

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): September 13, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Sacramento District, **Quartz Hill Road Improvements Project, SPK-2017-00203**

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **California** County/parish/borough: **Shasta County** City: **Redding**
Center coordinates of site (lat/long in degree decimal format): Lat. **40.60967°**, Long. **-122.40608°**
Universal Transverse Mercator: **10 550243.06 4495598.81**

Name of nearest waterbody: **Sulphur Creek**

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Sulphur Creek**

Name of watershed or Hydrologic Unit Code (HUC): **Clear Creek-Sacramento River, 18020154**

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form:

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): May 9, 2017

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are and are not** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 0.016 acres.

Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Established by OHWM

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: SW1 is located on the Northwestern portion of the site. In a previous delineation verified by the Corps in 2001, the Corps verified this was upland. Due to construction in the area, a depression was created, which created a wetland. As shown on the attached aerial photography taken on March 1, 2017, there is no confined surface connection between SW1 and other aquatic resources. The nearest aquatic resource to SW1 is a drainage ditch approximately 113-feet to the West. Based on the site visit and aerial photography there is no surface or

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

subsurface connection to the drainage ditch. Therefore, SW1 is an isolated, intrastate water with no interstate or foreign commerce connection.

WSS1 is a depression that is approximately 3-feet deep and does not connect to the Non-vegetated Ditches (NVD) in the area. On the site visit, there appeared to be no surface or subsurface connection to NVD12, therefore, we have determined that WSS1 is an isolated, intrastate water with no interstate or foreign commerce.

The aquatic resources identified as NVD1-NVD12 in the delineation are manmade drainage ditches constructed to convey water from the road. The topographic map shows this is a steady continuous slope. The ditches were most likely built between 1946 and 1957 when the road adjacent to the ditch was constructed. The drainage ditches were excavated wholly in and drain only uplands that do not carry a relatively permanent flow of water, and are therefore not waters of the U.S. subject to Section 404 of the Clean Water Act.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: **The site does not support a TNW**

Summarize rationale supporting determination: **N/A**

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: **438,802 acres**

Drainage area: **74 acres**

Average annual rainfall: **54** inches

Average annual snowfall: **2.2** inches

(ii) Physical Characteristics:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(a) Relationship with TNW:

- Tributary flows directly into TNW.
- Tributary flows through **1** tributaries before entering TNW.

Project waters are **1 (or less)** river miles from TNW.
 Project waters are **1 (or less)** river miles from RPW.
 Project waters are **1 (or less)** aerial (straight) miles from TNW.
 Project waters are **1 (or less)** aerial (straight) miles from RPW.
 Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵:

Tributary stream order, if known: ES1 and ES2 flow into IS1, which then flow through storm drain system which flows into the Sacramento River through a box culvert immediately East of Benton Drive Bridge on river left. See attached drainage map for flow path.

(b) General Tributary Characteristics (check all that apply):

- Tributary is:
- Natural
 - Artificial (man-made). Explain:
 - Manipulated (man-altered). **Explain: IS1 starts natural and then travel through a series of culverts to be hydrologically connected the Sacramento River, which is a TNW.**

Tributary properties with respect to top of bank (estimate):

Average width: feet **1-4** Feet
 Average depth: feet **Varies**
 Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

- Silts
- Sands
- Concrete
- Cobbles
- Gravel
- Muck
- Bedrock
- Vegetation. Type/% cover:
- Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Stable**
 Presence of run/riffle/pool complexes. Explain: **No riffle complexes were located on site**
 Tributary geometry: **Relatively straight**
 Tributary gradient (approximate average slope): **gradient varies**

(c) Flow:

Tributary provides for: Ephemeral Flow
 Estimate average number of flow events in review area/year: **6-10**
 Describe flow regime:
 Other information on duration and volume:

Surface flow is: **Discrete and confined**. Characteristics: **Carried natural for a short distance and then converts conveyance by manmade structures.**

Subsurface flow: **Unknown**. Explain findings:
 Dye (or other) test performed:

Tributary has (check all that apply):

- Bed and banks
- OHWM⁶ (check all indicators that apply):
 - clear, natural line impressed on the bank
 - changes in the character of soil
 - shelving
 - vegetation matted down, bent, or absent
 - leaf litter disturbed or washed away
 - sediment deposition
 - water staining
 - the presence of litter and debris
 - destruction of terrestrial vegetation
 - the presence of wrack line
 - sediment sorting
 - scour
 - multiple observed or predicted flow events
 - abrupt change in plant community

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

- other (list):
- Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: **Water quality is generally good, the tributaries within the watershed collect, retain, filter and more slowly release runoff from surrounding roads, housing, pastures, farms, and other surrounding land uses. Collection of runoff onto these wetlands and stream on the site reduces chemicals and other pollutants normally found in runoff water. (gas, oil, herbicides, pesticides, nutrients, human and animal waste, and other waste material). There is also evidence of illegal dumping of trash. The tributaries receives road runoff where additional pollutants, particularly petroleum byproducts will be present**

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings: The streams are intermittent and provide potential habitat to the California Red Legged Frog, as the streams are slow moving intermittent streams that have sufficient ponding.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:
 Wetland size: _____ acres
 Wetland type. Explain:
 Wetland quality. Explain:
 Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

 Surface flow is: **Pick List**
 Characteristics:

 Subsurface flow: **Pick List**. Explain findings:
 Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
 - Discrete wetland hydrologic connection. Explain:
 - Ecological connection. Explain:
 - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.
 Project waters are **Pick List** aerial (straight) miles from TNW.
 Flow is from: **Pick List**.

⁷Ibid.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:
Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately _____ acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
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Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

- 1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: ES1 and ES2 within the survey area flow into an unnamed intermittent stream, which flows into a TNW. ES1 and ES2 could serve to: carry pollutants or flood waters to TNWs, provide habitat and lifecycle support for wildlife, and/or transfer nutrients and organic carbon to the downstream food web.
- 2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

TNWs: linear feet, wide, Or acres.
 Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
 Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

Tributary waters: **93** linear feet **4** wide.
 Other non-wetland waters: acres.
Identify type(s) of waters:

3. **Non-RPWs⁸ that flow directly or indirectly into TNWs.**

Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

Tributary waters: **154** linear feet, **1-3** wide.
 Other non-wetland waters: acres.
Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁹**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

Demonstrate that impoundment was created from "waters of the U.S.," or
 Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

⁸See Footnote # 3.

⁹ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain:
- Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet, wide.
- Other non-wetland waters: acres.
- Identify type(s) of waters:
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- Other: (explain, if not covered above): **Reference is made to the November 13, 1986 Federal Register (Page 41217), Part 328 (a) Non-Tidal drainage and irrigation ditches excavated on dry land. The Corps of Engineers generally does not consider these types of aquatic resources waters of the United States. In this case, the constructed ditches only convey water from the adjacent road and storm events.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, wide.
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource:
- Wetlands: **0.026** acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, wide.
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource:
- Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; Redding**
- USDA Natural Resources Conservation Service Soil Survey. Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter: SPK-2001-00203, October 3, 2001
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

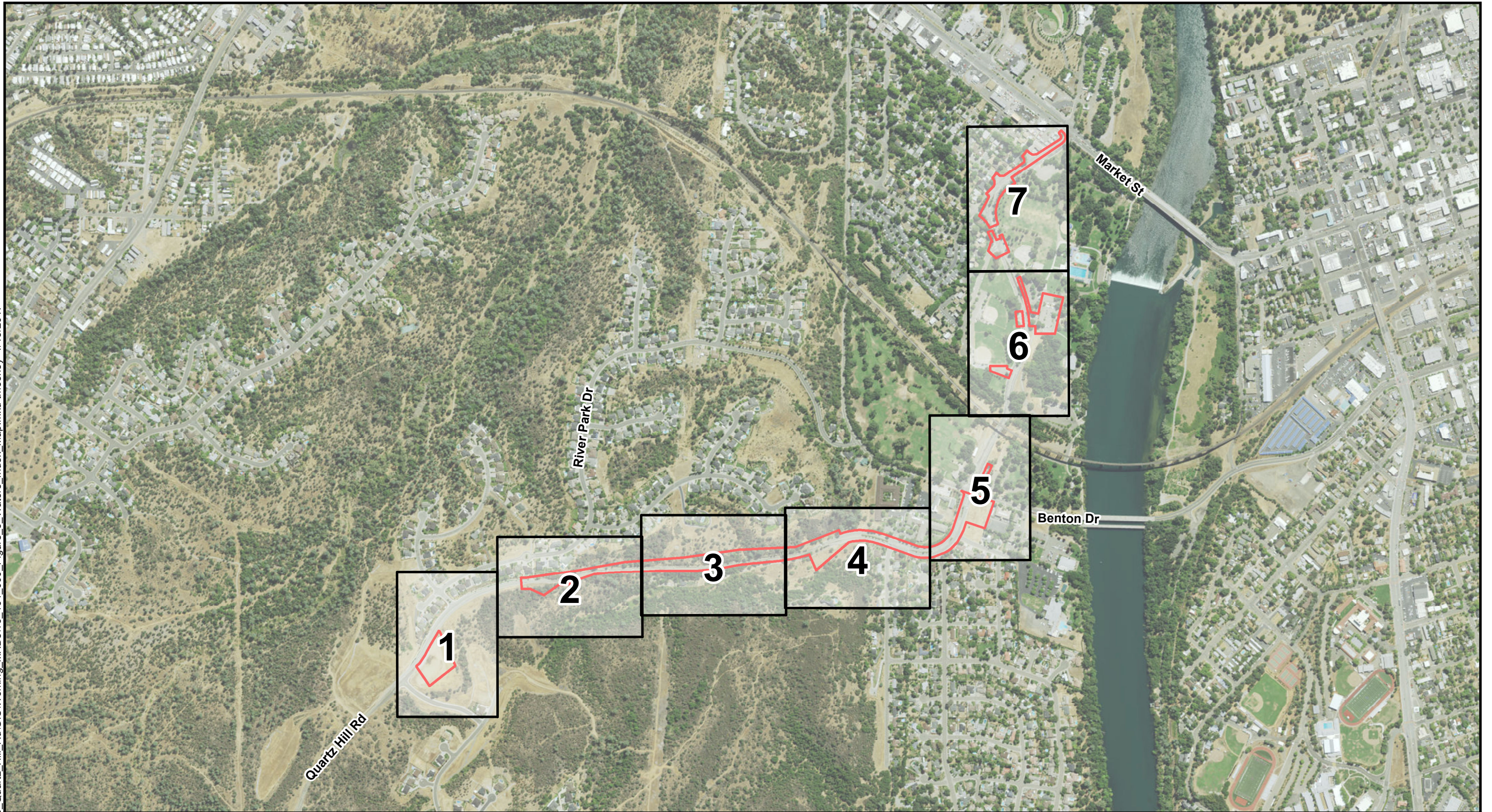
B. ADDITIONAL COMMENTS TO SUPPORT JD:


See Section II.B.2

REFERENCES:

- 1. Regulatory Programs of the Corps of Engineers, as amended (33 CFR 326), dated November 13, 1986.**
- 2. Regulatory Guidance Letter 16-01 on Jurisdictional Determinations effective October, 2016.**
- 3. Clean Water Act Jurisdiction Memorandum, dated December 2, 2008.**
- 4. U.S. Army Corps of Engineers Jurisdictional Determinations Form Instructional Guidebook, dated May 30, 2007.**

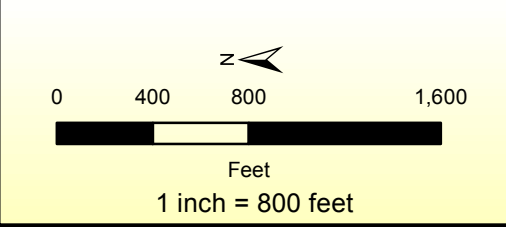
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Notes:
 Delineator: Gabe Youngblood
 Delineation Date: October 11 and 18, 2016
 Aerial Photography Source: ESRI World Imagery, 2016
 This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties that the delineation is preliminary until the Corps provides a written verification.



Quartz Hill Road Improvements Project
Figure 3
Potential Waters of the United States
Index Map
January 13, 2017

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- Study Area (18.43 acres)
- 3-Parameter Data Point
- Culvert
- 1-foot Contour
- Wetlands**
- Seasonal Wetland (0.020 acre)
- Wetland Seep-Spring (0.006 acre)
- Other Waters**
- Ephemeral Stream (0.007 acre)
- Intermittent Stream (0.009 acre)
- Non-vegetated Ditch (0.092 acre)

Coordinate System: NAD 1983 UTM Zone 10N
 Projection: Transverse Mercator
 Datum: North American 1983



Summary of Potential Waters of the United States							
Wetlands							
Label	Type	Cowardin Type	UTMX (m)	UTMY (m)	Area (ac)	Length (ft)	Width (ft)
SW1	Seasonal Wetland	PEM2	550198	4495592	0.020	--	--
WSS1	Wetland Seep-Spring	PFO1	550542	4494621	0.006	--	--
Total Wetlands					0.026		
Other Waters							
Label	Type				Area (ac)	Length (ft)	Width (ft)
ES1	Ephemeral Stream	R4SB	550504	4495066	0.001	60	1
ES2	Ephemeral Stream	R4SB	550519	4494875	0.006	94	3
Subtotal					0.007	154	
IS1	Intermittent Stream	R4SB	550537	4494758	0.009	93	4
NVD1	Non-vegetated Ditch	R4SB	550449	4495334	0.003	68	2
NVD2	Non-vegetated Ditch	R4SB	550443	4495322	0.002	44	2
NVD3	Non-vegetated Ditch	R4SB	550463	4495291	0.009	126	3
NVD4	Non-vegetated Ditch	R4SB	550446	4495261	0.003	43	3
NVD5	Non-vegetated Ditch	R4SB	550480	4495230	0.006	119	2
NVD6	Non-vegetated Ditch	R4SB	550479	4495202	0.007	293	1
NVD7	Non-vegetated Ditch	R4SB	550493	4495157	0.004	86	2
NVD8	Non-vegetated Ditch	R4SB	550497	4495090	0.015	221	3
NVD9	Non-vegetated Ditch	R4SB	550502	4494950	0.012	529	1
NVD10	Non-vegetated Ditch	R4SB	550511	4494807	0.009	383	1
NVD11	Non-vegetated Ditch	R4SB	550539	4494625	0.018	771	1
NVD12	Non-vegetated Ditch	R4SB	550553	4494593	0.004	163	1
Subtotal					0.092	2,846	
Total Other Waters					0.108	3,093	
Total Potential Waters of the United States					0.134	3,093	

Prepared by:

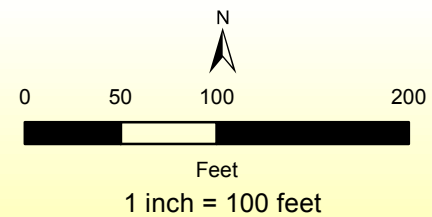
North State Resources, Inc.

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 Redding, CA 96002 Phone (530) 222-5347
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Prepared for:
 City of Redding
 777 Cypress Avenue
 Redding, CA 96001

Notes:
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 Delineation Date: October 11 and 18, 2016
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Quartz Hill Road Improvements Project

**Figure 3
 Potential Waters of the United States**

Page 2 of 8

January 13, 2017

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- Study Area (18.43 acres)
- 3-Parameter Data Point
- Culvert
- 1-foot Contour
- Wetlands**
- Seasonal Wetland (0.020 acre)
- Wetland Seep-Spring (0.006 acre)
- Other Waters**
- Ephemeral Stream (0.007 acre)
- Intermittent Stream (0.009 acre)
- Non-vegetated Ditch (0.092 acre)

Coordinate System: NAD 1983 UTM Zone 10N
 Projection: Transverse Mercator
 Datum: North American 1983



Summary of Potential Waters of the United States							
Wetlands							
Label	Type	Cowardin Type	UTMX (m)	UTMY (m)	Area (ac)	Length (ft)	Width (ft)
SW1	Seasonal Wetland	PEM2	550198	4495592	0.020	--	--
WSS1	Wetland Seep-Spring	PFO1	550542	4494621	0.006	--	--
Total Wetlands					0.026		
Other Waters							
Label	Type				Area (ac)	Length (ft)	Width (ft)
ES1	Ephemeral Stream	R4SB	550504	4495066	0.001	60	1
ES2	Ephemeral Stream	R4SB	550519	4494875	0.006	94	3
Subtotal					0.007	154	
IS1	Intermittent Stream	R4SB	550537	4494758	0.009	93	4
NVD1	Non-vegetated Ditch	R4SB	550449	4495334	0.003	68	2
NVD2	Non-vegetated Ditch	R4SB	550443	4495322	0.002	44	2
NVD3	Non-vegetated Ditch	R4SB	550463	4495291	0.009	126	3
NVD4	Non-vegetated Ditch	R4SB	550446	4495261	0.003	43	3
NVD5	Non-vegetated Ditch	R4SB	550480	4495230	0.006	119	2
NVD6	Non-vegetated Ditch	R4SB	550479	4495202	0.007	293	1
NVD7	Non-vegetated Ditch	R4SB	550493	4495157	0.004	86	2
NVD8	Non-vegetated Ditch	R4SB	550497	4495090	0.015	221	3
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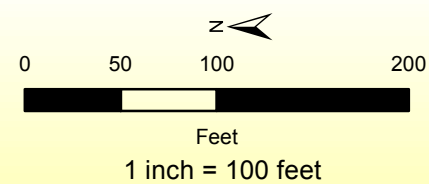
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Quartz Hill Road Improvements Project

**Figure 3
 Potential Waters of the United States**

Page 4 of 8

January 13, 2017

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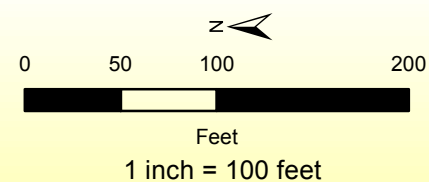
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Quartz Hill Road Improvements Project

**Figure 3
 Potential Waters of the United States**

Page 5 of 8

January 13, 2017

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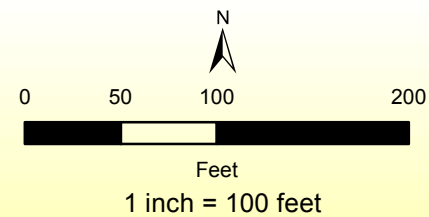
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Quartz Hill Road Improvements Project

**Figure 3
 Potential Waters of the United States**

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January 13, 2017

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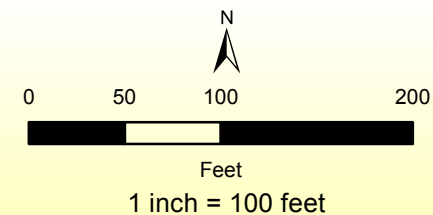
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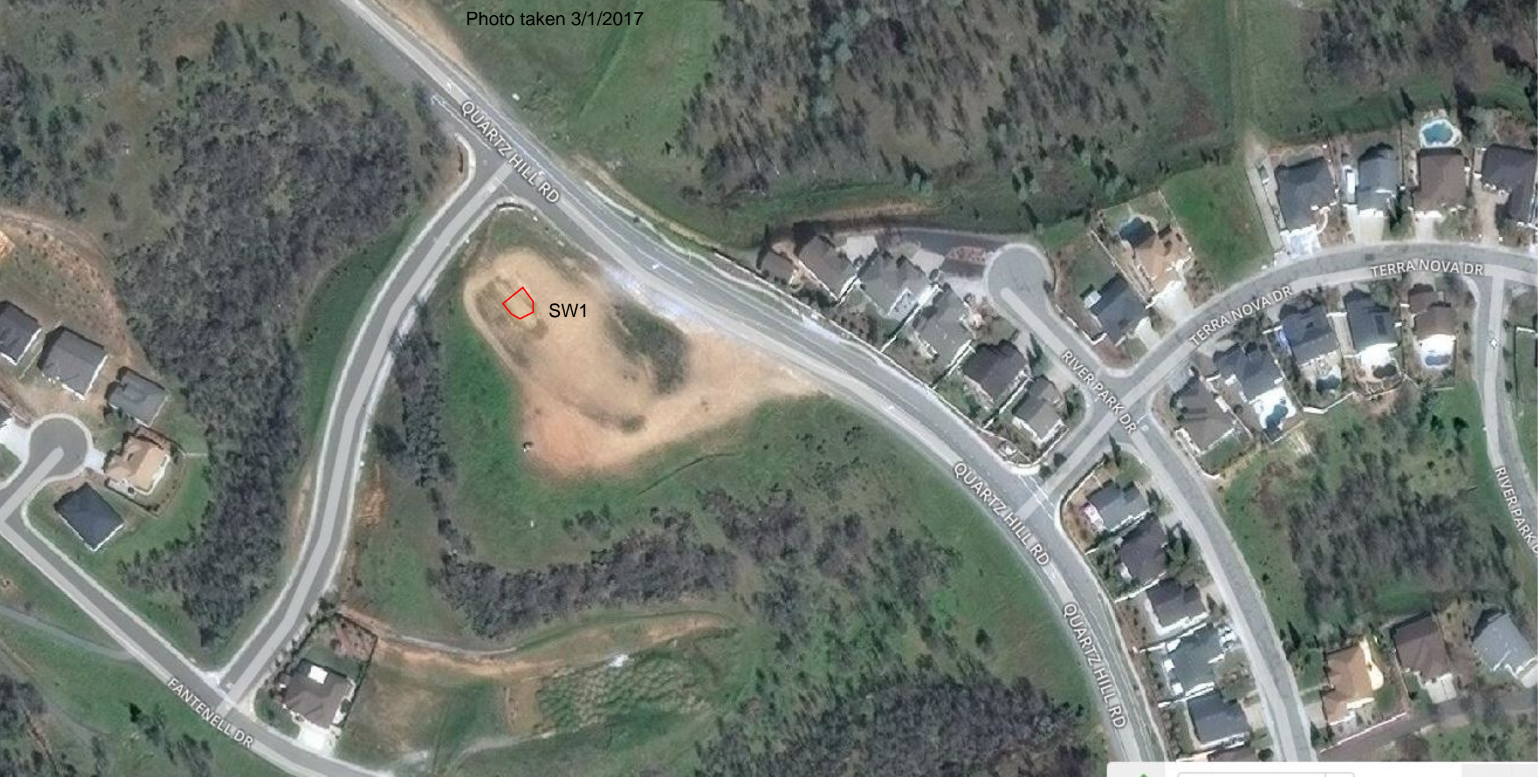
Quartz Hill Road Improvements Project

**Figure 3
 Potential Waters of the United States**

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January 13, 2017

Photo taken 3/1/2017



SW1

QUARTZ HILL RD

FANTENELL DR

QUARTZ HILL RD

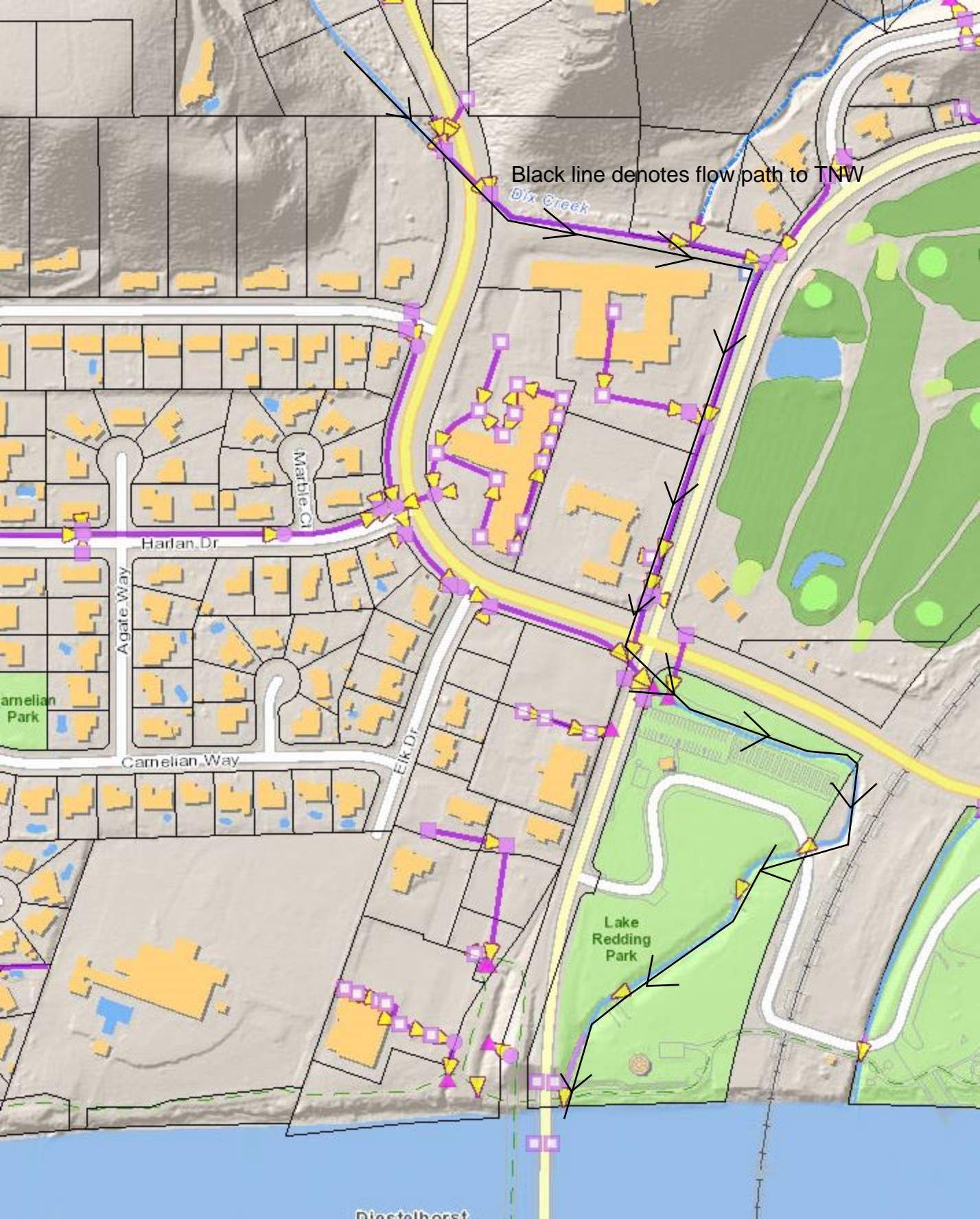
QUARTZ HILL RD

RIVER PARK DR

TERRA NOVA DR

TERRA NOVA DR

RIVER PARK DR



Black line denotes flow path to TNW

Dix Creek

Marble Ct

Harlan Dr

Agate Way

Carnelian Way

Elk Dr

Lake Redding Park

Carnelian Park

Diocthorst