INFORMATION HANDOUT

For Contract No. 04-4S0504
At 04-SCl-09-4.2

Identified by
Project ID-0400001202

PERMITS

U.S. Fish and Wildlife Service

United States Army Corps of Engineers

Non-Reporting Nationwide 404

WATER QUALITY

California Regional Water Quality Control Board

San Francisco Bay Section CIWQS No.804498
Regulatory Measure No 395293

AGREEMENTS

California Department of Fish and Wildlife

Notification No. 1600-2014-0120-R3

MATERIALS INFORMATION

Addendum to Foundation report dated on April 6, 2017.

Foundation report dated on February 3, 2017.

Manufacturer's Drawings for Alternative in-line Terminal Systems.

Manufacturer's Drawings for Alternative Flared Terminal Systems.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2014-F-0365-1

AUG 01 2014

Ms. Melanie Brent, Office Chief
Caltrans District 4 Environmental Analysis
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Subject: Biological Opinion on the Effects of the Proposed State Route 9 Storm Damage Repair Project, Santa Clara County, California (Caltrans EA 4S050)

Dear Ms. Brent:

This letter responds to a letter from the California Department of Transportation (Caltrans), dated March 13, 2014, which requested formal consultation for the proposed State Route 9 (SR-9) Storm Damage Repair Project in Santa Clara County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on March 17, 2014 (Caltrans EA 4S050). This document represents the Service's biological opinion on the effects of the project on the threatened California red-legged frog (*Rana draytonii*). This letter issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf).

The proposed action is not located within designated critical habitat for the California red-legged frog based on the revised critical habitat designation published on March 17, 2010 (75 FR 12816) (Service 2010). This biological opinion is based on: (1) the SR-9 Storm Damage Repair Project, Biological Assessment dated March 2014; (2) letter from Caltrans to the Service dated March 13, 2014; (3) email correspondence from Caltrans on December 13, 2013, and California Department of Fish and Wildlife (CDFW) on January 7 and January 10, 2014; (4) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans, CDFW, and the Service; and (5) other information available to the Service.

Consultation History

March 17, 2014	The Service received a letter requesting the initiation of formal consultation dated March 13, 2014, and a Biological Assessment for the SR-9 Storm Damage Repair Project.
July 29, 2014	The Service sent an email to Caltrans requesting area calculation for the action area and justification for not providing compensation for the effects of harm on the California red-legged frog.
July 30, 2014	The Service received an email response from Caltrans providing the area calculation for the action area and justification for not providing compensation for the effects of harm on the California red-legged frog.
December 13, 2013 - July 30, 2014	Electronic and phone correspondence between Caltrans, California Department of Fish and Wildlife (CDFW), and the Service.

BIOLOGICAL OPINION

Description of the Proposed Action

The following project description, inclusive of the proposed compensation and proposed conservation measures, was provided by Caltrans and is an excerpt from the March 2014 Biological Assessment with minor modifications for reasons of clarity and accuracy provided by the Service.

Project Description

The purpose of the proposed project is to repair a storm-damaged slope along SR-9 in Santa Clara County at post mile (PM) 4.16 which if left unrepaired could affect the integrity of the roadway. This repair project would improve the integrity of the roadway by constructing a tieback retaining wall, modifying, and reconstructing drainage systems, improving roadway geometrics, and relocating utilities.

The existing roadway in the action area consists of two 11-foot lanes, separated by a solid double yellow stripe. Outside shoulders vary from 1 foot to 3 feet in width. The existing right-of-way (ROW) varies from approximately 17 to 30 feet south of the centerline and approximately 17 to 30 feet north of the centerline. A metal beam guardrail (MBGR) is in place along the length of the northern and southern shoulders. An existing ephemeral drainage (Drainage 1) crosses the action area near the western extent of the retaining wall. This drainage flows into a culvert along the southern side of SR-9, where it is then carried beneath the road and through an approximately 100-foot-long and 30-inch-wide culvert anchored to the surface of the forest floor; drainage is then discharged along the surface of the forest floor into Saratoga Creek. A second existing 18-inch-wide culvert (Drainage 2), anchored to the forest floor, collects surface run-off from SR-9 before discharging it along the slope above Saratoga Creek.

Construct Tieback Retaining Wall

Caltrans would cut back the existing north side slope (with cut ranging from 10 to 19.5 feet in width) and would install a 358-foot tieback retaining wall. The height of the proposed retaining wall is 10 feet. The distance from existing edge of pavement to the proposed retaining wall would vary from about 3 to 7.5 feet. An approximately 16-foot-wide area along the base of the new retaining

wall would be graded to facilitate construction access. After construction of the retaining wall is complete, this graded area would not be maintained for maintenance access and would be allowed to revegetate naturally.

Modify and Reconstruct Drainage Systems
The two existing drainage systems (Drainage 1 and Drainage 2) would be reconstructed and improved with modifications to incorporate the new wall construction. At both locations the headwalls would be reconstructed and the existing cross culverts would be abandoned and new cross culverts installed. New rock slope protection (RSP) would be placed at the end of each drainage outfall and adjacent to the reconstructed headwalls. A crane operating from the tieback wall construction area would place the RSP at the outfall locations. For Drainage 1, the headwall and outfall RSP pads measure approximately 7 feet by 15 feet. For Drainage 2, the headwall RSP pad measures approximately 12 feet by 2 feet, and the outfall RSP pad measures approximately 7 feet by 15 feet. Both outfalls are located approximately 50 feet upslope from Saratoga Creek. New inlets would be added to each drainage system behind the new retaining wall.

Improve Roadway Geometrics
The roadway geometrics and horizontal curvature would be improved and outside shoulders would be constructed with a minimum width of 4 feet. Improvements to the existing pavement will consist of a combination of reconstruction and overlay to meet new proposed roadway geometry. Along the 358-foot section of the new retaining wall, the existing MBGR would be removed. In addition, a new MBGR would be installed to shield the most easterly edge of the retaining wall.

Relocate Utilities
A utility pole is located at the northwestern-most edge of the action area. The utility pole would be relocated approximately 60 feet west within the ROW, where it would be installed below the new retaining wall. A utility box is located at the northeastern-most edge of the action area. This utility box is empty and would be abandoned during project construction.

Access, Staging, and Laydown
All construction activities would occur within the existing Caltrans ROW, within the permanent drainage easements, and within the temporary construction easement. Caltrans will use previously developed and disturbed areas for staging and access. Caltrans will use one-way traffic control and lane closures to accomplish construction activities. A 560-foot portion of the existing lane adjacent to the retaining wall would be enclosed with K-Rail. The available room in the road and road shoulder behind the K-rail would be used for constructing the wall and any necessary temporary staging or access.

Sequence of Construction Actions
Caltrans anticipates that construction would occur between April 15, 2015, and October 15, 2015, and would be completed in approximately 120 days. Generally, construction work would occur in the following order:

- Set up of temporary K-rail lane closure and a one-way traffic control system;
- Install ESA fencing;
- Clear and grub;
- Relocation of utilities;
- Roadway excavation and cut back of slopes;
- Construction of the retaining wall and roadway improvements;

- Removing the temporary K-rail and one-way traffic control system;
- Installation of erosion control measures (i.e., tackified mulch and coir netting); and
- Roadway delineation.

Site Clean-up and Restoration
All construction-related materials, including the ESA fencing, would be removed after construction activities are complete. The temporarily disturbed areas would be cleaned up, re-contoured to original grade where feasible, and protected by implementation of erosion control measures. Permanent erosion control, including soil stabilization measures (such as tackified mulch and coir netting), would be applied to all bare ground temporarily affected to minimize erosion after construction.

Proposed Conservation Measures
General Conservation Measures
To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction Best Management Practices (BMPs) and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance**. Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to nesting birds, work will be conducted between April 15 and October 15 in all vegetated areas.

2. **Environmentally Sensitive Areas (ESA)**. Prior to the start of construction, ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. Approximately 1,060 feet of ESA fencing would be installed along the north and south sides of SR-9 to protect Saratoga Creek, riparian areas, and other sensitive habitats. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

3. **Environmental Awareness Training**. Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog, migratory birds, and their habitat within the action area; an explanation of the status of the species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of this species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the ESAs and Wildlife Exclusion

Fencing (WEF) and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act and Migratory Bird Treaty Act.

4. **Avoidance of Entrapment**. To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1-foot deep will be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined in the Terms and Conditions of this biological opinion.

5. **Best Management Practices**. Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMPs will be developed and implemented to minimize any wind or water-related erosion and will be in compliance with the requirements of the Regional Water Quality Control Board. The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found online at http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm. Protective measures will include, at a minimum:

    a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or watercourses.
    b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.
    c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.
    d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
    e. Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
    f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.
    g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.
i. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

6. **Construction Site Management Practices**. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:

a. A speed limit of 15 miles per hour in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
b. Construction access, staging, storage, parking areas, and temporary construction easements will be located within the project Caltrans ROW outside of any designated ESA. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project and will be limited to existing paved surfaces. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
c. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
d. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.
e. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.
f. No pets from project personnel will be allowed anywhere in the action area during construction.
g. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
h. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from hydrologic features.
i. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 100 feet from any hydrologic features unless it is an existing gas station.

7. **Vegetation Removal**. Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 300 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to

vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.

8. **Reduce Spread of Invasive Species**. To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

9. **Replant, Reseed, and Restore Disturbed Areas**. All slopes or unpaved areas that are temporarily affected by the proposed action will be restored to pre-project conditions or better to the maximum extent practicable. Slopes and bare ground will be treated with tackified mulch to stabilize and prevent erosion. The site would be allowed to re-vegetate naturally. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment, the action area encompasses 9.54 acres at PM 4.16 along SR-9 in Santa Clara County, California. Habitat within the action area consists of mixed evergreen forest, redwood forest, perennial stream (Saratoga Creek), and ephemeral drainages (Drainages 1 and 2). The action area is located on the eastern slopes of the Santa Cruz Mountains at an elevation of approximately 1,050 feet. Saratoga Creek flows east and parallel to the roadway through this segment of SR-9, approximately 200 feet downslope from the road.

Analytical Framework for the Jeopardy Determinations

Jeopardy Determination
In accordance with policy and regulation, the jeopardy analyses in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of this species in the wild.

The jeopardy analyses in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of the California red-legged frog as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species and Environmental Baseline

California Red-legged Frog
Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central California coast. Isolated

populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2014).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages, and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules, or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or haystacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.*, California blackberry, poison oak, and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering off into

spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, *e.g.*, woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 - 5,000 eggs are attached to vegetation below the surface and hatch after 6 - 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 - 7 months following hatching and reach sexual maturity at 2 - 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (*e.g.*, during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, threespine stickleback, and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including

sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Twedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots, waders, or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Recovery Plan: The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small-scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Environmental Baseline

California Red-legged Frog
The action area is located 2 miles east of the South San Francisco Bay Core Area (Alameda Creek Hydrologic Sub-Area) and is within the Central Coast Recovery Unit (Service 2002, 2006). The recovery action guidelines provide recommendations for minimizing the effects of various land and water uses, non-native species/predators, and air and water contamination in addition to outlining recommendations for habitat preservation. These recommendations assist in the conservation and recovery of the species, protect high quality habitat within core areas and priority watersheds, increase opportunities for dispersal, population expansion, and recolonization, and provide connectivity between core areas and occupied watersheds. The conservation needs for the South San Francisco Bay Core Area are: (1) protect existing populations; (2) control non-native predators; (3) increase connectivity between populations; (4) reduce erosion; (5) implement guidelines for recreation activities to reduce impacts; (6) implement forest practice guidelines; and (7) reduce impacts of urbanization.

The project is located within the known range of the California red-legged frog. The mixed evergreen forest, redwood forest, and perennial stream vegetation communities within the action area are part of a larger mosaic of essential habitat features sustaining a viable population (i.e., sheltering, foraging, and dispersal) within the Santa Cruz Mountains. Based on the biological assessment provided by Caltrans and the evaluation performed by the Service no known or potential breeding habitat is present within the project footprint; however, Saratoga Creek provides potential breeding habitat for California red-legged frogs and is located within the action area, approximately 200 feet downslope from the project footprint.

The entire action area is within dispersal distance of known and potential breeding sites and all vegetation communities with the exception on paved roadways and road shoulders within the action area are considered suitable upland habitat with the exception of paved roadways. The two ephemeral drainages provide seasonal non- breeding aquatic habitat. No focused frog or roadkill surveys were conducted in preparation of the biological assessment. Caltrans identified 10 reported occurrences within 10 miles of the action area and 2 occurrences less than 2 miles from the action area. Occurrence number 211 was reported in 1997 from Saratoga Creek, 1.6 miles downstream from the action area and comprised of a single juvenile frog under a board in a seep adjacent to Saratoga Creek (CDFW 2014). The second reported occurrence (#961) is located 1.5 miles north of the action area from Calabasas Creek consisting of one adult and three tadpoles in 2007 (CDFW 2014).

The Service believes that the California red-legged frog is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution, and within 2 miles of the South San Francisco Bay Core Area; (2) there is suitable non-breeding aquatic, upland, and dispersal habitat within the action area and potential breeding habitat nearby; (3) the habitat within the action area is similar to that which is found in nearby areas with confirmed California red-legged frog occupancy; (4) there are no significant barriers to California red-legged frog movement between confirmed occupied areas and the action area; (5) the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (6) the biology and ecology of the animal.

Effects of the Action

California Red-legged Frog

The proposed project will likely adversely affect the threatened California red-legged frog by killing, injuring, harming, and/or harassing juveniles and adults inhabiting suitable non-breeding aquatic, upland, and dispersal habitat within the action area. The aspects of the proposed action most likely to affect the California red-legged frog are largely confined to the construction phase of the project associated with vegetation clearing and grubbing, the construction of the tieback retaining wall, reconstructing the two existing drainages, constructing the two RSP and headwalls, roadway geometric improvements, and relocating of utilities.

The construction of the tieback retaining wall will create a vertical hazard for California red-legged frogs and will present a movement barrier where existing vegetated slopes currently provide access to habitats on either side of SR-9. The retaining wall will affect the ability of frogs to disperse across SR-9 and may result in individuals spending more time on the road and roadside verge in an attempt to reach habitat on the other side of the highway, thereby subjecting them to increased risk of mortality or harm from vehicle strikes.

Construction noise, vibration, and increased human activity may interfere with normal behaviors – feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors of the California red-legged frog – resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Short-term temporal effects will occur when vegetative cover and upland foraging and refugia habitat is removed during project construction. Caltrans proposes to minimize these effects, in part, by locating construction staging, storage and parking areas outside of sensitive habitat in existing paved areas; clearly marking construction work boundaries to prevent crews from affecting more habitat than is absolutely necessary, and restoring all temporary disturbed areas to pre-project conditions or better.

The proposed construction activities could result in the introduction of chemical contaminants to the site. California red-legged frogs using the action area could be exposed to any contaminants that are present at the site. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants, or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. Caltrans proposes to minimize these risks by implementing a SWPPP, erosion control BMPs and a Spill Response Plan, which will consist of refueling, oiling or cleaning of vehicles and equipment a minimum of 100 feet from aquatic resources; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the wetland; and locating staging, storage and parking areas away from aquatic habitats.

Preconstruction surveys and the relocation of individual California red-legged frogs by a Service-approved biologist will minimize the likelihood of serious injury or mortality; however, capturing and handling frogs may result in stress and/or minor injury during handling, containment, and transport. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated amphibians has not been estimated, survivorship of translocated wildlife, in general, is low because of intraspecific competition, lack of familiarity with the relocation site with regards to breeding, feeding, and sheltering habitats, risk of contracting disease in foreign environment, and increased risk of predation. Caltrans proposes to minimize these effects by using qualified Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat.

Biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus (*Batrachochytrium dendrobatidis*), may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch et al. 2001, Weldon et al. 2004). Implementing proper decontamination procedures prior to and following aquatic surveys and handling of frogs and salamanders will minimize the risk of transferring diseases through contaminated equipment or clothing.

Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent. The proposed action would result in the permanent loss and/or degradation of 0.16-acre of California red-legged frog upland, and dispersal habitat; and the temporary loss and/or degradation of 0.14-acre of California red-legged frog non-breeding aquatic, upland, and dispersal habitat. These effects will be minimized by installing environmentally sensitive area fencing to keep workers from straying into otherwise undisturbed habitat; erecting wildlife exclusion fencing to deter frogs from wandering onto the construction site; implementing storm water and erosion BMP's; educating workers about the presence of California red-legged frogs, their habitat, identification, regulatory laws, and avoidance and minimization measures; and requiring a Service-approved biologist(s) to be present to monitor project activities within or adjacent to suitable habitat.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. No other State, Tribal, local or private actions are anticipated in the action area within the foreseeable future.

The global average temperature has risen by approximately 0.6 degrees centigrade during the 20th Century (International Panel on Climate Change 2001, 2007; Adger et al 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (International Panel on Climate Change 2001, 2007; Adger et al. 2007), and that it is "very likely" that it is largely due to increasing concentrations of greenhouse gases (carbon dioxide, methane, nitrous oxide, and others) in the global atmosphere from burning fossil fuels and other human activities (Cayan 2005, EPA Global Warming webpage http://yosemite. epa.gov; Adger et al. 2007). Eleven of the twelve years between 1995 and 2006 rank among the twelve warmest years since global temperatures began in 1850 (Adger et al. 2007). The warming trend over the last fifty years is nearly twice that for the last 100 years (Adger et al. 2007). Looking forward, under a high emissions scenario, the International Panel on Climate Change estimates that global temperatures will rise another four degrees centigrade by the end of this Century; even under a low emissions growth scenario, the International Panel on Climate Change estimates that the global temperature will go up another 1.8 degrees centigrade (International Panel on Climate Change 2001). The increase in global average temperatures affects certain areas more than others. The western United

States, in general, is experiencing more warming than the rest of the Nation, with the 11 western states averaging 1.7 degrees Fahrenheit warmer temperatures than this region's average over the 20th Century (Saunders et al. 2008). California, in particular, will suffer significant consequences as a result of global warming (California Climate Action Team 2006). In California, reduced snowpack will cause more winter flooding and summer drought, as well as higher temperatures in lakes and coastal areas. The incidence of wildfires in the Golden State also will increase and the amount of increase is highly dependent upon the extent of global warming. No less certain than the fact of global warming itself is the fact that global warming, unchecked, will harm biodiversity generally and cause the extinction of large numbers of species. If the global mean temperatures exceed a warming of two to three degrees centigrade above pre-industrial levels, twenty to thirty percent of plant and animal species will face an increasingly high risk of extinction (International Panel on Climate Change 2001, 2007). The mechanisms by which global warming may push already imperiled species closer or over the edge of extinction are multiple. Global warming increases the frequency of extreme weather events, such as heat waves, droughts, and storms (International Panel on Climate Change 2001, 2007; California Climate Action Team 2006; Lenihan et al. 2003). Extreme events, in turn may cause mass mortality of individuals and significantly contribute to determining which species will remain or occur in natural habitats.

Conclusion

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area; the effects of the proposed SR-9 Storm Damage Repair Project and the cumulative effects; it is the Service's biological opinion that the project, as proposed, is likely to adversely affect this species, but is not likely to jeopardize its continued existence. This determination is based on our opinion that the magnitude of the effects of this action does not appreciably reduce the likelihood of both the survival and recovery of this species in the wild.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans, as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their cryptic nature and wariness of humans. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. Due to the difficulty in quantifying the number of California red-legged frogs that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the mortality/injury of no more than one California red-legged frog and the harassment of all California red-legged frogs inhabiting or utilizing the 9.54 acre action area. The Service anticipates that take of juvenile and adult life history stages may be killed, harmed or harassed as a result of habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Take of eggs or larvae is not authorized based on the project design that avoids work within Saratoga Creek and the implementation of the proposed conservation measures. Therefore, take of eggs or larvae are not anticipated. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult California red-legged frogs within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the California red-legged frog.

Reasonable and Prudent Measures

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of California red-legged frog:

1. Minimize the effects to the California red-legged frog.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:

1. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the Biological Assessment dated March 2014, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of this biological opinion are subject to the requirements of reinitiation of formal consultation.

2. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or their designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.

3. **Wildlife Exclusion Fencing.** Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where California red-legged frogs could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.

4. **Biological Monitor Approval and Stop Work Authority**. The qualifications of all proposed Service-approved biological monitors shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biological monitors shall keep a copy of this biological opinion in his/her possession when onsite. The Service-approved biological monitors shall communicate through the Resident Engineer or their designee, verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of this biological opinion are met. The Service-approved biologist(s) through communication with the Resident Engineer shall have oversight over implementation of the Terms and Conditions in this Biological Opinion, and shall have the authority to stop project activities if they determine any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.

5. **Biological Monitoring Records**. The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biologist(s) shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, CDFW, and/or their designated agents upon request. If requested, all monitoring records shall be provided to the Service within 30 of the completion of monitoring work.

6. **Agency Access**. If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction

activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of this Biological Opinion, and to evaluate project effects to the California red-legged frog and its habitat.

California Red-Legged Frog Protective Measures

7. **Inclement Weather Restrictions**. No work shall occur during or within 24 hours following a rain event exceeding 0.2-inch as measured by the NOAA National Weather Service for the Los Gatos, CA (LSGC1) base station available at: http://www.wrh.noaa.gov/mesowest/getobext.php?wfo=mtr&sid=LSGC1&num=72&raw=0. Service-approval to continue work during or within 24 hours of a rain event shall be considered on a case-by-case basis.

8. **Proper Use of Erosion Control Devices**. To prevent California red-legged frogs from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

9. **Biological Monitoring**. A Service-approved biologist(s) shall be onsite during all activities that may result in take of California red-legged frogs as determined by the Service. A minimum of one Service-approved biologist shall be on-site throughout the project duration. However, an adequate number of Service-approved biologists to monitor the effects of the project on the California red-legged frog. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis.

10. **Preconstruction and Daily Surveys**. Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of California red-legged frogs as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frogs as determined by the Service. If a California red-legged frog is observed, the Service-approved biologist shall implement the species observation and handling protocol outlined below.

11. **Protocol for Species Observation and Handling**. If a California red-legged frog is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the California red-legged frog, it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel will be notified of the finding and at no time shall work occur within 50 feet of the frog without a Service-approved biologist present. If it is determined by the Service-approved biologist that relocating the California red-legged frog is necessary, the following steps shall be followed:

a. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.

b. California red-legged frogs shall be captured by hand, dipnet or other Service-approved methodology, transported by hand, dipnet or temporary holding container, and released as soon as practicable the same day of capture. Handling of California red-legged frogs shall be minimized to the maximum extent practicable. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area.

c. California red-legged frogs shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released in a safe area on the same side of SR-9 where it was discovered. The individual(s) shall be released within the Caltrans right-of-way only if suitable habitat exists and would not pose a risk to the animal's survival or well-being. Otherwise, they shall be released at a location subject to the approval of the property owner. If suitable habitat cannot be identified, the Service shall be contacted to determine an acceptable alternative. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the Disposition of Individuals Taken section below.

2. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a

freezer located in a secure site, until instruction s are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.

2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002).

3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog and other listed species.

4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog and other appropriate species. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.

5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the California red-legged frog and other listed species. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the SR-9 Storm Damage Repair Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or

critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have any questions regarding this biological opinion on the proposed SR-9 Storm Damage Repair Project, Santa Clara County, California, contact Jerry Roe or Ryan Olah at the letterhead address or at (916) 414-6600.

Sincerely,

Jennifer M. Norris
Field Supervisor

cc:
Melissa Escaron, California Department of Fish and Wildlife, Napa, California

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U.S. Army Corps of Engineers

South Pacific Division

Nationwide Permit Pre-Construction Notification (PCN) Form

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

Box 1 Project Name SR-9 Storm Damage Repair Project			
Applicant Name Hardeep Takhar		**Applicant Title** Office Chief, Biological Sciences and Permits	
Applicant Company, Agency, etc. Caltrans		Applicant's internal tracking number (if any) EA 4S0504	
Mailing Address 111 Grand Avenue, Oakland, CA 94623			
Work Phone with area code (510) 715-6816	Mobile Phone with area code N/A	Home Phone with area code N/A	Fax # with area code (510) 286-5600
E-mail Address hardeep_takhar@ca.dot.gov	Relationship of applicant to property: ☐ Owner ☐ Purchaser ☐ Lessee ☒ Other: Applicant		
Application is hereby made for verification that subject regulated activities associated with subject project qualify for authorization under a U.S. Army Corps of Engineers Nationwide Permit or Permits as described herein. I certify that I am familiar with the information contained in this application and, that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agency to which this application is made the right to enter the above-described location to inspect the proposed, in-progress or completed work. I agree to start work only after all necessary permits have been received and to comply with all terms and conditions of the authorization.			
Signature of applicant			Date (mm/dd/yyyy) 3/4/14

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

Box 2 Authorized Agent/Operator Name Carie Montero		**Agent/Operator Title** Branch Chief	
Agent/Operator Company, Agency, etc. Caltrans		E-mail Address carie_montero@dot.ca.gov	
Mailing Address 111 GRAND AVENUE, OAKLAND, CA, 94623			
Work Phone with area code (510) 286-5636	Mobile Phone with area code N/A	Home Phone with area code N/A	Fax # with area code (510) 286-5600
I hereby authorize the above named authorized agent to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. I understand that I am bound by the actions of my agent and I understand that if a federal or state permit is issued, I, or my agent, must sign the permit.			
Signature of applicant			Date (mm/dd/yyyy)
I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate.			
Signature of authorized agent			Date (mm/dd/yyyy) 3-4-14

Revised March 21, 2012. For the most recent version of this form, visit your Corps District's Regulatory website.

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

Box 4 Name of Contractor(s) (if known): TO BE DETERMINED		
Contractor Title	**Contractor Company, Agency, etc.**	
Mailing Address		
Work Phone with area code	Mobile Phone with area code	Home Phone with area code

Box 5 Site Number 1 of 1. Project location(s), including street address, city, county, state, zip code where proposed activity will occur: Santa Clara County, CA	
Waterbody (if known, otherwise enter "an unnamed tributary to"):an unnamed tributary Tributary to what known, downstream waterbody:Saratoga Creek	
Latitude & Longitude (D/M/S, DD, or UTM with Zone): NAD 1983 UTM ZONE 10N	Section, Township, Range: 09,08S,02W
County Assessor Parcel Number (Include County name): N/A	USGS Quadrangle map name: Castle Rock
Watershed (HUC and watershed name[1]):Saratoga Creek [1]http://water.usgs.gov/GIS/regions.html	Size of permit area or project boundary: 0.0059 acres 74 linear feet
Directions to the project location and other location descriptions, if known: The proposed project is located in Santa Clara County along State Route (SR) 9 at post mile (PM) 4.16, in the east bound direction. About 0.7 miles west of Sanborn Road and SR-9 (Figure 1).	

Nature of Activity (Description of the project, include all features):
The Department proposes to replace the existing headwall with a smaller headwall. The diameter of the headwall opening and the cross culvert will remain the same. RSP pads will be placed at the inlet and outfalls of the drainage (outfall pad not jurisdictional). An oversized drainage inlet will also be installed (Figure 2). See Appendix A for full project description and Appendix C for Project Plans.

Project Purpose (Description of the reason or purpose of the project):
The Department is replacing the drainage system entirely to reduce the risk of leaks encountered in the existing system. Currently, leaks in the system are causing the roadway to subside.

Box 6 Reason(s) for discharge into Waters of the United States (Description of why dredged and/or fill material needs to be placed in Waters of the United States):
The discharge is a result of the replacement headwall, the over sized drain, and the RSP pad at the inlet of the drainage.

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

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

Water Body Type	Requested NWP Number: 14				Requested NWP Number:				Requested NWP Number:			
	Permanent		Temporary		Permanent		Temporary		Permanent		Temporary	
	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length
ephemeral stream	.0027	13.50	.0032	13.71								
Total:	.0027	13.50	.0032	13.71								

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

Material Type	Total Volume Dredged	Total Volume Discharged
Rock Slope Protection (RSP)	N/A	4
Clean spawning gravel		
River rock		
Soil/Dirt/Silt/Sand/Mud		
Concrete	N/A	2.05
Structure		
Stumps/Root wads		
Other:		
Total:	N/A	6.05

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

Activity will result in the loss of greater than ½-acre of Waters of the United States? ☐ Yes ☒ No
If yes, provide an electronic copy (compact disc) or multiple hard copies (7) of the complete PCN for appropriate Federal and State Pre-discharge Notification (See General Condition #31, Pre-construction Notification, Agency Coordination, Section 2 and 4):

Describe direct and indirect effects caused by the activity and how the activity has been designed (or modified) to have minimal adverse effects on the aquatic environment (See General Condition #31, Pre-construction Notification, District Engineer's Decision, Section 1): The project is a minimal impact.

Potential cumulative impacts of proposed activity(if any): N/A

Required drawings and figures (see each U.S. Army Corps of Engineers District's Minimum Standards Guidance):
Vicinity map: ☒ Attached (or mail copy separately if applying electronically)
To-scale Plan view drawing(s): ☒ Attached (or mail copy separately if applying electronically)
To-scale elevation and/or Cross Section drawing(s): ☒ Attached (or mail copy separately if applying electronically)
Numbered and dated pre-project color photographs: ☒ Attached (or mail copy separately if applying electronically)
Sketch drawing(s) or map(s): ☒ Attached (or mail copy separately if applying electronically)

Has a wetlands/waters of the U.S. delineation been completed?
☐ Yes, Attached[2] (or mail copy separately if applying electronically) ☒ No
If a delineation has been completed, has it been verified in writing by the Corps?
☐ Yes, Date of preliminary or approved jurisdictional determination (mm/dd/yyyy): Corps file number: ☐ No
[2]If available, provide ESRI shapefiles (NAD83) for delineated waters

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

Is any portion of the work already complete? ☐ YES ☒ NO
If yes, describe the work:

Box 7 Authority:
Is Section 10 of the Rivers and Harbors Act applicable?: ☐ YES ☒ NO
Is Section 404 of the Clean Water Act applicable?: ☒ YES ☐ NO

Is the project located on U.S. Army Corps of Engineers property or easement?: ☐ YES ☒ NO
If yes, has Section 408 process been initiated?: ☐ YES ☒ NO
Would the project affect a U.S. Army Corps of Engineers structure?: ☐ YES ☒ NO
If yes, has Section 408 process been initiated?: ☐ YES ☒ NO

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

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

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

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

Box 9 Measures taken to avoid and minimize impacts to waters of the United States:
Construction of the proposed project will only occur when no water is present and no storm events are forecasted. The project will require the preparation of a Water Pollution Control Program (WPCP). The WPCP is developed by the contractor and submitted to the Caltrans resident engineer for approval prior to the start of construction. The WPCP incorporates the applicable temporary Construction site BMPs for the project intended to reduce or eliminate pollutants in construction site stonnwater runoff throughout the year. In addition to those requirements, erosion control will be addressed by incorporating hydroseeding, hydraulic mulch, compost blankets and fiber rolls. Drainage inlet protection will be installed and street sweeping conducted throughout construction.

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

[1] For uplands, please indicate if designed as an upland buffer.

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

If no mitigation is proposed, provide detailed explanation of why no mitigation would be necessary:
Because the fill is de minimis permanent fill of 0.0027 acres to an ephemeral drainage. Since no wetlands will be filled or trees removed no mitigation is proposed for this Project.

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

Has a draft/conceptual mitigation plan been prepared in accordance with the April 10, 2008, Final Mitigation Rule[2] and District Guidelines?

[2] http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig_info.aspx
[3] **Sacramento and San Francisco Districts**-http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/Mitigation_Monitoring_Guidelines.pdf
[4] **Los Angeles District**-http://www.spl.usace.army.mil/regulatory/mmg_2004.pdf
[5] **Albuquerque District**-http://www.spa.usace.army.mil/reg/mitigation/SPA%20Final%20Mitigation%20Guidelines_OLD.pdf

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

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

Mitigation site(s) Latitude & Longitude (D/M/S, DD, or UTM with Zone):	USGS Quadrangle map name(s):
Assessor Parcel Number(s):	Section(s), Township(s), Range(s):

Other location descriptions, if known:

Directions to the mitigation location(s):

Box 11 Threatened or Endangered Species

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

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

Have surveys, using U.S. Fish and Wildlife Service/NOAA Fisheries protocols, been conducted?
☐ Yes, Report attached (or mail copy separately if applying electronically) ☒ No

If a federally-listed species would be impacted, please provide a description of the impactand a biological evaluation, if available.
☐ Yes, Report attached (or mail copy separately if applying electronically) ☒ Not attached

Has Section 7 consultation been initiated by another federal agency?
☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has Section 10 consultation been initiated for the proposed project?
☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has the USFWS/NOAA Fisheries issued a Biological Opinion?
☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No
If yes, list date Opinion was issued (m/d/yyyy):

Box 12 Historic properties and cultural resources:

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

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

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

Has a cultural resource records search been conducted?
☐ Yes, Report attached (or mail copy separately if applying electronically) ☒ No

Has a cultural resource pedestrian survey been conducted for the site?
☐ Yes, Report attached (or mail copy separately if applying electronically) ☒ No

Has another federal agency been designated the lead federal agency for Section 106 consultation?
☐ Yes, Designation letter/email attached (or mail copy separately if applying electronically) ☒ No

Has Section 106 consultation been initiated by another federal agency?
☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has a Section 106 MOA or PA been signed by another federal agency and the SHPO?
☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No
If yes, list date MOA or PA was signed (m/d/yyyy):

Box 13 Section 401 Water Quality Certification:
Applying for certification? ☒ Yes, Attached (or mail copy separately if applying electronically) ☐ No

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

Exempted activity? ☐ Yes ☒ No
Agency concurrence? ☐ Yes, Attached ☐ No
If exempt, state why:

Box 14 Coastal Zone Management Act:
Is the project located within the Coastal Zone? ☐ Yes ☒ No

If yes, applying for a coastal commission-approved Coastal Development Permit?
☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

If no, applying for separate CZMA-consistency certification?
☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

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

Exempt? ☐ Yes ☒ No
Agency concurrence? ☐ Yes, Attached ☒ No
If exempt, state why:

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

Agency	Type of Approval[4]	Identification Number	Date Applied	Date Approved	Date Denied
RWQCB	401 Certification	TBD	TBD	TBD	N/A
USFWS	BO	TBD	TBD	TBD	N/A
CDFW	1602	TBD	TBD	TBD	N/A

[4] Would include but is not restricted to zoning, building, and flood plain permits

Nationwide Permit General Conditions (GC) checklist:

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

Check	General Condition	Rationale for compliance with General Condition
☒	1. Navigation	The waters are non-navigable and the project will not cause more than a minimal adverse effect on navigation.
☒	2. Aquatic Life Movements	Aquatic life movements will not be impeded by this project.
☒	3. Spawning Areas	The are no spawning areas in the waters within the project site.
☒	4. Migratory Bird Breeding Areas	This is not a migratory bird breeding area.
☒	5. Shellfish Beds	No shellfish beds are in the waters within the project site.
☒	6. Suitable Material	All material used in the construction of this project will be suitable for the natural environment and non-toxic.
☒	7. Water Supply Intakes	No construction activities occur within the proximity of a public water supply.
☒	8. Adverse Effects from Impoundments	The project will not create an impoundment of water.
☒	9. Management of Water Flows	Work will be conducted when it is dry between June 1 and October 15. There will be no stream diversions.
☒	10. Fills Within 100-Year Floodplains	The project complies with applicable FEMA approved state or local floodplain management requirements.
☒	11. Equipment	Equipment is prohibited in the ditch. Equipment refueling will not occur in the channels. Disturbances to soils will be minimized.
☒	12. Soil Erosion and Sediment Controls	Caltrans standard BMPs will be used. Work within waters of the United States during periods of low-flow or no-flow (June 1 to October 15.
☒	13. Removal of Temporary Fills	Temporary fills will be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas will be revegetated, as appropriate.
☒	14. Proper Maintenance	This project improves the drainage facility and any structure or fill shall be properly maintained by Caltrans Maintenance.
☒	15. Single and Complete Project	This is a single and complete project.
☒	16. Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the project.
☒	17. Tribal Rights	No Tribal Rights will be affected.
☒	18. Endangered Species	See Box 11 above.
☒	19. Migratory Bird and Bald and Golden Eagle Permits	Pre-construction bird surveys will be conducted between February 15 and September 1.
☒	20. Historic Properties	See Box 12 above.
☒	21. Discovery of Previously Unknown Remains and Artifacts	If any previously unknown historic, cultural or archeological remains and artifacts are discovered while accomplishing the activity authorized by this permit, the Resident Engineer will be immediately notified of what was found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed.
☒	22. Designated Critical Resource Waters	This is not a NOAA managed marine sanctuary, marine monument, or a National Estuarine Research Reserve.
☒	23. Mitigation	See Box 10 above.
☒	24. Safety of Impoundment Structures	This is not an Impoundment Structure.
☒	25. Water Quality	See Box 13 above.
☒	26. Coastal Zone Management	See Box 14 above.
☒	27. Regional and Case-by-Case Conditions	Regional conditions do not apply to this project.
☒	28. Use of Multiple Nationwide Permits	Does not apply.
☒	29. Transfer of Nationwide Permit Verifications	N/A, Caltrans has no plans to sell or transfer this property.

☒	30. Compliance Certification	This is a non-reporting NWP 14, no certification will be sent to USACE.
☒	31. Pre-Construction Notification	This is a non-reporting NWP 14, no PCN will be sent to USACE.

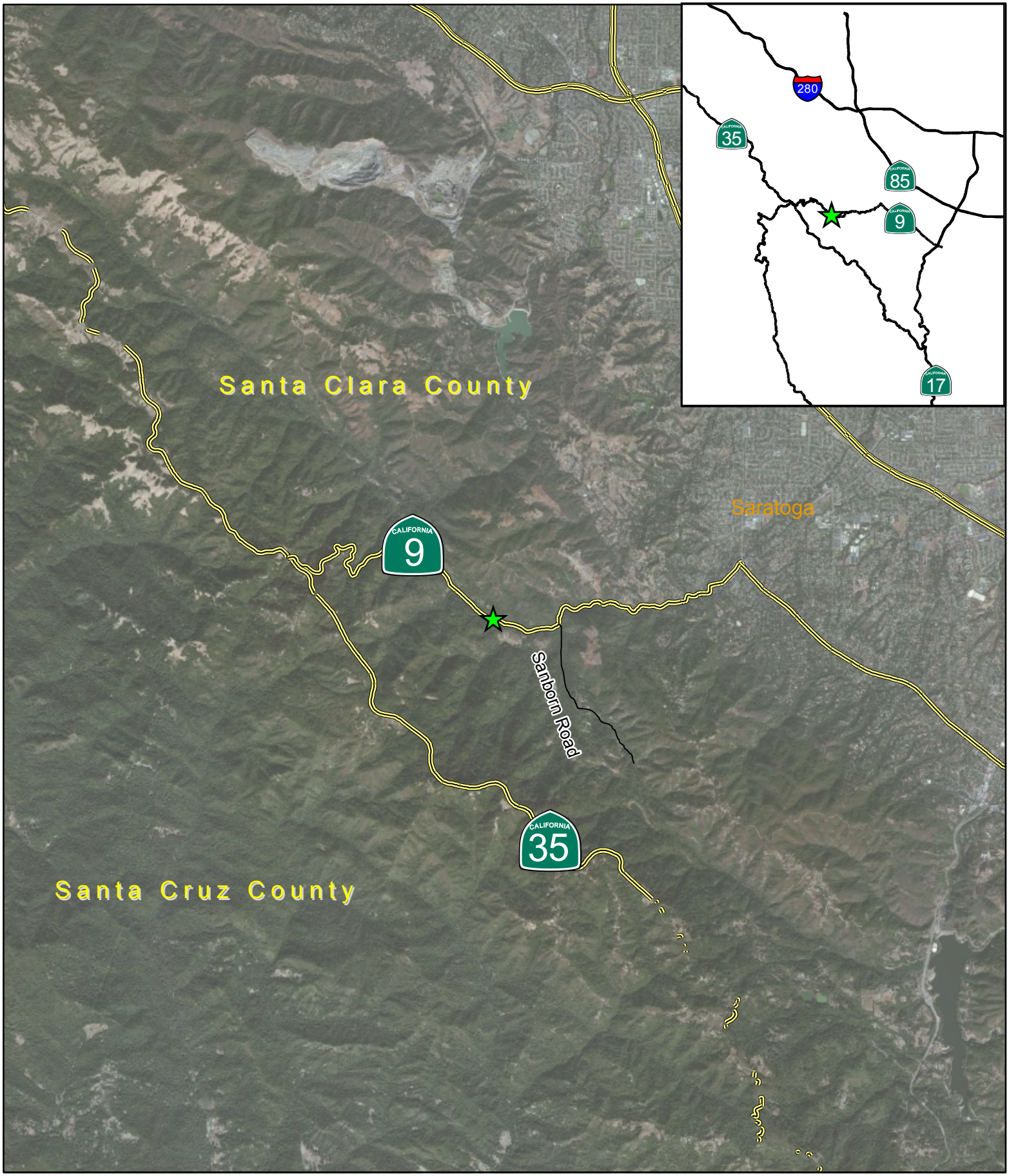


Figure 1
NWP 14 Non-reporting
EA 4S0504

★ Project Location

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2		

REGISTERED CIVIL ENGINEER — 7-18-11 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

ABBREVIATION:

GMP STEEL PIPE INLET WITH PLATE

LEGEND:

- HMA OVERSIDE DRAIN
- RSP
- GRADE TO DRAIN
- HMA APRON
- DRAINAGE SYSTEM No.
- DRAINAGE UNIT

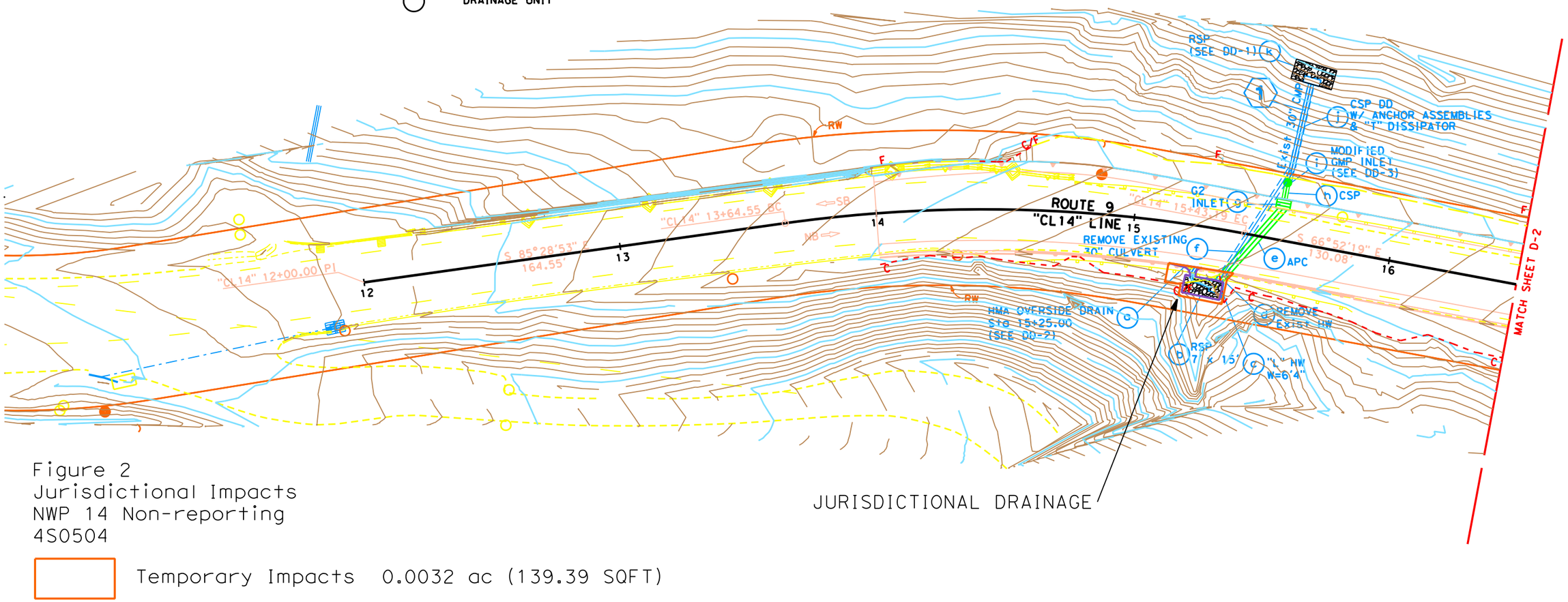


Figure 2
Jurisdictional Impacts
NWP 14 Non-reporting
4S0504

Temporary Impacts 0.0032 ac (139.39 SQFT)

Permanent Impacts 0.0027 ac (118.62 SQFT)

DRAINAGE PLAN

SCALE: 1"=20' **D-1**

APPROVED FOR DRAINAGE WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — 06-DESIGN

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

CALCULATED-DESIGNED BY: RAJINDER S BRAR

CHECKED BY: DAN MASSA

REVISED BY | DATE REVISED

LAST REVISION 06-08-12 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

USERNAME => $USER
DGN FILE => $REQUEST

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 1475

PROJECT NUMBER & PHASE 04000012021

0400001202ia001.dgn 1/22/2014 12:28:20 PM

U S Army Corps of Engineers
Sacramento District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits – March 19, 2007

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 27.) (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. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, 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.

☐ **1. Navigation.**

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

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

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ **2. Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

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

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

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

☐ **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.

☐ **15. 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 in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

☐ **16. 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.

☐ **17. Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to 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 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.

☐ (c) Non-federal permittees shall notify 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 may be affected by the proposed work or that utilize the designated critical habitat that may 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.

☐ (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, both lethal and non-lethal "takes" of protected species are in violation of the ESA. 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/ and http://www.noaa.gov/fisheries.html respectively.

☐ **18. 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.

☐ (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, 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)). 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 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.

☐ (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, explaining 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.

☐ **19. Designated Critical Resource Waters.** Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 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 27, 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.

☐ **20 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) 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 some other form of mitigation would be more environmentally appropriate 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. 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.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, 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 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. 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 arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

☐ (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.

☐ **21. 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.

☐ **22. 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.

☐ **23. 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.

☐ **24. 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.

☐ **25. 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)

☐ **26. Compliance Certification**. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

☐ (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

☐ (b) A statement that any required mitigation was completed in accordance with the permit conditions; and

☐ (c) The signature of the permittee certifying the completion of the work and mitigation.

☐ **27. 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, as a general rule, 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:

☐ (1) Until 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) If 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 17 that listed species or critical habitat might affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 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 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)) is 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 cannot 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; 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 result in a quicker decision.);

☐ (4) The PCN must include a delineation of special aquatic sites and other waters of the United States 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 of the United States, 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, where 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. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

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

☐ (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic

property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

☐ (c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

☐ (2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the 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 then 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. 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, but 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 multiple copies of pre-construction notifications to expedite agency coordination.

☐ (5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

☐ (e) District Engineer's Decision: 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. 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 work 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 conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. 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 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.

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: (1) 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; (2) 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 (3) 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. The authorization will include the necessary conceptual or specific 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.

☐ **(a) 28. 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.

B. Regional Conditions: (None at this time, will be available May 2007.)

C. Further Information

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

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

D. Definitions

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

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for 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.

Discharge: The term "discharge" means any discharge of dredged or fill material and any activity that causes or results in such a discharge.

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.

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 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.

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 NWPs, 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.

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 course 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 waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

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 project: 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 project must have independent utility (see definition). For linear projects, a "single and complete project" is 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 waterbody several times at separate and distant locations, each crossing is considered a single and complete project. 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.

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 that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, 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.

APPENDICES

APPENDIX A

4S0504 Route 9 Storm Damage Project
NWP 14 Non-reporting

Project Description

This project proposes to repair a storm damaged slope area in Santa Clara County, near the City of Saratoga on State Route 9 at PM 4.2. The work involves constructing a tie-back retaining wall, drainage modifications and reconstructing and improving roadway geometrics.

Within the project limits, Route 9 is a two-lane undivided conventional highway, located in mountainous terrain, traversing north/south within the county of Santa Clara. The existing facility consists of 11-foot lanes with outside shoulders ranging from 1 to 3 feet in width. Saratoga Creek parallels the roadway through this segment of Route 9. Existing slope failures adjacent to the roadway have been identified which could affect the integrity of the roadway if not improved.

The primary proposed improvements would include the construction of an approximate 358 foot tie-back retaining wall. The roadway geometrics would be improved and outside shoulders would be widened to 4 feet. The existing pavement would consist of a combination of reconstruction and overlay. Two existing drainage systems would be reconstructed and improved in similar locations with modifications to incorporate the new wall construction. Existing utilities would be relocated outside of the work area.

One-way traffic control system would be used for constructing the improvements. The existing lane adjacent to the retaining wall would be closed with K-Rail. The available room behind the K-rail would be used for constructing the wall and any necessary temporary storage or stockpiling. Localized short duration full closure of the route during low volume traffic hours may be necessary to place and remove the K-rail or for hauling. Construction work would primarily be during the daytime.

Equipment would include roadway and structures construction equipment. Roadway construction would likely include: Excavators, scrapers, graders, pavers, rollers, compactors and loader/backhoes. Equipment for retaining wall construction would likely include: tracked drilling equipment, truck mounted grout mixing/pumping system, haul trucks, cranes, loaders/backhoes.

<u>Details of the Improvements:</u>

- A tie-back retaining wall would be constructed from about Sta. 14+18 to Sta. 17+76 (Approximately 358 feet). The height of the proposed retaining wall that would be exposed would be 10 feet. The distance from existing edge of pavement to the proposed retaining wall would vary from about 3 to 7.5 feet.
- Horizontal curvature of the roadway would be improved and outside shoulders would be constructed with a minimum width of 4 feet.
- Existing structural section of the roadway would be a combination of reconstruction and overlay to meet new proposed roadway geometry.
- Drainage improvements are proposed at approximately Sta. 15+50 and 17+30. Improvements would be proposed in the same general area as existing drainage features. A headwall would be reconstructed and the existing pipe network would

be replaced. New RSP would be placed at the end of each drainage outfall and adjacent to the reconstructed headwall. New metal pipe inlets would be added to each drainage system in areas behind the new retaining wall.

- Existing MBGR to the right of centerline would be relocated to the new edge of shoulder to shield the reconstructed headwall. In addition, new MBGR would be constructed to shield the most easterly edge of the retaining wall.

Proposed Right of way (R/W) and Easement:

(1) A temporary construction easement would be required to construct the retaining wall. No new additional R/W would be necessary.
(2) Drainage improvements would be within permanent drainage easements.

APPENDIX B

Photo 1: Ephemeral ditch looking upstream.

Photo 2: Ephemeral ditch at headwall.

Photo 3: Looking towards headwall from upstream.

Photo 4:Headwall.

APPENDIX C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	1	61

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

STP-S009(018)E

PROJECT PLANS FOR CONSTRUCTION ON

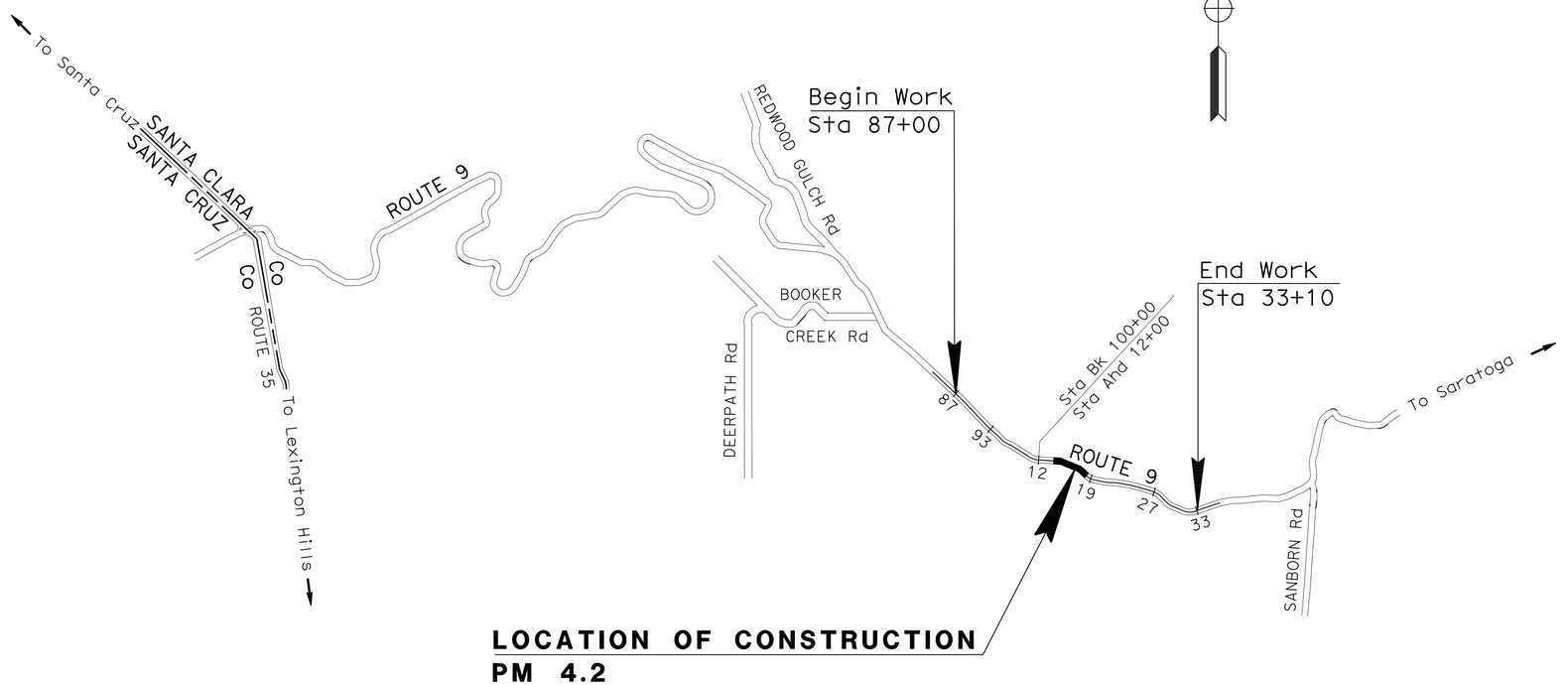
STATE HIGHWAY

IN SANTA CLARA COUNTY
NEAR SARATOGA
0.8 MILE WEST OF SANBORN ROAD

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

INDEX OF PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.



NO SCALE

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

PROJECT MANAGER: DINA EL-TAWANSY

DESIGN ENGINEER: GETACHEW ESHETE

DAN

PROJECT ENGINEER
REGISTERED CIVIL ENGINEER

7-18-11
DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

April 2, 2013
PLANS APPROVAL DATE

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

CONTRACT No.	04-4S0504
PROJECT ID	0400001202

LAST REVISION 06-08-12
DATE PLOTTED => 08-AUG-2013
TIME PLOTTED => 09:00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	2	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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

NOTES:

1. REMOVE AND PLACEMENT OF HMA DIKE AND MBGR SEE LAYOUTS, SUMMARY OF QUANTITIES AND CONSTRUCTION DETAILS.
2. FOR DETAILS CONCERNING CONCRETE BARRIER TYPE 732, SEE STRUCTURE PLANS.
3. DIMENSIONS OF THE PAVEMENT STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
4. SUPERELEVATION AS SHOWN OR AS DIRECTED BY ENGINEER.
5. SEE STRUCTURE PLANS FOR EXCAVATION AND BACKFILL DETAILS ASSOCIATED WITH RETAINING WALL CONSTRUCTION.
6. FOR FURTHER DETAILS CONCERNING COLD PLANE, SEE LAYOUTS.

DESIGN DESIGNATION (ROUTE 9)

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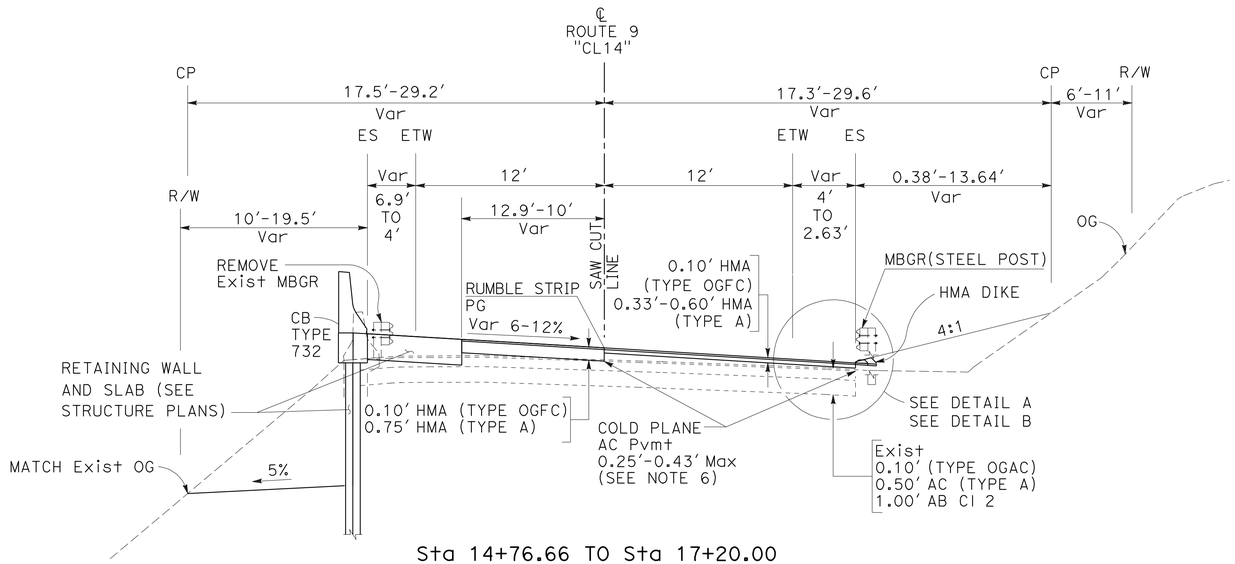
2031	ADT = 8300	T = 1%
	DHV = 600	



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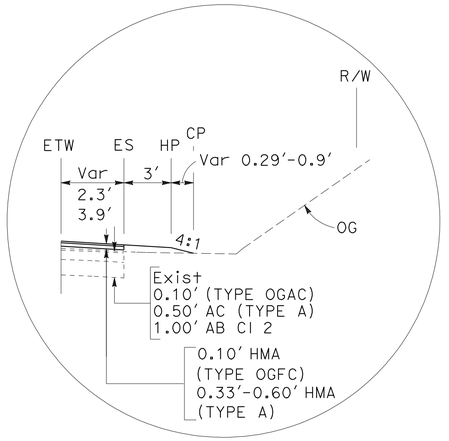
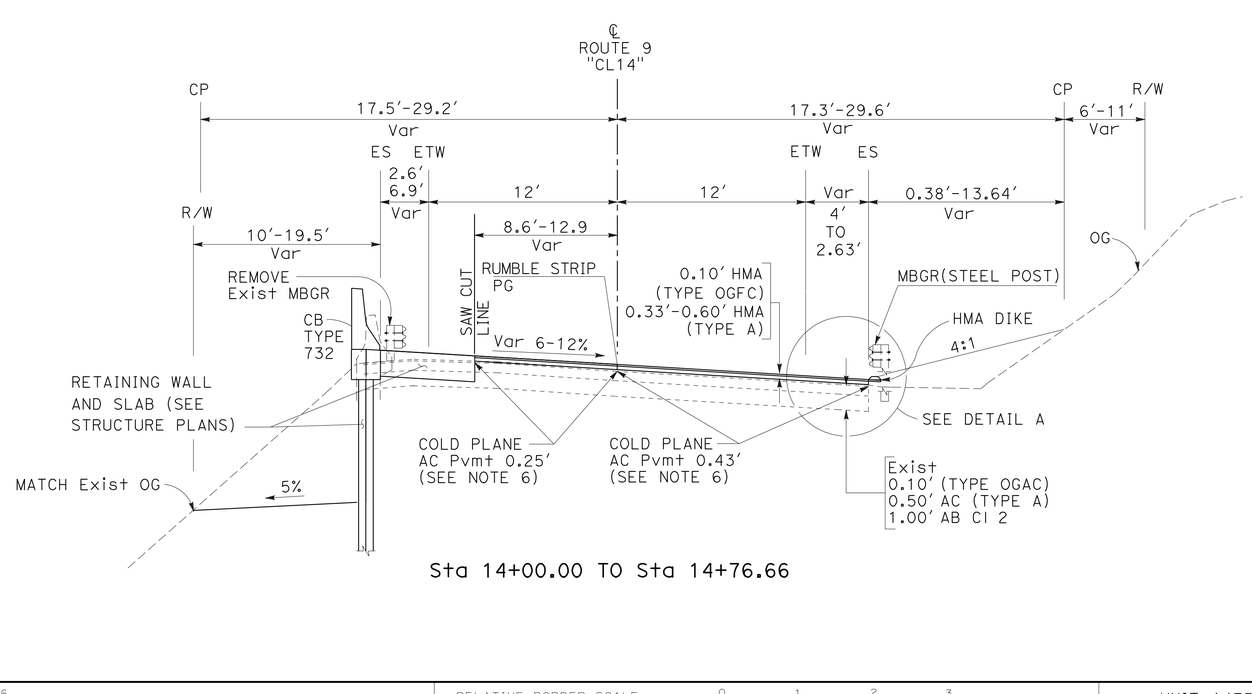


Sta 16+80.00 TO Sta 17+20.00
DETAIL B



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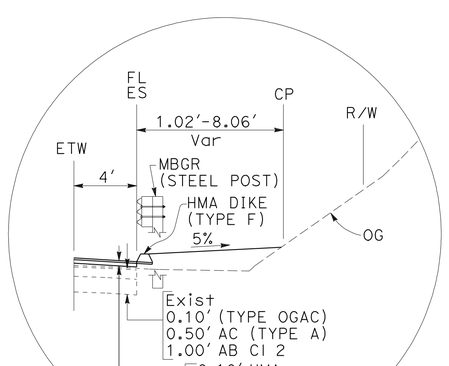

Sta 14+54.14 TO Sta 15+89.21
DETAIL A

TYPICAL CROSS SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — 06-DESIGN — Caltrans®

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY: A.S.
DATE REVISED: 4-30-12

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 12:42

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ca001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	3	61

REGISTERED CIVIL ENGINEER — DATE 7-18-11

DANIEL B. MASSA No. 59095 Exp. 6/30/13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PLANS APPROVAL DATE 4-2-13

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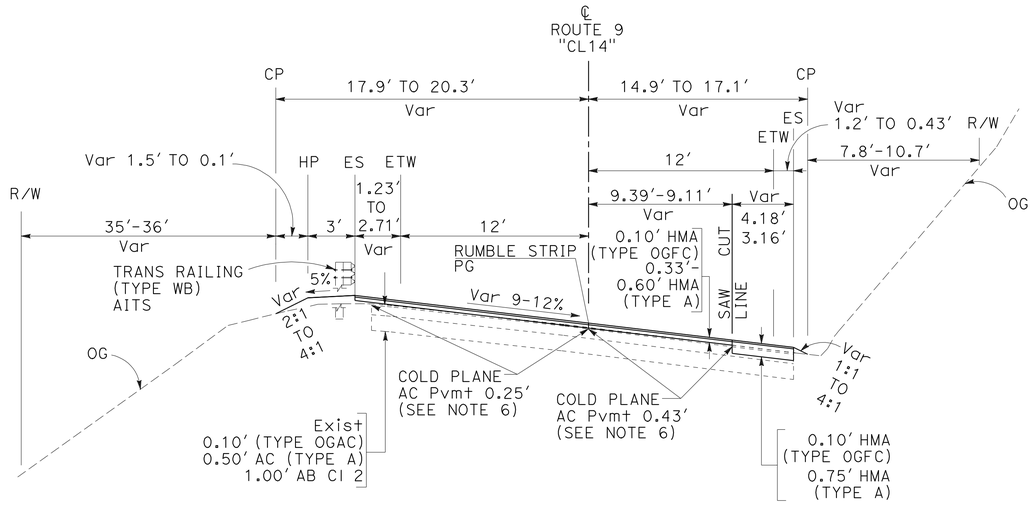
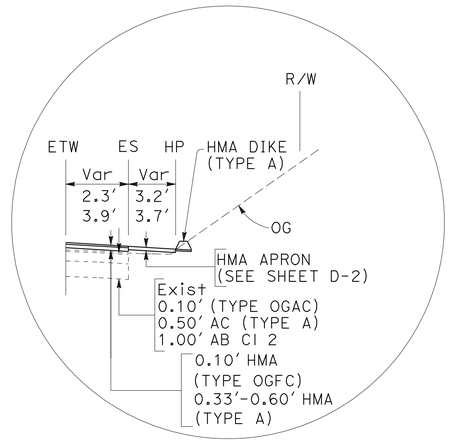
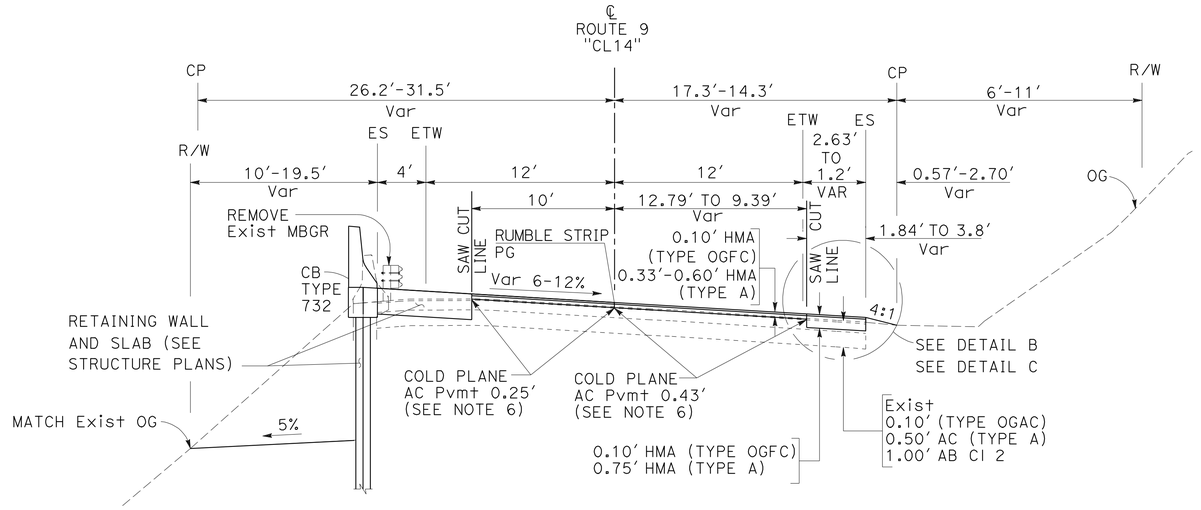


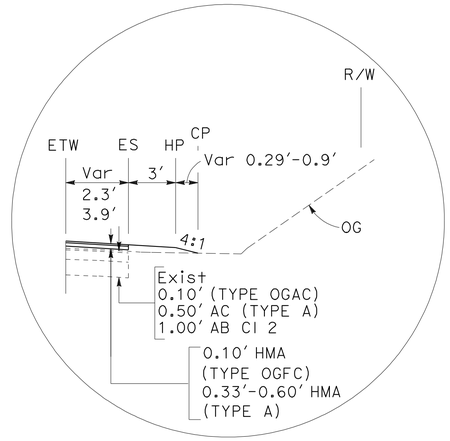
Sta 17+68.65 TO Sta 18+10.00



Sta 17+21.50 TO Sta 17+34.50
DETAIL C



Sta 17+20.00 TO Sta 17+68.65



Sta 17+20.00 TO Sta 17+30.00
DETAIL B

TYPICAL CROSS SECTIONS

NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY: A.S. — DATE REVISED: 4-30-12

LAST REVISION 06-08-12 | DATE PLOTTED => 05-APR-2013 | TIME PLOTTED => 12:42

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ca002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	4	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

DANIEL B. MASSA No. 59095 Exp. 6/30/13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. SEE SHEET C-1 FOR CENTERLINE RUMBLE STRIP DETAILS.

ABBREVIATION:

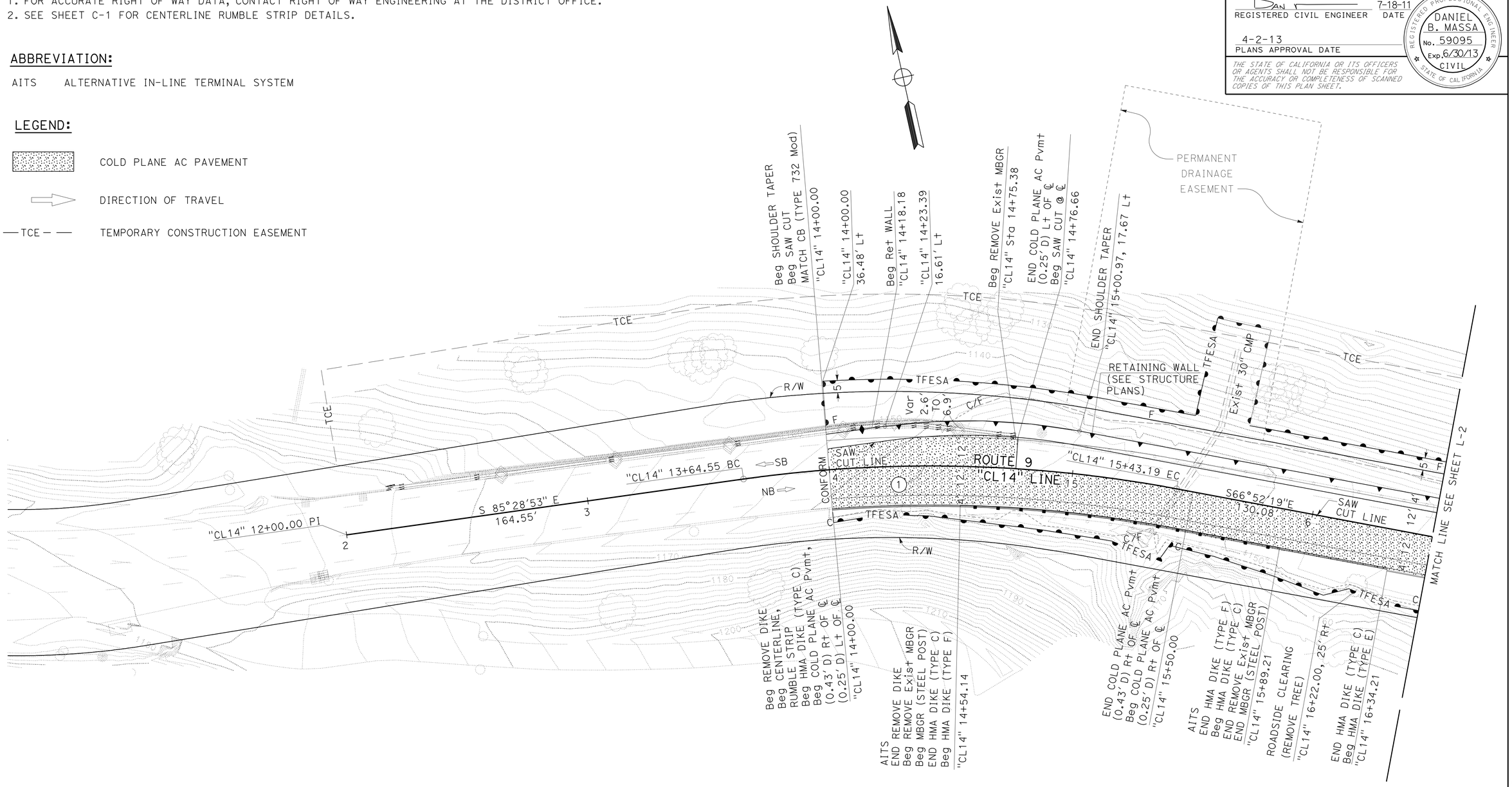
AITS ALTERNATIVE IN-LINE TERMINAL SYSTEM

LEGEND:

COLD PLANE AC PAVEMENT

DIRECTION OF TRAVEL

TCE TEMPORARY CONSTRUCTION EASEMENT



CURVE DATA

No. (X)	R	Δ	T	L
1	550′	18°36′33′′	90.11′	178.64′

LAYOUT

SCALE: 1" = 20′ **L-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY / DATE REVISED

LAST REVISION DATE PLOTTED => 05-APR-2013
06-08-12 TIME PLOTTED => 12:42

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 0400001202ea001.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1475
PROJECT NUMBER & PHASE 04000012021

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	5	61

DAN — REGISTERED CIVIL ENGINEER — 7-18-11 DATE

4-2-13 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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

CURVE DATA

No. Ⓧ	R	Δ	T	L
2	550′	19°01′23″	92.15′	182.61′

LAYOUT

SCALE: 1" = 20′ **L-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans® 06-DESIGN

CALCULATED-DESIGNED BY: RAJINDER S BRAR

CHECKED BY: DAN MASSA

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

REVISED BY | DATE REVISED

LAST REVISION: DATE PLOTTED => 05-APR-2013 06-08-12 | TIME PLOTTED => 12:42

BORDER LAST REVISED 7/2/2010

USERNAME => s124496
DGN FILE => 0400001202ea002.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 1475

PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	6	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

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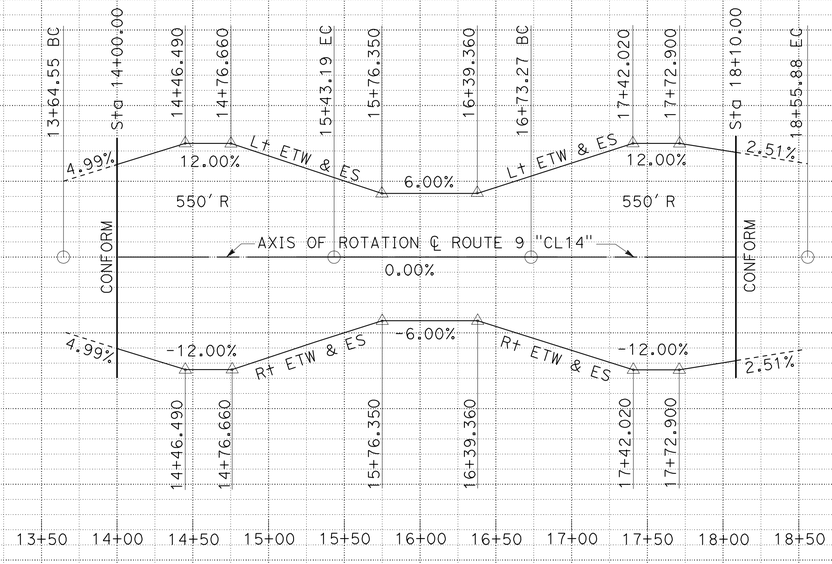
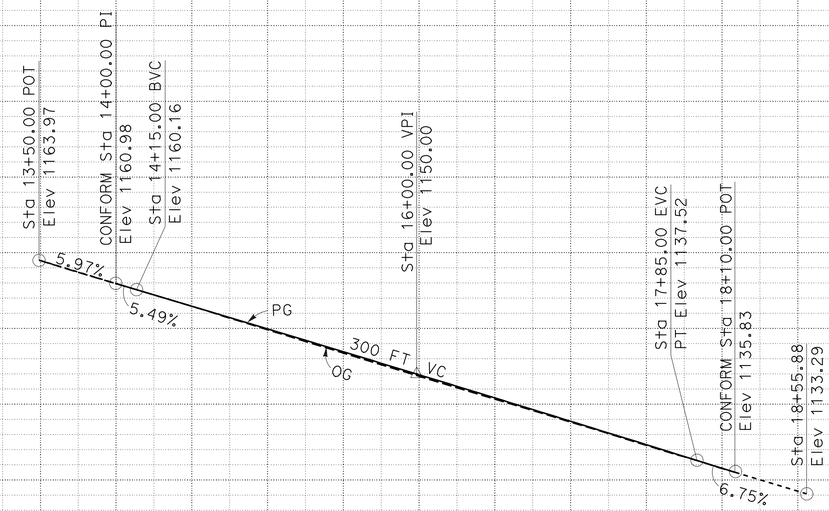
REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA



SUPERELEVATION DIAGRAM
SCALE: Horiz 1" = 50'



PROFILE DIAGRAM ROUTE 9 "CL14"
SCALE: Horiz 1" = 50'
Vert 1" = 10'

PROFILE AND SUPERELEVATION DIAGRAM

SCALE AS SHOWN

PS-1

REVISED BY | DATE REVISED
RAJINDER S BRAR | DAN MASSA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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STATION | CY Exc | CY Emb | TOTAL

LAST REVISION DATE PLOTTED => 05-APR-2013
06-08-12 TIME PLOTTED => 12:42

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 0400001202fb001.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1475
PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	7	61

REGISTERED CIVIL ENGINEER 7-18-11 DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DANIEL B. MASSA No. 59095 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

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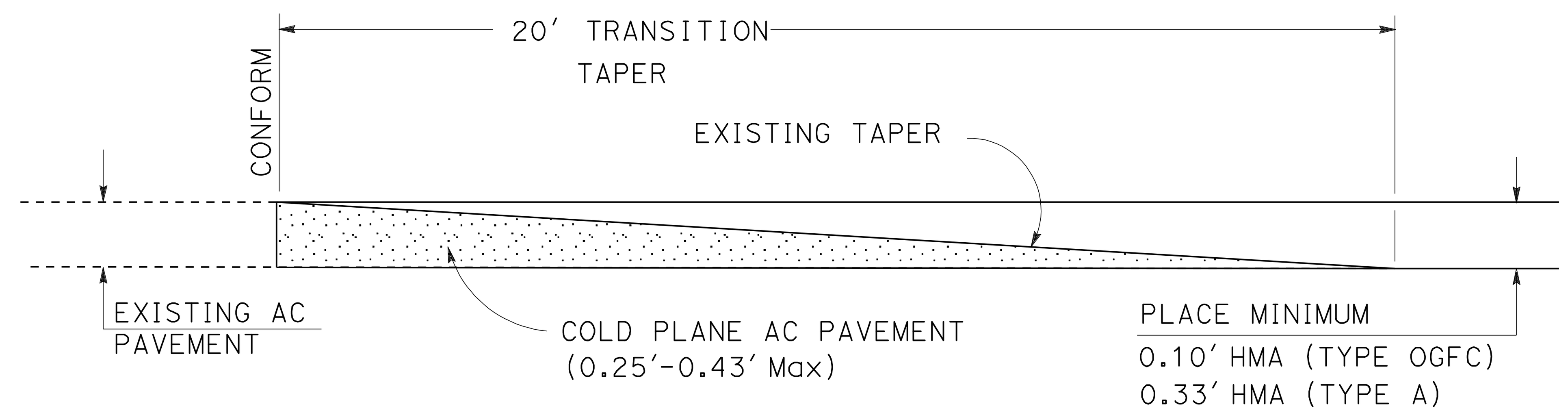
NOTES:

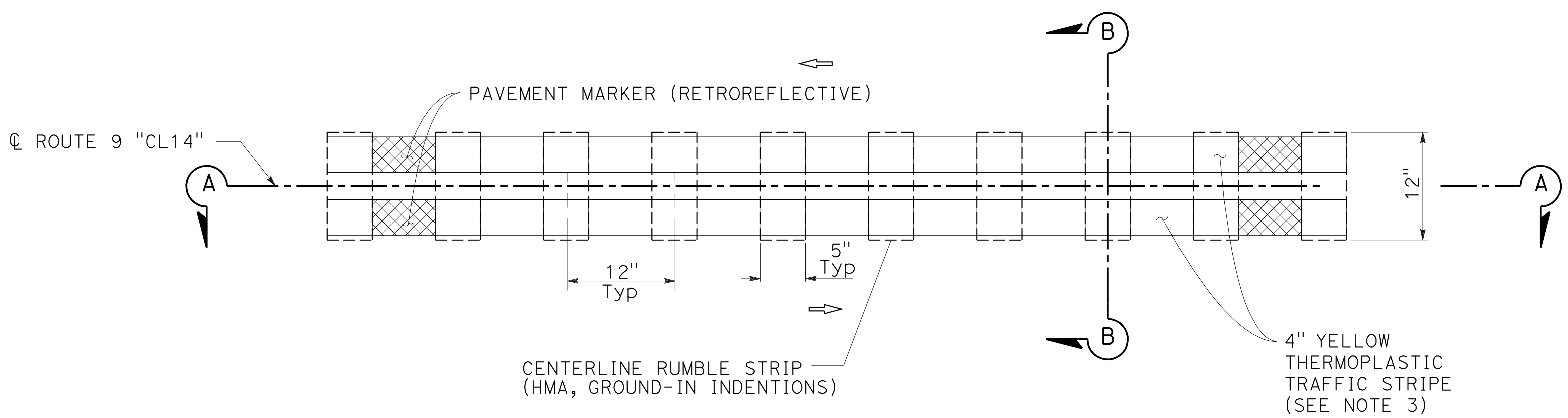
1. EXISTING UTILITY FACILITIES ARE NOT PLOTTED ON THESE PLANS.
2. PLACE FOG SEAL COAT AFTER CONSTRUCTING CENTERLINE RUMBLE STRIP AND PRIOR TO RESTRIPING.
3. SEE SHEET PD-1 FOR ADDITIONAL DETAILS ON TRAFFIC STRIPE.

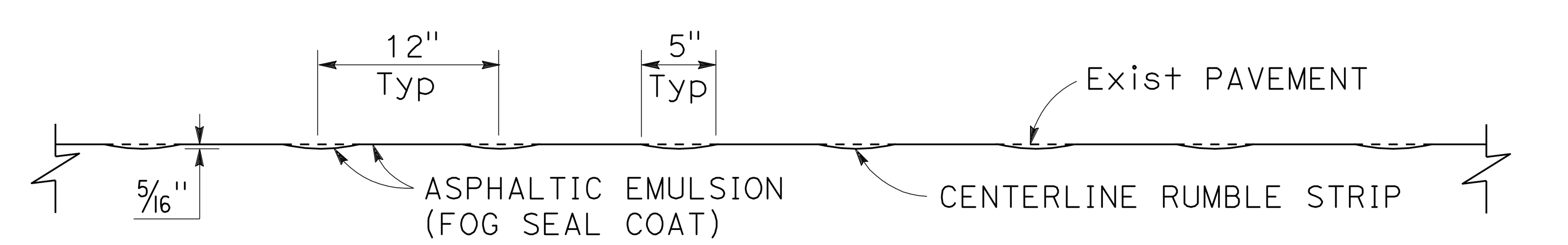
LEGEND:

- ⇨ DIRECTION OF TRAFFIC
- COLD PLANE Exist AC SURFACE
- HMA OVERLAY

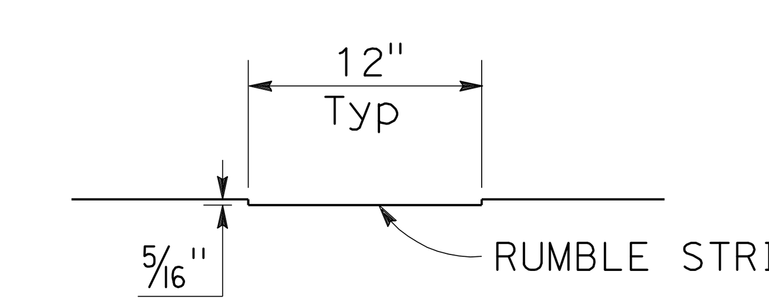


TYPICAL COLD PLANING AT BEGINNING AND END OF JOB





SECTION A-A



SECTION B-B

CENTERLINE RUMBLE STRIP
(HMA, GROUND-IN INDENTATION) DETAIL

CONSTRUCTION DETAILS

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY: A.S.
DATE REVISED: 4-30-12

LAST REVISION 06-08-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	8	61

LICENSED LANDSCAPE ARCHITECT

4-2-13
PLANS APPROVAL DATE

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

LICENSED LANDSCAPE ARCHITECT Laurie J. Smith No. 4904 Signature 8-31-14 Renewal Date 2-1-13 Date STATE OF CALIFORNIA

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

EROSION CONTROL LEGEND

EC (TYPE 1)

EC (TYPE 2)

EROSION CONTROL PLAN

SCALE: 1" = 20'

EC-1

APPROVED FOR PLANTING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans®

WATER QUALITY

SENIOR LANDSCAPE ARCHITECT: DAVID W YAM

CALCULATED-DESIGNED BY: LAURIE J SMITH

CHECKED BY: ALEX MC DONALD

REVISED BY

DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	9	61

LICENSED LANDSCAPE ARCHITECT

4-2-13
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Laurie J. Smith No. 4998 — Signature — 8-31-14 Renewal Date — 2-1-13 Date — STATE OF CALIFORNIA

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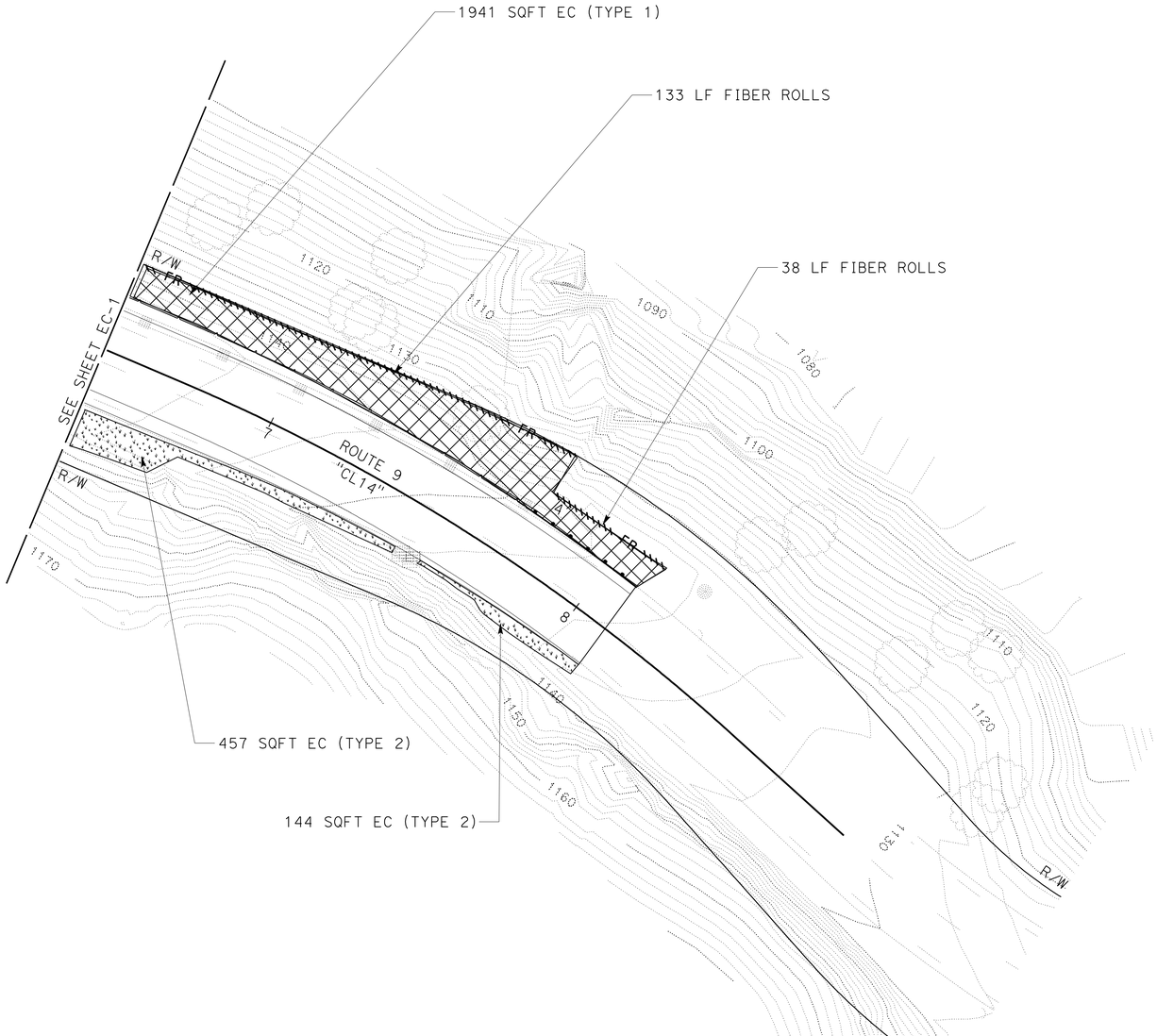


APPROVED FOR PLANTING WORK ONLY

EROSION CONTROL PLAN

SCALE: 1" = 20'

EC-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® WATER QUALITY

SENIOR LANDSCAPE ARCHITECT: DAVID W YAM

CALCULATED-DESIGNED BY: LAURIE J SMITH
CHECKED BY: ALEX MC DONALD

REVISED BY | DATE REVISED

LAST REVISION — DATE PLOTTED => 08-APR-2013 — TIME PLOTTED => 07-05-12 11:06

BORDER LAST REVISED 7/2/2010 | USERNAME => s121614 | DGN FILE => 0400001202te002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0792 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	10	61

LICENSED LANDSCAPE ARCHITECT

4-2-13
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Laurie J. Smith No. 4996
Signature
8-31-14
Renewal Date
2-1-13
Date
STATE OF CALIFORNIA

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

EROSION CONTROL QUANTITIES

SHEET No.	TYPE	AREA	COMPOST	RECP (NETTING)	HYDROSEED	HYDROMULCH	FIBER ROLL
		SQFT	SQFT	SQFT	SQFT	SQFT	FT
EC-1	1	2641	2641	2641	2641	2641	258
EC-1	2	1365	1365	-	1365	1365	-
EC-2	1	1941	1941	1941	1941	1941	181
EC-2	2	601	601	-	601	601	-
TOTAL			6548	4582	6548	6548	429

CALCULATED-DESIGNED BY
CHECKED BY

LAURIE J SMITH
ALEX MC DONALD

REVISED BY
DATE REVISED

SENIOR LANDSCAPE ARCHITECT
DAVID W YAM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®
WATER QUALITY

EROSION CONTROL QUANTITIES
ECQ-1

LAST REVISION
07-05-12

DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	11	61

LICENSED LANDSCAPE ARCHITECT

4-2-13
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Laurie J. Smith No. 4496 — Signature — 8-31-14 Renewal Date — 2-1-13 Date — STATE OF CALIFORNIA

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

FIBER ROLLS

SEQUENCE	ITEM	MATERIAL		REMARKS
		DESCRIPTION	TYPE	
IN EC TYPE 1 AREAS FIBER ROLLS MUST BE INSTALLED AFTER RECP (NETTING) AND BEFORE HYDROSEED.	FIBER ROLLS	FIBER ROLL	TYPE B 8" TO 10" Dia	TYPE 1 FIBER ROLL INSTALLATION

EROSION CONTROL TYPE 1

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE
		DESCRIPTION	TYPE	
STEP 1	COMPOST	COMPOST	MEDIUM	17 CY/ACRE
STEP 2	ROLLED EROSION CONTROL PRODUCT (NETTING)	NETTING	TYPE A	
STEP 3	HYDROSEED	SEED	MIX 1	65 LB/ACRE
		FIBER	COMBINATION	285 LB/ACRE
STEP 4	HYDROMULCH	FIBER	WOOD	285 LB/ACRE
		TACKIFIER	GUAR	125 LB/ACRE

EROSION CONTROL TYPE 2

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE
		DESCRIPTION	TYPE	
STEP 1	COMPOST	COMPOST	MEDIUM	17 CY/ACRE
STEP 2	HYDROSEED	SEED	MIX 1	65 LB/ACRE
		FIBER	COMBINATION	285 LB/ACRE
STEP 3	HYDROMULCH	FIBER	WOOD	285 LB/ACRE
		TACKIFIER	GUAR	125 LB/ACRE

SEED MIX

SEED	BOTANICAL NAME (COMMON NAME)	PERCENT GERMINATION (MINIMUM)	POUNDS PURE LIVE SEED PER ACRE (SLOPE MEASUREMENT)
MIX 1	ACHILLEA MILLEFOLIUM[1] (WHITE YARROW)	85	7
	BROMUS CARINATUS (CALIFORNIA BROME)	55	11
	ELYMUS GLAUCUS (BLUE WILD RYE)	56	11
	HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	53	11
	LOTUS SCOPARIUS (DEER WEED)	53	5
	LEYMUS TRITICOIDES (BEARDLESS WILDRYE)	53	5
	NASSELLA PULCHRA (PURPLE NEEDLEGRASS)	53	10
	VULPIA MICROSTACHYS[1] (SMALL FESCUE)	53	5
			65

[1] SEED PRODUCED IN CALIFORNIA ONLY.

APPROVED FOR PLANTING WORK ONLY

EROSION CONTROL LEGEND
ECL-1

LAST REVISION | DATE PLOTTED => 05-APR-2013
07-05-12 | TIME PLOTTED => 12:43

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® WATER QUALITY
SENIOR LANDSCAPE ARCHITECT: DAVID W YAM
CALCULATED-DESIGNED BY: LAURIE J SMITH
CHECKED BY: ALEX MC DONALD
REVISED BY | DATE REVISED

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202tc001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0792 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	12	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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

NOTE:

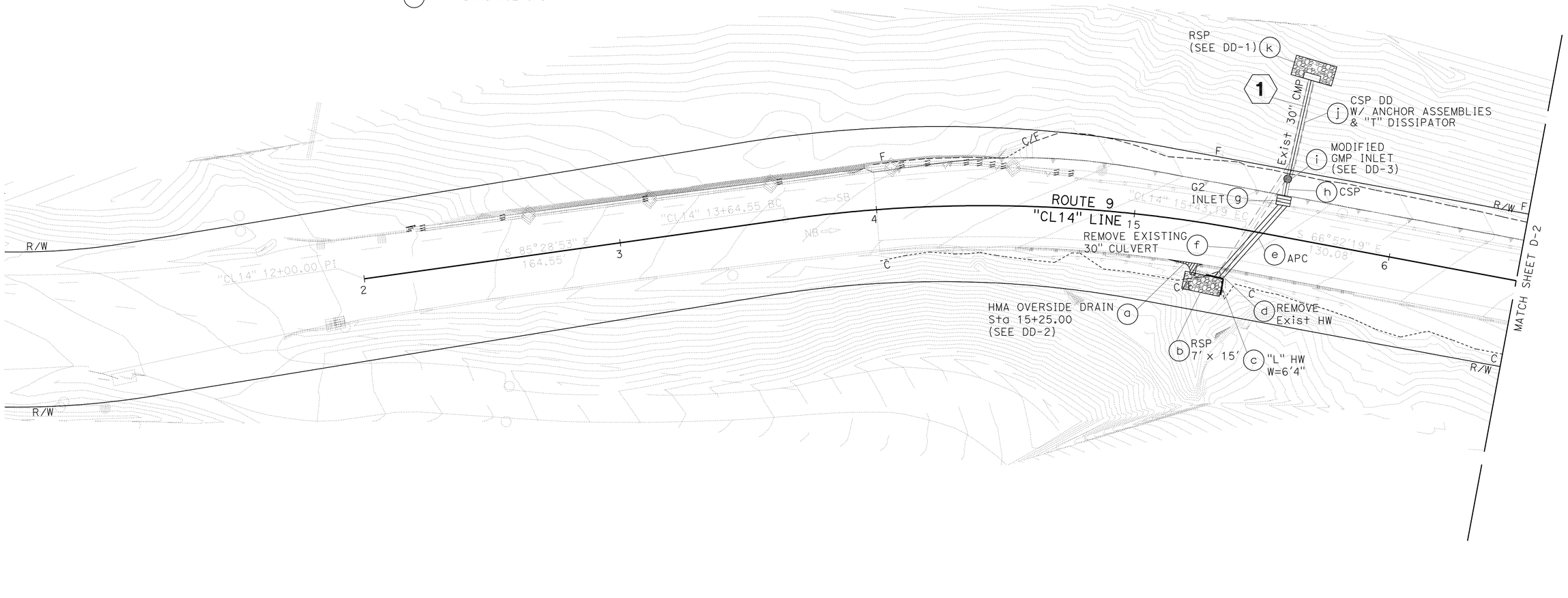
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

ABBREVIATION:

GMP STEEL PIPE INLET WITH PLATE

LEGEND:

- HMA OVERSIDE DRAIN
- RSP
- GRADE TO DRAIN
- HMA APRON
- DRAINAGE SYSTEM No.
- DRAINAGE UNIT



DRAINAGE PLAN

SCALE: 1" = 20' **D-1**

APPROVED FOR DRAINAGE WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
06-DESIGN
Caltrans

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
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LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 13:20

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 04000012021a001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	13	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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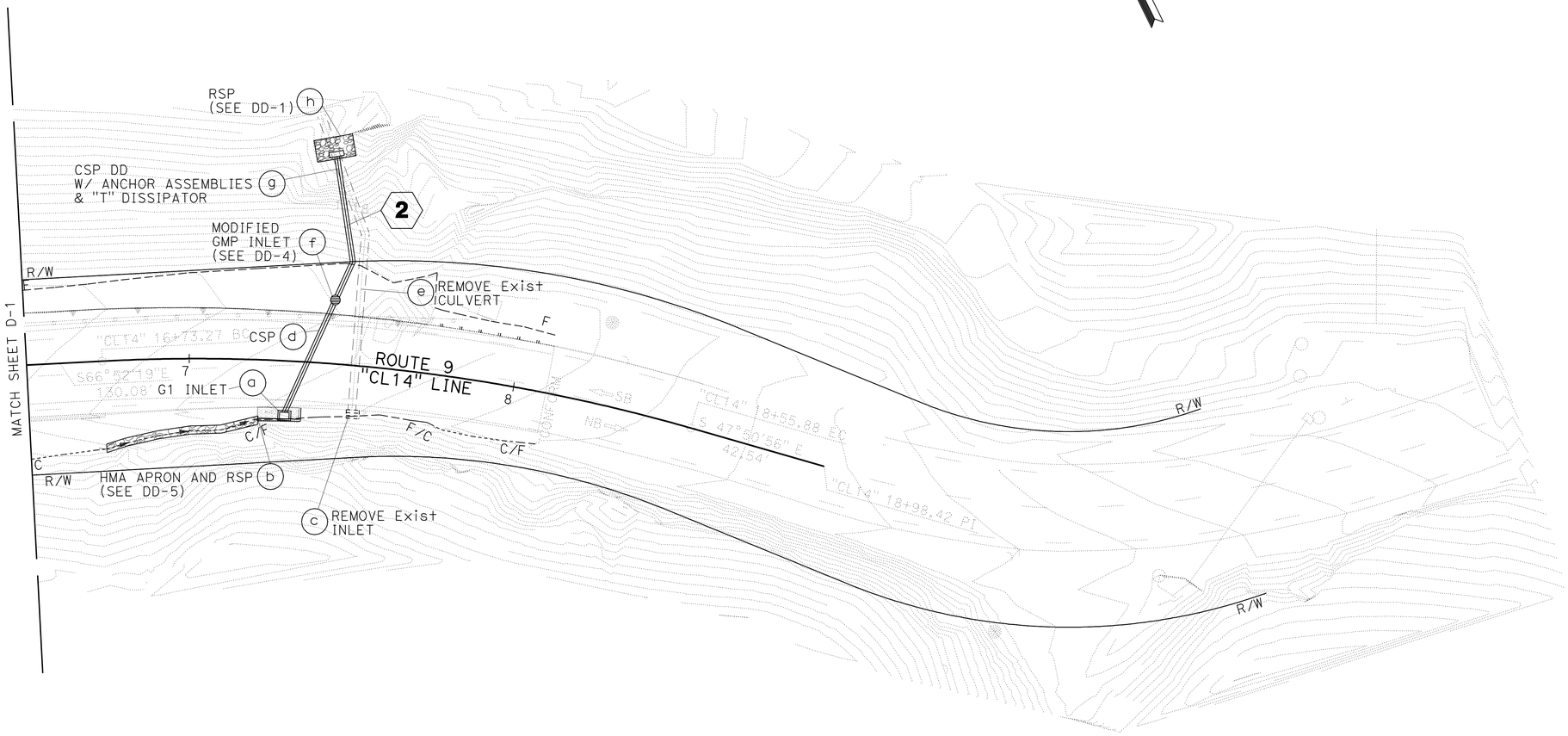

DRAINAGE PLAN

SCALE: 1" = 20′ **D-2**

APPROVED FOR DRAINAGE WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
06-DESIGN

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED => 05-APR-2013 | 06-08-12 | TIME PLOTTED => 13:20

BORDER LAST REVISED 7/2/2010

USERNAME => s124496
DGN FILE => 0400001202ia002.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 1475

PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	14	61

DAN — REGISTERED CIVIL ENGINEER — 7-18-11 DATE

4-2-13 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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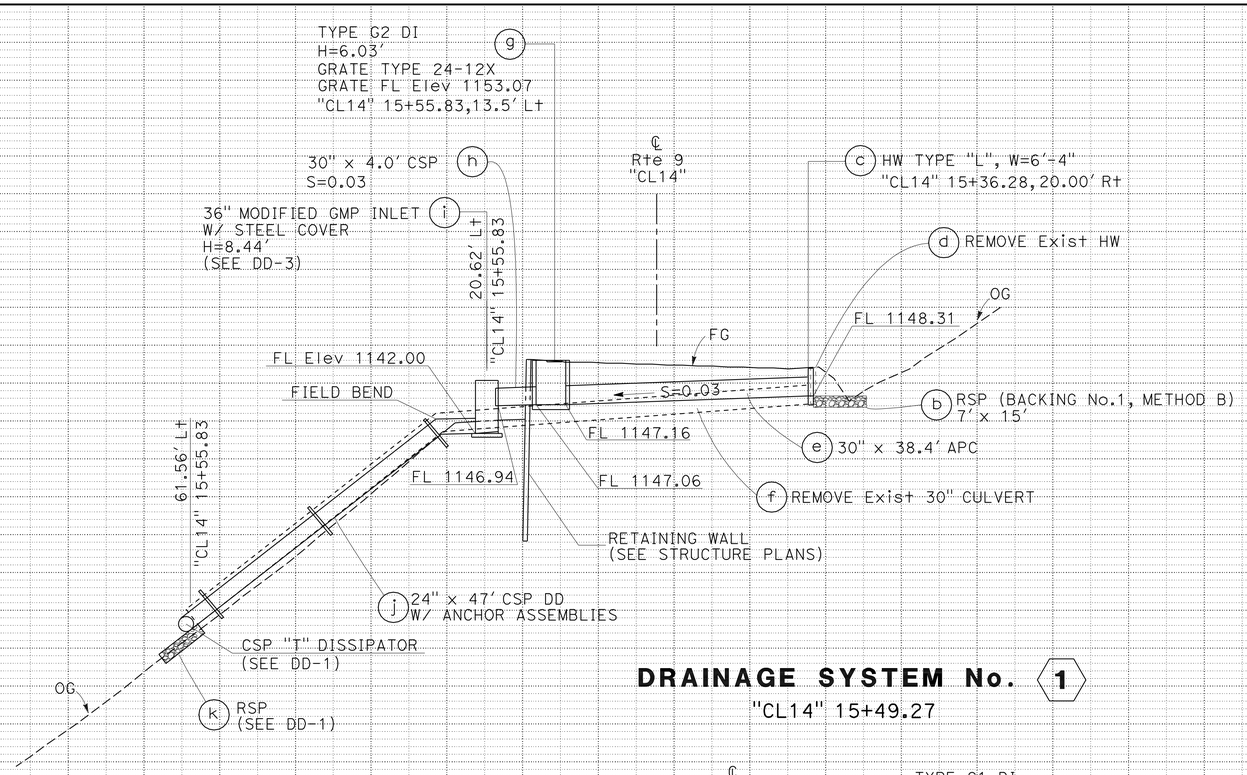
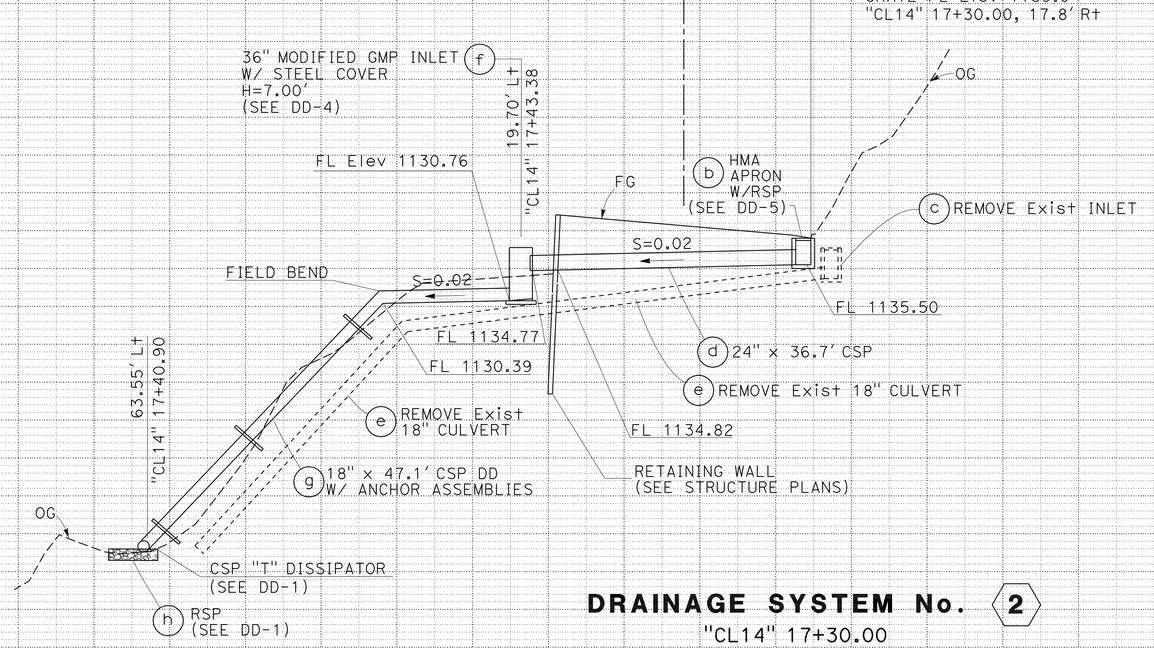


DRAINAGE SYSTEM No. 1

"CL14" 15+49.27



DRAINAGE SYSTEM No. 2

"CL14" 17+30.00

DRAINAGE PROFILES

SCALE: Horiz 1" = 10'
Vert 1" = 10'

DP-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — 06-DESIGN — Caltrans®

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

CALCULATED-DESIGNED BY: RAJINDER S BRAR

CHECKED BY: DAN MASSA

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 12:43

BORDER LAST REVISED 7/2/2010

USERNAME => s124496
DGN FILE => 04000012021b001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 1475

PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	15	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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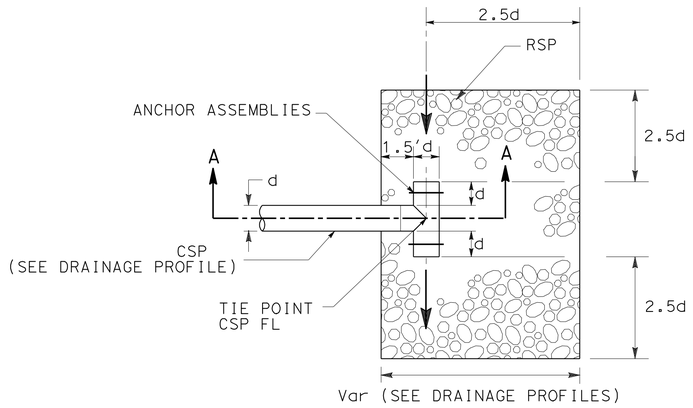
NOTES:

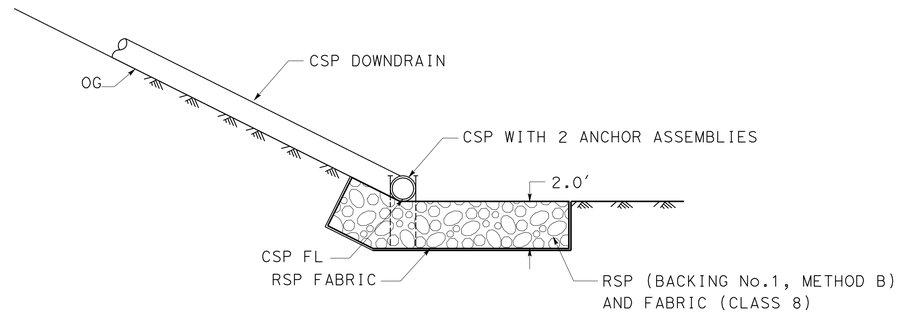
1. "d" REPRESENTS THE OUTSIDE DIAMETER OF THE PIPE CONNECTED TO THE "T" DISSAPATOR.
2. THE ROCK MATERIAL AND PLACEMENT METHOD SHALL CONFORM TO THE GRADING "BACKING No.1" FOR METHOD "B" .
3. AMOUNT OF CSP TO CONSTRUCT "T" DISSIPATOR IS INCLUDED IN LENGTH OF CSP IDENTIFIED IN DQ-1 FOR LINEAR FEET OF DOWNDRAIN PIPING.

LEGEND:

- RSP (BACKING No.1, METHOD B)
- HMA APRON
- RETAINING WALL
- HMA OVERSIDE DRAIN
- DRAINAGE SYSTEM No.
- DRAINAGE UNIT



PLAN



SECTION A-A

CSP "T" DISSIPATOR WITH RSP

DRAINAGE DETAILS

NO SCALE

DD-1

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 12:43

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	16	61

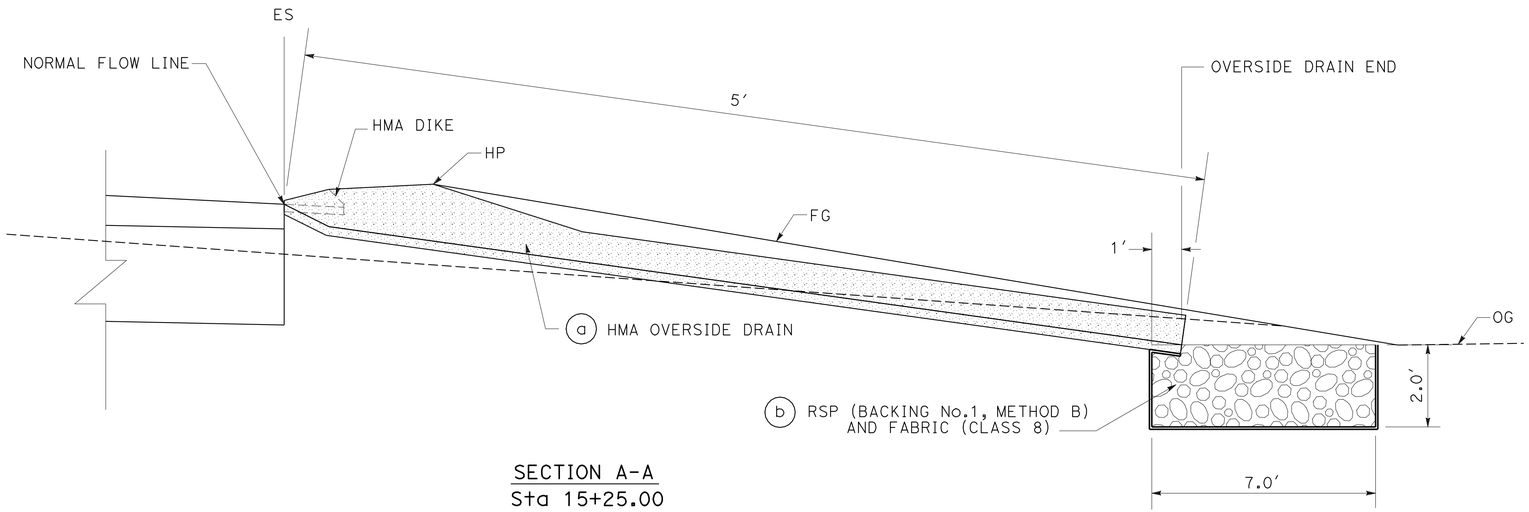
DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

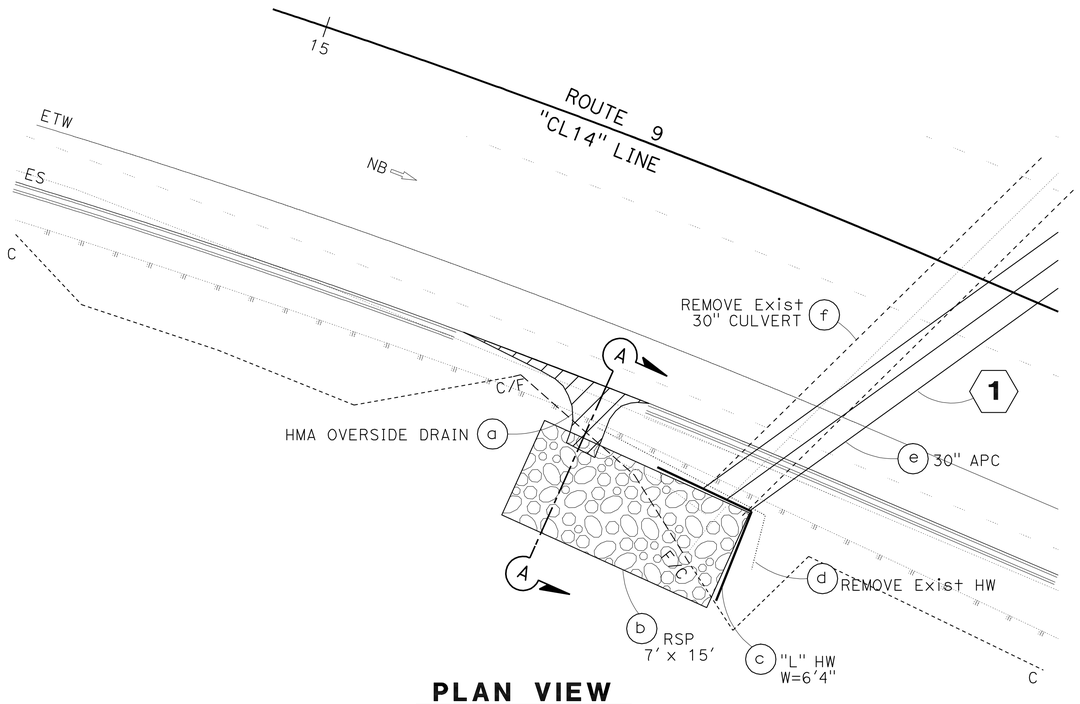
REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

NOTE:

FOR MORE INFORMATION ON DRAINAGE SYSTEM 1, SEE SHEET D-1 AND DP-1.



SECTION A-A
Sta 15+25.00



PLAN VIEW
Sta 15+25.00 "NB"

HMA OVERSIDE DRAIN DETAIL
DRAINAGE SYSTEM No. 1

DRAINAGE DETAILS
NO SCALE

DD-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY / DATE REVISED

LAST REVISION 06-08-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:43

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 0400001202ic002.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1475
PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	17	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
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REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
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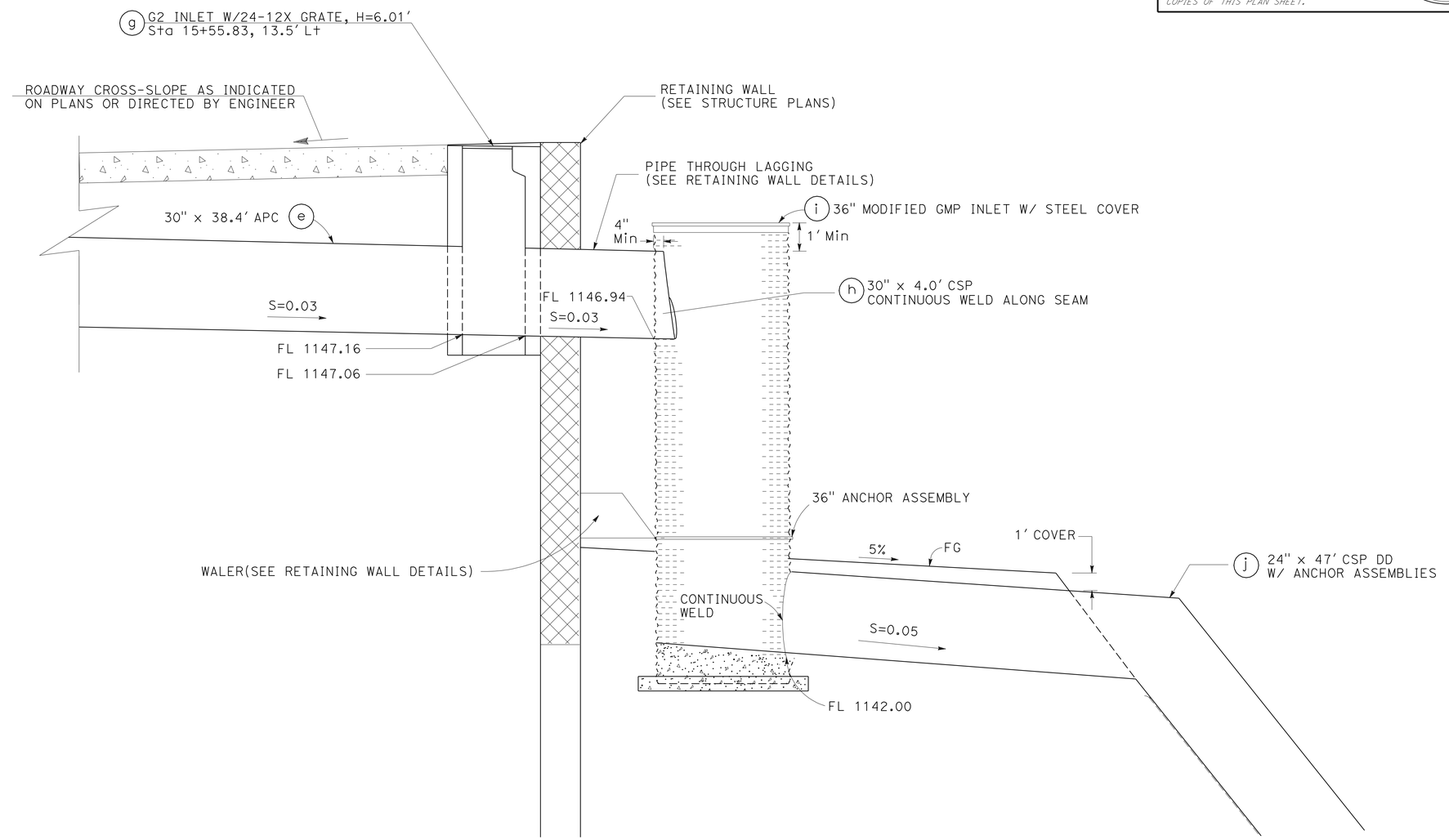
CIVIL
STATE OF CALIFORNIA

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

NOTE:

G2 DRAINAGE INLET SHALL BE ORIENTATED WITH KEY ADJACENT TO RETAINING WALL AND AT THE SAME CROSS-SLOPE AS ROADWAY.



MODIFIED GMP DRAINAGE INLET DETAIL

DRAINAGE SYSTEM No. 1

DRAINAGE DETAILS

NO SCALE

DD-3

REVISED BY | DATE REVISED
RAJINDER S BRAR | DAN MASSA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
06-DESIGN
Caltrans

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 12:43

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ic003.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	18	61

REGISTERED CIVIL ENGINEER — DATE: 7-18-11

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DANIEL B. MASSA — No. 59095 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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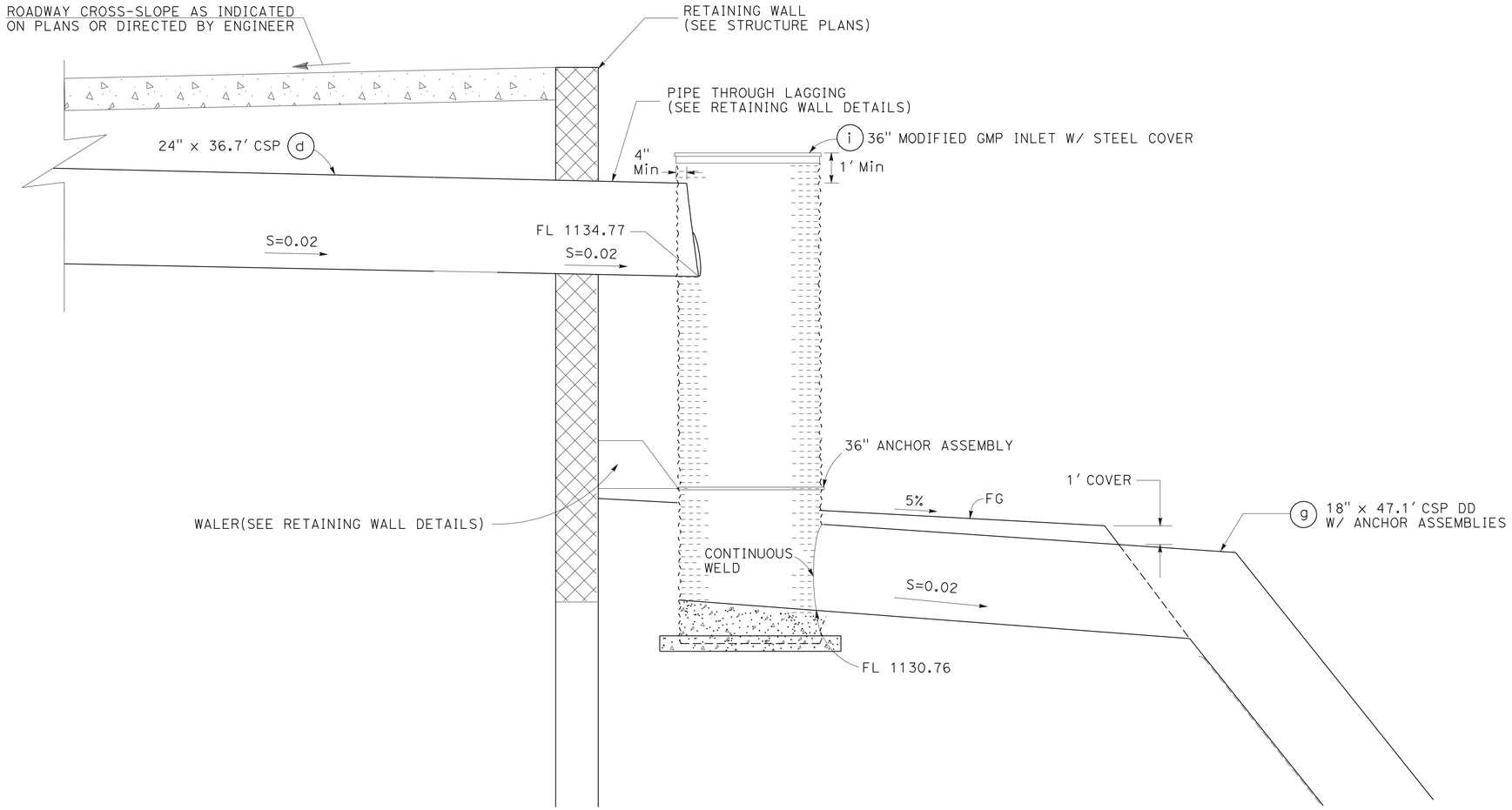
NOTE:

G2 DRAINAGE INLET SHALL BE ORIENTATED WITH KEY ADJACENT TO RETAINING WALL AND AT THE SAME CROSS-SLOPE AS ROADWAY.



MODIFIED GMP DRAINAGE INLET DETAIL

DRAINAGE SYSTEM No. 2

DRAINAGE DETAILS

NO SCALE

DD-4

REVISED BY | DATE REVISED
RAJINDER S BRAR | DAN MASSA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 13:22

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ic004.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	19	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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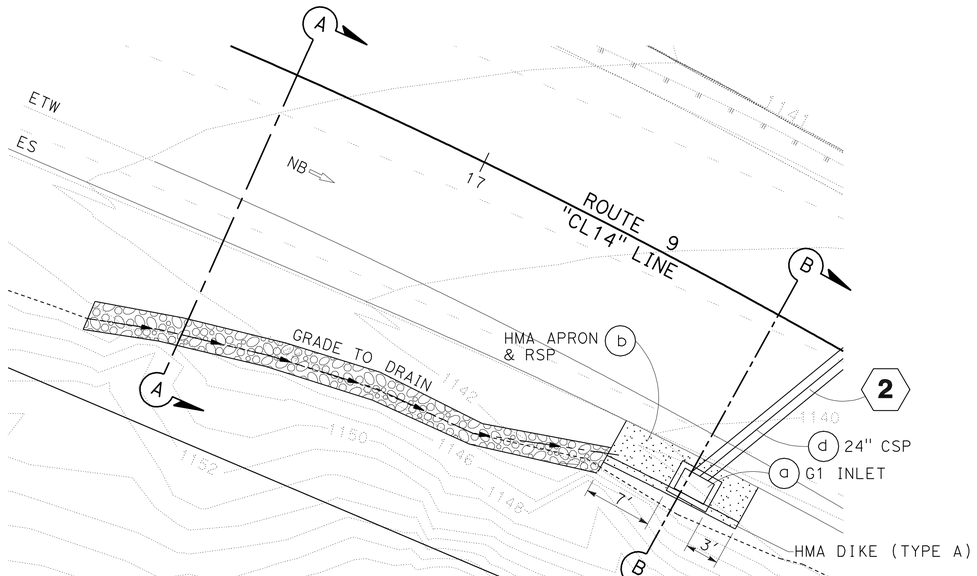
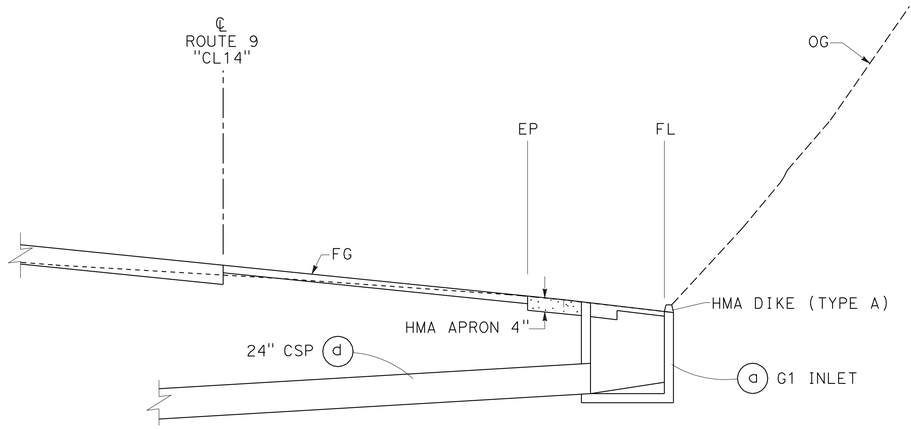
NOTE:

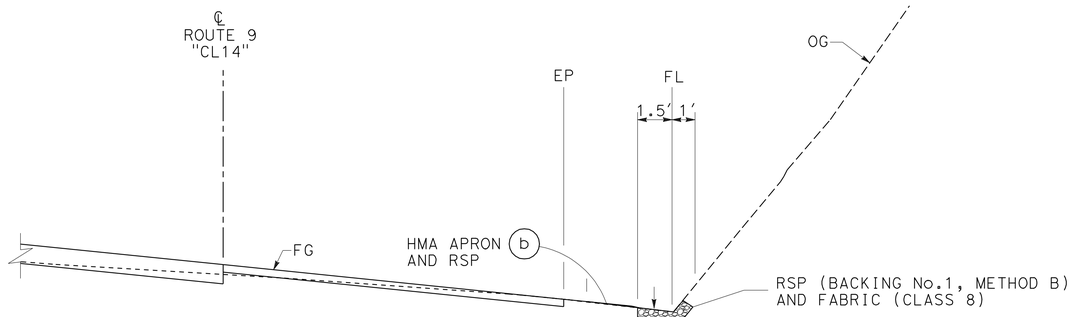
DRAINAGE INLET AND HMA APRON SHALL BE ORIENTATED AT THE SAME CROSS-SLOPE AS ROADWAY.



PLAN VIEW
Sta 17+30.00 "NB"



SECTION B-B



SECTION A-A

MODIFIED HMA APRON AND RSP DETAIL

DRAINAGE SYSTEM No. 2

DRAINAGE DETAILS

NO SCALE

DD-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY
DATE REVISED

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 13:22

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 04000012021c005.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	20	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

DANIEL B. MASSA No. 59095 Exp. 6/30/13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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

NOTES:

1. ALL GRATES SHALL BE 24-12X EXCEPT AS OTHERWISE SHOWN IN THE DESCRIPTION.
2. ALL CORRUGATED STEEL PIPE SHALL BE POLYMERIC SHEET COATED.

DESIGNATION	APC ALLOWABLE PIPE MATERIAL		
	PP (TYPE S)	CSP (POLYMERIC SHEET COATED)	
	SIZE	SIZE	THICKNESS
30" APC	30"	30"	0.109"

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	DRAINAGE SYSTEM No.	DRAINAGE UNIT	INLET TYPE (N)	DRAINAGE INLETS			PLACE HMA (Misc AREA)	30" APC	24" CSP(0.109 THICK)	18" ANCHOR ASSEMBLY	24" ANCHOR ASSEMBLY	36" ANCHOR ASSEMBLY	24" CSP DOWN DRAIN (0.109" THICK)	18" CSP DOWN DRAIN (0.109" THICK)	30" CSP(0.109 THICK)	36" STEEL PIPE INLET (0.109" THICK)	RSP		MAXIMUM COVER (N)	REMOVE CULVERT	REMOVE INLET	REMOVE HW	DESCRIPTION	STATION	DRAINAGE UNIT	DRAINAGE SYSTEM No.	DRAINAGE PLAN SHEET No.
				Misc IRON & STEEL	DESIGN H (N)	MINOR CONCRETE (MINOR Str)											(BACKING No.1, METHOD B)	FABRIC(CLASS 8)									
				LB	LF	CY	SQYD	LF	LF	EA	EA	EA	LF	LF	LF	LF	CY	SQYD	LF	LF	EA	EA					
1	1	a					1.53																HMA OVERSIDE DRAIN	15+25.39, 16' Rt	a	1	1
		b															7.50	20.91					RSP AND FABRIC	15+36.32, 20' Rt	b		
		c				2.05																	HW TYPE "L", W=6'.4"	15+36.32, 20' Rt	c		
		d																				1	REMOVE Exist HW	15+36.32, 20' Rt	d		
		e						38.4												3.1				30" x 38.4' APC	15+36.32 TO 15+55.90	e		
		f																		91				REMOVE Exist 30" CULVERT	15+36.32 TO 15+55.90	f		
		g	G2	239	6.01	2.08																		TYPE G2 DI W/ TYPE 24-12X GRATE	15+55.83, 13.5' Lt	g		
		h													4.0									30" x 4.0' CSP	15+55.83, 13.5' Lt	h		
		i	GMP	177	7.94	0.45						1				8.4'								MODIFIED TYPE GMP INLET W/ STEEL COVER	15+55.83, 22.45' Lt	i		
		j									5		47											24" x 47' CSP DD W/ ANCHOR ASSEMBLIES	15+55.83, 22.45'-61.56' Lt	j		
1	1	k															9.30	24.52					RSP AND FABRIC	15+55.83, 61.56' Lt	k	1	1
2	2	a	G1	239	3.5	1.06																	TYPE G1 DI W/ TYPE 24-12X GRATE	17+30.00, 17.8' Rt	a	2	2
		b					4.7										8.70	35.05					HMA APRON AND RSP W/ FABRIC	17+30.00, 17.8' Rt	b		
		c																			1		REMOVE Exist INLET	17+51.60, 15.00' Rt	c		
		d							36.7										8.9				24" x 36.7' CSP	17+30.00 TO 17+43.38	d		
		e																		95			REMOVE Exist 18" CULVERT	17+51.60 TO 17+40.90	e		
		f	GMP	177	7.00	0.45						1				7.5'							MODIFIED TYPE GMP INLET W/ STEEL COVER	17+43.38, 19.70' Lt	f		
		g								5				47.1									18" x 47.1' CSP DD W/ ANCHOR ASSEMBLIES	17+43.38 TO 17+40.90	g		
2	2	h															6.10	17.44					RSP AND FABRIC	17+40.90, 63.55' Lt	h	2	2
TOTAL				832		6.09	6.23	38.4	36.7	5	5	2	47	47.1	4.0	15.9	31.60	97.92		186	1	1					

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
REVISED BY / DATE REVISED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN

DRAINAGE QUANTITIES
DQ-1

LAST REVISION | DATE PLOTTED => 05-APR-2013
11-09-12 | TIME PLOTTED => 12:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	21	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
2. LOCATION OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. UTILITY OWNERSHIP ON THIS PROJECT:
   ELECTRICAL - PACIFIC GAS AND ELECTRIC (PG&E)
   TELEPHONE - AMERICAN TELEPHONE & TELEGRAPH (AT&T)

ABBREVIATION:

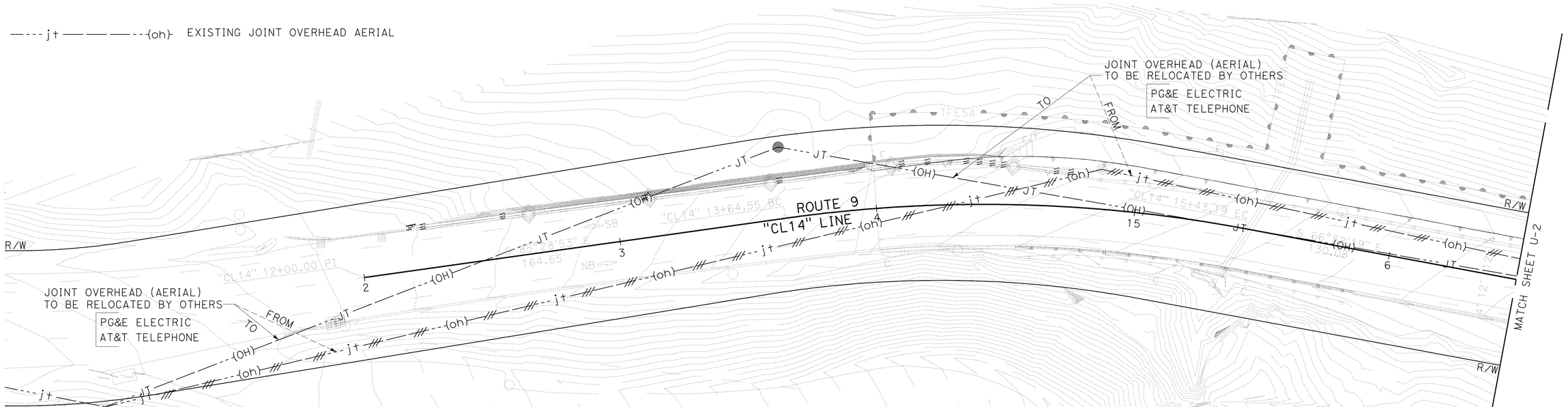
PG&E PACIFIC GAS AND ELECTRIC
AT&T AMERICAN TELEPHONE AND TELEGRAPH

LEGEND:

—---jt-///—///---(oh)- EXIST JOINT OVERHEAD AERIAL (TO BE RELOCATED BY OTHERS)

—---JT———————---(OH)- NEW JOINT OVERHEAD AERIAL

—---jt———————---(oh)- EXISTING JOINT OVERHEAD AERIAL



APPROVED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 20' **U-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY
DATE REVISED

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 12:43

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ka001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	22	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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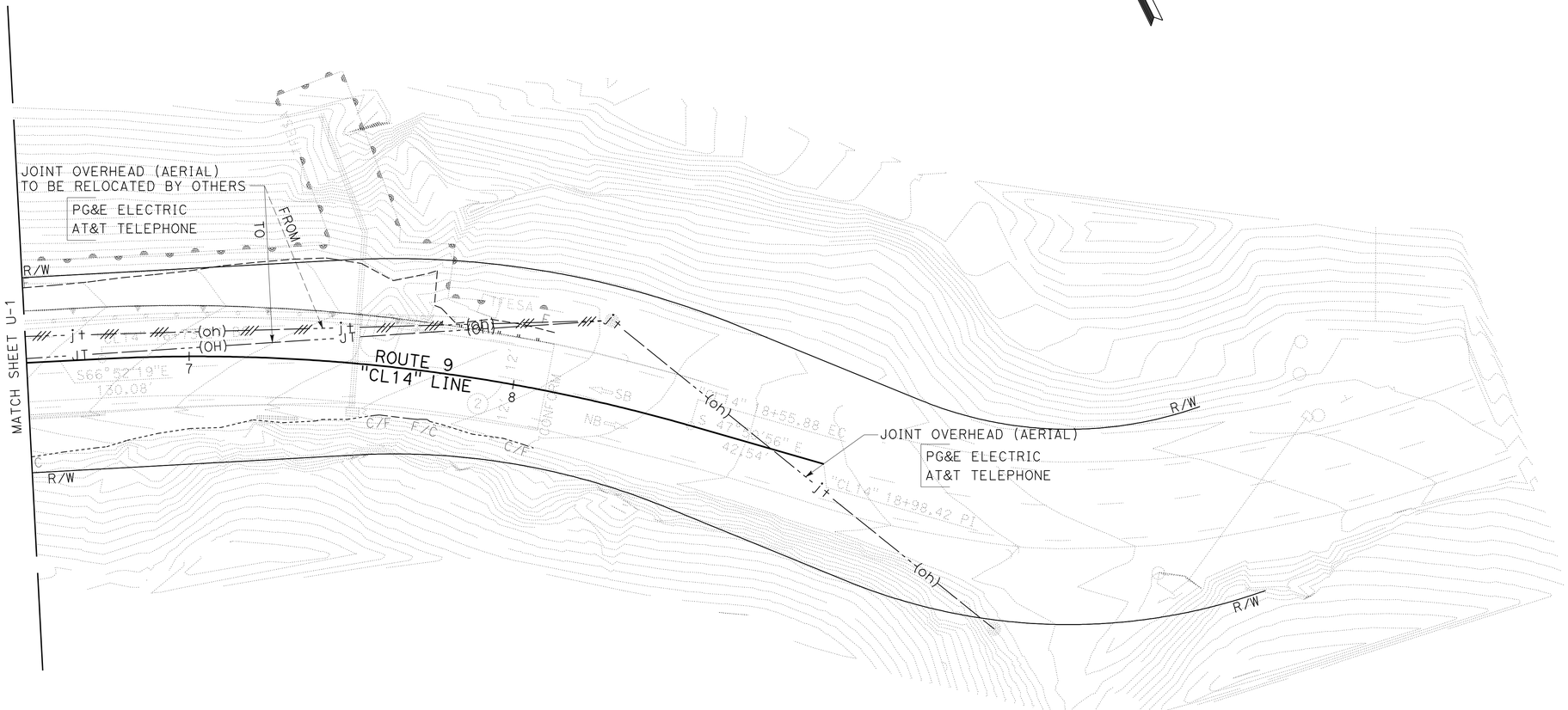

APPROVED FOR UTILITY INFORMATION ONLY

UTILITY PLAN
SCALE: 1" = 20'
U-2

RAJINDER S BRAR — DESIGNED BY
DAN MASSA — CALCULATED-
CHECKED BY
GETACHEW ESHETE — FUNCTIONAL SUPERVISOR
REVISED BY
DATE REVISED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
06-DESIGN

LAST REVISION | DATE PLOTTED => 05-APR-2013
06-08-12 | TIME PLOTTED => 13:27

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ka002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	23	61

Hassan Taha 6-25-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/14
CIVIL
STATE OF CALIFORNIA

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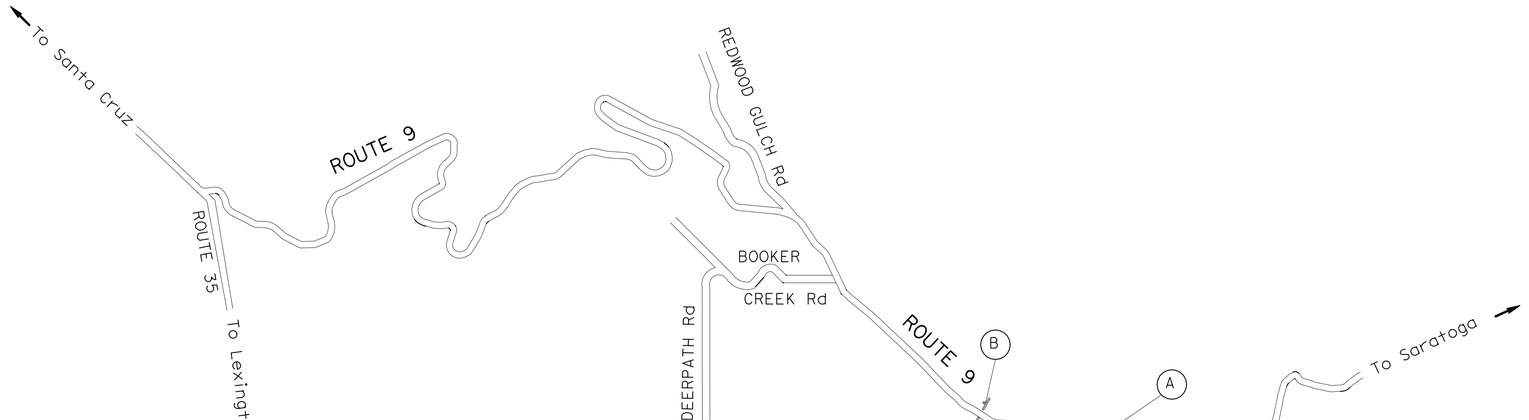
NOTES:

1. EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. FOR ADDITIONAL CONSTRUCTION AREA SIGNS, REFER TO TRAFFIC HANDLING PLANS.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
(A)	W20-1	ROAD WORK AHEAD	48" x 48"	1 - 6" x 6"	2
(B)	G20-2	END ROAD WORK	36" x 18"	1 - 4" x 4"	2



CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

REVISED BY | DATE REVISED
VANIK POGOSYAN | HASSAN TAHA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | MOHAMMED QATAMI
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® TRAFFIC DESIGN

LAST REVISION: DATE PLOTTED => 05-APR-2013
06-25-12 TIME PLOTTED => 12:43

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 04000012021a001.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1513
PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	24	61

DAN — REGISTERED CIVIL ENGINEER — 7-18-11 DATE

4-2-13 PLANS APPROVAL DATE

DANIEL B. MASSA No. 59095 Exp. 6/30/13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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

NOTE:

OVERHEAD UTILITY LINE WITHIN CONSTRUCTION ZONE, SEE UTILITY PLAN SHEETS U-1 & U-2.

LEGEND:

STAGE 1, PHASE 1

STAGE 1, PHASE 2

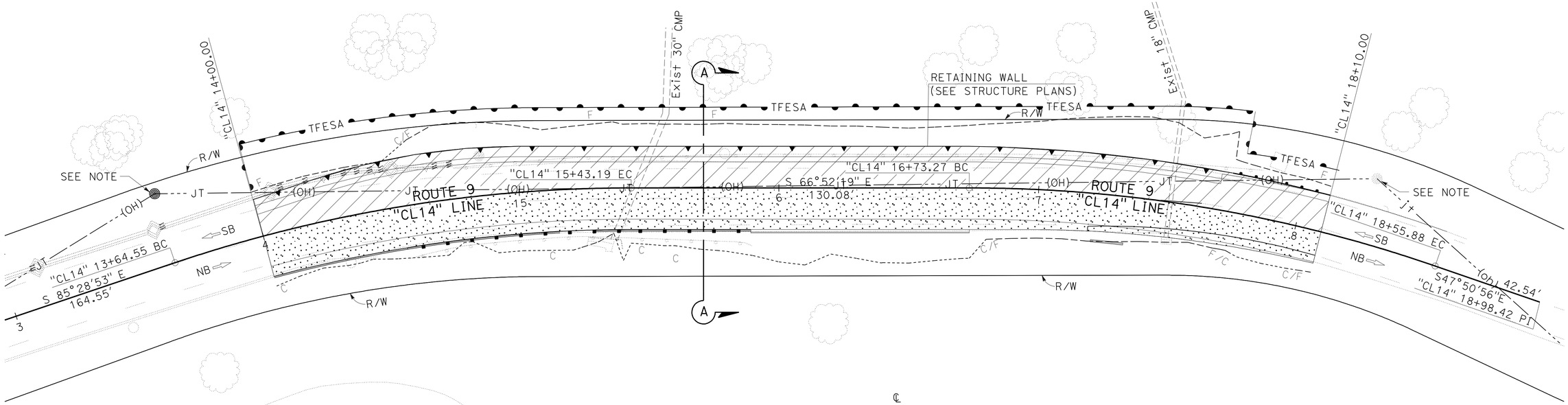
DIRECTION OF TRAFFIC

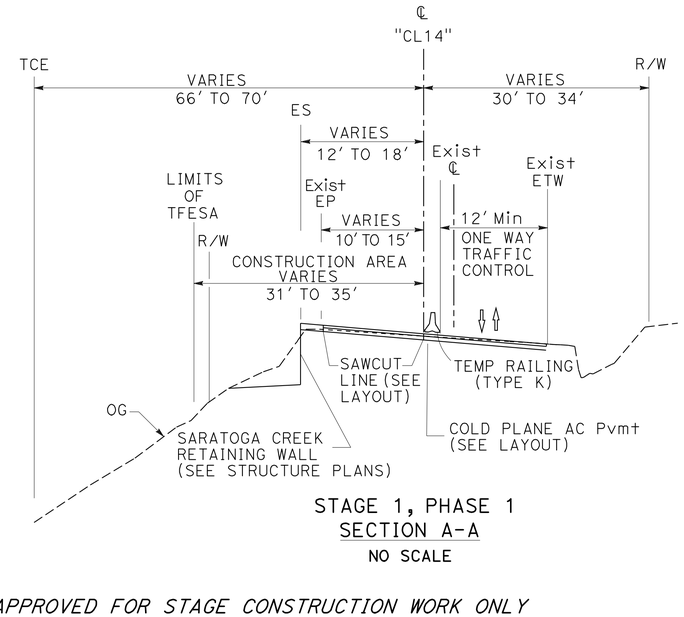
STAGE 1, PHASE 1:

1. UNDER TEMPORARY TRAFFIC CONTROL, PLACE TEMPORARY RAILING (TYPE K), CONSTRUCT TEMPORARY SIGNAL SYSTEM, RE-STRIPE AND OPEN ONE-WAY TRAFFIC CONTROL SYSTEM ALONG ROUTE 9.
2. CONSTRUCT SARATOGA CREEK RETAINING WALL AND PORTIONS OF DRAINAGE SYSTEMS 1 AND 2, AND COLD PLANE AND/OR RECONSTRUCT AND RE-STRIPE SB PAVEMENT.

STAGE 1, PHASE 2:

3. UNDER TEMPORARY TRAFFIC CONTROL, REMOVE TEMPORARY RAILING (TYPE K) AND ONE-WAY TRAFFIC CONTROL SYSTEM, CONSTRUCT REMAINING PORTIONS OF DRAINAGE SYSTEMS 1 AND 2, COLD PLANE EXISTING PAVEMENT Rt OF CENTERLINE, OVERLAY PAVEMENT AND RE-STRIPE NB PAVEMENT.





STAGE 1, PHASE 1
SECTION A-A
NO SCALE

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION

SCALE: 1"=20' **SC-1**

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN

LAST REVISION | DATE PLOTTED => 05-APR-2013
05-08-12 | TIME PLOTTED => 14:16

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202ma001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 0400001201

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	25	61

Hassan Taha 6-25-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/14
CIVIL
STATE OF CALIFORNIA

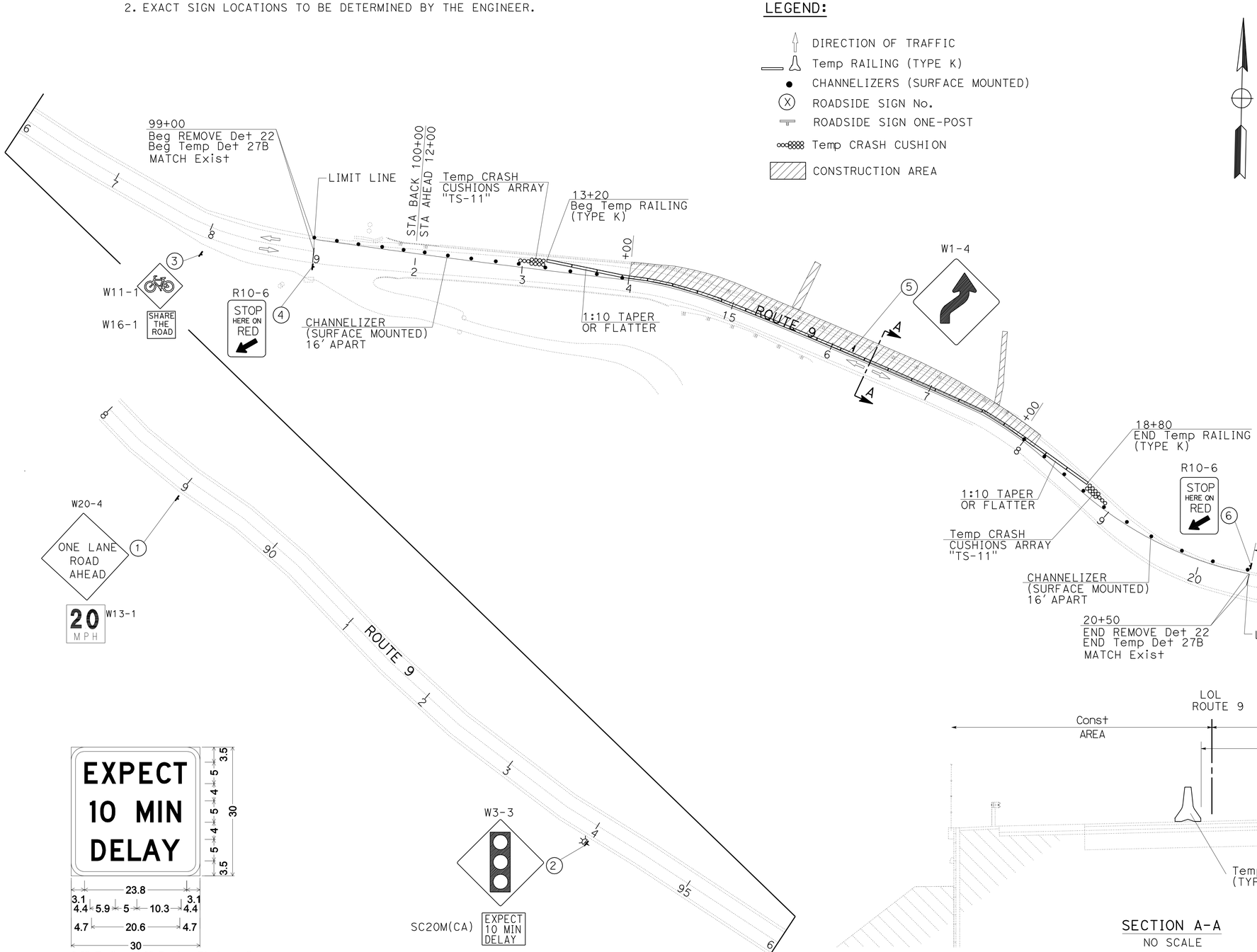
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

1. FOR ADDITIONAL CONSTRUCTION AREA SIGNS REFER TO SHEET CS-1.
2. EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.

LEGEND:

- DIRECTION OF TRAFFIC
- Temp RAILING (TYPE K)
- CHANNELIZERS (SURFACE MOUNTED)
- (X) ROADSIDE SIGN No.
- ROADSIDE SIGN ONE-POST
- Temp CRASH CUSHION
- CONSTRUCTION AREA



3.0" Radius, 1.0" Border, Black on Orange;
[EXPECT] D; [10 Min] D; [DELAY] D;
SC20M(CA)

SECTION A-A
NO SCALE

TRAFFIC HANDLING PLAN AND SIGN DETAILS

SCALE: 1" = 50'

TH-1

APPROVED FOR TRAFFIC HANDLING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	TRAFFIC DESIGN
FUNCTIONAL SUPERVISOR	MOHAMMED QATAMI
CALCULATED-DESIGNED BY	VANIK POGOSYAN
CHECKED BY	HASSAN TAHA
REVISED BY	
DATE REVISED	
LAST REVISION	06-25-12
DATE PLOTTED =>	05-APR-2013
TIME PLOTTED =>	12:44

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202md001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1513 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	26	61

Hassan Taha 6-25-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/14
CIVIL
STATE OF CALIFORNIA

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

CONSTRUCTION AREA SIGNS (TRAFFIC HANDLING)

SHEET No.	SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
TH-1	①	W20-4	AS SHOWN ON PLAN	36" x 36"	1-4" x 4"	1
		W13-1	AS SHOWN ON PLAN	36" x 24"		
	②	W3-3	AS SHOWN ON PLAN	36" x 36"	MOUNT ON POLE	1
		SC20M(CA)	AS SHOWN ON PLAN	30" x 30"		
	③	W11-1	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
		W16-1	AS SHOWN ON PLAN	24" x 30"		
	④	R10-6	AS SHOWN ON PLAN	36" x 24"	1-4" x 4"	1
	⑤	W1-4	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
	⑥	R10-6	AS SHOWN ON PLAN	36" x 24"	1-4" x 4"	1
	⑦	W11-1	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
		W16-1	AS SHOWN ON PLAN	24" x 30"		
	⑧	W3-3	AS SHOWN ON PLAN	36" x 36"	MOUNT ON POLE	1
		SC20M(CA)	AS SHOWN ON PLAN	30" x 30"		
	⑨	W20-4	AS SHOWN ON PLAN	36" x 36"	1-4" x 4"	1
		W13-1	AS SHOWN ON PLAN	36" x 24"		

TEMPORARY CRASH CUSHION MODULE

SHEET No.	EA
TH-1	22

CHANNELIZER (SURFACE MOUNTED)

SHEET No.	EA
TH-1	24

TEMPORARY PAVEMENT DELINEATION

SHEET No.	LOCATION STA TO STA	DETAIL No.	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS)	TEMPORARY TRAFFIC STRIPE (TAPE)	TEMPORARY PAVEMENT MARKING (TAPE)	
			LF	LF	DESCRIPTION	SQFT
TH-1	99+00 TO 20+50	22	1900		2-LIMIT LINE	24
		27B		950		
TOTAL			1900	950		24

TEMPORARY RAILING (TYPE K)

SHEET No.	STA TO STA	LF
TH-1	13+20 to 18+80	560

TRAFFIC HANDLING QUANTITIES

THQ-1

REVISED BY | DATE REVISED
VANIK POGOSYAN | HASSAN TAHA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: MOHAMMED QATAMI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® TRAFFIC DESIGN

LAST REVISION 11-09-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:44

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 0400001202mf001.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1513
PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	27	61

Hassan Taha 03-21-13
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/14
CIVIL
STATE OF CALIFORNIA

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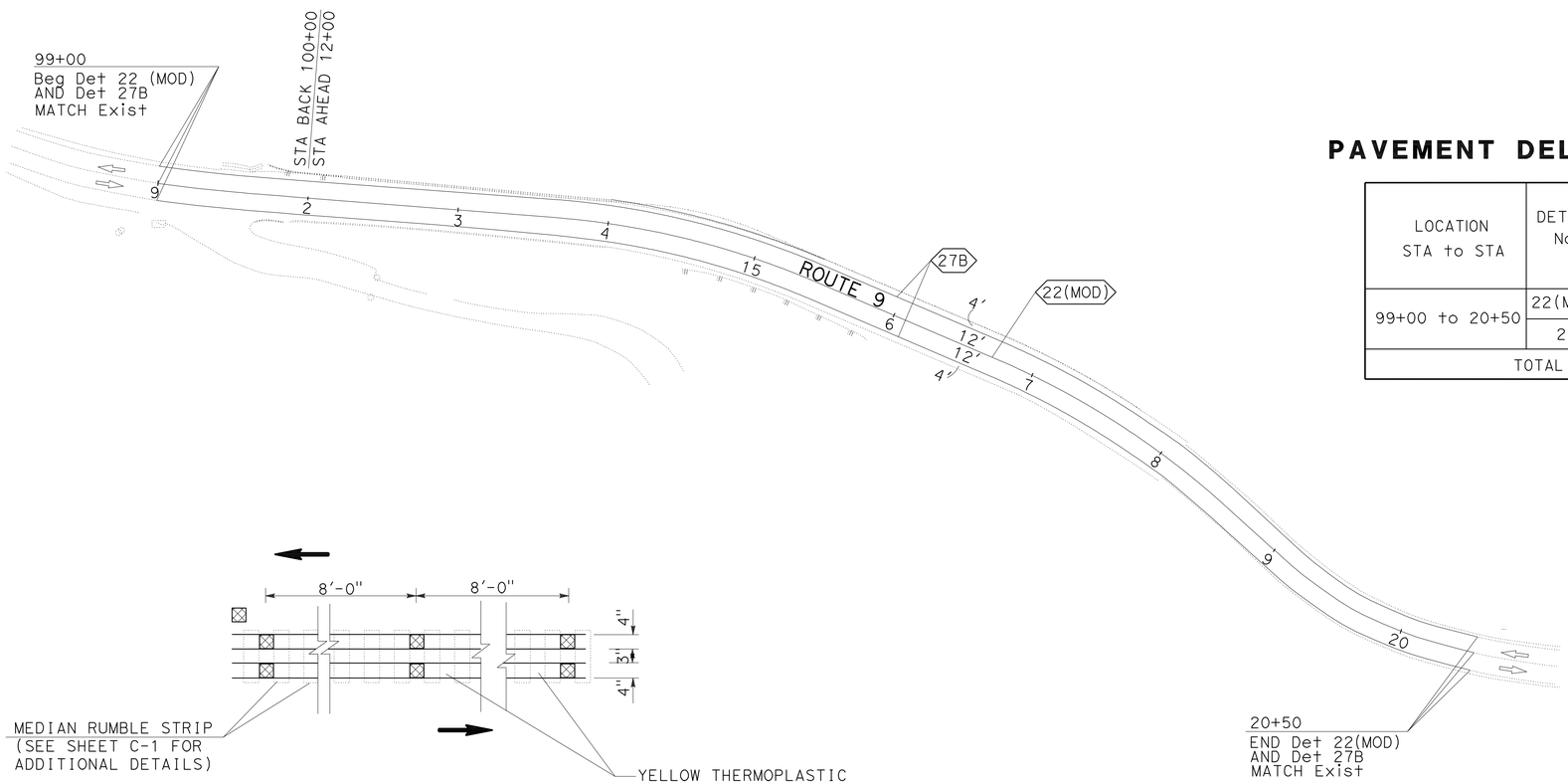
LEGEND

(XX) TRAFFIC STRIPE DETAIL No.



DETAIL 22 (MODIFIED)

SEE STANDARD PLANS FOR ADDITIONAL DETAILS

PAVEMENT DELINEATION QUANTITIES

LOCATION STA to STA	DETAIL No.	PAVEMENT MARKER (RETRO-REFLECTIVE)	THERMOPLASTIC TRAFFIC STRIPE (4")	
		TYPE D	WHITE	YELLOW
		EA	LF	
99+00 to 20+50	22(MOD)	246		1900
	27B		1900	
TOTAL		246	3800	

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

PAVEMENT DELINEATION PLAN, DETAIL AND PAVEMENT DELINEATION QUANTITIES

SCALE: 1" = 50'

PD-1

LAST REVISION: DATE PLOTTED => 05-APR-2013
03-21-13 TIME PLOTTED => 14:16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: MOHAMMED QATAMI
CALCULATED-DESIGNED BY: VANIK POGOSYAN
CHECKED BY: HASSAN TAHA
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => s124496
DGN FILE => 04000012021na001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 1513 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	28	61

DAN 7-18-11
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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NOTE:

(N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY
STATIONS ARE APPROXIMATE.
EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

TEMPORARY WATER POLLUTION CONTROL QUANTITIES

LOCATION/SHEET NO.	TEMPORARY HYDRAULIC MULCH (BFM)	TEMPORARY SILT FENCE	TEMPORARY FIBER ROLL	TEMPORARY COVER	TEMPORARY DRAINAGE INLET PROTECTION	TEMPORARY CHECK DAM
	SQYD	LF	LF	SQYD	EA	LF
L-1	250	220	250	25		60
L-2	250	180	150	25	1	60
TOTAL	500	400	400	50	1	120

METAL BEAM GUARD RAILING

LOCATION	DIRECTION	MBGR (STEEL POST)	LAYOUT TYPE	REMOVE MBGR	REMOVE TERMINAL SYSTEM (TYPE SRT) (N)	ALTERNATIVE IN-LINE TERMINAL SYSTEM	TRANSITION RAILING (TYPE WB)	TREATED WOOD WASTE
		LF		LF	EA	EA	EA	LB
Sta 14+75.38 TO Sta 17+68.65	SB			293	1**			2,318
Sta 17+72.30 TO Sta 18+10.00	SB					1	1	
Sta 14+54.14 TO Sta 15+89.21	NB	135	11D	135		2		1,822
TOTAL		135*		432		3	1	4,140

* EXACT LOCATION TO BE DETERMINED BY THE ENGINEER
** LENGTH INCLUDED IN REMOVE MBGR ITEM

CENTERLINE RUMBLE STRIP

LOCATION	CENTERLINE RUMBLE STRIP HMA, GROUND-IN INDENTATIONS	ASHPHALTIC EMULSION (FOG SEAL COAT) (N)
	STATION	TON
Sta 14+00 TO Sta 18+10	4.1	0.02

TEMPORARY FENCE (TYPE ESA)

LOCATION	DIRECTION	LF
StA 14+00 TO StA 18+10	SB, NB	1060

PLACE HOT MIX ASPHALT DIKE

LOCATION	DIRECTION	PLACE HOT MIX ASPHALT DIKE				HMA (TYPE A)	REMOVE AC DIKE
		TYPE C	TYPE E	TYPE F	TYPE A		
		LF	LF	LF	LF	TON	LF
Sta 14+00 TO Sta 14+54.14	NB	54.14				0.41	54.14
Sta 14+54.14 TO Sta 15+89.21	NB			135.07		1.79	
Sta 15+89.21 TO Sta 16+34.21	NB	45.00				0.17	
Sta 16+34.21 TO Sta 16+73.27	NB		39.06			0.51	
Sta 17+21.50 TO Sta 17+34.50	NB				13.00	0.36	
TOTAL		99.14	39.06	135.07	13.00	3.24*	54.14

* INCLUDED IN ROADWAY QUANTITIES TABLE

ROADWAY QUANTITIES

LOCATION	DIRECTION	HOT MIX ASPHALT (TYPE A)	HOT MIX ASPHALT (TYPE OG)	COLD PLANE ASPHALT CONCRETE PAVEMENT	TACK COAT	ROADWAY EMBANKMENT(N)	ROADWAY EXCAVATION
		TON	TON	SQYD	TON	CY	CY
Sta 14+00 TO Sta 18+10	NB,SB	445.0	99	880	1.70	81	230
FROM HMA DIKE TABLE		3.2					
TOTAL		448.2	99	880	1.70		230

SUMMARY OF QUANTITIES

Q-1

REVISED BY | DATE REVISED
RAJINDER S BRAR | DAN MASSA
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® 06-DESIGN

LAST REVISION | DATE PLOTTED => 05-APR-2013
11-09-12 | TIME PLOTTED => 12:44

BORDER LAST REVISED 7/2/2010 | USERNAME => s124496 | DGN FILE => 0400001202pa001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE | EFIS 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	29	61

12-07-12
REGISTERED ELECTRICAL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JASPAL SINGH
No. 16657
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

NOTES:

1. MESSENGER CABLE MUST BE 7 STRAND GALVANIZED.
2. OVERHEAD CONDUCTORS MUST BE TIED ON MESSENGER WIRE AT EVERY 3' MAXIMUM WITH SELF-CLINGING NYLON TIES.
3. OVERHEAD ENTRANCE CONDUIT FITTING MUST BE INSTALLED SO THAT RAINWATER WILL NOT SEEP INTO ELECTRICAL EQUIPMENT THROUGH THE ENTRANCE FITTING. FORM A DRIP LOOP AT ENTRANCE FITTING.
4. ESTABLISH CONTINUOUS GROUND WITH SYSTEM GROUND TO ALL METAL PARTS IN SYSTEM BY BONDING JUMPERS AND CONDUITS.
5. WOOD POLE MUST BE INSTALLED AWAY FROM THE EDGE OF TRAVEL WAY AS FAR AS POSSIBLE.
6. REFER TO SES SHEETS FOR TEMPORARY WOOD POLES DETAILS.

LEGEND:

[1] 120/240 V, 1Ø, 3-WIRE, SEE DETAIL C ON SHEET E-3.

[2] INSTALL DEPARTMENT-FURNISHED MODEL 170E CONTROLLER ASSEMBLY ON TEMPORARY FOUNDATION PLATFORM FOR MODEL 332L CABINET PER DETAIL B ON SHEET E-3. INSTALL UPS IN CABINET.

[3] WOOD POLE WITH SIGNAL AND LIGHTING EQUIPMENT. SEE DETAIL E ON SHEET E-4.

[4] WOOD POLE TO CARRY MESSENGER CABLE, SIGNAL CABLES AND CONDUCTORS. SEE DETAIL H ON SHEET E-4.

[5] WOOD POLE WITH TEMPORARY FLASHING BEACON INSTALLATION AND W3-3 SIGN. SEE DETAIL G ON SHEET E-4 AND TRAFFIC HANDLING AREA SIGNS PLAN.

[6] SEE TRAFFIC HANDLING PLANS FOR EXACT LOCATION OF LIMIT LINES.

[7] WOOD POLE WITH R10-6 SIGN, SEE DETAIL F ON SHEET E-4.

[8] GENERATOR WITH AUTOMATIC TRANSFER SWITCH, SEE DETAIL D ON SHEET E-3.

[9] 2"C, 2#6 (SIG), 2#8 (LTG)
4#6 (FB), 1#8 (G).

[10] MESSENGER CABLE
3#14 (SPARE), 3 DLC,
2#14 (PPB Ø1), 3#14 (SIG Ø8),
2#6 (FB), 1#10 (SIG NEUTRAL),
1#8 (G).

[11] 2"C, 9#14 (SPARE), 7 DLC,
3#14 (SIG Ø1), 3#14 (SIG Ø8),
2#14 (PPB Ø1), 1#10 (SIG NEUTRAL),
2#6 (SIG), 1#8 (G).

[12] 2"C, 9#14 (SPARE), 7 DLC,
3#14 (SIG Ø1), 3#14 (SIG Ø8),
2#14 (PPB Ø2), 3#14 (SIG Ø2),
2#14 (PPB Ø1), 4#6 (FB), 2#8 (LTG), 1#10 (SIG NEUTRAL),
1#8 (G).

[13] 1½"C, 3#14 (SPARE), 3 DLC,
2#14 (PPB Ø2), 3#14 (SIG Ø2),
2#6 (FB), 2#8 (LTG), 1#10 (SIG NEUTRAL),
1#8 (G).

[14] MESSENGER CABLE
6#14 (SPARE), 4 DLC,
2#14 (PPB Ø2), 3#14 (SIG Ø2),
3#14 (SIG Ø1), 2#6 (FB), 2#8 (LTG), 1#10 (SIG NEUTRAL),
1#8 (G).

[15] MESSENGER CABLE
3#14 (SPARE), 3 DLC,
2#14 (PPB Ø2), 3#14 (SIG Ø2),
2#6 (FB), 2#8 (LTG)), 1#10 (SIG NEUTRAL),
1#8 (G).

[16] MESSENGER CABLE
3#2 (CONDUCTORS BY PG&E)

[17] 1½"C, 2#14 (PPB Ø2), 3 DLC
2#6 (FB), 1#8 (G).

[18] 1½"C, 2#14 (PPB Ø2), 1#8 (G).

[19] 1½"C, 2#6 (FB), 1 DLC, 1#8 (G).

[20] 1½"C, 2#6 (FB), 1#8 (G).

[21] 2"C, 2#14 (PPB Ø1), 1#8 (G).

[22] 2"C, 2#14 (PPB Ø1), 3 DLC
2#6 (FB), 1#8 (G).

[23] 2"C, 3#4, 1#8 (G).

ABBREVIATIONS:

PG&E - PACIFIC GAS AND ELECTRIC COMPANY
UPS - UNINTERRUPTIBLE POWER SUPPLY
ATS - AUTOMATIC TRANSFER SWITCH

INDEX TO ELECTRICAL PLANS:

LEGEND:

(G)	GENERATOR WITH ATS
FUEL	FUEL TANK
—x — x—	TEMPORARY CHAIN LINK FENCE (TYPE CL-6) WITH 4' CHAIN LINK GATE (TYPE CL-6)
—— F ——	FUEL LINE

NOTES, LEGEND AND ABBREVIATIONS

E-1

APPROVED FOR ELECTRICAL WORK ONLY

REVISED BY	DATE REVISED
	11/29/12

CALCULATED-DESIGNED BY: JORGE RAMIREZ
CHECKED BY: JASPAL SINGH
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

LAST REVISION 12-06-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 13:25

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	30	61

12-07-12
REGISTERED ELECTRICAL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JASPAL SINGH
No. 16657
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

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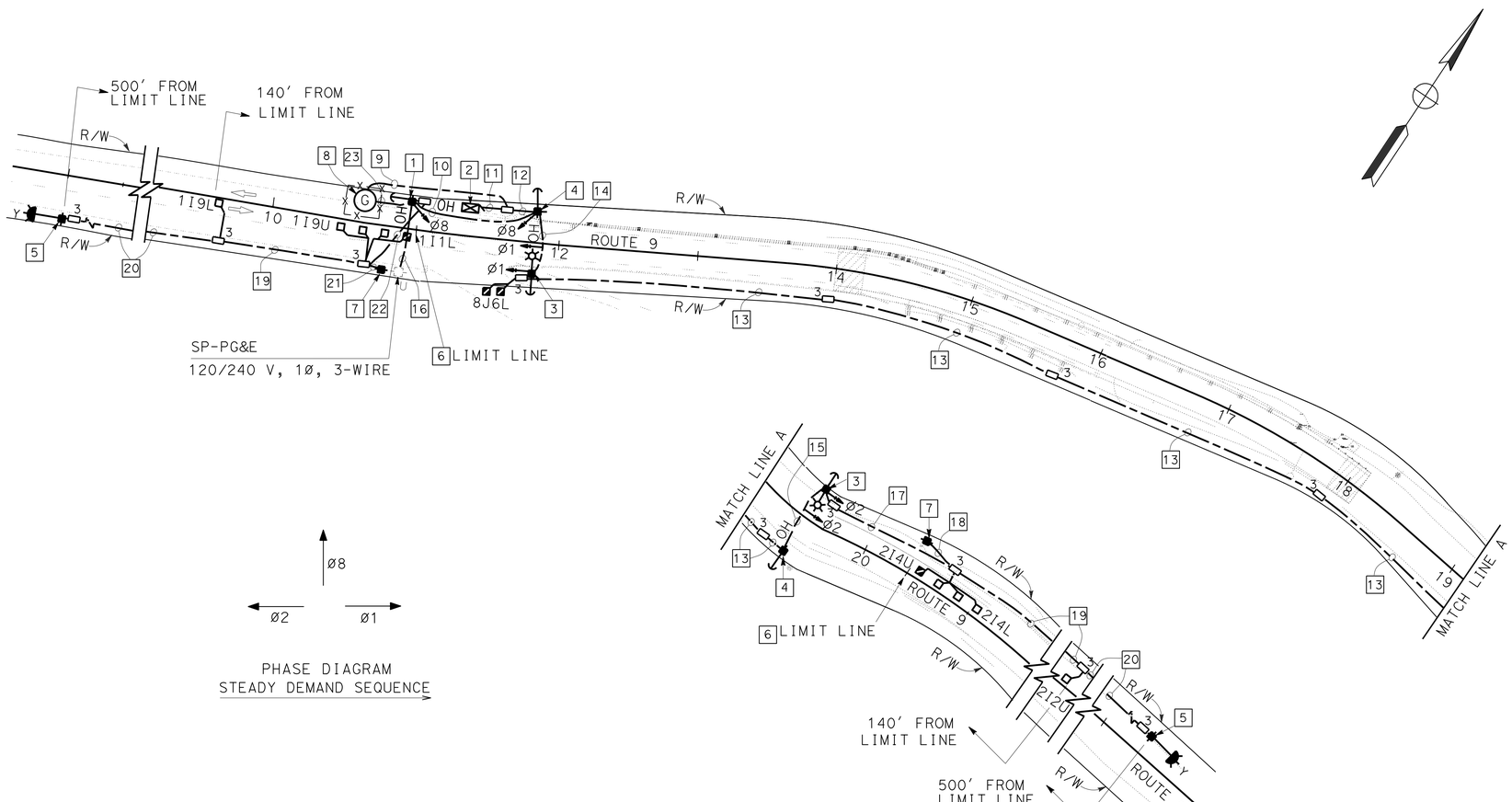
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



PHASE DIAGRAM
STEADY DEMAND SEQUENCE

TEMPORARY SIGNAL SYSTEM

SCALE: 1" = 50′

E-2

APPROVED FOR ELECTRICAL WORK ONLY

REVISED BY	DATE REVISED
	11/29/12

CALCULATED-DESIGNED BY: JORGE RAMIREZ
CHECKED BY: JASPAL SINGH
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

LAST REVISION 12-06-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:29

BORDER LAST REVISED 7/2/2010
USERNAME => s119571
DGN FILE => 0400001202ua002.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1515
PROJECT NUMBER & PHASE 0400001202

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	31	61

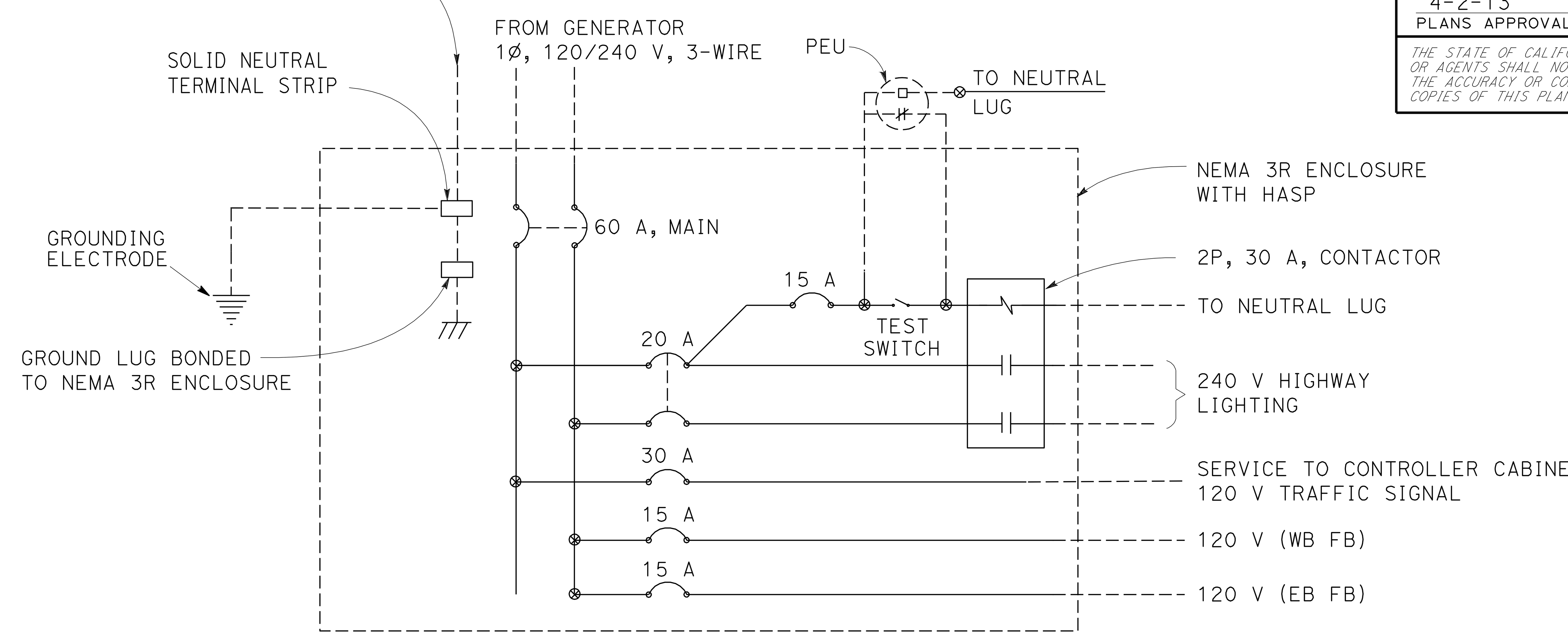
REGISTERED ELECTRICAL ENGINEER 12-07-12 DATE

4-2-13
PLANS APPROVAL DATE

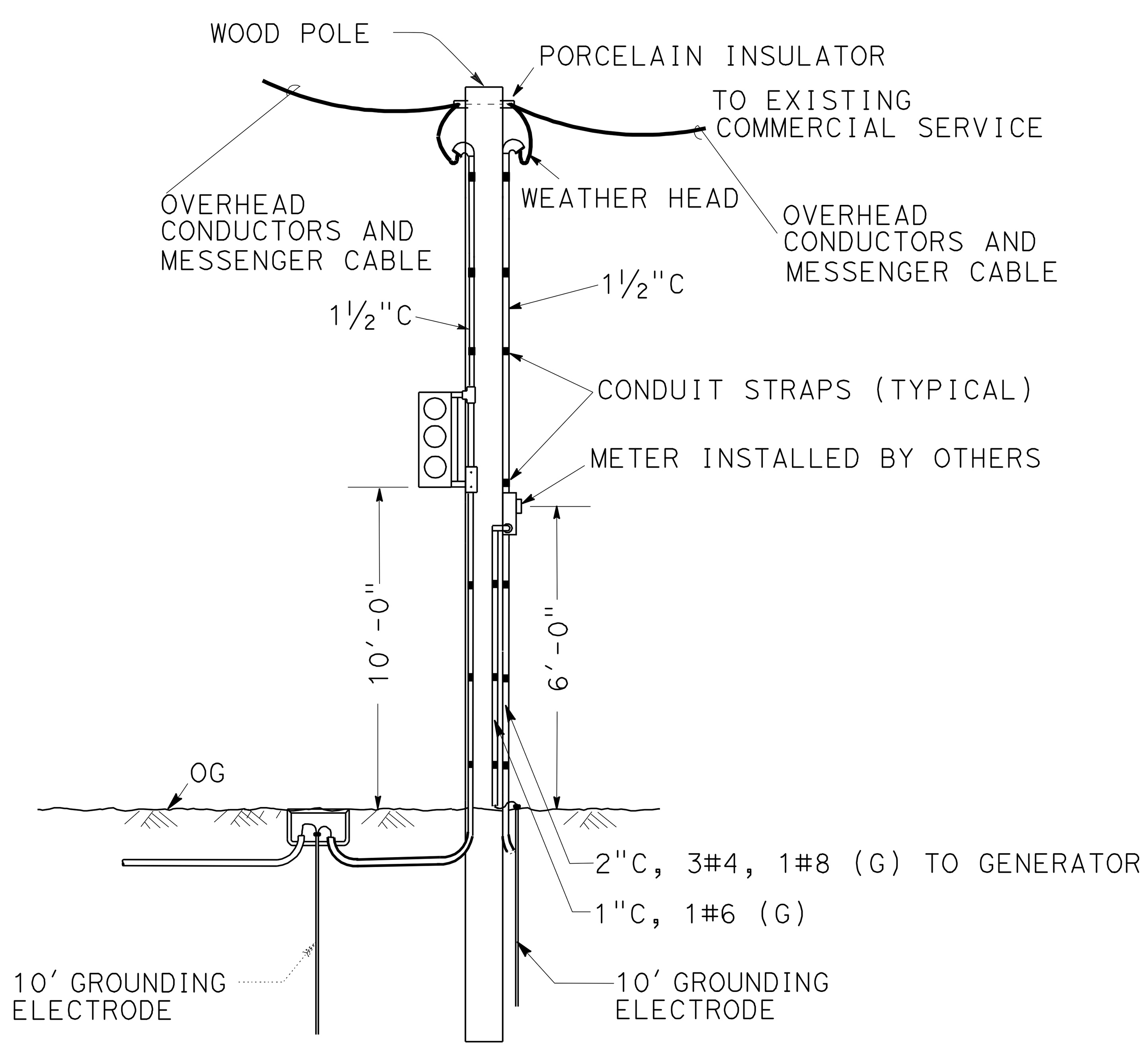
REGISTERED PROFESSIONAL ENGINEER JASPAL SINGH No. E16657 Exp. 6/30/14 ELECTRICAL STATE OF CALIFORNIA

NOTE:

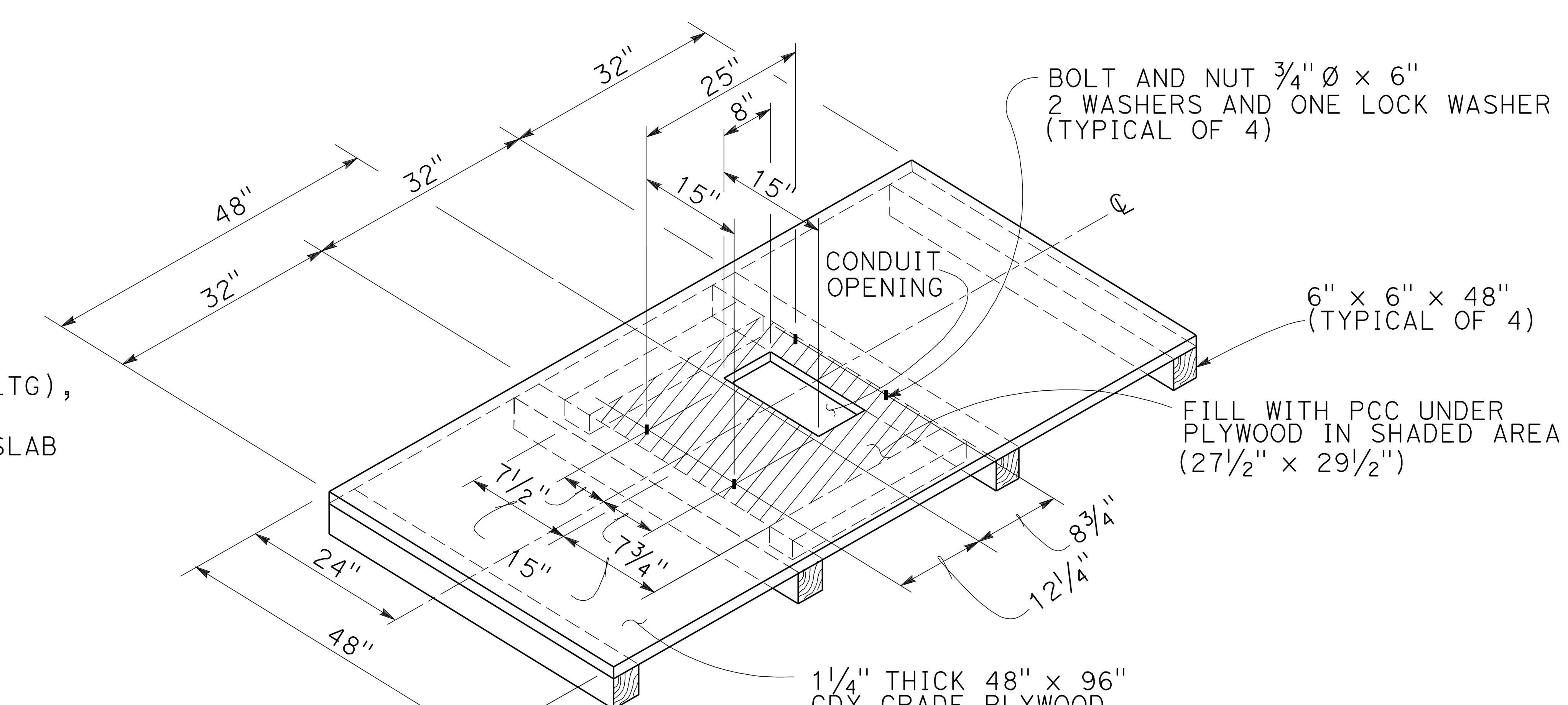
SEE SES SHEETS FOR WOOD POLE DETAILS.



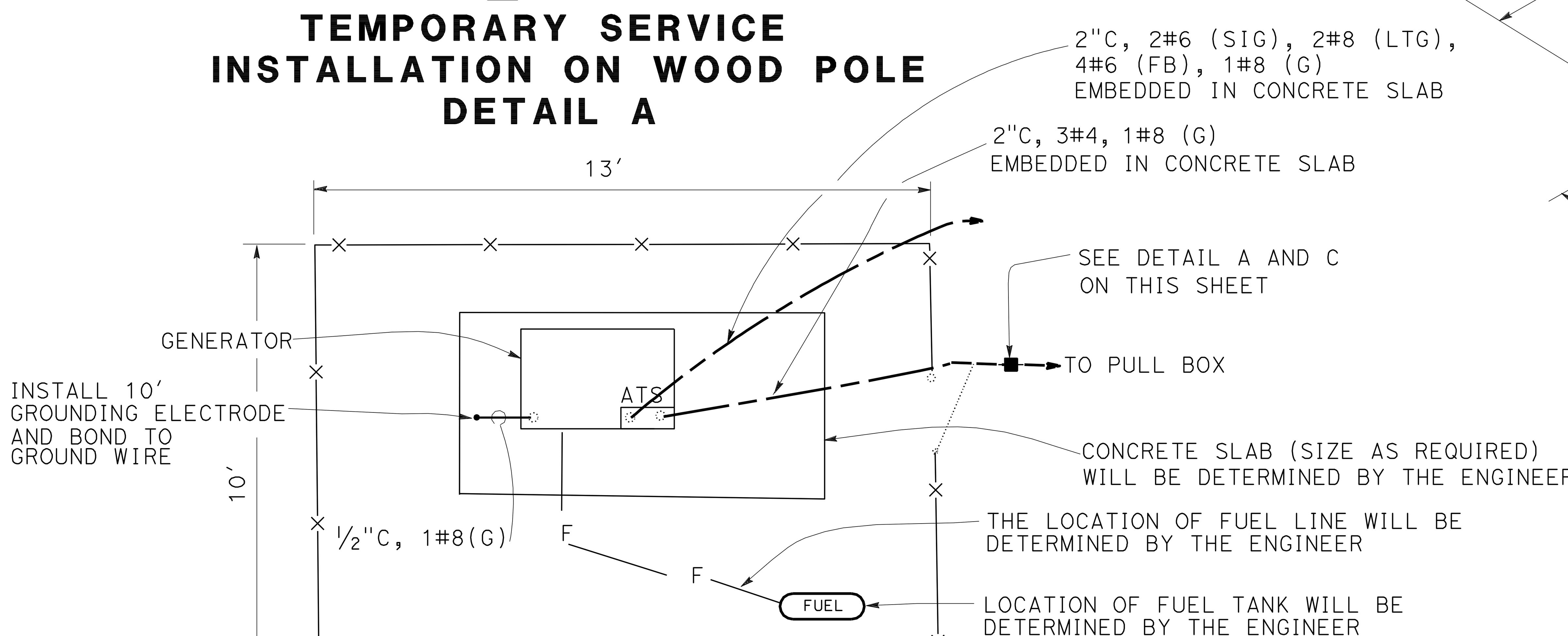
120/ 240 V SERVICE WIRING DIAGRAM DETAIL C



TEMPORARY SERVICE INSTALLATION ON WOOD POLE DETAIL A



TEMPORARY MODEL 332L CABINET FOUNDATION PLATFORM DETAIL B



GENERATOR WITH AUTOMATIC TRANSFER SWITCH DETAIL D

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ELECTRICAL DETAILS

NO SCALE

E-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
CALCULATED-DESIGNED BY: JORGE RAMIREZ
CHECKED BY: JASPAL SINGH
REVISED BY
DATE REVISED: 11/29/12
LAST REVISION 12-06-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 13:25
BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 0400001202ua003.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1515
PROJECT NUMBER & PHASE 0400001202

NOTE:

SEE SES SHEETS FOR WOOD POLE DETAILS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	32	61

Jaspal Singh 12-07-12
REGISTERED ELECTRICAL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JASPAL SINGH
No. E16657
Exp 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

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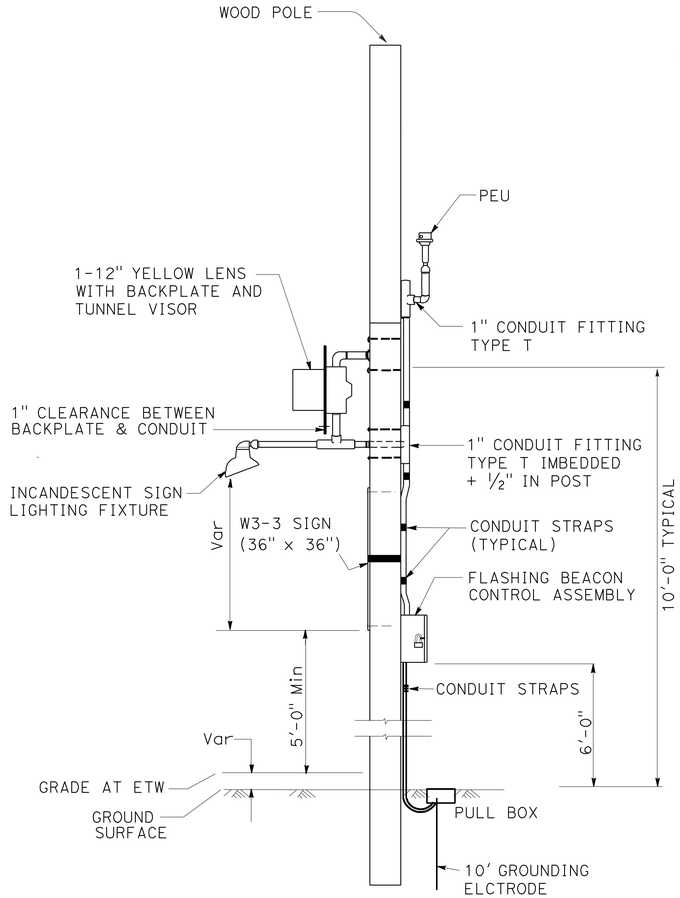
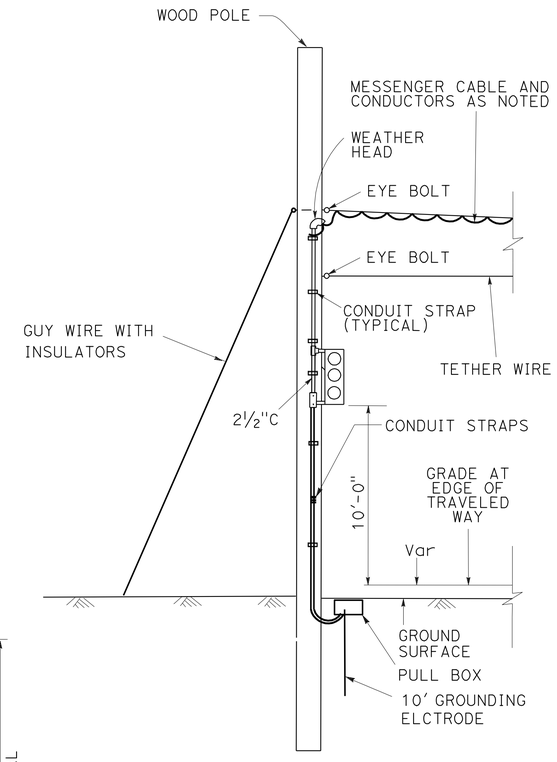
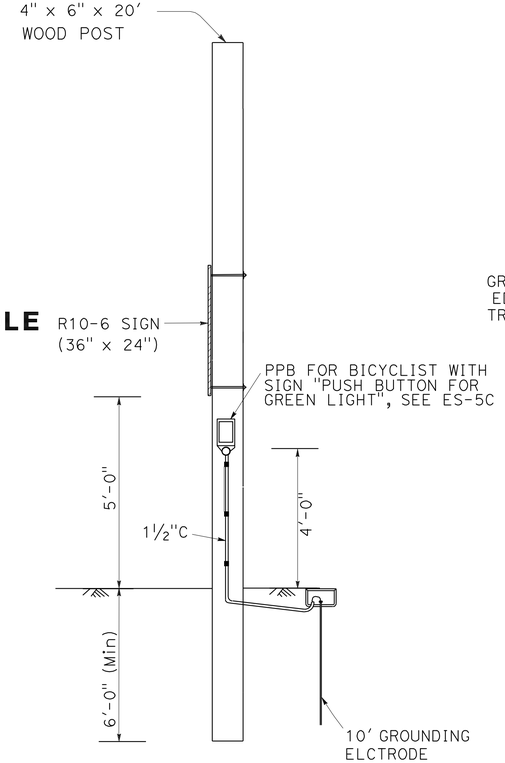


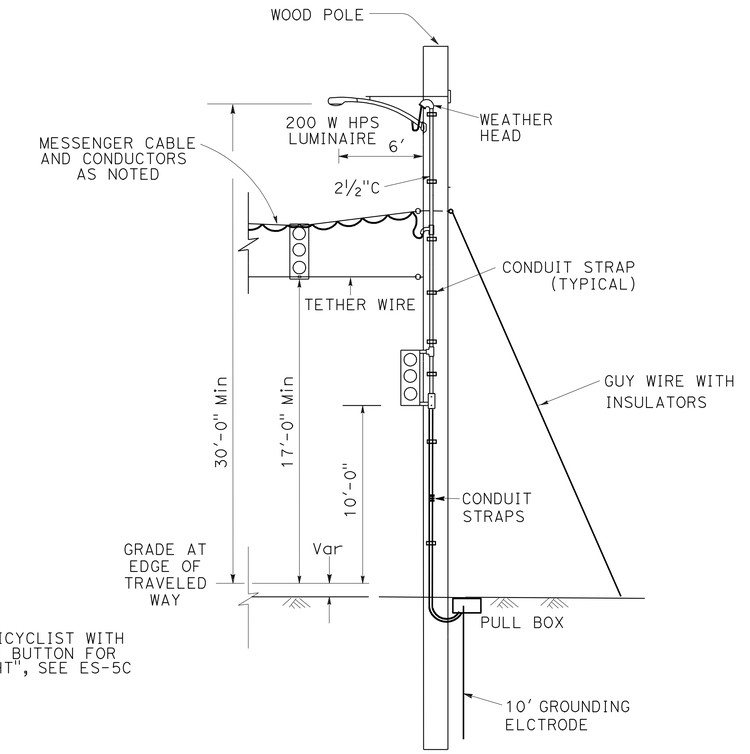
TEMPORARY FLASHING BEACON INSTALLATION ON WOOD POLE DETAIL G



TEMPORARY SIGNAL INSTALLATION ON WOOD POLE DETAIL H



TEMPORARY SIGNAL INSTALLATION ON WOOD POST DETAIL F



TEMPORARY SIGNAL AND LIGHTING INSTALLATION ON WOOD POLE DETAIL E

ELECTRICAL DETAILS

NO SCALE

E-4

APPROVED FOR ELECTRICAL WORK ONLY

REVISED BY	DATE REVISED
	11/29/12

CALCULATED-DESIGNED BY: JORGE RAMIREZ
CHECKED BY: JASPAL SINGH
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

LAST REVISION | DATE PLOTTED => 08-APR-2013
11-29-12 | TIME PLOTTED => 10:58

BORDER LAST REVISED 7/2/2010 | USERNAME => s121614 | DGN FILE => 0400001202ua004.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1515 | PROJECT NUMBER & PHASE 0400001202

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	33	61

12-07-12
REGISTERED ELECTRICAL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JASPAL SINGH
No. 16657
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

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NOTE:

THE QUANTITIES ON THIS SHEET ARE FOR INFORMATION ONLY AND ARE NOT SEPARATE PAY ITEMS.

TEMPORARY SIGNAL SYSTEM

SHEET No.	No. 5 PB	No. 3½ PB	1½"C, TYPE 3	2"C, TYPE 3	FLASHING BEACON CONTROL ASSEMBLY	GENERATOR	TEMPORARY MODEL 332L FOUNDATION PLATFORM	45' WOOD POLE	30' WOOD POLE	20' x 4" x 6" WOOD POST
	EA	EA	LF	LF	EA	EA	EA	EA	EA	EA
E-2	6	8	1840	450	2	1	1	5	2	2

TEMPORARY SIGNAL SYSTEM

SHEET No.	MESSENGER CABLE	3 SECTION SIGNAL HEAD	1 SECTION SIGNAL HEAD	SERVICE ENCLOSURE	INCANDESCENT LIGHTING FIXTURE	200 W LUMINAIRE	PPB	UPS	FUEL TANK	CHAIN LINK FENCE (TYPE CL-6)	4' CHAIN LINK GATE (TYPE CL-6)
	LF	EA	EA	EA	EA	EA	EA	EA	EA	LF	EA
E-2	150	6	2	1	2	2	2	1	1	42	1

TEMPORARY SIGNAL SYSTEM

SHEET No.	No. 2 CONDUCTOR	No. 4 CONDUCTOR	No. 6 CONDUCTOR	No. 8 CONDUCTOR	No. 14 CONDUCTOR	DLC	TYPE A DETECTOR LOOP	TYPE D DETECTOR LOOP
	LF	LF	LF	LF	LF	LF	EA	EA
E-2	150	30	4620	2020	8970	3900	8	4

APPROVED FOR ELECTRICAL WORK ONLY

ELECTRICAL QUANTITIES

E-5

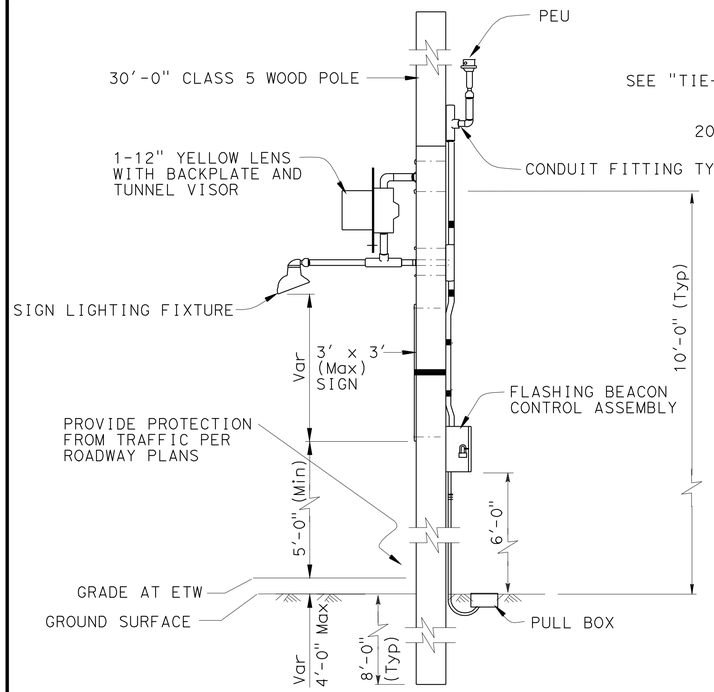
REVISED BY	DATE REVISED
JORGE RAMIREZ	11/29/12

CALCULATED-DESIGNED BY: JASPAL SINGH
CHECKED BY:
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

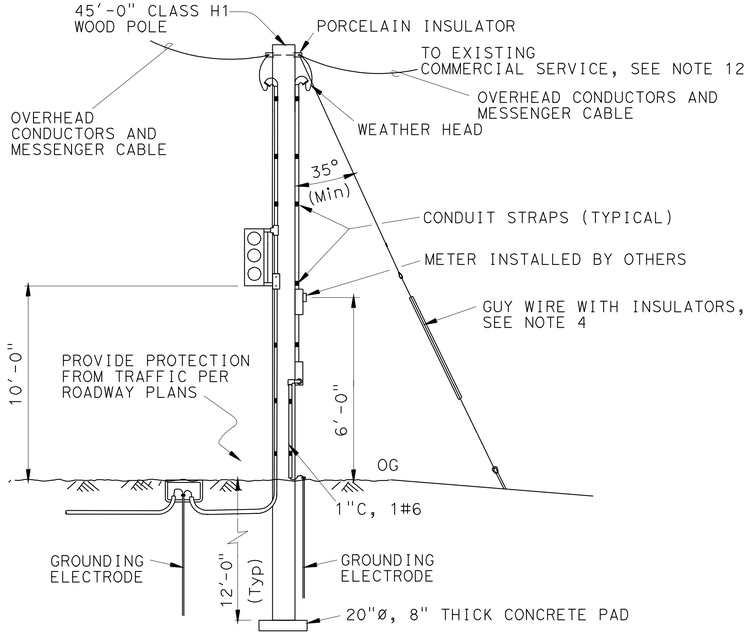
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

LAST REVISION 12-06-12
DATE PLOTTED => 05-APR-2013
TIME PLOTTED => 12:29

BORDER LAST REVISED 7/2/2010
USERNAME => s119571
DGN FILE => 0400001202ua005.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1515
PROJECT NUMBER & PHASE 0400001202

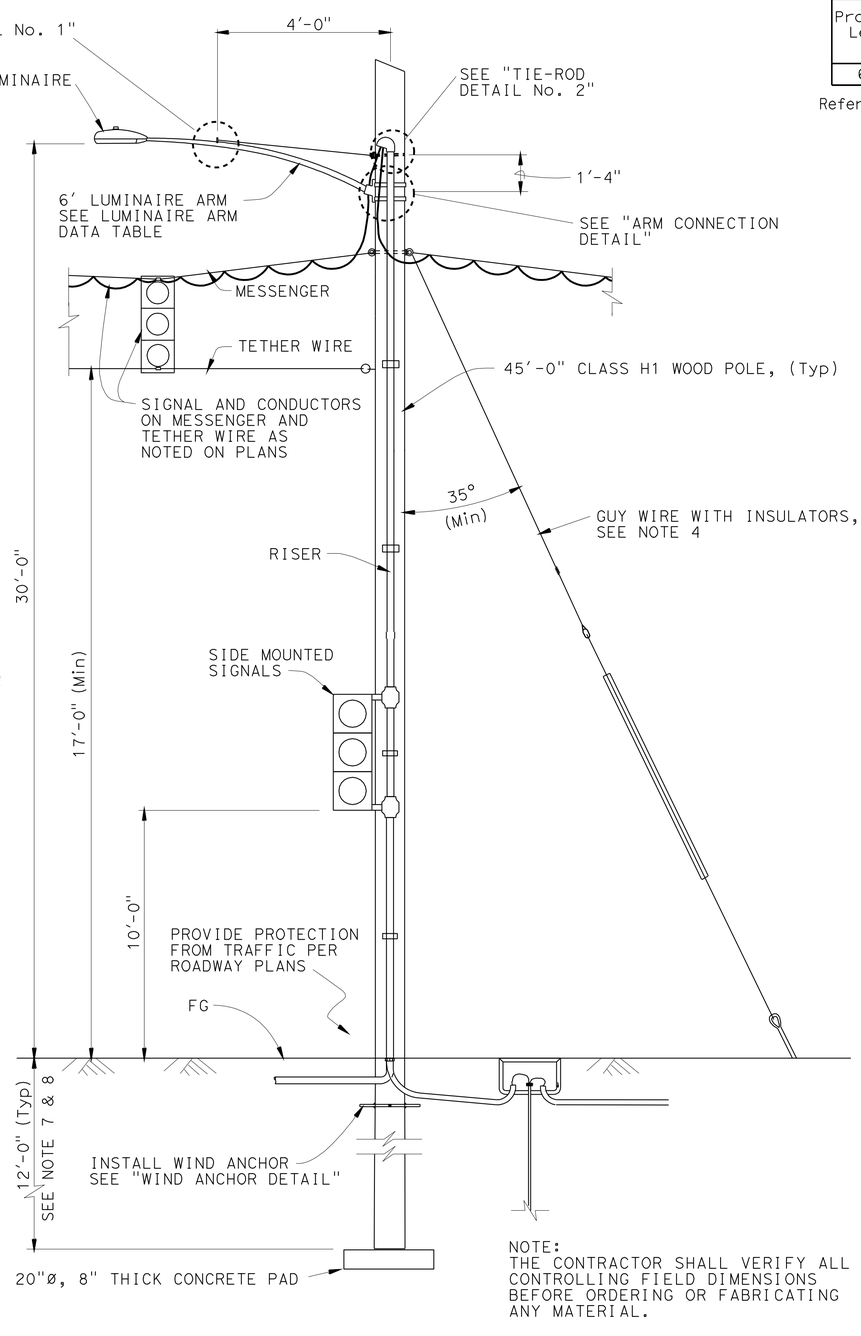


WOOD POLE SUPPORT FOR DETAIL "C", SHEET E-3



TEMPORARY SERVICE INSTALLATION ON WOOD POLE DETAIL "A", SHEET E-2

NO SCALE



NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

TYPICAL WOOD POLE SUPPORT WITH LUMINAIRE

LUMINAIRE ARM DATA			
Projected Length	N Rise	Min OD At Pole	Thickness
6'-0"	2'-0"	3¼"	0.1196"

Refer to ES-6A for Luminaire arm details

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	34	61

Aman Malak 4/8/13
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — AIMAN MALAK — No. C73369 — Exp. 12-31-14 — CIVIL — STATE OF CALIFORNIA

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.

GENERAL NOTES:

SPECIFICATIONS

Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

LOADING

Wind Loadings: 85 MPH

UNIT STRESSES

Timber Poles: Tapered treated round pole ASTM D2899 Standard
Fb = 1850 psi
Fv = 110 psi
E = 1500 x 10^3 psi

TREATMENT

To conform with Section 86 Standard Specifications

SPECIFICATIONS

Caltrans Standard Specifications 2010
ANSI 05 Wood Poles
ASTM A475 Utility Grade Wires

NOTES:

1. All overhead cables shall be slack spanned with 18'-0" minimum overhead clearance.
2. Conductors shall be suspended from span-wire as follows: Main run ⅜" span-wire with 5% ±0.4% sag and ¼" tether wire with 5% ±0.4% sag where required. No spare conductors allowed except as noted.
3. Overhead line construction not specifically covered here shall conform with the provisions of General Order No. 95 of Public Utilities Commission.
4. Wood poles shall be stabilized using guy wires, breast blocks or rakes at each dead end, corner, drop or line deviation more than 15° from straight line. The direction of the guy shall counteract the resultant of unbalanced force applied to pole. Where space or conflict prevent guy installation, a diagonal brace shall be used. The brace shall be wood and shall be connected to the pole by means to satisfy structural and electrical requirements. The direction of the brace shall counteract the resultant of unbalanced horizontal force of 2000 pounds (Min) applied to the pole.
5. Guy shall be attached to pole as nearly as practical to the center of conductors load, or 3'-0" Max otherwise, See Note 4.
6. All attachments shall be mounted with stainless steel straps or other manufacturers methods without drilling holes in pole, except as shown. Drilling through pole will require the Engineer's approval.
7. Foundation design is based on AASHTO 2001 article 13.6 Broms' approximate procedure assuming a cohessionless material. The angle of Internal friction used is 30° and unit weight of soil used is 120 lb/ft^3. Verify actual soil condition.
8. If pole is located on a steep slope add 2 feet extra for embedment.
9. See Sheets SES-2 through SES-4 for details.
10. For details not shown, see "2010 STANDARD PLANS".
11. Temporary poles support OH Conductors as noted. Attach luminaire arm or combination of attachments as specified at locations where indicated on the Electrical Sheets.
12. PG&E to verify the capacity of existing PG&E wood pole before attaching overhead conductors.

BRANCH CHIEF *JAMES SAGAR*

	BY	CHECKED
DESIGN	A MALAK	T MARCHENKO
DETAILS	H NGUYEN	A MALAK
QUANTITIES		X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
SPECIAL DESIGN BRANCH

BRIDGE NO. N/A
POST MILE 4.16

TEMPORARY SIGNAL SYSTEM
TEMPORARY WOOD POLE

SES-1

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 0400001202 CONTRACT NO.: 04-4s0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
4-9-12				1	4

FILE => spec_des_br_prj/2012sd/04-4s0501_ses01.dgn

USERNAME => s121614 DATE PLOTTED => 09-APR-2013 TIME PLOTTED => 12:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	35	61

REGISTERED CIVIL ENGINEER — 4/8/13 DATE

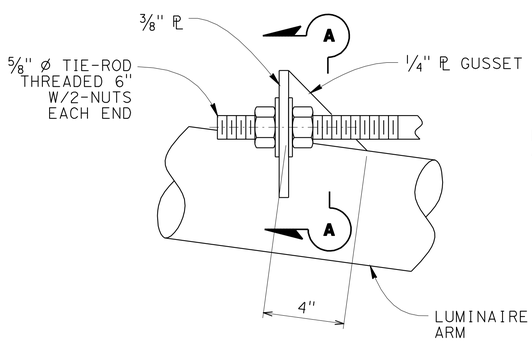
4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — AIMAN MALAK — No. C73369 — Exp. 12-31-14 — CIVIL — STATE OF CALIFORNIA

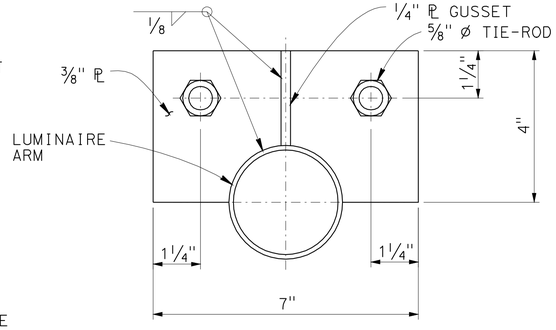
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

NOTES:

1. All hardware and steel shall be galvanized after fabrication.
2. Arm base connection details shall be in compliance with Standard Plan Detail Sheet ES-6A with noted modifications.
3. 2000 lb Min capacity strap system shall be used for top and bottom of plate.
4. Verify pole dimensions at Tie-Rod attachment height. Fabricate 8" flat bar with "L" Dimension to maintain an open gap between flanges in finished installation.

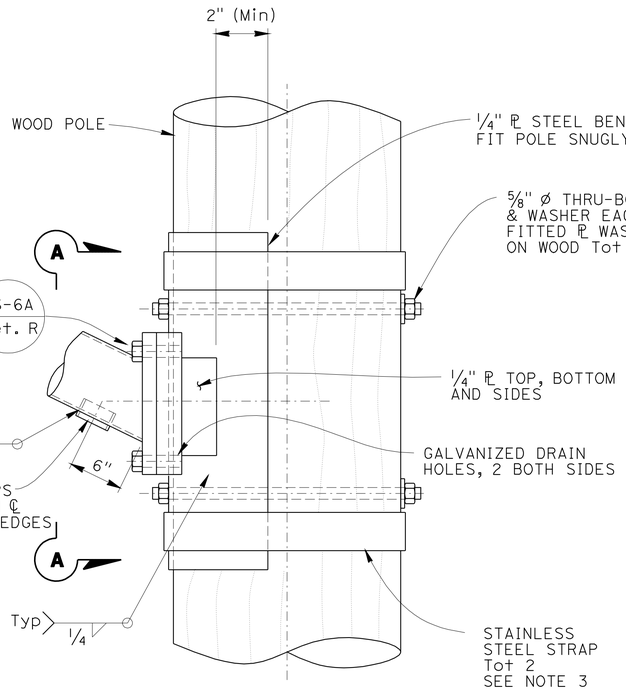


ELEVATION



SECTION A-A

TIE-ROD DETAIL No. 1



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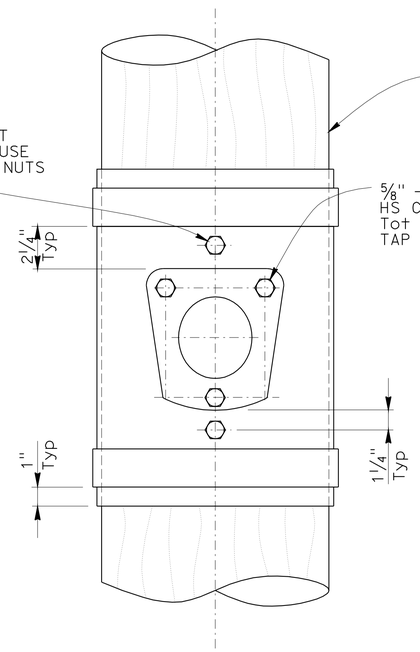
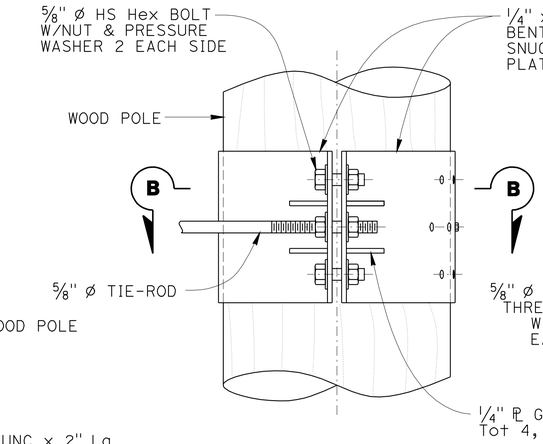


VIEW A-A

ARM CONNECTION DETAILS



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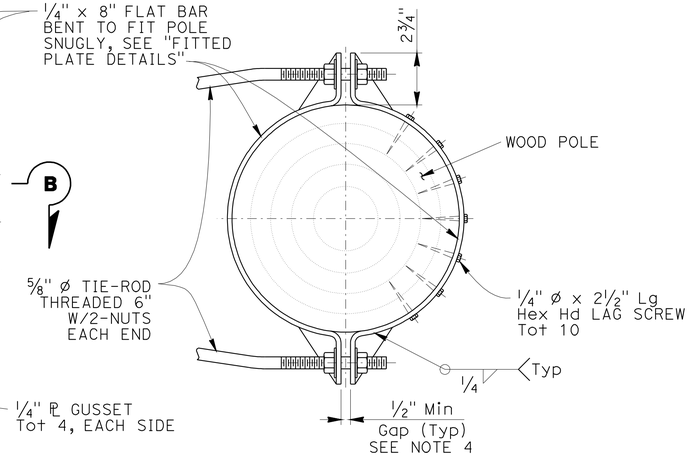
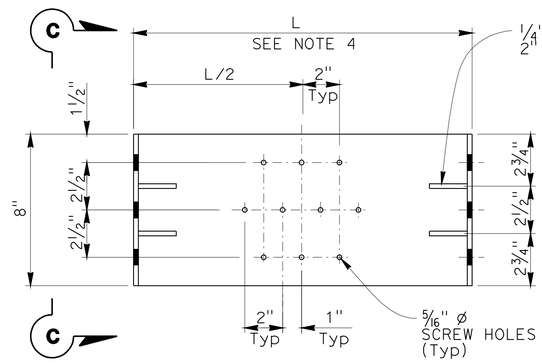


SECTION B-B

TIE-ROD DETAIL No. 2



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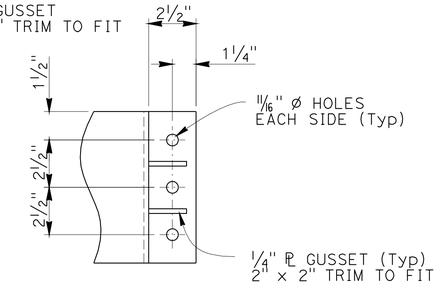

SECTION C-C

FITTED PLATE DETAILS

Note: 2 Required (1 w/screw holes, 1 without)

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NO SCALE

BRANCH CHIEF *JAMES SAGAR*	DESIGN	BY A MALAK	CHECKED T MARCHENKO	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO. N/A	TEMPORARY SIGNAL SYSTEM WOOD POLE MOUNTING DETAILS	SES-2
	DETAILS	BY H NGUYEN	CHECKED A MALAK			POST MILE 4.16		
	QUANTITIES	BY	CHECKED X					

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT:3619
PROJECT NUMBER & PHASE:0400001202 CONTRACT NO.:04-4s0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
4-9-12				2	4

FILE => spec_des_br_prj/2012sd/04-4s0501_ses02.dgn

USERNAME => s1216l4 DATE PLOTTED => 09-APR-2013 TIME PLOTTED => 12:31

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	36	61

Aiman Malak 4/8/13
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
AIMAN MALAK
No. C73369
Exp. 12-31-14
CIVIL
STATE OF CALIFORNIA

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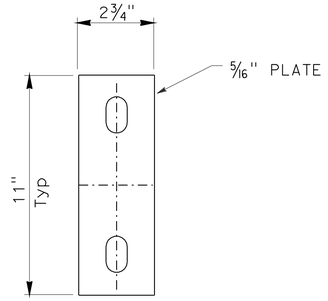
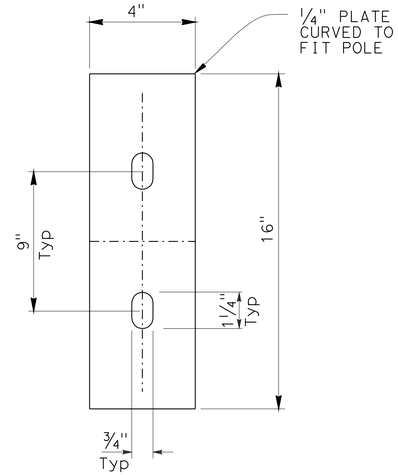
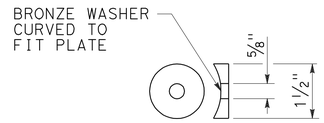


COMPARTMENT PLATE (Mod)

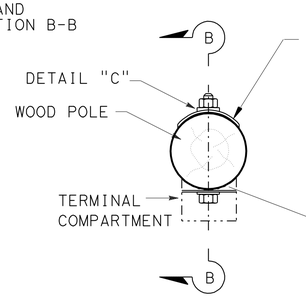


BACKPLATE

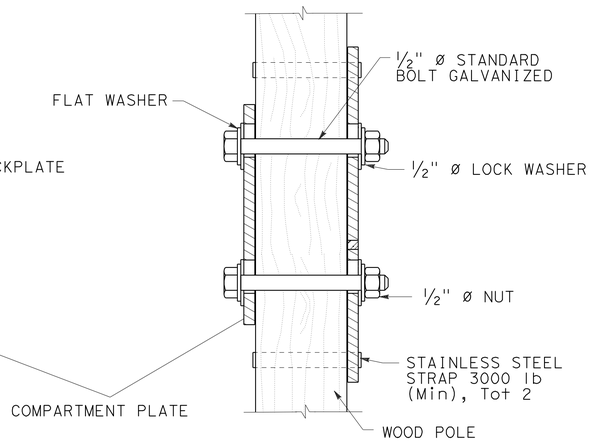


DETAIL "C"

SIDE MOUNTING TERMINAL COMPARTMENT



SECTION A-A



SECTION B-B

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

SIGNAL HEADS AND MOUNTINGS

For Details Not Shown See ES-4D Sheet

NO SCALE

BRANCH CHIEF *JAMES SAGAR*	DESIGN	A MALAK	T MARCHENKO	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO. N/A	TEMPORARY SIGNAL SYSTEM WOOD POLE DETAILS	SES-3
	DETAILS	H NGUYEN	A MALAK			POST MILE 4.16		
	QUANTITIES		X					

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 0400001202 CONTRACT NO.: 04-4s0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
4-9-12				3	4

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USERNAME => s1216l4 DATE PLOTTED => 09-APR-2013 TIME PLOTTED => 12:31

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	37	61

Aiman Malak 4/8/13
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
AIMAN MALAK
No. C73369
Exp. 12-31-14
CIVIL
STATE OF CALIFORNIA

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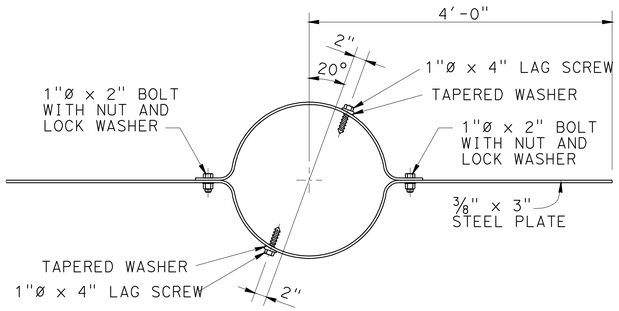
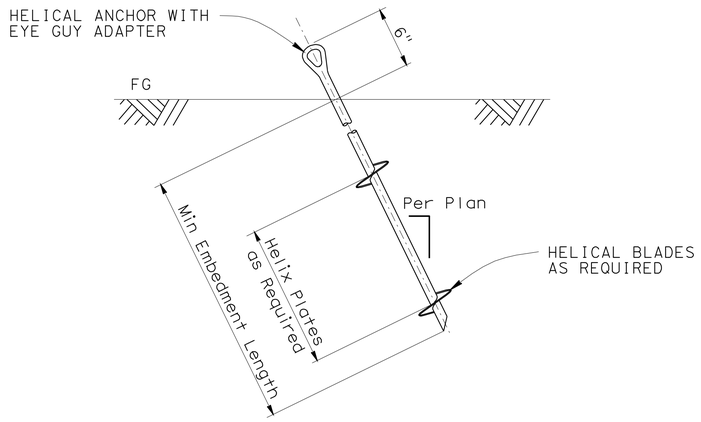


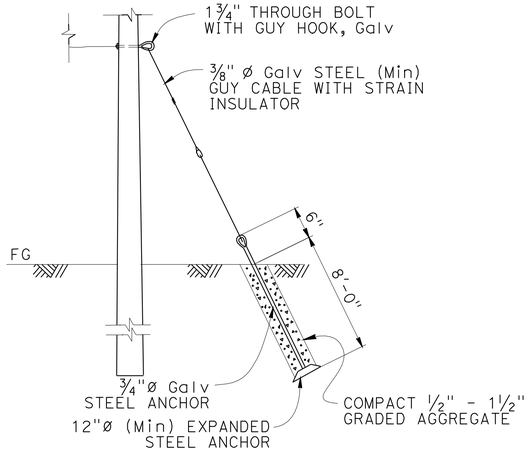
WIND ANCHOR

To be installed perpendicular to mast arms and 2'-0" Min below grade



ALTERNATIVE GUY WIRE INSTALLATION DETAIL

(See Helical Anchor Specifications Table)



GUY WIRE INSTALLATION DETAIL

HELICAL ANCHOR SPECIFICATIONS

Anchor Location	Type	Helix Plate Diameter*	Allowable Min Tension Cap., "Q_a"	Embedment Length (Min)	Installation Torque (Min)**, "T"
Typical	Tension	10"	3700 lb	8'-0"	1100 Ft-lb

SPECIFICATION NOTES:

1 During installation the torque will be continuosly monitored and recorded. If a drop in torque is recorded, the anchor must then continue to be inserted past the soft soil layer until Minimum Installation Torque is achieved.

2 Anchors and Hardware to be installed per the manufacturers specifications.

* Number of helical plates is not specified; Contractors choice.

** Adjust accordingly if required, See Note 3.

NOTES:

1. Verify soil condition, slope, and adjust anchoring to satisfy basic design requirements per Note 7 on SES-1 sheet.

2. Use of alternative Guy Wire Installation Detail requires that the soil bearing capacity be verified by the installation Contractor.

3. Determine the most appropriate value for k_t based on soil conditions and shall adjust the Min Installation Torque based on the revised k_t. A k_t value of 10 was assumed for the Min Installation Torque shown in the table.

   The Helical Installation torque Formula is $Q_u = k_t * T$ where,

   $Q_u = Q_a * FS$ = Ultimate Helical Anchor Capacity (LBs)
   FS = Factor of Safety = 3.0
   Q_a = Allowable Helical Anchor Capacity (LBs)
   k_t = Empirical Torque Factor (ft^{-1})
   T = Min Installation Torque (Ft-LBs)

4. Requests made by Helical Anchor Installation Contractor to reduce the minimum embedment length or Helix ℄ diameter or both require Engineer's approval.

5. Locate and mark all of the substructures and utilities. Installation of anchors underneath utilities or subsurface structures is prohibited. Horizontal clearances of anchors shall be determined by the Engineer during construction.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NO SCALE

DESIGN	BY A MALAK	CHECKED T MARCHENKO	
DETAILS	BY H NGUYEN	CHECKED A MALAK	
QUANTITIES	BY	CHECKED X	

BRANCH CHIEF *JAMES SAGAR*

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
SPECIAL DESIGN BRANCH

BRIDGE NO. N/A
POST MILE 4.16

TEMPORARY SIGNAL SYSTEM
WOOD POLE DETAILS

SES-4

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE:0400001202 CONTRACT NO.:04-4s0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
4-9-12				4	4

FILE => spec_des_br_prj/2012sd/04-4s0501_ses04.dgn

USERNAME => s612614 DATE PLOTTED => 09-APR-2013 TIME PLOTTED => 12:31

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	38	61

12-7-12
REGISTERED CIVIL ENGINEER — DATE

Gurinderpal Bhullar
No. C48815
Exp. 9-30-14
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

4-2-13
PLANS APPROVAL DATE

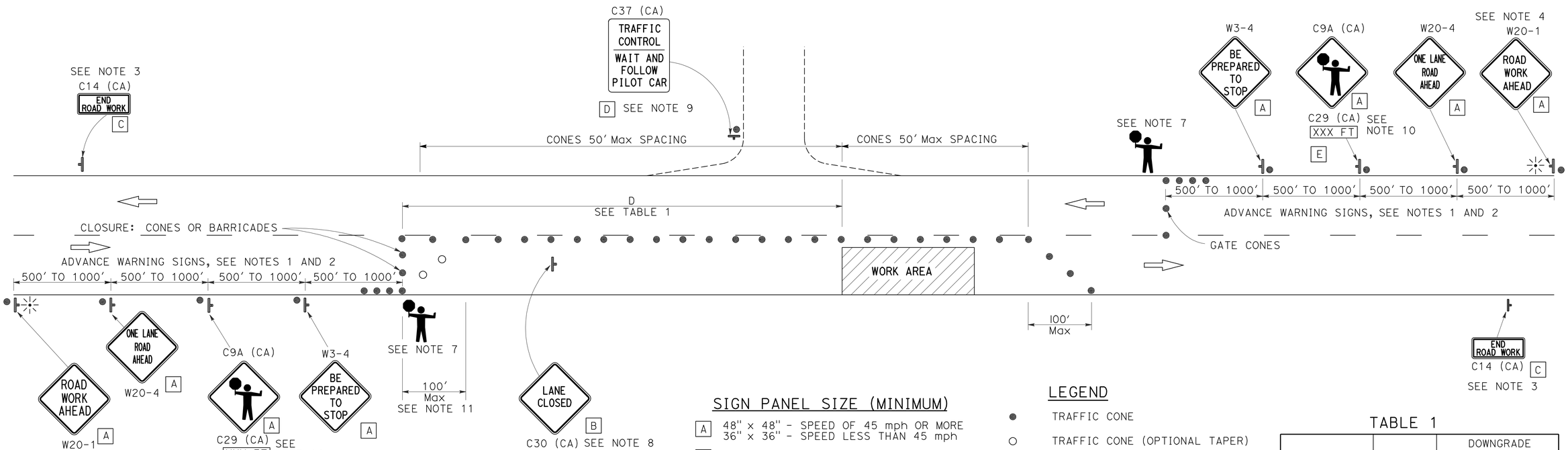
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on orange background.

California code are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL



SIGN PANEL SIZE (MINIMUM)

- A — 48" x 48" - SPEED OF 45 mph OR MORE; 36" x 36" - SPEED LESS THAN 45 mph
- B — 30" x 30"
- C — 36" x 18"
- D — 36" x 42"
- E — 36" x 9"

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY SIGN
- PORTABLE FLASHING BEACON
- FLAGGER

TABLE 1

APPROACH SPEED	MINIMUM D	DOWNGRADE MINIMUM D *		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
25 AND BELOW	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785

* USE ON SUSTAINED DOWNGRADE STEEPER THAN -3 PERCENT AND LONGER THAN 1 MILE.

NOTES:

1. Where approach speeds are low, advance warning signs may be placed at 300' spacing, and closer in urban areas.
2. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A C14 (CA) "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
4. If the W20-1 sign would follow within 2000' of a stationary W20-1 or C11 (CA) "ROAD WORK NEXT _____MILES", use a W20-4 sign for the first advance warning sign.
5. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
6. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
7. Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.
8. Place C30 (CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
9. When a pilot car is used, place a C37 (CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign at all intersections within traffic control area. Signs shall be clean and visible at all times.
10. An optional C29 (CA) sign may be placed below the C9A (CA) sign.
11. Traffic cones or barricades may be placed on the optional taper as shown, barricades shall be Type I, II, or III.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

TCS-1

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION | DATE PLOTTED => 05-APR-2013 | TIME PLOTTED => 10:22
00-00-00

BORDER LAST REVISED 7/2/2010 | USERNAME => s114640 | DGN FILE => tcs13.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 1475 | PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	39	61

Roberta L. McLaughlin
REGISTERED CIVIL ENGINEER

April 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Roberta L. McLaughlin — No. C40375 — Exp. 3-31-13 — CIVIL — STATE OF CALIFORNIA

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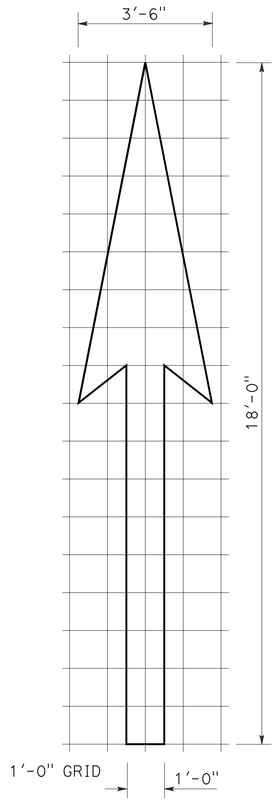
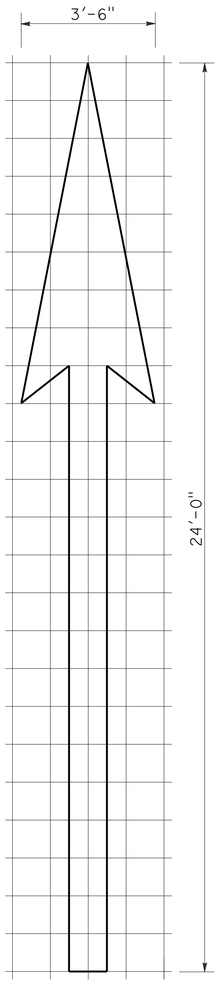
TO ACCOMPANY PLANS DATED 4-2-13

2010 REVISED STANDARD PLAN RSP A24A



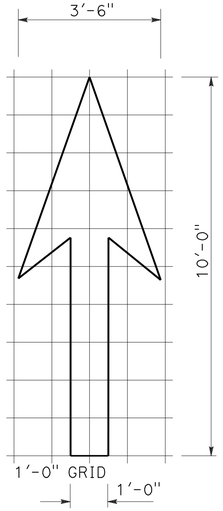
A=25 ft²

TYPE I 18'-0" ARROW



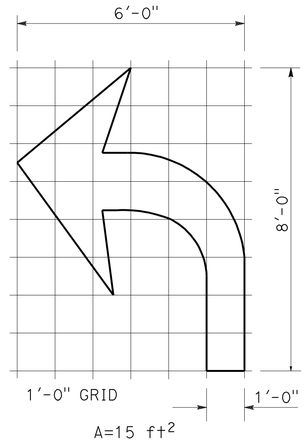
A=31 ft²

TYPE I 24'-0" ARROW



A=14 ft²

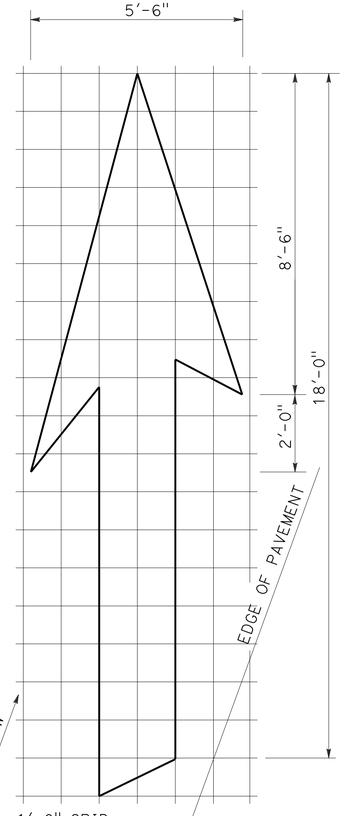
TYPE I 10'-0" ARROW



A=15 ft²

TYPE IV (L) ARROW

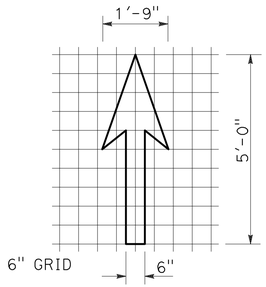
(For Type IV (R) arrow, use mirror image)



A=42 ft²

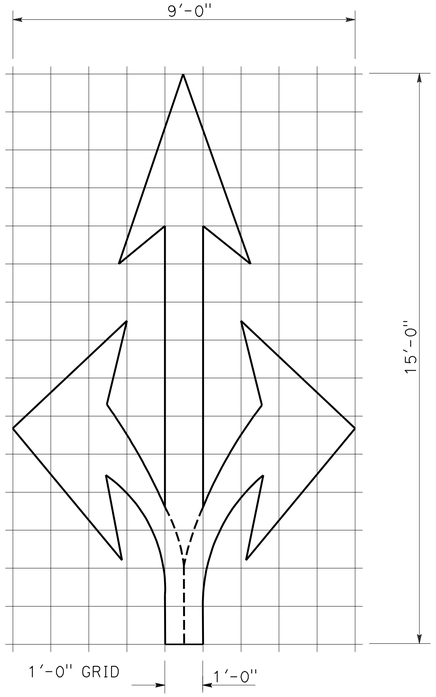
TYPE VI ARROW

Right lane drop arrow (For left lane, use mirror image)



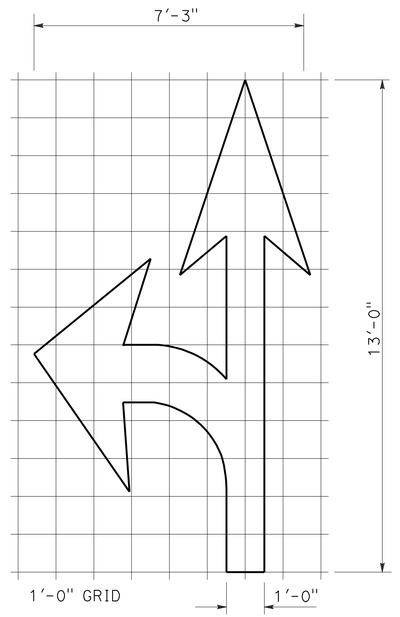
A=3.5 ft²

BIKE LANE ARROW



A=36 ft²

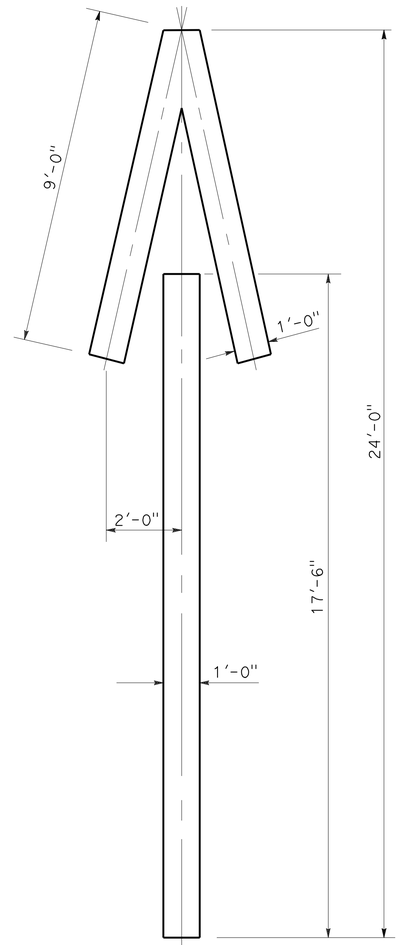
TYPE VIII ARROW



A=27 ft²

TYPE VII (L) ARROW

(For Type VII (R) arrow, use mirror image)



A=33 ft²

TYPE V ARROW

NOTE:
Minor variations in dimensions may be accepted by the Engineer.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS ARROWS

NO SCALE

RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24A

3-14-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	40	61

Roberta L. McLaughlin
REGISTERED CIVIL ENGINEER

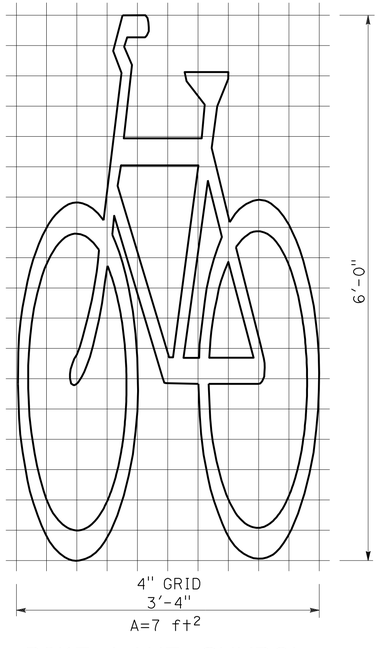
October 19, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Roberta L. McLaughlin
No. C40375
Exp. 3-31-13
CIVIL
STATE OF CALIFORNIA

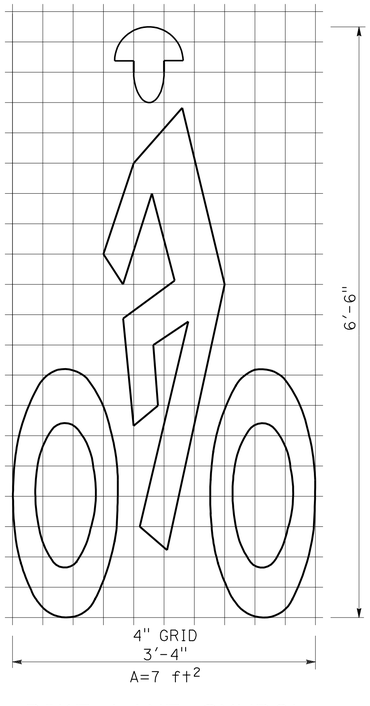
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE: TO ACCOMPANY PLANS DATED 4-2-13

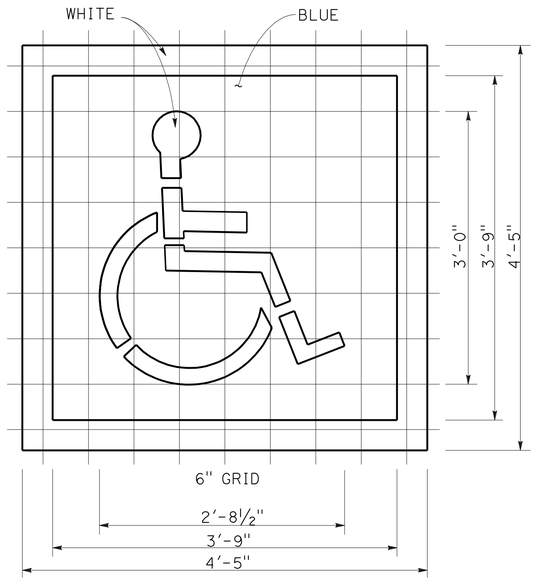
Minor variations in dimensions may be accepted by the Engineer.



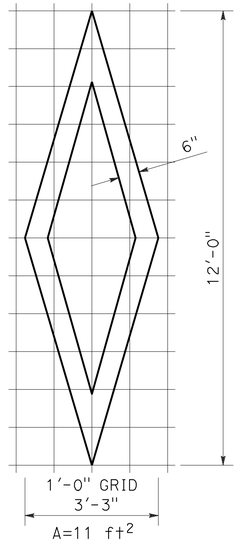
BIKE LANE SYMBOL WITHOUT PERSON



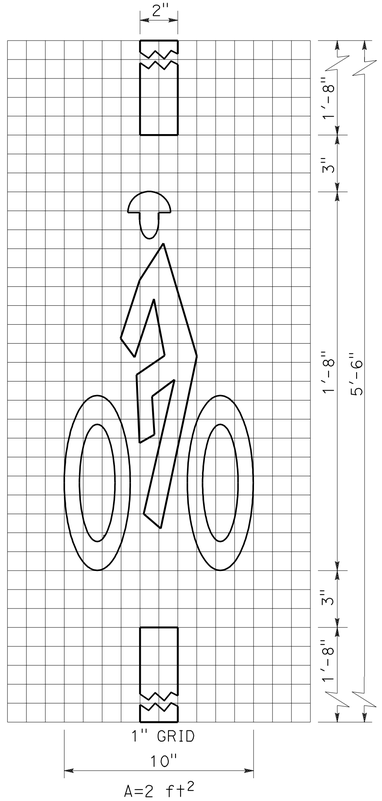
BIKE LANE SYMBOL WITH PERSON



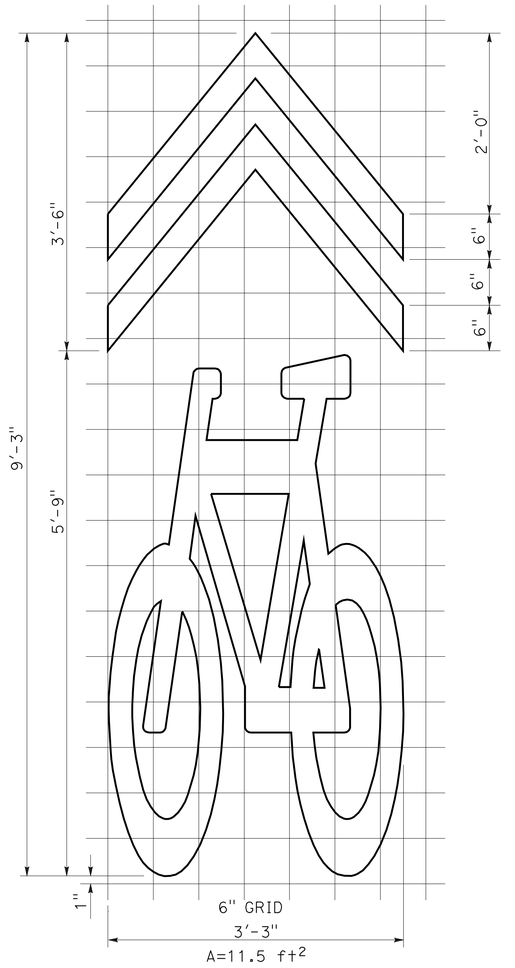
INTERNATIONAL SYMBOL OF ACCESSIBILITY (ISA) MARKING



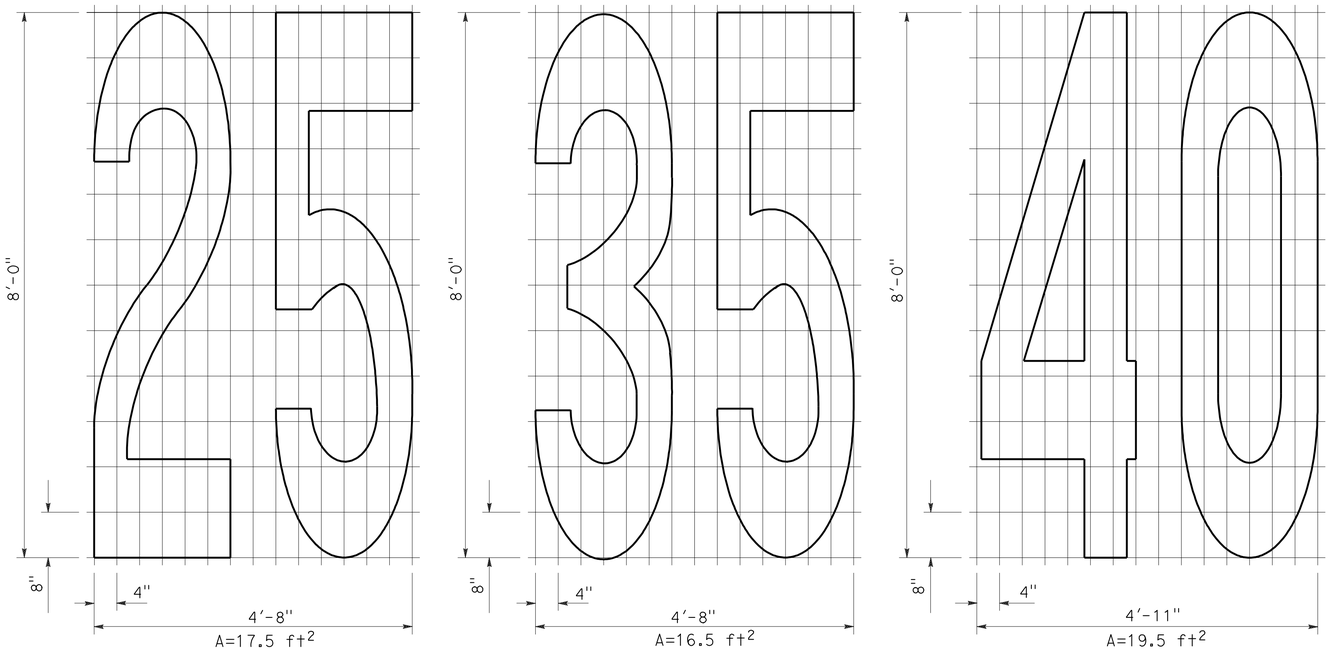
DIAMOND SYMBOL



BICYCLE LOOP DETECTOR SYMBOL



SHARED ROADWAY BICYCLE MARKING



NUMERALS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS SYMBOLS AND NUMERALS

NO SCALE

RSP A24C DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A24C DATED MAY 20, 2011 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24C

2010 REVISED STANDARD PLAN RSP A24C

6-28-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	41	61

Roberta L. McLaughlin
REGISTERED CIVIL ENGINEER

July 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Roberta L. McLaughlin
No. C40375
Exp. 3-31-13
CIVIL
STATE OF CALIFORNIA

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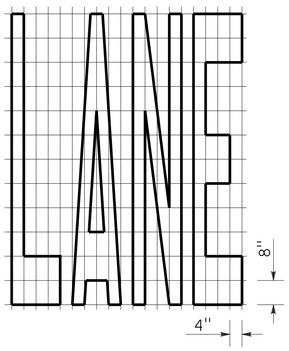
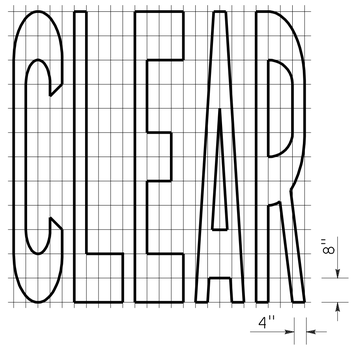
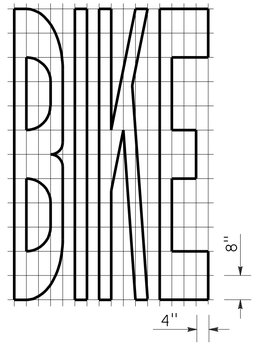
TO ACCOMPANY PLANS DATED 4-2-13



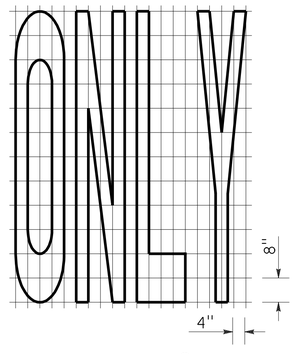
A=24 ft²



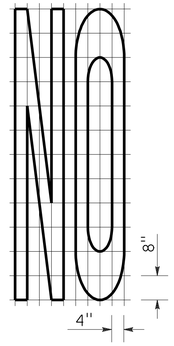
A=27 ft²



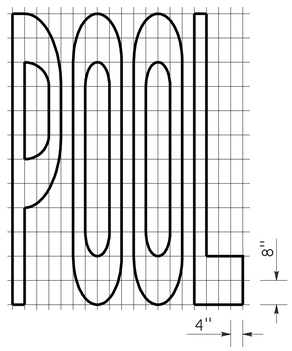
A=21 ft²



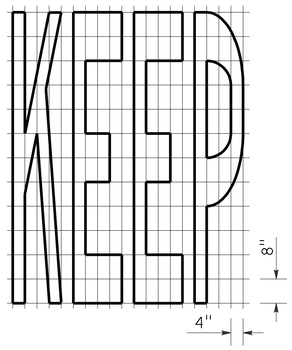
A=22 ft²



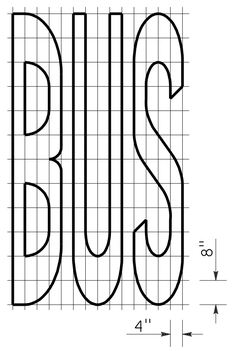
A=14 ft²



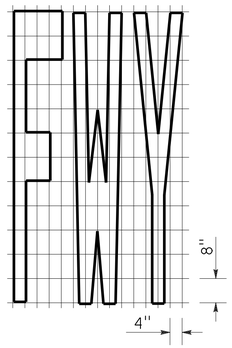
A=23 ft²



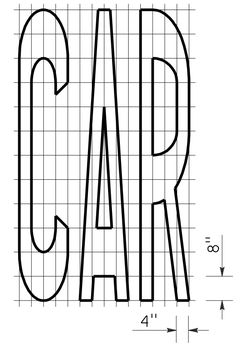
A=24 ft²



A=20 ft²

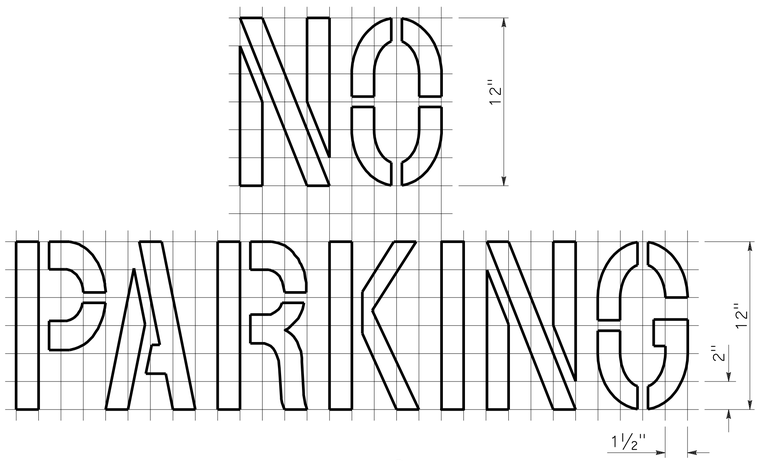


A=16 ft²

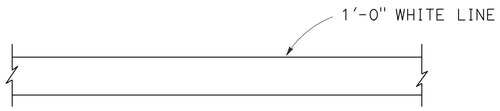


A=17 ft²

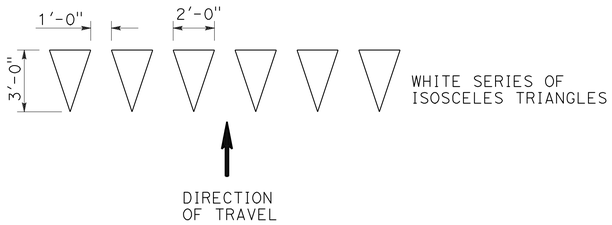
WORD MARKINGS			
ITEM	ft²	ITEM	ft²
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16



A=2 ft²
See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

NOTES:

1. If a message consists of more than one word, it should read "UP", i.e., the first word should be nearest the driver.
2. The space between words should be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
5. The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
6. The words "NO PARKING", shall be painted in white letters no less than 1'-0" high on a contrasting background and located so that it is visible to traffic enforcement officials.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS
WORDS, LIMIT AND YIELD LINES

NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24E

2010 REVISED STANDARD PLAN RSP A24E

6-12-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	42	61

REGISTERED CIVIL ENGINEER

October 19, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Glenn DeCou
No. C34547
Exp. 9-30-13
CIVIL
STATE OF CALIFORNIA

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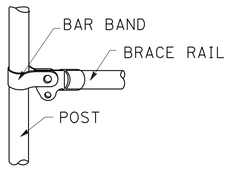
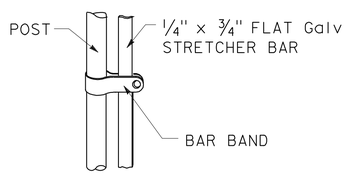
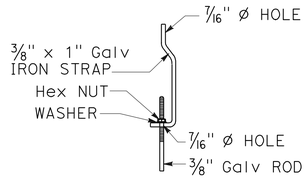
TO ACCOMPANY PLANS DATED 4-2-13



BRACE RAIL



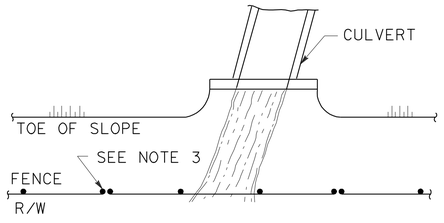
STRETCHER BAR



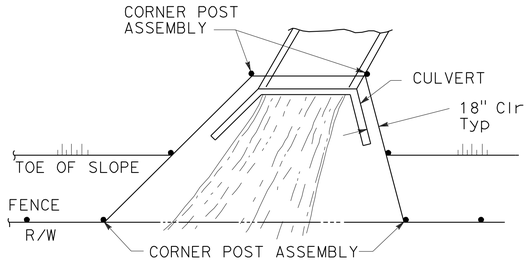
TRUSS TIGHTENER

NOTES:

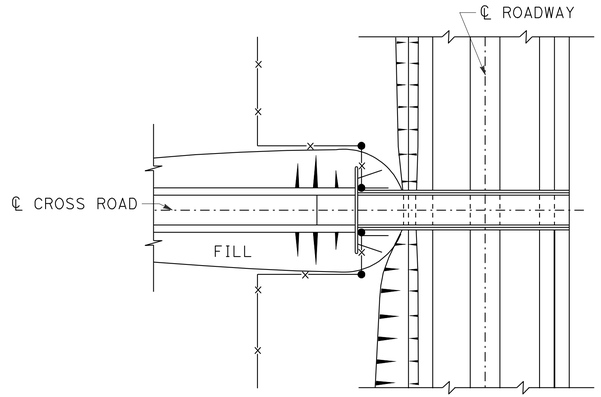
1. All material for abutment connection to be galvanized.
2. The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
3. When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.
4. Fencing over stream and around headwall may also use Barbed Wire or Wire Mesh fencing with either wood post or steel post installation.
5. See Standard Plan A85 for Chain Link fence dimensions. See Standard Plan A86 for Barbed Wire and Wire Mesh fence dimensions and for wood post and steel post installation.



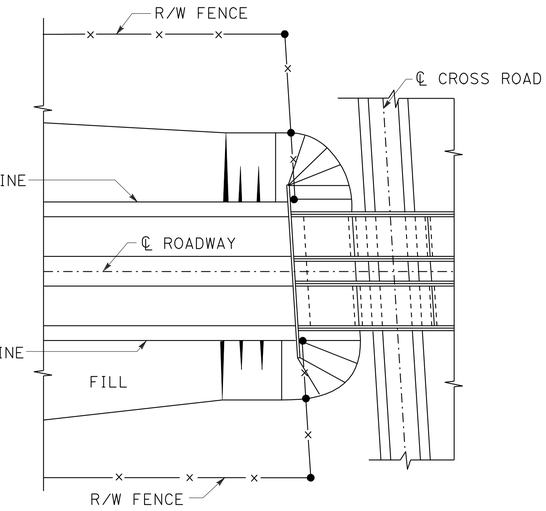
PLAN



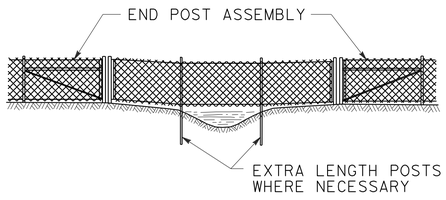
PLAN



PLAN OF ROADWAY - OVERCROSSING

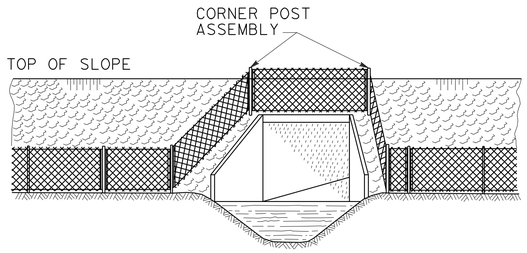


PLAN OF ROADWAY - UNDERCROSSING



ELEVATION

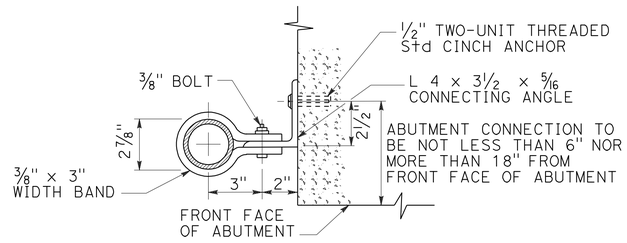
INSTALLATION OVER STREAM



ELEVATION

INSTALLATION AROUND HEADWALL

See Note 4



ABUTMENT CONNECTION

TYPICAL INSTALLATION AT BRIDGES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CHAIN LINK FENCE DETAILS

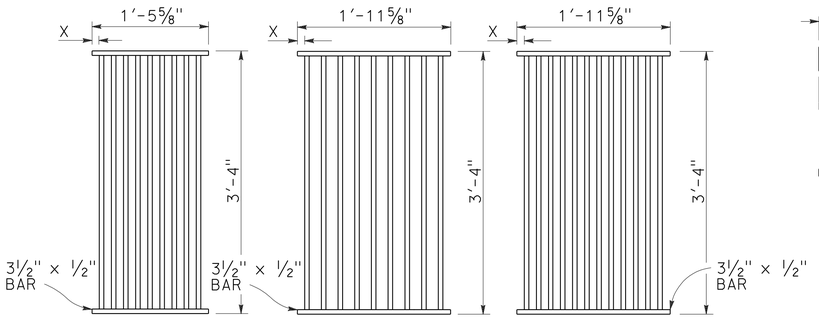
NO SCALE

RSP A85B DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A85B DATED MAY 20, 2011 - PAGE 114 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A85B

2010 REVISED STANDARD PLAN RSP A85B

7-19-12



TYPE 18-9

1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

TYPE 24-9

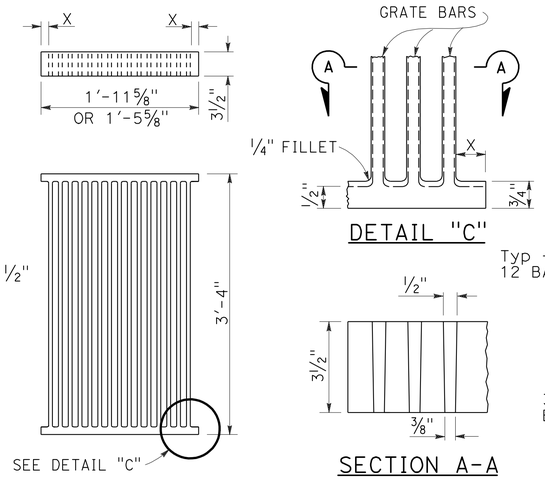
2" Clear spacing. Use in locations off the roadbed on all types of highways.

TYPE 24-12

1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

RECTANGULAR GRATE DETAILS

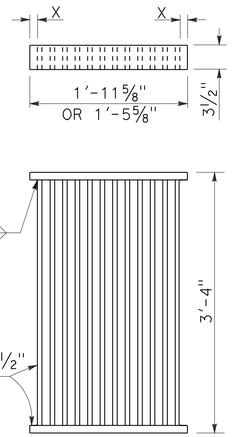
(See table below)



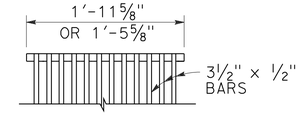
DETAIL "C"

SECTION A-A

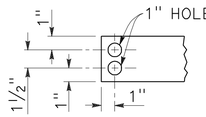
ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE



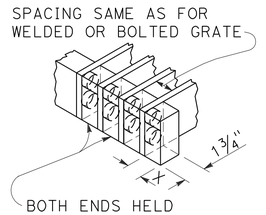
ALTERNATIVE WELDED GRATE



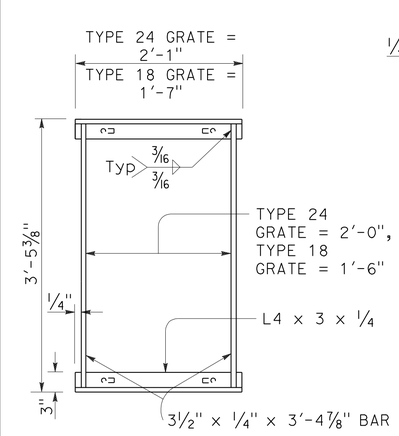
CAST END BLOCK



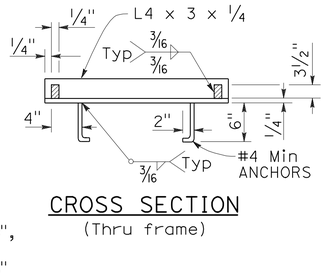
END OF BAR



ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL END BLOCK GRATE

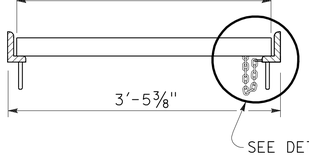


TYPICAL FRAME



CROSS SECTION

(Thru frame)

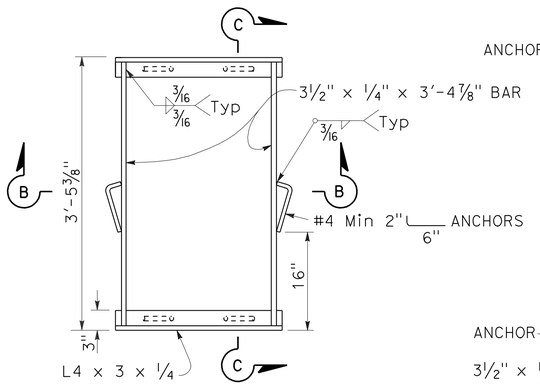


LONGITUDINAL SECTION

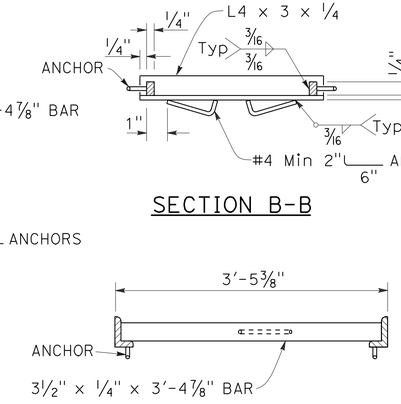
(Thru frame and grate)

RECTANGULAR FRAME DETAILS

(For all rectangular grates)



TYPICAL FRAME

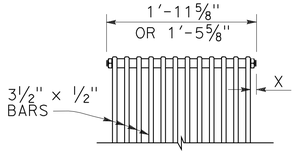


SECTION B-B

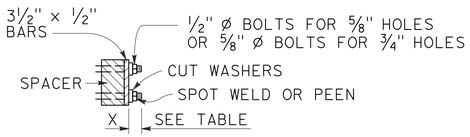
SECTION C-C

ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME

(For details not shown, See Rectangular Frame Details)

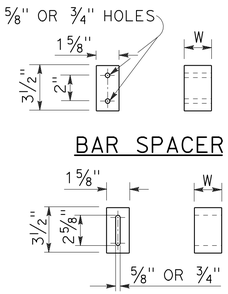


BOLTED END BLOCK



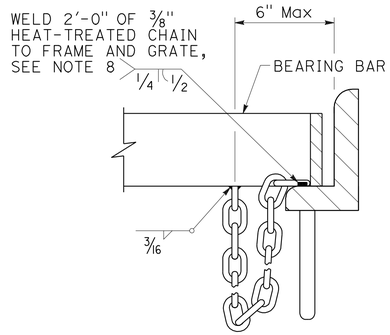
BOLTING DETAIL

ALTERNATIVE BOLTED GRATE



ALTERNATIVE SPACER

W = 1⅜" or 2"



DETAIL "D"

(Steel grates only)

GRATE BAR SPACING TABLE

TYPE	No. OF BARS	CLEAR BAR SPACING	X
18-9	9	1⅜"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1⅜"	1¼"

INLET TYPE	COVER TYPE	WEIGHT LB
OS	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OCP	PLATE	112
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
GO,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22
GRATE CHAIN			3

BASIS FOR Misc IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS

(See Note 7)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	43	61

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

July 20, 2012
PLANS APPROVAL DATE

Raymond Don Tsztoo No. C37332 Exp. 6-30-14 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED 4-2-13

NOTES:

1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
2. Contractor has the option of using cast ductile iron, cast carbon steel, welded, bolted, or cast end block grate.
3. Rounded top of bars optional on all grates.
4. Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
5. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
6. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
7. Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).
8. Connect chain to grate and frame only at locations shown on the plans. When chain is required, do not use cast ductile iron grates.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GRATE DETAILS

NO SCALE

RSP D77A DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN D77A DATED MAY 20, 2011 - PAGE 164 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP D77A

2010 REVISED STANDARD PLAN RSP D77A

6-13-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	44	61

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

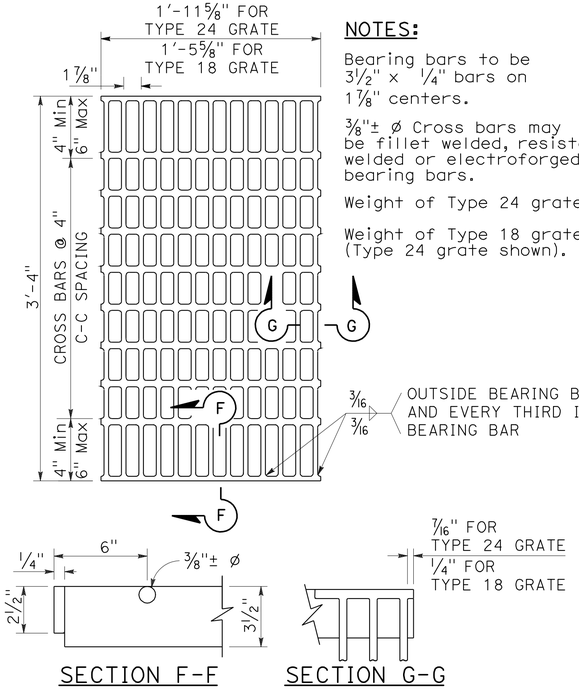
July 20, 2012
PLANS APPROVAL DATE

Raymond Don Tsztoo No. C37332 Exp. 6-30-14 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED 4-2-13

2010 REVISED STANDARD PLAN RSP D77B



NOTES:

Bearing bars to be 3½" x ¼" bars on 1⅞" centers.

⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

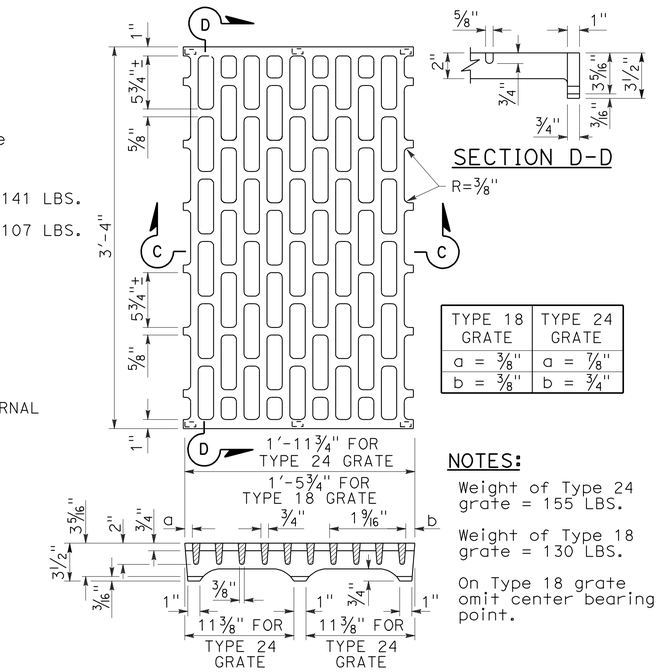
Weight of Type 24 grate = 141 LBS.

Weight of Type 18 grate = 107 LBS. (Type 24 grate shown).

SECTION F-F SECTION G-G

TYPE 18-10 AND 24-13 GRATE

(Welded Steel)



SECTION D-D

TYPE 18 GRATE	TYPE 24 GRATE
a = ⅜"	a = ⅞"
b = ⅜"	b = ¾"

NOTES:

Weight of Type 24 grate = 155 LBS.

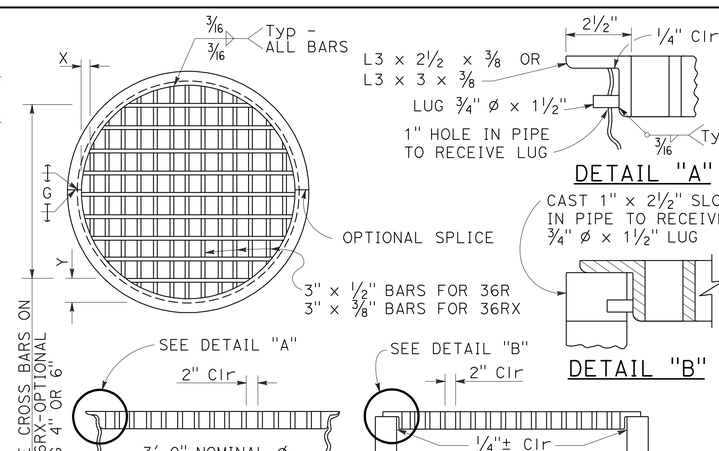
Weight of Type 18 grate = 130 LBS.

On Type 18 grate omit center bearing point.

SECTION C-C

TYPE 18-8C AND 24-10C GRATE

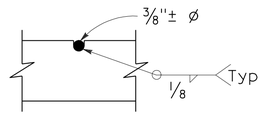
(Cast ductile iron)



DETAIL "A"

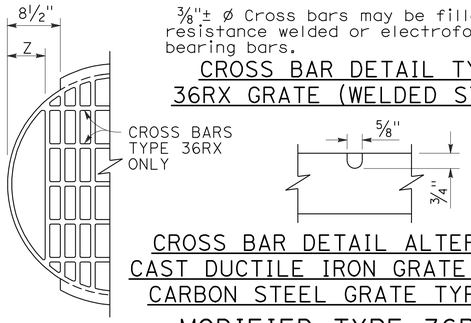
DETAIL "B"

TYPE 36R AND 36RX GRATE DETAILS



⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

CROSS BAR DETAIL TYPE 36RX GRATE (WELDED STEEL)

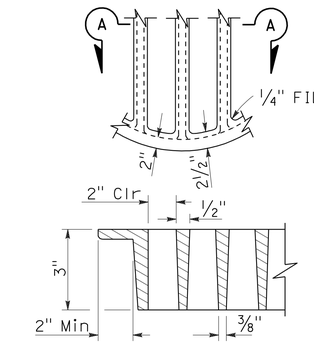


CROSS BAR DETAIL ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE TYPE 36RX

MODIFIED TYPE 36R AND 36RX GRATE FOR ODI INLET

NOTES:

1. When alternative grates are allowed - Final pay based on alternative with the lesser weight.
2. Use frame shown on Standard Plan D74A, D74B or RSP D77A as appropriate.
3. When Type 24-10S, 24-12X or 24-13 grates are used with GDO Inlets, a ¼" x 3½" x 3'-4⅞" steel bar shall be welded across the center of inlet frame to separate the individual grates.
4. See Revised Standard Plan RSP D77A for connecting chain to welded grate and frame. When chain is required, do not use cast ductile iron grate.



SECTION A-A

ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE TYPE 36R AND 36RX

BASIS FOR Misc IRON AND STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS

INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO (SEE NOTE 4)	24-10C	2	391
	24-10S	2	456
	24-12X	2	473
	24-13	2	374
G0,G0L,G1,G2, G3,G4 (TYPE 24)	24-10C	1	202
	24-10S	1	229
	24-12X	1	239
	24-13	1	188
G4 (TYPE 18) G5,G6	18-8S	1	187
	18-9X	1	187
	18-10	1	149
GT1,GT2	18-8S	2	374
	18-9X	2	374
	18-10	2	298
GT3,GT4	24-10C	2	404
	24-10S	2	458
	24-12X	2	478
	24-13	2	376
ODI	36RX (Mod)	1	196
GMP,GCP,GCPI	36RX	1	215
ODI	36R (Mod)	1	220
GMP,GCP,GCPI	36R	1	236
TRASH RACK			22
GRATE CHAIN			3

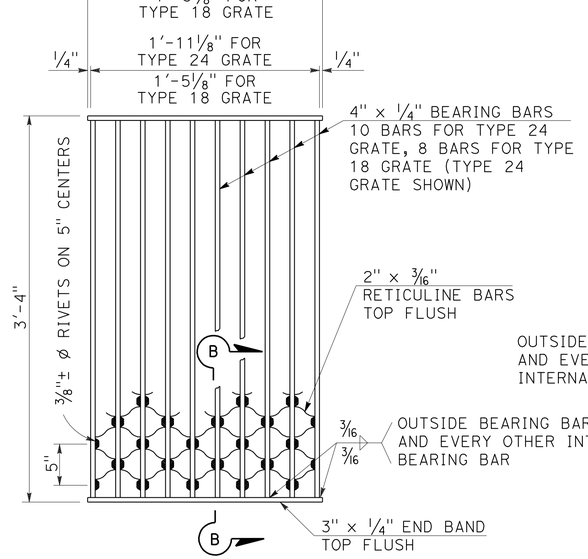
GRATE BAR SPACING TABLE

TYPE	No. OF BARS	CLEAR BAR SPACING	X	Y		Z
				4" SPACING	6" SPACING	
36R	13	2"	2⅛"	-	-	-
36RX (STEEL)	15	2"	9/16"	3¾"	5¾"	-
36RX (CAST)	13	2"	2⅛"	3¾"	5¾"	-
36R Mod	12	2"	2⅛"	-	-	5"
36RX Mod (STEEL)	13	2"	9/16"	3¾"	5¾"	5 11/16"
36RX Mod (CAST)	12	2"	2⅛"	3¾"	5¾"	5"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

BICYCLE TRAVERSABLE GRATE DETAILS

NO SCALE



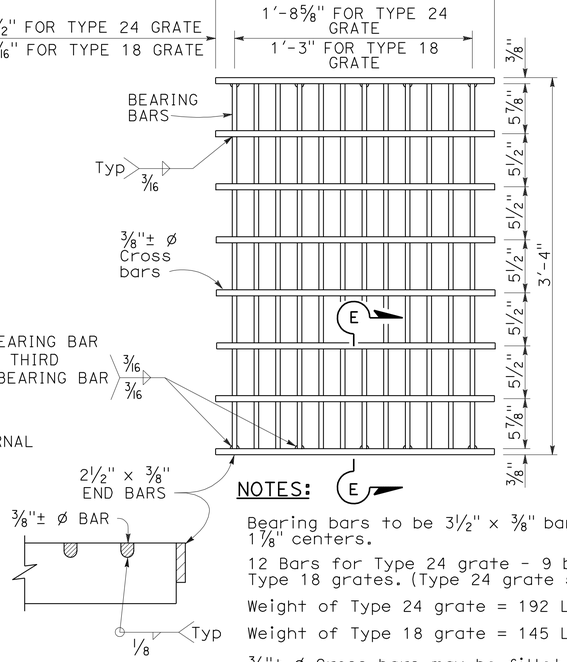
NOTES:

Weight of Type 24 grate = 182 LBS.
Weight of Type 18 grate = 145 LBS.

SECTION B-B

TYPE 18-8S AND 24-10S GRATE

(Welded Steel) Reticuline type



NOTES:

Bearing bars to be 3½" x ⅜" bars on 1⅞" centers.

12 Bars for Type 24 grate - 9 bars for Type 18 grates. (Type 24 grate shown).

Weight of Type 24 grate = 192 LBS.

Weight of Type 18 grate = 145 LBS.

⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

SECTION E-E

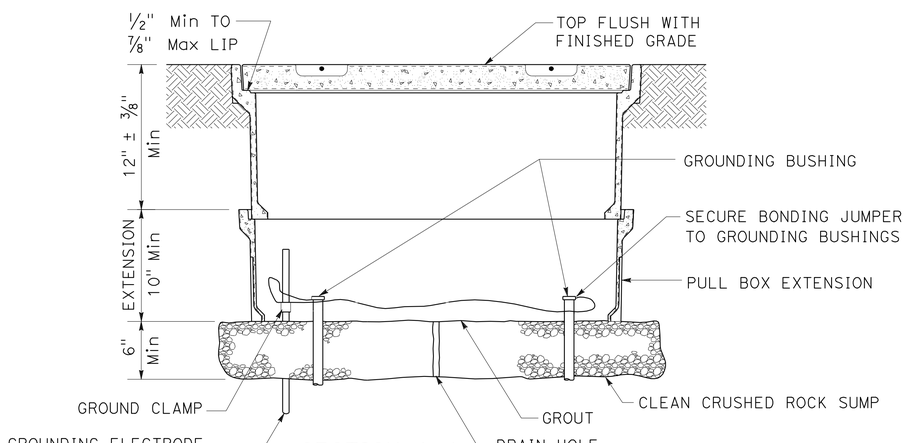
TYPE 18-9X AND 24-12X GRATE

(Welded Steel)

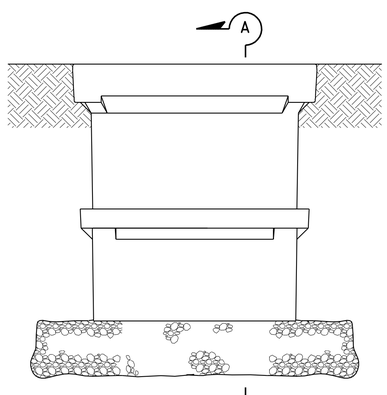
RSP D77B DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN D77B DATED MAY 20, 2011 - PAGE 165 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP D77B

4-17-12



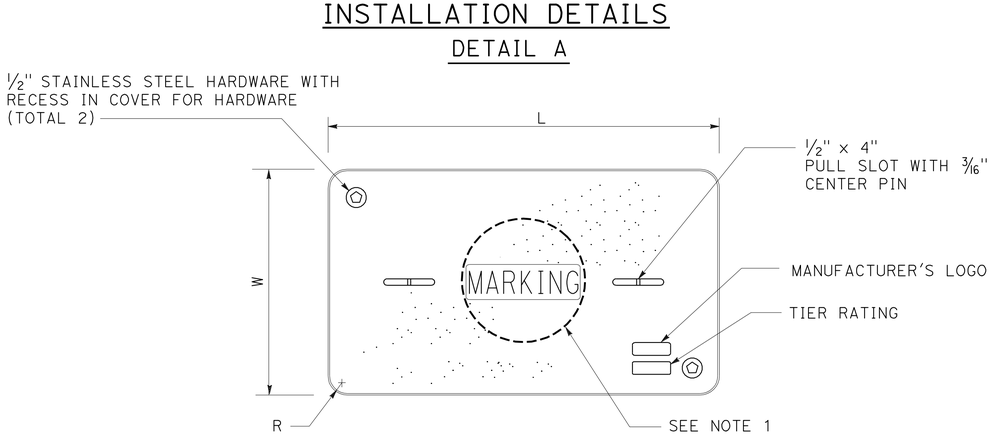
SECTION A-A



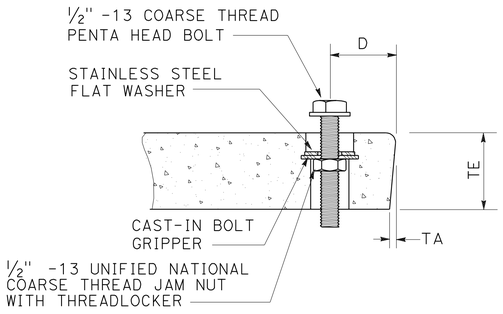
SIDE VIEW

INSTALLATION DETAILS

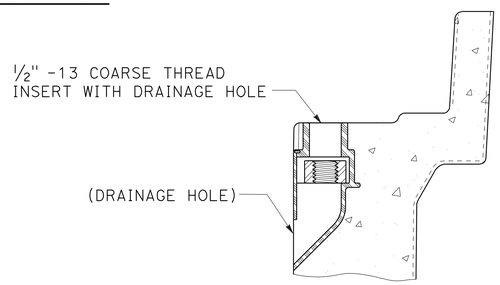
DETAIL A



COVER TOP VIEW



TYPICAL COVER CAPTIVE BOLT
OR SIMILAR



TYPICAL THREADED INSERT
OR SIMILAR

DIMENSION TABLE

PULL BOX	PULL BOX			COVER						
	MINIMUM DEPTH BOX	MINIMUM DEPTH EXTENSION	MAXIMUM WEIGHT	L	W	R	TE	TA	D	MAXIMUM WEIGHT
No. 3½	12"	N/A	40 lb	1' - 3⅜"	10⅛"	1⅜"	2"	⅛"	1¾"	30 lb
No. 5	12"	10"	55 lb	1' - 11¼"	1' - 1¾"	1⅜"	2"	⅛"	1¾"	60 lb
No. 6	12"	10"	70 lb	2' - 6½"	1' - 5½"	1⅜"	2"	⅛"	2"	85 lb

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SCI	9	4.2	45	61

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

January 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jeffery G. McRae
No. E14512
Exp. 6-30-12
ELECTRICAL
STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED 4-2-13

NOTES ON PULL BOXES:

1. Pull box covers must be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;

   A) No. 3½ pull box.
   1) "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
   2) "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.

   B) No. 5, 6, 9 or 9A pull box.
   1) "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
   2) "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
   3) "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
   4) "IRRIGATION" - Circuits to irrigation controller 120 V or more.
   5) "RAMP METER" - Ramp meter circuits.
   6) "COUNT STATION" - Count or speed monitor circuits.
   7) "COMMUNICATIONS" - Communication circuits.
   8) "TOS COMMUNICATIONS" - TOS communication line.
   9) "TOS POWER" - TOS power.
   10) "TDC POWER" - Telephone demarcation cabinet power.
   11) "CCTV" - Closed circuit television circuits.
   12) "TMS" - Traffic monitoring station circuits.
   13) "CMS" - Changeable message sign circuits.
   14) "HAR" - Highway advisory radio circuits.

2. The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions (L and W) plus ⅛" or greater.
3. Covers and boxes must be interchangeable with California Standard. When interchanged with a standard, the top surfaces must be flush within ⅛". Top outside radius of covers and pull boxes must have a ⅛" radius.
4. Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (PULL BOX)

NO SCALE

RSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-8A

2010 REVISED STANDARD PLAN RSP ES-8A

01-09-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	46	61

Jeffery G. McRoe
REGISTERED ELECTRICAL ENGINEER

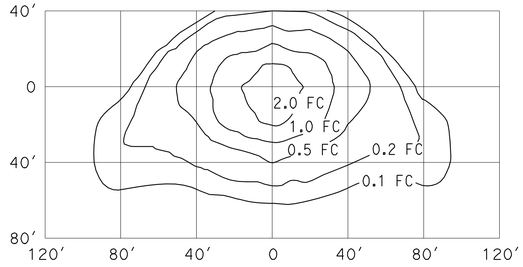
July 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jeffery G. McRoe
No. E14512
Exp. 6-30-14
ELECTRICAL
STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED 4-2-13

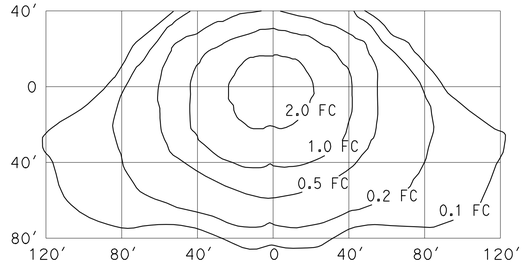
ISOFOOTCANDLE CURVE - MINIMUM



TYPE III MEDIUM CUTOFF

Cutoff Luminaire
34′ Mounting Height
Lamp operated at 22,000 lm
200-W high pressure sodium lamp
ANSI Designation S66

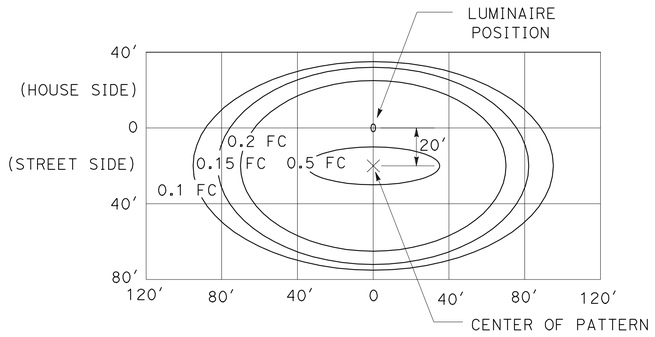
ISOFOOTCANDLE CURVE - MINIMUM



TYPE III MEDIUM CUTOFF

Cutoff Luminaire
40′ Mounting Height
Lamp operated at 37,000 lm
310-W high pressure sodium lamp
ANSI Designation S67

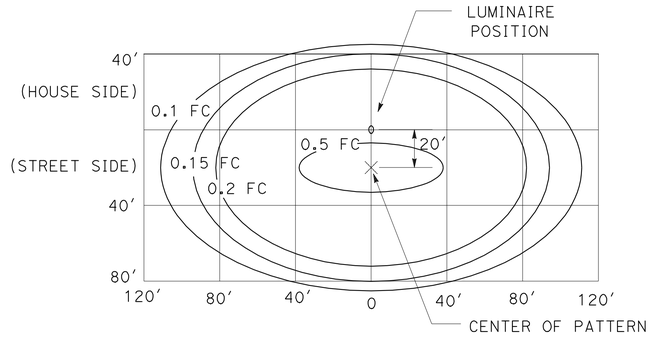
ISOFOOTCANDLE CURVE - MINIMUM



LED LUMINAIRE ROADWAY 1

200-W HPS Equivalent at 34′ Mounting Height

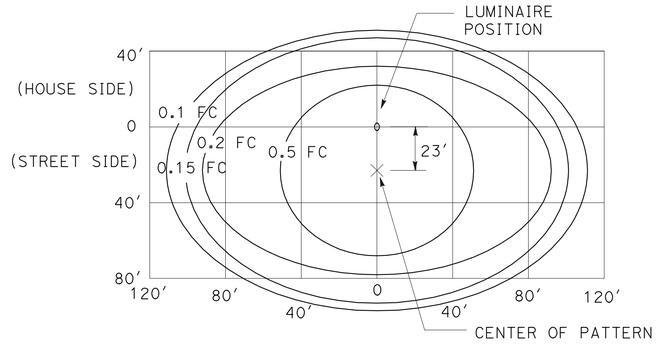
ISOFOOTCANDLE CURVE - MINIMUM



LED LUMINAIRE ROADWAY 2

310-W HPS Equivalent at 40′ Mounting Height

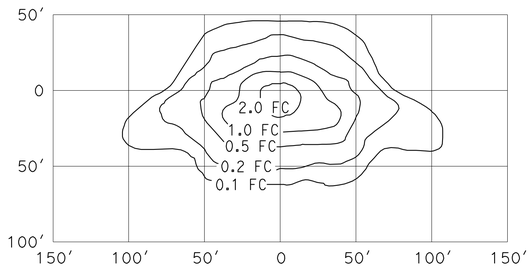
ISOFOOTCANDLE CURVE - MINIMUM



LED LUMINAIRE ROADWAY 4

400-W HPS Equivalent at 40′ Mounting Height

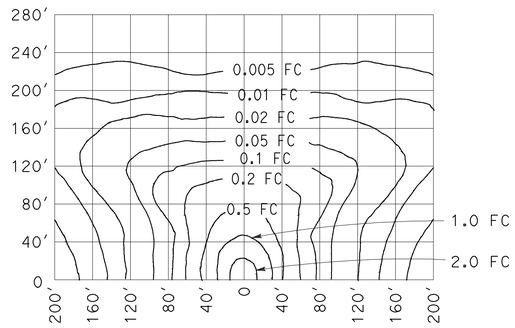
ISOFOOTCANDLE CURVE - MINIMUM



TYPE III MEDIUM CUTOFF

Cutoff Luminaire
30′ Mounting Height
Lamp operated at 16,000 lm
150-W high pressure sodium lamp
ANSI Designation S55

ISOFOOTCANDLE CURVE - MINIMUM



LOW PRESSURE SODIUM LUMINAIRE

40′ Mounting Height
Lamp operated at 33,000 lm
180-W low pressure sodium lamp

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (ISOFOOTCANDLE DIAGRAMS)

NO SCALE

RSP ES-10A DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-10A

2010 REVISED STANDARD PLAN RSP ES-10A

2-16-12

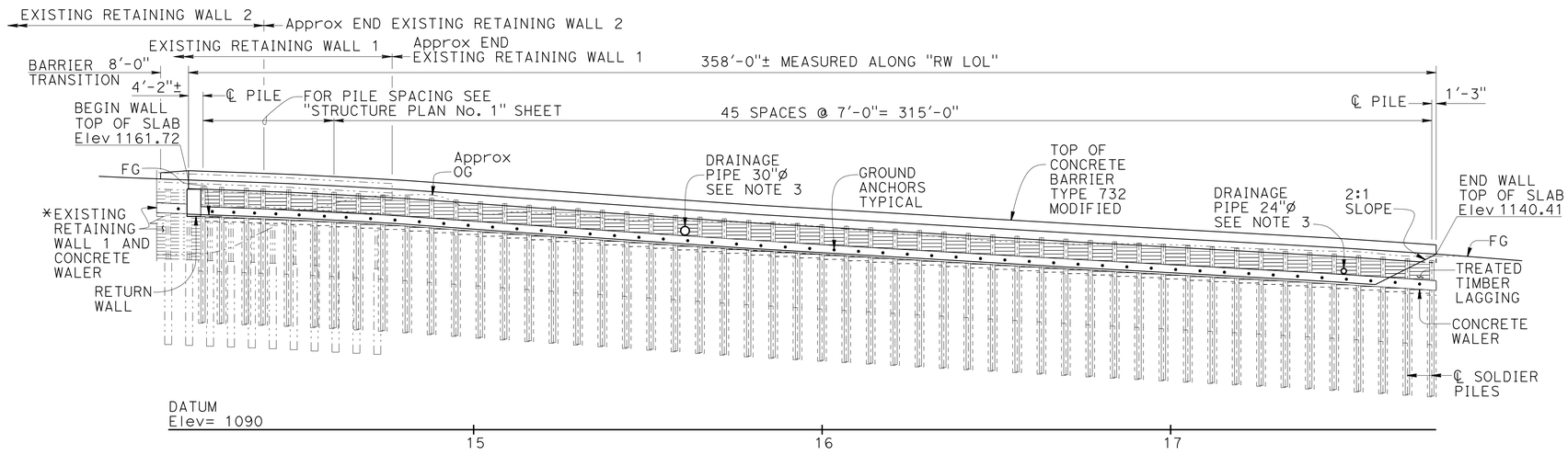
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	47	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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.

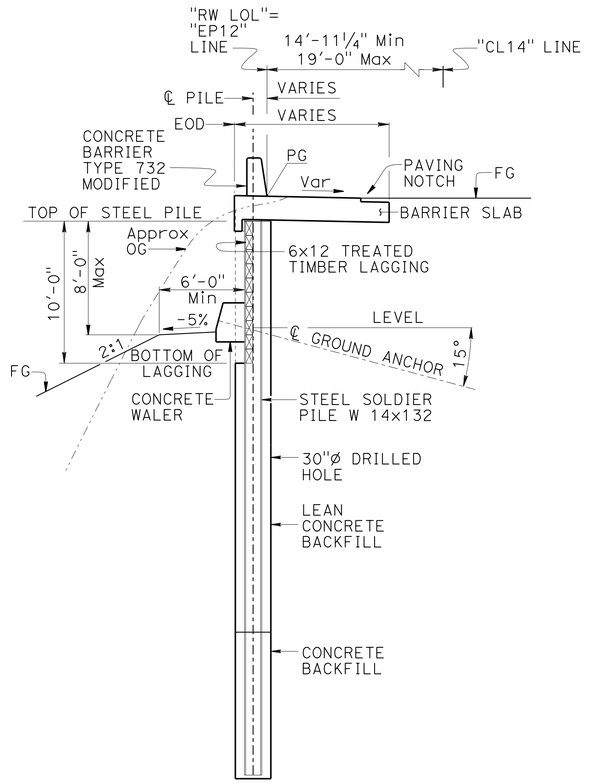


DEVELOPED MIRRORED ELEVATION

1" = 20'

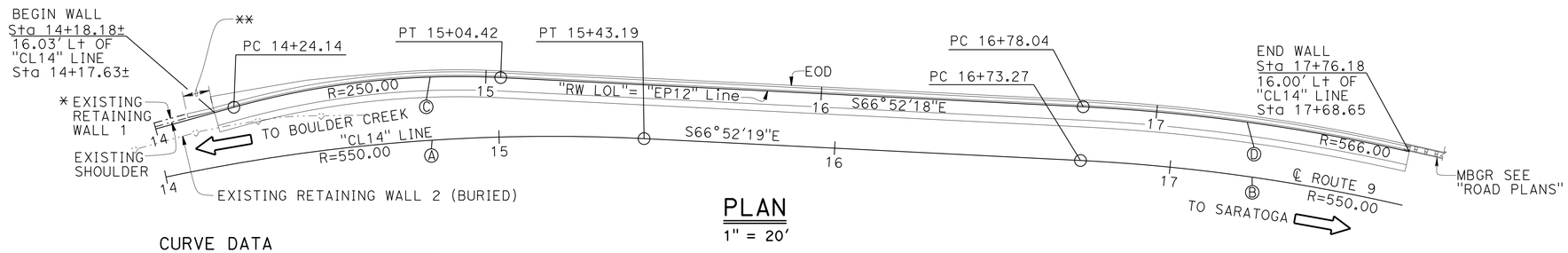
QUANTITIES

REMOVE CONCRETE BARRIER	74	LF
REMOVE RETAINING WALL (PORTION)	LUMP	SUM
STRUCTURE EXCAVATION (SOLDIER PILE WALL)	320	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	70	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	137	CY
LEAN CONCRETE BACKFILL	212	CY
GROUND ANCHOR (SUBHORIZONTAL)	51	EA
STEEL SOLDIER PILE (W14 X 132)	2,045	LF
30" DRILLED HOLE	2,045	LF
STRUCTURAL CONCRETE, BARRIER SLAB	175	CY
STRUCTURAL CONCRETE, WALER	69	CY
BAR REINFORCING STEEL (WALER)	20,550	LB
TIMBER LAGGING	21	MFBM
CLEAN AND PAINT STEEL SOLDIER PILE	LUMP	SUM
CONCRETE BARRIER (TYPE 732 MODIFIED)	366	LF



TYPICAL SECTION

3/16" = 1'-0"



PLAN

1" = 20'

CURVE DATA

No.	R	Δ	T	L
Ⓐ	550.00	18°36'33"	90.11	178.64
Ⓑ	550.00	19°01'23"	92.15	182.61
Ⓒ	250.00	18°23'56"	40.49	80.28
Ⓓ	566.00	19°01'23"	94.83	187.92

LEGEND:
- Indicates Existing
- Indicates New Construction
- * For Existing Barrier, Retaining Wall and Waler removal Details see "REMOVAL DETAILS" Sheet
- ** Barrier Transition, See "CONCRETE BARRIER SLAB DETAILS" Sheet

NOTES:
1. For "INDEX TO PLANS", "PILE AND GROUND ANCHOR DATA TABLE" and "STANDARD PLANS" List see "INDEX TO PLANS" Sheet.
2. For "GENERAL NOTES" see "SOLDIER PILE WALL WITH WALERS-DETAILS NO. 2" Sheet.
3. For Drainage see "ROAD PLANS"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Gordon Danke
DESIGN ENGINEER

	BY	CHECKED
DESIGN	R. Candiotti	P. Norboe
DETAILS	Tim Fairall	P. Norboe
QUANTITIES	R. Candiotti	P. Norboe

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	Tim Fairall	R. Candiotti
SPECIFICATIONS	Sirisha Nelapatla	PLANS AND SPECS COMPARED: Sirisha Nelapatla

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
GENERAL PLAN

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
10-21-11	4-16-12	5-14-12	10-30-12	1	15

FILE => 37e0104-a-gp01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	48	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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.

PILE AND GROUND ANCHOR DATA TABLE

Station Along "EP12"	Pile No.	Profile Grade Elevation	Normal Distance From "EP12" to EOD	Bottom of Drilled Hole Elev (ft)	Pile Section	Ground Anchors	
						(Kips)	Unbonded Length (ft)
14+22.35	1	1161.57	4.47'	1120.59	W14x132	115	50
14+27.68	2	1161.38	3.96'	1120.40	W14x132	115	50
14+34.68	3	1161.13	3.46'	1120.15	W14x132	115	50
14+39.60	4	1160.95	3.23'	1119.97	W14x132	115	50
14+46.93	5	1160.68	3.00'	1119.70	W14x132	115	50
14+54.43	6	1160.31	2.51'	1119.41	W14x132	115	50
14+59.93	7	1160.03	2.21'	1119.05	W14x132	115	50
14+66.93	8	1159.66	2.00'	1118.68	W14x132	115	50
14+73.93	9	1159.28	2.00'	1118.30	W14x132	115	50
14+80.93	10	1158.86	2.00'	1117.88	W14x132	115	50
14+87.93	11	1158.37	2.00'	1117.39	W14x132	115	50
14+94.93	12	1157.87	2.00'	1116.89	W14x132	115	50
15+01.93	13	1157.36	2.00'	1116.38	W14x132	115	50
15+08.93	14	1156.85	2.00'	1115.87	W14x132	115	50
15+15.93	15	1156.34	2.00'	1115.36	W14x132	115	50
15+22.93	16	1155.86	2.00'	1114.88	W14x132	115	50
15+29.93	17	1155.37	2.00'	1114.39	W14x132	115	50
15+36.93	18	1154.88	2.00'	1113.90	W14x132	115	50
15+43.93	19	1154.40	2.00'	1113.42	W14x132	115	50
15+50.93	20	1153.91	2.00'	1112.93	W14x132	115	50
15+57.93	21	1153.43	2.00'	1112.45	W14x132	115	50
15+64.93	22	1152.94	2.00'	1111.96	W14x132	115	50
15+71.93	23	1152.45	2.00'	1111.47	W14x132	115	50
15+78.93	24	1151.95	2.00'	1110.97	W14x132	115	50
15+85.93	25	1151.53	2.00'	1110.55	W14x132	115	50
15+92.93	26	1151.12	2.00'	1110.14	W14x132	115	50
15+99.93	27	1150.71	2.00'	1109.73	W14x132	115	50
16+06.93	28	1150.30	2.00'	1109.32	W14x132	115	50
16+13.93	29	1149.89	2.00'	1108.91	W14x132	115	50
16+20.93	30	1149.47	2.00'	1108.49	W14x132	115	50
16+27.93	31	1149.06	2.00'	1108.08	W14x132	115	50
16+34.93	32	1148.65	2.00'	1107.67	W14x132	115	50
16+41.93	33	1148.24	2.00'	1107.26	W14x132	115	50
16+48.93	34	1147.82	2.00'	1106.84	W14x132	115	50
16+55.93	35	1147.41	2.00'	1106.43	W14x132	115	50
16+62.93	36	1147.00	2.00'	1106.02	W14x132	115	50
16+69.93	37	1146.59	2.00'	1105.61	W14x132	115	50
16+76.93	38	1146.19	2.00'	1105.21	W14x132	115	50
16+83.93	39	1145.81	2.00'	1104.83	W14x132	115	50
16+90.93	40	1145.43	2.00'	1104.45	W14x132	115	50
16+97.93	41	1145.05	2.00'	1104.07	W14x132	115	50
17+04.93	42	1144.67	2.00'	1103.69	W14x132	115	50
17+11.93	43	1144.28	2.00'	1103.30	W14x132	115	50
17+18.93	44	1143.89	2.00'	1102.91	W14x132	115	50
17+25.93	45	1143.50	2.00'	1102.52	W14x132	115	50
17+32.93	46	1143.11	2.00'	1102.13	W14x132	115	50
17+39.93	47	1142.72	2.00'	1101.74	W14x132	115	50
17+46.93	48	1142.32	2.00'	1101.34	W14x132	115	50
17+53.93	49	1141.88	2.00'	1100.90	W14x132	115	50
17+60.93	50	1141.42	2.00'	1100.44	W14x132	115	50
17+67.93	51	1140.95	2.00'	1099.97	W14x132	115	50
17+74.93	52	1140.49	2.00'	1099.51	W14x132	115	50

STANDARD PLANS 2010

A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A10H	LEGEND - ROCK
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL
	BRIDGE SURCHARGE AND WALL
B11-55	CONCRETE BARRIER TYPE 732

STANDARD PLAN SHEET No.

DETAIL No.

INDEX TO PLANS

	BY	CHECKED
DESIGN	R. Candiotti	P. Norboe
DETAILS	Tim Fairall	P. Norboe
QUANTITIES	R. Candiotti	P. Norboe

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
INDEX TO PLANS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
11-28-11	5-16-12			2	15

FILE => 37e0104-a-itp.dgn

USERNAME => s109858 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:22

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	49	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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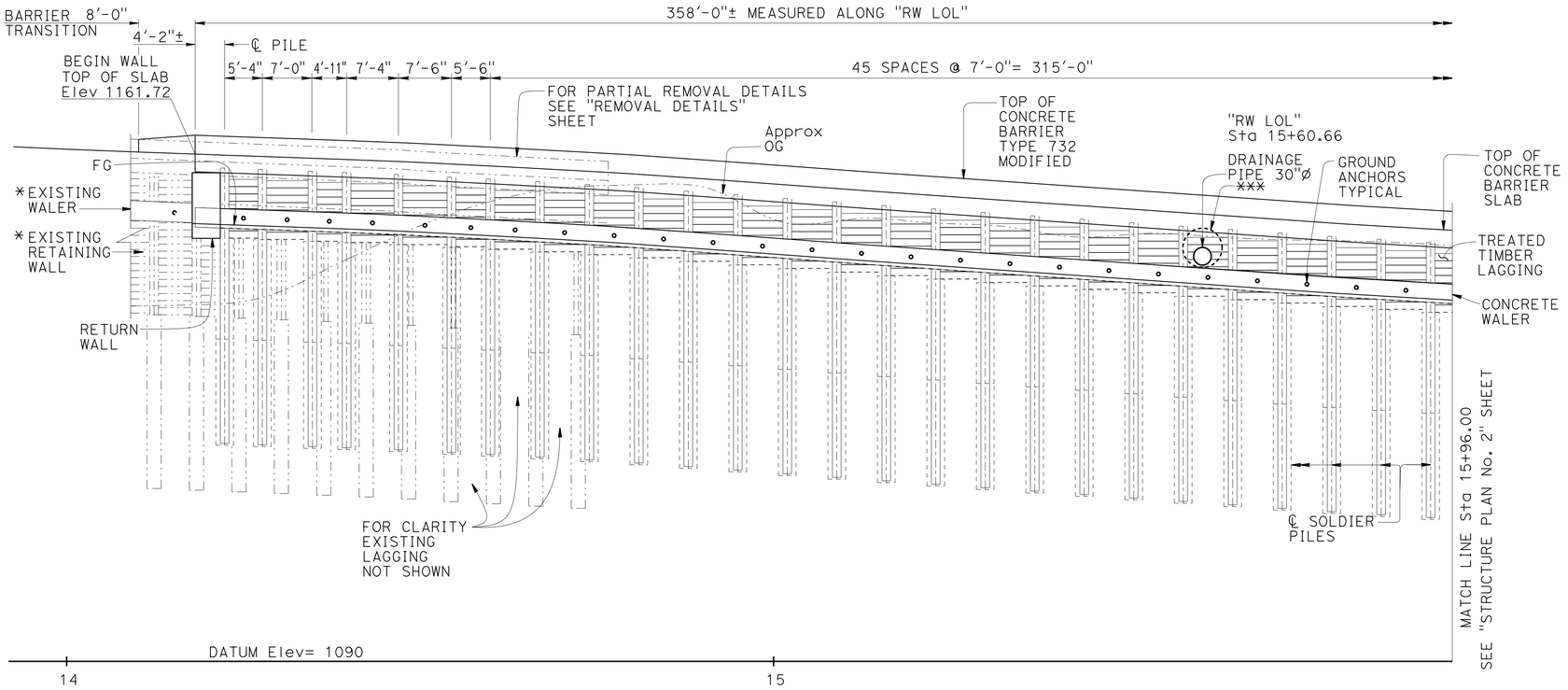
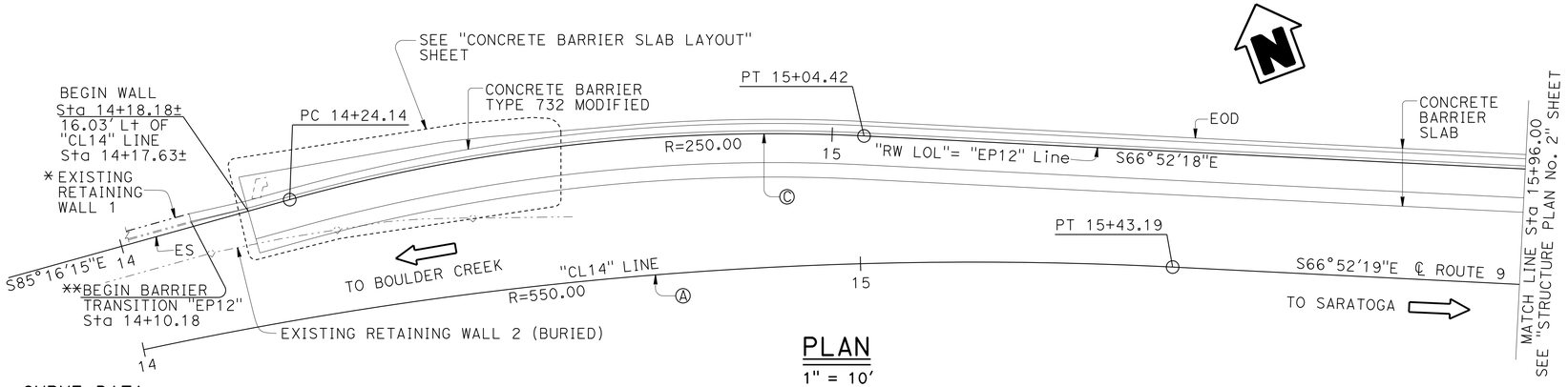


DEVELOPED MIRRORED ELEVATION

1" = 10'



PLAN

1" = 10'

CURVE DATA

No.	R	Δ	T	L
Ⓐ	550.00	18°36'33"	90.11	178.64
Ⓒ	250.00	18°23'56"	40.49	80.28

LEGEND:

Indicates Existing

Indicates New Construction

* For Existing Barrier, Retaining Wall and Waler removal Details see "REMOVAL DETAILS" Sheet

** For Barrier Transition Details see "CONCRETE BARRIER SLAB DETAILS" Sheet

*** For Drainage Details see "SOLDIER PILE WALL LAGGING DETAILS" Sheet

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

	BY	CHECKED
DESIGN	R. Candiotti	P. Norboe
DETAILS	Tim Fairall	P. Norboe
QUANTITIES	R. Candiotti	P. Norboe

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
STRUCTURE PLAN No. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
11-23-11	4-06-12	5-31-12	10-30-12	3	15

FILE => 37e0104-c-sp01.dgn

USERNAME => STOP858 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:22

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	50	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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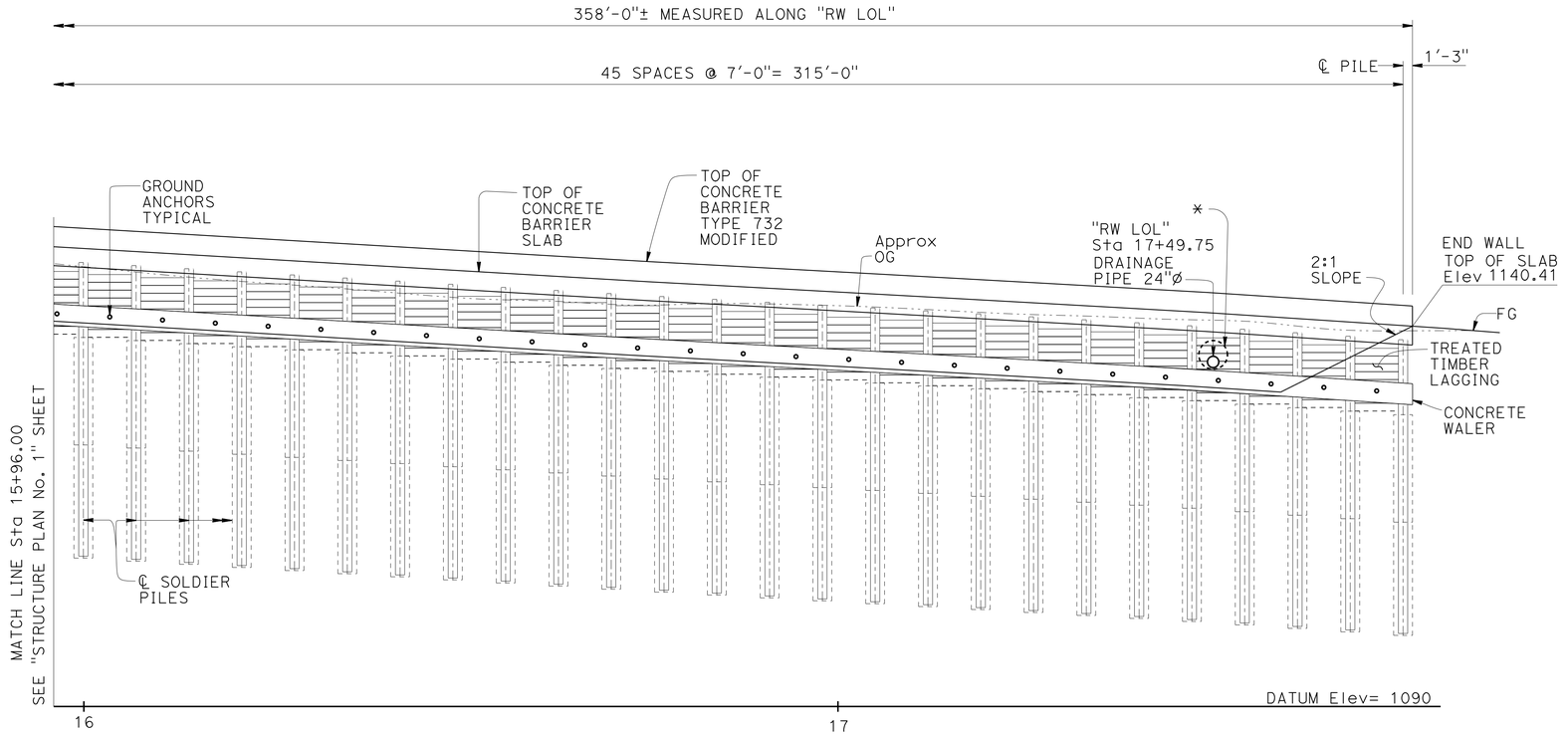
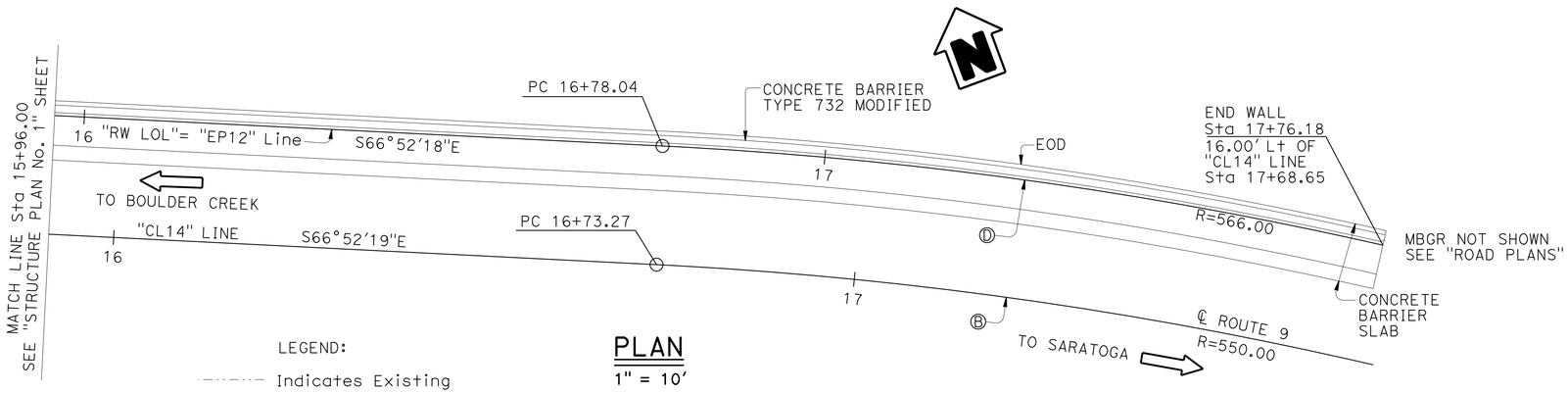


DEVELOPED MIRRORED ELEVATION

1" = 10'



PLAN

1" = 10'

LEGEND:

Indicates Existing

Indicates New Construction

* For Drainage Details see "SOLDIER PILE WALL LAGGING DETAILS" Sheet

CURVE DATA

No.	R	Δ	T	L
Ⓑ	550.00	19°01'23"	92.15	182.61
Ⓓ	566.00	19°01'23"	94.83	187.92

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Tim Fairall	CHECKED P. Norboe	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
STRUCTURE PLAN No. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
1-13-12	4-06-12	5-31-12	10-30-12	4	15

FILE => 37e0104-c-sp02.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

CURVE DATA

No.	R	Δ	T	L
Ⓐ	550.00	18°36'33"	90.11	178.64
Ⓑ	550.00	19°01'23"	92.15	182.61
Ⓒ	250.00	18°23'56"	40.49	80.28
Ⓓ	566.00	19°01'23"	94.83	187.92

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	51	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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.

END RETAINING WALL 1
12.47'± Lt OF "CL14" LINE
Sta 14+75.627±

END RETAINING WALL 2
9.05'± Lt OF "CL14" LINE
Sta 14+60.98±

2 AT&T LINES AND
3 PG&E LINES

SARATOGA CREEK

SARATOGA CREEK

PI 13+12.08
PI 13+64.49
BC 14+24.14
EC 15+04.42
BC 16+78.04
EC 18+65.96
PI 19+08.50
EC 15+43.19
BC 16+73.27
BC 13+64.55
EC 18+55.88
PI 18+98.42

TIEBACK WALL
TO BOULDER CREEK
"CL14" LINE
S84°44'41"E
S85°28'53"E
S85°16'15"E
S66°52'18"E "EP12" LINE
S66°52'19"E
S47°50'56"E
℄ ROUTE 9
TO SARATOGA
CONCRETE BARRIER RAIL
MBGR
MARKER SCL9 PM4.16
JOINT POLE
GUY
DIKE
PRIVATE ROAD
PCC
15 PCC HEADWALL
AC
EP
ETW
(oh)
VAULT
PP
R=250.00
R=550.00
R=566.00
Dia.=2.50
Dia.=3.00
Dia.=3.50
Dia.=4.00
Dia.=5.00

8" PIPE CAP,
MARKER "UD RISER"
SIZE AND LOCATION
APPROXIMATE

MP620
N 1,917,094.98
E 6,101,591.47
Elev. = 1214.77

CULVERT, CMP
Dia.=2.50
Elev.=1147.31

DI, Elev.=
1137.62

N 1,917,043.73
E 6,101,915.48

LEGEND:

- ○ Denotes Location 30"ø Soldier Pile
- Denotes Location Existing Retaining Wall (Buried)
- ○ Denotes Location Existing 24"ø Soldier Pile

SURVEY CONTROL

MP620
Fnd SET PK NAIL
90.42 FT Rt. ℄ Rte 9
Sta. 14+68.27
N 1,917,094.98
E 6,101,591.47
Elev. = 1214.77

MP617 (NOT SHOWN ON PLAN)
Fnd SET PK NAIL
109.71 FT S85°26'07"W FROM
Sta. 12+00.00 ℄ Rte 9
N 1,917,204.26
E 6,101,239.94
Elev. = 1181.00

PRELIMINARY INVESTIGATION SECTION

SCALE 1"=20'	VERT.DATUM NAVD88	PHOTOGRAMMETRY AS OF: X			
	HORZ.DATUM NAD83 (1991.35)	SURVEYED BY DISTRICT	CHECKED	BY J.BORDEN	08/2011
	ALIGNMENT TIES Dist. Traverse Sheet	DRAFTED BY T.ZOLNIKOV 08/2011	CHECKED	BY L.LEW	08/2011

DESIGN	BY R. Candiotti	CHECKED P. Norboe
DETAILS	BY Tim Fairall	CHECKED P. Norboe
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
FOUNDATION PLAN

STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3646
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
08/31/11	01/31/12	11/16/12		5	15

FILE => 37e0104-e-fpl01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	52	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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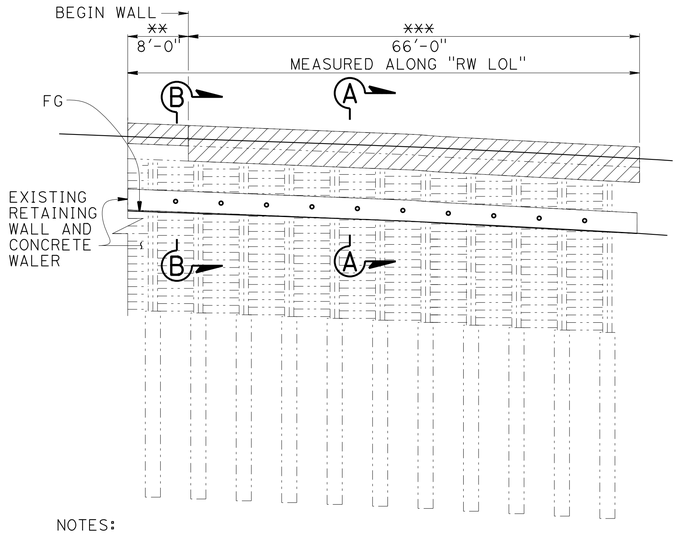


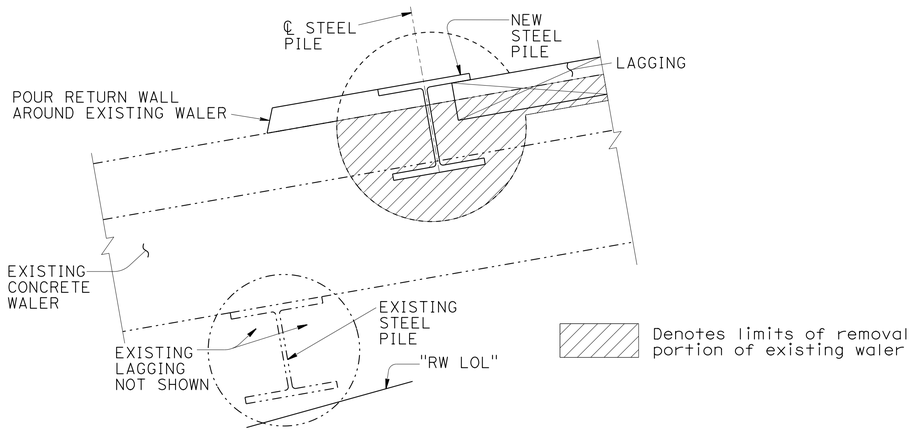
NOTES:

** Limits of removal of existing concrete barrier only

*** Limits of removal of existing concrete barrier, cap beam and reinforcement, top 2'-0" of steel pile, lagging and portion of waler

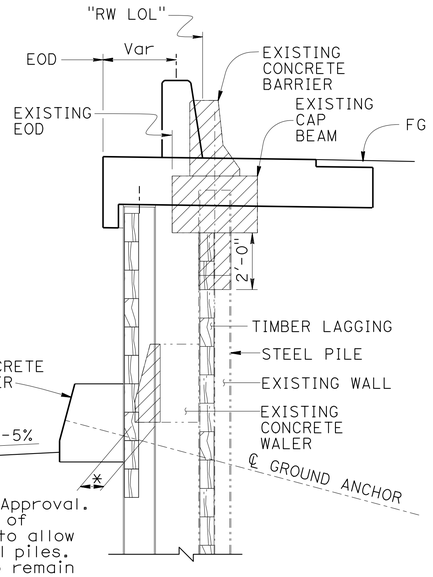
DEVELOPED MIRRORED ELEVATION (EXISTING WALL)

1" = 10'



WALER REMOVAL AT RETURN WALL

1" = 1'-0"

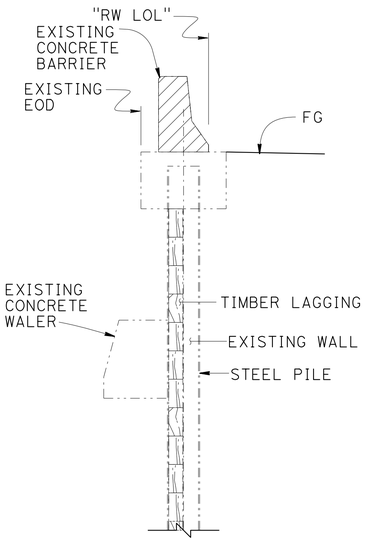


* Requires Engineer's Approval. Only remove portion of waler as necessary to allow installation of steel piles. Existing tiebacks to remain undamaged.

Denotes limits of removal of existing concrete barrier, cap beam, top of steel pile, lagging and portion of waler

SECTION A-A

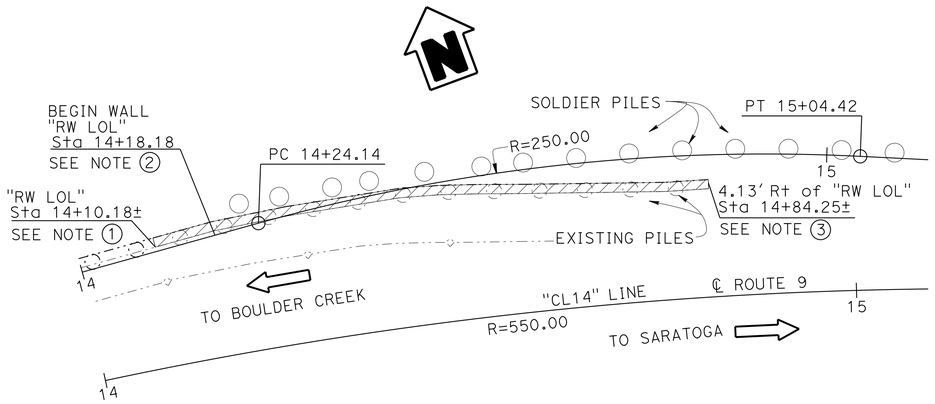
3/8" = 1'-0"



Denotes limits of removal of existing concrete barrier only

SECTION B-B

3/8" = 1'-0"



PART PLAN

1" = 10'

NOTES:

① Begin removal of existing concrete barrier only.

② End removal of existing concrete barrier only. Begin removal of existing wall as shown in SECTION A-A.

③ End removal of existing wall as shown in SECTION A-A.

LEGEND:

Indicates Existing

Indicates New Construction

Indicates Existing Wall (Buried)

Indicates Existing Piles

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

	BY	CHECKED
DESIGN	R. Candiotti	P. Norboe
DETAILS	Tim Fairall	P. Norboe
QUANTITIES	R. Candiotti	P. Norboe

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
REMOVAL DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
1-19-12	4-06-12	5-14-12		6	15

FILE => 37e0104-f-remdets.dgn

DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57
USERNAME => s113946

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	53	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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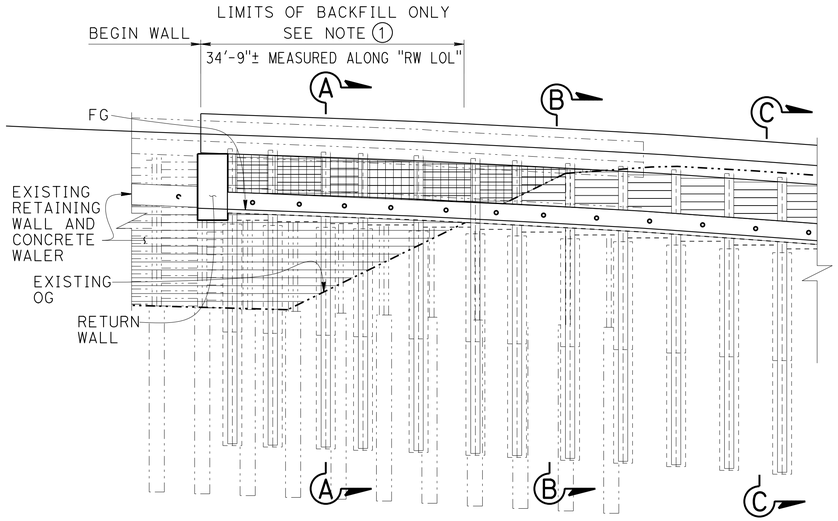
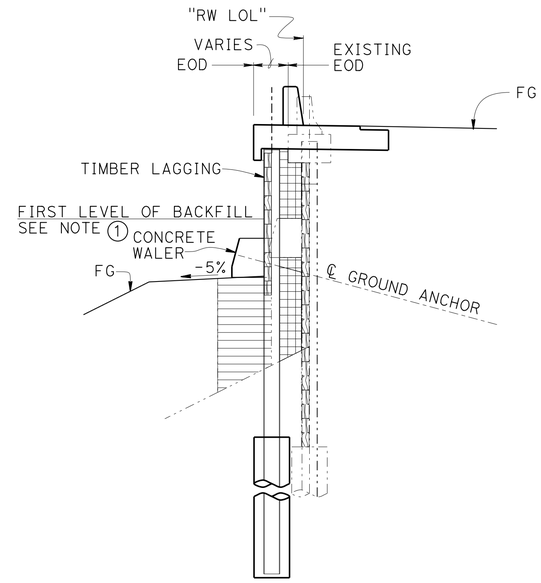


DEVELOPED MIRRORED ELEVATION

1" = 10'



SECTION A-A

3/16" = 1'-0"

NOTES:

(1) Backfill to no higher than top of existing Waler Beam prior to installation and stressing of Ground Anchors

1. For "SECTION B-B" and "SECTION C-C" see "EXCAVATION AND BACKFILL DETAILS No. 2" Sheet

LEGEND:

Indicates Existing

Indicates New Construction

Indicates New Pile

Denotes Permeable Material (Class 2)
(To be used only in areas where structure backfill is not achievable)

Denotes Limits of Structure Backfill

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Tim Fairall	CHECKED P. Norboe	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
EXCAVATION AND BACKFILL DETAILS No. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
1-25-12	4-16-12	5-31-12		7	15

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

FILE => 37e0104-g-exbakde101.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	54	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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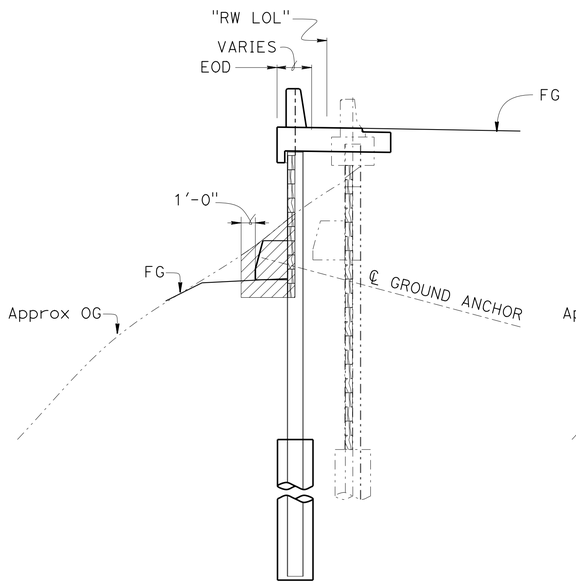
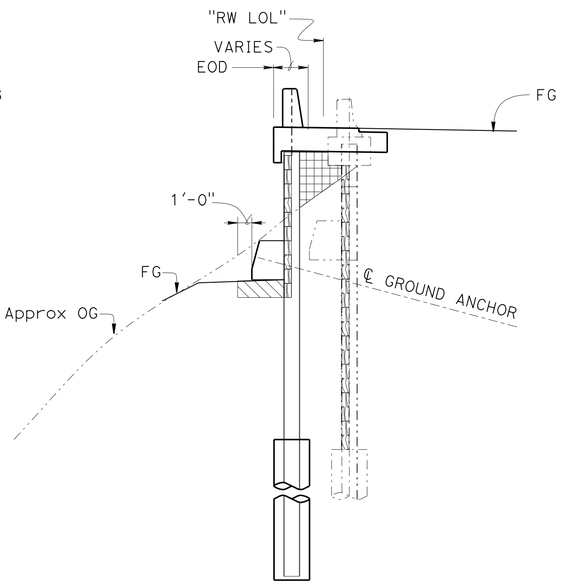
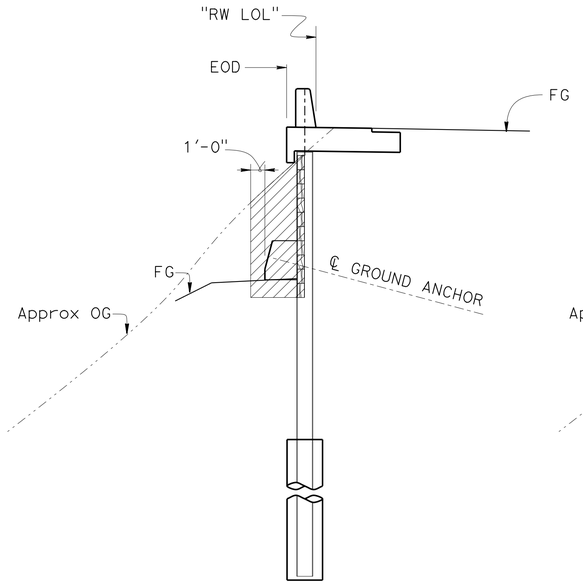


EXCAVATION

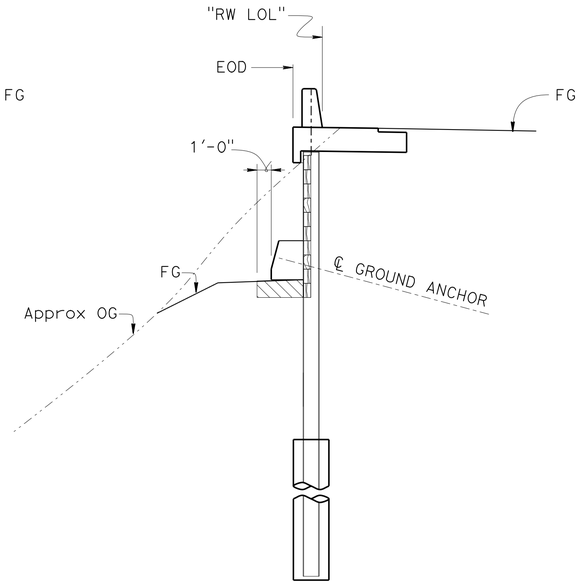


BACKFILL

SECTION B-B
3/16" = 1'-0"



EXCAVATION



BACKFILL

SECTION C-C
3/16" = 1'-0"

NOTES:
1. For location of "SECTION B-B" and "SECTION C-C" see "EXCAVATION AND BACKFILL DETAILS No. 1" sheet

LEGEND:
- Indicates Existing
- Indicates New Construction
- Denotes Limits of Structural Excavation
- Denotes Permeable Material (Class 2) (To be used only in areas where structural backfill is not achievable)
- Denotes Limits of Structural Backfill

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Tim Fairall	CHECKED P. Norboe	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
EXCAVATION AND BACKFILL DETAILS No. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
1-23-12	4-06-12	5-31-12		8	15

FILE => 37e0104-g-exbakdet02.dgn

DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57
USERNAME => s113946

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	55	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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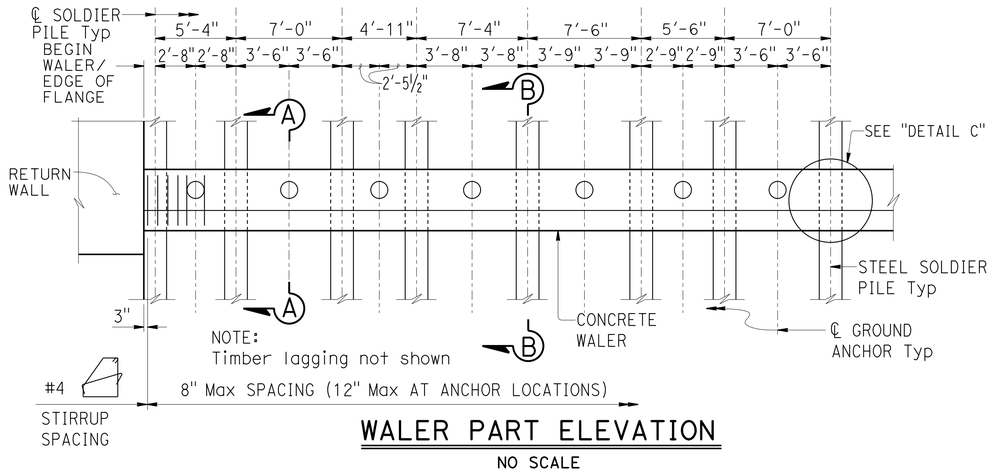
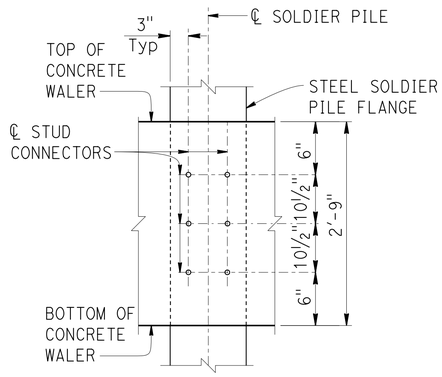


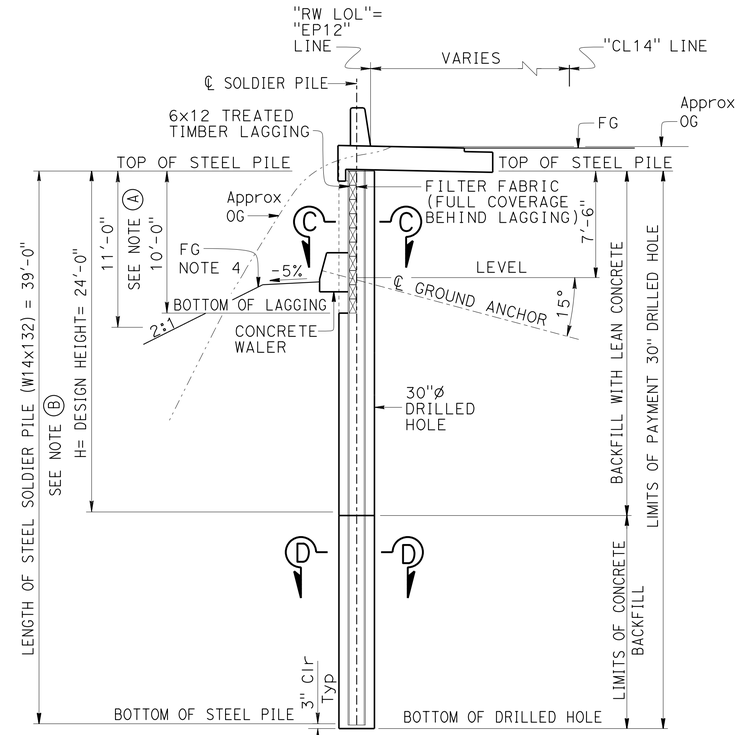
WALER PART ELEVATION

NO SCALE



DETAIL C

NO SCALE



TYPICAL SECTION

3/16" = 1'-0"

NOTES:

1. Concrete walers may be poured against face of lagging.
2. Ground anchors shall be stressed only after the concrete waler has attained a compressive strength of at least 2,880 psi and the excavation has reached bottom of lagging.
3. For "SECTION C-C" and "SECTION D-D", see "SOLDIER PILE WALL WITH WALERS DETAILS No. 2" sheet.
4. For grading of embankment, see "ROAD PLANS".

(A) Limits of final coat

(B) Limits of undercoat on all pile surfaces

SECTION A-A

1½" = 1'-0"

SECTION B-B

1½" = 1'-0"

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 37E0104	SARATOGA CREEK WALL	
DETAILS	BY Tim Fairall	CHECKED P. Norboe			POST MILE 4.16	SOLDIER PILE WALL WITH WALERS-DETAILS No. 1	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
11-29-11	4-16-12	5-14-12		9	15

FILE => 37e0104-1-wall-det01.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	56	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSA CANDIOTTI
No. 64626
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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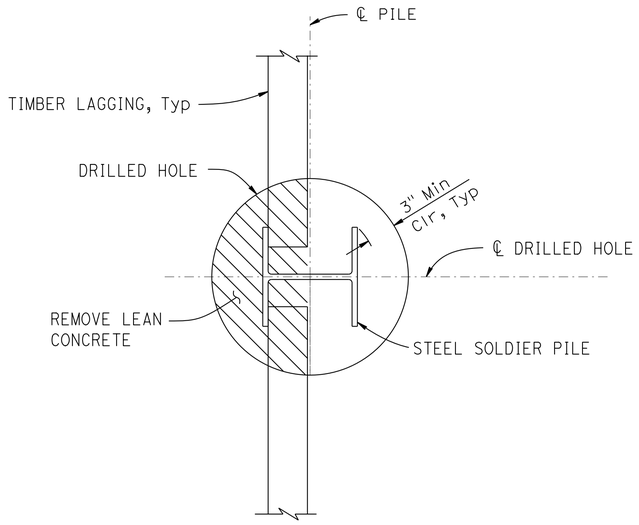
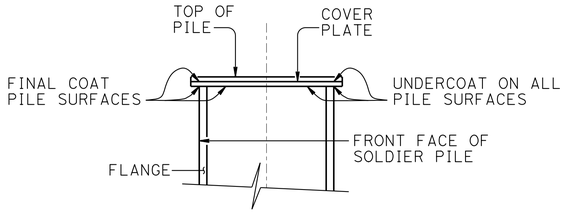
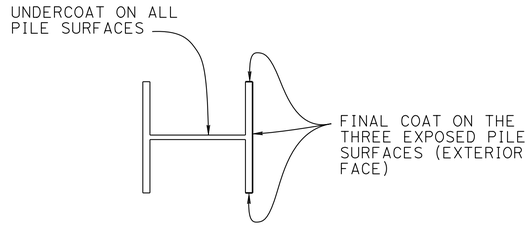
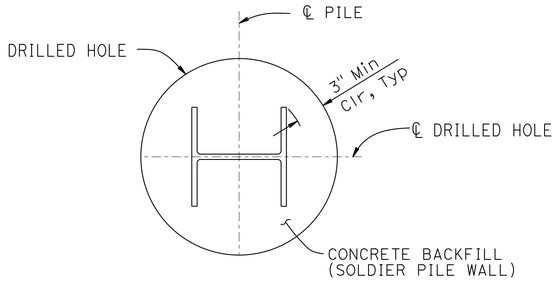


SECTION C-C
NO SCALE

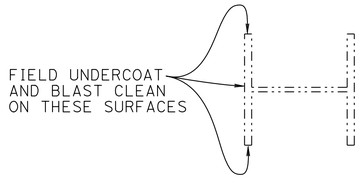




LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE
NO SCALE



SECTION D-D
NO SCALE



VIEW X-X
NO SCALE

NOTE:

For location of "SECTION C-C" and "SECTION D-D" see "SOLDIER PILE WALL WITH WALERS DETAIL No. 1" Sheet

For location "VIEW X-X" see "CONCRETE BARRIER SLAB LAYOUT" sheet

LEGEND:

Denotes limits of lean concrete removal

Denotes existing steel soldier pile

GENERAL NOTES

DESIGN:
AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments.

LIVE LOAD:
240 psf equivalent to 2 feet soil weight

SOIL PARAMETERS:
(For determination of Design Lateral Earth Pressures)
Backfill soil weight = 130 lb/ft^3
Friction Angle = 26 ° C = 500
Active Pressure coefficent, Ka = 0.33
Bedrock Unit Weight = 130 lb/ft^3
Slope Angle = 30 °
C = 0

STRUCTURAL STEEL:
ASTM A709/A709M Grade 50 or 50W
fy = 50 ksi

STRUCTURAL TIMBER:
Treated Douglas Fir, Grade No. 1 or better.
Timber to be full sawn

PRESTRESSING STEEL (GROUND ANCHORS):
FDL = Factored Design Load on ground anchor (kips)
FTL = Factored Test Load (kips)
LL = Lock-Off Load (kips)
fpu = Minimum ultimate tensile strength of ground anchor steel (ksi)
As (Min) = Minimum cross sectional area of steel in ground anchor (square inches)
Steel = ASTM designation: A416 (High Strength Strands)
As (Min) = $\frac{1.0\ FTL}{0.75\ fpu}$
Steel = ASTM designation: A722 (High Strength Bars)
As (Min) = $\frac{1.0\ FTL}{0.80\ fpu}$
Steel = ASTM designation: A615 (Mild Steel Bars)
As (Min) = $\frac{1.0\ FTL}{0.90\ fpu}$
FDL = 115 Kips
FTL = 86 Kips
LL = 86 Kips

CONCRETE BARRIER SLAB:
F_t = 54 Kips on Barrier
EQE: kh 0.2
kv 0.0
Reinforced Concrete
fy = 60 ksi
f'c = 3.6 ksi
n = 8

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 37E0104	SARATOGA CREEK WALL	
DETAILS	BY Tim Fairall	CHECKED P. Norboe			POST MILE 4.16	SOLDIER PILE WALL WITH WALERS-DETAILS No. 2	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
11-30-11	4-06-12	6-14-12		10	15

FILE => 37e0104-1-wall-det02.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	57	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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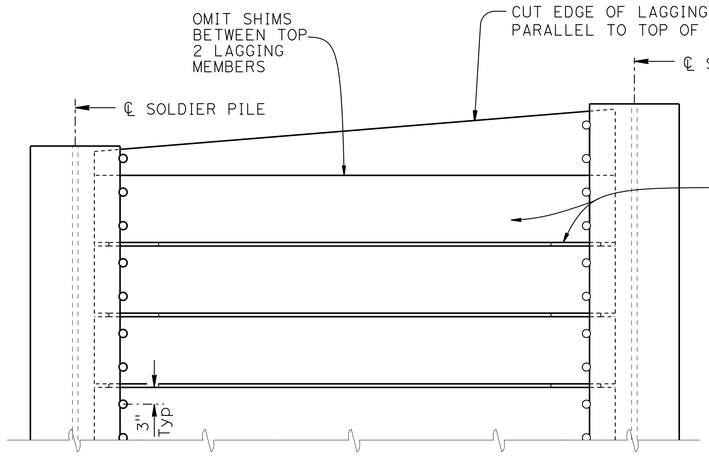
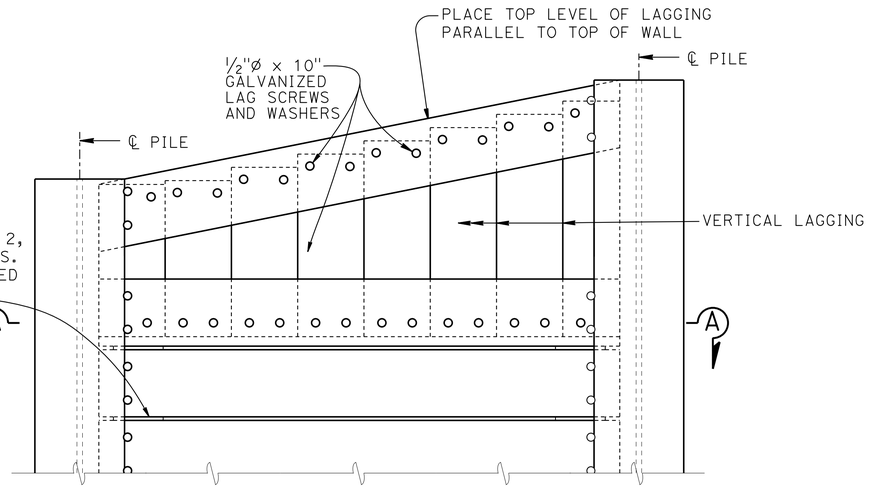
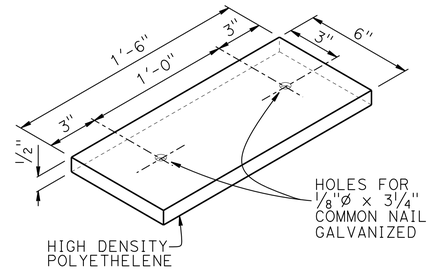


PART ELEVATION
LAGGING DETAILS (ALTERNATIVE 1)
NO SCALE

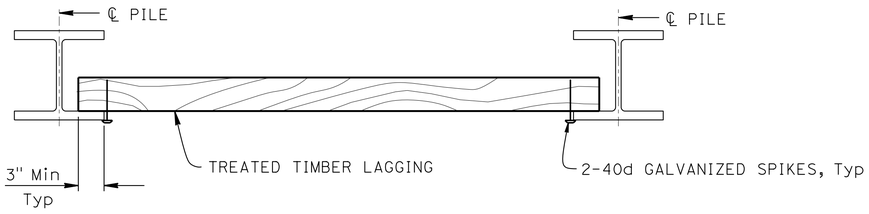


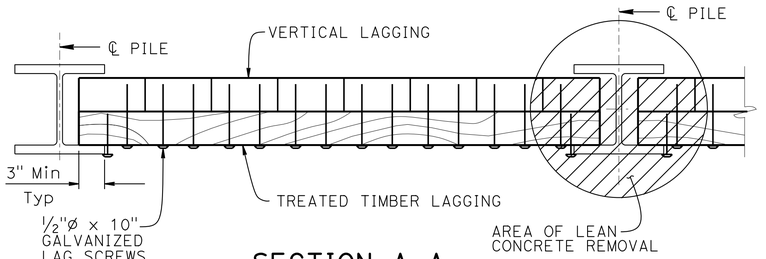
PART ELEVATION
LAGGING DETAILS (ALTERNATIVE 2)
NO SCALE



SHIM DETAIL
NO SCALE

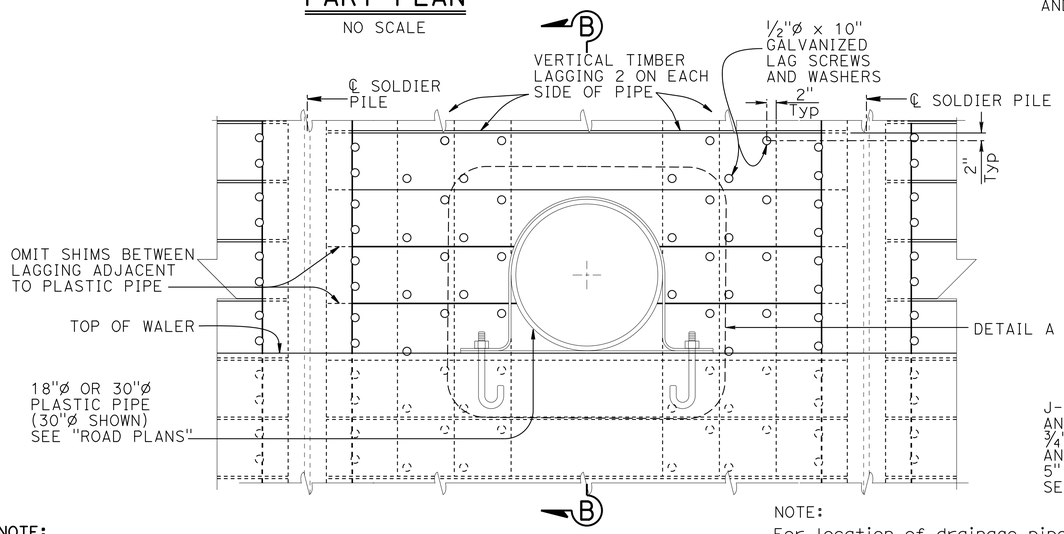
NOTES:
1. No clipping of timber lagging corners allowed
2. Spikes shall not be bent





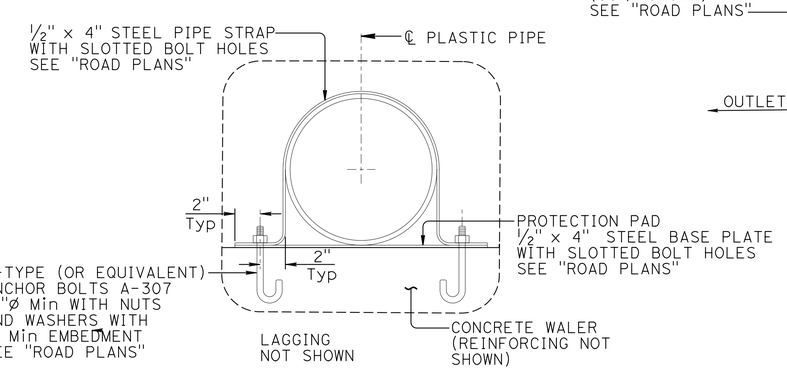
SECTION A-A
NO SCALE

PART PLAN
NO SCALE

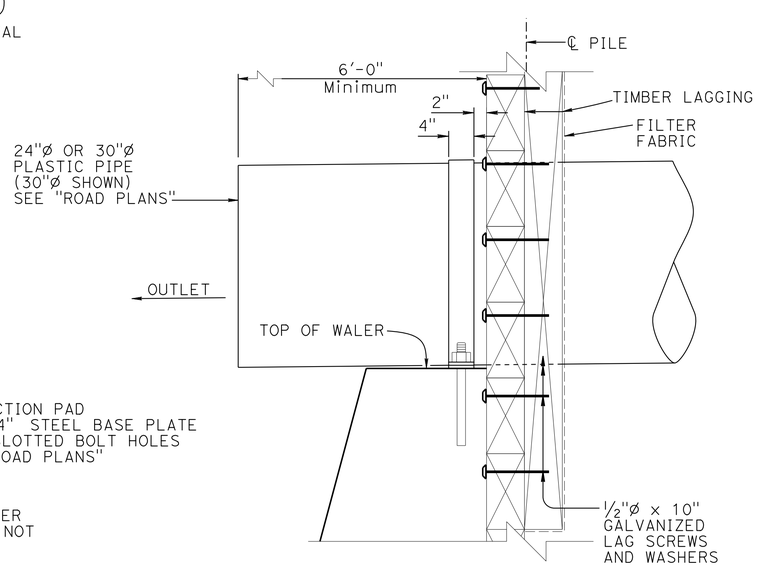


DRAINAGE DETAIL
¾" = 1'-0"

NOTE:
For location of drainage pipe see "GENERAL PLAN", "STRUCTURE PLAN No. 1" and "STRUCTURE PLAN No. 2" sheets



DETAIL A
¾" = 1'-0"



SECTION B-B
1" = 1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Tim Fairall	CHECKED P. Norboe	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	BRIDGE NO. 37E0104 POST MILE 4.16

SARATOGA CREEK WALL
SOLDIER PILE WALL LAGGING DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
3-26-12	5-16-12	6-13-12		11	15

FILE => 37e0104-1-wall-det03.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	58	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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① GENERAL NOTES

DESIGN:

AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments.

PRESTRESSING STEEL:

Bars - ASTM Designation: A722 Type II (150 ksi)

Strand Tendons-ASTM Designation: A416 (270 Ksi Low Relaxation steel)

FTL = Factored Test Load per anchor (Kips)

fpu = Minimum tensile strength of prestressing steel

As = Minimum cross sectional area of prestressing steel in ground anchor (square inch)

$$As(Min) = \frac{1.0\ FTL}{0.75\ fpu} \quad \text{(Strands)}$$

$$As(Min) = \frac{1.0\ FTL}{0.80\ fpu} \quad \text{(Bars)}$$

NOTES:

(A) Level of initial grouting for drill hole 6" in diameter or smaller

(B) Level of secondary grouting

(C) Level of initial grouting inside corrugated sheathing

(D) Bonded length shall be determined by the contractor

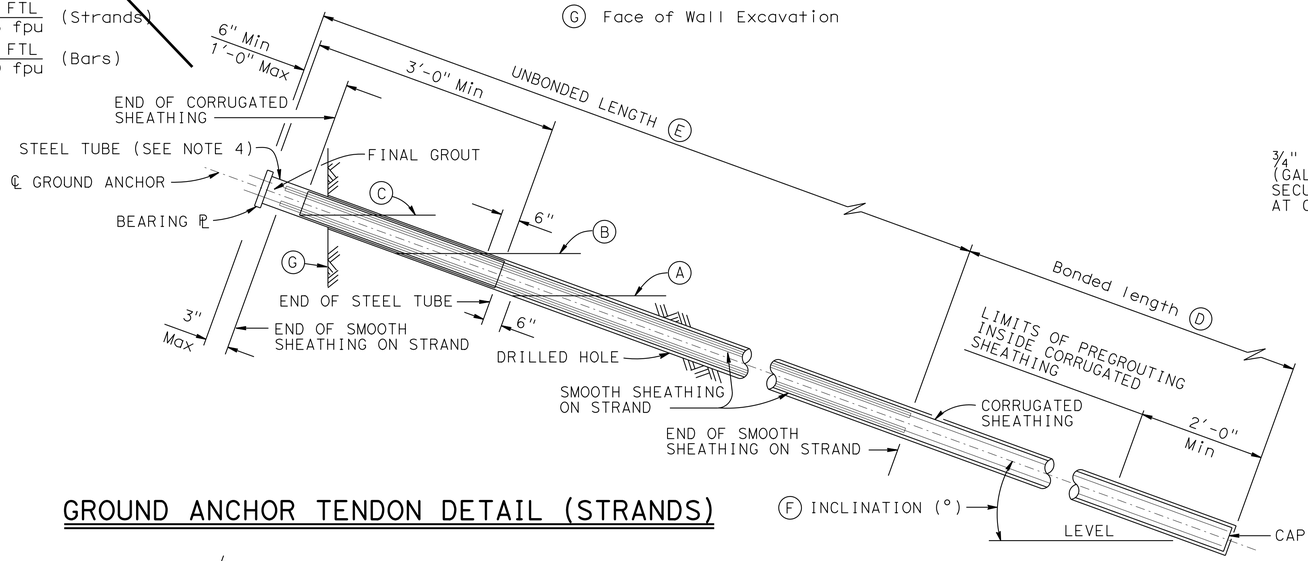
(E) For unbonded length, see PROJECT PLANS

(F) For inclination, see PROJECT PLANS

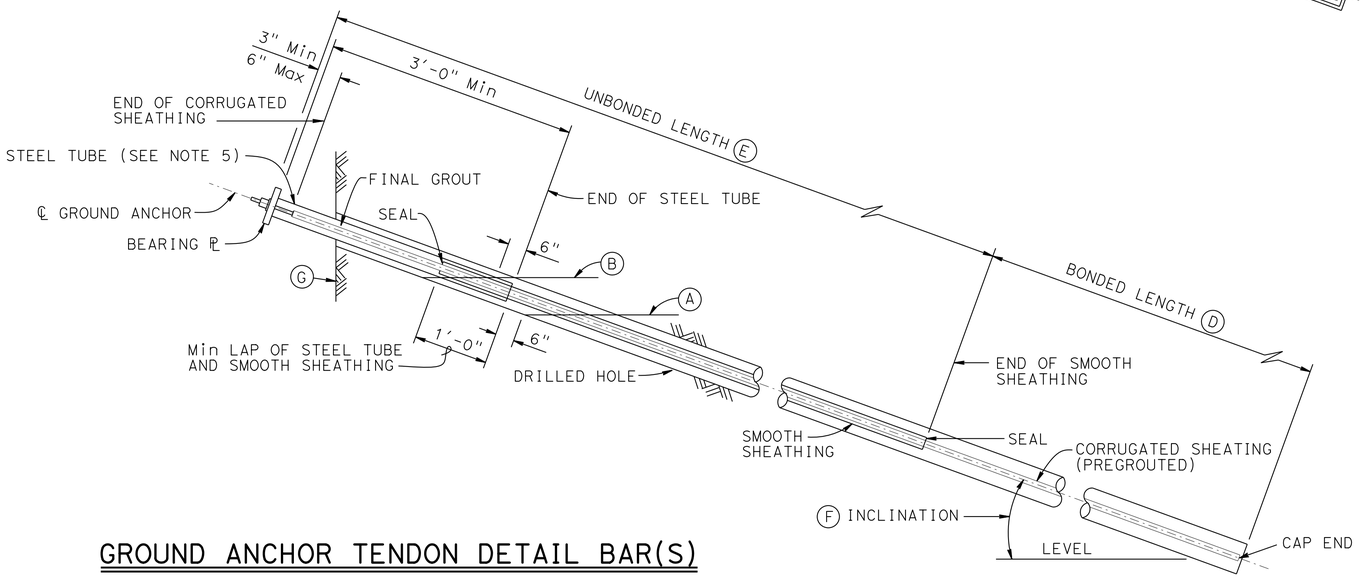
(G) Face of Wall Excavation

NOTES:

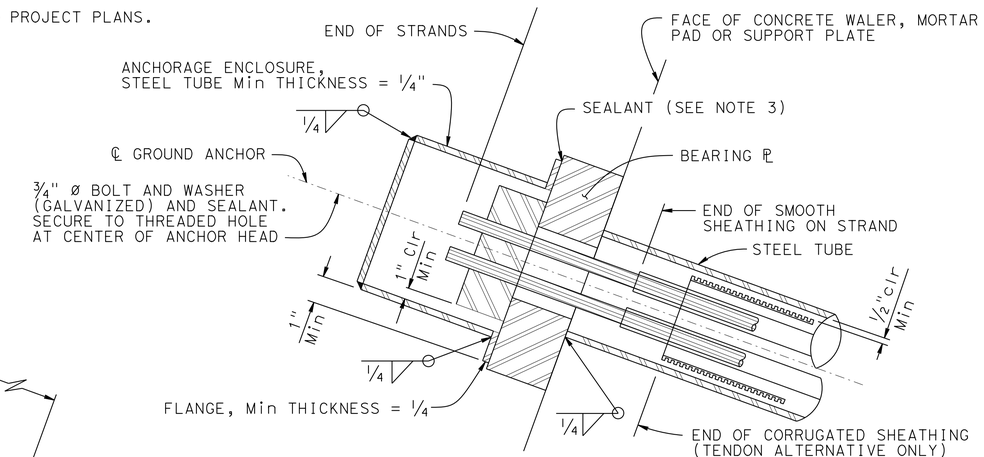
1. Anchorage enclosure shall only be used when anchor head assembly is not enclosed in concrete.
2. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
3. Silicone sealant to cover full width of flange.
4. Steel tube (Min thickness = ¼") welded to bearing plate. Galvanize assembly after fabrication
5. Steel tube welded to bearing plate. Inside diameter of steel tube (Min thickness = ¼") to be 1" greater than outside diameter of smooth sheathing.
6. Galvanize assembly after fabrication.
7. For other wall details, see PROJECT PLANS.



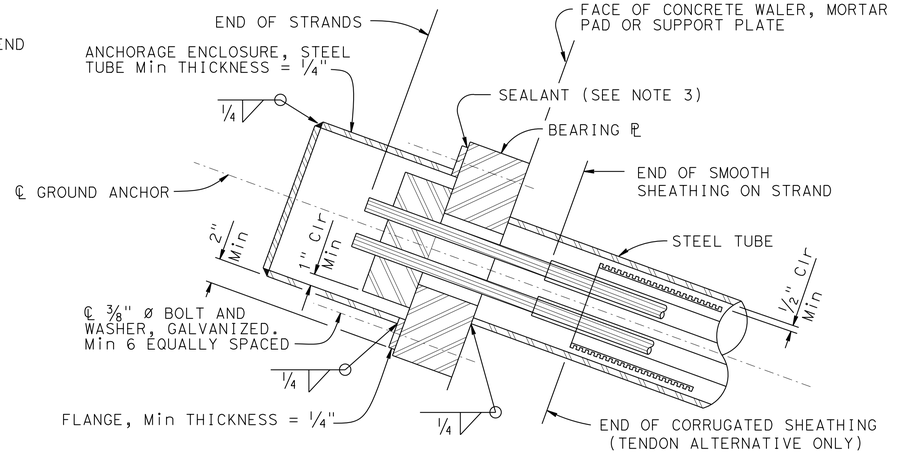
GROUND ANCHOR TENDON DETAIL (STRANDS)



GROUND ANCHOR TENDON DETAIL BAR(S)



ALTERNATIVE X



ALTERNATIVE Y

ANCHORAGE ENCLOSURE DETAILS

NO SCALE

REVISED STANDARD DRAWING	① General Notes not applicable	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES	BRIDGE NO. 37E0104	SARATOGA CREEK WALL
FILE NO. xs12-040				POST MILE 4.16	SUB HORIZONTAL GROUND ANCHOR DETAILS
APPROVAL DATE July 2011					

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
1-23-12	3-26-12			12	15

FILE => 37e0104-1-wall-det04.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	59	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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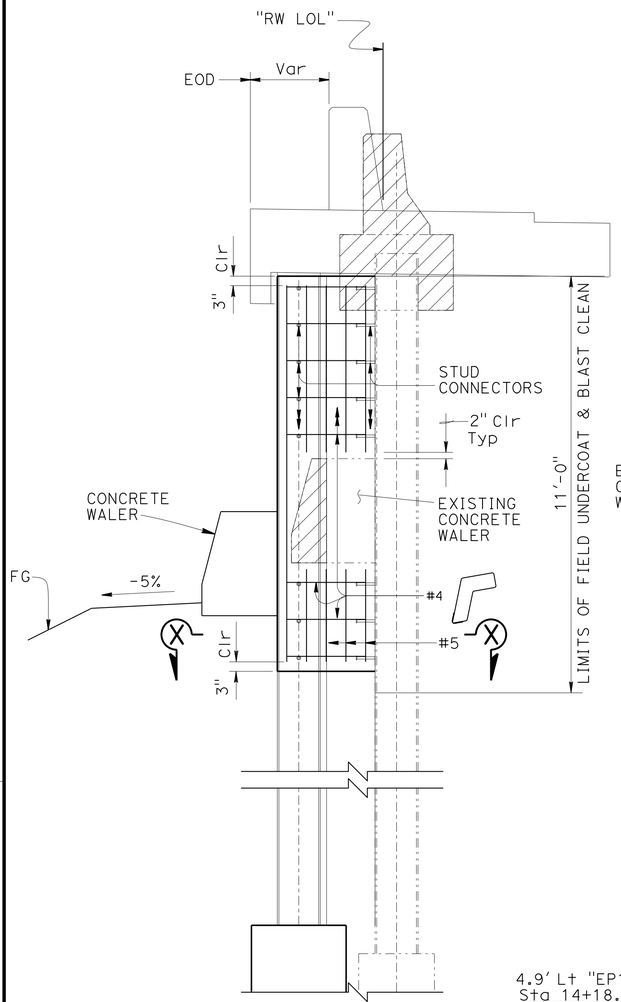
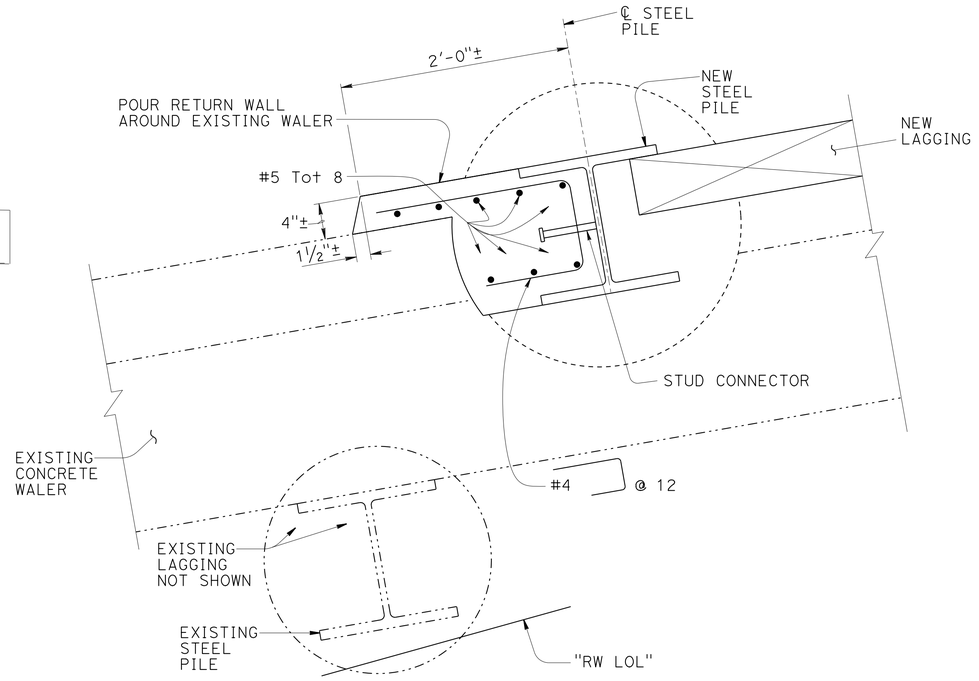
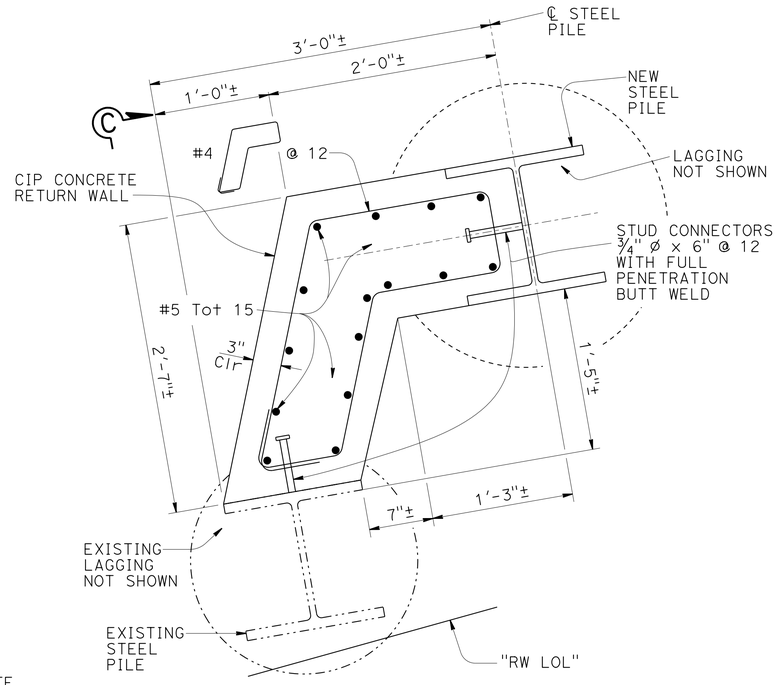


SECTION C-C
½" = 1'-0"

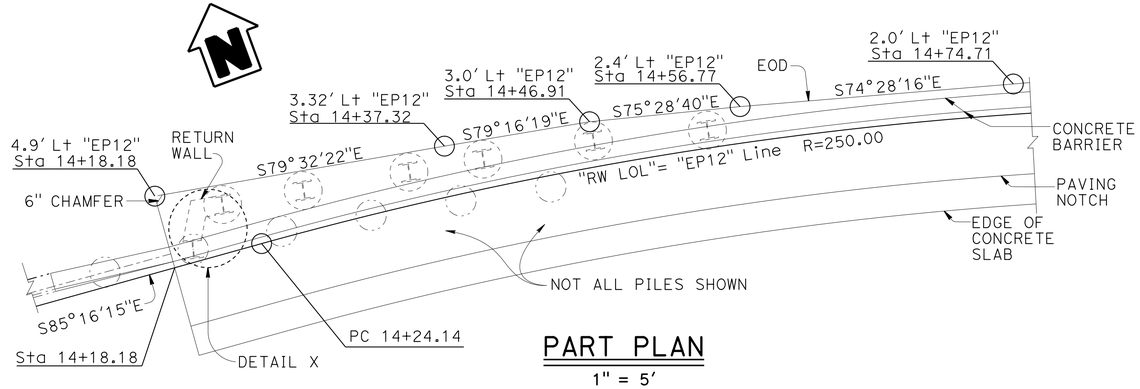


DETAIL X AT WALER
1½" = 1'-0"

NOTE:
Waler removal limits not shown



DETAIL X
1½" = 1'-0"



PART PLAN
1" = 5'

NOTES:

1. Remove existing pile to match top of new pile at this location only. For other locations see "REMOVAL DETAILS" Sheet.
2. For additional layout information refer to "STRUCTURE PLAN No. 1" Sheet
3. For "VIEW X-X" see "SOLDIER PILE WALL WITH WALERS-DETAILS No.2" Sheet

LEGEND:
- Indicates Existing
- Indicates New Construction
- Denotes limits of removal of existing concrete barrier, cap beam. top of steel pile and portion of concrete waler

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	
DETAILS	BY Tim Fairall	CHECKED P. Norboe	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

SARATOGA CREEK WALL
CONCRETE BARRIER SLAB LAYOUT

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
3-6-11	3-26-12	6-14-12		13	15

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

FILE => 37e0104-t-brdt01.dgn

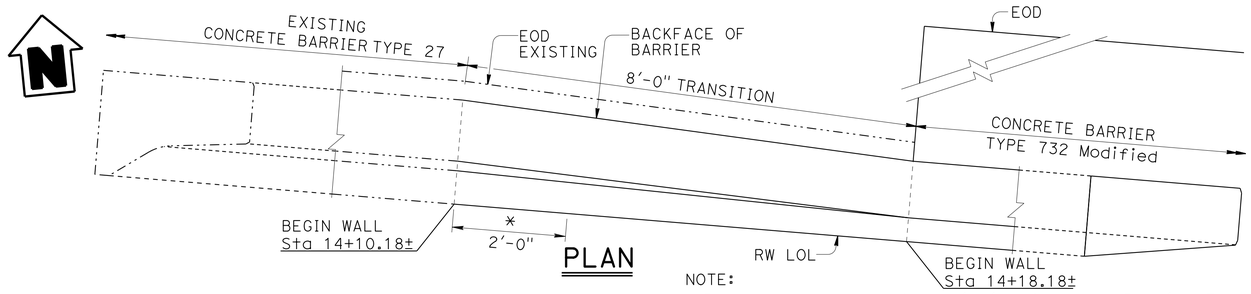
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCl	9	4.2	60	61

Rosa M Candiotti 11-19-12
REGISTERED CIVIL ENGINEER DATE

4-2-13
PLANS APPROVAL DATE

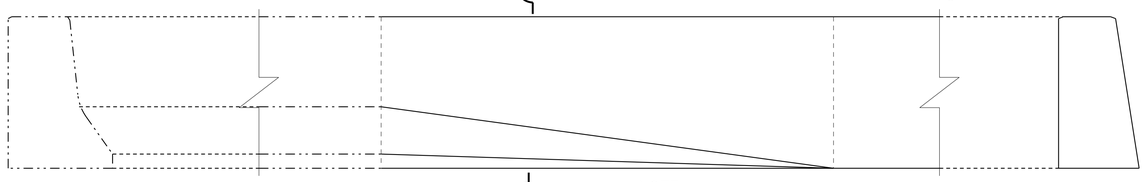
REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI No. 64626 Exp. 6-30-2013 CIVIL — STATE OF CALIFORNIA

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.



PLAN

NOTE:
* Denotes lap length for existing Concrete Barrier Type 27 horizontal reinforcement extending into barrier transition section

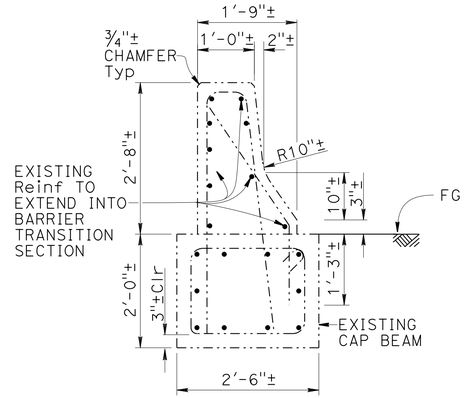


ELEVATION

NOTE:
For location of barrier transition see "STRUCTURE PLAN No. 1" Sheet

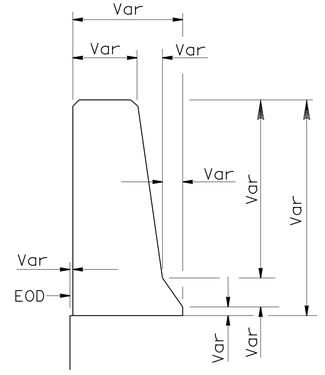
BARRIER TRANSITION TYPE 27 TO TYPE 732 Mod

¾" = 1'-0"



EXISTING CONCRETE BARRIER TYPE 27

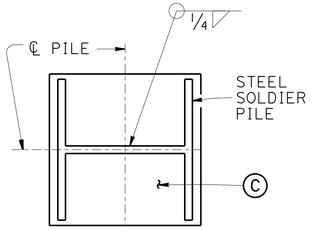
¾" = 1'-0"



SECTION X-X

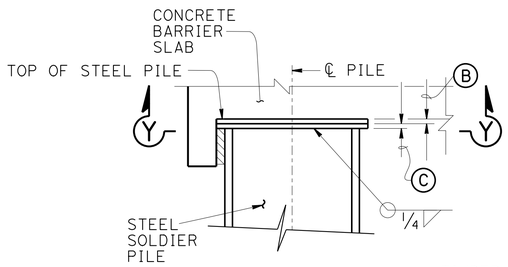
NO SCALE

LEGEND:
Indicates Existing
Indicates New Construction
Denotes 2" Min Expanded polystyrene



SECTION Y-Y

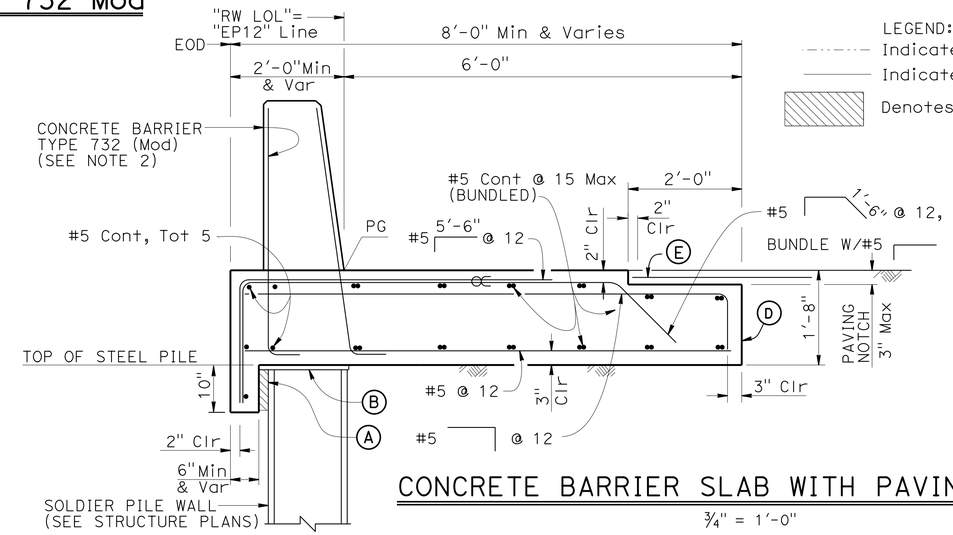
NO SCALE



TIMBER LAGGING NOT SHOWN

DETAIL Y

NO SCALE



CONCRETE BARRIER SLAB WITH PAVING NOTCH

¾" = 1'-0"

NOTES:

1. Clearance to reinforcing steel in concrete barrier to be 1".
2. Not all barrier reinforcement shown. See Standard Plan B11-55.
3. No expansion joints in concrete barrier or barrier slab within wall limits.

NOTES:

(A) 2" Minimum expanded polystyrene
(B) ¼" x 17 x 16 Elastomeric bearing pad or expansion joint material. Bond to cover plate
(C) ½" x 17 x 16 Cover plate, typical per pile
(D) Contact joint
(E) 3'-0" wide pavement reinforcing fabric
Indicates bundled bars

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 37E0104
DETAILS	BY Tim Fairall	CHECKED P. Norboe			POST MILE 4.16
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe			

SARATOGA CREEK WALL
CONCRETE BARRIER SLAB DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
12-01-11	3-26-12	6-13-12		14	15

FILE => 37e0104-t-brdt02.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCl	9	4.2	61	61

REGISTERED CIVIL ENGINEER 02-03-12

Samuel Awad No. 64589 Exp. 6-30-13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

4-2-13
PLANS APPROVAL DATE

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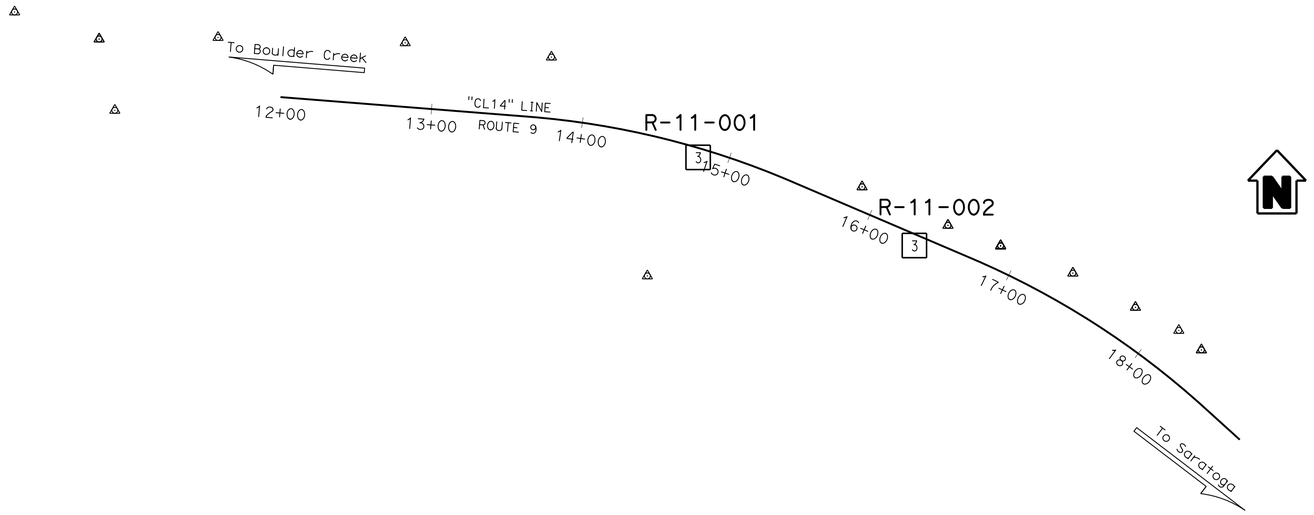
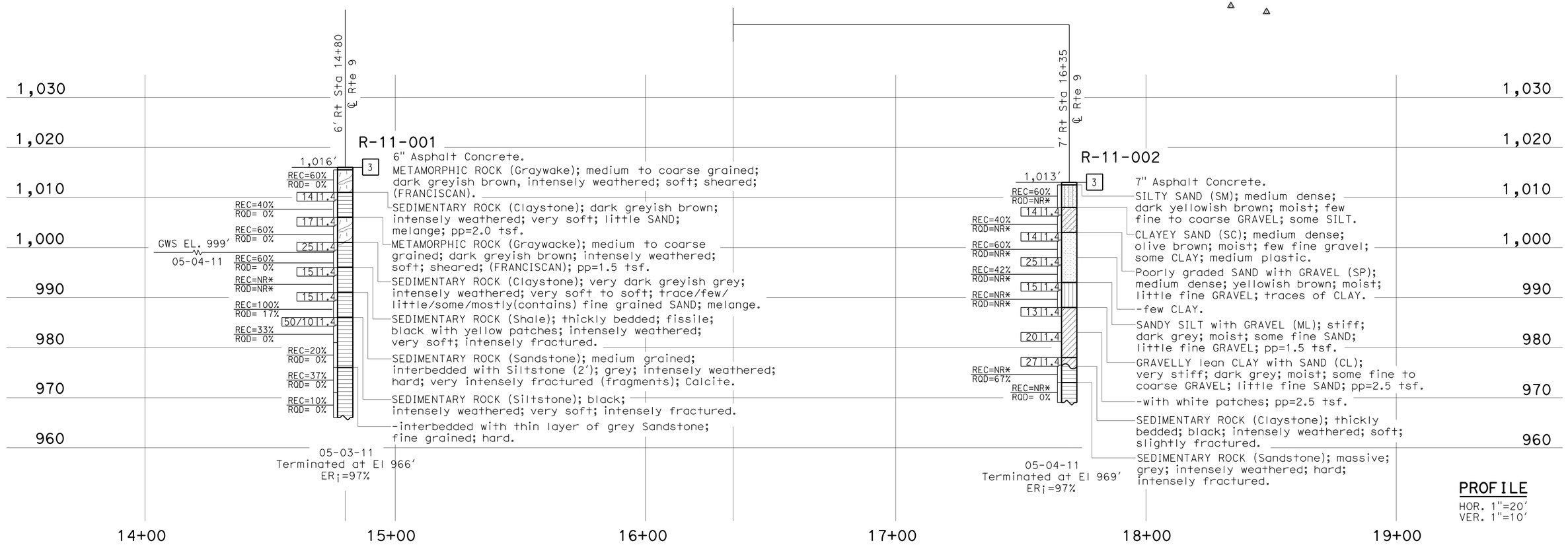


This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).
See 2010 Standard Plans A10F and A10G for Soil Legend, and A10H for Rock Legend.

NOTE: 1. pp=unconfined compressive strength (tsf) as measured by pocket penetrometer.

2. *NR: Not Recorded.



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

ENGINEERING SERVICES		GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL DESIGN BRANCH 9	BRIDGE NO. 37E0104	SARATOGA CREEK WALL
FUNCTIONAL SUPERVISOR	DRAWN BY: M. Reynolds 08-11	FIELD INVESTIGATION BY:			POST MILES 4.16	LOG OF TEST BORINGS 1 OF 1
NAME: H. Nikoui	CHECKED BY: Mo Dehghan	S. Awad				

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3660
PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 044S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
5-15-12				15	15

FILE => 37e0104-z-1tb01.dgn

USERNAME => s113946 DATE PLOTTED => 05-APR-2013 TIME PLOTTED => 10:58

APPENDIX D

Memorandum

Flex your power!
Be energy efficient!

To: **JUERGEN VESPERMANN**
Senior Environmental Planner
DISTRICT 6 FRESNO

Date: July 8, 2009
File: 4-SCL-9
PM 4.2
EA: 4S050

From: **TODD JAFFKE** TJ
Branch Chief, East Counties
Office of Cultural Resource Studies

Subject: Cultural Resources review for Storm Damage Repair to Route 9, Santa Clara County

Caltrans proposes to repair a storm damaged slope adjacent to Route 9 in Santa Clara County. A tie-back wall will be constructed at this location in order to prevent further deterioration of the slope.

Project documents were reviewed in the Office of Cultural Resource Studies (OCRS) by Caltrans Professionally Qualified Staff (PQS): Brett Rushing, PQS Principal Investigator – Prehistoric Archaeology in compliance with the January 2004 *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (hereafter, the PA).

A review of detail specifications for the project location, District 4 Cultural Resources Studies Office files and maps, Native American concerns, the online Caltrans Photolog, and online aerial photographs indicates that no cultural resources will be affected by the proposed project. The review of the District 4 Cultural Resources Studies files indicated that there are no historic properties within or adjacent to the proposed project footprint.

Due to the nature of the undertaking, it has been determined that the project has no potential to affect historic properties and is exempt from further review pursuant to the PA, Stipulation VII, a Screened Undertaking. The undertaking has been screened and determined to be exempt under **Class 9** (Storm damage repairs, such as culvert clearing or repair, disposal or stockpile locations, shoulder reconstruction, or slide or debris removal) and **Class 11** (Modifying existing features such as slopes, ditches, curbs, sidewalks, driveways, dikes, or headwalls, within or adjacent to the right of way) of Attachment 2, "Screened Undertakings" in the PA.

No further archaeological or architectural history studies are required at this time. Additional studies may be required if project plans change. If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find. If there are any questions about the content of this memo or

project related items please call Brett Rushing at 510-286-6336 or email Brett_Rushing@dot.ca.gov.

July 11, 2014
CIWQS Place No. 804498
Regulatory Measure No. 395293

Sent via electronic mail--no hard copy to follow

California Department of Transportation
Attn: Dina El-Tawansy
dina.el-tawansy.dot.ca.gov
111 Grand Ave.
Oakland, CA 94612-3717

Subject: Water Quality Certification for the State Route 9 Storm Damage Repair Project – Construct Tie-Back Wall and Drainage System Modification, near the City of Saratoga, Santa Clara County

Department Project No.: EA 04-4S0504

Dear Ms. Tawansy:

We have reviewed and hereby issue water quality certification (Certification) to the California Department of Transportation (Department) for the State Route 9 (SR 9) Storm Damage Repair Project (Project). The Department has applied for Nationwide Permit 14 for Linear Transportation Projects from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act (33 U.S.C. § 1344). As such, the Department has applied to the San Francisco Bay Regional Water Quality Control Board (Water Board) for a Clean Water Act Section 401 water quality certification that the Project will not violate State water quality standards.

Project: The following Project description was derived from application materials received by Water Board staff on March 10, 2014, and supplemental information provided by the Department via email on June 5, 2014.

The Department proposes to repair slope failures on SR 9 at post mile 4.16, near the City of Saratoga in Santa Clara County. The slope failures have occurred as a result of saturated upland slopes which have caused slip-outs along the north edge of the roadway. Saratoga Creek runs parallel to SR 9 in the project area and is located approximately 211 feet north of the roadway. Saratoga Creek will not be impacted as a result of the project.

Proposed project elements will include:

- Construction of a ten-foot high, 358-foot long tie-back retaining wall north of the roadway along the westbound shoulder. The location of the retaining wall will vary between 3 and 7.5 feet from the edge of the roadway shoulder;

- Widening of the existing shoulders within the Project limits to four feet;

- Installation of guard rail along the westbound lane at the edge of the road shoulder;
- Modification of the site's two drainage systems which will include the removal and replacement of existing culverts, a culvert headwall on the westerly drainage system, and a drainage inlet structure on the easterly drainage system;
- Installation of rock slope protection at the outfalls of both drainage systems;

Impacts: Project implementation would permanently impact approximately 0.0003 acre of a jurisdictional tributary to Saratoga Creek due to construction of a culvert headwall and placement of rock slope protection adjacent to the headwall.

Project implementation would temporarily impact 0.0032 acre (14 linear feet) of a tributary to Saratoga Creek due to construction of the culvert headwall and placement of rock slope protection.

See Attachment for impact locations.

Roadway Pollutant Impacts: Project implementation would result in approximately 0.054 acre of new and reworked impervious area. Stormwater runoff from impervious areas may contain hydrocarbons, metals, volatile organic compounds, trash, and sediment at levels that may significantly impact waters of the state if left untreated.

Hydromodification Impacts: Added impervious areas may result in alterations to existing hydrologic regimes, resulting in erosion and/or changes of sediment transport in receiving waters (hydromodification). Because added impervious area of 0.04 acre for the Project will result in a minimal increase in stormwater runoff, hydromodification mitigation is not required.

Avoidance and Minimization: The Department has avoided and minimized impacts to the Saratoga Creek tributary by eliminating rock slope protection at the inlet of the culvert that carries the tributary under SR 9, and reducing the size of the culvert headwall.

Mitigation: Because the project will stabilize the slope between State Route 9 and Saratoga Creek and improve roadway drainage to reduce the probability of future slope stability issues, additional mitigation for permanent impacts shall not be required for the Project.

To mitigate for temporary impacts to the tributary to Saratoga Creek, the Department shall restore all impacted areas to pre-project or improved conditions, and re-vegetate with native seed material.

Roadway Pollutant Mitigation: As mitigation for increased pollutant loads associated with approximately 0.054 acre of added and reworked impervious area for this Project, the Department shall construct an infiltration trench to treat stormwater runoff along the south shoulder of SR 9 between stations 16+86.25 and 17+24.

See attachment for infiltration trench location and details.

CEQA Compliance: On May 28, 2010, the Department determined that the project was categorically exempt from CEQA pursuant to 14 CCR § 15301, existing facilities.

EcoAtlas: The Water Board tracks routine riparian repair and creek maintenance projects in an effort to detect potential systemic instabilities and document project performance in the creeks of the Bay Area. As such, the Applicant is required to submit a Riparian Repair and Maintenance (short) Form describing Project size, type, and performance measures. An electronic copy of the short form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml.
Project information will be made available at the web link:
http://www.ecoatlas.org/regions/ecoregion/bay-delta/projects

Certification: I hereby issue an order certifying that any discharge from the referenced project will 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, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003 - 0017 – DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" which requires compliance with all conditions of this Water Quality Certification. The following conditions are associated with this certification:

1. The Department shall construct an infiltration trench to treat stormwater runoff on the south shoulder of SR 9 between stations 16+86.25 and 17+24. The infiltration trench shall be installed and operational prior to October 15, 2015. The Department shall provide Water Board staff with an as-built plan of the infiltration trench within 30 days of project completion.

2. The Department shall adhere to the Standard conditions imposed by Nationwide Permit No. 14, issued to the Department by the U.S. Army Corps of Engineers, and with the special conditions of the Streambed Alteration Agreement, issued to the Department by the California Department of Fish and Game;

3. The Project shall be constructed in conformance with the Project Description described in this Certification and Certification application materials. Any change in the Project that could impact State waters may require compensatory mitigation and shall first be reported to and found acceptable by the Water Board Executive Officer;

4. No equipment shall be operated in areas of flowing or standing water; no fueling, cleaning or maintenance of vehicles or equipment shall take place within jurisdictional waters or within any areas where an accidental discharge to jurisdictional waters may occur;

5. Except as expressly allowed in this Certification, the discharge, or creation of the potential for discharge, to waters of the State of any construction wastes and/or soil materials including cement, fresh concrete, or washings thereof, silts, clay, sand, oil or petroleum products and other organic materials to waters of the State is prohibited;

6. The Department shall not use or allow the use of erosion control products that contain synthetic materials within waters of the State at any time. The Department shall request approval from Water Board staff if an exception from this requirement is needed at a specific location. In upland and riparian areas, the Department shall prioritize the use of wildlife-friendly biodegradable (not photo-degradable) erosion control products. The Department shall not use or allow the use of erosion control products that contain synthetic

netting for permanent erosion control (i.e. erosion control materials to be left in place for two years or after the completion date of the Project).

If the Department finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products;

7. The discharge of sediment to Saratoga Creek, or to areas where sediment may discharge to Saratoga Creek, is prohibited. The Department shall implement all appropriate sediment and erosion control construction best management practices, including management of excavated materials during the excavation, transport, and stockpiling process;

8. All work shall be completed between May 15 and October 15;

9. This certification does not allow for the take, or incidental take, of any special status species. The Department shall use the appropriate protocols, as approved by the California Department of Fish and Game and the U.S. Fish and Wildlife Service, to ensure that Project activities do not impact the Beneficial Use of the Preservation of Rare and Endangered Species;

10. The Applicant is required to use the Riparian Repair and Maintenance (short) Form to provide Project information within 14 days from the date of this certification. An electronic copy of the short form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. The completed short form and map showing the project boundaries shall be submitted electronically to habitatdata@waterboards.ca.gov or shall be submitted as a hard copy to both: 1) the Water Board (see the address on the letterhead), to the attention of EcoAtlas; and 2) the San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA 94804, to the attention of EcoAtlas;

11. The Department shall maintain a copy of this water quality certification at the Project site so as to be available at all times to site operating personnel. It is the responsibility of the Department to assure that all personnel (employees, contractors, and subcontractors) are adequately informed and trained regarding the conditions of this certification;

12. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code (CWC) and Section 3867 of Title 23 of the California Code of Regulations(23 CCR);

13. This certification action does not apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to California Code of Regulations (CCR) Title 23, Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

14. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833). Water Board staff received full payment of $1215.00 on March 10, 2014.

We anticipate your cooperation in implementing these conditions. However, please be advised that any violation of water quality certification conditions is a violation of State law and subject to administrative civil liability pursuant to California Water Code (CWC) section 13350. Failure to respond, inadequate response, late response, or failure to meet any condition of this certification may subject you to civil liability imposed by the Water Board to a maximum of $5,000 per day per violation or $10 for each gallon of waste discharged in violation of this certification. Any requirement for a report made as a condition to this action is a formal requirement pursuant to CWC Section 13267 (e.g., Conditions 1 and 10), and failure or refusal to provide, or falsification of such required report is subject to civil liability as described in CWC Section 13268.

We anticipate no further action on this request. Should new information come to our attention that indicates a water quality problem with this project, the Water Board may issue Waste Discharge Requirements pursuant to 23 CCR Section 3857.

If you have any question, please contact Derek Beauduy at (510) 622-2348, or via e-mail to derek.beauduy@waterboards.ca.gov.

Sincerely,

Bruce H. Wolfe
Executive Officer

cc (via e-mail): Mr. Bill Orme SWRCB-DWQ
Ms. Melissa Escaron, CDFW
Ms. Jane Hicks, USACE
Ms. Katerina Galacatos, USACE
Mr. Jason Brush, USEPA
Mr. Ryan Olah, USFWS
Mr. Hardeep Takhar, Caltrans
Mr. Cyrus Vafai, Caltrans
Mr. Dale Bowyer, Water Board

Attachment

SR 9 Storm Damage Repair Project

Project Location Map, Impact Map, and Infiltration Trench Plan Sheets

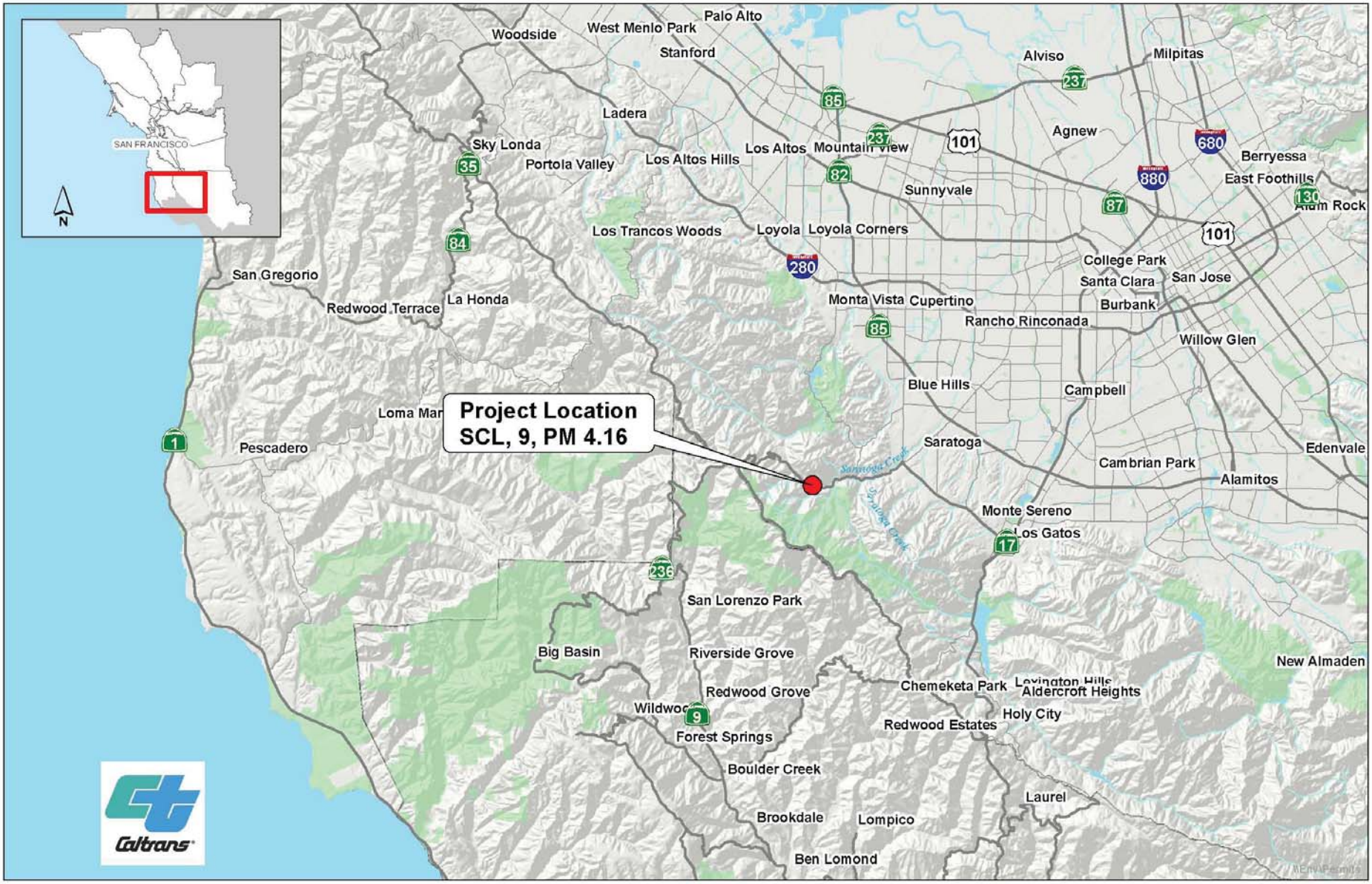


Figure 1. Site Map. The above map depicts the general location for the storm damage repair proposed Project on SCL 9 PM at 4.16 (EA 4S0504) . The Project proposes to construct a tie-back retaining wall and modify existing drainage systems.

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

ABBREVIATION:

GMP STEEL PIPE INLET WITH PLATE

LEGEND:

HMA OVERSIDE DRAIN

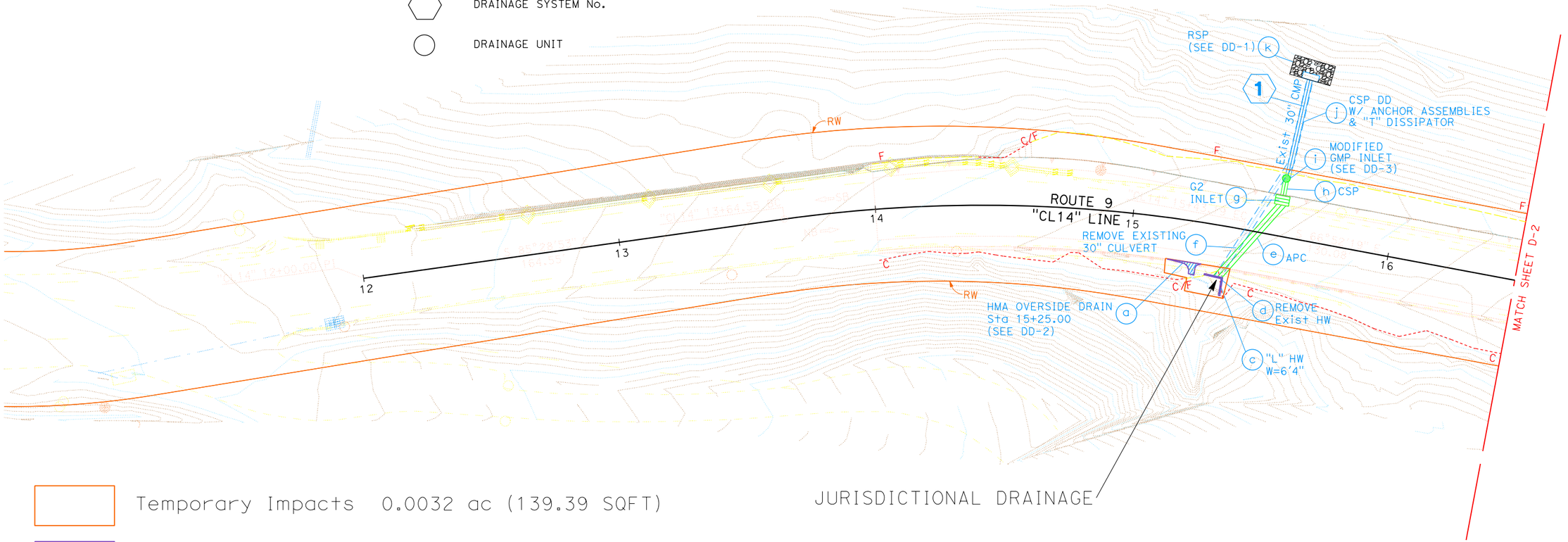
RSP

GRADE TO DRAIN

HMA APRON

DRAINAGE SYSTEM No.

DRAINAGE UNIT



Temporary Impacts 0.0032 ac (139.39 SQFT)

Permanent Impacts 0.0003 ac (13.07 SQFT)

*NOTE: Item b (RSP) has been removed from the Project Plans.

OFFICE OF BIOLOGICAL SCIENCES/PERMITS

PREPARED BY => ECHARLES

DATE UPDATED => June 2014

CONSTRUCT TIE BACK WALL ON SCL 9 (PM 4.2) AT SARATOGA CREEK

FIGURE 2: CALTRANS EA 4S0504 JURISDICTIONAL IMPACTS (REVISED) NWP 14 NON-REPORTING

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

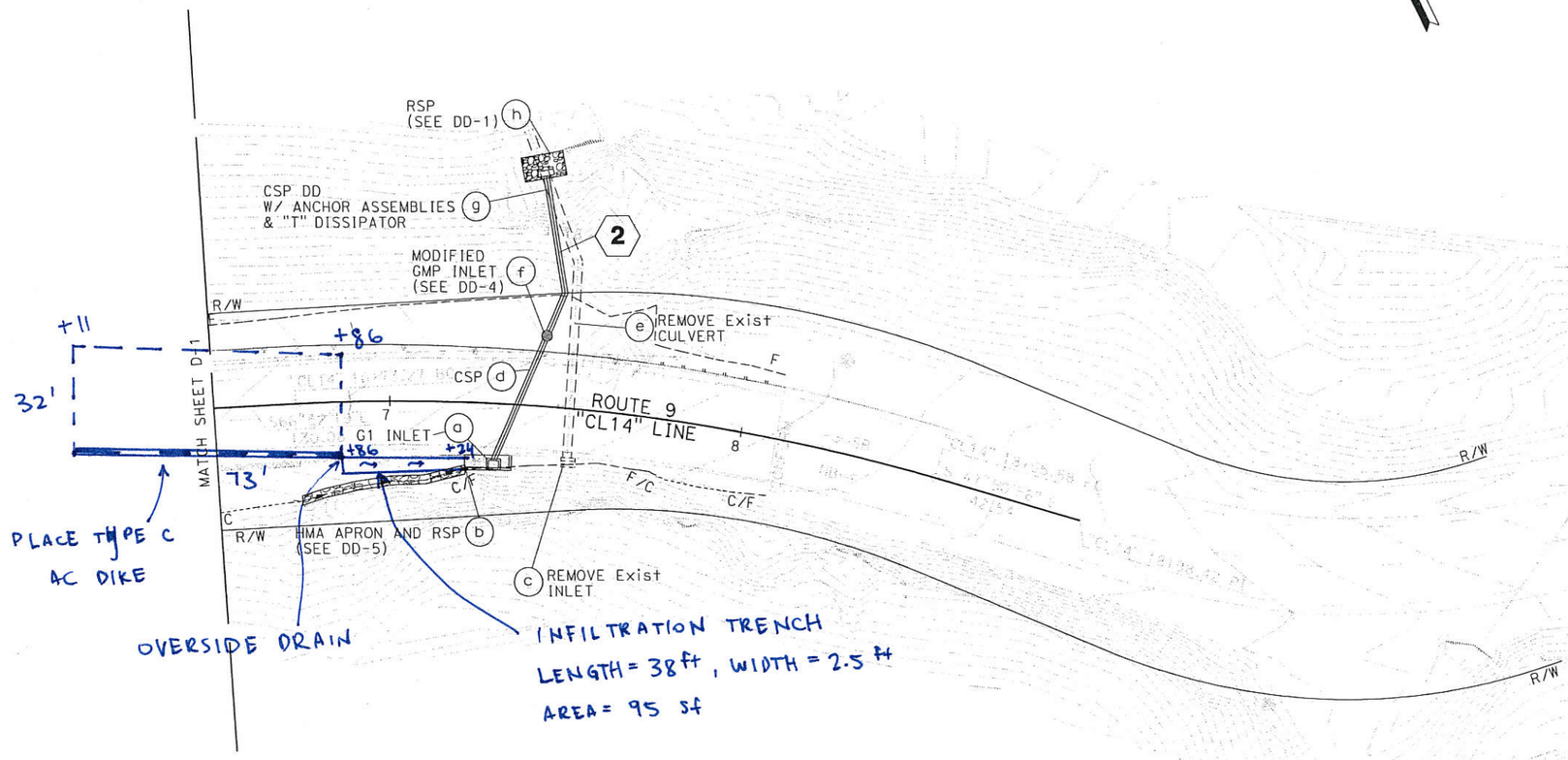
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	13	61

DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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



TRIBUTARY SHED

AREA = 32 x 73 = 2336 sf

= 2336 / 43560 = 0.054 AC

BMP AREA / TREATED AREA

~~= 0.04~~ = 95/2336 = 0.04 %

DRAINAGE PLAN

SCALE: 1" = 20' **D-2**

APPROVED FOR DRAINAGE WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY
DATE REVISED

LAST REVISION: DATE PLOTTED => 05-APR-2013
06-08-12 TIME PLOTTED => 13:20

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 04000012021a002.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1475
PROJECT NUMBER & PHASE 04000012021

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	19	61

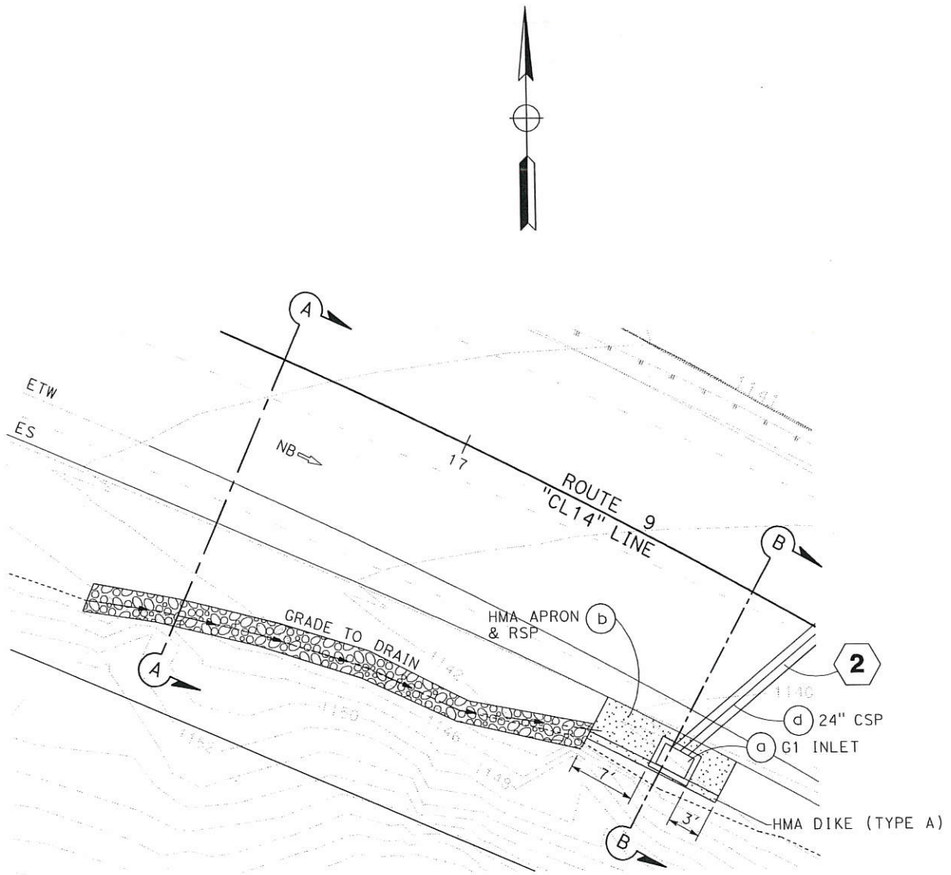
DAN — 7-18-11
REGISTERED CIVIL ENGINEER — DATE

4-2-13
PLANS APPROVAL DATE

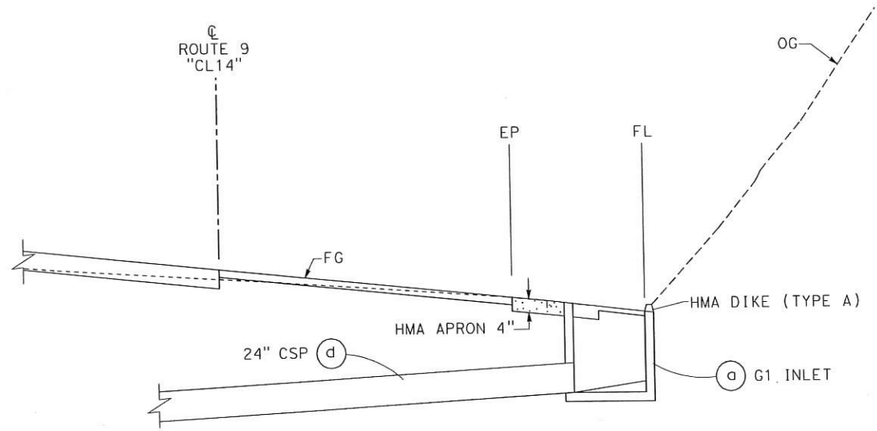
REGISTERED PROFESSIONAL ENGINEER
DANIEL B. MASSA
No. 59095
Exp. 6/30/13
CIVIL
STATE OF CALIFORNIA

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

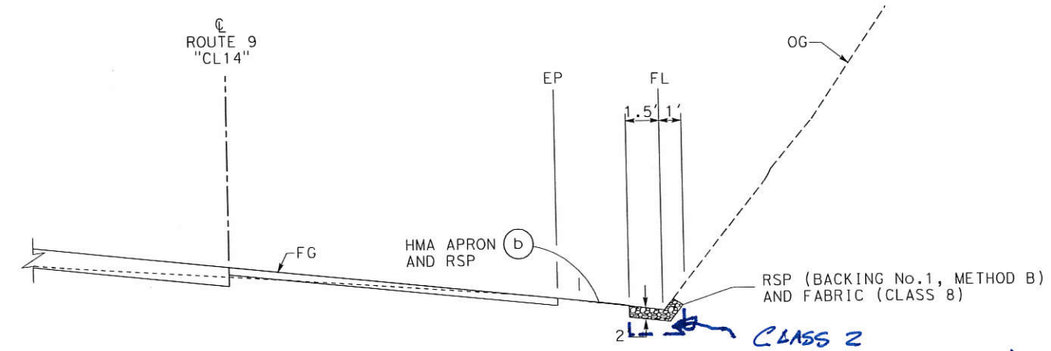
NOTE:
DRAINAGE INLET AND HMA APRON SHALL BE ORIENTATED AT THE SAME CROSS-SLOPE AS ROADWAY.



PLAN VIEW
Sta 17+30.00 "NB"



SECTION B-B



SECTION A-A

MODIFIED HMA APRON AND RSP DETAIL

DRAINAGE SYSTEM No. 2

DRAINAGE DETAILS

NO SCALE

DD-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®
06-DESIGN
FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
CALCULATED-DESIGNED BY: RAJINDER S BRAR
CHECKED BY: DAN MASSA
REVISED BY
DATE REVISED

LAST REVISION 06-08-12 | DATE PLOTTED => 05-APR-2013 | TIME PLOTTED => 13:22

BORDER LAST REVISED 7/2/2010
USERNAME => s124496
DGN FILE => 04000012021c005.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 1475
PROJECT NUMBER & PHASE 04000012021

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.wildlife.ca.gov

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

July 8, 2014

Mr. Hardeep Takhar
California Department of Transportation
111 Grand Avenue
Oakland, CA 94623

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2014-0120-R3
State Route 9 Storm Damage Project

Dear Mr. Takhar:

Enclosed is the final Streambed Alteration Agreement ("Agreement") for the State Route 9 Storm Damage Project ("Project"). Before the Department may issue an Agreement, it must comply with the California Environmental Quality Act ("CEQA"). In this case, the Department, acting as a lead agency, determined your project is exempt from CEQA and filed a notice of exemption ("NOE") on July 8, 2014.

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

If you have any questions regarding this matter, please contact Melissa Escaron, Senior Environmental Scientist (Specialist), at (925)786-3045 or Melissa.escaron@wildlife.ca.gov.

Sincerely,

Craig J. Weightman
Environmental Program Manager
Bay Delta Region

cc: Carie Montero – carie_montero@ca.dot.gov
Lieutenant Moore
Warden Rodriguez

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
BAY DELTA REGION
7329 SILVERADO TRAIL
NAPA, CALIFORNIA 94558
(707) 944-5500
WWW.WILDLIFE.CA.GOV

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2014-0120-R3
Saratoga Creek

CALIFORNIA DEPARTMENT OF TRANSPORTATION
STATE ROUTE 9 STORM DAMAGE PROJECT (EA 4S0504)

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (Permittee), as represented by Hardeep Takhar.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on March 25, 2013 that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

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

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

PROJECT LOCATION

The project is located along State Route 9 in Santa Clara County, near the City of Saratoga, at Post Mile 4.16.

PROJECT DESCRIPTION

Caltrans will be constructing a retaining wall project to address a slope subsidence problem along State Route 9. This Agreement pertains to the drainage rehabilitation element (Project) of the aforementioned project, which is located within CDFW jurisdiction. The drainage rehabilitation work includes the replacement of a headwall, placement of an over-side drain and a down drain, and placement of rock slope protection (RSP) at the inlet and outlet.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- Riparian habitat
- Aquatic invertebrates
- Nesting birds
- California red legged frogs and habitat

The adverse effects the project could have on the fish or wildlife resources identified above include:

- Riparian habitat degradation
- Sensitive species mortality
- Disruption of bird nesting
- Water quality degradation
- Short-term release of contaminants

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall maintain onsite at all times, a copy of the Agreement and any extensions and amendments to the Agreement.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that DFG personnel may, with notification of the Resident Engineer, enter the project site at any time to verify compliance with the Agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below. These conditions apply only to CDFW jurisdiction as described in the Project Description above.

2.1 To minimize adverse impacts to fish and wildlife all work within the bed, bank, channel, and associated riparian habitat shall be confined to the period of May 15 to October 15. Revegetation work is not confined to this time period.

2.2 No trees within CDFW 1602 jurisdiction will be removed.

2.3 At least 30-days prior to commencing project activities covered by this Agreement, the Permittee shall submit to DFG, for review and approval, the qualifications for a number of biologists (Qualified Biologist) that shall oversee the implementation of the conditions in this Agreement. At a minimum, the Qualified Biologists shall have a combination of academic training and professional experience in biological sciences and related resource management activities. The Qualified Biologists shall communicate to the Resident Engineer when any activity is not in compliance with this Agreement and the Resident Engineer shall immediately stop the activity that is not in compliance with this Agreement.

2.4 If Project activities will occur between February 15 and September 1, a Qualified Biologist shall conduct pre-construction surveys for nesting birds no more than one week prior to construction. Surveys shall consist of multiple days of observations. If nests are found the Qualified Biologist shall establish an appropriate buffer to be in compliance with Migratory Bird Treaty Act (MBTA) and Fish and Game Code 3503. The Qualified Biologist shall perform at least two hours of pre-construction monitoring of the nest to characterize "typical" bird behavior. The Qualified Biologist shall monitor the nesting birds and shall increase the buffer if the Qualified Biologist determines the birds are showing signs of unusual or distressed behavior by Project activities. Atypical nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards Project personnel, standing up from a brooding position, and flying away from the nest. The Qualified Biologist shall have authority, through the Resident Engineer, to order the cessation of all Project activities if the nesting birds exhibit atypical behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. To prevent encroachment, the established buffer(s) shall be clearly marked by high visibility material. The established buffer(s) shall remain in effect until the young have fledged or the nest has been abandoned as confirmed by the Qualified Biologist. Any sign of nest abandonment shall be reported to CDFW within 48 hours.

2.5 A Qualified Biologist shall conduct Pre-construction surveys immediately prior to the initiation of any ground disturbing activities within or adjacent to suitable California

red-legged frog (CRLF) habitat. These surveys will comprise walking transects while conducting visual encounter surveys within areas that will be subject to staging, vegetation clearing, grubbing, grading, cut and fill, or other ground disturbing activities. All mammal burrows shall be inspected for signs of CRLF usage to the maximum extent practicable.

2.6 A Qualified Biologist shall be present onsite to monitor for CRLF during construction activities located within suitable CRLF habitat. Through communication with the Resident Engineer, a Qualified Biologist may stop work if deemed necessary for any reason to protect CRLF and will advise the Resident Engineer on how to proceed accordingly. A Qualified Biologist will conduct clearance surveys at the beginning of each day within or adjacent to suitable CRLF and habitat and regularly throughout the workday when construction is occurring within or adjacent to suitable CRLF. If CRLF are encountered in the action area, work within 50 feet of the animal will cease immediately and the Resident Engineer and a United States Fish and Wildlife Service (USFWS)/DFG-approved biologist will be notified. At no time shall work occur within 50 feet of a CRLF without a Qualified Biologist present.

2.7 Prior to handling and relocation, a USFWS/CDFW-approved Qualified Biologist will take precaution to prevent introduction of amphibian diseases in accordance with the Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). CRLF will be captured by hand, dipnet, or other USFWS-approved methodology, transported by hand, dipnet or temporary holding container, and release as soon as practicable the same day of capture. Handling of CRLF will be minimized to the maximum extent practicable Holding/transporting containers and dipnets will be thoroughly cleaned and disinfected and will be rinsed with freshwater onsite immediately prior to usage unless doing so would result in the injury or death of the animal due to the time delay. CRLF will be relocated to the nearest suitable habitat outside of the area where actions would not result in harm or harassment. The individual(s) will be released within suitable habitat in the Caltrans right-of-way or another property acceptable to the property owner, and the USFWS and CDFW will be notified. If suitable habitat cannot be identified, the USFWS and CDFW shall be contacted to determine an acceptable alternative.

2.8 To prevent inadvertent entrapment of CRLF, or other animals during construction, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered with plywood or similar materials at the end of each workday or the holes or trenches will contain one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.

2.9 To the extent practicable, Permittee shall leave the root masses of removed trees and shrubs in place. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

2.10 All slopes or unpaved areas temporarily affected will be restored to pre-project conditions to the maximum extent practicable. Slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Hydroseed mixes shall not contain exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://www.cal-ipc.org/ip/inventory/weedlist.php.

2.11 Permittee shall comply with all applicable state and federal laws, including the California and Federal Endangered Species Act. This Agreement does not authorize the take of any state or federally endangered listed species. Liability for any take or incidental take of such species remains the responsibility of the Permittee for the duration of the project. Any unauthorized take of listed species may result in prosecution and nullification of the Agreement.

2.12 If any wildlife is encountered during the course of project activities, said wildlife shall be allowed to leave the area unharmed and on their own volition.

2.13 The perimeter of the work site shall be adequately fenced using high visibility Environmentally Sensitive Area (ESA) fencing to prevent damage to adjacent riparian habitat. No construction activities, within the riparian zone, will be allowed within the habitat protected by the ESA fencing. ESA fencing shall be inspected and maintained daily.

2.14 Prior to the start of construction, Wildlife Exclusion Fencing (WEF) shall be installed and maintained daily along the project footprint in all areas where sensitive species could enter the work site. The location of the WEF will be determined by the Resident Engineer, in consultation with a Qualified Biologist based on habitat suitability. The final project plans will show where and how the WEF will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and proper WEF installation and maintenance.

2.15 Permittee shall conduct work defined in the above project description, and within the project area, during periods of dry weather. The project area is defined as the bed, bank, channel, and associated riparian habitat. The Permittee shall monitor forecasted precipitation. When ¼ inch or more of precipitation is forecasted to occur, the Permittee shall stop work before precipitation commences. No activity of the project may be started if its associated erosion control measures cannot be completed prior to the onset of precipitation. After any storm event, the Permittee shall inspect all sites currently under construction and all sites scheduled to begin construction within the next 72 hours for erosion and sediment problems and take corrective action as needed. Seventy-two hour weather forecasts from National Weather Service shall be consulted and work shall not start back up until runoff ceases and there is less than a 30% forecast for precipitation for the following 24-hour period.

2.16 Permittee shall utilize erosion control measures throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waterways. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream. Erosion control installations shall be monitored for effectiveness and shall be repaired or replaced as recommended by a Water Quality Monitor to the Resident Engineer or designated representative. As needed to prevent sediment transport, Permittee shall deploy soil stabilizer such as hydroseeding, netting, erosion control mats, mulch, fiber rolls, silt fences, check dams, and flow velocity dissipation devices. Permittee shall stabilize and equip construction site entrances and exits with tire washing capability. Materials containing monofilament or plastic shall not be used. Erosion and sediment control measures shall be installed prior to unseasonable rain storms.

2.17 Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located outside of the creek channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the creek shall be positioned over drip pans. Any equipment or vehicles driven and/or operated above or adjacent to the stream must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

2.18 Refueling of mobile construction equipment and vehicles shall not occur within 50 feet of any water body, or anywhere that spilled fuel could drain to a water body. Refueling of stationary equipment requiring breakdown and setup to move will remain in place. All equipment shall be refueled with appropriate drip pans, absorbent pads, and water quality Best Management Practices. Equipment and vehicles operating in the project area shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.

CONTACT INFORMATION

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

To Permittee:

California Department of Transportation
Hardeep Takhar
111 Grand Ave.
Oakland, Ca 94623
hardeep.takhar@dot.ca.gov

To CDFW:

California Department of Fish and Wildlife
Bay Delta Region
7329 Silverado Trail
Napa, California 94558
Attn: Lake and Streambed Alteration Program – Melissa Escaron
Notification #1600-2014-0120-R3
Fax (707) 944-5553
Melissa.escaron@wildlife.ca.gov

LIABILITY

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

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

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

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

ENFORCEMENT

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

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

OTHER LEGAL OBLIGATIONS

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

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

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

AMENDMENT

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

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

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

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

EXTENSIONS

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

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

EFFECTIVE DATE

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

TERM

This Agreement shall expire on December 31, 2018, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY

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

AUTHORIZATION

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

CONCURRENCE

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

FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION

Hardeep Takhar
Office Chief

7/1/14
Date

FOR DEPARTMENT OF FISH AND WILDLIFE

Craig Weightman
Environmental Program Manager

7/9/14
Date

Prepared by: Melissa Escaron
Staff Environmental Scientist

Date Prepared: June 10, 2014
Date Sent: June 17, 2014
Revision Sent: June 30, 2014

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No.
4/1/14	$ 9210.00 on 4/4/14 VE 082-313465 Bill Lockyer	$		1600-2014-0120-3 Escaron Wdn Rodriguez

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Hardeep Takhar, Office Chief, Biological Sciences and Permits		
Business/Agency	California Department of Transportation (Caltrans)		
Street Address	111 Grand Avenue		
City, State, Zip	Oakland, CA 94612		
Telephone	(510) 715-6816	Fax	
Email	hardeep_takhar@ca.dot.gov		

Fish & Wildlife
APR 0 1 2014
Napa

2. CONTACT PERSON (*Complete only if different from applicant*)

Name	Carie Montero, Caltrans		
Street Address	111 Grand Avenue		
City, State, Zip	Oakland, CA 94612		
Telephone	(510) 286-5636	Fax	
Email	carie_montero@ca.dot.gov		

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name			
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name	State Route 9 Storm Damage Project
B. Agreement Term Requested	☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years*)

C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (*year*)	Ending (*year*)	Start Date (*month/day*)	End Date (*month/day*)	
2015	2015	April 15	October 15	120

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.	
A.	☑ Standard *(Most construction projects, excluding the categories listed below)*
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:* _____
C.	☐ Timber Harvesting (*Attachment B*) THP *Number:* _____
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* _____
E.	☐ Routine Maintenance (*Attachment D*)
F.	☐ CDFW Fisheries Restoration Grant Program (FRGP) *FRGP Contract Number* _____
G.	☐ Master
H.	☐ Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

	A. Project	B. Project Cost	C. Project Fee
1	Drainage 1 Rehabilitation	$40,000	$921.00
2			
3			
4			
5			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE ENCLOSED	$921.00

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (*Provide the information below*) ☑ No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

8. PROJECT LOCATION

A. Address or description of project location.

(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

The project is located in unincorporated Santa Clara County, near the City of Saratoga on State Route (SR) 9 at PM 4.16. A map of the project location is provided in Attachment B: Project Maps and Photographs, Figure 1.

☑ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	unnamed ephemeral drainage
C. What water body is the river, stream, or lake tributary to?	Saratoga Creek
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☑ No ☐ Unknown
E. County	Santa Clara

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Castle Rock Ridge	8S	2W	9	SE

☐ *Continued on additional page(s)*

K. Meridian (*check one*) ☐ Humboldt ☑ Mt. Diablo ☐ San Bernardino

L. Assessor's Parcel Number(s)

The project is located within Assessor's Parcel Numbers 517-04-065 and 517-04-002. However, the project is located within existing permanent drainage easements.

☐ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

Latitude/Longitude	*Latitude:* 37.249331	*Longitude:* -122.080475	
	☐ Degrees/Minutes/Seconds	☑ Decimal Degrees	☐ Decimal Minutes
UTM	*Easting:* 581548.7449954624	*Northing:* 4122928.1554303854	☑ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM	☐ NAD 27	☑ NAD 83 or WGS 84	

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☑	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Diversion structure – weir or pump intake	☐	☐	☐
Filling of wetland, river, stream, or lake	☐	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☐	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal – pond, stream, or marina	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing : Horizontal Directional Drilling	☐	☐	☐
Jack/bore	☐	☐	☐
Open trench	☐	☐	☐
Other *(specify)*:	☐	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

Caltrans proposes to repair and replace two drainage systems on the south side of SR-9 within the project footprint that are leaking and are contributing to subsidence on the adjacent slope on the north side of the highway (see Attachments A and B). Of the two systems, Drainage 1 at the inlet is within CDFW jurisdiction because the ephemeral drainage that is directed into the system has a distinct bed and bank (Figure 3). The outfall of Drainage 1 is not within CDFW jurisdiction because the outfall is located above the bed, bank, and associated riparian vegetation of Saratoga Creek. Drainage 2 is non-jurisdictional because it only conveys roadside run-off and does not have a bed, bank, or any associated riparian vegetation.

The replacement of Drainage 1 will consist of the following activities:
1. Replacement of a headwall;
2. Addition of RSP to the drainage inlet;
3. Addition of an overside drain;
4. Abandonment of the existing cross culvert and installation of a new culvert to a drainage inlet on the north side;
5. Replacement of the downdrain; and
6. Addition of a RSP pad at the outfall.

Of these activities, only activities 1, 2, and 3 are within CDFW jurisdiction (Please see Figure 3 in Attachment B).

☑ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Anticipated construction equipment includes: excavators, compactors, a loader, a backhoe, haul trucks, and cranes.

☐ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☐ Yes ☑ No (*Skip to box 11*)
D. Will the proposed project require work in the wetted portion of the channel?	☐ Yes (*Enclose a plan to divert water around work site*) ☑ No

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

The impacts to CDFW jurisdiction are a result of the headwall replacement and the RSP pad at the drainage inlet at Drainage 1 (Figure 3). The project will result in approximately 6.87 linear feet and 39.60 square feet of permanent impacts, approximately 1.63 linear feet and 10.84 square feet of temporary impacts, and a discharge of 2.83 cubic yards of RSP into the ephemeral drainage.

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☑ Yes (*Complete the tables below*) ☑ No

Vegetation Type	Temporary Impact	Permanent Impact
Mixed evergreen forest understory	Linear feet: _____ Total area: _____	Linear feet: 7 Total area: 5 square feet
	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
N/A	0	N/A

☑ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

California red-legged frog occurrences are within 2 miles of the proposed project.

☑ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

Biological Assessment for the SR-9 Storm Damage Project (Attachment C) and CNDDB search.

☑ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (*Enclose the hydrological study*) ☑ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

To minimize erosion and prevent sediment from entering watercourses, a Storm Water Pollution Prevention Plan (SWPPP) will be developed. Additional avoidance and minimization measures to prevent erosion are provided in Attachment C: Biological Assessment.

☑ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Avoidance and minimization measures to protect wildlife and plant resources are provided in Attachment C: Biological Assessment.

☑ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

Avoidance and minimization measures to protect wildlife and plant resources are provided in Attachment C: Biological Assessment. No mitigation or compensation is proposed for the project.

☑ *Continued on additional page(s)*

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A.	U.S. Fish and Wildlife Service Section 7 Consultation	☑ Applied	☐ Issued
B.	San Francisco RWQCB Section 401 Water Quality Certification	☑ Applied	☐ Issued
C.	U.S. Army Corps of Engineers Non-reporting Nationwide Permit 14	☐ Applied	☑ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☑ Yes (*Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each*)

☐ No (*Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared*)

☑ Notice of Exemption	☐ Mitigated Negative Declaration	☐ NEPA document (*type*):
☐ Initial Study	☐ Environmental Impact Report	☐ CESA document (*type*):
☐ Negative Declaration	☐ Notice of Determination *(Enclose)*	☑ ESA document (*type*): Biological Assessment
☐ THP/ NTMP	☐ Mitigation, Monitoring, Reporting Plan	

B. State Clearinghouse Number (*if applicable*)	N/A		
C. Has a CEQA lead agency been determined?	☑ Yes (*Complete boxes D, E, and F*)	☐ No (*Skip to box 14.G*)	
D. CEQA Lead Agency	Caltrans		
E. Contact Person		F. Telephone Number	

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

The project described in this notification is part of a larger project, the State Route 9 Storm Damage Project. The full project description for the State Route 9 Storm Damage Project is provided in Attachment A: Supplemental Information.

☑ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☑ Yes (*Enclose proof of payment*) ☐ No (*Briefly explain below the reason a filing fee has not been paid)*

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☑ I request the Department to first contact (*insert name*) Carie Montero at (*insert telephone number*) (510) 286-5636 to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e. CD, DVD, etc.)?
☑ Yes (Please enclose the information via digital media with the completed notification form)
☐ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Hardy S. Takhar — 3-28-14

Signature of Applicant or Applicant's Authorized Representative — Date

HARDEEP TAKHAR

Print Name

NOTICE OF EXEMPTION

To: Office of Planning and Research Post Office Box 3044 Sacramento, California 95812-3044	**From:** California Department of Fish and Wildlife Bay Delta Region 7329 Silverado Trail Napa, California 94558

Project Title: State Route 9 Storm Damage Project

Specific Project Location: State Route 9, Post Mile 4.16

Project Location - City and County: Saratoga, Santa Clara County

Description of Project: The Project will replace an existing drainage facility within an ephemeral creek upstream of Saratoga Creek. Issuance of Streambed Alteration Agreement #1600-2014-0120-R3 is pursuant to Fish and Game Code Section 1602.

Name of Lead Agency Approving Project: California Department of Fish and Wildlife

Name of Applicant, Person, or Agency Carrying Out Project: California Department of Transportation

Applicant Address: 111 Grand Ave., Oakland, CA 94623

Exempt Status - Class and Guidelines Section: Class 1 - Section 15301

Reasons Why Project is Exempt: Maintenance of existing facility.

Lead Agency Contact Person: Melissa Escaron, Senior Environmental Scientist, (925)786-3045

Signature: _____ **Date**: July 8, 2014
Name: Craig J Weightman, Environmental Program Manager

[x] Signed by Lead Agency **Date received for filing at OPR:** _____
[ ] Signed by Applicant

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. GORDON DANKE
Senior Bridge Engineer
Office of Structures Design

Date: April 6, 2012

Attention: Rosa Ma. Candiotti

File: 04-SCL-09 PM 4.16
04-4S0501
Slipout Repair

From: M. DEHGHAN / S. AWAD
Associate Materials and Research Engineers
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Per

HOOSHMAND NIKOUI
Chief, Branch A
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Addendum to the Foundation Report (FR) dated February 3, 2012.

As per your request we are providing an addendum to our FR in regards to the restrictions imposed by the limited State R/W.

As stated in the Foundation Report, the wall shall be designed for a 24 feet high tieback wall with lagging, but due to the limited R/W, the normal construction of this wall will require excavation outside of the State R/W.

In addition, the adjoining property owners request for Caltrans to preserve their existing slopes which will require backfilling, and rebuilding their side back to its original condition after the construction of the tieback wall.

However, we propose the following in lieu of excavation and backfilling outside of State R/W.

1- The excavation should be limited only to the elevation where it will not require any excavation outside of the State R/W. Therefore, the exposed height of the tieback wall will be limited by the possible amount of excavation as determined by the Project Engineer and Structure Design.

2-Lagging shall be extended to 2 feet below this excavation elevation.

Bases on our study of the project site, available literature and the existing adjacent tieback wall, we do not anticipate any major soil movement other than possibly a slow creep below the Waler elevation, which can be addressed in the future if needed. We also do not believe that soil arching will be critical since we do not anticipate a sudden deep landslide in front of the wall.

Should you have any questions, please call me at (510) 286-4717 or Hooshmand Nikoui, Brach Chief at (510)286-4811.

c: TPokrywka, HNikoui, MDehghan, SAwad, Dily File, Project File

MDehghan/mm

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MS. GORDON DANKE
Senior Bridge Engineer
Office of Structures Design

Attention: Rosa Ma. Candiotti

Date: February 3, 2012

File: 04-SCL-09 PM 4.16
04-4S0501
Landslide Repair

From: M. DEHGHAN / S. AWAD
Associate Materials and Research Engineers
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

H. Nikoui
HOOSHMAND NIKOUI
Chief, Branch A
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : Foundation Report for Tieback Soldier Pile Wall

1. INTRODUCTION

The project is located on Route 9 at PM 4.16 Santa Clara County, (see attached Exhibit A, Vicinity Map).

A landslide occurred at this site during the winter of 1997. The slipout occurred along the southbound lane of State Route 9, approximately 1 mile south of Sanborn Road at PM 4.12 in Santa Clara County. A 256 feet long tieback wall was constructed at this location to stabilize the slope and repair the roadway.

However, due to the storms of winter 2009, a new landslide occurred adjacent immediately to the north of above mentioned tieback wall. Our site inspection revealed signs of distress, subsidence and downhill movement of the slope which extends approximately 12 feet into the travel lane. The total length of the new slipout is approximately 250 feet.

Due to safety improvement need, the road has to be widened on the southbound direction within the entire length of the new landslide repair limits and extending 66 feet southward beyond the end of the existing tieback wall.

This report provides foundation recommendations for a retaining wall that will stabilize the roadway and also provide additional space for widening in front (face) of the existing tieback wall.

Recommendations contained in this report are based on the submitted layout and cross section plans, field survey, subsurface exploration, laboratory test results and engineering analysis and judgment.

2. PROJECT PURPOSE AND NEED

The need for this project is to improve the roadway safety by both stabilizing the landslide and providing additional room for widening of the traveled way.

3. SCOPE OF WORK

The following tasks were performed for the preparation of this Foundation Report:

- Review of as-built plans and the available geotechnical information;
- Field geotechnical exploration, including drilling 2 borings near the edge of the traveled way within the landslide zone;
- Laboratory testing results on selected samples;
- Foundation design analysis; and
- Preparation of this Foundation Report.

4. SITE GEOLOGY AND SEISMICITY

4.1 Regional Geology

The project is located in the Santa Cruz Mountains, part of the Coast Range geomorphic province of California. The Bay Area consists of northwest-trending ridges, gently sloping hills, intermontane valleys, and large elongated depressions. The Santa Cruz Mountains consist of a number of complex ridges or small ranges with rugged slopes.

The San Andreas Fault system, the most prominent geologic feature in the area, includes the San Andreas Fault as well as numerous splays. The major faults within the system are predominately right-lateral strike-slip faults with a compressional component. This act together to form the regional topography. San Francisco Bay, a partially filled, northwest-trending depression extending from the Santa Clara Valley in the south to the Petaluma Valley in the north, is a result of these fault interactions.

The region is highly seismically active, with numerous active and potentially active faults. For most of the Santa Cruz Mountains, the San Andreas Fault zone controls the seismic hazard.

4.2 Site Geology

The Geologic Map of San Francisco-San Jose Quadrangle[1] shows the proposed retaining wall lies on Franciscan Complex mélange. The Franciscan complex is a 'Block-in matrix' formation, with harder blocks of all sizes randomly distributed in a soft, sheared matrix. Rocks in the Franciscan complex include sheared argillite, serpentine, and greywacke sandstone.

The San Andreas Fault zone crosses Highway 9 between PM 3.25 and 4.75. The Working Group on California Earthquake Probabilities (2003)[1] assigns the San Andreas Fault a 21% chance of producing an earthquake greater than M 6.7 in the next 30 years. Very strong ground motion is a near-certainty within the design life of any structure built at the site.

4.3 Seismicity

Highway 9 crosses the Holocene-active San Andreas Fault zone at approximately PM 3.25 – 4.75 (CDMG, 1980). Table 1 lists active faults near the project area and the peak ground accelerations that could be expected from the maximum credible earthquake. The two major active faults in the area, the San Andreas and the San Gregorio, both have the potential for magnitude 7.5 or greater earthquakes. Faults in the project area are shown on following Table 1 and Exhibit B.

Table 1

Fault	Approximate minimum distance to project (kilometers)	MCE	PGA (g)
San Andreas	0	8	**0.74**
San Gregorio	24	7.5	0.27
Calaveras	32	7.5	0.20
Hayward	26	7.5	0.25
Monte Vista	9.6	6.5	0.55
Sargent	16	6.75	0.58

The shaking hazard at the site is controlled by the San Andreas Fault, capable of producing surface rupture on Highway 9, and potentially within the footprint of this retaining wall.

[1] Working Group of California Earthquake Probabilities, 2003, Summary of Earthquake Probabilities in the San Francisco Bay Region: 2003 – 2032, USGS Open-File Report 03-214, 235 p.

4.4 Liquefaction

Liquefaction potential is considered very low.

5. SUBSURFACE INVESTIGATION

In addition to the exploration (Boring P-1) performed on February 24, 1996, a new subsurface exploration was performed by the Office of Geotechnical Design West (OGDW) in May of 2011. It consists of 2 mud-rotary borings with Standard Penetration Tests (SPT). Soil samples were taken every 5 feet from the Standard Penetration Test (SPT) sampling. All foundation soil classifications were based on Caltrans "Soil and Rock Logging, Classification, and Presentation Manual".

The borings (R-11-001 and R-11-002) were drilled along the proposed retaining wall alignment. The borings show Franciscan mélange and blocks of hard rock. The subsurface conditions can vary from very soft to very hard, with no lateral continuity. While the borings show soft matrix, very hard blocks of rock may occur in the excavation. Log of Test Borings are attached, Exhibit C (LOTBs).

Ground water was encountered at the depth of 17 feet below the roadway elevation in boring R-11-001. Ground water was encountered in Boring P-1 (February 1996) at the depth of 16 feet below the roadway elevation. However, water elevations are subject to seasonal fluctuations.

6. GEOTECHNICAL TESTING

6.1 In Situ Testing

In all borings, Standard Penetration Test (SPT) was performed at 5-feet interval in soil strata. Pocket Penetrometer (PP) was conducted on soil samples showing apparent cohesion. Visual soil classifications were made in the field in accordance with the Unified Soil Classification System. Soil samples were collected at various depths for laboratory testing.

7. CORROSION EVALUATION

Corrosion studies were conducted in accordance with the requirements of California Test Method No. 643. The Department considers the site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil 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, or the pH is 5.5 or less.

The following tables provide the corrosion test summary:

Table 2 ----Summary of Corrosion Test for Soldier pile wall

Boring	*SIC Number*	*Sample Depth(ft)*	*Resistivity (Ohm-Cm)*	*pH*	*Chloride Content (ppm)*	*Sulfate Content (ppm)*
R-11-001	CSAwad-1	15 to 20	3836	7.44	N/A	N/A
R-11-002	CSAwad-2	15 to 20	4909	7.3	N/A	N/A

Based on the test results from the Materials Engineering Testing Services (METS) of Caltrans, the foundation soils at the proposed soldier pile wall are considered non-corrosive. Refer to Attached Exhibit D.

8. FOUNDATION RECOMMENDATIONS

Based on the site condition and the results of our field investigation, we recommend that a tieback soldier pile wall be constructed at this location. This wall should be constructed at the outside edge of the proposed new shoulder. with a maximum height of 24 ft, and extend from Station 14 + 18.18 to 17 + 79.91 (361.73') as shown in the attached General Plan prepared by Structures Design (Exhibit E). This wall will cover the entire unstable area as well as proposed widening section in front (face) of the existing tieback wall (Station 14+18.18 to 14+84.25).

Overlap Section (Station 14+18.18 to 14+84.25)

In order to avoid the existing tieback wall's anchors, we recommend that the proposed wall's soldier piles, and anchors be spaced such that they do not encounter any part of the existing tiebacks and soldier beams. Therefore, the proposed tieback anchors should be installed at 7.5 feet below the proposed roadway elevation. We believe a series of closely spaced soldier piles without any tieback anchors should be considered in lieu of a tieback wall for this section. We also recommend the use of lightweight self compacting materials such as volcanic gravel or Permeable Material Class2 or 3 (PM2 or PM3) to fill the void in between the existing tieback wall and the new wall. Filter fabric should be placed against the back of the new wall in this

section to prevent the fines from being washed out. Due to the difficulty of achieving proper compaction between the two walls, the proposed barrier slab in this section should be supported on the existing tieback wall and the proposed wall.

Tieback Section

The anchors should be installed at an angle of 15 degrees from the horizontal plane. The anchors should be spaced at 7 feet (maximum) on center. The unbounded lengths of the tieback anchors should be a minimum of 50 ft long. We recommend the tieback soldier pile wall be designed for the following loads;

Lateral Earth Pressures

For active earth pressure against the wall/piles, use the following:

- Internal friction angle ϕ=26 degrees and c=500 psf and soil unit weight γ=130 pcf. These soil parameters are estimated from slope stability analysis along the failure line of the slide. An equivalent Internal friction angle ϕ=32 degrees and c=0 psf may be used in lieu of ϕ=26 degree and c=500 psf

- Earth pressure distribution shall be in accordance with "Memo to Designers 5-12" dated August 1990.

- For traffic surcharge, use 240 psf.

The above recommended loadings are based on the assumption that an adequate drainage system will be provided to prevent the development of hydrostatic pressure behind the wall. If complete, drainage of the wall cannot be achieved, add hydrostatic pressure assuming groundwater at 5 feet below the top of wall.

Due to the potential of high ground acceleration, the seismic stability of the wall should be checked.

For passive earth pressure against the soldier piles, use the following:

- Use passive earth coefficient (Kp) of 3.0. This Kp was computed using engineering properties of Franciscan Melange (internal friction angle ϕ =30°, cohesion c = 0 psf, and total unit weight of soil/rock γ = 130 pcf).

- For Friction Factor use $\delta = 2/3\ \phi°$
- Use an arching factor of 2 (equal to 8 percent of soil friction angle).
- Minimum of 5 feet wide bench at the base of the wall.

Vertical Capacity of Soldier Piles

Soldier piles should be embedded a minimum of 15 ft below the design height of the wall. The pile spacing should not exceed 7 ft.

The ultimate vertical compression and tension capacities of the piles are summarized in Table 3.

TABLE 3 (Pile Friction)

	Ultimate ksf	**Allowable ksf**
Unit pile shaft friction per unit surface area of the pile length below the full design wall height	1.4	0.7(SF=2)

Use 60% of the compression shaft resistance values to calculate the ultimate tension (uplift) resistance of the pile.

9. CONSTRUCTION CONSIDERATIONS AND REQUIREMENTS

The following construction considerations and requirements should be included in the design and construction specifications for the proposed wall:

- Installation of the CIDH piles should be performed in accordance with Section 49-4 of the May 2006 Caltrans Standard Specifications.
- The contractor may encounter difficulties during drilling for the soldier pile and tieback anchor holes. This is likely due to the presence of large blocks of hard rock in a soft clay matrix, loose/soft slide mass, and presence of high groundwater.
- During drilling operation for the proposed soldier piles, we believe that some caving of the drilled holes may occur. Thus, use of casing maybe required. Due to groundwater encountered, installation of soldier piles may require drilling and placing concrete in wet

conditions, if de-watering is not desirable. For displacement of groundwater, the contractor may choose to use a closed system using a concrete pump or a tremie tube to place concrete at the bottom of the holes for soldier piles. A positive head should be maintained at all times to reduce potential for concrete segregation.

- The drilling and concrete placement for CIDH pile construction shall be staggered. No open holes shall be adjacent.

* * * * *

Should you have any questions, please call me at (510) 286-4717 or Hooshmand Nikoui, Brach Chief at (510)286-4811.

c: TPokrywka, HNikoui, MDehghan, SAwad, Dily File, Project File

MDehghan/mm

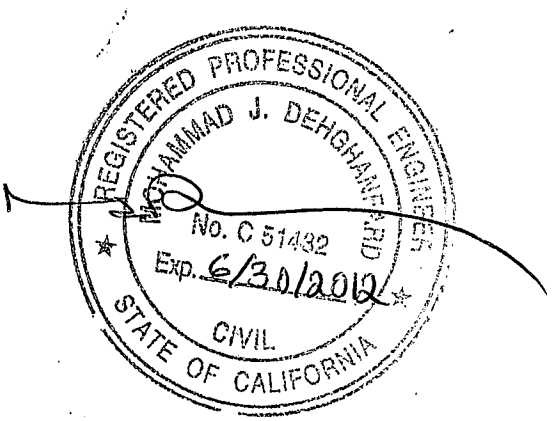
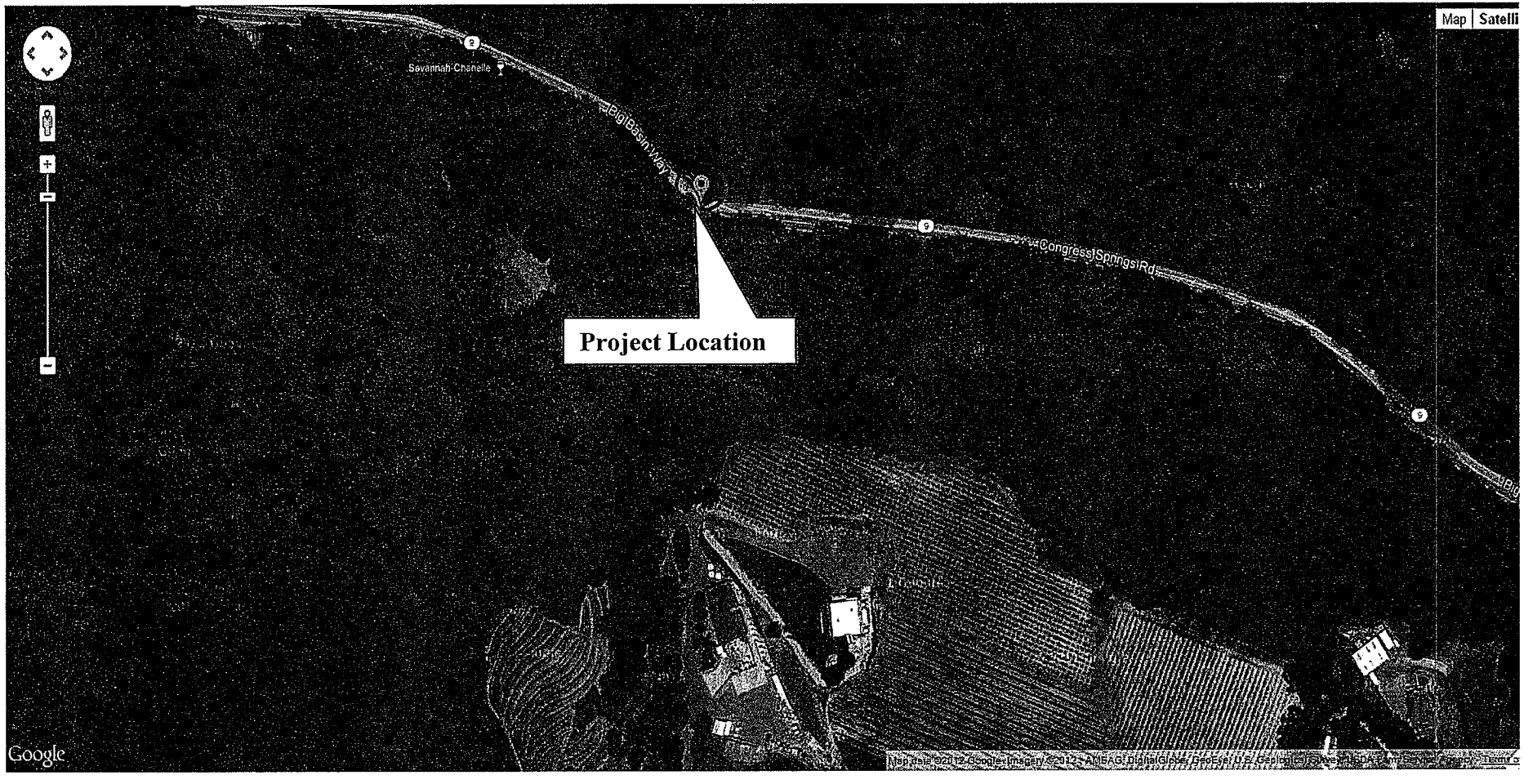


EXHIBIT A

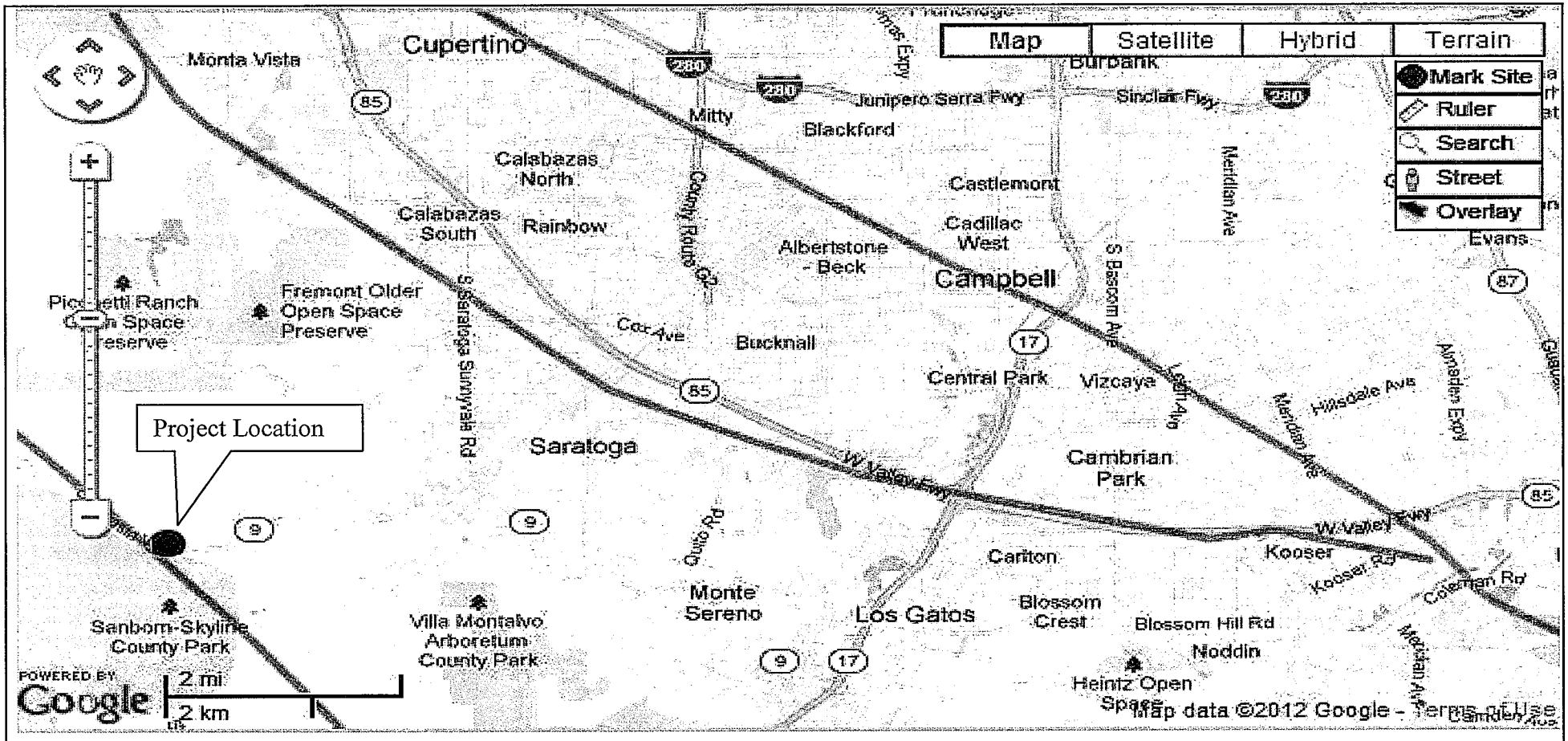
(Location Map)



SCALE Not to Scale	Caltrans	**Engineering Service Center** DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B	LOCATION MAP 04-SCL-9 EFIS 0400020739 PM 4.16 February 2012 Exhibit A

EXHIBIT B

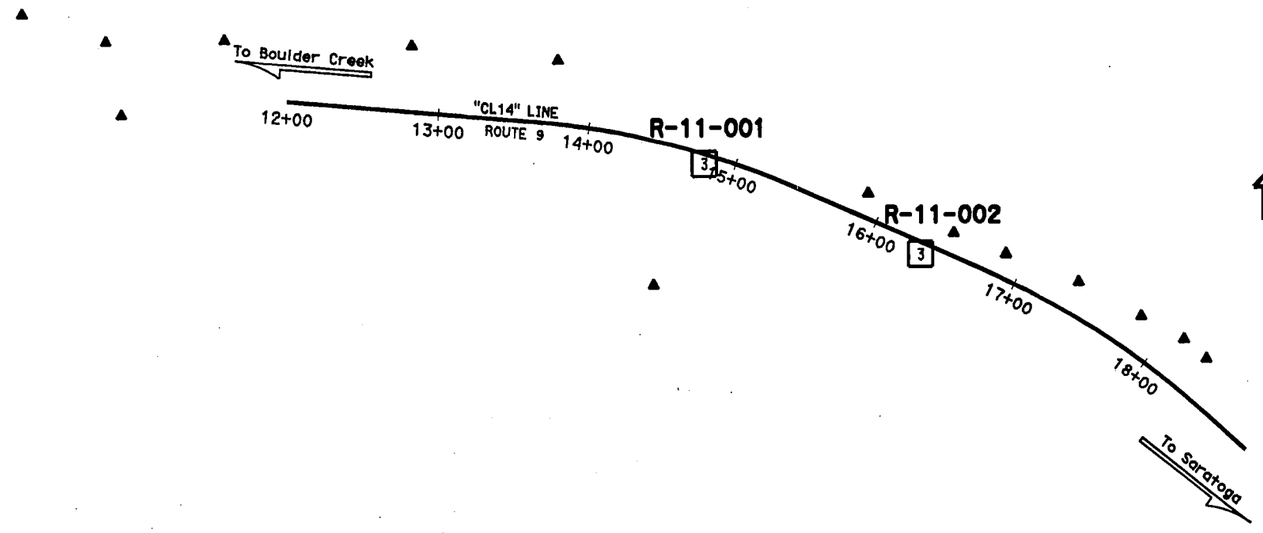
(Fault Map)



Not to Scale	Caltrans	**Engineering Service Center** DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B	FAULT MAP 04-SCL-9 EFIS 0400020739 PM 4.16 February 2012 Exhibit B

EXHIBIT C

(LOTB sheets)



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCl	9	4.16		

REGISTERED CIVIL ENGINEER 02-03-12

PLANS APPROVAL DATE

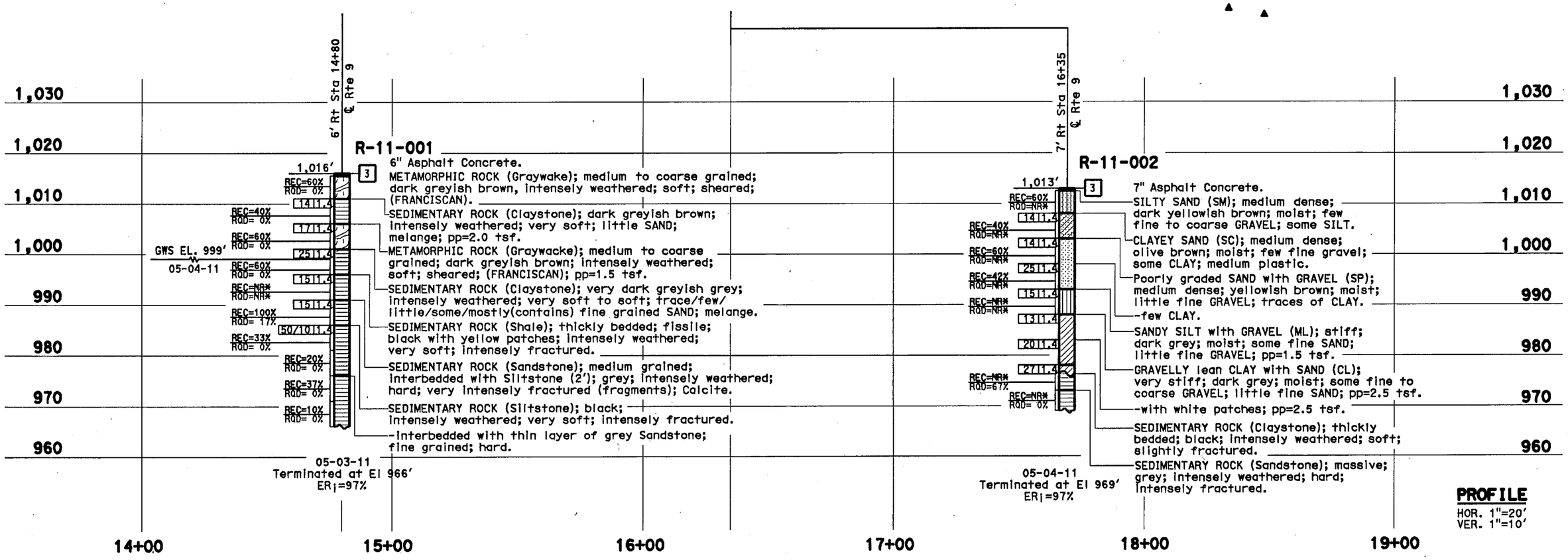
REGISTERED PROFESSIONAL ENGINEER — Samuel Awad — No. 64589 — Exp. 6-30-13 — CIVIL — STATE OF CALIFORNIA

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.

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

NOTE: 1. pp=unconfined compressive strength (tsf) as measured by pocket penetrometer.

2. *NR: Not Recorded.



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

ENGINEERING SERVICES		GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL DESIGN BRANCH	BRIDGE NO.	TIEBACK WALL and STORM DAMAGE
FUNCTIONAL SUPERVISOR NAME: H. Nikoui	DRAWN BY: M. Reynolds 08-11 CHECKED BY: Mo Dehghan	FIELD INVESTIGATION BY: S. Awad			POST MILES 4.16	LOG OF TEST BORINGS 1 of 4

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3660
PROJECT NUMBER & PHASE: 04000012020 CONTRACT NO.: 044e0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF

FILE =>'44S050ec01.dgn

USERNAME =>S110822 DATE PLOTTED => 03-FEB-2012 TIME PLOTTED => 11:24

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	9	4.16		

REGISTERED CIVIL ENGINEER — DATE 02-03-12

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.

REGISTERED PROFESSIONAL ENGINEER — Samuel Awad — No. 64589 — Exp 6-30-13 — CIVIL — STATE OF CALIFORNIA

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.

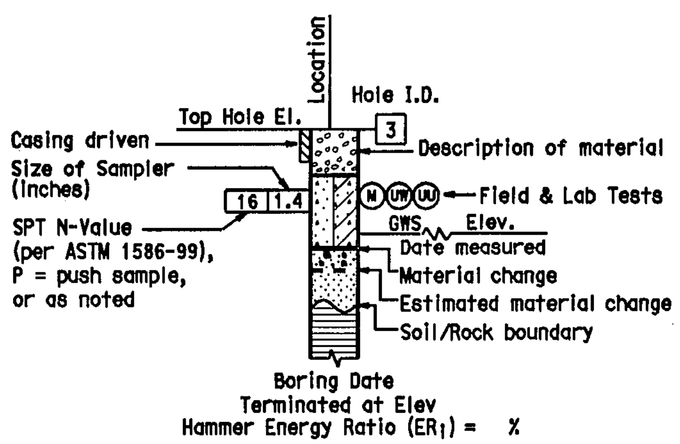
BOREHOLE IDENTIFICATION

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

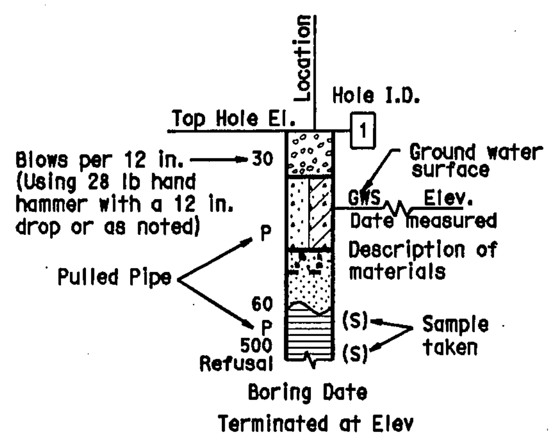
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

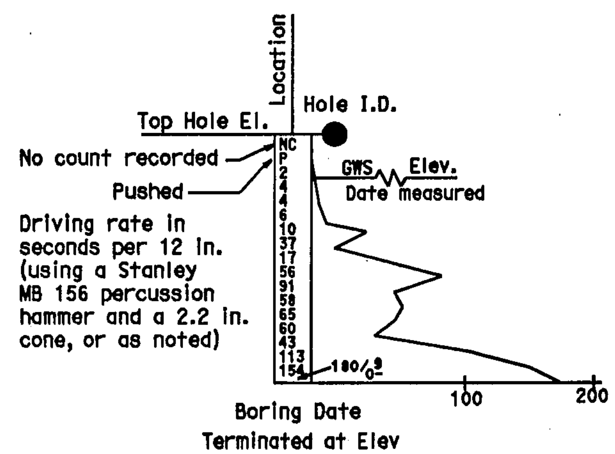
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 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



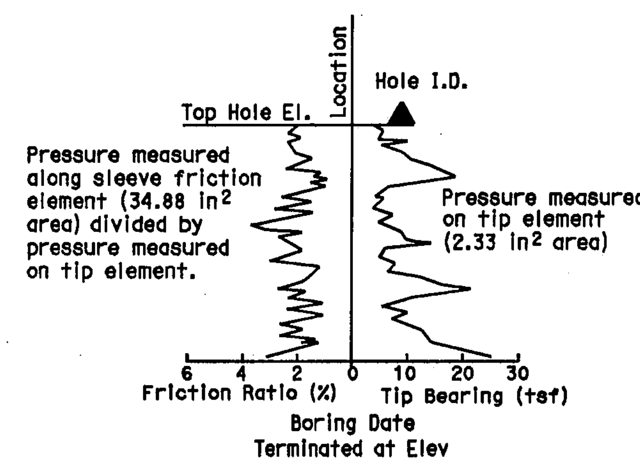
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL DESIGN BRANCH	BRIDGE NO. / POST MILE 4.16	TIEBACK WALL and STORM DAMAGE LOG OF TEST BORINGS 2 of 4
	PREPARED BY: M. Reynolds 08/11				

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3660
PROJECT NUMBER & PHASE: 04000012020 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES — SHEET — OF

FILE => 4s0s0ec02.dgn

USERNAME => s110822 DATE PLOTTED => 03-FEB-2012 TIME PLOTTED => 11:24

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

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)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	9	4.16		

02-03-12
REGISTERED CIVIL ENGINEER DATE

Samuel Awad No. 64589 Exp. 6-30-13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (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 OFFICE OF GEOTECHNICAL DESIGN BRANCH	BRIDGE NO. / POST MILE 4.116	TIEBACK WALL and STORM DAMAGE LOG OF TEST BORINGS 3 of 4
	PREPARED BY: M. Reynolds 08/11				

05 LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3660
PROJECT NUMBER & PHASE: 04000012020 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET | OF

FILE => 44S050ec03.dgn

USERNAME => S1T0822 DATE PLOTTED => 03-FEB-2012 TIME PLOTTED => 11:25

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCl	9	4.16		

02-03-12
REGISTERED CIVIL ENGINEER — DATE

Samuel Awad No. 64589 Exp. 6-30-13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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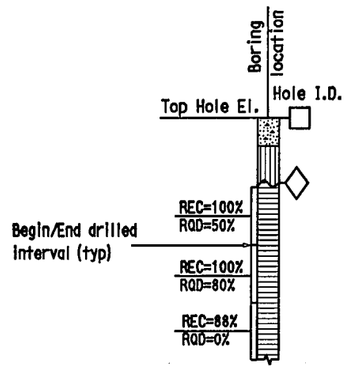
PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

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

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

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.

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.

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."

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL DESIGN BRANCH	BRIDGE NO. / POST MILE	TIEBACK WALL and STORM DAMAGE
	PREPARED BY: M. Reynolds 08/11				LOG OF TEST BORINGS 4 of 4.

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3660 PROJECT NUMBER & PHASE: 04000012020 CONTRACT NO.: 04-4S0501

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES | SHEET | OF

FILE => 44S050ec04.dgn

USERNAME => S1T0822 DATE PLOTTED => 03-FEB-2012 TIME PLOTTED => 11:27

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SCl	9	4.12		

5-9-96
REGISTERED CIVIL ENGINEER

H. Nikoui-G
No. 42698
Exp. 3-31-00
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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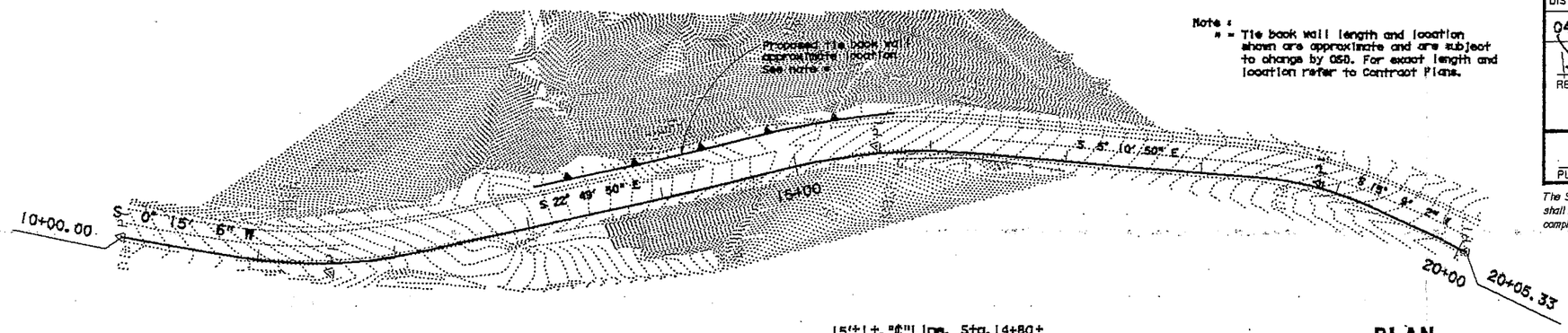
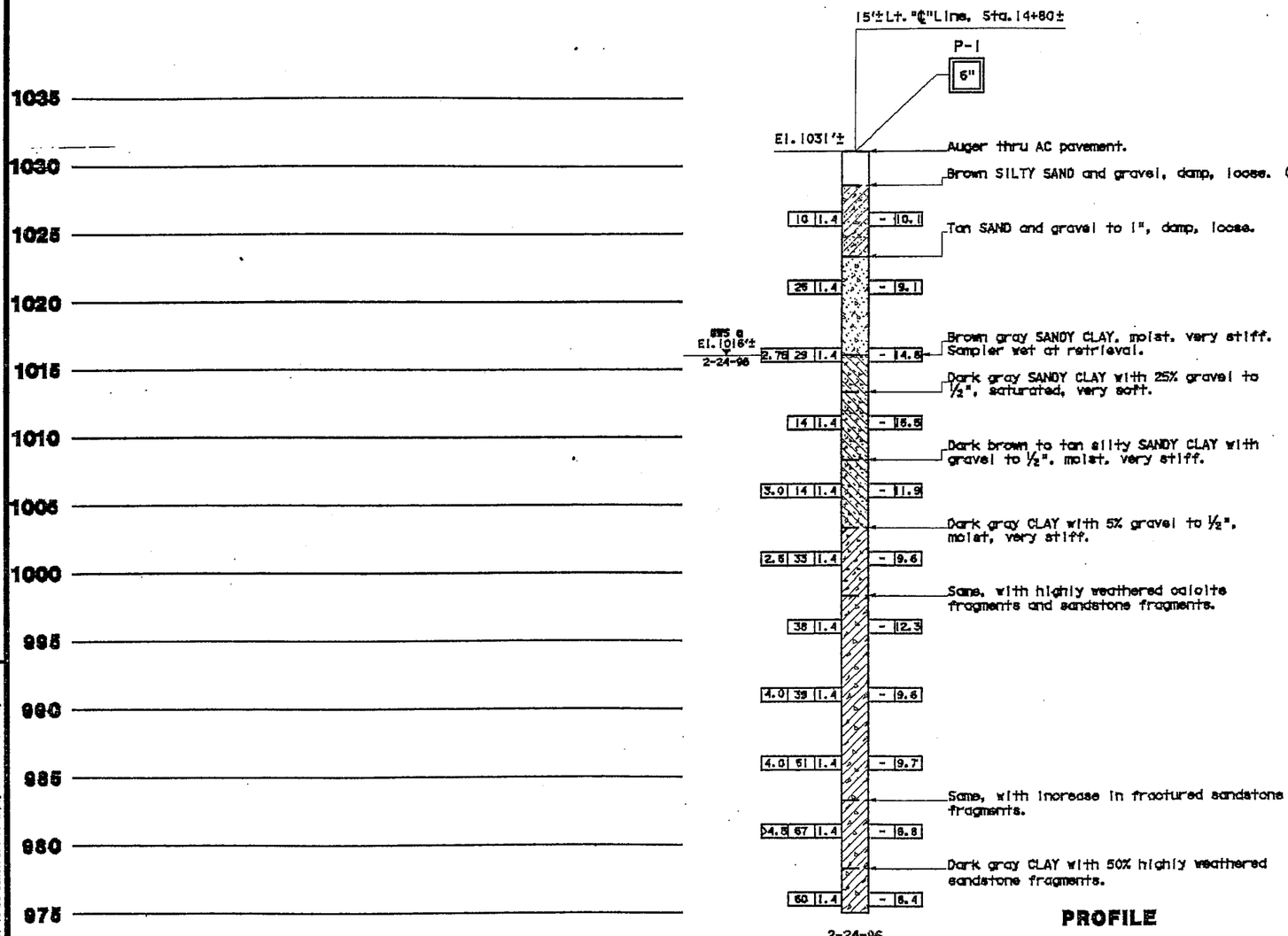


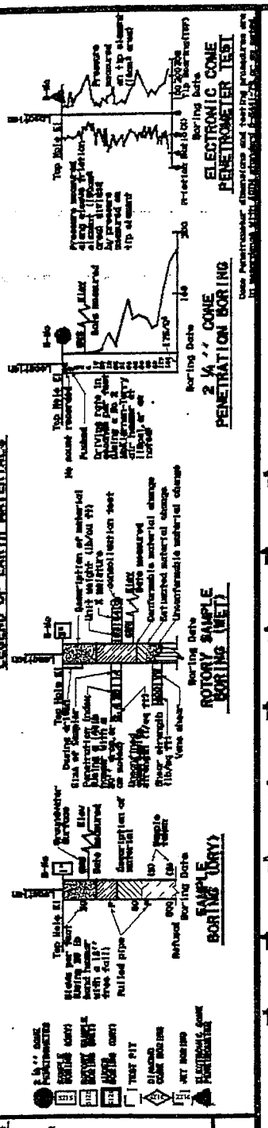
PLAN

SCALE : 1" = 50'



PROFILE

SCALE : HORIZ. NO SCALE
VERT. 1" = 5'



OFFICE OF STRUCTURAL FOUNDATIONS
ROADWAY GEOTECHNICAL ENGINEERING (NORTH)

DRAWN BY M. Mehta
CHECKED BY A. Kaddoura

CALIFORNIA
DEPARTMENT OF TRANSPORTATION

BRIDGE NO
POST MILE

TIEBACK RETAINING WALL
LOG OF TEST BORINGS (1 of 1)

ORIGINAL SCALE IS IN INCHES
FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) | SHEET | OF

EXHIBIT D

(Corrosion Test Results)

TEST NO. 7938-1P

BILLED

DATE RECEIVED MAY 10 2011

CALC. BY _____ APPROVED BY _____

DATE REPORTED MAY 17 2011

☐ DISTRICT DIR[illegible]R ☐ TRANS. LAB.
☐ DIS. MAT LS[illegible]R. ☐ PAV'T. SECTIO
☐ RESIDENT ENGINEER ☐ ACCOUNTING
☐ CONSTRUCTION ☐

GRADING ANALYSIS

SIEVE	AS RECEIVED	RET. CR.	ADJ. OR COMB. GRADE	AS USED	SPECIF. LIMITS ☐ SOUGHT ☐
3					
2½					
2					
1½					
1					
¾					
½					
⅜					
4					
8					
16					
30					
50					
100					
200					
5μ					
1μ					

GRADING AS USED WAS OBTAINED AS FOLLOWS:

% BY WT.	% BY VOL.	TEST NO.	DESCRIPTION

REMARKS: Rmin-15.5 = 4909
PH = 7.3

SURFACE

BASE

SUBBASE

GRAVEL EQUIVALENT FACTOR

TRAFFIC INDEX

R VALUE: EXUDATION PRESSURE

EXPANSION PRESSURE

AT EQUILIBRUM SPEC.

INDICATED MINIMUM THICKNESS OF COVER FOR ABOVE CONDITIONS (FEET)

REPORT OF TESTS ON

Soil Sample - Foundation

IF CONTRACT, USE CONTRACT ITEM

SOURCE	CHARGE	EXPENDITURE AUTHORIZATION

SPECIAL DESIGNATION (USE WHEN APPLICABLE)	ACTIVITY OR OBJECT	AMOUNT

TEST SPECIMEN	A	B	C	D	E
DATE TESTED					
COMPACTOR FOOT PRESSURE P.S.I.					
INITIAL MOISTURE %					
SOAK WATER ML					
WATER ADDED-ML (TOTAL)					
WATER ADDED %					
MOISTURE AT COMPACTION %					
WET WT. OF BRIQUETTE-GMS					
HEIGHT OF BRIQUETTE-INCHES					
DRY DENSITY OF BRIQ. - # CU. FT.					
STABILOMETER P_H AT 2000 LBS.					
DISPLACEMENT					
R-VALUE BY STABILOMETER					
EXUDATION PRES. P.S.I.					
THICK. BY STAB. FEET					
EXPANSION DIAL READING					
THICK. BY EXP. PRESS. FEET					
R-VALUE BY EXPANSION					

TEST RESULTS			SPEC.
LL.	P.L	P.I.	
CV			
S.E	AS REC'D.		
	CRUSHED		
	COMBINED		
LART	GRADE	100 REV.	
		500 REV.	
DUR	D_f		
	D_i		
% CRUSHED PARTICLES			

SP. GR. ☐ BULK (OVEN) ☐ BULK (SSD) ☐ APPARENT

	FINE	CO
AS REC'D.		
CRUSHED		

REL. COMPACTION D.

	IN PLACE	OPT
DENSITY		
MOISTURE		
% REL. COMP.		
SPEC.		

DISTRICT 4 LABORATORY
325 SAN BRUNO AVENUE
SAN FRANCISCO, CA 94103

RICHARD CHAN
DISTRICT MATERIALS ENGINEER
BRANCH CHIEF, MATERIALS B

EXPANSION PRESSURE CH[illegible]

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

SAMPLE IDENTIFICATION CARD

TL-0101 (REV. 10/97)

CARD NUMBER C SAWAD-02

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

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

FIELD NO.

DIST. LAB NO.

LOT NO.

SHIPMENT NO.

P.O. OR REQ. NO.

AUTHORIZATION NO.

SAMPLE OF Soil

FOR USE IN Foundation

SAMPLE FROM R-11-002

DEPTH 15 - 20

LOCATION OF SOURCE Native Soil

THIS SAMPLE IS SHIPPED IN (NO. CONTAINERS)	AND IS ON E OF A GROUP OF	SAMPLES REPRESENTING (TONS, GALS, BBLS, STA. ETC.)

OWNER OR MANUFACTURER

TOTAL QUANTITY AVAILABLE	TEST RESULTS DESIRED ☒ NORMAL ☐ PRIORITY	DATE NEEDED

REMARKS Corrosion

COVER ADDITIONAL INFORMATION WITH LETTER

DATE SAMPLEED 5/10/11

BY S. A TITLE TE

DIST, CO, RTE, PM 04 - SCL - 9 - PM 14.16

LIMITS

CONT. NO. 04-414501

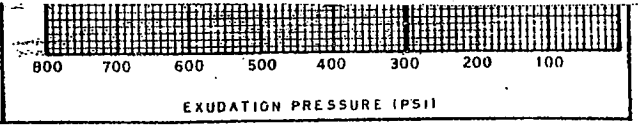
FED. NO.

RES. ENGR. OR SUPT.

ADDRESS S. Awad

CONTRACTOR 510-622-5443

MAIL TO SAME DESTINATION AS SAMPLE



-TL-361 (Rev.10/78)

87 46243

TEST NO. 7938-2P

BILLED

DATE RECEIVED MAY 10 2011

CALC. BY _____ APPROVED BY _____

DATE REPORTED MAY 17 2011

☐ DISTRICT DIRECTOR ☐ TRANS. LAB.
☐ DIS. MAT LS. ☐ PAV'T. SECTI
☐ RESIDENT ENGINEER ☐ ACCOUNTING
☐ CONSTRUCTION ☐

GRADING ANALYSIS

SIEVE	AS RECEIVED	RET. CR.	ADJ. OR COMB. GRADE	AS USED	SPECIF. LIMITS ☐ SOUGHT ☐
3					
2½					
2					
1½					
1					
¾					
½					
⅜					
4					
8					
16					
30					
50					
100					
200					
5μ					
1μ					

GRADING AS USED WAS OBTAINED AS FOLLOWS:

% BY WT. % BY VOL. TEST NO. DESCRIPTION

REMARKS: Resistivity min = 3836
PH = 7.44

SURFACE

BASE

SUBBASE

GRAVEL EQUIVALENT FACTOR

TRAFFIC INDEX

R VALUE: EXUDATION PRESSURE

EXPANSION PRESSURE

AT EQUILIBRUM SPEC.

INDICATED MINIMUM THICKNESS OF COVER FOR ABOVE CONDITIONS (FEET)

REPORT OF TESTS ON

Soil Sample - Foundation -

IF CONTRACT, USE CONTRACT ITEM

SOURCE	CHARGE	EXPENDITURE AUTHORIZATION

SPECIAL DESIGNATION (USE WHEN APPLICABLE) | ACTIVITY OR OBJECT | AMOUNT

TEST SPECIMEN	A	B	C	D
DATE TESTED				
COMPACTOR FOOT PRESSURE P.S.I.				
INITIAL MOISTURE %				
SOAK WATER ML				
WATER ADDED-ML (TOTAL)				
WATER ADDED %				
MOISTURE AT COMPACTION %				
WET WT. OF BRIQUETTE-GMS				
HEIGHT OF BRIQUETTE-INCHES				
DRY DENSITY OF BRIQ. - # CU. FT.				
STABILOMETER P_H AT 2000 LBS.				
DISPLACEMENT				
R-VALUE BY STABILOMETER				
EXUDATION PRES. P.S.I.				
THICK. BY STAB. FEET				
EXPANSION DIAL READING				
THICK. BY EXP. PRESS. FEET				
R-VALUE BY EXPANSION				

TEST RESULTS			SPEC.
LL.	P.L	P.I.	
CV			
S.E	AS REC'D.		
	CRUSHED		
	COMBINED		
LART	GRADE	100 REV.	
		500 REV.	
DUR	D_f		
	D_t		
% CRUSHED PARTICLES			

SP. GR. ☐ BULK (OVEN ☐ BULK (SSD) ☐ APPARENT	FINE	C
AS REC'D.		
CRUSHED		

REL. COMPACTION D	IN PLACE	OPT
DENSITY.		
MOISTURE		
% REL. COMP.		
SPEC.		

DISTRICT 4 LABORATORY
325 SAN BRUNO AVENUE
SAN FRANCISCO, CA 94103

RICHARD CHAN
DISTRICT MATERIALS ENGINEER
BRANCH CHIEF, MATERIALS B

-TL-361 (Rev. 10/78)

EXPANSION PRESSURE CHA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

SAMPLE IDENTIFICATION CARD

TL-0101 (REV. 10/97)

CARD NUMBER CSAWAD-01

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

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

FIELD NO.
DIST. LAB NO.
LOT NO.
SHIPMENT NO.
P.O. OR REQ. NO.
AUTHORIZATION NO.

SAMPLE OF Soil
FOR USE IN Foundation
SAMPLE FROM R-11-001
DEPTH 15 - 20'
LOCATION OF SOURCE Native Soil

THIS SAMPLE IS SHIPPED IN (NO. CONTAINERS)
AND IS ONE OF A GROUP OF
SAMPLES REPRESENTING (TONS, GALS, BBLS, STA, ETC.)
OWNER OR MANUFACTURER
TOTAL QUANTITY AVAILABLE
TEST RESULTS DESIRED ☒ NORMAL ☐ PRIORITY
DATE NEEDED
REMARKS Corrosion

COVER ADDITIONAL INFORMATION WITH LETTER
DATE SAMPLEED 5/10/11
BY S. A TITLE TE
DIST, CO, RTE, PM 04-SCL-9-PM 14.16
LIMITS 04-414501
CONT. NO.
FED. NO.
RES. ENGR. OR SUPT.
ADDRESS S. Alwad
CONTRACTOR
510-622-7644

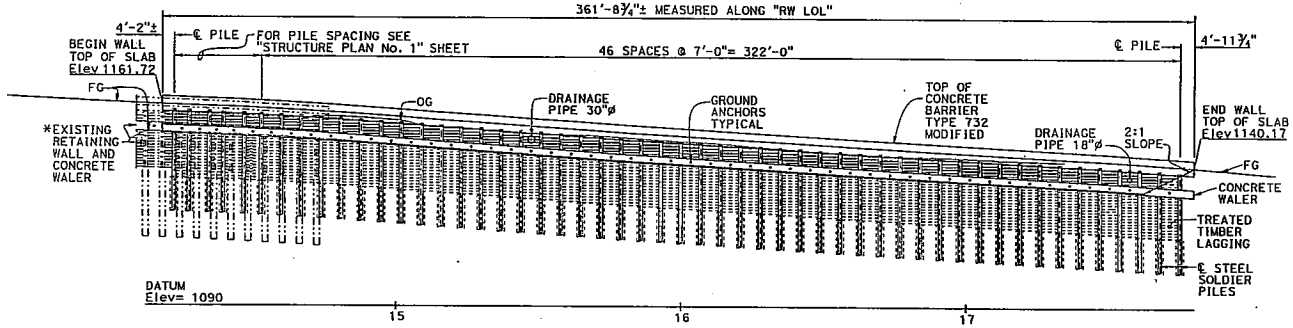
MAIL TO SAME DESTINATION AS SAMPLE

800 700 600 500 400 300 200 100
EXUDATION PRESSURE (PSI)

07 46243

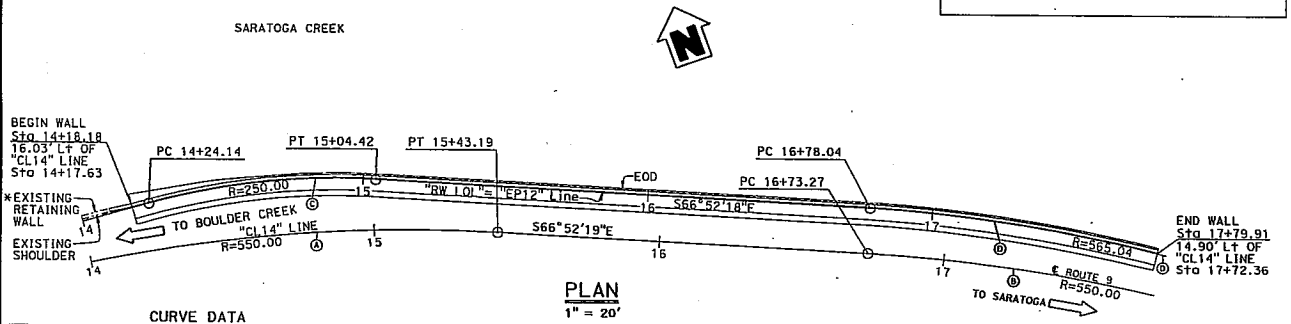
EXHIBIT E

(Typical X-Section Tieback Wall)



DEVELOPED MIRRORED ELEVATION

1" = 20'



PLAN

1" = 20'

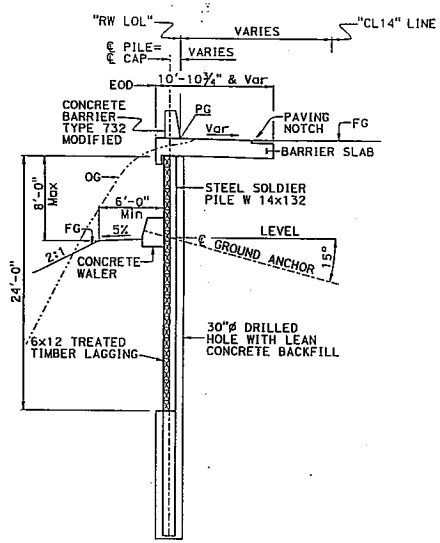
CURVE DATA

No.	R	Δ	T	L
Ⓐ	550.00	18°36'33"	90.11	178.64
Ⓑ	550.00	19°01'23"	92.15	182.61
Ⓒ	250.00	18°23'56"	40.49	80.28
Ⓓ	565.04	19°01'21"	94.67	187.60

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND:
- ····· Indicates Existing
- ——— Indicates New Construction
- * For Existing Barrier, Retaining Wall and Waler removal Details see "REMOVAL DETAILS" Sheet

NOTES:
1. For "INDEX TO PLANS", "PILE AND GROUND ANCHOR DATA TABLE" and "STANDARD PLANS" List see "INDEX TO PLANS" Sheet.
2. For "GENERAL NOTES" see "SOLDIER PILE WALL WITH WALERS-DETAILS NO. 2" Sheet.



TYPICAL SECTION

3/16" = 1'-0"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9			

REGISTERED CIVIL ENGINEER — DATE

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.

REGISTERED PROFESSIONAL ENGINEER — ROSA CANDIOTTI — No. 64626 — Exp. 6-30-2012 — CIVIL — STATE OF CALIFORNIA

Gordon Danke
DESIGN ENGINEER

	BY	CHECKED
DESIGN	R. Candiotti	P. Norboe
DETAILS	Tim Fairall	P. Norboe
QUANTITIES	R. Candiotti	P. Norboe

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY" PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	Tim Fairall	R. Candiotti
SPECIFICATIONS	X	X

PLANS AND SPECS COMPARED: X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 37E0104
POST MILE 4.16

UNIT: 3594
PROJECT NUMBER & PHASE: 04000012021
CONTRACT NO.: 04-450501

FILE => 37e0104-a-gp02.dgn

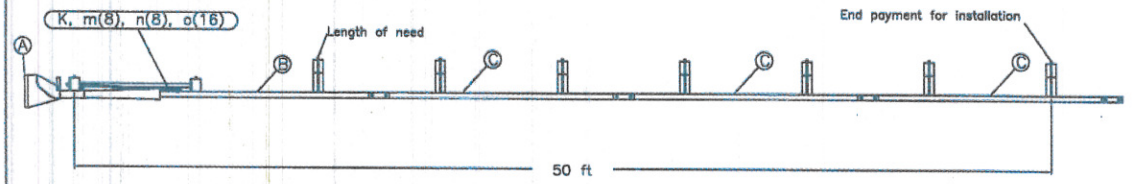
SARATOGA CREEK WALL
GENERAL PLAN

DISREGARD PRINTS BEARING EARLIER REVISION DATES

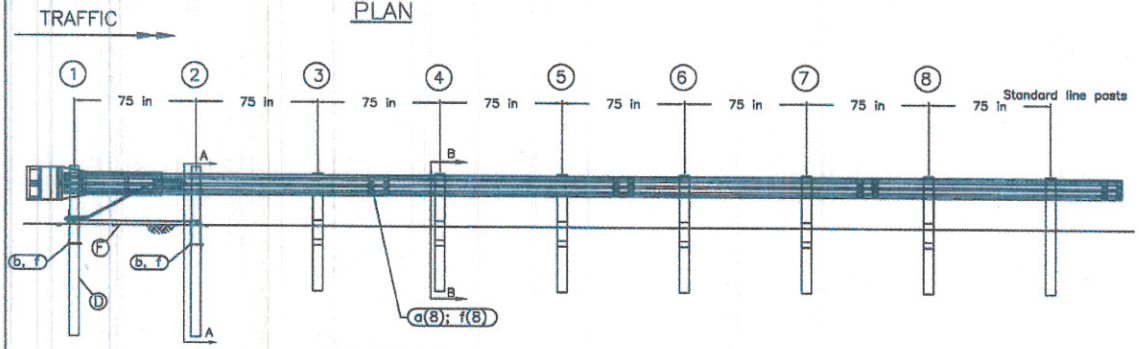
REVISION DATES		SHEET	OF
11-15-11		1	X

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

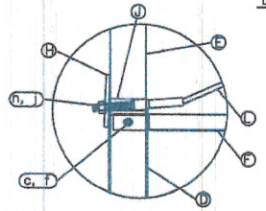
USERNAME => a1174701 DATE PLOTTED => 26-JAN-2012 TIME PLOTTED => 08:11



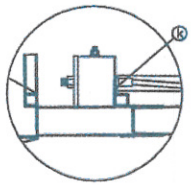
PLAN



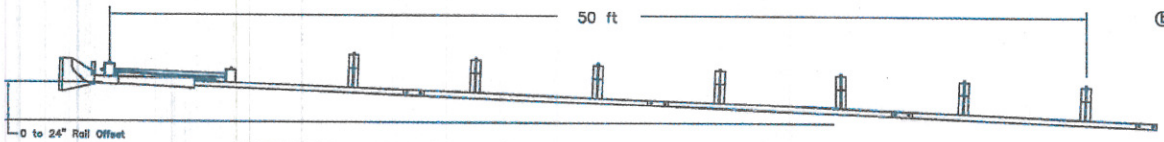
ELEVATION



POST #1 CONNECTION DETAIL



IMPACT HEAD CONNECTION DETAIL



OPTIONAL FLARED INSTALLATION

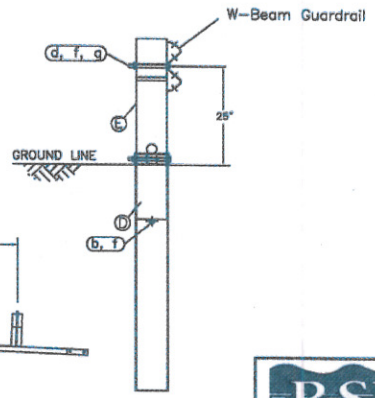
25:1 maximum flare rate

GENERAL NOTES:

1. Breakaway posts are required with the SKT.
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. The SKT can be flared at a rate of up to 25:1 to prevent the impact head from encroaching on the shoulder.
4. The foundation tubes shall not protrude more than 4" above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
5. When rock is encountered, a 12" Ø post hole, 20" into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first two posts can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
6. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
7. A site evalution should be considered if there is less than 25' between the outlet side of the terminal and any adjacent driving lane.
8. The soil tubes may be driven with an approved driving head. They shall not be driven with the post in the tube.
9. The wood blockouts should be "toe-nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.

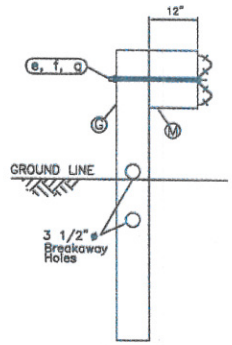
BILL OF MATERIALS

ITEM	QTY.		ITEM NO.
A	1	IMPACT HEAD	S3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	S1303 MGS
C	3	W-BEAM GUARDRAIL, 12 Ga.	G1203 MGS
D	2	FOUNDATION TUBE	E731
E	2	BCT WOOD POST	P650 MGS
F	1	GROUND STRUT	E780
G	6	CRT WOOD POST	P671 MGS
H	1	BEARING PLATE	E750
J	1	PIPE SLEEVE	E740
K	1	CABLE ANCHOR BOX	S760
L	1	BCT CABLE ANCHOR ASSEMBLY	E770
M	6	MGS TIMBER BLOCKOUT OR EQUIV.	P618
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	24	5/8ø x 1 1/4 SPLICE BOLT	B580122
b	2	5/8ø x 7 1/2 HEX BOLT	B580754
c	2	5/8ø x 10 HEX BOLT	B581004
d	1	5/8ø x 10 H.G.R. BOLT	B581002
e	6	5/8ø x 22 H.G.R. BOLT	B582202
f	35	5/8ø H.G.R. NUT	N050
g	7	H.G.R. WASHER	W050
h	2	1 ANCHOR CABLE HEX NUT	N100
j	2	1 ANCHOR CABLE WASHER	W100
k	2	3/8 x 3 LAG SCREW	E350
m	8	CABLE ANCHOR BOX SHOULDER BOLT	S858A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A



SECTION A-A

Post #2



SECTION B-B

Posts 3 thru 8

RSI Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-540-0721

Sequential Kinking Terminal
SKT - Assembly

Midwest Guardrail System
Wood Post System

Sheet: A1
Date: 12/01/04
By: JRR
Drawing Name: SKT-MGS-W-US
Scale: NONE
Rev: 0

ET-31™ Guardrail End Treatment
NCHRP Report 350 Test Level 3
System Length 53'-1 1/2" (16.19 m)

For specific assembly, maintenance, or repair details refer to the state or specifying agency's standard drawings and/or Trinity standard layout drawings.

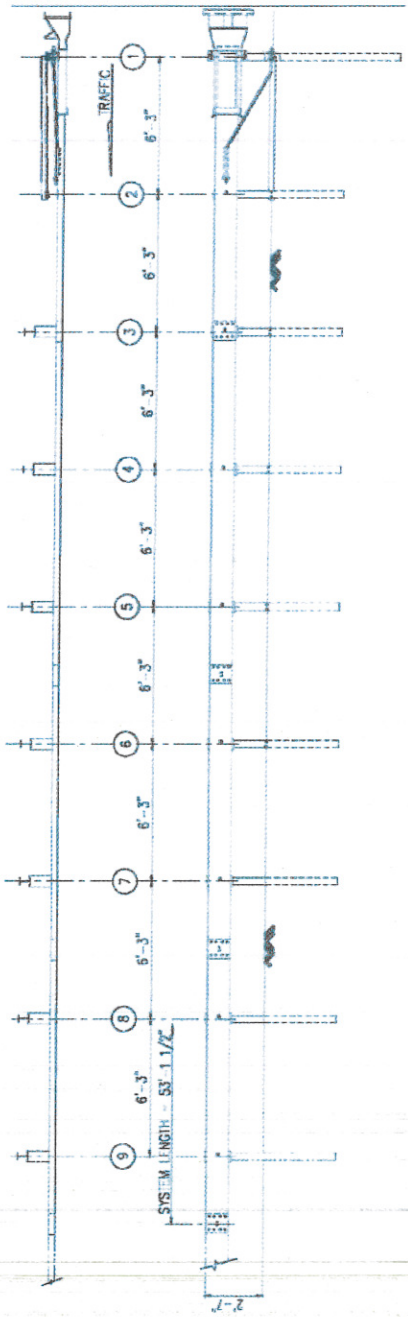
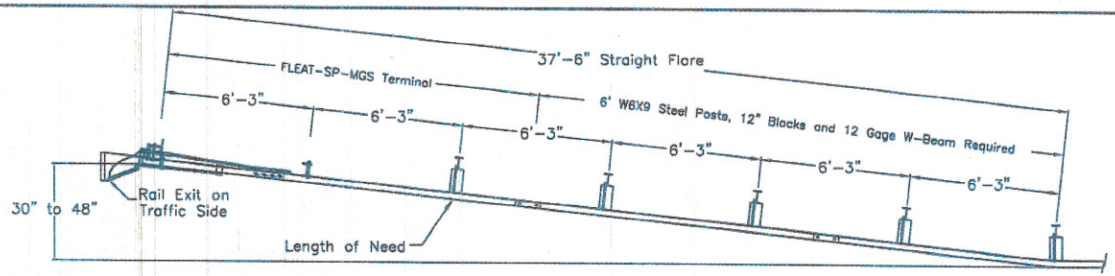


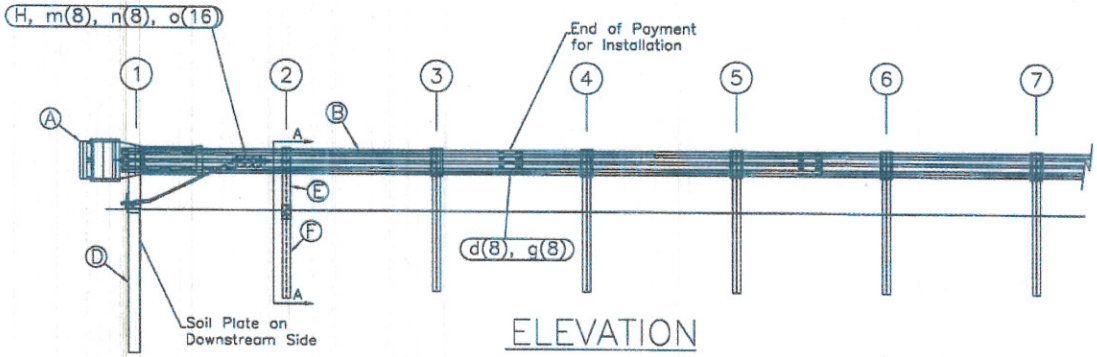
Figure 4 (TL-3)

[This drawing represents one version of the 53'-1 1/2" (16.19 m) system]

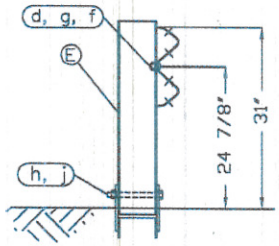


PLAN

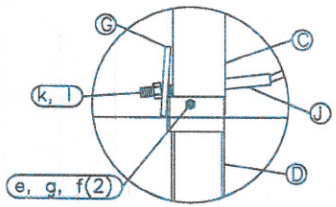
TRAFFIC



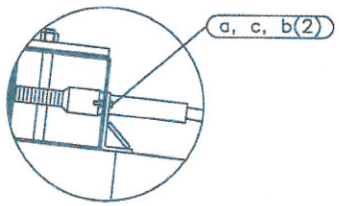
ELEVATION



SECTION A-A
Post #2



Post #1 Connection Detail



Impact Head Connection Detail

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MGS-SF1303
C	1	FIRST POST TOP (6X6X⅜" Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB58A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

RSI
Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

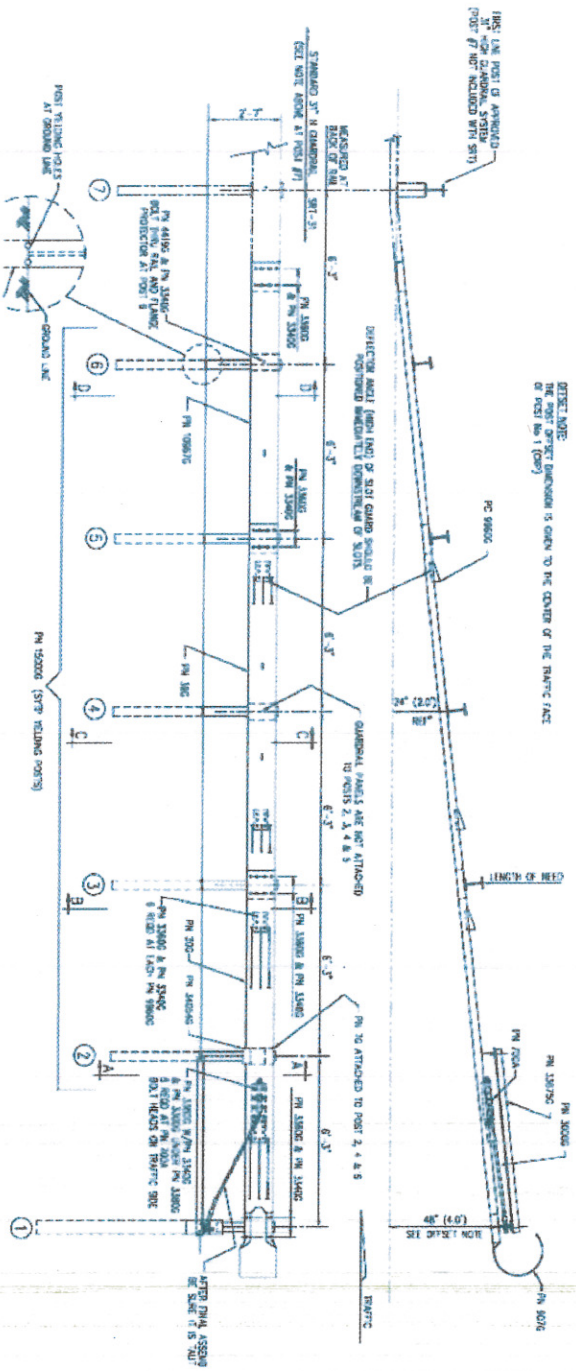
FLEAT-SP-MGS Terminal
Midwest Guardrail System
31" Top of Rail

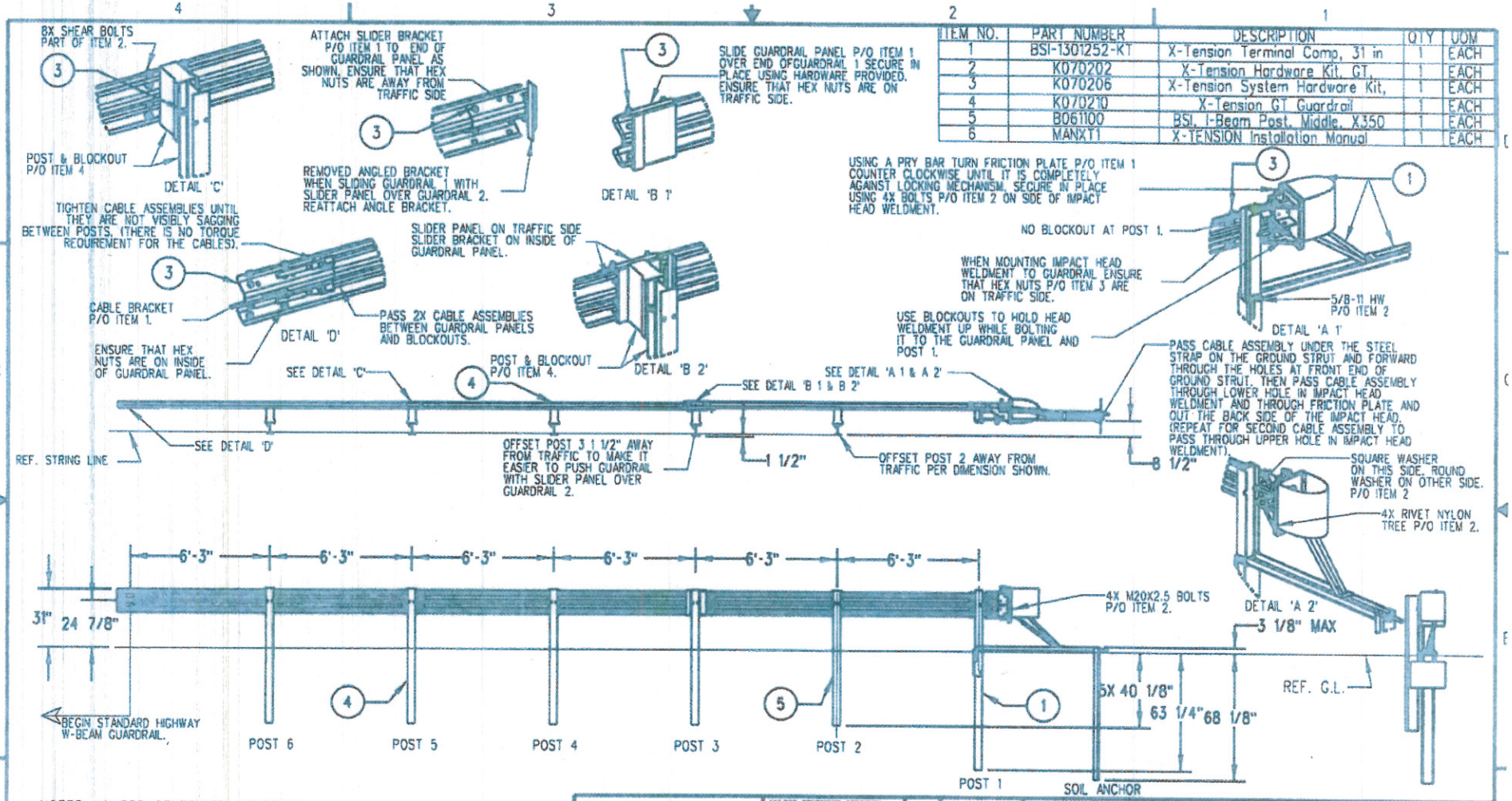
Sheet: 1
Date: 02/24/10
By: JRR
Drawing Name: FLT-SP-S-MGS
Scale: None
Rev: 0

KNOW YOUR SRT™ -31 SYSTEM

SRT™ -31 SYSTEM

FOR SPECIFIC INSTALLATION, MAINTENANCE, OR REPAIR DETAILS, REFER TO THE STATE/SPECIFYING AGENCY'S STANDARD DRAWING(S) AND/OR TRINITY STANDARD LAYOUT DRAWINGS





ITEM NO.	PART NUMBER	DESCRIPTION	QTY	UOM
1	BSI-1301252-KT	X-Tension Terminal Comp, 31 in	1	EACH
2	K070202	X-Tension Hardware Kit, GT,	1	EACH
3	K070206	X-Tension System Hardware Kit,	1	EACH
4	K070210	X-Tension GT Guardrail	1	EACH
5	B061100	BSI, I-Beam Post, Middle, X350	1	EACH
6	MANXT1	X-TENSION Installation Manual	1	EACH

NOTES: UNLESS OTHERWISE SPECIFIED.

1. SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
2. ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL 'D'). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
3. WHEN DRIVING STEEL POST, ENSURE THAT A DRIVING CAP WITH TIMBER OR PLASTIC INSERT IS USED TO PREVENT DAMAGE TO THE GALVANIZING TO THE TOP OF THE POST.

APPROVALS

DRAWN BY:	NMV
DRAWN DATE:	2/08/13
APPR'D BY:	JMT
APPR'D DATE:	2/08/13

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ±1/16 DECIMAL .XX ± .03 .XXX ± .010 ANGLES ±1/2°

INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

REV	ECN#	DATE
B	2087	03/02/15
A	2022	2/08/13

LINDSAY™ TRANSPORTATION SOLUTIONS

BARRIER SYSTEMS INC.
3333 Vaca Valley Parkway, Ste 900
Vacaville, CA 95688
Tel: 866-806-3681
www.barriersystemsinc.com

TITLE: X-TENSION GUARDRAIL TERMINAL SYSTEM STEEL POST WITH COMPOSITE BLOCKOUT 31" RAIL HEIGHT

SIZE	DWG NO.	REV.
B	XTGTSS5	B

SCALE 1:50 SHEET 1 OF 1

Doc. B100108