

# **INFORMATIONAL HANDOUT**

## **PERMITS**

STATE OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME

UNITED STATES ARMY CORPS OF ENGINEERS  
NON-REPORTING NATIONWIDE 404 PERMIT

REGIONAL WATER QUALITY CONTROL BOARD

## **MATERIALS INFORMATION**

FINAL HYDRAULIC REPORT  
Dated May 11, 2011

REVISED FOUNDATION REPORT  
Dated November 2, 2011

## **MANUFACTURERS DRAWINGS**

### **Crash Cushion Systems**

Quadguard CZ  
Quadguard II  
Tau II  
SCI 100-GM

**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
**REGION 4 - CENTRAL REGION**  
1234 East Shaw Avenue  
Fresno, California 93710



**STREAMBED ALTERATION AGREEMENT**  
NOTIFICATION No. 1600-2012-0015-R4  
Gifford Creek, San Luis Obispo County

**CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
**CALTRANS DISTRICT 5**  
Larry Bonner  
50 Higuera Street  
San Luis Obispo, California 93401

**SR 166 GIFFORD CREEK CURVE CORRECTION**  
05-SLO-166 PM 39.9-40.3, EA 05-0R3004

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and California Department of Transportation Caltrans District 5 (Permittee) as represented by Larry Bonner acting on behalf of Permittee. The term "stream", as used in this Agreement, is defined to mean Elkhorn Slough, three Tributaries to Elkhorn Slough and four unnamed drainages.

## **RECITALS**

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on February 2, 2012, that Permittee intends to complete the Project described herein.

WHEREAS, pursuant to FGC section 1603, DFG 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 Gifford Creek Curve Correction (Project) is located approximately 31 miles east of Santa Maria on Route 166 where it crosses Gifford Creek at Post Mile (PM) 40.11 in San Luis Obispo County, State of California; Township 32 South, Range 18 East, Section 33, United States Geological Survey (USGS) map Miranda Pine Mountain, Mount Diablo meridian. (See Figure 1).

## PROJECT DESCRIPTION

The Project is limited to:

- Permittee proposes to remove Bridge 49-0142 over Gifford Creek and replace it with a new bridge on the new road alignment. The bridge structure is proposed to be 43' 10" wide with an 84 foot long span over Gifford Creek. No piers would be required in the creek bed. Rock Slope Protection would be added near the abutments to prevent erosion.
- No water diversion or dewatering is expected as flows have not been observed in many years, even in above normal rain years. The bridge will be built using a spread footing, rather than pile-driving, therefore the shallow excavation for the footing is not expected to hit groundwater (based on geotechnical test borings).
- The existing bridge would be removed after construction is completed.
- Equipment to be used includes a crane, concrete truck, dump truck, excavator, and water truck. Construction equipment will need to enter the jurisdictional drainages. However, no construction equipment is allowed to work in flowing water.
- The Project will permanently impact 0.15 acres and temporarily impact 0.36 acres of riparian habitat. The Project will not require the removal of any riparian trees. Permittee intends to replant upland blue oaks at a ratio of 10:1, but these are not the result of or mitigation for impacts to 1600 jurisdictional areas.

## PROJECT IMPACTS

This Agreement is intended to avoid, minimize, and mitigate adverse impacts to the fish and wildlife resources that occupy the area of Elkhorn Slough, three (3) tributaries to Elkhorn Slough and four (4) unnamed drainages, and the immediate adjacent riparian habitat. Absent implementation of the protective measures required by this Agreement, the following species and habitat types could potentially be impacted within the area covered by this Agreement: State threatened and Federal endangered San Joaquin kit fox (*Vulpes macrotis mutica*), State Species of Special Concern Western pond turtle (*Actinemys marmorata*), State Species of Special Concern Two-striped garter snake (*Thamnophis hammondi*), State Species of Special Concern American badger (*Taxidea taxus*), State Species of Special Concern Prairie falcon (*Falco mexicanus*), and State Species of Special Concern Burrowing owl (*Athene cunicularia*), as well as birds, mammals, fish, reptiles, amphibians, invertebrates and plants that comprise the local riparian ecosystem.

## 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 DFG 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 DFG 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, DFG shall contact Permittee to resolve any conflict.
- 1.4. Project Site Entry: Permittee agrees that DFG personnel may enter the Project site at any time to verify compliance with the Agreement.
- 1.5. Legal Obligations: This Agreement does not exempt the Permittee from complying with all other applicable local, State and Federal law, or other legal obligations.
- 1.6. Unauthorized "Take": This Agreement does not authorize the "take" (defined in FGC Section 86 as to hunt, pursue, catch, capture, or kill; or attempt to hunt, pursue, catch, capture, or kill) of State- or Federal-listed threatened or endangered species. Any such "take" shall require separate permitting as may be required.
- 1.7. Water Diversion: To the extent that the Provisions of this Agreement provide for the diversion of water, they are agreed to with the understanding that the Permittee possesses the legal right to so divert such water.
- 1.8. Trespass: To the extent that the Provisions of this Agreement provide for activities that require the Permittee to trespass on another owner's property, they are agreed to with the understanding that the Permittee possesses the legal right to so trespass.
- 1.9. Construction/Work Schedule: The Permittee shall submit a **construction/work schedule** to DFG (lpdiaz@dfg.ca.gov with reference to Agreement 1600-2012-0015-R4) prior to beginning any activities covered by this Agreement. The Permittee shall also notify DFG upon the completion of the activities covered by this Agreement.

- 1.10. Training: Prior to starting any construction activity, all employees, contractors, and visitors who will be present during Project activities shall have received training from a qualified individual on the contents of this Agreement, the resources at stake, and the legal consequences of non-compliance. A **training sign-in sheet** for the employees and contractors shall be provided to DFG and shall include the date of the training and who gave the training.

## 2. Avoidance and Minimization Measures

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

- 2.1. Construction/Work Hours: All non-emergency work activities during the construction phase with the exception of traffic movement and striping will be confined to daylight hours.
- 2.2. Flagging/Fencing: Prior to any activity within the stream, the Permittee shall identify the limits of the required access routes and encroachment into the stream. These "work area" limits shall be identified with brightly colored flagging/fencing. Work completed under this Agreement shall be limited to this defined area only. Flagging/fencing shall be maintained in good repair for the duration of the Project. All areas beyond the identified work area limits shall be considered Environmentally Sensitive Areas (ESA) and shall not be disturbed.
- 2.3. Listed Species: This Agreement does not allow for the "take," or "incidental take," of any State- or Federal-listed threatened or endangered species.
  - 2.3.1. The Permittee affirms that no "take" of listed species will occur as a result of this Project and will take prudent measures to ensure that all "take" is avoided. The Permittee acknowledges that they fully understand that they do not have "incidental take" authority. If any State- or Federal-listed threatened or endangered species occur within the proposed work area or could be impacted by the work proposed, and thus "taken" as a result of Project activities, the Permittee is responsible for obtaining and complying with required State and Federal threatened and endangered species permits or other written authorization before proceeding with this Project.
  - 2.3.2. Liability for any "take," or "incidental take," of such listed species remains the separate responsibility of the Permittee for the duration of the Project.
  - 2.3.3. The Permittee shall immediately (the same day) notify DFG of the discovery of any such rare, threatened, or endangered species prior to and/or during construction.

## 2.4. San Joaquin Kit Fox (SJKF) Specific Measures:

2.4.1. **Focused SJKF Surveys** shall be conducted by a qualified biologist no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any Project activity likely to impact SJKF. Surveys should identify SJKF habitat features on the Project site and evaluate use by SJKF and, if possible, and assess the potential impacts to the SJKF by the proposed activity. The status of all dens should be determined and mapped. Written results of preconstruction surveys must be received by the USWFS and DFG within five (5) days after survey completion and prior to the start of ground disturbance and/or construction activities. If the preconstruction survey reveals an active natal pupping den USFWS and DFG should be contacted immediately to obtain the necessary "take" authorization/permit. For purposes of this Agreement, the following definitions and clarifications shall apply with respect to SJKF:

- "Known den" - Any existing natural den or manmade structure that is being used, or has been used at any time in the past, by a SJKF. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, SJKF sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a SJKF.
- "Potential Den" - Any subterranean hole within the species' range that has entrance(s) of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a SJKF. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for SJKF use.
- "Natal or Pupping Den" - Any den used by SJKF to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more SJKF tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances.
- "Atypical Den" - Any manmade structure which has been or is currently being occupied by a SJKF. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

2.4.2. The configuration of exclusion zones around the SJKF dens shall have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the USFWS and DFG must be contacted and give written approval to proceed prior

to disturbance: Atypical den, 50 feet; Potential den, 50 feet; Known den, 100 feet; Natal/pupping den, USFWS and DFG must be contacted for further guidance. Exclusion zones should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing, stakes and flagging shall be removed to avoid attracting subsequent attention to the dens. Construction and other Project activities should be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity shall be prohibited within the exclusion zones.

- 2.4.3. Disturbance to all SJKF dens (including "potential" dens) and buffer zones around the dens shall be prohibited without consultation with DFG and written direction on how to properly proceed.
- 2.4.4. Project-related vehicles shall observe a 20-mph speed limit in all Project areas, except on county roads and State and Federal highways; this is particularly important when work crews arrive or depart at night when SJKF are most active. Off-road traffic outside of designated Project areas should be prohibited. Always check under vehicles or equipment before starting.
- 2.4.5. To prevent inadvertent entrapment of SJKF or other animals during the construction phase of a Project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped animal is discovered, escape ramps or structures should be installed immediately to allow the animal to escape, or DFG should be contacted immediately for advice.
- 2.4.6. SJKF are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 3- inches or greater shall be capped or otherwise covered prior to being left overnight. If an animal is found in a pipe, all potentially disturbing activities shall be suspended immediately and the animal(s) left to leave of their own accord.
- 2.4.7. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or Project site.
- 2.4.8. No firearms, cats, dogs or other pets shall be allowed on the Project site at any time.

2.5. Fish and Wildlife: If any fish or wildlife is encountered during the course of construction, said fish and wildlife shall be allowed to leave the construction area unharmed.

2.5.1. An approved biologist shall perform **general wildlife surveys** of the Project area (including access routes and storage areas) prior to Project construction start with particular attention to evidence of the presence of the species listed above and shall report any possible adverse affect to fish and wildlife resources not originally reported. If the survey shows presence of any wildlife species which could be impacted, Permittee shall contact DFG and mitigation, specific to each incident, shall be developed. If any State- or Federal-listed threatened or endangered species are found within the proposed work area or could be impacted by the work proposed, a new Agreement and/or a 2081(b) State Incidental Take Permit may be necessary and a new CEQA analysis may need to be conducted, before work can begin.

2.5.2. Bats: Prior to work commencing at any bridge, the bridge shall be surveyed for bats by a qualified bat biologist. Bats shall not be disturbed without specific notice to and consultation with the Department. Impact minimization measures shall be implemented prior to project activities. Exclusion devices, if required, would not be installed during the maternity season and would be removed once construction is completed. If the bridge is being replaced, new bat habitat shall be incorporated in the new bridge design.

2.6. Birds: Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918(50 C.F.R. Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibits take of all birds and their active nests including raptors and other migratory nongame birds, and prohibits the needless destruction of nests.

2.6.1. To protect nesting birds, no construction shall be completed from February 15 through August 31 unless the following **avian surveys** are completed by a qualified biologist:

- Raptors: Survey for nesting activity of raptors within a 0.25-mile radius of the construction site. Surveys shall be conducted at appropriate nesting times and concentrate on trees with the potential to support raptor nests. If any active nests are observed, these nests and nest trees shall be designated an ESA and protected (until the young have fledged and are no longer dependent on the nest or parents for survival) with a minimum 500-foot buffer during Project-construction unless otherwise agreed upon and approved in writing by DFG.

- **Other Avian Species:** Survey riparian areas for nesting activity within a 500-foot radius of the defined work area two (2) to three (3) weeks before construction begins. If any nesting activity is found, these nests and nest trees shall be designated an ESA and protected (until the young have fledged and are no longer dependent on the nest or parents for survival) with a minimum 250-foot buffer during Project construction unless otherwise agreed upon and approved in writing by DFG.

2.6.2. Swallows: If Permittee cannot avoid work on the bridges where there is the potential for disturbance of nesting swallows (February 15 through August 15), then prior to February 1, of each year, Permittee shall remove all existing inactive nest remnants which would be destroyed by the Project. Permittee shall continue to discourage new nest building in places where they would be disturbed, using methods developed in consultation between the Permittee Biologist and DFG. Prior to nesting season, a swallow exclusion device, with visual warnings for the birds to prevent entanglement must be installed. Where disturbance shall occur, nesting must be discouraged throughout the nesting season.

2.6.3. Burrowing owls: If any ground disturbing activities will occur during the burrowing owl nesting season (approximately February 1 through August 31), the Department recommends that a pre-construction site survey be conducted by a qualified biologist no more than 30 days before the onset of any ground disturbing activities. If signs (i.e., pellets, feathers, tracks or scat) of burrowing owls are observed at burrow entrances, within 300 feet of the defined work area a qualified biologist shall perform a Phase III Burrowing Owl Survey as described in the 1997 California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines. The Department's Staff Report on Burrowing Owl Mitigation (CDFG 2012) recommends that impacts to occupied burrows be avoided by implementation of a no-construction buffer zone of a minimum distance of 250 feet, unless a qualified biologist approved by the department verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure. If burrowing owls occupy the site, during the non-breeding season, a passive relocation effort may be instituted.

2.7. Removal of Trees/Shrubs during Fall/Winter Months: To avoid potential impacts to nesting birds, trees and shrubs designated for removal should be cut down during the time period of September 16 to January 31. Trees/shrubs may be removed between February 1 and September 15 provided the Permittee has received written approval from DFG. A qualified biologist shall survey the

proposed work area to verify the presence or absence of nesting birds and submit a detailed survey report including mapping for any nests found. DFG will review the report and at the discretion of DFG, tree/shrub removal may be authorized between February 1 and September 15.

2.8. Vegetation: The disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations and shall only occur within the defined work area. Precautions shall be taken to avoid other damage to vegetation by people or equipment. Vegetation or material removed from the riparian area shall not be stockpiled in the streambed or on its banks without measures to ensure its stability, preventing accidental discharge into the stream.

2.8.1. No native riparian trees, shrubs or oak trees shall be removed or impacted as a result of planned construction activities for this Project.

2.9. Vehicles and Equipment: Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic and terrestrial life.

2.9.1. Construction vehicle access to the stream's banks and bed shall be limited to predetermined ingress and egress corridors on existing roads. All other areas adjacent to the work site shall be considered an ESA and shall remain off-limits to construction equipment. Vehicle corridors and the ESA shall be identified by the Permittee's resident engineer in consultation with the Designated Biologist.

2.10. Staging and storage areas: Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks, and to the extent possible, on previously disturbed ground. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream, shall be positioned over drip-pans. Vehicles shall be moved away from the stream prior to refueling and lubrication.

2.11. Pollution: The Permittee and all contractors shall be subject to the water pollution regulations found in the Department of Fish and Game Code Sections 5650 and 12015.

2.11.1. Raw cement, concrete or washings thereof, asphalt, drilling fluids or lubricants, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish or wildlife resulting from or disturbed by Project-related activities, shall be prevented from contaminating the soil and/or entering the "Waters of the State."

- 2.11.2. All Project-generated debris, building materials, and rubbish shall be removed from the stream and from areas where such materials could be washed into the stream.
- 2.11.3. In the event that a spill occurs, all Project activities shall immediately cease until cleanup of the spilled materials is completed. DFG shall be notified immediately by the Permittee of any spills and shall be consulted regarding cleanup procedures.
- 2.12. Structures: The Permittee shall confirm that all structures are designed (i.e., size and alignment), constructed, and maintained such that they shall not cause long-term changes in water flows that adversely modify the existing upstream or downstream stream bed/bank contours or increase sediment deposition or cause significant new erosion.
- 2.13. Fill: Rock, gravel, and/or other materials shall not be imported into or moved within the stream, except as otherwise addressed in this Agreement. Only on-site materials and clean imported fill shall be used to complete the Project. Fill shall be limited to the minimal amount necessary to accomplish the agreed activities. Excess and temporary fill material shall be moved off-site at Project completion.
- 2.14. Spoil: Spoil storage sites shall not be located within the stream, where spoil will be washed into the stream, or where it will cover aquatic or riparian vegetation. Rock, gravel, and/or other materials shall not be imported into or moved within the bed or banks of the stream, except as otherwise addressed in this Agreement.
- 2.15. Erosion: No work within the banks of the stream will be conducted during or immediately following large rainfall events, or when there is water flowing within the channel. All disturbed soils within the Project site shall be stabilized to reduce erosion potential, both during and following construction. Temporary erosion control devices may be used as appropriate to prevent siltation of the stream. Any installation of permanent non-erodible materials not described in the original Project description shall be coordinated with DFG. Coordination may include the negotiation of additional Agreement Provisions for this activity.
- 2.16. Turbidity: Turbid water shall not be discharged into the stream, or created within the stream. The Permittee's ability to minimize siltation shall be the subject of preconstruction planning and feature implementation. Precautions to minimize siltation may require that the work site be isolated so that silt or other deleterious materials are not allowed to pass to downstream reaches. The placement of any structure or materials in the stream for this purpose, not included in the original Project description, shall be coordinated with DFG. If it is determined that silt levels resulting from Project-related activities constitute a threat to aquatic life, activities associated with the siltation shall

be halted until effective DFG-approved control devices are installed, or abatement procedures are initiated.

- 2.17. Restoration: Excess material must be removed from the Project site, pursuant to Department of Transportation Standard Specifications Section 7-1.13. All disturbed soils and new fill, including recontoured slopes and all other cleared areas, shall be revegetated with riparian vegetation or other plants, as appropriate to prevent erosion. If the Project causes any exposed slopes or exposed areas on the stream banks, these areas shall be seeded with a blend of a minimum of three (3) locally native grass species and covered with a protective layer of weed-free straw or mulch. One (1) or two (2) sterile non-native perennial grass species may be added to the seed mix provided that amount does not exceed 25 percent of the total seed mix by count. Locally native wildflower and/or shrub seeds may also be included in the seed mix. The seeding shall be completed as soon as possible, but no later than November 15 of the year construction ends. A **seed mixture** shall be submitted to DFG for approval prior to application. At the discretion of DFG, all exposed areas where seeding is considered unsuccessful after 90 days shall receive appropriate soil preparation and a second application of seeding, straw, or mulch as soon as is practical on a date mutually agreed upon.

### 3. **Monitoring and Reporting Measures**

Permittee shall meet each reporting and monitoring requirement described below.

#### 3.1. Monitoring Obligations of the Permittee:

- 3.1.1. The Permittee shall have primary responsibility for monitoring compliance with all protective measures included as "Measures" in this Agreement. Protective measures must be implemented within the time periods indicated in the Agreement. DFG shall be notified immediately if monitoring reveals that any of the protective measures were not implemented during the period indicated in this Agreement, or if it anticipates that measures will not be implemented within the time period specified.
- 3.1.2. The Permittee (or the Permittee's designee) shall ensure the implementation of the Measures of the Agreement, and shall monitor the effectiveness of these Measures. DFG shall be notified immediately if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures.

#### 3.2. Reporting Obligations of the Permittee:

- 3.2.1. The Permittee shall submit the following Reports described in the Measures above to DFG:

- Construction/work schedule (Measure 1.9).
- Employees and contractors training sign-in sheet (Measure 1.10).
- Results of focused SJKF surveys (Measure 2.4.1).
- Results of general wildlife surveys (Measure 2.5.1).
- Results of avian surveys if construction is scheduled during the nesting season (Measure 2.6.1) or for tree removal Measure 2.7)
- The seed mixture to be used post Project for erosion control (Measure 2.16).

3.2.2. A Final Project Report shall be submitted to DFG within 30 days after the Project is completed. The final report shall summarize the Project construction, including any problems relating to the protective measures of this Agreement and how the problems were resolved. "Before and after" photo documentation of the Project site shall be included.

#### **VERIFICATION OF COMPLIANCE:**

DFG may verify compliance with protective measures to ensure the accuracy of Permittee's monitoring and reporting efforts at any point in time it is deemed necessary. DFG may, at its sole discretion, review relevant Project documents maintained by the Permittee, interview Permittee employees and agents, inspect the Project area, and take other actions to assess compliance with or effectiveness of protective measures for the Project.

#### **CONTACT INFORMATION**

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

##### **To Permittee:**

California Department of Transportation (Caltrans)  
 District 5  
 Jennifer Moonjian  
 50 Higuera Street  
 San Luis Obispo, California 93401  
 (805) 542-4763  
 Jennifer\_moonjian@dot.ca.gov

**To DFG:**

Department of Fish and Game  
Region 4 - Central Region  
1234 East Shaw Avenue  
Fresno, California 93710  
Attn: Lake and Streambed Alteration Program – Laura Peterson-Diaz  
Notification No.1600-2011-0169-R4  
Phone: (559) 243-4017, extension 225  
Fax: (559) 243-4020  
lpdiaz@dfg.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 DFG'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**

DFG 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 DFG 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 DFG 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 DFG to issue the notice.

**ENFORCEMENT**

Nothing in the Agreement precludes DFG 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 DFG'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**

DFG may amend the Agreement at any time during its term if DFG 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 DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG'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 DFG 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 DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG'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 DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFG 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 DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG complies with all applicable requirements under CEQA; and 3) after payment of the applicable FGC section 711.4 filing fee listed at [http://www.dfg.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html).

## **TERM**

This Agreement shall remain in effect for five (5) years beginning on the date signed by DFG, 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.

## **CEQA COMPLIANCE**

In approving this Agreement, DFG is independently required to assess the applicability of CEQA. The features of this Agreement shall be considered as part of the overall Project description. The Permittee's concurrence signature on this Agreement serves as confirmation to DFG that the activities that shall be conducted under the terms of this Agreement are consistent with the Project described in Notification No. 2012-0015-R4. Caltrans, as CEQA Lead Agency, submitted an Initial Study with Proposed Mitigated Negative Declaration in February 2011, State Clearinghouse No. 2010081091, for the parent Project the Gifford Creek Curve Correction Project. A copy of the Notice of Determination for the Project was provided with the Section 1602 Notification. DFG, as a CEQA Responsible Agency, shall make findings and submit a Notice of Determination to the State Clearinghouse upon signing this Agreement.

## **EXHIBITS**

The document(s) listed below is included as an exhibit to the Agreement and incorporated herein by reference.

A. Figure 1. Project Location USGS Quad Map.

**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 DFG in accordance with FGC section 1602.

**CONCURRENCE**

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

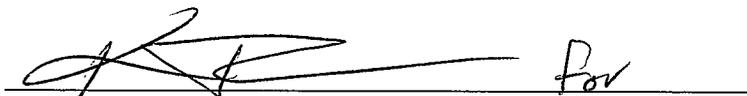
**FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION**



Larry Bonner  
Senior Environmental Planner

3-30-12  
Date

**FOR DEPARTMENT OF FISH AND GAME**

 For

Jeffrey R. Single, Ph.D.  
Regional Manager

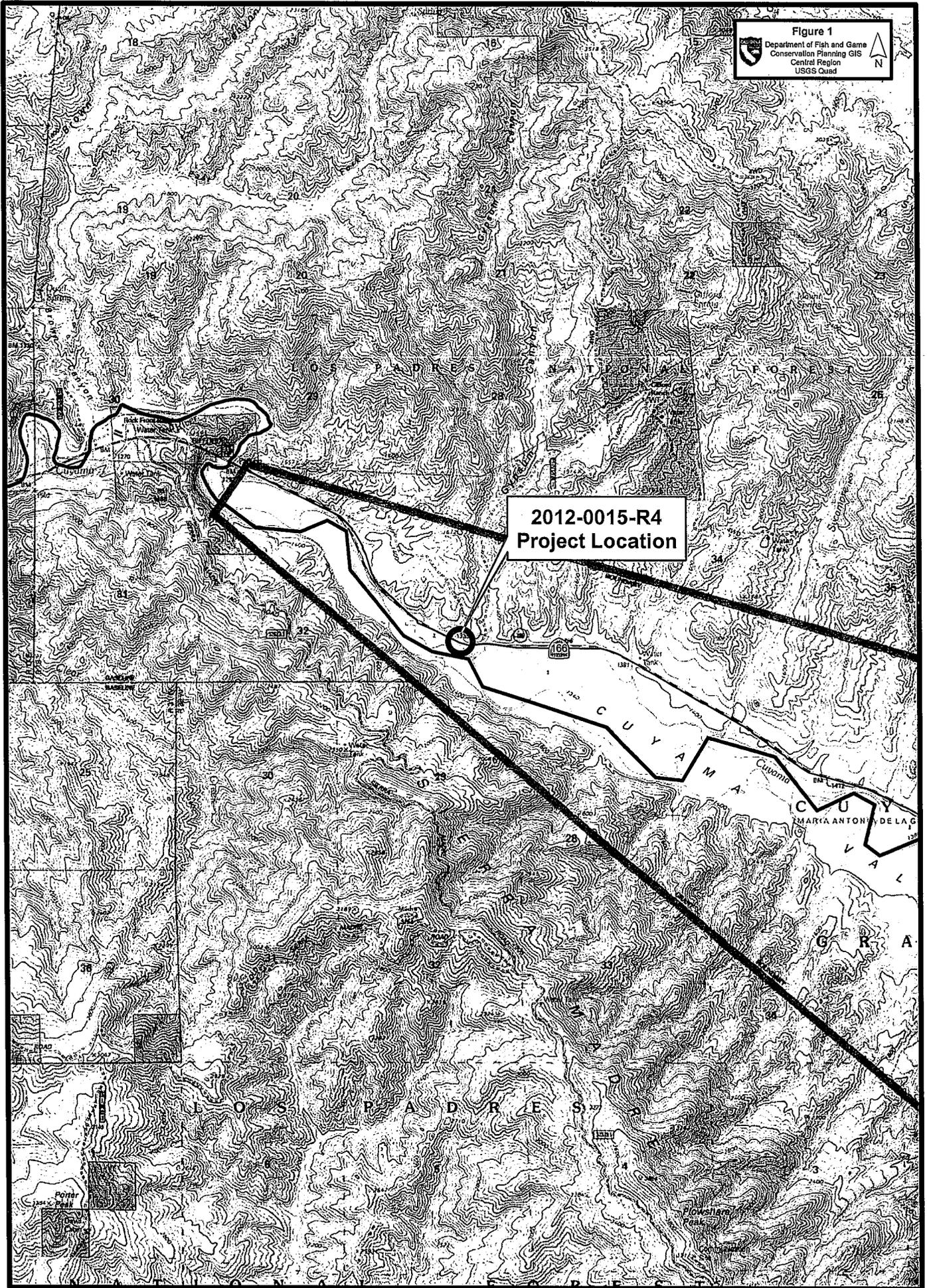
4/13/12  
Date

Prepared by: Laura Peterson-Diaz  
Environmental Scientist

**Figure 1**

**Exhibit A**

Figure 1  
Department of Fish and Game  
Conservation Planning GIS  
Central Region  
USGS Quad





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/organizations/cespk-co/regulatory/nwp/2012-nwps/2012-NWP-RC-CA.pdf>

### 2. Regional Conditions for Nevada, including the Tahoe Basin

<http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/nwp/2012-nwps/2012-NWP-RC-NV.pdf>

### 3. Regional Conditions for Utah

<http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/nwp/2012-nwps/2012-NWP-RC-UT.pdf>

### 4. Regional Conditions for Colorado.

<http://www.spk.usace.army.mil/organizations/cespk-co/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.

### 1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters,

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[www.twitter.com/USACEsacramento](http://www.twitter.com/USACEsacramento)

[www.flickr.com/photos/sacramentodistrict](http://www.flickr.com/photos/sacramentodistrict)

the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

- 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
- 3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
- 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
- 5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
- 6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
- 7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
- 8. **Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
- 9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
- 10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
- 11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
- 12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
- 13. **Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
- 14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
- 15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.
- 16. **Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
- 17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
- 18. **Endangered Species.**
  - (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.
  - (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to

demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the 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

historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

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

**22. Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or

ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

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

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

- (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).
- (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.
- (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.
- (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.
- (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.
- (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
- (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.
- (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.
- 24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.
- 25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.
- 26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.
- 27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

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

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

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

-----  
(Transferee)

-----  
(Date)

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the work and mitigation.

**31. Pre-Construction Notification.**

(a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification

(PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

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

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property

may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: 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

there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

### C. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, to the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10- acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining

whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences 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. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

### D. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

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).

**Open water:** For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

**Ordinary High Water Mark:** An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

**Perennial stream:** A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

**Practicable:** Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

**Pre-construction notification:** A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

**Preservation:** The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

**Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

**Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

**Restoration:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

**Riffle and pool complex:** Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

**Riparian areas:** Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

**Shellfish seeding:** The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

**Single and complete linear project:** A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

**Single and complete non-linear project:** For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

**Stormwater management:** Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

**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 NWPs, 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.



# California Regional Water Quality Control Board Central Coast Region



Matthew Rodriguez  
Secretary for  
Environmental Protection

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906  
(805) 549-3147 • FAX (805) 543-0397  
<http://www.waterboards.ca.gov/centralcoast>

Edmund G. Brown Jr.  
Governor

March 29, 2012

Jennifer Moonjian  
California Department of Transportation (Caltrans)  
50 Higuera Street  
San Luis Obispo, CA 93401  
Email: [Jennifer\\_moonjian@dot.ca.gov](mailto:Jennifer_moonjian@dot.ca.gov)

**VIA ELECTRONIC MAIL**

Dear Ms. Moonjian:

## **WATER QUALITY CERTIFICATION NUMBER 34012WQ06 FOR GIFFORD CREEK CURVE CORRECTION PROJECT, SAN LUIS OBISPO COUNTY**

Thank you for the opportunity to review your February 2, 2012 application for water quality certification of the Gifford Creek Curve Correction Project (Project). The project, if implemented as described in your application and with the additional mitigation requirements and conditions required by this Certification, appears to be protective of beneficial uses of State waters. We are issuing the enclosed Standard Letter of Certification.

At this time, we do not anticipate issuing additional requirements based on your application. Should new information come to our attention that indicates a water quality problem, we may require additional monitoring and reporting, issue Waste Discharge Requirements, or take other action.

Your Section 401 Water Quality Certification application and California Environmental Quality Act (CEQA) documents indicate that project activities may affect beneficial uses and water quality. The Central Coast Regional Water Quality Control Board (Central Coast Water Board) issues this certification to protect water quality and associated beneficial uses from project activities. We need reports to determine compliance with this certification. All technical and monitoring reports requested in this certification, or anytime after, are required per Section 13267 of the California Water Code.

Your failure to submit reports required by this certification, or your failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per Section 13268 of the California Water Code. The Central Coast Water Board will base enforcement actions on the date of certification. Any person affected by this Central Coast Water Board action may petition the State Water Resources Control Board (State Board) to review this action in accordance with California Water Code Section 13320; and Title 23, California Code of Regulations, Sections 2050 and 3867-3869. The State Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

*California Environmental Protection Agency*

If you have questions please contact **David Innis** at (805) 549-3150 or via email at dbinnis@waterboards.ca.gov or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this project.

Sincerely,



Digitally signed by Phil Hammer  
Date: 2012.03.29 09:29:26 -07'00'

for  
Roger W. Briggs  
Executive Officer

Enclosure: Action on Request for CWA Section 401 Water Quality Certification

cc: With enclosures

Bruce Henderson  
U.S. Army Corps of Engineers  
Ventura Office  
Regulatory Section  
2151 Allesandro Drive, Suite 110  
Ventura, CA 93001  
email: Henderson@usace.army.mil

Julie Means  
California Department of Fish and Game  
Lake and Streambed Alteration  
1234 East Shaw Avenue  
Fresno, CA 93710  
email: jmeans@dfg.ca.gov

401 Program Manager  
State Water Resources Control Board  
Division of Water Quality  
Stateboard401@waterboards.ca.gov

R9-WTR8-Mailbox@epa.gov

S:\Shared\Section 401 Certification\Certifications\San Luis Obispo\2012\R3\_GiffordCreekCurvCorrect\_34012WQ06\_final.doc

Action on Request for  
Clean Water Act Section 401 Water Quality Certification  
for Discharge of Dredged and/or Fill Materials

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**PROJECT:** Gifford Creek Curve Correction

**APPLICANT:** Jennifer Moonjian  
California Department of Transportation (Caltrans)  
50 Higuera Street  
San Luis Obispo, CA 93401

**ACTION:**

1.  Order for Standard Certification
2.  Order for Technically-conditioned Certification
3.  Order for Denial of Certification

**STANDARD CONDITIONS:**

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment per section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This certification action is not intended to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed per 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license was being sought.
3. The validity of any non-denial certification action (Actions 1 and 2) shall be conditioned upon total payment of the fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.
4. This certification is subject to the acquisition of all local, regional, state, and federal permits and approvals as required by law. Failure to meet any conditions contained herein or any conditions contained in any other permit or approval issued by the State of California or any subdivision thereof may result in the revocation of this Certification and civil or criminal liability.
5. In the event of a violation or threatened violation of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of Section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.
6. In response to a suspected violation of any condition of this certification, the Central Coast Water Board may require the holder of any permit or license subject to this certification to

furnish, under penalty of perjury, any technical or monitoring reports the Central Coast Water Board deems appropriate, provided that the burden, including costs, of the reports shall have a reasonable relationship to the need for the reports and the benefits obtained from the reports.

- 7. The total fee for this project is \$1,878. The remaining fee payable to the Central Coast Water Board is \$137.

**CENTRAL COAST WATER BOARD CONTACT PERSON:**

David Innis  
(805) 549-3150  
dbinnis@waterboards.ca.gov

Please refer to the above certification number when corresponding with the Central Coast Water Board concerning this project.

**WATER QUALITY CERTIFICATION:**

I hereby issue an order certifying that any discharge from the Gifford Creek Curve Correction Project shall comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act.

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicant's project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Central Coast Water Board's Water Quality Control Plan (Basin Plan).



Digitally signed by Phil Hammer  
Date: 2012.03.29 09:29:49 -07'00'

for \_\_\_\_\_  
Roger W. Briggs  
Executive Officer  
Central Coast Water Board

\_\_\_\_\_  
March 29, 2012  
Date

**PROJECT INFORMATION AND CONDITIONS**

Application Date	Received: February 2, 2012 Completed: February 2, 2012
Applicant	Jennifer Moonjian Jennifer_moonjian@dot.ca.gov (805) 542-4763  California Department of Transportation (Caltrans) 50 Higuera Street San Luis Obispo, CA 93401
Applicant Representatives	N/A
Project Name	Gifford Creek Curve Correction
Application Number	34012WQ06
Type of Project	Roadway realignment and bridge construction
Project Location	East of Santa Maria Latitude: 35° 5' 45.60" N      Longitude: 120° 3' 43.20" W
County	San Luis Obispo
Receiving Water(s)	Cuyama River 312.30 Santa Maria Hydrologic Unit
Water Body Type	Streambed
Designated Beneficial Uses	Municipal and Domestic Supply (MUN) Agricultural Supply (AGR) Ground Water Recharge (GWR) Water Contact Recreation (REC-1) Non-Contact Recreation (REC-2) Wildlife Habitat (WILD) Warm Fresh Water Habitat (WARM) Rare, Threatened or Endangered Species (RARE) Commercial and Sport Fishing (COMM)
Project Description (purpose/goal)	The purpose of this project is to build a new bridge over Gifford Creek to realign U.S. Route 166 to the south of the existing road to improve horizontal alignment and to reduce the vehicle collision rate between post-mile 36.0 and 40.5.  Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff understands that the project includes the following activities: <ul style="list-style-type: none"> <li>• Building a new bridge over Gifford Creek that will be approximately 44 feet wide and 84 feet long;</li> <li>• Removing the existing bridge after construction is completed; and</li> <li>• Placing 0.03 acres of rock slope protection upstream and downstream of the new bridge near the abutments to protect the bridge foundations from erosion.</li> </ul>

<p>Preliminary Water Quality Issues</p>	<p>Central Coast Water Board staff finds the project has the potential to cause sedimentation, siltation, and pollutant release to the creek. Erosion could be caused by the construction activities or by the road realignment. Pollutants could be released from construction equipment (e.g., oil, gasoline, hydraulic fluid, and other liquid contaminants associated with earth-moving equipment) or from the concrete work associated with bridge construction.</p> <p>Central Coast Water Board staff finds the project has the potential to adversely impact California red-legged frog, vernal pool fairy shrimp, and their habitat.</p>
<p>Project Requirements</p>	<p><u>Project practices that are required to comply with 401 Water Quality Certification are as follows:</u></p> <ol style="list-style-type: none"> <li>1. Construction within the jurisdictional areas shall take place only during the dry season, beginning no earlier than June 1 and ending no later than October 1, and when there is no standing water in the work area. After October 1, erosion control measures shall be kept on site and immediately available for installation. If the National Weather Service predicts a 25% or more chance of rain within 24 hours, all construction activities in waters of the State shall cease and the site manager shall install effective erosion and sediment control measures. Construction activities may resume in waters of the State after the rain event has passed and site conditions are dry enough to continue work without additional risk of discharging to waters of the State.</li> <li>2. Caltrans shall use adequate Best Management Practices (BMPs) (e.g., revegetation, fiber rolls, erosion control blankets, hydromulching, compost, straw with tackifiers, temporary basins) in and around construction areas to intercept rain drop impacts, control the sources of erosion, and capture sedimentation. Caltrans shall implement washout, trackout, and dust control BMPs.</li> <li>3. Caltrans shall apply approved grass seed mixtures with adequate irrigation and soil stabilizers (e.g., compost, hydromulch, tackified straw) and/or erosion control blankets over seeded areas for slope stabilization.</li> <li>4. Any material stockpiled that is not actively being used during construction shall be covered with plastic unless reserved for seed banking, which requires alternative erosion and dust control BMPs.</li> <li>5. All construction vehicles and equipment used on site shall be well maintained and checked daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials.</li> <li>6. Caltrans shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite in case spills occur.</li> <li>7. Caltrans shall confine all trash and debris in appropriate enclosed bins and dispose of the trash and debris at an</li> </ol>

	<p>approved site at least weekly.</p> <p>8. Caltrans shall designate a staging area for equipment and vehicle fueling and storage at least 100 feet away from waterways, in a location where fluids cannot flow into waterways.</p> <p>9. All vehicle fueling and maintenance activity shall occur at least 100 feet away from waterways, and in designated staging areas.</p> <p>10. Dewatering and stream diversion measures are not authorized based on the application. If the project requires dewatering or diversion, Caltrans shall submit detailed dewatering or diversion plans at least 15-days prior to any dewatering or diversion.</p> <p>11. Sand and gravel bags, if used, shall be filled only with clean gravel.</p> <p>12. All post-construction BMPs shall be implemented and functioning prior to completion of the project.</p> <p>13. All construction-related equipment, materials, and any temporary BMPs no longer needed shall be removed and cleaned from the site upon completion of the project.</p> <p>14. Central Coast Water Board staff shall be notified if mitigations as described in the 401 Water Quality Certification application for this project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. Caltrans shall inform Central Coast Water Board staff of any modifications that interfere with compliance with this certification.</p>
Area of Disturbance	Approximately 0.23 acres Streambed: 0.03 acres permanent, 0.2 acres temporary
Fill/Excavation Area	Approximately 0.23 acres of temporary or permanent fill/excavation
Dredge Volume	N/A
U.S. Army Corps of Engineers Permit No	Nationwide Permit 14 – Linear Transportation Projects
Federal Public Notice	N/A
Dept. of Fish and Game Streambed Alteration Agreement	Streambed Alteration Agreement is pending. Final, signed copy will be forwarded immediately upon execution.
Possible Listed Species	California red-legged frog, vernal pool fairy shrimp
Status of CEQA Compliance	Negative Declaration Lead Agency: California Department of Transportation (Caltrans)
Compensatory Mitigation Requirements	<p><u>The project shall include the following:</u></p> <ul style="list-style-type: none"> <li>• Placing removed topsoil back on disturbed slopes and all other disturbed areas and hydroseeding these areas with native species as soon as work on the bridge and the creek banks is complete;</li> <li>• Backfilling with soil and reseeding 0.15 acres of RSP in the area of the existing (old) bridge;</li> <li>• Irrigating during initial seeding only and removing all irrigation equipment when it is no longer in use;</li> </ul>

	<ul style="list-style-type: none"> <li>Achieving 85% cover (compared to pre-construction conditions) in revegetated areas by year five; and</li> <li>Replacing removed trees at a 10:1 ratio with new native trees and a 20:1 understory with native shrubs.</li> </ul>
<p>Total Certification Fee</p>	<p>\$1,878</p>
<p>Additional Conditions</p>	<p>Contact Central Coast Water Board staff when project begins to allow for a site visit.</p> <p>Submit a signed copy of the Department of Fish and Game's streambed alteration agreement to the Central Coast Water Board immediately upon execution and prior to any discharge to waters of the State.</p> <p>The Central Coast Water Board requires visual monitoring and five reports for this project, to be submitted in electronic format to <a href="mailto:RB3_401Reporting@waterboards.ca.gov">RB3_401Reporting@waterboards.ca.gov</a>:</p> <ul style="list-style-type: none"> <li>Visually inspect the site after completion of the project and for four subsequent rainy seasons to ensure that the project is not causing excessive erosion or other water quality problems. If the project does cause water quality problems, contact the Central Coast Water Board staff member overseeing the project. You will be responsible for obtaining any additional permits necessary for implementing plans for restoration to prevent further water quality problems.</li> <li>First Report: Within 30 days of project completion, submit a project completion report that contains a summary of daily activities, monitoring and inspection observations, and problems incurred and actions taken; include properly identified post-project photos.</li> <li>Second, Third, Fourth, and Fifth Report: Submit annual reports complete with photos of revegetation efforts by December 31 of each monitoring year. Annual reports shall quantify growth and progress of restoration and determine to what extent performance criteria have been met. All areas of the revegetation site shall be assessed for percent cover, general health and stature, and signs of reproduction. The report shall also include photographs of revegetation progress over time.</li> </ul>



Matthew Rodriguez  
Secretary for  
Environmental Protection

# California Regional Water Quality Control Board Central Coast Region

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906  
(805) 549-3147 • FAX (805) 543-0397  
<http://www.waterboards.ca.gov/centralcoast>



Edmund G. Brown Jr.  
Governor

April 19, 2012

Jennifer Moonjian  
California Department of Transportation (Caltrans)  
50 Higuera Street  
San Luis Obispo, CA 93401  
Email: Jennifer\_moonjian@dot.ca.gov

VIA ELECTRONIC MAIL

Dear Ms. Moonjian:

## AMENDMENT TO WATER QUALITY CERTIFICATION NUMBER 34012WQ06 FOR THE GIFFORD CREEK CURVE CORRECTION PROJECT, SAN LUIS OBISPO COUNTY

Caltrans has requested changes to the Project Information and Conditions for the Gifford Creek Curve Correction Project, as stated in Attachment 1 of the March 29, 2012 Water Quality Certification No. 34012WQ06. The proposed changes will amend the following sections of Attachment 1: Preliminary Water Quality Issues, Project Requirements, and Compensatory Mitigation Requirements. These changes to the original Water Quality Certification are illustrated through underlined and strikeout text below:

- Preliminary Water Quality Issues, 2<sup>nd</sup> Paragraph  
~~Central Coast Water Board staff finds the project has the potential to adversely impact California red-legged frog, vernal pool fairy shrimp, San Joaquin kit fox and their habitat. Caltrans shall implement the standard avoidance and minimization measures outlined in Section 4.3.1.2 of the Gifford Creek Curve Correction Natural Environment Study prepared in April 2010 to avoid harm or harassment to San Joaquin kit fox, American badger, and burrowing owl.~~
- Project Requirements, 1<sup>st</sup> Condition  
Construction within the jurisdictional areas shall take place only during the dry season, beginning no earlier than June 1 and ending no later than October 1, and when there is no standing water in the work area.

Installing RSP is the only construction activity permitted within jurisdictional areas during the wet season (October 1 to June 1). RSP shall be installed in segments that will each take less than 3 days to complete. Each segment of RSP installation shall commence only if rain is not forecast for the entire 3 day work window and if there is no standing or flowing water in the work area.

The bridge concrete shall be poured in sections that will each take no more than 2 days to complete. Each section of concrete pouring shall commence only if rain is not forecast for the entire 2 day work window.

*California Environmental Protection Agency*

Appropriate measures will be taken to ensure that contaminated runoff and debris from any construction activities do not reach the creek.

~~After October 1, e~~Erosion control measures shall be kept on site and immediately available for installation. If the National Weather Service predicts a 25% or more chance of rain within 24 hours, all construction activities associated with the project in waters of the State shall cease and the site manager shall install effective erosion and sediment control measures. Construction activities may resume ~~in waters of the State~~ after the rain event has passed and site conditions are dry enough to continue work without additional risk of discharging to waters of the State.

- Compensatory Mitigation Requirements (entire section)

The project shall include the following:

- Preserve topsoil and seed bank for re-vegetation;
- Place preserved topsoil and seed bank in areas disturbed to remove the old roadbed;
- Restore the old roadbed and other disturbed areas with companion planting using native shrubs and grasses;
- Restore the native grassland and blue oak savannah with seeding and planting with native species as soon as work on the bridge and the creek banks is complete;
- ~~Placing removed topsoil back on disturbed slopes and all other disturbed areas and hydroseeding these areas with native species as soon as work on the bridge and the creek banks is complete;~~
- Backfilling with soil and reseeding 0.15 acres of Rock Slope Protection (RSP) in the area of the existing (old) bridge;
- Irrigateing during initial seeding only and removeing all irrigation equipment when it is no longer in use;
- Achieveing 85% cover (compared to pre-construction conditions) in revegetated areas by year five; and
- ~~Replacing removed trees at a 10:1 ratio with new native trees and a 20:1 understory with native shrubs.~~

We do not expect these changes to result in additional impacts to water quality. Therefore, we are amending Water Quality Certification No. 34012WQ06 for the Gifford Creek Curve Correction Project to allow the requested changes.

If you have questions please contact **Tamara Presser** at (805) 549-3334 or via email at [tpresser@waterboards.ca.gov](mailto:tpresser@waterboards.ca.gov) or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this project.

Sincerely,



Digitally signed by Phil Hammer

Date: 2012.04.19 13:47:41

-07'00'

for  
Roger W. Briggs  
Executive Officer

S:\Shared\Section 401 Certification\Certifications\San Luis Obispo\2012\R3\_GiffordCreekCurvCorrect\_34012WQ06\_amendment 1\_final.doc

CC:

Bruce Henderson  
U.S. Army Corps of Engineers  
Ventura Office  
Regulatory Section  
2151 Allesandro Drive, Suite 110  
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401 Program Manager  
State Water Resources Control Board  
Division of Water Quality  
Stateboard401@waterboards.ca.gov

R9-WTR8-Mailbox@epa.gov

---

## Central Coast Regional Water Quality Control Board

May 3, 2012

Jennifer Moonjian  
California Department of Transportation (Caltrans)  
50 Higuera Street  
San Luis Obispo, CA 93401  
Email: Jennifer\_moonjian@dot.ca.gov

VIA ELECTRONIC MAIL

Dear Ms. Moonjian:

### **AMENDMENT NO. 2 TO WATER QUALITY CERTIFICATION NUMBER 34012WQ06 FOR THE GIFFORD CREEK CURVE CORRECTION PROJECT, SAN LUIS OBISPO COUNTY**

Caltrans has requested changes to the Project Information and Conditions for the Gifford Creek Curve Correction Project, as they are stated in Attachment 1 of the March 29, 2012 Water Quality Certification No. 34012WQ06, which was amended on April 19, 2012. The changes identified below further amend the Project Requirements section of Attachment 1. The changes to the amended Water Quality Certification are illustrated through underlined and strikeout text below:

- Project Requirements, 1<sup>st</sup> Condition

~~Construction within the jurisdictional areas shall take place only during the dry season, beginning no earlier than June 1 and ending no later than October 1, and when there is no standing water in the work area.~~

~~Installing RSP is the only construction activity permitted within jurisdictional areas during the wet season (October 1 to June 1). RSP shall be installed in segments that will each take less than 3 days to complete. Each segment of RSP installation shall commence only if rain is not forecast for the entire 3 day work window and if there is no standing or flowing water in the work area.~~

~~The bridge concrete shall be poured in sections that will each take no more than 2 days to complete. Each section of concrete pouring shall commence only if rain is not forecast for the entire 2 day work window.~~

Appropriate measures ~~will~~ shall be taken to ensure that contaminated runoff, runoff containing sediment exceeding background levels, and debris from any construction activities do not reach flows in the creek.

Erosion control measures shall be kept on site and immediately available for installation. If the National Weather Service predicts a 25% or more chance of rain within 24 hours, all construction activities ~~associated with the project~~ within waters of the State shall cease, except for the following activities which must implemented as soon as possible:

- Restoration of creek contours below the ordinary high water mark to pre-project conditions to ensure flows are unimpeded and flow paths are unaltered;
- Stabilization of all disturbed areas of waters of the State, including areas both above and below the ordinary high water mark; and
- Installation of effective erosion and sediment control measures to prevent erosion and control discharges of sediment and other pollutants to creek flows. and the site manager shall install effective erosion and sediment control measures.

Construction activities may resume in waters of the State after the rain event has passed and site conditions are dry enough to continue work without additional risk of discharging to flows in the creek or impeding creek flows.~~waters of the State.~~

We do not expect these changes to result in additional impacts to water quality. Therefore, we are amending Water Quality Certification No. 34012WQ06 for the Gifford Creek Curve Correction Project to allow the requested changes.

If you have questions please contact **Tamara Presser** at (805) 549-3334 or via email at [tpresser@waterboards.ca.gov](mailto:tpresser@waterboards.ca.gov) or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this project.

Sincerely,



Digitally signed by Phil Hammer  
Date: 2012.05.03 13:50:32 -07'00'

for  
Roger W. Briggs  
Executive Officer

cc:

Chuck Cesena  
Caltrans  
email: chuck\_cesena@dot.ca.gov

Bruce Henderson  
U.S. Army Corps of Engineers  
email: Henderson@usace.army.mil

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401 Program Manager  
State Water Resources Control Board  
Division of Water Quality  
email: Stateboard401@waterboards.ca.gov

R9-WTR8-Mailbox@epa.gov

State of California – Department of Transportation  
Division of Engineering Services  
Structure Design Services

Structure Hydraulics and Hydrology

## FINAL HYDRAULIC REPORT

# Gifford Creek Bridge

Located on US Route 166 over Gifford Creek in the County of San Luis Obispo

Bridge No. 49-0142

EA 0500000355

05 SLO 166 PM 36.0/40.5

May 11, 2011

---

PREPARED BY:  
Ronald McGaugh

REVIEWED BY:  
XXXXXXXXXXXXXXXXXX

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This report has been prepared under my direction as the professional engineer in responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California

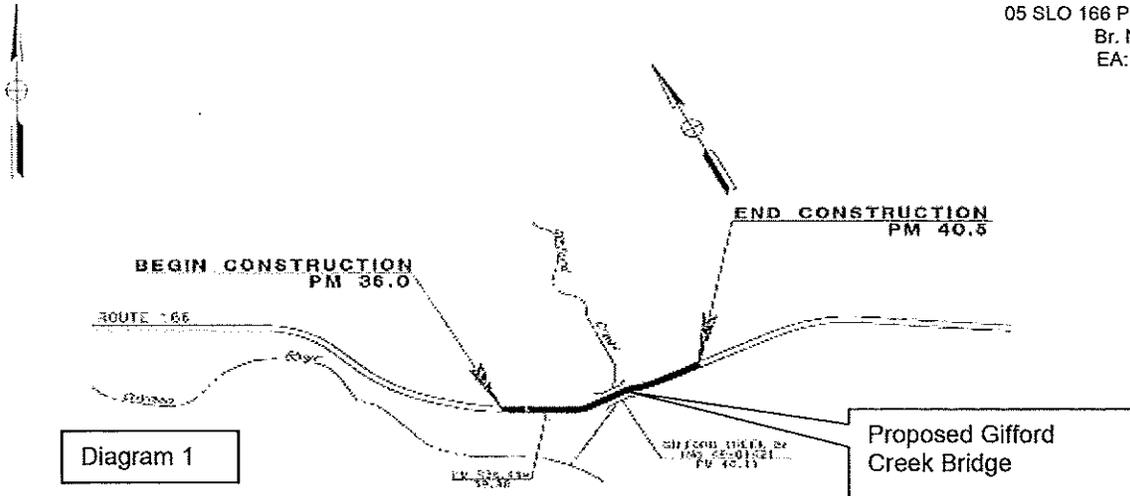


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REGISTERED ENGINEER

---

REGISTRATION NUMBER C 61217



### **General:**

It is proposed to place a new single span bridge structure along the new alignment of State Route 166. The proposed new structure will be approximately 120 feet downstream of the existing structure. It is planned that the existing structure will be removed. This evaluation was based on the APS Plan dated March 15, 2010, Caltrans Bridge Maintenance Records, As-Built plans, hydrologic and hydraulic reports submitted for FEMA, and previous APS plans submitted by Structure Design.

The data and references for this hydraulic report were obtained from the following sources:

- Caltrans' Bridge Maintenance Records.
- Preliminary Hydraulic Report dated July 2007.
- Field photo documentation and bridge site submittal information received by this office dated November 2010.
- Historical cross sections for Gifford Creek Bridge 49-0142.
- US Geological Survey (Regional Regression Method) Magnitude and Frequency of Floods in California--Bulletin 77-21. Used for the National Stream Statistics Program.
- HEC 18, Evaluating Scour at Bridges, 4<sup>th</sup> edition.
- Caice Survey provided from District 5 May 9, 2011

All elevations in this report are based on the survey data provided by District 5 CAICE and the preliminary design information provided by Structure Design. The Vertical Datum is NAVD 29.

### **Flood History:**

The existing structure is single span 29 feet long and 28 feet wide. From the As-Built plans and previous maintenance investigations of this site, the existing bridge is not scour critical and the flow does not overtop. There has been a history of lateral movement by the channel that affects the existing wing walls. There is no flooding history for this location.

### **Basin:**

Gifford Creek drains approximately 3.3 square miles. The watershed is located north of the Sierra Madre Mountains in the Cuyama Valley. Gifford Creek is a small tributary of the Cuyama River. There is no tributary above Gifford Creek Bridge. Gifford Creek crosses under Highway 166 in San Luis Obispo County at/near Post Mile 40.0. This basin is mostly undeveloped rural and lightly forested lands.

Watershed elevations range from approximately 3500 feet at the higher elevations to approximately 1330 feet at the site. This watershed seems to have potential for slight debris yield. The channel slope was estimated at 3%. Mean Annual Precipitation within the watershed is about 15 inches.

**Drift:**

It is not anticipated that there will be a problem with drift or debris.

**Discharge:**

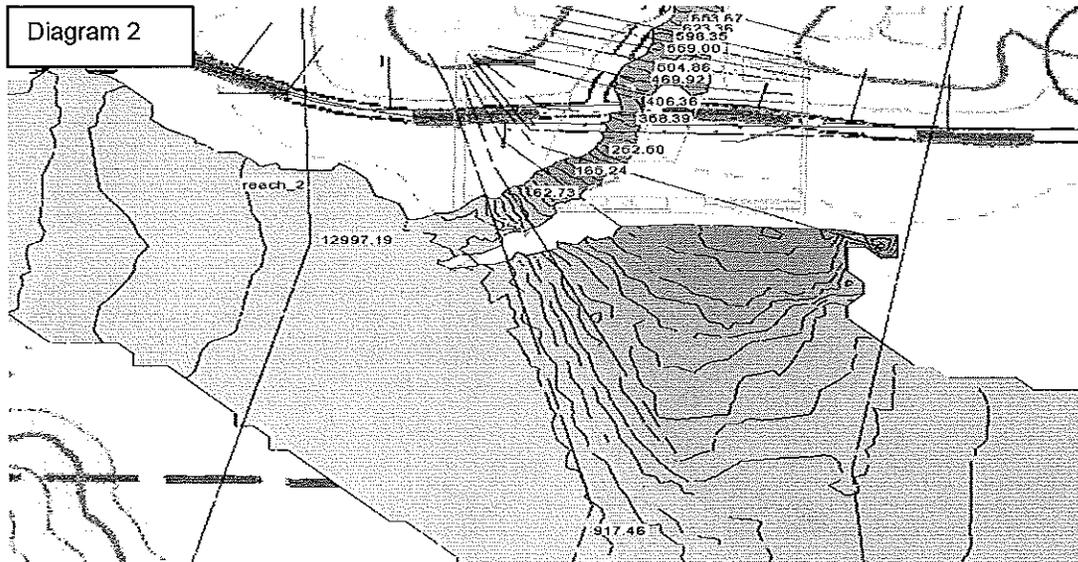
The estimated  $Q_{100}$  and  $Q_{50}$  for Gifford Creek are 2750  $ft^3/s$ , and 2120  $ft^3/s$ , respectively. Discharge values were determined using a two dimensional water modeling program and the Magnitude and Frequency of Floods in California--Bulletin 77-21. Parameters used for the hydraulics were a conservative "n" value of 0.035 and an average slope of 0.310 ft/ft. These results were verified by Mark Cresswell of District 5 Hydraulics.

**Streambed:**

From the APS Plan it is anticipated that the bridge will have a slight hydraulic or structural skew. This is anticipated to be less than 10 degrees and will not affect this evaluation unless the skew is changed to greater than 15 degrees. At the time of writing this report there is no Log of Test Borings for the natural channel bottom.

**Water Surface Elevations:**

The estimated stage for the  $Q_{100}$  flood on the proposed bridge is 1346.6 feet. This is based on the HEC-RAS analysis of May 2011 which includes the removal of the existing structure. The water surface has no backwater influenced by the Cuyama River, which is less than 900 feet downstream (see Diagram 2).



**Model Preparation and Parameters**

US Army Corps of Engineers software HEC-RAS was used to create the model for this project. The APS plans (Diagrams 3, 4, & 5 below) do not indicate elevations on the deck or the typical section so the model was constructed with an assumed 2 feet of freeboard to provide the minimum clearance needed to pass the flow and satisfy regulatory agencies. The lowest calculated chord elevation of 1350.5 feet was used for the soffit elevation. The structural section depth was added to the soffit elevation to get the planned deck elevation of 1355.6 ft. The bridge was designed according to diagrams 3, 4, & 5.

Diagram 3

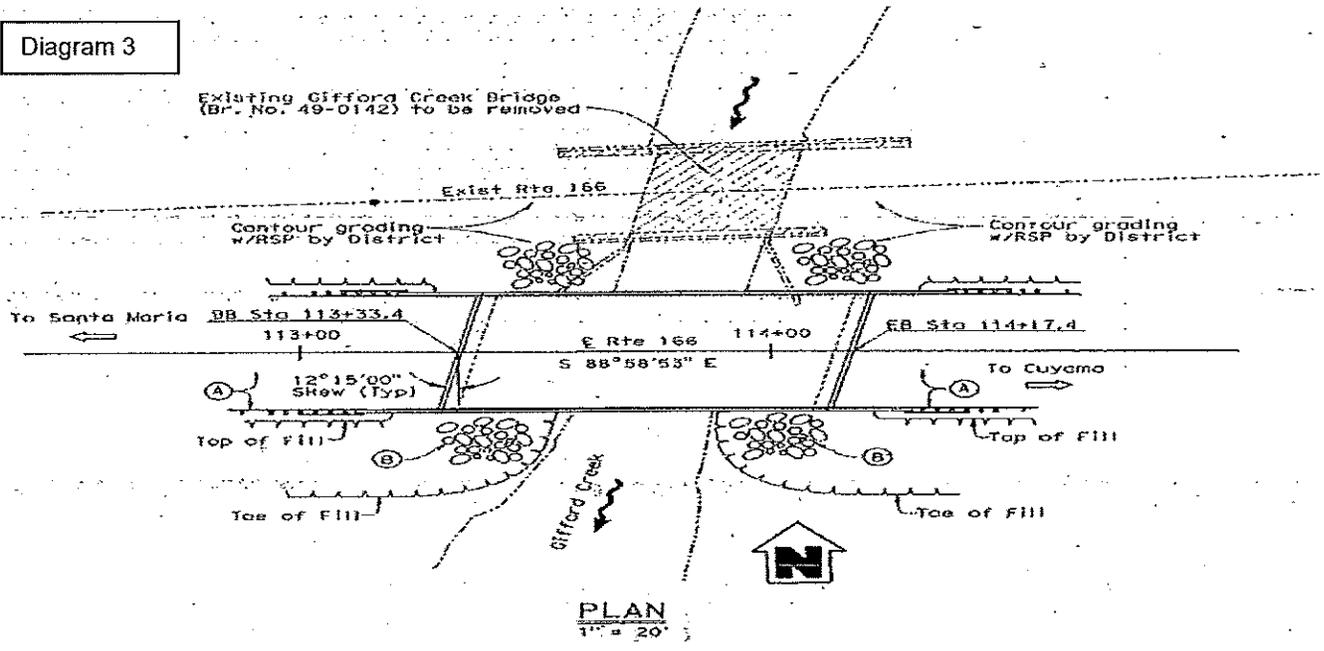


Diagram 4

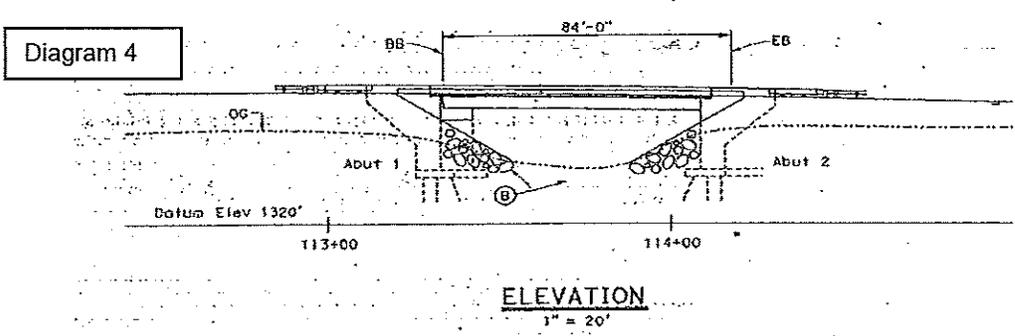
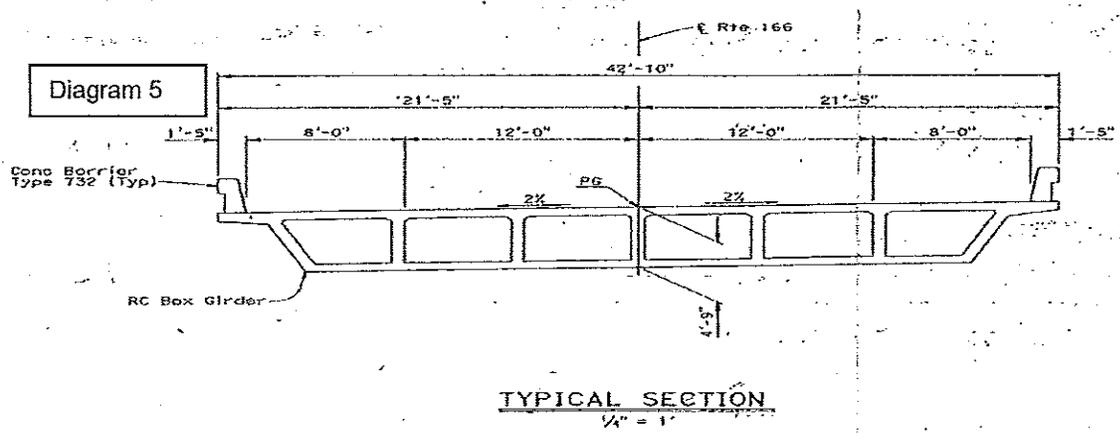


Diagram 5



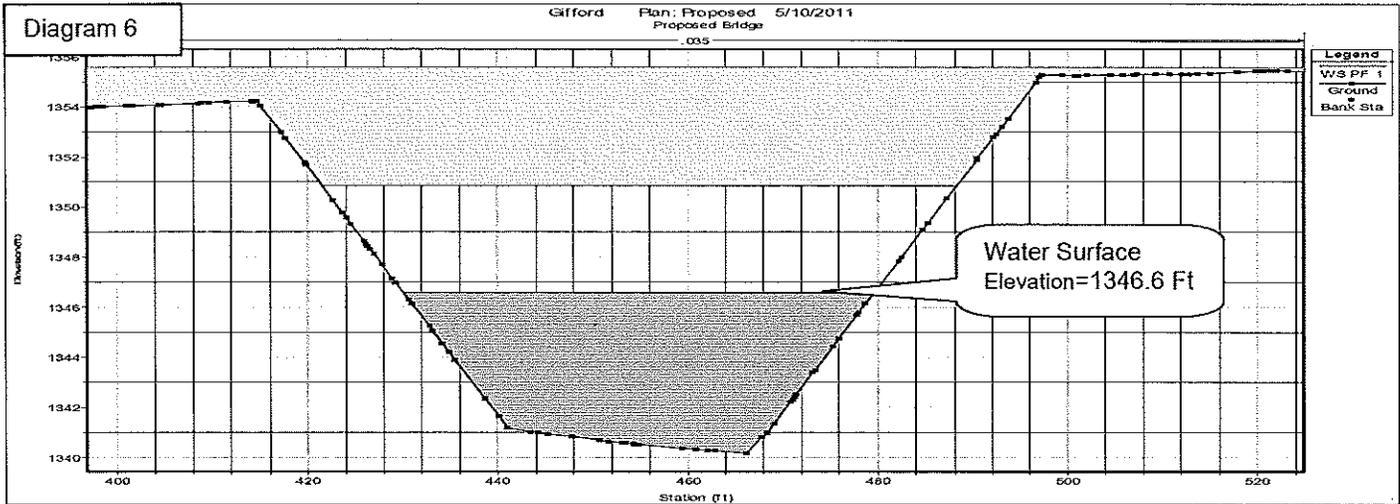


Diagram 6 Bridge Cross Section from HEC-RAS model

Model parameters include

- Skew less than 15 degrees
- 'n' =0.035
- Slope of 0.310 ft/ft
- Bridge length of 84 feet
- Bridge length of 42 ft -10 in
- Structure depth of 4 ft- 9 in

Modeled results include:

- $Q_{100} = 2750$  cfs
- Max Water surface elevation of 1346.6 ft
- Minimum soffit elevation of 1348.6 ft
- Avg Velocity of 12.0 ft/s
- Froude number of 1
- 2 foot of freeboard
- Unobstructed waterway of 236 ft<sup>2</sup>

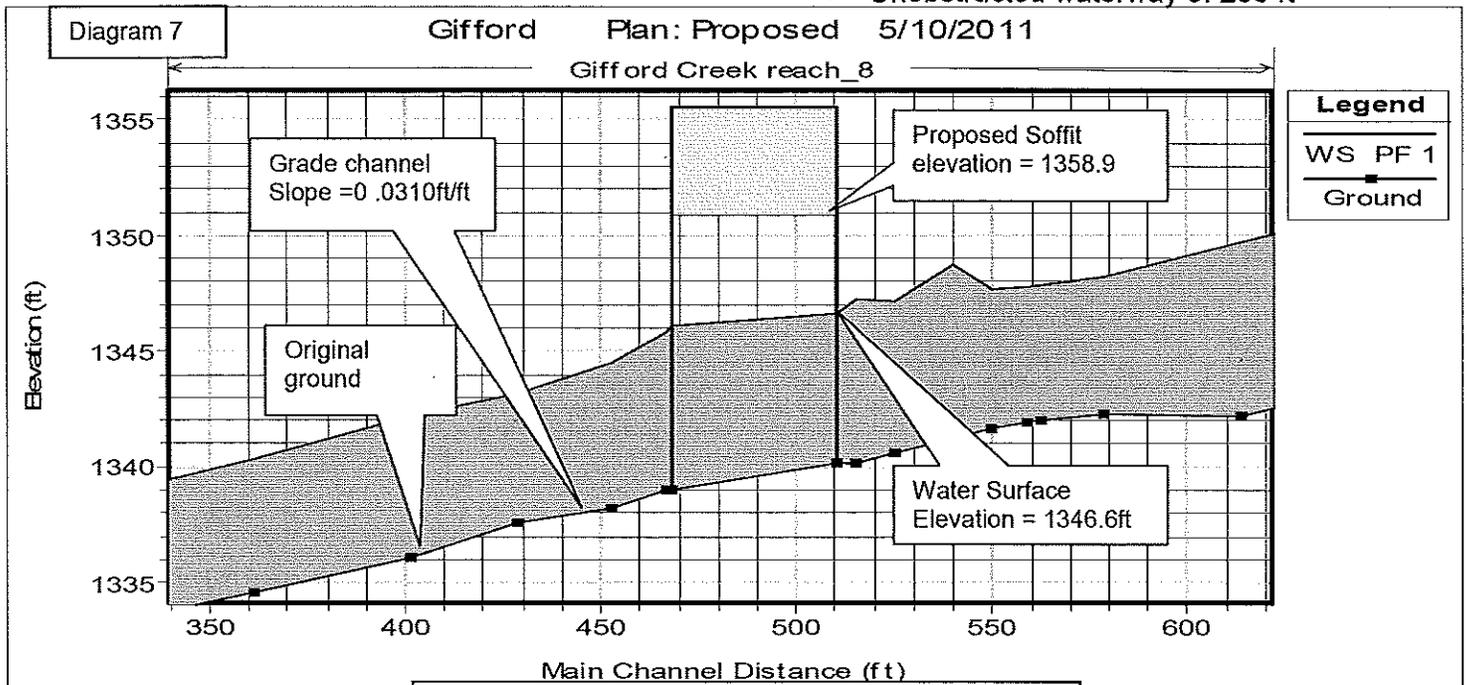


Diagram 7 Bridge profile from HEC-RAS model

**Scour:**

This is a single span bridge of adequate size. From this model the abutments will be placed at least 7 feet from the edge of the flow. This will result in no scour at the abutments. This structure will not cause any contraction scour. It is not anticipated that there will be lateral movement of this channel. Historical cross sections of the existing structure do not show any degradation over the life of the structure. Please refer to the scour summary at the end of this report.

**Summary & Recommendations:**

As long as the proposed soffit is greater than 1347.1 ft and the length and width does not change. The proposed structure meets hydraulic requirements and is designed not to become scour critical, and will not adversely affect the hydraulic capacity of the existing channel.

From the APS plans rock riprap is shown to be placed in several locations. It should be noted that the velocities for this flow are high. Once elevations have been established please resubmit this request so evaluation can be done for the proposed Rock Riprap.

A hydrologic summary of the bridge site is provided in the Tables below.

<b>HYDROLOGIC/HYDRAULIC SUMMARY</b>	
Bridge 49-0142	
Drainage Area: 3.32 mi <sup>2</sup>	
10 degree bridge skew    57-foot-wide channel    slope 0.0310ft/ft	
Design Q <sub>100</sub> Discharge (cfs)	2750
Minimum soffit Elevation (feet)	1348.6
Average Velocity (ft/s)	12.0
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. <b>The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation. Addendums may be necessary as Foundation Reports are completed.</b>	

**Scour Summary**

\*\* No Scour is anticipated

Scour Type	Scour depth	Scour Elevation
Local Scour	0	**
Contraction Scour	0	**
Degradation	0	**
Long term	0	**
Abutment Scour	0	**

**M e m o r a n d u m** *Flex your power!*

*Be energy efficient!*

**To:** GORDON DANKE  
Branch Chief  
Division of Engineering Services, Structure Design  
Office of Bridge Design – West, Branch 9

**Date:** November 2, 2011

**File:** 05-SLO-166-40.11  
0500000355 (EA 05-0R3001)  
Br. No. 49-0257  
Gifford Creek Bridge

Attn: Isaias Yalan

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

**Subject:** Revised Foundation Report

**Scope of Work**

A revised Foundation Report (FR) is provided for the above referenced project. This report supercedes the Foundation Report dated June 15, 2011. It is intended to stand alone; copies of the previous report should be discarded.

Proposed improvements are part of a project to correct vertical and horizontal alignments to meet current expressway design standards and improve stopping sight distance. Replacement of the existing Gifford Creek Bridge (Br. No. 49-0142) and realignment of the highway over a downstream area of Gifford Creek are proposed. Refer to the attached Foundation Plan for the proposed location of the new Gifford Creek Bridge relative to existing facilities and land features. Two mud rotary borings were drilled in the vicinity of the new bridge to provide subsurface information for this report.

**Project Description**

State Route 166 is an east/west highway connecting the Central Coast to the southern San Joaquin Valley. Within the project limits Route 166 is a two-lane conventional highway with 10 to 12-foot lanes and 4 to 6-foot outside shoulders. The location is experiencing run-off-the-road and out-of-control collisions at a rate that is nearly four times the statewide average for similar facilities. The project proposes a horizontal curve realignment to meet current expressway design standards and improve safety.

Construction of a simple span CIP/PS box girder bridge structure is proposed at the new Gifford Creek crossing location. The existing bridge will be demolished. A General Plan detailing the dimensions and location of the proposed structure was provided by Structure Design.

The following datum was used to reference horizontal and vertical positions of the proposed structure:

- Horizontal: North American Datum of 1983 (NAD83(92) (1991.35))
- Vertical: National Geodetic Vertical Datum of 1929 (NGVD29)

### **Pertinent Reports and Investigations**

The following publications were used to assist in the assessment of site conditions:

1. *Caltrans ARS Online.*
2. *Final Hydraulic Report, Gifford Creek Bridge, Caltrans Structure Hydraulics and Hydrology, Ronald L. McGaugh, May 11, 2011.*
3. *Geologic Map of the San Luis Obispo County, California, Compiled by Lew Rosenberg.*
4. *Geotechnical Services Design Manual, Version 1.0, Division of Engineering Services, August 2009.*
5. *Preliminary Seismic and Foundation Reports, Gifford Creek Bridge, EA 05-0R300K, Caltrans, Michael Finegan, June 2008.*

### **Field Investigation and Testing Program**

Two geotechnical borings were performed to support foundation design recommendations for the proposed bridge. Continuous soil samples were obtained from the borings using a punch core apparatus retrieved via wire line. Soils were visually classified in accordance with the Caltrans Soil and Rock Logging, Classification, and Presentation Manual (June 2010). Standard Penetration Tests (SPT), ASTM test method 1586, were performed to estimate in situ density of the soils. Soil strength parameters of cohesionless soils were estimated from correlations with SPT blow counts.

Boring R-11-001, located 23 feet right of Station 114+18, was advanced 90.5 feet to elevation 1261.0 feet. Boring R-11-002, located 6 feet right of Station 113+10, was advanced 55.5 feet, to elevation 1295.9 feet. Boring R-11-002 was instrumented as an open-standpipe observation well by installing 1- $\frac{1}{2}$ " slotted PVC pipe in the hole and backfilling the annulus with washed #8 sand.

### **Laboratory Testing Program**

Soil samples obtained during the subsurface investigation were submitted to the Headquarters Geotechnical Laboratory for corrosion potential testing.

## **Site and Subsurface Conditions**

### *Climate*

The Cuyama Valley area has a hot and subhumid to arid climate marked by cool, rainy winters and hot, dry summers. The mean annual precipitation is approximately 15 inches and the mean annual temperature is around 60° F. Precipitation is primarily rain, with occasional snow at higher elevations. The local climate is influenced by mountain ranges that isolate the valley from the moderating influences of the Pacific Ocean to the west.

### *Topography and Drainage*

The project area is situated in rolling terrain along the northern terrace of the Cuyama River in northern Cuyama Valley, approximately 1,300 feet above mean sea level. The valley is bounded by the Caliente Range to the north and the Sierra Madre Mountains to the south. Finger ridges from the Caliente Range foothills trend northwest along the upper terrace. The meandering, intermittently flowing Cuyama River runs along the southwest side of the Caliente Range. Multiple seasonal tributaries drain into this watershed from the north. Gifford Creek flows out of Gypsum Canyon at the east end of the project area.

### *Geology*

Geologic maps of the area and previous subsurface investigations indicate that project area is underlain by Late Pleistocene to Holocene alluvial deposits.

### *Soil Conditions*

The geotechnical borings encountered 18 feet to 55 feet of loose to very dense silty sand, poorly graded sand, and poorly graded sand with gravel and cobbles overlying poorly indurated sandstone. Scattered boulders were observed on the ground surface and along the banks of Gifford Creek. The observed stratigraphy appears consistent with geologic mapping of the area. Stratigraphy comprised of layers of variable thickness and lateral extent are indicative of the alluvial environment in which they were deposited. Particle size distribution, layer thickness, and lateral extent of deposition change as the velocity of water depositing the materials varies.

### *Ground Water*

Boring R-11-002 was instrumented as an open-standpipe monitoring well. Ground water was measured 31.8 feet below original ground on April 5, 2011, corresponding to an elevation of 1319.6 feet.

### Scour Evaluation

The Final Hydraulic Report provided by Structures Hydraulics and Hydrology indicates that no scour is anticipated.

### Corrosion Evaluation

Representative soil samples taken during the subsurface investigation were tested for corrosion potential. The Department considers a site corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site:

- Chloride concentration is greater than or equal to 500 ppm
- Sulfate concentration is greater than or equal to 2000 ppm
- The pH is 5.5 or less

Since resistivity serves as an indicator parameter for the possible presence of soluble salts, tests for sulfate and chloride are usually not performed unless the resistivity of the soil is 1,000 ohm-cm or less.

**Table 1: Corrosion Test Summary**

Boring	Depth	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
R-10-001	0'-50'	C491421	5175	7.61	N/A	N/A
R-10-001	74'-75'	C491422	3429	8.29	N/A	N/A
R-10-002	0'-17''	C491423	6801	8.17	N/A	N/A
R-10-002	31'-32'	C491424	7200	8.38	N/A	N/A
R-10-002	54'-55'	C491425	1342	8.44	N/A	N/A
<b>Corrosive if:</b>			<b>≤ 1000</b>	<b>≤ 5.5</b>	<b>≥ 500</b>	<b>≥ 2000</b>

Based on corrosion test results, and because the project area is not within 1000 feet of salt or brackish water, the site is considered non-corrosive.

### Seismic Recommendations

The project is located within a seismically active region of California. There are several earthquake faults in close proximity to the project area. Table 2 lists the active and potentially active faults in the project vicinity as described in Caltran's *2007 Fault Database*. Corresponding Moment Magnitudes and distances to the bridge site are also given. A fault map is included in the attachments to this report.

**Table 2: Active and Potentially Active Faults**

<i>Fault</i>	<i>Moment Magnitude of Maximum Credible Earthquake<sup>1</sup></i>	<i>Type of Fault<sup>2</sup></i>	<i>Distance to Fault from Project Area (kilometers)</i>
West Huasna Fault Zone	7.0	RLSS	27.4
San Andreas Fault Zone (Cholame-Carrizo Section)	7.8	RLSS	28.7
Southern San Luis Range Fault Zone	7.2	R	31.2
Little Pine Fault	7.1	R	31.2
Casmalia Fault	6.5	R	42.1
Los Alamos Fault	6.9	R	43.0
Lions Head Fault	6.6	R	52.7

A design response spectrum for the project area was estimated using the 2009 Caltrans Seismic Design Procedure. The procedure was developed to calculate the minimum seismic design requirements for bridges on State highways. The method calculates design response spectra over a range of periods. The design response spectrum is based on the envelope of a deterministic and a probabilistic spectrum. The deterministic spectrum is calculated as the arithmetic average of median response spectra computed using the Chiou & Youngs and Campbell & Bozorgnia ground motion prediction equations (CY-CB GMPE). These equations are applied to all faults in or near California considered to be active in the last 700,000 years (late Quaternary age) and capable of producing a moment magnitude earthquake of 6.0 or greater.

The probabilistic spectrum is obtained from the 2008 USGS Seismic Hazard Map for the 5% in 50 years probability of exceedance (or 975 year return period). The spectral values are adjusted with a soil amplification factor based on an average of the Boore-Atkinson (2008), Campbell Bozorgnia (2008), and Chiou-Youngs (2008) ground motion prediction models. For sites underlain by soils having an average shear wave velocity for the upper 30 meters of soil ( $V_{S30}$ ) of less than 300 meters per second, the 2009 USGS Probabilistic Seismic Hazard Analysis Interactive Deaggregation Tool is used to develop the probabilistic spectrum.

The controlling faults at the Gifford Creek Bridge site are the San Andreas fault zone (Cholame-Carrizo section) and the Southern San Luis Range fault zone. The design response spectrum was

<sup>1</sup> According to Caltrans 2007 Fault Database

<sup>2</sup> LLSS=left-lateral strike-slip fault; RLSS=right-lateral strike-slip fault; R=reverse fault; N=normal fault

governed by the probabilistic spectrum with a soil amplification factor for a  $V_{S30}$  of 315 meters per second. The  $V_{S30}$  value was estimated using correlations of shear wave velocities with SPT blow counts. The peak ground acceleration at the project site is estimated to be 0.4 g (gravity). The in-situ soil qualifies as a Type D soil profile according to the criteria described in *Geotechnical Services Design Manual, Version 1.0*. The final design response spectrum is provided in the attachments to this report.

No known active or potentially active faults project towards or cross the highway alignment within the project limits. Therefore, there is low potential for surface fault rupture to occur and no mitigation efforts are necessary.

Liquefaction potential at the Gifford Creek Bridge site is low. For liquefaction to occur, three elements in combination are necessary: loose granular soils, saturated soil conditions, and strong ground shaking. Loose cohesionless soils are not present at an elevation where they may become saturated with ground water.

### **As-Built Review**

The existing Gifford Creek Bridge was constructed in 1958 and is a simple span CIP/RC bridge supported on spread footings. Log of Test Borings included in the original construction documents indicate that alluvial deposits of sands, silts, gravels and cobbles underlie the bridge foundations. The foundation plan notes indicate that an allowable bearing pressure of 5,000 pounds per square foot was used to design the spread footings.

### **Foundation Recommendations**

Spread footings are the recommended foundation type for the Gifford Creek Bridge. Scour is not anticipated to be an issue at the site, so there is no potential for spread footings to be undermined, and there is no concern regarding loss of embedment. Memo to Designers 5-1 states that spread footings are an acceptable foundation type for abutments under single span bridges, even in areas where there is the potential for strong ground shaking due to an earthquake.

Due to the presence of loose sand below the specified bottom of footing elevation at abutment 2, it is recommended that the foundation soil at that location be overexcavated a minimum of four feet, moisture conditioned, and recompacted.

Foundation Design Recommendations for Spread Footings									
Support Location	Footing Size (ft)		Bottom of Footing Elevation (ft)	Minimum Footing Embedment Depth (ft)	WSD (LRFD Service-I Limit State Load Combination)		LRFD		
	B	L			Permissible Gross Contact Stress (ksf)	Allowable Gross Bearing Capacity (ksf)	Service	Strength $\Phi_b=X$	Extreme Event $\Phi_b=X$
							Permissible Net Contact Stress (ksf)	Factored Gross Nominal Bearing Resistance (ksf)	Factored Gross Nominal Bearing Resistance (ksf)
Abut. 1	11.00	43.60	1334.00	6	17	14.2	N/A	N/A	N/A
Abut. 2	11.00	43.60	1334.00	6	8	11.9	N/A	N/A	N/A

*Notes:*

- 1) Recommendations are based on the foundation geometry and the loads provided by Structure Design in the Foundation Design Data Sheet. The footing contact area is taken as equal to the effective footing area, where applicable.

Spread Footing Data Table					
Support Location	Working Stress Design (WSD)		Load and Resistance Factor Design (LRFD)		
	Permissible Gross Contact Stress (Settlement) (ksf)	Allowable Gross Bearing Capacity (ksf)	Service Permissible Net Contact Stress (Settlement) (ksf)	Strength Factored Gross Nominal Bearing Resistance $\Phi_b=X$ (ksf)	Extreme Event Factored Gross Nominal Bearing Resistance $\Phi_b=X$ (ksf)
Abut. 1	17	14.2	N/A	N/A	N/A
Abut. 2	8	11.9	N/A	N/A	N/A

**Approach Embankments**

Construction of seven-foot and five-foot high approach embankments is proposed for Abutments 1 and 2 respectively. Elastic settlement of the underlying cohesionless soils was calculated using Hough's Method, which correlates soil grain size distribution and SPT values with a bearing capacity factor that is used in a settlement equation. Due to the absence of under-consolidated cohesive soils, no consolidation settlement is expected to occur. An immediate settlement of approximately one inch is expected in the cohesionless soils.

### Construction Considerations

All temporary cut slopes shall conform to OSHA guidelines and shall not exceed 1:1 slope angles. Permanent cut and fill slopes shall not exceed 2:1 slope angles.

### Project Information

Standard Special Provision S5-280, "Project Information", discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The Department makes the following supplemental project information available:

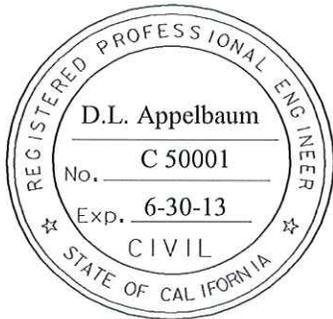
**Supplemental Project Information**

Means	Description
Included in the Information Handout	Foundation Report for the Gifford Creek Bridge dated November 2, 2011.
Available for inspection at the District Office	Borehole cores.
Available for inspection at the Transportation Laboratory	None
Available for inspection at _____; telephone (____) - _____	None
Available as specified in the Standard Specifications	
Available at: <a href="http://www.dot.ca.gov/hq/esc/oe/weekly_ads/index.php">http://www.dot.ca.gov/hq/esc/oe/weekly_ads/index.php</a>	

Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the Addressee of this report via electronic mail.

## Closure

The recommendations contained in this report are based on specific project information that has been provided by Office of Bridge Design – West, Branch 9. If any conceptual changes are made during final project design, the Office of Geotechnical Design – North, Branch D should review those changes to determine if the recommendations contained in this report are still applicable. Any questions regarding the recommendations contained herein should be directed to the attention of Dan Appelbaum, (805) 549-3745, or Mike Finegan, (805) 549-3194, at the Office of Geotechnical Design – North, Branch D.



*Daniel L. Appelbaum*  
DANIEL L. APPELBAUM, PE  
Transportation Engineer  
Geotechnical Design – North  
Branch D

Supervised by,

*Michael S. Finegan*  
MICHAEL S. FINEGAN, PE, Chief  
Geotechnical Design - North  
Branch D

- c: Roy Bibbens / GDN Records (E-copy)  
GS File Room (email [gs\\_file\\_room@dot.ca.gov](mailto:gs_file_room@dot.ca.gov))  
Amy Donatello – Project Manager (E-copy)  
Mark Willian – GS Corporate (E-copy)  
Structure Construction R.E. Pending File (email [RE\\_pending\\_file@dot.ca.gov](mailto:RE_pending_file@dot.ca.gov))  
Doug Lambert – District Materials Engineer (E-copy)  
Craig Whitten – DES Office Engineer, Office of PS&E  
Job File / Branch D Records

## **LIST OF ATTACHMENTS**

<b>ATTACHMENT 1</b>	<b>VICINITY MAP</b>
<b>ATTACHMENT 2</b>	<b>GEOLOGIC MAP</b>
<b>ATTACHMENT 3</b>	<b>EARTHQUAKE FAULTS</b>
<b>ATTACHMENT 4</b>	<b>FOUNDATION PLAN</b>
<b>ATTACHMENT 5</b>	<b>FINAL DESIGN RESPONSE SPECTRUM</b>
<b>ATTACHMENT 6</b>	<b>LOG OF TEST BORINGS</b>

**STATE OF CALIFORNIA**  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN LUIS OBISPO COUNTY**  
**FROM 1.1 MILE EAST OF CUYAMA RIVER BRIDGE**  
**TO 3.8 MILE WEST OF CARRIZO CANYON BRIDGE**

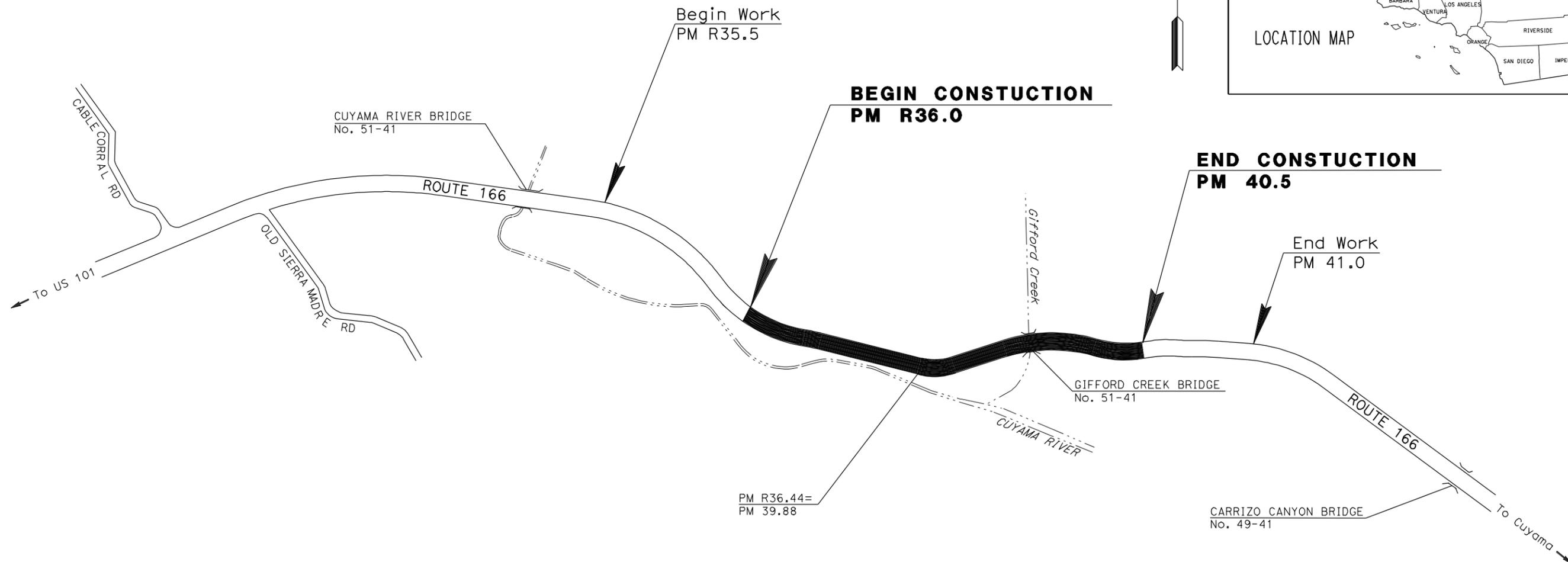
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	166	R36.0/40.5		





LOCATION MAP



PM R36.44=  
PM 39.88

NO SCALE

PROJECT MANAGER  
AMY DONTATELLO

DESIGN ENGINEER  
STEVE WYATT

PROJECT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
 REGISTERED CIVIL ENGINEER

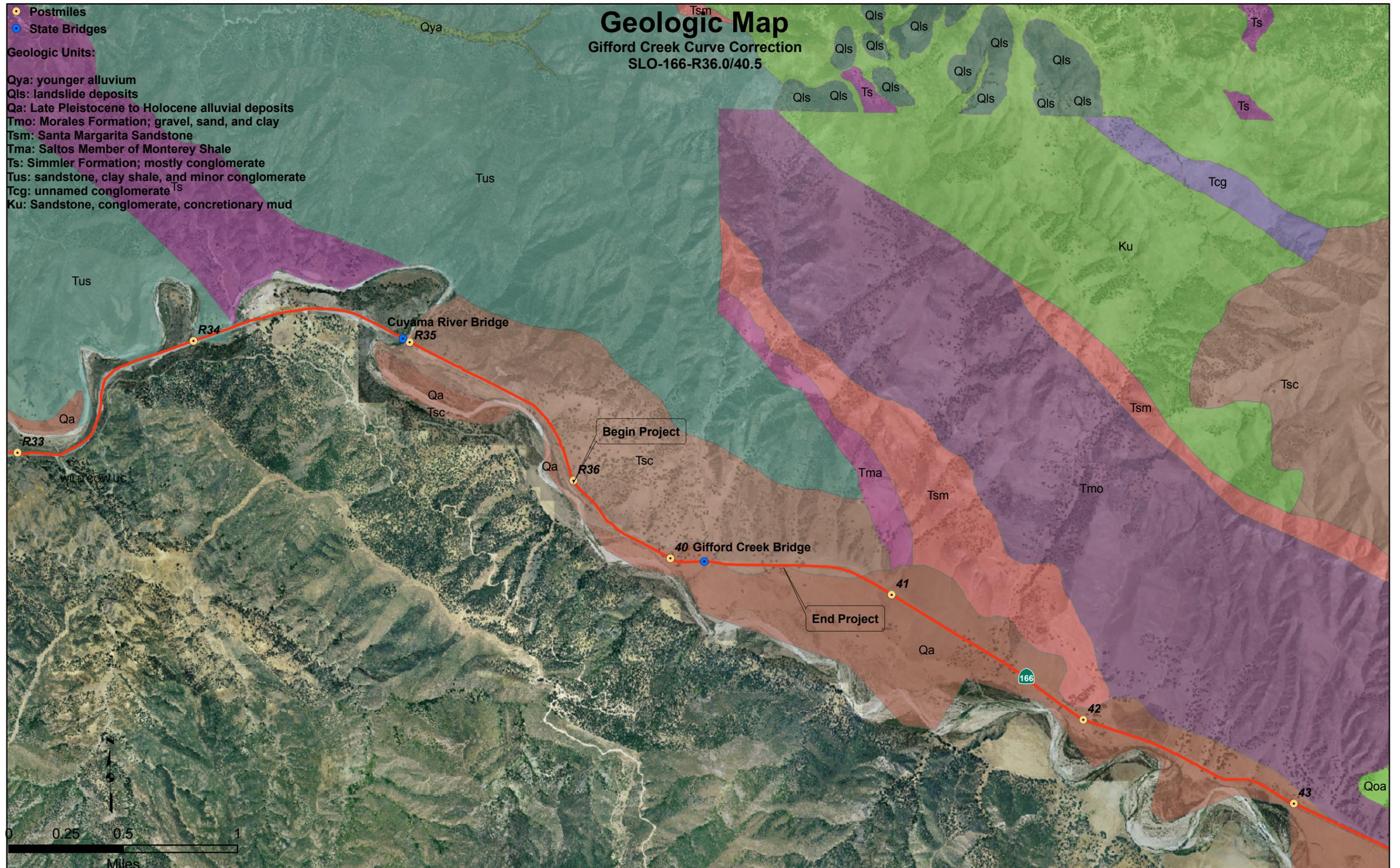


PLANS APPROVAL DATE \_\_\_\_\_  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO CONTRACTORS."

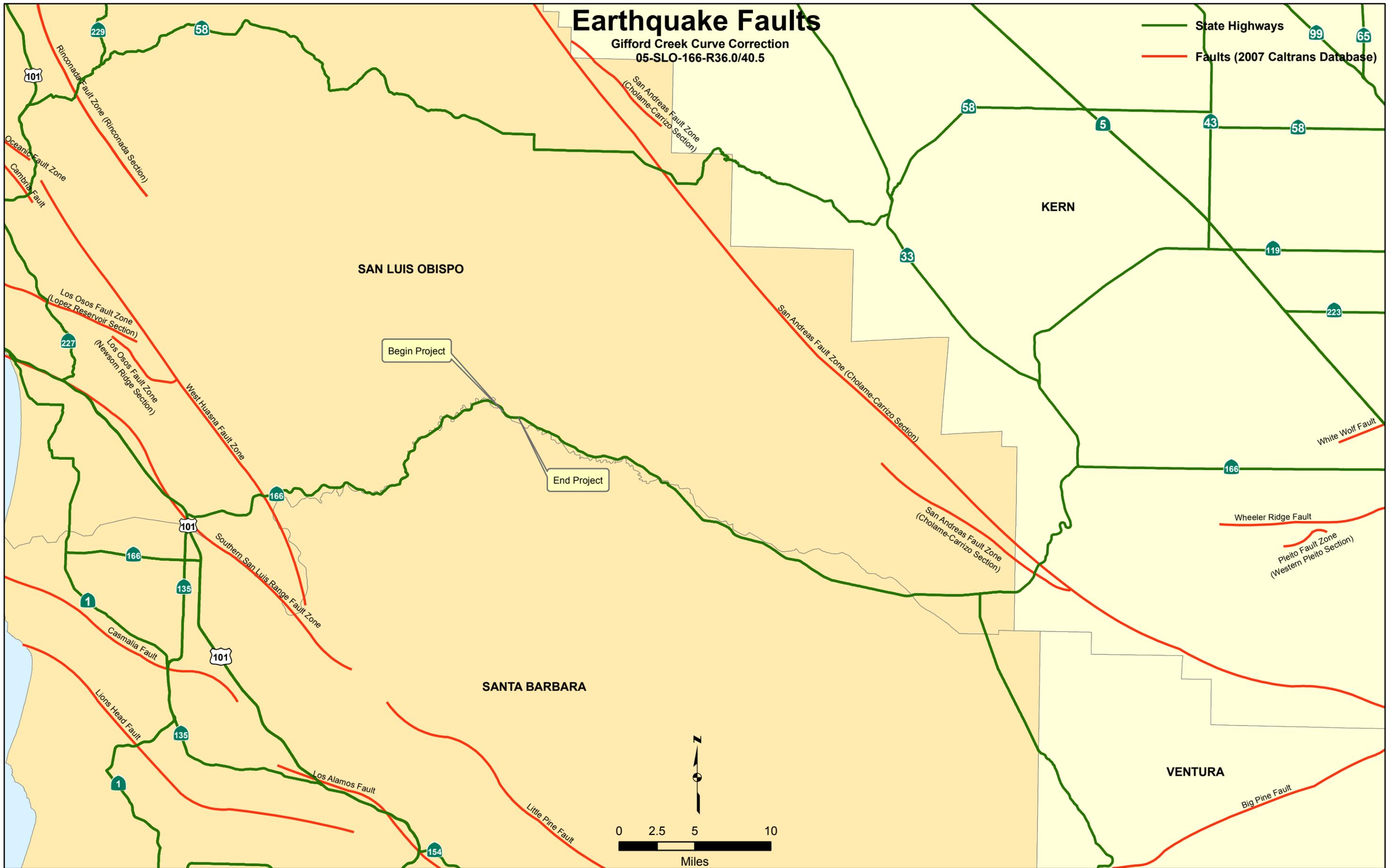
**ATTACHMENT 1: VICINITY MAP**

CONTRACT No. **05-OR3004**  
 PROJECT ID **050000355**



# Earthquake Faults

Gifford Creek Curve Correction  
05-SLO-166-R36.0/40.5



CURVE DATA

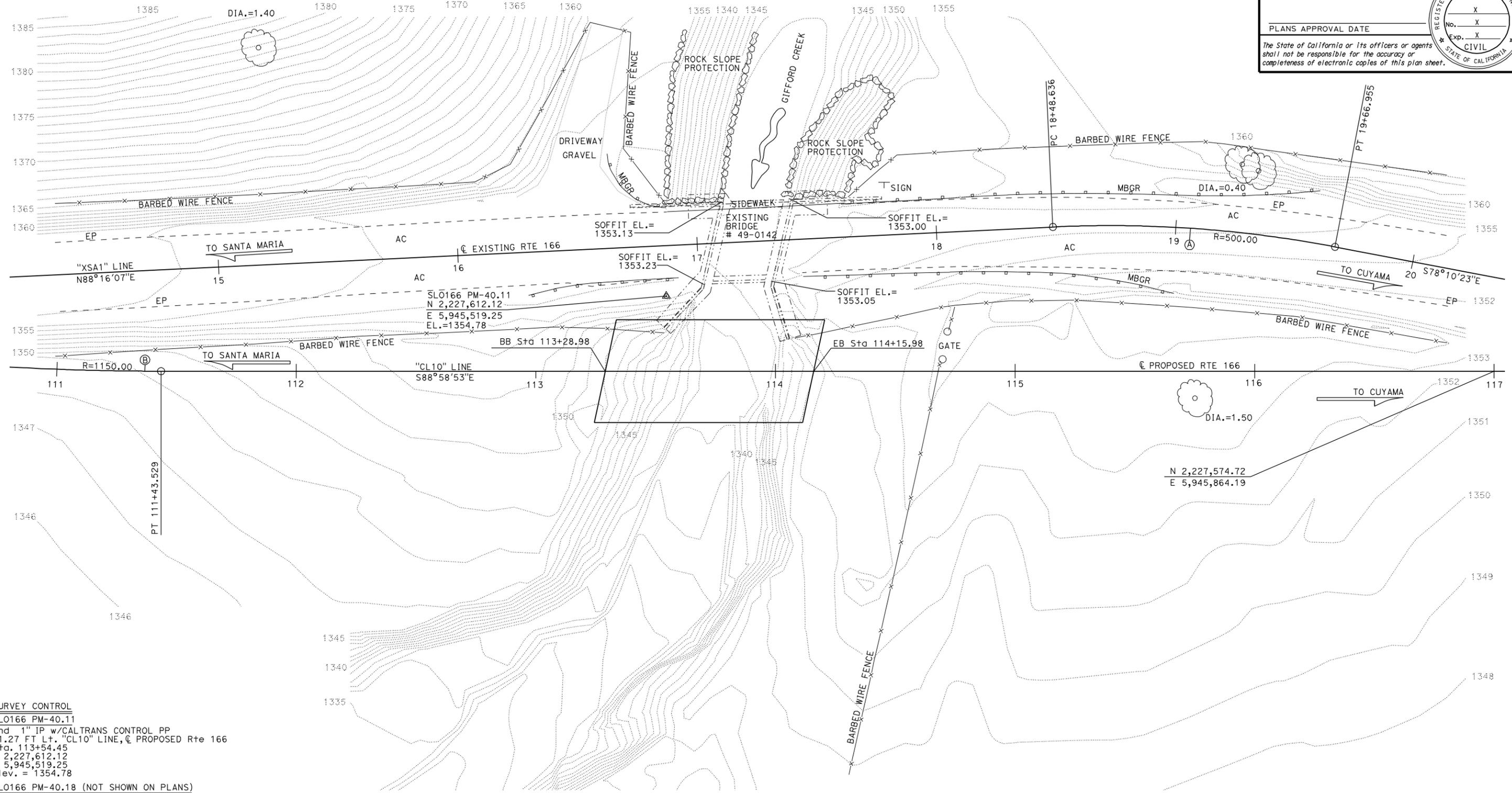
No.	R	Δ	T	L
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(B)	1150.00	27°12'07"	278.24	545.98

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	166			

REGISTERED CIVIL ENGINEER X DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

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**SURVEY CONTROL**  
 SLO166 PM-40.11  
 Fnd 1" IP w/CALTRANS CONTROL PP  
 31.27 FT Lt. "CL10" LINE, C PROPOSED Rte 166  
 Sta. 113+54.45  
 N 2,227,612.12  
 E 5,945,519.25  
 Elev. = 1354.78

SLO166 PM-40.18 (NOT SHOWN ON PLANS)  
 Fnd 1" IP w/CALTRANS CONTROL PP  
 175.76 FT Rt. "CL10" LINE, C PROPOSED Rte 166  
 Sta. 117+24.97  
 N 2,227,398.54  
 E 5,945,886.03  
 Elev. = 1346.01

ATTACHMENT 4

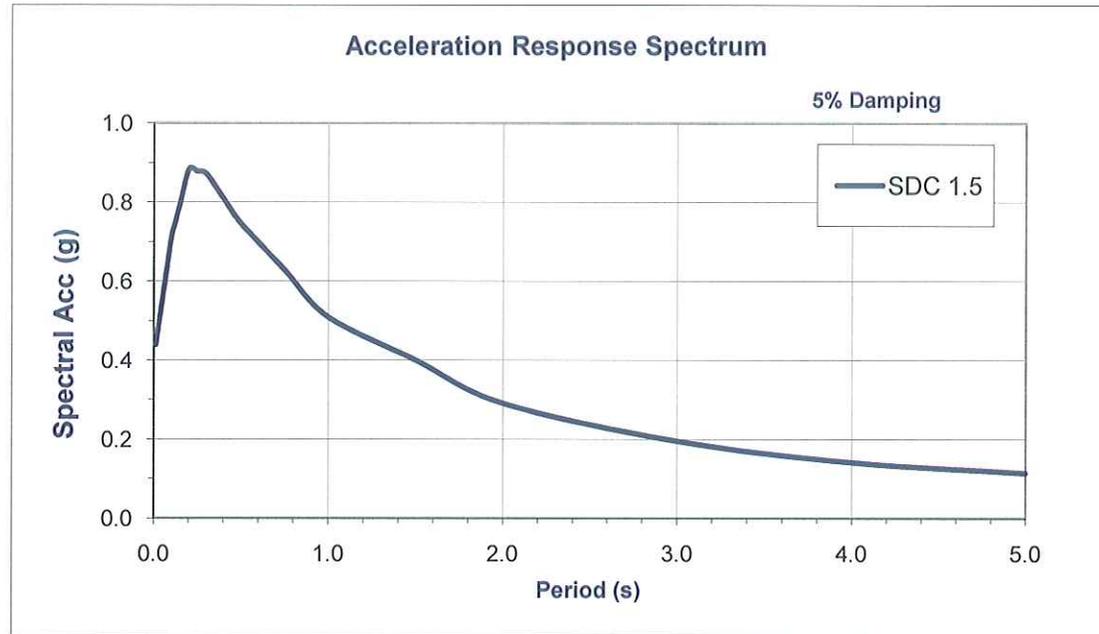
PRELIMINARY INVESTIGATION SECTION				DESIGN BY X CHECKED X	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 9</b>	BRIDGE NO. 49-0257	<b>GIFFORD CREEK BRIDGE (REPLACEMENT)</b> <b>FOUNDATION PLAN</b>
SCALE VERT. DATUM NGVD29	PHOTOGRAMMETRY AS OF: X	DETAILS BY X CHECKED X	POST MILE 40.11					
1"=20' HORZ. DATUM NAD83(92) (1991.35)	SURVEYED BY District	QUANTITIES BY X CHECKED X						
ALIGNMENT TIES Dist. Traverse Sheet DRAFTED BY		CHECKED BY		UNIT: 3646	PROJECT NUMBER & PHASE: 0500000355 1	CONTRACT NO.: X	DISREGARD PRINTS BEARING EARLIER REVISION DATES	
STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3		REVISION DATES	SHEET OF
							12-21-10 06-09-11	X X

# Gifford Creek Bridge

Bridge No. 49-0257

SDC 1.5 Controlling Procedure : Probabilistic

Period (s)	SDC 1.5
0.010	0.439
0.020	0.469
0.030	0.500
0.050	0.561
0.075	0.638
0.100	0.714
0.120	0.748
0.150	0.799
0.200	0.884
0.250	0.879
0.300	0.873
0.400	0.810
0.500	0.747
0.750	0.629
1.000	0.510
1.500	0.401
2.000	0.292
3.000	0.196
4.000	0.142
5.000	0.115



## Deterministic Procedure Data

<b>Fault</b>	San Andreas (Cuyama-Carrizo section)/Southern San Luis Range	$R_{rup}$	28.7/23.4	km
<b>Fault ID</b>	313/123	$R_{jb}$	28.7/21.2	km
<b>Style</b>	RLSS/R	$R_x$	28.7/31.2	km
<b>Mmax</b>	7.8/7.2	$V_{S30}$	315/315	m/s
<b>Dip</b>	90/45 deg	$Z_{1.0}$	327/327	m
<b><math>Z_{TOR}</math></b>	0/0 km	$Z_{2.5}$	2.00/2.00	km

## Notes

The Design ARS curve is based on the USGS 5% Probability of Exceedance in 50 Years

Final  
Design Response Spectrum  
ATTACHMENT 5

**LOG OF TEST BORINGS**

05-SLO-166- 40.11

05-OR3001

**ATTACHMENT 6**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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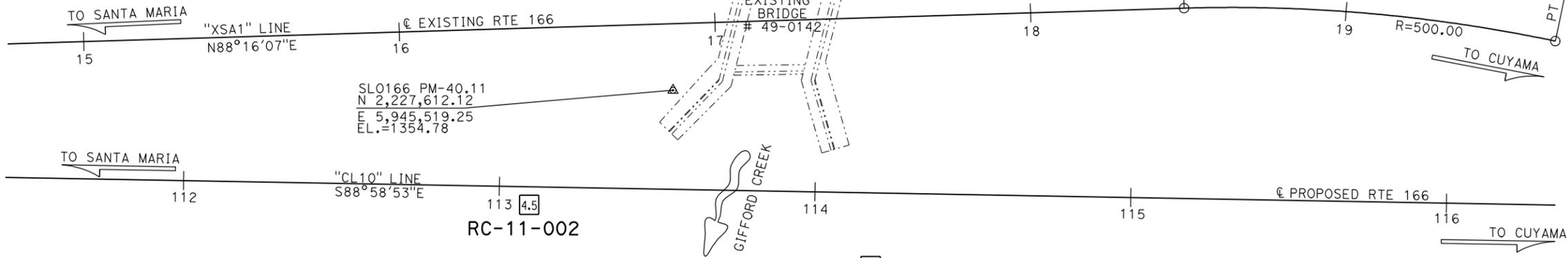
Dan Appelbaum  
 REGISTERED CIVIL ENGINEER  
 10-3-11  
 No. C50001  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

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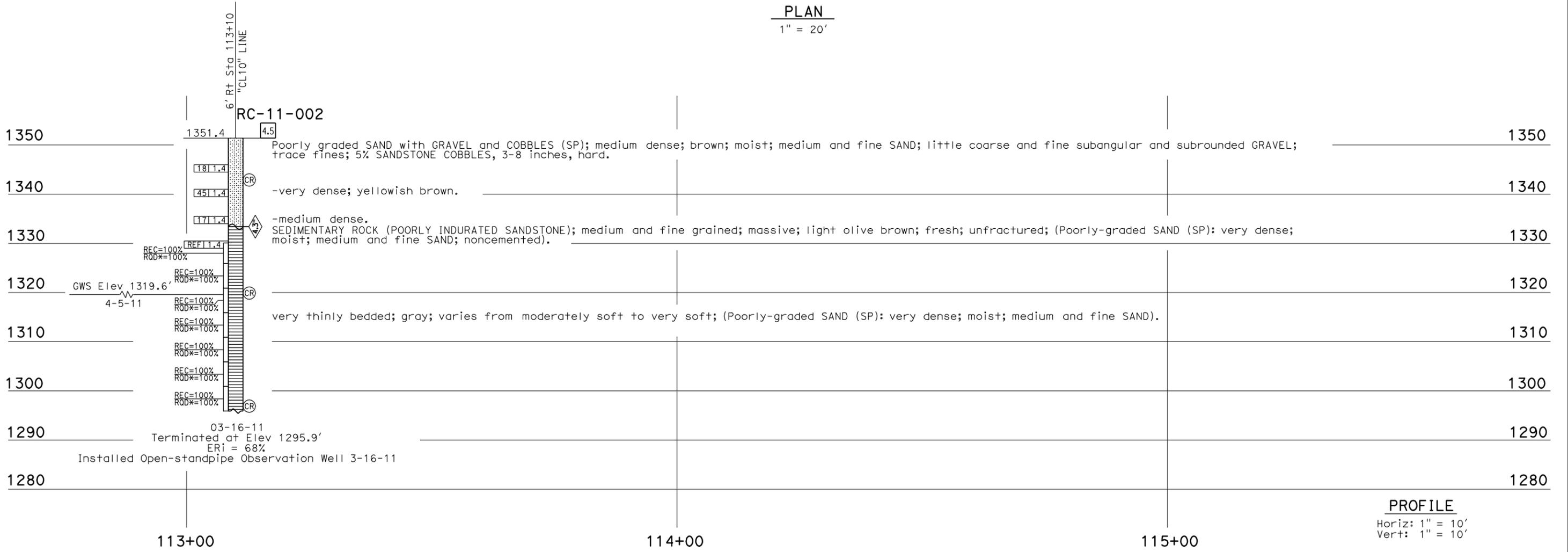
**BENCH MARK**

SLO 166 PM 40.11

Fnd 1" ip w/caltrans control pp  
 31.27' Lt "CL10" LINE, C PROPOSED RTE 166  
 Sta 113+54.45  
 N 2,227,612.12  
 E 5,945,519.25  
 Elev = 1354.78' (NGVD29)



RC-11-001  
 RC-11-002  
**PLAN**  
 1" = 20'



**PROFILE**  
 Horiz: 1" = 10'  
 Vert: 1" = 10'

<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH X</b>		<b>GIFFORD CREEK BRIDGE</b> <b>LOG OF TEST BORINGS 1 OF 5</b>	
FUNCTIONAL SUPERVISOR NAME: M. Finegan	DRAWN BY: CHECKED BY: Z. Dellamas	FIELD INVESTIGATION BY: D. Appelbaum		BRIDGE NO. 49-0257 POST MILE 40.11		UNIT: 3643 PROJECT NUMBER & PHASE: 050000003551		CONTRACT NO.: 05-OR3004	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET OF X X	

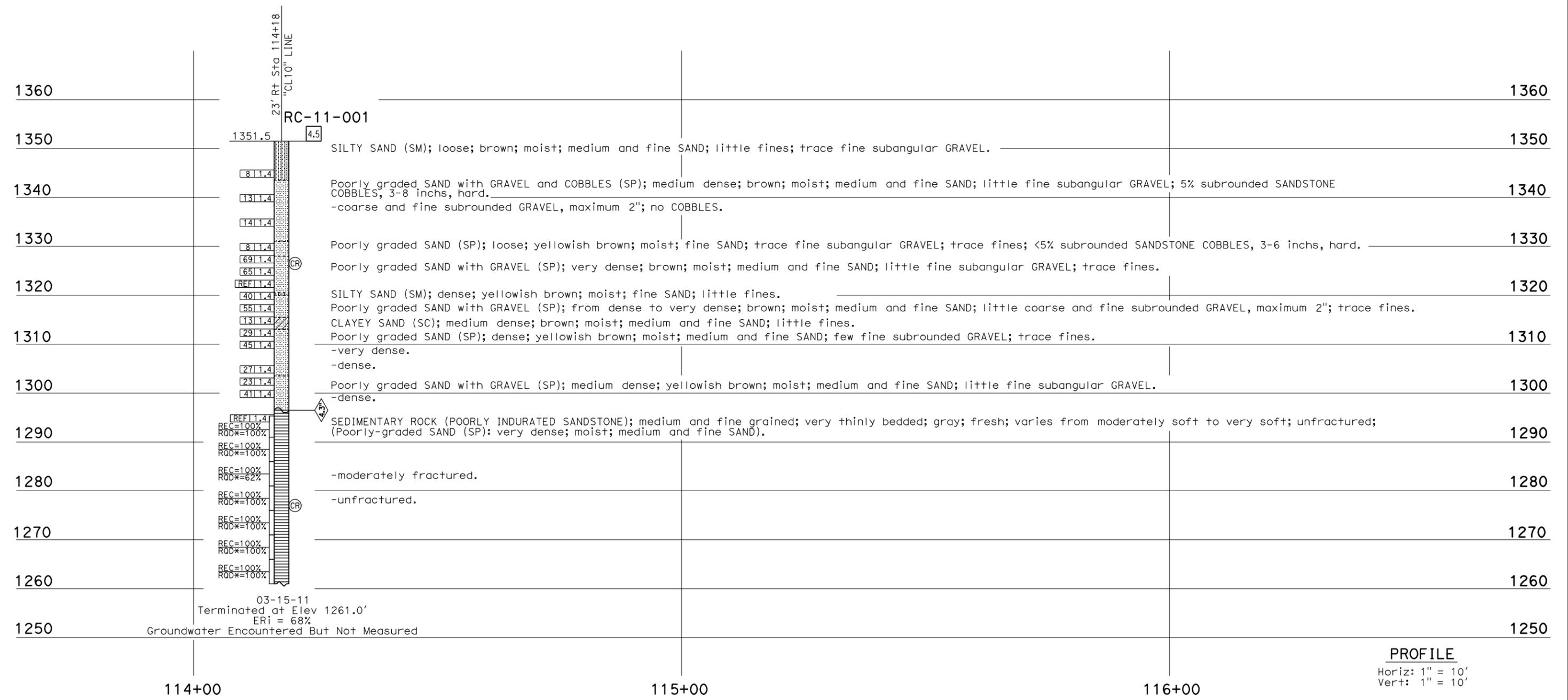
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SLO	166			

Dan Appelbaum 10-3-11  
 REGISTERED CIVIL ENGINEER  
 No. C50001  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE  
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FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS 1 OF 5"

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).



<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X		BRIDGE NO. 49-0257 POST MILE 40.11		<b>GIFFORD CREEK BRIDGE</b> <b>LOG OF TEST BORINGS 2 OF 5</b>	
FUNCTIONAL SUPERVISOR NAME: M. Finegan	DRAWN BY: CHECKED BY: Z. Dellamas	FIELD INVESTIGATION BY: D. Appelbaum		UNIT: 3643 PROJECT NUMBER & PHASE: 050000003551		CONTRACT NO.: 05-0R3004		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES 08-02-11 08-03-11 SHEET OF X X	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS  
 0 1 2 3  
 DATE PLOTTED => 02-NOV-2011  
 USERNAME => s108940

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SLO	166			

*Dan Appelbaum* 10-3-11  
 REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

*Dan Appelbaum*  
 No. C50001  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

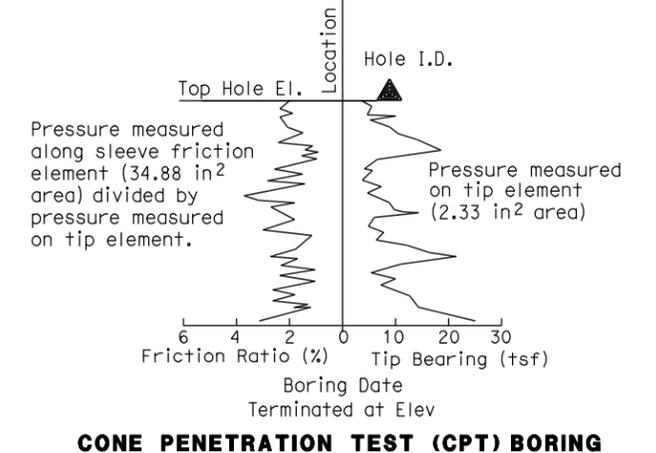
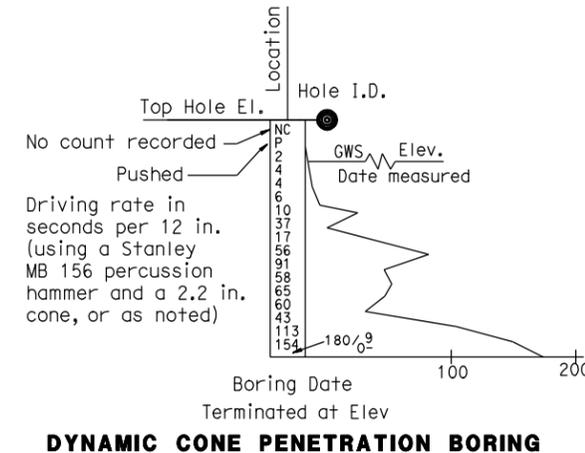
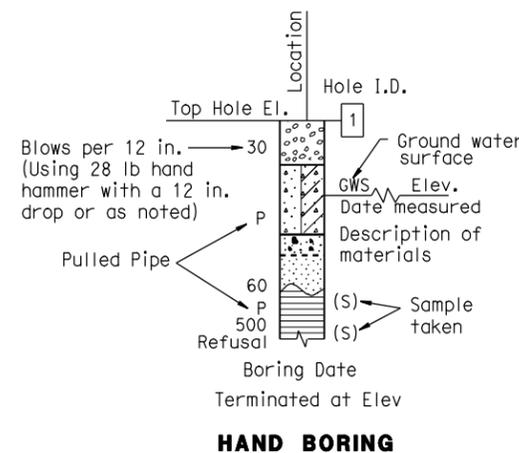
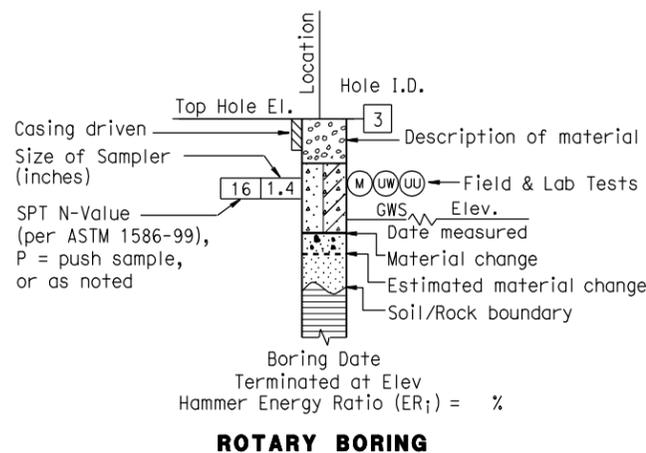
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CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

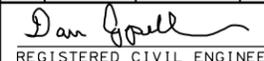
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring (hollow or solid stem bucket)
	R	Rotary drilled boring (conventional)
	RW	Rotary drilled with self-casing wire-line
	RC	Rotary core with continuously-sampled, self-casing wire-line
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SLO	166			

 10-3-11  
 REGISTERED CIVIL ENGINEER  
 No. C50001  
 Exp. 6-30-13  
 CIVIL  
 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.*

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

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
(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)
(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)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N <sub>60</sub> (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE	
Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

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

PARTICLE SIZE		
Description	Size (in.)	
Boulder	Greater than 12	
Cobble	3 - 12	
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay	Less than 1/300	

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X	BRIDGE NO.	GIFFORD CREEK BRIDGE
				49-0257	
PREPARED BY:	I.G-Remmen	PROJECT NUMBER & PHASE: 050000003551	CONTRACT NO.: 05-OR3004	REVISION DATES	SHEET OF
40.11					X X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3  
 UNIT: 3643  
 FILE => gifford4of5.dwg  
 DATE PLOTTED => 02-NOV-2011  
 TIME PLOTTED => 11:37

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SLO	166			

*Dan Appelbaum* 10-3-11  
 REGISTERED CIVIL ENGINEER  
 No. C50001  
 Exp. 6-30-13  
 CIVIL  
 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.

### PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

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

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

RQD\* Indicates soundness criteria not met.

### BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

### LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

### ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

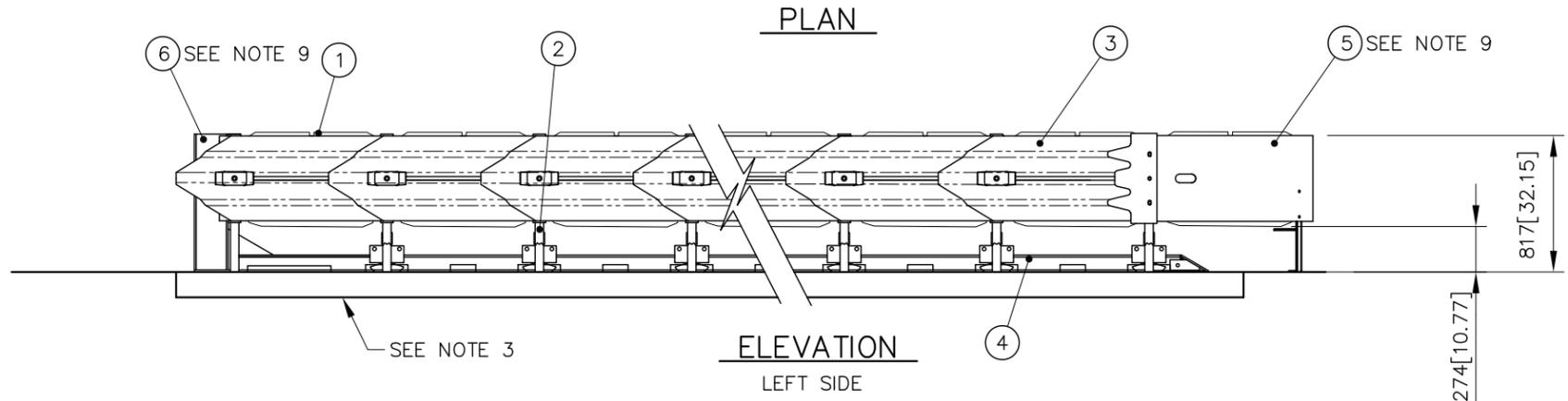
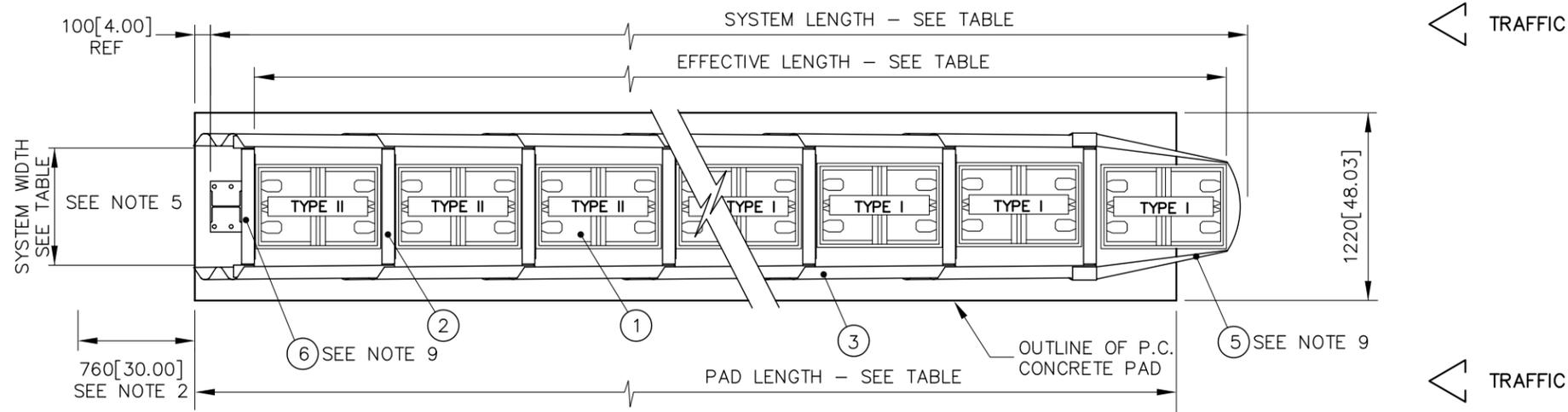
### WEATHERING DESCRIPTORS FOR INTACT ROCK

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 Leaching		
	Body of Rock	Fracture Surfaces		Texture	Leaching	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	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.	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."

### FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH X</b>	BRIDGE NO. 49-0257 POST MILE 40.11	<b>GIFFORD CREEK BRIDGE</b> <b>LOG OF TEST BORINGS 5 OF 5</b>
	PREPARED BY: I.G-Remmen				
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3643 PROJECT NUMBER & PHASE: 050000003551	CONTRACT NO.: 05-0R3004	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES
					SHEET OF X X



NOTES:

- IN COMPLIANCE WITH THE AASHTO 2002 ROADSIDE DESIGN GUIDE, MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
- PROVISION SHALL BE MADE FOR REAR FENDER PANELS TO SLIDE REARWARD UPON IMPACT 760 [30.00] MIN.
- CAUTION: THE QUADGUARD C.Z. MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.**  
 ATTACH SYSTEM USING ONE OF THE FOLLOWING:  
 — 7" STUDS MAY BE USED TO ATTACH SYSTEM TO 28 MPa[4000 PSI] MIN. P.C. CONCRETE PER THE FOLLOWING MINIMUMS:\*\*  
 a) 150[6.00] NON REINFORCED ROADWAY OR PAD  
 b) 200[8.00] REINFORCED **PORTABLE** PAD PER THE REFERENCE DETAIL  
 c) 180[7.00] DECK STRUCTURE  
 — 18" THREADED RODS MAY BE USED TO INSTALL SYSTEM ON ASPHALT.\*\*  
 \*\*REFER TO THE QUADGUARD CZ MP-3 ANCHORING SYSTEM INSTALLATION INSTRUCTIONS FOR SPECIFICATIONS.

- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
- THE NUMBER OF BAYS INDICATED IN THE TABLE IS BASED ON CALCULATED VALUES TO ENSURE ADEQUATE SYSTEM CAPACITY TO DISSIPATE THE LONGITUDINAL IMPACT ENERGY OF A 2000 kg VEHICLE TRAVELING AT THE SPEED INDICATED.
- THE SIX BAY SYSTEM HAS BEEN FULLY TESTED AT 100 km/h UNDER THE FULL 8 TEST MATRIX OF NCHRP 350 TL-3. SYSTEMS LONGER THAN SIX BAYS SHALL ALSO BE CAPABLE OF MEETING THE OCCUPANT RISK CRITERIA AS RECOMMENDED IN NCHRP 350 FOR VEHICLES WEIGHING 2000 kg IMPACTING HEAD ON AT THE SPEED INDICATED IN THE TABLE.
- NOSE ASSEMBLY NOT INCLUDED IN MODEL NUMBER. ORDER SEPARATELY.

\* G = GREY or Y = YELLOW

BAYS	610[24] WIDTH	762[30] WIDTH	914[36] WIDTH	SYSTEM LENGTH		EFFECTIVE LENGTH		PAD LENGTH		MAX DESIGN SPEED	# OF CARTRIDGES	
	MODEL#	MODEL#	MODEL#	m	ft-in	m	ft-in	m	ft-in		km/h [MPH]	TYPE I
3	QZ2403*	QZ3003*	QZ3603*	4.00	[13'-1"]	3.56	[11'-8"]	4.57	[15'-0"]	70 [44]	3	1
4	QZ2404*	QZ3004*	QZ3604*	4.90	[16'-1"]	4.47	[14'-8"]	4.57	[15'-0"]	80 [50]	3	2
5	QZ2405*	QZ3005*	QZ3605*	5.82	[19'-1"]	5.38	[17'-8"]	5.49	[18'-0"]	90 [56]	4	2
6	QZ2406*	QZ3006*	QZ3606*	6.74	[22'-1"]	6.30	[20'-8"]	6.40	[21'-0"]	100 [62]	4	3
7	QZ2407*	QZ3007*	QZ3607*	7.65	[25'-1"]	7.21	[23'-8"]	7.32	[24'-0"]	△ 105 [65]	4	4
8	QZ2408*	QZ3008*	QZ3608*	8.56	[28'-1"]	8.13	[26'-8"]	8.23	[27'-0"]	△ 110 [68]	4	5
9	QZ2409*	QZ3009*	QZ3609*	9.48	[31'-1"]	9.04	[29'-8"]	9.14	[30'-0"]	△ 115 [71]	4	6

4. SEE THE "QUADGUARD SYSTEM PRODUCT MANUAL", FOR A DESCRIPTION OF ITS IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYSTEM AT A GIVEN SITE. INFORMATION AND COPIES OF ABOVE MANUAL ARE AVAILABLE BY CALLING CUSTOMER SERVICE DEPARTMENT AT (888) 323-6374.

UNIDIRECTIONAL

KEY	①	QUADGUARD CARTRIDGE	④	MONORAIL		
	②	DIAPHRAGM	⑤	NOSE ASSEMBLY		
	③	FENDER PANEL	⑥	C.Z. BACKUP		
Revisions		Date	Rev.	By	Ckd.	App.
ITEM 5 "DOT" WAS IN WRONG PLACE		7/25/00	N	STT	KM	BB
REVISED TO SHOW NOSE BELT		5/14/99	L	DLS	BB	SPT
ADDED NOTES 8 AND 9.		12/3/99	M	DK	DO	SPT

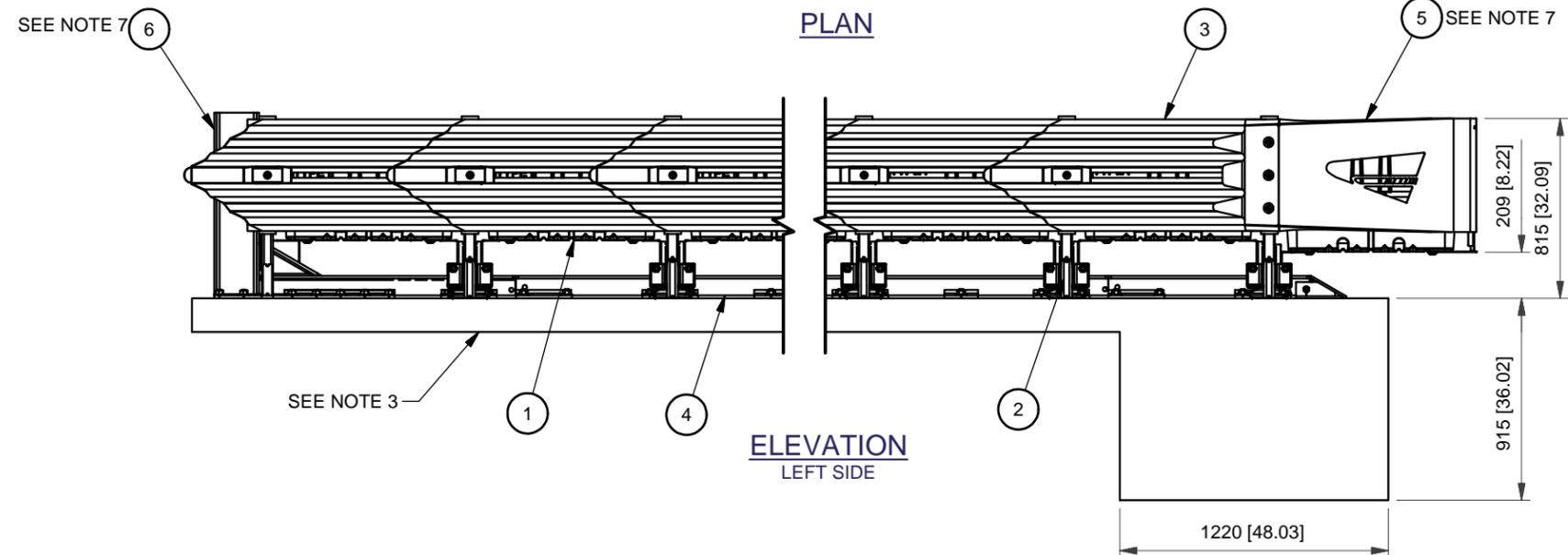
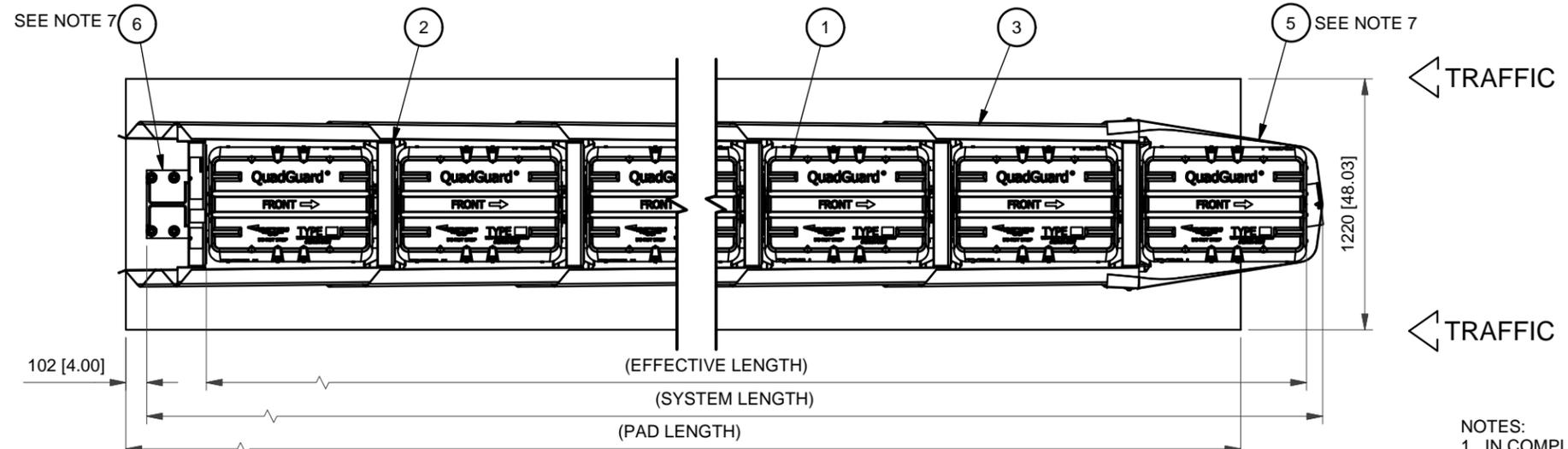
REFERENCES	
SERIAL#	PORTABLE CONCRETE PAD 35-40-10
SALES ORDER#	DIAPHRAGM ASSY. 607113
EH PROJECT#	NOSE ASSY. 35-40-05Z
DESIGN SPEED	FENDER PANEL ASSY. 608236
NOSE COLOR	RAIL ASSY. 35-40-06
NUMBER OF UNITS	C.Z. BACKUP ASSY. 35-40-16
	C.Z. KIT 35-40-24
	TRANSITION PANEL ASSY. N/A
	PORTABLE BARRIER ANCHOR 612006

DRAWN:	S. TRAGESER	DATE:	06/14/96
DESIGNED:	JVM/MHO	DATE:	03/01/96
CHECKED:	KRM	DATE:	06/17/96
APPROVED:	J. MACHADO	DATE:	06/17/96
CAD FILE:	QSCZCVR-U.dwg		

**ENERGY ABSORPTION SYSTEMS, INC.**  
ENGINEERING AND RESEARCH DEPARTMENT

**QUADGUARD® c.z. SYSTEM**  
FOR CONSTRUCTION ZONES

SCALE: 1=40    DWG: QSCZCVR-U    SHEET: 1 OF 1    REV: N



- NOTES:
1. IN COMPLIANCE WITH THE AASHTO 2002 ROADSIDE DESIGN GUIDE, MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
  2. PROVISION SHALL BE MADE FOR REAR FENDER PANELS TO SLIDE REARWARD UPON IMPACT 762 [30.00] MIN.
  3. 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD OR 200 [8.00] MIN. NON-REINFORCED 28MPa [4000 PSI] P.C. CONCRETE ROADWAY, MEASURING AT LEAST 3.66 m [12'-0"] WIDE BY 15.24 m [50'-0"] LONG.
  4. SEE THE "QUADGUARD II SYSTEM PRODUCT MANUAL" FOR A DESCRIPTION OF ITS IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYSTEM AT A GIVEN SITE. INFORMATION AND COPIES OF ABOVE MANUAL ARE AVAILABLE BY CALLING CUSTOMER SERVICE DEPARTMENT AT (888) 323-6374.
  5. WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY AN ADEQUATE TRANSITION FROM THE QUADGUARD II SYSTEM TO THE OBJECT BEING SHIELDED.
  6. UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
  7. BACKUP, MONORAIL, AND NOSE ASSEMBLIES ARE NOT INCLUDED IN MODEL NUMBER, ORDER SEPARATELY.
  8. THE QUADGUARD II SYSTEM HAS BEEN TESTED TO NCHRP 350.

BAYS	610 [24"] WIDTH		762 [30"] WIDTH		914 [36"] WIDTH		1220 [48"] WIDTH		SYSTEM LENGTH		EFFECTIVE LENGTH		PAD LENGTH		MAX DESIGN SPEED		NO. OF CARTRIDGES	
	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	m	ft-in	m	ft-in	m	ft-in	Km/h	[MPH]	TYPE I	TYPE II		
1	QG24024	QG24030	QG24036	QG24048	2.13	[7'-0"]	1.73	[5'-8"]	2.74	[9'-0"]	40	[25]	2	0				
2	QG27024	QG27030	QG27036	QG27048	3.05	[10'-0"]	2.64	[8'-8"]	2.74	[9'-0"]	70	[43]	2	1				
3	QG28024	QG28030	QG28036	QG28048	3.96	[13'-0"]	3.56	[11'-8"]	3.66	[12'-0"]	80	[50]	2	2				
4	QG29024	QG29030	QG29036	QG29048	4.87	[16'-0"]	4.47	[14'-8"]	4.57	[15'-0"]	90	[56]	3	2				
5	QG210024	QG210030	QG210036	QG210048	5.79	[19'-0"]	5.38	[17'-8"]	5.49	[18'-0"]	100	[62]	3	3				
6	QG210524	QG210530	QG210536	QG210548	6.71	[22'-0"]	6.30	[20'-8"]	6.40	[21'-0"]	105	[65]	4	3				
7	QG211024	QG211030	QG211036	QG211048	7.63	[25'-0"]	7.21	[23'-8"]	7.32	[24'-0"]	110	[68]	4	4				
8	QG211524	QG211530	QG211536	QG211548	8.53	[28'-0"]	8.13	[26'-8"]	8.23	[27'-0"]	115	[71]	4	5				
9	QG212024	QG212030	QG212036	QG212048	9.45	[31'-0"]	9.04	[29'-8"]	9.14	[30'-0"]	120	[75]	4	6				

UNIDIRECTIONAL

KEY	(1) CARTRIDGE	(4) MONORAIL			
	(2) DIAPHRAGM	(5) NOSE ASSEMBLY			
	(3) FENDER PANEL	(6) BACKUP			
Revision	Date	Rev	By	Chk.	App.
MONORAIL ASSY IN REFERENCES WAS 35-40-06, CONCRETE PAD WAS 35-40-11	6/22/09	B	DDS	STT	RCB
REVISED DESIGN SPEED COLUMN IN TABLE.	8/31/09	C	DK	JME	RCB
UPDATED SYSTEM LENGTH AND EFFECTIVE LENGTH COLUMNS IN TABLE.	10/23/09	D	DDS	JME	FJP

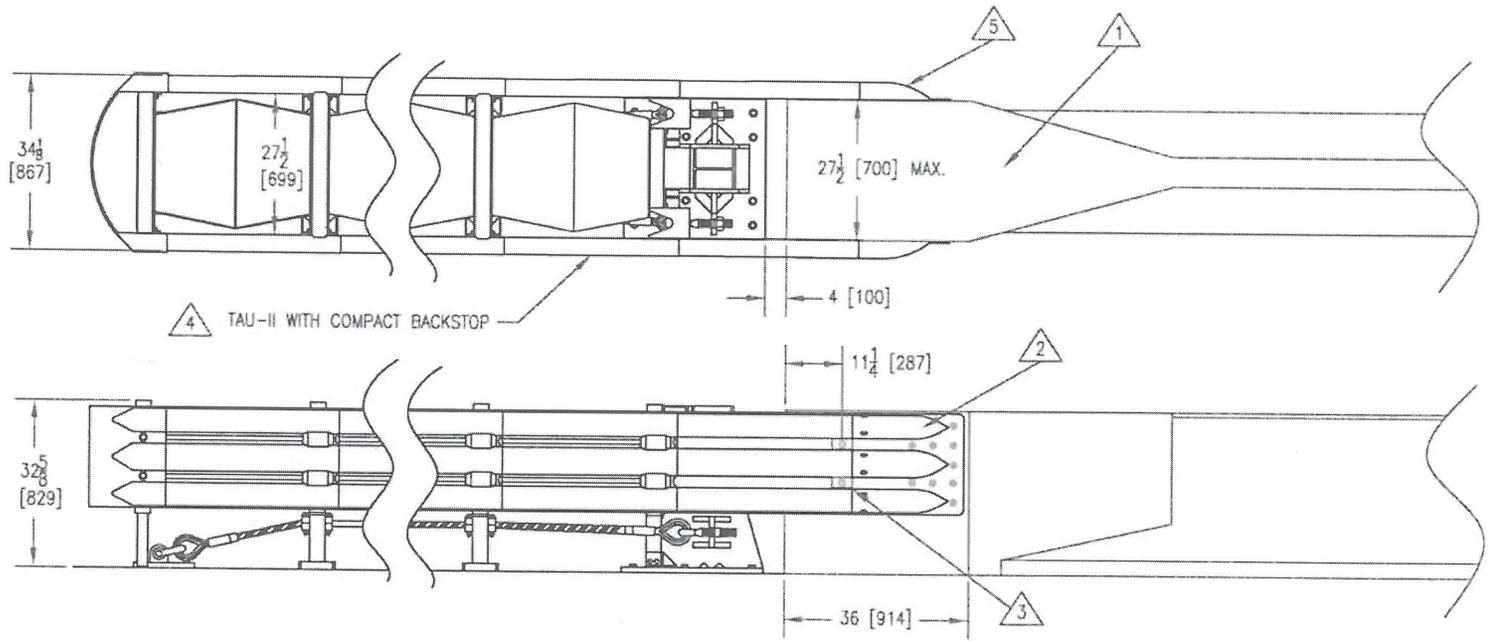
REFERENCES

SERIAL NO.	DIAPHRAGM ASSY.	607113
SALES ORDER	SHIM KIT, DIAPHRAGM	614050
EH PROJECT	NOSE ASSY.	611580
NO. OF UNITS	FENDER PANEL ASSY.	608236
	BACKUP ASSY.	35-40-03
	MONORAIL ASSY.	35-40-75
	CONCRETE PAD	35-40-76

DRAWN:	D. Kohfeld	DATE:	2/25/2009
DESIGNED:	M. Buehler	DATE:	12/30/2008
CHECKED:	JME	DATE:	3/4/2009
APPROVED:	MJB	DATE:	3/19/2009
FILE:	QG2TSCVR-U.idw		
NEXT ASSEMBLY:			



QUADGUARD® II SYSTEM  
WITH TENSION STRUT BACKUP

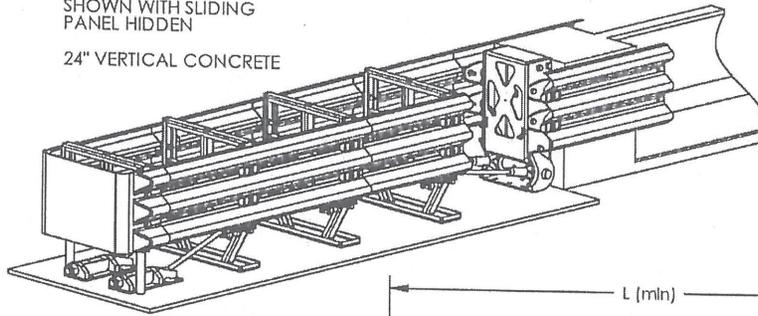


- NOTES:**
- 1.) REINFORCEMENT OF VERTICAL CONCRETE END SHOE MAY BE NEEDED. REFER TO BSI SPECIFICATION B010714 OR B010819 FOR FOUNDATION REQUIREMENTS.
  - 2.) THREE BEAM BRIDGE SHOE PER AASHTO HARDWARE SPECIFICATION RTE01b.
  - 3.) RECTANGULAR GUARDRAIL WASHER PER AASHTO HARDWARE SPECIFICATION FWR03.
  - 4.) TAU-II SYSTEM TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS.
  - 5.) END PANEL MUST OVERLAP BRIDGE SHOE TO INSURE PROPER FUNCTION OF TAU-II SYSTEM.

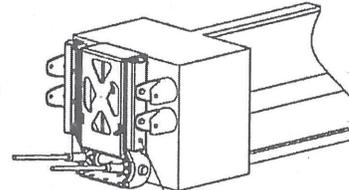
**NOTE:**  
THICKNESS OF WELD TO BE EQUAL TO THE THINNER OF 2 PIECES BEING JOINED. WELD TO BE ALL AROUND UNLESS OTHERWISE NOTED.

© 2001 Barrier Systems, Inc.		SCALE: 1=20		Standard Tolerance Angular ± 1/2° Fractional ± 1/16 Dec .XXX ± .010 Dec .XX ± .030	
The information herein is proprietary to Barrier Systems Inc. and shall not be disclosed, duplicated or used otherwise without the express written approval of Barrier Systems Inc.		DATE	INT.	DESIGNED BY	REV.
B	SEE ECN 00368	4/26/02	GHO	07/22/01	1
A	RELEASE PREP.	1/18/01	GHO	11/22/01	2
REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY. ITEM
				NA	NA
				NA	NA
TITLE: TAU-II WITH COMPACT BACKSTOP, TRANSITION TO CONCRETE END SHOE				MODEL	DRAWING NUMBER
					B010806
				REV.	B

SHOWN WITH SLIDING  
PANEL HIDDEN  
24" VERTICAL CONCRETE

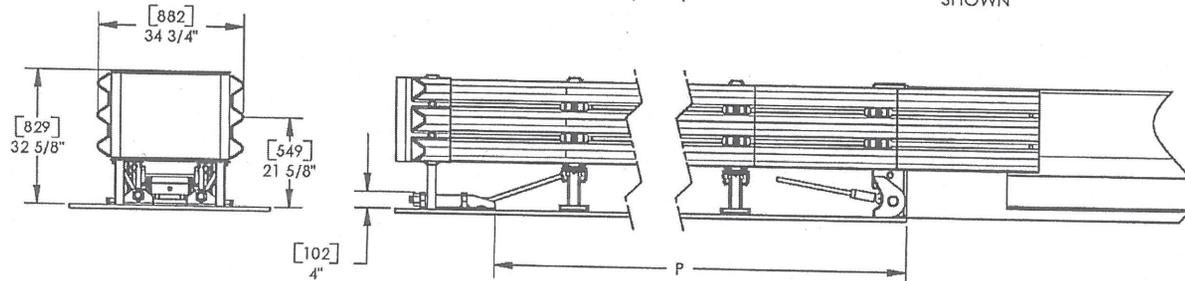
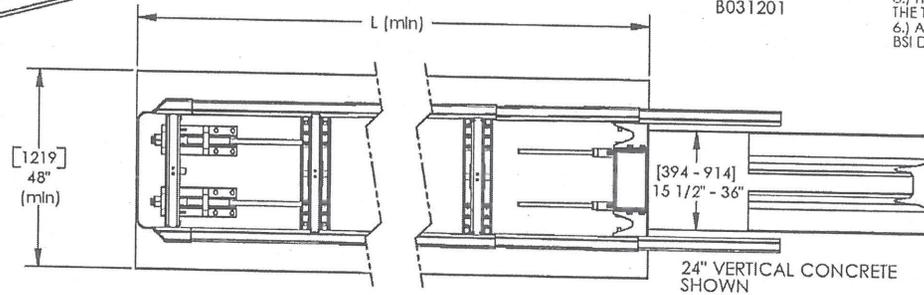


36" VERTICAL CONCRETE



36" ADAPTER  
BSI PART No.  
B031201

- NOTES:
- 1.) FLUSH MOUNT BACKSTOP SYSTEMS ARE INTENDED FOR APPLICATIONS WHERE THE HAZARD WIDTH EXCEEDS THE LIMITATIONS OF THE PCB BACKSTOP. FLUSH MOUNT SYSTEMS ARE ALSO APPLICABLE IN LOCATIONS WITH LIMITED FOUNDATION SIZE.
  - 2.) THE FLUSH MOUNT BACKSTOP MAY BE ATTACHED TO REINFORCED SAFETY SHAPE OR VERTICAL CONCRETE STRUCTURES UP TO 36" [914] WIDE. STRUCTURES OVER 24" [610] WIDE REQUIRE 36" ADAPTER B031201. EDGES OF VERTICAL CONCRETE MAY REQUIRE CHAMFER ACCORDING TO LOCAL STANDARDS.
  - 3.) VERTICAL SLOTS ON THE BACKSTOP ALLOW REMOVAL/ REPLACEMENT OF THE BACKSTOP. ANCHORS MUST BE PLACED AT THE TOP OF SAID SLOTS TO BE EFFECTIVE.
  - 4.) FLUSH MOUNT BACKSTOP SYSTEMS USE THE SAME CABLE USED IN ALL PARALLEL SYSTEMS. THE CABLE IS INSTALLED WITH THE THREADED TENSIONING END FORWARD. THE LOOPED END IS PINNED IN PLACE AT THE BACKSTOP.
  - 5.) THE FRONT CABLE ANCHOR USES AN INSERTED KEY TO KEEP THE THREADED STUD FROM ROTATING DURING TENSIONING.
  - 6.) ANCHOR ACCORDING TO BSI SPECIFICATIONS. REFERENCE BSI DRAWING A040113.



FOUNDATION PAD LENGTH DIMENSION "L" (MINIMUM)			
BAY No.	CAPACITY (kph)	L (ft-in)	L (mm)
2	50	6' - 11 1/2"	2121
3	60	9' - 8 1/2"	2985
4	70	12' - 7 1/2"	3849
5	80	15' - 5 1/2"	4712
6	85	18' - 4"	5588
7	90	21' - 2"	6462
8	100	24' - 0"	7315
9	105	28' - 10"	8179
10	110	28' - 8 1/2"	8055
11	115	32' - 6 1/2"	9919
12	120	35' - 4 1/2"	10782

FRONT ANCHOR PLACEMENT DIMENSION "P"			
BAY No.	CAPACITY (kph)	P (ft-in)	P (mm)
2	50	4' - 11 1/2"	1511
3	60	7' - 9 1/2"	2375
4	70	10' - 7 1/2"	3239
5	80	13' - 5 1/2"	4102
6	85	16' - 4"	4978
7	90	19' - 2"	5842
8	100	22' - 0"	6706
9	105	24' - 10"	7569
10	110	27' - 8 1/2"	8446
11	115	30' - 6 1/2"	9309
12	120	33' - 4 1/2"	10173

NOTE:  
THICKNESS OF WELD TO BE EQUAL  
TO THE THINNER OF 2 PIECES  
BEING JOINED. WELD TO BE ALL  
AROUND UNLESS OTHERWISE SPECIFIED

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approval of Barrier Systems Inc.

SCALE: 1:24

DATE: 4/21/04  
DRAWN BY: [Signature]

Standard Tolerances:  
Angular: ±1/2 Deg.  
Fractional: ±1/16  
Dec: .0006 ±.010  
Dec: .0004 ±.008

REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY	ITEM
1	TBD					1

TITLE: APPLICATION, FLUSH  
MOUNT BACKSTOP

MODEL	DRAWING NUMBER	REV
	B040239	

<b>APPENDIX A—SCI ATTENUATOR PARTS LIST</b>
---

<b>SCI CRASH CUSHION PARTS LIST</b>				
<b>Part No.</b>	<b>Description</b>	<b>Qty Per Unit TL2/TL3</b>	<b>Unit of Measure</b>	<b>Spare Parts Kit TL2/TL3</b>
9400	Attenuator 24" wide w/Concrete Anchors TL3			
9450	Attenuator 24" Wide w/Asphalt Anchors TL3			
9451	Attenuator 24" wide w/Concrete Anchors TL2			
9452	Attenuator 24" wide w/Asphalt Anchors TL2			
9401	Bolt Concrete Anchor 3/4" x 7" TL3 *(included in P/N 9400)	*	KIT/48 pcs.	
9402	Bolt Asphalt Anchor 3/4" x 18" TL3 *(included in P/N 9450)	*	KIT/48 pcs.	
9453	Bolt Concrete Anchor 3/4" x 7" TL2 **(included in P/N 9451)	**	KIT/34 pcs.	
9454	Bolt Asphalt Anchor 3/4" x 18" TL2 **(included in P/N 9452)	**	KIT/34 pcs.	
9403	Bolt Cable Adjuster	1	EACH	
9404	Bolt Sled Side Panel	8	EACH	
9405	Bolt Front Stop	2	EACH	
9406	Bolt Shear	2	EACH	<b>10/10</b>
9407	Bolt Side Guide	12	EACH	
9408	Bolt Terminal Brace	4	EACH	
9409	Brace Terminal	1	EACH	
9410	Cable 1 1/8" with Spelter Socket TL3	1	EACH	
9455	Cable 1 1/8" with Spelter Socket TL2	1	EACH	
9411	Clip Wire Rope TL2 & TL3	4	EACH	
9412	Cylinder Shock Arresting TL3	1	EACH	
9445	Cylinder Shock Arresting TL2	1	EACH	
9413	Strap Cylinder TL3	1	EACH	
9448	Strap Cylinder TL2	1	EACH	
9414	Frame Mobile #1 TL3	0/1	EACH	
9415	Frame Mobile #2 TL3	0/1	EACH	
9416	Frame Mobile #3 TL3	0/1	EACH	
9417	Frame Mobile #4 TL2 & TL3	1	EACH	
9418	Frame Mobile #5 TL2 & TL3	1	EACH	
9419	Frame Mobile #6 TL2 & TL3	1	EACH	
9420	Guide Side TL2 & TL3	6/12	EACH	
9421	Keeper Side #3 (Sled Panels) TL2 & TL3	4	Each	<b>4/4</b>
9422	Keeper Side #1 (Side Panels) TL2 & TL3	8/20	EACH	<b>6/6</b>
9423	Keeper Side #2 (Rear Panels) TL2 & TL3	4	EACH	<b>2/2</b>
9424	Panel Delineator (Painted Yellow) TL3	0/1	EACH	<b>0/1</b>
9496	Panel Delineator (Painted Black) TL3		EACH	
9497	Panel Delineator Diamond Grade Chevron 6" stripes TL3		EACH	

<b>SCI CRASH CUSHION PARTS LIST</b>				
<b>Part No.</b>	<b>Description</b>	<b>Qty Per Unit TL2/TL3</b>	<b>Unit of Measure</b>	<b>Spare Parts Kit TL2/TL3</b>
9498	Panel Delineator Diamond Grade Left 6" stripes TL3		EACH	
9499	Panel Delineator Diamond Grade Right 6" stripes TL3		EACH	
9456	Panel Delineator (Painted Yellow) TL2	1/0	EACH	<b>1/0</b>
9506	Panel Delineator (Painted Black) TL2		EACH	
9501	Panel Delineator Diamond Grade Chevron 6" stripes TL2		EACH	
9502	Panel Delineator Diamond Grade Left 6" stripes TL2		EACH	
9503	Panel Delineator Diamond Grade Right 6" stripes TL2		EACH	
9425	Panel Side TL2 & TL3	4/10	Each	<b>3/3</b>
9426	Panel Sled	2	EACH	<b>2/2</b>
9427	Panel Rear	2	EACH	<b>1/1</b>
9428	Sheave (pulley)	6	EACH	
9429	Sled (with guide rollers )24" TL3	0/1	EACH	
9457	Sled (with guide rollers) 24" TL2	1/0	EACH	
9439	Epoxy 28 oz. Cartridge and Nozzle ***	***	EACH	
9515	Epoxy Kit for TL3 Concrete Attenuator		EACH	
9516	Epoxy Kit for TL3 Asphalt Attenuator		EACH	
9517	Epoxy Kit for TL2 Concrete Attenuator		EACH	
9518	Epoxy Kit for TL2 Asphalt Attenuator		EACH	
9440	Nozzle Epoxy Mixing ***	***	EACH	
9441	Dispenser Epoxy	0	EACH	
9443	Boot Cylinder TL3	1	EACH	
9449	Boot Cylinder TL2	0	EACH	
9444	Spare Parts Kit TL3	0	EACH	
9458	Spare Parts Kit TL2	0	EACH	
9488	Reset Parts Kit TL3	0	EACH	
9489	Reset Parts Kit TL2	0	EACH	
9495	Tool Anti-Rotation Pin Removal	0	EACH	
9507	Anchor Drop-In	0	EACH	
9508	Pin Anti-Rotation Front	0	EACH	
9509	Pin Anti-Rotation Rear	0	EACH	
9510	Plate Sheave Cover	0	EACH	
9525	Cable Release Tool	0	EACH	

<b>TRANSITIONS AND TRANSITION PARTS</b>			
9431	Transition Jersey Barrier - Right	O	EACH
9432	Transition Jersey Barrier - Left	O	EACH
9433	Transition 24" Concrete - Left & Right	O	EACH
9437	Transition Thrie Beam - Right	O	EACH
9438	Transition Thrie Beam—Left	O	EACH
9511	Transition W Beam 28" High Right	O	EACH
9512	Transition W Beam 28" High Left	O	EACH
9513	Transition W Beam 32" High Right	O	EACH
9514	Transition W Beam 32" High Left	O	EACH
9459	Transition Assembly 30" Concrete Straight Connection	O	EACH
9460	Transition Assembly 36" Concrete Straight Connection	O	EACH
9461	Transition Assembly 30" Concrete Outside Connection	O	EACH
9462	Transition Assembly 36" Concrete Outside Connection	O	EACH
9475	Transition Assembly Gore to End of Flared Transition	O	EACH
9476	Transition Assembly Median Barrier 36B X 19T X 42H	O	EACH
9492	Transition Assembly Median Barrier 36B X 19T X 32H	O	EACH
9463	Transition 30" Concrete Straight Connection	O	EACH
9464	Transition 36" Concrete Straight Connection	O	EACH
9465	Transition 30" Concrete Outside Connection	O	EACH
9466	Transition 36" Concrete Outside Connection	O	EACH
9467	Transition Thrie Beam 10 Degree Flare - Right	O	EACH
9468	Transition Thrie Beam 10 Degree Flare - Left	O	EACH
9469	Transition Concrete Spanner Brace	O	EACH
9470	Transition Concrete #1 Tapered Spanner Brace	O	EACH
9471	Transition Concrete #2 Tapered Spanner Brace	O	EACH
9472	Transition Gore Tapered #1 Spanner Brace	O	EACH
9473	Transition Gore Tapered #2 Spanner Brace	O	EACH
9474	Thrie Beam Concrete Leg Brace	O	EACH
9477	Transition Median Barrier 36B X 19T X 42H Right	O	EACH
9478	Transition Median Barrier 36B X 19T X 42H - Left	O	EACH
9493	Transition Median Barrier 36B X 19T X 32H - Right	O	EACH
9494	Transition Median Barrier 36B X 19T X 32H - Left	O	EACH
9479	Transition Spanner Brace Median Barrier 36B	O	EACH
9480	Transition Rub Rail Median Barrier - Right	O	EACH
9481	Transition Rub Rail Median Barrier - Left	O	EACH
9490	Transition Single Slope 24-26 9/32" Wide Median Barrier - Right	O	EACH
9491	Transition Single Slope 24-26 9/32" Wide Median Barrier - Left	O	EACH
9504	Transition Profile B Right	O	EACH
9405	Transition Profile B Left	O	EACH
9524	Blockout	O	EACH

O = Optional

## APPENDIX B—EQUIPMENT LIST

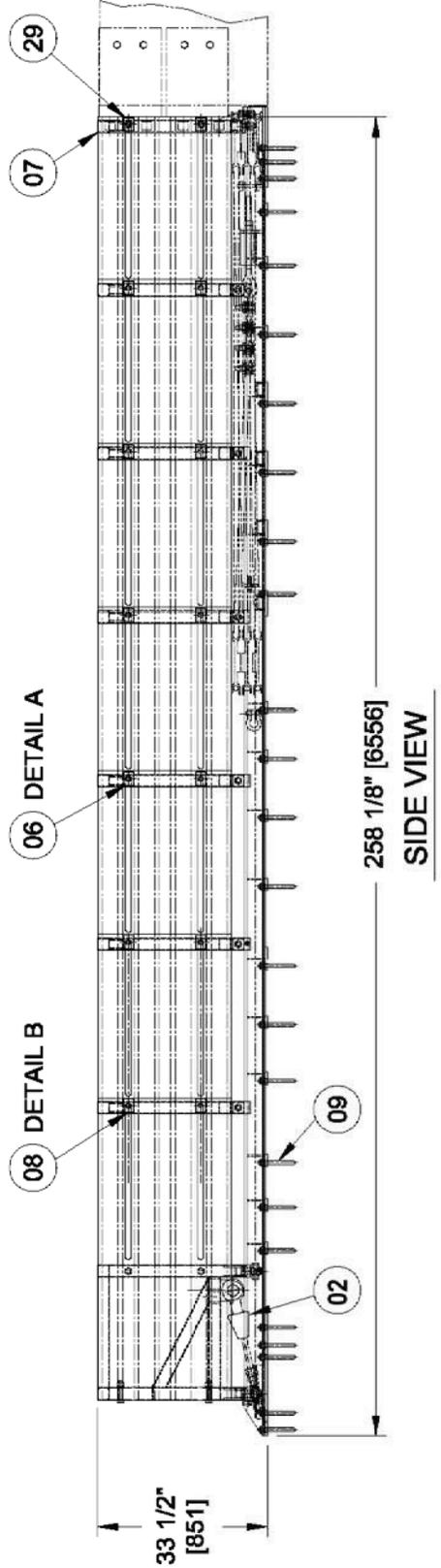
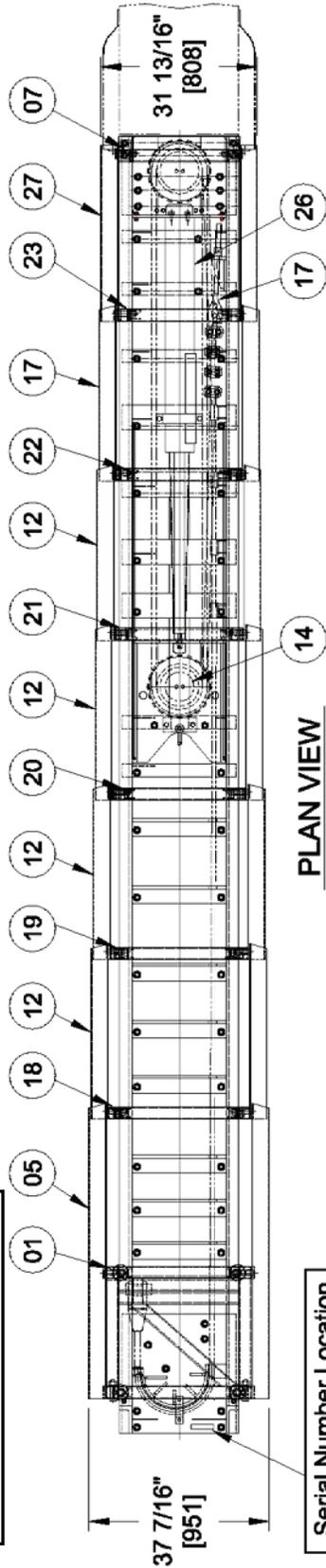
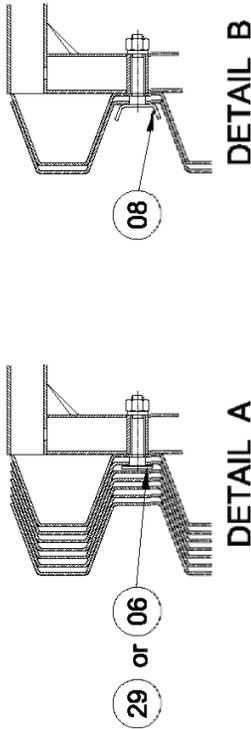
The following tools and equipment will be required to install and repair the Crash Cushion:

- Standard roadside work area safety equipment
- Personal safety equipment (gloves, latex gloves for epoxy, eye/face protection, etc.)
- Means of safely unloading 3500 lb
- Compressed air source/Vacuum
- 1" bottle brush (McMaster Carr # 73075T55)
- Safety goggles
- Four lifting slings or four-point sling
- Bosch rotary hammer drill 13 ½ amp #11263EVS Model 0 611 263 739 or equal
- 7/8" X 22" concrete drill bit for concrete installations or 7/8" X 28" drill bit for asphalt installations
- Renton rebar eater bit #RB-14 - 7/8" rebar cutter bit or equal
- 1" X 12" concrete drill bit for drop-in anchors on transitions
- Punch or setting tool for drop-in anchors.
- ½" electric drill for rebar bit and bottle brush (cordless will work for bottle brush)
- Epoxy dispenser for 28 oz dual cartridge system (should have spare in case of malfunction)
- Combination wrenches, deep sockets (Including 7/16" – 5/8", 1 ¼", 1 ½", 1 5/8") and 3+" extension
- Socket wrench and breaker bar
- Torque wrench (225 ft-lb capacity) with 3 ft extension
- Measuring and layout equipment (tape measure, chalk line, markers, etc.)
- 5 ft wedge and round-ended pry bar
- Loctite #34395 marine grade anti-seize
- Suitable pulling means (strap or chain)
- 2 long-handled flat screwdrivers
- Misc. small tools (hammers, pliers, screw drivers, vise grips, etc.)
- Bear claw pry bar to remove ¼" shear bolt remnants

This list is adequate for general installation and repair. However, depending on site conditions, additional tools and equipment may be required.

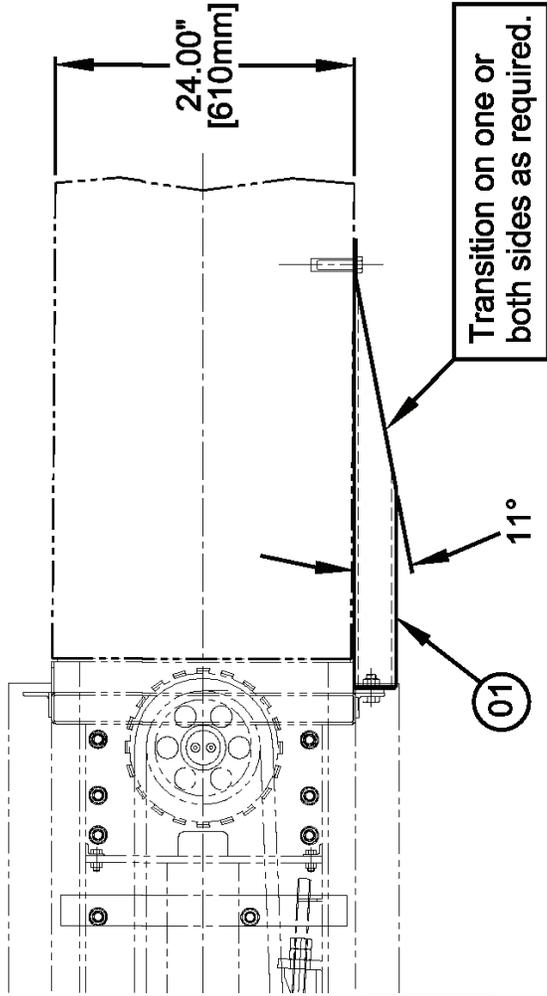
**APPENDIX D - SMART CUSHION®, TEST LEVEL 3**

PARTS LIST	
01	Front Sled
02	Cable Assembly
05	Sled Panel
07	Terminal Brace
09	Anchor Bolts
12	Side Panels
14	Mobile Sheave Assembly
17	Cable Adjuster Bolt
18-23	Mobile Frames 1-6
26	Cylinder
27	Rear Panel
06, 08, 29	Side Keepers



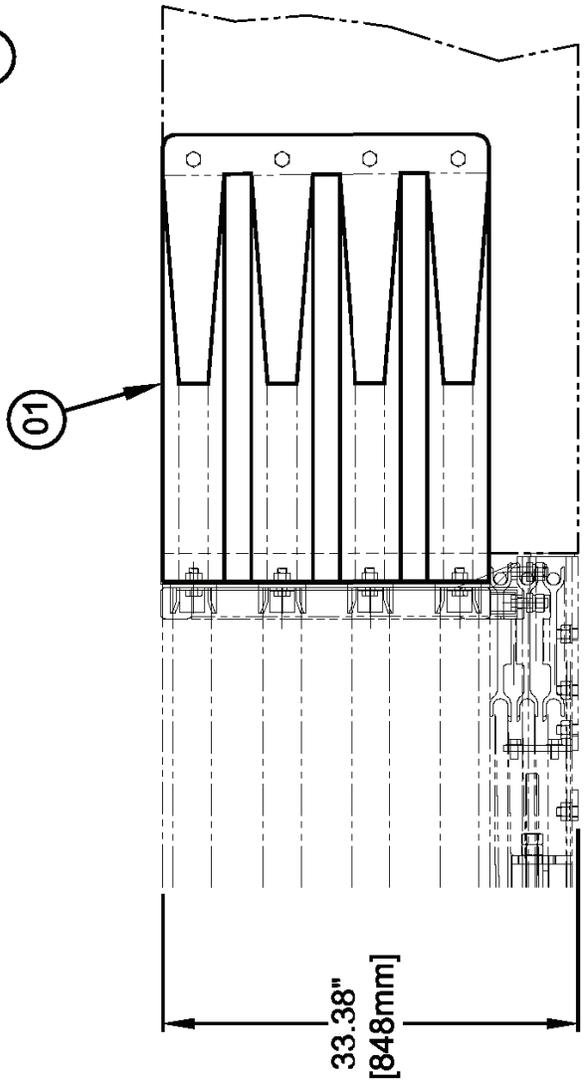


**APPENDIX H - TRANSITION, CONCRETE BLOCK, 24 INCH (610mm)**



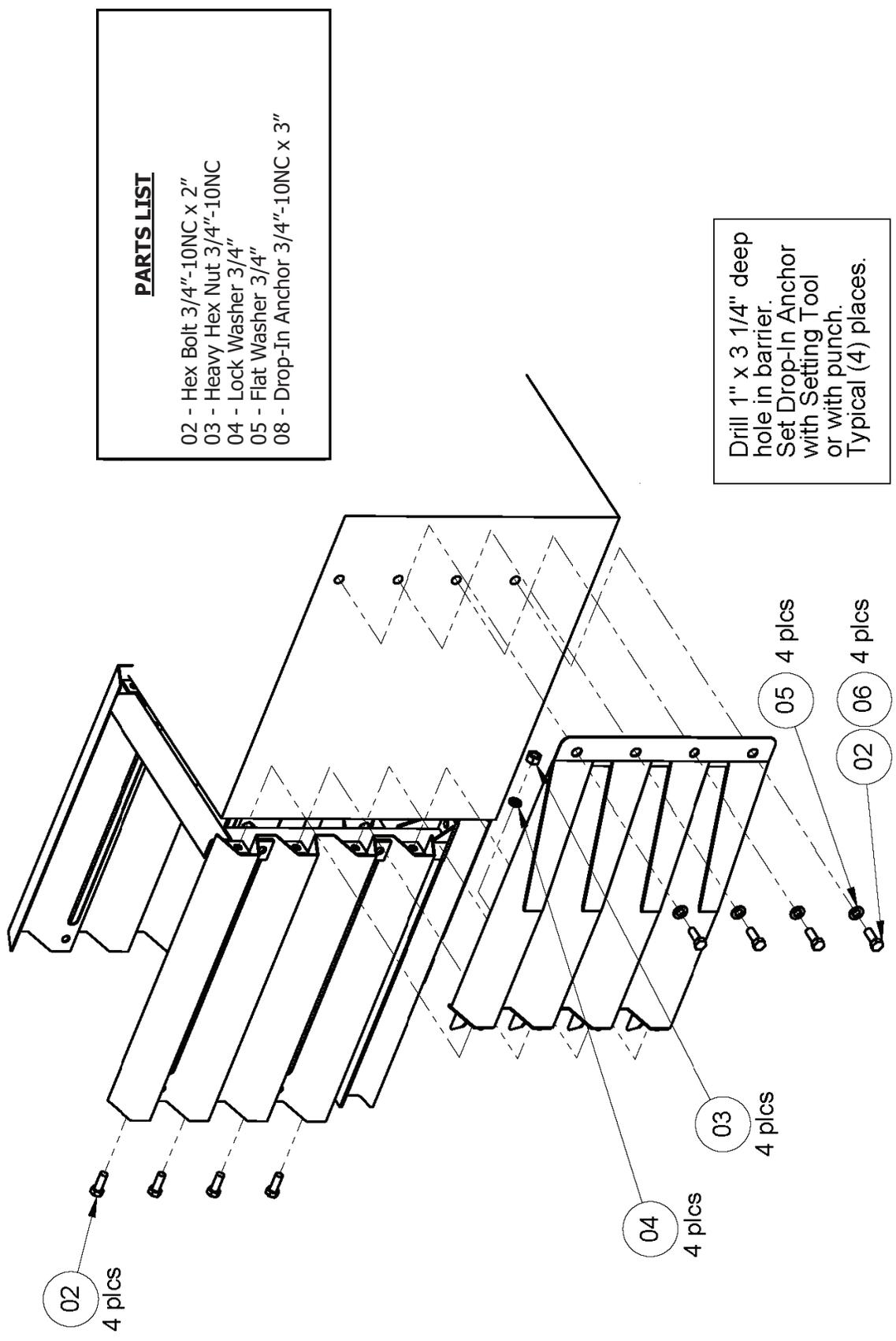
PLAN VIEW

**PARTS LIST**  
Transition 24" Concrete Block Right or Left #9433



SIDE VIEW

**APPENDIX H(2) - TRANSITION, CONCRETE BLOCK, 24 INCH (610mm)**



**PARTS LIST**

- 02 - Hex Bolt 3/4"-10NC x 2"
- 03 - Heavy Hex Nut 3/4"-10NC
- 04 - Lock Washer 3/4"
- 05 - Flat Washer 3/4"
- 08 - Drop-In Anchor 3/4"-10NC x 3"

Drill 1" x 3 1/4" deep hole in barrier.  
Set Drop-In Anchor with Setting Tool or with punch.  
Typical (4) places.

02 4 plcs

04 4 plcs

03 4 plcs

05 4 plcs

06 4 plcs