a stormwater feature, which causes water to backup into the stream channel (Photo 35). This artificial structure may give the impression that the area is an arm of the slough, when in fact any standing water in the channel is caused by this structure, not by the hydrology of the slough.

Given that the feature is fed by an intermittent stream, and that the buildup of water, if present during the dry season, is due to an artificial structure, ECI determined that the best description of this feature is as an intermittent stream. It may be the case that the feature could equally be described as an "emergent wetland," however since these wetlands typically lack flowing water, and since water is clearly flowing through the system through much of the year, ECI believes intermittent stream is more appropriate a description than emergent wetland. It should be noted, however, that the results of this report would not change if the naming is this feature were changed in this way.

Potential Other Waters of the US

A 2,208 sf. (0.05 acre) seep wetland dominated by OBL and FACW species occurs on the south eastern portion of the property. The seep begins on the hillside and runs downhill until it spreads out on relatively flat lands (Photos 36 and 37).

The boundaries of the seep were delineated as described above, with vegetation being used as the primary boundary edge indicator. The seep is about 85 ft. distant from the intermittent stream, and so qualifies as an adjacent wetland under the 2015 WOTUS Rule.

Wetland Delineation Maps

Figures 7 and 8 provide the complete delineation map for the property. Figure 7 provides all the delineated features on the site and shows the locations of sampling points ML01 and ML02, as well as the locations of the two transects that were surveyed perpendicular to the central channel. Because of the scale of Figure 7, the actual sampling points along the transects could not be shown, and so Figure 8 provides a close-up view of the transects in order to convey the relative locations of the sampling points.

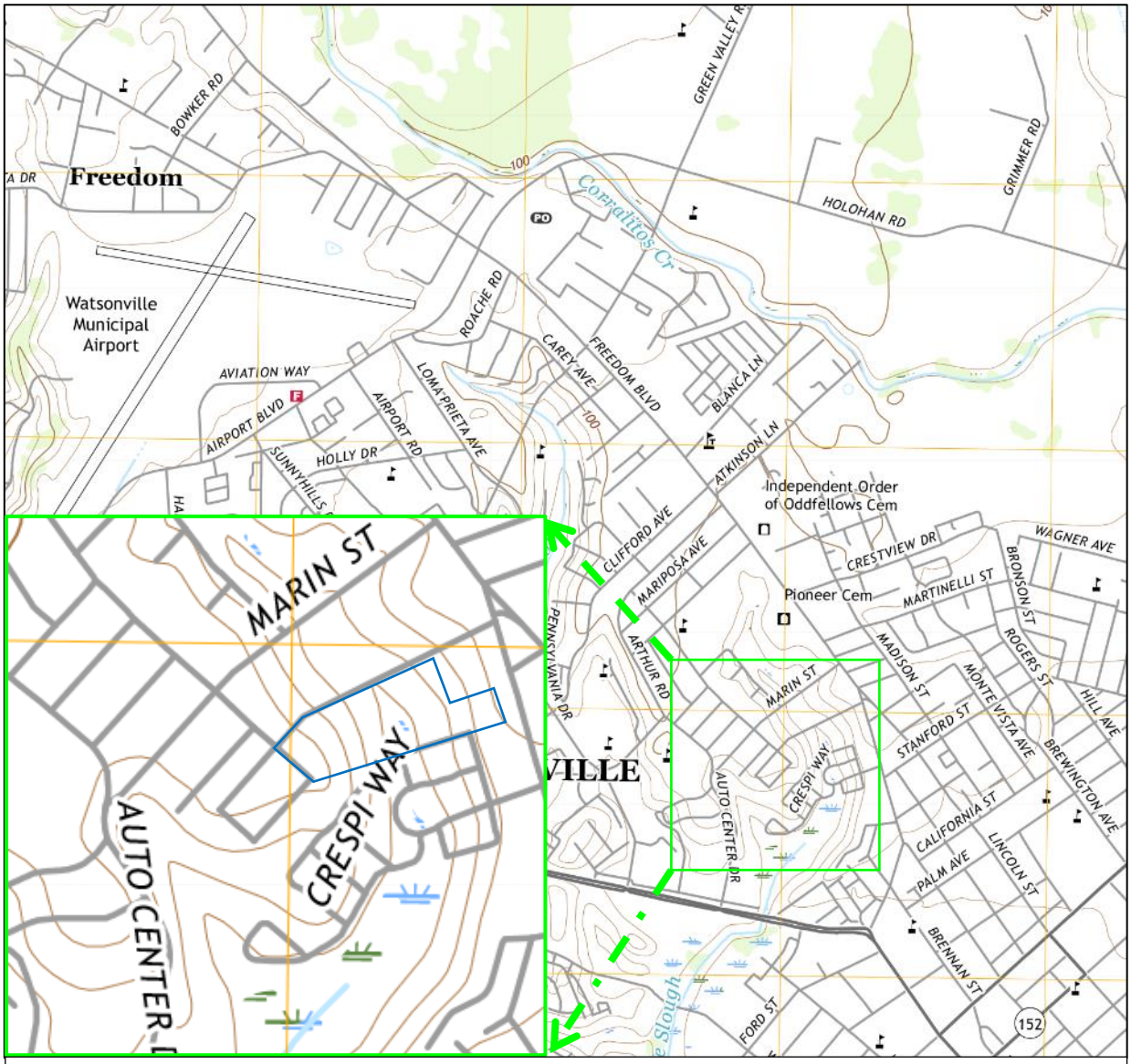

Figure 5: U.S.G.S. Topographic Map from 2018 (USGS 2018)
Note small blue marks within the project area, possibly indicative of a marsh; also note that thick blue line of Harkin's Slough ends before Crespi Way.
☐ Project Area (approximate)

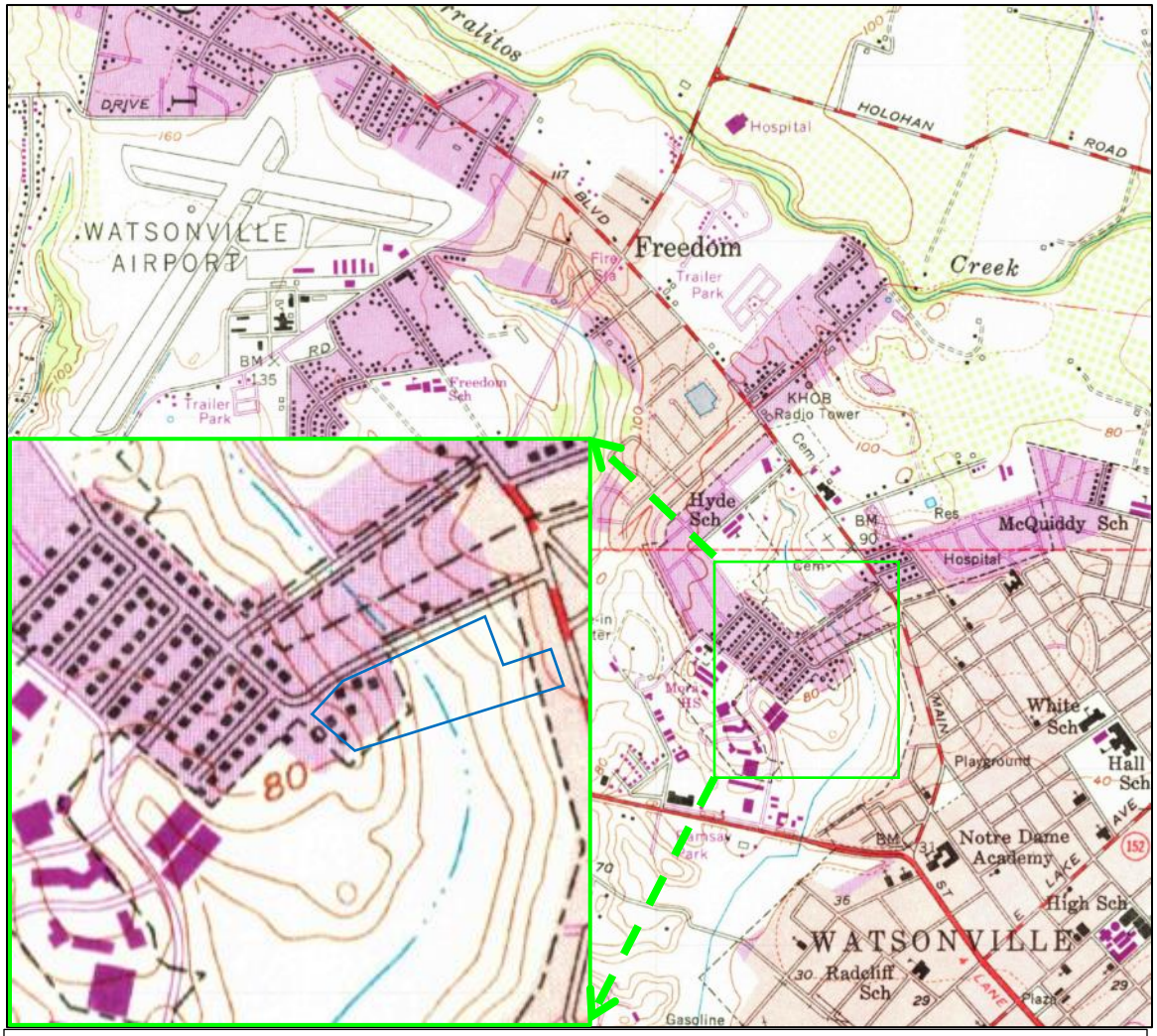

Figure 6: U.S.G.S. Topographic Map from 1954 (USGS 1954)
Note small intermittent stream marks within the project area; also note that solid blue line of Harkin's Slough ends before project area.
☐ Project Area (approximate)

Photo 31: Intermittent stream outlet

Photo 32: Intermittent Stream, looking north

Photo 33: Intermittent stream entering *S. laevigata* canopy

Photo 34: Intermittent Stream under *S. laevigata*

Photo 35: Stormwater structure where intermittent stream drains

Photo 36: Seep feeding seep wetland feature

Photo 37: Seep wetland

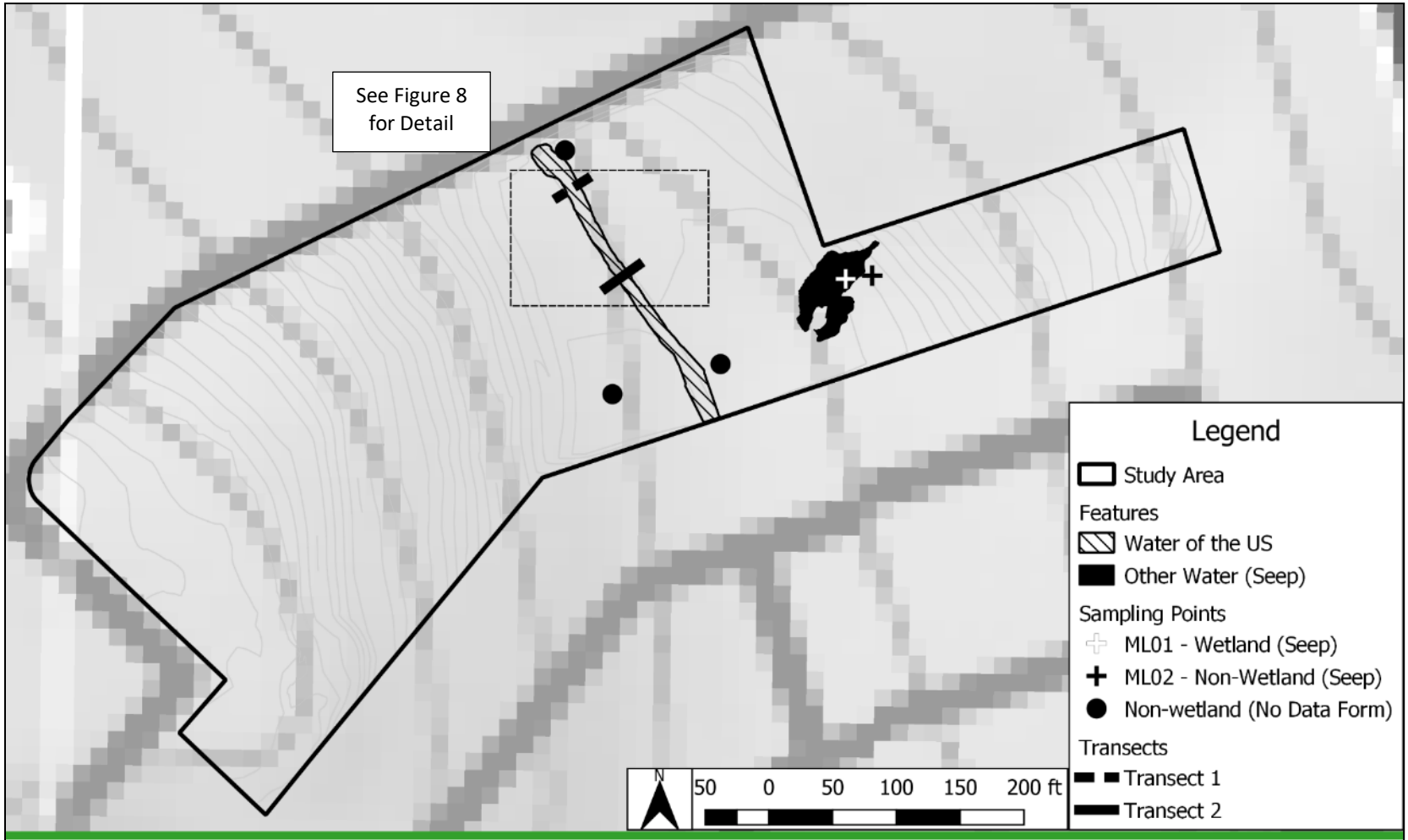

Figure 7: Preliminary Wetland Delineation Map (1 of 2)
Watsonville, Santa Cruz County, CA
APN: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Source Data: USGS Topographic Map, Santa Cruz County Contour, Santa Cruz County APN, ECI

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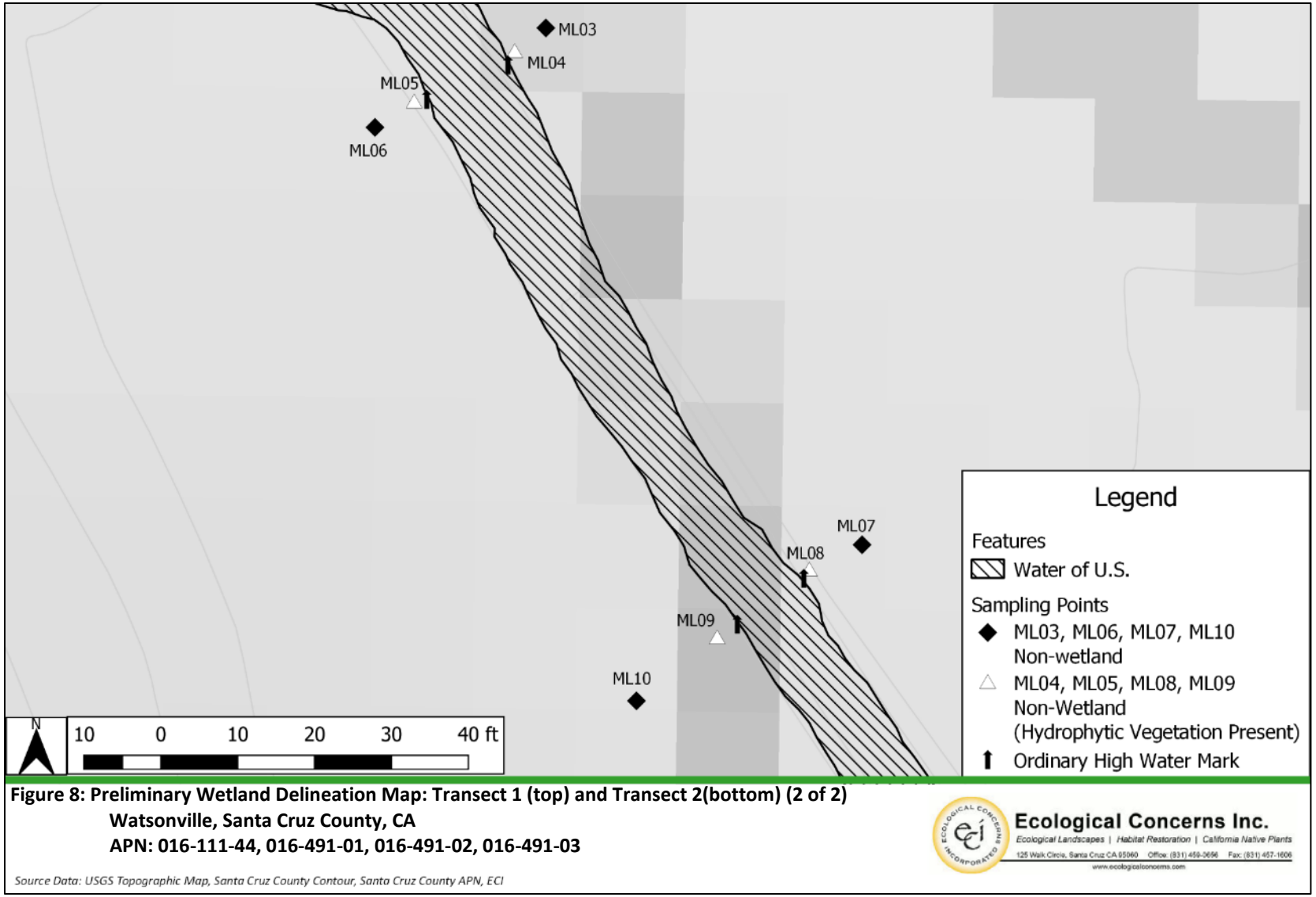

Figure 8: Preliminary Wetland Delineation Map: Transect 1 (top) and Transect 2(bottom) (2 of 2)
Watsonville, Santa Cruz County, CA
APN: 016-111-44, 016-491-01, 016-491-02, 016-491-03

Source Data: USGS Topographic Map, Santa Cruz County Contour, Santa Cruz County APN, ECI

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CONCLUSION

This report and the associated field studies indicate that two landscape features present on the project site fall under the jurisdiction of ACOE. Filling or dredging within these features would require a permit under Section 404 of the U.S. Clean Water Act.

Because jurisdiction is determined by ACOE, ECI makes no claims, either explicit or implicit, concerning the final determination of jurisdiction over wetlands within the project area. While every attempt has been made to identify and delineate all wetlands found within the study area, new observations and changing conditions on the project site may cause changes to the final wetland boundary determination.

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APPENDIX A: WETLAND DELINEATION FIELD FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 11/26/18

Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML-SP1

Investigator(s): Joe Rigney, Casey Strawman Section, Township, Range: San Andres Land Grant (T12S R2E)

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

Subregion (LRR): LRRC Lat: 36.9217098 Long: -121.7629165 Datum: WGS84

Soil Map Unit Name: Tierra-Watsonville Complex, 15-30% Slope NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

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: 5ft x 5ft)			
1. Juncus effusus	30	Y	FACW
2. Festuca Aurundacia	10	Y	FACU
3. Aster chilensis	5	N	FAC
4. Danthonia californica	5	N	OBL
5.			
6.			
7.			
8.			
9. Schedonorus arundinaceus	50		= Total Cover
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: 8 (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	5	x 1 =	5
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	_____	x 5 =	_____
Column Totals:	50 (A)		120 (B)

Prevalence Index = B/A = 2.4

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)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: Herb

50 = 25%

20 = 10%

ML-01

SOIL

Sampling Point: ML-01

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100%					Silty Clay loam	saturated to surface
8-16	Gley1 2.5/10Y	100%			RM	M	Clay	Reduced matrix

[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: Soil is saturated to surface with roots in top silty clay loam layer high organic content in surface layer, dark. Gley clay is reduced matrix

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Sample point adjacent to spring pool, soil is saturated to surface and has oxidized rhizospheres, water in pit at 14 inches

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 11/26/18
Applicant/Owner: Midpen Housing State: CA Sampling Point: ML02
Investigator(s): Joe Rigney, Casey Stevens Section, Township, Range: San Andreas Land Grant (T12S R2E)
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-3%
Subregion (LRR): LRR C Lat: 36.9217169 Long: -122.7628453 Datum: WGS84
Soil Map Unit Name: Terra Watsonville Complex 15-30% slope NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

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: 5ft x 5ft)			
1. Festuca arundinacea	70	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
50/20
50 = 35%
20 = 14%

SOIL

Sampling Point: ML02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100%	—	—	—	—	Sandy Clay	5-10% coarse material (gravel
8-16	10YR 3/12	75%	10YR 5/8	30%	D	M	Sandy Clay Loam	5-10% Coarse material

[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: 4" redox w/ upper 12" observed

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks: No saturation or water table present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 8/12/19
Applicant/Owner: Mid Pen Housing State: CA Sampling Point: WL03
Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12SR2E)
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: 36.9219227 Long: -121.7603614 Datum: WGS 84
Soil Map Unit Name: Terra Watsonville Complex, 15-30% Slope NWI classification: PEMIC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m x 1m)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Phalaris aquatica	60%	Y	NL
2. Epilobium ciliatum	5%	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	65% = Total Cover		
Woody Vine Stratum (Plot size: 1m x 1m)			
1. Rubus armeniacus	1%	Y	FAC
2.			
	1% = Total Cover		

% Bare Ground in Herb Stratum 0 % 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 5	x 2 = 10
FAC species 1	x 3 = 3
FACU species ____	x 4 = ____
UPL species 60	x 5 = 300
Column Totals: 66 (A)	313 (B)

Prevalence Index = B/A = 4.7

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: ML 03

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/1	95	Very dark grey	5			Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No evedince of hydrological indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 3/12/19
Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML04
Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12SR2E)
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1-2%
Subregion (LRR): LRRC Lat: 36.9219138 Long: -121.763614 Datum: WGS84
Soil Map Unit Name: Terra Watsonville Complex, 15 to 30% Slope NWI classification: PEM1Cx
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ____ No ✓
Wetland Hydrology Present? Yes ____ No ✓
Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

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: 1m x 1m)			
1. Elymus triticoides	40%	Y	FAC
2. Epilobium ciliatum	5%	N	FACW
3. Phalaris aquatica	5%	N	UL
4. Festuca arundinacea	1%	N	FACU
5.			
6.			
7.			
8.			
	51% = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 50/20
50% = 25.5
20% = 10%

SOIL

Sampling Point: ML04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/1	95%	10R 3/6	4%	D	M	Loam	

[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: Although some Redox observed, was sporadic & at low % of overall soil

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: No indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 9/12/19

Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML 05

Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12SR2E)

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

Subregion (LRR): LRRC Lat: 36.9218959 Long: -121.763672 Datum: WGS84

Soil Map Unit Name: Terra Watsonville Complex, 15-30% Slope NWI classification: PEM1Cx

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

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: 1m x 1m)			
1. Epilobium ciliatum	10%	Y	FACU
2. Elymus triticoides	2%	N	FAC
3. Phalaris aquatica	15%	Y	~~FAC~~ FACU
4.			
5.			
6.			
7.			
8.			
	27% = Total Cover		
Woody Vine Stratum (Plot size: 1m x 1m)			
1. Rubus armeniacus	10%	Y	FAC
2.			
	10% = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 50/20
50 = 13.5
20 = 5.4

SOIL

Sampling Point: ML05

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	5YR 3/1	90%	none	0			Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: No indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: ML 06

Applicant/Owner: Mid Pen Housing State: CA Sampling Point:

Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12S R2E)

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

Subregion (LRR): LRR C Lat: 36.9218874 Long: -121.763690 Datum: WGS 84

Soil Map Unit Name: Terra Watsonville Complex, 15-30% slope NWI classification: PEMIC x

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	50%	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50% = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Rubus americanus	5%	Y	FAC
2.			
	5% = Total Cover		

% Bare Ground in Herb Stratum 0 % 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 5	x 3 = 15	
FACU species 50	x 4 = 200	
UPL species ____	x 5 = ____	
Column Totals: 55 (A)	215 (B)	

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: ML06

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/4	95%	none	0			Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrological indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 8/13/19
Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML 07
Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12S R2E)
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR): LRR C Lat: 36.9217389 Long: -121.763473 Datum: WGS 84
Soil Map Unit Name: Terra Watsonville Complex 15-30% slopes NWI classification: PEMIC x
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Phalaris aquatica	30%	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: 1m x 1m)			
1. Rubus armeniacus	40%	Y	FAC
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % 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	40	x 3 =	120
FACU species	30	x 4 =	120
UPL species	____	x 5 =	____
Column Totals:	70 (A)		240 (B)

Prevalence Index = B/A = 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)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: ML07

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
0-12	5YR 3/1	95%	None				Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrological indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 8/13/19
Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML08
Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12S R2E)
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): NONE Slope (%): 5%
Subregion (LRR): LRRC Lat: 36.9217294 Long: -121.763496 Datum: WGS 84
Soil Map Unit Name: Terra Watsonville Complex 15-30% NWI classification: PEM1Cx
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ____ No ✓
Wetland Hydrology Present? Yes ____ No ✓
Is the Sampled Area within a Wetland? Yes ____ No ✓
Remarks:

VEGETATION – Use scientific names of plants.

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. Bristly ox tongue (Helminthotheca echioides)	7%	Y	FAC
2. Euthamia occidentalis	10%	Y	FACW
3. Cyperus eragrostis	7%	Y	FACW
4. Phalaris aquatica	2%	N	UL
5. Festuca arundinacea	2%	N	FACU
6.			
7.			
8.			
	28 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1. Rubus armeniacus	3%	Y	FAC
2.			
	3 = Total Cover		

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 50/20
50 = 14%
20 = 5.6%

SOIL

Sampling Point: ML08

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	5YR 3/1	95%	None				Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: No hydrological indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 10/13/19

Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML09

Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12S R2E)

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

Subregion (LRR): LRRC Lat: 36.9217052 Long: -121.7623537 Datum: WGS 84

Soil Map Unit Name: Watsonville Terra Complex 15-30% Slope NWI classification: PEM1Cx

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

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. Epilobium citratum	15%	Y	FACW
2. Drymocallis glandulosa (?)	15%	Y	FAC
3. Knawia arvatica	2%	N	UL
4. Bristle Ox tongue	2%	N	FAC
5.			
6.			
7.			
8.			
	34% = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	2%	Y	FAC
2.			
	2% = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 50/20

50 = 17%

20 = 6.8%

SOIL

Sampling Point: ML09

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/1	95					Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Miles Ln City/County: Watsonville, Santa Cruz Sampling Date: 5/13/19
Applicant/Owner: Mid Pen Housing State: CA Sampling Point: ML 10
Investigator(s): Joe Rigney Section, Township, Range: San Andreas Land Grant (T12S R2E)
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): None Slope (%): 1-2%
Subregion (LRR): LRRC Lat: 36.9216833 Long: -121.763573 Datum: WGS 84
Soil Map Unit Name: Terra Watsonville Complex 15-30% slope NWI classification: PEMIC

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

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

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. Phalaris aquatica	40%	Y	WL
2. Festuca arundinacea	5%	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	45% = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
50/20
50 = 27.5%
0 = 9%

SOIL

Sampling Point: ML10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	5YR 3/1	95%	none				Sand Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: No Hydrological Indicators observed

APPENDIX B: NRCS SOILS REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Santa Cruz County, California

Miles Ln, Watsonville, CA

December 4, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Miles Ln)

Map Scale: 1:1,530 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Cruz County, California
Survey Area Data: Version 12, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Miles Ln)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
174	Tierra-Watsonville complex, 15 to 30 percent slopes	3.9	100.0%
177	Watsonville loam, 2 to 15 percent slopes	0.0	0.0%
Totals for Area of Interest		**3.9**	**100.0%**

Map Unit Descriptions (Miles Ln)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Santa Cruz County, California

174—Tierra-Watsonville complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: h9g2
Elevation: 20 to 1,200 feet
Mean annual precipitation: 14 to 28 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Tierra and similar soils: 55 percent
Watsonville and similar soils: 30 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting

Landform: Fan terraces, marine terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 14 inches: sandy loam
H2 - 14 to 66 inches: clay, clay loam, sandy clay
H2 - 14 to 66 inches:
H2 - 14 to 66 inches:

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: About 14 inches to abrupt textural change
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (R015XD115CA)
Hydric soil rating: No

Description of Watsonville

Setting

Landform: Marine terraces, fan terraces

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 39 inches: clay, clay loam
H2 - 18 to 39 inches: sandy clay loam, clay loam
H3 - 39 to 63 inches:
H3 - 39 to 63 inches:

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: About 18 inches to abrupt textural change
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (R014XD089CA)
Hydric soil rating: Yes

Minor Components

Elkhorn, sandy loam

Percent of map unit: 5 percent
Hydric soil rating: No

Pfeiffer, gravelly sandy loam

Percent of map unit: 4 percent
Hydric soil rating: No

Los osos, loam

Percent of map unit: 2 percent
Hydric soil rating: No

Tierra

Percent of map unit: 1 percent
Hydric soil rating: No

177—Watsonville loam, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: h9g5
Elevation: 20 to 1,200 feet
Mean annual precipitation: 28 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Watsonville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Watsonville

Setting

Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 39 inches: clay, clay loam
H2 - 18 to 39 inches: sandy clay loam, clay loam
H3 - 39 to 63 inches:
H3 - 39 to 63 inches:

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: About 18 inches to abrupt textural change
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D

Ecological site: CLAYPAN (R014XD089CA)
Hydric soil rating: Yes

Minor Components

Elkhorn, sandy loam
Percent of map unit: 5 percent
Hydric soil rating: No

Pinto, loam
Percent of map unit: 4 percent
Hydric soil rating: No

Watsonville, thick surface
Percent of map unit: 3 percent
Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

Cropley, silty clay
Percent of map unit: 1 percent
Hydric soil rating: No

Danville
Percent of map unit: 1 percent
Hydric soil rating: No

Elder
Percent of map unit: 1 percent
Hydric soil rating: No

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APPENDIX C: PREVIOUS DELINEATION REPORT (OEI 2003)

LOCATION OF AREAS POTENTIALLY SUBJECT TO U.S. ARMY CORPS OF ENGINEERS JURISDICTION

WETLAND/U. S. WATERS DELINEATION

FOR THE

141 MILES LANE PROPERTY

(Parcel No. 016-491-04)

SANTA CRUZ COUNTY, CALIFORNIA

Prepared for:

SOUTH COUNTY HOUSING CORPORATION
9015 Murray Avenue, Suite 100
Gilroy, California 95020

Prepared by:

OLBERDING ENVIRONMENTAL, INC.
Wetland Regulatory Consultants
3127 Vistamont Drive, Suite 100
San Jose, California 95118

Phone: (408) 448-2322 ~ FAX (408) 448-2010
Contact: Jeff Olberding

DECEMBER 2003

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TABLES

ATTACHMENTS

This report should be cited as: Olberding Environmental, Inc. December 2003. *Location of Areas Potentially Subject to U.S. Army Corps of Engineers Jurisdiction: Wetland/U.S. Waters Delineation for the 141 Miles Lane Property, Santa Cruz County, California.* 15 pp. plus attachments. Prepared for South County Housing Corporation, Gilroy, California.

SUMMARY

The following information has been prepared to document the results of a jurisdictional delineation survey conducted to identify the potential presence of U.S. Army Corps of Engineers (Corps) jurisdictional wetlands/waters within the Miles Lane Property (Property), located in the City of Watsonville, Santa Cruz County, California.

The determination of potential jurisdictional wetlands/waters regulated by the Corps included the observation of field characteristics obtained during a delineation survey of the Property. Based on the results of field surveys conducted by Olberding Environmental, Inc. on August 29, 2003, it was determined that both wetland and other water features are present within the Property.

Wetlands were dominated by vegetation commonly associated with wetland plant communities and contained soils associated with saturated or hydric conditions. In addition to wetland vegetation and soils indicators, hydrological indicators were readily visible in the form of flowing and/or ponded water and oxidized rhizospheres in the upper 12 inches of the soil profile. Identification of potential waters includes the presence of a defined bed and bank and the absence of wetland vegetation within the channel feature.

Areas qualifying as potential Corps jurisdictional wetlands/waters included Watsonville Slough, a seep and a vegetated swale. Our review and interpretation of the Corps regulations and guidance letters governing the identification of jurisdictional wetlands/waters indicate that there are approximately **0.05** acres of regulated waters and **0.12** acres of regulated wetlands on the Miles Lane Property.

1.0 INTRODUCTION

1.1 Scope

At the request of South County Housing Corporation, Olberding Environmental, Inc. conducted an investigation as to the presence and geographic extent of possible wetland areas and/or other types of waters of the United States potentially subject to Corps regulation under the Clean Water Act within the boundary of the Property. The placement of fill material in areas identified as jurisdictional waters is subject to the permit requirements of the Corps, under Section 404 of the Clean Water Act (1972).

1.2 Location

The Property is located on the south side of Miles Lane in north Watsonville, Santa Cruz County, California. The Property is located west of Freedom Boulevard and north from the intersection of Freedom Boulevard and Highway 152. Attachment 1, Figure 1 depicts the regional location of the Property in Santa Cruz County and the coastal area of central California, while Attachment 1, Figure 2 illustrates the vicinity of the Property in relationship to the City of Watsonville. Attachment 1, Figure 3 identifies the location of the Property on the USGS 7.5 Quadrangle Map for Watsonville West. An aerial photograph depicting the delineation site is provided in Attachment 1, Figure 4.

1.3 Site Description

The subject Property consists of a rectangular shaped parcel bisected by Watsonville Slough. Watsonville Slough crosses the Property in roughly a north/south direction. The east and west borders of the site slope downhill toward Watsonville Slough located roughly in the center of the site. The site also slopes from north to south. The Watsonville Slough channel enters the Property via two five-foot corrugated metal culvert pipes that cross beneath Miles Lane. A perennial stream of water flows through the Property and runs within a channel that averages 9 feet in width. Upstream from the Property, Watsonville Slough flows through a modified channel then passes underground for approximately 257 linear feet until it daylights upstream at Marin Street. Downstream from the Property the Slough remains above ground and the channel becomes larger just off site.

The Property is located within a developed portion of the city of Watsonville and adjacent land uses consist of apartment housing to the north, single family residential to the west, a mobile home park to the south and commercial uses to the east, fronting Freedom Boulevard. The parcel located immediately adjacent to the east consists of an undeveloped lot that slopes onto the site. The parcel to the west consists of a developed site with one home located along Miles Lane. This parcel also slopes downhill toward the Property. The adjacent property on the west also contains an abandoned well site that appears to leak toward the Property.

Freshwater emergent wetland occurs in the Watsonville Slough channel and non-native perennial grassland occurs on the banks of the channel and in adjacent uplands. A small patch of isolated valley and foothill riparian occurs on the Watsonville Slough channel near the southern Property boundary. Perennial wetland supported by a seep occurs on the east side of Watsonville Slough. Two areas that support drainage for a portion of the rainy season are found along the southern fence line and drain toward the Slough and the seep. The eastern side of the drainage supports seasonal wetland habitat. Attachment 3 contains photographs of the site that exhibit these habitat types.

2.0 METHODOLOGY

2.1 Overview

Potential wetlands were delineated using Corps' methodology during the site investigation conducted on August 29, 2003. The existing land forms as well as associated vegetation, hydrology, and soil conditions were recorded at the potential wetland/waters within the survey area. Potential jurisdictional areas were identified on field maps and compared to available aerial photography and topographical maps which included:

- U. S. *Geological Survey Quadrangle Map for Watsonville West, California*;
- Soils information in the *Soil Survey of Santa Cruz County, California* (1980, SCS);
- Aerial Photograph of the site (EarthViewer 2003).

The extent or boundary of wetland habitats was further defined using the 1987 "Corps Wetlands Delineation Manual" (1987 Manual)[1] routine on-site wetland determination protocol currently in use by the Corps, published Corps of Engineers regulatory guidance letters, and San Francisco District regulatory policy.

2.2 Corps Definition of Wetlands/Waters

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and

b) a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The assessment of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and is required per the1987 Corps Manual.

Aquatic habitats other than wetlands that are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.4(a)(b) and (c)]:

(a) *Territorial Seas.* The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles.

(b) *Tidal Waters of the United States.* The landward limits of jurisdiction in tidal waters:

(1) Extends to the high tide line, or

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[1] Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual." U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendices.

(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in (c) below.

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHW), or

(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

(3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the ordinary high water (OHW) mark on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the U.S." These waters may include all waters used or potentially used for interstate commerce. This includes all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

The survey area was also reviewed to assess the potential for qualifying for Section 10 jurisdiction as a navigable water of the United States. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329, Section 329.4). Section 10 jurisdiction extends to the lateral extent of the ordinary high water marks on opposing channel banks. Ultimately, the determination of navigability is made by the division engineer (33 CFR, Part 329, Section 329.14).

2.3 Data Collection for Potential Jurisdictional Wetlands/Waters

Data was collected for the determination of wetlands/waters on August 29, 2003 as outlined in the methods section. Specific data point information on vegetation, soils and hydrology was gathered by wetland scientists from Olberding Environmental. The purpose of this jurisdictional investigation was to identify and delineate potential jurisdictional waters, including wetlands. Surveys were conducted within and adjacent to the specified survey boundaries. The study area was examined for topographic features, drainages, alterations to site hydrology and areas of recent disturbance in the defined survey area.

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 Manual. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland. On each transect, a sample point was sited in an area exhibiting wetland characteristics, while a second sample point was sited slightly up slope of the first point in an upland position that defined the transitional break between wetland and upland.

A total of nine (9) sample points were established on five (5) transect lines within the boundaries of the study area. This included five (5) upland and four (4) wetland sample points. Attachment 1, Figure 5 includes locations of the sample points. Five transect lines were established across the Property to delineate the features on site. The upland positions are distinguished by "A" and the wetland position "B," and the data points through the upland and wetland are called 1-A and 1-B respectively. Four transects were established with two data points A and B, and one transect was established with one data point A.

The approximate location and extent of jurisdictional wetlands/waters as well as other relevant data, were transferred onto 1"= 40' scale topographical map of the survey area in the field. Watsonville Slough, the seep wetland and the two potential drainage features were drawn on the topographic maps that were provided based on the field measurements of length and width. Field measurements were taken to determine the size of wetlands within the survey area that met the jurisdictional criteria. Information obtained at the sample point locations was recorded on modified Corps data sheets included in this report (Attachment 3). Photographs were also taken for selected sample points that represented the property. (See Attachment 4).

3.0 TECHNICAL FINDINGS

The following discussion reports the hydrology, soil and vegetation conditions observed at the survey area during the course of the investigation. A general observation of the survey area found positive evidence of wetland conditions.

3.1 Hydrology Conditions

The 1987 Manual states that the diagnostic environmental characteristics indicative of wetland hydrology conditions are: "the area is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation" (1987 Manual, p. 14). According to the Manual, indicators of hydrologic conditions that occur in wetlands may include:

Table 1
Hydrology Indicators

Primary Indicators	Secondary Indicators
Inundation, Saturation	Oxidized Rhizospheres Associated with Living Roots
Watermarks	Water-Stained Leaves
Drift Lines	FAC-Neutral Test
Water-Borne Sediment Deposits	Local Soil Survey Data
Drainage Patterns Within Wetlands (With Caution)	

(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in (c) below.

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHW), or

(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

(3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the ordinary high water (OHW) mark on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the U.S." These waters may include all waters used or potentially used for interstate commerce. This includes all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

The survey area was also reviewed to assess the potential for qualifying for Section 10 jurisdiction as a navigable water of the United States. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329, Section 329.4). Section 10 jurisdiction extends to the lateral extent of the ordinary high water marks on opposing channel banks. Ultimately, the determination of navigability is made by the division engineer (33 CFR, Part 329, Section 329.14).

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Data was collected for the determination of wetlands/waters on August 29, 2003 as outlined in the methods section. Specific data point information on vegetation, soils and hydrology was gathered by wetland scientists from Olberding Environmental. The purpose of this jurisdictional investigation was to identify and delineate potential jurisdictional waters, including wetlands. Surveys were conducted within and adjacent to the specified survey boundaries. The study area was examined for topographic features, drainages, alterations to site hydrology and areas of recent disturbance in the refined survey area.

2.0 METHODOLOGY

2.1 Overview

Potential wetlands were delineated using Corps' methodology during the site investigation conducted on August 29, 2003. The existing land forms as well as associated vegetation, hydrology, and soil conditions were recorded at the potential wetland/waters within the survey area. Potential jurisdictional areas were identified on field maps and compared to available aerial photography and topographical maps which included:

- U. S. *Geological Survey Quadrangle Map for Watsonville West, California*;
- Soils information in the *Soil Survey of Santa Cruz County, California* (1980, SCS);
- Aerial Photograph of the site (EarthViewer 2003).

The extent or boundary of wetland habitats was further defined using the 1987 "Corps Wetlands Delineation Manual" (1987 Manual)[1] routine on-site wetland determination protocol currently in use by the Corps, published Corps of Engineers regulatory guidance letters, and San Francisco District regulatory policy.

2.2 Corps Definition of Wetlands/Waters

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and

b) a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The assessment of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and is required per the1987 Corps Manual.

Aquatic habitats other than wetlands that are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.4(a)(b) and (c)]:

(a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles.

(b) *Tidal Waters of the United States*. The landward limits of jurisdiction in tidal waters:

(1) Extends to the high tide line, or

[1] Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual." U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendices.

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 Manual. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland. On each transect, a sample point was sited in an area exhibiting wetland characteristics, while a second sample point was sited slightly up slope of the first point in an upland position that defined the transitional break between wetland and upland.

A total of nine (9) sample points were established on five (5) transect lines within the boundaries of the study area. This included five (5) upland and four (4) wetland sample points. Attachment 1, Figure 5 includes locations of the sample points. Five transect lines were established across the Property to delineate the features on site. The upland positions are distinguished by "A" and the wetland position "B," and the data points through the upland and wetland are called 1-A and 1-B respectively. Four transects were established with two data points A and B, and one transect was established with one data point A.

The approximate location and extent of jurisdictional wetlands/waters as well as other relevant data, were transferred onto 1"= 40' scale topographical map of the survey area in the field. Watsonville Slough, the seep wetland and the two potential drainage features were drawn on the topographic maps that were provided based on the field measurements of length and width. Field measurements were taken to determine the size of wetlands within the survey area that met the jurisdictional criteria. Information obtained at the sample point locations was recorded on modified Corps data sheets included in this report (Attachment 3). Photographs were also taken for selected sample points that represented the property. (See Attachment 4).

3.0 TECHNICAL FINDINGS

The following discussion reports the hydrology, soil and vegetation conditions observed at the Survey area during the course of the investigation. A general observation of the survey area found positive evidence of wetland conditions.

3.1 Hydrology Conditions

The 1987 Manual states that the diagnostic environmental characteristics indicative of wetland hydrology conditions are: "the area is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation" (1987 Manual, p. 14). According to the Manual, indicators of hydrologic conditions that occur in wetlands may include:

Table 1
Hydrology Indicators

Primary Indicators	Secondary Indicators
Inundation, Saturation	Oxidized Rhizospheres Associated with Living Roots
Watermarks	Water-Stained Leaves
Drift Lines	FAC-Neutral Test
Water-Borne Sediment Deposits	Local Soil Survey Data
Drainage Patterns Within Wetlands (With Caution)	

Department of the Army, U.S. Army Corps of Engineers, Washington, D.C., *Memorandum - Subject: Clarification and Interpretation of the 1987 Manual*, dated March 8, 1992 provides further clarification that:

> "Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years (see Table 5, page 36 of the 1987 Manual) may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. Wetland hydrology exists if field indicators are present as described herein and in the enclosed data sheet."

Each of the nine (9) sample points were examined for positive field indicators of wetland hydrology. During the August 29, 2003 survey, primary indicators were used to determine the wetland-upland boundary on the Property. Watsonville Slough was observed to support flowing water that was approximately eight inches deep. Saturation and inundation were recorded in the Slough. There was a defined bed, bank, and scour lines along the channel which meets the definition of waters of the U.S.

The perennial seep area was saturated and inundated with water at the time of the site visit in August. It was speculated that the seep may result from a leach line or a broken water line somewhere uphill from the Property. However, without additional information to substantiate the origination of the water source, this area was delineated as a seep. No buildings were evident for which a leach line or water pipe leak could be attributed. The nearest structures to the seep are located along Freedom Boulevard. Algal matting was observed in addition to the saturated conditions present within the seep. Secondary indicators were also observed. These indicators included oxidized rhizospheres.

The drainage areas along the southern Property boundary did not exhibit primary indicators. These areas exhibited secondary indicators such as oxidized rhizospheres. A narrow channel had formed along the eastern fence line where the drainage water annually creates a narrow scoured area. No channels were observed along the western fence line.

Upland areas were determined by the lack of inundated or saturated soil conditions. No hydrology criteria were met in the uplands; and therefore, these areas were used to compare to the wetland areas in making determination of jurisdictional conditions.

3.2 Soils Conditions

The Corps' 1987 Manual states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions" (1987 Manual, p. 14). According to the Manual, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions.

According to the most recent version of the National Technical Committee for Hydric Soils, the criteria to be used by the Corps for what constitutes current hydric soil/wetland soil conditions for the soils found at the site are:

1. Minimum Saturation at 12" to the surface: 14 consecutive days during the growing season.

2. Minimum Inundation (Flooded or Ponded): Soils that are frequently "ponded" for long duration (≥ 15 to 30 consecutive days) or very long duration (> 30 consecutive days) during the growing season, or soils that are frequently "flooded" for long duration or very long duration during the growing season.

Where possible, the top 20 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (Histisols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of color within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. A Munsell soil color charts (Kollmorgen Instr. Corp. 1990) were reviewed to obtain the soil color matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or of two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter. All soil colors indicated in this report were taken under clear, sunny skies using moistened soil samples.

Soil mapping of Santa Cruz County by the Natural Resources Conservation Service (NRCS) identifies one soil type on the Property (see Attachment 1, Figure 6). The NRCS provided general soils information for the property (see Attachment 5). The soils mapped included the following type:

Tierra-Watsonville complex, 15 to 30 percent slopes.

The Tierra-Watsonville complex consists of soils on alluvial and marine terraces. This soil complex is derived from sedimentary rock and is formed in alluvium. The Tierra soils are moderately well drained and are very deep. They exhibit very slow permeability and rapid runoff. The Watsonville soils are somewhat poorly drained and are also very deep. They exhibit very slow permeability and rapid runoff. Soil colors are described as 10YR 3/2, 10 YR 4/2, 10 YR 2/2, and 10YR 2/1 down to 14 inches. Both the Tierra and Watsonville soils are described as sandy loams down to 18 inches.

Soil Analysis at Property

A total of nine (9) soil pits were dug by shovel to a maximum depth of twenty (20) inches at locations representative of various surface hydrology conditions within the study area (Attachment No. 1, Figure 5). The soils found at the nine sites were classified as having or not having indicators of wetland soil conditions using the methodology in the Corps'1987 Manual.

The dominant soil color on the site was 10YR 3/1 which was recorded at six of the sample points. The other representative color consisted of 10YR 3/2 which was observed in the upland positions. Mottles of 7.5 YR 4/6 were observed at two of the wetland sample locations. The mottle abundance was observed as few to common, and the mottle contrast was observed as distinct.

The soil in the upland positions "A" did not exhibit a dramatically higher chroma than observed in the "B" positions, but slight differences could be distinguished between the upland soils and the wetland areas. There were mottles at two of the four wetland test pit locations, while no mottles were observed in the upland positions. Where lighter soil colors could be distinguished in comparison to the wetland points, upland positions were established. There were a few data points at which dark soils were observed where wetland vegetation and hydrology was absent, however there was a lack of other wetland criteria and the points were determined to be in an upland position.

3.3 Vegetation Conditions

The 1987 Manual states that the diagnostic environmental characteristics indicating wetland vegetation conditions are met when the prevalent vegetation (more than 50%) consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described above. In addition, hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Indicators of vegetation associated with wetlands include:

1. more than 50% of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW") or Facultative ("FAC") on lists of plant species that occur in wetlands;[2]

2. visual observations of plant species growing in areas of prolonged inundation or soil saturation; and

3. reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils" (1987 Manual).

Table 2
Wetland Plant Indicator Status Categories

Indicator Category	Symbol	Frequency of Occurrence
OBLIGATE	OBL	greater than 99%
FACULTATIVE WETLAND	FACW	67 - 99%
FACULTATIVE	FAC	34 - 66%
FACULTATIVE UPLAND	FACU	1 - 33%
UPLAND	UPL	less than 1%

* Based upon information contained in Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

[2] Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). Biological Report 88(26.10) May 1988. National Ecology Research Center, National Wetlands Inventory, U.S. Fish and Wildlife Service, St. Petersburg, FL.

It is important to note that, although there is a high probability that one would expect to find obligate, facultative wet and facultative plants growing in wetlands, there is also a significant possibility that the obligate, facultative wet, and facultative species will occur in areas that do not exhibit wetland soil and/or wetland hydrology conditions.

The vegetation in the channel of Watsonville Slough and within the seep wetland area consisted of plants tolerant of saturated and/or inundated soil conditions, plants otherwise called hydrophytes. The dominant wetland plant species were burreed (*Sparganium eurycarpum* ssp. *eurycarpum*-OBL), bulrush (*Scirpus acutus*-OBL), water celery (*Oenanthe sarmentosa*-OBL), rush (*Juncus effusus*-OBL), buttercup (*Ranunculus sp.*), golden dock (*Rumex maritimus*-FACW), and watercress (*Rorippa nasturtium-aquaticum*-OBL). Attachment 2 provides information concerning the plant wetland indicator status for those species found at the sample areas. Plants observed at each of the sample sites were identified to species level using standard floras appropriate for California, wherever necessary.

3.3.1 *Watsonville Slough Channel*

The channel of Watsonville Slough was defined by a bed and bank found at the topographic low point of the Property. The channel supported over 70 percent emergent vegetation that consisted of burreed, cattails (*Typha latifolia*), and bulrush. Other areas in the channel were observed with open water or floating aquatic vegetation. The associate species observed within the channel and on the banks of the channel were hairy willow herb (*Epilobium ciliatum*), golden dock, curly dock (*Rumex crispus*), and western goldenrod (*Euthamia occidentalis*). The aquatic vegetation observed consisted of duck weed (*Lemna sp.*) and watercress.

3.3.2 *Seep Wetland*

The seep wetland was observed to support perennial species found in wet meadow type habitat. The plants observed to dominate the community consisted of water celery, buttercup, rushes, and western goldenrod. The associate plant species were recorded as toad rush, spike rush (*Eleocharis macrostachya*), Italian rye grass (*Lolium multiflorum*), golden dock, and velvet grass (*Holocus lanatus*). These plants formed a hummocky vegetation association from the emergence point of the seep to the broadened base located downhill.

3.3.3 *Non-Native Perennial Grassland*

The non-native perennial grassland was observed to be dominated by Harding grass (*Phalaris aquatica*), California brome (*Bromus carinatus*), prickly ox-tongue (*Picris echioides*), Italian rye grass, bindweed (*Convolvulus arvensis*), and salsify (*Trapogon porrifolius*). The site had been mowed previously in the year and may contain a few other non-native annual grasses such as wild oat (*Avena fatua*), soft chess (*Bromus hordeaceous*), and wild radish (*Raphanus sativus*). This vegetation assemblage was observed to occupy the land adjacent to the Slough and in between wetland features.

3.3.4 *Intermittent Drainage Areas*

The two unchannelized intermittent drainage swale areas were characterized by their mirror image topographic position on the site, but did contain differing vegetation types. The area along the eastern fence line was dominated by annual and perennial forbs while the area on the western fence line was dominated by willow (*Salix* sp.) and Himalayan blackberry (*Rubus discolor*). Both areas contained plants that may be found in wetland areas. The eastern side of the site supported a seasonal wetland flora, drainage swale hydrology and wetland soils such as found in a seasonal

wetland habitat. The western area contained perennial plants that are found in wetland, but lacked hydrology and soils indicators, and was therefore not considered a jurisdictional area.

3.3.5 *Isolated Valley and Foothill Riparian*

A small isolated patch of riparian vegetation occurs adjacent to the southern fence line where Watsonville Slough exits the Property. Several medium sized willow (*Salix babylonica* -hybrid, *Salix laevigata*) trees occur adjacent to the channel and Himalayan blackberry occurs in the understory. This area extends approximately 77 feet north from the fence line into the Property and 34 feet to the east from the channel. The vegetation in the southwest corner of the Property also consists of this association, but is not connected to the Watsonville Slough channel by any drainage channel connections. Overland sheet flows may support this area. The southwestern isolated willow and blackberry vegetation has dimensions of approximately 62 x 70 feet.

4.0 AREAS POTENTIALLY REGULATED BY THE CORPS OF ENGINEERS

4.1 Areas Potentially Subject to Regulation (Wetlands/Waters of the U.S.)

The EPA and Corps regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (40 C.F.R. §230.3(t); 33 C.F.R. §328.3(b)).

The term "waters of the United States" are defined in 40 C.F.R. §328.3(a) as:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

  (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

  (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

  (iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs [1-4] of this section;

(6) The territorial sea; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs [1-6] of this section (40 CFR §230.3(s); 33 CFR §328.3(a)).

Information obtained during the January 10, 2003 reconnaissances survey was recorded on modified Corps data sheets (Attachment No. 3). This information has been summarized in Table 3.

Table 3
Wetland Determination by Sample Point

Data Point Identification No.	Criteria Met Yes/No For:			Wetland(Y)/Non-Wetland(N)
	Vegetation	Hydrology	Soils	
1-A	Y	N	Y	N
1-B	Y	Y	Y	Y
2-A	Y	N	N	N
2-B	Y	Y	Y	Y
3-A	N	N	N	N
3-B	Y	Y	Y	Y
4-A	Y	N	N	N
4-B	Y	Y	Y	Y
5-A	Y	N	N	N

Source: Delineation Data Sheets, Olberding Environmental, Inc. 2003

4.1.1 *Potential Wetlands*

The potential wetland area defined by the seep met the Corps criteria for wetlands by satisfying the three parameters established for vegetation, hydrology, and soils. These wetlands are classified as adjacent wetlands by the Corps because they are directly connected to a defined drainage channel. The wetland formed by the seep consists of wedge-like shaped feature with a broader area uphill and a narrow section where the drainage channel begins. The drainage swale area that runs east to west along the southern boundary also exhibited all three parameters used to determine wetlands. It appears that seasonal drainage from off site creates the hydrology which forms the seasonal wetland area on the Property boundary.

Based on the field work completed for this project, a total of **0.12** acres of wetlands were identified within the survey area. The wetland/nonwetland boundary for these areas was based on the presence of hydrological indicators, hydric soils and wetland plant species. Attachment 1, Figure 5 indicates those areas identified as wetland under the definition of the Corps. Table 4 provides a break down of the square footage and acreage of the wetland feature.

Table 4 Miles Lane Property Wetlands		
Wetland Number	**Potential Wetland Area in Square Feet**	**Acreage of Wetland**
1 (Seep)	**3,744**	**0.080**
2 (Seasonal Wetland)	**2,040**	**0.040**
TOTAL	**5,784**	**0.120**

4.1.2 *Potential Other Waters*

A total of **0.05** acres of potential other waters were identified within the Miles Lane Property survey area. Overall, field characteristics of the ordinary high water OHW mark within the banks of the Watsonville Slough channel were readily apparent. The location of the OHW mark was obtained through general observation of indicators which included a natural line scoured on the bank.

Table 5 Miles Lane Property Waters				
Drainage Feature	**Average Width in Feet**	**Linear Feet**	**Acres**	**Vegetation**
1	9	255	0.05	Freshwater Emergent Wetland/Isolated Valley Foothill Riparian
TOTAL		**255**	**0.05**	

4.1.3 *Section 10 Navigable Waters*

Based on the description above, other waters within the survey area would not meet the regulatory definition of a navigable waters.

4.2 Areas Potentially Excluded From Regulation Under Section 404

4.2.1 *Discretionary Exemptions*[3],[4]

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[3] Fed. Reg. 41206, 41217 (Nov. 13, 1986). It should be noted that the Corps reserves the right on a case-by-case basis to determine that a particular waterbody within these categories of waters is a water of the United States. EPA also has the right, in those instances where it is the agency making the jurisdictional determination, to decide on a case-by-case basis if any of these waters are waters of the United States. However, the preamble discussion of EPA's regulations indicates that EPA, like the Corps, does not generally consider areas such as those described above to be waters of the United States. See 53 Fed. Reg. 20764, 20765 (June 6, 1988).

[4] No exemptions apply under Section 10 of the Rivers and Harbors Act.

A number of exemptions from Section 404 Clean Water Act regulations exist for waters of the United States. These exemptions fall into two basic categories: (1) discretionary and (2) non-discretionary.

According to the preamble discussion of the Corps regulations in the November 13, 1986 *Federal Register*, certain areas which may meet the technical definition of a wetland are generally not regulated. Such areas include:

(a) Non-tidal drainage and irrigation ditches excavated on dryland.

(b) Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) Artificial lakes or ponds created by excavating and/or diking dryland to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dryland to retain water for primarily aesthetic reasons.

(e) Water filled depressions created in dryland incidental to construction activity and pits excavated in dryland for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

4.2.2 *Application of Discretionary Exemptions*

Based on the description above, the drainage channel, i.e. Watsonville Slough would not qualify for these discretionary exemptions. However, if the source for the seep wetland area can be determined as artificial, it may qualify under (b) above, and be determined an exemption.

4.2.3 *Isolated Waters*

The U.S. Supreme Court has recently ruled that isolated, non-navigable wetlands and other waters are not subject to federal regulation even if they provide habitat for migratory birds and endangered species. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (hereinafter SWANCC) (No. 99-1178). The Corps has attempted to define isolated as "not having hydrological connectivity to other jurisdictional features." Based on this determination, the Court has eliminated the need to secure fill permits from the Corps under Section 404 of the Clean Water Act when isolated wetlands are encountered. Nevertheless, the decision is by no means a blanket repeal of Section 404. Every landowner's on-the-ground situation is unique, and must be analyzed individually. In the aftermath of this decision, each landowner must still carefully assess its situation to determine whether its survey area contains features which qualify as "waters of the U.S." It is therefore recommended that a jurisdictional delineation be verified by the Corps rather than making an assumption regarding the potential regulation of a specific wetland/water feature.

The RWQCB has indicated that they intend to continue regulation of isolated wetlands under the Porter-Cologne Act (Water Code Section 13260). Their interpretation of the Court ruling indicates that the SWANCC decision has no bearing on the RWQCB's regulation of "waters of the state" and as such they will continue to issue waste discharge requirements (WDRs) in lieu of a Section 401 Certification which is required when the Corps issues a Section 404 permit.

The wetland formed by the seep and the seasonal wetland area does not appear to qualify as an isolated wetland under the description above as they are hydrologically connected to a drainage feature.