

INFORMATION HANDOUT

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

PLACS

PLAC Condition Responsibility Summary

PERMITS

United States Army Corps of Engineers

Section 404 non-reporting Nationwide Permit #14 with Attachments (PLAC)

WATER QUALITY

Hoopa Valley Tribe Section 401 Water Quality Certification with e-mail Attachment (PLAC)

AGREEMENTS

California Department of Fish and Wildlife 1602 Streambed Alteration Agreement (PLAC)

Hoopa Valley Tribal TERO Memorandum of Understanding (MOU)

MATERIALS INFORMATION

Roadway Boring Memo

Geotechnical Design Report, April 3, 2015

Foundation Report (Vista Point), Storm Damage Repair, Hum 96 PM 8.5, EA 01-480911, Humboldt County California, Prepared by Kleinfelder, August 13, 2008

Addendum to Foundation Report for Hoopa Vista Point Ground Anchor Wall, Bridge Number 04E0038, dated February 18, 2015

**For Contract No. 01-0B03U4
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PLACS

PLAC Condition Responsibility Summary

PLAC CONDITION RESPONSIBILITY (PCR) SUMMARY

General:

This PCR Summary clarifies various PLAC requirements. Perform all work described in the PLACs on behalf of the Department unless otherwise stated below in Table 2. If a discrepancy exists between the PCR Summary and the PLAC, the PCR Summary governs.

Definitions:

Agency: A board, agency, or other entity that issues a PLAC

Activity: A task, event or other project element

PLAC Condition: a work activity and/or submittal required by a PLAC

Table 1 - Clarification of PLAC Requirements

PLAC Name	Section of the PLAC	PLAC Requirement
All PLACs	Applicable PLAC sections	<p>Submittals: Submit to the Engineer when PLAC conditions require:</p> <ol style="list-style-type: none"> 1. Communications. The Engineer will contact the agencies. 2. Records to be maintained, within 5 working days after the activity. 3. Submittals 5 days before the agencies require them. The Engineer will review and submit to the agencies.
	Throughout all documents	All references to Contracts 01-0B030 and 01-0B390 apply to this project 01-0B03U4
California Department of Fish and Wildlife Streambed Alteration Agreement Notification No: 1600-2014-0305-R1	1. Administrative Measures	Measure 1.1, 1.2 and 1.4. Both the Contractor and Caltrans will agree to keep documentation of this agreement available on the job site and allow DFW personnel to enter the project site at any time, after notifying the Resident Engineer, to verify compliance with the Agreement.
	Habitat and Species Protection	Measure 2.7 ESA fencing shall be as specified in 14-1.02A.
Hoopa Valley Tribe 401 Water Quality Certification with email Attachment	Bottom of second page under "Water Quality-Chemical Contaminants:"	The statement "No chemical contaminants will be used on or near the work site." was clarified to mean that the Contractor must ensure chemical contaminants do not enter the waterways. (see email attachment)

PLAC CONDITION RESPONSIBILITY (PCR) SUMMARY

Table 2 - Work to be Performed by the Department		
PLAC Name	Section of the PLAC	PLAC Requirement
<p align="center">California Department of Fish and Wildlife Streambed Alteration Agreement Notification No: 1600-2014- 0305-R1</p>	1. Administrative Measures	Measure 1.1, 1.2 and 1.4. Both the Contractor and Caltrans will agree to keep documentation of this agreement available on the job site and allow DFW personnel to enter the project site at any time, after notifying the Resident Engineer, to verify compliance with the Agreement
	3. Compensatory Measures	Measure 3.1 and 3.2
	4. Reporting Measures	Measure 4.1

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PERMITS

United States Army Corps of Engineers

Section 404 non-reporting Nationwide Permit #14 with Attachments (PLAC)

Nationwide Permit Information

I. Project Location and Contact Information

District No: I Project Title: Hoopa Vista Point Slide and Hoopa Vista Curve
County: Humboldt Route: 96 Post Mile: 8.3-8.9 Project EA: 01-0B390 & 01-0B030
Project Manager: Richard Mullen Phone No.: (707) 441-5877
Project Coordinator: Emiliano Pro Phone No.: (530) 225-3515 Project Biologist: Michelle Clark Phone No.: (530) 225-3153
Quad Name: Hoopa Waterway/Watershed: unnamed tributaries / Tish Tang Watershed

II. Project Description:

- The project will improve roadway geometrics by realigning the roadway. At two locations (post miles 8.5 & 8.78) portions of the hillside will be excavated to accommodate the realigned roadway and increase sight distance.
- Installation of a soldier pile tie-back retaining wall with a length of approximately 330 feet. The wall will be composed of painted/tinted steel H piles, which will be placed using the Cast in Drilled Hole technique, and will support timber lagging.
- Drainage facilities found within the project limits will be improved. This will include replacing culverts and existing inlet components, and placing Rock Slope Protection (RSP) at culvert outlets. RSP will be placed within the existing stream channels. The paved roadside ditch, found adjacent to the westbound lane, will be improved to facilitate the capture and conveyance of roadside runoff. Additionally, a bioswale will be constructed at the southern end of the project, adjacent to the eastbound lane, to further assist with roadside runoff.
- Reconstruction of the roadway to include 12 foot lanes with 4 foot paved shoulders. The roadway will be restriped and markers replaced.
- Geotechnical investigations may be required to determine subsurface characteristics.
- Staging and temporary storage will occur within the project limits in previously disturbed upland areas.
- Disposal of excess earthen material will be required. Excess material will be disposed of at an approved offsite disposal facility.
- Acquisition of additional right-of-way will be required as a result of the proposed project.

III. Name of Lead Federal Agency California Department of Transportation

IV. Endangered Species Act Section 7 Consultation

List all federally-listed species potentially occurring within the project area.

1) Southern Oregon Northern California Coast (SONCC) coho (*Oncorhynchus kisutch*) – Campbell Creek, a coho bearing stream (i.e. habitat) is conveyed through a culvert beneath State Route (SR) 96 at the northern end of the project limits. No drainage improvements are planned at this location nor will any construction activities take place below the Ordinary High Water Mark of Campbell Creek. Additionally, no riparian habitat associated with Campbell Creek will be impacted as a result of the proposed project. This location is outside the USACE permit area. SONCC coho will not be impacted by project activities. The project does not contain habitat for any of the other species on the USFWS list. Based on the outcome of the studies, Section 7 Consultation was not required.

Has Section 7 Consultation concluded with USFWS? Yes _____ No Not Applicable Date _____

Has Section 7 Consultation concluded with NMFS? Yes _____ No Not Applicable Date _____

Lead Federal agency (i.e. agency responsible for Section 7 Consultation with USFWS or NMFS) Caltrans. No Section 7 consultation required.

Determination (List species under the appropriate category below)

No effect SONCC Coho
Not likely to adversely affect _____
May affect _____
Appended to a programmatic _____

V. Essential Fish Habitat Consultation (EFH)

No EFH – Permit area is outside historical and current distribution of any Pacific salmonids.

Select affected EFH Fishery Management Plan: _____ Pacific Ground Fish _____ Coastal Pelagic _____ Pacific Salmon

Lead Federal agency EFH (i.e. agency responsible for section 7 consultation) _____

Has EFH Consultation concluded with NMFS? Yes _____ No _____ Date _____

VI. Permit Being Requested (check one that applies)

_____ Reporting Nationwide Permit Non-Reporting Nationwide Permit

#14 Indicate which NWP(s) would appropriately authorize the proposed project.

VII. Corps' Authority Information

Section 10: Yes _____ No X

Section 404: Yes X No _____

Has a preliminary jurisdictional determination report been verified by the Corps? Yes _____ No X Date _____

VIII. Minimal Impact Criteria

Explain whether or not the proposed project would result in minimum impact to the aquatic environment (attach additional information if necessary):

This project will result in minimal impacts to the aquatic environment as construction activities within stream channels will be performed during the dry season. Project impacts are considered negligible and are below the threshold for the NWP#14. This project meets the minimal impacts criteria for all General Conditions and San Francisco District Regional Conditions for a Nationwide Permit #14.

IX. Permit Compliance Information (Nationwide General Conditions and the San Francisco District's Regional Conditions)

Explain how the project complies with each of the following. Attach additional sheets if necessary.

- Navigation **The proposed project will have no affect on navigation because permit area does not contain navigable waters.**
- Aquatic Life Movements: **The proposed project will not disrupt the life cycle or movements of aquatic species that migrate through waters in the project area. Permit areas have little to no flow and have been dry on most field visits. Work is being timed to be done when channels are dry.**
- Spawning Areas: **There are no spawning areas within the permit area. Location of proposed drainage work is outside the extent of fish distribution as the topography is too steep.**
- Migratory Bird Breeding Areas: **The waters within the proposed project area are not a breeding ground for migratory birds. The Caltrans Bird Protection Standard Specification will be included in the project specifications. Tree and vegetation removal will occur outside the nesting season.**
- Shellfish Beds: **There are no shellfish beds within the construction limits.**
- Suitable Material: **No trash, debris, asphalt, or other unsuitable material will be placed in waters of the United States and all fill material will be free from toxic pollutants.**
- Water Supply Intakes: **There is no public water supply intake in or near the project area.**
- Adverse Effects from Impoundments: **The proposed project will not cause any impoundment of water.**
- Management of Water Flows **This project will not significantly alter flows and work will be timed when channel is dry.**
- Fills within 100-Year Floodplains: **The activity will comply with applicable FEMA-approved state and local floodplain requirements.**
Does the activity comply with applicable FEMA-approved state or local floodplain management requirements? Yes _____ No **not applicable**
- Equipment **The proposed project will not require use of heavy equipment in wetlands or mudflats.**
- Soil Erosion and Sediment Controls **Prior to the start of construction, the contractor will be required to submit, for Caltrans's approval, a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must meet the standards and objectives for avoidance and minimization of adverse impacts to water quality set forth in the Caltrans's Standard Specifications and will describe the Best Management Practices (BMPs) that the contractor intends to use to prevent erosion and sedimentation during and after construction.**
- Removal of Temporary Fills: **No temporary fills are planned for this project.**
- Proper Maintenance: **Caltrans is aware of this condition.**
- Wild and Scenic Rivers
Does the activity occur in a component of a National Wild and Scenic River System? Yes _____ No X
Does the activity occur in a river officially designated by Congress as a study river? Yes _____ No X
- Tribal Rights **The proposed project will not affect any tribal rights**
- Endangered Species See section IV above: **Caltrans, acting as the federal lead agency under NEPA delegation, has determined that the proposed project will have no effect on any federally threatened or endangered species or species proposed for federal listing under the Endangered Species Act, nor will it affect the critical habitat of any such species. This determination was based on the species list letter for**

the USGS 7.5 minute topo quad(s) in which the proposed project is located, the scope of the proposed work, and the lack of suitable habitat in the project vicinity as determined by field review(s). Please see Natural Environment Study and Addendum(s)

18. Historic Properties (attach documentation of determination): **The proposed project will not affect any properties listed, or eligible for listing, in the National Register of Historic Places.**

Is it possible that the activity may affect properties listed, or eligible for listing in the National Register of Historic Places? Yes ___ No X

Lead Federal agency (i.e. agency responsible for Section 106 Compliance) Caltrans District 1

19. Designated Critical Waters (select those that apply): **This project does not contain any designated Critical Resource Waters.**

___ N0AA-designated marine sanctuaries, ___ National Estuarine Research Reserves,

___ State natural heritage sites, ___ Corps designated critical resource,

___ Outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance.

20. Mitigation: **No mitigation is proposed for this project.**

Has the activity been designed and constructed to avoid and minimize adverse effects to Waters of the U.S.? Yes X No ___

Has mitigation been proposed? Yes ___ No X

Does mitigation meet required minimum 1:1 ratio? Yes N/A No ___

If streams are affected by the project, are vegetated buffers with native plant species near streams maintained and / or restored?

Yes X No ___

21. Water Quality - **See Section IX Item 12 above**

Tribal EPA 401 Certification Yes X No ___

Point of Contact at Tribal EPA Ken Norton (Director Hoopa TEPA)

Date 401 Certification issued Pending

22. Coastal Zone Management **Not applicable**

Consistency Determination Yes ___ No X Pending (provide date of application) Not applicable

Point of Contact at Coastal Commission _____

Date of Consistency Determination issued _____

23. Regional and Case-by-Case Conditions (The following section summarizes the S.F. District's Regional Conditions)

Caltrans will comply with any Regional or Case-by-Case conditions.

Does the proposed project occur in Diked Baylands? Yes ___ No X **If Yes, a PCN is required**

Does the propose project occur within the Santa Rosa Plain? Yes ___ No X **If Yes, a PCN is required**

Is the project proposed to occur within Eelgrass beds? Yes ___ No X **If Yes, a PCN is required**

Is the project proposed to occur within EFH? Yes ___ No X **If Yes, a PCN is required with additional information**

Will mitigation occur before or concurrently with project construction? Yes ___ No X **no mitigation is being proposed**

Are you requesting a waiver of the 300 linear foot threshold? Yes ___ No X **If Yes, a PCN is required with additional information**

Specific NWP Regional Conditions

NWP 3: Excavation equipment shall work from an upland site; bank stabilization must incorporate structures or modification beneficial to fish and wildlife; and justification for work within special aquatic site is required (please attach).

NWP 11: Are any temporary structures proposed in wetlands or vegetated shallow water areas? Yes ___ No _

NWP 12: Excess material removed from the trench shall be disposed of at an upland site; and authorization of substation facilities by this NWP is prohibited.

NWP 13: PCN required for stabilization of more than 300 linear feet; excavation of a toe trench is allowed as long as excess material is disposed of at an upland location; additional fill which extends beyond the original shoreline may not exceed one cubic yard per running foot; bank stabilization must incorporate structures or modification beneficial to fish and wildlife; and PCN should address up and downstream effects of stabilization.

NWP 14: PCN is required for projects proposed to fill greater than 300 linear feet of channel; authorization prohibited for taxiways or runways; modifications must incorporate structures or modification beneficial to fish and wildlife.

NWP 23: PCN Required. Please refer to regional conditions for additional information on PCN requirements.

NWP 33: Access roads shall be designed to be the minimum width necessary; the road shall be properly stabilized; fill shall be placed to minimize encroachment of equipment within Waters of the U.S.; vegetative disturbance shall be minimized; borrow shall be taken from upland source; and stream channelization authorization by this NWP is prohibited.

NWP 35: PCN Required. Please refer to regional conditions for additional information on PCN requirements.

NWP 40: Work shall not impede flows during high volume events.

NWP 41: Mitigation may be required; PCN required if fill material will be re-deposited, re-graded, discharged, or if channel lining is installed; and PCN shall include an explanation of the project's benefit to water quality.

NWP 42: 404(b)(1) guidelines must be met if buildings are proposed in Waters of the U.S.

NWP 44: Revoked in Humboldt and Del Norte Counties.

24. Use of Multiple Nationwide Permits Yes _____ No **X - the proposed project does not require multiple NWPs.**

If yes, list NWP and acreage impact _____

25. Transfer of Nationwide Permit Verifications **Caltrans will retain ownership of the property on which the proposed project will be built.**

26. Compliance Certification: **This is a non-reporting and no compliance certification is required.**

27. Notification **This is a non-reporting NWP #14 and no PCN is required. This document certifies that it conforms to and is below all thresholds that would trigger a PCN for a NWP#14. This document, together with cover letter, and any supporting documentation constitute the administrative record.**

PCN Contents (please attach) – **Not applicable this is a NWP 14 Non Reporting**

- _____ Name, address, and telephone number of the applicant; _____ Location of proposed project;
- _____ Delineation of special aquatic sites and other Waters of the U.S.; _____ Detailed mitigation and monitoring plan;
- _____ Federally-listed species information; _____ Historic properties information
- _____ A project description including purpose, direct and indirect effects, additional Corps' authorizations for the project;

28. Is the activity a single and complete project? Yes **X** No _____

X. Multiple Nationwide Permit Requested

If multiple Nationwide Permits are requested, list No. and Title, and explain how each activity complies with the NWP terms. (Attach additional sheets if necessary):

1. _____
2. _____
3. _____

XII. Project Impact Information [Area Affected (acres) and (cubic yards)]

Wetlands (permanent): **None** _____ Wetlands (temporary): **None** _____

Waters of the US (permanent): **0.00092 acres** Waters of the US (temporary): **.0091 acres**

Linear extent of impact within Corps' jurisdiction: **Permanent = 12.2 + Temporary = 102 = 114.2 linear ft. of permanent and temporary impacts**

XIII. Project Mitigation Information

Special Conditions (List conditions specified by specialist Division personnel): **No mitigation is required, this is a minimal impacts non-reporting NWP# 14, see section VIII above.**

Best Management Practices (attach additional information if necessary): **Standard Caltrans BMPs will be used**

Site Restoration Plan (attach additional information if necessary): **None proposed or required, site will be re-vegetated after construction completion**

Proposed Mitigation (attach additional information if necessary): **None** _____

Attachments

- Site location map
- Completed routine delineation data form
- Reduced project plans
- Copy of applicable nationwide permit(s) and general conditions

FOR CALTRANS USE ONLY:

IX. Signatures

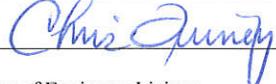
Based on the information provided above, I hereby certify that this project qualifies for a nationwide permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and/or Section 10 of the U.S. Rivers and Harbors Act (33 U.S.C. 406).

Prepared by:  _____

Date: 10-30-14

Peer Review:  _____

Date: 10/30/14

Supervisory Concurrence:  _____

Date: 10/30/14

cc: U.S. Army Corps of Engineers Liaison
Environmental Planning Branch Nationwide Permit File
District Office Engineer
District Project Manager
Resident Engineer Pending File



U S Army Corps of
Engineers
Sacramento District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide
Permits – March 19, 2012

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 pre-construction 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).

A. Regional Conditions

1. Regional Conditions for California, excluding the Tahoe Basin

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CA.pdf

2. Regional Conditions for Nevada, including the Tahoe Basin

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-NV.pdf

3. Regional Conditions for Utah

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-UT.pdf

4. Regional Conditions for Colorado.

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CO.pdf

B. Nationwide Permit General Conditions

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.

I. 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,

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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 NWPs.

(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 pre-construction 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

- (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.

(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: he 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 NWPs 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 pre-construction 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 NWPs, 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

2. NWP's do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWP's do not grant any property rights or exclusive privileges.
4. NWP's do not authorize any injury to the property or rights of others.
5. NWP's do not authorize interference with any existing or proposed Federal project.

E. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in

which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

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/); 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

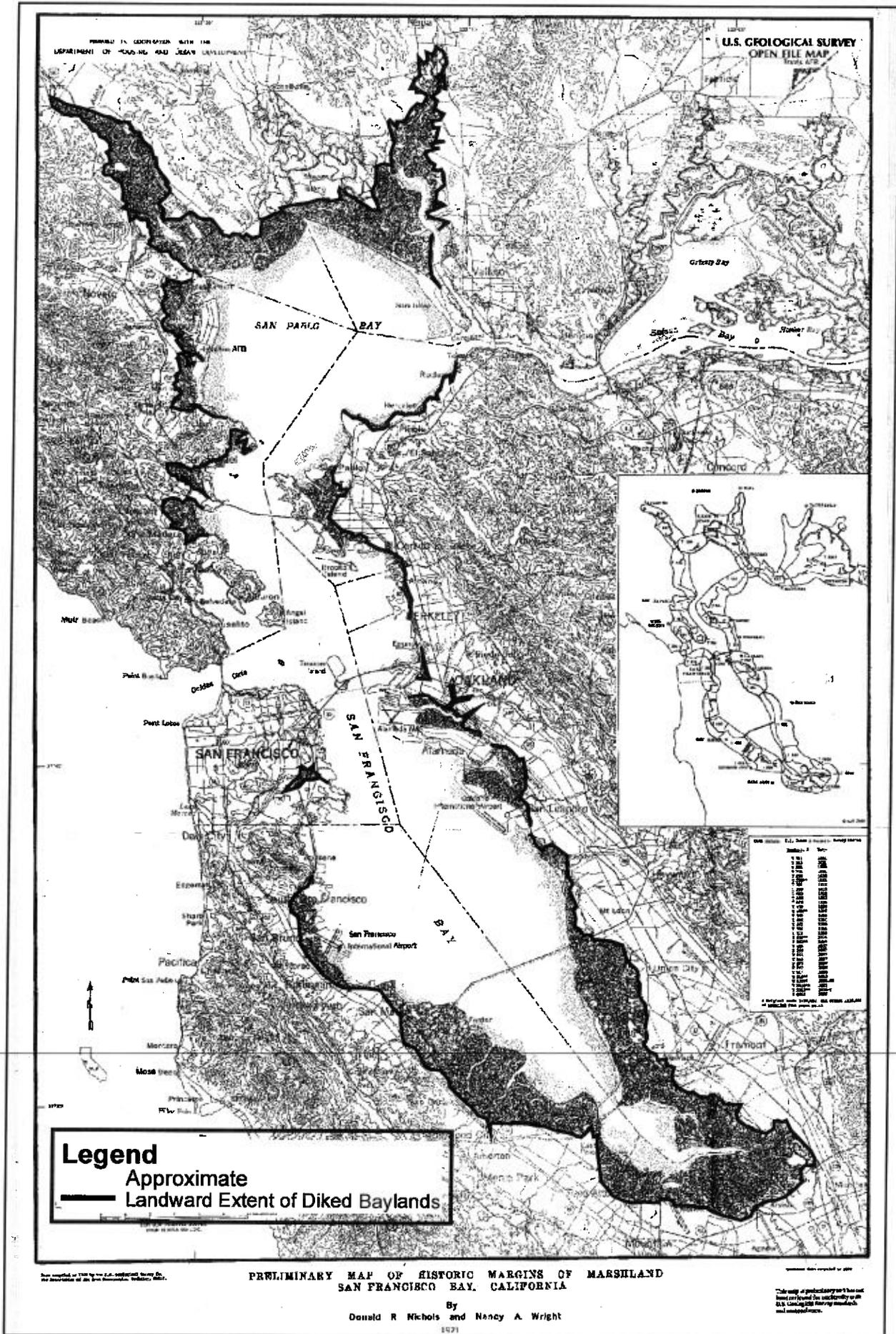
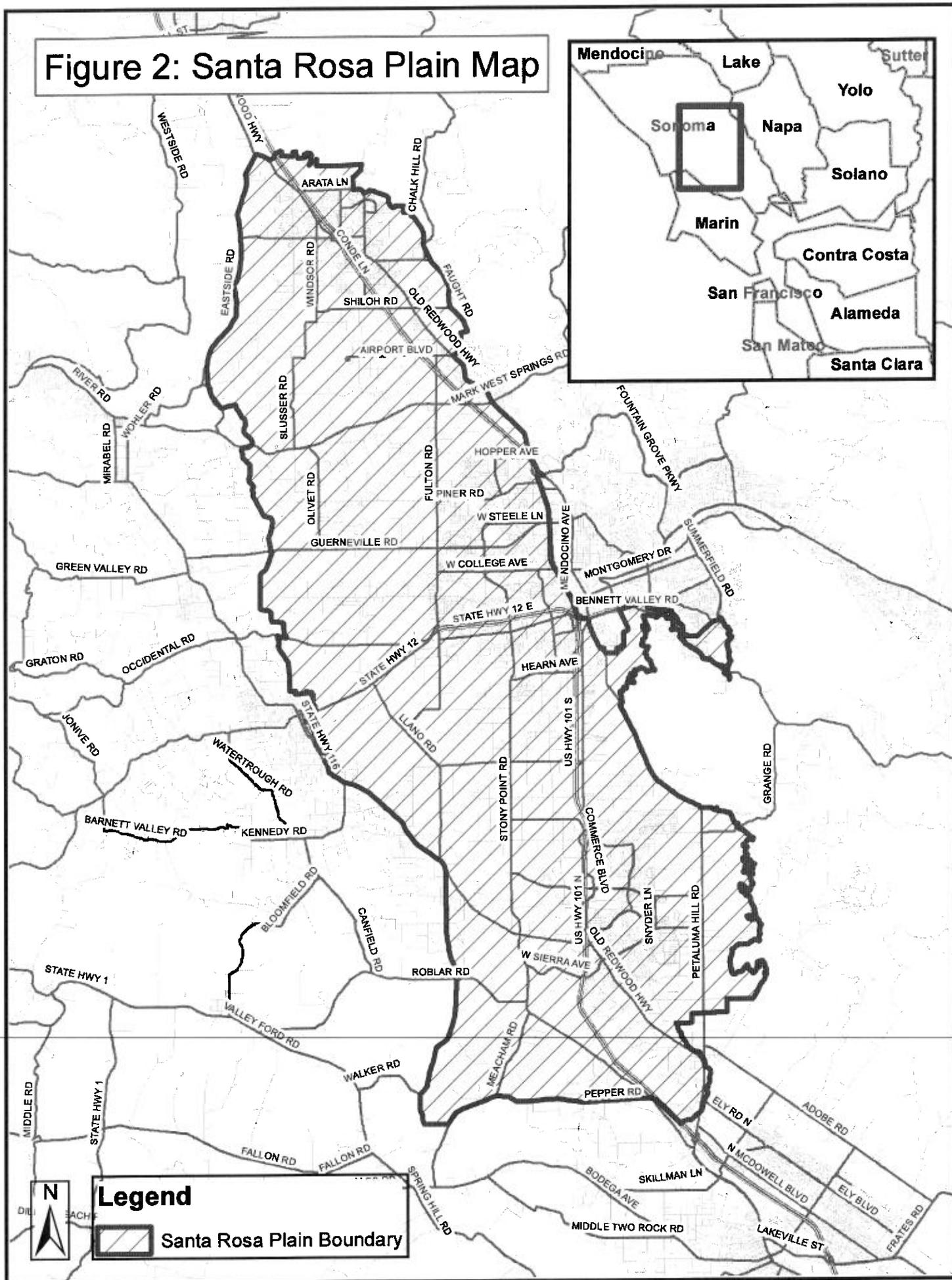


Figure 2: Santa Rosa Plain Map



**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

WATER QUALITY

Hoopa Valley Tribe Section 401 Water Quality Certification with e-mail Attachment (PLAC



Hoopa Valley Tribe

PO BOX 1348, HOOPA CA 95546 • WWW.HOOPA-NSN.GOV



December 19, 2014

California Department of Transportation
Attn: Emiliano Pro
Environmental Management Office
1031 Butte Street, STE. 205, MS 30
Redding, CA. 96001

Re: Permit application for Hoopa Vista Point Curve and Slide Project, State Route 96,
Post Miles 8.3 -8.9

Dear Mr. Pro:

Pursuant to your request, the Riparian Review Committee (RRC) established by the Riparian Protection and Surface Mining Practices Ordinance of the Hoopa Valley Tribe has considered your application to do drainage and road maintenance upgrades between PM 8.3 -8.9. The RRC has determined that the project will not have a significant effect on the quality of the human environment or will have a negative impact on the Trinity River for which it was designated in accordance with the Wild and Scenic Rivers Act. In addition, the RRC has recommended that I approve this project. Accordingly, I am hereby approving a Permit application #2014 -4 to do drainage upgrades between Post Mile 8.3 – 8.9 on Route 96, Hoopa, California. This permit will become effective upon return to the Review Committee of a copy of this letter and attached conditions countersigned by you.

Sincerely,

Danielle Vigil Masten, Tribal Chairwoman
Hoopa Valley Tribe

Decision Notice
Hoopa Valley Tribe, Issuing Agent
Caltrans

Vista Point Curve and Slide Project, State Route 96, Post Miles 8.3 -8.9

Background

In May of 2014 the RRC received an application from Caltrans for a permit to allow Caltrans to do drainage and road maintenance upgrades between PM 8.3 -8.9. Caltrans project description included geo-technical plans to align the existing drainage systems of which five are surface drainage crossdrains, one offsite crossdrain and one Underdrain (UD). These systems are designed based on the hydrology for this area from NOAA Atlas 14, Volume 6, Version 2 for precipitation frequency estimates and Intensity-Duration-Frequency applied to the Regression Equations for intensities used in the Rational equation to develop a 10, 25 and 100 yr flows (Q) based on the area of the watershed. These flows are used with the roadway geometric design developed for the current project to design the improvements of spot location drainage systems mentioned above.

The Soldier pile tieback retaining wall will have a perforated plastic pipe (PPP) underdrain placed against the outer face of the timber lagging. This PPP will be 12 inches in diameter and run the entire length of the proposed 330 foot retaining wall. The PPP will be covered in approximately 10 to 20 feet of 1" rock wrapped in filter fabric and then covered by fill at wall completion. The PPP will convey water to a 12" x 64' plastic pipe at postmile 8.66. This pipe will outlet to an energy dissipater pad. Project operations will occur within the right-of-way of Highway 96.

On 7/9/14 the Riparian Review Committee made a determination as to the adequacy of the application and conducted a level 1 environmental assessment of the proposed action. Through our Level 1 environmental assessment, we include the following mitigation measures:

Environmental Checklist—Tribal Issues.

The Riparian Review Committee made a determination that the environmental checklist evaluation was adequate to determine the significance of the consequences associated with the applicant's proposal when combined with the specific information contained in the application. The Review Committee evaluated public/tribal issues and concerns generated by the committee itself and arrived at the following conclusions:

Water Quality—Chemical Contaminants:

No chemical contaminants will be used on or near the work site.

Road Access:

All work is limited within the right-of-way area adjacent to Route 96.

Wild and Scenic Rivers Act:

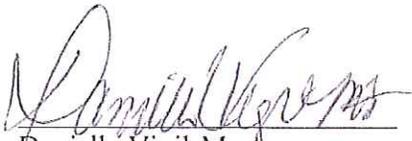
The Hoopa Valley Tribe has reviewed the proposed project on State Route 96, between PM 8.3 – 8.9. The project is within the boundary of the Tribal Reservation and this segment of the Trinity River is under our management. The project is consistent with the Wild and Scenic Rivers Act and will have no impact on the river nor will it have any affect on the values for which it was designated.

Finding Of No Significant Impact

Based on the Environmental checklist and the public hearing, the Riparian Review Committee believes the proposed action would not result in a significant impact to the human environment.

Decision

It is my decision to issue a permit to Caltrans under the terms and conditions of Title 35, Riparian Ordinance, and Title 15, Conservation and Trespass Act. Furthermore, it is my decision that the following terms and conditions shall be adhered to in implementing the project. The applicant may begin operations after countersigning and returning the permit terms and conditions, and warrants that all other applicable terms and conditions have been faithfully executed.


Danielle Vigil-Masten
Hoopa Tribal Chairwoman

12-22-14
Date

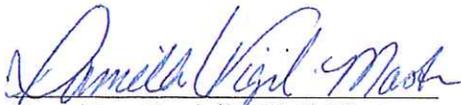
Hoopa Valley Tribe
Permit 2014-4
Caltrans
Vista Point Curve and Slide Project, State Route 96, Post Miles 8.3 -8.9

Terms and Conditions

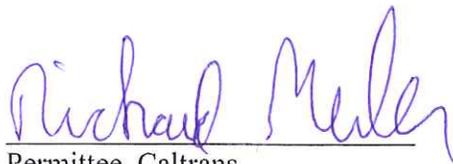
The Hoopa Valley Tribal Chairwoman hereby grants Section 401 Water Quality Certification and Riparian Protection approval for this project. The following terms and conditions are to be adhered to during all project phases:

1. No disposal of construction material, demolition wastes, wastewater, contaminated well water, or any other pollutant is authorized by this certification.
2. Construction materials placed within the 100 year flood plain must be free of substances that can cause or contribute to the pollution of waters of the Hoopa Valley Tribe (HVT). The permittee shall take necessary steps to ensure that contaminated materials are not used for fill within the 100 year flood plain.
3. Pollution from the operation, repair, maintenance, and storage of equipment shall be removed from and properly disposed of outside the 100 year floodplain. Spills shall be cleaned up and properly disposed of outside the 100 year floodplain. Substances such as fuel, lubricants, solvents, and other hazardous material shall not be stored within this area if they cannot be removed with 12 hours notice of impending flood.
4. Water used in dust suppression shall not contain contaminants that could violate surface water or aquifer standards.
5. The permittee shall take necessary steps to minimize channel and bank erosion within waters of the HVT during and after construction.
6. Runoff from disturbed soils, improvements, and other alterations of the natural environment must not cause an exceedence of Tribal water quality standards.
7. Work shall be conducted in a way that minimizes adverse impacts to riparian vegetation, and the permittee shall take appropriate steps to salvage and reestablish any riparian vegetation directly affected.
8. A copy of this certification shall be provided to all contractors and subcontractors.
9. If there are any substantive changes in the proposed project that may affect water quality, the permittee shall notify the Riparian Review Committee. Failure to do so will result in revocation of this certification.

10. The contractor shall implement all necessary measures to prevent the discharge of any substance into the waters of the United States created by, arising from, or consequential to the extraction or processing activities.
11. Permit term shall be until 12/31/17.
12. These terms and conditions apply only to the Post Mile 8.3 – 8.9 sections of Highway 96.
13. The contractor shall provide reasonable access to tribal employees for monitoring purposes.
14. Applicant shall sign and return a copy of the permit signifying his acceptance of the conditions of the permit. Operations may not commence until the day following receipt by the Review Committee of the countersigned permit from the applicant together with any other requirements noted above.
15. All non aggregate waste materials will be hauled away and not stockpiled on site.
16. No significant impact concerning heritage and cultural sites has been found. If during the installation or excavation such sites are found all operations will cease until the Hoopa Cultural Committee and/or a qualified archeologist has reviewed the site.


Permitter, Danielle Vigil-Masten
Tribal Chairwoman

1-6-15
Date


Permittee, Caltrans
RICHARD MULLEN

1-26-15
Date

Pro, Emiliano@DOT

From: Kenpnorton [kenpnorton@gmail.com]
Sent: Wednesday, January 14, 2015 9:28 AM
To: Pro, Emiliano@DOT
Subject: FW: 401 Cert. - Hoopa Combined

Importance: High

Hello Emiliano,

In the water quality section of the Hoopa Tribe's 401 Certification it is implied that potential water quality contaminants will be controlled under spill prevention mitigation measures. Your Standard Specification reference to 13-4.01A meets those requirements and I am concurring with the CALTRANS interpretation.

These preventative measures and guidelines meet the Hoopa Valley Tribe's requirements for environmental protection measures as long as those standards are abided by and adhered to. Thank you for being so thorough to ensure that contaminants do not enter our waterways.

Ken

From: Pro, Emiliano@DOT [<mailto:emiliano.pro@dot.ca.gov>]
Sent: Tuesday, January 13, 2015 9:01 AM
To: kenpnorton@gmail.com
Cc: Linnea Jackson
Subject: 401 Cert. - Hoopa Combined
Importance: High

Good Morning Mr. Norton,

Thank you for such a quick turn around on the revisions to the project description. I have another comment of which I apologize for not including in my previous request. At the bottom of page 2 of the 401 Cert there is a statement which reads:

Water Quality – Chemical Contaminants:

No chemical contaminants will be used on or near the work site.

In order to include this in the Plan, Specs, and Estimate (PS&E) package for the contractor, so as to be biddable and constructible from a contractual standpoint, we will need clarification as to what this statement refers to. As you know, in order to construct the proposed project various chemical contaminants (i.e. gasoline, concrete, asphalt, paint, treated wood, etc.) must be used. However, we do understand that these contaminants shall not be improperly disposed of or allowed to enter waterways.

In our Standard Specifications, which we incorporate into every project, we have an entire section (Section 13-4) which addresses Job Site Management and how the Contractor must handle, store, use and dispose of chemical contaminants in order to protect water quality.

13-4 JOB SITE MANAGEMENT

13-4.01A Summary

Section 13-4 includes specifications for performing job site management, including spill prevention and control, material management, waste management, non-stormwater management, and dewatering activities.

Implement effective handling, storage, usage, and disposal practices to control material pollution and manage waste and non-stormwater at the job site before they come in contact with storm drain systems and receiving waters.

In our Permits, Licenses, Agreements, and Contracts (PLAC) summary , which we provide to the contractor, we could paraphrase the statement in the 401 Cert. as follows:

Ensure chemical contaminants do not enter waterways by:

1. Implementing effective handling, storage, usage, and disposal practices to control material pollution.
2. Managing waste and non-stormwater at the job site before they come in contact with storm drain systems and receiving waters.

If you feel we have correctly interpreted the statement in the 401 Cert., please concur with this email. If we have not appropriately addressed the statement please provide a detailed description of what this portion of the 401 Cert. is referring to.

Please feel free to contact me with any questions or concerns.

Thanks....Hope all is well!

Emiliano M. Pro

Associate Environmental Planner
California Department of Transportation
North Region Office of Environmental Mgmt. District 2
(530) 225-3515

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

AGREEMENTS

California Department of Fish and Wildlife 1602 Streambed Alteration Agreement (PLAC)

**CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF EXEMPTION**

To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, California 95814

Date: February 23, 2015

From: California Department of Fish and Wildlife
Northern Region
601 Locust Street
Redding, California 96001

Project Title: Issuance of Streambed Alteration Agreement No. R1-14-0305, Hoopa Vista Curve and Hoopa Vista Point Slide Project, Humboldt County.

Project Location (Specific): The project is located along State Route 96, between post mile 8.3 and 8.9, approximately 8.3 miles north of the town of Willow Creek and just south of the town of Hoopa, in the County of Humboldt, State of California. Location is at T7N, R5E, sec. 6, Humboldt Meridian.

Project Location (City and County): Work will occur along State highway 96, between post miles 8.3 and *.9, approximately 8.3 miles north of the town of Willow Creek and just south of town of Hoopa, Humboldt County.

Description of Project: See Attached Agreement.

Name of Public Agency Approving Project: California Dept. of Fish and Wildlife.

Name of Agency Carrying Out Project: California Dept. of Transportation

Exempt Status (Class and Guidelines Section): **Categorical Exemption: Class 1(c), Section 15301** – Operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination.

Reasons Why Project is Exempt: The project is a combined storm damage restoration project and safety improvement project. The project proposes to install retaining walls, realign and widen the roadway, improve and enlarge drainage facilities, and add new pavement. The project will have no expansion of use. The project will have no significant effect on the environment.

Lead Agency Contact Person: Richard Lis

Phone: 530-225-2142

Signature: _____

Michael R. Harris

Date: _____

2/23/15

Title: Habitat Conservation Planning Supervisor

Signed by Lead Agency

Date received for filing at OPR:

Signed by Applicant



California Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Region 1 – Northern
601 Locust Street
Redding, CA 96001
(530) 225-2300
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director



February 23, 2015

Mr. Richard Mullen
California Department of Transportation
1656 Union Street
Eureka, CA 95501

Subject: Final Streambed Alteration Agreement
Notification No. 1600-2014-0305-R1
Hoopa Vista Curve and Hoopa Vista Point Slide

Dear Mr. Mullen:

Enclosed is the final Streambed Alteration Agreement (Agreement) for the Hoopa Vista Curve and Hoopa Vista Point Slide Project (Project). Before the California Department of Fish and Wildlife (Department) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, the Department, acting as a responsible agency, determined your project is exempt from CEQA and filed a notice of exemption (NOE) on the same date it signed the Agreement.

Under CEQA, filing a NOE starts a 35-day period within which a party may challenge the filing agency's approval of the project. You may begin your project before the 35-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Rich Lis at 530-225-2142 or Rich.Lis@wildlife.ca.gov.

Sincerely,

for *Rachelle Pike*

Rich Lis
Senior Environmental Scientist (Specialist)

ec: Emiliano Pro
California Department of Transportation
emiliano.pro@dot.ca.gov

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
NORTHERN REGION
601 LOCUST STREET
REDDING, CA 96001



STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2014-0305-R1
Unnamed intermittent stream and unnamed ephemeral stream,
both tributaries to Trinity River.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
HOOPA VISTA CURVE AND HOOPA VISTA POINT SLIDE

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (DFW) and the California Department of Transportation (Permittee) as represented by Mr. Richard Mullen.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFW on October 24, 2014 that Permittee intends to complete the project described herein;

WHEREAS, pursuant to FGC section 1603, DFW 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 along State Route 96, between post mile 8.3 and 8.9, approximately 8.3 miles north of the town of Willow Creek and just south of the town of Hoopa, in the County of Humboldt, State of California. Location is at T7N, R5E, sec. 6, Humboldt Meridian.

PROJECT DESCRIPTION

The project is a combined storm damage restoration project and safety improvement project. The project proposes to install retaining walls, realign and widen the roadway, improve and enlarge drainage facilities, and add new pavement.

Location 1

The unnamed intermittent stream crosses beneath the State Route 96 at PM 8.55 in an existing corrugated metal pipe 5 feet (ft) in diameter by 150 ft long. It will be replaced with a 6 ft diameter by 84 ft long steel pipe on the same alignment, but reduced grade. A concrete headwall and wingwalls and apron will be constructed at the inlet; while approximately 70 ft of rock slope protection will be placed at the outlet. The stream is dry in the summer and no diversion of water will be necessary. This portion of the project will result in the permanent loss of 0.00059 acre (25.7 sq. ft.) of stream channel and temporary loss of 0.0073 acre (317.99 sq. ft.) of stream channel; for riparian vegetation there will be a permanent loss of 0.0058 acre (252.65 sq. ft.) and the temporary loss of 0.0038 acre (165.53 sq. ft.).

Location 2

This unnamed ephemeral stream crosses beneath the highway at PM 8.67 through and existing corrugated metal pipe 2 ft. in diameter and 77 ft. long with a drop inlet. A temporary clear water diversion will be required for drainage improvements at PM 8.67, in order to construct the soldier pile tie back wall which will occur during the winter as conditions allow. The clear water diversion will remain in place through the winter and spring and removed once the soldier pile wall is completed. The existing structure will be completely removed and a new corrugated metal pipe culvert placed at PM 8.68 that is 2 ft in diameter and 72 ft. long with a new drop inlet constructed within a paved roadside ditch; while the outlet will have approximately 15 ft of rock slope protection. This portion of the project will result in the permanent loss of 0.00033 acre (14.4 sq. ft.) of stream channel; there will be no loss of riparian vegetation associated with this ephemeral stream channel construction.

PROJECT IMPACTS

Project impacts are of the following:

- riparian vegetation permanent loss = 0.0058 acre (252.65 sq. ft.)
- riparian vegetation temporary loss = 0.0038 acre (165.53 sq. ft.)
- intermittent & ephemeral stream ch. perm. loss = 0.00092 acre (40.1 sq. ft.)
- intermittent & ephemeral stream ch. temporary loss = 0.0091 (396.40 sq. ft.)

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 DFW 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 DFW 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, DFW shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that DFW personnel may enter the project site at any time, after notifying the Resident Engineer, 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.

PROJECT TIMING

- 2.1 General Work Period for Stream Channel and Banks All work on the stream banks or within the stream channel, shall be confined to the period commencing June 1, and ending October 15, of any year in which this Agreement is valid when there is no stream flow. If weather conditions permit, and the stream remains in low flow conditions or dry, the Permittee may perform work within the stream channel or on the banks after October 15, provided a written request is made to the Department at least 5 days before the proposed work period

variance. Written approval from the Department for the proposed work period variance must be received by the Permittee prior to the start or continuation of work after October 15. An exception to this general timing provision is allowed for the clear water diversion condition, see sub-section 2.27.

- 2.2 Required Measures for Work after October 15. If work is performed within the stream channel or on the banks after October 15, the Permittee shall do all of the following:
- a. Stage erosion and sediment control materials at the work site.
 - b. Monitor the seventy-two (72) hour forecast from the National Weather Service.
 - c. When the 72-hour forecast indicates a probability of precipitation of 60% or greater, or at the onset of any precipitation, ground disturbing activities shall cease and erosion control measures shall be implemented to stabilize exposed soils and prevent the mobilization of sediment into the stream channel or adjacent wetland or riparian areas.

HABITAT AND SPECIES PROTECTION

- 2.3 Delineating Limits of Work. Prior to initiating vegetation or ground disturbing Project activities, Permittee shall clearly delineate the limits of the work area including Environmentally Sensitive Areas. Permittee shall restrict all Project activities to the designated work area and shall maintain all fencing, stakes and flags until the completion of Project activities.
- 2.4 Minimize Loss of Riparian Vegetation. Removal of existing riparian vegetation shall not exceed the minimum necessary to complete operations.
- 2.5 Take of State Threatened or Endangered Species. This Agreement does not authorize the take of any State threatened or endangered species. If the project could result in the "take" of a state listed threatened or endangered species, the Permittee has the responsibility to obtain from the Department, a California Endangered Species Act Permit (CESA 2081 Permit). The Department may formulate a management plan that will avoid or mitigate take. If appropriate, contact the Department CESA coordinator at (530) 225-2300.
- 2.6 Installation of Environmentally Sensitive Area (ESA) Fencing. ESA fencing shall be installed as the first order of work and in accordance with the Project plans and drawings. Inspection of the ESA fencing installation will be conducted by the Environmental Construction Liaison to ensure proper

placement.

- 2.7 **ESA Fencing Shown on Project Plans.** ESA fencing shall consist of temporary orange construction fence or other highly visible material that clearly delineates the limits of Environmentally Sensitive Areas which shall be clearly shown on the Project plans and drawings. The Permittee shall ensure that the contractor, subcontractors, and all personnel working on the Project are instructed on the purpose of the ESA fencing and understand the limits of the work area.
- 2.8 **Vegetation Removal Period and Nesting Birds.** Removal of trees and shrubs from the work area shall take place between September 1 and February 15 to avoid impacts to nesting birds. Take of migratory birds will be avoided during construction activities. In no case shall active nests with eggs or young be removed during construction.
- 2.9 **Materials for Rock Slope Protection.** RSP and energy dissipation materials shall consist of clean (i.e. quarry run or equivalent) rock, competent for the application, sized and properly installed to resist washout. RSP slopes shall be supported with competent boulders keyed into a footing trench with a depth sufficient to properly seat the footing course boulders and prevent instability (typically at least 1/3 diameter of footing course boulders). Excavation spoils shall not be side-cast into the channel nor is any manipulation of the substrate of the channel authorized except as herein expressly provided.
- 2.10 Executive Order 13112 requires federal agencies to prevent and control the introduction and spread of invasive species, therefore all equipment shall be washed pre – and post - construction to prevent the spread of any noxious weeds. All areas left disturbed at the end of construction will be seeded and mulched to help prevent the establishment of invasive weeds (see section 2.25 below).

PETROLEUM, CHEMICAL AND OTHER POLLUTANTS

- 2.11 **Storage of Materials** All construction-related materials and equipment shall be stored at a local Caltrans maintenance yard or in designated staging areas located outside of the floodplain in upland areas located within Caltrans right-of-way.
- 2.12 **Work Adjacent to Watercourses.** As part of the proposed construction activities, heavy equipment (drilling trucks, backhoe, excavator, etc.) may be required to work within and/or adjacent to perennial watercourses. Therefore, there is potential for chemical contamination as a result of a leak or spill of petroleum or

hydraulic products into a channel. Measures will be taken to avoid or minimize potential chemical contamination, which will include no staging, storage and refueling of vehicles and equipment within 100 feet of any watercourse. In the event of a leak or spill, the project shall cease immediately and the Hoopa Valley Tribe Riparian Review Committee and CDFW shall be notified.

- 2.13 Refueling. Refueling and vehicle maintenance shall be performed at least 100 feet from streams or other water bodies unless approved in writing by DFW. If equipment must be washed, washing will occur where the water cannot flow into a creek channel.
- 2.14 Use of Equipment Prohibited in Live Streams. No equipment or machinery shall be operated within any flowing stream.
- 2.15 Maintenance and Inspection of Equipment to Prevent Leaks. Any equipment or vehicles driven and/or operated within or adjacent to the stream channel shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat.
- 2.16 Drip Pans. Stationary equipment such as motors, pumps, generators, and welders that contain deleterious materials, located adjacent to the stream channel shall be positioned over drip pans, for any part of the equipment that drips fluids.
- 2.17 Pollution of Waters of the State Prohibited. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, asphalt, paint or other coating material, 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, or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.
- 2.18 Disposal of Waste Water from Concrete Mixing and Application Operations. Water that has been in contact with uncured concrete shall be contained in a sealed concrete washout facility or other impervious container and shall not be discharged to surface or ground waters.
- 2.19 Fluid Spill Response. In the event of an unexpected fluid spill, the equipment operator will immediately stop work and contain the escaping fluids and mitigate any further potential fluid loss. Any fluid that should leak onto the ground will be collected by placing absorbent pads and absorbent material. These used pads and material will then be placed in 55 gallon drums for

disposal.

- 2.20 Spill Containment, Clean up and Discharge Notification.** All construction activities performed in or near the stream shall have absorbent materials designated for spill containment and clean-up activities on-site for use in an accidental spill. In the event of a discharge, the Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate clean-up activities. DFW shall be notified by the Permittee and consulted regarding clean-up procedures.

EROSION AND SEDIMENT CONTROL

- 2.21 Erosion Control Measures Required.** The project shall, at all times, feature adequate erosion and sediment control devices to prevent the degradation of water quality.
- 2.22 Installation and Maintenance of Best Management Practices.** Soils exposed by project operations shall be treated to prevent sediment runoff and transport. Erosion control measures shall include the proper installation and maintenance of approved Best Management Practices (BMPs) and may include applications of seed, certified weed-free straw, compost, fiber, stabilizing emulsion and mulch, or combinations thereof.
- 2.23 Soil Stabilization and Sediment Prevention.** Soils adjacent to the stream channel that are exposed by project operations shall be adequately stabilized when rainfall is reasonably expected during construction, and immediately upon completion of construction, to prevent the mobilization of such sediment into the stream channel or adjacent riparian areas. National Weather Service forecasts shall be monitored by the Permittee to determine the chance of precipitation.
- 2.24 Erosion Control Seeding.** Prior to the end of construction, all disturbed areas shall be stabilized and reseeded with a suitable cover crop (such as winter wheat) that will not persist on site. A regionally appropriate California native seed mix shall be applied during the first or second year to provide succession from the erosion control cover crop for the establishment of native plants.
- 2.25 Spill Prevention Plan.** Temporary construction site BMPs shall be implemented using a Spill Prevention Plan (SPP) which will be kept on site, along with all materials and equipment necessary to implement the SPP should it be needed. The temporary BMPs are aimed at reducing erosion and subsequent sediment transport, and preventing accidental spills during construction and may include check dams, straw bales, hydraulic mulch, sediment traps, concrete washouts, fiber rolls, and temporary Hot Mix Asphalt (HMA) dikes.

2.26 Temporary Fill. Temporary fills will be removed within 30 days after completion of work at a given location and/or prior to the onset of the rain season, and in accordance with the Section 401 and 404 Clean Water Act requirements. These areas will be returned to their pre-construction contours, and treated with erosion control seed mix.

CONSTRUCTION DEWATERING AND INSTREAM STRUCTURES

2.27 Timing of Work. All work within the stream channel or on the banks shall be performed when the stream is dry or at low flow. If water is present during construction the Permittee or its contractors may construct a clear water diversion to cleanly route water around the construction area. All work shall be performed in isolation from surface or subsurface flow. Weather conditions should be monitored daily, if the stream has clear water diversion, and the diversion constructed should be sized to accommodate a minimum of the 25 year potential thunder-storm events; however, this provision does not supersede sub-section 2.29.

2.28 Construction Materials. Where water is present, a temporary clear water diversion shall be constructed to isolate the work area from flow. Temporary diversions may be constructed using berms of clean washed gravel, sand bags, K-rail, plastic sheeting, or a combination of these materials upstream from the work area. Flows will then be diverted into a temporary culvert, pipe, or conduit and released downstream from the work area.

2.29 Diversion Sizing for Precipitation. The clear water diversion shall be adequately sized to accommodate the full range of flows that may occur during the diversion period without overtopping into the work area.

2.30 Protection of Watercourse Dependent Aquatic and Terrestrial Wildlife. Dewatering shall be done in a manner that prevents the discharge of material that could be deleterious to fish, plant life, or bird life into any river, stream or lake and maintains adequate flows to downstream reaches during all times natural flow would have supported aquatic life. Such flows shall be of sufficient quality and quantity to support aquatic life above and below the diversion. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.

2.31 Minimization of Sediment and Turbidity. Dewatering activities shall be conducted in such a manner so as to minimize downstream sedimentation

and turbidity, and to minimize channel disturbance to allow flows to run clear.

- 2.32 Removal of Structures Incapable of Tolerating High Flows. Temporary culverts, gravel berms or other structures and materials not designed to withstand high flows shall be removed from the channel prior to October 15th.

3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each measure listed below.

- 3.1 On-site Riparian Restoration. To compensate for the permanent loss of 0.0058 acre (252.65 sq. ft.) riparian vegetation and the temporary loss of 0.0038 acre (165.53 sq. ft.) of riparian vegetation Permittee shall replant and establish 0.0096 acre (418.18 sq. ft.) of riparian vegetation through on site planting of temporarily disturbed sites.
- 3.2 On-site Stream Channel Restoration: To compensate for permanent loss of 0.00092 acre (40.1 sq. ft.) of intermittent and ephemeral stream channel habitat and the temporary loss of 0.0091 acre (396.40 sq. ft.) of intermittent and ephemeral stream channel, the Permittee shall examine the site for restoration potential and plant with riparian species that are deemed suitable for the site. If the Permittee determines that this site cannot, or would not, benefit from replanting then Permittee shall describe the reasons for this determination in the planting plan.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

- 4.1 Planting Plan, Monitoring, and Reporting. Permittee shall submit a proposed planting plan prior to completion of construction activities that consists of: (a) species to be planted; (b) type of reproductive element for each species (pole cuttings, seed, container stock, etc.); (c) justification for use of species; (d) quantity of plants to be planted; (e) proposed areas to be planted; (f) plan for planting and dates; and (g) plan to ensure that *Phytophthora tentaculata* is not transmitted to site, if container stock is used. Within one month of the completion of all planting, the Permittee shall submit a map of the site and photographic monitoring of the planting site, with notations on the map of photographs and view. At the end of three years the DFW will review this project with the Permittee, to determine if the site has met restoration success.

This site is part of a pilot project to determine the level of monitoring necessary to verify that successful growth and establishment of riparian vegetation can be completed by the Permittee; and can occur on small restoration sites, which are revegetated with specific criteria, in areas where supplemental irrigation is unlikely to be needed.

If this site fails to meet expected revegetation success, then a remediation plan will be required to be prepared and submitted to DFW for review and approval for implementation. If a remediation plan is needed, then DFW will consult with the Permittee to determine the level of future monitoring necessary to bring the site up to conditions that meet compliance for successful establishment of native plants.

CONTACT INFORMATION

Any communication that Permittee or DFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFW specifies by written notice to the other.

To Permittee:

Mr. Richard Mullen
Project Manager
Department of Transportation
1656 Union Street
Eureka, CA 95501
Fax: (530) 225-3019
Email: richard.mullen@dot.ca.gov
ec: emiliano.pro@dot.ca.gov

To DFW:

Department of Fish and Wildlife
Northern Region
601 Locust Street
Redding, CA 96001
Attn: Lake and Streambed Alteration Program – Dr. Richard Lis
Notification #1600-2014-0305-R1
Fax: (530) 225-2267
Email: richard.lis@wildlife.ca.gov

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 DFW'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

DFW 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 DFW 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 DFW 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 DFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes DFW 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 DFW'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

DFW may amend the Agreement at any time during its term if DFW 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 DFW and Permittee. To request an amendment, Permittee shall submit to DFW a completed DFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFW'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 DFW 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 DFW a completed DFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFW'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 DFW a completed DFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFW 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 DFW's signature, which shall be: 1) after Permittee's signature; 2) after DFW 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.DFW.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2019, 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.

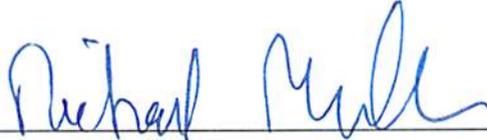
AUTHORIZATION

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 DFW in accordance with FGC section 1602.

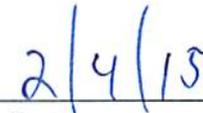
CONCURRENCE

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

FOR DEPARTMENT OF TRANSPORTATION



Richard Mullen
Project Manager

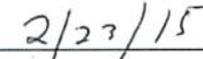


Date

FOR DEPARTMENT OF FISH AND WILDLIFE



Michael R. Harris
Habitat Conservation Planning Supervisor



Date

Prepared by: Richard Lis, Ph.D.
Senior Environmental Scientist

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

AGREEMENTS

Hoop Valley Tribal TERO Memorandum of Understanding (MOU)

Hoopa Valley Tribal Council
INSURANCE DEPARTMENT
Insurance Administration/Risk Management

71 Willow St. ~ PO Box 218 ~ Hoopa, CA 95546
Phone (530) 625-9200 ~ Fax (530) 625-4269



November 24, 2014

Caltrans District 1
Attn: Brad Mettam
1656 Union Street
Eureka, CA 95501

RE: SIGNED MOU
CONTRACTS: 01-0B030, 01-0B390, 01-49370

Please find attached a copy of the signed MOU between the Hoopa Valley Tribe and California Department of Transportation.

Once review and signed, please mail one original back to Penny Cordova, Tero Director, Hoopa Valley Tribal Employment Rights, P.O. Box 1467, Hoopa, CA 95546.

Any questions, may be directed to Ms. Cordova at the above telephone number, ext 14.

Sincerely

Elizabeth Turner for
Penny Cordova, TERO Director
Hoopa Tribal Employment Rights Office

**MEMORANDUM OF UNDERSTANDING
Tribal Employment Rights Ordinance**

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01-0B030 0112000002
01-0B390 0112000123
01-49370 0100000478

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The Hoopa Valley Tribe (**Tribe**) and the State of California Department of Transportation (**Caltrans**), in order to coordinate and carry out their respective functions and duties regarding Indian Employment Preference on State highway construction projects on lands within the Hoopa Valley Indian Reservation (**Tribal Lands**), do hereby enter into this Memorandum of Understanding (**MOU**).

This **MOU** constitutes a guide to the respective intentions, obligations, and policies of the **Tribe** and **Caltrans** in entering into this agreement. It is not intended to be used as a sole basis for authorizing funding, nor is it a legally binding contract upon either party.

Contract No. Project ID	Project County- Route- Postmile	Work Description	Hoopa Tribal Lands	Hoopa IRR Inventory
01-0B030 0112000002	Hum-96- 8.30/8.90	Curve Improvement	Hum-96- 7.80/22.75	Hum-96- 0.00/22.75
01-0B390 0112000123	Hum-96- 8.50/8.70	Stabilize Roadway		
01-49370 0100000478	Hum-96- 11.05/13.20	Shoulder Widening/Light Guard Crosswalk		

I. INDIAN EMPLOYMENT PREFERENCE AND TERO FEE

A. Recitals

1. Section 122 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, Pub. L. 100-17, 23 USC ss. 140(d), recognizes the

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- establishment of Indian Employment Preferences in the Federal Aid Highway Program.
2. The **Tribe** has enacted certain tribal employment rights policies included within the Hoopa Valley Tribe **Tribal Employment Rights Ordinance** establishing a tribal employment rights function and mandating Indian Employment Preferences on State construction projects and in other forms of employment within the Reservation.
 3. The parties hereto recognize that Caltrans shall employ the services of one or more independent contractors in order to accomplish all or some of the activities necessary for State highway construction on **Tribal Lands**.
 4. **Caltrans** and the **Tribe** desire to promote Indian employment by
 - a) applying Indian Employment Preferences to the State's contractors for highway work conducted on **Tribal Lands** or on any State highway included in the **Tribe's** Indian Reservation Road (IRR) Inventory when a portion of the project is on Tribal Lands, and
 - b) establishing a mechanism to ensure that the **Tribe** receives TERO Fee, of 3% of the contract award amount, for the portion of the project that is on **Tribal Lands**.
 5. The parties desire to clarify the rights and obligations of the **Tribe**, **Caltrans**, and prospective bidders and contractors who may perform work on **Tribal Lands** for State highway construction contracts.

B. Statement Of Intent

1. **Caltrans** shall inform prospective bidders of the Tribal, State, and Federal laws with respect to Indian Employment Preferences by inserting provisions (Attachment A) in its information to prospective bidders. These provisions shall become part of the State highway construction contract. The provisions shall require

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- a) submittal of TERO Highway Contract Permit (THCP) to Tribe within 5 days after Contract Approval. The prime contractor and each sub-contractor shall submit an individual TCHP to the Tribe.
 - b) a 45-day delayed start to allow for Contractor submittals to and from Tribe and Contractor submittal of completed THCP to Engineer
2. **Caltrans** shall not allow the contractor to begin work until the contractor has obtained, from the **Tribe**, a TERO Highway Contract Permit (Attachment B) from The TERO officer of the **Tribe**.
 3. The TERO Officer of the **Tribe** shall work with Caltrans and Caltrans' contractor to process the TCHP in a timely manner and ensure that there is no delay in either beginning work or in providing qualified candidates to meet the contractor's personnel needs. The Tribe shall return the completed THCP to the contractor within 30 days of receiving the application.
 4. Immediately after Contract Approval, **Caltrans** shall provide the TERO officer of the Tribe with all documentation necessary for the Tribe to properly invoice Caltrans for the TERO Fee. The **Tribe** shall invoice **Caltrans** for the TERO Fee, 3% of the contract award amount within 15 days after issuing the THCP. Upon receipt of an invoice for the TERO Fee, Caltrans shall forward the invoice to Accounting within 7 days and make prompt payment of the TERO Fee to the Tribe.
 5. **Caltrans** shall notify the **Tribe** of each change order.
 6. **Caltrans** and the **Tribe** shall make a reasonable effort to conduct joint investigations and share information. Nothing in this **MOU** shall be construed to restrict the authority of the **Tribe**, either to initiate enforcement actions in the Tribal Court or to amend Tribal laws.

II. TERO PROVISIONS – Pertaining to Contracted State Highway Work

Listed below are the provisions from the Hoopa Valley Tribe TERO that pertain to State Highway work.

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Title 13

Approved: May 17, 2012

13.0 SHORT TITLE

The Short title of this ordinance shall be the Tribal Employment Rights Ordinance, or TERO.

13.1 EFFECT ON PRIOR ENACTMENTS

13.1.1 Repeal. Resolution 91-71 A, as amended March 6, 1995, Ordinance No. 2-80, as amended April, 27, 1995, the Rules for Hearings Before the TERO Commission, as amended June 10, 1998, are hereby repealed and shall be of no further force and effect as stated in Section 13.13.1 of this ordinance; provided, however, that any existing agreements or contracts authorized under these now repealed enactments shall remain in effect until such agreements or contracts expire or are terminated; and provided, further, that the TERO Commission established by this Ordinance may terminate any existing Indian preference agreement and issue a permit in conformance with this Ordinance upon notice to the affected party and opportunity for a hearing.

13.1.2 N/A

13.1.3 N/A

13.2 DEFINITIONS

13.2.1 "Indian" means any member of any federally recognized tribe, or any person who furnishes documentary proof that he or she is recognized as an Indian by the United States, pursuant to its trust responsibility to American Indians.

13.2.2 "Hoopa Reservation" or "Reservation" means the Hoopa Valley Indian Reservation as defined under Article III of the Constitution and Bylaws of the Hoopa Valley Tribe.

13.2.3 "Employer" means any person, company, contractor, subcontractor or entity located or engaging in commercial or employment activity within the exterior boundaries of the Hoopa Valley Indian Reservation, and which employs two or more persons.

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13.2.4 N/A

13.2.5 "Commission" and "Office" mean the Tribal Employment Rights Commission and its Office and the Tribal Office of Employment Relations.

13.2.6 "Council" means the Hoopa Valley Tribal Council.

13.2.7 "Minimum Threshold" means a minimum level that any job applicant shall be required to meet prior to Indian Preference being applied to that job applicant. Criteria to establish a minimum threshold may be established by but are not limited to the following:

1. Job Descriptions;
2. Interview Committees;
3. Skills Tests;
4. RFP's and License Requirements;
5. Other Job Requirements.

13.3 ESTABLISHMENT OF TERO COMMISSION AND OFFICE

13.3.1 Establishment and Purpose of Commission

(A) The Hoopa Valley Tribal Council does hereby establish the Tribal Employment Rights Commission (TERO Commission) for the purposes of implementing and enforcing the Indian Preference provisions of this Ordinance, and disseminating information regarding unlawful employment discrimination by State and private employers subject to Title VII of the Civil Rights Act of 1964 who are operating on or near the Hoopa Valley Indian Reservation.

(B) TANF; Training by TERO Commission. The TERO Commission is hereby authorized to provide basic life/work skills training consistent with the needs of the community and implementation of the Tribal, state or federal TANF program; to establish a Tribal Employment Rights training center; to enter into agreements with labor unions and other persons or entities to provide work skills training and education opportunities; and to generally provide employment training to members of the Tribe and residents of the Hoopa Valley Indian Reservation through means deemed appropriate by the Tribal Council.

(C) TERO Tax. The TERO Commission shall be allocated sufficient funds as

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determined by the Hoopa Valley Tribal Council derived from the TERO Tax as described in Section 13.5 of this Ordinance for implementation, conduct, and fulfillment of the TERO Commission's purposes.

13.3.2 General Powers of the Commission

(A) Organizational Authority. The Commission may hire immediate TERO staff, obligate funds appropriated by the Council, and secure and obligate funding from Federal, State or other sources to carry out its duties and functions under this Ordinance. The Commission is further authorized and directed to adopt such organizational bylaws as are necessary to enable it to carry out its duties and functions under this Ordinance. The Commission shall report directly to the Council. The TERO Commission shall be subject to the Conflict-of-Interest and Nepotism Ordinance of the Hoopa Valley Tribe.

(B) Regulatory Authority.

(1) The Commission shall promulgate rules, regulations, interpretations of law, and guidelines for Indian preference that are necessary to implement this Ordinance. Such rules shall become effective upon Council approval of a resolution adopting said rules. Council approved rules shall be codified in the Revised Code of the Hoopa Valley Tribe, and the Commission shall take other reasonable steps to insure that the general Reservation community is on notice of all Indian preference and applicable employment related laws.

(2) The Commission shall maintain an Indian Skills Bank as a means of providing qualified Indian employees to employers, contractors, and subcontractors. The Commission shall actively recruit Indians for listing in the Skills Bank. The Commission shall also actively recruit and certify Indian firms as eligible for Indian Preference in contracting and sub-contacting.

(3) N/A

(4) The Commission may (. . . N/A . . .) issue permits to such contractors according to rules and procedures to be developed, which shall include procedures for revocation of such permits.

(5) The Commission is further authorized and directed to investigate

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complaints regarding any violation of the provisions of this Ordinance or any other tribal the Commission is authorized to enforce. The Commission may also investigate possible violations of this Ordinance if there is reasonable cause to believe a violation of this Ordinance has occurred or is occurring. Neither the Commission or any of its employees shall have the authority to investigate or assist any Hoopa Tribal employee in pursuing any employment related claim not within its authority under this Ordinance

(C) Adjudicatory Authority

The Commission may hold hearings on and determine any matter under its authority, including but not limited to hearings necessary to the issuance, modification, and revocation of any permit, license, certification, or assessment authorized hereunder, as well as any adjudicatory hearing regarding violations of the provisions of this Ordinance. The Commission shall have no authority or jurisdiction to hear or adjudicate complaints brought by Hoopa Valley Tribal employees that are not specifically authorized under this Ordinance. The Commission shall promulgate simple and fair rules to govern its adjudications, and is authorized to issue compliance orders and impose civil penalties in the form of fines.

(D) Cooperative Agreements with Other Governments

The Commission may negotiate, and upon Council approval, enter into cooperative agreements with agencies of state and federal government in order to implement the intent of this Ordinance and eliminate unlawful discrimination against Indians.

13.3.3 Composition of the Commission

(A) The Commission shall be composed of five (5) members in good standing in the community. Three (3) members of the Commission shall be appointed by the Council in October of even numbered years, each for a term of two (2) years; and two (2) members shall be appointed in odd numbered years, each initially for a term of one (1) year, thereafter being appointed in October of odd-numbered years each for a term of two (2) years. Any member may be removed by the Council at any time for cause, subject to notice and opportunity for a hearing before Council. The Council's decision shall be final. All terms of office shall commence on October 1 of the year position

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becomes vacant.

(B) Decisions of the TERO Commission shall be made by a majority vote. A quorum shall consist of any two of the three Commission members.

(C) Any Commission member shall be disqualified from any involvement in decisions affecting the tribal department or entity with which he or she is employed or volunteers their time to that department.

13.3.4 Powers of the TERO Director

The TERO Director shall have those powers delegated by the Commission as it deems necessary to carry out this Ordinance. The Director shall be the investigating agent for the Commission responsible for investigating, researching, reporting and documenting any relevant information required by the Commission. The Director shall report directly to the Commission.

13.4 INDIAN EMPLOYMENT PREFERENCE POLICY AND PROCEDURES

All employers shall extend a preference to qualified Indians, as provided herein, in all aspects of employment, including but not limited to recruitment, hiring, promotion, lateral transfers, retentions, training, contracting, and subcontracting. No employer may recruit, hire, or otherwise employ any non-Indian for any employment position covered by this Ordinance; unless and until the TERO Commission has furnished written notice to such employer that no qualified Indians are available for such position.

13.4.1 Applicability

Unless clearly and expressly prohibited by federal and other tribal laws or Council action, this Ordinance shall apply to all employers, including but not limited to: The Council and all its programs, departments, and chartered entities or enterprises; private employers and independent contractors and subcontractors~ including those performing work for the Council, the State of California, or the United States.

13.4.2 Covered Positions

The Indian Employment Preference Policy of this section shall apply to each and every job classification, skill area, or craft recognized or utilized by an

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employer, including administrative, supervisory, and professional classifications.

13.4.3 Qualified Indians; Employment Criteria

An Indian shall be qualified for employment in a position if he or she meets the minimum threshold requirements for such position, and such Indian shall be accorded the preferences to which he or she is entitled under this Ordinance. No employer may utilize any employment criterion that is not legitimately related to the performance of the position.

13.4.4 Eligible Indians

(A) If this section conflicts with any applicable federal laws or regulations, the Hoopa Valley Tribe and its programs, departments and chartered entities and enterprises, and private employers contracting with the Tribe shall extend Indian preferences according to the requirements of said federal laws and regulations.

(B) Private Employers Not Contracting with the Hoopa Valley Tribe: Private employers not contracting with the Hoopa Valley Tribe and doing business within the exterior boundaries of the Hoopa Valley Indian reservation shall not be subject to the priority requirements of Section 13.4.4(A), but shall extend a preference to qualified Indians residing on or near the exterior boundaries of the Hoopa Valley Indian Reservation. (. . . N/A . . .)

13.4.5 Notice of Employee Rights. All employers subject to this Ordinance shall prominently display a notice to all employees and applicants for employment of their rights under this Ordinance.

13.4.6 Employer Retaliation Prohibited. It shall be violation of this Ordinance for any employer to take any adverse personnel or hiring action, or to retaliate in any way, against any person who attempts to enforce the requirements under this Ordinance. Employers found by the Commission, pursuant to an adjudicatory hearing, to have engaged in retaliation shall be subject to appropriate sanctions to be imposed by the Commission. The Commission may in its discretion either hold a hearing or file action in Tribal Court to review an allegation of unlawful retaliation. The Tribal Court is authorized to issue temporary injunctions for enforcement of this provision to prevent unlawful conduct.

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13.5 ESTABLISHMENT OF TERO TAX AND FEES

There is hereby established a TERO Tax to be paid to the Hoopa Valley Tribal Council . . . The tax shall be equivalent to three percent (3%) . . . The proceeds of the tax shall be used in implementing this Ordinance. The Hoopa Valley Tribal Council shall authorize the appropriate amounts of the TERO Tax to be utilized by the TERO Commission according to proof of budgetary needs provided by each department. The TERO tax shall be governed under guidelines approved by the Tribal Fiscal Department. (. . . N/A . . .) The Hoopa Valley Tribal Council when it is determined to be in the interests of the Hoopa Valley Tribe reserves the right to waive TERO Taxes and Fees for any contract or contracts, and further, may approve a waiver schedule consistent with the objectives of this Ordinance, that is implemented directly by the TERO Office and that establishes tax adjustments to not less than one percent (1%).

13.6 SPECIAL REQUIREMENTS FOR CONTRACTORS AND SUBCONTRACTORS

The requirements of this Section apply to all employers engaging in commercial or employment activities within the Reservation pursuant to public or private contract. If this section's contracting requirements conflict with applicable federal law or regulations, the applicable federal laws or regulations shall supersede this section.

13.6.1 N/A

13.6.2 N/A

13.6.3 N/A

13.6.4 N/A . . . the contractor may not deviate from the plan or add or delete any existing new subcontracts or subcontractors without the written consent of the Contracting Officer or his designee and notice to the Commission. Any amendments to the Indian Preference Plan must be in writing and approved prior to the date of implementation.

13.6.5 N/A

13.7 N/A

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13.7.1 Identification of Regular, Permanent Employees

- (A) Contractors/employers shall be required to hire and maintain as many TERO Native American preference employees as apply for and are qualified for each craft or skill.
- (B) Notwithstanding subsection A, above, Contractors/employers may hire key employees to fill not more than 25% of the workforce.

(1) Prior to commencing work on the Hoopa Valley Indian Reservation the prospective employer, contractor and sub-contractors shall identify key regular and permanent employees. The TERO Office and contractor/employer in possession of past employment records documenting employment of past supervisors or foreman shall coordinate on certifying eligibility for treatment of employees as key employee.

(2) A key employee is one who is in a top supervisory position or performs a critical function such that an employer would risk likely financial damage or loss if that task were assigned to a person unknown to the employer. A key employee has been on the employers' or contractors' annual payroll for a period of one year continuously in a supervisory capacity, or is an owner of the firm. An employee who is hired on a project-by-project basis shall not be considered a key employee.

13.7.2 Lay-Offs

No Indian Worker shall be laid off as long as a non-Indian worker in the same craft is still employed, not as long as the Indian meets threshold qualifications for the job, unless such non-Indian has been employed for more than 90 days longer than such Indian. If the contractor lays off by crews, qualified Indians shall be transferred to any crew that will be retained, as long as there are non-Indians in the same craft employed elsewhere on the Reservation under the same contract.

13.7.3 Existing Contracts, Employers

Any existing contracts or other work presently operating under an agreement with the Tribal Employment Rights Office will continue under the same written guidelines and rules. Each employer shall provide to the Commission a list of employees and their Indian affiliation, if any, as part of the implementation of this Ordinance.

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313.7.4 Reporting Requirements

Each employer shall submit monthly reports to the Commission on a form provided indicating the number of employees, including a separate tally of Indians, it has on its work force, monthly hires and fires, and other information as may be identified on the form. An employer who fails to submit monthly reports shall be subject to sanctions provided under this Ordinance.

13.8 IMPLEMENTATION

In implementing the requirements of this Ordinance, the Commission may:

13.8.1 Numerical Hiring Goal

Impose numerical hiring goals and timetables that specify the minimum number of Indians an employer must hire.

13.8.2 N/A

13.8.3 Attend and monitor all job interviews as a non-voting participant.

13.8.4 Prohibit an employer from establishing extraneous qualification criteria or other requirements that serve as barriers to Indian employment.

13.8.5 Enter into agreements, subject to approval by the Hoopa Tribal Council, with unions and other employers to insure compliance with this Ordinance.

13.8.6 N/A

13.8.7 Establish programs to provide counseling and support to Indian Workers to assist them to retain employment. Employers may be required to participate in and/or cooperate with such support and counseling programs.

13.8.8 Issue Permits

Issue permits for implementation and provisions of this Ordinance and other agreements entered into under the authority of this Ordinance.

13.9 ENFORCEMENT BY TERO COMMISSION

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In implementing this Ordinance the Commission shall have the following powers of enforcement;

13.9.1 Investigation, Monitoring

To investigate and monitor complaints, concern, and inquiries regarding Indian preference.

13.9.2 Issue Notices of Non-Compliance and Compliance Orders

To issue notices of non-compliance and compliance orders with the Indian preference provisions of this Ordinance and other applicable provisions of this Ordinance.

13.9.3 Citations, Subpoenas and Penalties

To issue citations and subpoenas to employers regarding violations of the Indian preference provisions of this Ordinance, and to impose such civil penalties, including fines, as may be reasonably necessary to remedy the consequences of a violation of the Indian preference provisions this Ordinance or to deter future violations.

13.9.4 Hearings

To hold such hearings as may be necessary to resolve complaints, enforce the provisions of this Ordinance, and hear concerns regarding issues pursuant to the Commission's authority under this Ordinance.

13.9.5 File and Defend Cases in Tribal Court

To bring or defend a complaint or other pleading in Tribal Court for enforcement of the Indian preference provisions of this Ordinance, against any employer within the exterior boundaries of the Hoopa Reservation.

13.10 TRIBAL COURT

Appeals of decisions of the TERO Commission may be filed under the rules of the Tribal Court. The Tribal Court is hereby authorized to hear and dispose of appeals from final decisions from TERO Commission hearings. Any appeal from a final

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decision of the TERO Commission must be filed within twenty (20) calendar days after the date of receipt of the TERO Commission's decision. Any decision not appealed within the required time frame shall become final and the Tribal Court shall have no jurisdiction to hear the appeal.

13.11 LEGAL REPRESENTATION

In carrying out its responsibilities under this Title, the Commission shall consult a legal counsel its choosing subject to the approval of the Council. Any legal counsel chosen must be admitted in good standing to practice law in the state of California and the Hoopa Valley Tribal Court bar.

**13.12 PRINCIPLES OF CONSTRUCTION; SEVERABILITY;
SOVEREIGN IMMUNITY PRESERVED**

13.12.1 This Ordinance is remedial legislation intended to rectify the long-standing problem of severe under-employment of Hoopa tribal members and other Indians living in the Reservation community. Accordingly, it is to be construed liberally to achieve its purposes. Doubtful issues are to be resolved in favor of a right of any party to obtain administrative review.

13.12.2 If any part of this Ordinance is found to be invalid for any reason, it is the intent of the Council that the remaining provisions remain in force to the maximum extent possible, and that they continue to be construed according to the provisions of this Section.

13.12.3 Nothing in this Ordinance is to be construed as a waiver of the Tribe's sovereign immunity from unconsented lawsuit, nor as consent by the Tribe to bring an action against the Tribe, its officers, or any of its departments or entities.

**13.13 EFFECT OF AMENDMENTS ON PRIOR TERO LEGISLATION AND
PENDING CASES**

13.13.1 Prior TERO Enactments or Rules: Resolution 91-71A, as amended March 6, 1995, Ordinance No. 2-80, as amended April 27, 1995 are repealed and shall have no further force and effect. The Rules for Hearings before the TERO Commission, as amended June 10, 1998 shall be permitted to be used where they are consistent with the language of this statute by providing uniform rules for hearings when they are

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authorized under this ordinance. Under no circumstances shall those present rules be considered authority for the TERO Commission to hear employment related grievances other than which is authorized under this statute. The TERO Commission under the authority granted by §13.3 .2(C) shall draft new Rules Before Hearings to effect the most recent amendments to this Ordinance.

13.13.2 All current employee grievances that are not related to termination where the TERO Commission has not issued a final decision shall be dismissed. An employee termination case that has been appealed to tile TERO Commission prior to the date of the Tribal Council transferring employee termination grievances to the Tribal Court shall be heard by the TERO Commission. However, all employee termination cases regardless of whether they are pending before the TERO Commission or before the Tribal Court shall be subject to the requirements of 1 H.V.T.C § 1.1.04(f) as it relates to the Hoopa Valley Tribe's limited waiver of sovereign immunity.

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This **MOU** may be amended by written agreement of the parties, or terminated by either party upon reasonable written notice. In the event of termination, unless otherwise mutually agreed by the parties, the provisions of this **MOU** will remain in force with respect to any contract covered hereunder which has already been awarded or for which contractor performance has already commenced.

The parties hereto have agreed to the objectives, principles, and recitations cited in this document and have further approved this **MOU** for signature by their duly authorized representatives.

for the Hoopa Valley Tribe

By: 
DANIELLE VIGIL-MASTEN
Chairperson

Date: 11-20-14

for the CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: 
CHARLES C. FIELDER
District Director, District 1

Date: December 2, 2014

Project Specific Special Provisions for the Hoopa Valley Tribe TERO MOU

Special Notice

This project includes Tribal Employment Rights Ordinance (TERO) requirements. See section 5-1.20G and 8-1.04C for TERO submittal requirements.

SSP 2-1.06B:

The Department makes the following supplemental project information available:

Supplemental Project Information

Means	Description
Included in the <i>Information Handout</i>	Hoopa Valley Tribal TERO Memorandum of Understanding (MOU) with TERO Highway Construction Permit (THCP) Application

SSP 5-1.20G Tribal Employment Rights Ordinance Requirements

Complete the Hoopa Valley Tribe TERO Highway Construction Permit (THCP) Application included in the *Information Handout*. Within 5 days after Contract approval, submit the completed application to the Tribe and a copy of the submitted application to the Engineer.

Submit the executed THCP to the Engineer within 10 days after you receive it from the Tribe.

SSP 8-1.04C

Start job site activities within 55 days after receiving notice that the Contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department.

Do not start job site activities until the Department authorizes or accepts your submittal for:

4. Signed Hoopa Valley Tribe TERO Highway Construction Permit (THCP)

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

4. Copy of the Hoopa Valley Tribe TERO Highway Construction Permit (THCP) Application submitted to the tribe.

Hoopa Valley Tribal Council
TRIBAL EMPLOYMENT RIGHTS OFFICE/H.R.

71 Willow St. ~ PO Box 1467 ~ Hoopa, CA 95546
Phone (530) 625-9200 Ext. 14 ~ Fax (530) 625-4269



State Contract # **01-0B030, 01-0B390, 01-49370**
0112000002, 0112000123, 0100000478
ATTACHMENT B
TERO Highway Construction Permit (THCP)

February 21, 2014

TO: **ALL EMPLOYERS, CONTRACTORS AND/OR SUB-CONTRACTORS**

FROM: Penny L. Cordova, TERO Director

RE: **TERO HIGHWAY CONSTRUCTION PERMIT (THCP) COMPLYING WITH TRIBAL AND FEDERAL EMPLOYMENT LAWS**

The Tribal Employment Rights Office (hereafter "TERO"), on the Hoopa Valley Indian Reservation, has been implemented to assist employers, contractors and/or sub-contractors (hereinafter called "**Employer**") towards meeting the required rules and regulations of the Hoopa Valley Tribal Council, also the employment laws of the U.S. Government.

TERO Highway Construction Permit (THCP): This form is an agreement between the State of California's Contractor (and its Sub-Contractors) / Employer and the Hoopa Valley Tribal Council allowing you and your company to conduct employment activity on the Hoopa Valley Indian Reservation and for providing equal employment opportunity. A TERO Highway Construction Permit (THCP) must be completed for each contract your company is awarded within five (5) days after state of California contract approval.

SKILLS BANK: The TERO Office maintains a Indian Skills Bank to assist **Employer** to meet the Indian Preference requirements as identified under the of the TITLE 13 TERO Ordinance, As Amended May 17, 2012 of the Hoopa Valley Tribal Council. Please note: Under Section 13.7.1 Identification of Key Employees; Hiring Requirements (A) Contractors/employers shall be required to hire and maintain as many TERO / Native Americans preference employees as apply for and are qualified for each craft or skill. (B) Notwithstanding subsection A, above, Contractors/employers may hire key employees to fill not more than 25% of the workforce (2) "KEY EMPLOYEES" A key employee is one who is in a top supervisory position or performs a critical function such as that an employer would risk likely financial damage or loss if that task were assigned to a person unknown to the employer. A key employee has been on the employer's or contractors' annual payroll for a period of one year continuously in a supervisory capacity, or is an owner of the firm. An employee who is hired on a project by project basis shall not be considered a key employee. (Possessing records of past employment as proof as a supervisor or foreman).

Recruitment of non-Indians shall not take place until the firm receives a written waiver notifying your company that TERO has no "qualified" Native Americans to perform that position or task. A waiver will only be issued for that position/task and the employee cannot be transferred to another position once, that job is done.

By following the above procedures, you and your company can expect an uninterrupted trouble-free contract conclusion. **PLEASE RETURN COMPLETED TERO HIGHWAY CONSTRUCTION PERMIT BEFORE COMMENCING WORK ON THE HOOPA VALLEY INDIAN RESERVATION TO:**

Penny L. Cordova, Director
Tribal Employment Rights Office
Post Office Box 1467
Hoopa, California 95546

Phone: (530) 625-9200 ext. 14
Fax: (530) 625-4269
Email: hvtero@gmail.com

TERO HIGHWAY CONSTRUCTION PERMIT (TCHP)

Employer/Contractor's Name: _____

Mailing Address: _____

City, State and Zip Code: _____

Contact Person: _____ Phone Number: _____

EMAIL: _____ FAX #: _____

Contracting with Entity/Department: _____

Contract Number # _____ Amount of Contract \$ _____

THIS IS AN AGREEMENT BETWEEN TERO AND EMPLOYER FOR CONDUCTING COMMERCE AND EMPLOYMENT ACTIVITY WITHIN THE EXTERIOR BOUNDARIES OF THE HOOPA VALLEY INDIAN RESERVATION AND HOOPA TRIBAL "LANDS." BETWEEN THE HOOPA VALLEY TRIBAL COUNCIL AND _____ (EMPLOYER/CONTRACTOR. (Hereafter "EMPLOYER").

Whereas, this agreement is entered into on this ____ day of _____, 2014; Between TERO and _____ (Employer).

- 1. EMPLOYER: We hereby agree to comply with the requirements and procedures for the selection of contractors, sub-contractors and recruitment of viable Indian applicants, through TERO.

TERO shall receive notice, in the form of copies of bid forms by awarded prime Employer seeking bids of all sub-contract work to be conducted on the Hoopa Valley Indian Reservation. Notice shall be made reasonably in advance of any award, but not later than five (5) days in advance of an award.

The above-named Employer understands that they are required to comply with the Hoopa Valley Tribal Council's Title 13 TERO Ordinance, As Amended May 17, 2012. (All of the parameters regarding "Indian Preference." as per Section 13.4.4(B).

- 2. EMPLOYMENT PRIORITY: Hiring preferences shall be as follows per Section 13.4.4 (B) Private Employers Not Contracting with the Hoopa Valley Tribe: Private employers not contracting with the Hoopa Valley Tribe and doing business within the exterior boundaries of the Hoopa Valley Indian Reservation shall not be subject to the priority requirements of Section 13.4.4 (a), but shall extend preference to qualified Indians residing on or near the exterior boundaries of the Hoopa Valley Indian Reservation. Private employers operating under contracts with the Hoopa Valley Tribe shall be required to provide Indian Preference according to the requirements of § 13.4 (A)

For those claiming "Indian Preference" that are not Hoopa Tribal Members, the burden of proof to show verification of their enrollment in a Federally Recognized Tribe is upon them.

A "non-Indian" will not be allowed to be recruited, until the TERO Skills Bank has been totally exhausted, or a job description presented to TERO by the Employer cannot be met through the Skills Bank. (See Section 13.4 of the TERO Ordinance.) A "non-Indian" shall not be hired until that Employer has been issued a written waiver from TERO stating that there are no qualified Native Americans available, therefore authorizing them to hire a "non-Indian" for that specific position. (Note: The waiver does not authorize the "non-Indian" to be transferred to other positions that become available unless a new "waiver" has been obtained by the Employer from TERO.) An Employer failing to abide with the TERO Ordinance could be charged with alleged discrimination.

For purposes of this agreement, pre-employment standards are those directly job related, standards toward fairness and ability which express with a reasonable amount of job training an individual would be capable of satisfactorily performing an entry level job; moreover, could progress with reasonable further guidance and training. This provision would apply to those persons who at the time of application for employment, are not fully experienced for the available position, but does possess those threshold requirements and general potential for becoming qualified through reasonable training.

- 3. PRE-EMPLOYMENT STANDARDS: Employer may not use qualification criterion or other personnel requirements which serve as barriers to local Indians or Indian employment, except only where such criteria is a requirement by business necessity. However, employer and/or contractor/sub-contractor shall have the responsibility and burden to show proof that such a criterion or requirement is truly a business necessity. (B.F.O.Q., must be a Bonafide Occupational Qualification).

4. **TRAINING: Employer** agrees that all local Indians and Indian employees will be adequately trained for the position for which they were hired. All Indian employees shall be evaluated and receive identical treatment as company/firm compensates other hires. **(See Section 13.8. of the TERO Ordinance)**
5. **DISCRIMINATION:** There shall be no discrimination in any aspect of employment related activity, equitability shall prevail; discrimination in the workplace on the basis of race, creed, color, age, sex, national origin or religion is totally unlawful.
6. **EMPLOYMENT GOALS:** (Entire issue depends on TERO Skills Bank)
 - A. **Employer** agrees that 75 % of all employees in its workforce shall be filled by local Indians as per Section 13.4.4 (B) of the Title 13 TERO Ordinance. At the end of one (1) year from the date of this agreement; this provision shall be reviewed and renegotiated and/or a new THCP has been obtained for a new contract.
 - B. If **Employer** is unable to reach the 75% employment goal as set forth above (A), it shall have the burden of justifying the rejection of every Indian applicant for any positions which became available to substantiate that criterion utilized in the recruitment process toward validity and being relevant to tasks performed, specifically the precise good faith efforts which the Employer had taken for pursuing the required goal.
 - C. **Monthly reports** are required for monitoring purposes; the data is not only a TERO compliance issue but coincides with federal employment statutes (EEOC-OFCCP). (Monthly Report Forms available at TERO Office.)
7. **TERO TAX FEE:** Caltrans will pay the required TERO tax to the TERO Commission for each **Prime Contractor**, and/or by each **Employer** operating within the exterior boundaries of the Hoopa Valley Indian Reservation whose total contract and/or annual gross revenues is \$1,000.00 or more. The tax shall be equivalent to three percent (3%) of the total gross value of any contract performed within the Reservation.. **(See Caltrans TERO Policy and Section 13.5 of the Title 13 TERO Ordinance, as Amended May 17, 2012.)**
8. **COMPLIANCE INSPECTIONS:** The Director of TERO or staff shall make periodic or site visitations for assurance to all involved parties that employment rules are adhered to. **(See Section 13.9 of the TERO Ordinance)**
9. **MAINTAINING EMPLOYMENT RECORDS: Employer** shall maintain accurate employment records on all employees and all applicants for employment; regardless of length and category of employment, hired, fired, or laid-off. The files shall reflect: name, address and employment category for which applicant performed or applied to perform. If applicant was contacted but not hired, hired and fired, all data should reflect action taken by that firm. Such informational records shall be made available to the Director of TERO, upon reasonable notice.
10. **ASSISTANCE:** If an **Employer** deems that an Indian employee's performance is such that he or she is jeopardizing and endangering job loss, suspension, termination. **Employer** may contact TERO to provide assistance toward resolving of that issue.
11. **UNIONS:**
 - A. Pursuant to congressional intent of the Indian Self-Determination and Education Assistance Act [P.L. (93-638) at Section 7(b)] Indian preference in employment and training shall prevail in all employment activity, within the boundaries of the Hoopa Valley Indian Reservation.
 - B. Therefore **Employer** hereby agree to request all involved affiliated firms, mirror Indian preference priority, in all aspects of employment.
12. **EMPLOYMENT POLICIES AND PROCEDURES:** It is further understood that **Employer** recognizes that its operations are taking place within a unique cultural setting on the Hoopa Valley Indian Reservation. Accordingly, all firms in conjunction with the Director of TERO, consider seriously Tribal Holidays, and ceremonial customs; and to accommodate those Indian employees requesting certain leave of absences for religious purposes.
13. **CURTAILMENT:** Curtailment regarding Indian preference, local Indians and Indians shall be the last employees to be laid-off. This reference is made outside of core crew positions, this is to say where Indians meet threshold requirements for a given position.

14. PRE-AWARD LABOR FORCE PROJECTION

Contractor and/or Sub-Contractor (Firm Name) _____

Telephone Number _____

Name of Project: _____

Contract Number _____

Briefly describe the basic tasks and type of work to be performed:

Please list types of skills and categories which will be required towards performing said contract.

- | | |
|----------|-----------|
| 1. _____ | 7. _____ |
| 2. _____ | 8. _____ |
| 3. _____ | 9. _____ |
| 4. _____ | 10. _____ |
| 5. _____ | 11. _____ |
| 6. _____ | 12. _____ |

Indian preference shall be accorded at every Tier Level. Please list the names and positions of your Key Staff per Section 13.7.1 of Title 13 TERO Ordinance, As Amended May 17, 2013. The key employee is one who is in a top supervisory position or performs a critical function such that an employer would risk likely financial damage or loss if that task were assigned to one person unknown to the employer.

NAME

JOB TITLE

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____

(Please utilize as many sheets necessary for expressing your on-site employment related projection.)

15. DURATION: This agreement shall remain in effect for a period of one year from the date signed by TERO Director below:

_____ Date

_____ Owner/Representative's Signature

_____ EFFECTIVE DATE

_____ Signature of TERO Director

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

MATERIALS INFORMATION

Roadway Boring Memo

DEPARTMENT OF TRANSPORTATION

Memorandum

*Flex your power
Be energy efficient!*

Date: FEBRUARY 24, 2015

To: AL TRUJILLO
Division of Roadway Design
Office of Design North
Branch 2

File: 01-HUM-96-PM 8.5/8.7
Hoopa Vista Point
Ground Anchor Wall
EA: 01-0B03U1
EFIS ID: 0115000059

Attn: Socorro Ureña

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

Subject: Roadway Borings

Two borings were drilled in the vicinity of the proposed gabions for this project to aid in characterizing the subsurface conditions. A map with approximate boring locations and the boring records for RC-14-001 and RC-14-002 are attached.

If you have any questions or require additional information, please contact Kathy Gallagher at (707) 441-2024 or Charlie Narwold at (707) 445-6036.



KATHY GALLAGHER
Transportation Engineer
Office of Geotechnical Design North
Branch B

ATTACHMENTS:

Boring Location Map
Boring Records for RC-14-001 and RC-14-002

C: Charlie Narwold - GS
Gary Johnson – Distr 01 Constr
Talitha Hodgson – Distr 01 Proj Mgmt

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	96	8.3/8.9	5	55

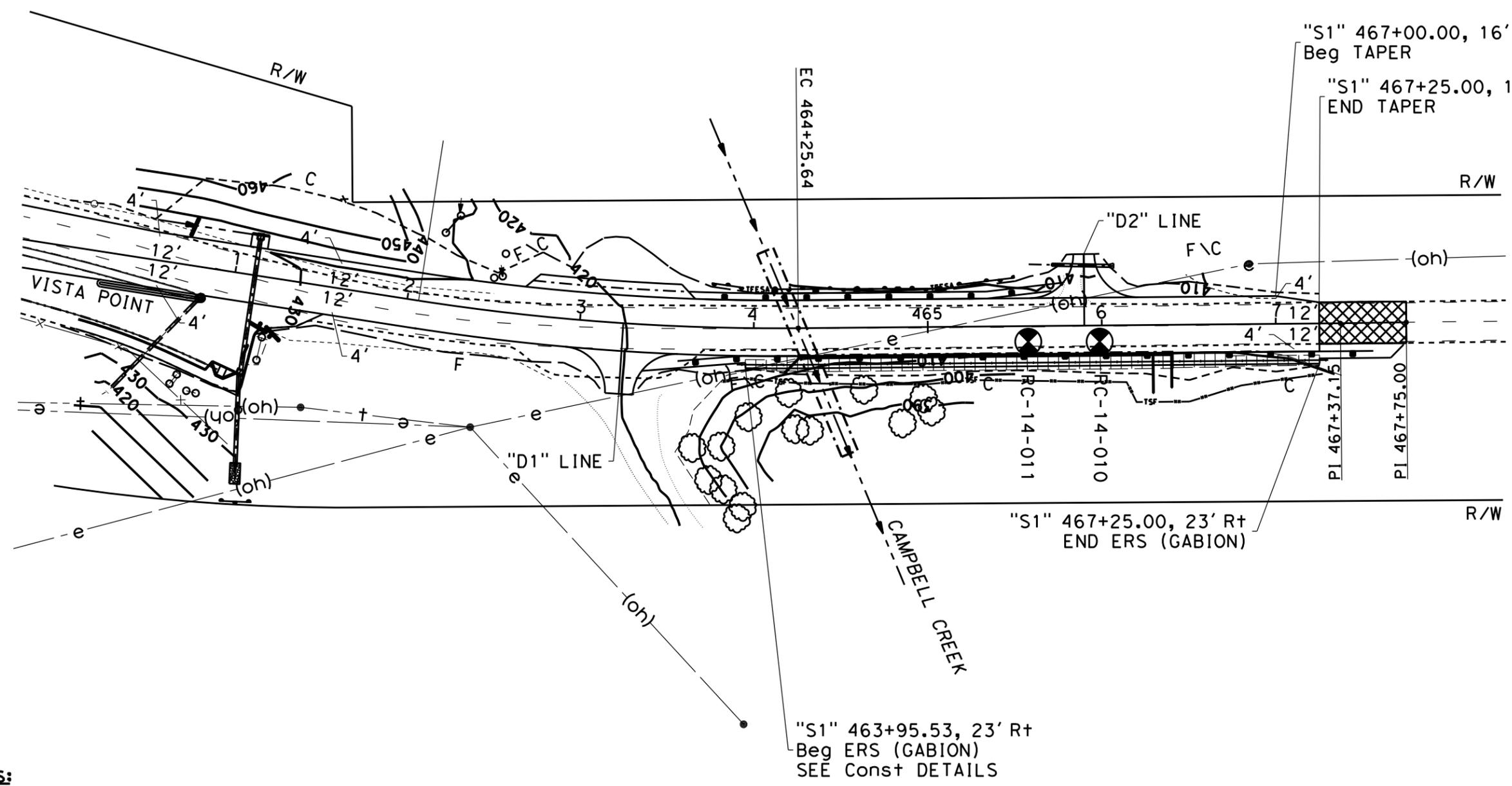


REGISTERED CIVIL ENGINEER DATE
 XX-XX-15
 PLANS APPROVAL DATE

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.



FOR DESIGN STUDY ONLY



NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. BOREHOLE LOCATIONS ARE APPROXIMATE AND ARE BASED FIELD MEASUREMENTS, NOT SURVEY DATA.
3. = BOREHOLE LOCATION
4. RC-14-0XX = BOREHOLE ID NUMBER

ALL DIMENSIONS SHOWN IN FEET

BORING LOCATIONS

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DESIGN
 FUNCTIONAL SUPERVISOR AL TRUJILLO
 CHECKED BY
 CALCULATED-DESIGNED BY
 URENA/GALLAGHER GALLAGHER
 REVISED BY DATE REVISED



LAST REVISION DATE PLOTTED => #DATE
 01-15-15 TIME PLOTTED => #TIME

ROTARY FIELD NOTES

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

BORING NUMBER: RC-14-010 DATE: 12-16-2014

LOCATION (STA/OFFSET or NORTHING/EASTING)
Sta. 465+98.7 9.0 'RT "S1" ALIGNMENT Rte 96

TOP HOLE ELEVATION
411.5'

DIST. CO. RTE. P.M. (K.P.) BRIDGE #
01 HUM 96 8.5 N/A

BRIDGE NAME EFIS NUMBER
N/A 0112000123

CREW EQUIPMENT CHC NUMBER
D. Douglas/R. Gingell/A. Coffey ACKER MPCA 70003711

HAMMER ID#
Automatic ERI 58% (N adj = 0.96)

SITE LOCATION MAP (Inc. North Arrow & Benchmark Datum)

SEE ATTACHED BORING LOCATION MAP.

LOGGER KGallagher	
GWS N/A	DATE
GWS	DATE
CASING SIZE 3.625" OD	CASING DEPTH 40'
CASING SIZE	CASING DEPTH
SLURRY TYPE	Bentonite chips
SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) AC – NB/EB lane.	

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_u, S_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5" NX 3 5/8 OD/2.5 ID				0		AC to 8 inches.
1.4" SPT sampler				1		SILTY SAND with GRAVEL (SM); loose; light brown; dry;
Dry drilling with finger bit						mostly fine and medium SAND; some fine rounded and
				2		subangular GRAVEL; little FINES (FILL)
				3		
				4		dark brown
Softer at 5 ft–decomposed PHYLLITE in sampler	1	5		5		
Driller says soft 6-9 feet – then harder 9-10 feet		3		6		METAMORPHIC ROCK (PHYLLITE) dark brown; decomposed;
		7	10			SILTY SAND with GRAVEL (SM); loose; dark brown; moist; mostly
				7		fine and medium SAND; some fine and coarse rounded and
						subangular GRAVEL; little FINES.
				8		strong brown
				9		
				10		dark brown

ROTARY FIELD NOTES

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

BORING NUMBER RC-14-010	DATE 12/16/2014	DIST. 01	CO. HUM	RTE. 96	P.M. (K.P.) 8.5
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 465+98.7 9.0 'RT "S1" ALIGNMENT		TOP HOLE ELEVATION 411.5'		BRIDGE #	EFIS NUMBE 0112000123

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_u, S_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)				
Sandy Layer in SPT sampler	2	4				[Graphic Log Area]	Poorly-graded SAND (SP); loose and medium dense ; dark brown; moist; fine and medium SAND; trace fines.
		8			11		Well-graded GRAVEL with SAND (GW); from dense to very dense; dark brown; moist; fine and coarse subrounded and angular GRAVEL; Some medium and coarse SAND.
		4	12		12		
					13		
Driller says "hard" to approx. 14 feet – then soft					14		
14-15 feet					15		
	3	10			16		
		12			17		
		16	28		18		
Slow drilling – rock in tip to 18 feet.					19		
Only 3 inch recovery 15 -20 feet.					20		
No Recovery					21		
Soft @ 20 feet					22		
	4	28			23		
		34			24		
		40	74		25		
					26		
Drilled through cobble or boulder					27		
					28		
					29		
No advancement after SPT	5	10			30		
		12			31		
2PM used 2/3 tank of water – tripped out - found bit and 5 feet of rod gone		9	21		32		
					33		

ROTARY FIELD NOTES

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

BORING NUMBER	DATE	DIST.	CO.	RTE.	P.M. (K.P.)
RC-14-010	12/17/2014	01	HUM	96	8.5
LOCATION (STA/OFFSET or NORTHING/EASTING)		TOP HOLE ELEVATION	BRIDGE #	EFIS NUMBER	
Sta. 465+98.7 9.0 'RT "S1" ALIGNMENT		411.5'		0112000123	

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_u, s_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)				
Changed to 94mm rod @ 2:40 PM							
Put in drill ahead and 94mm					28		
Drilled to 35 feet							
					29		
					30		
No Sampling - Drill Ahead					31		
					32		
					33		
					34		
Gravel is							
Mix of METAMORPHIC and SEDIMENTARY					35		Well-graded GRAVEL (GW); dense; brown; moist; subangular;
Rock (Phyllite and Sandstone).	6	35					few medium SAND.
		21			36		
		16	37				
					37		
No Sampling - Drill Ahead					38		
					39		
							Well-graded GRAVEL (GW); very dense; brown; moist;
SPT = 66/ then 44 for 5 inches/ then no					40		subangular; few medium SAND.
no advancement for 10 blows.	7	66					
Terminated Boring @ 40 feet. No ground water		44/5			41		
encountered in boring		R	R				
Put in 10 bags of 3/8 inch Bentonite Chips					42		
Top 10 feet filled with 1 bag dry cement, then							
2 bag cement/6 gallons water.					43		
12/17/2014 @ 1100 hrs.							
Topped 12/18/2014 with 3 inches AC cold mix					44		

ROTARY FIELD NOTES

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

BORING NUMBER: RC-14-011 DATE: 12-17-2014

DIST.: 01 CO.: HUM RTE.: 96 P.M. (K.P.): 8.5 BRIDGE #: N/A

LOCATION (STA/OFFSET or NORTHING/EASTING)
Sta. 465+57.7 8.5 'RT "S1" ALIGNMENT Rte 96

BRIDGE NAME: N/A EFIS NUMBER: 0112000123

TOP HOLE ELEVATION: 411.8'

CREW: D. Douglas/R. Gingell/A. Coffey EQUIPMENT: ACKER MPCA CHC NUMBER: 70003711

HAMMER ID#: Automatic ERI 58% (N adj = 0.96)

SITE LOCATION MAP (Inc. North Arrow & Benchmark Datum) SEE ATTACH BORING LOCATION MAP	LOGGER KGallagher	
	GWS N/A	DATE
	GWS	DATE
	CASING SIZE 3.625" OD	CASING DEPTH 40'
	CASING SIZE	CASING DEPTH
	SLURRY TYPE	Bentonite chips
	SURFACE CONDITIONS (Ground Slope, Water, Vegetation, etc) AC – NB/EB lane.	

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_u, S_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Finger bit 4.5" NX 3 5/8 OD/2.5 ID				0		AC to 12 inches.
1.4" SPT sampler				1		
Dry drilling with finger bit to 24 inches				2		SILTY SAND with GRAVEL (SM); loose; light brown; dry; fine and medium SAND; some fine subangular and rounded
				3		GRAVEL; little FINES (FILL). brown; moist
				4		
				5		
	1	3		6		
		3		6		
		3	6	7		
				8		
				9		
				10		

ROTARY FIELD NOTES

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

BORING NUMBER RC-14-011	DATE 12/17/2014	DIST. 01	CO. HUM	RTE. 96	P.M. (K.P.) 8.5
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 465+57.7 8.5 'RT "S1" ALIGNMENT		TOP HOLE ELEVATION 411.8'		BRIDGE #	EFIS NUMBE 0112000123

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_u, S_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)			
Sandy Layer in SPT sampler	2	4				
		5		11		
		5	10			
				12		
				13		
				14		
				15		
	3	7				
Very hard -rock in SPT here		25		16		Very dense.
		45	70			
				17		
				18		Well-graded GRAVEL with SAND (GW); medium dense; dark brown; moist; fine and coarse, angular and subrounded
Run = 60 inches						
Rec = 24 inches				19		GRAVEL; some fine, medium and coarse SAND; trace FINES.
				20		
Switch to diamond core at 20.5 feet	4	8				
Changed to 94mm rod		9		21		
		11	20			
				22		
				23		
				24		
				25		
	5	6				Silty SAND with GRAVEL (SW); medium dense; strong brown;
		7		26		moist; from fine to coarse SAND; some fine and coarse
		9	16			subangular GRAVEL; little FINES.
				27		

ROTARY FIELD NOTES

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

BORING NUMBER RC-14-011	DATE 12/17&18/2014	DIST. 01	CO. HUM	RTE. 96	P.M. (K.P.) 8.5
LOCATION (STA/OFFSET or NORTHING/EASTING) Sta. 465+57.7 8.5 'RT "S1" ALIGNMENT		TOP HOLE ELEVATION 411.8'	BRIDGE #	EFIS NUMBER 0112000123	

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_u, S_u, Additional Comments)</i> <i>Rock Classification (Rock name, bedding spacing, color, weathering descriptors, rock hardness, fracture density, discontinuity characteristic: type, weathering, dip & magnitude. Slaking, odor, other characteristics)</i>
	SAMPLE #	BLOWS PER 6"	SPT (N)				
Run = 60 inches							
Rec = 22 inches					28		
RQD = 8 inches							
					29		SEDIMENTARY ROCK (SANDSTONE); fine and medium grained;
							moderately bedded; greenish gray; fresh; hard; moderately
					30		fractured.
No SPT- Tip in rock							
					31		
							medium grained
					32		
Soft Zone 32 to 33 feet							SEDIMENTARY ROCK (SANDSTONE); medium grained; thickly
					33		bedded; light greenish gray; slightly weathered; hard; moderately
Run = 60 inches							fractured.
Rec = 39 inches					34		
RQD = 15.5 inches							
					35		
Terminated Boring @ 35 feet. No ground water encountered in boring							
					36		
Put in 4.5 bags of 3/8 inch Bentonite Chips							
Top 10 feet filled with 1 bag dry cement, then 3/4 bag cement/2.5 gallons water. Quick set on top.					37		
Top 2 inches AC cold patch.							
					38		
					39		
					40		
					41		
					42		
					43		
					44		

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

MATERIALS INFORMATION

Geotechnical Design Report, April 3, 2015

Memorandum

*Serious drought
Help save water!*

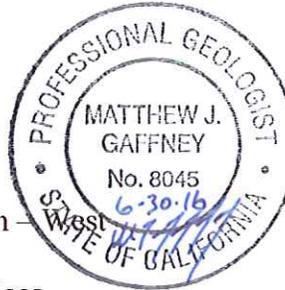
To: ALBERT TRUJILLO
Office Chief
Office of Design North
North Region Division of Engineering

Date: April 3, 2015

Attention: Socorro V. Ureña

File: 01-HUM-96 PM 8.3/8.9
01-0B03U
Efis#0115000059-1
Cut Slope Recommendations

From: MATTHEW GAFFNEY
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services



CHRISTOPHER RISDEM
Chief, Branch B
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: **GEOTECHNICAL DESIGN REPORT**

1. Executive Summary

This report is to provide cut slope recommendations for the project on State Route (SR) 96 in Humboldt County by realigning curves, widening paved shoulders, increasing tangent lengths and improving the superelevation transitions between the curves from Post Mile (PM) 8.3 to PM 8.9.

The existing cut slopes expose thinly foliated, fresh to intensely weathered, very soft to moderate hard phyllite/shale, with massive, moderately weathered, moderately hard sandstone. Rockfall at this location has not been a persistent problem.

The proposed cuts are between Stations (Sta) 443+90 to 447+55 and range from 30 feet to 70 feet high, and 18 to 25 feet horizontally from the southbound edge of pavement. Current design calls for cuts of 1:1. This report finds that the slopes can be cut at a ratio of are 1:1 and will be stable.

During excavation for the cut, a Geologist from the Office of Geotechnical Design should be on site to evaluate if additional post excavation scaling will be necessary and help to determine locations needing additional stabilization.

2. Introduction

The California Department of Transportation (Caltrans) has proposed improvements to Route 96 in Humboldt County to reduce accidents at this location. The proposal is to widen the roadway by cutting into the existing cut slope on the south side of SR 96. In addition, the widening will

MR. RICHARD MULLEN
Attn: Socorro V. Urefia
April 3, 2015
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increase sight distance, giving drivers more time to react to road hazards. Figure 1 presents the location of the cut. This road segment comprises 300 feet (Sta. 430+90 to 447+55) of curving two-lane roadway with trees and steep slopes cut into the bedrock above the Trinity River.

3. Relevant Reports and Investigation

The following reports, maps and other resources were reviewed to assist in the assessment of site conditions:

Maps:

Wagner, D.L., and Saucedo, G.J. 1987, Geologic map of the Weed Quadrangle, California, 1:250,000, California Division of Mines and Geology:
http://ngmdb.usgs.gov/Prodesc/proddesc_521.htm.

Air Photos:

Google Earth

Other:

1984: Tish Tang Sidehill Viaduct No. 2: As-builts Hum-96- 8.1-8.4 EA 01-197544.

4. Description of Project and Existing Facilities

4.1 Project Alternatives

The preferred alternative (PM 8.3/8.9) removes four of the ten curves in the existing alignment, incorporates larger radius curves, increases tangent lengths, improves superelevation transitions and increases paved shoulder widths to 4 ft. This alternative will achieve these improvements within the existing roadway prism with a widening cut within the project limits that will produce excess material to be exported to the optional approved disposal site at Hoopa Valley Aggregates and Ready Mix Enterprises, Cal Pack Rd, Hoopa, Ca 95546. This alternative will include 12ft. lanes and 4ft. paved shoulders and additional items of work for MBGR and drainage modifications.

There were two other alternatives, along with a No Build alternative, but these were all rejected.

4.2 SR 96 Existing Facilities

The curve location is approximately 8.5 miles north of Willow Creek, which is at the junction of SR 299 and SR 96. The existing roadway is a two lane road with 12-foot wide lanes, with unconventional shoulders. At the north end of the curve, there is a pullout that is 125ft by 40ft.

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5. Physical Setting

5.1 Climate

Willow Creek's climate is warm during summer when temperatures tend to be in the low 70's and cool during winter with temperatures in the 40's. July is warmest with an average maximum temperature of 74.1° F, and the coldest month is December with an average minimum temperature of 43.0° F. The annual average precipitation is 54.5 inches. Winter months tend to be wetter than summer months, with December having an average yearly high rainfall of 9.38 inches.¹

5.2 Topography and Drainage

The project site is within the Six Rivers National Forest, one half mile west-southwest of Tish Tang Campground, on the Trinity River. The Trinity River is in an incised valley with steep wooded hills that reach to 1,800 feet in elevation. The river flows north until it reaches the Klamath River, which flows to the Pacific Ocean.

The roadway elevation is 520 feet. On the upslope side of the road, the existing cut slopes are 1:1 and rise to an elevation of 580 feet.

Existing drainage for the road follows the base of the slope on the south side of the roadway, flows west through a poorly defined ditch, then drains to the north under the roadway off Caltrans-Right-Way.

5.3 Man-made and Natural Features of Engineering and Construction Significance

The existing cut slopes expose moderately hard, moderately weathered, intensely fractured steep sloped mudstone, which locally have been metamorphosed to phyllite. Some sandstone was encountered close to the face of the slope. These rocks form steep, wooded slopes.

The proposed cut is up to 54 feet high and catches 13 feet from the toe of the existing slope. We expect the excavation to be conducted by dozer, which can use an old logging road that starts from the pullout at the west end of the project.

Hydraulics staff in District 1 should recommend design for gutter capacity, sediment, any inlet structures, and the new proposed culvert.

¹ <http://www.idcide.com/weather/ca/willow-creek.htm>

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5.4 Regional Geology

The project site is located at the border of the Coast Range and the Klamath Mountain Provinces of California. The lithologies and age relationships within the Klamath Mountains indicate repeated accretion, beginning in early to middle Paleozoic and continuing through the Mesozoic, island arc terranes, with their associated sedimentary units, to the leading western edge of the North American plate. The site is underlain by the Galice Formation (Figure 2) which is an interbedded mudstone, graywacke, and conglomerate ranging in texture from weakly slaty to phyllitic.²

5.5 Site Geology

Based on the boring and geologic mapping, the site is underlain by mildly metamorphosed, moderately hard, intensely fractured mudstone, shale, sandstone and phyllite of the Galice Formation.³

5.6 Seismicity

This area of California is on the western edge of North American Plate and located east of the southern portion of the Juan de Fuca Plate. This region is referred to as the Mendocino Triple Junction and the Cascadia Subduction Zone. This zone is responsible for the volcanic activity of the Pacific Northwest from Mt Lassen to Mt Rainier, and for the numerous earthquakes that have hit this region.

5.7 Soils Survey Mapping

The project is underlain by soil classified as Darkwoods-Firmountain-Oakside complex, which are located on 50-75% slopes. This soil is classified as Hydraulic Soil C which when wet has a slow infiltration rate. Most of these soils contain a layer restricting downward flow. These soils have a slow rate of water transmission.⁴ (The USDA, NRCS, Custom Soil Resource Report for Sonoma County, California; 2012, can be supplied upon request.)

5.8 Naturally Occurring Asbestos (NOA)

² Department Of The Interior U.S. Geological Survey; 1987; Open-File Report 87-257; Geologic map of the Redding 1X2 degree quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California by L. A. Fraticelli, J. P. Albers, W. P. Irwin, M. C. Blake, Jr.

³ California Division of Mines and Geology; 1987; Geologic map of the Weed quadrangle, California, 1:250,000; by Wagner, D.L., and Saucedo, G.J.

⁴ United States Department of Agriculture; Natural Resources Conservation Service; 2015; Custom Soil Resource Report for Humboldt and Del Norte Area, California (<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>)

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We do not expect to encounter NOA at the site. The core recovered during geotechnical drilling did not show evidence of NOA, along with no NOA witnessed during surface mapping at the site. Published maps of this area also show no evidence of NOA was identified in this area.⁵

6. Geotechnical Exploration

6.1 Geologic Mapping

On June 24, 2014, the staff from the Office of Geotechnical Design-West conducted site investigations. During the visit, the slope stability, rock type, density and orientation of fractures, evidence for rockfall (rockfall pitting) on the road surface, locations of seeps, and construction considerations related to the proposed cuts. The rock at the site was poorly exposed, due to the forest of the Pacific Northwest. Plant matter and soil cover the ground making mapping of the bedrock difficult.

6.2 Drilling and Sampling

Two horizontal borings were advanced: R-15-001 and R-15-002 (Boring Locations are presented in Figure 3 and are in Attached A). Core samples from each boring began at approximately 4 feet into the slope face. Core recovered during the sampling had poor to very poor rock quality designation (RQD), therefore no samples were analyzed for unconfined compression, point load, etc. The poor RQD could also have contributed to the poor drill fluid circulation, and loss of drilling fluid, that we experienced at numerous points during drilling.

6.3 Seismic Refraction Survey

On June 25, 2014, one seismic refraction line was surveyed at the project site. Seismic refraction method was employed to determine the presence of bedrock and evaluate the rippability of the material to be excavated. The seismic line was set 50 to 75 feet south of the roadway, with geophones placed every 5 feet. The seismic line was positioned to image the area to be cut as directed by the project geologist. Seismic Line 1 was 157 ft (48 m) long. The Seismic Refraction Survey is in Attachment C.

7. Geologic Conditions

7.1 Site Geology

7.1.1 Lithology

⁵ State Of California, Department Of Conservation Division Of Mines And Geology; 2000; A General Location Guide For Ultramafic Rocks In California-Areas More Likely To Contain Naturally Occurring Asbestos, Open-File Report 2000-19

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Mapping on at the site was limited. The vegetation cover and extent of weathering (due to the high rainfall in the Pacific Northwest) precluded description of rock type and strike and dip of bedding. Mapping on June 24, 2014 and the week of January 5, 2015 produced evidence of small translational slides throughout the proposed cut slope.

7.1.2 Structure

Within the project area, the bedding of the rock is laminated with no discernible strike or dip to be noted. The rock varied from fresh to intensely weathered. At varying depths, the shale had been metamorphosed to phyllite with slickensides gouging the surface.

The Weed Quadrangle has bedding and foliation dipping in varying directions.⁶ This is due to the crushing force that was placed on the region when the Juan de Fuca plate was subducted beneath the North American Plate. This same force also created the numerous faults, and the reason that rock core samples, which were collected during drilling, had a poor to very poor RQD.

7.2 Native Slope Stability

Existing slopes are locally steeper than 1:1 to the crown of the slope, then flatten out to 2:1. SR 96 was originally built in the 1930s. The slopes have held up well, as shown by the lack of slide or rockfall and by the trees that are well established on the slope face.

7.3 Soils

The soils at the project site are thin, especially on the slopes, and are composed of organic matter and are decomposed portions of the underlain bedrock. During drilling, rock was encountered inches below the surface. The soil profile will not affect the cut parameters.

7.4 Surface water and Groundwater

During drilling operations groundwater was not encountered. Surface water drains down the slope to an open ditch at its base. This ditch drains to the west then under SR 96 to the north, which then drains to the Trinity River.

7.5 Erosion

Erosion at the site is not a persistent problem. Site soils are thin and the bedrock, as fractured as it is, has held up very well over time. Despite the heavy rainfall of the region, no gullying or rilling at the site was noted.

⁶ Wagner, et al; Geologic map of the Weed quadrangle, California.

7.6 Seismicity

The dominant geologic structure in the area is the Mendocino Triple Junction. From this point, north the Cascadia Fault Zone, Big Lagoon-Bald Mountain Fault, Trinidad Fault and the McKinleyville Fault control the seismic activity in this portion of northern California and Oregon. Figure 4 presents the Regional Fault Map. These reverse faults have been the source of numerous historic earthquakes and, hence, are known to be active. Fault data is listed in Table 1.

Table 1: Fault Data

Fault Name	Distance: Miles	Fault ID:	Fault Type:	Maximum Magnitude (MMax):	Deterministic Acceleration *
Big Lagoon - Bald Mtn	12.4	9	Reverse	7.5	0.52g
Trinidad	18.4	21	Reverse	7.5	0.28g
Cascadia Subduction Zone	60.3	5	Reverse	8.3	0.18g

* Acceleration based on a shear wave velocity of 760m/s

8. Geotechnical Analysis and Design

8.1. Cuts and Excavations

8.1.1 Cut Slopes

Present cut slopes have slope ratios from 0.7:1 to 1:1, and flatten to 2:1 past the crown of the slope. A majority of these cuts are over 80 years old, according to as-built drawings (contract# 1933; 01-443104 and are presented in Attachment B). The present condition and appearance of the cut slopes are thought to be fairly similar to the original cut faces, with the exception of some small localized sloughs, as well as the long-term raveling of localized periodic rockfall outside of the proposed cut area. All of this suggests that the slopes are globally stable in their existing slope ratio.

Examination of the existing cuts in the Galice Formation in and near the project area, together with seismic refraction results, indicates that the rock is sufficient, particularly at depth, to stably support cut slope ratios of 1:1. Above the proposed cuts, there is a slope ratio of 2:1, which, based on field observations, is flat enough to prevent failure of the soil and weaker overburden..

8.1.2 Overwintering of Cut Slopes

This cut is relatively small and excavation of the cuts should not have to extend over the winter; therefore, overwintering should not be an issue.

8.1.3 Rippability

Rippability assessments were made based on seismic velocity (P waves), rock type, and rock fracture and joint characteristics. As discussed earlier in Section 6.3, a seismic refraction line was shot for this project (Appendix: Seismic Refraction Survey for Hoopa Vista Curve Correction). Seismic velocity correlations are based on two different scales, each with differing rippability assessments depending upon ripping equipment and rock type. Caltrans has its own non-rock-type specific internal correlation scale between seismic velocity and rippability based on a Caterpillar D9 Series bulldozer with a single-toothed ripper. These values are as follows:

<u>Velocity (ft/s)</u>	(Caltrans)	<u>Rippability</u>
< 3444		Easily Ripped
3444 – 4921		Moderately Difficult
4921 – 6562		Difficult
> 6562		Non-Rippable

A rock-type specific seismic velocity scale based on a larger bulldozer (Caterpillar D10 with a single or multi-shank no. 10 ripper) taken from a handbook published by Caterpillar (2000) is also presented here to provide the contractor with a wider range of rippability information. The handbook lists multiple rock types, including shale, sandstone, conglomerate, and schist (the closest rock to phyllite), which are the primary rock constituents in the proposed cuts. Of these four rock types, schist has the lowest seismic velocities at the demarcation between rippable and marginally rippable, as well as between marginally rippable and non-rippable, which makes it the most conservative choice for rippability description for this project.⁷ The Caterpillar D10 ripper table gives the following rippability descriptions and seismic velocity correlations for schist:

<u>Velocity (ft/s)</u>	(Caterpillar (Schist))	<u>Rippability</u>
≤ 7,500		Rippable
7,500 – 9,500		Marginally Rippable
> 9,500		Non-Rippable

Table 2 below lists seismic velocities and rippabilities by station intervals for both Caltrans and Caterpillar standards. This table shows that all rock proposed for excavation in this project is considered rippable based on the Caterpillar standard, while the more conservative Caltrans standard describes the rock as a mix of easily ripped and moderately difficult to rip. Office of Geotechnical Design West estimates that, based on the Caltrans standard, the majority of proposed excavation volume is moderately difficult to difficult to rip. The depth of the overburden soil/colluviums is roughly 30 feet deep, as shown in the seismic line, but this thins

⁷ Caterpillar Inc.; February, 2000; Handbook of Ripping, Twelfth Edition.

out near the crown of the cut near SR 96. The seismic line is presented in the Attached C Plate 2 in the Seismic Refraction Survey show the depth of the overburden.

Table 2. - Seismic velocities and rippability of materials at Hoopa Vista Curve.

Layer	Material	Range of Thickness	Average Velocity (ft/s)	Rippability
1	Undifferentiated soil/Colluvium	30-40	1640	Easily Ripped
2	Decomposed Phyllite	>80	4200	Moderately Difficult

Based on field observations, we anticipate that ripping can be used, and no blasting will be required.

8.1.4 Rockfall

Rockfall presently occurs from localized zones outside of the proposed cut area. The catchment areas in the cut area, and along SR 96, are nonstandard width, some as narrow as 1 foot. During the field mapping, we did not witness evidence that rockfall: e.g. drainage ditch full of rocks, pitting in the roadway, face of slope having gauges, etc.

We anticipate the 4-foot shoulder and the 2-foot drainage to be sufficient catchment for the small amount of rockfall in the cut area.

8.1.5 Post-Construction Sloughing and Erosion-Potential and Control

The majority of the proposed cut slopes are not expected to present any significant erosion problems due to the predominantly rocky nature expected of the new faces. The tops of some of these cuts, however, may expose surfaces composed predominantly of soil that may be moderately to highly erosive in places. Based on the significant resistance to erosion provided by the grass cover on the top surfaces of existing cut slopes, any such potential erosion could likely be mitigated by applying hydroseed mulch or other similar erosion prevention product to the tops of the proposed cut slopes.

8.2 Potential Project Impacts on Man-made and Natural Features

8.2.1 Altered Stability

Excavation of the sliver cuts should be done without decreasing slope stability. We recommend the following:

MR. RICHARD MULLEN

Attn: Socorro V. Urefia

April 3, 2015

Page 10

- construction monitoring to review the construction process and identify areas that will need scaling to reduce the risk of rockfall
- post construction scaling and investigation to locate areas having the potential for rockfall.

8.2.2 Slope Ratio Effects

The rocks are moderately hard and the rock masses are stable on steep cut slopes. No evidence of adverse bedding or fracturing was noted. Proposed cuts will be as steep as existing. No impacts from proposed sloped ratios are expected.

8.2.3 Stabilization Effects and Construction Easements

The cut slope should be stable upon the completion of the excavation, but during the construction, a Geologist should be onsite to witness if stabilization is needed locally.

Excavation equipment has access from the west via an old logging road that has been previously cut.

8.2.4 Project Impacts on Offsite Features/Facilities

The project as proposed will not impact offsite features and facilities.

9. Geotechnical Recommendations

We recommend top-down excavation of the proposed cuts, using a method that minimally impacts traffic. The use of a dozer for ripping is the preferred method, via the existing logging road.

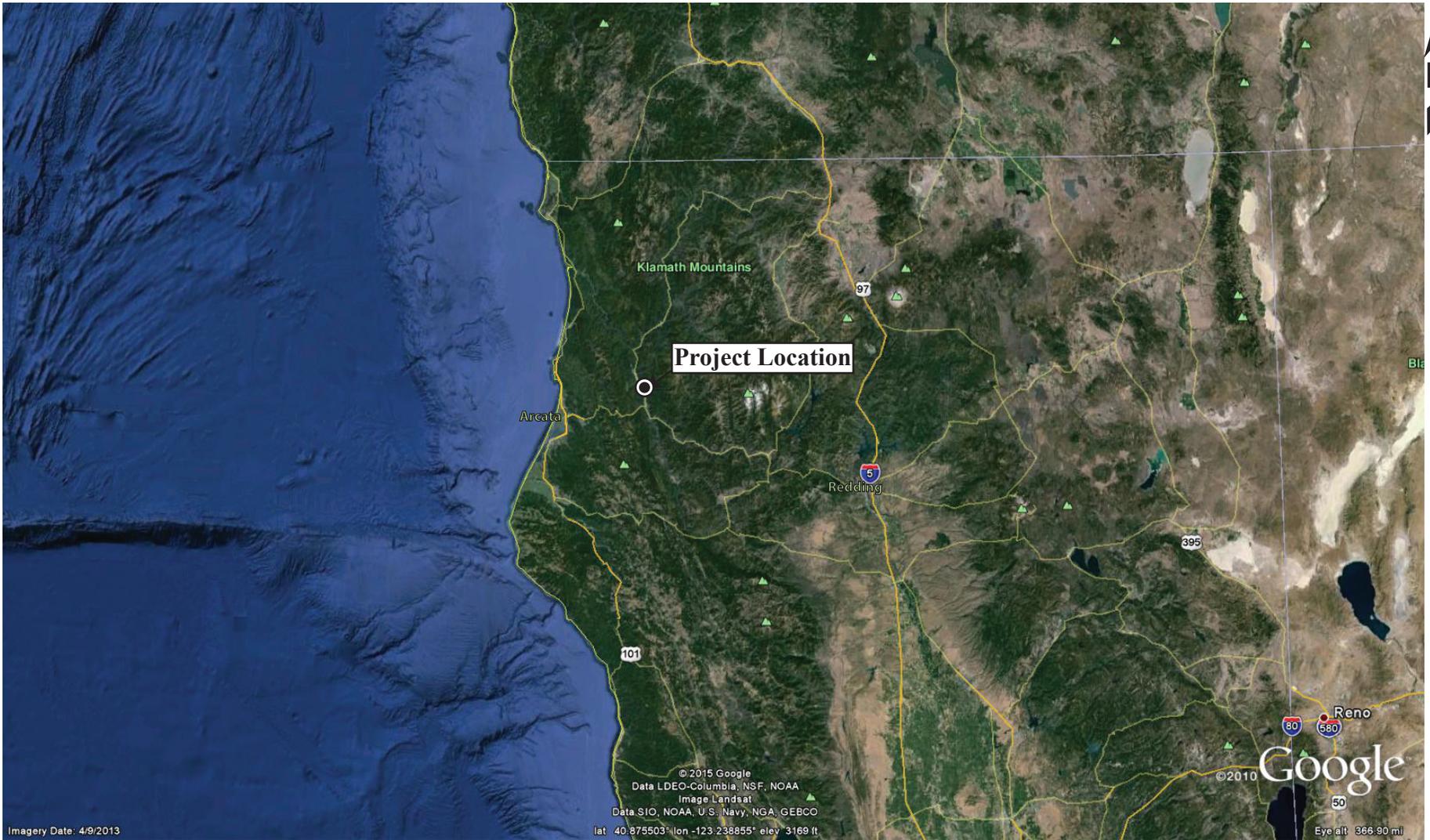
If you have any questions or require further information, please contact Matthew Gaffney at (510)622-1777 or Chris Ridsen at (510) 622-8757.

Attachments:

- A - Boring Records
- B - 1930s plans
- C - Results of Seismic Refraction Survey for Hoopa Vista Curve Correction, Highway 96, Humboldt County, California

c: TPokrywka, CNarwold, CRidsen, LJones, RMullen, Daily File

MGaffney/mm



SCALE

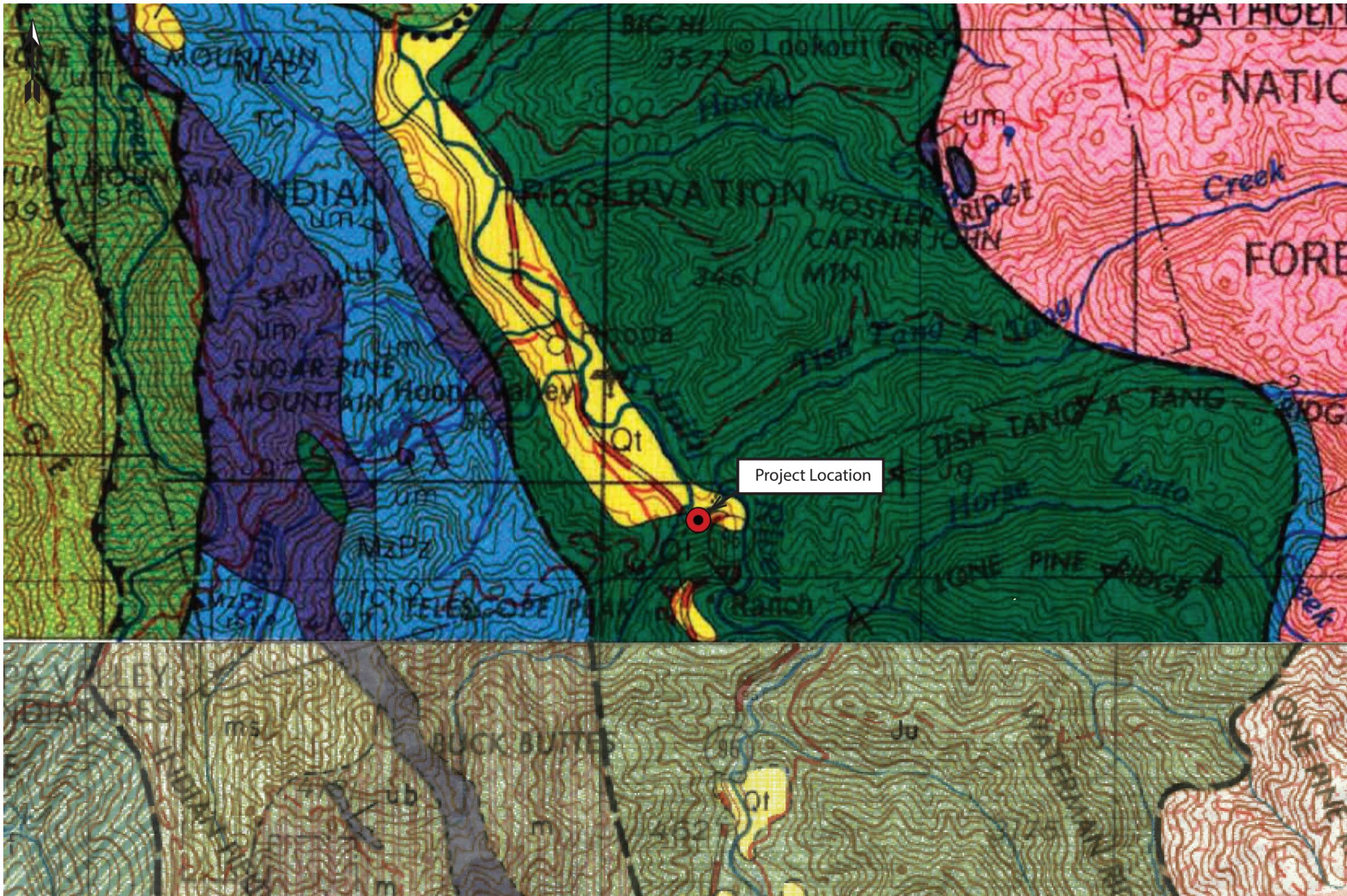


**DIVISION OF
 ENGINEERING SERVICES**
 GEOTECHNICAL SERVICES
 GEOTECHNICAL DESIGN - WEST – BRANCH B

LOCATION MAP

04-HUM-96	0112000002
PM. 8.3-8.6	March 2015

FIGURE 1



Explanation

Qt	Terrace Deposits
KJf	Franciscan Complex
ss	sandstone
sm	South Fork Mountain Schist
Jg	Galice Formation
qzd	Dioritic rocks
um	Ultramafic-gabbroic rocks

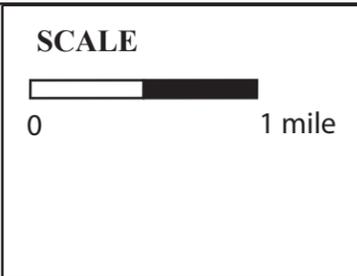
Western Paleozoic and Triassic Belt

MzPz	Undifferentiated
rc1	Rattlesnake Creek Terrane

Map Symbols

- Project Locations
- Fault-Solid where well located; dashed where approximately located or inferred
- ▲ Thrust fault-barbs on upper plate; dashed where approximately located or inferred

Reference:
 CGS, Division of Mines and Geology, 1987,
 Geologic Map of the of the Weed Quadrangle, CA, 1:250,000,
 D.L. Wagner and G.J. Saucedo.
 California Geological Survey, 1962, Geologic Atlas of California Map No. 011,
 1:250,000 scale, Compilation by: Rudolph G. Strand



**DIVISION OF
 ENGINEERING SERVICES
 GEOTECHNICAL SERVICES
 GEOTECHNICAL DESIGN - WEST - BRANCH B**

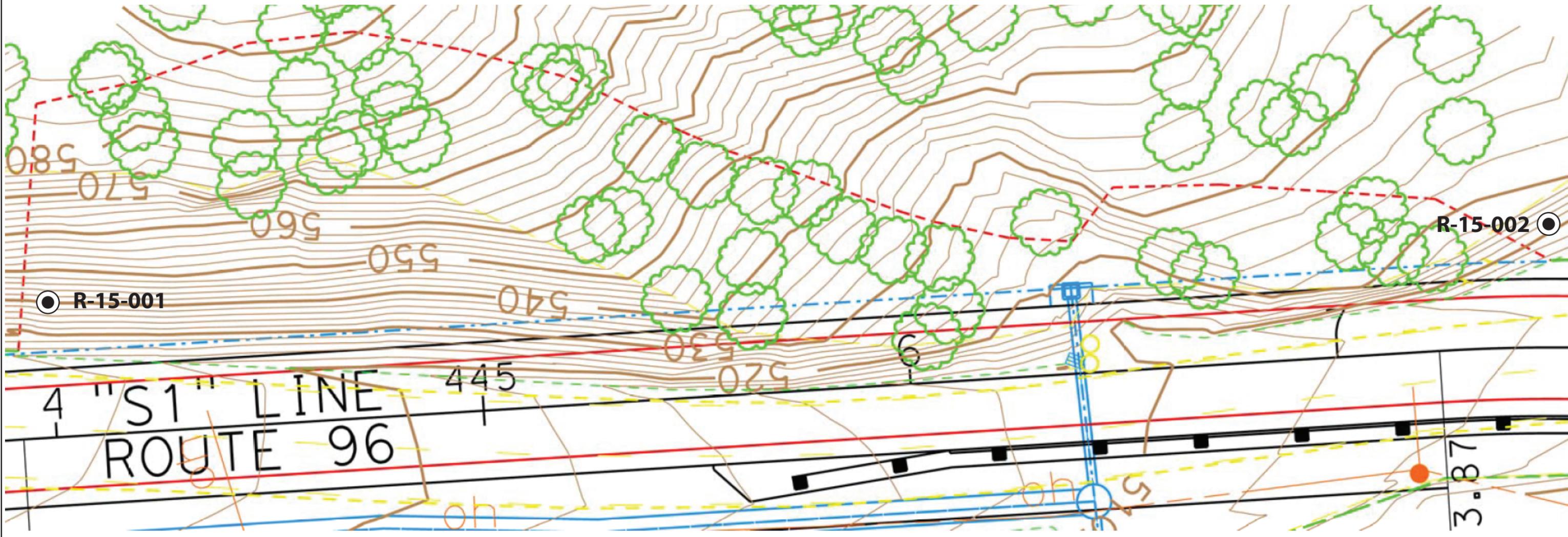
GEOLOGY	
01-HUM-96	0112000002
PM. 8.2-8.5	January 2015
FIGURE 2	



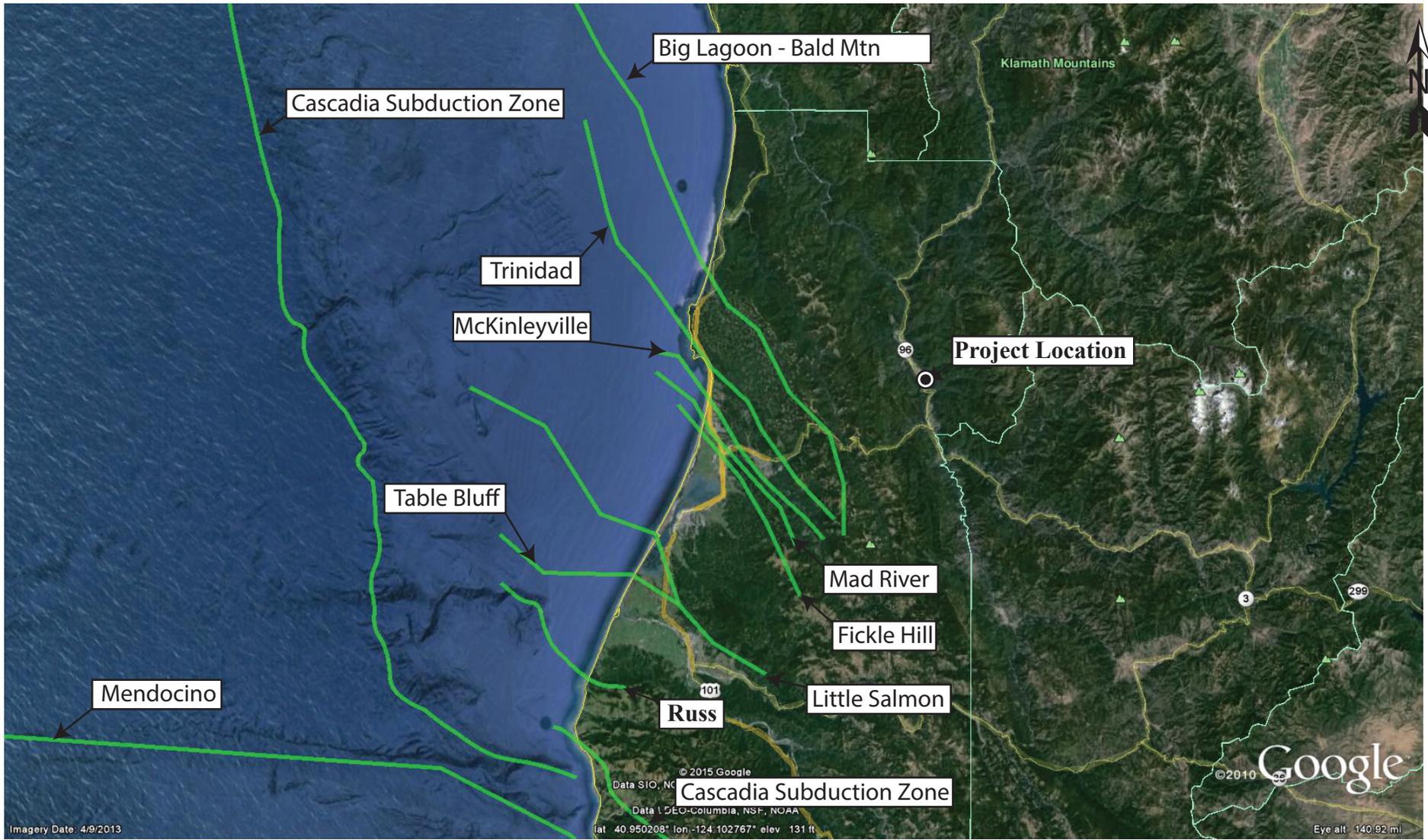
Key

● **R-15-001** Boring location and name

560 Elevation in feet



Reference:	SCALE		DIVISION OF ENGINEERING SERVICES	
			GEOTECHNICAL SERVICES	
			GEOTECHNICAL DESIGN - WEST - BRANCH B	
	BORING LOCTION		01-HUM-96	0112000002
			PM. 8.2-8.5	March 2015
	FIGURE 3			



**DIVISION OF
ENGINEERING SERVICES**
 GEOTECHNICAL SERVICES
 GEOTECHNICAL DESIGN - WEST – BRANCH B

REGIONAL FAULT MAP	
04-HUM-96	0112000002
PM. 8.3-8.6	March 2015
FIGURE 4	

Attachment A

LOGGED BY M. Gaffney	BEGIN DATE 1-5-15	COMPLETION DATE 1-6-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 6107859.4 ft / 2258926.3 ft	HOLE ID R-15-001
DRILLING CONTRACTOR Crux Drilling			BOREHOLE LOCATION (Offset, Station, Line) ~36.0' Rt Sta ~447+70 S1	SURFACE ELEVATION ~510.0 ft
DRILLING METHOD Rotary Wash			DRILL RIG Burely 4000	BOREHOLE DIAMETER 3.8 in
SAMPLER TYPE(S) AND SIZE(S) (ID) HQ Core			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Backfilled with gorut to surface			GROUNDWATER READINGS	DURING DRILLING AFTER DRILLING (DATE) 85.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	0		SEDIMENTARY ROCK (SANDSTONE); medium grained; light gray; fresh; hard; intensely fractured; (NATIVE).												
509.91	5		Grayish brown.		1			6	0						
509.83	10		SEDIMENTARY ROCK (SHALE); fine grained; laminated; dark gray; fresh; moderately hard; intensely fractured; Fracturing partially caused by mechanical breaks due to drilling.; (NATIVE).		2			10	0						
509.74	15				3			33	0						
509.65	20		METAMORPHIC ROCK (PHYLLITE); light olive gray; fresh; moderately hard; intensely fractured; slickensides; (NATIVE).		4			15	0						
509.65	20		SEDIMENTARY ROCK (SHALE); fine grained; laminated; dark gray; fresh; moderately hard; intensely fractured; (NATIVE).		4			15	0						
509.56	25		METAMORPHIC ROCK (PHYLLITE); light olive gray; slightly weathered; moderately hard; intensely fractured; I _s =6; Roots present; (NATIVE).		5			15	0						
509.56	25		Laminated; Bedding 60°.												
509.48	30		SEDIMENTARY ROCK (SHALE); medium grained; dark gray; fresh; hard; intensely fractured; Problem with drilling fluid circulation. Change bit to Carbon Auto Bit; (NATIVE).		6			0	0						
509.48	30				7			139	33						
509.39	35		METAMORPHIC ROCK (PHYLLITE); laminated; light olive gray; slightly weathered; moderately hard; intensely fractured; bedding is undulating.; (NATIVE).		8			71	0						
509.39	35		SEDIMENTARY ROCK (SHALE); medium grained; dark gray; moderately weathered; moderately hard; intensely fractured; (NATIVE). Clay filled fractures.												
509.30	40		Very intensely fractured.		9			65	0						
509.21	45		No clay, slickensides.		10			23	0						
509.10	50		Clay filled fractures.		11			0	0						

(continued)

5 BR - STANDARD HUM 96 PM 8.3-8.9.GPJ CALTRANS LIBRARY (FEB 2013).G.LB 3/25/15



Department of Transportation
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design - North

REPORT TITLE BORING RECORD				HOLE ID R-15-001	
DIST. 01	COUNTY HUM	ROUTE 96	POSTMILE D8.3/D8.9	PROJECT ID 011200002	
PROJECT OR BRIDGE NAME Hoop Vista Curve Correction					
BRIDGE NUMBER		PREPARED BY M. Gaffney		DATE 3-3-15	SHEET 1 of 2

5 BR - STANDARD HUM 96 PM 8.3-8.9.GPJ CALTRANS LIBRARY (FEB 2013).GLB 3/25/15

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
509.04	55		SEDIMENTARY ROCK (Shale) <i>(continued)</i> .		11			0	0						
			NO clay, no slickensides, undulating bedding.		12			10	0						
508.95	60		Clay filled fractures. Angular fractures.		13			33	0						
			Intensely weathered.		14			67	0						
508.87	65				15			40	0						
			No clay in fractures. Clay filled fractures.		16			87	0						
508.78	70				17			47	0						
					18			47	0						
508.69	75				19			80	0						
			Moderately weathered; soft; intensely fractured.		20			60	13						
508.60	80				21			100	0						
					22			47	13						
508.52	85		Intensely weathered; Fractures heald with calcite.		23			87	0						
			Bottom of borehole at 85.5 ft bgs												
508.43	90		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
508.34	95														
508.25	100														
508.17	105														
508.08	110														



Department of Transportation
 Division of Engineering Services
 Geotechnical Services
 Office of Geotechnical Design - North

REPORT TITLE BORING RECORD				HOLE ID R-15-001	
DIST. 01	COUNTY HUM	ROUTE 96	POSTMILE D8.3/D8.9	PROJECT ID 0112000002	
PROJECT OR BRIDGE NAME Hoopa Vista Curve Correction					
BRIDGE NUMBER		PREPARED BY M. Gaffney		DATE 3-3-15	SHEET 2 of 2

LOGGED BY M. Gaffney	BEGIN DATE 1-7-15	COMPLETION DATE 1-8-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 6108076.5 ft / 2259029.3 ft	HOLE ID R-15-002
DRILLING CONTRACTOR Crux Drilling			BOREHOLE LOCATION (Offset, Station, Line) ~11.0' Rt Sta ~445+25 S1	SURFACE ELEVATION ~520.0 ft
DRILLING METHOD Rotary Wash			DRILL RIG Burely 4000	BOREHOLE DIAMETER 3.8 in
SAMPLER TYPE(S) AND SIZE(S) (ID) HQ Core			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Hole Collapsed			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 87.0 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SEDIMENTARY ROCK (SHALE); fine grained; dark gray; moderately weathered; moderately soft; intensely fractured; Oxidation on the fractures.												
	5				1			80	7						
	10				2			50	7						
	15		Lost fluid circulation.		3			0	0						
	20		Laminated.		4			80	0						
	25				5			0	0						
	30				6			35	0						
	35		Hard.		7			2	0						
	40		Moderately hard.		8			100	0						
	45				9			40	0						
					10			3	0						
					11			0	0						

(continued)

5 BR. - STANDARD HUM 96 PM 8.3.8.9.GPJ CALTRANS LIBRARY (FEB 2013).GLB 3/25/15



Department of Transportation
 Division of Engineering Services
 Geotechnical Services
 Office of Geotechnical Design - North

REPORT TITLE BORING RECORD				HOLE ID R-15-002	
DIST. 01	COUNTY HUM	ROUTE 96	POSTMILE D8.3/D8.9	PROJECT ID 0112000002	
PROJECT OR BRIDGE NAME Hoopa Vista Curve Correction					
BRIDGE NUMBER		PREPARED BY M. Gaffney		DATE 3-3-15	SHEET 1 of 2

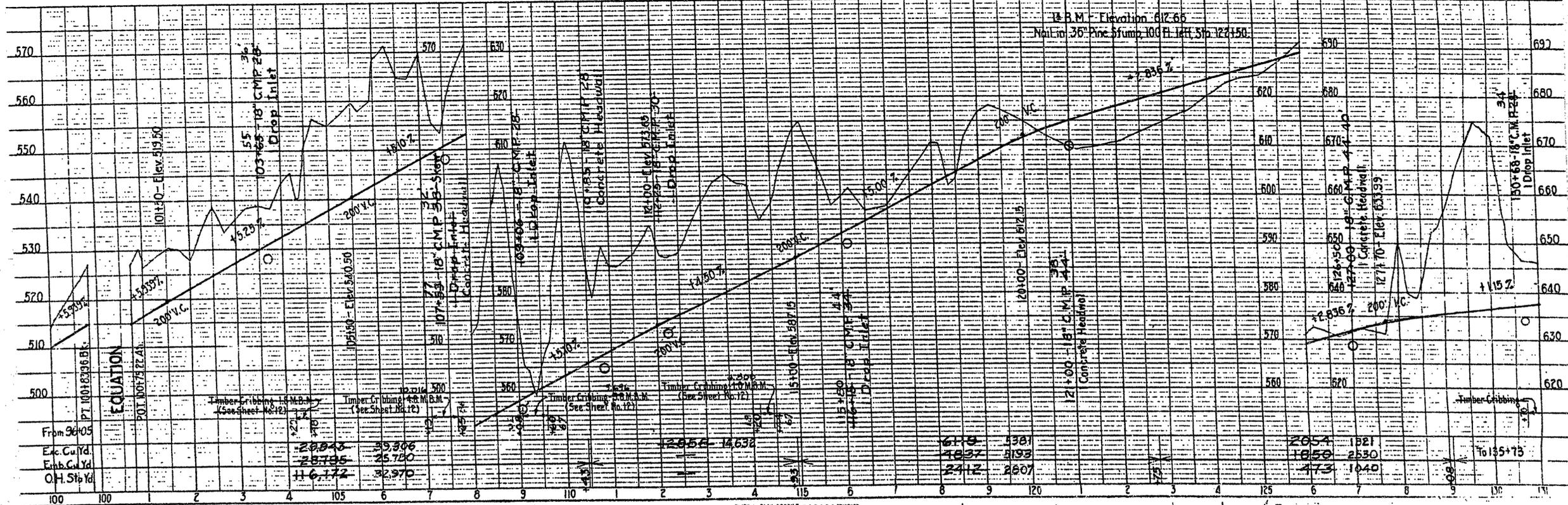
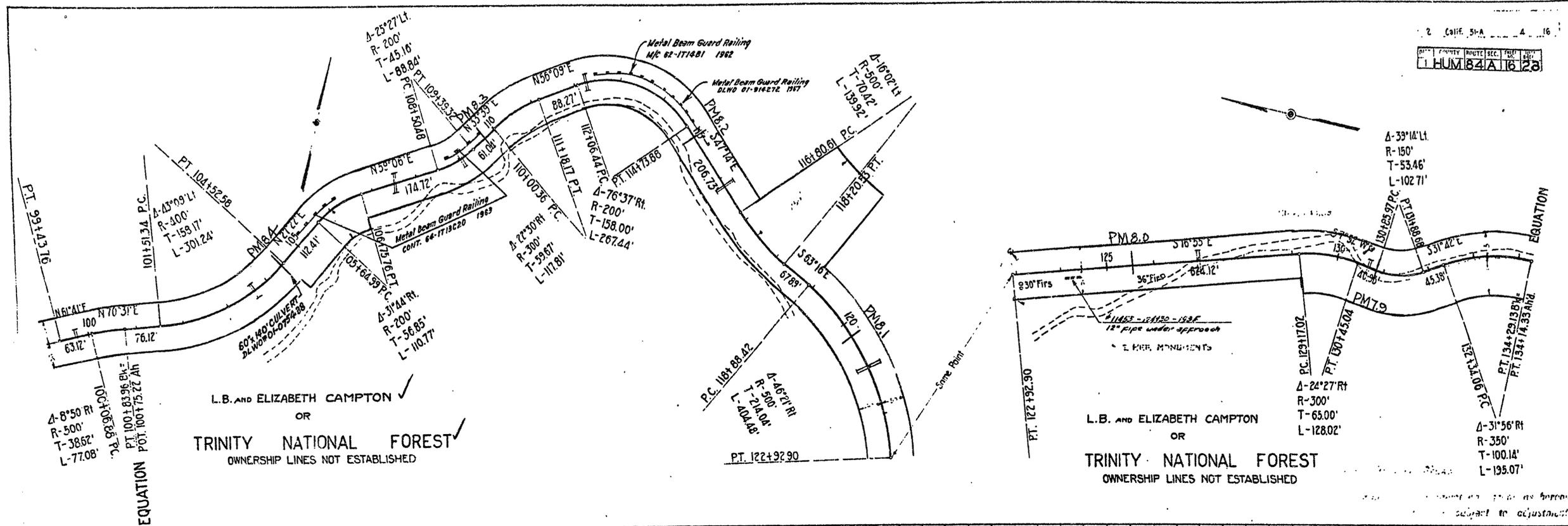
ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
50			Slightly weathered; Fractures rough moderately healed with calcite.. SEDIMENTARY ROCK (Shale) <i>(continued)</i> .		12			100	30						
					13			100	0						
	55		No apparent bedding. Fractures moderately open..		14			100	50						
			Moderately weathered; soft; slightly fractured; Some foliation. Intensely fractured; Shear.		15			0	0						
	60				16			0	0						
	65				17			0	0						
	70				18			100	53						
			Moderately fractured.		19			100	8						
	75				20			71	0						
	80		Moderately soft. Very soft; very intensely fractured.		21			100	50						
	85		Slightly weathered; moderately fractured; Fractures partly healed.												
			Bottom of borehole at 87.0 ft bgs												
	90		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
	95														
	100														
	105														
	110														



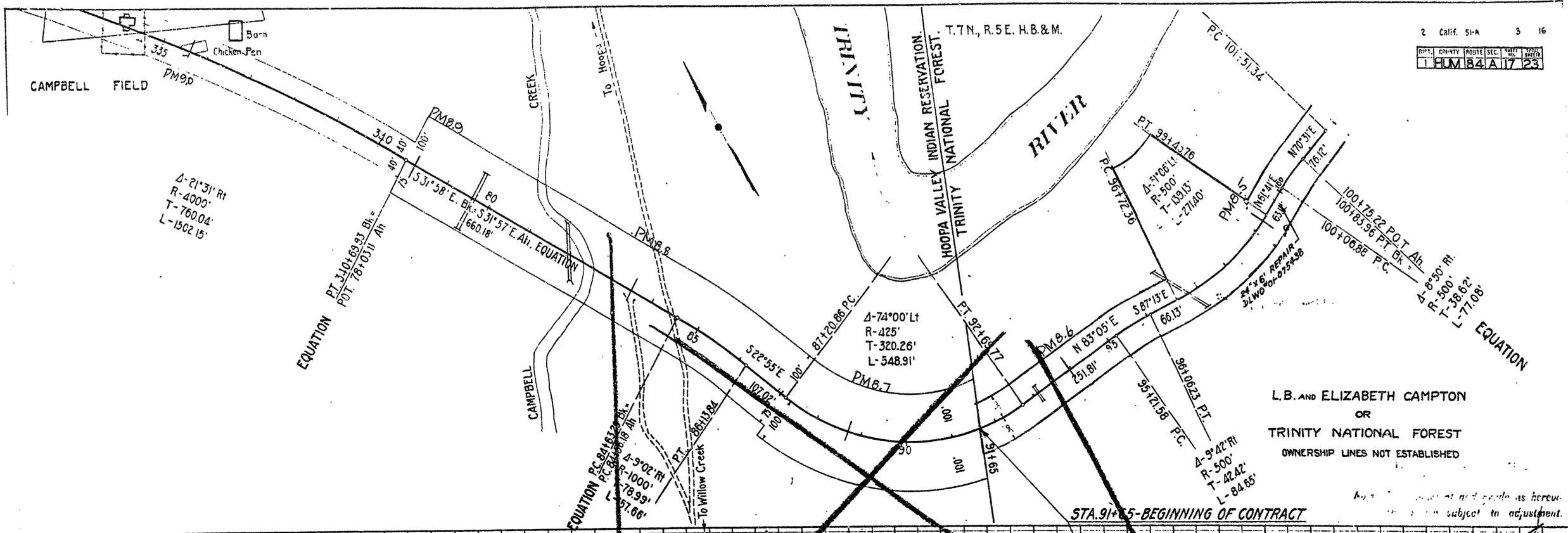
Department of Transportation
 Division of Engineering Services
 Geotechnical Services
 Office of Geotechnical Design - North

REPORT TITLE BORING RECORD				HOLE ID R-15-002	
DIST. 01	COUNTY HUM	ROUTE 96	POSTMILE D8.3/D8.9	PROJECT ID 0112000002	
PROJECT OR BRIDGE NAME Hoopa Vista Curve Correction					
BRIDGE NUMBER		PREPARED BY W. Gaffney		DATE 3-3-15	SHEET 2 of 2

Attachment B

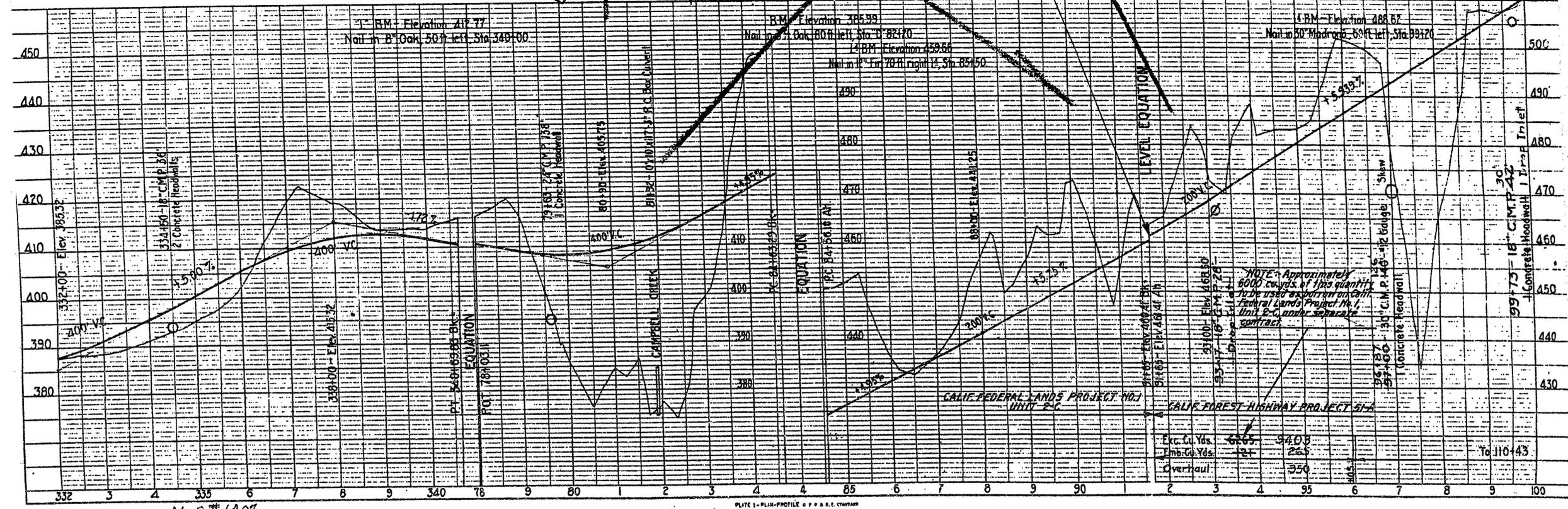


M.P. 64.07



L.B. AND ELIZABETH CAMPTON
 OR
 TRINITY NATIONAL FOREST
 OWNERSHIP LINES NOT ESTABLISHED

STA. 91+65-BEGINNING OF CONTRACT



NOTE: Approximately 6000 cu yds. of this quantity to be used as per contract. (Under Lands Project No. 1, Unit 2-C under separate contract.)

Exc. Cu. Yds.	6265	3400
Emb. Cu. Yds.	121	265
Overhaul		350

M-J-P # 6407

Attachment C

Memorandum

*Flex your power!
Be energy efficient!*

To: **Chris Riden**
Senior Engineering Geologist
Office of Geotechnical Design North
Division of Engineering Services

Date: August 15, 2014

File: 01-HUM-96-8.5

Project: 0112000002

Attn: Matt Gaffney

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES-MS#5

Subject: Results of Seismic Refraction Survey for Hoopa Vista Curve Correction, Highway 96, Humboldt County, California

Introduction

This memorandum summarizes the results of a seismic survey to assist in the design of a curve correction in the highway at the above-referenced project. At this site the seismic refraction method was employed to determine the presence of bedrock and evaluate the rippability of the material to be excavated. One seismic refraction line was surveyed on June 25, 2014 approximately 8 miles west of the town of Willow Creek. Plate 1 shows the location of the seismic line.

Results and Discussion

The seismic line had geophones placed every 5 ft (1.5 m). The seismic line was positioned to image the area to be cut, as directed by the project geologist.

Seismic Line 1 was 157 ft (48 m) long. The processed model on Plate 2 shows two velocity units. The upper layer is approximately 45 ft (13.7 m) thick. It has a seismic velocity of 1640 ft/s (500 m/s) and will be easily ripped. The lower layer has a velocity of 4200 ft/s (1280 m/s) and will experience moderately difficult ripping.

These results are summarized in Table 1.

Table 1. Results of Seismic Refraction Study for Hoopa Vista Curve Correction

Seismic Line	Layer	Thickness		Velocity		Line Length		Inferred Material	Rippability ¹
		(ft)	(m)	(ft/s)	(m/s)	(ft)	(m)		
1	1	45	13.7	1640	500	157	48	Undifferentiated slope debris/soil	ER
	2	N/A	N/A	4200	1280			Decomposed/completely weathered Phyllite (?)	MD

¹ER = Easily Ripped, MD = Moderately Difficult, DR = Difficult Ripping, NR = Not Rippable

The site is very close to a recent repair of a failed section of roadway involving a landslide at PM 8.55. Four seismic lines were surveyed at this location in 2007, identifying a refractor about 40 ft (12.2 m) deep with a seismic velocity of 8000 ft/s (2440 m/s).

At the current project at PM 8.5, no evidence of a landslide was noted, although rubble deposited by a debris chute lies directly south of the seismic line. Based on the 2007 work in the area it appears the phyllite may have a lateral velocity change from approximately 8000 ft/s (2440 m/s) to 4200 ft/s (1280 m/s).

Ripping ability is based on unpublished Caltrans data for the Caterpillar D9 series bulldozer with a single-tooth ripper. These values are as follows:

Velocity (ft/s)	Velocity (m/s)	Rippability
<3444	<1050	Easily Ripped
3444-4921	1050-1500	Moderately Difficult
4921-6562	1500-2000	Difficult Ripping
>6562	>2000	Not Rippable

Different excavation equipment may experience different results. Penetrating efficacy of the ripping tooth is often more important in predicting ripping success than seismic velocity alone. Undetected blocks or lenses of high-velocity material should be expected within rippable zones, requiring blasting or other means of mechanical breakage for excavation.

Data Acquisition and Processing

Seismic refraction data were recorded using an EG&G Smartseis 24-channel seismograph with 14 MHz geophones. The profiles varied in length. The energy source employed was a hammer and striker plate. Refraction data from each shot were stored in the seismograph's memory. Both profile geometry and refraction data were backed up to a floppy disk upon completion of the survey.

Profiles in this report are presented in terms of velocity units. A velocity unit is a three-dimensional unit which, due to its elastic properties and density, propagates seismic waves at a

characteristic velocity or within a characteristic velocity range. Velocities denoted in this report are expressed in feet per second. At least one velocity is present within a geological rock unit. In addition, each zone of weathering, or fracturing within that geological unit, can constitute its own velocity unit. Conversely, when two rock units, such as water-saturated gravel and moderately weathered rock, propagate seismic waves at the same velocity and are adjacent to each other, both units would be part of the same velocity unit. Lastly, discontinuous velocities might result from variation in the degree of alteration in the form of physical and chemical weathering and should be considered in the interpretation of the data.

Thank you for the opportunity to work on this project. If you have any questions or need additional assistance, please contact Dennison Leeds at (916) 227-1307 or William Owen at (916) 227-0227.

Sincerely,

Dennison Leeds
Engineering Geologist
Geophysics and Geology Branch

William Owen, PGP 1031
Chief, Geophysics and Geology Branch

c: Project File.

DL/WO

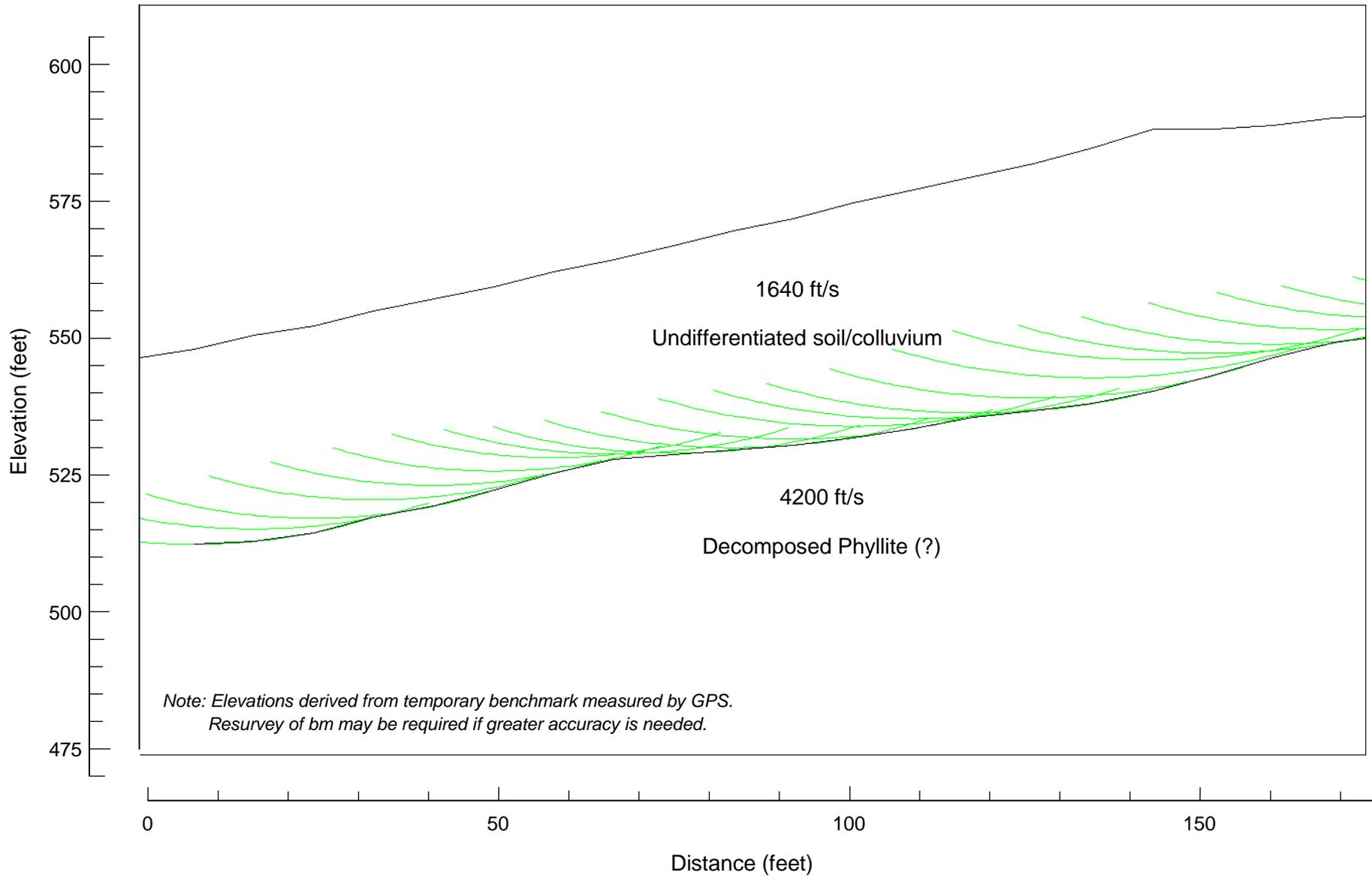
01_HUM_96_8.5_2014_SEI.doc



	Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch		Hoop Vista Curve Improvement 01-HUM-96-8.5	Plate No.1
		ID 0112000002	Location Map of Seismic Line	

W

E



Division of Engineering Services
Office of Geotechnical Support
Geophysics and Geology Branch

0112000002

Hoopla Vista Curve Correction 01-HUM-96-8.5

Seismic Line 1

Plate
No.2

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

MATERIALS INFORMATION

Foundation Report (Vista Point), Storm Damage Repair, Hum 96 PM 8.5, EA 01-480911, Humboldt County California, Prepared by Kleinfelder, August 13, 2008



TECHNICAL MEMORANDUM

Geotechnical Engineering
Materials Testing & Inspection
Environmental Science & Engineering
Water Resources
Earthquake Engineering
Air Quality

Date: August 13, 2008

To: Charlie Narwold, Sr. Engineering Geologist
Division of Engineering Services
Office of Geotechnical Design North
Branch B

From: Terry Craven, G.E.
William V. McCormick, C.E.G.

Kleinfelder Project: 92859/REP-1

Subject: Foundation Report (Vista Point)
Storm Damage Repair
HUM 96 PM 8.5
EA: 01-480911
Humboldt County, CA

1 PROJECT DESCRIPTION

An active landslide is located on the north (downhill) side of Highway 96, near mile post 8.5 south of Hoopa, in Humboldt County, California. The location of the site is shown on Plate 1, Site Location. As shown on the Site Plan, Plate 2, the active landslide scarp is approximately 300 feet long. The landslide mass extends approximately 240 feet downslope to the north (see Plate 3 & 4, Sections A-A' and B-B'), where it emerges at the Trinity River. Ground surface elevations shown on the cross sections are based on a hand level survey by Kleinfelder and may differ from the surface contours shown on the Site Plan. Between stations 454+50 and 455+50, the landslide scarp extends across the westbound lane and into the eastbound lane. The active slide is located within a larger dormant slide crossing the roadway in the site vicinity. No existing retaining structures are located within the limits of this project.

The purpose of this project is to provide geotechnical design parameters for a retaining structure to protect the road from active landslide-related movement. Stabilization of the portion of the landslide that is north of the wall is not intended and the main mass of the active landslide may continue to move downslope of the proposed wall after the retaining structure is

constructed. Further, the existing dormant landslide (as well as the underlying highly fractured bedrock) possesses a relatively low factor of safety and it is not the intent of this project to improve the site's global factor of safety to the level generally accepted by Caltrans for new construction. *It is possible that the existing dormant landslide (or a deeper, larger landslide) could be reactivated, potentially resulting in failure of the roadway and the proposed retaining structure.*

2 GEOTECHNICAL SCOPE OF WORK

The scope of our work for this project included the following:

- Review of available geologic information addressing this area.
- Geologic mapping of the landslide and immediate vicinity.
- Drilling, logging, and sampling of six exploratory borings.
- Installation of inclinometers at two boring locations.
- Laboratory testing of selected samples from the borings.
- Global stability analyses.
- Consultation with Caltrans staff.
- Preparation of Log of Test Borings (LOTB).
- Preparation of this summary report.

3 PERTINENT REPORTS AND INVESTIGATIONS

In preparation of this memorandum, the following documents/reports were reviewed:

1994, Irwin, William P. United States Geological Survey Miscellaneous Investigations Series Map I-2148, Geologic Map of the Klamath Mountains, California and Oregon

1987, Wagner & Saucedo, California Division of Mines and Geology, Geologic Map of the Weed Quadrangle

Caltrans Seismic Hazard Map and Report, Mualchin, 1996 with errata dated March 2006.

4 PROPOSED STRUCTURE DESCRIPTION

It is proposed to construct a retaining structure on the north side of the existing roadway to protect the road surface and supporting prism from landslide-related damage. As proposed, the retaining structure will be a soldier pile and lagging wall, portions of which will be restrained by tiebacks. The wall will be located north of the road shoulder. At the direction of Caltrans, the wall will be located approximately four feet outside of the fog line. Our recommendations for the lateral limits of the wall are illustrated on Plate 2. Because of the depth of the landslide activity, this type of wall will need to be in the range of 45 feet high. It may be appropriate to consider other methods of slope stabilization; however, these are beyond our current scope of geotechnical services.

5 SITE DESCRIPTION AND TOPOGRAPHY

At Post Mile 8.5, the two-lane Highway 96 roadway rises gently to the east at approximately 20H:1V to 26H:1V (Horizontal:Vertical). Slope gradients north (downslope) of the roadway range from approximately 1.2H:1V to 1.5H:1V within the upper portion of the slide and fill prism, to as flat as 2.8H:1V at the lower portion of the slide along the south bank of the Trinity River. The Trinity River is located approximately 200 feet north of the pavement edge and flows to the northwest. The cut slopes bordering the south edge of the roadway were constructed at approximately 1H:1V.

The landslide movement currently impacting the roadway is largely translational with coalescing debris slides and a debris flow. The estimated mass thickness is approximately 35 to 45 feet. The arcuate head scarp of the landslide extends to the south (upslope), up to 16 feet south of the north pavement edge. The location of the head scarp was visible during our field exploration even after recent roadway resurfacing. The approximate area of past (2007) resurfacing and reconstruction is illustrated in blue on Plates 2, 3 and 4. The location of this repair is based on an "unscaled" drawing and should be considered approximate. The active landslide complex beneath the roadway has incised into, and locally through, a dormant slump-flow complex which extends both to the north and south (upslope and downslope) of the roadway. A small active debris slide is located above the roadway, in the southeast portion of the site, likely due to an over steepened cut slope. Soil creep was observed above the roadway and within the cut slopes.

Sheet flow from the cut slopes and the eastbound lane of the roadway are collected within a V-ditch adjacent to the gravel shoulder in the vicinity and captured within a 2-foot-diameter corrugated metal culvert which extends below the roadway and outfalls downslope to the north. Drainage from the westbound lane within the landslide currently flows down over the slope face of the fill prism. The cut slopes are vegetated with a moderate growth of wild



grasses. The areas north of the fill slope support a tall growth of wild grasses, poison oak, manzanita and oak trees.

6 SUBSURFACE EXPLORATION AND LAB TESTING

SUBSURFACE INVESTIGATION

Six (6) exploration borings, designated R-08-001 through R-08-006, were drilled at this site by Caltrans Office of Drilling Services using rotary-wash drilling methods. Drilling was performed on March 17, 2008, through March 27, 2008. All drilling and sampling operations were supervised by Kleinfelder staff. Test borings were performed using a truck-mounted Acker MPC3 drill rig utilizing 102-mm diameter and 96-mm (HQ) casing equipped with a tungsten carbide Geo Barrel and #8 diamond impregnated core bit, or tungsten carbide sharkey core bit, respectively. Borings R-08-001, R-08-003, R-08-005 and R-08-006 were advanced from the Highway 96 pavement level in the westbound traffic lane to a maximum depth of approximately 75 feet. Borings R-08-002 and R-08-004 were advanced from the pavement level in the east bound lane to a maximum depth of approximately 50 feet. The approximate locations of the borings are shown on Plate 2.

Samples of the soil and bedrock were obtained by coring, using equipment as described above, and using 2-inch (inside diameter) Modified California and 1.4-inch (inside diameter) Standard Penetration Test samplers each driven with an automatic 140-pound hammer dropped 30 inches. The blows required to drive the Modified California and Standard Penetration Test samplers were recorded for each 6 inches of penetration or fraction thereof. Visual classifications were made in accordance with the attached Soil and Rock Legend. The results of the exploration are summarized on the attached Log of Test Borings (LOTB), in Appendix A.

As part of this work, two slope inclinometer casings were installed to approximately 75 feet below the ground surface within the bore hole for Borings R-08-003 and R-08-005. The casing was perforated for its full length except for the upper 10 feet to permit possible monitoring of future water levels within the casing. The annular space around the perforated portion of the casing was backfilled with sand and the upper 10 feet was backfilled with bentonite. The inclinometers were completed at the surface with traffic-rated access boxes. Inclinometer readings were obtained by Caltrans on April 16, April 23, May 7, June 5, and July 8 of 2008. Results are presented in Appendix C.



LABORATORY TESTING

Laboratory testing of selected soil samples obtained from the test borings was performed at Kleinfelder's Geotechnical Laboratory in Santa Rosa, California. The purpose of the testing was to verify the field descriptions and identifications, and obtain information for subsequent engineering evaluations. Tests performed included:

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216).

Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937).

Particle-Size Analysis of Soils (ASTM D422).

Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318).

Unconsolidated Undrained Triaxial Compression Test for Cohesive Soils (ASTM D2850).

Direct Shear Test of Soils Under Consolidated Drained Conditions (ASTM D3080).

Corrosivity tests were performed by an independent testing laboratory (AP Engineering & Testing, Inc. in Pomona California) in accordance with Caltrans Test Methods 653 – pH, 643 – resistivity, 417 – sulfate content, and 422 – chloride content.

The results of the laboratory tests, together with a summary sheet, are provided in Appendix B.

7 SITE GEOLOGY AND SUBSURFACE CONDITIONS

REGIONAL GEOLOGY

Regional Geology is illustrated on Plate 5, "Regional Geology." The site is located in the Klamath Mountains Geomorphic Province, an area of rugged topography reaching 6,000-8,000 feet above sea level. The province is generally characterized by flat-topped ridges and glaciated peaks. Regional drainages are westward in direction. The bedrock in the region consists of accreted Paleozoic to Mesozoic age oceanic terrains comprised of a diverse group of igneous, sedimentary, and metamorphic rocks. These terrains are locally intruded by Mesozoic age plutons. The site is located approximately 60 miles east/northeast of the Cape Mendocino Triple Junction where the Gorda, North American, and the Pacific plates meet.

SITE GEOLOGY

The site geology is presented on Plate 2. The geology of the site and vicinity has been mapped by Irwin (1994, United States Geological Survey Miscellaneous Investigation Series I-2148, Geologic Map of the Klamath Mountains, California and Oregon) and Wagner & Saucedo (1987, California Division of Mines and Geology, Geologic Map of the Weed Quadrangle). Irwin (1994) indicates the project site and immediate vicinity is underlain by Late Jurassic meta-sedimentary rocks of the Western Klamath Terrain, including the Galice Formation. This bedrock is comprised of mildly slaty to phylitic argillite, greywacke, and stretched-pebble conglomerate, locally containing pyroclastic interbeds. Wagner & Saucedo (1987) indicate the site is underlain by Upper Jurassic marine sedimentary and meta-sedimentary rocks of the Galice Formation. Irwin (1994) mapped a small area approximately 1.6-miles south of the site as Late Jurassic volcanic rocks of the Western Klamath Terrain, including the Rogue Formation. These rocks include basaltic and andesitic volcanic and volcanoclastic rocks, interbedded shale and mudstone, and locally interbedded chert. The lateral extent and lithologic unit are mapped as uncertain by Irwin (1994). Wagner & Saucedo (1987) mapped Quaternary non-marine terrace deposits immediately to the north of the site and extending to the northwest into the relatively flat valley where the town of Hoopa is located.

A northwest-trending bedrock fault is located approximately 1.2-miles and 1.5-miles west of the site as shown by Irwin (1994) and Wagner & Saucedo (1987), respectively. This fault is considered to be the contact between the Western Klamath Terrain and the Rattlesnake Creek Terrain. Bedrock faults are common features within the Klamath Mountains Province and likely occurred during the formation of the geologic units. The features are not considered to be active.

Irwin (1994) and Wagner & Saucedo (1987) did not identify any landslide features at the site or within the immediate site vicinity.

SUBSURFACE CONDITIONS

The following table summarizes the drilling program performed for this investigation.

Table 1: Hwy 96 PM 8.5 Boring Summary

I.D.	Approx. Station	Location ⁽¹⁾	Depth of Boring (ft)	Surface Elev. (ft)	Date Completed	Depth to In-Place ⁽²⁾ Bedrock (ft)
R-08-001	453+90	17 feet right	75.0	472+/-	3/20/08	45.5
R-08-002	455+10	17 feet left	50.0	468+/-	3/27/08	31.5
R-08-003	454+90	15 feet right	75.0	467+/-	3/18/08	43
R-08-004	456+25	20 feet left	50.0	464+/-	3/26/08	17.5
R-08-005	455+85	17 feet right	75.0	464+/-	3/25/08	42
R-08-006	456+95	15 feet right	75.0	460+/-	3/19/08	30

⁽¹⁾ Approximate distance from highway centerline, facing in direction of increasing stationing.

⁽²⁾ Landsliding has occurred within the bedrock formation. This column designates the depth to the top of in-place bedrock, below the identified landslide material.

Borings R-08-003 and R-08-005 were drilled on the north side (westbound lane) of the roadway into the active landslide mass. Clayey gravel to clayey sand with gravel fill extended to between 10 and 14.5 feet below ground surface (bgs) in these borings. Beneath the fill, active landslide deposits extended to depths of 43 and 42 feet bgs (in borings R-08-003 and R-08-005 respectively), where in-place bedrock (meta-shale or decomposed meta-shale) was encountered. Two zones of active landsliding were identified, as indicated on the cross sections (Plates 3 and 4) and as can be seen on the Slope Inclinator data in Appendix C. The base of the landslide is located within the bedrock formation.

Borings R-08-001 and R-08-006 were drilled within a dormant landslide mass on the north side (westbound lane) of the roadway and located east and west (respectively) of the active landslide. Fill (clayey gravel to clay with gravel) was encountered in these borings at 10 and 6 feet bgs, respectively. Beneath the fill, dormant landslide deposits (consisting primarily of silty clayey sand with gravel or meta-shale) extended to depths of 45.5 and 30.0 feet bgs (respectively) where in-place bedrock was encountered.

Borings R-08-002 and R-08-004 were drilled on the south side (eastbound lane) of the roadway into the dormant landslide mass. Gravel with sand fill was encountered to a depth of 1.5 feet bgs in both borings. Beneath the fill, dormant landslide deposits (consisting of gravelly clay, clayey sand, and meta-shale) were encountered to depths of 31.5 and 17.5 feet bgs (respectively) where in-place bedrock was encountered.

The in-place bedrock encountered in the borings primarily consisted of intensely fractured meta-shale, varying from very soft and disaggregated to moderately hard and slightly weathered. The rock was locally graphitic and slakey. Landslides occurred within the bedrock

formation and the textures of the landslide debris and the in-place bedrock are very similar. Transitions should be considered approximate and the depth of active sliding should continue to be monitored by inclinometer readings.

This is a summary of conditions encountered in the six borings. More detailed information is presented on the Log of Test Borings. Variations in conditions between the borings should be expected.

Our interpretation of the subsurface geologic conditions is presented on Plates 3 and 4.

8 GROUNDWATER

Due to the use of drilling fluid, it was not possible to record groundwater depths at the time of drilling. Moisture/density test results indicate that most samples below the fill were saturated or nearly saturated at the time of drilling. Slope inclinometers were installed in Borings R-08-003 and R-08-005, and groundwater measurements were obtained by Caltrans on May 7, 2008 and June 5, 2008. Results are tabulated below.

RESULTS OF WATER LEVEL MONITORING		
Date	Water level depth measured from top of casing (feet)	
	R8-03	R8-05
5/7/2008	Dry	26
6/5/2008	53.8	27
7/8/2008	54.3	28.7

9 CORROSION POTENTIAL

Chemical analyses were performed on three (3) samples collected from the borings to evaluate corrosion potential of the on-site soils. Testing was performed by AP Engineering & Testing, Inc. in Pomona, California. The results of the corrosion tests are attached.

Based on the Caltrans Corrosion Guidelines (2003 version 1.0), a site is considered corrosive if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: Chloride concentration is 500 ppm (0.05%) or greater, sulfate concentration is

2000 ppm (0.2%) or greater, or the pH is 5.5 or less. Based on these Guidelines and the laboratory test results, the site may be considered non-corrosive to steel and concrete.

10 EARTHQUAKE FAULTS AND SEISMICITY

According to the Caltrans Seismic Hazard Map and Report (CSHM, Mualchin, 1996 with errata dated March 2006), the nearest fault is the Trinidad fault, which is located approximately 18 miles west of the site. The Trinidad fault is capable of generating earthquakes with a maximum credible earthquake (MCE) magnitude of 7.5. The Caltrans Seismic Hazard Map and Report (1996) locates the site between the 0.2g and 0.3g Peak Bedrock Acceleration (PBA) contours associated with the Trinidad fault. We recommend a PBA value of 0.3g and corresponding Peak Ground Acceleration (PGA) of 0.33g for the use at this site. The PGA is estimated based on site soil class C. A portion of the Caltrans Seismic Hazard map is shown on Plate 6.

The site does not lie within an Alquist-Priolo Special Studies Zone (CDMG, 1997). No active faults are mapped crossing the project site nor do any project towards the site. The bedrock fault contact identified by Irwin (1994) and Strand (1964) is a common feature within the Klamath Mountain Province and likely occurred during the formation of the geologic units. The features are not considered to be active. As such, the possibility of primary surface rupture or deformation at the site is considered low.

11 GEOTECHNICAL AND FOUNDATION RECOMMENDATIONS

WALL LOCATION & DEPTH

The proposed wall location is shown on Plate 2. At the direction of Caltrans, the wall is located approximately four feet outside of the highway fog line. Based on the field and laboratory data, it is our opinion that, without remediation, the material designated as active landslide deposits will continue to translate down slope. We recommend that the wall be designed to retain the landslide deposits that are located beneath the roadway prism.

We point out that the active landslide appears to be part of a larger dormant landslide which extends far upslope of the road as well as beyond the lateral limits of the active landslide. Additionally, the existing bedrock contains zones of shearing that possess a much lower strength than the parent material. The subsurface exploration did not explore the limits of the dormant landslide, nor did it determine the continuity of the sheared zones within the bedrock. ***As discussed in Section 12 of this Memorandum, the dormant landslide (and the underlying sheared bedrock) has a calculated slope stability factor of safety that is below 1.3, and may be close to 1.0. A larger landslide in this material could undermine and seriously damage the proposed retaining wall. A structure to improve the overall***

global factor of safety of this area to greater than 1.3 would be more extensive than the repair discussed herein and an evaluation of such a structure is beyond the scope of this study.

SOIL & ROCK PARAMETERS

Based on the results of our subsurface investigation and laboratory testing, subsurface material within the retained height of the proposed retaining wall (approximately 45 feet) consists of artificial fill and active or dormant landslide deposits overlying intensely fractured bedrock that is mainly comprised of meta-shale. A cross section along the length of the proposed wall depicting our interpretation of the subsurface geologic conditions is presented on Plate 7. We recommend that the parameters in Table 2 be used for retaining wall design. These values represent our best estimate of actual soil properties and **do not contain a factor of safety**. Appropriate factors of safety must be applied during wall design. A surcharge pressure of 270 psf should be applied to the roadway surface behind the wall in accordance with Caltrans Bridge Design Specifications.

Table 2: Soil & Rock Parameters for Retaining Wall Design

Type	Approximate Depth to Bottom of Layer, at Retaining Wall Location (ft) ¹	Total Unit Weight (pcf)	Angle of Internal Friction, ϕ (degrees)	Cohesion, c (psf)	K_a	K_p
Fill (Qaf)	6 to 15	150	35 ²	0 ²	0.27 ⁵	0 ⁶
Active Landslide Deposits (1163)	0 to 45	130	32 ³	0 ³	0.31 ⁵	0 ⁶
Dormant Landslide Deposits (2113)	30 to 45	142	38 ²	0 ²	0.24 ⁵	0 ^{5,6}
Fractured Bedrock (Js)	NA	148	45 ⁴	0 ⁴	0.17 ⁵	5.8 ⁵

¹ See Plate 7 for anticipated thickness along wall.

² Estimated based on correlations with blowcounts and soil type.

³ Remolded direct shear test, back-checked by assuming existing landslide has a factor of safety of ~1.0.

⁴ Bedrock was too highly fractured to perform triaxial testing. Strength was estimated based on correlations with field blowcounts and material type.

⁵ Coulomb method of analysis with $\delta = 0$.

⁶ Slope stability analyses indicate that materials overlying bedrock (down slope from the wall) possess a factor of safety against sliding that is less than 1.3; hence we recommend that no passive resistance be assumed from these materials.

We understand that seismic wall loads will not be used in design since this is not a “critical” structure.

Tieback Anchors

Due to differences in strain compatibility between soil and bedrock, we recommend that tiebacks derive their support solely from the bedrock formation. The tieback unbonded length will depend on the tieback inclination, elevation, and the overall wall height.

In general, the no-load zone should be determined by the longest of the following values:

- 1) The distance from the back of the wall to a point that is 5 feet beyond the critical failure surface (in this case the critical failure surface is the surface of the bedrock formation).
- 2) The distance from the back of the wall to a point that is a distance of $H/5$ (H = wall height) beyond the critical failure surface.
- 3) 15 feet beyond the back of the wall.

The location of the unbonded zone for Section A-A' is shown on Plate 8. This section is approximately a worst case condition. For tiebacks that are located 8 feet from the top of the wall and are inclined at 20° , the unbonded zone may be taken as 60 feet. For tiebacks that are located at other depths or inclinations, the unbonded zone should be estimated from Plate 8, with a minimum length of 15 feet behind the wall.

Soldier Piles

Soldier piles should gain their vertical resistance from friction in the in-place bedrock. Because of the fractured nature of the rock and the difficulty in removing slough from drilled holes, end bearing resistance should be neglected. Bedrock quality varies widely. We recommend that soldier piles be designed for a skin friction in bedrock of 1000 psf. This value is intended for use in a working stress analysis and contains a factor of safety of approximately 2.0.

As discussed in Section 12 of this memorandum, the bedrock is highly variable and there is a possibility of a larger (deeper) landslide occurring beneath the bottom of the retaining wall. The location of such a landslide would be governed by fracture zones within the bedrock and could be located at considerable depth. Providing increased soldier pile penetration into in-place bedrock might improve stability against this type of landslide; however, it is not possible to predict this effect with available information. We recommend that tied-back soldier piling have a minimum embedment of 15 feet into in-place bedrock (to penetrate through anticipated zones of intensely sheared, disaggregated, and decomposed bedrock). Deeper penetrations may be required to meet wall vertical or lateral loading conditions.

The depth to in-place bedrock will be variable. In the main landslide area, the borings closest to the wall location (R-08-003 and R-08-005) encountered bedrock at depths of 43 and 42 feet respectively. The estimated elevation of in-place bedrock at the proposed wall location is presented on Plate 7.

Lagging

The purpose of the proposed wall is to protect the road from landslide related movements, not to stabilize the active landslide mass below the wall. As discussed in Section 12, and as shown on Plates 12 and 16, the factor of safety against landsliding below the wall is very low, even if the upper 14 feet of soil is removed from below the wall (maximum allowable excavation based on right-of way and environmental constraints). It should be assumed that the landslide mass below the wall will continue to move and will eventually pull away from the downhill side of the wall. This could result in the loss of material between the piling. To protect against loss of material, lateral earth support should be provided extending down to the in-place bedrock surface (see Plate 7). If support is provided by lagging, this would require temporary excavation to a depth of up to approximately 45 feet below existing grade, which is probably not practical within the project budget. If soldier pilings are spaced at three pile diameters or closer (center to center), soil arching should occur between the pilings to limit the internal loss of soil without the use of lagging. However, over time or in the presence of groundwater, loss of soil could still be significant and future maintenance may be necessary.

Wall Backfill

If required, backfill material behind the wall should be Class 1, Type B Permeable Material (Caltrans Standard Specifications 68-1.025). To prevent internal soil erosion, we recommend that a filter fabric (Caltrans Standard Specification 88-1.03) be placed between the Permeable fill and native soil. To prevent the accumulation of hydrostatic pressures behind the wall, we recommend that HDPE shims be installed between the lagging members.

To reduce backfill pressures, we recommend that any backfill placed within five feet of the wall (measured horizontally) be compacted with lightweight, hand-operated, compaction equipment. Over-compaction of this fill can greatly increase wall pressures and/or deflections.

12 SLOPE STABILITY REVIEW

Kleinfelder performed slope stability analyses for the project using "Slide" version 5.03 by Rocscience. Plate 9 and Plate 13 present the results of analyses of the existing (active) landslide. These analyses were performed to back calculate the residual soil strength at the identified failure surface. For these analyses we used the geometry of cross sections A-A' and

B-B' (Plates 3 and 4) respectively. Because of the significantly different geometry at these two sections, the internal angle of soil friction that produced a factor of safety equal to one varied from 32° to 40° . Laboratory test results predicted a value of 32° for remolded landslide material, and this value was used for landslide deposits in our subsequent analyses (conservative assumption).

We then added the proposed retaining wall to these sections and ran the model again. The wall was modeled as a rigid block so that the analysis was independent of the type of wall to be constructed. A 270 psf surcharge pressure was applied to the roadway area above the wall. The results of these analyses are summarized on Plates 10 and 14. The wall was modeled as a series of rigid piling with sufficient shear strength to force the landslide below the tips of the piling. Based on this analysis, with the wall socketed a minimum of 15 feet into bedrock, the calculated factor of safety against global stability is in the range of 1.0 to 1.2. This reflects the fact, as discussed in Section 1 of this memorandum, that, although the existing dormant landslide (and the underlying highly fractured bedrock) is currently stable, it has a relatively low factor of safety. To significantly increase the global factor of safety would require the use of soldier piles that are longer than 80 feet as well as significantly lengthening the wall. If these options are desired, we should be contacted for additional recommendations.

We then checked wall design pressures by modeling a 42 to 44 foot wall with a triangular load applied to the face of the wall, see Plates 11 and 15. The force necessary to provide a factor of safety of 1.3 was calculated to be equivalent to that exerted by a fluid with a unit weight of 57 to 60 pcf, or a total load of 52,500 to 55,000 pounds per lineal foot of wall. This calculated force is approximately 0 to 5% less than the design load calculated using the coefficients in Table 2 (including the roadway surcharge and a factor of safety of 1.3); thus we recommend designing the wall in accordance with the parameters in Table 2.

Finally, we checked the slope stability of material below the wall, to see if removal of 14 feet of soil would improve stability of the material below the wall. Fourteen feet is the maximum allowed excavation depth due to right-of-way and environmental limitations. Results of these analyses are shown on Plates 12 and 16. Removal of this material had no significant effect on down slope stability. It should be assumed that the active landslide deposits below the proposed wall will continue to move.

13 CONSTRUCTION CONSIDERATIONS

- Caving conditions will likely be encountered during drilling for piles and tiebacks due to the granular nature of the fill and landslide deposits, and the intensely fractured nature of the bedrock. Temporary casing, drilling under slurry, or placement of slurry cement backfill or concrete and re-drilling may be required to control caving and should be performed in conformance with the provisions in Section 49-4.03 "Drilled Holes" of Caltrans Standard Specifications.

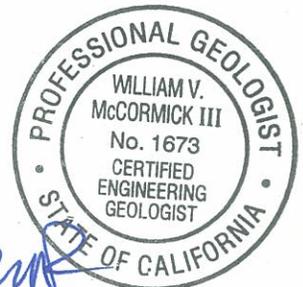
- Groundwater will likely be encountered in the pile and tieback holes. Pile and tieback installations may require dewatering or the placement of concrete and grout underwater. If water is present and the holes are not dewatered, displacement of the water by means of a closed system using a concrete pump or tremie tube to place concrete and grout at the bottom of the holes will be required in conformance with the provisions in Section 51-1.10 "Concrete Deposited Under Water," of Caltrans Standard Specifications.
- Vertical cut sections should not be deeper than five feet without shoring or sloping in accordance with Cal-OSHA Standards.
- Sufficient and timely observation during construction should be performed to correlate findings of the investigation with actual subsurface conditions exposed during construction.
- The contractor should research utility locations and take necessary precautions to protect-in-place or relocate utilities as applicable, prior to excavation.
- Ponding of water adjacent to the structure should be avoided. During and after construction, positive drainage should be provided to direct surface water away from landslides and retaining structures. In particular, it is extremely important to collect the drainage from the north side of the road that currently flows over the face of the active landslide. Surface drainage should be collected into pipelines that are routed to suitable disposal areas away from the landslides.

14 CLOSURE

If you have any questions regarding the information provided herein, please contact us at 707.571.1883.



Terry Craven, GE 2572
Principal Geotechnical Engineer



William V. McCormick, CEG 1673
Principal Engineering Geologist

15 ATTACHMENTS

Plate 1 Site Location
Plate 2 Site Plan
Plate 3 Section A-A'
Plate 4 Section B-B'
Plate 5 Regional Geology
Plate 6 California Seismic Hazard Map
Plate 7 Approximate Subsurface Geology Profile Along Wall
Plate 8 Tieback Unbonded Zone
Plate 9 Slope Stability: Cross Section A-A'
Plate 10 Slope Stability: Cross Section A-A' With Wall
Plate 11 Slope Stability: Cross Section A-A' Lateral Pressure
Plate 12 Slope Stability: Cross Section A-A' Downslope
Plate 13 Slope Stability: Cross Section B-B'
Plate 14 Slope Stability: Cross Section B-B' With Wall
Plate 15 Slope Stability: Cross Section B-B' Lateral Pressure
Plate 16 Slope Stability: Cross Section B-B' Downslope

Appendix A

Log of Test Borings (LOTB, 7 pages)

Appendix B

Laboratory Test Summary Sheet
Laboratory Test Data Plates B-1 through B-6
Corrosion Test Results (1 page)

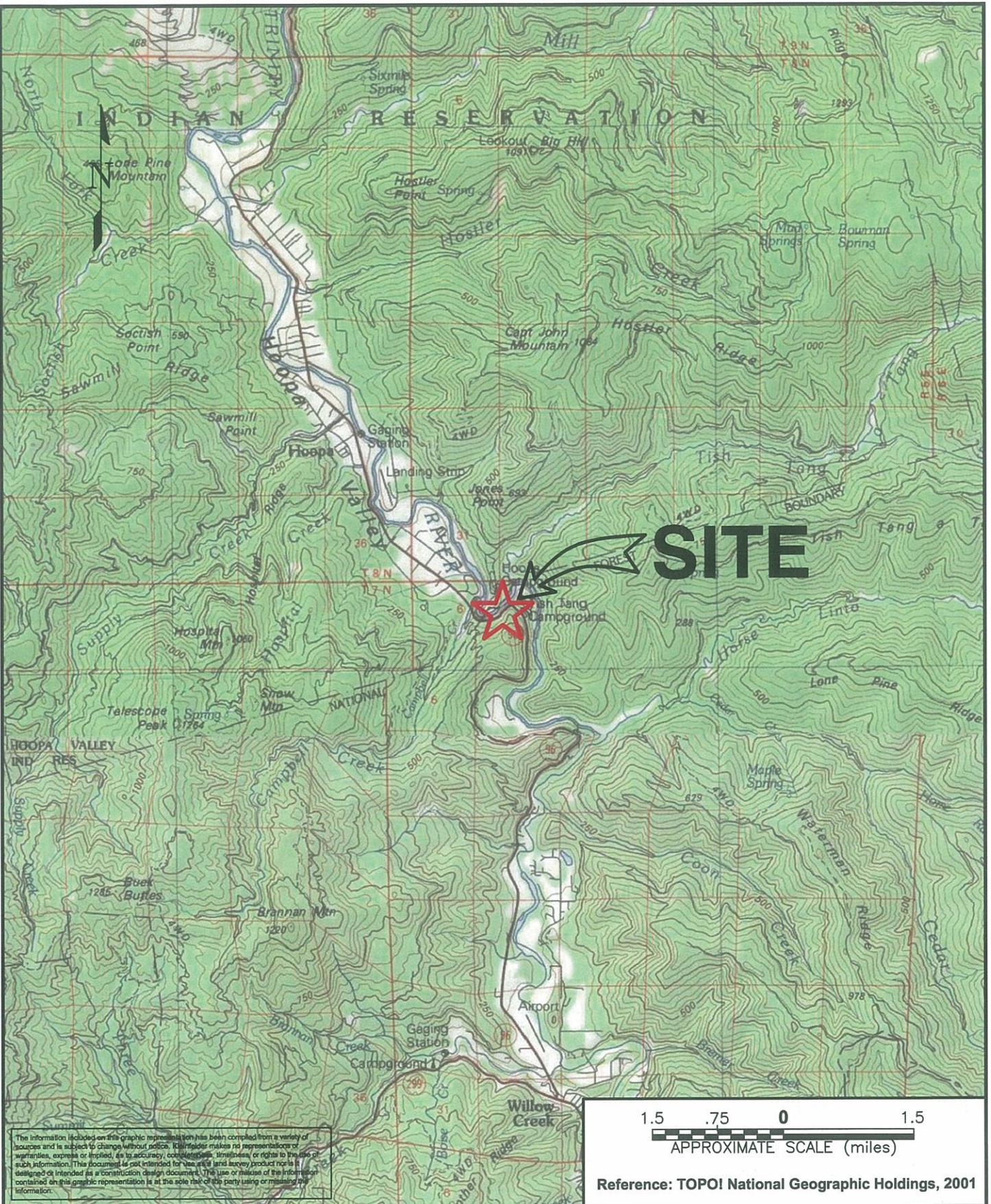
Appendix C

Slope Inclinomometer Monitoring Results (2 pages)



PLATES

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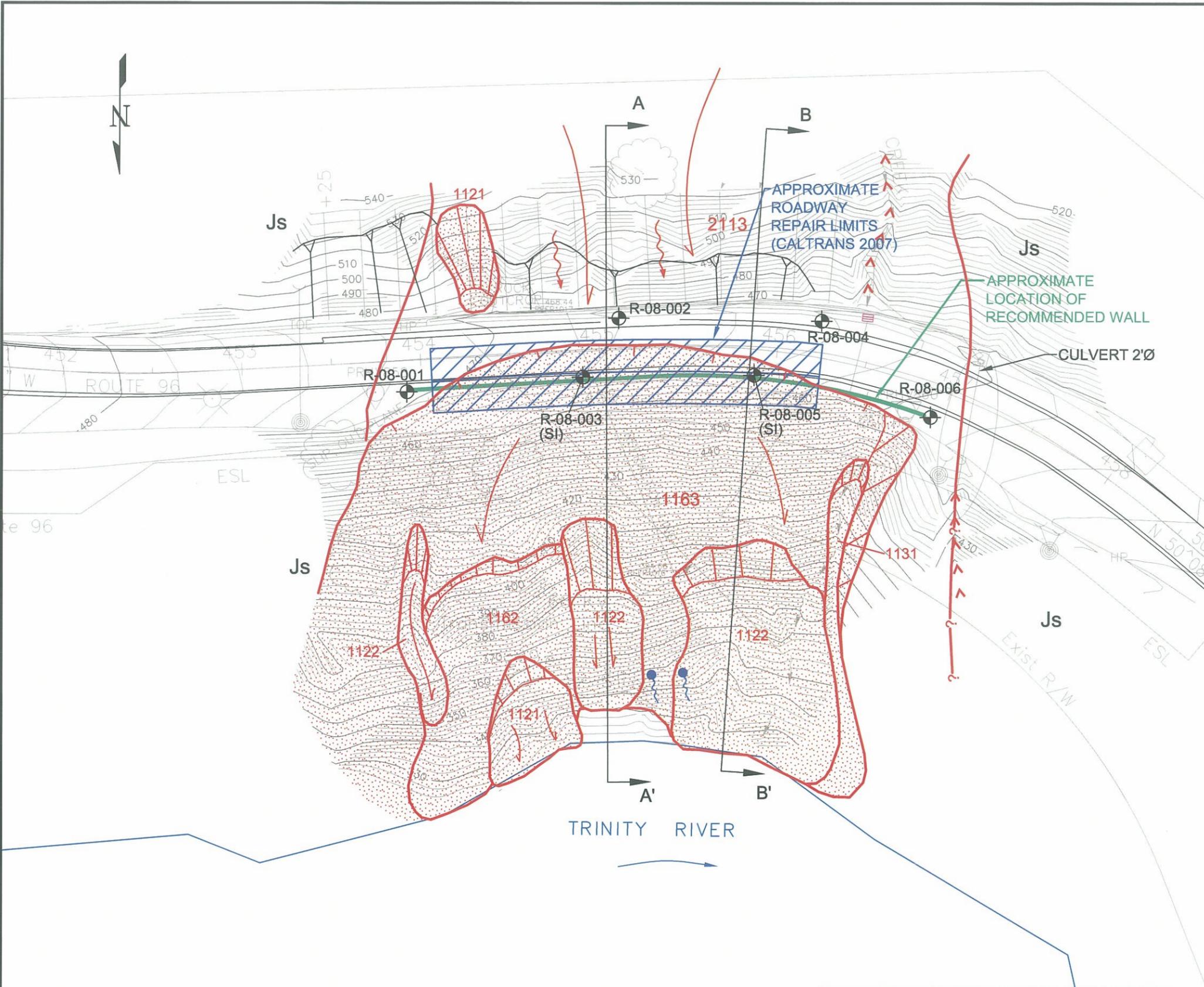


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1.5 .75 0 1.5
 APPROXIMATE SCALE (miles)
 Reference: TOPO! National Geographic Holdings, 2001

	PROJECT NO. 92859	SITE LOCATION EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	PLATE 1
	DRAWN: JUNE 2008		
	DRAWN BY: PH	FILE NAME: 92859-4.dwg	
	CHECKED BY: JR		

ATTACHED IMAGES: Images: DC_2504350.jpg
 ATTACHED XREFS: XRef: Background
 SANTA ROSA, CA
 CAD FILE: U:\GEO\TECH_PROJECTS\Projects\Active\92859 Caltrans TO# 58916\HUM-96 PM 8.5\CAD\ LAYOUT: Layout1
 PLOTTED: 16 Jun 2008, 3:32pm, phubbard



EXPLANATION

- Js** Western Klamath Terrace Bedrock
- Landslide Boundary (dashed where approximate)
- R-08-002 Approximate Boring Location
- A-A' Approximate Cross Section Location
- 1112 Landslide: Arrows Indicate Direction of Movement
- 1112 Landslide Identification Number (landslide chart below)
- Cut Slope
- Soil Creep
- Erosion Rilling
- Seepage
- (SI) Slope Inclinometer Installed

LANDSLIDE IDENTIFICATION CHART

STATE OF ACTIVITY

- 1=Active or Recently Active
(areas of unstable ground with relatively recent "fresh" geomorphic features such as ground cracks, hummocky topography, exposed soils, abrupt gradient breaks and/or disrupted vegetation, typically recent to 50 years old)
- 2=Dormant
(areas of quasi-stable ground, with eroded and subdued geomorphic features, no exposed soils, somewhat re-vegetated but typically with different type or density, typically >50 to several hundreds of years old)
- 3=Ancient
(areas of relatively stable ground, typically characterized by large, broad and deep landslides with highly eroded and subdued geomorphic features, re-vegetated with similar type and density, typically several hundreds to several thousands of years old)

CERTAINTY OF IDENTIFICATION

- 1=Definite
- 2=Probable
- 3=Questionable

DOMINANT TYPE OF MOVEMENT

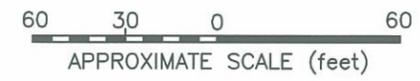
- 1=Slump Flow Complex
- 2=Debris Slide
- 3=Debris Flow
- 4=Earth Flow
- 5=Slump
- 6=Translational

THICKNESS OF DEPOSIT

- 1=Less Than 5 Feet
- 2=5 to 15 Feet
- 3=15 to 50 Feet
- 4=Greater Than 50 Feet

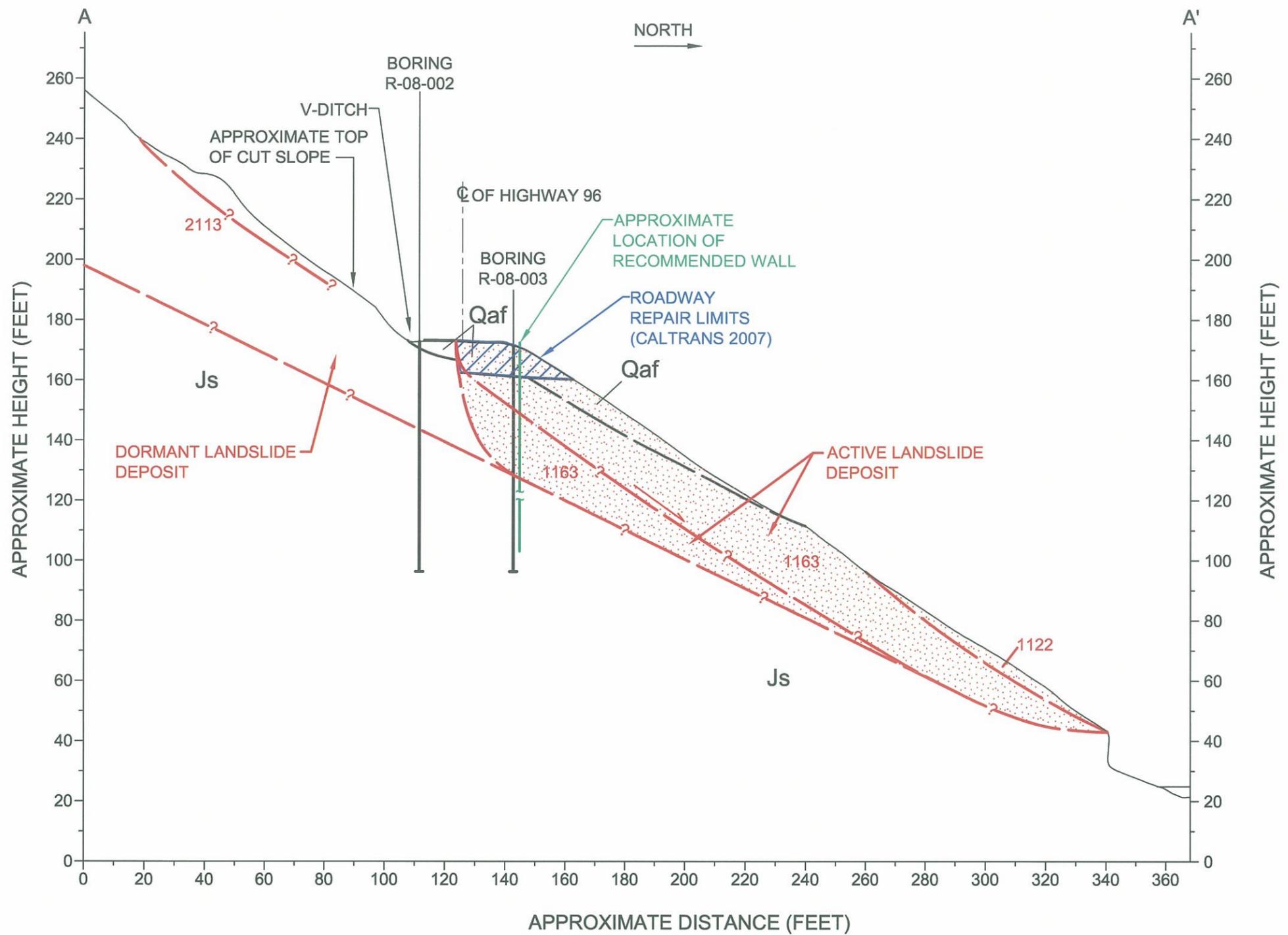
Reference: Topographic Base, Caltrans, 2007

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PROJECT NO.	92859
DRAWN:	JUNE 2008
DRAWN BY:	PH
CHECKED BY:	JR
FILE NAME:	92859-1.dwg

SITE PLAN	PLATE
EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	2



EXPLANATION

- Qaf** Artificial Fill
- Js** Western Klamath Terrace Bedrock
-  Geologic Contact (dashed where approximate)
-  Landslide Contact (dashed where approximate)
- 1122** Landslide Identification Number (reference Landslide Identification Chart, Plate 2)

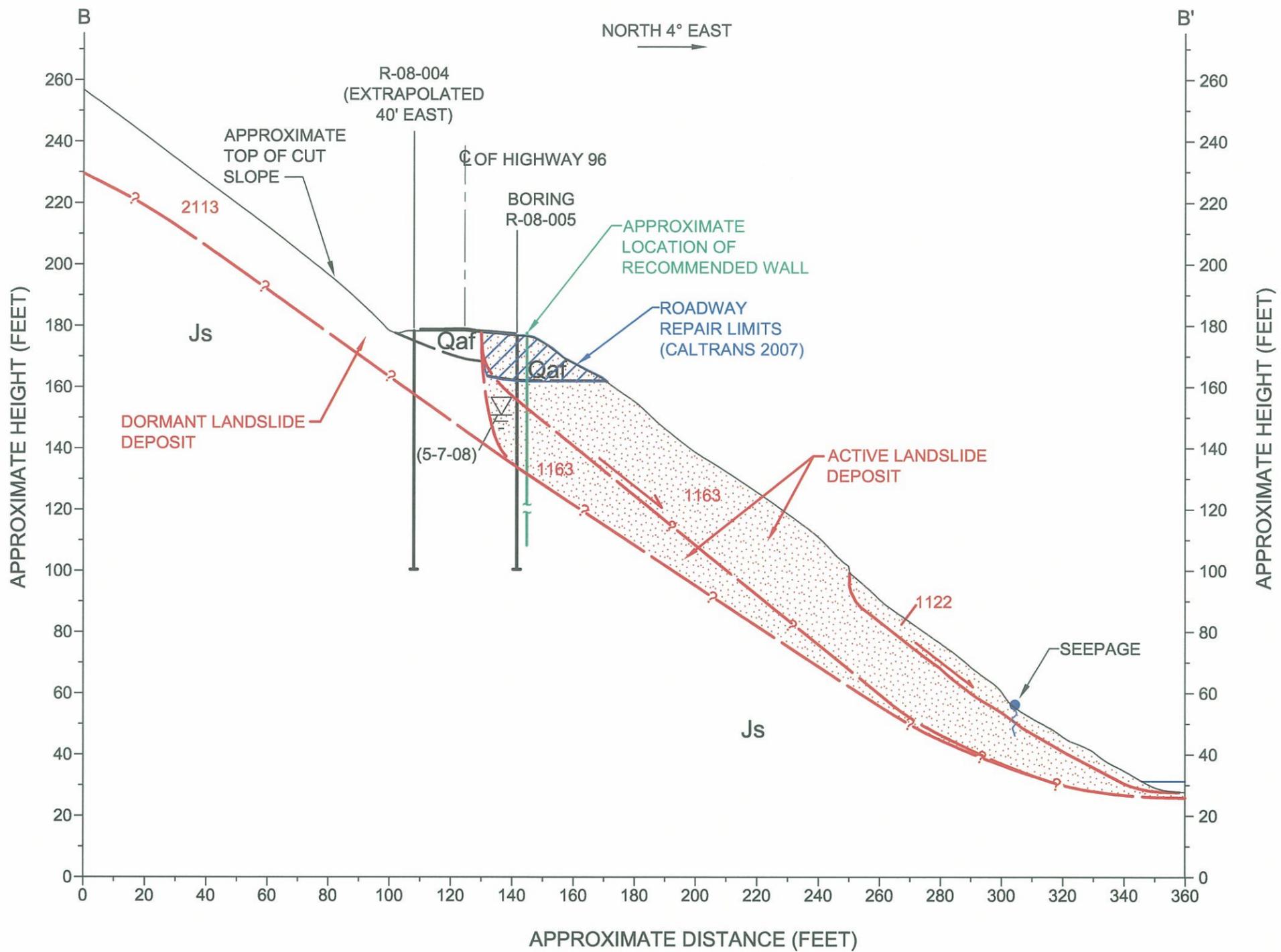
NOTE:
 Section was hand field surveyed and may differ from the topography and mapping as shown on the site plan, Plate 2.



 Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 92859	CROSS SECTION A - A'	PLATE 3
	DRAWN: JUNE 2008		
	DRAWN BY: PH	EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	
	CHECKED BY: JR		
FILE NAME: 92859-2.dwg			

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ATTACHED IMAGES: Images: DC_2504269.jpg Images: DC_2504270.jpg
 ATTACHED XREFS: SANTA ROSA, CA
 CAD FILE: U:\GEO\TECH_PROJECTS\Projects\Active\92859 Caltrans TO# 58916\HUM-96 PM 8.5\CAD\ LAYOUT: Layout1
 PLOTTED: 16 Jun 2008, 3:36pm, phubbard



EXPLANATION

- Qaf** Artificial Fill
- Js** Western Klamath Terrace Bedrock
- Geologic Contact (dashed where approximate)
- Landslide Contact (dashed where approximate)
- 1122** Landslide Identification Number (reference Landslide Identification Chart, Plate 2)
- Seepage
- Caltrans Measured Water Level (date)

NOTE:
 Section was hand field surveyed and may differ from the topography and mapping as shown on the site plan, Plate 2.

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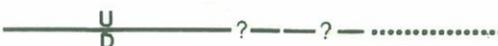
	PROJECT NO. 92859	CROSS SECTION B - B'	PLATE 4
	DRAWN: JUNE 2008		
	DRAWN BY: PH	EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	
	CHECKED BY: JR		
FILE NAME: 92859-3.dwg			

ATTACHED IMAGES: DC_2504528.jpg Images: DC_2504535.jpg Images: DC_2504538.jpg
 ATTACHED XREFS: SANTA ROSA, CA
 CAD FILE: U:\GEO\TECH_PROJECTS\Projects\Active\92859 Caltrans TO# 58916\HUM-96 PM 8.5\CAD\ LAYOUT: Layout1
 PLOTTED: 16 Jun 2008, 3:39pm, phubbard

MAP SYMBOLS



Contact
 Observed or approximately located; queried where gradational or inferred.



Fault
 Solid where well located; dashed where approximately located or inferred; dotted where concealed by younger rocks or water; queried where continuation or existence is uncertain. U, upthrown side; D, downthrown side (relative or apparent).



Thrust fault—barbs on the upper plate. Generally dips less than 45°, but locally may have been subsequently steepened. Dashed where approximately located or inferred; dotted where concealed by younger rocks or water; queried where continuation or existence is uncertain.



Anticlinical fold



Synclinal fold



Strike and dip of beds



Strike and dip of foliation



Blueschist blocks

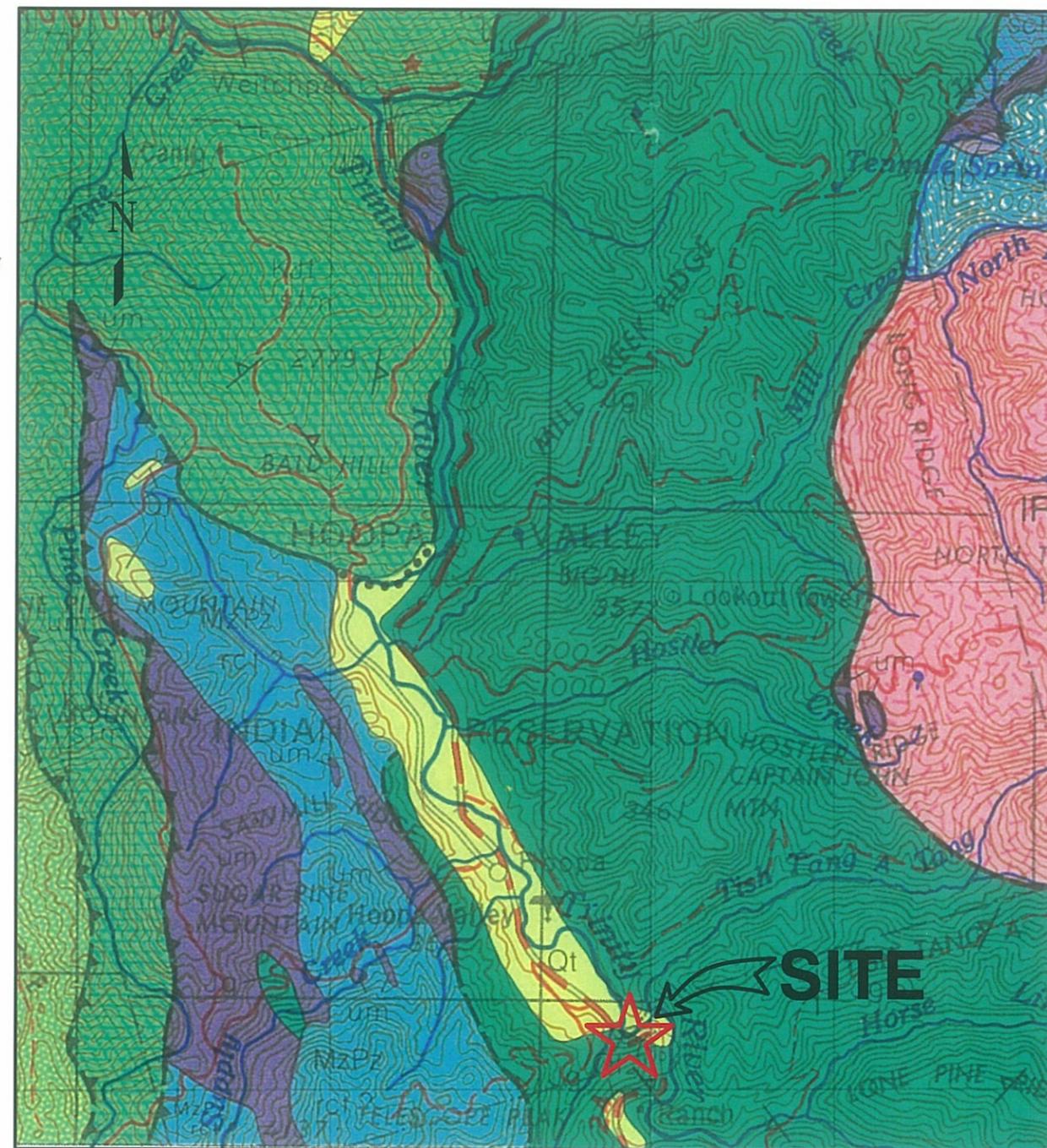


Joints

(Prominent joints in granitic rocks of Castle Crag.)

EXPLANATION

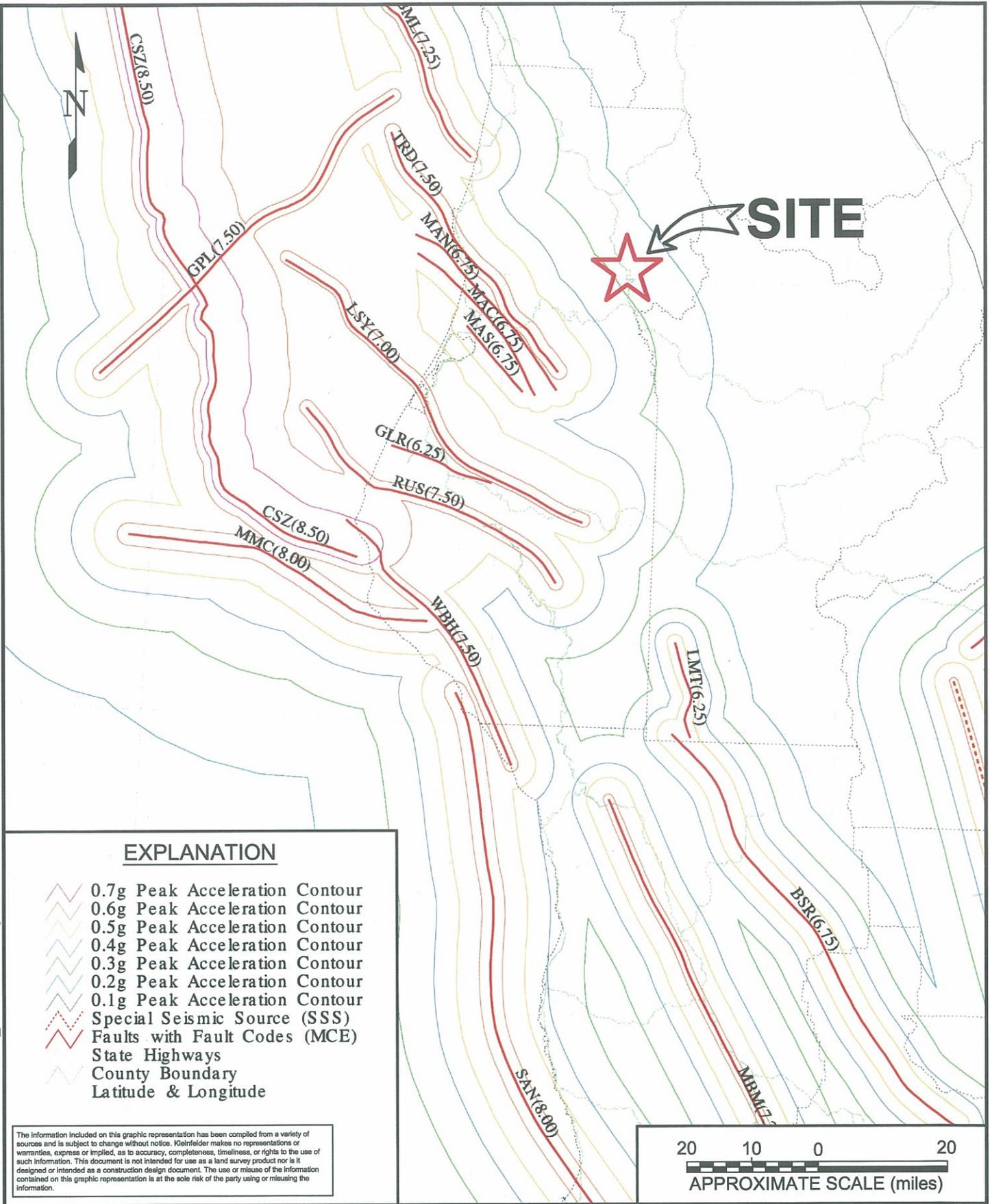
- 
Fluvial deposits (*Gravel, sand, and silt*)
- 
Terrace deposits
- 
Franciscan Complex* (*ss-sandstone, shale, conglomerate; ch-chert; gs-greenstone and locally chert; mg-metagraywacke; sfm-South Fork Mountain Schist; rc-schist of Redwood Creek; *Horizontal pattern denotes melange terrane*)
- 
Ultramafic rocks -partly to completely serpentinized
- 
Galice Formation (*Marine; slate, metagraywacke, and greenstone*)
- 
rct - Rattlesnake Creek terrane
- 
mvs - metavolcaniclastic sedimentary rocks
- 
gb - gabbro
- 
Dioritic rocks



 KLEINFELDER <i>Bright People. Right Solutions.</i> www.kleinfelder.com	PROJECT NO. 92859	REGIONAL GEOLOGY	PLATE 5
	DRAWN: JUNE 2008		
	DRAWN BY: PH	EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	
	CHECKED BY: JR		
FILE NAME: 92859-5.dwg			

Reference: D.L. Wagner and G.J. Saucedo et al., 1987

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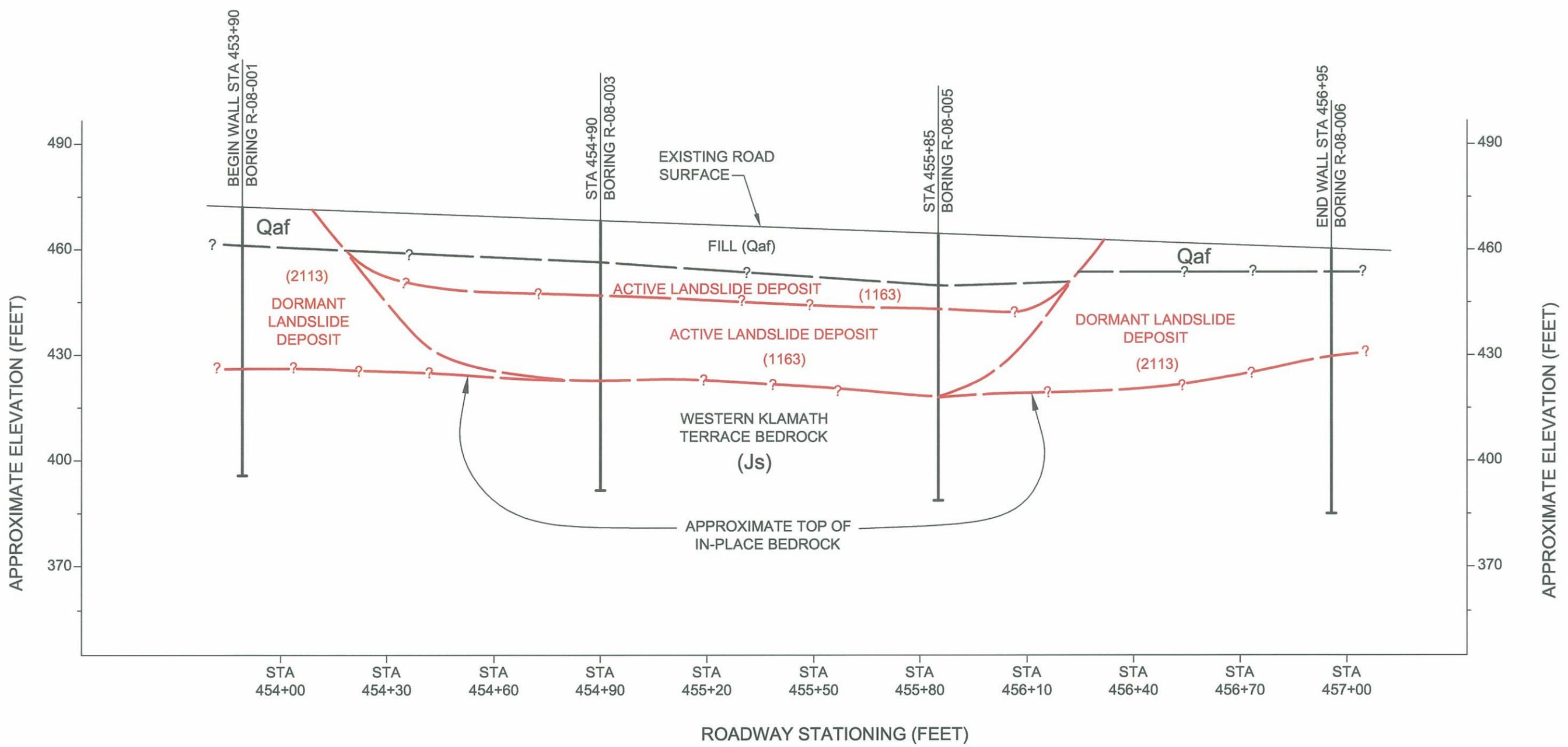
EXPLANATION

- 0.7g Peak Acceleration Contour
- 0.6g Peak Acceleration Contour
- 0.5g Peak Acceleration Contour
- 0.4g Peak Acceleration Contour
- 0.3g Peak Acceleration Contour
- 0.2g Peak Acceleration Contour
- 0.1g Peak Acceleration Contour
- Special Seismic Source (SSS)
- Faults with Fault Codes (MCE)
- State Highways
- County Boundary
- Latitude & Longitude

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	PROJECT NO. 92859	CALIFORNIA SEISMIC HAZARD MAP (MUALCHIN 1996)	PLATE
	DRAWN: JUNE 2008		6
	DRAWN BY: PH	EA 01-480911	
	CHECKED BY: JR	HIGHWAY 96 P.M. 8.5	
FILE NAME: 92859-6.dwg	HUMBOLDT COUNTY, CALIFORNIA		



NOTE:
 The soil layers and depth of bedrock indicated on this plate were generalized by interpolation and extrapolation between widely spaced borings. Subsurface information exists only at the specific boring locations, which are offset from the proposed wall location. The profile shown should be considered approximate and variations should be expected.

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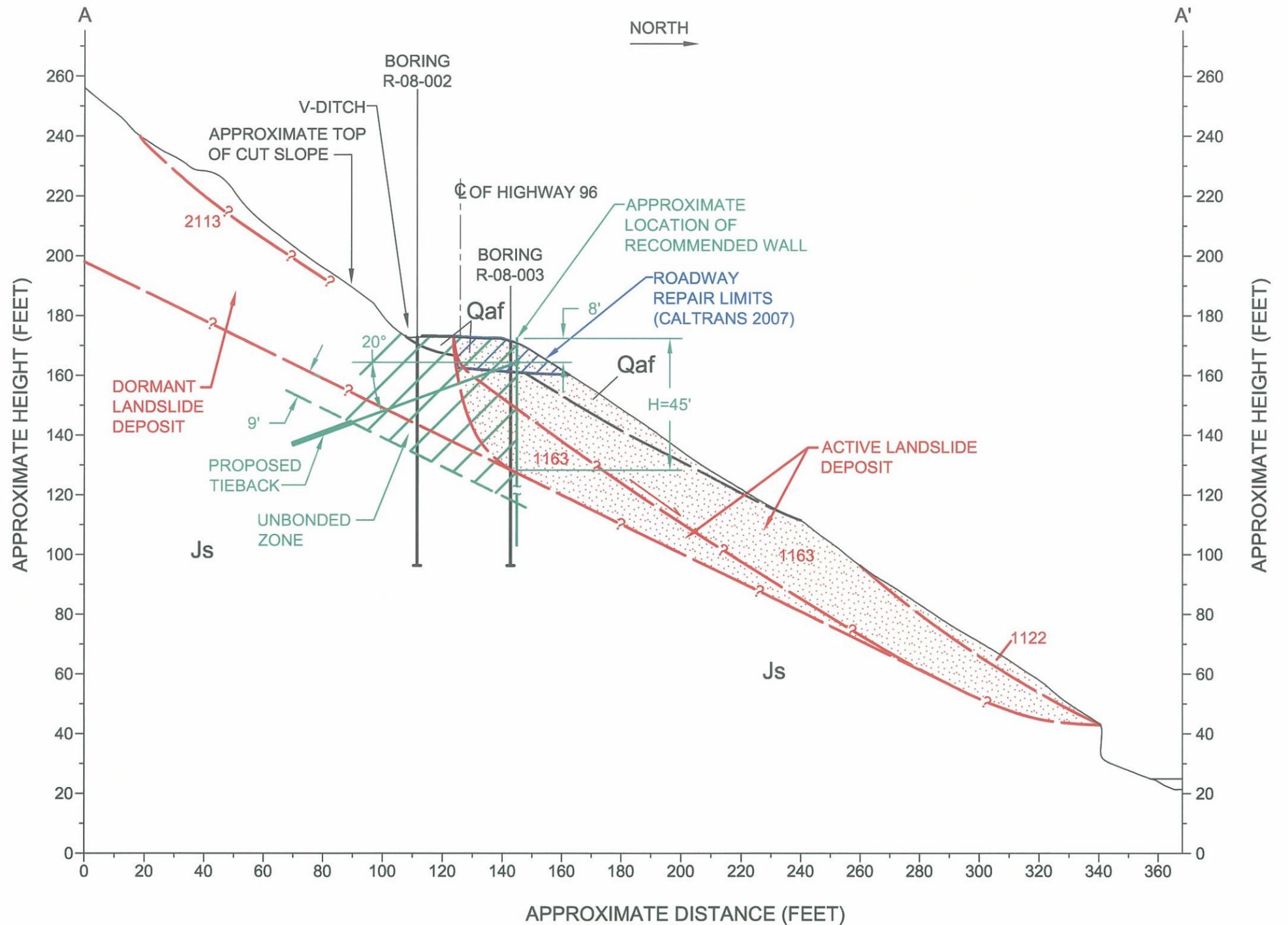


PROJECT NO.	92859
DRAWN:	JUNE 2008
DRAWN BY:	PH
CHECKED BY:	JR
FILE NAME:	92859-7.dwg

APPROXIMATE SUBSURFACE GEOLOGY ALONG WALL

EA 01-480911
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PLATE
7



EXPLANATION

- Qaf** Artificial Fill
- Js** Western Klamath Terrace Bedrock

 Geologic Contact
(dashed where approximate)

 Landslide Contact
(dashed where approximate)

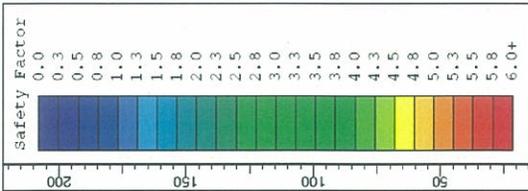
1122 Landslide Identification Number (reference
Landslide Identification Chart, Plate 2)

NOTE:
Section was hand field surveyed and may differ from the topography and mapping as shown on the site plan, Plate 2.

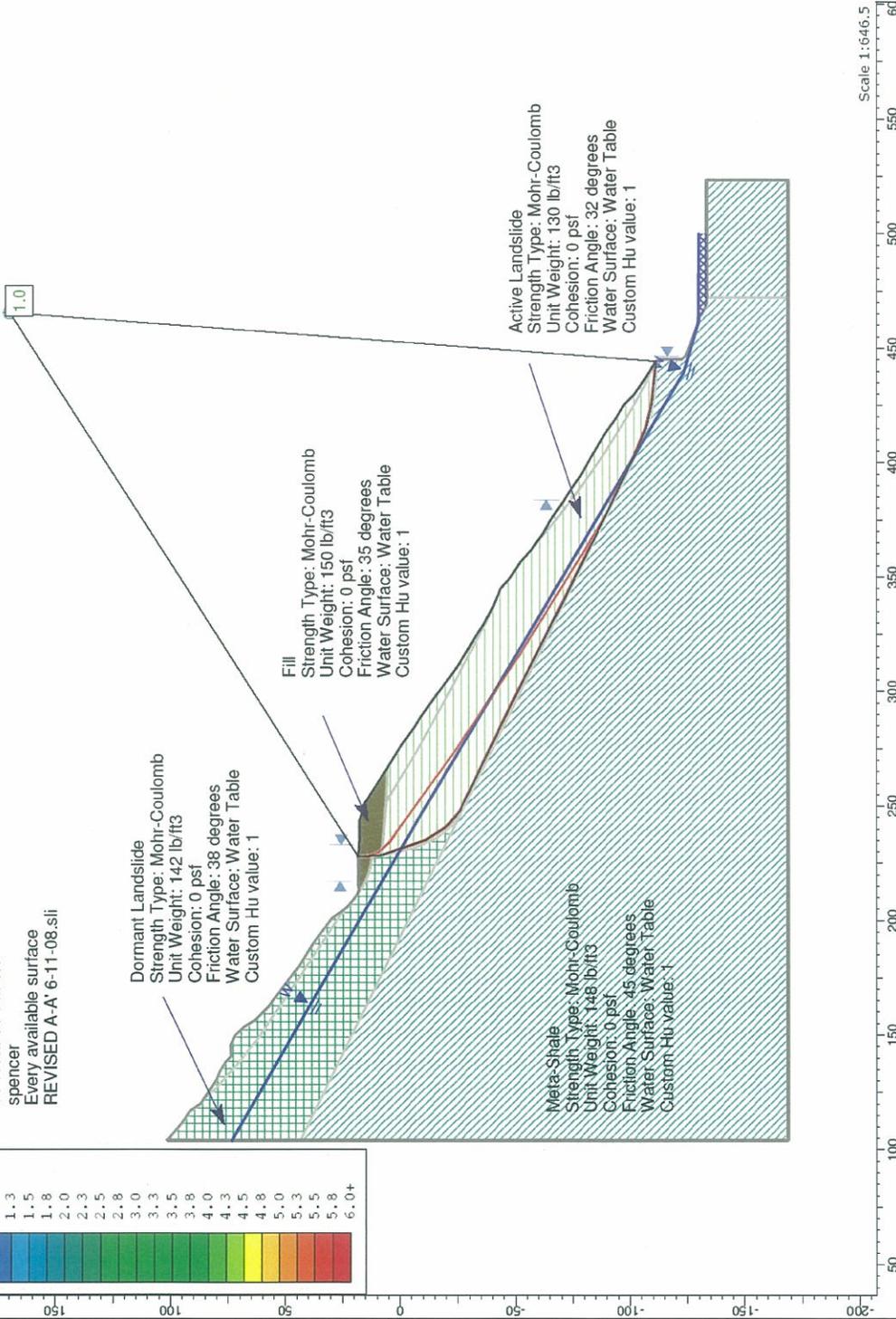
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 Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 92859	TIEBACK UNBONDED ZONE	PLATE 8
	DRAWN: JUNE 2008		
	DRAWN BY: PH	EA 01-480911 HIGHWAY 96 P.M. 8.5 HUMBOLDT COUNTY, CALIFORNIA	
	CHECKED BY: JR		
FILE NAME: 92859-8.dwg			



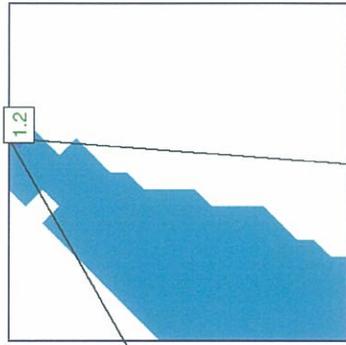
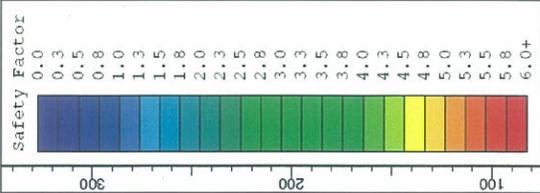
01-HUM-96 PM 8.5
 Spencer
 Every available surface
 REVISED A-A' 6-11-08.sli



SLOPE STABILITY: CROSS SECTION A-A'
 EXISTING CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC

KLEINFELDER
 Bright People. Right Solutions.



01-HUM-96 PM 8.5

spencer
Surfaces with a factor of safety below 1.200
REVISED A-A' with wall 6-11-08.sli

Dormant Landslide

Strength Type: Mohr-Coulomb
Unit Weight: 142 lb/ft³
Cohesion: 0 psf
Friction Angle: 38 degrees
Water Surface: Water Table
Custom Hu value: 1

Distributed Load
Constant Distribution
Orientation: Vertical
Magnitude: 270.00 lb/ft²

Fill
Strength Type: Mohr-Coulomb
Unit Weight: 150 lb/ft³
Cohesion: 0 psf
Friction Angle: 35 degrees
Water Surface: Water Table
Custom Hu value: 1

Wall
Strength Type: Infinite strength
Unit Weight: 150 lb/ft³

Active Landslide
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft³
Cohesion: 0 psf
Friction Angle: 32 degrees
Water Surface: Water Table
Custom Hu value: 1

Meta-Shale

Strength Type: Mohr-Coulomb
Unit Weight: 148 lb/ft³
Cohesion: 0 psf
Friction Angle: 45 degrees
Water Surface: Water Table
Custom Hu value: 1

Wall 15' into bedrock

Scale 1:848.6

SLOPE STABILITY: CROSS SECTION A-A' WITH WALL

IMPROVED CONDITIONS, STATIC ANALYSIS

EA # 480911

01-HUM-96-8.5

HIGHWAY 96 P.M. 8.5

HUMBOLDT COUNTY, CALIFORNIA

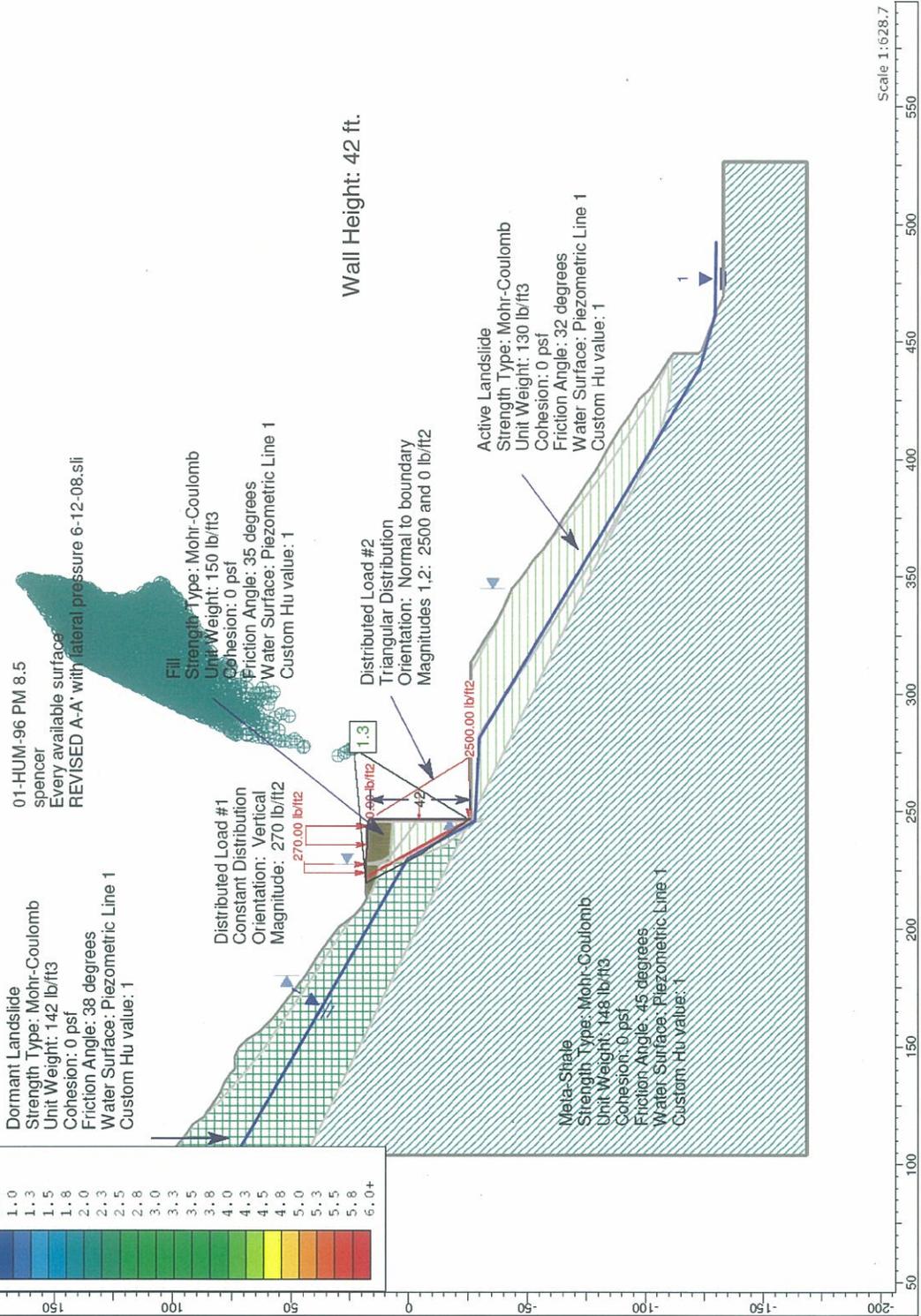
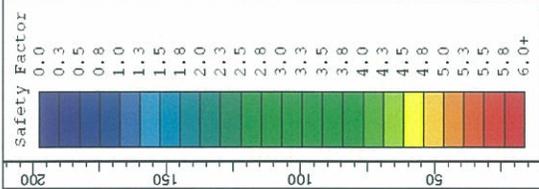
PROJECT NO.: 92859

DATE: JUNE 08

BY: CMG

CHECKED BY: TC

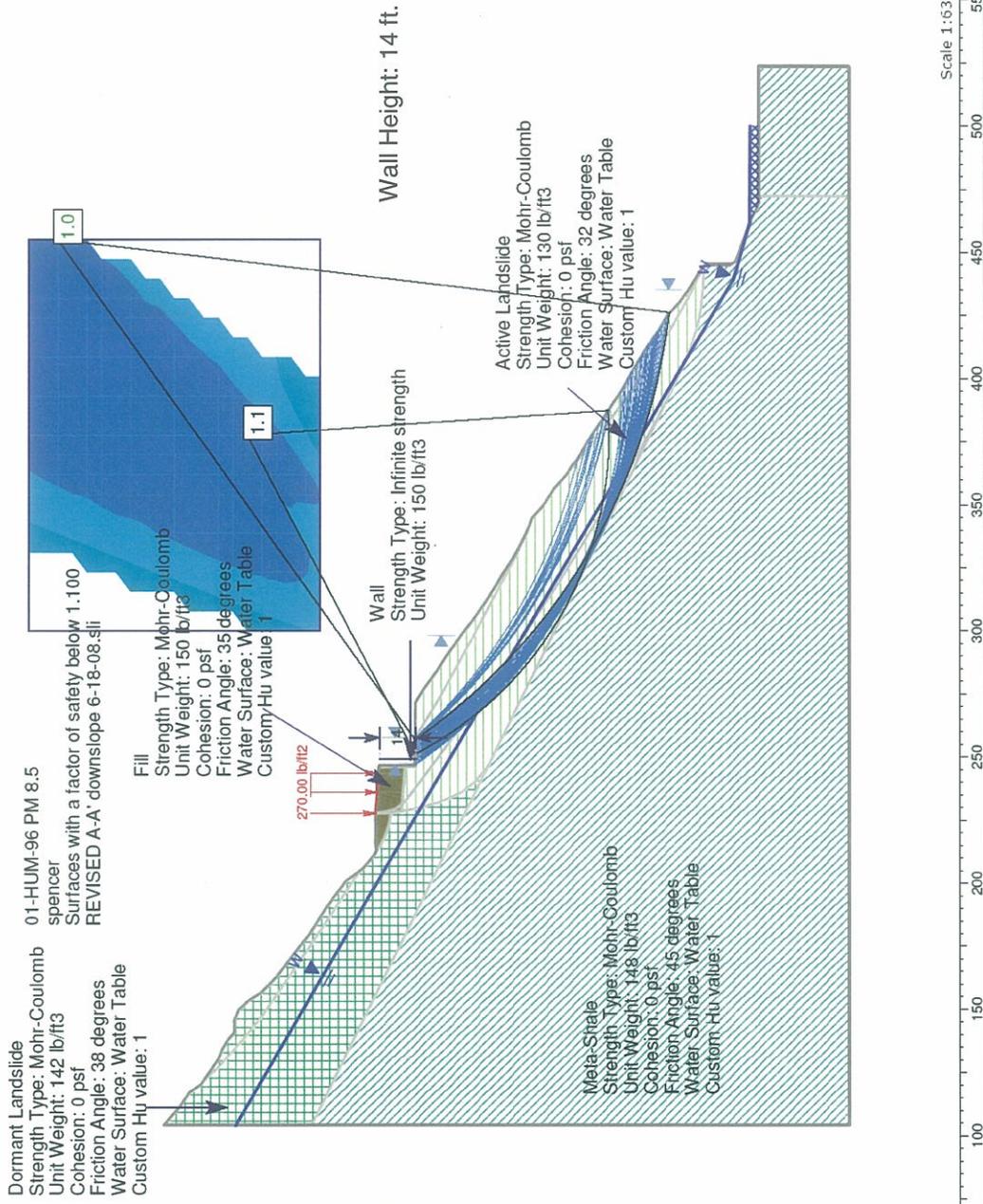
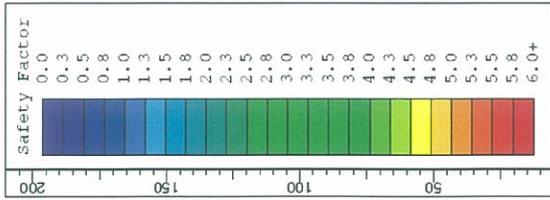




SLOPE STABILITY: CROSS SECTION A-A' LATERAL PRESSURE
 IMPROVED CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC

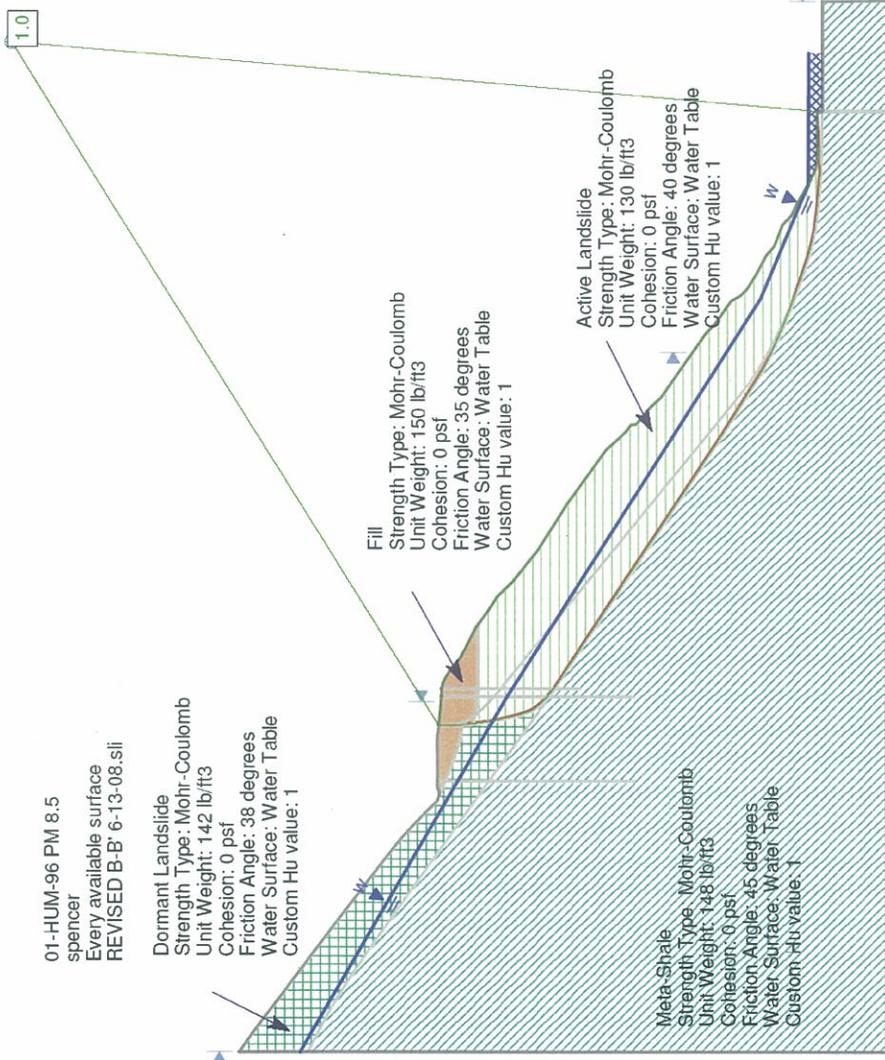
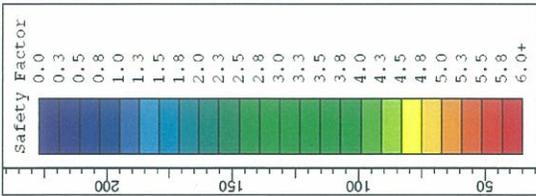




SLOPE STABILITY: CROSS SECTION A-A' DOWNSLOPE
 IMPROVED CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC





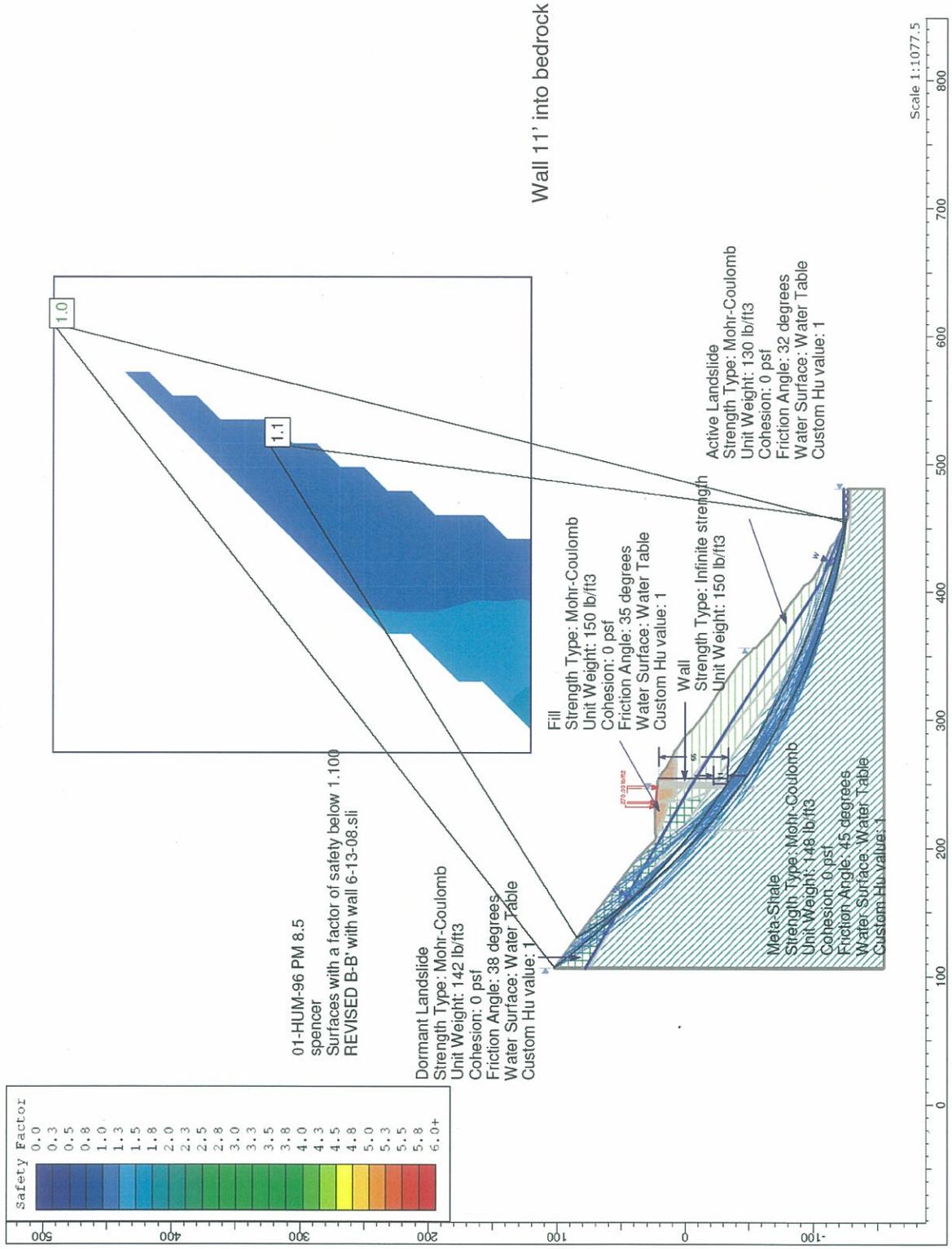
SLOPE STABILITY: CROSS SECTION B-B'
 EXISTING CONDITIONS, STATIC ANALYSIS, INCREASED PROPERTIES FOR BACK-CALCULATION
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

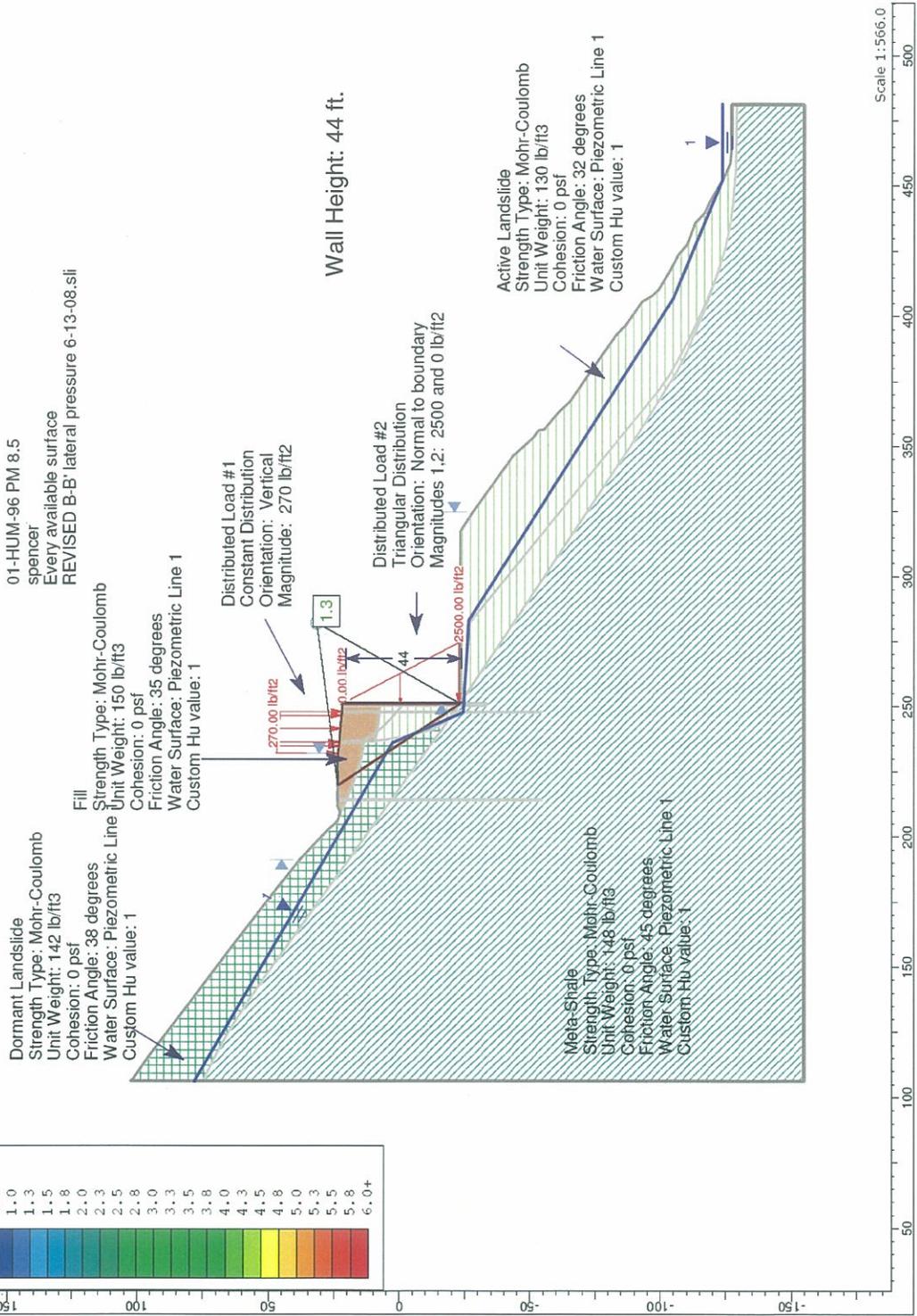
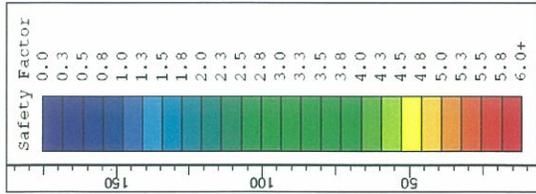
PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC



SLOPE STABILITY: CROSS SECTION B-B' WITH WALL
 IMPROVED CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.: 92859
 DATE: JUNE 08
 BY: CMG
 CHECKED BY: TC

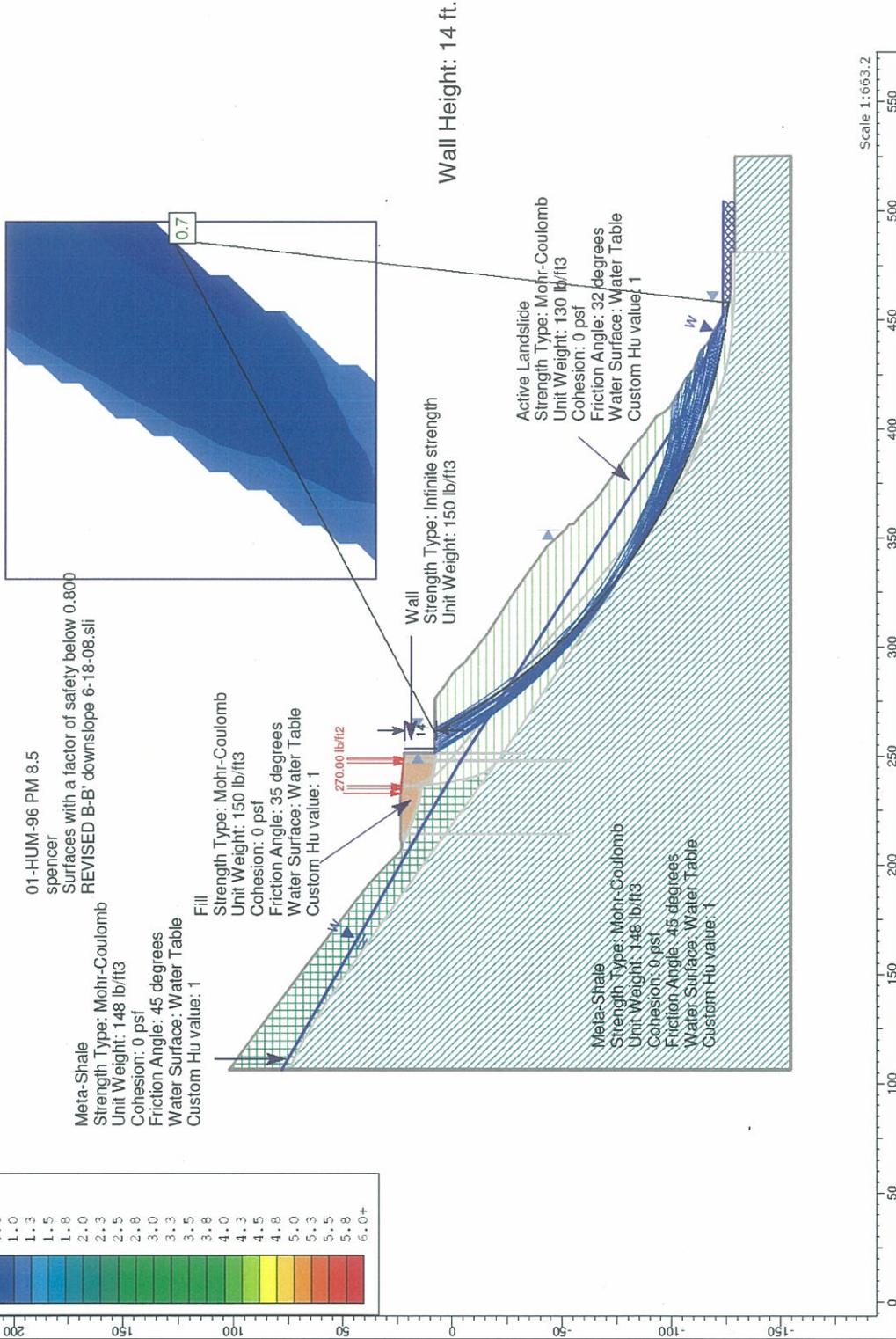
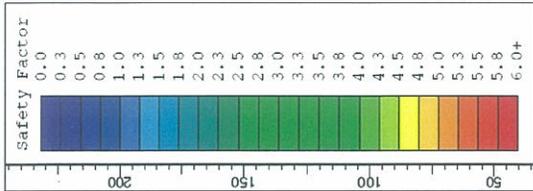




SLOPE STABILITY: CROSS SECTION B-B' LATERAL PRESSURE
 IMPROVED CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC





SLOPE STABILITY: CROSS SECTION B-B' DOWNSLOPE
 IMPROVED CONDITIONS, STATIC ANALYSIS
 EA # 480911
 01-HUM-96-8.5
 HIGHWAY 96 P.M. 8.5
 HUMBOLDT COUNTY, CALIFORNIA

PROJECT NO.:	92859
DATE:	JUNE 08
BY:	CMG
CHECKED BY:	TC

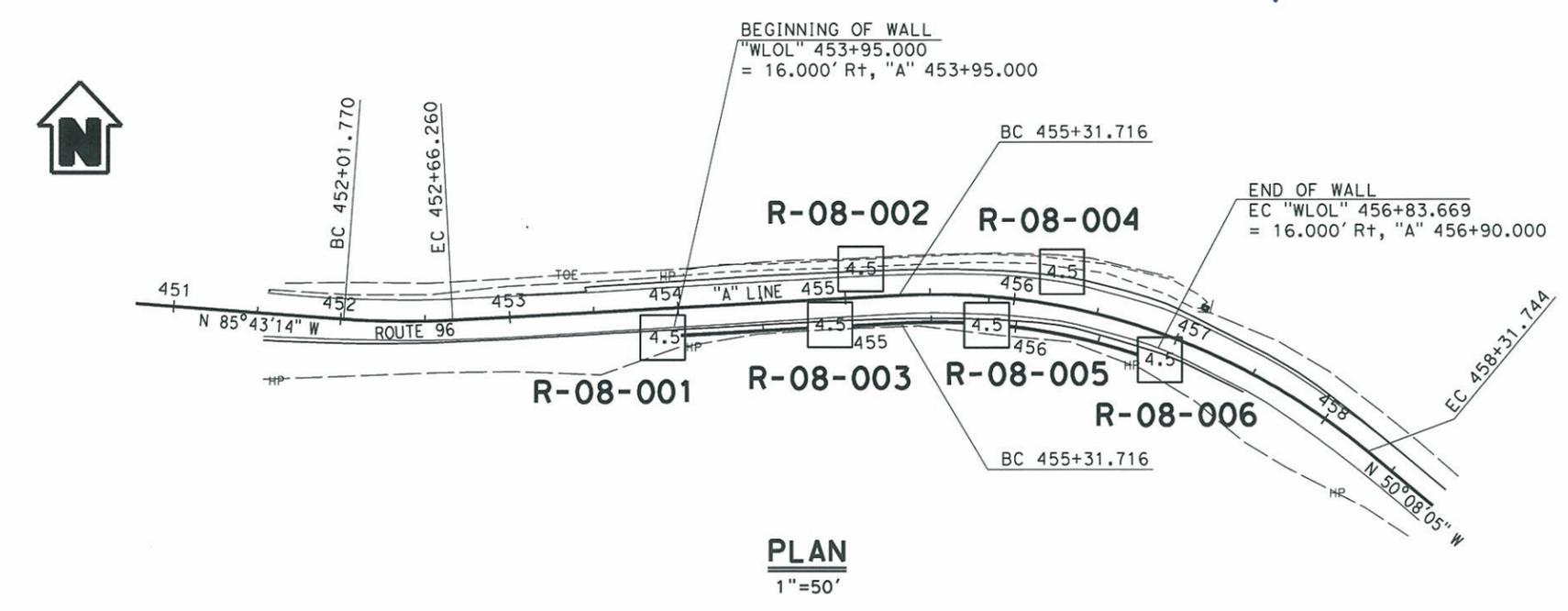


APPENDIX A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	96	8.5		

REGISTERED GEOLOGIST: *William V. McCormick III* DATE: 10-08
 No. 1673 Exp. 11-30-08
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

PLANS APPROVAL DATE: _____
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
 KLEINFELDER
 2240 NORTHPOINT PKWY.
 SANTA ROSA, CA 95407



- Notes:
- 2" samples were taken using a modified California split-barrel sampler with an inside diameter (I.D.) of 2" and an outside diameter (O.D.) of 2.5".
 - An automatic hammer (140 lb) with a 30" drop was used to advance the sampler.
 - Blowcounts noted for boring are field blowcounts and have not been corrected.
 - 1.4" samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4" and an outside diameter (O.D.) of 2".
 - Blowcounts 50/5 means 50 blows per 5" penetration.
 - This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	PREPARED FOR THE STATE OF CALIFORNIA		BRIDGE NO.	RETAINING WALL @ Post Mile 8.5
FUNCTIONAL SUPERVISOR	DRAWN BY: A. Sanchez	DEPARTMENT OF TRANSPORTATION		POST MILES	
NAME:	CHECKED BY: C. Goitein	FIELD INVESTIGATION BY: J. Richmond, C. Goitein Mar 2008	PROJECT ENGINEER	8.5	LOG OF TEST BORINGS 1 of 7
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU EA 480911	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES: 5-12-08, 6-11-08, 11-10-08

USERNAME => \$USER DATE PLOTTED => \$DATE TIME PLOTTED => \$TIME

NOTE: This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 1 OF 7

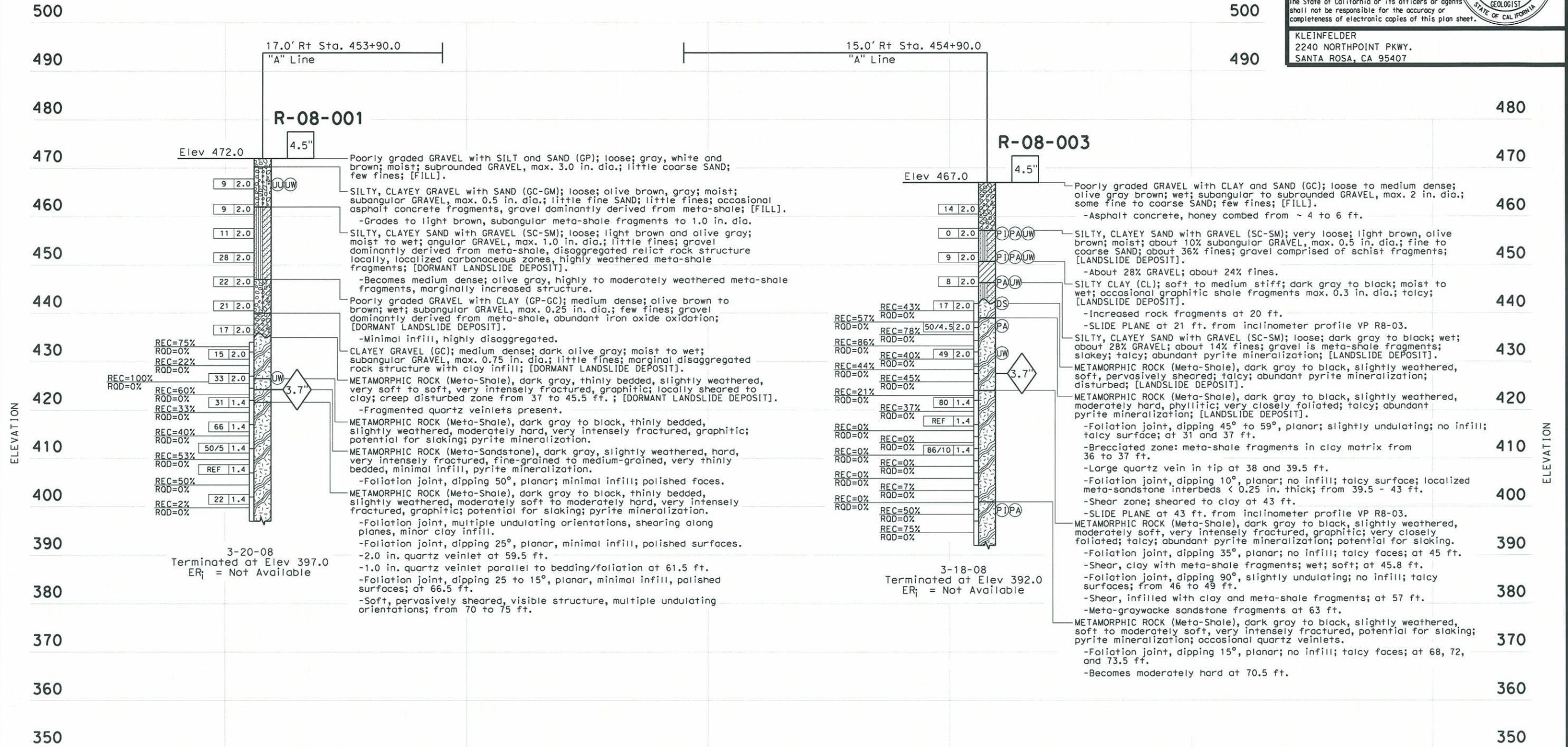
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
Q1	Hum	96	8.5		

REGISTERED GEOLOGIST DATE 10-08
 REGISTERED GEOLOGIST DATE 10-08
 WILLIAM V. McCORMICK III
 No. 1673
 Exp. 11-30-08
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

PLANS APPROVAL DATE

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KLEINFELDER
 2240 NORTHPOINT PKWY.
 SANTA ROSA, CA 95407



453+00 454+00 455+00 456+00 457+00 458+00

PROFILE
 HOR. 1"=20'
 VER. 1"=10'

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	RETAINING WALL @ POST MILE 8.5
FUNCTIONAL SUPERVISOR:	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: J. Richmond Mar 2008	POST MILES 8.5	LOG OF TEST BORINGS 2 of 7
NAME:	CHECKED BY: C. Goitein	PROJECT ENGINEER	REVISION DATES	SHEET 2 OF 7
OCS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 480911	5-14-08 6-11-08 11-10-08	

NOTE: This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 1 OF 7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	96	8.5		

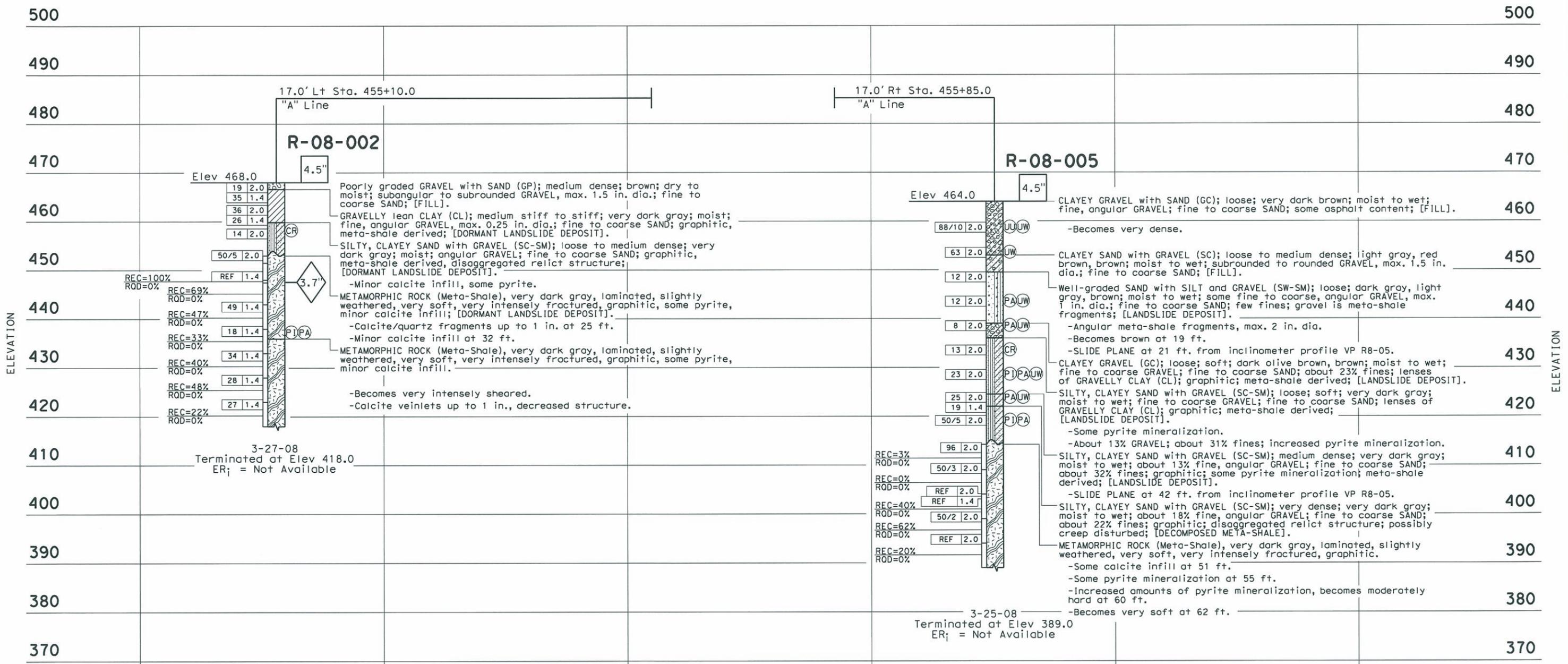
REGISTERED GEOLOGIST DATE 10-08

WILLIAM V. MCCORMICK III
No. 1673
Exp. 11-30-08
REGISTERED GEOLOGIST
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407



DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 8.5	RETAINING WALL @ POST MILE 8.5
FUNCTIONAL SUPERVISOR	DRAWN BY: A. Sanchez	PROJECT ENGINEER	POST MILES 8.5	LOG OF TEST BORINGS 3 of 7
NAME:	CHECKED BY: C. Goitein	FIELD INVESTIGATION BY: C. Goitein Mar 2008	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 480911	SHEET 3 OF 7	

NOTE: This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 1 OF 7

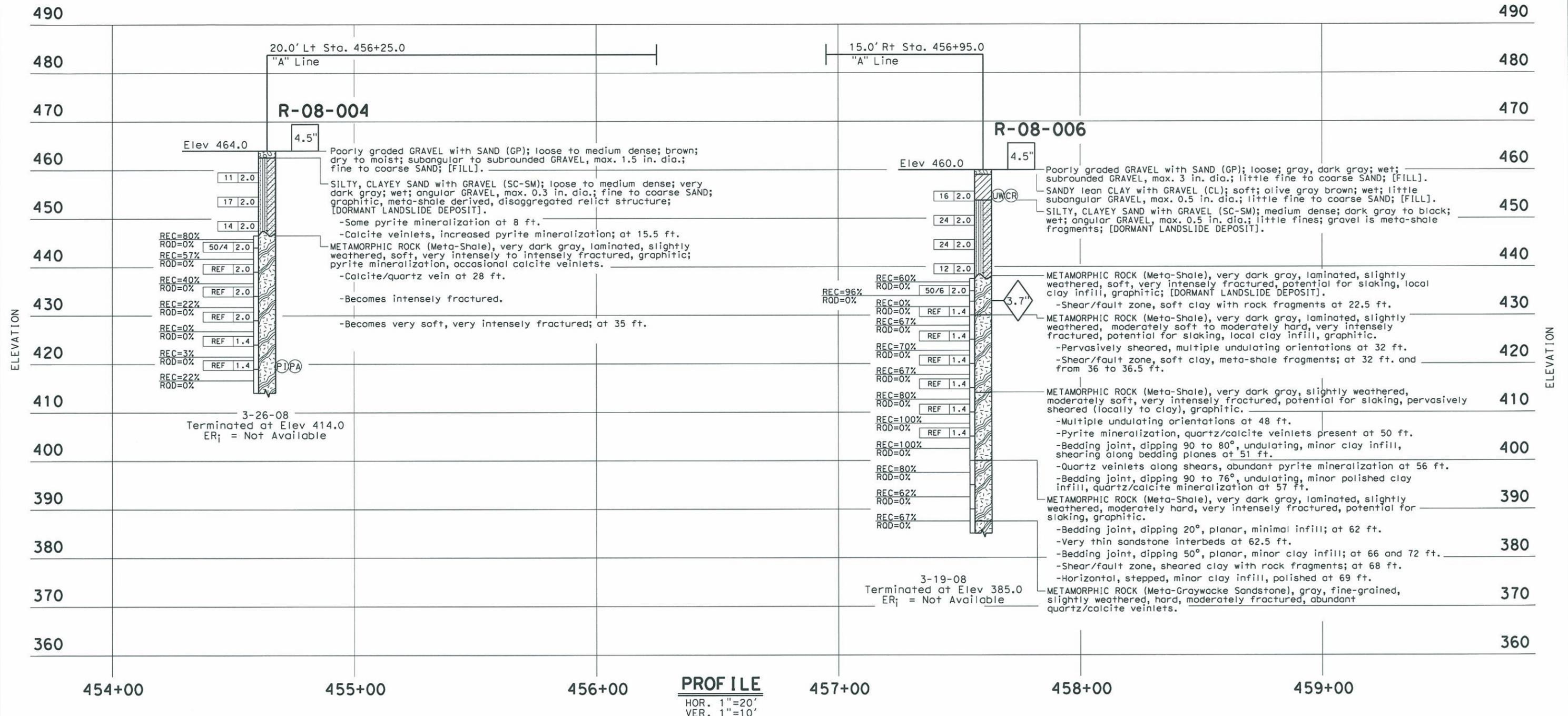
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Hum	96	8.5		

REGISTERED GEOLOGIST DATE 10-08
 REGISTERED GEOLOGIST WILLIAM V. MCCORMICK III No. 1673 Exp. 11-30-08 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

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DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	RETAINING WALL @ POST MILE 8.5
FUNCTIONAL SUPERVISOR:	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: C. Goitein, J. Richmond Mar 2008	POST MILES	LOG OF TEST BORINGS 4 of 7
NAME:	CHECKED BY: C. Goitein	PROJECT ENGINEER:	8.5	
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 480911	REVISION DATES	SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Hum	96	8.5		

REGISTERED GEOLOGIST DATE 10-08
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PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (inches)}}{\text{Total length of core run (inches)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4''}{\text{Total length of core run (inches)}} \times 100\%$$

RELATIVE STRENGTH OF INTACT ROCK

Term	Uniaxial Compressive Strength (PSI)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8" to 1 ft
Thinly bedded	1-1/4" to 3-5/8"
Very thinly bedded	3/8" to 1-1/4"
Laminated	Less than 3/8"

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LEGEND OF ROCK MATERIALS

	IGNEOUS ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Specimen cannot be scratched with a pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows.
Very Hard	Specimen cannot be scratched with a pocket knife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Specimen can be scratched with a pocket knife or sharp pick with difficulty (heavy pressure). Heavy hammer blows required to break specimen.
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure. Core breaks with moderate hammer pressure.
Moderately Soft	Specimen can be grooved 1/6" deep with a pocket knife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Specimen can be grooved or gouged easily by a pocket knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Specimen can be readily indented, grooved or gouged with fingernail, or carved with a pocket knife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very slightly fractured	Lengths greater than 3 feet.
Slightly fractured	Lengths from 1 to 3 feet with few lengths less than 1 foot or greater than 3 feet.
Moderately fractured	Lengths mostly in 4" to 1 foot range with most lengths about 8"
Intensely fractured	Lengths average from 1 to 4" with scattered fragmented intervals with lengths less than 4"
Very intensely fractured	Mostly chips and fragments with a few scattered short core lengths.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic features					General Characteristics
	Chemical Weathering-Discoloration and/or oxidation		Mechanical Weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Combination descriptors (such as "slightly weathered to fresh") are permissible where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant, identifiable zones can be delineated. Only two adjacent descriptors may be combined. "Very intensely weathered" is the combination descriptor for "intensely weathered to decomposed."

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
Q1	HUM	96	8.5		

REGISTERED GEOLOGIST DATE 10-08
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 WILLIAM V. MCCORMICK III
 No. 1673
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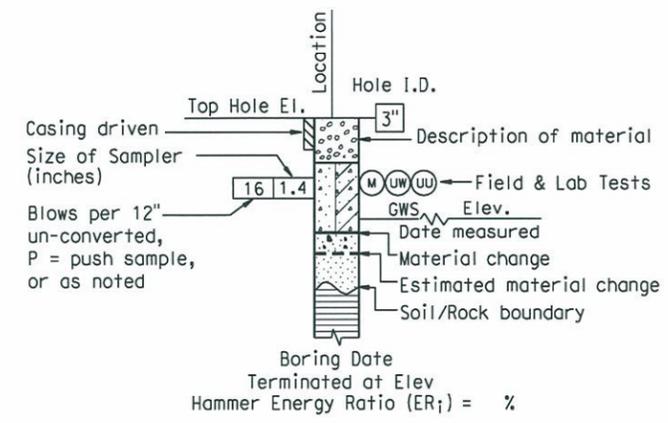
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS				
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

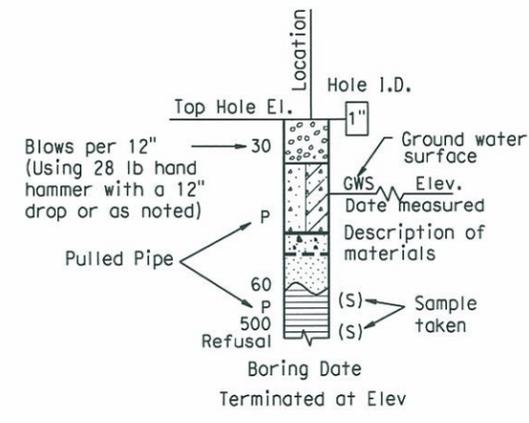
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

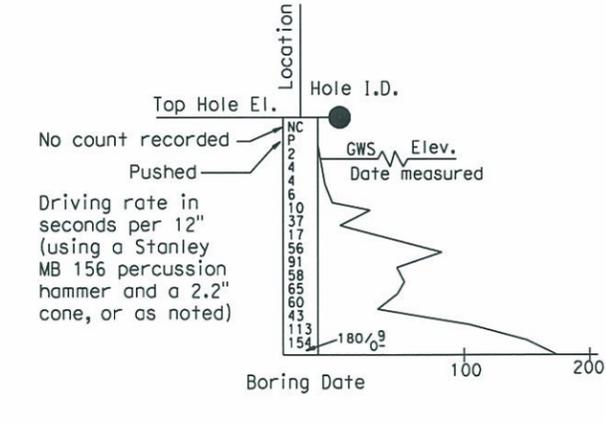
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



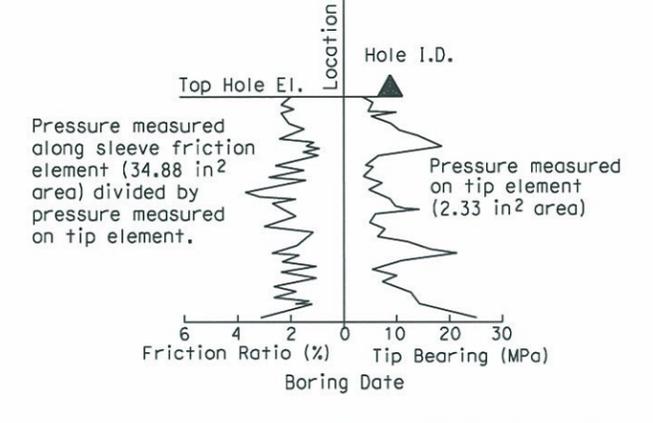
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	BRIDGE NO.	SOIL LEGEND @ POST MILE 8.5 LOG OF TEST BORINGS 6 OF 7
PREPARED BY: A. Sanchez	PROJECT ENGINEER	POST MILE	
CHECKED BY: C. Goitein	CU EA 480911	8.5	

DISREGARD PRINTS BEARING EARLIER REVISION DATES

5-11-08	5-11-08	11-10-08	SHEET	OF
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ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	96	8.5		

REGISTERED GEOLOGIST DATE 10-08
 WILLIAM V. McCORMICK III
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GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	GW Well-graded GRAVEL		CL Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
	GP Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
	GW-GM Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND		CL-ML SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
	GW-GC Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GP-GM Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND		ML SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
	GP-GC Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GM SILTY GRAVEL SILTY GRAVEL with SAND		OL ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
	GC CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
	GC-GM SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND		OL ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
	SW Well-graded SAND Well-graded SAND with GRAVEL		
	SP Poorly graded SAND Poorly graded SAND with GRAVEL		CH Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
	SW-SM Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
	SW-SC Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		MH Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
	SP-SM Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL		
	SP-SC Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		OH ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
	SM SILTY SAND SILTY SAND with GRAVEL		
	SC CLAYEY SAND CLAYEY SAND with GRAVEL		OH ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
	SC-SM SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
	PT PEAT		OL/OH ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
			COBBLES COBBLES and BOULDERS BOULDERS

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(PP)	Pocket Penetrometer
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(TV)	Pocket Torvane
(UC)	Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)
(VS)	Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N ₆₀ (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE		
Description	Size	
Boulder	> 12"	
Cobble	3" to 12"	
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE: 5-9-08	BRIDGE NO.	SOIL LEGEND @ POST MILE 8.5
PREPARED BY: A. Sanchez	CHECKED BY: C. Goitein	POST MILE: 8.5	
PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		PROJECT ENGINEER:	LOG OF TEST BORINGS 7 of 7
CS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 480911	REVISION DATES: 5-13-08, 6-11-08, 11-10-08

DATE PLOTTED => \$DATE
USERNAME => \$USER

APPENDIX B

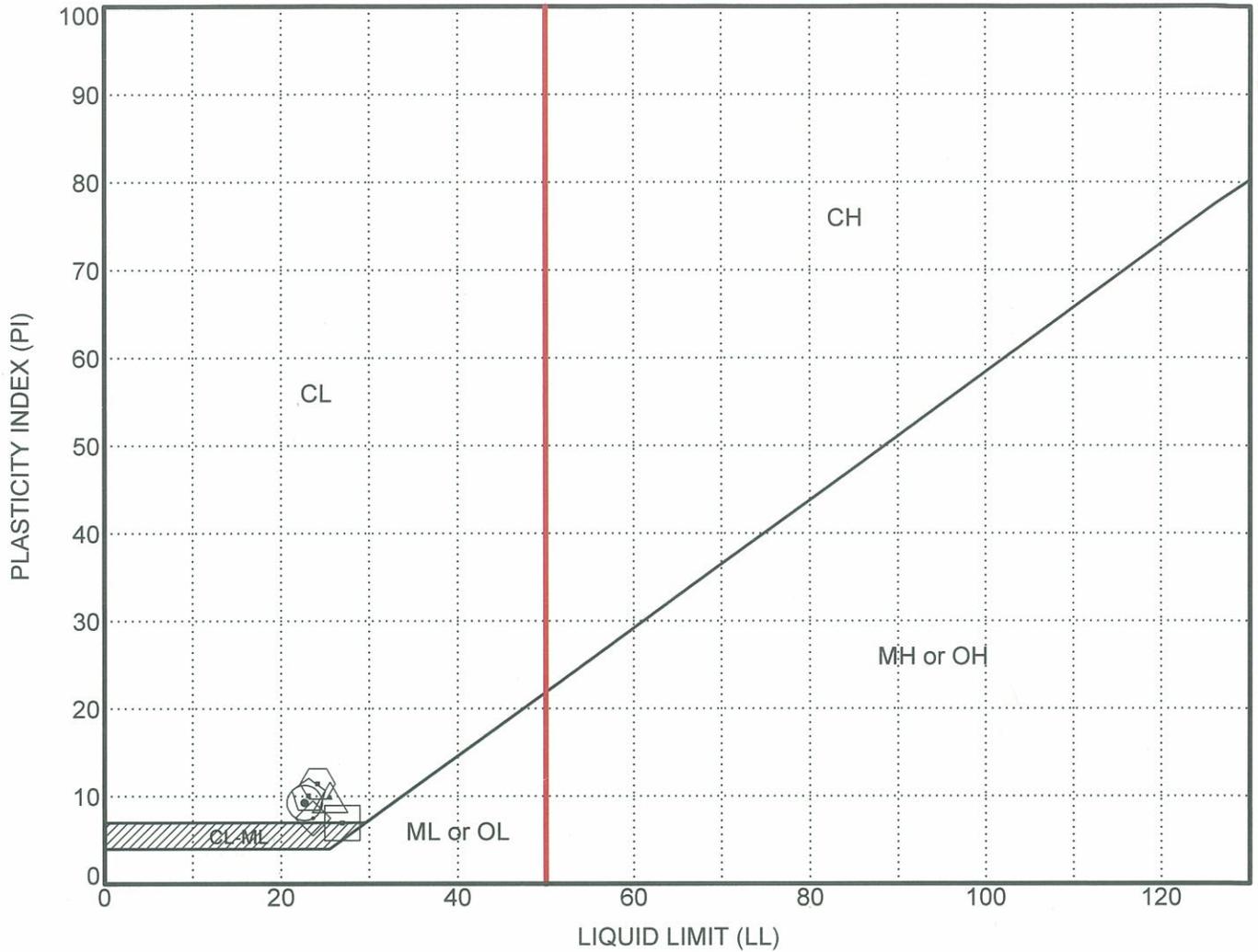
Lab Test Summary
Highway 96 P.M. 8.5 Job # 92859
 EA # 01-480911

Soil/Rock Type	Boring	Sample #	Depth (ft)	UU (psf)	UU (tsf)	Confining Pressure (psf)	Dry density (pcf)	Moisture content (%)	Total density (pcf)	PI	LL	-200
FILL (GC-GM)	R-08-001	S01-1	6	1097	0.5	648	133	11	148			
META-SHALE	R-08-001	S09-1	46				130	11	144			
DORM LS (SC-SM)	R-08-002	CORE-9	9						0			
DORM LS (META-SHALE)	R-08-002	CORE-31.5	31.5						0	9	23	32
LS (SC-SM)	R-08-003	CORE-10	10						0	7	27	36
LS (SC-SM)	R-08-003	S02-1	11				113	17	132			
LS (SC-SM)	R-08-003	CORE-15.5	15.5						0	10	26	24
LS (CL)	R-08-003	S03-1	16				124	10	137			
LS (SC-SM)	R-08-003	S04-1	21				116	7	124			14
LS (META-SHALE)	R-08-003	CORE-31	31						0			10
LS (META-SHALE)	R-08-003	S07-1	36				144	6	153			
META-SHALE	R-08-003	CORE-67.5	67.5						0	7	24	19
LS (CL, SC-SM)	R-08-003	CORE-25	20-25						0			
META-SHALE	R-08-004	CORE-45	45						0	11	24	30
FILL (GC)	R-08-005	S01-2	5.5	1087	0.5	648	141	7	150			
FILL/LS (SC)	R-08-005	S02-1	11				149	6	157			
LS (SW-SM)	R-08-005	S04-1	21				110	13	125			8
LS (GC)	R-08-005	S05-1	26				129	11	144			23
LS (SC-SM)	R-08-005	CORE-30	30						0			
LS (SC-SM)	R-08-005	CORE-35	35						0	10	23	31
LS (SC-SM)	R-08-005	S07-1	36				137	9	149			
LS (SC-SM)	R-08-005	S08-1	41				129	11	143			32
DECOMPOSED META-SHALE	R-08-005	CORE-45	45						0	9	23	22
DORM LS (SC-SM)	R-08-006	S01-1	6				119	14	135			
DORM LS (SC-SM)	R-08-006	CORE-6	6						0			

UU Undrained Unconsolidated Triaxial
 tsf tons per square foot
 PI Plasticity Index
 LL Liquid Limit
 -200 Percent Passing 200 Sieve

LS Landslide Deposit
 DORM Dormant

Data Template: PI - KLEINFELDER SANTA ROSA 5-8-08_GDT - 6/16/08 15:38 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 56916101-HUM-96 PM 8.5\HUM-96 PM 8.5 LAB TESTS.GPJ



SAMPLE SOURCE	CLASSIFICATION	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	% PASSING #200 SIEVE
⊙ R-08-002 @ 31.5	META-SHALE	23	13	10	32
□ R-08-003 @ 10.0	SILTY, CLAYEY SAND (SC-SM)	27	20	7	36
△ R-08-003 @ 15.5	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	26	16	10	24
◇ R-08-003 @ 67.5	META-SHALE	24	16	8	19
⊙ R-08-004 @ 45.0	META-SHALE	24	13	11	30
◇ R-08-005 @ 35.5	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	23	13	10	31



PROJECT NUMBER 92859

DATE 6/16/2008

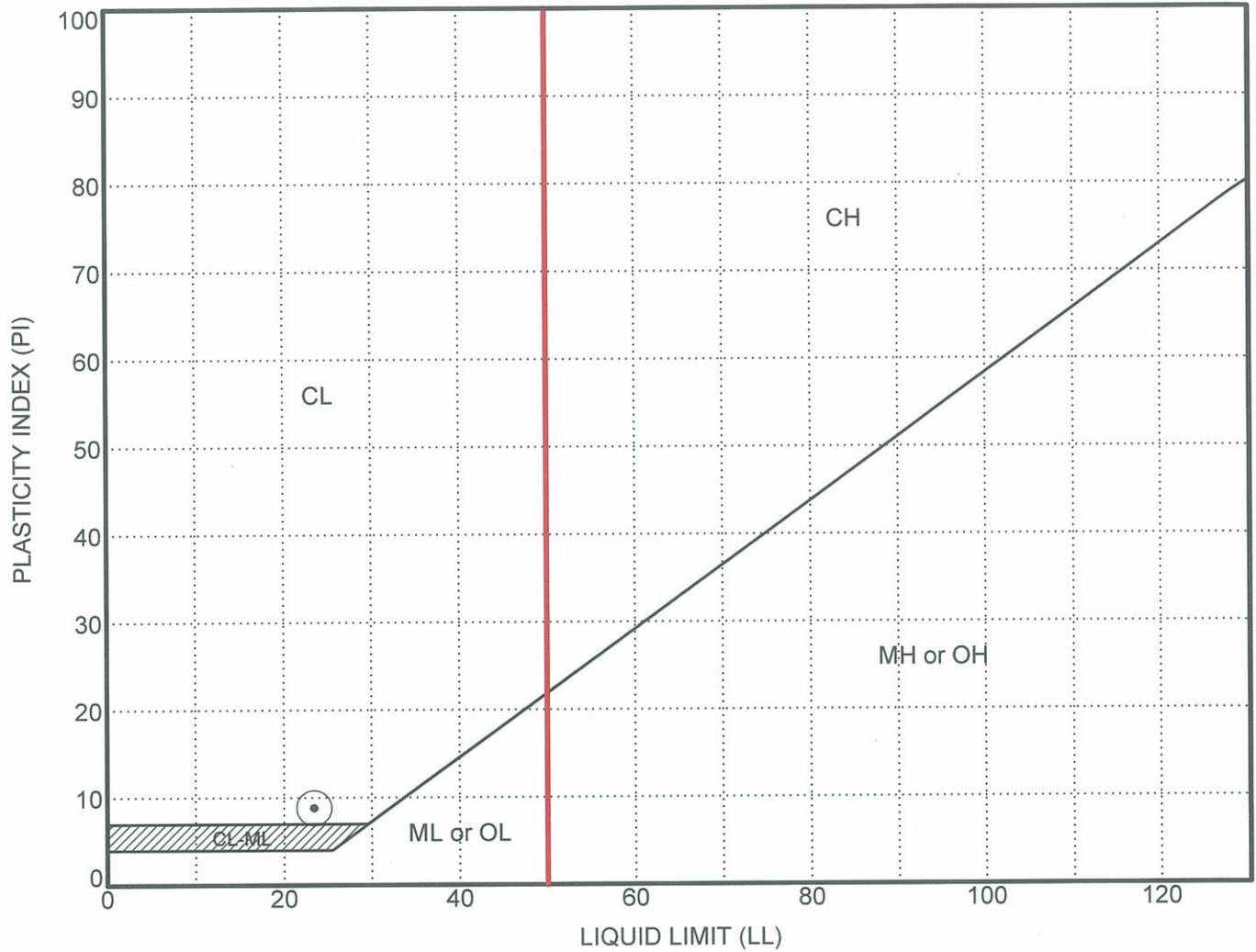
PLASTICITY CHART

Highway 96 Lookout
01-HUM-96-8.5
EA # 01-480911

PLATE

B-1

Data Template: PI - KLEINFELDER SANTA ROSA 5-8-08 .GDT - 6/16/08 15:38 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 5891601-HUM-96 PM 8.5\HUM-96 PM 8.5 LAB TESTS.GPJ



SAMPLE SOURCE	CLASSIFICATION	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	% PASSING #200 SIEVE
⊙ R-08-005 @ 45.0	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	23	15	8	22



PROJECT NUMBER 92859

DATE 6/16/2008

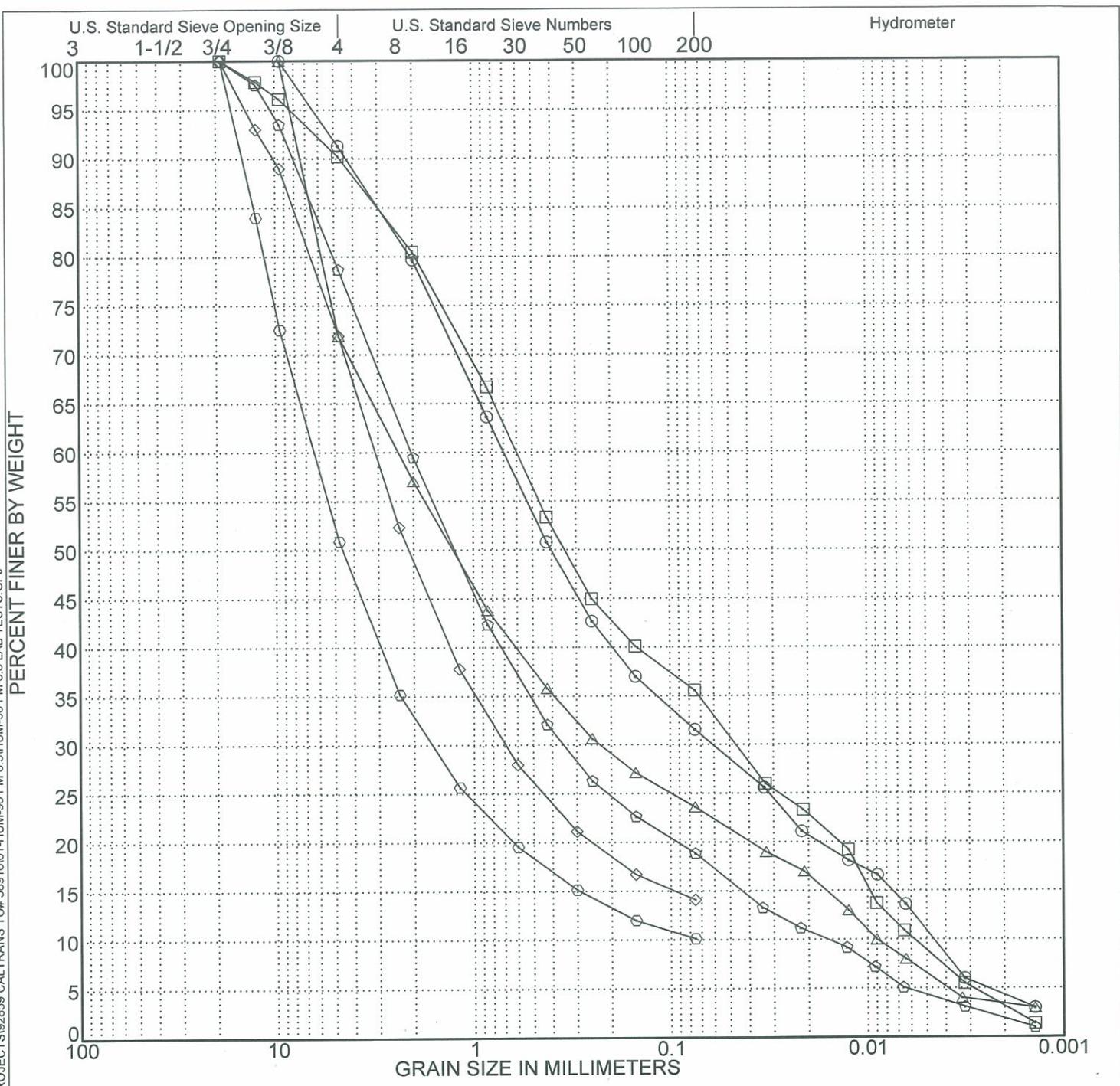
PLASTICITY CHART

**Highway 96 Lookout
01-HUM-96-8.5
EA # 01-480911**

PLATE

B-2

Data Template: SA - KLEINFELDER SANTA ROSA 5-8-08_GDT - 6/16/08 15:39 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 58916101-HUM-96 PM 8.5\HUM-96 PM 8.5 LAB TESTS.GPJ

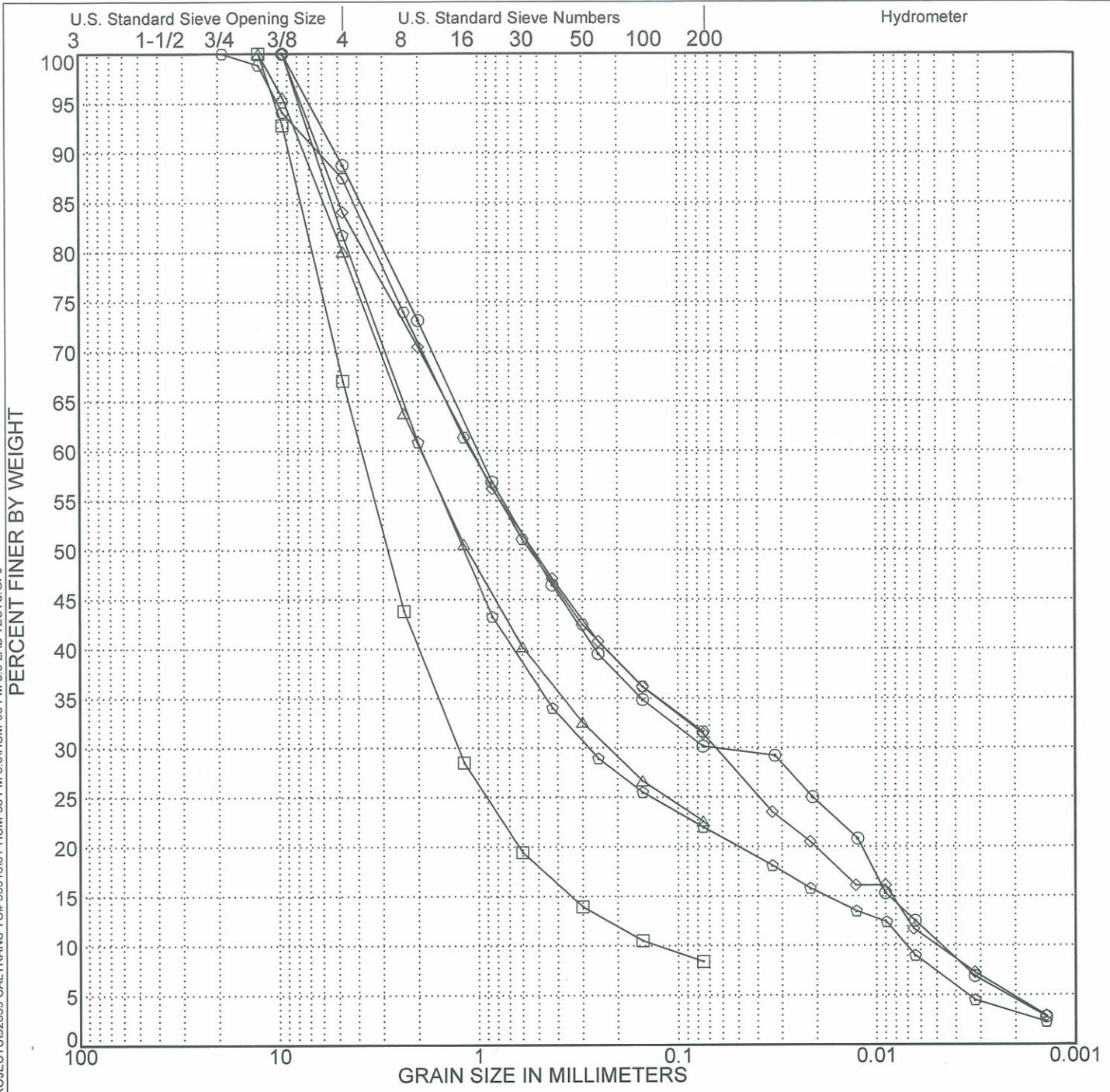


Cobbles	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SYMBOL	SAMPLE SOURCE	CLASSIFICATION
⊙	R-08-002 @ 31.5'	META-SHALE
⊠	R-08-003 @ 10.0'	SILTY, CLAYEY SAND (SC-SM)
△	R-08-003 @ 15.5'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
◇	R-08-003 @ 21.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
⬠	R-08-003 @ 31.0'	META-SHALE
⬡	R-08-003 @ 67.5'	META-SHALE

	PARTICLE SIZE ANALYSIS		PLATE B-3
	PROJECT NUMBER 92859	DATE 6/16/2008	

Data Template: SA - KLEINFELDER SANTA ROSA 5-8-08_GDT - 6/16/08 15:39 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 58916101-HUM-96 PM 8.5\HUM-96 PM 8.5\LAB TESTS.GPJ

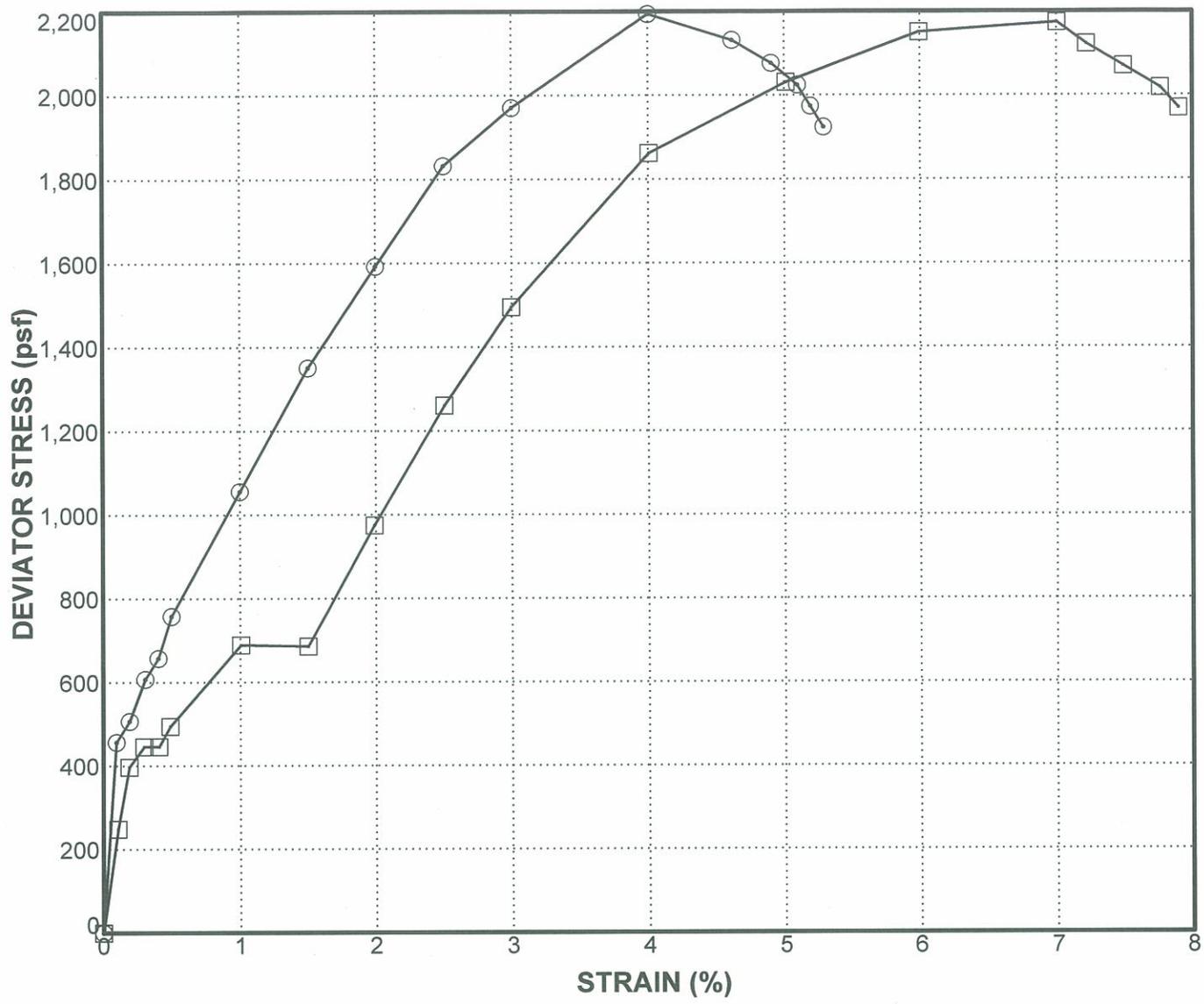


Cobbles	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SYMBOL	SAMPLE SOURCE	CLASSIFICATION
○	R-08-004 @ 45.0'	META-SHALE
□	R-08-005 @ 21.0'	WELL GRADED SAND with SILT and GRAVEL (SW-SM)
△	R-08-005 @ 26.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
◇	R-08-005 @ 35.5'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
⬠	R-08-005 @ 41.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
⬡	R-08-005 @ 45.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)

	PARTICLE SIZE ANALYSIS		PLATE
	Highway 96 Lookout 01-HUM-96-8.5 EA # 01-480911		B-4
PROJECT NUMBER 92859	DATE 6/16/2008		

Data Template: NEW TXUU - KLEINFELDER SANTA ROSA 5-8-08_GDT - 6/16/08 15:39 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 58916101-HUM-96 PM 8.5\HUM-96 PM 8.5 LAB TESTS.GPJ

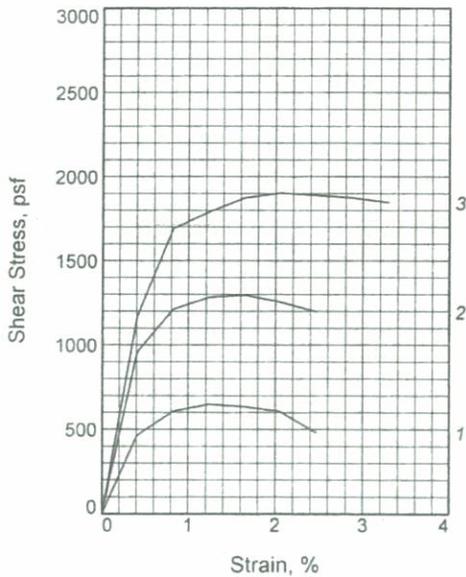
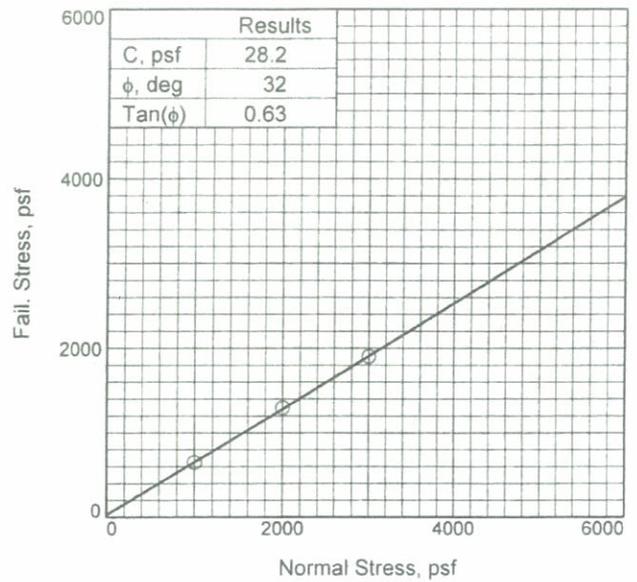
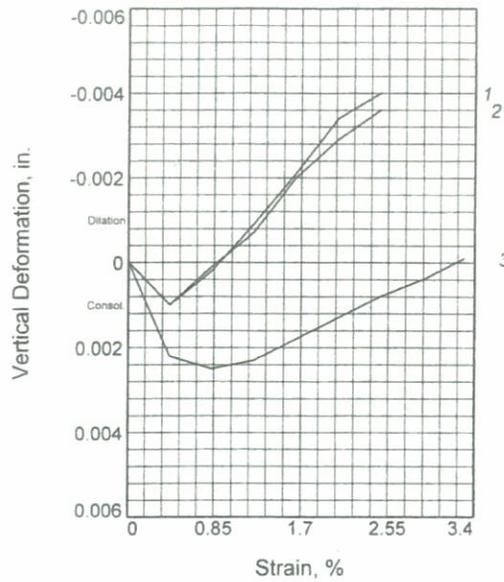


Sample Source	Classification	Type of Test	Confinement Pressure (psf)	Shear Strength (psf)	Strain (%)	Dry Density (pcf)	Moisture Content (%)
○ R-08-001 @ 6.0'	SILTY, CLAYEY GRAVEL with SAND (GC-GM)	TXUU	648	1097	4	133	11.2
□ R-08-005 @ 5.5'	CLAYEY GRAVEL with SAND (GC)	TXUU	648	1087	7	141	6.7

UC = Unconfined Compression
 TX/UU = Unconsolidated Undrained Triaxial

	STRENGTH TEST DATA	PLATE B-5
	Highway 96 Lookout 01-HUM-96-8.5 EA # 01-480911	
PROJECT NUMBER 92859	DATE 6/16/2008	

Data Template: PI - KLEINFELDER SANTA ROSA 5-9-08_GDT - 5/15/08 14:50 - U:\NEW GINT PROJECTS\92859 CALTRANS TO# 5891601-HUM-96 PM 8.5\HUM-96 PM 8.5 LAB TESTS.GPJ



Sample No.	1	2	3	
Initial	Water Content, %	10.9	10.7	10.8
	Dry Density, pcf	129.4	129.2	129.5
	Saturation, %	97.6	95.0	97.2
	Void Ratio	0.3022	0.3042	0.3012
	Diameter, in.	2.430	2.430	2.430
	Height, in.	0.825	0.825	0.825
At Test	Water Content, %	13.5	12.8	12.4
	Dry Density, pcf	123.4	125.2	126.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.3658	0.3464	0.3345
	Diameter, in.	2.430	2.430	2.430
	Height, in.	0.865	0.852	0.846
Normal Stress, psf	1000.0	2000.0	3000.0	
Fail. Stress, psf	647.9	1295.7	1901.4	
Strain, %	1.2	1.6	2.1	
Ult. Stress, psf				
Strain, %				
Strain rate, in./min.	0.010	0.010	0.010	

Sample Type: Remold
Description: Grey Lean Clay W/Sand (CL)

Assumed Specific Gravity= 2.70
Remarks: A three point DS/CD was run on this sample.
 Remolded to 130 pcf @ between 10 and 12% moisture content.

Plate _____

Project: Hwy. 96 Overlook

Source of Sample: R-o8-003 **Depth:** 20.0-25.0'

Sample Number: Core 25

Proj. No.: 92859-LAB-1

Date Sampled: 5-6-08



PROJECT NUMBER **92859**

DATE **5/15/2008**

DIRECT SHEAR
Highway 96 Lookout
01-HUM-96-8.5
EA # 01-480911

PLATE

B-6



AP Engineering & Testing, Inc.

CORROSION TEST RESULTS

Client Name: Kleinfelder

AP Job No.: 28-0420

Project Name: Highway 96 Lookout

Date: 04/18/08

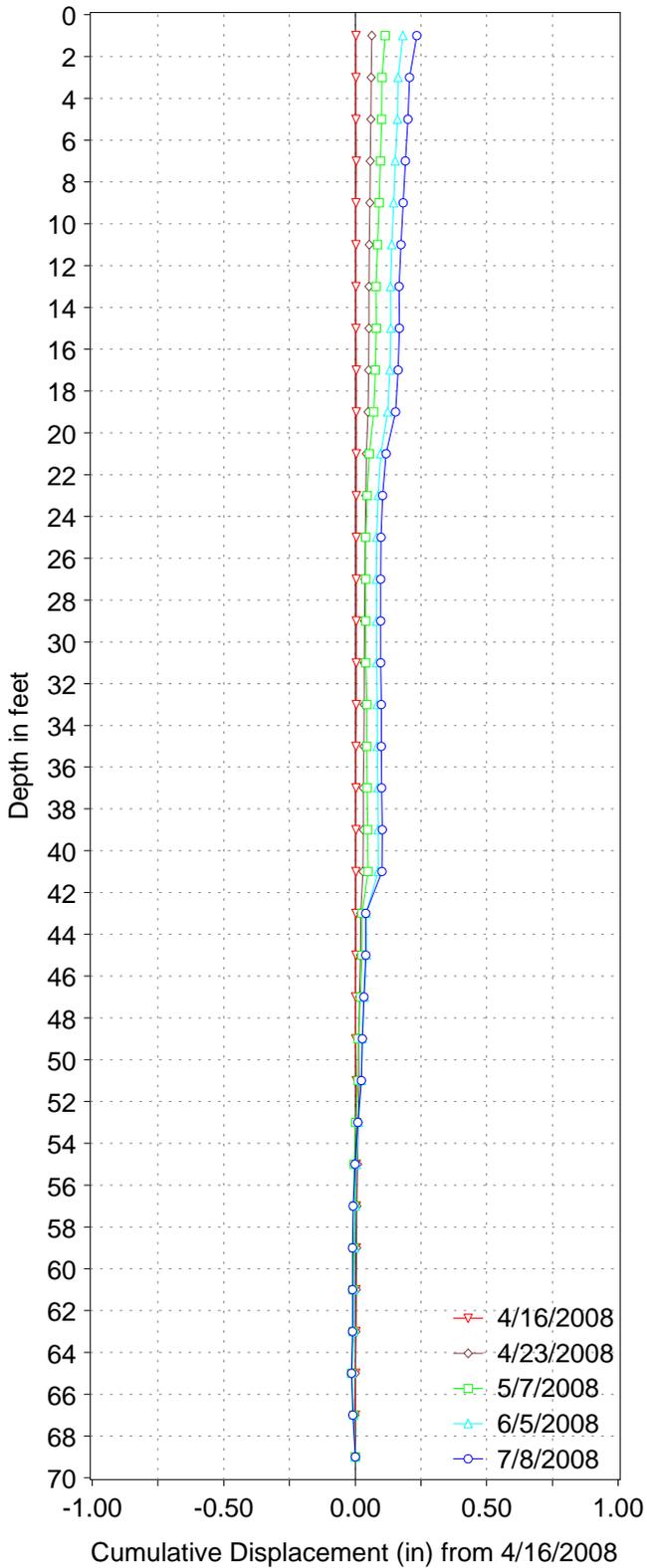
Project No.: EA#01-480911

Sample ID.	Boring No.	Depth (ft)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (%)	Chloride Content (%)
R-08-002	Core-9	9	SW	6700	7.2	0.0013	0.0063
R-08-006	Core-6	6	SM	1300	7.0	0.0010	0.0074
R-08-005	Core-30	30	SW	6900	7.4	0.0088	0.0064

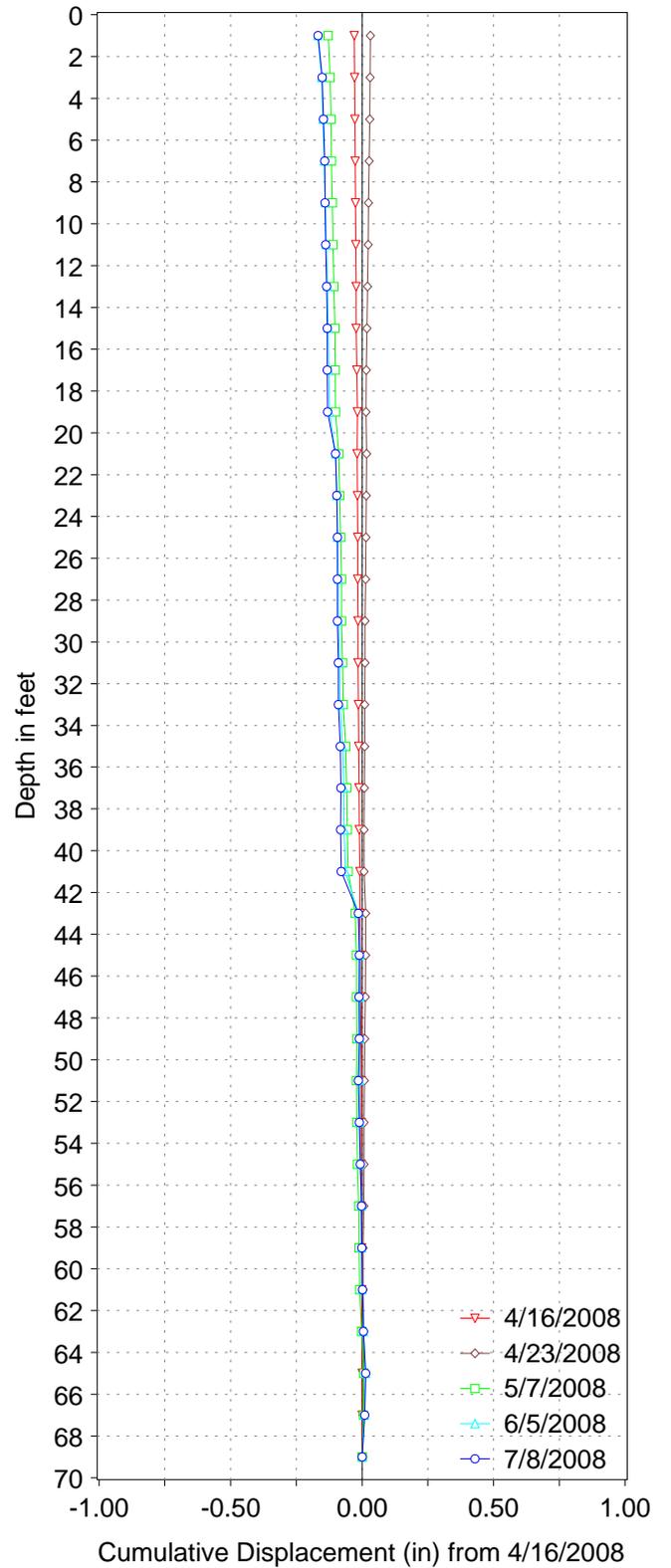
NOTES: Resistivity Test and pH: California Test Methods 532 and 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

APPENDIX C

VP R8-03, A-Axis



VP R8-03, B-Axis

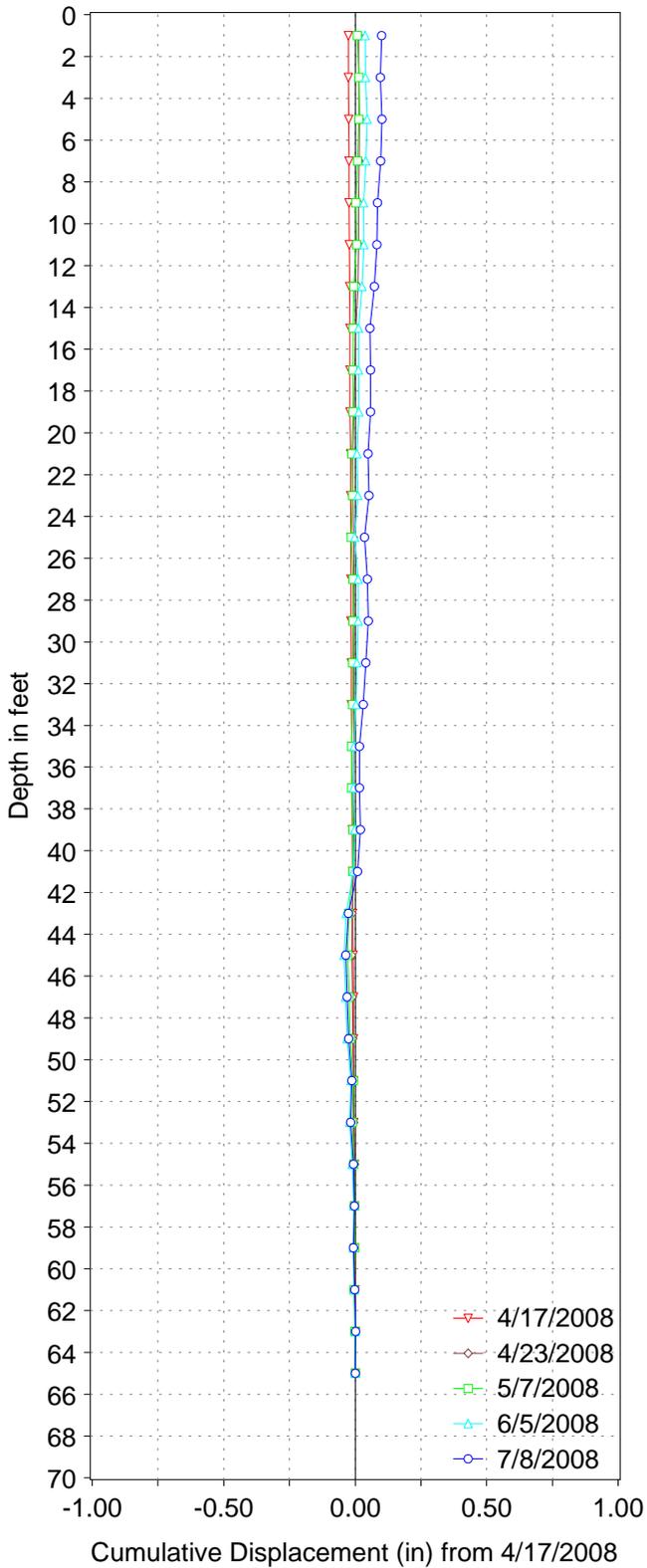


INCLINOMETER MONITORING RESULTS

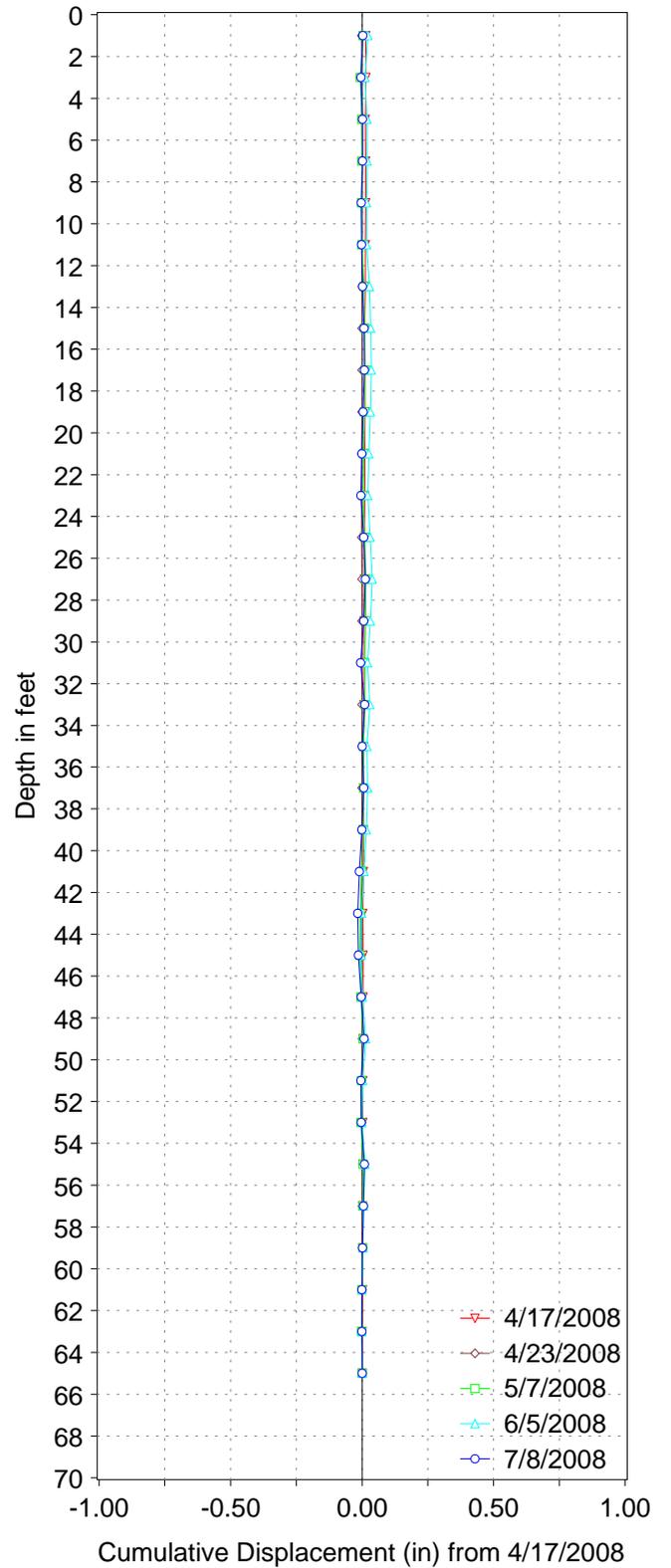
01-HUM-96-PM 8.5
 VISTA POINT
 E.A. No.: 01-480911

Depth of Inclinator Casing: 69 feet
 Ao Direction: N/A° (Magnetic North)
 Location (WGS-84) : N/A

VP R8-05, A-Axis



VP R8-05, B-Axis



INCLINOMETER MONITORING RESULTS

01-HUM-96-PM 8.5
 VISTA POINT
 E.A. No.: 01-480911

Depth of Inclinator Casing: 65 feet
 Ao Direction: N/A° (Magnetic North)
 Location (WGS-84) : N/A

**For Contract No. 01-0B03U4
At 01-Hum-96-8.3/8.9**

**Identified by
Project ID 0115000059**

MATERIALS INFORMATION

Addendum to Foundation Report for Hoopa Vista Point Ground Anchor Wall, Bridge Number 04E0038, dated February 18, 2015

DEPARTMENT OF TRANSPORTATION

Memorandum

Flex your power

Be energy efficient!

Date: February 18, 2015

To: DAN ADAMS
Division of Structure Design
Office of Bridge Design South 2
Branch 10

File: 01-HUM-96-PM 8.5/8.7
Hoopa Vista Point
Ground Anchor Wall
EA: 01-0B03U
EFIS ID: 0115000059
Wall No. 04E0038

ATTN: Huan Vu

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

Subject: Addendum to Foundation Report for Hoopa Vista Point Ground Anchor Wall

1. INTRODUCTION

The following recommendations are provided to repair a section of Highway 96 in Humboldt County CA at Post Mile (PM) 8.5 identified as a storm damage site in 2005 and 2011. This Memo provides geotechnical recommendations for the proposed soldier pile ground anchor (SPGA) retaining wall. The wall is required to stabilize the roadway prism near the Vista Point from approximate post mile (PM) 8.5 to 8.7 (Figure 1).

The 2005 storm damage project was initiated due to an active landslide affecting Highway 96 at PM 8.5 just south of the town of Hoopa. A Foundation Report (August 2008) was prepared under a task order by Kleinfelder Engineering for a proposed SPGA wall, but due to the depth of the failure and right of way constraints it was not feasible to pursue the wall repair at that time. Shallow reinforced fill repairs with drainage improvements were constructed in 2007 and 2009. In 2011, significant roadway distress resulted in the District initiating a new DAF to effect permanent restoration of the site.

In addition to the six borings completed by Kleinfelder in March 2008, one additional slope inclinometer (RC-11-007) and one piezometer (RC-11-008) were installed in November of 2011 to verify depth of slide movement and groundwater elevation. Due to maintenance paving operations, the piezometer was never read after installation. The slope inclinometer (SI) was subsequently read in January of 2013. Recorded cumulative and incremental displacements for RC-11-007 are attached to this report (Appendix A).

Alignment changes in the roadway and the retaining wall layout line from the 2008 alignment were made by Design to incorporate geometric improvements for a safety project that has been merged with this project.

A Site Plan showing the approximate boring locations and the current Wall Layout Line ("P1") is attached (Figure 1).

The 2008 FR indicates the headscarp of the active landslide is located in the roadway. Based on our field review, recent slope inclinometer data and the subsurface information, we assume for design that the deeper landslide surface extends up slope of the roadway prism on the south side of the highway.

2. ANALYSIS AND DESIGN ASSUMPTIONS

The analysis and design for the SPGA retaining wall is based on the information contained in the Foundation Report by Kleinfelder (2008). This includes their geologic information review, geologic mapping, subsurface investigation and instrumentation, laboratory testing and Log of Test Borings.

Our interpretation of the subsurface conditions at the site presented in this addendum are the basis of our design recommendations and supersede Section 12 (Slope Stability Review) of Kleinfelder's report. The Geotechnical and Foundation Recommendations contained in this addendum supersede those contained in Section 11 of Kleinfelder's Foundation Report.

3. GEOTECHNICAL AND FOUNDATION RECOMMENDATIONS

3.1. Wall Location and Height

The wall layout line ("P1") is shown on Figure 1 and the subsurface geology along the wall layout line is shown on Figure 2. The proposed SPGA Wall is approximately 323 feet in length with a maximum design height of 45 feet with four levels of ground anchors. The recommended finished grade elevation on the down slope side of the wall at Roadway Station 453+70.01 (line

“S1”) is approximately 435 feet, MSL, which is below the third waler. The recommended pile length is 60 feet, or a minimum 10 foot embedment into the Meta Shale bedrock material.

3.2. Slope Stability Analysis and Design Parameters

The recommended soil and rock parameters for the retaining wall design are provided in Table 1. The wall design cross section is shown in Figure 3.

TABLE 1 - DESIGN PARAMETERS

LAYER	APPROXIMATE THICKNESS (ft) ¹	TOTAL UNIT WEIGHT (pcf)	ANGLE OF INTERNAL FRICTION (degrees)	COHESION (c, psf)
(1) Fill	6	150	35	0
(2) Landslide Material	40	130	35	140
(2) Meta Shale Bedrock	20+	148	38	500

Notes: ¹ at wall layout line

These design parameters were back calculated using the slope stability program SLOPE/W 2007 with a critical cross section located at Station (“S1”) 453+70.01. Observed ground surface features (both upslope and downslope of the roadway prism) and depths to the landslide failure plane (from inclinometer data) were used to fix the entry, depth and exit points of the failure surface. A factor of safety of 1.0 was assumed for the existing slope. The Spencer Method of limit equilibrium which satisfies both force and moment equilibrium was used for this analysis (Figure 4).

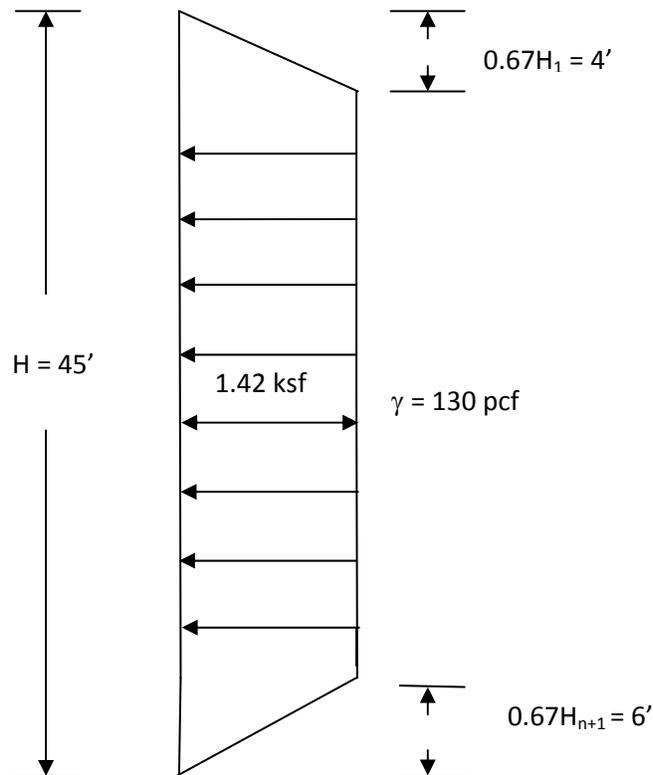
The total lateral force required to resist the landslide force was evaluated per BDS Section 5.5.5.7.1 using SLOPE/W 2007 and the Spencer Method of limit equilibrium analysis. A concentrated horizontal force (P_{TOTAL}) was applied at the mid-point of the wall height. The reported P_{TOTAL} of 65.5 kips/foot provides a factor of safety of 1.35, and does not include the design roadway surcharge (Figure 5).

3.3. Hydrostatic Forces and Horizontal Drains

The recommended design groundwater surface elevation is 19 feet below top of the wall. We recommend a chimney of Class 1 (Type B) permeable material in front of the buried portion of the wall and filter fabric behind the wall timber lagging and HDPE shims.

3.4. Lateral Earth Pressures

The recommended active lateral earth pressure is based on Caltrans Bridge Design Specifications, Section 5 Retaining Wall (August 2004) and Caltrans Memo to Designer 5-12, Earth Retaining Structures Using Ground Anchors (January 2012). The following active lateral earth pressure distribution diagram was developed based on a soldier pile wall with a wall height of 45 feet and multiple rows of ground anchors.



Recommended Lateral Earth Pressure Distribution

4. RECOMMENDATIONS FOR GROUND ANCHORS

The recommended ground anchor parameters for the retaining wall design are provided in Table 2. The wall design cross-section is shown in Figure 3.

TABLE 2

GROUND ANCHOR DESIGN PARAMETERS¹	
P_{TOTAL}	65.5 kips/ft
Point of application of P_{TOTAL}	Mid-point of wall
Ground Anchor Inclination	15°
Ground Anchor Unbonded Length (feet)	
Row 1 (6 ft below top of wall)	55
Row 2 (16 ft below top of wall)	45
Row 3 (26 ft below top of wall)	35
Row 4 (36 ft below top of wall)	25

NOTES: ¹ ground anchor spacing and inclination are assumed

4.1. Lagging

We recommend lagging extend to or below the inferred failure surface elevation shown in Figure 2.

4.2. Downslope Stability

We recommend a finish grade elevation of 435 feet, MSL between the third and fourth level of ground anchors. The downslope stability for the critical failure surface (Figure 6) has a calculated factor of safety of 1.1 at a finish grade elevation of 435 feet (measured at critical cross section 453+70.01). Our recommended FG line is shown on Figure 2.

5. CORROSION EVALUATION

Chemical analyses performed by AP Engineering & Testing, Inc. in Pomona CA on three samples collected by Kleinfelder for their foundation report indicate that the site may be considered non-corrosive for steel and concrete based on the Caltrans Corrosion Guidelines (2003 version 1.0). Results of the corrosion tests are included in Appendix B of the Kleinfelder report.

6. CONSTRUCTION CONSIDERATIONS

The typical sequence of Soldier Pile Ground Anchor Wall installation shall follow the Structure Plans and the Special Provisions for this project.

6.1. Excavation and Drilling Difficulties

Difficult drilling for piles and for ground anchors is anticipated due to the presence of caving conditions, ground water and traffic control.

Caving conditions may be encountered during drilling holes for piles and drilling for ground anchor installation due to the granular soils and the very intensely fractured rock.

Groundwater may be encountered in the drilled holes for piles and ground anchors.

Temporary casing or tremie seals shall be furnished and placed where necessary to control water or to prevent caving of the hole in conformance with the Standard Specifications.

7. PROJECT INFORMATION

Standard Specifications (SP) 2-1.06B, "Supplemental Project Information", discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening.

The Information Handouts available for the Bidders are:

1. *Foundation Report (Vista Point), Storm Damage Repair, Hum 96 Pm 8.5, EA 01-480911, Humboldt County California, Prepared by **Kleinfelder** (Terry Craven G.E. and William V. McCormick C.E.G.), August 13 2008*
2. *Addendum to Foundation Report for Hoopa Vista Point Ground Anchor Wall, dated February 18, 2015.*

These may be viewed at the Bidders Exchange Web site.

Rock cores may be viewed by sending a request to Corerroom@dot.ca.gov.

If you have any questions or require additional information, please contact Kathy Gallagher at (707) 441-2024 or Charlie Narwold at (707) 445-6036.



KATHY GALLAGHER
Transportation Engineer
Office of Geotechnical Design North
Branch B



A handwritten signature in black ink that reads "C-N-W".

CHARLIE NARWOLD
Senior Engineering Geologist
Office of Geotechnical Design North
Branch B

List of Figures:

- Figure 1 - Site Plan
- Figure 2 - Subsurface Geology Along Wall Layout Line
- Figure 3 - Wall Design Cross Section
- Figure 4 - Slope Stability Back Analysis
- Figure 5 - Wall Total P Stability Analysis
- Figure 6 - Wall Downslope Stability Analysis

List of Appendices:

APPENDIX A – RC-11-007 SI DATA

Dan Adams
February 18, 2015
Page 8

01-HUM-96-PM 8.5/8.7
0115000059
Hoopa Vista Point Ground Anchor Wall

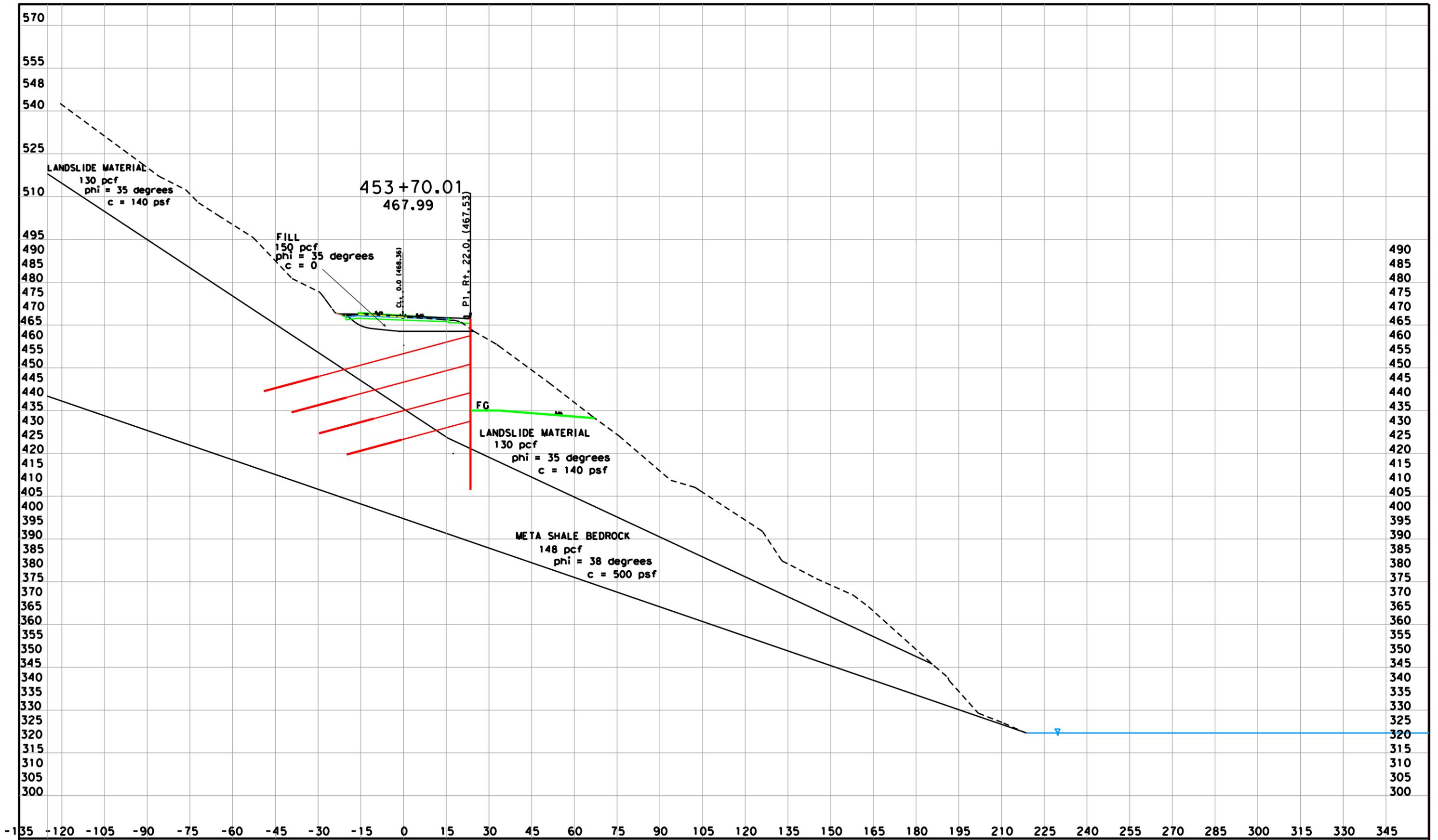
Previous Geotechnical Report:

Foundation Report (Vista Point), Storm Damage Repair
Hum 96 Pm 8.5, EA 01-480911, Humboldt County California
Prepared by **Kleinfelder** (Terry Craven G.E. and William V. McCormick C.E.G.),
August 13 2008

FHWA Damage Assessment Form:

DAF # CEP-CT01-020-0
Incident date 3/26/2011
Signed 8/2/2011

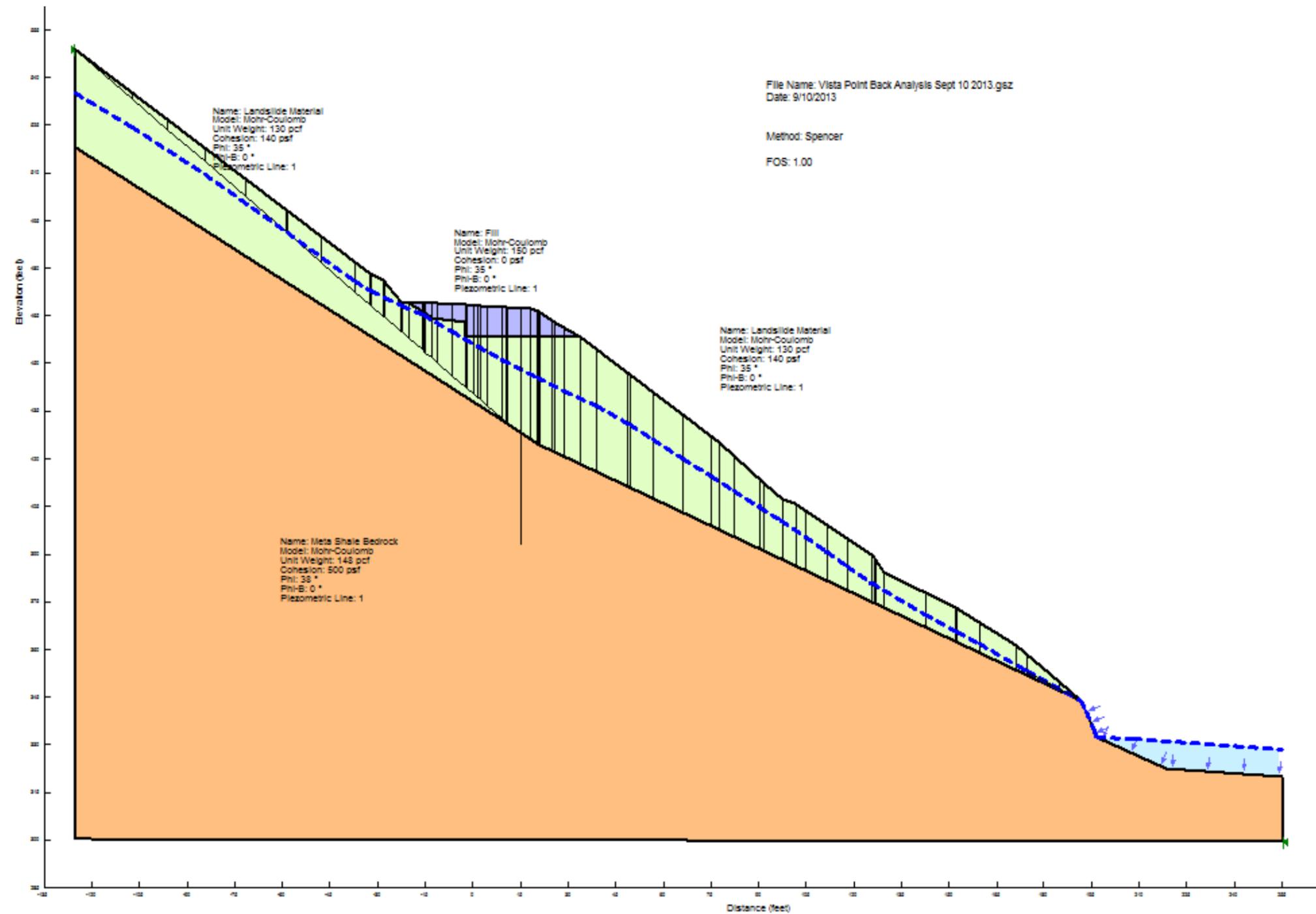
C: Traci Menard – GS
Charlie Narwold - GS
Richard Mullen – Distr 01 Proj Mgmt



CREATED BY: SURENA/KGALLAGHER
 DATE: 11/05/2014
 EFIS ID: 0115000059

CONTRACT: 0B03U
 DIST/CO/RTE/PM: 01-HUM-8.5/8.7
 PROJECT ID: Hoopa Vista Point Ground Anchor Wall

FIGURE 3
WALL DESIGN
CROSS SECTION



Department of Transportation
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design - North

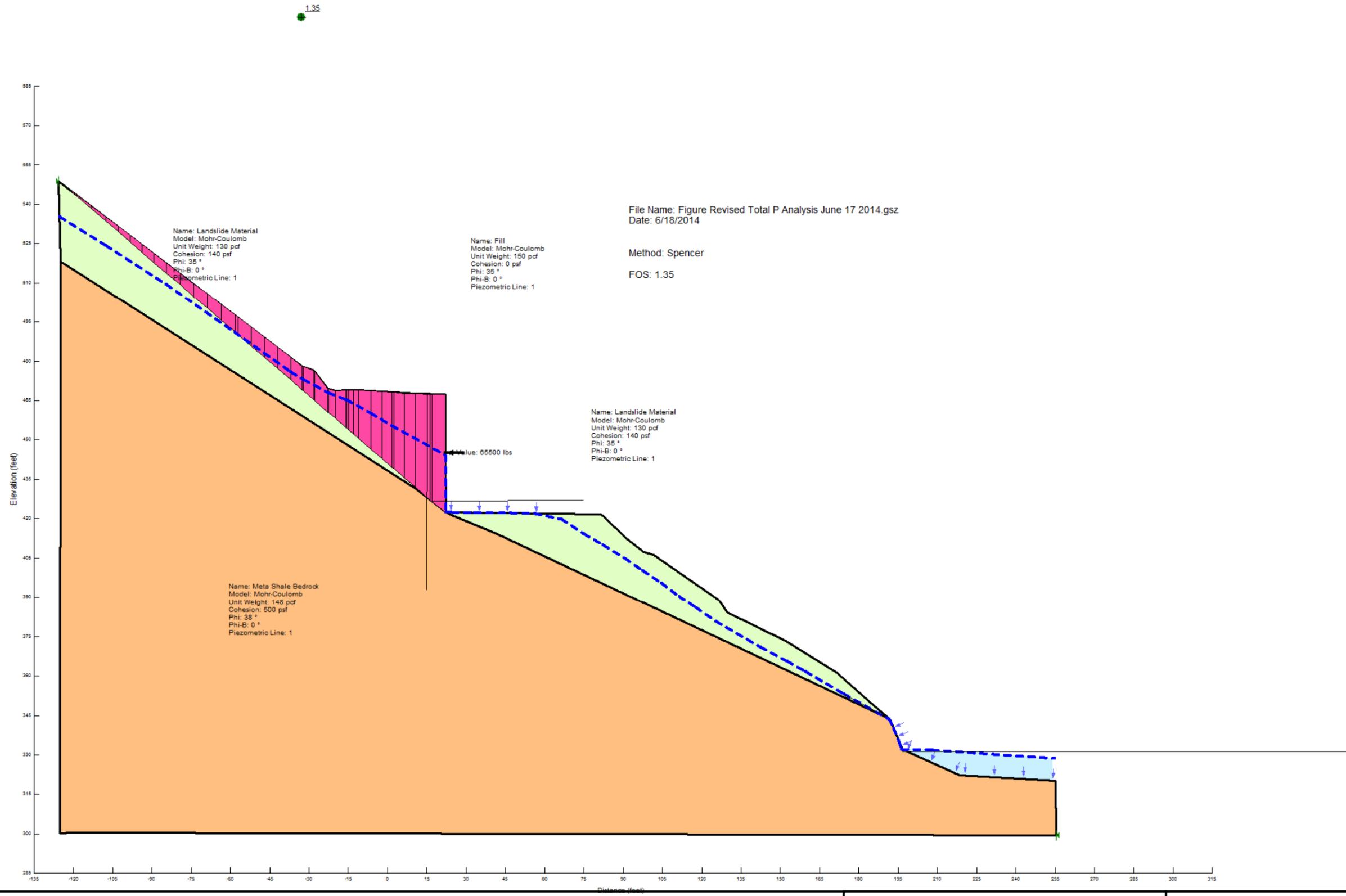
EFIS: 0115000059

Date: FEBRUARY 2015

WALL STABILITY BACK ANALYSIS

**HOOPA VISTA POINT GROUND ANCHOR WALL
01-HUM-96 PM 8.5**

Figure 4



Department of Transportation
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design - North

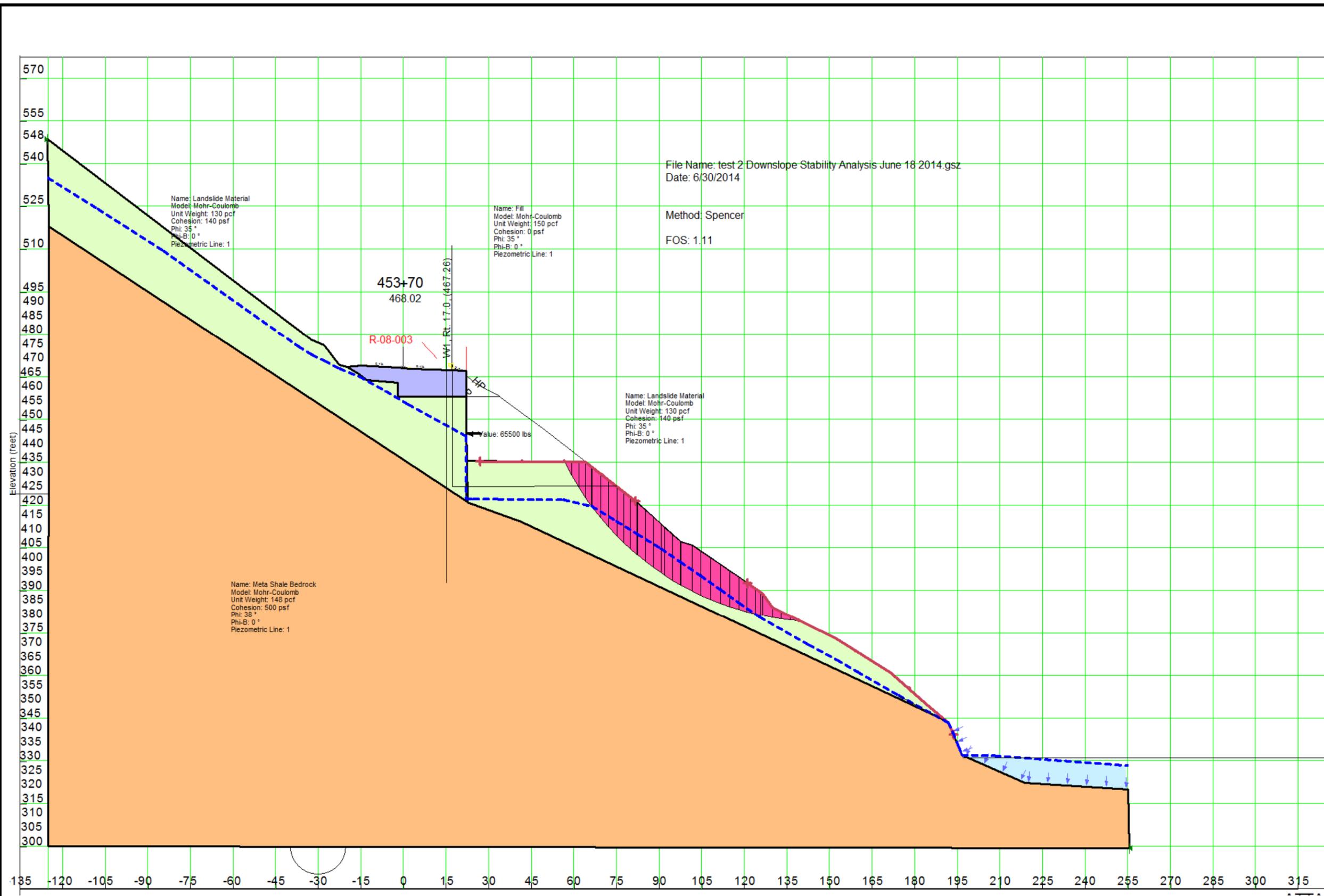
EFIS: 0115000059

Date: FEBRUARY 2015

WALL TOTAL P STABILITY ANALYSIS

HOOPA VISTA POINT GROUND ANCHOR WALL
01-HUM-96 PM 8.5

Figure 5



Department of Transportation
 Division of Engineering Services
 Geotechnical Services
 Office of Geotechnical Design - North

EFIS: 0115000059
 Date: FEBRUARY 2015

WALL DOWNSLOPE STABILITY ANALYSIS

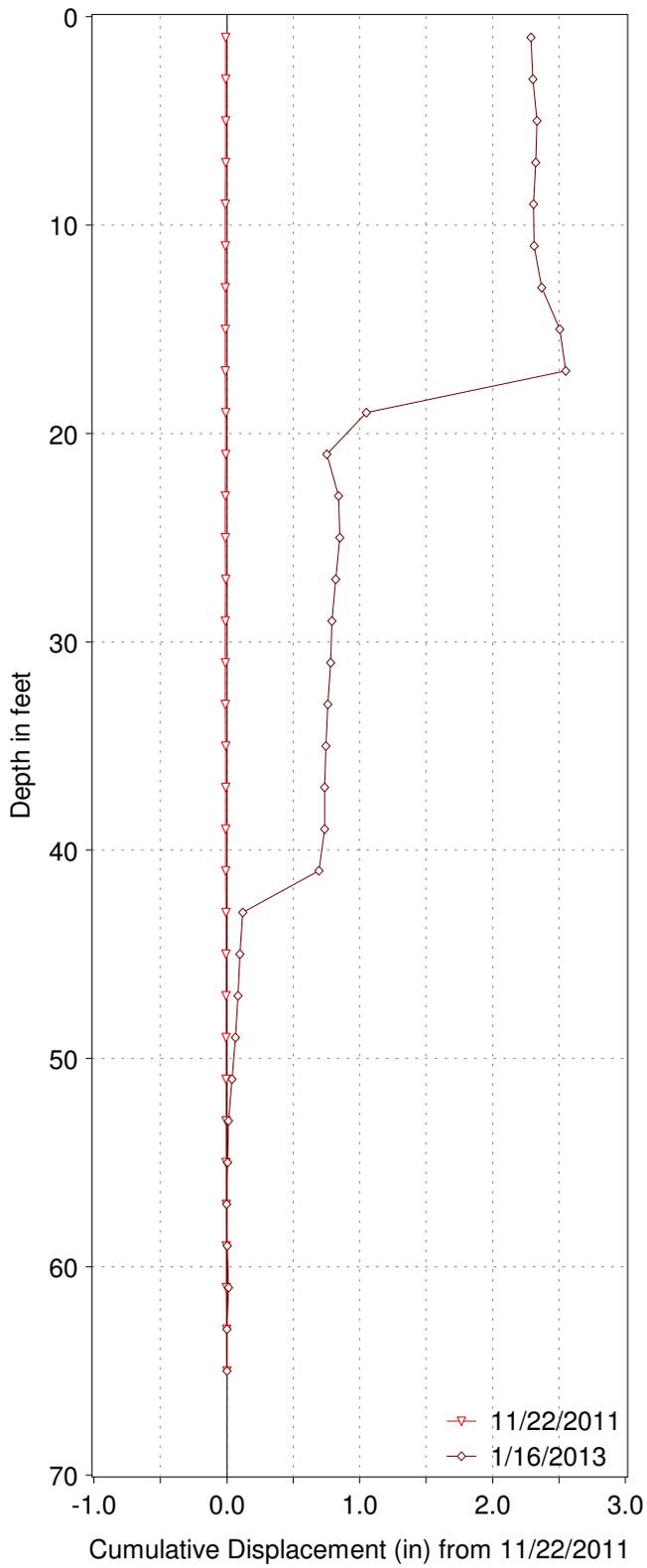
**HOOPA VISTA POINT GROUND ANCHOR WALL
 01-HUM-96 PM 8.5**

Figure 6

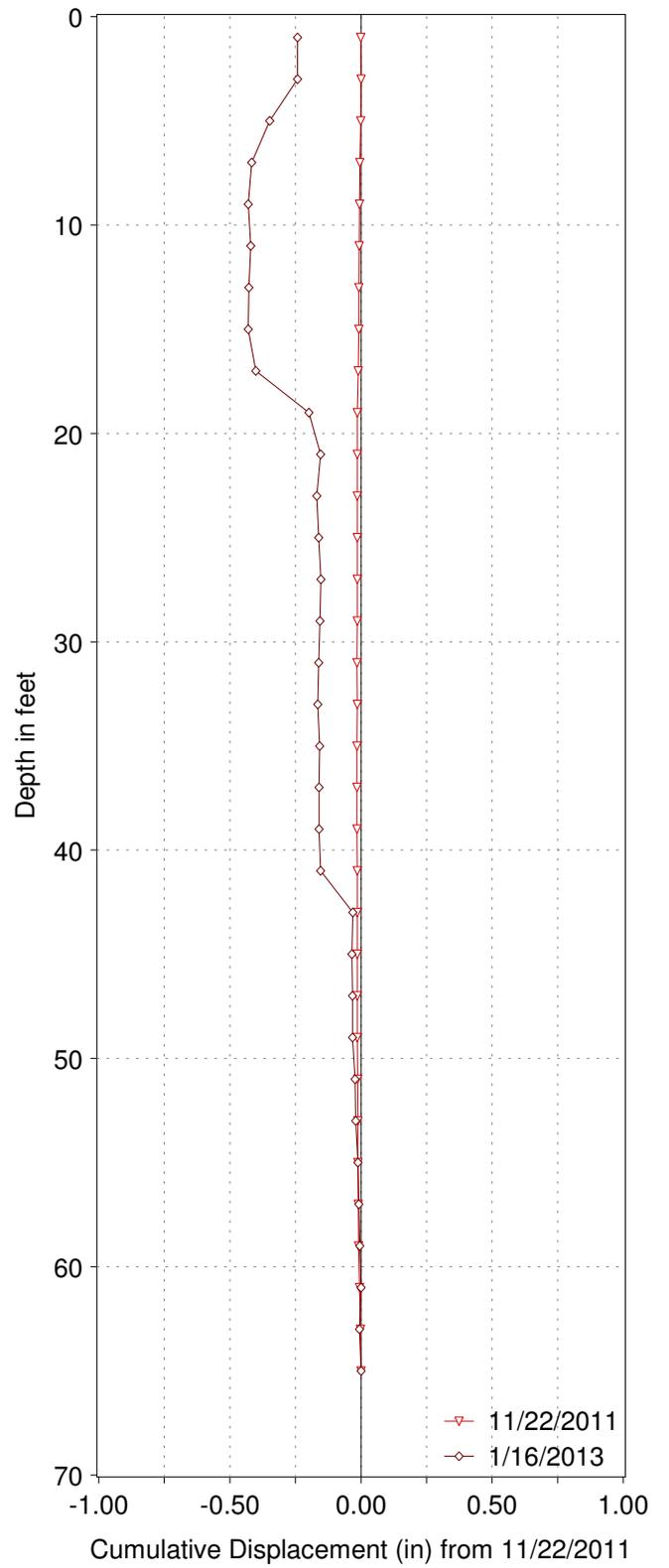
APPENDIX A

SLOPE INCLINOMETER MONITORING RESULTS' k#

Hoopa Visat R-007, A-Axis



Hoopa Vista R-007, B-Axis

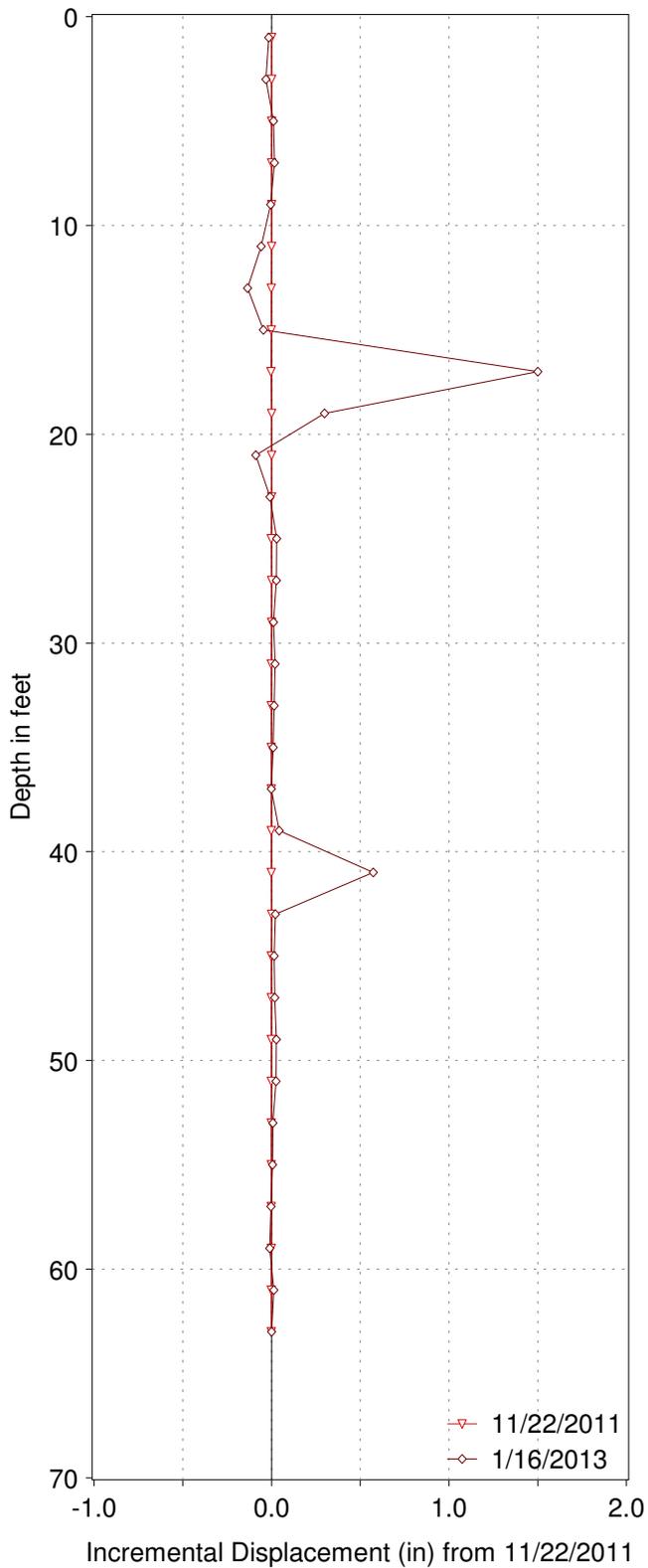


INCLINOMETER RESULTS

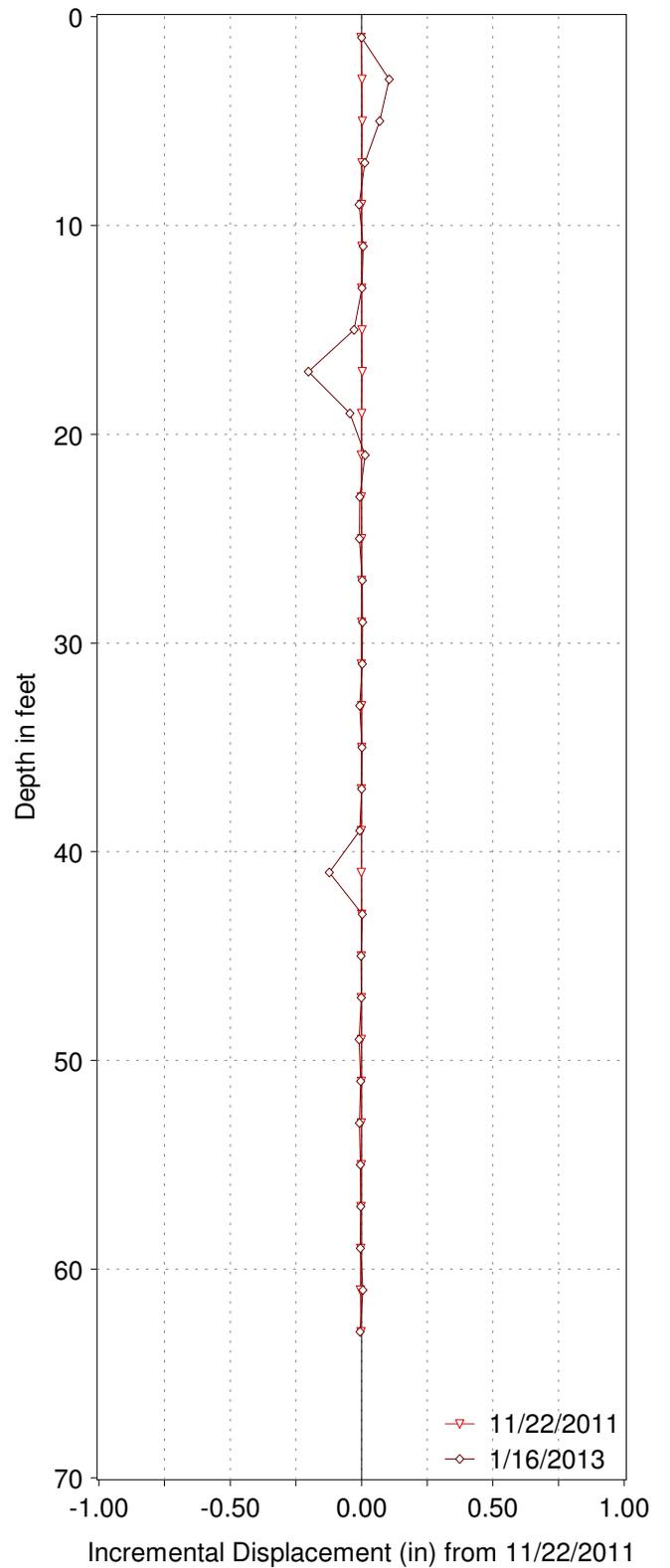
01-HUM-96 P.M. 8.5
 Rt 96 Hoopa
 E.A. No. 0112000123

Depth of Incliner Casing: 67.3 feet
 Ao Direction: (Magnetic North)
 Location: HWY 96 P.M 8.5

Hoopla Visat R-007, A-Axis



Hoopla Vista R-007, B-Axis



INCLINOMETER RESULTS

01-HUM-96 P.M. 8.5
 Rt 96 Hoopa
 E.A. No. 0112000123

Depth of Inclinator Casing: 67.3 feet
 Ao Direction: (Magnetic North)
 Location: HWY 96 P.M 8.5