Regulatory Program

INTERIM APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers
This form should be completed by following the instructions provided
in the Interim Approved Jurisdictional Determination Form User Manual.

SECTION I: BACKGROUND INFORMATION

A. COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (AJD): December 14, 2018

B. ORM NUMBER IN APPROPRIATE FORMAT (e.g., HQ-2015-00001-SMJ): SPK-2013-00579

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Butte County City:
Center coordinates of site (lat/long in degree decimal format): Lat. 39.845, Long. -121.951.
Map(s)/diagram(s) of review area (including map identifying single point of entry (SPOE) watershed and/or potential jurisdictional areas where applicable) is/are: ☒ attached ☐ in report/map titled May 9, 2018, Nord Cana Tech Memo, Delineation of Waters of the U.S., Attachment B.
☐ Other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different jurisdictional determination (JD) form. List JD form ID numbers (e.g., HQ-2015-00001-SMJ-1): .

D. REVIEW PERFORMED FOR SITE EVALUATION:
☒ Office (Desk) Determination Only. Date: November 18, 2018.
☐ Office (Desk) and Field Determination. Office/Desk Dates: Field Date(s): .

SECTION II: DATA SOURCES

Check all that were used to aid in the determination and attach data/maps to this AJD form and/or references/citations in the administrative record, as appropriate.
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant. Title/Date: May 9, 2018, Nord Cana Tech Memo, Delineation of Waters of the U.S., Attachment B.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Data sheets/delineation report are sufficient for purposes of AJD form. Title/Date: .
  ☒ Data sheets/delineation report are not sufficient for purposes of AJD form. Summarize rationale and include information on revised data sheets/delineation report that this AJD form has relied upon: May 2013, Draft Delineation of Waters of the United States, Cana Highway Property prepared by Northstar Engineering. Revised Title/Date: Updated data sheets dated September 11, 2018.
☐ Data sheets prepared by the Corps. Title/Date: .
☒ Corps navigable waters study. Title/Date: February 15, 1978, Sacramento River: Determination of Navigability.
☐ CorpsMap ORM map layers. Title/Date: .
☐ USGS Hydrologic Atlas. Title/Date: .
☐ USGS, NHD, or WBD data/maps. Title/Date: .
☒ USGS 8, 10 and/or 12 digit HUC maps. HUC number: 1802015704.
☒ USGS maps. Scale & quad name and date: Nord, California.
☒ USDA NRCS Soil Survey. Citation: November 15, 2018, custom map, https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.
☒ USFWS National Wetlands Inventory maps. Citation: November 15, 2018, Custom Map,https://www.fws.gov/wetlands/data/mapper.html .
☐ State/Local wetland inventory maps. Citation: .
☒ FEMA/FIRM maps. Citation: January 6, 2011, Panel 06007C0325E.

☒ Photographs: ☒ Aerial. Citation: February 7, 2008 Digital Globe, May 21, 2017 Google Earth. or ☐ Other. Citation: .

☐ LiDAR data/maps. Citation: .

☒ Previous JDs. File no. and date of JD letter: August 8, 2013, Preliminary JD SPK-2013-00579; October 23, 2018, Aquatic Resource Delineation Verification SPK-2013-00579.

☐ Applicable/supporting case law: .

☒ Applicable/supporting scientific literature: See references in significant nexus determination MFR, enclosed.

☐ Other information (please specify): December 14, 2018 Memorandum for Record, Subject: Significant Nexus Evaluation for waters within the Nord-Cana Property pursuant to 33 CFR 328.2(a)(7) (Regulatory Division SPK-2013-00579).

SECTION III: SUMMARY OF FINDINGS

Complete ORM "Aquatic Resource Upload Sheet" or Export and Print the Aquatic Resource Water Droplet Screen from ORM for All Waters and Features, Regardless of Jurisdictional Status – Required

A. RIVERS AND HARBORS ACT (RHA) SECTION 10 DETERMINATION OF JURISDICTION:

☐ "*navigable waters of the U.S.*" within RHA jurisdiction (as defined by 33 CFR part 329) in the review area.

- **Complete Table 1 - Required**

NOTE: If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Section 10 navigable waters list, DO NOT USE THIS FORM TO MAKE THE DETERMINATION. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Section 10 RHA navigability determination.

B. CLEAN WATER ACT (CWA) SECTION 404 DETERMINATION OF JURISDICTION: "*waters of the U.S.*" within CWA jurisdiction (as defined by 33 CFR part 328.3) in the review area. **Check all that apply.**

☐ (a)(1): All waters which are currently used, 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. (Traditional Navigable Waters (TNWs))

- **Complete Table 1 - Required**

☐ This AJD includes a case-specific (a)(1) TNW (Section 404 navigable-in-fact) determination on a water that has not previously been designated as such. Documentation required for this case-specific (a)(1) TNW determination is attached.

☐ (a)(2): All interstate waters, including interstate wetlands.

- **Complete Table 2 - Required**

☐ (a)(3): The territorial seas.

- **Complete Table 3 - Required**

☐ (a)(4): All impoundments of waters otherwise identified as waters of the U.S. under 33 CFR part 328.3.

- **Complete Table 4 - Required**

☒ (a)(5): All tributaries, as defined in 33 CFR part 328.3, of waters identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

- **Complete Table 5 - Required**

☐ (a)(6): All waters adjacent to a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

- **Complete Table 6 - Required**

☐ Bordering/Contiguous.

Neighboring:

☐ (c)(2)(i): All waters located within 100 feet of the ordinary high water mark (OHWM) of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3.

☐ (c)(2)(ii): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 and not more than 1,500 feet of the OHWM of such water.

☐ (c)(2)(iii): All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (a)(1) or (a)(3) of 33 CFR part 328.3, and all waters within 1,500 feet of the OHWM of the Great Lakes.

☒ (a)(7): All waters identified in 33 CFR 328.3(a)(7)(i)-(v) where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

- **Complete Table 7 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(7) waters identified in the similarly situated analysis. - Required**

☒ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

☐ (a)(8): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3 not covered by (c)(2)(ii) above and all waters located within 4,000 feet of the high tide line or OHWM of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

- **Complete Table 8 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(8) waters identified in the similarly situated analysis. - Required**

☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

C. NON-WATERS OF THE U.S. FINDINGS:

Check all that apply.

☐ The review area is comprised entirely of dry land.

☐ Potential-(a)(7) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(7) waters identified in the similarly situated analysis. - Required**

☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

☐ Potential-(a)(8) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(8) waters identified in the similarly situated analysis. - Required**

☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

☐ Excluded Waters (Non-Waters of U.S.), even where they otherwise meet the terms of paragraphs (a)(4)-(a)(8):

- **Complete Table 10 - Required**

☐ (b)(1): Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA.

☐ (b)(2): Prior converted cropland.

☐ (b)(3)(i): Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

☐ (b)(3)(ii): Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

☐ (b)(3)(iii): Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1)-(a)(3).

☐ (b)(4)(i): Artificially irrigated areas that would revert to dry land should application of water to that area cease.

☐ (b)(4)(ii): Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds.

☐ (b)(4)(iii): Artificial reflecting pools or swimming pools created in dry land.[1]

☐ (b)(4)(iv): Small ornamental waters created in dry land.[1]

☐ (b)(4)(v): Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water.

☐ (b)(4)(vi): Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways.[1]

☐ (b)(4)(vii): Puddles.[1]

☐ (b)(5): Groundwater, including groundwater drained through subsurface drainage systems.[1]

☐ (b)(6): Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.[1]

☐ (b)(7): Wastewater recycling structures created in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water

[1] In many cases these excluded features will not be specifically identified on the AJD form, unless specifically requested. Corps Districts may, in case-by-case instances, choose to identify some or all of these features within the review area.

distributary structures built for wastewater recycling.

☐ Other non-jurisdictional waters/features within review area that do not meet the definitions in 33 CFR 328.3 of (a)(1)-(a)(8) waters and are not excluded waters identified in (b)(1)-(b)(7).

- **Complete Table 11 - Required.**

D. ADDITIONAL COMMENTS TO SUPPORT AJD: .

Jurisdictional Waters of the U.S.

Table 1. (a)(1) Traditional Navigable Waters

(a)(1) Waters Name	(a)(1) Criteria	Rationale to Support (a)(1) Designation Include High Tide Line or Ordinary High Water Mark indicators, when applicable.
N/A	Choose an item.	N/A

Table 2. (a)(2) Interstate Waters

(a)(2) Waters Name	Rationale to Support (a)(2) Designation
N/A	N/A

Table 3. (a)(3) Territorial Seas

(a)(3) Waters Name	Rationale to Support (a)(3) Designation
N/A	N/A

Table 4. (a)(4) Impoundments

(a)(4) Waters Name	Rationale to Support (a)(4) Designation
N/A	N/A
N/A	N/A

Table 5. (a)(5)Tributaries

(a)(5) Waters Name	Flow Regime	(a)(1)-(a)(3) Water Name to which this (a)(5) Tributary Flows	Tributary Breaks	Rationale for (a)(5) Designation and Additional Discussion. Identify flowpath to (a)(1)-(a)(3) water or attach map identifying the flowpath; explain any breaks or flow through excluded/non-jurisdictional features, etc.
EPH01	Ephemeral	Sacramento River	N/A	EPH01 flows through the western edge of the review area and west through a culvert under Hamilton Nord Cana Highway. The feature continues as a ditch within an orchard and into INT02. INT02 is channelized into a ditch and flows south through multiple orchards and into Pine Creek, which flows into the Sacramento River, an (a)(1) water.
INT01	Intermittent	Sacramento River	N/A	INT01 flows from northeast to southwest through the southeast corner of the review area. INT01 flows into INT02 south of the review area. INT02 flows through an in-stream impoundment prior to flowing back into the project area. INT02 then follows the flow path below to the Sacramento River, an (a)(1) water.
INT02	Intermittent	Sacramento River	N/A	INT02 flows from the east under Highway 99 and meanders through the review area from east to west. From the review area, the feature flows southwest underneath Hamilton Nord Cana Highway in a natural channel for approximately 0.55 miles. INT02 is channelized into a ditch and flows south through multiple orchards for 5.17 miles. The feature then flows through a natural stream bed for 0.90 mile and into Pine Creek. Pine Creek flows 2.89 miles into the Sacramento River, an (a)(1) water.

Table 6. (a)(6) Adjacent Waters

(a)(6) Waters Name	(a)(1)-(a)(5) Water Name to which this Water is Adjacent	Rationale for (a)(6) Designation and Additional Discussion. Identify the type of water and how the limits of jurisdiction were established (e.g., wetland, 87 Manual/Regional Supplement); explain how the 100-year floodplain and/or the distance threshold was determined; whether this water extends beyond

		a threshold; explain if the water is part of a mosaic, etc.
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Table 7. (a)(7) Waters

SPOE Name	(a)(7) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; discuss whether any similarly situated waters were present and aggregated for SND; discuss data, provide analysis, and summarize how the waters have more than speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
1	SW01	INT01	SW01 is a palustrine emergent wetland with a seasonal water regime. It is located in the southeast corner of the review area and occurs within a shallow depression in the landscape. The wetland is located approximately 230 feet from INT01.
1	SW02/SS07/POND01/SS08/SW12	INT02	This large palustrine emergent wetland with a seasonal water regime includes SW02, SS08, POND01, SS07, and SW12. This aquatic resource flows southwest through the review area and directly connects to INT02 south of the review area. POND01 is a portion of this larger wetland that inundates for a longer period of time due to the construction of a small berm within the wetland. However, this portion of the larger wetland has 10% vegetative cover and for the purposes of this evaluation is an inundated portion of the larger seasonal wetland. Based on a review of aerial photography, and correspondence with the property owner and consultant, and evaluation of the wetland data sheet for POND01, it has been determined that POND01 is a part of this wetland. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to INT02 and a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SW04	INT01	SW04 is a palustrine emergent wetland with a seasonal water regime. It occurs within a depression in the landscape in the southeastern corner of the review area. It is located approximately 215 feet from INT01.
1	SW06	INT01	SW06 is a palustrine emergent wetland with a seasonal water regime. It is located within a depression in the landscape in the southeast protion of the review area. SW06 is located approximately 220 feet to the north and east of INT01
1	SW07	INT01	SW07 is a palustrine emergent wetland with a seasonal water regime. It is located approximately 43 feet south of INT01, an a(5) water. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SW08/SW09/VP04	INT02	This large palustrine emergent wetland with a seasonal water regime, includes mapped aquatic resources SW08, SW09, and VP04. These mapped areas are differentiated by vegetative differences. VP04 has a higher concentration of native plant species then other portions of the wetland. SW08/SW09/VP04 is located

			approximately 588 feet from INT02. This wetland flows through a discrete and confined upland swale into SW02/SS07/POND01/SS08/SW12 and into INT02. The upland swale is visible on the available LIDAR for the review area.
1	SW10	INT01	SW10 is a seasonal wetland located adjacent to Highway 99 on the southeast poriton of the review area. SW10 is located approximately 342 feet from INT01.
1	SW11	INT01	SW11 is a palustrine emergent wetland with a seasonal water regime. It is located to the east of SW10 adjacent to Highway 99 on the southeast portion of the review area. SW11 is approximately 334 feet from INT01.
1	SW13	EPH01	SW13 is a palustrine emergent wetland with a seasonal water regime. It is located within a depression in the landscape. It is approximately 113 feet from EPH01.
1	SW14	INT 02	SW14 is a palustrine emergent wetland with a seasonal water regime. It is located approximately 9 feet from INT02. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SW 15	INT02	SW 15 is a palustrine emergent wetland with a seasonal water regime. It continues offsite and is contiguous to INT02 to the south of the review area. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to INT02 to the south of the review area and the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SS02/SS06	INT02	SS02/SS06, includes aquatic resources mapped as SS02a, SS02b, and SS06, which are all portions of a larger wetland that continues to the south of the review area. This wetland is contiguous to INT02 south of the review area. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to INT02 and the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SS03	INT 02	SS03 is a palustrine emergent wetland with a seasonal water regime that is contiguous to INT02, an a(5) water. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to INT02 and a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SS04	EPH01	SS04 is a palustrine emergent wetland with a seasonal water regime and is continguous to EPH01, an a(5) water. SS04 continues outside of the 100 foot measurement and outside of the reivew area to the north. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to EPH01 and a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for

			established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SS05	INT01	SS05 is a palustrine emergent wetland with a seasonal water regime, and is contiguous to INT01, an a(5) water. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	SS09	INT02	SS09 is a palustrine emergent wetland with a seasonal water regime, and is contiguous to INT02 to the south of the review area. This wetland would be neighboring pursuant to 33 CFR 328.3 (c)(2) since the wetland is contiguous to INT02 and a portion of the wetland occurs wtihin 100 feet of the OHWM of an (a)(5) water. However, the wetland is not adjacent because it is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).
1	VP01	INT01	VP01 is a palustrine emergent wetland with a seasonal water regime. It is located in the southeast corner of the site adjacent to Highway 99. VP01 is located approximately 273 feet to the east of INT01.
1	VP02	EPH01	VP02 is located within a depression in the landscape approximately 146 feet to the east of EPH01. During the wet portion of the year, VP02 drains through overland sheetflow to the southwest and into EPH01.
1	VP03	INT02	VP03 is a palustrine emergent wetland with a seasonal water regime. It is located within a depression approximately 86 feet to the east of SS07. It is approximately 1,090 feet to the north of INT02. VP03 flows through overland sheet flow into SW02, SS07, POND01, SS08, and SW12 into INT02.

We have detremined that the wetlands included in table 7 are western vernal pools. A complete discussion of this detremination is documented in the enclosed significant nexus deter Based on an aggregated significant nexus determination enclosed, we have detremined that the wetlands included in Table 7 have a significant nexus and are therefore waters of the U.S. All measured distances were established through use of the measurement tool in Adobe Acrobat Pro. A map showing measurement locations is available in the administrative record. The seasonal wetlands, seasonal wetland swales, and vernal pools listed above were aggregated since the wetlands occur within a venral pool and seasonal wetland swale complex and should be aggregated under (a)(7) by rule. The significant nexus determination for the wetlands within the review area is enclosed with this AJD form. All wetlands fell within the same SPOE, therefore a single significant nexus determination has been completed for this AJD form.

Table 8. (a)(8) Waters

SPOE Name	(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to subject water and aggregated for SND; discuss data, provide analysis, and then summarize how the waters have more than speculative or insubstantial effect the on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Non-Jurisdictional Waters

Table 9. Non-Waters/No Significant Nexus

SPOE Name	Non-(a)(7)/(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water DOES NOT have a Significant Nexus	Basis for Determination that the Functions DO NOT Contribute Significantly to the Chemical, Physical, or Biological Integrity of the (a)(1)-(a)(3) Water. Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to the subject water; discuss data, provide analysis, and summarize how the waters did not have more than a speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Table 10. Non-Waters/Excluded Waters and Features

Paragraph (b) Excluded Feature/Water Name	Rationale for Paragraph (b) Excluded Feature/Water and Additional Discussion.
N/A	N/A
N/A	N/A

Table 11. Non-Waters/Other

Other Non-Waters of U.S. Feature/Water Name	Rationale for Non-Waters of U.S. Feature/Water and Additional Discussion.
N/A	N/A

Waters_Name	State	Cowardin C	Hgm Code	Meas Type	Amount	Units	Waters_Ty	Latitude	Longitude	Local Wate	Ohwm Chg	Ohwm Bed	Ohwm Bre	Ohwm Chg	Ohwm Chg	Ohwm Chg	Ohwm Lin	Ohwm Des	Ohwm Lea	Ohwm Mu	Ohwm Sco	Ohwm Sed	Ohwm Sed	Ohwm She	Ohwm Litt	Ohwm Wra	Ohwm Veg	Ohwm Wa	Ohwm Oth	Ohwm Oth	Similarly S	Sim Situat	Adjcent W	Func I Sed	Func Ii Nut	Func Iii Pol	Func Iv Ret	Func V Run	Func Vi Co	Func Vii Ex	Func Viii E	Func Ix Prov	Life Cycle	Depdnt
SPK-2013-579 EPH01	CA	R6-RIVERIN	Depressior	AREA	0.47	ACRES	A5	39.84583	-121.956		YES	YES			YES											YES	YES																
SPK-2013-579 INT01	CA	R4-RIVERIN	Riverine	LINEAR	13243	FEET	A5	39.8439	-121.945		YES	YES			YES											YES																	
SPK-2013-579 INT02	CA	R4-RIVERIN	Depressior	LINEAR	8660	FEET	A5	39.84334	-121.949		YES	YES			YES					YES						YES																	
SPK-2013-579 SS02/SS06	CA	PEM-PALU	Depressior	AREA	0.12	ACRES	A7CA	39.84319	-121.946																						YES	YES		YES			YES							
SPK-2013-579 SS03	CA	PEM-PALU	Depressior	AREA	0.04	ACRES	A7CA	39.84341	-121.948																						YES	YES		YES			YES							
SPK-2013-579 SS04	CA	PEM-PALU	Depressior	AREA	0.38	ACRES	A7CA	39.84721	-121.955																						YES	YES		YES			YES							
SPK-2013-579 SS05	CA	PEM-PALU	Depressior	AREA	0.06	ACRES	A7CA	39.84472	-121.945																						YES	YES		YES			YES							
SPK-2013-579 SS09	CA	PEM-PALUSTRINE, EM		AREA	0.01	ACRES	A7CA	39.84325	-121.944																						YES	YES		YES			YES							
SPK-2013-579 SW01	CA	PEM-PALU	Depressior	AREA	0.02	ACRES	A7CA	39.84347	-121.944																						YES	NO		YES			YES							
SPK-2013-579 SW02/SS07/POND01/SS08/SW12	CA	PEM-PALU	Depressior	AREA	1.54	ACRES	A7CA	39.84566	-121.951																						YES	YES		YES			YES							
SPK-2013-579 SW04	CA	PEM-PALU	Depressior	AREA	0.06	ACRES	A7CA	39.84375	-121.944																						YES	NO		YES			YES							
SPK-2013-579 SW06	CA	PEM-PALU	Depressior	AREA	0.27	ACRES	A7CA	39.8442	-121.947																						YES	NO		YES			YES							
SPK-2013-579 SW07	CA	PEM-PALU	Depressior	AREA	0.05	ACRES	A7CA	39.84444	-121.945																						YES	YES		YES			YES							
SPK-2013-579 SW08/SW09/VP04	CA	PEM-PALU	Depressior	AREA	0.3	ACRES	A7CA	39.84544	-121.949																						YES	NO		YES			YES							
SPK-2013-579 SW10	CA	PEM-PALU	Depressior	AREA	0.06	ACRES	A7CA	39.84583	-121.946																						YES	NO		YES			YES							
SPK-2013-579 SW11	CA	PEM-PALU	Depressior	AREA	0.03	ACRES	A7CA	39.84596	-121.946																						YES	NO		YES			YES							
SPK-2013-579 SW13	CA	PEM-PALU	Depressior	AREA	0.04	ACRES	A7CA	39.8476	-121.956																						YES	NO		YES			YES							
SPK-2013-579 SW14	CA	PEM-PALU	Depressior	AREA	0.01	ACRES	A7CA	39.84314	-121.949																						YES	YES		YES			YES							
SPK-2013-579 SW15	CA	PEM-PALU	Depressior	AREA	0.02	ACRES	A7CA	39.84318	-121.947																						YES	YES		YES			YES							
SPK-2013-579 VP01	CA	PEM-PALU	Depressior	AREA	0.03	ACRES	A7CA	39.84378	-121.944																						YES	NO		YES			YES							
SPK-2013-579 VP02	CA	PEM-PALU	Depressior	AREA	0.04	ACRES	A7CA	39.84457	-121.956																						YES	NO		YES			YES							
SPK-2013-579 VP03	CA	PEM-PALU	Depressior	AREA	0.09	ACRES	A7CA	39.84627	-121.951																						YES	NO		YES			YES							

CESPK-RD-CN 14 December 2018

MEMORANDUM FOR RECORD

SUBJECT: Significant Nexus Evaluation for waters within the Nord-Cana Property pursuant to 33 CFR 328.2(a)(7) (Regulatory Division SPK-2013-00579)

1. **Purpose**: This document serves as the significant nexus evaluation for all western vernal pools pursuant to 33 CFR 328.2(a)(7), hereinafter referred to as (a)(7) waters, on the Nord Cana Property, in Butte County, California. This evaluation was completed pursuant to the 2015 Clean Water Rule (80 Federal Register 37054-37127, June 29, 2015).

2. **Site Location**: The approved jurisdictional determination review area includes the 121-acre Nord-Cana property owned by Nicolaus Nut Company. The property is located near Pine Creek, in Section 14, Township 23 North, Range 1 West, Mount Diablo Meridian, Latitude 39.845°, Longitude -121.951°, north of Chico, Butte County, California. There are a total of 4.14 acres of aquatic resources within the area of review, as depicted on the enclosed May 9, 2018, *Nord Cana Tech Memo, Delineation of Waters of the U.S., Attachment B* drawing prepared by Galloway Enterprises (Enclosure 1). A revised aquatic resources delineation verification letter was issued on 23 October 2018, for the property.

3. **Aquatic resources being evaluated**: This document evaluates the following 19 aquatic resources: SW01, SW02/SS07/POND01/SS08/SW12, SW04, SW06, SW07, SW08/SW09/VP04, SW10, SW11, SW13, SW14, SW15, SS02/SS06, SS03, SS04, SS05, SS09, VP01, VP02, and VP03. See Table 7 of the Approved JD (AJD) form for a detailed description of each aquatic resource.

A significant nexus determination is necessary for SW01, SW04, SW06, SW08/SW09/VP04, SW10, SW11, SW13, VP01, VP02, and VP03 because these wetlands do not meet the definition of neighboring in the 2015 Clean Water Rule. These ten wetlands are not located within 100 feet of the ordinary high water mark (OHWM) of any waters regulated pursuant to 33 CFR 328.2 (a)(1) through (a)(5), hereafter referred to as (a)(1) through (a)(5) waters. In addition, these wetlands are not located within the 100 year floodplain of an (a)(1) through (a)(5) water and are not located within 1,500 feet of the OHWM of an (a)(1) through (a)(5) water.

A significant nexus determination is also necessary for SW02/SS07/POND01/SS08/SW12, SW07, SW14, SW15, SS02/SS06, SS03, SS04, SS05, and SS09. These nine aquatic resources are located within 100 feet of the OHWM of an (a)(5) water. However, the wetlands are not adjacent because the review area is currently used for established ranching, specifically cattle grazing, and is excluded from adjacency pursuant to 33 CFR 328.3 (c)(1).

The 19 wetlands identified above are western vernal pools and are aggregated in this single significant nexus determination based on the information included below. Western vernal pools are defined as "seasonal wetlands located in parts of California and associated with topographic depressions, soils with poor drainage, mild, wet winters and hot, dry summers" (33 CFR (a)(7)(iv)).

The wetlands considered in this evaluation are located in a part of California where western vernal pools are found (see Enclosure 2 showing the location to the review area within the Vina Plains vernal pool core area; see also Figure 2 Geographic locations of California vernal pools in the fact sheet titled *Clean Water Rule Q & A—Identification of (a)(7) waters subcategories*). The May 2013, delineation report entitled *DRAFT Delineation of Waters of the United States: Cana Highway Property, Butte County, CA* prepared by Northstar Engineering, describes each of these aquatic resources as occurring in depressions or interdepressional swales.

A custom soil map was created utilizing the Natural Resources Conservation Service, Web Soil Survey website on 15 November 2018. The custom report is enclosed (Enclosure 3). These aquatic resources have poor drainage as evidenced by the fact that the soils are mapped as having a restrictive layer. The soils are mapped as Redtough-Fallagher Anita, gravelly duripan, 0 to 3 percent slopes through the central and Northwest portion of the site. Redtougher-Fallagher Anita has a restrictive duripan layer (NRCS, 2018). SW02/SS07/POND01/SS08/SW12, SW08/SW09/VP04, and VP03 are located on this mapped soil type. The soils along the intermittent stream and ephemeral stream corridors are mapped as Wafap-Hamslough, 0 to 2 percent slopes. The parent material for Wafap-Hamslough is described as "gravelly and clayey, and includes a cemented cobbly and gravelly layer", which can serve as a restrictive layer (NRCS 2018). SS02/SS06, SS03, SS04, SS05, SS09, SW01, SW04, SW06, SW07, SW10, SW11, SW13, SW14, SW15, VP01, and VP02 are located on this soil type. In addition, the data points taken within the project site in both wetlands and uplands identify that the soils have a high clay content.

These wetlands are part of a larger vernal pool complex that extends to the north and east of the review area within the SPOE. A review of the 18 May 2017 Google Earth aerial photograph and the designation of the Vina Plains Core Recovery area surrounding the SPOE indicate the presence of a larger vernal pool complex within the SPOE. The available LIDAR data provides evidence the vernal pool complex continues to the northeast. Wetlands evaluated in this memorandum are western vernal pools pursuant to (a)(7) as evidenced by: a) their location in a vernal pool region of California, b) their seasonal water regime, c) their location in topographic depressions and d) their soils which are characterized as having restrictive layers or otherwise low permeability soil layers.

4. **Similarly Situated Waters**: The 3.17 acres of western vernal pools within the review area are similarly situated to all other western vernal pools within the Single point of Entry Watershed (SPOE) pursuant to 33 CFR 328.3(a)(7) and are evaluated in aggregate to determine if they have a significant nexus to an (a)(1)-(a)(3) water.

There are approximately 28,907 acres of western vernal pools within the SPOE. The SPOE, including the review area, overlaps with the Vina Plains Core Recovery Area identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (U.S. Fish and Wildlife Service 2005). Witham et al identified a total of 34,413 acres of unmodified/extant western vernal pool habitat within the Vina Plains Core Recovery Area as of 2012 (Witham et. al 2014). Based on a measurement using the Goggle Earth Pro polygon measurement tool, 40,152 acres (84%) of the 47,981-acre Vina Plains Core Recovery Area occur within the SPOE. Since 84% of the Vina Plains Core Recovery Area occurs within the SPOE, assuming that the western vernal pools occur equally throughout the Vina Plains Core area, 84% of the western vernal pools within the recovery area occur within the SPOE. Therefore, 28,907 acres of western vernal pool habitat exists within the portion of the Vina Plains Core Recovery Area located within the SPOE, including the 3.17 acres of western vernal pools identified in the review area.

Due to the size of the SPOE and since we do not have access to all properties within the SPOE to complete a delineation of all western vernal pools, it would not be practicable to ground truth the extent of western vernal pools within the SPOE. The Corps headquarters has recommended utilizing available soil data, National Wetland Inventory (NWI) mapping of wetland types, and landforms to determine, which wetlands are similarly situated within a SPOE for a case-specific significant nexus determination. The extent of western vernal pools identified by Witham et. al is more accurate than utilizing the NWI mapping, as the NWI does not differentiate between other types of palustrine emergent wetlands and western vernal pools. While information available from NWI could have been utilized, these methods were not necessary because other published sources of information are available and quantify the amount of western vernal pools within the SPOE.

5. **Methods Used to Identify the SPOE**: It is important to know the flowpath to an (a)(1) through (a)(3) water for two reasons. First, to determine that INT01, INT02, and EPH01 meet the definition of tributary at 33 CFR 328.2(c)(3) and are jurisdictional pursuant to 33 CFR 328.3(a)(5), these waters must flow to an (a)(1) through (a)(3) water. Secondly, the confluence of the flow path with an (a)(1) through (a)(3) water is utilized to identify the SPOE for the significant nexus determination.

The SPOE for this significant nexus determination was calculated using the hydro tools Arc GIS server in Arc Map 10.4.1. The flow path from aquatic resources on the subject property was initially mapped utilizing the TraceDownstream tool, per the best available current guidance on identifying the SPOE. Upon review of the traceline created in ARC Map 10.4.1, the traceline did not follow the path that water would flow downstream from the review area. The traceline crossed several upland orchards, and it appears that the historic path of INT02 was channelized into ditches historically when the region was developed for agriculture. Since the traceline was inaccurate, the flow path was identified by manually tracing a flow path in Google Earth Pro using the path tool and the 7 February 2008, Digital Globe aerial photograph (Enclosure 4).

The flow path from the project site is as follows: Water on the project site flows south and west through the western vernal pool complexes within the review area into either EPH01, INT01, or INT02, EPH01 drains to the southwest of the review area, through a channelized ditch, through a culvert and into INT02 to the southwest of the intersect of Cana Highway and Hamilton Nord Cana Highway. INT01 flows into INT02 just south of the review area. INT02 flows to the west and then southwest under Cana Highway and west underneath Hamilton Nord Cana Highway for approximately 0.55 stream miles. The stream is channelized into a ditch, which flows southwest for 5.17 miles. The water then flows into a natural stream bed for 0.90 miles and into Pine Creek, a perennial stream. Pine Creek flows 2.89 miles to the south to its confluence with the Sacramento River, a Traditional Navigable Water of the United States pursuant to 33 CFR 328.3(a)(1), hereafter referred to as (a)(1) waters.

Water was observed along the flow path from the project site through the flow path to the Sacramento River in the 7 February 2008, Digital Globe aerial photograph. Bed and bank was observed along the entire flow path on the 18 May 2017, Google Earth aerial photograph. In addition, INT02 is mapped as an intermittent stream on the 1969, Nord, California 7-minute USGS Quadrangle. In portions of the flow path not mapped on the USGS Quadrangle as intermittent stream, EPA My waters identified a canal/ditch or stream and evidence of the flow path is shown on the aerial photographs referenced above.

The nearest (a)(1) through (a)(3) water following the flow path is the Sacramento River. The Sacramento River is a traditional navigable water of the United States (TNW), as determined in the 15 February 1978, *Sacramento River: Determination of Navigability* (USACE 1978). The document identifies that the Sacramento River is navigable up to mile 301.6 at Keswick Dam. The confluence of Pine Creek with the Sacramento River occurs at River mile 195.9, therefore the Sacramento River is navigable at this location.

The flowpath identified the confluence with the nearest (a)(1) through (a)(3) water, which was used to determine the downstream end of the SPOE. The SPOE was identified with the watershed hydro tools ARC GIS Server in ARC Map 10.4.1, with the single point of entry being the confluence of the flow path in Pine Creek with the Sacramento River.

6. **Description of SPOE**: The SPOE was calculated utilizing the flow path and GIS tools outlined in Section 6 above. The SPOE is approximately 207 square miles/132,413 acres in size and is located in northwestern Butte and southeastern Tehama counties in California. The SPOE is generally bounded by the Sacramento River to the west, the city of Chico to the southeast, and ends near Cohasset Ridge to the northeast. A map depicting the SPOE is enclosed (Enclosure 5).

7. **Significant Nexus Evaluation**:

The proponent has provided no evidence to either support or oppose this significant nexus determination to date. In the 9 May 2018, *Nord Cana Tech Memo Delineation of Waters of the U.S. Attachment B*, prepared by Gallaway Enterprises, the consultant has

designated all wetlands within this significant nexus determination as either adjacent or abutting tributaries (INT01, INTO2, or EPH01).

The approximately 28,907 acres of western vernal pools within the region, including the 3.17 acres within the review area, have at least two nexuses to the Sacramento River: runoff storage and nutrient recycling. A discussion of these significant nexuses is included in this section.

The approximately 28,907 acres of western vernal pools within the region provide runoff storage by holding water and releasing it gradually thereby reducing peak flows to the Sacramento River. Run-off storage in western vernal pools within the SPOE provides a substantive reduction of runoff that contributes to flooding downstream of the SPOE in the Sacramento River. Western vernal pools fill to a depth between 0.1 meter to 1 meter, or approximately 4 inches to 3 feet when full (Rains et. all 2006). The 28,907 acres of western vernal pools within the SPOE provide between 9,539 and 86,721 acre feet of runoff storage when full.

The run-off storage within the western vernal pools provides storage of water that would otherwise contribute to flooding within the Sacramento River. Flooding is a problem facing the Sacramento River. The Sacramento River Flood Control Project is a Corps Civil Works project, consisting of overflow weirs, pumping plants, bypass channels, navigation channels, and levees. The purpose of this project is to reduce the risk of flooding to agricultural lands and communities in the Sacramento Valley and San Joaquin Delta. The project is located along the Sacramento River between Elder Creek, and the confluence with the San Joaquin River near Collinsville. It includes 950 miles of levees, including 680 miles of federally authorized project. This includes project features along tributaries, sloughs and bypass channels on tributaries to the Sacramento River. The Sacramento District issued a notice of intent to prepare a Draft Environmental Impact Statement for the Sacramento River Flood Control Project, California, General Reevaluation on 23 October 2015 (Fed Register Vol 80, No 205).

The western vernal pools within the SPOE would provide significant runoff storage. In comparison to the runoff storage within the western vernal pools in the SPOE, Shasta Lake upstream of the SPOE in the Sacramento River can hold a maximum of 4.5 million acre feet of water, and Keswick Reservoir, an afterbay to Shasta Dam, can hold a maximum of 23,800 acre feet of water. In addition, the U.S. Bureau of Reclamation is currently proposing to raise the Shasta Dam to provide storage for an additional 630,000 acre feet of water. The project would cost an estimated $1.4 billion and would improve temperatures and water quality in the Sacramento River for anadromous fish, improve water supply reliability, and reduce flood damage downstream (U.S. Bureau of Reclamation). The amount of runoff stored in the western vernal pools within the SPOE stores between 40% and 360% of the water stored within the Keswick Reservoir and between 1.5% and 13.7% of the proposed water that would be stored by the proposed raising of Shasta Dam.

The approximately 28,907 acres of western vernal pools within the region recycle nutrients pursuant to 33 CFR 328.3(c)(5)(ii), reducing the nitrogen reaching the Sacramento River. Currently, the Sacramento River 303(d) listing is not a result of low dissolved oxygen or nutrient enrichment of the river, but rather due to pollutant chemicals associated with pesticides. However, the U.S. Environmental Protection Agency identified that of 840,000 streams evaluated, 10% experienced problems associated with nutrient enrichment and 30% of water quality issues identified in their evaluation resulted from nutrient enrichment of streams (USEPA 2002).

Nitrogen removal in wetlands can occur through sorption, plant uptake, sedimentation, volatilization, or through microbial processes. Kozub and Liehr state that denitrification provides the highest percentage of nitrate nitrogen removal. Denitrification is the loss or removal of nitrogen or nitrogen-containing compounds in anoxic conditions. Denitrification in wetlands removes between 4.01 to 5.06 grams of Nitrogen per cubic meter per day (Kozub and Liehr, 1998). Since the pools would hold between 9,539 and 86,721 acre feet (7.73 to 70.31 cubic meters) when full, the 28,907 acres of western vernal pools within the SPOE would remove between 31 and 355.77 grams of nitrogen per day.

Denitrification within the western vernal pools within the SPOE is important to maintaining the dissolved oxygen levels in the Sacramento River. Increases in nutrients like nitrogen and phosphorous lead to nutrient enrichment and eutrophication of stream systems. Nutrient enrichment results in increased growth of primary producers, bacteria, and fungi (Mallin et al. 2006). These organisms utilize oxygen in respiration. Elevated respiration by algae and bacteria without increased photosynthesis in streams systems will deplete dissolved oxygen over time (Zeng and Paul).

Maintaining the dissolved oxygen level within the Sacramento River is important to salmon and to the salmon fisheries off the coast of California. Reductions in the amount of nitrogen carried downstream reduces nutrient enrichment within the Sacramento River, helps protect habitat utilized by salmon migrating to and from the ocean. The Sacramento River was designated as critical habitat for winter-run chinook salmon (*Onchorhynchus tshawytscha*) on June 16, 1993 (Fed. Register Vol 58, No 114). Low levels of dissolved oxygen have been shown to adversely affect chinook salmon at multiple life stages (Carter 2008). Low levels of dissolved oxygen can negatively affect the swimming performance and growth of migrating adults (Carter 2008).

The maintenance of ammonium and nitrate levels within the Sacramento River helps to maintain dissolved oxygen levels necessary for various life stages of salmon in the waterway and support California's coastal salmon fishery. The discharge of wastewater, and associated levels of discharged nitrates and ammonium, into waters is regulated through National Pollutant Discharge Elimination System (NPDES) permits. In response to the requirements of their NPDES permit, Regional San, the facility responsible for waste water treatment for the city of Sacramento is proposing a new process and facility to treat waste water. Construction of the new project, called the Echowater Project, would cost between $1.5 and $2.1 billion and is proposed to be operation in 2023. According to

Regional San, the new treatment process would include biological nutrient removal and would remove ammonium and nitrates from water prior to discharge into the Sacramento River (Regional San 2018). Similarly the western vernal pools within the SPOE would remove nitrates from the water flowing into the Sacramento River and provide similar water quality benefits to the Sacramento River

The Sacramento River provides habitat for salmonids and supports the west coast salmon fisheries. The Sacramento River was designated as critical habitat for winter-run chinook salmon (*Onchorhynchus tshawytscha*) on 16 June 1993 (Fed. Register Vol 58 No 114), and for Central Valley spring-run chinook salmon (*O. Tshawytscha*) and the California Central Valley Steelhead (*O. mykiss*) on 2 September 2005 (Fed Register Vol 70 No 170). In addition, the Sacramento River is within designated Essential Fish Habitat for pacific salmon. According to the 20 October 2017, *Inseason Report on California's Ocean Salmon Fisheries* prepared by the California Department of Fish and Wildlife Ocean Salmon Project, the commercial ocean salmon fisheries in California in 2017 had a total ex-vessel value of approximately $4.8 million. The fishery had an average total ex-vessel value of $12.7 million from 2012- 2016 (CDFW 2017). The closure of the fall-run Chinook salmon fishery on the Klamath and Trinity rivers in 2017 resulted in an estimated loss of approximately $2.5 million. The western vernal pools within the SPOE provide necessary functions and services, including nutrient cycling, which improve water quality within the watershed and to the Sacramento River downstream.

8. Determination: The approximately 28,907 acres of western vernal pools within the region, including the 3.17 acres within the review area, have at least two nexuses to the Sacramento River: runoff storage and nutrient recycling. These nexuses are significant, meaning neither speculative nor insubstantial, by virtue of the fact: a) they store between 9,000 and 86,000 acre-feet of water when full; b) the Sacramento River is prone to flooding prompting individuals and governments to spend considerable resources on flood prevention, and floodwater storage; c) they remove nitrogen at a rate of 4.01 to 5.06 grams of Nitrogen per cubic meter per day; and d) maintenance of the salmon fishery within the Sacramento River relies on high dissolved oxygen and low nutrient pollution.

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5 Enclosures
Enclosure 1-Aquatic Resource Delineation
Enclosure 2- Core Recovery Area Map
Enclosure 3-NRCS Custom Soil Report
Enclosure 4- Flowpath Map
Enclosure 5- SPOE Map

LAURA SHIVELY
Senior Project Manager
CA North Section