

# **INFORMATION HANDOUT**

**For Contract No. 01-0A5204  
At 01-Hum-299-R21.1/R21.5**

**Identified by  
Project ID 0100020425**

## **PERMITS**

United States Army Corps of Engineers

Non-Reporting Nationwide 404

## **WATER QUALITY**

California Regional Water Quality Control Board, North Coast Region

Board Order No. 1B14128WNHU

## **AGREEMENTS**

California Department of Fish and Wildlife

Notification No. 1600-2014-0353-R1

## **MATERIALS INFORMATION**

Geotechnical Design Recommendations for the Lupton Curve Improvement Project, Dated 2/09/2015

## **PERMITS**

United States Army Corps of Engineers

Non-Reporting Nationwide 404



**DEPARTMENT OF THE ARMY**  
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
1455 MARKET STREET, 16<sup>th</sup> Floor  
SAN FRANCISCO, CALIFORNIA 94103-1398

JAN 29 2015

Regulatory Division

SUBJECT: File No. 2014-00435N

Ms. Denise Walker-Brown  
California Department of Transportation District 1  
P.O. Box 3700  
Eureka, CA 95502

Dear Ms. Walker-Brown:

This letter is in reference to your submittal received December 5, 2014, concerning Department of the Army (Corps) permit authorization to widen the roadway shoulders, install two retaining walls, replace several culverts, install a sediment basin, replace an underdrain, and make other drainage improvements. The project is located at Lupton Curve on State Route 299, post miles 21.1 to 21.5, (Lat. 40.906158, Long. 123.825775) Blue Lake, Humboldt County, California.

Shoulder widening would occur through the installation of a Mechanically Stabilized Earth (MSE) retaining wall embedded into the top of fill along the north side of the roadway. The MSE wall would be 931 feet long and about 9 feet high measured from the original ground surface of the existing highway fill. A minimal amount of fill would be installed at several other locations related to other drainage improvements and the installation of a smaller, second retaining wall on the south side of the roadway. The second wall would be constructed with guard railing components and the dimensions are as follows: 1778 feet long and less than 3 feet high.

Work within U.S. Army Corps of Engineers' (Corps) jurisdiction would include impacts to Section 404 waters that would permanently impact about 0.021-acre of waters and temporarily impact 0.026-acre of waters. Impacts would result from the above-mentioned improvements and installation of about 340.55 cubic yards of fill. All work shall be completed at the site locations indicated in the drawings entitled: "Map 1 Impact Area Lupton Curve Improvement Project SR 199 (PM21.0-21.75)," "Layout (L-1)," "Drainage Plan (D-1)," "Drainage Profile (DP-1)," "Drainage Profiles (DP-2)," "Drainage Profiles (DP-3)," "Drainage Details (DD-1)," "Drainage Details (DD-2)," and "Drainage Quantities (DQ-1)," all dated July 2, 2011 (enclosure 1).

Section 404 of the Clean Water Act (CWA) generally regulates the discharge of dredged or fill material below the plane of ordinary high water in non-tidal waters of the United States, below the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters. A Preliminary Jurisdictional Determination (JD) has been completed for your site. Preliminary JD's are written indications that there may be waters of the U.S. on a parcel or indications of the approximate location(s) of waters of the U.S. on a parcel.

The enclosed delineation map entitled, "USACE File #2014-00435, Lupton Curve SR 299 Repairs Jurisdictional Determination" in one sheet, dated December 15, 2014 (enclosure 2), depicts the extent and location of wetlands and other waters of the United States within the boundary area of the site that **may be** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form*. You are requested to sign and date this form and return it to this office within two weeks of receipt.

You are advised that the preliminary jurisdictional determination may **not** be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Section 331 (65 Fed. Reg. 16,486; Mar. 28, 2000). Under the provisions of 33 C.F.R. Section 331.5(b)(9), non-appealable actions include preliminary jurisdictional determinations since they are considered to be only advisory in nature and make no definitive conclusions on the jurisdictional status of the water bodies in question. However, you may request this office to provide an approved jurisdictional determination that precisely identifies the scope of jurisdictional waters on the site; an approved jurisdictional determination may be appealed through the *Administrative Appeal Process*. If you anticipate requesting an approved jurisdictional determination at some future date, you are advised not to engage in any on-site grading or other construction activity in the interim to avoid potential violations and penalties under Section 404 of the Clean Water Act. Finally, you may provide this office new information for further consideration and request a reevaluation of this preliminary jurisdictional determination.

Based on a review of the information you submitted, your project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 14 *Linear Transportation Projects*, 77 Fed. Reg. 10,184, February 21, 2012 (enclosure 3), pursuant to Section 404 of the CWA of 1972, as amended (33 U.S.C. § 1344 *et seq.*). The project must be in compliance with the terms of the NWP, the general conditions of the Nationwide Permit Program, and the San Francisco District regional conditions cited in enclosure 4. You must also be in compliance with any special conditions specified in this letter for the NWP authorization to remain valid. Non-compliance with any term or condition could result in the revocation of the NWP authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This NWP authorization does not obviate the need to obtain other State or local approvals required by law.

This verification will remain valid until March 18, 2017, unless the NWP authorization is modified, suspended, or revoked. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon a NWP will remain authorized provided the activity is completed within 12 months of the date of a NWP's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 C.F.R. § 330.4(e)

and 33 C.F.R. §§ 330.5 (c) or (d). This verification will remain valid if, during the time period between now and March 18, 2017, the activity complies with any subsequent modification of the NWP authorization. The Chief of Engineers will periodically review NWPs and their conditions and will decide to either modify, reissue, or revoke the permits. If a NWP is not modified or reissued within five years of its effective date, it automatically expires and becomes null and void. It is incumbent upon you to remain informed of any changes to the NWPs. Changes to the NWPs would be announced by Public Notice posted on our website (<http://www.spn.usace.army.mil/Missions/Regulatory.aspx>). Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance (enclosure 5) verifying that you have complied with the terms and conditions of the permit.

General Condition 18 stipulates that project authorization under a NWP does not allow for the incidental take of any federally-listed species in the absence of a biological opinion with incidental take provisions. As the principal federal lead agency for this project, the Caltrans (through an agreement with Federal Highways) initiated consultation with the U.S. Fish and Wildlife Service (FWS) to address project related impacts to listed species, pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531 *et seq.* By letter of April 8, 2014, FWS concurred with the determination that the project was not likely to adversely affect northern spotted owls and designated critical habitat for this species.

To ensure compliance with this NWP authorization and to further minimize adverse impacts to water quality and other aquatic resources, including federally listed threatened and endangered species and designated critical, the project is subject to the following Special Conditions:

1. The FWS concurred with the determination that the project was not likely to adversely affect northern spotted owls and designated critical habitat for this species. This concurrence was premised, in part, on project minimization measures outlined on pages 7-10 of the Pre-Construction Notification (PCN) dated December 2, 2014 (enclosure 6). These minimization measures are incorporated as special conditions to the NWP authorization for your project to ensure unauthorized incidental take of species and loss of critical habitat does not occur.
2. Best management practices (BMP's) will be implemented including installation of silt fences, straw bales, gravel bags, and fiber rolls, if appropriate. Placement of these materials will control sediment discharge and minimize sediment release into receiving waters. Additional BMP's are outlined on pages of the PCN.
3. Fueling activities will occur in designated upland locations.
4. No concrete washings or water from concrete will be allowed to flow into waterways. No

concrete will be poured within flowing water in waterways. Waste management best management practices will be implemented.

5. No debris, sand, silt, trash, concrete or washings thereof, oil or other petroleum products or washings thereof, or other foreign materials shall be allowed to enter or be placed where it may be washed by rainfall or runoff into waters of the U.S. Upon project completion, any and all excess construction materials, debris, and/or other excess project materials shall be removed to an appropriate upland disposal site.
6. All construction materials (new and old) will be stored in a contained area in the staging area.
7. All debris will be transported to an appropriate disposal landfill.
8. Mitigation will occur as outlined in the PCN dated December 2, 2014. Revegetation will occur as outlined in the "Lupton Curve Improvement Project Revegetation Plan." Native species will be used. Temporary impacts will be mitigated at a ratio of 1:1 and permanent impacts mitigated at a 3:1 ratio through restoration of 0.155 acre riparian habitat and establishment of 0.027 acre of wetland habitat. Monitoring will ensure long-term (5-year success).
9. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 8 will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers. The permittee shall submit site-specific plans/drawings for the in-kind restoration areas in accordance with the Corps' South Pacific Division map and drawing standards (Special Public Notice dated March 5, 2012). Drawings will include proposed contours and plant community composition. A five-year monitoring report will be submitted to the Corps' to ensure a 75% reestablishment success for these areas.
10. The permittee shall restore all temporarily impacted areas to pre-construction contours. All disturbed areas shall be revegetated with pre-existing and/or native wetland vegetation.

You may refer any questions on this matter to Carol Heidsiek of our Regulatory staff by telephone at 707-443-0855 or by email at [Carol.A.Heidsiek@usace.army.mil](mailto:Carol.A.Heidsiek@usace.army.mil). All correspondence should be addressed to the Regulatory Division, North Branch, Eureka Field Office, 601 Startare Drive, Box 14, Eureka, California 95501, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <http://www.spn.usace.army.mil/Missions/Regulatory.aspx>

Sincerely,

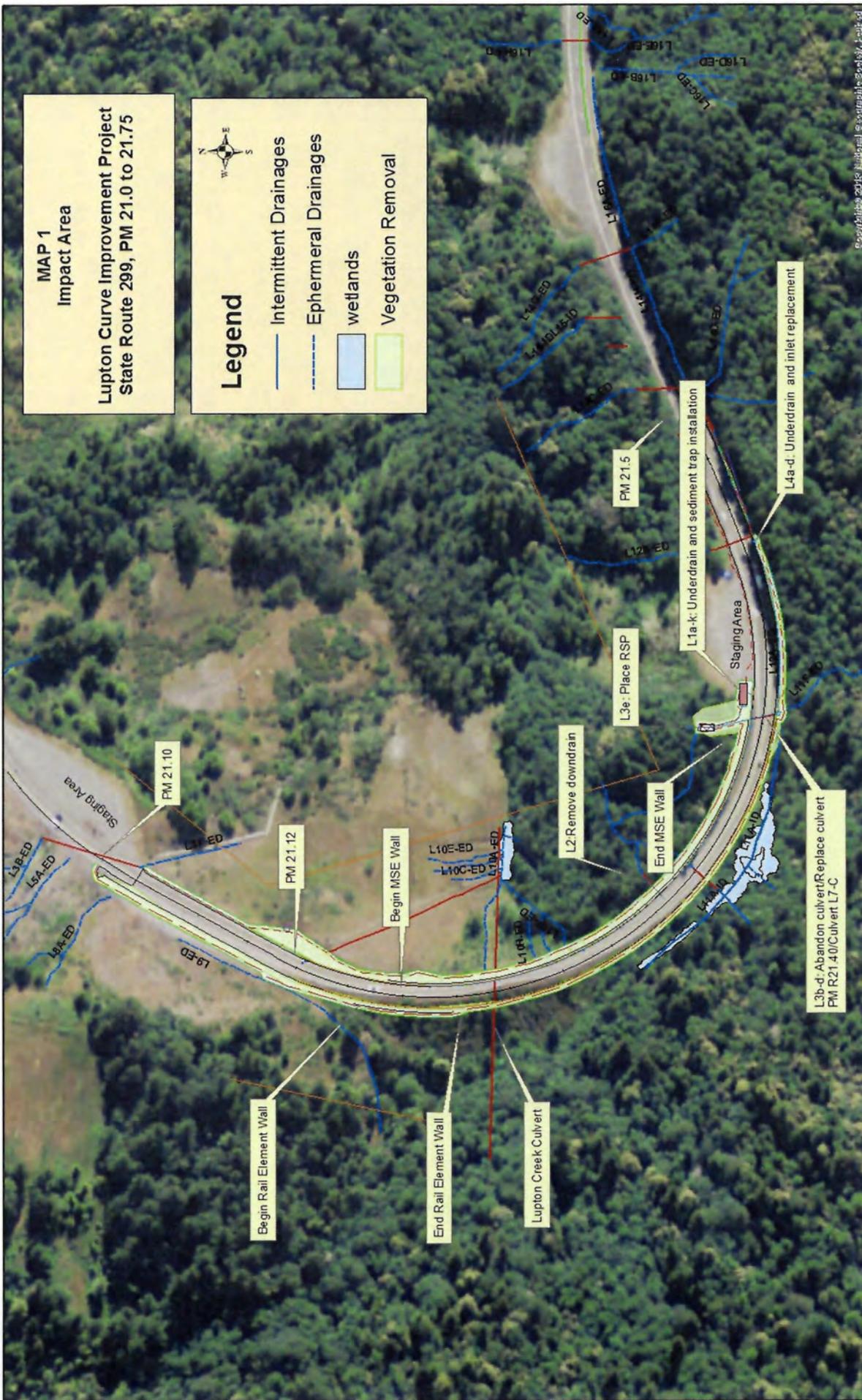


*JM* Jane M. Hicks  
Chief, Regulatory Division

Enclosures

Copies Furnished (w/o encls):

USFWS, Arcata, CA  
CA RWQCB, Santa Rosa, CA



**MAP 1**  
Impact Area

**Lupton Curve Improvement Project**  
State Route 299, PM 21.0 to 21.75

**Legend**

- Intermittent Drainages
- - - Ephemeral Drainages
- wetlands
- Vegetation Removal



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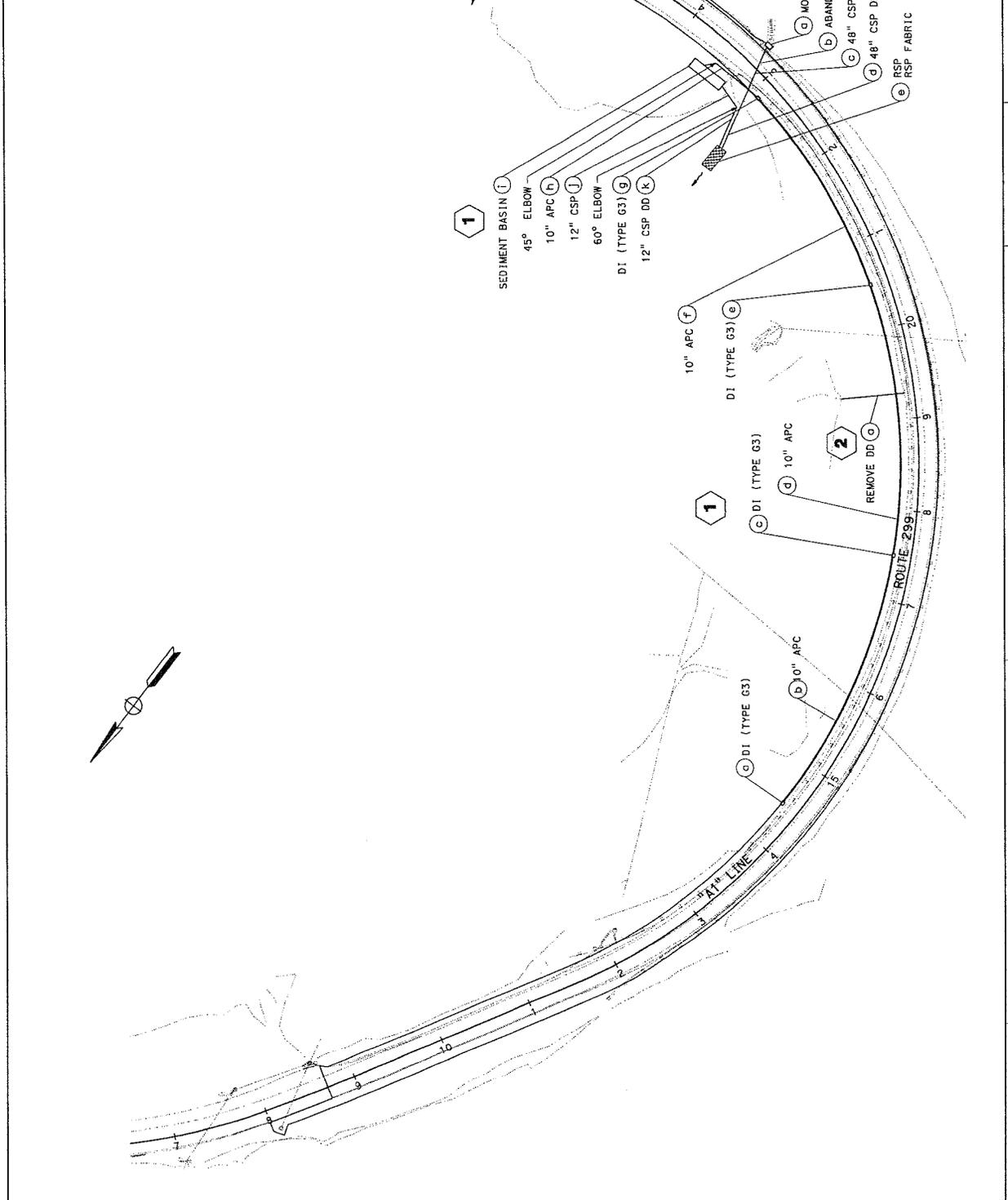
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01	HUM	Z99	R21.1/R21.5		

**PRELIMINARY**  
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
DO NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF SCANNED  
COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
ENRNO  
B. SEER  
No. C49740  
Exp. 09-30-16  
STATE OF CALIFORNIA  
CIVIL



DESIGNED BY	JOHN L. MARTIN
CHECKED BY	
DATE REVISED	
REVISOR	
DESIGNED BY	
CHECKED BY	
DATE REVISED	
REVISOR	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
FUNCTIONAL SUPERVISOR

DESIGN

USERNAME => sl27824  
JOB FILE => 01000204251.dgn

BORDER LAST REVISED 7/2/2010

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 0315

PROJECT NUMBER & PHASE 01000204251

**DRAINAGE PLAN**  
SCALE: 1" = 50'

**D-1**







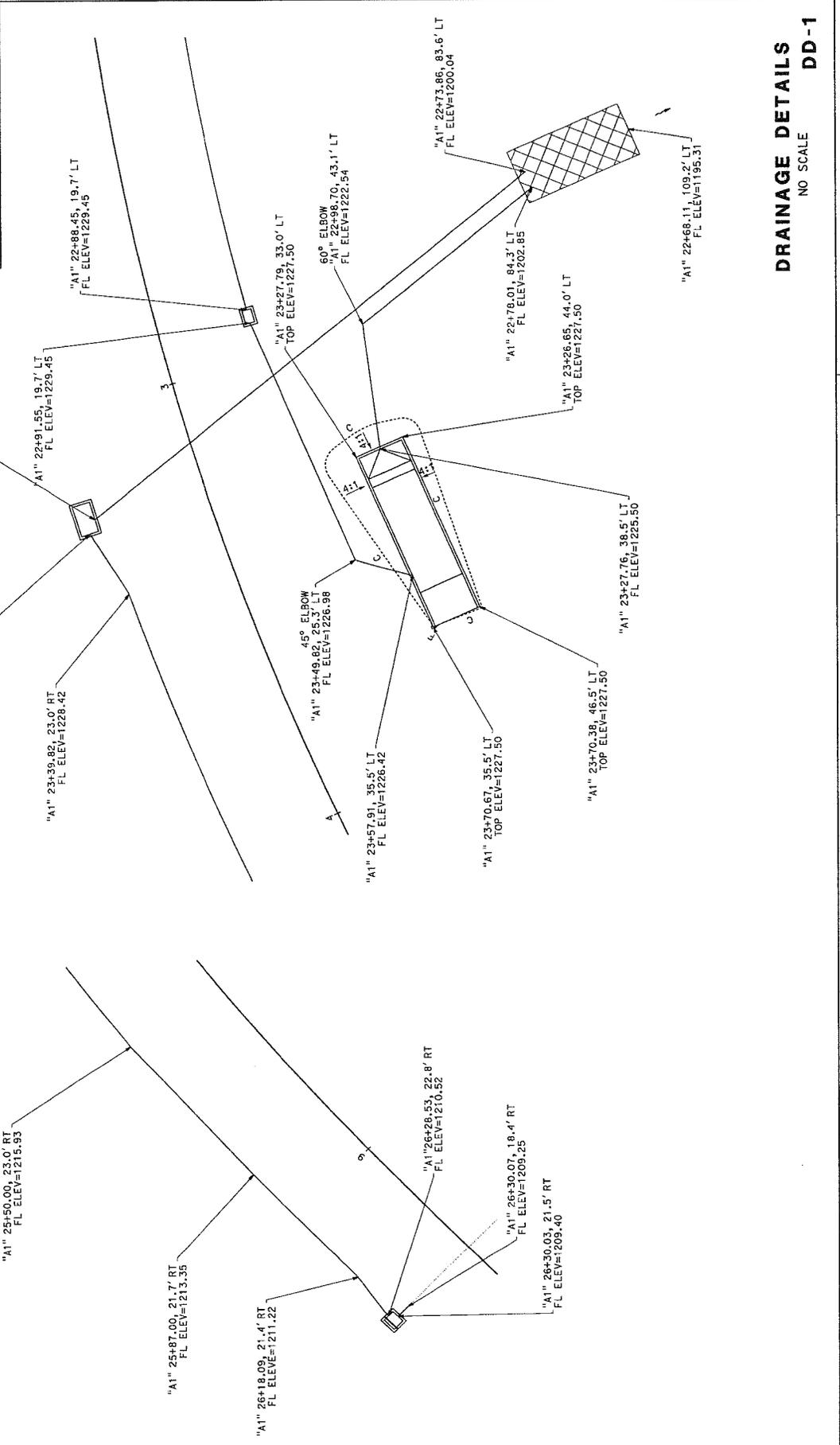
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01	HUM	299	R21.1/R21.5		

**PRELIMINARY**  
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS  
OR AGENTS SHALL NOT BE HELD RESPONSIBLE FOR  
COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
EXAMINER  
R. W. SPUR  
No. C49740  
09-30-15  
CIVIL  
STATE OF CALIFORNIA



DATE PLOTTED => 13-NOV-2014 14:09:56  
TIME PLOTTED => 14:09:56

PROJECT NUMBER & PHASE: 01000204251

UNIT: 0315

RELATIVE BORDER SCALE: 0 1 2 3 IS IN INCHES

USERNAME => 12784 DON FILE => 01000204251\001.DGN

BORDER LAST REVISED 7/27/2010

**DRAINAGE DETAILS**  
NO SCALE  
**DD-1**

DESIGNED BY	JOHN L. MARTIN
CHECKED BY	
DATE REVISED	
REVISOR	
DESIGNED BY	
CHECKED BY	
DATE REVISED	
REVISOR	

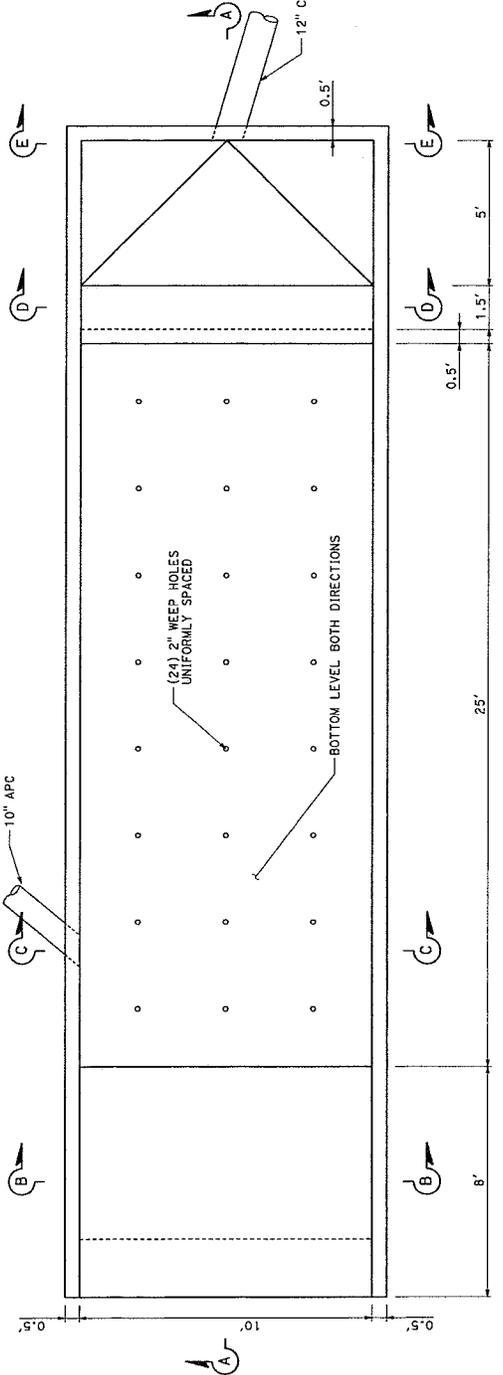
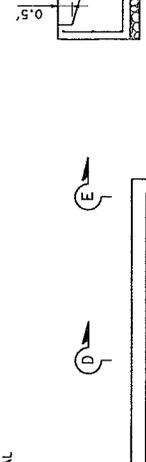
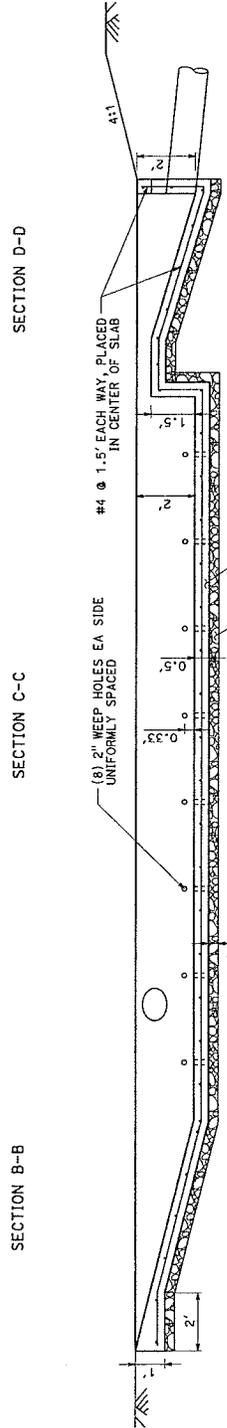
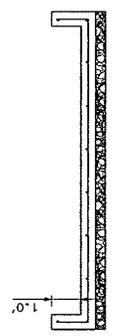
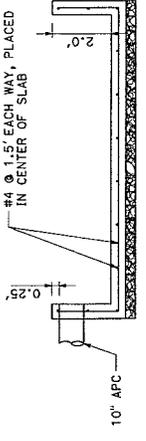
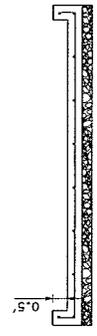
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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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Dist#	COUNTY	ROUTE	TOTAL PROJECT SHEETS	SHEET NO.
01	HUM	289	R21.1/R21.5	1
<b>PRELIMINARY</b>				
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL DATE				
THE STATE OF CALIFORNIA OR ITS OFFICERS SHALL NOT BE HELD LIABLE FOR THE ACCURACY OR COMPLETENESS OF PLANS CONSISTENT WITH THIS PLAN SHEET.				



**SEDIMENT BASIN**  
 SCALE: 1" = 50'

**DRAINAGE DETAILS**  
 DD-2  
 SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN	DESIGNED BY	DATE REVISION
FUNCTIONAL SUPERVISOR	JOHN L. MARTIN	CHECKED BY	
		DESIGNED BY	
		CALCULATED-	

REVISIONS: REVISIONS

DESIGN

FUNCTIONAL SUPERVISOR JOHN L. MARTIN

DESIGNED BY

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FUNCTIONAL SUPERVISOR JOHN L. MARTIN

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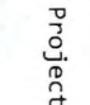
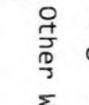
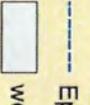
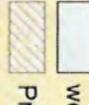
REVISIONS



**Hoist**  
**US Army Corps of Engineers**  
 299 Repairs PJD at PM 21.1-21.5, Blue Lake,  
 Humboldt County, CA. Lat. 40.906158,  
 Long. 123.825775)

Preliminary Jurisdictional Determination  
 (PJD) Pursuant to Section 404 of the CWA  
 For USACE File #2014-00435, Lupton Curve SR

**FILE NO:** 2014-00435      **DATE:** 12/15/14

	Project Boundary		Other Waters
	Ephemeral Drainages		Wetlands
	wetlands		
	Project Boundary (3.55 acres)		

#### 14. Linear Transportation Projects.

Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project. This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to preconstruction elevations. The areas affected by temporary fills must be revegetated, as appropriate. This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

*Notification:* The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

**Note:** Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

## Nationwide Permit General Conditions

1. Navigation
2. Aquatic Life Movements
3. Spawning Areas
4. Migratory Bird Breeding Areas
5. Shellfish Beds
6. Suitable Material
7. Water Supply Intakes
8. Adverse Effects From Impoundments
9. Management of Water Flows
10. Fills Within 100-Year Floodplains
11. Equipment
12. Soil Erosion and Sediment Controls
13. Removal of Temporary Fills
14. Proper Maintenance
15. Single and Complete Project
16. Wild and Scenic Rivers
17. Tribal Rights
18. Endangered Species
19. Migratory Birds and Bald and Golden Eagles
20. Historic Properties
21. Discovery of Previously Unknown Remains and Artifacts
22. Designated Critical Resource Waters
23. Mitigation
24. Safety of Impoundment Structures
25. Water Quality
26. Coastal Zone Management
27. Regional and Case-By-Case Conditions
28. Use of Multiple Nationwide Permits
29. Transfer of Nationwide Permit Verifications
30. Compliance Certification
31. Pre-Construction Notification

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

**1. Navigation.** (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the

structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

**2. Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

**3. Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

**4. Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

**5. Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

**6. Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

**7. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

**8. Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

**9. Management of Water Flows.** To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

**10. Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

**11. Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

**12. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

**13. Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

**14. Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

**15. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

**16. Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

**17. Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

**18. Endangered Species.** (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include

the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non- Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWP. (e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. (f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

**19. Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

**20. Historic Properties.** (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National

Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete preconstruction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

**21. Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

**22. Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment. (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP's 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including

wetlands adjacent to such waters. (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal: (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site). (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal. (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332. (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment. (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered. (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2)–(14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided. (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan. (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment. (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs. (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance,

and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses. (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management. (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

**24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

**25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

**26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

**27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

**28. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

**29. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

\_\_\_\_\_  
(Transferee)

\_\_\_\_\_  
(Date)

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include: (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions; (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and (c) The signature of the permittee certifying the completion of the work and mitigation.

**31. Pre-Construction Notification—(a) Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either: (1) He or she is notified in writing

by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information: (1) Name, address and telephone numbers of the prospective permittee; (2) Location of the proposed project; (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans); (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate; (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan. (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National

Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act. (c) *Form of Pre-Construction Notification*: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used. (d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWP's and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWP's, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5. (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

## San Francisco District Regional Conditions

### A. General Regional Conditions that apply to all NWPs in the Sacramento, San Francisco, and Los Angeles Districts:

1. When pre-construction notification (PCN) is required, the permittee shall notify the U.S. Army Corps of Engineers, San Francisco District (Corps) in accordance with General Condition 31 using either the South Pacific Division Preconstruction Notification (PCN) Checklist or a signed application form (ENG Form 4345) with an attachment providing information on compliance with all of the General and Regional Conditions. In addition, the PCN shall include:
  - a. A written statement describing how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;
  - b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity, as well as the location of delineated waters of the U.S. on the site. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and area (in acres) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the mean high water mark and high tide line, should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation. All drawings for activities located within the boundaries of the Los Angeles District shall comply with the September 15, 2010 Special Public Notice: *Map and Drawing Standards for the Los Angeles District Regulatory Division*, (available on the Los Angeles District Regulatory Division website at: [www.spl.usace.army.mil/regulatory/](http://www.spl.usace.army.mil/regulatory/)); and
  - c. Numbered and dated pre-project color photographs showing a representative sample of waters proposed to be impacted on the site, and all waters of the U.S. proposed to be avoided on and immediately adjacent to the activities site. The compass angle and position of each photograph shall be identified on the plan-view drawing(s) required in subpart b of this Regional Condition.
2. The permittee shall submit a PCN, in accordance with General Condition 31, For all activities located in areas designated as Essential Fish Habitat (EFH) by the Pacific Fishery Management Council (i.e., all tidally influenced areas - Federal Register dated March 12, 2007, 72 C.F.R. 11,092, in which case the PCN shall include an EFH assessment and extent of proposed impacts to EFH. Examples of EFH habitat assessments can be found at: <http://www.swr.noaa.gov/efh.htm>.
3. For activities in which the Corps designates another Federal agency as the lead for compliance with Section 7 of the Endangered Species Act (ESA) of 1973 as amended, 16 U.S.C. §§ 1531-1544, Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act (EFH), 16 U.S.C. § 1855(b)(4)(B) and/or Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, 16 U.S.C. §§ 470-470h, the lead Federal agency shall provide all relevant documentation to the appropriate Corps demonstrating any previous consultation efforts, as it pertains to the Corps Regulatory permit area (for Section 7 and EFH compliance) and the Corps Regulatory area of potential effect (APE) (for Section 106 compliance). For activities requiring a PCN, this information shall be submitted with the PCN. If the Corps does not designate another Federal agency as the lead for ESA, EFH and/or NHPA, the Corps will initiate consultation for compliance, as appropriate.

4. For all activities in waters of the U.S. that are suitable habitat for Federally-listed fish species, the permittee shall design all road crossings to ensure that the passage and/or spawning of fish is not hindered. In these areas, the permittee shall employ bridge designs that span the stream or river, including pier- or pile-supported spans, or designs that use a bottomless arch culvert with a natural stream bed unless determined to be impracticable by the Corps.
5. The permittee shall complete the construction of any compensatory mitigation required by special condition(s) of the NWP verification before or concurrent with commencement of construction of the authorized activity, except when specifically determined to be impracticable by the Corps. When mitigation involves use of a mitigation bank or in-lieu fee program, the permittee shall submit proof of payment to the Corps prior to commencement of construction of the authorized activity.
6. Any requests to waive the 300 linear foot limitation for intermittent and ephemeral streams for NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51 and 52, or to waive the 500 linear foot limitation along the bank for NWP 13, must include the following:
  - a. A narrative description of the stream. This should include known information on: volume and duration of flow; the approximate length, width, and depth of the waterbody and characteristics observed associated with an Ordinary High Water Mark (e.g. bed and bank, wrack line or scour marks); a description of the adjacent vegetation community and a statement regarding the wetland status of the adjacent areas (i.e. wetland, non-wetland); surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information;
  - b. An analysis of the proposed impacts to the waterbody, in accordance with General Condition 31;
  - c. Measures taken to avoid and minimize losses to waters of the U.S., including other methods of constructing the proposed activity(s); and
  - d. A compensatory mitigation plan describing how the unavoidable losses are proposed to be offset, in accordance with 33 CFR 332.

**B. General Regional Conditions that apply to all NWPs in the San Francisco District:**

1. Notification to the Corps (in accordance with General Condition No. 31) is required for any activity permitted by NWP if it will take place in waters or wetlands of the U.S. that are within the **San Francisco Bay diked baylands** (see figure 1) (undeveloped areas currently behind levees that are within the historic margin of the Bay. Diked historic baylands are those areas on the Nichols and Wright map below the 5-foot contour line, National Geodetic Vertical Datum (NGVD) (see Nichols, D.R., and N. A. Wright. 1971. Preliminary map of historic margins of marshland, San Francisco Bay, California. U.S. Geological Survey Open File Map)). The notification shall explain how avoidance and minimization of losses of waters or wetlands are taken into consideration to the maximum extent practicable (see General Condition 23).
2. Notification to the Corps (in accordance with General Condition No. 31) is required for any activity permitted by NWP if it will take place in waters or wetlands of the U.S. that are within the **Santa Rosa Plain** (see figure 2). The notification will explain how avoidance and minimization of losses of waters or wetlands are taken into consideration to the maximum extent practicable in accordance with General Condition No. 23.
3. Notification to the Corps (in accordance with General Condition No. 31), including a compensatory mitigation plan, habitat assessment, and extent of proposed-project impacts

to Eelgrass Beds are required for any activity permitted by NWP if it will take place within or adjacent to **Eelgrass Beds**.

**C. Regional Conditions that apply to specific NWPs in the San Francisco District:**

**3. MAINTENANCE:**

1. To the extent practicable, excavation equipment shall work from an upland site (e.g., from the top of the bank, the road bed of the bridge, or culverted road crossing) to minimize adding fill into waters of the U.S. If it is not practicable to work from an upland site, or if working from the upland site would cause more environmental damage than working in the stream channel, the excavation equipment can be located within the stream channel but it must minimize disturbance to the channel (other than the removal of accumulated sediments or debris). As part of the notification to the Corps (in accordance with General Condition No. 31), an explanation as to the need to place excavation equipment in waters of the U.S. is required, as well as a statement of any additional necessary fill (e.g., cofferdams, access road, fill below the OHW mark for a staging area, etc.).
2. If the activity is proposed in a special aquatic site, the notification to the Corps (in accordance with General Condition No. 31) shall include an explanation of why the special aquatic site cannot be avoided, and the measures to be taken to minimize impacts to the special aquatic site.

**11. TEMPORARY RECREATIONAL STRUCTURES:**

1. Notification to the Corps (in accordance with General Condition No. 31) is required if any temporary structures are proposed in wetlands or vegetated shallow water areas (e.g. in eelgrass beds). The notification shall include the type of habitat and areal extent affected by the structures.

**12. UTILITY LINE ACTIVITIES:**

1. Excess material removed from a trench, associated with utility line construction, shall be disposed of at an upland site away from any wetlands or other waters of the U.S. so as to prevent this material from being washed into aquatic areas.
2. This NWP permit does not authorize the construction of substation facilities. Utility line substations can usually be constructed in uplands.

**13. BANK STABILIZATION:**

1. Notification to the Corps (in accordance with General Condition No. 31) is required for all activities stabilizing greater than 300 linear feet of channel. Where the removal of wetland vegetation (including riparian wetland trees, shrubs and other plants) or submerged, rooted, aquatic plants over a cumulative area greater than 1/10 acre or 300 linear feet is proposed, the Corps shall be notified (in accordance with General Condition No. 31). The notification shall include the type of vegetation and extent (e.g., areal dimension or number of trees) of the proposed removal. The notification shall also address the effect of the bank stabilization on the stability of the opposite side of the streambank (if it is not part of the stabilization activity), and on adjacent property upstream and downstream of the activity.
2. This permit allows excavating a toe trench in waters of the U.S., and, if necessary, to use the material for backfill behind the stabilizing structure. Excess material is to be disposed of in a manner that will have only minimal impacts to the aquatic environment. The notification to the Corps (in accordance with General Condition No. 31) shall include location of the disposal site.
3. For man-made banks, roads, or levees damaged by storms or high flows, the one cubic yard per running foot limit is counted only for that additional fill which encroaches (extends) beyond the pre-flood or pre-storm shoreline condition of the waterway. It is not counted for

the fill that would be placed to reconstruct the original dimensions of the eroded, man-made shoreline.

4. For natural berms and banks, the one cubic yard per running foot limit applies to any added armoring.
5. To the maximum extent practicable, any new or additional bank stabilization must incorporate structures or modifications beneficial to fish and wildlife (e.g., soil bioengineering or biotechnical design, root wads, large woody debris, etc.). Where these structures or modifications are not used, the applicant shall demonstrate why they were not considered practicable.

**14. LINEAR TRANSPORTATION PROJECTS:**

1. Notification to the Corps (in accordance with General Condition No. 31) is required for all projects filling greater than 300 linear feet of channel. For projects involving greater than 300 linear feet of bank stabilization, the project proponent shall address the effect of the bank stabilization on the stability of the opposite side of the streambank (if it is not part of the stabilization activity), and on adjacent property upstream and downstream of the activity.
2. This permit does not authorize construction of new airport runways and taxiways.
3. If this NWP has been used to authorize previous project segments within the same linear transportation project, justification must be provided demonstrating that the cumulative impacts of the proposed and previously authorized project segments do not result in more than minimal impacts to the aquatic system.
4. To the maximum extent practicable, any new or additional bank stabilization required for the crossing must incorporate structures or modifications beneficial to fish and wildlife (e.g., soil bioengineering or biotechnical design, root wads, large woody debris, etc.). Where these structures or modifications are not used, the applicant shall demonstrate why they were not considered practicable. Bottomless and embedded culverts are encouraged over traditional culvert stream crossings.

**23. APPROVED CATEGORICAL EXCLUSIONS:**

1. Use of this NWP requires notification to the Corps (in accordance with General Condition No. 31). The notification shall include the following:
  - a. A copy of the Federal Categorical Exclusion (Cat/Ex) document signed by the appropriate federal agency. If the Cat/Ex is signed by a state or local agency representative instead of by a federal agency representative, then copies of all documentation authorizing alternative agency signature shall be provided.
  - b. Written description of Corps authority (e.g., Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act.);
  - c. a list of conditions described in the Cat/Ex and/or attachments outlining measures that must be taken prior to, during, or after project construction to minimize impacts to the aquatic environment;
  - d. a copy of the jurisdictional delineation performed by qualified specialists showing the project limits and the location (delineated boundaries) of Corps jurisdiction within the overall project limits;
  - e. map(s) showing the locations of potentially permanent and temporary project impacts to areas within Corps jurisdiction;

- f. a clear and concise description of all project impacts including, but not necessarily limited to:
    - 1. quantification and description of permanent project impacts to areas within Corps jurisdiction,
    - 2. quantification and description of temporary impacts to areas within Corps jurisdiction, and
    - 3. linear extent of Corps jurisdiction affected by the project;
  - g. a general description of activities covered by the Cat/Ex that do not require Corps authorization but are connected or related to the activities in Corps jurisdiction;
  - h. a complete description of any proposed mitigation and/or restoration including, but not necessarily limited to, locations of any proposed planting, short- and long-term maintenance, proposed monitoring, success criteria and contingency plans;
  - i. written justification of how the project complies with the Nationwide Permit Program including less than minimal impact to the aquatic environment and compliance with the General Conditions.
  - j. For Federal Highway Administration (FHWA) Cat/Ex projects, the notification should describe how activities described in the Cat/Ex meet the description of the Cat/Ex project published in the August 28, 1987 Federal Register part 771.117 (a)(b)(c) and (d) (Volume 52, No. 167) or any updated version published in the Federal Register.
2. Only activities specifically described in the Cat/Ex project description will be covered by the NWP 23 authorization. If other activities not described in the Cat/Ex project description will be performed (e.g., dewatering, slope protection, etc.), these activities must receive separate NWP authorizations.
  3. Notification to the Corps (in accordance with General Condition 31) must include a copy of the signed Cat/Ex document and final agency determinations regarding compliance with Section 7 of the Endangered Species Act (ESA), Essential Fish Habitat (EFH) under the Magnusson-Stevens Act, and Section 106 of the National Historic Preservation Act.

**27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities**

1. Notification to the Corps (in accordance with General Condition 31) must include documentation of a review of project impacts to demonstrate that at the conclusion of the work that the project would result in a net increase in aquatic function. Additionally, the documentation must include a review of project impacts on adjacent properties or structures and must also discuss cumulative impacts associated with the project.

**29. Residential Developments:**

1. When discharge of fill results in the replacement of wetlands or waters of the U.S. with impervious surfaces, to ensure that the authorized activity does not result in more than minimal degradation of water quality (in accordance with General Condition 25), the residential development shall incorporate low impact development concepts (e.g. native landscaping, bioretention and infiltration techniques, and constructed green spaces) to the extent practicable. A description of the low impact development concepts proposed in the project shall be included with the permit application. More information including low impact development concepts and definitions is available at the following website:  
<http://www.epa.gov/owow/NPS/lid/>.
2. Use of this NWP is prohibited within the San Francisco Bay diked baylands (undeveloped areas currently behind levees that are within the historic margin of the Bay. Diked historic baylands are those areas on the Nichols and Wright map (see figure 1) below the 5-foot

contour line, National Geodetic Vertical Datum (NGVD) (see Nichols, D.R., and N. A. Wright. 1971. Preliminary map of historic margins of marshland, San Francisco Bay, California. U.S. Geological Survey Open File Map)).

**33. TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING:**

1. Access roads shall be designed to be the minimum width necessary and shall be designed to minimize changes to the hydraulic flow characteristics of the stream and degradation of water quality (in accordance with General Conditions 9 and 25). The following Best Management Practices (BMPs) shall be followed to the maximum extent practicable to ensure that flow and circulation patterns of waters are not impaired and adverse effects on the aquatic environment will be kept to a minimum:
  - a. The road shall be properly stabilized and maintained during and following construction to prevent erosion.
  - b. Construction of the road fill shall occur in a manner that minimizes the encroachment of trucks, tractors, bulldozers, or other heavy equipment within waters of the United States (including adjacent wetlands) that lie outside the lateral boundaries of the fill itself.
2. Vegetative disturbance in the waters of the U.S. shall be kept to a minimum.
3. Borrow material shall be taken from upland sources whenever feasible.
4. Stream channelization is not authorized by this NWP.

**35. MAINTENANCE DREDGING OF EXISTING BASINS:**

1. Use of this NWP will require notification to the Corps (in accordance with General Condition No. 31). The notification information should be provided on the Consolidated Dredging-Dredged Material Reuse/Disposal Application. This application and instructions for its completion can be found on our web site at: <http://www.spn.usace.army.mil/conops/applications.html>. The information must include the location of the proposed upland disposal site. A jurisdictional delineation of the proposed upland disposal site prepared in accordance with the current method required by the Corps may also be required.
2. The U.S. Coast Guard will be notified by the permittee at least 14 days before dredging commences if the activity occurs in navigable waters of the U.S. (Section 10 waters).
3. The permittee will be required to provide the following information to the Corps:
  - a. Dredge Operation Plan: Submit, for approval by this office, no earlier than 60 calendar days and no later than 20 calendar days before the proposed commencement of dredging, a plan which includes the following: **Corps file number**, a copy of the dredging contract or description of the work under which the contractor will do the permitted work; name and telephone numbers of the dredging contractor's representative on site; proposed dredging start and completion dates; quantity of material to be removed; dredging design depth and typical cross section including overdepth; and date of last dredging episode and design depth. The Dredge Operational Plan shall also provide the following information: The controls being established to insure that dredging operations occur within the limits defined by the basin or channel dimensions and typical channel section.
  - b. Pre-Dredge Survey: Submit no earlier than 60 calendar days and no later than 20 calendar days before commencement of dredging, a survey with accuracy to one-tenth foot that delineates and labels the following: areas to be dredged with overdepth allowances; existing depths; estimated quantities to be dredged to the design depth; and

estimated quantities for overdepth dredging. **All surveys shall be signed by the permittee to certify their accuracy. Please include the Corps file number.**

- c. Solid Debris Management Plan: Submit no earlier than 60 calendar days and no later than 20 calendar days before commencement of work, a plan which describes measures to ensure that solid debris generated during any dredging operation is retained and properly disposed in areas not under Corps jurisdiction. **At a minimum, the plan shall include the following: source and expected type of debris; debris retrieval method; Corps file number; disposal method and site; schedule of disposal operations; and debris containment method to be used, if floatable debris is involved. (Please note that failure to provide all of the information requested in a, b, and c above may result in delays to your project. When your Dredge Operation Plan has been approved, you will receive a written authorization to commence with your project.)**
- d. Post-Dredge Survey: Submit, **within 30 days of the last disposal activity** ("last" is defined as that activity after which no further activity occurs for 15 calendar days), a survey with accuracy to one-tenth foot that delineates and labels the areas dredged and provides the dredged depths. **Also, include the Corps file number, actual dates of dredging commencement and completion, actual quantities dredged for the project to the design depth, and actual quantities of overdepth.** The permittee shall substantiate the total quantity dredged by including calculations used to determine the volume difference (in cubic yards) between the Pre- and Post-Dredge Surveys and **explain any variation in quantities greater than 15% beyond estimated quantities or dredging deeper than is permitted (design plus overdepth allowance).** **All surveys shall be accomplished by a licensed surveyor and signed by the permittee to certify their accuracy.** A copy of the post dredge survey should be sent to the National Ocean Service for chart updating:  
NOAA/National Ocean Service,  
Nautical Data Branch  
N/CS26, SSMC3, Room 7230  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282.
- e. **The permittee or dredge contractor shall inform this office when: 1) a dredge episode actually commences, 2) when dredging is suspended (suspension is when the dredge contractor leaves the dredge site for more than 48 hours for reasons other than equipment maintenance), 3) when dredging is restarted, and 4) when dredging is complete. Each notification should include the Corps file number.** Details for submitting these notifications will be provided in the verification letter (to whom and how).

### **39. Commercial and Institutional Developments:**

1. When discharge of fill results in the replacement of wetlands or waters of the U.S. with impervious surfaces, to ensure that the authorized activity does not result in more than minimal degradation of water quality (in accordance with General Condition 25), the commercial and institutional development shall incorporate low impact development concepts (e.g. native landscaping, bioretention and infiltration techniques, and constructed green spaces) to the extent practicable. A description of the low impact development concepts proposed in the project shall be included with the permit application. More information including low impact development concepts and definitions is available at the following website: <http://www.epa.gov/owow/NPS/lid/>.
2. Use of this NWP is prohibited within the San Francisco Bay diked baylands (undeveloped areas currently behind levees that are within the historic margin of the Bay. Diked historic baylands are those areas on the Nichols and Wright map (see figure 1) below the 5-foot

contour line, National Geodetic Vertical Datum (NGVD) (see Nichols, D.R., and N. A. Wright. 1971. Preliminary map of historic margins of marshland, San Francisco Bay, California. U.S. Geological Survey Open File Map)).

**40. AGRICULTURAL ACTIVITIES:**

1. This NWP does not authorize discharge of fill into the channel of a perennial or intermittent watercourse that could impede high flows. This limitation does not apply to watercourses that flow only when there is an irregular, extraordinary flood event.

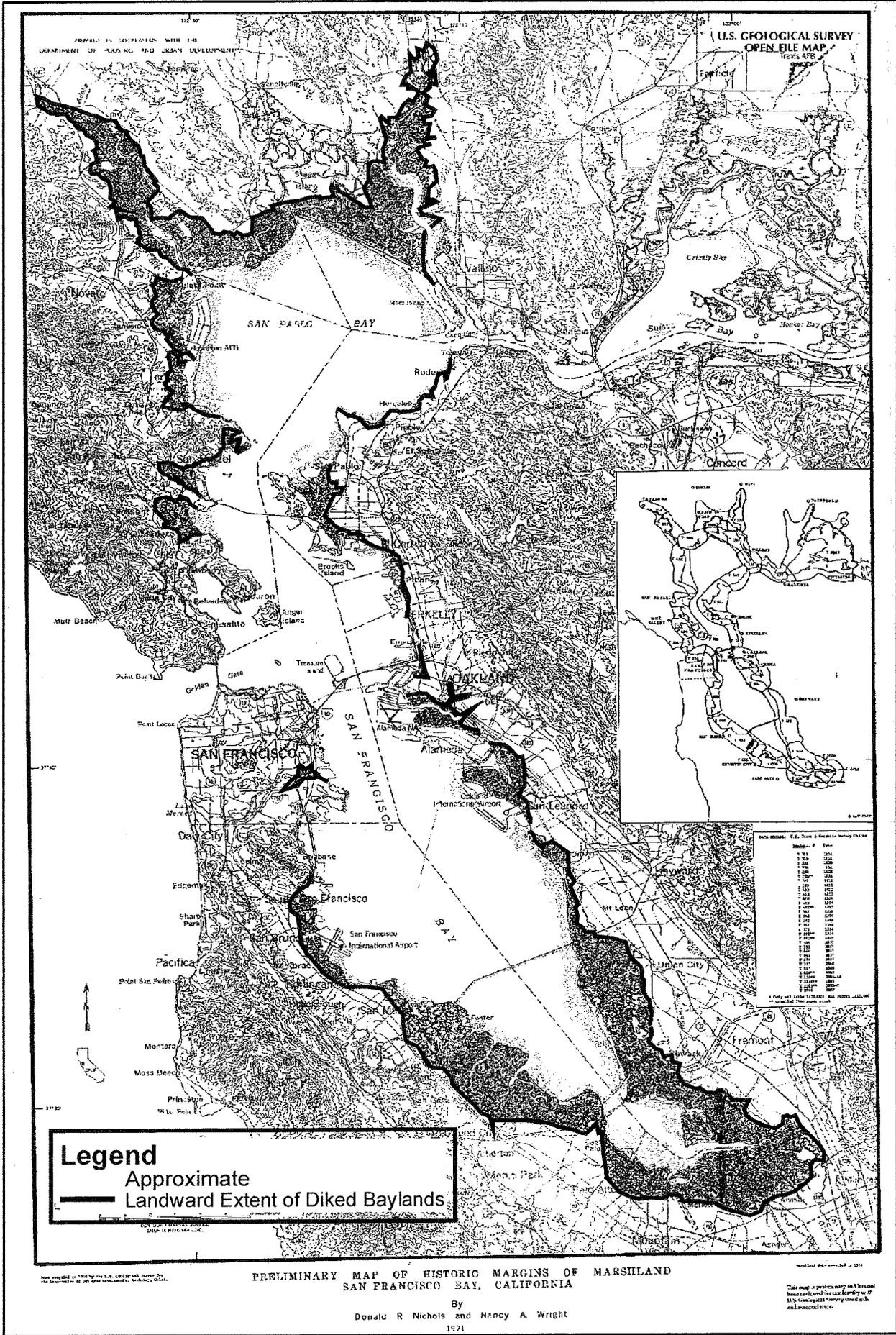
**41. RESHAPING EXISTING DRAINAGE DITCHES:**

1. Compensatory mitigation may be required if the Corps determines there will be a detrimental impact to aquatic habitat.
2. Notification to the Corps (in accordance with General Condition 31) is required if the applicant proposes to re-grade, discharge, install channel lining, or redeposit fill material.
3. The notification to the Corps (in accordance with General Condition 31) shall include an explanation of the project's benefit to water quality and a statement demonstrating the need for the project.

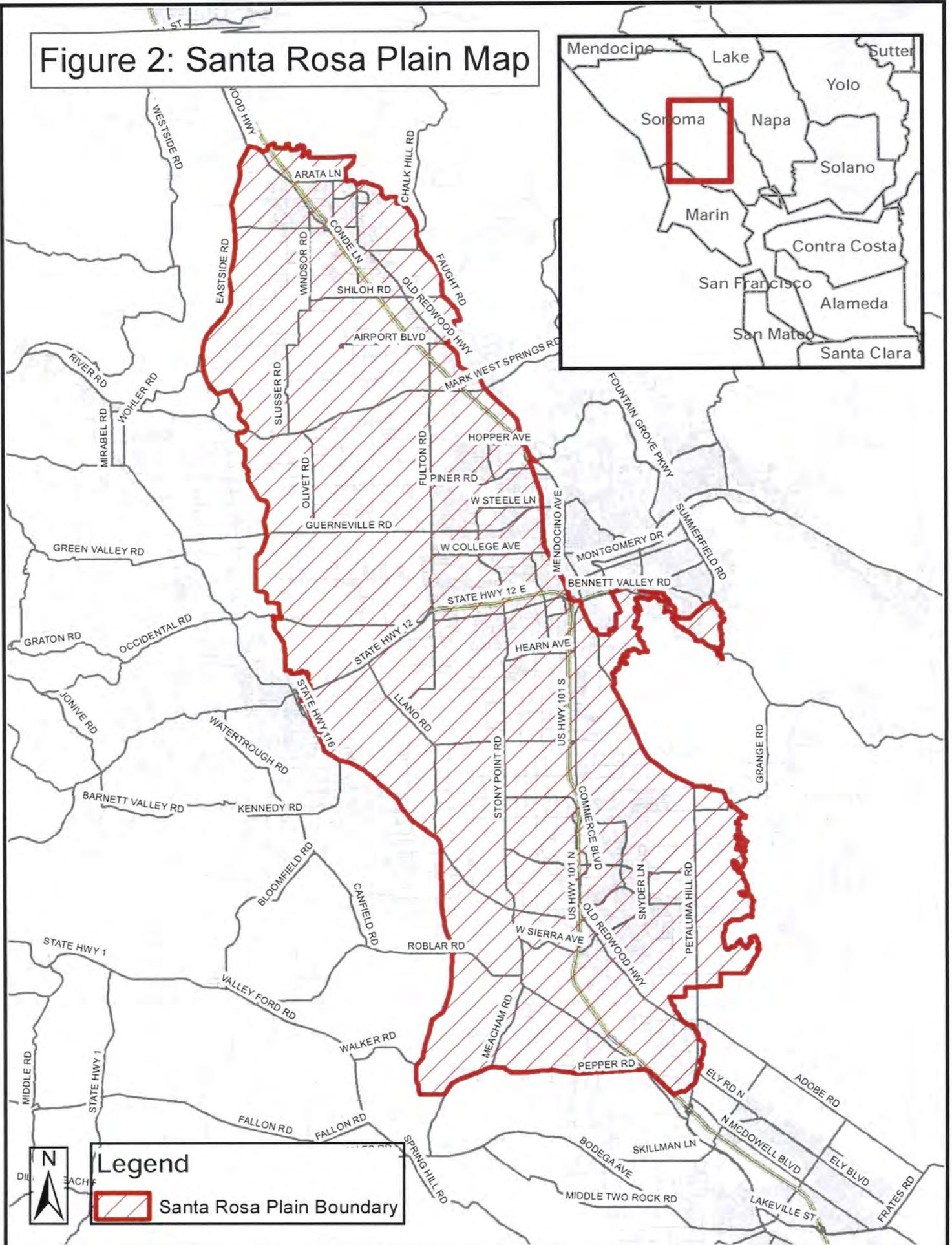
**42. RECREATIONAL FACILITIES:**

1. If buildings are proposed to be built in waters of the United States, including wetlands, the applicant must demonstrate that there is no on-site practicable alternative that is less environmentally damaging as defined by the Section 404(b)(1) guidelines.

Figure 1: Map of Diked Baylands



# Figure 2: Santa Rosa Plain Map



Enclosure 5

Permittee: California Department of Transportation, District 1

File Number: 2014-00435N

**Certification of Compliance  
for  
Nationwide Permit**

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of the Nationwide Permit."

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PERMITTEE

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DATE

Return to:

Carol Heidsiek  
U.S. Army Corps of Engineers  
San Francisco District  
Eureka Field Office, CESP-N-R-N-EK  
601 Startare Drive, Box 14  
Eureka, California 95501

# U.S. Army Corps of Engineers South Pacific Division



## Nationwide Permit Pre-Construction Notification (PCN) Form

This form integrates requirements of the U.S. Army Corps of Engineers Nationwide Permit Program within the South Pacific Division (SPD), including General and Regional Conditions. You MUST fill out all boxes related to the work being done. Fillable boxes in this form expand if additional space is needed.

<b>Box 1 Project Name</b> Lupton Curve Improvement Project			
<b>Applicant Name</b> Kim Floyd		<b>Applicant Title</b> Project Manager	
<b>Applicant Company, Agency, etc.</b> California Department of Transportation (Caltrans)		Applicant's internal tracking number (if any) EA: 01-0A520	
Mailing Address 1656 Union St Eureka, CA 95501			
Work Phone with area code 707-441-5739	Mobile Phone with area code	Home Phone with area code	Fax # with area code 707-441-5775
E-mail Address kim.floyd@dot.ca.gov	Relationship of applicant to property: <input type="checkbox"/> Owner <input type="checkbox"/> Purchaser <input type="checkbox"/> Lessee <input checked="" type="checkbox"/> Other:		
Application is hereby made for verification that subject regulated activities associated with subject project qualify for authorization under a U.S. Army Corps of Engineers Nationwide Permit or Permits as described herein. I certify that I am familiar with the information contained in this application and, that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agency to which this application is made the right to enter the above-described location to inspect the proposed, in-progress or completed work. I agree to start work <u>only</u> after all necessary permits have been received and to comply with all terms and conditions of the authorization.			
Signature of applicant <i>Kim Floyd</i>			Date (mm/dd/yyyy) 12/2/14

If anyone other than the person named as the Applicant will be in contact with the U.S. Army Corps of Engineers representing the Applicant regarding this project during the permit process, Box 2 MUST be filled out.

<b>Box 2 Authorized Agent/Operator Name</b> Denise Walker-Brown		<b>Agent/Operator Title</b> Associate Environmental Planner (Biologist)	
<b>Agent/Operator Company, Agency, etc.</b> Caltrans		E-mail Address denise.walker-brown@dot.ca.gov	
Mailing Address 1656 Union St Eureka, CA 95501			
Work Phone with area code 707-441-4684	Mobile Phone with area code	Home Phone with area code	Fax # with area code 707-441-5775
I hereby authorize the above named authorized agent to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. I understand that I am bound by the actions of my agent and I understand that if a federal or state permit is issued, I, or my agent, must sign the permit.			
Signature of applicant			Date (mm/dd/yyyy)
I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate.			
Signature of authorized agent			Date (mm/dd/yyyy)

<b>Box 3 Name of Property Owner(s), if other than Applicant:</b>		
<b>Owner Title</b>	<b>Owner Company, Agency, etc.</b>	
Mailing Address		
Work Phone with area code	Mobile Phone with area code	Home Phone with area code

<b>Box 4 Name of Contractor(s) (if known):</b>		
<b>Contractor Title</b>	<b>Contractor Company, Agency, etc.</b>	
Mailing Address		
Work Phone with area code	Mobile Phone with area code	Home Phone with area code

<b>Box 5 Site Number <u>1</u> of <u>1</u>. Project location(s), including street address, city, county, state, zip code where proposed activity will occur:</b>	
State Route 299, Post Mile R21.1 to R21.5, Blue Lake, Humboldt County, CA, 95525	
<b>Name of Waterbody(ies)</b> (if known, otherwise enter "an unnamed tributary to"): unnamed tributaries Tributary to what named, downstream waterbody: Lupton Creek, Redwood Creek	
Latitude & Longitude (D/M/S, DD, or UTM with Zone): 40.906158, -123.825775	Section, Township, Range: Township 6 North, Range 3 East, Section 15 Lord-Ellis Summit
County Assessor Parcel Number (Include County name): 316-291-028	USGS Quadrangle map name: Lord-Ellis Summit
Watershed (HUC and watershed name <sup>1</sup> ): <sup>1</sup> <a href="http://water.usgs.gov/GIS/regions.html">http://water.usgs.gov/GIS/regions.html</a> HUC:18010102, Redwood Creek	Size of permit area or project boundary: acres 3.55 linear feet
Directions to the project location and other location descriptions, if known: From Eureka, CA/Travel on HWY 101 north, approx. 13 miles/Take exit 716A to merge onto State Route (SR) 299 east toward Weaverville/Redding On SR 299 travel approx 16 miles east of Blue Lake and 0.5 to 0.9 miles east of Chezem Road to Post Mile R21.1	
Access limitations or restrictions (if any): Access caution should be taken due to vehicle traffic	

<b>Box 6 Nature of Activity</b> (Description of the project, include all features): See Attachment 1 for detailed project description
<b>Project Purpose</b> (Description of the reason or purpose of the project): Purpose of the project is to address a high incidence of collisions within the project limits. Final goal of this project is to improve safety at this location by improving the roadway.
<b>Reason(s) for Discharge into Waters of the United States</b> (Description of why dredged and/or fill material needs to be placed in Waters of the United States): Culvert abandon and replacement (Location 3b &c), Rock Slope Protection (Location 3e), underdrain replacement, remove inlet and downdrain

**Proposed discharge of dredge and/or fill material.** Indicate total surface area in **acres** and **linear feet** (where appropriate) of the proposed impacts to Waters of the United States, indicate water body type (tidal wetland, non-tidal wetland, vernal pool, riparian wetland, ephemeral stream/river, intermittent stream/river, perennial stream/river, pond/lake, vegetated shallows, bay/harbor, lagoon, ocean, etc.), and identify the impact(s) as permanent and/or temporary for each requested Nationwide Permit<sup>1</sup>:

<sup>1</sup> Enter the intended permit number(s). See Nationwide Permit regulations for permit numbers and qualification information:  
<http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/NationwidePermits.aspx>

Water Body Type	Requested NWP Number: 14				Requested NWP Number:				Requested NWP Number:			
	Permanent		Temporary		Permanent		Temporary		Permanent		Temporary	
	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length
Ephemeral Drainage (L11D-ED)	0.0012	80										
Intermittent Stream (L11G-ID)	0.009	26	0.017	125								
Ephemeral Stream (12A-ED)			0.009	321.2								
<b>Total:</b>	<b>0.021</b>	<b>106</b>	<b>0.026</b>	<b>446.2</b>								

Total volume (in cubic yards) and type(s) of material proposed to be dredged from or discharged into Waters of the United States:

Material Type	Total Volume Dredged	Total Volume Discharged
Rock Slope Protection (RSP)		34.7
Clean spawning gravel		
River rock		
Soil/Dirt/Silt/Sand/Mud		305.85
Concrete		
Structure		
Stumps/Root wads		
Other:		
<b>Total:</b>		<b>340.55</b>

Activity requires a written waiver to exceed specified limits of the Nationwide Permit?  Yes  No  
 If yes, provide Nationwide Permit number and name, limit to be exceeded, and rationale for each requested waiver:

Activity will result in the loss of greater than 1/2-acre of Waters of the United States?  Yes  No  
 If yes, provide an electronic copy (compact disc) or multiple hard copies (7) of the complete PCN for appropriate Federal and State Pre-discharge Notification (See General Condition #31, Pre-construction Notification, Agency Coordination, Section 2 and 4):

Describe direct and indirect effects caused by the activity (General Condition #31, District Engineer's Decision):  
 Direct Effect: RSP placement in stream channel to reduce erosion & movement of soil and sediment from project activities/Indirect effect: Removal of riparian habitat past the OHW

Potential cumulative impacts of proposed activity(if any): Six other Caltrans projects within the Redwood Creek Watershed within a five year time frame.

Drawings and figures (see each U.S. Army Corps of Engineers District's Minimum Standards Guidance):

Vicinity map:  Attached (or mail copy separately if applying electronically)

To-scale Plan view drawing(s):  Attached (or mail copy separately if applying electronically)

To-scale elevation and/or Cross Section drawing(s):  Attached (or mail copy separately if applying electronically)

Numbered and dated pre-project color photographs:  Attached (or mail copy separately if applying electronically)

Sketch drawing(s) or map(s):  Attached (or mail copy separately if applying electronically)

Has a wetlands/waters of the U.S. delineation been completed?

Yes, Attached<sup>2</sup> (or mail copy separately if applying electronically)  No

If a delineation has been completed, has it been verified in writing by the Corps?

Yes, Date of preliminary or approved jurisdictional determination (mm/dd/yyyy):

Corps file number:

No

<sup>2</sup>If available, provide ESRI shapefiles (NAD83) for delineated waters

For proposed discharges of dredged material resulting from navigation dredging into inland or near-shore waters of the U.S. (including beach nourishment), please attach<sup>3</sup> a proposed Sampling and Analysis Plan (SAP) prepared according to Inland Testing Manual (ITM) guidelines (including Tier I information, if available), or if disposed offshore, a proposed SAP prepared according to the Ocean Disposal Manual.

<sup>3</sup>Or mail copy separately if applying electronically

Is any portion of the work already complete?  YES  NO

If yes, describe the work:

#### Box 7 Authority:

Is Section 10 of the Rivers and Harbors Act applicable?:  YES  NO

Is Section 404 of the Clean Water Act applicable?:  YES  NO

Is the project located on U.S. Army Corps of Engineers property or easement?:  YES  NO

If yes, has Section 408 process been initiated?:  YES  NO

Would the project affect a U.S. Army Corps of Engineers structure?:  YES  NO

If yes, has Section 408 process been initiated?:  YES  NO

Is the project located on other Federal Lands (USFS, BLM, etc.)?:  YES  NO

Is the project located on Tribal Lands?:  YES  NO

**Box 8** Is the discharge of fill or dredged material for which Section 10/404 authorization is sought part of a larger plan of development?:  YES  NO

If discharge of fill or dredged material is part of development, name and proposed schedule for that larger development (start-up, duration, and completion dates):

Location of larger development (if discharge of fill or dredged material is part of a plan of development, a map of suitable quality and detail of the entire project site should be included):

#### Box 9 Measures taken to avoid and minimize impacts to waters of the United States:

See Attachment 1 for avoidance and minimization measures

**Box 11 Threatened or Endangered Species and Essential Fish Habitat**

Please list any federally-listed (or proposed) threatened or endangered species or critical habitat (or proposed critical habitat) within the project area (include scientific names (e.g., Genus species), if known):

- a. Northern Spotted Owl (*Strix occidentalis*)
- b. See CD for Programmatic Consultations
- c. Fisher, West Coast DPS (*Martes pennanti*)
- d.
- e. See Attachment 1: Box 11 for more details.
- f.

Have surveys, using U.S. Fish and Wildlife Service/NOAA Fisheries protocols, been conducted?

- Yes, Report attached (or mail copy separately if applying electronically)  No

Has a biological assessment or evaluation been completed for the proposed project?

- Yes, Report attached (or mail copy separately if applying electronically)  Not attached

Has Section 7 consultation been initiated by another federal agency?

- Yes, Initiation letter attached (or mail copy separately if applying electronically)  No

Has Section 10 consultation been initiated for the proposed project?

- Yes, Initiation letter attached (or mail copy separately if applying electronically)  No

Has the USFWS/NOAA Fisheries issued a Biological Opinion?

- Yes, Attached (or mail copy separately if applying electronically)  No

If yes, list date Opinion was issued (m/d/yyyy): 10/18/2013

Is the project located within Essential Fish Habitat<sup>1</sup> (EFH)?  Yes  No

<sup>1</sup>[http://swr.nmfs.noaa.gov/hcd/HCD\\_webContent/EFH/index\\_EFH.htm](http://swr.nmfs.noaa.gov/hcd/HCD_webContent/EFH/index_EFH.htm)

**Box 12 Historic Properties and Cultural Resources:**

Are any cultural resources of any type known to exist on-site?  Yes  No

Please list any known historic properties listed, or eligible for listing, on the National Register of Historic Places:

- a.
- b.
- c.
- d.
- e.
- f.

Has a cultural resource records search been conducted?

- Yes, Report attached (or mail copy separately if applying electronically)  No

Has a cultural resource pedestrian survey been conducted for the site?

- Yes, Report attached (or mail copy separately if applying electronically)  No

Has another federal agency been designated the lead federal agency for Section 106 consultation?

- Yes, Designation letter/email attached (or mail copy separately if applying electronically)  No

Has Section 106 consultation been initiated by another federal agency?

- Yes, Initiation letter attached (or mail copy separately if applying electronically)  No

Has a Section 106 MOA or PA been signed by another federal agency and the SHPO?

- Yes, Attached (or mail copy separately if applying electronically)  No

If yes, list date MOA or PA was signed (m/d/yyyy): 1/22/2014

**Box 10 Proposed Compensatory Mitigation** related to fill/excavation and dredge activities. Indicate in **acres and linear feet** (where appropriate) the total quantity of Waters of the United States proposed to be created, restored, enhanced and/or preserved for purposes of providing compensatory mitigation. Indicate water body type (tidal wetland, non-tidal wetland, vernal pool, riparian wetland, ephemeral stream/river, intermittent stream/river, perennial stream/river, pond/lake, vegetated shallows, bay/harbor, lagoon, ocean, etc.) or non-jurisdictional (uplands<sup>1</sup>). Indicate mitigation type (permittee-responsible on-site/off-site, mitigation bank, or in-lieu fee program). If the mitigation is purchase of credits from a mitigation bank, indicate the bank to be used, if known:

<sup>1</sup> For uplands, please indicate if designed as an upland buffer.

Site Number	Water Body Type	Created		Restored		Enhanced		Preserved		Mitigation Type
		Area	Length	Area	Length	Area	Length	Area	Length	
Total:										

If no mitigation is proposed, provide detailed explanation of why no mitigation would be necessary: There will be no permanent impacts to wetlands or waters of the U.S.

If permittee-responsible mitigation is proposed, provide justification for not utilizing a Corps-approved mitigation bank or in-lieu fee program:

Has a draft/conceptual mitigation plan been prepared in accordance with the April 10, 2008, Final Mitigation Rule<sup>2</sup> and District Guidelines<sup>3,4,5</sup>?

<sup>2</sup>[http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig\\_info.aspx](http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig_info.aspx)

<sup>3</sup>**Sacramento and San Francisco Districts**-[http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/Mitigation\\_Monitoring\\_Guidelines.pdf](http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/Mitigation_Monitoring_Guidelines.pdf)

<sup>4</sup>**Los Angeles District**-[http://www.spl.usace.army.mil/regulatory/mmg\\_2004.pdf](http://www.spl.usace.army.mil/regulatory/mmg_2004.pdf)

<sup>5</sup>**Albuquerque District**-[http://www.spa.usace.army.mil/reg/mitigation/SPA%20Final%20Mitigation%20Guidelines\\_OLD.pdf](http://www.spa.usace.army.mil/reg/mitigation/SPA%20Final%20Mitigation%20Guidelines_OLD.pdf)

Yes, Attached (or mail copy separately if applying electronically)  No

If no, a mitigation plan must be prepared and submitted, if applicable.

Mitigation site(s) Latitude & Longitude (D/M/S, DD, or UTM with Zone):	USGS Quadrangle map name(s):
Assessor Parcel Number(s):	Section(s), Township(s), Range(s):
Other location descriptions, if known:	
Directions to the mitigation location(s):	

**Box 13 Section 401 Water Quality Certification:**

Applying for certification?  Yes, Attached (or mail copy separately if applying electronically)  No  
 Not applicable (projects proposed for authorization under RHA Section 10 only)

Certification issued (including Programmatically)?

Yes, Attached (or mail copy separately if applying electronically)  No

Certification waived?  Yes, Attached (or mail copy separately if applying electronically)  No

Certification denied?  Yes, Attached (or mail copy separately if applying electronically)  No

Exempted activity?  Yes  No

Agency concurrence?  Yes, Attached  No

If exempt, state why:

**Box 14 Coastal Zone Management Act:**

Is the project located within the Coastal Zone?  Yes  No (If no, proceed to Box 15)

If yes, applying for a coastal commission-approved Coastal Development Permit?

Yes, Attached (or mail copy separately if applying electronically)  No

If no, applying for separate CZMA-consistency certification?

Yes, Attached (or mail copy separately if applying electronically)  No

Permit/Consistency issued?  Yes, Attached (or mail copy separately if applying electronically)  No

Exempt?  Yes  No

Agency concurrence?  Yes, Attached  No

If exempt, state why:

**Box 15** List of other certifications or approvals/denials received from other federal, state, or local agencies for work described in this application:

Agency	Type of Approval <sup>4</sup>	Identification Number	Date Applied	Date Approved	Date Denied
CDFW	1600 STAA	Pending	12/21/2014		

<sup>4</sup>Would include but is not restricted to zoning, building, and flood plain permits

## Nationwide Permit General Conditions (GC) checklist:

(<http://www.gpo.gov/fdsys/pkg/FR-2012-02-21/pdf/2012-3687.pdf>)

Check	General Condition	Rationale for compliance with General Condition
<input type="checkbox"/>	1. Navigation	
<input checked="" type="checkbox"/>	2. Aquatic Life Movements	work conducted during low or no flow, no permanent obstruction to aquatic life movements
<input type="checkbox"/>	3. Spawning Areas	
<input type="checkbox"/>	4. Migratory Bird Breeding Areas	
<input type="checkbox"/>	5. Shellfish Beds	
<input type="checkbox"/>	6. Suitable Material	
<input type="checkbox"/>	7. Water Supply Intakes	
<input type="checkbox"/>	8. Adverse Effects from Impoundments	
<input type="checkbox"/>	9. Management of Water Flows	
<input type="checkbox"/>	10. Fills Within 100-Year Floodplains	
<input type="checkbox"/>	11. Equipment	
<input checked="" type="checkbox"/>	12. Soil Erosion and Sediment Controls	Implementation of BMPs
<input type="checkbox"/>	13. Removal of Temporary Fills	
<input type="checkbox"/>	14. Proper Maintenance	
<input type="checkbox"/>	15. Single and Complete Project	
<input type="checkbox"/>	16. Wild and Scenic Rivers	
<input type="checkbox"/>	17. Tribal Rights	
<input checked="" type="checkbox"/>	18. Endangered Species	See Box 11 above.
<input checked="" type="checkbox"/>	19. Migratory Bird and Bald and Golden Eagle Permits	Vegetation will be removed according to avoidance and minimization measures. See Attachment 1 Box 11 details for minimization measures
<input type="checkbox"/>	20. Historic Properties	See Box 12 above.
<input checked="" type="checkbox"/>	21. Discovery of Previously Unknown Remains and Artifacts	Notification of District Engineer will occur if any unknown remains or artifacts are discovered during construction.
<input type="checkbox"/>	22. Designated Critical Resource Waters	
<input type="checkbox"/>	23. Mitigation	See Box 10 above.
<input type="checkbox"/>	24. Safety of Impoundment Structures	
<input type="checkbox"/>	25. Water Quality	See Box 13 above.
<input type="checkbox"/>	26. Coastal Zone Management	See Box 14 above.
<input type="checkbox"/>	27. Regional and Case-by-Case Conditions	
<input type="checkbox"/>	28. Use of Multiple Nationwide Permits	
<input type="checkbox"/>	29. Transfer of Nationwide Permit Verifications	
<input checked="" type="checkbox"/>	30. Compliance Certification	A certification letter of project completion will be mailed to the district Engineer
<input checked="" type="checkbox"/>	31. Pre-Construction Notification	

## San Francisco District (SPN) in California:

### A. General Regional Conditions that apply to all NWPs in the Sacramento, San Francisco, and Los Angeles Districts:

1. Is pre-construction notification (PCN) required?  Yes  No

If yes, then in accordance with General Condition 31, the appropriate U.S. Army Corps of Engineers (Corps) District shall be notified using either the South Pacific Division PCN Checklist or a signed application form (ENG Form 4345) with an attachment providing information on compliance with all of the General and Regional Conditions. The PCN Checklist and application form are available at:

<http://www.spn.usace.army.mil/regulatory/index.html>. In addition, the PCN shall include:

- a. A written statement describing how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States; and
- b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity as well as the location of delineated waters of the U.S. on the site. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and area (in acres) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the mean high water mark and high tide line, should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation. All drawings for projects located within the boundaries of the Los Angeles District shall comply with the most current version of the *Map and Drawing Standards for the Los Angeles District Regulatory Division* (available on the Los Angeles District Regulatory Division website at: [www.spl.usace.army.mil/regulatory/](http://www.spl.usace.army.mil/regulatory/)); and
- c. Numbered and dated pre-project color photographs showing a representative sample of waters proposed to be impacted on the project site, and all waters proposed to be avoided on and immediately adjacent to the project site. The compass angle and position of each photograph shall be documented on the plan-view drawing required in subpart b of this regional condition.

If yes, is the PCN attached?  Yes  No  Not Applicable

2. Is the activity located in an area designated as Essential Fish Habitat (EFH) by the Pacific Fishery Management Council (i.e., all tidally influenced areas - Federal Register dated March 12, 2007 (72 FR 11092)).  
 Yes  No

If yes, notification pursuant to General Condition 31 is required. The PCN shall include an EFH assessment and extent of proposed impacts to EFH. Examples of EFH habitat assessments can be found at:  
<http://www.swr.noaa.gov/efh.htm>.

3. Are any other Federal agencies involved?  Yes  No

If yes, for activities in which the Corps designates another Federal agency as the lead for compliance with Section 7 of the Endangered Species Act (ESA) of 1973 as amended (50 CFR Part 402.07), Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act (EFH) (50 CFR 600.920(b)) and/or Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800.2(a)(2)), the lead Federal agency shall provide all relevant documentation to the appropriate Corps demonstrating any previous consultation efforts, as it pertains to the Corps Regulatory permit area (for Section 7 and EFH compliance) and the Corps Regulatory area of potential effect (APE) (for Section 106 compliance). For activities requiring a PCN, this information shall be submitted with the PCN. If the Corps does not designate another Federal agency as the lead for ESA, EFH and/or NHPA, the Corps will initiate consultation for compliance, as appropriate.

4. Is the project located within a waterbody supporting any federally-listed threatened or endangered fish species?  
 Yes  No  
If yes, unless determined to be impracticable by the Corps, the permittee shall design all road crossings to ensure that the passage and/or spawning of fish is not hindered. In these areas, the permittee shall employ bridge designs that span the stream or river, including pier- or pile-supported spans, or designs that use a bottomless arch culvert with a natural streambed.

5. Will the permittee complete the construction of any compensatory mitigation required by special condition(s) of the NWP verification before or concurrent with commencement of construction of the authorized activity?  
 Yes  No

If no, then the proposed activity may not be in compliance with Regional Condition 10, unless construction of compensatory mitigation prior to or concurrent with commencement of construction of the authorized activity is specifically determined impracticable by the Corps.

Will the mitigation involve use of a mitigation bank or in-lieu fee program?  Yes  No

If yes, then the permittee shall submit proof to the Corps of payment prior to commencement of construction of the authorized activity.

6. Will the activity result in the loss of greater than 300 linear feet of intermittent and/or ephemeral streams for NWPs 29, 39, 40, 42, 43, 44, 51, and 52 or result in the loss of greater than 500 linear feet along the bank for NWP 13?  Yes  No

If yes, is the applicant requesting a waiver of the linear foot limit?  Yes  No  Not Applicable

If yes, then the request shall include the following:

- a. A narrative description of the stream. This should include known information on: volume and duration of flow; the approximate length, width, and depth of the water body and characters observed associated with an Ordinary High Water Mark (e.g. bed and bank, wrack line, or scour marks); a description of the adjacent vegetation community and a statement regarding the wetland status of the associated vegetation community (i.e. wetland, non-wetland); surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information; and
- b. An analysis of the proposed impacts to the waterbody in accordance with General Condition 31 and Regional Condition 3; and
- c. Measures taken to avoid and minimize losses, including other methods of constructing the proposed project; and
- d. A compensatory mitigation plan describing how the unavoidable losses are proposed to be compensated, in accordance with 33 CFR Part 332.

#### **B. SPN Regional Conditions to be applied across the entire San Francisco District:**

1. Is the project located within the **San Francisco Bay diked baylands** (undeveloped areas currently behind levees that are within the historic margin of the Bay)? Diked historic baylands are those areas on the Nichols and Wright map below the 5-foot contour line, National Geodetic Vertical Datum (NGVD) (see Nichols, D.R., and N. A. Wright. 1971. Preliminary map of historic margins of marshland, San Francisco Bay, California. U.S. Geological Survey Open File Map, Figure 1 on the Public Notice for Federal Register Notice Announcing the Reissuance of the Nationwide Permits and the San Francisco District Regional Conditions: <http://www.spn.usace.army.mil/regulatory/nwp/2012/final%20NWPs.pdf>)?  Yes  No

If yes, notification pursuant to General Condition 31 is required. The PCN must include an explanation of how avoidance and minimization of losses of waters or wetlands are taken into consideration to the maximum extent practicable (see General Condition 23(a)).

2. Is the project located within the **Santa Rosa Plain** (<http://www.spn.usace.army.mil/regulatory/srp/srpmmap.pdf>)?  
 Yes  No

If yes, notification pursuant to General Condition 31 is required. The PCN must include an explanation of how avoidance and minimization of losses of waters or wetlands are taken into consideration to the maximum extent practicable (see General Condition 23(a)).

3. Will the proposed project impact **Eelgrass Beds**?  Yes  No

If yes, notification pursuant to General Condition 31 is required. The PCN must include a compensatory mitigation plan, habitat assessment, and extent of proposed-project impacts to Eelgrass Beds.

### C. SPN Regional Conditions to be applied to specific Nationwide Permits (NWP):

#### NWP 3:

Will excavation equipment operate from an upland site?  Yes  No  
If no, an explanation as to need to place equipment in waters of the U.S. must be included in the PCN.

Will work occur within a special aquatic site?  Yes  No  
If yes, an explanation why the special aquatic site cannot be avoided, as well as impact minimization measures, must be included in the PCN.

#### NWP 11:

Are temporary structures proposed in wetlands or vegetated shallow water areas?  Yes  No  
If yes, notification pursuant to General Condition 31 is required. The PCN shall include the type of habitat and aerial extent affected by the structure(s).

#### NWP 12:

Will excess material removed from any trenching that is not used for backfilling of the trench be disposed of at an upland site?  Yes  No

Does the proposed project include construction of substation facilities?  Yes  No  
If yes, NWP 12 cannot be used to authorize this project.

#### NWP 13:

Will more than 300 linear feet of bank be stabilized?  Yes  No  
If yes, notification pursuant to General Condition 31 is required. The PCN shall address the effect of the bank stabilization on the stability of the opposite side of the waterway's bank, and on the adjacent property upstream and downstream of the activity.

Will wetland vegetation or submerged, rooted, aquatic plants be removed from an area greater than 0.1 acre or 300 linear feet?  Yes  No  
If yes, notification pursuant to General Condition 31 is required and shall include vegetation type and extent of removal.

Will excess material excavated from a toe trench be disposed of in an upland location?  Yes  No  
If yes, the PCN shall include the location of the disposal site.

Will additional fill extend beyond the original shoreline in excess of one cubic yard per running foot?  
 Yes  No

Will bank stabilization incorporate structures or modifications beneficial to fish and wildlife?  Yes  No  
If no, the applicant shall demonstrate why the structures or modifications were not considered practicable.

NWP 14:

Will the proposed project fill greater than 300 linear feet of a jurisdictional waterway?  Yes  No  
If yes, notification pursuant to General Condition 31 is required. The PCN shall address the effect of the activity on the stability of the opposite side of the waterway's bank, and on the adjacent property upstream and downstream of the activity.

Is the proposed project to construct taxiways or runways?  Yes  No  
If yes, NWP 14 cannot be used to authorize this project.

Has this NWP been used to authorize previous project segments within the same linear transportation project?  
 Yes  No

If yes, justification must be provided demonstrating that the cumulative impacts of the proposed and previously authorized project segments do not result in more than minimal impacts to the aquatic system.

Has any new or additional bank stabilization required for the crossing incorporated structures or modifications beneficial to fish and wildlife?  Yes  No

If no, the applicant shall demonstrate why they were not considered practicable. Bottomless and embedded culverts are encouraged over traditional culvert stream crossings.

NWP 23:

Use of this NWP requires notification pursuant to General Condition 31. Please refer to Regional Conditions for additional information on PCN requirements.

NWP 27:

The PCN shall include documentation of a review of the project's impacts to demonstrate that at the conclusion of work the project would result in a net increase of aquatic function. The documentation must also include a review of the project's impacts on adjacent properties or structures and must also discuss cumulative impacts associated with the project.

NWP 29:

Will the activity result in the replacement of wetlands or waters of the U.S. with impervious surfaces?  
 Yes  No

If yes, the residential development shall incorporate low impact development concepts to the extent practicable, and a description of those concepts proposed shall be included with the PCN. Additional information on concepts and definitions are available at the following website: <http://www.epa.gov/owow/NPS/lid>

Is the proposed project located within the San Francisco Bay diked baylands (Figure 1 on the Public Notice for Federal Register Notice Announcing the Reissuance of the Nationwide Permits and the San Francisco District Regional Conditions: <http://www.spn.usace.army.mil/regulatory/nwp/2012/final%20NWPs.pdf>)?

Yes  No

If yes, NWP 29 cannot be used to authorize this project.

NWP 33:

Are access roads designed to be the minimum width necessary?  Yes  No  Not Applicable (N/A)

Are access roads designed to minimize changes to the hydraulic flow characteristics of waterways and degradation of water quality for project implementation?  Yes  No  N/A

Will the road(s) be properly stabilized and maintained during and after construction?  Yes  No  N/A

Will fill be placed to minimize encroachment of equipment within waters of the U.S?  Yes  No  N/A

Will vegetative disturbance be minimized?  Yes  No  N/A

Will borrow material be taken from an upland source, where feasible?  Yes  No  N/A

If no to any of the above, NWP 33 cannot be used to authorize the project.

Will the proposed project result in stream channelization?  Yes  No  N/A

If yes, NWP 33 cannot be used to authorize the project.

NWP 35:

Use of this NWP requires notification pursuant to General Condition 31. Please refer to Regional Conditions for additional information on PCN requirements.

NWP 39

Will the activity result in the replacement of wetlands or waters of the U.S. with impervious surfaces?

Yes  No

If yes, the commercial or institutional development shall incorporate low impact development concepts to the extent practicable, and a description of those concepts proposed shall be included with the PCN. Additional information on concepts and definitions are available at the following website: <http://www.epa.gov/owow/NPS/lid>

Is the proposed project located within the San Francisco Bay diked baylands (Figure 1 on the Public Notice for Federal Register Notice Announcing the Reissuance of the Nationwide Permits and the San Francisco District Regional Conditions: <http://www.spn.usace.army.mil/regulatory/nwp/2012/final%20NWPs.pdf>)?

Yes  No

If yes, NWP 39 cannot be used to authorize the project.

NWP 40:

Will work impede flows during high volume events of a perennial or intermittent watercourse?  Yes  No

If yes, NWP 40 can not be used to authorize the project.

NWP 41:

If the Corps determines that there will be a detrimental impact to aquatic habitat, compensatory mitigation may be required.

Will fill material be re-deposited, re-graded, and/or discharged, or will channel lining be installed?

Yes  No

If yes, notification pursuant to General Condition 31 is required. The PCN shall include a statement demonstrating the need for the project and an explanation of the project's benefit to water quality.

NWP 42:

Are buildings proposed in waters of the U.S.?  Yes  No

If yes, the applicant must demonstrate that there is no on-site practicable alternative less environmentally damaging as defined by the Section 404(b)(1) guidelines.



## **WATER QUALITY**

California Regional Water Quality Control Board, North Coast Region

Board Order No. 1B14128WNHU

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North Coast Regional Water Quality Control Board

March 10, 2015

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**In the Matter of**  
**Water Quality Certification**  
**for the**

**California Department of Transportation**  
**State Route 299 Lupton Curve Improvement Project**  
**ECM PIN CW-811395, WDID No. 1B14128WNHU**  
**Caltrans EA No. 01-0A520, EFIS No. 01-0002-0425**

APPLICANT: California Department of Transportation  
RECEIVING WATER: Lupton Creek  
HYDROLOGIC AREA: Lake Prairie Hydrologic Area No. 1107.30  
COUNTY: Humboldt  
FILE NAME: CDOT Highway 299 Lupton Curve Improvement Project

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FINDINGS BY THE EXECUTIVE OFFICER:

1. On December 8, 2014, the North Coast Regional Water Quality Control Board (Regional Water Board) received an application from the California Department of Transportation (Caltrans) requesting Federal Clean Water Act (CWA) section 401, Water Quality Certification (certification) for activities related to the State Route 299 Lupton Curve Improvement Project (Project).
2. **Hydrologic Unit:** The proposed Project would cause disturbances to jurisdictional waters that are tributary to Lupton Creek within the Lake Prairie Hydrologic Area of the Redwood Creek Hydrologic Unit (Basin Plan Hydrologic Planning Area 1107.30).
3. **Public Notice:** The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations, section 3858 on December 31,

2014, and posted information describing the Project on the Regional Water Board's website. No comments were received.

4. **Project Description:** The proposed Project would occur on State Route 299 between post-miles R21.1 and R21.5, approximately 11 miles east of Blue Lake in Humboldt County. The purpose of the Project is to improve safety on a curvilinear segment of State Route 299 with a higher-than-average rate of collisions. The Project involves constructing two retaining walls on either side of the roadway that would provide additional area to accommodate roadway widening. One wall would be an approximately 931 foot-long, 9 foot-high, mechanically stabilized earth wall, embedded into the northern side of the roadway fill section; the other wall would be constructed on the south side and be approximately 178 feet-long, less than three feet-high, and consist of guard railing elements.

The proposed Project also includes drainage modifications including abandonment of an existing roadside drainage inlet and downdrain, replacement of a failing culvert, and underdrain replacement.

5. **Construction Duration:** The Project is expected to be completed within approximately 80 days between June 1 and October 30, 2015.
6. **Permanent Impacts:** Caltrans has determined that the proposed Project would result in approximately 0.009 acres (26 linear feet) of permanent impacts to jurisdictional tributaries of Lupton Creek.
7. **Temporary Impacts:** Caltrans has determined that proposed drainage modifications would result in approximately 0.009 acres of temporary impacts to jurisdictional tributaries of Lupton Creek, as well as 151 linear feet of temporary impacts due to water diversion activities during culvert replacement activities. Project implementation would also result in approximately 0.014 acres of temporary impacts to riparian vegetation.
8. **Mitigation for Project Impacts:** To mitigate for Project impacts, Caltrans has proposed to establish approximately 0.182 acres of riparian habitat within and around three ephemeral tributaries to Lupton Creek, as well as restore 0.014 acres of riparian habitat at the culvert outlet at post-mile R21.40.
9. **Post-Construction Stormwater Treatment:** Project implementation would result in approximately 0.42 acres of new and 0.55 acres of reconstructed impervious surface area. To control roadway pollutants, Caltrans shall install a biofiltration swale with eighteen inches of engineered soil media to treat no less than 1.04 acres of impervious area. Approximately 0.33 acres of impervious area at the northern extent of the Project limits will be constructed to sheetflow onto the existing vegetated slope to the

southeast; however, because this area cannot be maintained by Caltrans, it will not be entered into the Caltrans BMP database.

10. **Disturbed Soil Area:** Project implementation would result in greater than one acre of disturbed soil area. Caltrans shall apply for coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ) and prepare a Stormwater Pollution Prevention Plan detailing Best Management Practices to control pollution from the Project area during construction. All disturbed areas within the Project area shall be appropriately stabilized and/or replanted with appropriate native vegetation.
11. **Utility Relocations:** Utility relocations affecting jurisdictional waters are not proposed for this Project.
12. **Other Agency Actions:** Caltrans has applied for coverage under United States Army Corps of Engineers Nationwide Permit No. 14, *Linear Transportation Projects*, pursuant to the Clean Water Act, section 404. Caltrans has also submitted a section 1600 Notification of Lake or Streambed Alteration to the California Department of Fish and Wildlife. Caltrans reports that the Project activities would be authorized by the United States Fish and Wildlife Service under the April 9, 2014, *Programmatic Informal Consultation for the California Department of Transportation's Routine Maintenance and Repair Activities, and Small Projects Program for Districts 1 and 2* (AFWO-12B0001-12I0001). Caltrans also reports that the Project activities would be covered by the National Marine Fisheries Service October 2010 *Programmatic Authorization for Caltrans' Routine Maintenance and Repair Activities in Districts 1, 2, and 4*.
13. **CEQA Compliance:** The North Coast Regional Water Board, as lead California Environmental Quality Act (CEQA) agency, has determined that the project qualifies for a Categorical Exemption 15301: Existing Facilities, and will file a Notice of Exemption with the State Clearinghouse concurrent with issuance of the 401 Water Quality Certification, pursuant to CEQA guidelines.
14. **Total Maximum Daily Load:** The Redwood Creek watershed is listed on the Clean Water Act section 303(d) list as impaired for sediment and temperature. On December 30, 1998, the U.S. EPA established sediment total maximum daily loads (TMDLs) for the Redwood Creek watershed. Road-related erosion is identified as a factor in sediment contributions in the watershed. In addition, activities that impact stream beds, banks, and floodplains are identified as sources contributing to increased stream temperatures. Measures that reduce sediment discharges to surface waters from roads in the watershed, as well as measures to avoid, minimize, and mitigate impacts on riparian zones is essential for achieving TMDL, Basin Plan, and CEQA compliance. This certification requires the stabilization of existing sediment sources through drainage

improvements and the creation and restoration of riparian habitat. Accordingly, this certification is consistent with, and implements portions of the Redwood Creek TMDL.

**15. Antidegradation Policy:** The federal antidegradation policy requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. This certification is consistent with applicable federal and State antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater, and does not otherwise authorize degradation of the waters affected by this Project.

16. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of this certification. A weblink to this Order is included at the end of this certification.

Receiving Water:	Tributaries to Lupton Creek in the Lake Prairie Hydrologic Area of the Redwood Creek Hydrologic Unit (Basin Plan Hydrologic Planning Area 1107.30)	
Filled and/or Excavated Areas:	Permanent – jurisdictional waters	0.012 acres (109 linear feet)
	Temporary – jurisdictional waters	0.043 acres (565 linear feet)
Dredge Volume:	none	
Fill Volume:	Permanent – 35 cubic yards	
	Temporary – 306 cubic yards	
Mitigation proposed:	On-site: establish 0.182 acres, restore 0.014 acres riparian habitat	
Latitude/Longitude:	40.906158, -123.825775	

Accordingly, based on its independent review of the record, the Regional Water Board certifies that the State Route 299 Lupton Curve Improvement Project (WDID No. 1B14128WNHU), as described in the application will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that the Caltrans complies with the following terms and conditions:

**All conditions of this certification apply to Caltrans (and all its employees) and all contractors (and their employees), sub-contractors (and their employees), and any**

**other entity or agency that performs activities or work on the project (including the off-site mitigation lands) as related to this Water Quality Certification.**

**Project-Specific Conditions Requiring Reports**

1. The Regional Water Board shall be notified in writing (e-mail is acceptable) at least five working days prior to commencement of ground disturbing activities for each construction season.
2. Caltrans shall implement the *Lupton Curve Improvement Project Revegetation Plan*, dated February 2014 (Plan), except the Plan shall be amended to provide Year 3 reporting to the Regional Water Board, in addition to the Years 1 and 5 reports. Per the Plan, Caltrans shall:
  - i) Establish 0.182 acres and restore 0.014 acres of riparian habitat using only native plant species;
  - ii) Monitor vegetation for not less than five years;
  - iii) Ensure 75% plant survival at Year 5; and
  - iv) Ensure that absolute cover of invasive species does not exceed the baseline cover of the sites;
3. Caltrans shall monitor the area between the biofiltration swale and drainage system 4 to ensure that discharges from the swale do not cause erosion. Caltrans shall submit annual reports with photographs of this area after the completion of each rainy season. The reports shall be submitted annually, before June 15 for three years following construction completion. If Caltrans finds that erosion is occurring, it shall provide a drainage pathway to convey flows from the swale to a stable discharge location.

**Project-Specific Conditions**

4. Caltrans shall install a biofiltration swale to treat roadway runoff from no less than 1.04 acres of impervious area. The swale shall be built consistent with the design plans and soil specifications in Attachment A of this certification (*Biofiltration Swale Plans and Soil Specifications*). Caltrans shall utilize plants that are appropriate for the soil mix and climate.

**Standard Conditions**

5. Herbicides and other pesticides shall not be used within the Project limits. If Caltrans has a compelling case as to why pesticides should be used, then a request for pesticide use and a BMP plan may be submitted to the Regional Water Board staff for review and acceptance.
6. All Project activities and BMPs shall be implemented according to the submitted

### **Standard Conditions (continued)**

application package and the findings and conditions of this certification. Subsequent changes to the Project that could significantly impact water quality shall first be submitted to Regional Water Board staff for prior review, consideration, and written concurrence. If the Regional Water Board is not notified of an alteration to the Project that results in an impact to water quality, it will be considered a violation of this Order, and Caltrans may be subject to Regional Water Board enforcement actions.

7. All conditions required by this Order shall be included in the Contract Documents prepared by Caltrans for the contractor. In addition, Caltrans shall require compliance with all conditions included in this Order in the bid contract for this Project.
8. Caltrans is prohibited from discharging waste to waters of the State, unless explicitly authorized by this certification. For example, no debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or concrete washings, welding slag, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, shall be allowed to enter into State waters.
9. Except for temporary stockpiling of waste generated during demolition operations ("temporary" in this instance means generated and removed during the same working day), waste materials shall not be placed in a manner where the materials may be transported into waters of the State. Waste materials shall not be placed within 100 linear feet of State waters. Exceptions to the 100-foot limit may be granted on a case-by-case basis provided Caltrans first submits a proposal in writing that is found acceptable by Regional Water Board staff.
10. Caltrans is liable and responsible for the proper disposal, reuse, and/or recycling of all Project-generated waste in compliance with applicable State and Federal laws and regulations, and as described in Caltrans 2010 Standard Specifications 13-4.03D, Waste Management. Additionally, when handling, transporting, disposing, reusing, and/or recycling Project-generated waste, Caltrans and their contractors shall:
  - i) Provide the Regional Water Board with a copy of the Solid Waste Disposal and Recycling Report prepared for Caltrans by the contractor per Caltrans 2010 Standard Specification 14-10.02A(1), Submittals. These reports shall be provided not later than January 31 for each year work is performed during the previous calendar year. A copy of the final Solid Waste Disposal and Recycling Report shall be submitted to the Regional Water Board within 30 days after being received by Caltrans from the contractor.
  - ii) For waste other than solid waste, obtain evidence that waste has been appropriately disposed, reused, and/or recycled. Evidence shall include type and quantity of waste and may include, but not be limited to, property owner agreements, permits, licenses, and environmental clearances. Evidence shall

### **Standard Conditions (continued)**

- be provided to the Regional Water Board upon request; and
- iii) For waste other than solid waste, ensure the Resident Engineer has given written permission for disposal, reuse, and/or recycling, prior to the actual disposal, reuse, and/or recycling.
11. Asphalt-concrete grindings shall not be placed in any location where they may, at any time, be directly exposed to surface waters or seasonally high ground water, except asphalt-concrete grindings may be re-used and incorporated into hot mix asphalt products or encapsulated within the roadway structural section.
  12. Caltrans and their contractors shall comply with the activity restrictions detailed in Caltrans 2010 Standard Specifications 13-4.03C(1). In addition, fueling, maintenance, storage and staging of vehicles and equipment shall be prohibited within waters of the State (e.g., gravel bars, seeps, ephemeral streams) and riparian areas.
  13. Fueling, maintenance, and/or staging of individual equipment types within waters of the State or riparian areas may be authorized if Caltrans first prepares a plan that:
    - i) Identifies the specific piece of machinery that may require fueling, maintenance, and/or staging within waters of the State or riparian areas;
    - ii) Provides justification for the need to refuel, maintain, or stage within State waters or riparian areas. The justification shall describe why conducting the activity outside of jurisdictional waters is infeasible; and
    - iii) Includes a narrative of specific BMPs that shall be employed to prevent discharges to State waters and riparian areas;
  14. Caltrans shall not use leaking vehicles or equipment within State waters or riparian areas.
  15. Only 100-percent biodegradable erosion and sediment control products that will not entrap or harm wildlife shall be used. Photodegradable synthetic products are not considered biodegradable. If Caltrans finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products. This condition does not prohibit the use of plastic sheeting used in water diversion or dewatering activities. Caltrans shall request approval from the Regional Water Board if an exception to this requirement is needed for a specific location.
  16. Work in flowing or standing surface waters, unless otherwise proposed in the project description and approved by the Regional Water Board, is prohibited.
  17. Non-stormwater discharges are prohibited unless the discharge is first approved by

### **Standard Conditions (continued)**

the Regional Water Board and in compliance with the Basin Plan. If dewatering of groundwater is necessary, then Caltrans shall use a method of water disposal other than disposal to ground or surface waters, such as land disposal. Groundwater disposed of to land shall not enter State waters. Alternatively, Caltrans may apply for coverage under the Low Threat Discharge Permit or an individual National Pollutant Discharge Elimination System (NPDES) Permit. If Caltrans applies for coverage under either of these permits, then discharge is prohibited until Caltrans has received notification of coverage under the respective permit.

18. Gravel bags used within State waters shall:

- i) Comply with Caltrans 2010 Standard Specifications sections 13-5.02G and 88-1.02F;
- ii) Be immediately removed and replaced if the bags have developed or are developing holes or tears; and
- iii) Be filled only with clean washed gravel.

Exceptions to these criteria are subject to the review and acceptance of Regional Water Board staff;

19. This Order does not authorize drafting of surface waters.

20. Caltrans shall provide access to the Project construction site upon request by Regional Water Board staff.

21. Initial water pollution control training described in Caltrans 2010 Standard Specifications 13-1.01D(2), Training, shall apply to all Caltrans employees, contractors, and sub-contractors. Initial water pollution control training topics shall include Regional Water Board 401 certification and construction general permit requirements, identification of state waters and riparian areas, and violation avoidance and discharge reporting procedures.

22. Caltrans shall maintain logs of all Caltrans staff, contractors, and sub-contractors trained pursuant to the Caltrans 2010 Standard Specifications 13-1.01D(2). The logs shall include the names of trainees, training dates, and summary of the scope of training. Caltrans shall provide evidence of this documentation upon the request of the Regional Water Board.

23. If an unauthorized discharge to surface waters (including wetlands, rivers or streams) occurs, or any other threat to water quality arises as a result of Project implementation, the associated Project activities shall cease immediately until the threat to water quality is otherwise abated. If there is a discharge to State waters, the

### **Standard Conditions (continued)**

Regional Water Board shall be notified no more than 24 hours after the discharge occurs.

24. Uncured concrete shall not be exposed to State waters or surface waters that may discharge to State waters. Concrete sealants may be applied to the concrete surface where difficulty in excluding flow for a long period may occur. If concrete sealant is used, water shall be excluded from the site until the sealant is cured. If groundwater comes into contact with fresh concrete, it shall be prevented from flowing towards surface water.
25. Ground and surface water that has come into contact with fresh concrete, and all other wastewater, shall not be discharged to State waters or to a location where it may discharge to State waters; the wastewater shall be collected and re-used or disposed of in a manner approved by the Regional Water Board.
26. All imported fill material shall be clean and free of pollutants. All fill material shall be imported from a source that has the appropriate environmental clearances and permits. The reuse of low-level contaminated solids as fill on-site shall be performed in accordance with all State and Federal policies and established guidelines and must be submitted to the Regional Water Board for review and consideration of acceptance.
27. Caltrans shall provide a copy of this certification and State Water Resources Control Board (SWRCB) Order No. 2003-0017-DWQ (web link referenced below) to the contractor and all subcontractors conducting the work, and require that copies remain in their possession at the work site. Caltrans shall be responsible for work conducted by its contractor and subcontractors.
28. The validity of this certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 3833, and owed by Caltrans. The Regional Water Board received \$1,924 from Caltrans on December 8, 2014. The total Application fee is \$200. Caltrans will be provided with a \$1,724 refund for overpayment. This certification will be subject to annual billing during the construction phase ("Annual Active Discharge Fee") and during the monitoring phase of the Project ("Annual Post Discharge Monitoring Fee"), per the current fee schedule, which can be found on our website: [http://www.swrcb.ca.gov/northcoast/water\\_issues/programs/water\\_quality\\_certification.shtml](http://www.swrcb.ca.gov/northcoast/water_issues/programs/water_quality_certification.shtml). These fees will be automatically invoiced to Caltrans.
29. Caltrans shall notify the Regional Water Board upon Project construction completion to request termination of the Annual Active Discharge Fee and to receive a "Notice of Completion of Discharges Letter". If the Project is subject to the Annual Post Discharge Monitoring Fee, then Caltrans shall also notify the Regional Water Board at the end of

### **Standard Conditions (continued)**

the monitoring period to request termination of the fee and receive a “Notice of Project Complete Letter”. Caltrans may be required to submit completion reports at the end of each of these phases. Regional Water Board staff may request site visits at the end of each Project phase to confirm Project status and compliance with this Order.

30. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
31. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this certification, the Regional Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.
32. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.
33. This certification is not transferable. In the event of any change in control of ownership of land presently owned or controlled by Caltrans, Caltrans shall notify the successor-in-interest of the existence of this certification by letter and shall forward a copy of the letter to the Regional Water Board. The successor-in-interest must send to the Regional Water Board Executive Officer a written request for transfer of this certification to discharge dredged or fill material under this Order. The request must contain the following:
  - i) Requesting entity’s full legal name;
  - ii) The state of incorporation, if a corporation;

**Standard Conditions (continued)**

- iii) The address and phone number of contact person; and
  - iv) A description of any changes to the project or confirmation that the successor-in-interest intends to implement the project as described in this Order.
34. Except as may be modified by any preceding conditions, all certification actions are contingent on:
- i) The discharge being limited, and all proposed revegetation, avoidance, minimization, and mitigation measures being completed, in strict compliance with Caltrans's project description and CEQA documentation, as approved herein;
  - ii) Caltrans shall construct the project in accordance with the project described in the application and the findings above; and
  - iii) Compliance with all applicable water quality requirements and water quality control plans including the requirements of the Water Quality Control Plan for the North Coast Region (Basin Plan), and amendments thereto.
- Any change in the design or implementation of the project that would have a significant or material effect on the findings, conclusions, or conditions of this Order must be submitted to the Executive Officer of the Regional Water Board for prior review, consideration, and written concurrence. If the Regional Water Board is not notified of a significant alteration to the project, it will be considered a violation of this Order, and Caltrans may be subject to Regional Water Board enforcement actions.
35. The authorization of this certification for any dredge and fill activities expires five years from the date of this Order. Conditions and monitoring requirements outlined in this Order are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

**Conditions 1-3 include requirements for information and reports.** Any requirement for a report made as a condition to this certification is a formal requirement pursuant to California Water Code section 13267, and failure or refusal to provide, or falsification of such required report is subject to civil liability as described in California Water Code, Section 13268.

The Regional Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

Please contact our staff Environmental Scientist, Brendan Thompson at (707) 576-2699, or via e-mail, at [Brendan.Thompson@waterboards.ca.gov](mailto:Brendan.Thompson@waterboards.ca.gov), if you have any questions.

 Digitally signed  
by Matthias  
St. John  
Date: 2015.03.10  
12:22:51 -07'00'

Matthias St. John  
Executive Officer

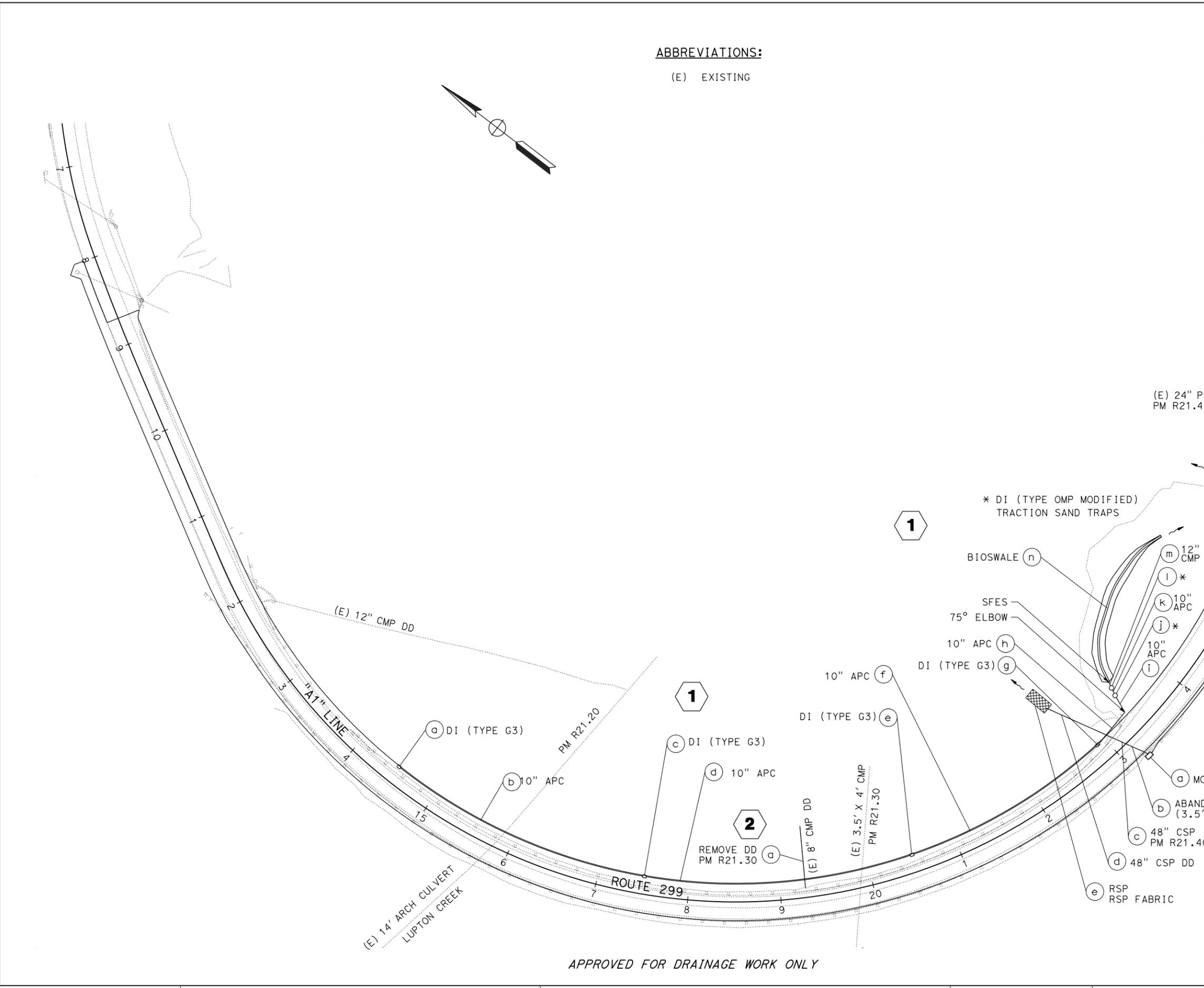
150310\_BJT\_dp\_CDOT\_Hwy299\_LuptonCurve\_401

Web link: State Water Resources Control Board Order No. 2003-0017 -DWQ, General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification can be found at:  
[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0017.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0017.pdf)

Original to: Mrs. Kim Floyd, Caltrans, District 1, 1656 Union Street, Eureka, CA 95501  
[kim.floyd@dot.ca.gov](mailto:kim.floyd@dot.ca.gov)

cc: Holly Costa, U.S. Army Corps of Engineers [holly.n.costa@usace.army.mil](mailto:holly.n.costa@usace.army.mil)  
Joann Dunn, California Department of Fish and Wildlife [JoAnn.Dunn@wildlife.ca.gov](mailto:JoAnn.Dunn@wildlife.ca.gov)  
State Water Resources Control Board [stateboard401@waterboards.ca.gov](mailto:stateboard401@waterboards.ca.gov)  
Environmental Protection Agency, Region 9 [R9-WTR8-Mailbox@epa.gov](mailto:R9-WTR8-Mailbox@epa.gov)  
Denise Walker [denise.walker-brown@dot.ca.gov](mailto:denise.walker-brown@dot.ca.gov)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**St. Gobans** DESIGN



**ABBREVIATIONS:**  
 (E) EXISTING

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	299	R21.1/R21.5	14	46

**PRELIMINARY** XX-XX-15  
 REGISTERED CIVIL ENGINEER DATE

XX-XX-15  
 PLANS APPROVAL DATE

EDWARD B. SPEER  
 No. C49740  
 Exp. 09-30-16  
 CIVIL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

APPROVED FOR DRAINAGE WORK ONLY

**DRAINAGE PLAN**  
 SCALE: 1" = 50'  
**D-1**

DATE PLOTTED => 17-FEB-2015  
 TIME PLOTTED => 15:52  
 LAST REVISION 09-08-15



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	299	R21.1/R21.5	18	46

**PRELIMINARY** XX-XX-15  
REGISTERED CIVIL ENGINEER DATE

EDWARD B. SPEER  
No. C49740  
Exp. 09-30-16  
CIVIL  
STATE OF CALIFORNIA

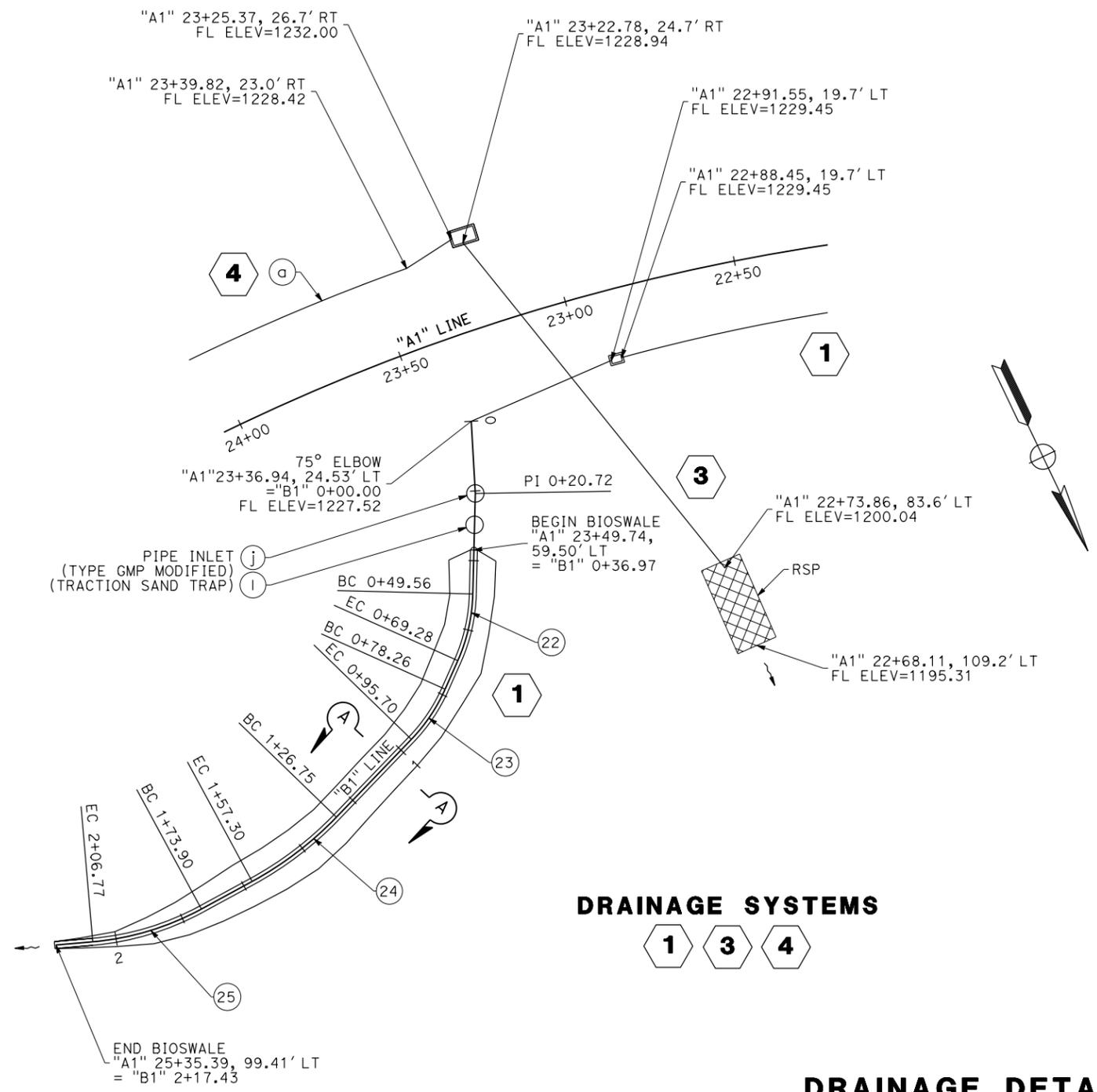
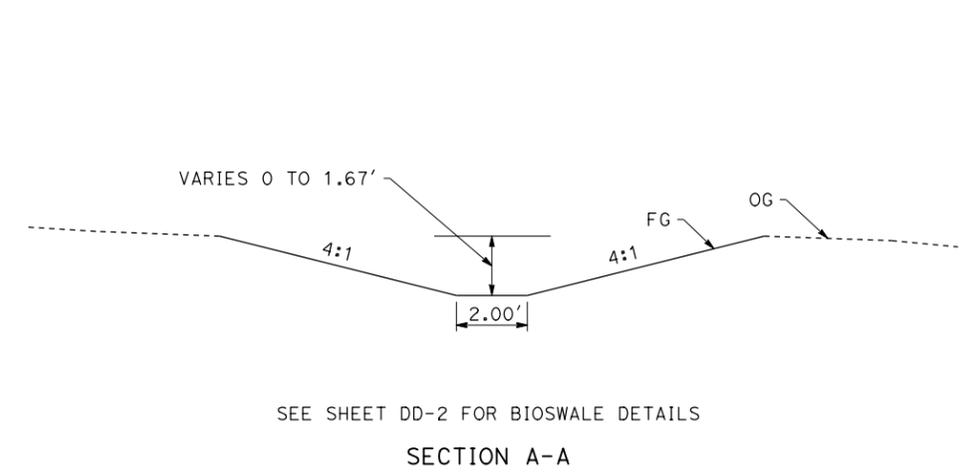
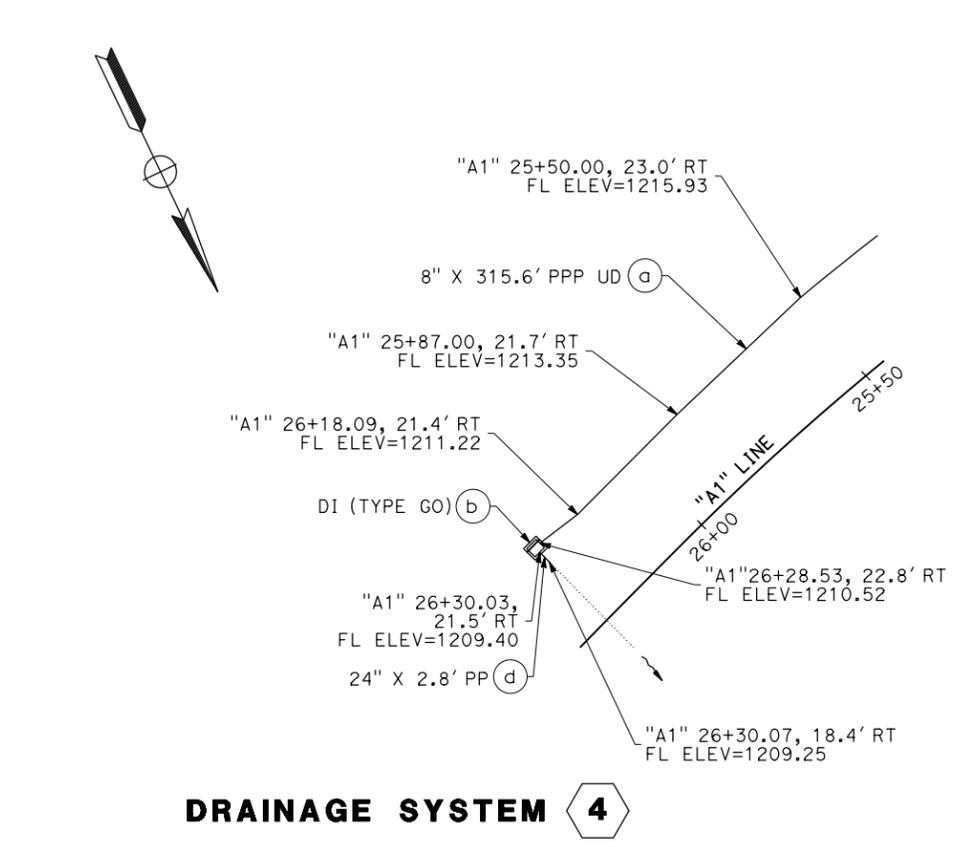
XX-XX-15  
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CURVE DATA**

No.	⊕	R	Δ	T	L
22		50.00'	22°35'38"	9.99'	19.72'
23		50.00'	19°58'51"	8.81'	17.44'
24		100.00'	17°30'25"	15.40'	30.56'
25		80.00'	23°32'14"	16.67'	32.86'

DESIGN  
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
ED SPEER  
JOHN L. MARTIN  
JOHN L. MARTIN  
REVISOR  
DATE



**DRAINAGE SYSTEMS**  
1 3 4

**DRAINAGE DETAILS**  
NO SCALE  
**DD-1**

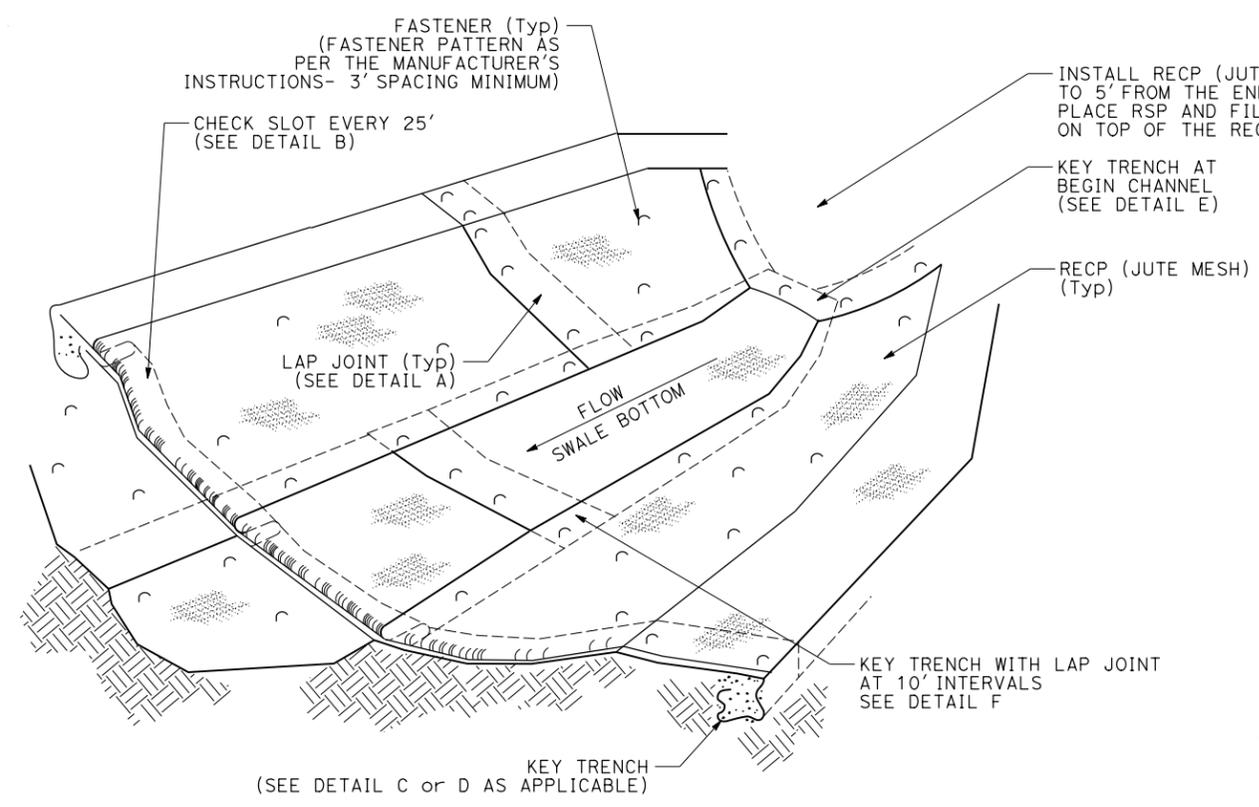
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	299	R21.1/R21.5	38	46

**PRELIMINARY** XX-XX-15  
REGISTERED CIVIL ENGINEER DATE

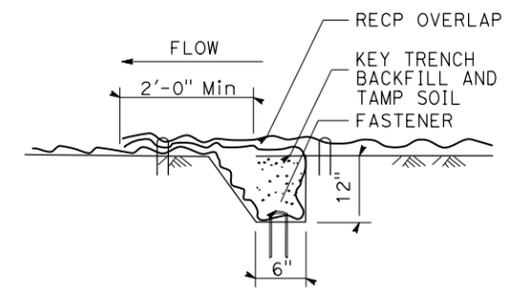
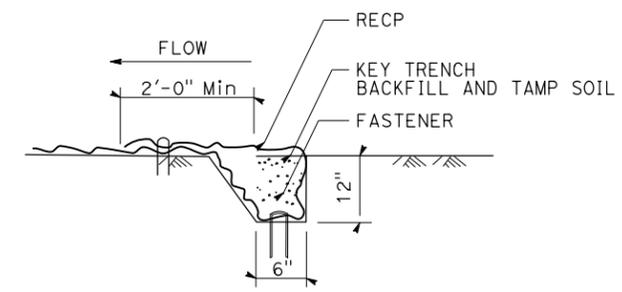
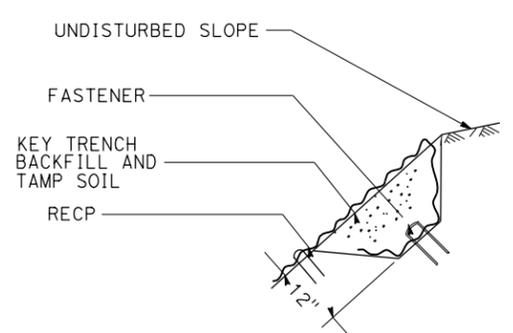
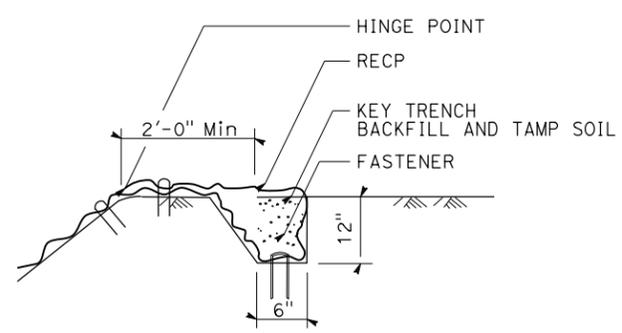
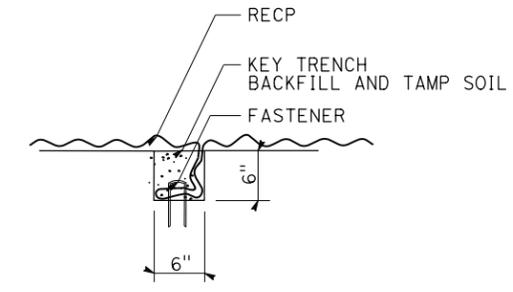
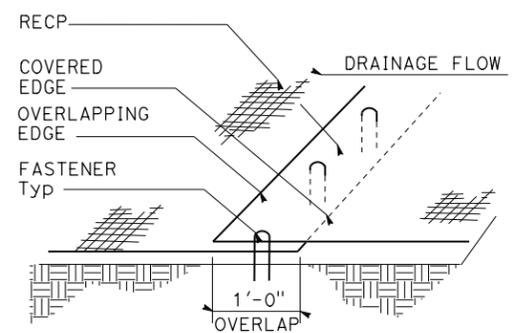
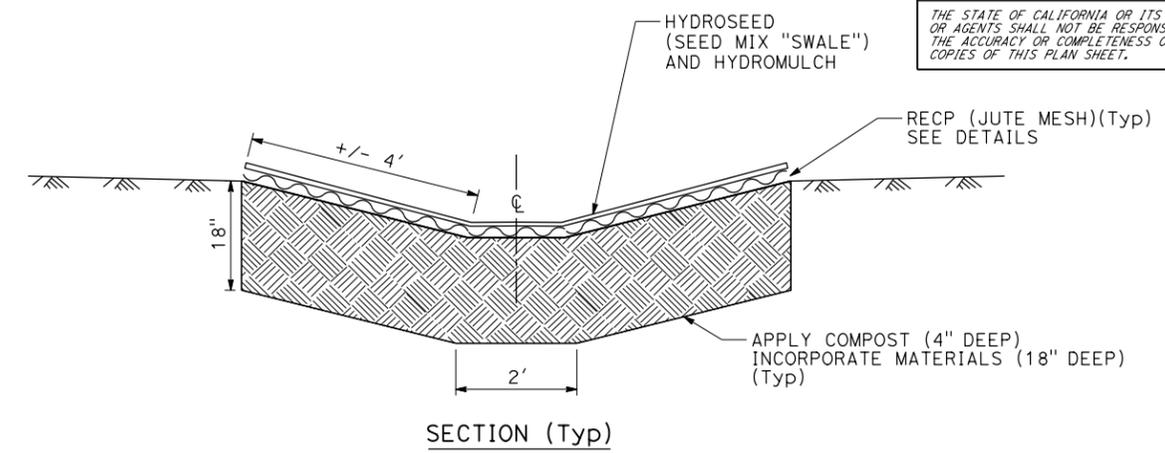
XX-XX-15  
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
**EDWARD B. SPEER**  
No. C49740  
Exp. 09-30-16  
CIVIL  
STATE OF CALIFORNIA



**ISOMETRIC**



**BIOFILTRATION SWALE**

**DRAINAGE DETAILS**  
NO SCALE

**DD-2**

DESIGN  
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
FUNCTIONAL SUPERVISOR JOHN L. MARTIN  
ED SPEER JOHN L. MARTIN  
REVISOR DATE  
CALCULATED BY CHECKED BY

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DATE PLOTTED => 17-FEB-2015  
TIME PLOTTED => 15:52

## 10-1. \_\_ IMPORTED BIOFILTRATION SOIL

### GENERAL

#### Summary

This work includes furnishing and placing imported biofiltration soil.

#### Submittals

Compost: Before mixing compost with sand and topsoil, submit:

1. A Certificate of Compliance from the compost supplier in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.
2. A copy of the compost producer's compost technical data sheet. The compost technical data sheet must include:
  - 2.1. Laboratory analytical test results
  - 2.2. List of product ingredients
3. A copy of the compost producers Seal of Testing Assurance certification.

Imported biofiltration soil: Imported biofiltration soil must be accompanied by a Certificate of Compliance, from the soil supplier, in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

#### Quality Control and Assurance

Saturated hydraulic conductivity for imported biofiltration soil must be at least 5 inches per hour.

### MATERIAL

Imported biofiltration soil must be a uniform mixture of sand, compost, and topsoil. Volumetric proportion of the mixture must be: four-parts sand; two-parts compost; one-part topsoil.

#### Sand

Sand must be free of wood, waste, coating such as clay, stone dust, carbonate, or any other deleterious material. All aggregate passing No. 200 sieve size must be non-plastic. Sand must be graded within the following limits:

Sieve Size	Percentage Passing
3/8"	100
No. 4	90 - 100
No. 8	70 - 100
No. 16	40 - 95
No. 30	15 - 70
No. 40	5 - 55
No. 100	0 - 15
No. 200	0 - 5

Grain size analysis results of the sand component must be performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.

## **Compost**

The compost producer must be fully permitted as specified under the California Integrated Waste Management Board, Local Enforcement Agencies, and any other State and Local Agencies that regulate solid waste facilities. If exempt from State permitting requirements, the composting facility must certify that it follows guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7.

The compost producer must be a participant in the United States Composting Council's Seal of Testing Assurance program.

Compost may be derived from any single or mixture of any of the following feedstock materials:

1. Green material consisting of chipped, shredded, or ground vegetation; or clean processed recycled wood products
2. Biosolids
3. Manure
4. Mixed food waste

Compost feedstock materials in a manner that reduces presence of weed seeds, pathogens and deleterious materials as specified under Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7, Section 17868.3.

Compost must not be derived from mixed municipal solid waste and must be reasonably free of visible contaminants. Compost must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost must not possess objectionable odors.

Metal concentrations in compost must not exceed the maximum metal concentrations listed in Title 14, California Code of Regulations, Division 7, Chapter 3.1, Section 17868.2.

Compost must comply with the following:

## Physical and Chemical Requirements

Property	Test Method	Requirement										
pH	TMECC 04.11-A Elastometric pH 1:5 Slurry Method pH Units	6.5 - 8.0										
Soluble Salts	TMECC 04.10-A Electrical Conductivity 1:5 Slurry Method dS/m (mmhos/cm)	0 - 6.0										
Moisture Content	TMECC 03.09-A Total Solids & Moisture at 70 +/- 5 deg C % Wet Weight Basis	30 - 60										
Organic Matter Content	TMECC 05.07-A Loss-On-Ignition Organic Matter Method (LOI) % Dry Weight Basis	35 - 75										
Maturity	TMECC 05.05-A Germination and Vigor Seed Emergence Seedling Vigor % Relative to Positive Control	80 or Above 80 or Above										
Stability	TMECC 05.08-B Carbon Dioxide Evolution Rate mg CO <sub>2</sub> -C/g OM per day	8 or below										
Particle Size	TMECC 02.02-B Sample Sieving for Aggregate Size Classification % Dry Weight Basis	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">Inches</td> <td style="text-align: left;">% Passing</td> </tr> <tr> <td style="text-align: right;">3</td> <td style="text-align: left;">100%</td> </tr> <tr> <td style="text-align: right;">1/2</td> <td style="text-align: left;">0 - 95%</td> </tr> <tr> <td style="text-align: right;">1/4</td> <td style="text-align: left;">0 - 75%</td> </tr> <tr> <td colspan="2" style="text-align: center;">Max. Length 4 inches</td> </tr> </table>	Inches	% Passing	3	100%	1/2	0 - 95%	1/4	0 - 75%	Max. Length 4 inches	
Inches	% Passing											
3	100%											
1/2	0 - 95%											
1/4	0 - 75%											
Max. Length 4 inches												
Pathogen	TMECC 07.01-B Fecal Coliform Bacteria < 1000 MPN/gram dry wt.	Pass										
Pathogen	TMECC 07.01-B Salmonella < 3 MPN/4 grams dry wt.	Pass										
Physical Contaminants	TMECC 02.02-C Man Made Inert Removal and Classification: Plastic, Glass and Metal % > 4 mm fraction	Combined Total: < 1.0										
Physical Contaminants	TMECC 02.02-C Man Made Inert Removal and Classification: Sharps (Sewing needles, straight pins and hypodermic needles) % > 4 mm fraction	None Detected										

NOTE: TMECC refers to "Test Methods for the Examination of Composting and Compost," published by the United States Department of Agriculture and the United States Compost Council (USCC).

### Topsoil

Topsoil must be free of wood, waste or other deleterious material. The topsoil texture must be loamy. Overall dry weight percentages must be 60 to 90 percent sand, with less than 20 percent passing the No. 200 sieve, less than 5 percent clay, and no gravel.

### CONSTRUCTION

Comply with Section 20-3.02, "Preparation," of the Standard Specifications.

Place imported biofiltration soil in 8 to 12- inch lifts. Do not compact the lifts.

## **MEASUREMENT AND PAYMENT**

Quantity of imported biofiltration soil is measured by the cubic yard.

The contract unit price paid per cubic yard for imported biofiltration soil includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in imported biofiltration soil, complete in place, including testing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## **AGREEMENTS**

California Department of Fish and Wildlife

Notification No. 1600-2014-0353-R1

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE  
REGION 1 - NORTHERN  
619 SECOND STREET  
EUREKA, CALIFORNIA, 95501

RECEIVED

FEB 26 2015



**STREAMBED ALTERATION AGREEMENT**  
NOTIFICATION No. 1600-2014-0353-R1  
Lupton Creek and Unnamed Tributaries to Lupton Creek  
**STREAM ENCROACHMENTS ON SR 299 PMs 21.1 TO 21.5**

CDFW - EUREKA

CALIFORNIA DEPARTMENT OF TRANSPORTATION,  
AS REPRESENTED BY MS. KIM FLOYD  
LUPTON CURVE IMPROVEMENT PROJECT ON SR 299, HUMBOLDT COUNTY

This Lake or Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (Caltrans) (Permittee), as represented by Ms. Kim Floyd.

## RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on December 5, 2014 that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1602, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

## PROJECT LOCATION

The project is located in Humboldt County on State Route (SR) 299 between Post Mile (PM) markers 21.1 and 21.5, east of Blue Lake, approximately 1 mile west of the Redwood Creek Bridge, and 0.2 miles east of the Chezem Road intersection with SR 299. The project is located at Lupton Creek and Unnamed Tributaries to Lupton Creek, tributary to Redwood Creek, tributary to Pacific Ocean; in the County of Humboldt, State of California; Section 15, Township 6N, Range 3E; Humboldt Base and Meridian, in the Lord-Ellis Summit USGS 7.5-minute quadrangle.

## PROJECT DESCRIPTION

The project consists of work proposed between PMs 21.1 and 21.5, including installing a 931-foot-long, average 9-foot-high Mechanically Stabilized Earth (MSE) retaining wall embedded into the top of fill along the north side, and a smaller 3-foot-high, 178-foot-long retaining wall constructed from guard railing elements on the south side, road widening, and culvert installation.

The project consists of work proposed at numerous drainage features between PM markers 21.1 and 21.5, including installing new culverts and downdrains, replacing and modifying inlets, replacing an underdrain, and installing a bioswale, as described in the Agreement Notification and updated via email February 20, 2015:

<u>Location</u>	<u>Activities Proposed</u>
1a, 1b, 1c, 1d	Install new culverts
1e, 1f, 1g, 1h	Install new culverts and downdrains
1i	Install bioswale
1j, 1k	Install new culverts and downdrains
2a	Remove downdrain
3a	Modify Inlet
3b, 3c, 3d	Replace culvert and downdrain
3e	Place rock energy dissipator
4a	Replace underdrain
4b, 4c, 4d	Replace inlet

## PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: **Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), steelhead (*O. mykiss*), northern red-legged frog (*Rana aurora*), foothill yellow-legged frog (*R. boylei*),** amphibians, reptiles, aquatic invertebrates, mammals, nesting resident and migratory birds, and other aquatic and riparian species. The adverse effects the project could have on the fish or wildlife resources identified above include:

- direct and/or indirect mortality of fish, amphibians and other aquatic species;
- impede up- and/or down- stream migration of aquatic species;
- injury to downstream fish and benthic invertebrates and spawning and/or rearing habitats through sediment transport and deposition and/or spills of deleterious materials;
- changes in channel form and contour of bed, bank, or channel;
- changes in flow depth, width, or velocity;
- temporary increase of sediment and turbidity;
- colonization by non-native and/or invasive plants.

## MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

### 1. Administrative Measures

Permittee shall meet each administrative requirement described below.

- 1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site at any time to verify compliance with the Agreement.

### 2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

- 2.1 Except where otherwise stipulated in this Agreement, all work shall be in accordance with the forms, work plans, drawings, biological reports and maps submitted with Notification No. 1600-2014-0353 as submitted as of February 23, 2015.
- 2.2 All work within the bed, bank and channel shall be confined to the period June 1 through October 15 of each year, except that any work on Lupton Creek shall only begin after June 15.
- 2.3 Vegetation proposed for removal shall be removed between September 15 and February 28 to avoid impacts to nesting birds to the maximum extent feasible. Work in September to November prior to winter rains is preferable. Any vegetation removal outside the approved work period shall include bird surveys and nesting buffers as appropriate prior to, and while, conducting work.

- 2.4 If sightings or den sites of ring-tailed cat (*Bassariscus astutus*), Pacific fisher (*Martes pennanti*), or marten (*Martes americana*), or other sensitive species are encountered in the course of activities at project sites, the Permittee shall immediately notify and consult with CDFW to identify any measures that may be needed to avoid take or minimize adverse impacts to these species.
- 2.5 No fill material shall be placed within a stream except as specified in this Agreement. Fill excavated from project work shall be placed in stable areas where it cannot enter or erode into a stream.
- 2.6 Where flowing water is present during operations:
  - a) A biologist shall be on-site to identify and, if necessary, remove and relocate amphibians, reptiles or other aquatic species.
  - b) Cofferdams shall be installed to divert stream flow and isolate and dewater the work site, and to catch any sediment-laden water and minimize sediment transport downstream. Cofferdams shall be constructed of non-polluting materials including sand bags, rock, and/or plastic tarps. Mineral soil shall not be used in the construction of cofferdams.
  - c) Flowing water shall be cleanly bypassed and/or prevented from entering the work area through pumping or gravity flow, and cleanly returned to the stream below the work area. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and provides flows to downstream reaches.
  - d) The Responsible Party shall remove any turbid water and sediment present in the work area prior to restoring water flow through the project site, and place them in a location where they cannot enter the Waters of the State.
- 2.7 Equipment shall not operate in a live (flowing) stream or wetted channel except as may be necessary to construct and remove in-stream structures to catch and contain water (i.e., cofferdams) to divert stream flow and isolate the work site, or as otherwise specifically provided for in this Agreement.
- 2.8 Any equipment or vehicles driven and/or operated within or adjacent to the stream channel shall be checked and maintained in a manner which prevents materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat.
- 2.9 Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations unless specifically authorized to do so under this Agreement. The disturbed portions of any stream channel or banks shall be restored to as near their original condition as possible. Restoration shall include re-vegetation of areas stripped or exposed by project activities as described in the February 23, 2015 approved Revegetation Plan . Slash pack, rock, or other erosion protection

suitable to CDFW shall be placed in areas where vegetation cannot reasonably be expected to become reestablished.

- 2.10 Adequate and effective erosion and siltation control measures shall be used to prevent sediment or turbid or silt-laden water from entering streams. Where needed, the Permittee shall use native vegetation or other treatments including native slash, jute netting, straw wattles, and geotextiles to protect and stabilize soils. Geotextiles, fiber rolls, and other erosion control treatments shall be made with wildlife-friendly, biodegradable<sup>1</sup> products that will not entrap or harm wildlife. Permanent erosion control products shall not contain synthetic (e.g., plastic or nylon) netting or materials.
- 2.11 All bare mineral soil outside the stream bed exposed in conjunction with crossing deconstruction, construction, maintenance or repair shall be treated for erosion prior to the onset of precipitation capable of generating run-off or the end of the yearly work period, whichever comes first. Erosion control shall include using native slash or seeding and mulching with at least 2 to 4 inches clean straw (such as rice, barley, wheat, or weed-free straw), and seeding with regional native seed or non-native seed that is known not to persist or spread, e.g., barley (*Hordeum vulgare*) or wheat (*Triticum aestivum*). No known invasive grass seed such as annual or perennial ryegrass (*Lolium multiflorum* or *L. perenne*, which are now referred to as *Festuca perennis*), shall be used.
- 2.12 Encroachments and associated structures, fills, and other exposed soils shall be armored as needed to protect fill, abutments, and the stream channel and banks from erosion.
- 2.13 The Permittee shall provide site maintenance for the life of the structures, including, but not limited to, re-applying erosion control to minimize surface erosion and ensuring drainage structures, streambeds and banks remain sufficiently armored, stable, and capable of passing stream flows as designed.
- 2.14 Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the ordinary high water mark before such flows occur or the end of the yearly work period, whichever comes first.
- 2.15 Refueling of equipment and vehicles and storing, adding or draining lubricants, coolants or hydraulic fluids shall not take place within or adjacent to any stream. All such fluids and containers shall be disposed of properly. Heavy equipment parked within or adjacent to the stream shall use drip pans or other devices (e.g., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.
- 2.16 All activities performed in the field which involve the use of petroleum or oil based substances shall employ absorbent material designated for spill containment and

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<sup>1</sup> Photodegradable synthetic products are not considered biodegradable.

clean up activity on site for use in case of accidental spill. Clean-up of all spills shall begin immediately. The Permittee shall immediately notify the State Office of Emergency Services at 1-800-852-7550 for all types of hazardous materials spills and incidents. CDFW shall be notified by the Permittee and consulted regarding clean-up procedures.

- 2.17 No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from construction work, or associated activity of whatever nature shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into Waters of the State. (This is not applicable to material installed permanently or temporarily as a permitted part of the project activities). When operations are complete, any excess materials or debris within 150 feet of the stream channel shall be removed from the work area and disposed of properly prior to the first rainfall.

#### SITE-SPECIFIC MEASURES:

- 2.18 For Location 3b and any other locations where existing culverts are abandoned, no fill (i.e., cement slurry) shall come in contact with flowing water or a stream. The abandoned pipe work site shall be isolated from all water flow prior to filling with cement slurry.
- 2.19 Permanent culverts shall be sized to pass the estimated 100-year flood flow, including debris and sediment loads, without overtopping or diverting. Culvert sizing factors shall include transport of bedload, and the abundance and size of woody debris likely to be introduced to the stream upstream of the culvert crossing.
- 2.20 Permanent culverts and their outfall structures shall be aligned with the stream channel, as wide as or wider than the channel width, and shall be placed with the bottom set at or slightly below the natural streambed elevation to the maximum extent feasible. If permanent culverts cannot be set to grade, they shall have downspouts and/or energy dissipators below the outfall as needed to effectively control erosion. Downspouts shall be securely attached to the culvert and staked or otherwise securely anchored to the fill slope.
- 2.21 The most recent information and bioswale design provided by Caltrans on February 20, 2015, shall be used rather than the initially-proposed sediment basin. The bioswale outlet location at the roadside pullout, and the rock slope protection (RSP) proposed at Drainage System 4 for any bioswale overflow, shall be annually monitored and maintained to ensure the bioswale is functioning properly and any bioswale effluent cleanly discharges over the RSP to the stream at PM 21.44.

### **3. Reporting Measures**

Permittee shall meet each reporting requirement described below.

- 3.1 Permittee shall notify CDFW in writing at least five (5) days prior to initiation of construction (project) activities and at least five (5) days prior to completion of construction (project) activities. Information to be disclosed in Notification shall include Agreement number and anticipated start/completion date.

## **CONTACT INFORMATION**

Written communication or documentation that Permittee or CDFW submits to the other shall be delivered to the address below unless Permittee or CDFW specifies otherwise:

To Permittee:

Ms. Kim Floyd  
Caltrans  
1656 Union Street  
Eureka, California 95501  
Office Phone: 707-441-5899  
E-Mail: [kim.floyd@dot.ca.gov](mailto:kim.floyd@dot.ca.gov)

To CDFW:

Department of Fish and Wildlife  
Region 1  
619 Second Street  
Eureka, California 95501  
Attn: Lake and Streambed Alteration Program  
Notification #1600-2014-0353-R1  
Fax: 707-441-2021

## **LIABILITY**

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

## **SUSPENSION AND REVOCATION**

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees,

representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

## **ENFORCEMENT**

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

## **OTHER LEGAL OBLIGATIONS**

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

## **AMENDMENT**

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an

amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **TRANSFER AND ASSIGNMENT**

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **EXTENSIONS**

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)).

## **EFFECTIVE DATE**

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at [http://www.cdfw.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.cdfw.ca.gov/habcon/ceqa/ceqa_changes.html).

## **TERM**

This Agreement shall expire **five years** after the date the Agreement is fully executed, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for

implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

**AUTHORITY**

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

**AUTHORIZATION**

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

**CONCURRENCE**

The undersigned accepts and agrees to comply with all provisions contained herein.

**FOR CALIFORNIA DEPT OF TRANSPORTATION**

  
\_\_\_\_\_

Kim Floyd  
Project Manager

2-25-15  
Date

**FOR DEPARTMENT OF FISH AND WILDLIFE**

  
\_\_\_\_\_

Gordon Leppig  
Senior Environmental Scientist (Supervisory)

2/26/15  
Date

## **MATERIALS INFORMATION**

Geotechnical Design Recommendations for the Lupton Curve Improvement Project

Dated 2/09/2015

DEPARTMENT OF TRANSPORTATION

# Memorandum

*Serious drought.  
Help Save Water!*

**To:** JOHN MARTIN  
Branch Chief  
Design R1

**Date:** February 09, 2015

**File:** 01-HUM-299-PM 21.1/21.5  
Lupton Curve Improvement Project  
EFIS ID: 0100020425

**Attn:** ED SPEER

**From:** DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
GEOTECHNICAL SERVICES – OGDN

**Subject:** Geotechnical Design Recommendations for the Lupton Curve Improvement Project

## 1. INTRODUCTION

The following recommendations are provided for the proposed Mechanically Stabilized Embankment (MSE) for the Lupton Curve Improvement Project.

The project purpose is to address incidents of collisions within the project limits. The project proposes to widen both sides of the roadway to provide 8-foot wide shoulders. (Figure 1 - Vicinity Map). The widening will be supported by a MSE on the north side of the roadway and by an earth retaining structure on the south side. These Geotechnical Design Recommendations are for the proposed MSE.

**Table 1- Description of the Proposed MSE**

BEGIN			END			LENGTH (ft)	DESIGN HEIGHT
Sta.	Latitude	Longitude	Sta.	Latitude	Longitude		Max.
13+69	6056238.060	2218748.278	23+00	6056709.188	2218093.919	892.78	16

The layout line of the MSE is shown on Figure 2 - Site Plan. Approximately 10,500 cubic yards (cy) need to be excavated for this project and approximately 9,400 cy of fill will need to be imported for the MSE. The proposed embankment slope will be shielded by a Midwest Guardrail System (MGS).

## **2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS**

The project site is located in a rural, mountainous area with privately owned timber lands and sparse residential development. Within the project limits the existing two-lane conventional highway is constructed on a through fill that is a maximum of 150 feet in height with side slopes ranging between 1H:1V to 2H:1V.

## **3. SCOPE OF WORK**

The recommendations contained in this report are based on a review of geologic literature, a subsurface investigation, field observations and geotechnical calculations. Subsurface conditions were evaluated only at the boring locations and may deviate elsewhere within the Project Limits. The elevations reported in this memorandum are with respect to Mean Sea Level (MSL).

## **4. PERTINENT REPORTS AND INVESTIGATIONS**

Caltrans Standard Specifications, 2010

Berg, R.A. et. al. 2009, "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Vol. I", National Highway Institute, Federal Highway Administration, Report no. FHWA-NHI-10-024 FHWA GEC 11-Vol. I.

Berg, R.A. et. al. 2009, "Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Vol. II, National Highway Institute, Federal Highway Administration, Report no. FHWA-NHI-10-025 FHWA GEC 11-Vol.II.

Holtz, D.H. et. al. 2008, "Geosynthetic Design and Construction Guideline", National Highway Institute, Federal Highway Administration, Report no. FHWA-NHI-07-092.

Fall, J.N. et. al. 2006, "Landslides in the Highway 299 Corridor between Blue Lake and Willow Creek, Humboldt County, California, California Geological Survey, Special Report 195.

## **5 PHYSICAL SETTING**

### **5.1 Site Geology**

A geologic map of the site is provided in Figure 3 - Project Geologic Map. Bedrock within the project limits is mapped as Redwood Creek Schist (KJFr) which is part of the Eastern Belt Franciscan Complex (Falls et. al; 2006). The bedrock at the site is a very dark grey, fine-grained and crenulated quartz mica Schist. The Schist possesses a distinctive, strongly developed platy (metamorphic) texture with relatively high

quartz/mica content. Large dormant landslide complexes and earth flows are common along the main channel of Redwood Creek and its western tributaries underlain by this unit. These features typically are seen as broad, bowl-shaped depressions in the hillsides that often extend from Redwood Creek to the ridge top (Falls et. al; 2006). The large features do not appear to be recently active from a geomorphic perspective, but rather contain occasional areas of localized activity.

Figure 3 shows that the entire project is located within a dormant Quaternary landslide. No field evidence of landslide movement was observed along or below the roadway prism within the project limits.

## 5.2 Subsurface Conditions

Five geotechnical borings were drilled along the shoulder of the highway between December 3 and 12, 2013 (Table 2 – Summary of Geotechnical Borings). The borehole locations are shown in Figure 2 – Site Plan. As-built Plans from 1961 indicate that the entire project will be built on the existing fill prism.

**Table 2 - Summary of Geotechnical Borings**

<b>BORING I.D.</b>	<b>STATION AND OFFSET FROM "A1" ALIGNMENT</b>	<b>DEPTH OF BORING (ft, bgs)</b>	<b>SURFACE ELEVATION (ft, MSL)</b>	<b>DEPTH TO BEDROCK (ft, bgs)</b>
<b>RC-13-001</b>	20+53.84' 1.7' RT	61.5	1248	53
<b>RC-13-002</b>	19+33.36 4.76' RT	66.5	1256	49
<b>RC-13-003</b>	16+68.5, 2' RT	66.5	1271	Not encountered
<b>RC-13-004</b>	15+20.6' 1' LT	76.5	1279	64
<b>RC-13-005</b>	14+43.5 0.5' LT	51.5	1284	Not encountered

All borings encountered approximately one foot of asphalt. The fill under the asphalt is composed of layers of moist, coarse and fine grained soils and varied between 31.5 and 69 feet in thickness.

The predominant soil encountered in the borings was composed of mostly medium dense, coarse grained, dense, clayey gravel with sand (GC). Other coarse grained soils encountered included layers of varying thickness of silty sand with gravel (SM), clayey gravel (GC) and clayey sand with gravel (SC).

One foot thick layers of fine grained soils, composed of medium stiff to very stiff, sandy lean clay (CL), lean clay with sand (CL) and sandy lean clay with gravel (CL) were encountered in RC-13-001, RC-13-002, and RC-13-004. In RC-13-005, a stiff sandy lean clay (CL) layer was encountered between 14 and

24 feet below ground surface. The one foot thick layer of sandy lean clay (CL) encountered in RC-13-004 is located in the decomposed Phyllite at a depth of 75 feet.

Wood fragments and roots were encountered in borings RC-13-001, RC-13-004 and RC-13-005 at depths ranging from 21 to 49 feet.

All borings encountered scattered layers of coarse gravel and cobbles composed of shale and Phyllite throughout the fill prism.

Borings RC-13-001 and RC-13-002 encountered a high permeability layer that was interpreted to be a gravel blanket at the base of the original fill. In RC-13-001 a one foot thick drainage layer, composed of loose, well-graded gravel was encountered at 49 feet. In RC-13-002 a three foot thick drainage layer, encountered at 46 feet, was composed of medium dense, well-graded Sand with Clay and Gravel (SW-SC).

Bedrock encountered in borings RC-13-001, RC-13-002 and RC-13-004 was composed of decomposed Phyllite. In RC-13-001 the Phyllite was decomposed to a Silty Sand with Gravel (SM). In RC-13-002 and RC-13-004 the Phyllite was decomposed to a Clayey Gravel (GC).

The Boring Records are included in Appendix A. The laboratory test results are included in Appendix B.

### 5.3 Groundwater Conditions

Piezometers were installed in boreholes RC-13-001, RC-13-002 and RC-13-003. Table 3 – Summary of measured groundwater elevations, summarize the groundwater data. Due to project time constraints, groundwater levels were only measured on December 11 and 12, 2013.

**Table 3 -Summary of measured groundwater elevations**

BORING I.D.	GROUND SURFACE ELEVATION (ft)	GROUNDWATER TABLE OR PIEZOMETRIC ELEVATION		DATE MEASURED
		DEPTH BELOW GROUND SURFACE (ft)	GROUNDWATER ELEVATION (ft)	
RC-13-001	1248	48.7	1,199.3	12-11-2013
		48.8	1,199.2	12-12-2013

BORING I.D.	GROUND SURFACE ELEVATION (ft)	GROUNDWATER TABLE OR PIEZOMETRIC ELEVATION		DATE MEASURED
		DEPTH BELOW GROUND SURFACE (ft)	GROUNDWATER ELEVATION (ft)	
RC-13-002	1256	46.9	1209.1	12-11-2013
		47	1209	12-12-2013
RC-13-003	1271	37.2*	1,233.8	12-11-2013
		51.5	1,219.5	12-12-2013

Note: \* - This measurement may have been influenced by drilling fluid.

In Boring RC-13-001 the groundwater surface was measured at the drainage blanket. In borings RC-13-002 and RC-13-003, the groundwater surface was measured near the base of the fill.

Based on the groundwater data the design groundwater surface was assumed to be lower in elevation than the base of the MSE.

## 5. CORROSION EVALUATION

For Structural Elements, the Department considers a site corrosive if one or more of the following conditions exist; ph is 5.5 or less, chloride concentration is 500 ppm or greater, sulfate concentration is 2000 ppm or greater. Resistivity is not considered for Structural Elements. A summary of the Corrosion Test Results is provided in Table 4 - Soil Corrosion Test Summary.

**Table 4 – Soil Corrosion Test Summary**

BOREHOLE ID	DEPTH (ft, bgs)	pH	MINIMUM RESISTIVITY (ohm-cm)
RC-13-001	41.5-43	7.58	4,283
RC-13-002 <sup>1</sup>	11.5-15	7.09	1033

<b>BOREHOLE ID</b>	<b>DEPTH (ft, bgs)</b>	<b>pH</b>	<b>MINIMUM RESISTIVITY (ohm-cm)</b>
RC-13-002	35-40	8.21	2,900
RC-13-003	46-47	7.92	2,240

<sup>1</sup>-Chloride Content = 9 ppm, Sulfate Content = 1,487 ppm

Based on the Caltrans Corrosion Guidelines (2012 version 2.0) and the laboratory test results, the site soils may be considered non-corrosive to steel and concrete.

## **6 MSE DESIGN ASSUMPTIONS AND PARAMETERS**

### **6.1 Engineering Properties of Retained fill and Foundation soils**

The engineering properties of the existing fill were determined from a combination of published correlations using borehole and laboratory data. These values were then adjusted using the slope stability program SLOPE/W 2007 with the design (critical) cross-section (Figure 4– Design Cross-Section) at roadway “A1” alignment station 16+05.

The stability of the existing slope was analyzed using effective stress parameters, the measured groundwater surface and the Spencer Method of limit equilibrium that satisfies both force and moment equilibrium. The existing embankment was assumed to be at a factor of safety of 1.14 based on the soil parameters and an inferred failure surface. This is a conservative assumption because the current slopes show no signs of global instability.

Table 5 provides the Engineering Properties of existing and reinforced fill soils.

**Table 5 – Engineering Properties of In-situ Soils and Reinforced Fill**

LAYER	APPROXIMATE THICKNESS (ft)	TOTAL UNIT WEIGHT (pcf)	ANGLE OF INTERNAL FRICTION (degrees)	COHESION (c, psf)	ACTIVE COEFFICIENT OF PRESSURE (EXTERNAL STABILITY) $(K_a)^2$	ACTIVE COEFFICIENT OF PRESSURE (INTERNAL STABILITY) $(K_a)^3$
(1) Fill <sup>1</sup>	50	100	32	0	0.31	--
(2) Reinforced Fill	12.4	120	34	0	--	0.28

<sup>1</sup> The soil used for Bearing Capacity, Sliding and Earth Pressure calculations

<sup>2</sup> Value for a compound slope and near vertical wall

<sup>3</sup> Per AASHTO LRFD

## 6.2 MSE Design Parameters

The design parameters were based on a design height of 15.6 feet. Figure 4- Design Cross-Section outlines the design geometry. The wall was designed for a 1H:6V wall batter, 8.3 feet off-set from the slope face, 2.0 feet of embedment and a minimum bench at finish grade that is 3.5 feet wide. A wall facing of either a welded wire mesh or gabion was requested by Roadway Design.

The MSE was designed using AASHTO (2007) LRFD methodology with the computer program MSE (Version 3.0). The primary reinforcement for the MSE will be a uniaxial geogrid. The spacing for the geogrid is shown on Figure 4 - Design Cross-Section. Due to the flexible nature of the facing elements, foundation settlement was not calculated. A base reinforcement bi-axial geogrid and a crushed rock base layer are recommended to minimize the expected settlement and to provide an engineered foundation base. The crushed rock base layer shall be a minimum 1-foot thick and cover the entire base of the excavation for the MSE. The recommended crushed rock base will also aid as a leveling pad for the facing.

Tables 6 and 7 provide the LRFD results of the designed MSE. The design was optimized to obtain the minimum Capacity Demand Ratio (CDR) of 1.0. The Global Stability and the Reinforcement strength governed the design.

For the Global Stability calculation, the modeled failure planes were constrained to pass below the base of the MSE yielding a factor of safety of 1.38. The intent of this calculation was to check for foundation failure.

**TABLE 6 – External Stability Design Parameters for MSE**

<b>EXTERNAL STABILITY</b>			
<b>Description</b>	<b>Value</b>	<b>Design Capacity Demand Ratio</b>	<b>Minimum Capacity Demand Ratio</b>
Ultimate Static Bearing Capacity (psf)	3,773	1.3	1.0
Ultimate Seismic Bearing Capacity (psf)	3,367	1.0	1.0
Direct Sliding at base (Static) <sup>1</sup>	--	1.8	1.0
Direct Sliding at base (Seismic) <sup>1</sup>	--	1.4	1.0
Direct Sliding on geogrid (Static) Min.		1.3	1.0
Direct Sliding on geogrid (Seismic) Min.		1.0 <sup>2</sup>	1.0
<b>EXTERNAL STABILITY</b>			
<b>Description</b>		<b>Design Eccentricity Ratio (e/L)</b>	<b>Maximum Allowable Eccentricity ratio (e/L)</b>
Eccentricity ratio (e/L) (static)		0.06	4
Eccentricity ratio (e/L) (seismic)		0.14	4
<b>EXTERNAL STABILITY</b>			
<b>Description</b>		<b>Factor of Safety (Static)</b>	<b>Factor of Safety (Seismic)</b>
Global Stability for Foundation failure (Constrained to be Rotational below the MSE)		<b>1.38<sup>3</sup></b>	<b>1.1<sup>4</sup></b>

<sup>1</sup> Along Reinforced and Foundation Soils

<sup>2</sup> Along first reinforcement layer. Ignored live load surcharge for calculation.

<sup>3</sup> Results from SLOPE/W.

<sup>4</sup> Results from MSEW with a  $k_h=0.2$  and live load

**Table 7 – Internal Stability Design Parameters for MSE**

Description		Design Capacity Demand Ratio <sup>1</sup>
Min. Reinforcement Strength	Static	4.96
	Seismic	6.02
Min. Pullout Strength	Static	4.95
	Seismic	6.02
Min. Connection Strength	Static	1.05
	Seismic	1.37

<sup>1</sup> Minimum required CDR = 1.0

## 7 MSE DESIGN RECOMMENDATIONS

Tables 8 through 10 summarize the design requirements of the components of the MSE.

### 7.1 MSE Reinforced Fill requirements

MSE backfill must conform to the requirements of Table 8- Reinforced Fill Gradation Requirements and section 47-2.02C Structure Backfill in the 2010 Standard Specifications.

**Table 8 – Reinforced Fill Gradation Requirements**

	U.S. Sieve Size	Percent Passing
<b>Grading</b> <sup>1</sup>	¾ -inch (20 mm)	100
	No. 40 (0.425 mm)	0-60
	No. 200 (0.075 mm)	0-15
<b>PLASTICITY INDEX, PI</b> <sup>2</sup>	PI ≤ 6	

<b>SOUNDNESS</b> <sup>3</sup>	The materials shall be substantially free of shale or other soft, poor durability particles. Magnesium sulfate soundness loss less than 30% after 4 cycles or an equivalent sodium sulfate soundness of < 15% after 5 cycles.
<b>COMPACTION</b> <sup>4</sup>	95% with $\pm 2\%$ of optimum moisture
<b>Soil Fill pH</b> <sup>5</sup>	>3 and <9
<b>ANGULARITY</b>	Coarse aggregate –two fractured faces

- 1- Per California Test 202. The fill should be well-graded in accordance with the Unified Soil Classification System (USCS) in ASTM D2487.  $C_u \geq 4$
- 2- Per California Test 204.
- 3- Per California Test 214
- 4- Per California Test 216

## 7.2 MSE Geosynthetic Reinforcement Requirements

Table 9 provides the Design Reduction factors used for the Uniaxial Geogrid. The Uniaxial geogrid shall be a minimum 15.5 feet long and be placed in horizontal lifts. The layers will be spaced 1.5 feet vertically. The top two layers of geogrid shall be a minimum 18 feet in length.

Table 9 provides the Engineering Properties of the Uniaxial Geogrid

**Table 9 – Engineering Properties of the Uniaxial Geogrid**

<b>Geogrid</b>	<b>Long-Term Allowable Strength</b> <b>T<sub>al</sub> (lb/ft)</b>
Uniaxial Geogrid	12,500

The base reinforcement bi-axial geogrid is recommended to provide a stable foundation at the base of the excavation and to minimize settlement. The width of the base reinforcement geogrid is approximately 24 feet at the base of the crushed rock foundation layer.

Table 10 provides the Engineering Properties of the Base Reinforcement Bi-Axial Geogrid.

**Table 10- Engineering Properties of the Base Reinforcement Bi-Axial Geogrid**

PROPERTY	TEST METHOD	UNITS	VALUE
Ultimate Multi-Rib Tensile Strength <sup>1</sup>	ASTM D 6637	lb/ft	2000
Junction Strength (min.)	GSI GRI GG2	lb	25
Aperture Size	Direct measure	in	0.5 to 3-in
Ultraviolet Stability (Retained Tensile Strength)	ASTM D 4355	%	50% after 500 hours of exposure

<sup>1</sup> Reduction Factor of 6.6

### **7.3 MSE Facing Requirements**

The facing element for the MSE should be a welded wire mesh or a gabion basket.

The steel facings should be galvanized consistent with the use of galvanized reinforcements. Hot dip galvanizing of at least 2 oz/ft<sup>2</sup> is recommended.

For a welded wire mesh facing element, hardware cloth that is sometimes used with welded wire facings to contain fill material may be vulnerable to degradation due to UV radiation. A filter fabric shall be used to retain the Reinforced fill as shown in Figure 5 - Welded Wire Mesh Facing Detail.

For gabion face units, connecting the reinforcement by mechanically clipping it to the back of the gabion will not be permitted. The reinforcement should only be connected to the facing by friction (i.e. sandwiching the reinforcement between vertically adjacent units) as shown in Figure 6 – Gabion Basket Facing Detail. If the gabion's vertical height exceeds the required 1.5' reinforcement spacing, secondary reinforcement layers shall be placed in at the center of the unit heights to reduce reinforcement vertical spacing.

The stiffness of the facing element must be such that the maximum local horizontal deformation between soil layers is limited to be between 1 to 2 inches.

## **7.4 MSE Drainage Requirements**

### 7.4.1 External Drainage

Surface runoff from the pavement should be prevented from overtopping the wall and be collected to prevent water from infiltrating the MSE and the underlying fill.

## **8 CONSTRUCTION CONSIDERATIONS**

The required 1H:1V or slightly steeper excavation may require temporary shoring. The slope reinforcement and drainage materials should be on site prior to excavation in order to minimize the stand-up time of the cut. The stability of the excavation should be monitored during construction for potential slope failures. We recommend that this project be constructed in one season during dry weather. Rainfall could adversely affect the stability of the excavation. The order of work should be specified in order to ensure that the contractor is on-site at the beginning of the construction season.

The base reinforcement geogrid shall be placed on a level sub-grade that has been proof-rolled. The crushed rock layer shall be compacted with a vibratory or plate-type compactor. To prevent installation damage to the uniaxial geogrid, a maximum 3-inches of reinforced fill shall be placed on the crushed rock prior to placing the first layer of the uniaxial geogrid.

With the exception of a 3-foot zone directly behind the facing element, large, smooth-drum, vibratory rollers should generally be used to obtain the 95% compaction. Within 3-feet of the wall the use of a small single or double drum, walk-behind vibratory roller or vibratory plate compactor must be used to maintain the correct wall alignment control. Placement of the reinforced backfill near the front should not lag behind the remainder of the structure by more than one lift.

Compaction control testing of the reinforced backfill should be performed on a regular basis during the entire construction project. A minimum frequency of one test within the reinforced soil zone per every 5 ft of wall height for every 100 ft of wall is recommended.

The MSE construction should conform at a minimum to the following Standard Specifications modified according to the recommendations in this report:

Section 6- Control of Materials

Section 19 – Earthwork

Section 47 – Earth Retaining Structures

Section 88 - Geosynthetics

## 6. PROJECT INFORMATION

The Project Information disclosed to the bidders can be found under the Standard Specifications (SP) 2 -1.06B, "Supplemental Project Information".

The information handout available to the bidders is:

Geotechnical Design Recommendations for the Lupton Curve Improvement Project –Dated February 02, 2015

These may be viewed at the Bidders' Exchange Website.

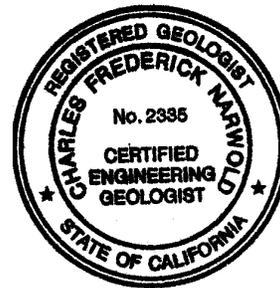
Data and Information available for observation at the Transportation Laboratory:

A. Borehole Core Samples

If you have any questions or require additional information, please contact June James at (707) 441-4692 or Charlie Narwold at (707) 445-6036.



JUNE JAMES  
Transportation Engineer  
Office of Geotechnical Design North



CNF

CHARLIE NARWOLD  
Senior Engineering Geologist  
Office of Geotechnical Design North

C: Traci Menard – GS

List of Figures:

Figure 1 - Vicinity Map

Figure 2 - Site Plan

Figure 3 - Project Geologic Map

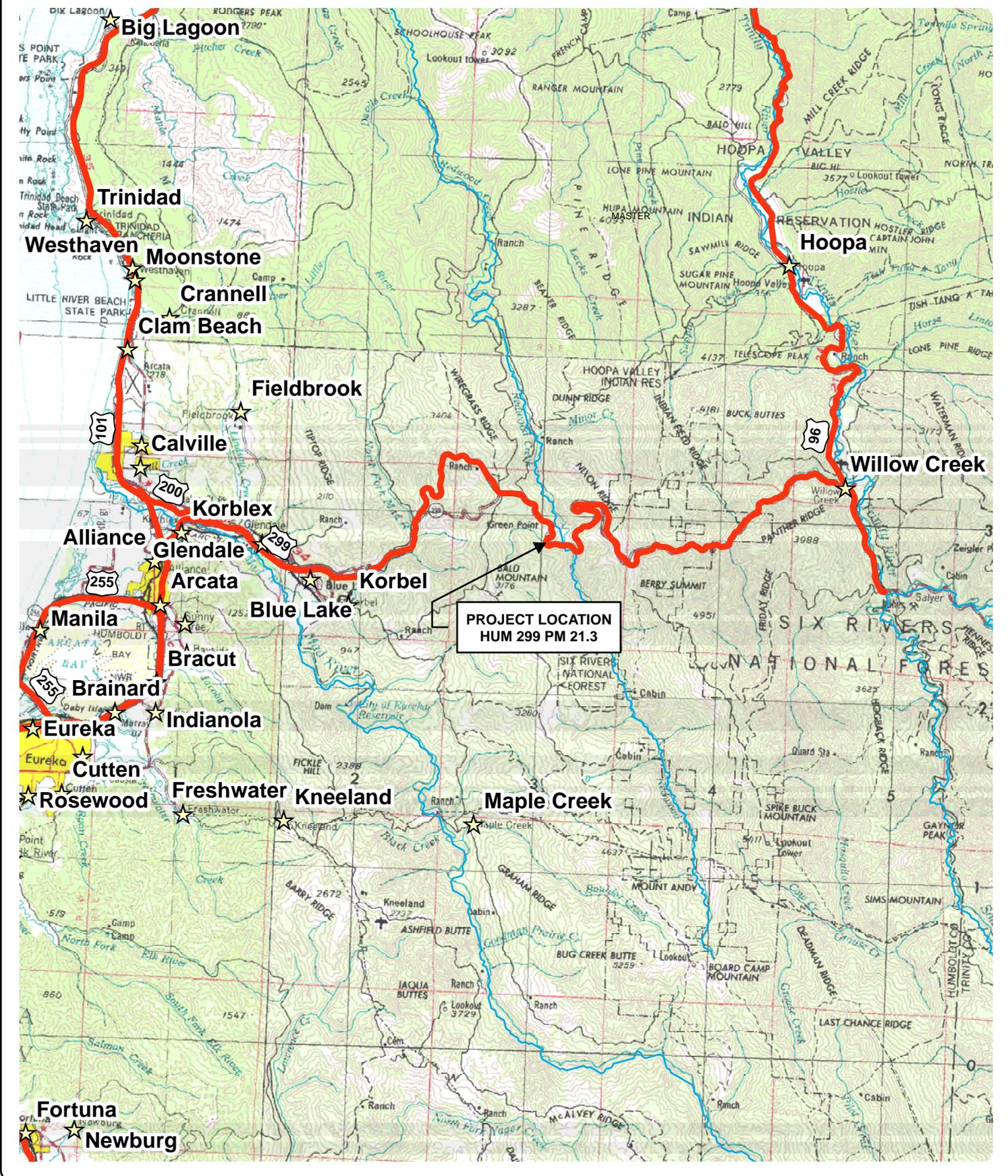
Figure 4 - Design Cross-Section

Figure 5 - Welded Wire Mesh Facing Detail

Figure 6 - Gabion Basket Facing Detail

Appendix A –Boring Records

Appendix B – Laboratory Test Results and Data Sheets

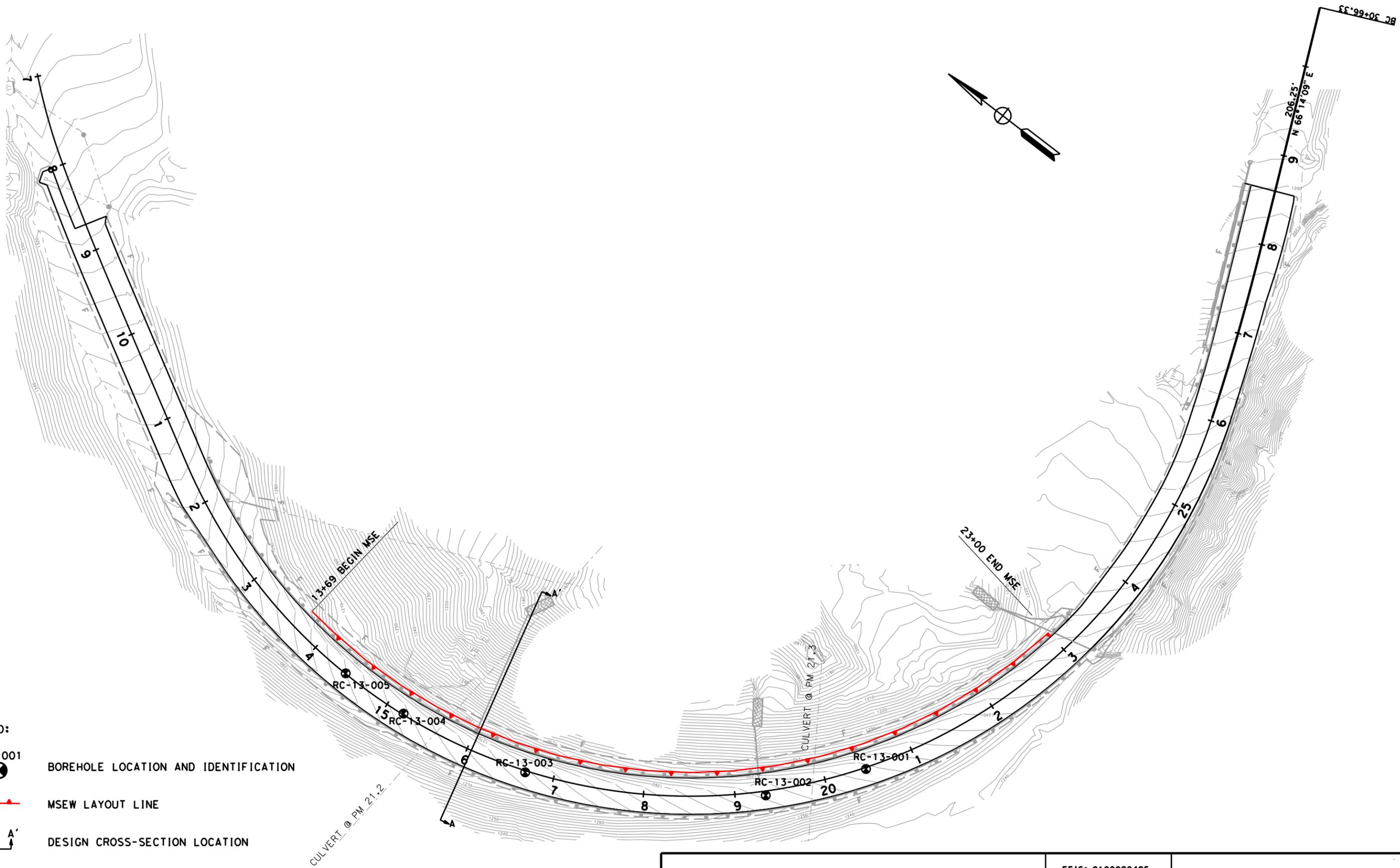


0 2.5 5 10 Miles

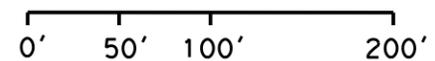


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Geotechnical Services  
Office of Geotechnical Design North- Branch B

EFIS:0100020425	<b>VICINITY MAP</b>
Date: FEBRUARY 2015	
LUPTON CURVE IMPROVEMENT PROJECT 01-HUM-299-PM 21.1/21.5	<b>FIGURE 1</b>

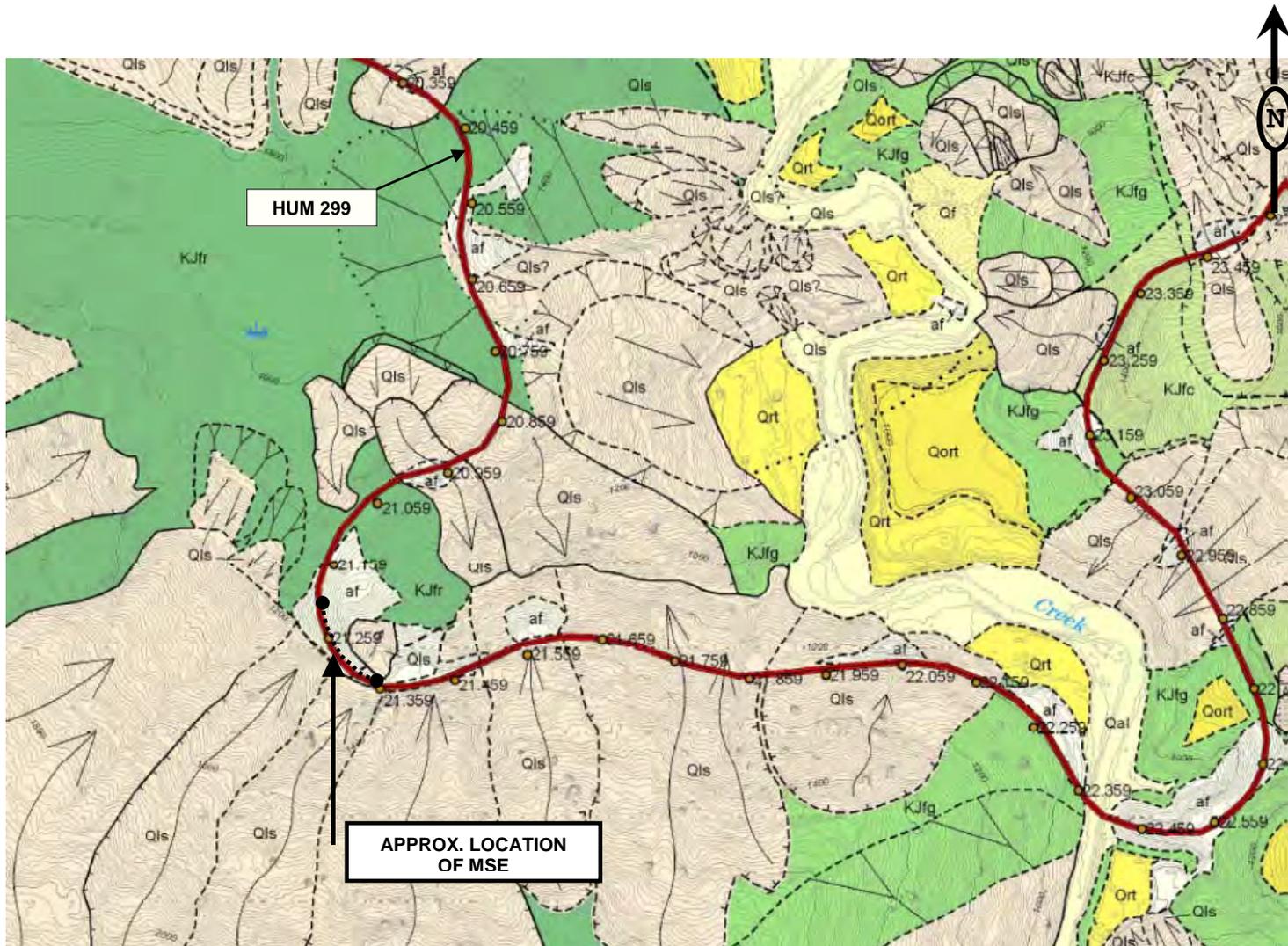


- LEGEND:**
- RC-13-001  BOREHOLE LOCATION AND IDENTIFICATION
  -  MSEW LAYOUT LINE
  -  DESIGN CROSS-SECTION LOCATION



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 Division of Engineering Services  
 Geotechnical Services  
 Office of Geotechnical Design North  
 Branch B

EFIS: 0100020425	SITE PLAN
DATE: FEBRUARY 2015	
LUPTON CURVE IMPROVEMENT PROJECT 01-HUM-299-PM 21.1/21.5	
FIGURE 2	



Reference: Falls, James. N. et.al. "Geologic Map of the Highway 299 Corridor, Humboldt County, California" 2005

**MAP UNIT DESCRIPTIONS**

af	Artificial Fill
Qls	Quaternary Landslide Deposit
Qal	Alluvium
Qrt	River terrace deposits
KJfg	Transitional rocks of the Grogan Fault Zone (Cretaceous-Jurassic) Eastern Belt Franciscan Complex
KJfr	Redwood Creek Schist (Cretaceous-Jurassic)

**LANDSLIDE SYMBOLS**

- ROCK SLIDE:** Slope movement with bedrock as its primary source material. This class of failure includes rotational and translational landslides; relatively cohesive slide masses with failure planes that are deep-seated in comparison to those debris slides of similar areal extent. The slide plane is curved in a rotational slide. Movement along a planer joint or bedding surface may be referred to as translational. Complex versions with combinations of rotational heads and translational movement or earthflows downslope are common. Landslide boundary indicates confidence: solid line- definite, dashed line - probable, dotted line - questionable. ⤴ indicates a scarp, arrows show direction of movement. Qls denotes deposit when present.
- EARTHFLOW:** Slow to rapid movement of mostly fine-grained soil with some rocky debris in a semi-viscous, highly plastic state. After initial failure, the mass may flow or creep seasonally in response to changes in groundwater level. These types of slope failures often include complexes of nested rotational slides and deeply incised gullies. Landslide boundary indicates confidence: solid line- definite, dashed line - probable, dotted line - questionable. ⤴ indicates scarp, arrows show direction of movement. Qls denotes deposit when present.

**LINE SYMBOLS**

● 33.746 State highway and Post Mile  
 Post Miles shown are approximate.



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EFIS: 0100020425

Date: February 2015

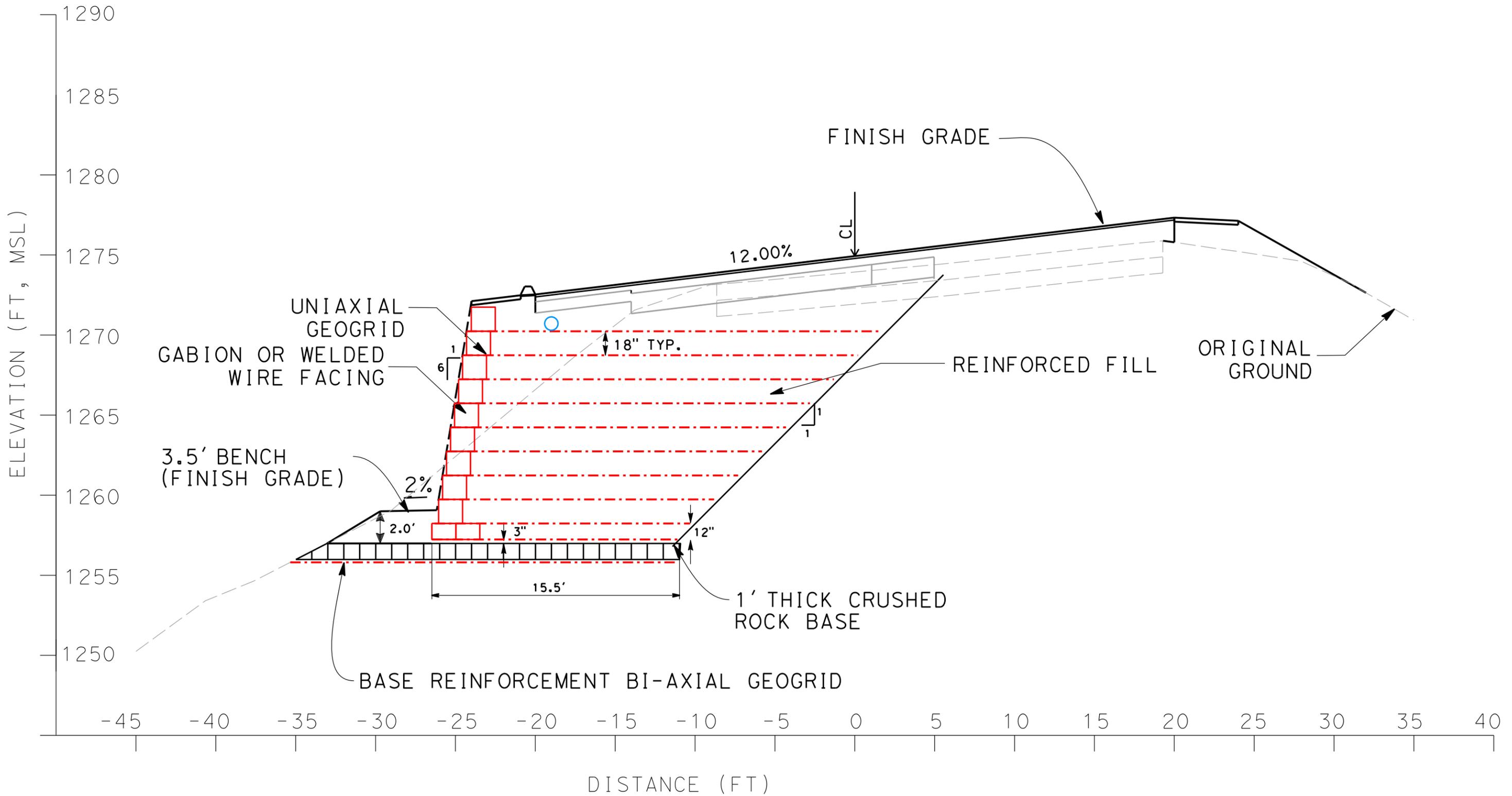
**PROJECT GEOLOGIC MAP**

**LUPTON CURVE IMPROVEMENT PROJECT**  
 01-HUM-299 PM 21.1/21.5

**Figure 3**

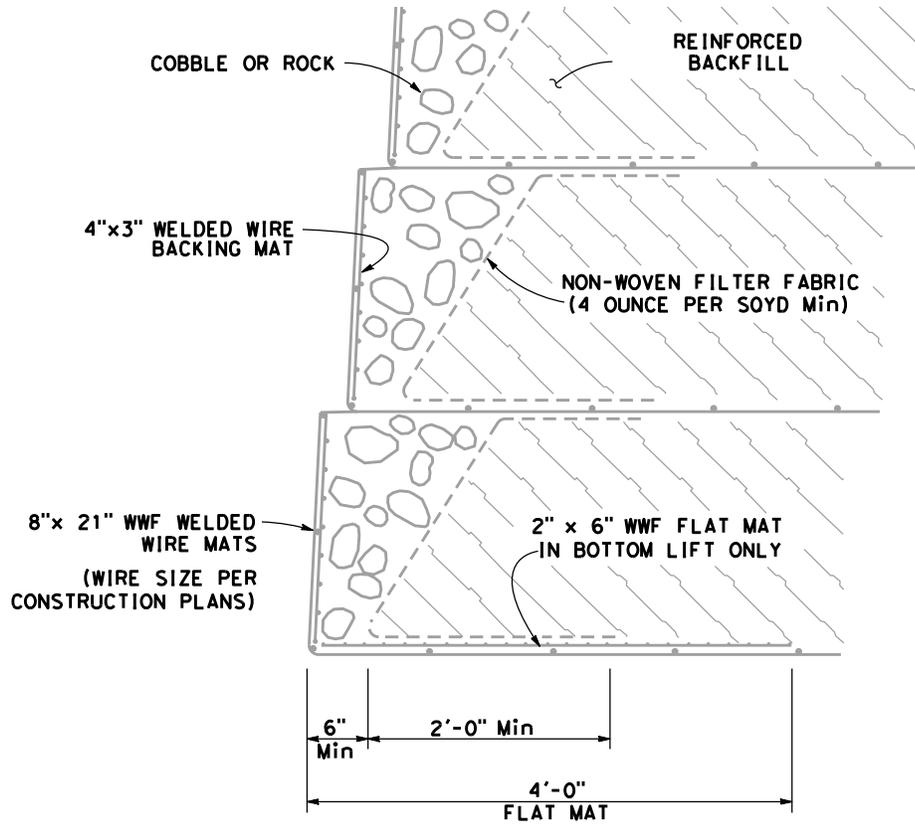
A

A'



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 Office of Geotechnical Design North  
 Branch B

EFIS: 0100020245	DESIGN CROSS-SECTION
DATE: FEBRUARY 2015	
LUPTON CURVE IMPROVEMENT PROJECT 01-HUM-299-PM 21.1/21.5	
FIGURE 4	



NOTES:  
WWF - WELDED WIRE FORM

NOT TO SCALE



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Office of Geotechnical Design - North

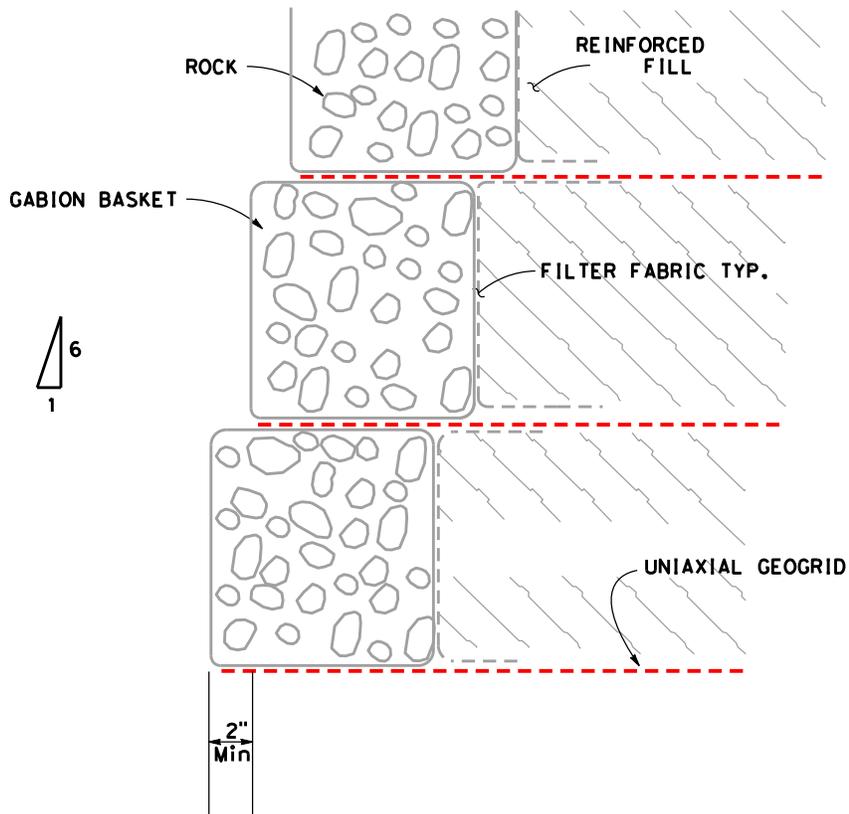
EFIS: 0100020245

DATE: FEBRUARY 2015

WELDED WIRE MESH FACING DETAIL

LUPTON CURVE IMPROVEMENT PROJECT  
01-HUM-299-PM 21.1/21.5

FIGURE 5



NOT TO SCALE



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EFIS: 0100020245

DATE: FEBRUARY 2015

GABION BASKET FACING DETAIL

LUPTON CURVE IMPROVEMENT PROJECT  
 01-HUM-299-PM 21.1/21.5

FIGURE 6

APPENDIX A  
BORING RECORDS

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER: RC-13-001      DATE: 12-03-2013

LOCATION (STA/OFFSET or NORTHING/EASTING)  
Sta. 20+53.84' 1.71' RT "A2" ALIGNMENT RTE 299

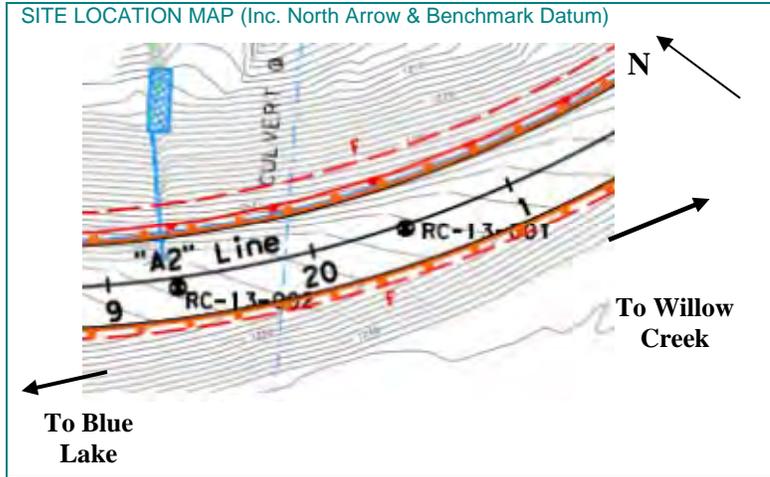
TOP HOLE ELEVATION  
1248'

DIST. 01      CO. HUM      RTE. 299      P.M. (K.P.) 21.3      BRIDGE # N/A

BRIDGE NAME: N/A      EFIS NUMBER: 0100020289

CREW: C. Damm/R. Ramage/A. Huff      EQUIPMENT: ACKER MPCA      CHC NUMBER: 7000398

HAMMER ID# Automatic ERI 71% (corr. 1.28)



<b>LOGGER</b> M. J. JAMES	
GWS 48.7'	DATE 12-11-2013 @ 12:39 PM
GWS 48.8'	DATE 12-12-2013 @ 11:20 AM
CASING SIZE 1.5"	CASING DEPTH 61.5'
CASING SIZE	CASING DEPTH
SLURRY TYPE	#8 Sand and Bentonite
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) Paved travel way.	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc.) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5"				0		ASPHALT CONCRETE (12")
1.4" SPT sampler				1		CLAYEY GRAVEL with SAND (GC); loose to m. dense; moist; v. dk. grey; fine angular GRAVEL composed of PHYLLITE; some coarse SAND composed of quartz; little non-plastic fines; (FILL).
Drilled dry 1.5'. Drilled with water.				2		
No recovery				3		
				4		
	1	10		5		
		7		6		
		6		7		
		4		8		
				9		
	2	20		10		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-001	DATE 12/03/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 20+53.84' 1.71' RT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1248'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>	
	SAMPLE #	BLOWS PER 6"	SPT (N)				
		9					
		10		11			
		10					
				12			trace sub-rounded SANDSTONE GRAVEL
				13			
				14			little wood and roots
	3		22	15			3" GRAVEL composed of SHALE
		8					
		10		16			
		12					coarse to medium SAND
				17			
				18			
				19			3" PHYLLITE GRAVEL
	4		19	20			
		6					
		12		21			
		7					
				22			
				23			
				24			
	5		15	25			
		6					
		7		26			
		8					
				27			

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-001	DATE 12/03/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 20+53.84' 1.71' RT_"A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1248'	BRIDGE #	EFIS NUMBER 0100020425	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>w</sub>, s<sub>w</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
						SANDY lean CLAY (CL); m. stiff; moist; fine SAND. pp=1tsf
				28		
				29		CLAYEY GRAVEL with SAND (GC); m. dense; moist; v. dk. grey; fine Shale GRAVEL; some fine SAND; little fines.
	6		24	30		
		7				
		11		31		
		13				
				32		
				33		
Wood fragments block drill bit. The borehole was cleaned out to 35'.				34		Wood fragments 34' - 42'
No recovery	7		14	35		
		10				
		8		36		
		6				
				37		
				38		
				39		
	8		15	40		
		9				
CR		7		41		
		8				trace iron staining
				42		
				43		
				44		Little wood, trace roots.

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-001	DATE 12/03/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta.20+53.84' 1.71' RT_"A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1248'		BRIDGE #	EFIS NUMBER 0100020425

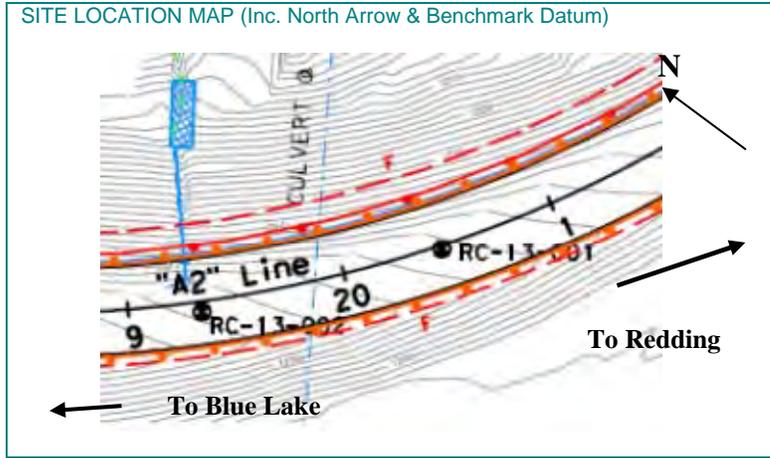
REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification</i> (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take $q_u$ , $s_u$ , Additional Comments) <i>Rock Classification</i> (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
	9		37	45		dense
2" Gravel in SPT shoe		9				
		19		46		little iron staining
		18				
				47		
				48		
				49		
	10		27	50		Well-graded GRAVEL with SAND (GW); loose; rounded GRAVEL; some c. SAND; (DRAINAGE BLANKET).
		4				CLAYEY GRAVEL with SAND (GC); dense; moist; v. dk. grey;
		11		50		fine Shale GRAVEL; some fine SAND; little fines.
		16				
				51		
				52		
				53		
PA, PI				54		Metamorphic Rock (Phyllite); v. dk. grey and light grey; decomposed; (SILTY SAND with GRAVEL (SM); loose to very dense; little fine quartz GRAVEL; mostly c-f. SAND;
	11		73	55		some non-plastic fines).
		24				
		39		56		light grey
		34				
				57		
				58		
				59		grayish brown
				60		very dark grey



**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)	
BORING NUMBER RC-13-002	DATE: 12-04-2013
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 19+33.36' 4.76' RT "A2" ALIGNMENT RTE 299	
TOP HOLE ELEVATION 1256'	

DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3	BRIDGE # N/A
BRIDGE NAME N/A			EFIS NUMBER 0100020289	
CREW C. Damm/R. Ramage/A. Huff		EQUIPMENT ACKER MPCA		CHC NUMBER 7000398
HAMMER ID# Automatic ERI 71% (Correction 1.28)				



LOGGER M. J. JAMES	
GWS 46.9'	DATE 12-11-2013 @ 12:39 PM
GWS 47'	DATE 12-12-2013 @ 11:34AM
CASING SIZE 1.5"	CASING DEPTH 66.5'
CASING SIZE	CASING DEPTH
SLURRY TYPE	#8 Sand and Bentonite
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) Paved travel way.	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc.) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>v</sub>, s<sub>v</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5"				0		ASPHALT CONCRETE (12")
1.4" SPT sampler				1		
Drilled with water.				2		Lean CLAY with SAND (CL); v. stiff; yellowish brown; moist; m-f SAND; (FILL). pp = 4 tsf
				3		CLAYEY GRAVEL with SAND (GC); m. dense; moist; v. dk. grey; fine angular SHALE GRAVEL; some fine SAND; little non-
				4		plastic fines.
				5		
	1		15	6		
		5		7		
		8		8		
		7		9		
				10		
	2		16			

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-002	DATE 12/04/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 19+33.36' 4.76' RT "A2" ALIGNMENT RTE299		TOP HOLE ELEVATION 1256'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>w</sub>, s<sub>w</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
		5				
		8		11		GRAVELLY lean CLAY (CL); stiff; v. dark grey; moist; fine SHALE
PA,PI,CR		8				GRAVEL; few fine SAND; trace wood. pp = 2 tsf
				12		SILTY SAND with GRAVEL (SM); m. dense; some fine, angular
						SHALE GRAVEL; some c-f SAND; little non-plastic fines.
				13		
				14		
	3			15		
		4	16			
		6		16		
		10				
				17		
				18		
				19		
	4			20		grayish brown
		9	21			
		9		21		
		12				
				22		
				23		
				24		
	5			25		v. dk. grey
		7	15			
		6		26		
		9				
				27		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-002	DATE 12/04/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta.19+33.36' 4.76' RT_"A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1256'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>w</sub>, s<sub>w</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
				28		
				29		
	6		15	30		
		4				CLAYEY GRAVEL (GC); m. dense; moist; fine angular SHALE
		7		31		GRAVEL; few fine SAND; some non-plastic fines;
		8				
				32		
				33		
				34		
PA, PI, CR	7		16	35		
		6				CLAYEY SAND with GRAVEL (SC); m. dense; moist; little fine
		8		36		angular SHALE GRAVEL; some c- f SAND; some non plastic.
		8				fines
				37		
				38		
				39		
	8		17	40		yellowish grey; SCHIST GRAVEL
		9				
		9		41		
		8				
				42		
				43		
				44		

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-002	DATE 12/04/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 19+33.36' 4.76' RT_"A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1256'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
	9		14	45		v. dark grey
		5				
		7		46		
		7				
				47		Well-graded SAND with CLAY and GRAVEL (SW-SC); m. dense; v. dark grey; moist; little fine GRAVEL; c-f SAND; few fines.
				48		
				49		
						METAMORPHIC ROCK (PHYLLITE); v. dark grey; decomposed
	10		38	50		(CLAYEY GRAVEL (GC); dense; fine angular GRAVEL; some fines; few fine SAND).
		24				
		24		50		
		14				
				51		Quartz GRAVEL
				52		
				53		
				54		
	11			55		
		8	21			
		9		56		
		12				
				57		
				58		
				59		
				60		



**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER: RC-13-003 DATE: 12-10-2013

LOCATION (STA/OFFSET or NORTHING/EASTING): Sta. 16+68.46' 1.85' RT "A2" ALIGNMENT RTE 299

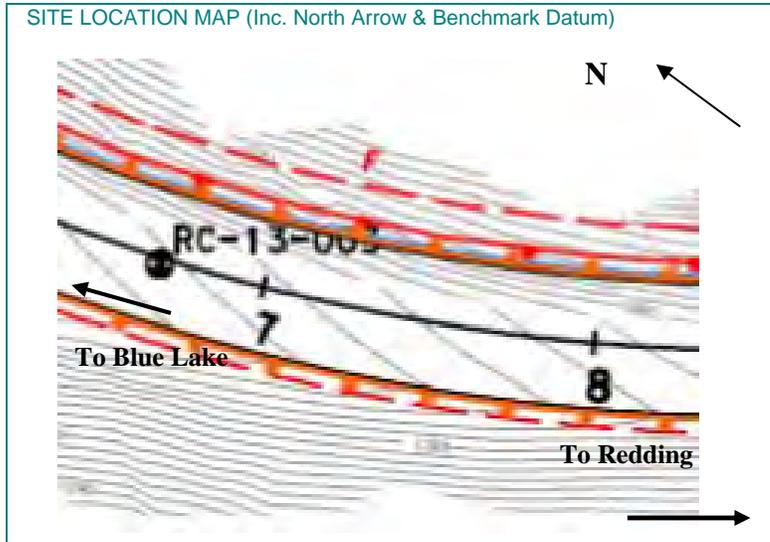
TOP HOLE ELEVATION: 1271'

DIST. 01 CO. HUM RTE. 299 P.M. (K.P.) 21.3 BRIDGE # N/A

BRIDGE NAME: N/A EFIS NUMBER: 0100020289

CREW: M Westervelt, R. Ramage, S. Levey EQUIPMENT: ACKER MPCA CHC NUMBER: 7000398

HAMMER ID# Automatic ERI 71% Correction factor = 1.28



<b>LOGGER</b> M. J. JAMES	
GWS 37.2'	DATE 12-11-2013 @12:31 PM
GWS 51.5'	DATE 12-12-2013 @11:48AM
CASING SIZE 1.5"	CASING DEPTH 65'
CASING SIZE	CASING DEPTH
SLURRY TYPE	#8 Sand and Bentonite
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) Travel way	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc.) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, S<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5"				0		ASPHALT CONCRETE (12")
1.4" SPT sampler				1		
Drilled with water.				2		Well-graded GRAVEL with SILT and SAND (GW-GM); loose to m. dense; moist; v. dark grey; rounded and sub-rounded GRAVEL;
				3		some m. SAND;(FILL).
				4		
	1		10	5		
		4		6		CLAYEY SAND (SC); m. dense; v. dark gray; moist; f. SAND;
		6		6		Some fines; few f. SCHIST GRAVEL.
		4		7		
				8		
				9		Well-graded GRAVEL with CLAY and SAND (GW-GC); loose; v. dark gray; moist; some m-f SAND; SANDSTONE GRAVEL rounded to sub-rounded.
No recovery. Cobble in shoe	2		8	10		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-003	DATE 12/10/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 16+68.46' 1.85' RT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1271'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification</i> (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take $q_u$ , $s_u$ , Additional Comments) <i>Rock Classification</i> (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
		4				
		4		11		
		4				
				12		
				13		
				14		
No recovery	3	4	11	15		
		5				
		6		16		
				17		
				18		
				19		
	4		10	20		
		7				
		4		21		Cobble
		6				
				22		Coarse GRAVEL
				23		
				24		
	5		14	25		
		6				CLAYEY SAND with GRAVEL (SC); m. dense; v. dark gray and
		6		26		grayish brown; moist; some f. GRAVEL; some c - f SAND; some
		8				finer.
				27		trace iron staining.

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-003	DATE 12/10/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 16+68.46' 1.85' RT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1271'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING				DEPTH	GRAPHIC LOG	DESCRIPTION Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q <sub>w</sub> , s <sub>w</sub> , Additional Comments) Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)				
					28		
					29		
	6		13		30		
		5					
		8			31		
		5					
					32		Quartz COBBLE
					33		
					34		
No recovery	7		18		35		
		18					
		8			36		
		10					
					37		
					38		
					39		
No sample in SPT sampler	8		32		40		dense
		21					
		16			41		
		16					
					42		
					43		
					44		

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-003	DATE 12/10/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 16+68.46' 1.85' RT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1271'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
No sample in SPT sampler	9		20	45		m. dense
		8				
PA, PI, CR		10		46		
2' run 45'-47' Drilled to 50' without inner liner.		10				
				47		
				48		
				49		
	10		22	50		
		8				
		10		50		
		12				
				51		
				52		
				53		
				54		
	11		11	55		
		4				
		5		56		
		6				
				57		
				58		
				59		
	12		26	60		dense



**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER: RC-13-004 DATE: 12-11-2013

LOCATION (STA/OFFSET or NORTHING/EASTING): Sta. 15+20.57' 1.04' LT "A2" ALIGNMENT RTE 299

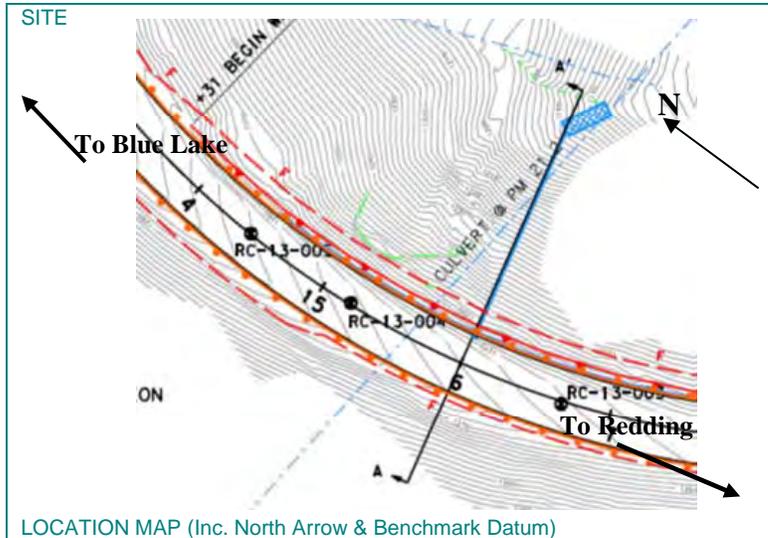
TOP HOLE ELEVATION: 1279'

DIST. 01 CO. HUM RTE. 299 P.M. (K.P.) 21.3 BRIDGE # N/A

BRIDGE NAME: N/A EFIS NUMBER: 0100020289

CREW: M Westervelt, R. Ramage, S. Levey EQUIPMENT: ACKER MPCA CHC NUMBER: 7000398

HAMMER ID# Automatic ERI 77% Correction factor = 1.28



LOGGER M. J. JAMES	
GWS Not measured	DATE
GWS	DATE
CASING SIZE	CASING DEPTH
CASING SIZE	CASING DEPTH
SLURRY TYPE	#8 Sand and Bentonite
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) Travel way	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc.) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>s</sub>, s<sub>w</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5"				0		ASPHALT CONCRETE (12")
1.4" SPT sampler				1		
Drilled with water.				2		Well-graded GRAVEL with CLAY and SAND (GW-GC); m. dense;
No recovery				2		v. dark grey; moist; rounded c-f SANDSTONE GRAVEL; some
				3		fine SAND; (FILL).
				4		
				5		CLAYEY GRAVEL with SAND (GC); m. dense to loose; v. dark
				5		gray; moist; some fines; little fine SAND; fine sub-rounded
	1		13			GRAVEL.
		6		6		
		6				
		7		7		
				8		
				9		
No recovery. Driller says soft drilling.	2		12	10		trace iron staining

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-004	DATE 12/11/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 15+20.57' 1.04' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1279'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
		5				
		4		11		
		8				
				12		
				13		
				14		
	3		9	15		
		5				
		4		16		
		5				
				17		Coarse GRAVEL, sub-rounded and angular
				18		
				19		
	4		37	20		
		24				
		31		21		
		6				trace roots
				22		
				23		
				24		grayish brown
	5		16	25		
		9				
		8		26		
		8				
				27		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-004	DATE 12/11/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 15+20.57' 1.04' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1279'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q <sub>w</sub> , S <sub>w</sub> , Additional Comments) Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
				28		
				29		
	6		25	30		
		5				
		13		31		
		13				
				32		
				33		
				34		
	7		26	35		
		15				some wood.
Wood in SPT sampler.		18		36		
		8				
				37		
				38		
				39		
Wood in SPT sampler.	8		43	40		some wood.
Hard drilling during the run. Softer at the end.		7				
		18		41		
		35				
				42		
				43		
				44		

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-004	DATE 12/11/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 15+20.57' 1.04' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1279'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification</i> (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take $q_u$ , $s_u$ , Additional Comments) <i>Rock Classification</i> (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
	9		24	45		trace roots.
		8				
		9		46		
		15				
				47		
				48		
				49		trace wood.
No sample in SPT sampler.	10		17	50		
		8				
		8		50		
		9				
				51		
				52		
				53		coarse sub-angular SCHIST GRAVEL.
				54		
	13		34	55		
		19				
		17		56		
		17				
Drilling is hard. No sample. Drilling without liner to 60'.				57		
				58		
				59		
				60		

ROTARY FIELD NOTES

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-004	DATE 12/11/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 15+20.57' 1.04' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1279'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification</i> (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take $q_u$ , $s_u$ , Additional Comments) <i>Rock Classification</i> (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
	14		24	61		
		12				
		11		62		
		13				coarse SAND
				63		
				64		
				65		METAMORPHIC ROCK (SCHIST); v. dark grey; decomposed; ( CLAYEY SAND with GRAVEL (SC); m. dense; moist; fine SAND; some non-plastic fines; little fine quartz and SCHIST GRAVEL.
	15		18	66		
		6				
		6		67		
		12				
				68		
				69		
	16		21	70		
		9				
		10		71		METAMORPHIC ROCK (SCHIST); v. dark grey; decomposed; ( CLAYEY GRAVEL (GC); m. dense; moist; fine GRAVEL; little fine SAND).
		11				
				72		
				73		
Drill rig chatters.				74		
	17		18	75		
		6				SANDY lean CLAY (CL); v. stiff; v. dark grey; moist; fine SAND;
		8		76		pp = 2 - 2.5 tsf
End borehole at 76.5'. Backfill with #8 Sand and Bentonite/cement slurry.		10				
				77		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER: RC-13-005 DATE: 12-12-2013

LOCATION (STA/OFFSET or NORTHING/EASTING)  
Sta. 14+43.51' 0.49' LT "A2" ALIGNMENT RTE 299

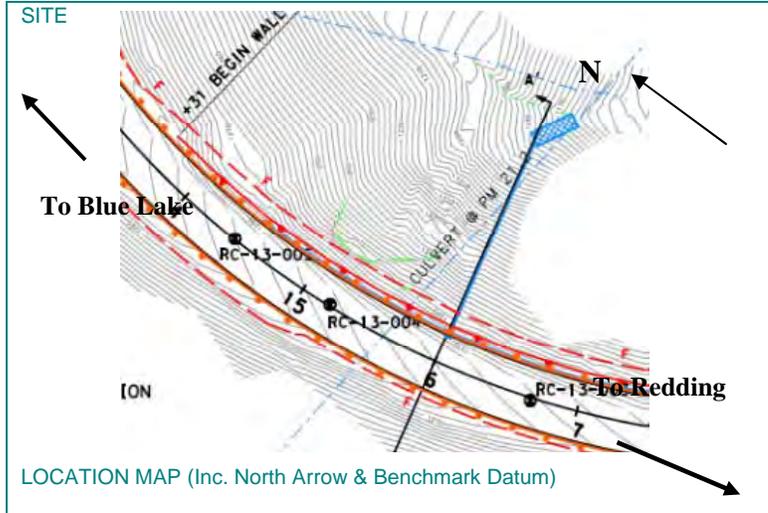
TOP HOLE ELEVATION  
1284'

DIST. 01 CO. HUM RTE. 299 P.M. (K.P.) 21.3 BRIDGE # N/A

BRIDGE NAME N/A EFIS NUMBER 0100020289

CREW M Westervelt, R. Ramage S. Levey EQUIPMENT ACKER MPCA CHC NUMBER 7000398

HAMMER ID# Automatic ERI 71% Correction Factor = 1.28



LOGGER M. J. JAMES	
GWS	DATE
GWS	DATE
CASING SIZE	CASING DEPTH
CASING SIZE	CASING DEPTH
SLURRY TYPE	
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) Paved travel way	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc.) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification</i> (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take $q_w$ , $s_w$ , Additional Comments) <i>Rock Classification</i> (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5"				0		ASPHALT CONCRETE (12")
1.4" SPT sampler				1		
Drilled with water.						
No recovery 0'-5'				2		Well-graded GRAVEL with SAND (GW); m. dense; v. dark grey; moist; fine sub-rounded and rounded SANDSTONE GRAVEL; some c. SAND; (FILL).
				3		
				4		
	1		10	5		
		4		6		SANDY lean CLAY (CL); stiff; v. dark grey; moist; fine SAND. pp= 2.5 tsf
		5				
		5		7		
						Well-graded GRAVEL with CLAY and SAND (GW-GC); m. dense; v. dark grey; moist; coarse sub-rounded SANDSTONE and QUARTZ GRAVEL; some fine SAND.
				8		
				9		
	2		10	10		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-005	DATE 12/12/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 14+43.51' 0.49' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1284'		BRIDGE #	EFIS NUMBER 0100020425

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION <i>Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q<sub>u</sub>, s<sub>u</sub>, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip &amp; magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
		2				CLAYEY GRAVEL with SAND (GC); m. dense; v. dark grey; moist;
		3		11		coarse and fine sub-rounded and rounded GRAVEL; some
		7				plastic fines; little fine SAND.
				12		
				13		
				14		
				15		SANDY lean CLAY with GRAVEL (CL); stiff; v. dark grey; moist;
	3		10	15		some fine SAND; fine GRAVEL. pp= 2 tsf
		3				
		4		16		
		6				
				17		
				18		
				19		
				20		m. stiff to soft, pp= 1 tsf
		3				
		3		21		
		3				
				22		
				23	little wood	
				24		
				25	CLAYEY GRAVEL with SAND (GC); m. dense; v. dark grey; moist;	
	5		10	25		coarse and fine sub-rounded and rounded GRAVEL; some plastic
		3				fines; little fine SAND.
		3		26		
		7				
				27		

**ROTARY FIELD NOTES**

TL-1271a (REV. 05/04/08)

BORING NUMBER RC-13-005	DATE 12/12/2013	DIST. 01	CO. HUM	RTE. 299	P.M. (K.P.) 21.3
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 14+43.51' 0.49' LT "A2" ALIGNMENT RTE 299		TOP HOLE ELEVATION 1284'	BRIDGE #	EFIS NUMBER 0100020425	

REMARKS (Tool Sizes/Type - Rods & Bits, etc) (Hole Condition - Caving, Squeezing, Loss of Circulation, etc) RECOVERY & RQD Drill Rig reactions - slowing, chattering, skipping, blocking off)	FIELD TESTING			DEPTH	GRAPHIC LOG	DESCRIPTION Soil Classification (group name, group symbol, consistency/relative density, color, moisture, percent of cobbles or boulders, particle size range, plasticity, cementation, description of cobbles and boulders. Take q <sub>w</sub> , s <sub>w</sub> , Additional Comments) Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)
	SAMPLE #	BLOWS PER 6"	SPT (N)			
				28		
				29		
Schist with quartz veins cobble in SPT shoe	6		15	30		
		3				
		7		31		Schist cobble
		8				
				32		
				33		
				34		
	7		29	35		dense
		5				
		17		36		
		12				
				37		
				38		
				39		
Quartz cobble in SPT shoe	8		15	40		Quartz cobble, m. dense
		7				
		6		41		
		9				
				42		
				43		
				44		



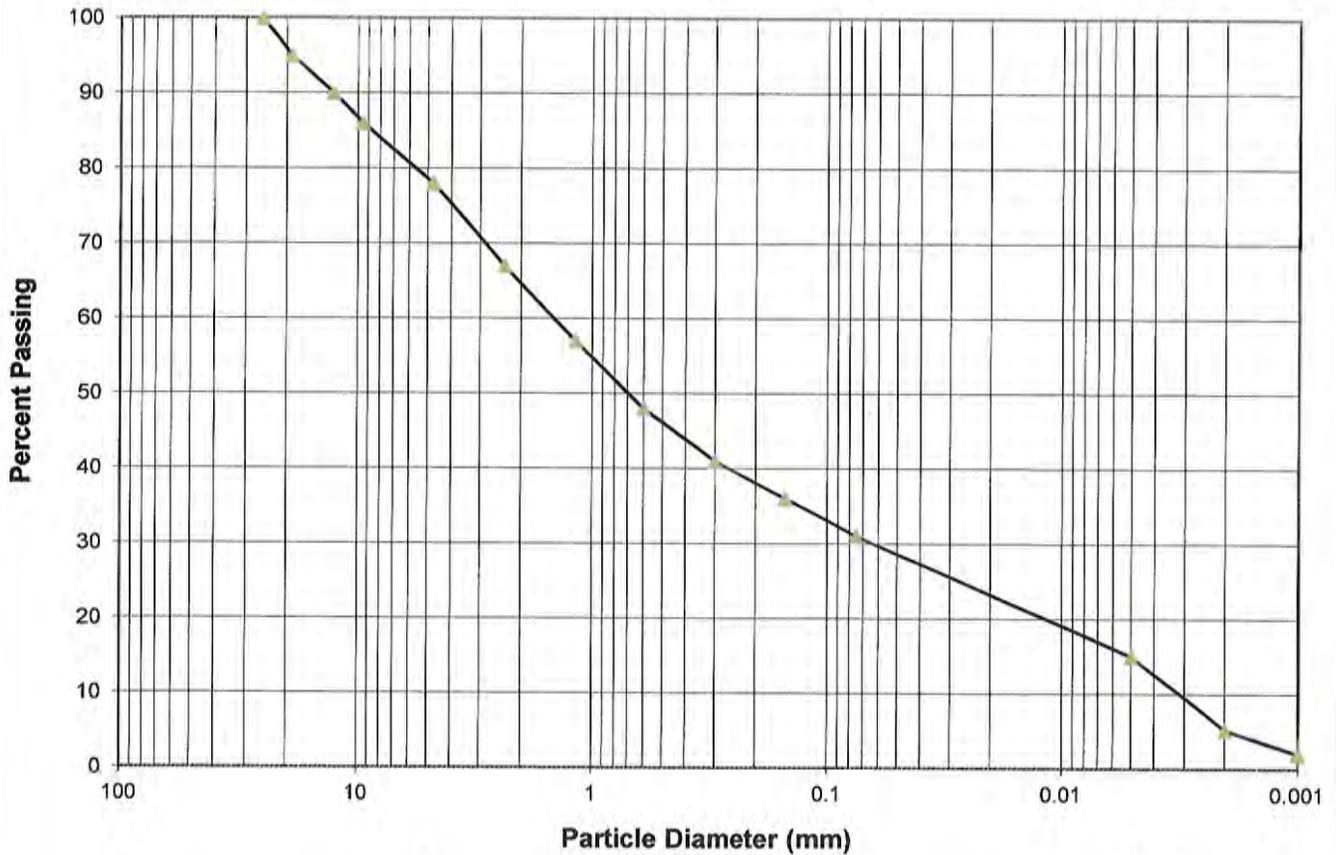
**APPENDIX B**  
**LABORATORY TEST RESULTS AND DATA SHEETS**

**SUMMARY OF PARTICLE ANALYSIS AND ATTERBERG LIMIT TESTS**

Boring ID	Depth (ft, bgs)	USCS	Description	ASTM Atterberg Limits		
				LL	PL	PI
RC-13-001	56.5 - 60	SM	SILTY SAND with GRAVEL	-	22	-
RC-13-002	11.5 - 15	SM	SILTY SAND with GRAVEL	NOT TESTED		
RC-13-002	35 - 40	SC	CLAYEY SAND with GRAVEL	24	16	8
RC-13-003	46- 47	SC	CLAYEY SAND with GRAVEL	33	17	16

# Gradation Analysis Test Results

US Standard Sieve Openings (Inches)			US Standard Sieve Number								Hydrometer (Cal Test 203)			
4"	2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	5µm	1µm



<b>GRAVELS</b>		<b>SANDS</b>			<b>SILT</b>	<b>CLAY</b>

**Sample ID:** RC-13-001 56.5'-60'



**CALTRANS**  
 Division of Engineering Services  
 Geotechnical Services  
 Office of Geotechnical Engineering North -  
 Branch B

**Project:** Lupton Curve Correction

**EA:** 01-0A5201

**D.-Co.-Rt.:** 01-HUM-299-PM 21

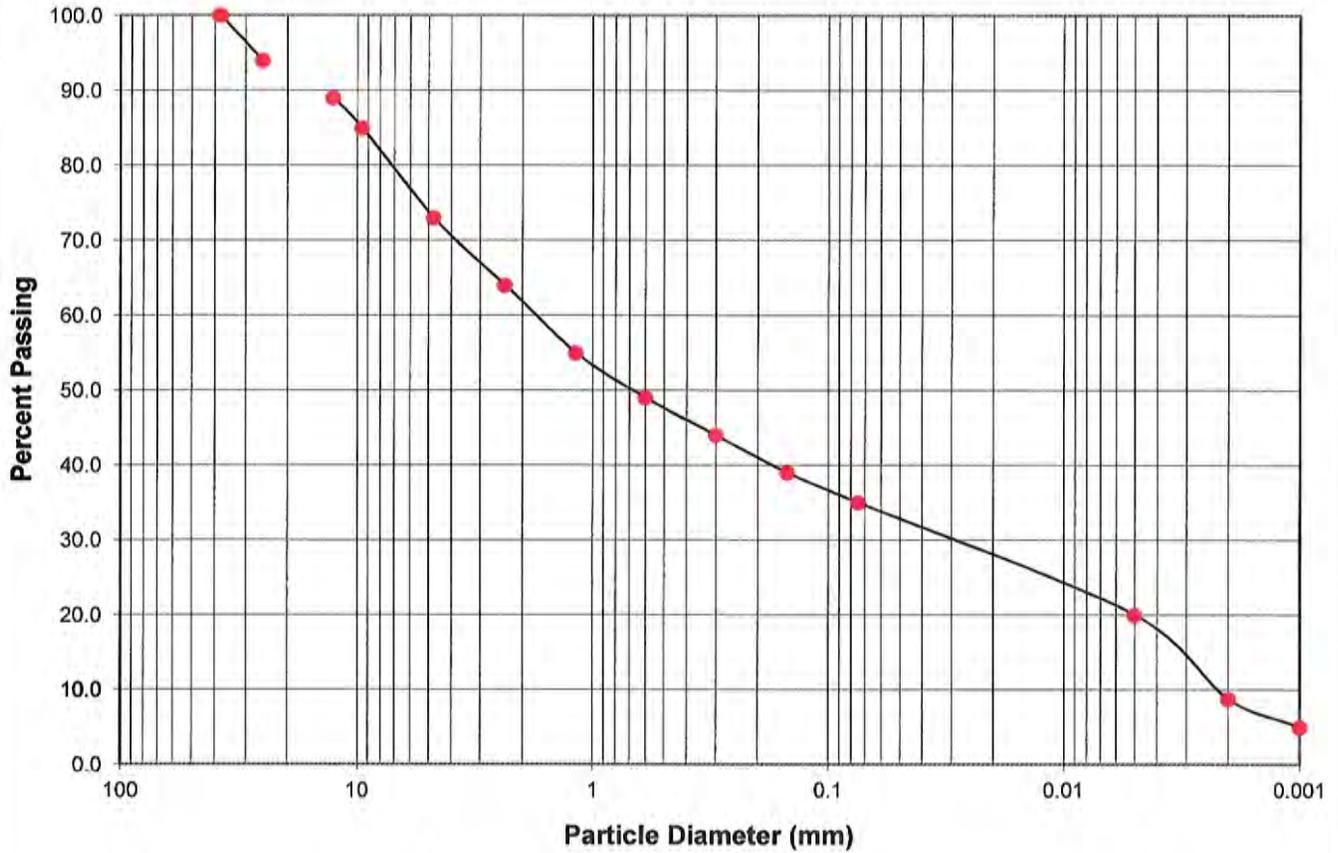
**Test Date:** 12/19/2013





# Gradation Analysis Test Results

US Standard Sieve Openings (Inches)			US Standard Sieve Number										Hydrometer (Cal Test 203)	
4"	2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	5 $\mu$ m	1 $\mu$ m



<b>GRAVELS</b>		<b>SANDS</b>			<b>SILT</b>	<b>CLAY</b>
Coarse	Fine	Coarse	Medium	Fine		

**Sample ID:** —●— RC-13-003 46'-47'



**CALTRANS**  
 Division of Engineering Services  
 Geotechnical Services  
 Office of Geotechnical Engineering North -  
 Branch B

**Project:** Lupton Curve Correction

EA: 01-0A5201

D.-Co.-Rt.-: 01-HUM-299-PM 21

**Test Date:** 12/19/2013

Data Reporting Form - California Test 643

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**SAMPLE IDENTIFICATION CARD**  
 TL-0101 (REV. 10/97) 7541-6002-4  
 CARD NUMBER  
**C 906677**

PRELIMINARY TESTS  
 PROCESS TESTS  
 ACCEPTANCE TESTS  
**INDEPENDENT ASSURANCE TESTS**  
 DIST. LAB  
 TRANS. LAB  
 SPECIAL TESTS

**SAMPLE SENT TO:**  
 HDQTRS. LAB  
 BRANCH LAB  
 DIST. LAB

SHIPMENT NO. \_\_\_\_\_  
 AUTHORIZATION NO. **0100020245**

FIELD NO. \_\_\_\_\_  
 DIST. LAB NO. **60576**  
 LOT NO. \_\_\_\_\_  
 P.O. OR REQ. NO. \_\_\_\_\_

SAMPLE OF **FR SOIL**  
 FOR USE IN \_\_\_\_\_  
 SAMPLE FROM **RC-13-001**  
 DEPTH **415-43**  
 LOCATION OF SOURCE **01 HUM PM 21.1**

THIS SAMPLE IS SHIPPED IN \_\_\_\_\_  
 (NO. CONTAINERS) AND IS ONE OF \_\_\_\_\_  
 OWNER OR MANUFACTURER A GROUP OF \_\_\_\_\_  
 (TONS, GALS, BBLs, STA, ETC.)

TOTAL QUANTITY AVAILABLE \_\_\_\_\_  
 TEST RESULTS DESIRED \_\_\_\_\_  
 NORMAL  PRIORITY

REMARKS **CORROSION TEST**

COVER ADDITIONAL INFORMATION WITH LETTER  
 DATE SAMPLED \_\_\_\_\_  
 BY **MJ JAMES** TITLE **TE**  
 DIST. CO., RTE, PM **01 HUM 299 PM 21.1**

LIMITS \_\_\_\_\_  
 CONT. NO. \_\_\_\_\_  
 FED. NO. \_\_\_\_\_  
 RES. ENGR. OR SUPT. \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CONTRACTOR \_\_\_\_\_

Corrosion Test No. <b>60576</b>		EA: <b>01-00020425</b>	
Tested By: <b>Daria Ghidineff</b>		Date: <b>12/6/13</b>	
Total Water Added (milliliters)	Soil Sample Resistance (Ohms)	Minimum Soil Resistance, $R_{min-T}$	Sample Temperature, T
		$R_T =$ _____ (Ohms)	T = <b>21.8</b> °C
15	$1k \times 10.4$ 10,400	Minimum Resistance of soil sample corrected to 15.5°C, $R_{min-15.5}$	
25	$1k \times 4.3$ 4,300	$R_{min-15.5} = R_{min-T}(24.5+T) / 40$	44.3
35	$1k \times 4.1$ 4,100		
40	$1k \times 4.1$ 4,100		
45	$1k \times 3.7$ 3,700	Minimum Soil Resistivity, $\rho_{min-15.5}$	
50	$1k \times 4.0$ 4,000	$\rho_{min-15.5} = R_{min-15.5} \times (\text{Soil Box Constant})^*$	
55	$1k \times 4.0$ 4,000	$\rho_{min-15.5} =$ <b>4,283</b> (Ohm-cm)	
60	$1k \times 4.1$ 4,100	Resistance of water sample corrected to 15.5°C, $R_{15.5}$	
		$R_{15.5} = R_T(24.5+T) / 40$	
		$R_{15.5} =$ _____ (Ohms)	
		Resistivity of Water Sample, $\rho_{15.5}$	
		$\rho_{15.5} = R_{15.5} \times (\text{Soil Box Constant})^*$	
		$\rho_{15.5} =$ _____ (Ohm-cm)	
		Soil pH Value	Water pH = _____
		Soil pH = <b>7.58</b>	Water pH = _____

\*Where: Soil Box Constant for Small Box=1 cm and for Large Box=6.76 cm

MAIL TO SAME DESTINATION AS SAMPLE

Data Reporting Form - California Test 643

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**SAMPLE IDENTIFICATION CARD**  
 TL-0101 (REV. 10/97) **C 724999**

PRELIMINARY TESTS  
 PROCESS TESTS  
 ACCEPTANCE TESTS  
 INDEPENDENT ASSURANCE TESTS  
 DIST. LAB  
 TRANS. LAB  
 SPECIAL TESTS  
 SAMPLE OF

**SAMPLE SENT TO:**  
 HQ/TRS. LAB  
 BRANCH LAB  
 DIST. LAB

**SHIPMENT NO.**  
**AUTHORIZATION NO.**  
 0100020425

**FIELD NO.**  
**DIST. LAB NO.**  
 60578  
**LOT NO.**  
**P.O. OR REQ. NO.**

**FOR USE IN** PR  
**SAMPLE FROM** RC-13-003  
**DEPTH** 46'-47'  
**LOCATION OF SOURCE** Borehole

**THIS SAMPLE IS SHIPPED IN** (NO. CONTAINERS) 1  
**AND IS ONE OF A GROUP OF** BAGS  
**SAMPLES REPRESENTING** (ITS LOCALS, BELLS, STA. ETC.)

**TOTAL QUANTITY AVAILABLE**  
**TEST RESULTS DESIRED**  NORMAL  PRIORITY  
**DATE NEEDED**  
**REMARKS** Mech. Analysis w/ Hydrometer  
 corrosion, allentags

**COVER ADDITIONAL INFORMATION WITH LETTER**  
**DATE SAMPLED**  
**BY** M.J. JANE 10-110-13  
**TITLE** TE  
**DIST. CO, RTE, PM**  
**LIMITS** 01-MUN-299 PM 21.1

**CONT. NO.**  
**FED. NO.**  
**RES. ENGR. OR SUPT.** if you need more hours let me know  
**ADDRESS** trants, MDJ  
**CONTRACTOR**

Corrosion Test No. 60578		EA: 0100020425	
Tested By: Darla Ghidinelli		Date: 12-18-13	
Total Water Added (milliliters)	Soil Sample Resistance (Ohms)	Minimum Soil Resistance, $R_{min-T}$	Sample Temperature, T
		$R_{min-T} = 2000$ (Ohms) Resistance of Water, $R_T$	T = 20.3 °C
15	1k x 3.3 2,300	Minimum Resistance of soil sample corrected to 15.5° C, $R_{min-15.5}$	
25	1k x 2.1 2,100	$R_{min-15.5} = \frac{R_{min-T}(24.5+T)}{40} = \frac{2000(24.5+20.3)}{40}$	44.8
35	1k x 2.1 2,100	$R_{min-15.5} = 2240$ (Ohms)	40
40	1k x 2.0 2,000	Minimum Soil Resistivity, $\rho_{min-15.5}$	
45	1k x 2.0 2,000	$\rho_{min-15.5} = R_{min-15.5} \times (\text{Soil Box Constant})^*$	
50	1k x 2.0 2,000	$\rho_{min-15.5} = 2240$ (Ohm-cm)	
55	1k x 2.1 2,100	Resistance of water sample corrected to 15.5° C, $R_{15.5}$	
60	1k x 2.2 2,200	$R_{15.5} = \frac{R_T(24.5+T)}{40}$	
		$R_{15.5} =$ (Ohms)	
		Resistivity of Water Sample, $\rho_{15.5}$	
		$\rho_{15.5} = R_{15.5} \times (\text{Soil Box Constant})^*$	
		$\rho_{15.5} =$ (Ohm-cm)	
		pH Value	
		Soil pH = 7.92	Water pH =

\*Where: Soil Box Constant for Small Box=1 cm and for Large Box=6.76 cm

MAIL TO SAME DESTINATION AS SAMPLE

**ADA Notice**

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

SAMPLE NUMBER

JOB NUMBER

60578

DISTRICT COUNTY ROUTE POST MILE STATION  
 01 Hum 299 21.1 46' - 47'

RT. LINE  
 FT. LT.

**SIEVE ANALYSIS**

SIEVE SIZE	MICRONS	GRAMS RETAINED	% RETAINED	% PASS	COMBINED GRADE
3/4"	1900	117	6	94	94
1/2"	1250	199	11	89	89
3/8"	4510	271	15	85	85
#4	4760	496	27	73	73
8	2380	11.0	13	87	64
16	1190	20.6	24	76	55
30	595	28.1	33	67	49
50	297	34.3	40	60	44
100	149	39.8	46	54	39
200	74	44.5	52	48	35
270	53				
PAN		44.6			

**SAMPLE WEIGHTS**

NET WET WEIGHT	87.7	100.1	GMS.
MOISTURE CONTENT	1.7	1.7	%
NET DRY WEIGHT	86.2	98.4	GMS.

**SOIL CLASSIFICATION**

< 1.0 MICRON (Colloids)	12	%
< 5 MICRONS (Clay)	20	%
5 TO 74 MICRONS (Silt)	15	%
74 TO 4760 MICRONS (Sand)	38	%
> 4760 MICRONS (Gravel)	27	%
TEMP. HYDRO. BATH	68	°F

TOTAL DRY WT. 1840 **HYDROMETER ANALYSIS**

PERIOD (Hours)	MICRONS	HYDRO READING	COMPOSITE CORRECTION	CORRECT READING	% PASS	COMBINED GRADE
1	5	32	-8	24	28	20
6	2					
24	1	22	-8	14	16	12

TESTED BY:

Darla Ghidinelli  
 CALCULATED BY:

Darla Ghidinelli  
 CHECKED BY:

M L C

DATE:

12-19-13

REMARKS:

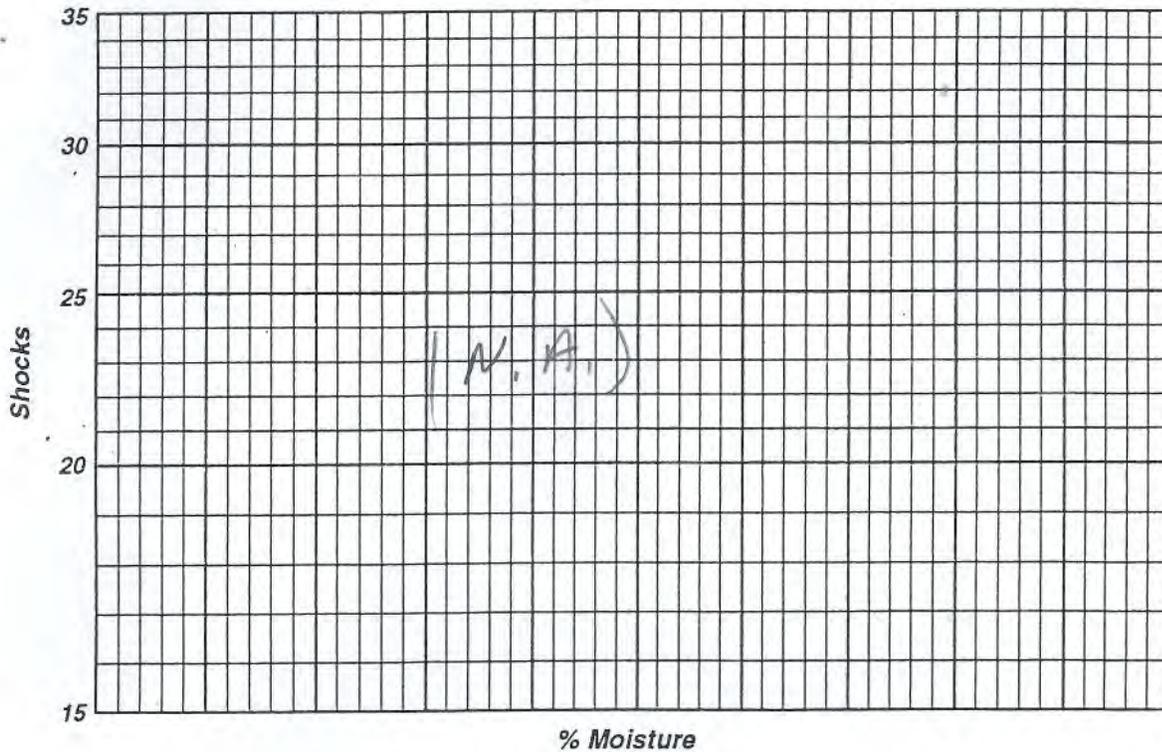
1/2" - 0g Retained, 100% passing

**ATTERBERG LIMITS**

MR-0233 (REV. 5/93)

		LIQUID LIMIT	33
JOB NUMBER	60578	PLASTIC LIMIT	17
SAMPLE NUMBER		PLASTICITY INDEX	16

Trial Number	LIQUID LIMIT (Referee Method)			PLASTIC LIMIT		
	I	II	III	I	II	Avg.
Watch glass number	1	5	11	2-A	3-A	
Number of shocks	22	22		-	-	
Weight of glass & wet soil	39.54	40.69		21.18	22.25	
Weight of glass & dry soil	35.98	34.74		20.33	21.23	
Weight of glass	25.35	24.94	25.80	15.29	15.37	
Weight of dry soil	10.63	11.80	-	5.04	5.86	
Weight of water	3.54	3.95		0.85	1.02	
Moisture (percent)	33.5	33.5		14.9	17.4	$\bar{x} = 17.2$



REMARKS: NOMICROGRAPHIC CHART USED TO DETERMINE LIQUID LIMIT

DATE 12-30-13 TEST BY M.R.C. CHECKED BY D.G.

60575

Data Reporting Form - California Test 643

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
SAMPLE IDENTIFICATION CARD  
TL-0101 (REV. 10/97) 7541-6002-4  
CARD NUMBER  
C 906678

PRELIMINARY TESTS  
 PROCESS TESTS  
 ACCEPTANCE TESTS  
 INDEPENDENT ASSURANCE TESTS  
 DIST. LAB  
 TRANS. LAB  
 SPECIAL TESTS

SAMPLE SENT TO:  
 HDQTRS. LAB  
 BRANCH LAB  
 DIST. LAB

SHIPMENT NO. \_\_\_\_\_  
 AUTHORIZATION NO. 0100020245

FIELD NO. \_\_\_\_\_  
 DIST. LAB NO. 60575  
 LOT NO. \_\_\_\_\_  
 P.O. OR REQ. NO. \_\_\_\_\_

SAMPLE OF SOIL  
 FOR USE IN FR

SAMPLE FROM RC-13-002  
 DEPTH 35'-40'  
 LOCATION OF SOURCE BOREHOLE

THIS SAMPLE IS SHIPPED IN \_\_\_\_\_ AND IS ONE OF \_\_\_\_\_ A GROUP OF \_\_\_\_\_  
 (NO. CONTAINERS) (TONS, GALS, BBLs, STA, ETC.)

OWNER OR MANUFACTURER \_\_\_\_\_

TOTAL QUANTITY AVAILABLE \_\_\_\_\_ TEST RESULTS DESIRED \_\_\_\_\_ DATE NEEDED \_\_\_\_\_  
 NORMAL  PRIORITY

REMARKS Mechanical analysis w Hydrometer  
Corrosion A Herberg

COVER ADDITIONAL INFORMATION WITH LETTER

DATE SAMPLED 12-4-2013  
 BY M.J. JAMES TITLE TE  
 DIST. CO, RTE, PM 01-HUM-299 PM 21-1

LIMITS \_\_\_\_\_

CONT. NO. \_\_\_\_\_  
 FED. NO. \_\_\_\_\_  
 RES. ENGR. OR SUPT. \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CONTRACTOR \_\_\_\_\_

Corrosion Test No. <u>60575</u>		EA: <u>0100020245</u>	
Tested By: <u>Darla Ghidinelli</u>		Date: <u>12-18-13</u>	
Total Water Added (milliliters)	Soil Sample Resistance (Ohms)	Minimum Soil Resistance, $R_{min-T}$ (Ohms)	Sample Temperature, T
		$R_{min-T} = 2500$	T = <u>21.9</u> °C
<u>15</u>	<u>1K x 5.6</u>	Resistance of Water, $R_T$ (Ohms)	
<u>25</u>	<u>1K x 2.6</u>	$R_T =$ _____	
<u>35</u>	<u>2,1600</u>	Minimum Resistance of soil sample corrected to 15.5° C, $R_{min-15.5}$	
<u>40</u>	<u>1K x 2.5</u>	$R_{min-15.5} = \frac{R_{min-T}(24.5+T)}{40} = \frac{2500(24.5+21.9)}{40}$	
<u>45</u>	<u>2,500</u>	$R_{min-15.5} = 2900$ (Ohms)	
<u>50</u>	<u>1K x 2.5</u>	Minimum Soil Resistivity, $P_{min-15.5}$	
<u>55</u>	<u>2,100</u>	$P_{min-15.5} = R_{min-15.5} \times (\text{Soil Box Constant})^*$	
	<u>1K x 2.9</u>	$P_{min-15.5} = 2900$ (Ohm-cm)	
	<u>2,900</u>	Resistance of water sample corrected to 15.5° C, $R_{15.5}$	
		$R_{15.5} = \frac{R_T(24.5+T)}{40}$	
		$R_{15.5} =$ _____ (Ohms)	
		Resistivity of Water Sample, $P_{15.5}$	
		$P_{15.5} = R_{15.5} \times (\text{Soil Box Constant})^*$	
		$P_{15.5} =$ _____ (Ohm-cm)	
		pH = _____ Soil	pH = _____ Water
		<u>8.21</u>	<u>✓</u>

\*Where: Soil Box Constant for Small Box=1 cm and for Large Box=6.76 cm

MAIL TO SAME DESTINATION AS SAMPLE

**MECHANICAL ANALYSIS  
CALIFORNIA TEST METHOD NO. 203**

TL-0211 (REV. 10/93)

**ADA Notice**

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DISTRICT <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>299</b>	POST MILE <b>21.1</b>	STATION <b>35' - 40'</b>	SAMPLE NUMBER	JOB NUMBER <b>60575</b>
<b>SIEVE ANALYSIS</b>					RT.	LINE
					FT.	
					LT.	

SIEVE SIZE	MICRONS	GRAMS RETAINED	% RETAINED	% PASS	COMBINED GRADE	<b>SAMPLE WEIGHTS</b>	
3/4"	19000	48	2	98	98	NET WET WEIGHT	88.6 101.0 GMS.
1/2"	12500	158	6	94	94	MOISTURE CONTENT	0.5 0.5 %
3/8"	4510	286	11	89	89	NET DRY WEIGHT	88.2 100.5 GMS.
#4	4760	645	24	76	76	<b>SOIL CLASSIFICATION</b>	
8	2380	12.2	14	86	65	< 1.0 MICRON (Colloids)	9 %
16	1190	22.0	25	75	57	< 5 MICRONS (Clay)	18 %
30	595	30.6	35	65	49	5 TO 74 MICRONS (Silt)	15 %
50	297	38.0	43	57	43	74 TO 4760 MICRONS (Sand)	43 %
100	149	44.2	50	50	38	> 4760 MICRONS (Gravel)	24 %
200	74	49.1	56	44	33	TEMP. HYDRO. BATH	68 °F
270	53						
PAN		49.3					

<b>TOTAL DRY WT 2700</b>							<b>HYDROMETER ANALYSIS</b>						
PERIOD (Hours)	MICRONS	HYDRO READING	COMPOSITE CORRECTION	CORRECT READING	% PASS	COMBINED GRADE							
1	5	29	8	21	24	18							
6	2												
24	1	19	8	11	12	9							

TESTED BY:  
**Darla Ghidinelli**

CALCULATED BY:  
**Darla Ghidinelli**

CHECKED BY:  
**MLC**

DATE:  
**12-19-20**

REMARKS: **1" - 0g Retained; 100% Passing**

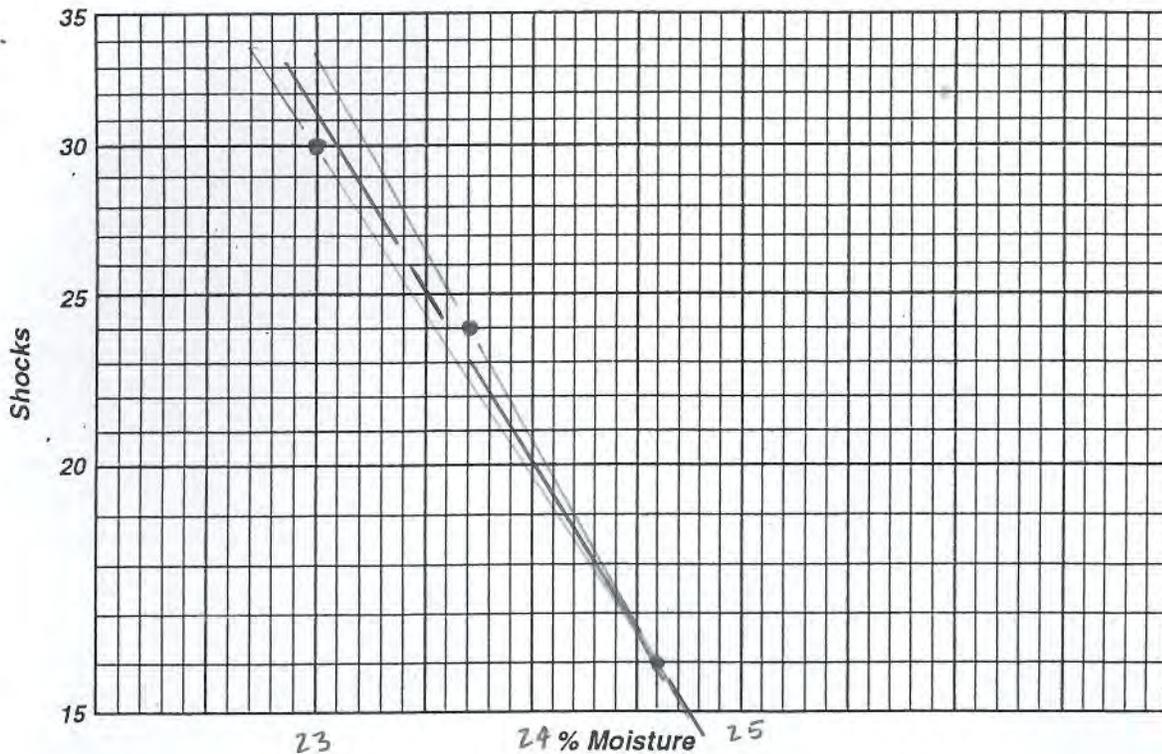
**ATTERBERG LIMITS**

MR-0233 (REV. 5/93)

	LIQUID LIMIT	24
JOB NUMBER	PLASTIC LIMIT	16
SAMPLE NUMBER	PLASTICITY INDEX	8

60575

Trial Number	LIQUID LIMIT (Referee Method)			PLASTIC LIMIT		
	I	II	III	I	II	Avg.
Watch glass number	1-A	2-A	3-A	11-A	12-A	
Number of shocks	16	24	30	-	-	
Weight of glass & wet soil	39.06	35.93	34.85	23.09	22.43	
Weight of glass & dry soil	36.18	33.90	33.19	22.08	21.47	
Weight of glass	24.46	25.33	25.97	15.33	15.23	
Weight of dry soil	11.72	8.57	7.22	6.75	5.74	
Weight of water	2.88	2.03	1.66	1.01	0.96	
Moisture (percent)	24.6	23.7	23.0	15.0	16.7	= 15.9



REMARKS:

DATE 12-24-13

TEST BY M.R.C

CHECKED BY D.G.

Data Reporting Form - California Test 643

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**SAMPLE IDENTIFICATION CARD**  
 TL-0101 (REV. 10/97) 7541-6002-4  
 CARD NUMBER  
**C 906679**

PRELIMINARY TESTS  
 PROCESS TESTS  
 ACCEPTANCE TESTS  
 INDEPENDENT ASSURANCE TESTS  
 DIST. LAB  
 TRANS. LAB  
 SPECIAL TESTS

**SAMPLE SENT TO:**  
 HDQTRS. LAB  
 BRANCH LAB  
 DIST. LAB

SHIPMENT NO. \_\_\_\_\_  
 AUTHORIZATION NO. **0100020245**

SAMPLE OF **SOIL**  
 FOR USE IN **FR**

SAMPLE FROM **RC-13-002**

DEPTH **115-15'**

LOCATION OF SOURCE **BOREHOLE**

THIS SAMPLE IS SHIPPED IN **1** AND IS ONE OF \_\_\_\_\_ A GROUP OF \_\_\_\_\_  
 (NO. CONTAINERS)

OWNER OR MANUFACTURER **BAE**

SAMPLES REPRESENTING (TONS, GALS, PBLs, STA., ETC.)

TOTAL QUANTITY AVAILABLE \_\_\_\_\_ TEST RESULTS DESIRED  
 NORMAL  PRIORITY DATE NEEDED \_\_\_\_\_

REMARKS **Mechanical analysis w/ Hydrometer**  
**Corrosion test + Atterberg's per June 15/02**  
**Soc HQ - please test for sulfate & chloride**

COVER ADDITIONAL INFORMATION WITH LETTER

DATE SAMPLED **12-4-2013**

BY **MJJAMES** TITLE **TC**

DIST, CO, RTE, PM **01-HUM 299 PM 21.1**

LIMITS \_\_\_\_\_

CONT. NO. \_\_\_\_\_

FED. NO. \_\_\_\_\_

RES. ENGR. OR SUPT. \_\_\_\_\_

ADDRESS **12-2013 sent -#8 to Hwy Corrosion Lab dg**

CONTRACTOR \_\_\_\_\_

Corrosion Test No. <b>60574</b>		EA: <b>0100020425</b>	
Tested By: <b>Daria Ghidinelli</b>		Date: <b>12-18-13</b>	
Total Water Added (milliliters)	Soil Sample Resistance (Ohms)	Minimum Soil Resistance, $R_{min-T}$	Sample Temperature, T
		$R_{min-T} = 800$ (Ohms)	T = <b>20.5 °C</b>
15	1k x 4.1	Resistance of Water, $R_T$	
25	4,100	$R_T =$ _____ (Ohms)	
35	1k x 1.4	Minimum Resistance of soil sample corrected to 15.5° C, $R_{min-15.5}$	
40	1,400	$R_{min-15.5} = \frac{R_{min-T}(24.5+T)}{40} = \frac{800(24.5+20.5)}{40} = 900$ (Ohms)	
45	1k x 1.2	Minimum Soil Resistivity, $P_{min-15.5}$	
50	1,200	$P_{min-15.5} = R_{min-15.5} \times (\text{Soil Box Constant})^*$	
55	1k x 1.1	$P_{min-15.5} = 900$ (Ohm-cm)	
60	100 x 10.3	Resistance of water sample corrected to 15.5° C, $R_{15.5}$	
65	1,030	$R_{15.5} = \frac{R_T(24.5+T)}{40} = \frac{900}{40} = 22.5$ (Ohms)	
70	100 x 9.8	Resistivity of Water Sample, $p_{15.5}$	
75	980	$p_{15.5} = R_{15.5} \times (\text{Soil Box Constant})^*$	
80	100 x 9.5	$p_{15.5} = 900$ (Ohm-cm)	
85	950	Soil pH Value	Water pH = _____
85	100 x 9.4	Soil pH = <b>7.48</b>	Water pH = _____
85	940		
85	100 x 9.0		
85	900		
85	100 x 8.7		
85	890		
85	100 x 8.7		
85	870		
85	100 x 8.6		
85	860		

\*Where: Soil Box Constant for Small Box=1 cm and for Large Box=6.76 cm

90	100 x 8.4	100	100 x 8.0
95	840	105	800
95	100 x 8.2	105	100 x 8.4
	820		840

MAIL TO SAME DESTINATION AS SAMPLE

**ADA Notice**

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

SAMPLE NUMBER

JOB NUMBER

60574

DISTRICT 01 COUNTY Hum ROUTE 299 POST MILE 21.1 STATION 11<sup>S</sup> - 15'

RT. \_\_\_\_\_  
 FT. \_\_\_\_\_  
 LT. \_\_\_\_\_  
 LINE \_\_\_\_\_

**SIEVE ANALYSIS**

SIEVE SIZE	MICRONS	GRAMS RETAINED	% RETAINED	% PASS	COMBINED GRADE
3/4" <sup>1"</sup>	19000	93	5	95	95
		90	6	94	94
1/2"	12500	179	12	88	88
3/8"	4510	255	17	83	83
#4	4760	544	36	64	64
8	2380	20.2	23	77	49
16	1190	30.9	35	65	42
30	595	39.0	44	56	36
50	297	46.1	52	48	31
100	149	52.0	58	42	27
200	74	56.9	64	36	23
270	53				
PAN		57.0			

**SAMPLE WEIGHTS**

NET WET WEIGHT	89.6	99.2	GMS.
MOISTURE CONTENT	0.3	0.3	%
NET DRY WEIGHT	89.3	98.9	GMS.

**SOIL CLASSIFICATION**

< 1.0 MICRON (Colloids)	6	%
< 5 MICRONS (Clay)	12	%
5 TO 74 MICRONS (Silt)	11	%
74 TO 4760 MICRONS (Sand)	41	%
> 4760 MICRONS (Gravel)	36	%
TEMP. HYDRO. BATH	68	°F

TOTAL DRY WT 1523

**HYDROMETER ANALYSIS**

PERIOD (Hours)	MICRONS	HYDRO READING	COMPOSITE CORRECTION	CORRECT READING	% PASS	COMBINED GRADE
1	5	25	-8	17	19	12
6	2					
24	1	17	-8	9	10	6

TESTED BY:

Darla Ghidinelli

CALCULATED BY:

Darla Ghidinelli

CHECKED BY:

M R C

DATE:

12-19-13

REMARKS:

1/2" - 0g retained; 100% Passing

PRELIMINARY TESTS    **SAMPLE SENT TO:**    FIELD NO.  
 PROCESS TESTS     HDQTRS. LAB  
 ACCEPTANCE TESTS     BRANCH LAB    DIST. LAB NO. **60577**  
 DIST. LAB    LOT NO.  
 TRANS. LAB    SHIPMENT NO.    P.O. OR REQ. NO. **425**  
 SPECIAL TESTS    AUTHORIZATION NO. **0100020245**

SAMPLE OF **SOIL**  
 FOR USE IN **FR**

SAMPLE FROM **RC-13-001 Borehole**

DEPTH **56<sup>5</sup>-60**

LOCATION OF SOURCE **01 HUM 299 PM 21/1**

THIS SAMPLE IS SHIPPED IN **1 BAG** AND IS ONE OF A GROUP OF **4** SAMPLES REPRESENTING (TONS, GALS, BBLs, STA, ETC.)  
 OWNER OR MANUFACTURER

TOTAL QUANTITY AVAILABLE    TEST RESULTS DESIRED    DATE NEEDED  
 NORMAL     PRIORITY

REMARKS **SIEVE ANALYSIS W/ HYDROMETER  
 ATTERBERG**

COVER ADDITIONAL INFORMATION WITH LETTER  
 DATE SAMPLED

BY **M. JAMES** TITLE **TE**

DIST. CO, RTE, PM  
**01/HUM 299 PM 21/1**

LIMITS

CONT. NO.

FED. NO.

RES. ENGR. OR SUPT.

ADDRESS

CONTRACTOR

**MAIL TO SAME DESTINATION AS SAMPLE**

6	2			
24	1	10	-8	2

REMARKS: **1" = Og retained; 100% Passing**

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SAMPLE NUMBER

JOB NUMBER

**60577**

STATION	RT.	LINE
<b>56<sup>5</sup>-60</b>	FT.	
	LT.	

	COMBINED GRADE	SAMPLE WEIGHTS	
75	95	NET WET WEIGHT	86.0   98.6 GMS.
90	90	MOISTURE CONTENT	0.2   0.2 %
86	86	NET DRY WEIGHT	85.8   98.4 GMS.
78	78		

SOIL CLASSIFICATION	
< 1.0 MICRON (Colloids)	2 %
< 5 MICRONS (Clay)	15 %
5 TO 74 MICRONS (Silt)	16 %
74 TO 4760 MICRONS (Sand)	47 %
> 4760 MICRONS (Gravel)	22 %
TEMP. HYDRO. BATH	68 °F

TESTED BY:  
**Darla Ghidinelli**  
 CALCULATED BY:  
**Darla Ghidinelli**  
 CHECKED BY:  
**M.R.C.**  
 DATE:  
**12-19-13**

% PASS	COMBINED GRADE
19	15
2	2

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION  
**MECHANICAL ANALYSIS**  
**CALIFORNIA TEST METHOD NO. 203**  
 TL-0211 (REV. 10/93)

**ADA Notice**

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SAMPLE NUMBER

JOB NUMBER

60577

DISTRICT 01 COUNTY Hum ROUTE 299 POST MILE 21.1 STATION 56<sup>S</sup>-60

RT. \_\_\_\_\_ LINE \_\_\_\_\_  
 FT. \_\_\_\_\_  
 LT. \_\_\_\_\_

**SIEVE ANALYSIS**

SIEVE SIZE	MICRONS	GRAMS RETAINED	% RETAINED	% PASS	COMBINED GRADE
3/4"	19000	59	5	95	95
1/2"	12500	109	10	90	90
3/8"	4510	156	14	86	86
#4	4760	250	22	78	78
8	2380	11.7	14	86	67
16	1190	22.8	27	73	57
30	595	32.8	38	62	48
50	297	40.4	47	53	41
100	149	46.5	54	46	36
200	74	51.1	60	40	31
270	53				
PAN		51.3			

**SAMPLE WEIGHTS**

NET WET WEIGHT	86.0	98.6	GMS.
MOISTURE CONTENT	0.2	0.2	%
NET DRY WEIGHT	85.8	98.4	GMS.

**SOIL CLASSIFICATION**

< 1.0 MICRON (Colloids)	2	%
< 5 MICRONS (Clay)	15	%
5 TO 74 MICRONS (Silt)	16	%
74 TO 4760 MICRONS (Sand)	47	%
> 4760 MICRONS (Gravel)	22	%
TEMP. HYDRO. BATH	68	*F

**TOTAL DRY WT 112.2 HYDROMETER ANALYSIS**

PERIOD (Hours)	MICRONS	HYDRO READING	COMPOSITE CORRECTION	CORRECT READING	% PASS	COMBINED GRADE
1	5	24	-8	16	19	15
6	2					
24	1	10	-8	2	2	2

TESTED BY:

Darla Ghidinelli

CALCULATED BY:

Darla Ghidinelli

CHECKED BY:

M.R.C.

DATE:

12-19-13

REMARKS:

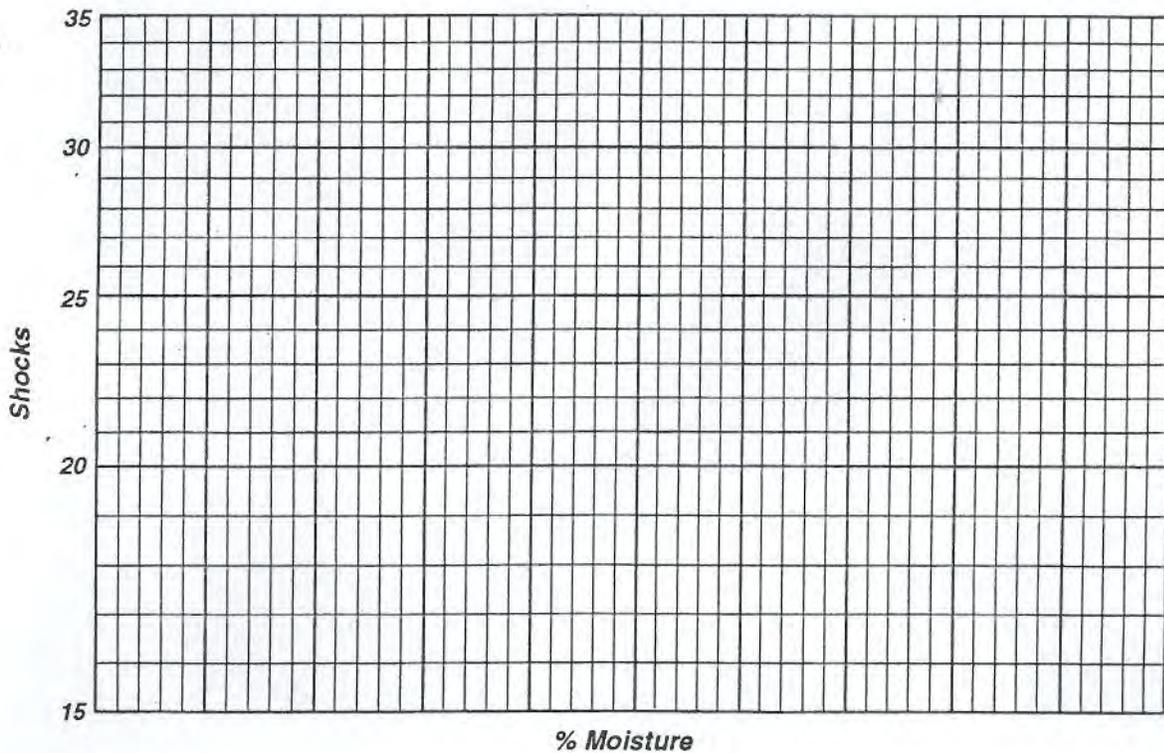
1" = Og retained; 100% Passing

**ATTERBERG LIMITS**

MR-0233 (REV. 5/93)

		LIQUID LIMIT	—
JOB NUMBER	60577	PLASTIC LIMIT	22
SAMPLE NUMBER		PLASTICITY INDEX	—

Trial Number	LIQUID LIMIT (Referee Method)			PLASTIC LIMIT		
	I	II	III	I	II	Avg.
Watch glass number	8	9	11	7-A	9-A	
Number of shocks	PLEASE SEE			—	—	
Weight of glass & wet soil	REMARKS			22.21	22.11	
Weight of glass & dry soil				20.89	20.91	
Weight of glass	24.59	24.42	25.79	15.23	15.31	
Weight of dry soil				5.66	5.60	
Weight of water				1.32	1.20	
Moisture (percent)				23.3	21.4	$\bar{x} = 22.4$



REMARKS:  
LIQUID LIMIT - COULD NOT BE DETERMINED.

DATE	TEST BY	CHECKED BY
12-30-13	M.R.L	D.L.

Results sent to: MARIETTA J JAMES

Division of Engineering Services  
Materials Engineering and Testing Services  
Corrosion and Structural Concrete Field Investigation Branch

Report Date: 1/6/2014

Reported by Michael Mifkovic

**CORROSION TEST SUMMARY REPORT - SOIL**

EA

EFIS: **0100020245**

Dist/Co/Rte/PM **01 / HUM /299/ / 21.1 PM**

CORROSION LAB #	TL101 #	BORE #	DEPTH (FT)		MINIMUM RESISTIVITY <sup>1</sup> (ohm-cm)	pH <sup>1</sup>	CHLORIDE CONTENT <sup>2</sup> (ppm)	SULFATE CONTENT <sup>3</sup> (ppm)	IS SAMPLE CORROSIVE?
			START	END					
SOIL SAMPLE FROM:									
CR20130437	C906679	RC-13-002	11.5	15	1033	7.09	9	1487	NO

This site is not corrosive to foundation elements (see note below).

Note: For Structural Elements, the Department considers a site corrosive if one or more of the following conditions exist: pH is 5.5 or less, chloride concentration is 500 ppm or greater, sulfate concentration is 2000 ppm or greater. Resistivity is not considered for Structural Elements. MSE backfill shall conform to the requirements of section 47-2.02C Structure Backfill in the 2010 Standard Specifications.

<sup>1</sup>CT 643, <sup>2</sup>CT 422, <sup>3</sup>CT 417

CR20130437 - CR20130437

1/6/2014

**DEPARTMENT OF TRANSPORTATION**

# Memorandum

*Serious drought.  
 Help Save Water!*

Date: February 13, 2015

To: JOHN MARTIN  
Branch Chief  
Design R1

File: 01-HUM-299-PM 21.1/21.5  
Lupton Curve Improvement Project  
EFIS ID: 0100020425

Attn: ED SPEER

From: **DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
GEOTECHNICAL SERVICES – OGDN**

**Subject:** Addendum for the Lupton Curve Improvement Project Geotechnical Design Report

This memorandum was prepared in response to a request from Design Branch R1 to modify the following items in the Geotechnical Design Report for the Lupton Curve Improvement Project dated February 09, 2015.

Figure 4 – Design Cross-section has been modified to include the Gabion cap and the thickness of the first structural fill lift has been modified to be between 3-inches and 21-inches.

Section 8 – Construction Considerations in the Geotechnical Design Report should be modified to state that the structural fill placed on the crushed rock prior to the placement of the uniaxial geogrid shall be between 3 and 21 inches.

If you have any questions or require additional information, please contact June James at (707) 441-4692 or Charlie Narwold at (707) 445-6036.



JUNE JAMES  
Transportation Engineer  
Office of Geotechnical Design North



CN

CHARLIE NARWOLD  
Senior Engineering Geologist  
Office of Geotechnical Design North

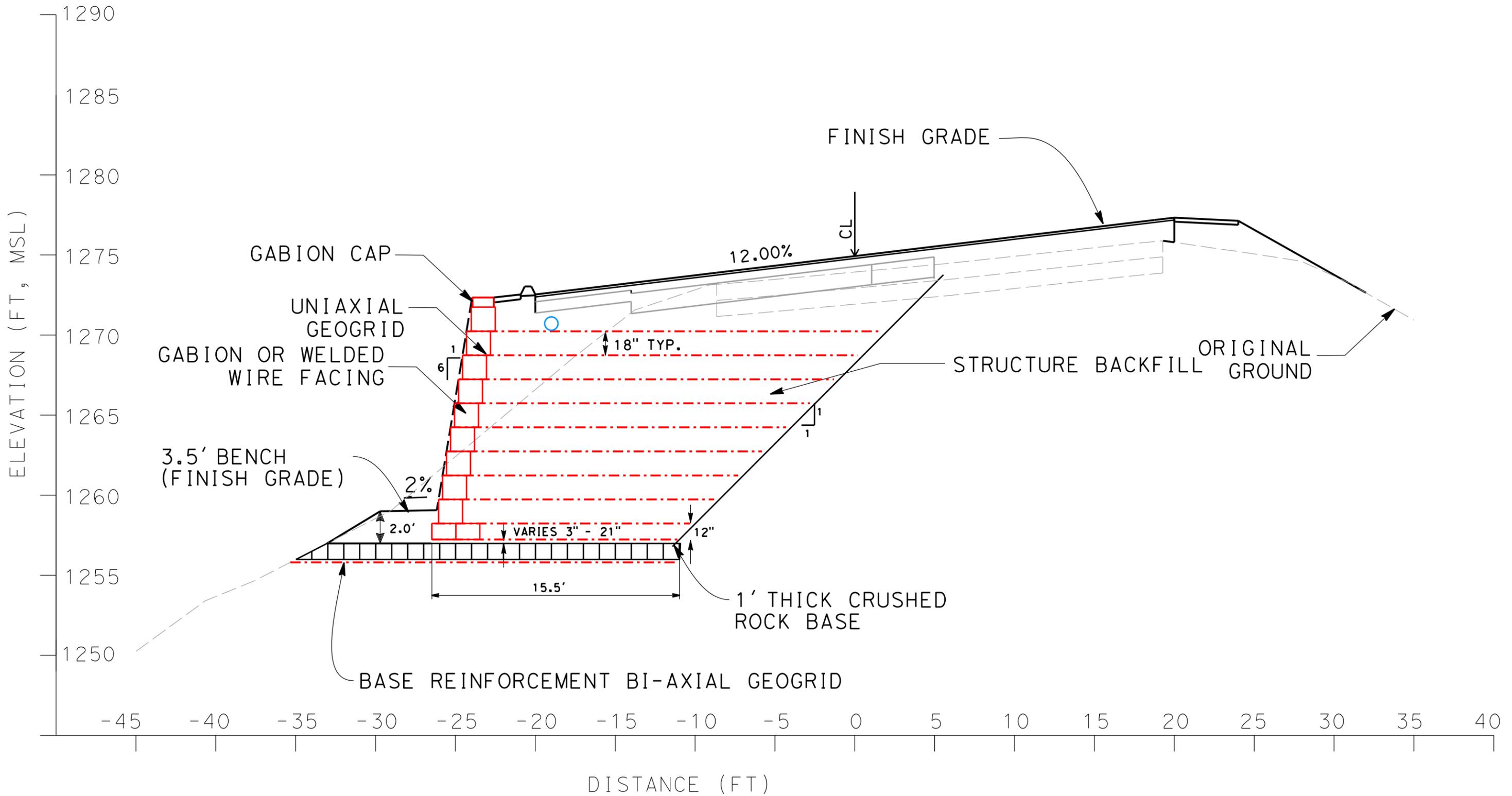
C: Traci Menard – GS

#### List of Figures

Figure 4 – Design Cross-section

A

A'



Department of Transportation  
 Division of Engineering Services  
 Geotechnical Services  
 Office of Geotechnical Design North  
 Branch B

EFIS: 0100020245	DESIGN CROSS-SECTION
DATE: FEBRUARY 2015	
LUPTON CURVE IMPROVEMENT PROJECT 01-HUM-299-PM 21.1/21.5	
FIGURE 4	