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SAN LUIS OBISPO

September 20, 2018

Katerina Galacatos
South Branch Chief
U.S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Subject: Request for Verification of a Jurisdictional Delineation of the Bay Area Ridge Trail Project in the Cities of Fremont and Union City, Alameda County, California

Dear Katerina:

On behalf of the East Bay Regional Park District, LSA is requesting verification of the extent of U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act on the Bay Area Ridge Trail Project Study Area in Fremont and Union City.

PROJECT BACKGROUND

The East Bay Regional Park District plans to install a 3.9-mile multi-use trail from the City of Fremont's Vallejo Mill Historical Park parking area upslope to a junction with an existing ranch road being utilized as the trail route. The trail alignment is predominantly on grazed ranchlands and partially follows existing ranch roads. The trail will improve culvert crossings or dry crossings at several seasonal drainage channels.

STUDY AREA DESCRIPTION

The approximately 47-acre and 3.9 miles long Bay Area Ridge Trail Project Study Area typically comprises all areas within 50 feet of the proposed trail alignment, but also includes additional width where appropriate and construction access routes. The Study Area is located within Assessors Parcels 85-5275-33-0, -36-0, -37-0, and -42-0, and 85-5400-1-1 in Union City and 507-70-1-4, -1-10, -1-11, -1-12, -10-0, and 11-0; 507-150-5-1 and 507-480-14-2 along the Niles Canyon Railway, and 507-480-10-1 in the Vallejo Mill Historical Park. The Study Area is located in unsectioned rancho lands and within Sections 9, 10, and 15 within T4S, R1W, on the Niles, California 7.5 minute series USGS quadrangles. The southern terminus of the trail is located at approximately 80 feet above mean sea level at approximately 121.9694° West and 37.5793° north within the Vallejo Mill Historical Park along the northern side of Niles Canyon Road east of its intersection with Mission Boulevard in the City of Fremont. The northern terminus of the trail is located at approximately 1,300 feet elevation at approximately 121.9697° West and 37.6015° North where the trail alignment merges with an existing ranch road on Union City lands.

The Study Area is surrounded by grazed grasslands, a railroad, and streets.

Vegetation. The vegetation on the Study Area is predominantly ruderal non-native annual grassland. Grassland species include wild oats (*Avena fatua*), rip-gut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), and foxtail barley (*Hordeum murinum*), along with fennel (*Foeniculum vulgare*), wild radish (*Raphanus sativus*), rose clover (*Trifolium hirtum*), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), and vetch species (*Vicia* spp.). Shrubs include coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), and California sagebrush (*Artemisia californica*). Trees species, predominantly located surrounding ravines, include coast live oak (*Quercus agrifolia*), California bay laurel (*Umbellularia californica*), California buckeye (*Aesculus californica*), bigleaf maple (*Acer macrophyllum*), and western sycamore (*Platanus racemosa*). Trees in the Vallejo Mill Historical Park are predominantly western sycamore.

Soils. The soils on the Study Area are mapped as Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15; Los Osos silty clay loam, 7 to 30 percent slopes; Los Osos silty clay loam, 30 to 45 percent slopes, eroded; Millsholm silt loam, 30 to 45 percent slopes, eroded; Millsholm silt loam, 45 to 70 percent slopes, eroded; Rock land; and Riverwash. None of the soils are listed as hydric or as having hydric inclusions, except Riverwash. The Riverwash soil is located in Vallejo Mill Historical Park and shows no evidence of wet hydrology or hydrophytic vegetation.

Hydrology. Surface water runoff from almost the entire Study Area drains southeastward toward Niles Canyon Road (State Highway 84) and Alameda Creek. The Vallejo Mill Historical Park portion of the Study Area appears to drain internally to municipal stormwater piping that drains southward across Mission Boulevard (State Highway 238) to Alameda Creek. Alameda Creek drains into San Francisco Bay approximately 9 miles west of the Study Area. Lower Alameda Creek and San Francisco Bay are tidal traditional navigable waters of the United States.

REGULATORY BACKGROUND

Clean Water Act Jurisdiction

The Corps is responsible under Section 404 of the Clean Water Act (CWA) to regulate the discharge of fill material into waters of the United States. Waters of the United States and their lateral limits are defined in 33 CFR Part 328.3 (a) and include streams that are tributaries to navigable waters and their adjacent wetlands. The lateral limits of jurisdiction for a non-tidal stream are measured at the line of the Ordinary High Water Mark (OHWM) or the limit of adjacent wetlands. Any permanent extension of the limits of an existing water of the United States, whether natural or man-made, results in a similar extension of Corps jurisdiction.

Waters of the United States fall into two categories: wetlands and other waters. Wetlands include marshes, meadows, seep areas, floodplains, basins, and other areas experiencing extended seasonal soil saturation and dominated by wetland plant cover. Other waters include water bodies and watercourses, such as rivers, streams, lakes, springs, ponds, coastal waters, and estuaries.

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

METHODS

The field investigations of potentially jurisdictional wetlands occurring on the study site were conducted using the routine determination method given in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement) (U.S. Army Corps of Engineers 2008). This methodology entails examination of specific sample points within potential wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three parameters must be present for an area to be considered a wetland.

Hydrophytic plant species are listed by the *The National Wetland Plant List: 2016 wetland ratings* (Phytoneuron 2016-30: 1-17. Published 28 April 2016). The *National List* identifies five categories of plants according to their frequency of occurrence in wetlands. The categories are:

Obligate wetland plants (OBL)	Plants that occur almost always in wetlands
Facultative wetland plants (FACW)	Plants that usually occur in wetlands
Facultative plants (FAC)	Plants that are equally likely to occur in wetlands or non-wetlands
Facultative upland plants (FACU)	Plants that usually occur in uplands
Obligate upland plants (UPL)	Plants that occur almost always in non-wetlands

An area is generally considered to have hydrophytic vegetation when more than 50 percent of the dominant species in each stratum (tree, shrub, and herb) are in the obligate wetland, facultative wetland, or facultative categories.

Hydric soils are defined by criteria set forth by the National Technical Committee for Hydric Soils. These criteria are given in the *Wetlands Delineation Manual* and are based on depth and duration of soil saturation. Hydric soils are commonly identified in the field by using indirect indicators of saturated soil, technically known as redoximorphic features. These features are caused by anaerobic, reduced soil conditions that are brought about by prolonged soil saturation. The most common redoximorphic features are distinguished by soil color, which is strongly influenced by the frequency and duration of soil saturation. Hydric soils tend to have dark (low chroma) colors which are often accompanied by reddish mottles (iron mottles), reddish stains on root channels (oxidized rhizospheres), or gray colors (gleying). The Arid West Supplement contains descriptions of numerous federally-recognized hydric soil indicators.

Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic, wetland hydrology. This criterion is met if the area experiences inundation or soil saturation to the surface for a period equal to at least five (5) percent of the growing season (about 14 days in the region of the study site) in a year of median rainfall. In most cases, this criterion can only be measured directly by monitoring of the site through an entire wet season. In practice, the hydrological status of a particular area is usually evaluated using indirect indicators. Some of the indicators that are commonly used to identify wetland hydrology include biotic crusts

and oxidized rhizospheres around roots. The Arid West Supplement gives thorough descriptions of numerous federally-recognized indicators of wetland hydrology.

FIELD METHODS

LSA senior soil scientist Chip Bouril investigated the Study Area on July 27, 2017. The last significant rainfall occurred in May of 2017.

Potential jurisdictional boundaries were mapped using a global position system receiver with sub-meter accuracy. Boundaries were determined by following a combination of the limits of hydrophytic vegetation, the limits of observed wetland hydrology, topographic breaks, and aerial ortho-photo interpretation.

LSA established 2 wetland sample points in the Study Area.

OBSERVATIONS

Potential jurisdictional features are shown on Figure 3, Sheets A through G. Their potential jurisdictional areas are listed by individual segment and summarized in Table A. The numbering of potential jurisdictional feature locations follows that used in the East Bay Regional Park District's draft trail improvement plans.

Wetlands

Location 4

An upstream spring which has been developed for watering cattle is located approximately 200 feet upslope and northward from Location 4. The seep drains through Location 4 and is conveyed under the existing ranch road in a short 1-foot diameter culvert. Wet soil and green hydrophytic vegetation were observed upstream of the culvert and hydrophytic vegetation was observed downstream of the culvert, both in a flat-bottomed drainage swale with deep cattle hoof prints. Sample Point 1 was placed within the drainageway upstream of the culvert. Hydrophytic vegetation, redoximorphic soil mottling, and wetland hydrology were present, meeting jurisdictional wetland criteria. Sample Point 2, placed on the adjacent bank, had no wetland characteristics and failed to meet any jurisdictional wetland criteria. The primary characteristics of this drainage appear to be that of a cattle-influenced swale wetland, rather than that a stream channel with a scoured bed and bank. The jurisdictional boundary of the drainageway both upstream and downstream of the culvert was mapped to the limits of hydrophytic vegetation and wetland hydrology evidence. The wetland swale has an approximate length of 165 feet within the Study Area.

The potential jurisdictional area of wetland swale at Location 4 is 1,510 sq. ft. (0.035 acre).

Other Waters of the United States

Location 4

A 1-foot diameter by approximately 15-foot long culvert conveys the Location 4 wetland swale drainage under an informal ranch road. The potential jurisdictional area of the Location 4 culvert is 15 sq. ft. (0.0003 acre). The up and downstream reaches of this drainage are delineated as wetland.

Location 6

A drainage channel (other waters) in a wooded area crosses an existing ranch road at Location 6. A culvert, now completely plugged, formerly conveyed flow under the ranch road. Channel flow has deposited sediments on the ranch road and has created a deep head-cut at the downstream edge of the road, exposing the downstream portion of the plugged culvert. Although there is no bed and bank crossing the ranch road, the approximately six-foot width of the sediment deposit is projected across the roadway to connect segments with bed and bank. The channel has a maximum width of 6 feet and an approximate length of 190 feet within the Study Area.

The potential jurisdictional area of the Location 6 Channel within the Study Area is 955 sq. ft. (0.022 acre).

Location 7

A drainage (Other Waters) within a wooded area crosses an existing ranch road at Location 7. No existing culvert was observed. Sufficient evidence of bed and bank scour was observed both upstream and downstream of the roadway to likely be jurisdictional as an Other Waters of the United States. The channel has a maximum width of 4 feet and an approximate length of 105 feet within the Study Area.

The potential jurisdictional area of the Location 7 channel within the Study Area is 300 sq. ft. (0.007 acre).

Location 8

A drainage (Other Waters) within a wooded area crosses an existing ranch road at Location 8. Although its inlet was partially plugged by debris, an existing 3-foot diameter by 85-foot long steel culvert conveys flow under the ranch road. Bed and bank scour was observed in a rocky channel both upstream and downstream of the culvert. The channel, including the culvert, has a maximum width of 4 feet and an approximate total length of 170 feet within the Study Area.

The potential jurisdictional area of the Location 8 channel within the Study Area is 935 sq. ft. (0.021 acre).

Location 9

A rocky channel (Other Waters) within a wooded area drains southward toward an existing ranch road at Location 9. No existing culvert was observed. A developed spring surfaces in the channel approximately 40 feet upslope of the ranch road; two round and partially buried concrete sumps, one covered and one uncovered, at the upslope edge of the roadway store the accumulated spring water. The wetted portion of the channel and the concrete sumps both overflow across the ranch road and into the downslope channel. The wetted portions of the channel and the roadway crossing are pocked by deep cattle hoof prints, but no hydrophytic vegetation was observed. The channel area surrounding and upslope of the concrete sumps is wide and irregularly shaped, so is mapped as a polygon rather than as a line. The channel has a maximum width of 12 feet and an approximate length of 170 feet within the Study Area.

The potential jurisdictional area of the Location 9 channel within the Study Area is 820 sq. ft. (0.019 acre).

Location 11

A drainage (Other Waters) within a narrow wooded area crosses an existing ranch road at Location 11. An existing 3-foot diameter by approximately 40-foot long steel culvert conveys flow under the ranch road. Bed and bank scour was observed in a rock and soil channel both upstream and downstream of the roadway. The channel, including the culvert, has a maximum width of 5 feet and an approximate length of 215 feet within the Study Area.

The potential jurisdictional area of the Location 11 channel within the Study Area is 955 sq. ft. (0.022 acre).

Location 12

A narrow drainage (Other Waters), which is an upslope extension of the Location 11 channel, within grassland crosses the trail alignment at Location 12. No culvert is present at this location. A portion of the bank has recently slumped into the channel near the trail alignment. Bed and bank scour was observed in a soil-dominated channel. The channel has a maximum width of 4 feet and an approximate length of 185 feet within the Study Area.

The potential jurisdictional area of the Location 12 channel within the Study Area at this location is 620 sq. ft. (0.014 acre).

Other Areas Investigated

An approximately 5-foot diameter sloped rush patch along the trail alignment located around 2,100 feet north of Location 12 has no other wetland characteristics and was not further investigated.

A drainage crossing the trail alignment on an existing ranch road approximately 640 feet north of Location 9 is an upslope extension of the Location 9 drainage and did not have jurisdictional characteristics. The area upslope of the ranch road was a steep swale without evidence of scour or bed and bank and was completely vegetated with oats. The downslope side of the ranch road has a head cut adjacent to the road, but it appears primarily caused by rainfall runoff concentrated to this location by the grading of the ranch road and is limited in extent to the uncompacted fill slope along the downslope bank of the roadway.

No potential jurisdictional characteristics were observed along the remainder of the trail alignment or in the remainder of the Study Area.

Table A: Potential Waters of the United States

Wetlands		Width (feet)	Length (feet)	Area (sq. ft.)	Area (acres)
Swale Wetlands					
4-1		-	-	860	0.020
4-3		-	-	650	0.015
Subtotal Swale Wetlands				1,510	0.035
Subtotal Wetlands				1,510	0.035
Other Waters		Width (feet)	Length (feet)	Area (sq. ft.)	Area (acres)
Stream Segments					
4-2	Culvert	1	15	15	0.0003
6-1		6	80	480	0.011
6-2		4	40	160	0.004
6-3		3	15	45	0.001
6-4		6	25	150	0.003
6-5		3	20	60	0.001
6-6		6	10	60	0.001
Subtotal Location 6				955	0.022
7-1		3	30	90	0.002
7-2		4	30	120	0.003
7-3		2	45	90	0.002
Subtotal Location 7				300	0.007
8-1		8	25	200	0.005
8-2		12	20	240	0.006
8-3	Culvert	3	85	255	0.006
8-4		6	40	240	0.006
Subtotal Location 8				935	0.021
9-1		2	45	90	0.002
9-2		3	10	30	0.001
9-3		-	60	700	0.016
Subtotal Location 9				820	0.019
11-1		5	120	600	0.014
11-2		3	10	30	0.001
11-3		4	20	80	0.002
11-4	Culvert	3	40	120	0.003
11-5		5	25	125	0.003
Subtotal Location 11				955	0.022
12-1		4	125	500	0.011
12-2		2	60	120	0.003
Subtotal Location 12				620	0.014
Subtotal Other Waters			995	4,600	0.106
Total Potential Jurisdictional Waters				6,110	0.140

CONCLUSIONS

LSA has determined that the potential Section 404 waters of the United States on the Bay Area Ridge Trail in Fremont Study Area are a wetland swale with an area of 0.035 acre and Other Waters with a total area of 0.106 acre, for a total jurisdictional area of 0.141 acre. These potential jurisdictional features and Study Area boundaries are mapped on Figure 3, Index Sheet and Sheets A through G, which are attached.

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

Please contact me or Ross Dobberteen at (510) 236-6810 to schedule a verification visit.

Sincerely,

LSA ASSOCIATES, INC.

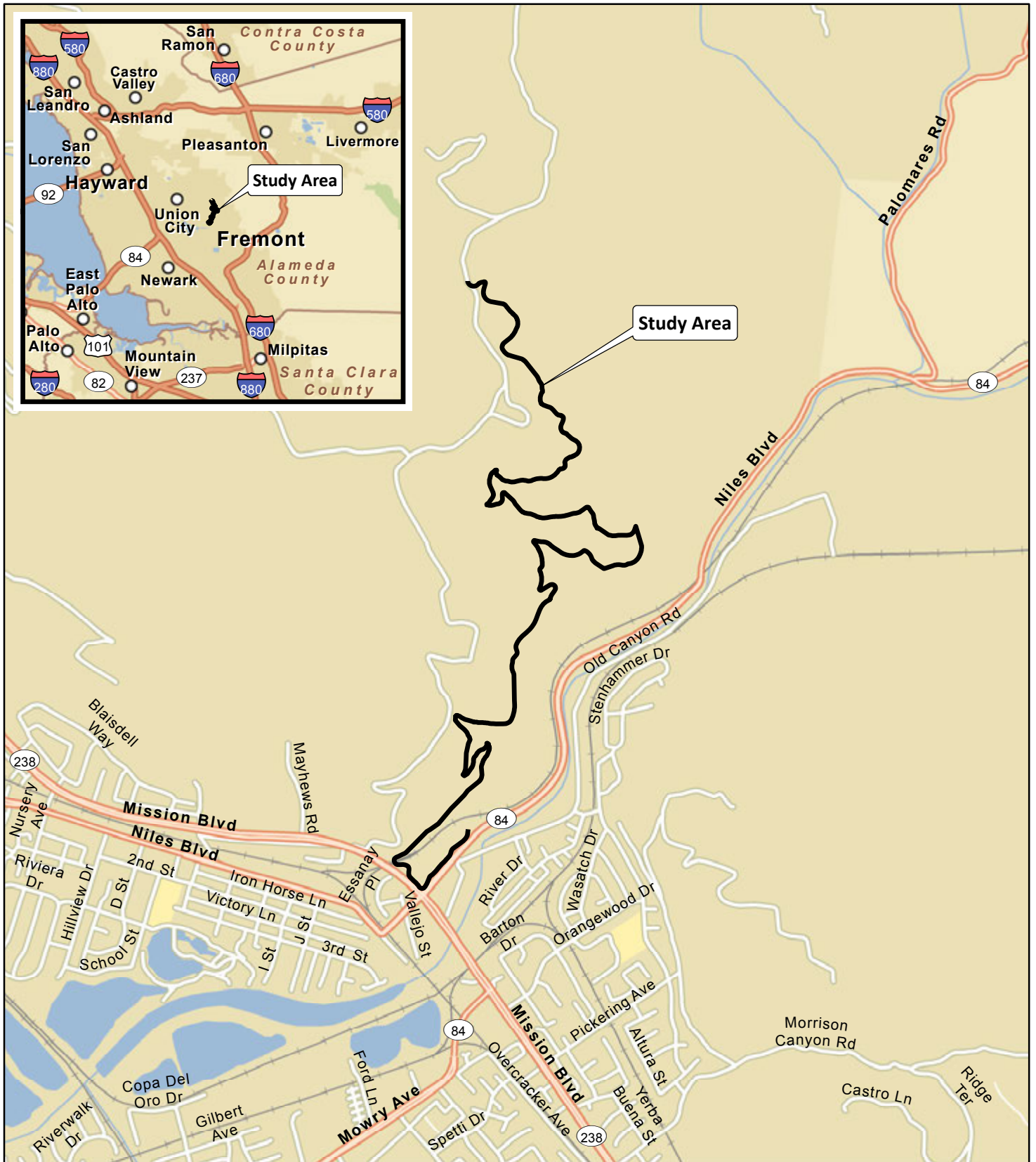


Chip Bouril
Senior Soil Scientist

Attachments: Figure 1: Regional Location
Figure 2: Project Vicinity
Figures 3a-3g: Potential Waters of the United States
Data Sheets 1 through 2

cc: Suzanne Wilson, Senior Planner - Trails Development, East Bay Regional Park
District, 2950 Peralta Oaks Court, Oakland, CA 94605

Ross A. Dobberteen, LSA

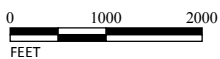


LSA

LEGEND

— Study Area

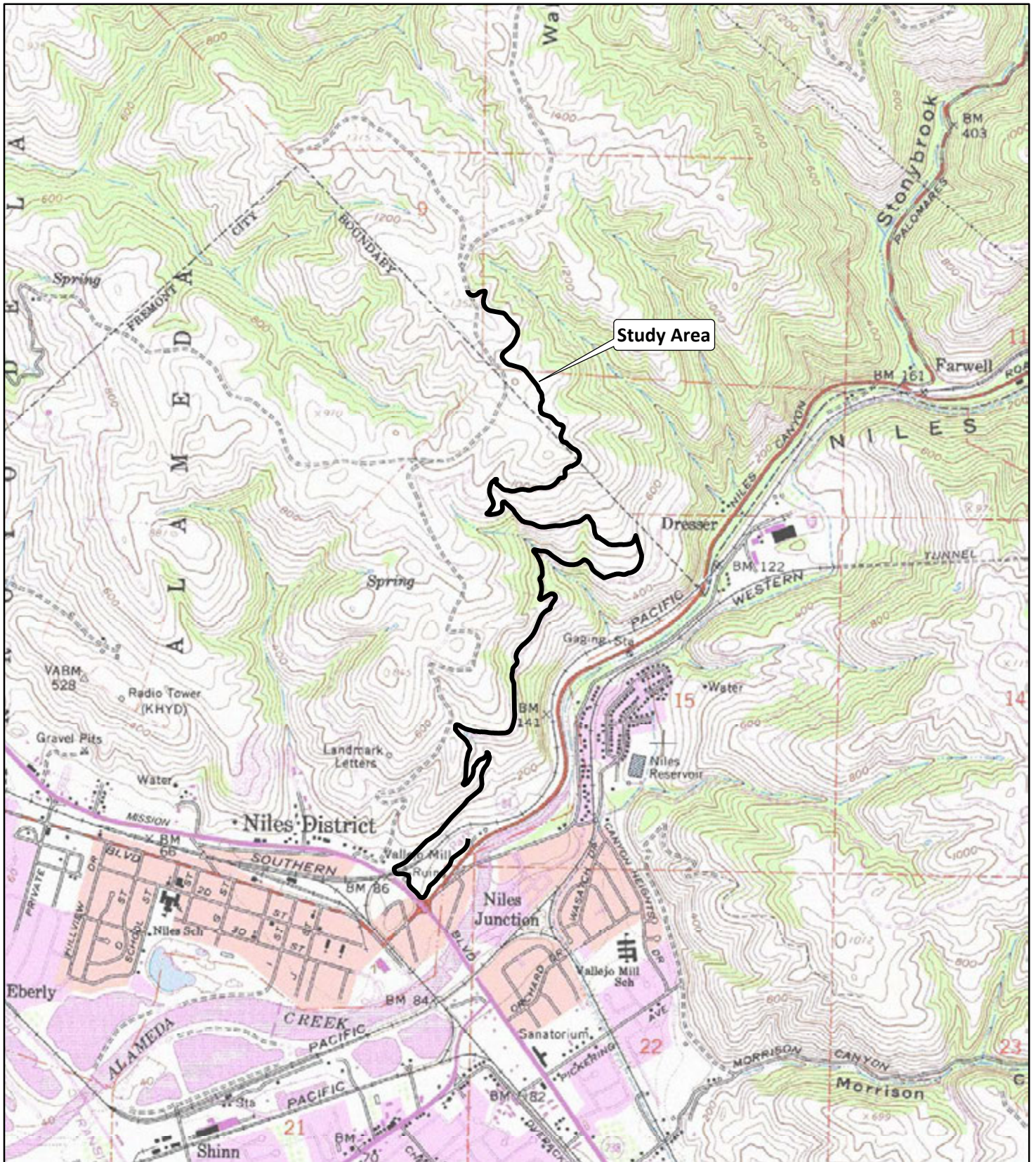
FIGURE 1



SOURCE: ESRI StreetMap North America (2012).

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Bay Area Ridge Trail – Fremont to Garin
Alameda County, California
Regional Location



LSA

LEGEND

— Study Area



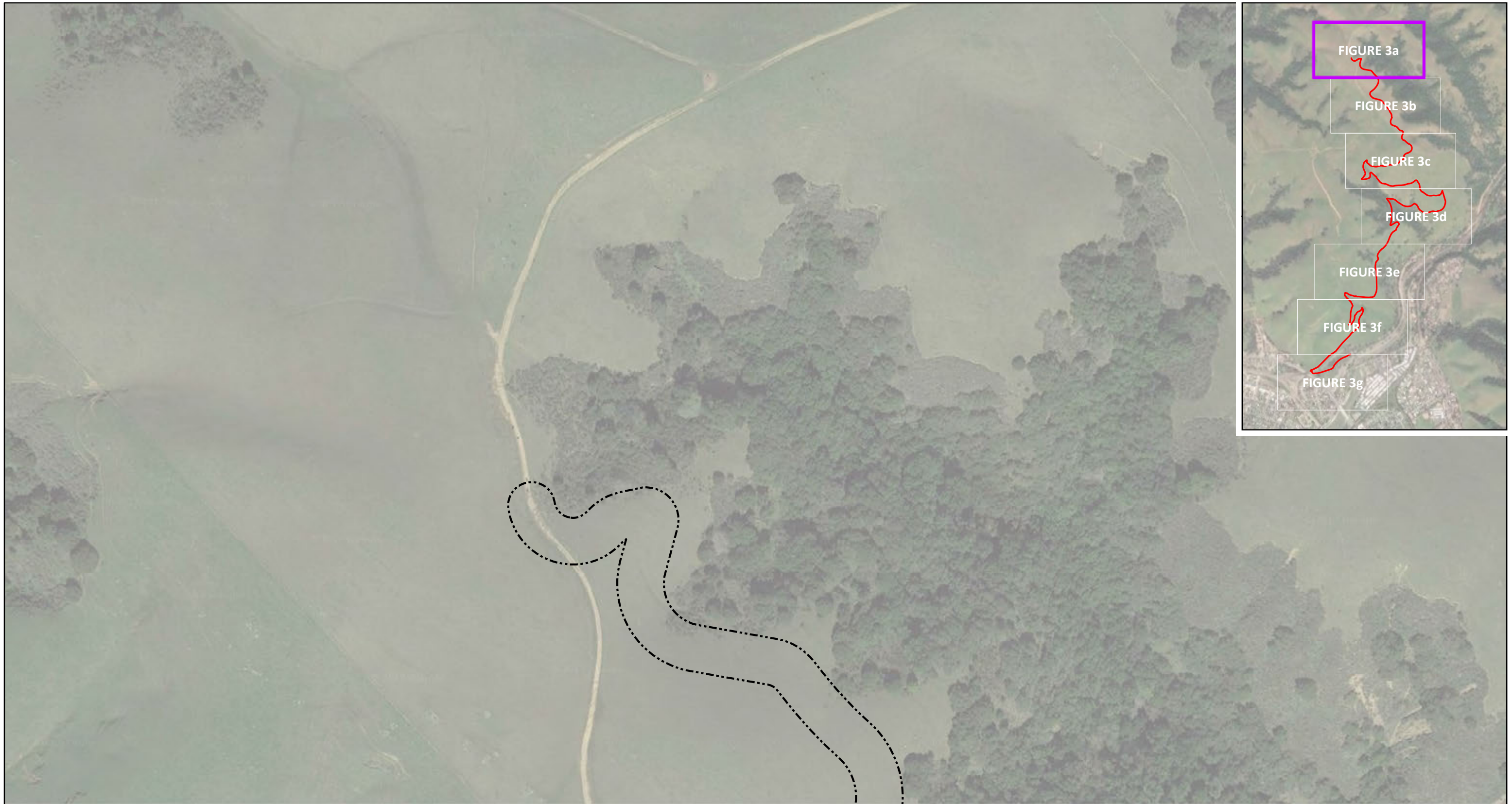
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SOURCE: 7.5-minute Quad: Niles, Calif. (1980).

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FIGURE 2

Bay Area Ridge Trail ☐ Fremont to Garin
Alameda County, California
Site Location and Topographic Map


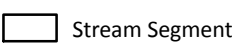
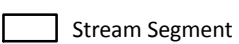
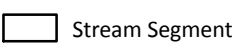
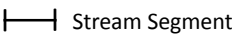
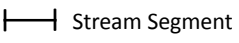



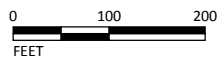
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LEGEND

-  Delineation Study Area
-  Wetland Sample Point
-  Non-wetland Sample Point

Potential Waters of the United States

- | | | | |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Wetlands | | Other Waters | |
|  Swale Wetland |  Stream Segment |  Stream Segment |  Stream Segment |
| |  Stream Segment |  Stream Segment | |
| |  Culvert | | |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

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FIGURE 3a

Bar Area Ridge Trail – Fremont to Garin
Alameda County, California
 Potential Waters of the United States

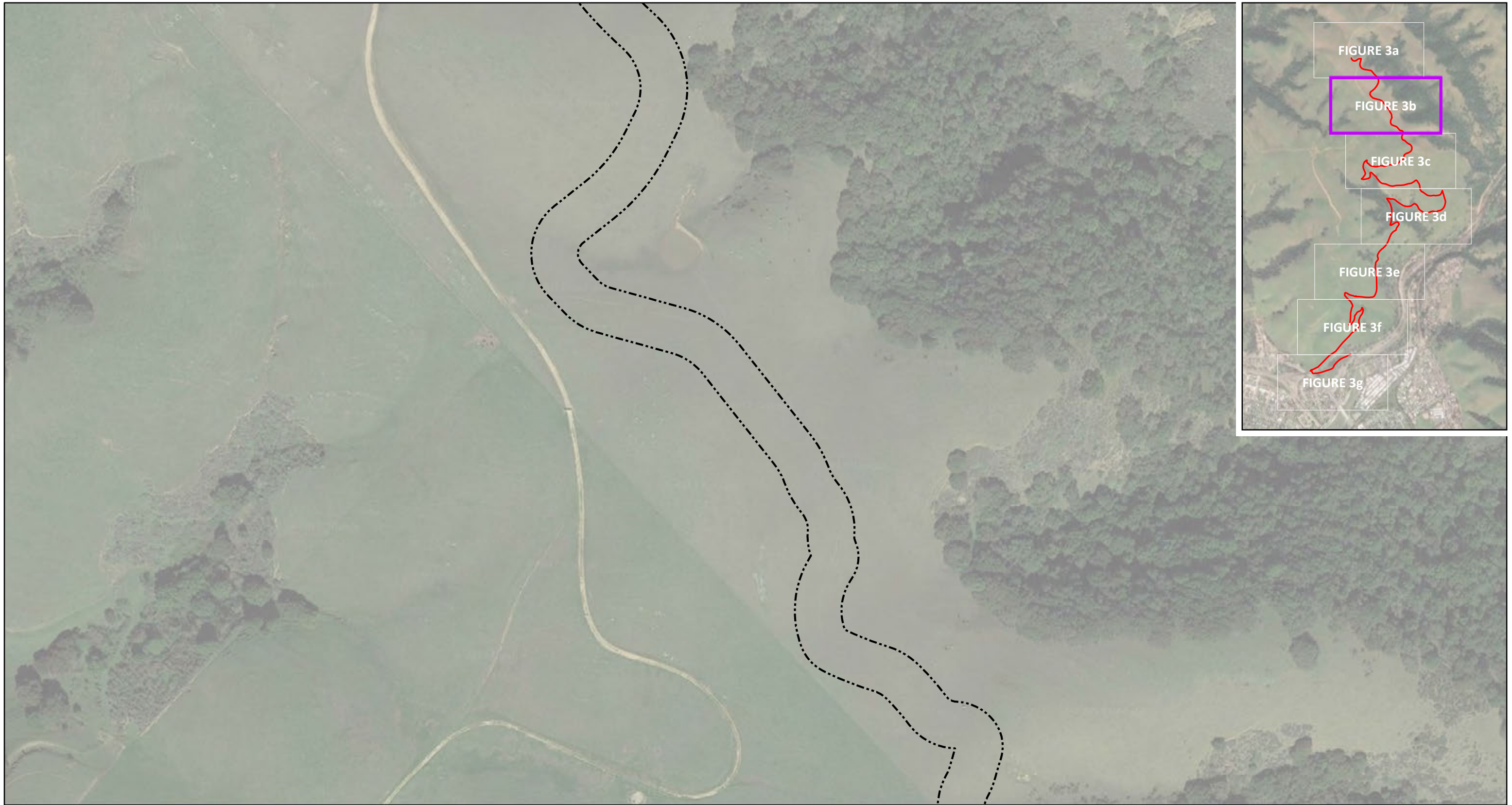





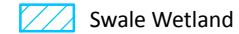
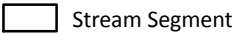
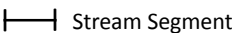

FIGURE 3b

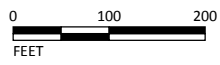
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LEGEND

-  Delineation Study Area
-  Wetland Sample Point
-  Non-wetland Sample Point

Potential Waters of the United States

- | | | | |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--|
| Wetlands | | Other Waters | |
|  Swale Wetland |  Stream Segment |  Stream Segment | |
| |  Culvert | | |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

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Bar Area Ridge Trail – Fremont to Garin
Alameda County, California
 Potential Waters of the United States



FIGURE 3c

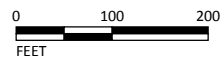
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LEGEND

- Delineation Study Area
- Wetland Sample Point
- Non-wetland Sample Point

Potential Waters of the United States

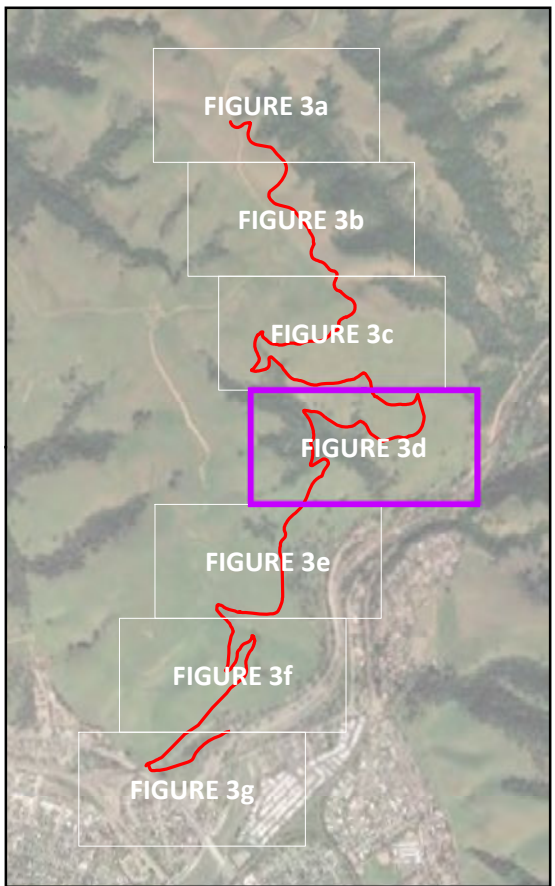
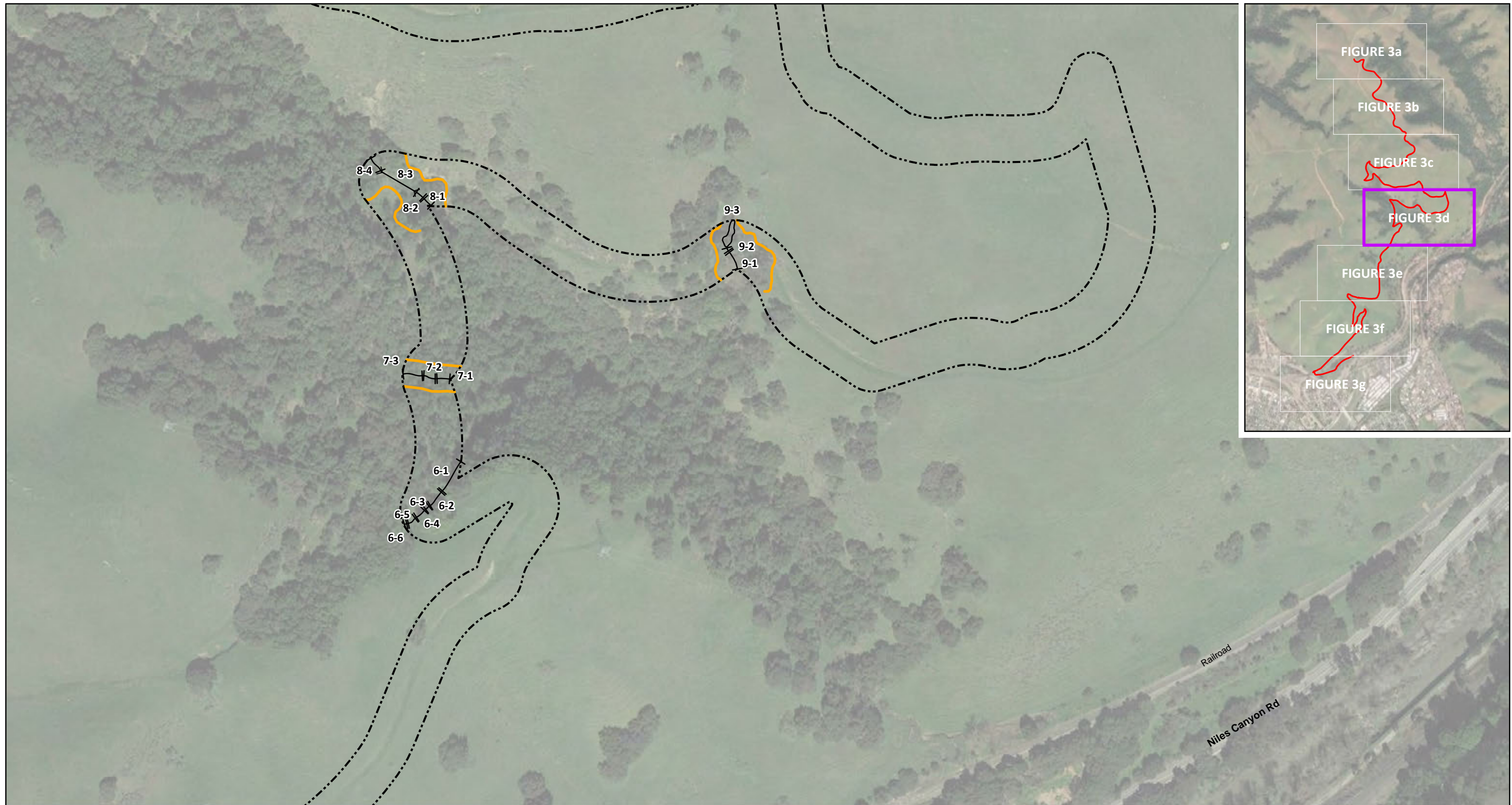
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| Wetlands | | Other Waters | |
| | Swale Wetland | | Stream Segment |
| | | | Stream Segment |
| | | | Culvert |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

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Bar Area Ridge Trail – Fremont to Garin
Alameda County, California
Potential Waters of the United States



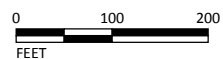
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LEGEND

- Delineation Study Area
- Wetland Sample Point
- Non-wetland Sample Point

Potential Waters of the United States

- | | | | |
|----------|---------------|--------------|----------------|
| Wetlands | | Other Waters | |
| | Swale Wetland | | Stream Segment |
| | | | Stream Segment |
| | | | Culvert |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

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FIGURE 3d

Bar Area Ridge Trail – Fremont to Garin
Alameda County, California
 Potential Waters of the United States



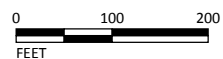
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LEGEND

- Delineation Study Area
- Wetland Sample Point
- Non-wetland Sample Point

Potential Waters of the United States

- | | | | |
|---------------|----------------|----------------|---------|
| Wetlands | | Other Waters | |
| Swale Wetland | Stream Segment | Stream Segment | Culvert |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

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FIGURE 3e

*Bar Area Ridge Trail – Fremont to Garin
Alameda County, California*
Potential Waters of the United States


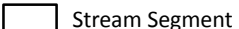
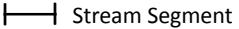



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LEGEND

-  Delineation Study Area
-  Wetland Sample Point
-  Non-wetland Sample Point

Potential Waters of the United States

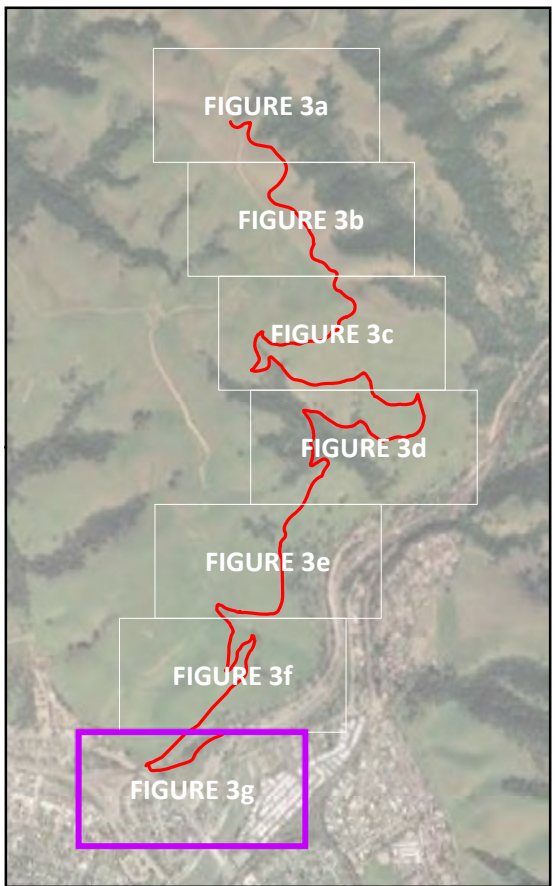
- | Wetlands | | Other Waters | |
|---------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------|----------------|
|  | Swale Wetland |  | Stream Segment |
| | |  | Stream Segment |
| | |  | Culvert |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).
 I:\EBR1701\GIS\Maps\Delineation\Figure 3_Potential Waters of the US.mxd (12/4/2017)




FIGURE 3f

*Bar Area Ridge Trail – Fremont to Garin
 Alameda County, California*
 Potential Waters of the United States

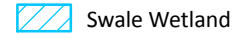
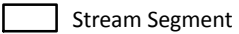
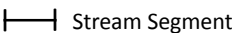



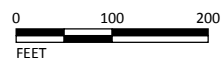
LSA

LEGEND

-  Delineation Study Area
-  Wetland Sample Point
-  Non-wetland Sample Point

Potential Waters of the United States

- | | | | |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--|
| Wetlands | | Other Waters | |
|  Swale Wetland |  Stream Segment |  Stream Segment | |
| |  Culvert | | |



SOURCE: EBRPDUse Upper and Lower Case Fonts (03/2017); USGS (03/2016).

I:\EBR1701\GIS\Maps\Delineation\Figure 3_Potential Waters of the US.mxd (12/4/2017)

FIGURE 3g

Bar Area Ridge Trail – Fremont to Garin
Alameda County, California
 Potential Waters of the United States

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: BAY AREA RIDGE TRAIL - FREMONT City/County: FREMONT / ALAMEDA Sampling Date: 27 JUL 17
 Applicant/Owner: EAST BAY REGIONAL PARK DISTRICT State: CA Sampling Point: 1
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): SWALE Local relief (concave, convex, none): _____ Slope (%): 10
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: LOS OROS SILTY CLAY W/SHRUB 30-45 NWI classification: _____

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			

Remarks:

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1.				
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
Total Cover: _____				
Herb Stratum (Plot size: _____)				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.
1. <u>JUNCUS BALTICUS</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u> Nasturtium officinale</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Festuca perennis</u>	<u>15</u>		<u>FAC</u>	
4. <u>Cynodon dactylon</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5.				
6.				
7.				
Total Cover: <u>95</u>				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1.				
2.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/2						SLC	
2-10	11		5YR 4/6	10	C	PL	C	

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.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (All)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Vernal Pools (F9)	

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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
--------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Other (Explain in Remarks) <u>HEAVY PAKS</u>	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------

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

Remarks: 10' up stream, SAT + SEC WTR.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: BAY AREA RIDGE TRAIL-FREMONT City/County: FREMONT/ALAMEDA Sampling Date: 27 JUL 17
 Applicant/Owner: EBRPD State: CA Sampling Point: 2
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 60
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: LOS OSES SILTY CLAY LOAM 30-45 NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ Naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = <u>23</u>
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
Total Cover: _____				
Herb Stratum (Plot size: _____)				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.
1. <u>TRIFOLIUM ARTUM</u>	<u>5</u>		<u>UPL</u>	
2. <u>AVENA SP.</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. <u>FESTUCA PERENNIS</u>	<u>15</u>		<u>FAC</u>	
4. <u>BROMUS HORDEACEUS</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. <u>CYNODON DACTYLON</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
6.				
7.				
Total Cover: <u>100</u>				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1.				
2.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		
Remarks:				

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10 PR/M		—				CL	

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.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (All)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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 <u>X</u>
-------------------------------------------------------------------------	--------------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	

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

Remarks: