

INFORMATION HANDOUT

For Contract No. 05-0G0704

At 05/SB/101/22.3/23.0

Identified by

Project ID 05-00000055

WATER QUALITY

[1.RWQCB- 401 permit - Certification Number 34212WQ05](#)

PERMITS AND AGREEMENTS

[2.Department of Fish and Game 1602 Notification No.1600-2012-0155-R5](#)

[3.US Army Corp of Engineer 404 Permit No. SPL-2011-00782-TS, dated 12/13/12](#)

MATERIALS INFORMATION

[4. Aerially Deposited Lead Concentration Data and Sample Location map](#)

[5.Foundation Report for San Pedro creek culvert replacement \(Br. No. 51-0341, EA 05-0G0701\) dated June 6, 2012](#)

[6.Foundation Report for Las Vegas creek culvert replacement \(Br. No. 51-0339, EA 05-0G0701\) dated August 22, 2012](#)

[7.Foundation Report for Fairview Off-ramp culvert replacement \(Br. No. 51-0339K, EA 05-0G0701\) dated August 23, 2012](#)

[8.Revised Final Hydraulics Report for San Pedro and Las Vegas Creeks \(EA 05-0G0701\) dated December 7, 2011](#)

[9.Alternative Flared Terminal Systems](#)

Central Coast Regional Water Quality Control Board

December 7, 2012

Paul Holmes
California Department of Transportation
50 Higuera Street
San Luis Obispo, CA 93401
email: Paul_holmes@dot.ca.gov

VIA ELECTRONIC MAIL

Maureen Spencer
Santa Barbara County Flood Control District
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101
email: mospenc@cosbpw.net

Dear Mr. Holmes and Ms. Spencer:

WATER QUALITY CERTIFICATION NUMBER 34212WQ05 FOR LAS VEGAS – SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, SANTA BARBARA COUNTY

Thank you for the opportunity to review your September 21, 2012 application for water quality certification of the Las Vegas – San Pedro Creeks Capacity Improvement Project (Project). The application was completed on November 7, 2012. In conjunction with the United States Army Corps of Engineers, we are treating the Project as a single project with Caltrans and the District as co-applicants. The Project, if implemented as described in your applications and with the additional mitigation requirements and conditions required by this Certification, appears to be protective of beneficial uses of State waters. We are issuing the enclosed Standard Letter of Certification.

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

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

Your failure to submit reports required by this certification, or your failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per Section 13268 of the California Water Code. The Central Coast Water Board will base enforcement actions on the date of certification. Any person affected by this Central Coast

Water Board action may petition the State Water Resources Control Board (State Board) to review this action in accordance with California Water Code Section 13320; and Title 23, California Code of Regulations, Sections 2050 and 3867-3869. The State Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

If you have questions please contact **Jon Rohrbough** at (805) 549-3458 or via email at Jon.Rohrbough@waterboards.ca.gov, or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this project.

Sincerely,

for
Kenneth A. Harris
Interim Acting Executive Officer

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

cc: With enclosures

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

Theresa Stevens
U.S. Army Corps of Engineers
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Ed Pert
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Lake and Streambed Alteration
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Jamie Jackson
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401 Program Manager
State Water Resources Control Board
Division of Water Quality
email: Stateboard401@waterboards.ca.gov

R9-WTR8-Mailbox@epa.gov

Jon.Rohrbough@waterboards.ca.gov

Jennifer.Valentine@waterboards.ca.gov

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

PROJECT: Las Vegas – San Pedro Creeks Capacity Improvement

APPLICANTS: Mr. Paul Holmes
California Department of Transportation
50 Higuera Street
San Luis Obispo, CA 93401
email: Paul_holmes@dot.ca.gov

Ms. Maureen Spencer
Santa Barbara County Flood Control District
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101
email: mospenc@cosbpw.net

ACTION:

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

STANDARD CONDITIONS:

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

provided for under state law. For purposes of Section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

6. In response to a suspected violation of any condition of this certification, the Central Coast Water Board may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Central Coast Water Board deems appropriate, provided that the burden, including costs, of the reports shall have a reasonable relationship to the need for the reports and the benefits obtained from the reports.
7. The total fee for this project is \$13,093 (Caltrans \$6,136; District \$6,957). The remaining fee payable to the Central Coast Water Board is \$0.

CENTRAL COAST WATER BOARD CONTACT PERSON:

Jon Rohrbough
(805) 549-3458
jrohrbough@waterboards.ca.gov

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

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the Las Vegas – San Pedro Creeks Capacity Improvement Project shall comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act.

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

for _____
Kenneth A. Harris
Interim Acting Executive Officer
Central Coast Water Board

December 7, 2012
Date

PROJECT INFORMATION AND CONDITIONS

Application Date	Received: September 21, 2012 Completed: November 7, 2012
Applicant	Paul Holmes Paul_holmes@dot.ca.gov 805-549-3811 California Department of Transportation (Caltrans) 50 Higuera Street San Luis Obispo, CA 93401 Maureen Spencer mospenc@cosbpw.net 805-568-3437 Santa Barbara County Flood Control District (District) 130 E. Victoria Street, Suite 200 Santa Barbara, CA 93101
Applicant Representatives	N/A
Project Name	Las Vegas – San Pedro Creeks Capacity Improvement
Application Number	34212WQ05
Type of Project	Culvert replacement
Project Location	City of Goleta Latitude: 34° 26' 20.20" N Longitude: 119° 50' 13.93" W
County	Santa Barbara
Receiving Water(s)	San Pedro Creek, Las Vegas Creek 315.31 South Coast Hydrologic Unit
Water Body Type	Streambed, wetland
Designated Beneficial Uses	Municipal and Domestic Supply (MUN) Agricultural Supply (AGR) Ground Water Recharge (GWR) Water Contact Recreation (REC-1) Non-Contact Recreation (REC-2) Wildlife Habitat (WILD) Cold Fresh Water Habitat (COLD) Warm Fresh Water Habitat (WARM) Migration of Aquatic Organisms (MIGR) Freshwater Replenishment (FRSH) Commercial and Sport Fishing (COMM)
Project Description (purpose/goal)	The purpose of this project is to increase hydraulic capacity of Las Vegas and San Pedro Creeks in the project area from a 10-year to a 25-year storm event. Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff understands that the project includes the following activities:

Caltrans Activities

- Replace the existing concrete box culvert under State Route (SR) 101 at Las Vegas Creek with a single-span bridge with vertical concrete abutments and a natural bottom;
- Replace the existing concrete box culvert under the Fairview Avenue off-ramp at Las Vegas Creek with a three-sided culvert with a natural bottom;
- Replace the existing concrete box culvert under Calle Real and SR 101 at San Pedro Creek with a single-span bridge with a natural bottom;
- Relocate a 10-inch diameter sanitary sewer pipeline within the Calle Real right-of-way;
- Relocate a water pipeline within the Calle Real right-of-way;
- Excavate the Las Vegas Creek channel between Calle Real and SR 101 to create a channel with 40-foot wide bottom and 10-foot high vertical concrete walls and upper banks with 2:1 side slopes;
- Excavate the Las Vegas Creek channel between SR 101 and the Fairview Avenue off-ramp, and between the Fairview Avenue off-ramp and the Caltrans southern right-of-way boundary, to create a channel with 40-foot wide bottom and 10-foot high vertical concrete walls and upper banks with 2:1 side slopes;
- Excavate the San Pedro Creek channel between SR 101 and the Union Pacific Railroad (UPRR) bridge within the Caltrans right-of-way boundary to create a channel with 45-foot wide bottom and 10-foot high vertical concrete walls and upper banks with 2:1 side slopes at the southern limit of SR 101, and with 65-foot wide bottom and 2:1 side slopes at the UPRR bridge;
- Construct concrete wingwalls and bridge abutments;
- Place loose rip-rap in the channel bottom of both creeks within the Caltrans right-of-way and cover with at least one (1) foot of native material; and
- Construct interim measures described in the Final Mitigated Negative Declaration (dated September, 2011), as necessary, to protect creek channels and new construction until all project elements are complete.

District Activities

- Replace the existing UPRR bridge over Las Vegas Creek with a new three-span concrete box girder bridge;
- Replace the existing UPRR bridge over San Pedro Creek with a new three-span concrete box girder bridge;
- Remove the existing drop structure in San Pedro Creek south of the UPRR bridge;
- Remove the existing concrete-lined channel in San Pedro Creek upstream of Calle Real for 169 feet, and construct a new drop structure consisting of a 88-foot long concrete slot structure with weirs, a 13-foot long pool, and a 68-foot long grouted rip-rap

	<p>energy dissipater;</p> <ul style="list-style-type: none"> • Excavate the Las Vegas Creek channel for 254 feet downstream of the southern Caltrans right-of-way boundary to create a channel with 40-foot wide bottom at the southern Caltrans right-of-way boundary, 70-foot wide bottom with 2:1 side slopes at the UPRR bridge, and transition to match the natural channel downstream; and • Excavate the San Pedro Creek channel for 314 feet downstream of the Caltrans southern right-of-way boundary to create a channel with 45-foot wide bottom at the southern limit of SR 101, 65-foot wide bottom with 2:1 side slopes at the UPRR bridge, and transition to match the natural channel downstream.
<p>Preliminary Water Quality Issues</p>	<p>Central Coast Water Board staff finds the project has the potential to cause sedimentation, siltation, and pollutant release to the creeks. Erosion could be caused by the construction activities or by the structures and channel modifications. Pollutants could be released from construction equipment (e.g., oil, gasoline, hydraulic fluid, and other liquid contaminants associated with earth-moving equipment) or from the concrete work associated with bridge and culvert construction, fishway construction, and placing grouted rip-rap.</p> <p>Central Coast Water Board staff finds the project has the potential to adversely impact Southern California Steelhead and their habitat.</p> <p>Central Coast Water Board staff finds the project has the potential to cause a loss of functional waters due to excavation, filling, and grading activities.</p>
<p>Project Requirements</p>	<p><u>Project practices that are required to comply with 401 Water Quality Certification are as follows:</u></p> <ol style="list-style-type: none"> 1. Construction within the jurisdictional areas shall begin no earlier than May 15 and end no later than November 30, and shall occur only when there is no standing or flowing water in the work area. Caltrans and District must obtain approval from Central Coast Water Board staff prior to conducting work in jurisdictional areas outside this time period. Erosion and sediment control measures shall be kept on site and immediately available for installation in anticipation of rain events. At any time, if the National Weather Service predicts a 25% or more chance of rain within 24 hours, all construction activities in waters of the State shall cease before rainfall. Prior to the rain event, Caltrans and the District shall install effective erosion and sediment control measures. Construction activities in waters of the State may resume after the rain event has passed and site conditions are dry enough to continue work without additional risk to water quality or beneficial uses of waters of the State. 2. Caltrans and the District shall use adequate Best Management Practices (BMPs) (e.g., revegetation, fiber rolls, erosion control

	<p>blankets, hydromulching, compost, straw with tackifiers, temporary basins) in and around construction areas to intercept rain drop impacts, control the sources of erosion, and capture sedimentation. Caltrans and the District shall implement washout, trackout, and dust control BMPs.</p> <ol style="list-style-type: none"> 3. Caltrans and the District shall apply approved grass seed mixtures with adequate irrigation and soil stabilizers (e.g., compost, hydromulch, tackified straw) and/or erosion control blankets over seeded areas for slope stabilization. 4. Any material stockpiled that is not actively being used during construction shall be covered with plastic unless reserved for seed banking, which requires alternative erosion and dust control BMPs. 5. All construction vehicles and equipment used on site shall be well maintained and checked daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials. 6. Caltrans and the District shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite in case spills occur. 7. Caltrans and the District shall confine all trash and debris in appropriate enclosed bins and dispose of the trash and debris at an approved site at least weekly. 8. Caltrans and the District shall designate a staging area for equipment and vehicle fueling and storage at least 100 feet away from waterways, in a location where fluids cannot flow into waterways. 9. All vehicle fueling and maintenance activity shall occur at least 100 feet away from waterways, and in designated staging areas. 10. Dewatering and stream diversion measures are not authorized based on the application. Caltrans and the District shall submit detailed plans if the project requires dewatering or diversion at least 15-days prior to any dewatering or diversion. 11. All post-construction BMPs shall be implemented and functioning prior to completion of the project. 12. All interim features shall be removed prior to completion of the project. 13. All construction-related equipment, materials, and any temporary BMPs no longer needed shall be removed and cleaned from the site upon completion of the project. 14. Central Coast Water Board staff shall be notified if mitigations as described in the 401 Water Quality Certification application for this project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. Caltrans and the District shall inform Central Coast Water Board staff of any modifications that interfere with compliance with this certification.
Area of Disturbance	<p><u>Total</u> Approximately 1.64 acres</p>

	<p>Streambed: 0.86 acres temporary Riparian Area: 0.78 acres temporary</p> <p><u>Caltrans</u> Streambed: 0.51 acre temporary Riparian Area: 0.22 acres temporary</p> <p><u>District</u> Streambed: 0.35 acre temporary Riparian Area: 0.56 acres temporary</p>
Fill/Excavation Area	<p><u>Total</u> Approximately 1.64 acres of temporary fill/excavation</p>
Dredge Volume	<p><u>Total</u> Approximately 10,412 cubic yards</p> <p><u>Caltrans</u> Approximately 7,412 cubic yards</p> <p><u>District</u> Approximately 3,000 cubic yards</p>
U.S. Army Corps of Engineers Permit No	<p>Nationwide Permit 3(a)(b)(c) – Maintenance Nationwide Permit 43 – Stormwater Management Facilities</p>
Federal Public Notice	N/A
Dept. of Fish and Game Streambed Alteration Agreement	<p>Streambed Alteration Agreement 1600-2012-0155-R5 is pending. Final, signed copy shall be forwarded immediately upon execution.</p>
Possible Listed Species	Southern California Steelhead
Status of CEQA Compliance	<p>Mitigated Negative Declaration Lead Agency: Santa Barbara County</p>
Compensatory Mitigation Requirements	<p>Caltrans shall be responsible for mitigation for impacts resulting from Caltrans activities, and the District shall be responsible for mitigating for impacts resulting from District activities.</p> <p><u>Project compensatory mitigation shall include the following:</u></p> <ul style="list-style-type: none"> • Bury all rip-rap with native sediments, except for the new drop structure. • Construct restored/created streambed using native sediments, and grade to provide flow patterns, fish passage, and channel formation approaching natural conditions. • Restore a minimum of 0.78 acre of southern willow scrub woodland along the banks of Las Vegas and San Pedro Creeks. • Grade San Pedro Creek to allow approximately 0.035 acre of streambed ponding, and sow the pond area with seeds of native wetland vegetation. • All southern willow scrub plantings shall achieve 70% survival and 70% cover with native vegetation by the end of the fifth year, and shall be without supplemental irrigation for two years prior to assessment of final success of mitigation planting.

	<ul style="list-style-type: none"> Mitigation planting, maintenance, and monitoring shall be conducted in accordance with the Final Mitigation Planting Plan.
Total Certification Fee	\$13,093
Additional Conditions	<p>Contact Central Coast Water Board staff when project begins to allow for a site visit.</p> <p>Submit a signed copy of the Department of Fish and Game's streambed alteration agreement to the Central Coast Water Board immediately upon execution and prior to any discharge to waters of the State.</p> <p>Revise the Mitigation Planting Plan to include the wetland planting area described above, and submit the Final Mitigation Planting Plan to the Central Coast Water Board prior to the beginning of construction activities.</p> <p>The Central Coast Water Board requires visual monitoring and five reports for this project, to be submitted in electronic format to RB3_401Reporting@waterboards.ca.gov. Caltrans shall be responsible for monitoring and reporting on Caltrans construction and mitigation activities, and the District shall be responsible for monitoring and reporting on District construction and mitigation activities. Caltrans and the District shall coordinate reporting efforts to ensure inspections, monitoring, and reporting are comprehensive and reports are submitted as a single submittal package.</p> <ul style="list-style-type: none"> Visually inspect the site after completion of the project and for four subsequent rainy seasons to ensure that the project is not causing excessive erosion or other water quality problems. If the project does cause water quality problems, contact the Central Coast Water Board staff member overseeing the project. You will be responsible for obtaining any additional permits necessary for implementing plans for restoration to prevent further water quality problems. First Report: Within 30 days of project completion, submit a project completion report that contains a summary of daily activities, monitoring and inspection observations, and problems incurred and actions taken; include properly identified post-project photos. Second, Third, Fourth, and Fifth Report: Submit annual reports complete with photos of revegetation efforts by December 31 of each monitoring year. Annual reports shall quantify growth and progress of restoration and determine to what extent performance criteria have been met. All areas of the revegetation site shall be assessed for percent cover, general health and stature, and signs of reproduction. The report shall also include photographs of revegetation progress over time.

INFORMATION HANDOUT

PERMITS AND AGREEMENTS

[2.Department of Fish and Game 1602 Notification No.1600-2012-0155-R5](#)

ROUTE: 05/SB/101/22.3/23.0



November 27, 2012

Mr. Paul Holmes
California Department of Transportation
50 Higuera Street
San Luis Obispo, California 93401

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2012-0155-R5
LAS VEGAS – SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT

Dear Paul Holmes:

Enclosed is the final Streambed Alteration Agreement (Agreement) for the LAS VEGAS – SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT (project). Before the Department of Fish and Game (DFG) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, the Department, acting as a Responsible Agency, filed a notice of determination (NOD) on the same date it signed the Agreement. The NOD was based on information contained in the Negative Declaration the lead agency prepared for the Project.

Under CEQA, filing a NOD starts a 30-day period within which a party may challenge the filing agency's approval of the project. You may begin your project before the 30-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 Ms. Jamie Jackson at 805-382-6906 or jjackson@dfg.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Betty J. Courtney".

FOR

Betty J. Courtney
Acting Environmental Program Manager

cc: Jamie Jackson, Staff Environmental Scientist

DEPARTMENT OF FISH AND GAME
SOUTH COAST REGION
3883 Ruffin Road
San Diego, CA 92123



MASTER STREAMBED ALTERATION AGREEMENT
NOTIFICATION No. 1600-2012-0155-R5
LAS VEGAS AND SAN PEDRO CREEKS

California Department of Transportation (Caltrans)
Santa Barbara County Flood Control District (District)
LAS VEGAS – SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT

This Master Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and California Department of Transportation for Phase 1 of construction and mitigation activities (Permittee Phase 1), as represented by Mr. Paul Holmes, acting on behalf of Permittee.

This Master Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and Santa Barbara County Flood Control District for Phase 2 of construction and mitigation activities (Permittee Phase 2), as represented by Ms. Maureen Spencer, acting on behalf of the District.

Each individual Permittee shall retain all responsibilities for all aspects of authorized agencies stated impacts and mitigation obligations for each phase of construction under their agencies authority governed by this Agreement and shall be referenced jointly as Permittee's hence forth.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on August 20, 2012, that Permittee intends to complete the Project described herein.

WHEREAS, pursuant to FGC section 1603, DFG has determined that the Project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

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

NOW THEREFORE, Permittee's agree to complete the project in accordance with the Agreement.

PROJECT LOCATION - Phase 1 and 2

The proposed project area is located in the cities of Goleta and Santa Barbara north of Hollister Avenue between Fairview Avenue and Los Carneros Road. Both Las Vegas

and San Pedro Creeks run north to south and pass under the local City of Goleta street Calle Real, as well as, State Route 101 (SR-101) and the Union Pacific Rail Road (UPRR). Please see Exhibit A. The creeks originate in the Santa Ynez Mountains and extend across the Goleta Valley to discharge into Goleta Slough adjacent to the Pacific Ocean. The project footprint overlays several property owners and can be found using the following Assessor's Parcel Numbers: 077-233-007, 077-241-008, 073-080-072, 75, 071, and 073-010-014. In addition, the project can also be located using the following information: Latitude N 34.43 87.52 - Longitude W 119.83 69.42.

PROJECT DESCRIPTION – Phase 1 (Caltrans)

Las Vegas Creek-Caltrans proposes to replace the single-span concrete slab bridge conveying Las Vegas Creek flows under SR-101. The existing concrete box culvert will be replaced with a three-sided concrete box culvert. The proposed three-sided concrete box culvert under SR-101 would be constructed using cut and cover methods and have an earthen natural bottom. The excavation within Las Vegas Creek would incorporate up to 10-foot wide, 2:1 cut slopes along creek banks between Calle Real and SR-101 northbound, and south of the UPRR Bridge, and cuts of between 2 and 11-foot deep within the streambed.

San Pedro Creek-Caltrans proposes to replace the existing double-reinforced concrete box culvert conveying San Pedro Creek flows under SR-101 and adjacent Calle Real frontage road with a single-span concrete slab structure 45-feet long and 197-feet wide. Excavation within San Pedro Creek would incorporate up to 20-foot wide, 2:1 cut slopes along creek banks north of Calle Real, between SR-101 and the UPRR Bridge and south of the UPRR Bridge, and cuts of between 2 and 8-feet deep within the streambed. Grouted Rock Slope Protection (RSP) within San Pedro Creek would be placed downstream of the hydraulic drop structure for a length of 100-feet under the bridge at Calle Real and SR-101. Loose rock will be placed in the channel bottom under the bridge for scour protection but this will not be grouted

Please see Exhibits A, B and C for a complete detailed project description. Caltrans is specifically bound to the exact project description included in the Exhibits. Any changes to the included project description must be amended into the Agreement PRIOR to the change. If changes in the field must occur as a result of an emergency or unforeseen construction development DFG must be notified of these changes within 24 hours of the changes. Please submit any project updates by email to: R5LSAcompliance@dfg.ca.gov.

Phase 1 Staging and Equipment Storage Areas-Temporary staging areas for construction equipment parking and materials storage would occur west of the Las Vegas Creek improvements, north and south of SR-101 and east of San Pedro Creek south of SR-101. Haul routes between the two creeks would parallel the UPRR and southbound SR-101.

PLEASE NOTE: If a water diversion system must be put into place prior to initiation of construction activities; see additional measures within the Resources Section 2 Measures 2.28, 2.33 and 2.41 of this Agreement for further details concerning a

proposed diversion for this project. The final diversion plan for this project must be reviewed and a written approval received from DFG **PRIOR** to its placement in the project area.

PROJECT DESCRIPTION – Phase 2 (District)

Las Vegas Creek-The District proposes to widen Las Vegas Creek to a total of 90 feet at the UPRR Bridge, narrowing to a width of approximately 20 feet moving downstream. The length of the widening of Las Vegas Creek is approximately 200 feet. The District proposes to replace the UPRR creek crossing with a 90-foot three-span pre-cast concrete box girder bridge over Las Vegas Creek.

San Pedro Creek-The District proposes to widen San Pedro Creek to a total width of approximately 90 feet conforming to the existing streambed for a length of 80 feet. These capacity improvements would occur within the existing municipal Twin Lakes Golf Course property owned by the City of Santa Barbara Airport (SBAP). A flood wall (varying in height between 3 and 5 feet along its length) and berm (1,100 feet-long varying in width from 30 feet to 100 feet with a height of 2.6 feet at the downstream end decreasing to 0.75 feet at the upstream end with a 20:1 vertical slope for sides) would be installed on SBAP property adjacent to the western stream bank of San Pedro Creek and north of Hollister Avenue, to compensate for increased water surface elevation changes resulting from capacity improvements upstream, in order to protect downstream facilities and properties. The District proposes to replace the UPRR creek crossing with a 94-foot three-span pre-cast concrete box girder bridge over San Pedro Creek. The District shall construct the Ultimate Project channel modifications needed to create the new channel width and profile in the area between the Caltrans right-of-way (ROW) and the UPRR ROW. This RSP would serve as scour protection immediately downstream of the proposed hydraulic drop structure and existing concrete-lined channel. The grouted rock is placed in the bottom of the channel as an energy dissipater for flows exiting the existing concrete-lined channel immediately upstream (and attached to) the project limits.

Fish Passage Grade Structure – The channel in the vicinity of the grade transition will be retrofitted to accommodate steelhead fish passage. To achieve this objective, the District is proposing to install the following improvements between the grade transition and Caltrans area of potential effects: Install 10-foot long by 3-foot wide by 3-foot deep drop pool downstream of the grade transition; 68-foot long by 3-foot wide by 3-foot deep fishway notch; and 4 ogee-type v-shaped weirs (2:1 downslope, 1:1 upslope) ranging from 0.5 to 2 feet high. These proposed improvements closely mimic those installed at Mission and Montecito Creeks fish passage projects constructed in 2011 that have been successful in passing fish through the grade transition.

Please see Exhibits A, B and C for a complete detailed project description. The District is specifically bound to the exact project description included in the Exhibits. Any changes to the included project description must be amended into the Agreement **PRIOR** to the change. If changes in the field must occur as a result of an emergency or unforeseen construction development DFG must be notified of these changes within 24

hours of the changes. Please submit any project updates by email to:
R5LSAcompliance@dfg.ca.gov.

Phase 2 Staging and Equipment Storage Areas District-Temporary staging areas for creek capacity improvements on SBAP property would be on an undeveloped dirt area north of the SBAP parking lot and south of San Pedro Creek, adjacent to the proposed flood wall and berm.

PLEASE NOTE: If a water diversion system must be put into place prior to initiation of construction activities; see additional measures within the Resources Section 2 Measures 2.28, 2.33 and 2.41 of this Agreement for further details concerning a proposed diversion for this project. The final diversion plan for this project must be reviewed and a written approval received from DFG **PRIOR** to its placement in the project area.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect, based on information received from the Permittee's, include, but are not limited to, the following species: **Arthropods:** monarch butterfly (*Danaus plexippus*) **Amphibians:** California red-legged frog (*Rana aurora draytonii*), pacific treefrog (*Hyla regilla*); **Reptiles:** western pond turtle (*Emys marmorata*), two-striped garter snake (*Thamnophis hammondi*), western fence lizard (*Sceloporus occidentalis*), coast patched-nose snake (*Salvadora hexalepis virguleta*), southwestern pond turtle (*Emys marmorata pallida*), two-striped garter snake (*Thamnophis hammondi*); **Fish:** southern steelhead (*Oncorhynchus mykiss irideus*); **Birds:** southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow-breasted chat (*Icteria virens*), black phoebe (*Sayornis nigricans*), western scrub jay (*Aphelocoma californica*), mockingbird (*Mimus spp.*), gray-blue gnatcatcher (*Poliophtila caerulea*), bushtit (*Psaltriparus minimus*), Anna's hummingbird (*Calypte anna*), swallow (*Hirundinidae*), raven (*Corvus corax*), western bluebird (*Sialia mexicana*), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*); **Mammals:** pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), ringtail (*Bassariscus astutus*), long-tailed weasel (*Mustela frenata*), western pocket gopher (*Thomomys mazama*), black-tailed jackrabbit (*Lepus californicus*), gray fox (*Urocyon cinereoargenteus*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), brush rabbit (*Sylvilagus bachmani*), bobcat (*Lynx rufus*); **Native Plants:** mugwort (*Artemesia douglasiana*), lemonade berry (*Rhus integrifolia*), quailbush (*Atriplex lentiformis*), coyote bush (*Baccharis pilularis*), eriastrum (*Eriastrum densifolium*), brome grass (*Bromus spp.*), buckwheat (*Eriogonum fasciculatum var. flavoviride*), white sage (*Salvia apiana*), golden yarrow (*Eriophyllum confertiflorum*), scale brome (*Lepidospartum squamatum*), lupine (*Lupines excubitus*), pinyon pine (*Pinus monophylla*), phacelia (*Phacelia douglasii*), great basin sage (*Artemesia tridentata*), Late-flowered Mariposa-lily (*Calochortus fimbriatus*), Ojai fritillary (*Fritillaria ojaiensis*), coast live oak, (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), arroyo willow (*Salix lasiolepis*), narrowleaf willow (*Salix exigua*), toyon (*Heteromeles arbutifolia*), white alder (*Alnus rhombifolia*), laurel sumac (*Malosma laurina*), coyote bush (*Baccharis pilularis*), white sage (*Salvia apiana*), poison oak (*Toxicodendron diversilobum*), mulefat (*Baccharis salicifolia*), and southern willow scrub and mulefat habitat and communities; and all

other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area.

IMPACTS

The Permittee shall implement the project(s) as proposed in the Phase 1 and Phase 2 project descriptions described in the Permittee's notification package for this Agreement. Permittee's activities shall result in the below stated impacts to Las Vegas and San Pedro Creeks (PM 23.2-32.0). Impacts resulting from implementation are based on the provided project description, as stated herein, and shall not exceed a total of 1.51 acres of both permanent and temporary impacts to perennial stream, dry ephemeral stream, floodplain, wash and associated riparian vegetation, in addition to the removal of a total of 46 native trees for construction and bank stabilization work; this includes all impacts for staging, storage and access roads necessary to complete the project(s) as described. For the purposes of this Agreement, temporary impacts are defined, and limited to those project-related activities occurring within the concrete-lined channel, devoid of instream vegetation, which is routinely maintained by the Flood Control District under their separate routine maintenance program; or impacts where areas are sparsely vegetated with non-native species.

If additional impacts beyond those expressly stated herein occur DFG must be notified and additional mitigation and/or measures to protect resources may be required. Specific project impacts are as follows:

Phase 1 - Caltrans (Includes impacts associated with access roads, staging areas, and culverts replacement)

Las Vegas and San Pedro Creeks	Southern Willow Scrub Riparian	In-stream Impacts	Freshwater Pools	Total (acres)
Permanent	0.25	0.10	0.00	0.35
Temporary	0.14	0.00	0.00	0.14
Total Impacts	0.39	0.10	0.00	0.49

Phase 1-Tree Removal: 4 California sycamores, 3 cottonwoods, and 21 willows.

Phase 2 - District (Includes impacts associated with access roads, staging areas, and culverts replacement)

Las Vegas and San Pedro Creeks	Southern Willow Scrub Riparian	In-stream Impacts	Freshwater Pools	Total (acres)
Permanent	0.28	0.22	0.05	0.55
Temporary	0.35	0.12	0.00	0.47
Total Impacts	0.63	0.34	0.05	1.02

Phase 2 - Tree Removal: 1 coast live oak, 3 California sycamores, 5 cottonwoods, and

8 willows.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee's shall meet each administrative requirement described below to remain in compliance with this Agreement.

1.1 Documentation at Project Site. Permittee's shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFG personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee's shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee's, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee's shall notify DFG if Permittee's determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFG shall contact Permittee's to resolve any conflict.

1.4 Project Site Entry. Permittee's agrees that DFG personnel may enter the project site at any time to verify compliance with the Agreement.

1.5 Regional Water Quality Control Board. DFG believes that permit/certification(s) may be required from the Regional Water Quality Control Board for this project. Should such permits/certification(s) be required, a copy shall be submitted to DFG.

1.6 Personnel Compliance Onsite. If the Permittee's or any employees, agents, contractors and/or subcontractors violate any of the terms or conditions of this Agreement, all work shall terminate immediately and shall not proceed until DFG has taken all of its legal actions.

1.7 Pre-Project briefing. A pre-maintenance meeting/briefing shall be held involving all the contractors and subcontractors, concerning the conditions in this Agreement.

1.8 Notification Prior to Work. The Permittee's shall notify DFG, in writing, at least five (5) days prior to initiation of project activities and at least five (5) days prior to completion of project activities. Notification shall be sent electronically to DFG at R5LSACompliance@dfg.ca.gov Reference # 1600-2012-0155-R5.

1.9 Notification Requirements. DFG requires that the Permittee's:

1.9.1 Immediately notify DFG in writing if monitoring reveals that any of the protective measures were not implemented during the period indicated

in this program, or if it anticipates that measures will not be implemented within the time period specified.

1.9.2 Immediately notify DFG if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures.

1.9.3 DFG shall verify compliance with protective measures to ensure the accuracy of the Permittee's mitigation, monitoring and reporting efforts. DFG may, at its sole discretion, review relevant documents maintained by the Permittee's, interview the Permittee's employees and agents, inspect the work site, and take other actions to assess compliance with or effectiveness of protective measures in this Agreement.

1.10 Implementation Requirements. The agreed work includes activities as described above in the Project Location and Project Description Sections of this Agreement. Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Permittee's with the Notification Package, and shall be implemented as proposed unless directed differently by this Agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee's shall implement each measure listed below. Avoidance and Minimization measures for this project include the establishment and use of Environmentally Sensitive Area (ESA) fencing. The ESA limits shall be shown on the final plan sheets and prior to construction the Resident Engineer shall contact the Permittee's Construction Liaison in order to set up the ESA limits in the field. In addition to Permittee's-proposed BMP's, the following additional measures shall be implemented to fully protect aquatic and terrestrial species during project-related activities.

Aquatic and Terrestrial Species Specific Protection

2.1 Red-legged Frog. It is unlikely, based on previous survey information, that red-legged frog may be present in streams impacted through Permittee's project-related activities. However, all Permittee's activities shall take place when there is no flow present in the identified stream courses impacted by Permittee's activities for all aspects of this project. If it becomes necessary to work in a wetted portion of any stream Permittee's shall notify the DFG via phone or email PRIOR to any such impacts and must receive written approval from DFG PRIOR to any work in a wetted portion of the stream.

2.2 Steelhead. Different steelhead populations migrate upriver at different times of the year, "summer-run steelhead" migrate between May and October, before their reproductive organs are fully mature. They mature in freshwater before spawning in the spring, while "winter-run steelhead" mature fully in the ocean before migrating, between November and April, and spawn shortly after returning. It is anticipated that "winter-run

steelhead” may potentially be impacted through the Permittee’s project related activities. For this reason, the Permittee’s activities, for all phases of this project, shall take place when there is no flow present in the identified stream course to be impacted. If it becomes necessary to work in a wetted portion of any stream between October 31st and June 15th in anadromous waters, the Permittee shall notify the DFG via phone or email a minimum of 7 days PRIOR to the start of project-related activities. Although it is unlikely this project will impact steelhead, due to the presence of a downstream barrier, any observances of steelhead in the project footprint must be reported to DFG within a 24-hour period of any such sighting. Permittee must stop work after any sighting of steelhead and must receive written approval from DFG PRIOR to any work restarting in a wetted portion of the stream. If it becomes necessary to work in a wetted portion of a stream, the Permittee shall submit a diversion plan PRIOR to implementation of the diversion and the diversion plan MUST be approved by DFG in writing PRIOR to the diversion installation. Please see further restrictions regarding steelhead in Section 2 Measures 2.9, 2.12, and 2.17 and proposed mitigation measures in Section 3-Fish Passage.

2.2.1 Permittee’s shall submit in writing to DFG for approval, PRIOR to any site preparation or project-related activities, a detailed outline of current fish passage barriers and proposed modifications to fish passage barriers as part of Habitat Mitigation Monitoring Plan (HMMP) for this project (see Section 3 of this Agreement).

2.2.2 Permittee’s shall submit a written plan detailing avoidance measures to steelhead when project implementation occurs stating specific BMP’s to ensure no impacts to steelhead as part of HMMP for this project (see Section 3 of this Agreement).

2.3 Southwestern Willow Flycatcher. This species has been recognized for using marginal habitat throughout multiple watersheds in Ventura and Los Angeles Counties. PRIOR to any impacts, protocol level surveys shall be conducted in areas where marginal willow and mulefat scrub habitat is proposed for permanent or temporary impacts. It is unlikely, based on previous survey information, that southwestern willow flycatcher will be present in riparian vegetation impacted through Permittee’s project-related activities. However, there shall be no take of southwestern willow flycatcher within the Project impact areas, as defined by Section 86 of the State of California Fish and Game Code of Regulations. If construction activities are proposed to commence during the nesting season, nesting bird surveys within the DFG’s jurisdiction must be conducted, during appropriate migration and nesting periods, and be concluded within three-days of the onset of any site preparation, construction, or other Project-related activities. The results of these nesting bird surveys, including negative findings, shall be presented in written form to DFG within three days of being concluded. The Permittee shall notify DFG, if DFG bird species of special concern or state-threatened and/or endangered bird species, other than those already identified by the Permittee’s, are discovered within or adjacent to the project area. DFG will determine if any additional mitigation measures are required for the subject project or project activity.

2.4 Least Bell’s Vireo. This species has been recognized for using marginal habitat

throughout multiple watersheds in Ventura and Los Angeles Counties. PRIOR to any impacts protocol level surveys shall be conducted in areas where marginal willow and mulefat scrub habitat is proposed for permanent or temporary impacts. It is unlikely, based on previous survey information, that least Bell's vireo will be present in riparian vegetation impacted through Permittee's project-related activities. However, there shall be no take of least Bell's Vireo within the project impact areas, as defined by Section 86 of the State of California Fish and Game Code of Regulations. If construction activities are proposed to commence during the nesting season, nesting bird surveys within DFG's jurisdiction must be conducted, during appropriate migration and nesting periods, and be concluded within three-days of the onset of any site preparation, construction, or other project-related activities. The results of these nesting bird surveys, including negative findings, shall be presented in written form to DFG within three days of being concluded. If DFG bird species of special concern or state-threatened or endangered bird species, other than those already identified by the Permittee's, are found, DFG shall be notified and determine if any additional mitigation measures may be required for the subject project.

2.5 Southwestern Pond Turtle. It is unlikely, based on previous survey information, that southwestern pond turtle will be present in streams impacted through Permittee's project-related activities. However, there shall be no take of Southwestern pond as defined in Section 86 of the Fish and Game Code of Regulations. Pre-construction trapping surveys shall be conducted for the southwestern pond turtle (in areas of ponded water only) within the proposed impact areas. Surveys for the southwestern pond turtle shall be submitted to the DFG for review, including negative findings, prior to any impacts associated with Permittee's activities governed under this Agreement. The DFG shall have thirty days to review the result of trapping surveys to determine if any protective measures are necessary prior to the Applicant initiating any of the proposed project activities. The Applicant shall arrange for a biologist to place an approved exclusionary device at sites where excavation activities within the boundaries of the DFG's jurisdiction shall occur. The biologist shall inspect the exclusionary device each day activities are expected to occur. If any animals are found trapped in the fencing or approved exclusionary device, the biologist shall remove the animal to an area located within the natural habitat in the same vicinity and out of harms way. The biologist shall report all relocations to the DFG the same day via electronic mail to the following address: R5LSACompliance@dfg.ca.gov.

2.6 Two-Stripped Garter Snake. It is unlikely, based on previous survey information, that two-stripped garter snake will be present in streams impacted through Permittee's project-related activities. However, there shall be no take of two-stripped garter snake as defined in Section 86 of the Fish and Game Code of Regulations. Pre-construction trapping surveys shall be conducted for the two-stripped garter snake (in areas of ponded water only) within the proposed impact areas within the boundaries of the DFG's jurisdiction. Surveys for the two-stripped garter snake shall be submitted to the DFG for review, including negative findings, prior to any impacts associated with Applicants activities governed under this Agreement. The DFG shall have thirty days to review the result of trapping surveys to determine if any protective measures are necessary prior to the Applicant initiating any of the proposed project activities. The Applicant shall arrange for a biologist to place an approved exclusionary device at sites

where excavation activities within the boundaries of the DFG's jurisdiction shall occur. The biologist shall inspect the exclusionary device on each day activities are expected to occur. If any animals are found trapped in the fencing, or approved exclusionary device, the biologist shall remove the animal to an area, located within the natural habitat, and in the same vicinity, but out of harms way. The biologist shall report all relocations to the DFG the same day via electronic mail to the following address: R5LSACompliance@dfg.ca.gov.

2.7 Swallows. It is anticipated that swallows may nest on bridges and other structures between February 15th and September 1st. The Permittee's shall take such measures as necessary to prevent nesting on portions of structures that will cause a conflict between performing necessary work and nesting swallows. Swallows shall be allowed to nest on portions of the bridges where conflicts are not anticipated.

2.8 Bats. It is anticipated that roosting big brown bats and Brazilian free-tailed bats may be present on structures identified in the project footprint. To prevent harm or death to any adult bat or its young the Permittee's shall avoid work on or near bridges or other structures when it would disturb roosting bats (February 15th - October 15th). A qualified biologist familiar with the life history of bats shall conduct, at minimum, a presence/absence survey of the bridge hinges and joints within the proposed work area and submit surveys, including negative results, to DFG for concurrence PRIOR to any work being initiated. Only after the DFG has reviewed the surveys and Permittee's implemented a plan to exclude daytime roosting may Project activities begin.

2.8.1 Permittee's shall monitor the hinges/joints of the bridge for evidence of bat roosting sites to ensure no bats are in the hinges/joints. Exclusionary devices/expandable foam shall be placed in the hinges/joints by a qualified biologist to prevent bats from entering the hinge/joint space and becoming trapped and harmed. Exclusionary devices shall be installed prior to the bats inhabiting the bridge.

2.8.2 Permittee's District Biologist shall supervise the placement of exclusionary devices and shall monitor devices at least once every 30 days to ensure their continued function and make any necessary repairs at that time to repair faulty exclusionary devices.

2.8.3 If bats are identified during pre-project related surveys the Permittee's shall hire a bat specialist to survey the project site and locate areas used as roosts by displaced bats as a result of Permittee's project-related activities. The area shall be surveyed for a minimum of one week to determine the evening exit and return(s) to the roost site. Once baseline has been established for the hours of exit and return of the bat population, construction activities shall be minimized during those periods. If bats are detected with appropriate surveys, then a bat specialist shall monitor the exit and return for one week during construction-related activities to see how work activity affects the bats movement and general behavior. If the bats exhibit stress or reluctance to exit or return to the roost site, work activities shall cease, and Permittee's shall create a plan designed to limit all project activity during hours of bat movement to avoid impacts to bats.

Permittee's shall submit this plan in writing to DFG and shall cease all work activities until DFG authorizes and approves the plan, in writing.

2.9 Presence/Absence Surveys. Due to the potential occurrence, or locally known presence of: steelhead, tidewater goby, red-legged frog (unlikely), coast patched-nose snake, southwestern pond turtle (trapping surveys only in areas with annual ponded water), two-striped garter snake (trapping surveys only in areas with annual ponded water), southwestern willow flycatcher (unlikely), least Bell's vireo (unlikely), yellow-breasted chat, ringtail, long-tailed weasel, gray fox, pallid bat, and Townsend's big-eared bat pre-construction presence/absence surveys by a qualified biologist shall be conducted for these species in work areas no more than 30 days prior to any site preparation, clearing, or project-related activities. If any of the above stated species are identified in project work areas, activities shall cease until the species has moved to a different location on its own accord or until the biological monitor has successfully relocated the species to an area out of harms way.

2.10 Threatened and/or Endangered Species. If the DFG determines that any threatened or endangered species or species of special concern, such as red-legged frog or southwestern willow flycatcher, will be impacted by the work proposed, work at that location shall stop and the habitat or nest site in question avoided until the species are no longer reliant on the area for survival as determined by a qualified biologist. If work needs to continue, the Permittee's shall obtain the appropriate federal and state permits for take of threatened or endangered species. If a potential for take of a State listed species exists as a result of Permittee's project related activities, the Permittee shall contact the DFG's Environmental Services, South Coast Region to obtain information regarding the State Take Permit.

2.11 Non-listed Special Status Species. A qualified environmental monitor shall be present during work in all DFG jurisdictional areas during initial project-related activities. To the extent feasible, non-listed special-status and/or common ground dwelling vertebrates encountered in the path of project-related activities shall be to relocated out of harm's way to the extent feasible. Exclusionary devices shall be erected to prevent the migration into or the return of species into the work areas, if determined appropriate and feasible by the environmental monitor. Such exclusionary devices shall be checked by the biologist, or designee of the biologist, on a daily basis to check/ensure continued exclusionary device effectiveness. Should DFG personnel visit the site during construction activities and no biological monitor is available, construction activities shall be halted.

2.12 Special Status Species. If special-status species are observed within harm's way, the following protection measures shall be implemented at the discretion of the monitoring biologist: 1) utilize shovel, rake, or similar hand tool to gently re-direct the animal out of work area; 2) Install silt fence or other exclusionary fencing to prevent species from re-entering disturbance area; and 3) Capture/relocate species to appropriate habitat outside the disturbance area, and must possess all required authorizations and permits. The biological monitor shall have authority to temporarily stop construction activities until the species is determined to be out of harm's way.

2.13 Contractor Education. Permittee shall have a qualified biologist prepare for distribution to all Permittee's contractors, subcontractors, project supervisors, and consignees a "Contractor Education Brochure" with pictures and descriptions of all sensitive plant and animal species, and specifically bats potentially occurring within the work areas. Permittee's contractors and consignees shall be instructed to bring to the attention of the project biological monitor any sightings of species described in the brochure.

Biological Surveys and Time Restrictions

2.14 Nesting and/or Breeding Bird Surveys. The Permittee shall not remove or otherwise disturb vegetation or conduct any other project activities on the project sites from March 1st to September 15th to avoid impacts to breeding/nesting birds; OR, PRIOR to project-related activities or site preparation activities that fall within the above breeding date restrictions the Permittee shall have a qualified biologist survey breeding/nesting habitat within the project site and adjacent to the project site for breeding/nesting birds. Surveys shall be permitted between March 15th and June 1st only if work is anticipated during the nesting season. After June 1st due to the increased likelihood of nesting activities and the potential to not adequately identify all active nest no surveys shall be permitted to begin after June 1st. Activities must be initiated within 72 hours of the conclusion of surveys. The Biologist shall provide DFG field notes or other documentation within 24 hours of completing the surveys. An email report with a letter report to follow may be used. The email/letter report should state how impacts of any nesting birds will be avoided by citing the appropriate information from these conditions.

2.15 Breeding and/or Nesting Birds. If breeding activities, birds bringing nesting material to habitat within the project footprint, and or nest are observed within or adjacent to the project area during surveys, and concurrence has been received from DFG in writing, the breeding habitat/nest site shall be fenced and/or flagged a minimum of 150 feet for passerines (300 feet for raptors) in all directions, and this area shall not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the project.¹ If active nests are observed and the recommended nest avoidance zones are not feasible, non-disturbance buffer zones shall be established by the qualified biologist based on, but not limited to, site lines from the nest to the work site and observations of the nesting bird's reaction to Project activities. Continuous monitoring of the nest site by a qualified biologist shall occur during disturbance activities and a nest observation log shall be updated once per hour during construction activities. If the monitoring biologist determines nesting activities may fail as a result of work activities, all work shall cease within the recommended avoidance area until the biologist determines the adults and young are no longer reliant on the nest site. If additional nest protection measures are determined necessary by the monitoring biologist or buffers deviate from the stated 150 and 300 foot requirements, a site-specific nest protection plan shall be submitted to DFG for review and approval. If the

¹ NOTE: Buffer area shall increase to 300 feet for passerines and 500 feet for raptors if any endangered, threatened, or DFG species of special concern are identified during protocol or pre-construction presence/absence surveys.

monitoring biologist determines that the established buffer is sufficient and nesting activities will not fail due to adjacent activities, the Permittee's may request in writing, electronically or in written format, to DFG that the hourly monitoring requirement be adjusted to daily monitoring until the young have fledged and are no longer dependent on the area in question. Hourly monitoring shall continue until the Permittee has received a written response, electronically or in letter format, from DFG that the protocol may be adjusted to daily monitoring, at DFG discretion.

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

2.17 Fish Surveys. If flowing or ponded water is within the proposed work limits, the Permittee's shall have a qualified fisheries biologist survey the proposed work area to verify presence/absence of the any sensitive fish species and any other species of special concern which may occur within the area. Survey methods shall conform to the current U. S. National Marines Fisheries Service and the California DFG. If any T/E species are found, the Permittee's shall cease all work within a mile radius of the sighting and in all water (flowing or impounded) and shall contact DFG within 24 hours of the sighting and shall request an onsite inspection by the DFG representative (to be done at the discretion of the DFG) to determine if work shall proceed. The results of the surveys shall be provided to the DFG, along with copies of all field notes, prior to the completion of work or as otherwise specified. The survey techniques shall be approved by DFG, in writing, and the researcher shall have the required State and federal permits.

2.18 Project Site Surveys. The Permittee's certifies by signing this Agreement that the project site has been surveyed and that surveys indicated no rare, threatened or endangered species shall be impacted; if however threatened or endangered species are encountered within the proposed work area once project activities are implemented, or could be impacted by the work proposed, the Permittee's shall consult with DFG, and state take permits may be required.

2.19 Observations of Threatened and/or Endangered Species. If threatened or endangered species are observed in the area, no work shall occur from March 1st through September 15th to avoid direct or indirect (noise) take of listed species and State and/or Federal threatened/endangered species. Please note that additional state permits may be required prior to commencing project activities. This Agreement does not authorize take of species listed as threatened and/or endangered.

2. 20 Reporting Observations to CNDDDB. The Permittee's shall be responsible for reporting all observations of threatened/endangered species or of species of special concern to DFG's Natural Diversity Data Base within ten (10) days of sighting.

2.21 Work Suspension. The Permittee's shall not continue work once listed (threatened/endangered, candidate, or rare) species are discovered until DFG has been

notified and concurrence has been received by DFG that work may continue. DFG will have forty-eight hours to review the circumstances and notify the Permittee's if work may continue.

Habitat Protection

2.22 Wildlife Corridors. The Permittee's, where possible, and in jurisdictional features, shall install appropriately sized culverts or open span bridges, to facilitate the movement of wildlife under rather than over roadways. If culverts or open span bridges cannot be installed the Permittee shall notify DFG and discuss other options. The Permittee shall maintain all existing culverts, in jurisdictional features, under Interstate US-101. Hydrology and acre feet of water delivered to the Pacific Ocean shall not be altered. The culverts potentially provide wildlife/aquatic organisms access under US-101 and shall remain adequate in size and uncompromised to accommodate the movement of both aquatic and terrestrial species. DFG has noted that providing a mechanism for diffused light to pass into and under the under crossings are an important element for mammals using these dry creek beds as corridors. The project should be modified to include some mechanism for diffuse light to pass into the newly designed box culverts where the inlet and outlet are more than 25 linear feet apart.

2.23 Vehicle Access Where Vegetation May be Impacted. The location identified for project area access must be identified in area and indicated in the project description. Impacts shall not exceed those as described in the project description included with the notification for this Agreement. If it is determined that additional impacts may occur as a result of these activities additional Compensatory Mitigation may be required (See Section 3).

2.24 Tree and Shrub Removal. No tree removal is authorized as part of this Agreement, other than those trees specifically identified in the Impacts Section of this Agreement. If it is determined that additional impacts may occur as a result of these activities, additional Compensatory Mitigation may be required (See Section 3).

2.25 Herbicide Application. The Permittee shall apply any herbicides in accordance with state and federal law. No herbicides shall be used where threatened or endangered species occur. No herbicides shall be used when wind velocities are above 5 miles per hour or when nesting birds could be exposed.

2.26 Authorized Uses of Herbicides. No herbicides shall be used on native vegetation unless specifically authorized PRIOR to application, in writing, by DFG. A small amount of selective trimming of native species (e.g. willow, oak and sycamore) may occur to prevent overspray of herbicide from reaching these branches, but only as provided within the conditions of this Agreement. Native vegetation may only be trimmed; individual plants shall not be removed. Material in excess of three (3) inches DBH shall require specific notice to and consultation with DFG. All trimming shall be conducted using hand saws and hand tools.

2.27 Alteration of Streambed. This Agreement does not authorize modification to any stream channel during the Permittee's project-related activities beyond those specifically described in the Project description as described in the Permittee's Streambed Notification. If alterations to the bank are required as part of the restoration project, those impacts must be approved by DFG prior to occurrence.

2.28 Demolition of Structures. During bridge demolition, tarps shall be suspended under the bridge and above the bottom of the creek and any flowing or ponded water. If water is present, a water diversion shall be installed or measures shall be incorporated to secure the tarps a minimum of 18" above the water surface to prevent smothering any aquatics species and to prevent dust and debris from entering the channel. The dust shall be vacuumed at the end of each day to prevent the dust from blowing downstream and into any water.

2.29 Substrate. Rock, gravel, and/or other materials shall not be imported to, taken from or moved within the bed and or banks of the stream, except as otherwise addressed in the Project Description.

2.30 Domestic Animals. The Permittee's shall not permit pets on or adjacent to the construction site.

2.31 Weapons. The Permittee's shall ensure that no guns/or other weapons are on-site during construction, with the exception of the security personnel and only for security type functions. No hunting shall be authorized/permited during Project-related activities.

Fill and Spoils

2.32 Fill. This Agreement authorizes fill only as specified in the project description as described in the Permittee's Streambed Notification and does NOT authorize any fill placement within Las Vegas or San Pedro Creeks or any of their tributaries.

Placement of In-stream Structures

2.33 Diversions. This Agreement does not authorize any diversion or other artificial obstruction other than those specifically described and implemented as proposed in the Permittee's notification. Any additional work in a wetted portion of a streambed requires PRIOR approval, in writing, from DFG prior to implementation. DFG MUST receive and approve any diversion implemented as part of this Project. DFG must be provided 14 days to review and respond in writing to the Permittee regarding the diversion plan proposed for this project. The proposed diversion plan for this project must be approved by DFG in writing PRIOR to any project-site associated impacts.

2.34 Temporary Installation of Bridges, Culverts, or Other Structures. This Agreement does not authorize any temporary bridge, culvert, or other structure or obstruction other than those specifically described and implemented as proposed in the Permittee's notification. Any additional work in a wetted portion of a streambed requires PRIOR approval, in writing, from DFG prior to implementation.

2.35 Temporary Dams. This Agreement does not authorize any temporary dam or other artificial obstruction other than those specifically described and implemented as proposed in the Permittee's notification. Any additional work in a wetted portion of a streambed requires PRIOR approval, in writing, from DFG prior to implementation.

2.36 Wet concrete. No concrete or any cement product may be poured if 80% chance of rain is forecasted within 3 days of concrete pour. If any concrete is poured after November 1st, a quick-cure ingredient shall be added to the concrete mix to ensure a faster set or drying time. Cement and concrete shall not be poured within 150 feet of a stream during the rainy season without placement of coconut bails or other approved BMP's to direct runoff and prevent concrete wash from entering the stream during rain events.

2.37 Unauthorized Materials. Any materials placed in seasonally dry portions of a stream that could be washed downstream or could be deleterious to aquatic life shall be removed prior to inundation by high flows.

Turbidity and Siltation

2.38 Predicted Rain. If measurable rain with 80% or greater probability is predicted within 72 hours during project-related activities, all activities shall cease and any previously installed protective measures to prevent siltation/erosion shall be inspected. If additional BMP's are required they shall be implemented/maintained as necessary.

2.39 Sediment Control. Sediment from project-related activities shall not be placed in upland areas where it might likely be washed back into the stream, or where it is likely to have a negative impact on emergent native vegetation, or where it is likely to have a negative impact on native trees.

2.40 Sediment Control Devices. The Permittee's shall install an appropriate sediment control device downstream of the work area to filter sediment created from water re-entering the creek. Acceptable materials include silt fence, straw bales, or other appropriate devices to prevent sediment runoff during rewatering activities. Silt control shall remain in place only until the water running through the work area is clear of sediment.

2.41 Dewatering Restrictions. No dewatering activities are proposed or authorized by this Agreement other than those specifically described and implemented as proposed in the Permittee's notification. Silty/turbid water from dewatering or other activities shall not be discharged into the stream. Such water shall be settled, filtered, or otherwise treated prior to discharge. The Permittee's ability to minimize turbidity/siltation shall be the subject of pre-construction planning and feature implementation only if and when it becomes necessary.

2.42 Dust control. No stream water may be used in construction, such as in dust control. All construction water shall be from developed sources. Any dust produced from demolition of existing structures shall be vacuumed on a daily basis from the creek

channel, and from any location where it may pass into waters of the state from rain or wind.

2.43 Sediment and Turbidity Levels. Upon DFG determination that turbidity/siltation levels resulting from project-related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective DFG-approved control devices are installed, or abatement procedures are initiated.

2.44 Runoff Control. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

2.45 Contaminated Site Water. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a flowing stream, or dry ephemeral stream, or placed in locations that may be subjected to high storm flows.

Equipment and Access

2.46 Staging and Vehicle Storage. Staging/storage areas for equipment and materials shall be located outside of the stream, and only in those areas as described in the Project Description provided for this Agreement. Area(s) selected were selected due to either a non-vegetated status or in an effort to reduce project-related impacts. Staging in all other areas is prohibited by this Agreement unless otherwise approved by DFG PRIOR to implementing the staging activities.

2.47 Authorized Vehicles. This Agreement does NOT authorize any vehicle(s) to be driven, or equipment operated in any water-covered portions of a stream, or where wetland vegetation, riparian vegetation, or aquatic organisms may be harmed or destroyed. DFG shall be notified within 24 hours by email or fax PRIOR to work in a wetted streambed additional mitigation and/or measures may be required to protect resources.

2.48 Vehicle Maintenance. Any equipment or vehicles driven and/or operated adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

Pollution, Litter and Cleanup

2.49 Pollutants and Debris. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project-related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into, waters of the State. Any of these materials, placed within or where they may enter a stream, by the Permittee's or any party working under contract, or with the permission of the Permittee's, shall be removed immediately. When project-related activities are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

2.50 Pollution Compliance. The Permittee's shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the Permittee's to insure compliance.

2.51 Debris. Except as otherwise permitted in this Agreement, the removal of soil, vegetation, and vegetative debris from the stream bed or stream banks is prohibited. The Permittee's shall remove all human generated debris, such as yard and farm cuttings, broken concrete, construction waste, garbage and trash. The Permittee's shall remove washed out culverts, and other construction materials, that the Permittee's places within, or where they may enter, the stream.

2.52 Pollution Prevention. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as extra boom, absorbent pads, skimmers, shall be on site prior to the start of project-related activities. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

2.53 Pollution Clean-up. The clean-up of all spills shall begin immediately. DFG shall be notified immediately by the Permittee's of any spills that release hazardous material (oil, cement, fuel, etc.) into Las Vegas or San Pedro Creeks and shall be consulted regarding clean-up procedures.

2.54 Trash Receptacles. The Permittee's shall install and use fully covered trash receptacles with secure lids (wildlife proof) that contain all food, food scrapes, food wrappers, beverage and other miscellaneous trash generated by work force personnel.

3. Compensatory Measures – The Permittee shall install 1.59 acres of mitigation for all permanent and temporary impacts associated with the Permittee's project. Mitigation shall be installed as proposed in the final HMMP for this project prepared by Caltrans. All mitigation measures are applicable to both Permittee's under the terms and conditions of this executed Agreement. The HMMP shall be implemented as proposed in Exhibit A.

Fish Passage

3.1 Barriers. Permittee shall identify any potential fish passage barriers downstream and upstream of the project areas and include the enhancement or removal of these barriers as compensatory mitigation within the HMMP, in addition to any other proposed mitigation or enhancements, where feasible

Native Vegetation

3.2 Please refer to the approved HMMP developed by Caltrans for this project. The HMMP shall be implanted as proposed. If any additional impacts beyond those already described herein should occur, additional mitigation may be required at the discretion of DFG.

Exotic Species Removal and Control

3.3 Wildland Pest Species. The Permittee's, whenever possible, shall remove any non-native vegetation *Arundo donax*, tamarisk (*Tamarix* spp.), eucalyptus-immature 3" < (*Eucalyptus* spp.), pepper tree (*Schinus molle*), castor bean (*Ricinus communis*), African umbrella sedge (*Cyperus eragrostis*, *Nutsedge*), mustards (*Brassica* spp.), tree tobacco (*Nicotiana glauca*), periwinkle (*Vinca* spp.), and pampas grass (*Cortaderia selloana*) from the work area and shall dispose of it in a manner and a location which prevents its reestablishment.

3.3.1 *Arundo donax*. Giant cane (*Arundo*), if present, shall be cut to a height of 6 inches or less, and the stumps painted with an herbicide approved for aquatic use within 5 minutes of cutting. Herbicides shall be applied at least three times during the period from May 1st to October 1st to eradicate these plants. Where proposed methods for removing giant cane deviate from this procedure, the Permittee's shall present the alternate methods requested to DFG for review and must wait for written approval from DFG PRIOR to implementation.

3.4 Exotics Removal and Control Mechanisms. Whenever possible, invasive species shall be removed by hand or by hand-operated power tools rather than by chemical means. Where control of non-native vegetation is required within the bed, bank, or channel of the stream, and the use of herbicides is necessary, and there is a possibility that the herbicides could come into contact with water, the Permittee's shall employ only those herbicides, such as Rodeo/Aquamaster (Glyphosate), which are approved for aquatic use. If surfactants are required, they shall be restricted to non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use. The Permittee's may submit in writing to DFG a request to administer another herbicide if it has been determined that it may be safely administered in aquatic environments, without causing harm to wildlife. Permittee's must wait for a written authorization from DFG PRIOR to administering any other non-approved herbicide listed in this measure.

4. Reporting Measures - Permittee's shall meet each reporting requirement described below.

4.1 Habitat Mitigation Monitoring Report (HMMP). Permittee shall submit in written format the proposed HMMP to the DFG PRIOR to any impacts (site preparation included) and must receive from DFG written concurrence that the HMMP has been approved **before** Permittee may proceed with **any** site preparation activities. Permittee shall submit the HMMP for DFG comments and written approval by the proposed project implementation date **October 13, 2013**. Permittee must allow DFG 30-days to review and provide written approval of the proposed HMMP **PRIOR** to any project-related impacts. The HMMP shall include all proposed planting plans, improvements

proposed for fish passage, all proposed monitoring activities, and the duration proposed for each phase of mitigation to be installed and completed. All portions of the HMMP shall be completed by **April 14, 2017**.

4.2 Weekly Electronic Reports. Electronic (e-mail) weekly updates during periods of project implementation describing vegetation clearing, grubbing, grading progress; species encountered and relocation/disposition during construction; as well as any reported losses of wildlife shall be submitted to the DFG no later than the first Monday following the initiation of site preparation and shall continue until the site preparation portion of the project is completed (this includes all roads and related activities). Electronic updates should be submitted to the following email address(s): R5LSACcompliance@dfg.ca.gov ; jjackson@dfg.ca.gov.

4.3 Final Construction Mitigation and Monitoring Report. Permittee shall provide a final construction report to DFG no later than 30 days after the project is fully completed. The construction report, at a minimum, shall contain pre-project photographs, total amount of area impacted post-project, post-project photographs, and detailed habitat restoration plans (as detailed in section 3 above).

4.4 Long-Term Agreement Reporting Requirements. Pursuant to the California Fish and Game Code Section 1605 (g) at least every four years during the term of this Agreement, until the Agreement expires, a Status Report shall be submitted to the Department no later than 90 days prior to the end of each four year period (**first status report due October 31, 2017**), and shall include the following information:

4.4.1 A copy of the original Agreement.

4.4.2 The status of the activity covered by the Agreement.

- a. An evaluation of the success or failure of the measures in the Agreement to protect local habitat and connectivity for fish and wildlife resources that the activity may have substantially adversely affected.
- b. A discussion of any factors that could increase the predicted adverse impacts on fish and wildlife resources, and a description of the resources that may be adversely affected.
- c. Reports shall include photo documentation consisting of "before and after" photos of representative work areas in which construction was completed and all areas in which work involving heavy equipment occurred.
- d. Upon receipt of the Status Report, the Department will contact the Permittee to schedule an onsite inspection by Department staff, to confirm that the Permittee is in compliance with the terms of this Agreement, and that the Agreement is adequately protecting fish and wildlife resources. These onsite inspections shall be conducted by Department staff every four years during the term of this

Agreement, until the Agreement expires.

- e. Following review of the Status Report and the onsite inspection, if the Department determines that the measures in the Agreement no longer protect the fish and wildlife resources that are being substantially adversely affected by the activity, the Department, in consultation with the Permittee's, and within 45 days of receipt of the report, shall impose one or more new measures to protect the fish and wildlife resources affected by the activity.

4.5 Additional Reporting Requirements. In addition to the above monitoring and reporting requirements, the Department requires that the Permittee:

4.5.1 Immediately notify the Department in writing if monitoring reveals that any of the protective measures were not implemented during the period indicated in this program, or if it anticipates that measures will not be implemented within the time period specified.

4.5.2 Immediately notify the Department if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures.

4.6 Compliance with Protective Measures. The Department shall verify compliance with protective measures to ensure the accuracy of the Permittee's mitigation, monitoring and reporting efforts. The Department may, at its sole discretion, review relevant documents maintained by the Permittee, interview the Permittee's employees and agents, inspect the work site, and take other actions to assess compliance with or effectiveness of protective measures in this Agreement.

4.7 Quality Control and Assurances (QA/QC). During the construction process, specifically Phase 2, Permittee's shall submit construction QA/QC forms to DFG R5LSAcompliance@dfg.ca.gov on a weekly basis or as soon as feasible. Every month Permittee's shall compile the monitoring and observation and inspection summaries for the as-built design and any onsite modifications that have been implemented that deviate from the approved design agreed upon by DFG and Permittee prior to construction. The QA/QC are required to ensure that the final as-built design of the fish passage structure will function as designed and benefit steelhead passage through San Pedro Creek.

CONTACT INFORMATION

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

To Permittee: Phase 1 (Caltrans):

California Department of Transportation
Mr. Paul Holmes
50 Higuera Street
San Luis Obispo, California, 99401
Tel. (805) 549-3811 Fax. (805) 549-3233

To Permittee: Phase 2 (District):

Santa Barbara County Flood Control District
Ms. Maureen Spencer
130 E. Victoria St. Suite 200 Santa Barbara, California, 93101
Tel. (805) 568-3437 Fax. (805) 568-3434

To DFG:

DFG of Fish and Game
South Coast Region
3883 Ruffin Road
San Diego, California 92123
Attn: Lake and Streambed Alteration Program
R5LSACompliance@dfg.ca.gov
Notification #1600-2012-0155-R5

LIABILITY

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

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

SUSPENSION AND REVOCATION

DFG may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

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

to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

ENFORCEMENT

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

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

OTHER LEGAL OBLIGATIONS

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

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

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

AMENDMENT

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

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective,

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

EXTENSIONS

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

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

EFFECTIVE DATE

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

TERM

This Agreement shall expire on **April 14, 2023** unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee's 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.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

Exhibit A: "Final Mitigated Negative Declaration 11NGD-00000-00008 Las Vegas – San Pedro Creeks Capacity Improvement Project On Route 101 in Santa Barbara County Postmile 22.3-23.2 Caltrans Authorization EA 05-0G0700 sated September, 2011"

Exhibit B: "Final Goleta Drainage Upgrades Project Natural Environmental Study Report State of California Department of Transportation 05-SB-101 PM 22.3/23.0 05-0G0700 dated June, 2010"

Exhibit C: "San Pedro Creek Fish Passage Evaluation at the Grade Transition
Upstream of Calle Real dated January, 2012"

AUTHORITY

If the person(s) signing the Agreement (signatory(s)) 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's to the provisions herein.

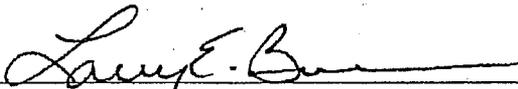
AUTHORIZATION

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

CONCURRENCE

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

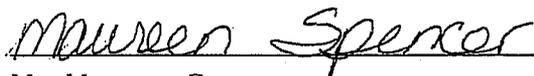
FOR California Department of Transportation



Mr. Larry Bonner
Senior Environmental Planner

11-19-12
Date

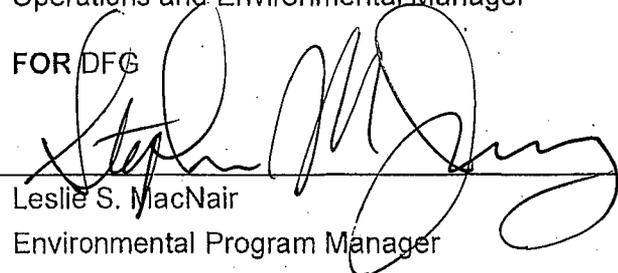
FOR Santa Barbara County Flood Control District



Ms. Maureen Spencer
Operations and Environmental Manager

11-19-12
Date

FOR DFG



Leslie S. MacNair
Environmental Program Manager

27 Nov 2012
Date

Prepared by: Jamie Jackson
Staff Environmental Scientist

INFORMATION HANDOUT

PERMITS AND AGREEMENTS

[3.US Army Corp of Engineer 404 Permit No. SPL-2011-00782-TS, dated
12/13/12](#)

ROUTE: 05/SB/101/22.3/23.0



DEPARTMENT OF THE ARMY

Los Angeles District Corps of Engineers
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura, California 93001

December 13, 2012

REPLY TO
ATTENTION OF

Regulatory Division

Paul Holmes
California Department of Transportation
District 5
50 Higuera Street
San Luis Obispo, CA 93401

Maureen Spencer
Santa Barbara County Flood Control & Water Conservation District
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101

DEPARTMENT OF THE ARMY NATIONWIDE PERMIT VERIFICATION

Dear Mr. Holmes and Ms. Spencer:

This is in reply to the application dated July 9, 2012 for a Department of the Army Permit to discharge fill onto waters of the U.S., in association with the Caltrans District 5 (Caltrans) and Santa Barbara County Flood Control & Water Conservation District (District) Las Vegas Creek and San Pedro Creek Drainage Improvement Project (Corps File No. SPL-2011-00782-TS). The proposed work would take place in Las Vegas Creek and San Pedro Creek in the cities of Goleta and Santa Barbara, Santa Barbara County, California.

Specifically, you have requested authorization under Nationwide Permits 3 (*Maintenance*) and 43 (*Stormwater Control Facilities*) to construct Projects A and B, as described in the permit application and in your California Environmental Quality Act Mitigated Negative Declaration dated September 2011.

Project A

Project A would remove the existing concrete box culverts beneath U.S. 101 on Las Vegas Creek and San Pedro Creek and replace these culverts with bridges to provide for a natural channel bottom on each creek. The project would temporarily impact approximately 0.27 acres of Las Vegas Creek and approximately 0.13 acres of San Pedro Creek. In addition, Caltrans proposes to widen San Pedro Creek upstream of the Union Pacific Railroad (UPRR) Bridge to approximately 45 feet.

Project B

Project B would install a new UPRR bridge on San Pedro Creek and Las Vegas Creek, remove concrete from several channel areas to increase capacity, and restore natural channel bottoms downstream of the UPRR bridges. The project would temporarily impact approximately 0.39 acres of Las Vegas Creek and approximately 0.88 acres of San Pedro Creek.

The District proposes to grade and widen the creeks to approximately 94 feet in width downstream of the UPRR bridges to conform to the proposed new UPRR bridge width. This grading would result in expansion of jurisdictional waters of the U.S. from approximately 0.07 acres to approximately 0.12 acres on San Pedro Creek and approximately from approximately 0.13 acres to approximately 0.24 acres on Las Vegas Creek. The creeks would narrow to existing widths within approximately 140 feet of the proposed railroad bridges. The east bank of San Pedro Creek would also be expanded and re-vegetated following completion of construction.

Immediately upstream of Calle Real Road on San Pedro Creek, the District proposes to construct a slot-type transition structure with a series of weirs within an existing concrete trapezoidal channel. Due to this project element being constructed in an existing concrete lined channel, impacts are considered temporary.

For both projects, equipment access would be from the existing banks and would require vegetation removal. All temporarily denuded areas would be re-vegetated following completion of the project.

Project C

As proposed, no elements of Project C result in a discharge of dredged or fill material in jurisdictional waters of the U.S., and therefore are not regulated by the Corps. The District also proposes to construct two additional flood control improvement outside waters of the U.S., including a new concrete flood wall on the west bank of San Pedro Creek downstream of the proposed project area and a berm. The height of the flood wall transitions from six (6) feet high at the upstream end and tapers to four (4) feet high at the downstream end. The berm would be approximately two feet high to deflect overland flow, and would be located in the vicinity of a remote Santa Barbara Airport parking lot.

For this NWP verification letter to be valid, you must comply with all of the terms and conditions in Enclosure 1. Furthermore, you must comply with the following non-discretionary Special Conditions listed below:

1. The Permittees shall provide a copy of this permit to all field staff, contractors, subcontractors, and equipment operators. Copies of this permit shall be readily available at the work site at all times during periods of active work, and shall be presented to any Corps Regulatory Division personnel upon request.
2. Prior to construction in waters of the U.S. the Permittees shall submit to the Corps, a final mitigation and monitoring plan.

3. This permit does not authorize take of any threatened or endangered species or adversely modify designated critical habitat. In order to legally take a listed species, separate authorization under the Endangered Species Act (e.g. Section 10 permit, or a Biological Opinion (BO) under Section 7, with "incidental take" provisions with which you must comply) is required.
4. This permit does not authorize you to take any migratory birds pursuant to the Migratory Bird Treaty Act. Vegetation shall not be removed from 15 February to 31 August to avoid impacts to nesting birds unless the results of a pre-project bird survey by a qualified biologist indicates no nesting birds are present in the project area. Pre-project surveys shall be conducted within two weeks of the proposed vegetation removal. Survey results shall be submitted to the Corps Regulatory Division prior to construction activities in waters of the U.S. (electronic mail, facsimile, standard mail, is acceptable). If nesting birds are present, no work shall occur until the young have fledged and would no longer be impacted by the project. Survey results shall be submitted to the Corps Regulatory Division prior to construction activities in waters of the U.S.
5. Appropriate measures shall be taken to maintain near normal downstream flows and to minimize flooding during project activities in waters of the U.S. Fill materials must be of a type, and be placed in a manner, that will not result in erosion by high flows.
6. No debris, soil, sand, bark, slash, sawdust, rubbish, cement or washings thereof, asphalt, oil or petroleum products, or any other material that may be harmful to fish or wildlife, that results from construction activities shall be allowed to enter or be placed where it may be washed by rainfall or runoff into waters of the U.S. When construction activities are completed, all excess materials, and/or debris shall be removed from the work area to an approved off-site disposal area, outside of waters of the U.S.
7. Exotic and invasive plant species shall be removed during construction activities and shall be disposed at an approved off-site location, outside waters of the U.S. Target species include but are not limited to: giant reed (*Arundo donax*), castor bean (*Ricinus communis*), salt cedar (*Tamarix* sp.), tree tobacco (*Nicotiana glauca*), yellow star thistle (*Centaurea solstitialis*), artichoke thistle (*Cynara cardunculus*), pampas grass (*Cortaderia selloana*), fountain grass (*Pennisetum setaceum*), and cocklebur (*Xanthium strumarium*).
8. Staging and storage areas for equipment and construction materials shall be located in uplands and where possible, a minimum of 100 feet from waters of the U.S. Storage areas located less than 100 feet from waters shall be approved by the Corps Regulatory Division, and these areas shall be shown on construction plans.
9. Temporary fills in special aquatic sites are not allowed unless specifically authorized by the Corps Regulatory Division. Following completion of the construction activity, temporary fills must be entirely removed to an upland location, outside waters of the

U.S., and the affected area must be restored to the pre-project condition in accordance with the final Corps-approved mitigation plan.

10. Work shall be performed during periods when the channel is dry or flows are absent or minimal, generally May through October. Standard Best Management Practices shall be implemented to minimize turbidity within the affected waterbody, and appropriate measures must be taken to minimize flooding and erosion on adjacent properties.
11. The Corps Regulatory Division project manager shall be notified of any accidental spill of hazardous materials within 12 hours of detection. Notification may be in the form of an electronic mail message, telephone, or facsimile. Notification shall include the reason for the spill, the exact location of the spill, the type and approximate quantity of the materials spilled, and the measures taken to control and clean up the spilled materials.
12. The Permittees shall revegetate all impacted areas, which total approximately 1.67 acre(s) of waters of the U. S., through re-establishment of 1.67 acre(s) of waters of the U.S. as described in a final, Corps-approved mitigation plan (plan) in accordance with condition 2 above. The Permittees shall complete site preparation and planting and initiate monitoring as described in the plan, within 45 days of completion of construction activities in waters of the U.S. The Permittees retain ultimate legal responsibility for meeting the requirements of the plan. Detailed mitigation objectives, performance standards, monitoring requirements, financial assurances and/or long-term management provisions are described in the plan. Your responsibility to complete the required compensatory mitigation as set forth in this permit will not be considered fulfilled until you have demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers, Los Angeles District, Regulatory Division.
13. The Permittees shall ensure the acreage of waters of the U.S. and aquatic resource functions of each site shall equal or exceed pre-project acreage of waters of the U.S. and aquatic resource functions by the end of the monitoring period as specified in the plan. Functions for the above impact areas shall be assessed annually using CRAM, RSRA, or a similar Corps-approved functional/condition assessment method. The Permittees responsibility to complete the required restoration as set forth in this permit shall not be considered fulfilled until the Permittees have met or exceeded all final performance standards for the impact areas, and has obtained written confirmation from the Corps verifying successful restoration Note: if not done previously as part of the permit application evaluation process, then prior to initiating construction in sites within waters of the U.S. subject to authorized, temporary impacts, the permittee shall conduct a functional/condition assessment to establish pre-project (baseline) functions at each impact site.
14. GIS DATA: Within 60 days following permit issuance, the permittees shall provide to this office GIS data (polygons only) depicting the boundaries of all mitigation sites, as authorized in the final mitigation plan. All GIS data and associated metadata shall be provided on a digital medium (CD or DVD) or via file transfer protocol (FTP), preferably

using the Environmental Systems Research Institute (ESRI) shapefile format. GIS data for mitigation sites shall conform to the data dictionary, as specified in the current Map and Drawing Standards for the Los Angeles District Regulatory Division, and shall include a text file of metadata, including datum, projection, and mapper contact information. If any deviations have occurred, you shall submit as-built GIS data (polygons only) accompanied by a narrative description listing and explaining each deviation within 60 days following completion of mitigation construction activities.

15. The Permittees shall clearly mark the limits of the work area with flagging or similar means to ensure mechanized equipment does not enter non-project waters of the U.S. and riparian wetland/habitat areas. Adverse impacts to waters of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil or criminal penalties, and/or substantial, additional mitigation requirements.
16. Within 45 calendar days of completion of authorized work in waters of the U.S., the Permittees shall submit to the Corps Regulatory Division a post-project implementation memorandum including the following information:
 - A) Dates work within waters of the U.S. was initiated and completed;
 - B) Summary of compliance status with each special condition of this permit (including any noncompliance that previously occurred or is currently occurring and corrective actions taken or proposed to achieve compliance);
 - C) Color photographs (including map of photo points) taken at the project site before and after construction for those aspects directly associated with permanent impacts to waters of the U.S. such that the extent of authorized fills can be verified;
 - D) One copy of "as built" drawings for the entire project. Electronic submittal (Adobe PDF format) is preferred. All sheets must be signed, dated, and to-scale. If submitting paper copies, sheets must be no larger than 11 x 17 inches; and
 - E) Signed Certification of Compliance (attached as part of this permit package).
17. Within 45 calendar days of complete installation of all mitigation, the Permittees shall submit to the Corps Regulatory Division a memorandum including the following information:
 - A) Date(s) all mitigation was installed and monitoring was initiated;
 - B) Schedule for future mitigation monitoring and reporting pursuant to final, Corps-approved mitigation plan;
 - C) Color photographs (including map of photo points) taken at each mitigation site before and after installation such that correct installation per final, Corps-approved mitigation plan can be verified;
 - D) One copy of "as built" drawings for the entire project, including all mitigation sites. Electronic submittal (Adobe PDF format) is preferred. All sheets must be signed, dated, and to-scale. If submitting paper copies, sheets must be no larger than 11 x 17 inches; and

E) Summary of compliance status with each special condition of this permit (including any noncompliance that previously occurred or is currently occurring and corrective actions taken or proposed to achieve compliance).

18. Pursuant to 36 C.F.R. section 800.13, in the event of any discoveries of either human remains, archeological deposits, or any other type of historic property during construction, the Permittee shall notify, within 24 hours, the Corps' Regulatory Division Staff (Theresa Stevens, Ph.D. at 805-585-2146) and Archaeology Staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861). The Permittees shall immediately suspend all work in any area(s) where potential cultural resources are discovered. The Permittees shall not resume construction in the area surrounding the potential cultural resources until the Corps Regulatory Division re-authorizes project construction per regulations at 36 C.F.R. section 800.13.

Your verification is valid through **December 13, 2014**. All NWP's will expire on March 18, 2017. It is incumbent upon you to remain informed of changes to the NWP's. A public notice of the change(s) will be issued when any of the NWP's are modified, reissued, or revoked. Furthermore, if you commence or are under contract to commence this activity before the date on which the relevant NWP is reissued, modified, or revoked, you will have twelve (12) months from the date of the reissuance, modification, or revocation of the NWP to complete the activity under the present terms and conditions of the relevant NWP.

A NWP does not grant any property rights or exclusive privileges. Additionally, it does not authorize any injury to the property, rights of others, nor does it authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

Thank you for participating in our regulatory program. If you have any questions, please contact Theresa Stevens, Ph.D. at 805-585-2146 or via e-mail at theresa.stevens@usace.army.mil. Please comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: <http://per2.nwp.usace.army.mil/survey.html>.

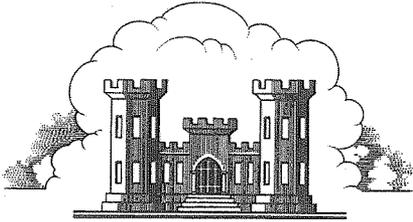
"Building Strong and Taking Care of People!"

Sincerely,



Aaron O. Allen, Ph.D.
Chief, North Coast Branch
Regulatory Division

Enclosure



**LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS**

**CERTIFICATE OF COMPLIANCE WITH
DEPARTMENT OF THE ARMY NATIONWIDE PERMIT**

Permit Number: *SPL-2011-00782-TS*

Name of Permittees: *Caltrans District 5 and Santa Barbara County Flood Control & Water Conservation District*

Date of Issuance: *December 13, 2012*

Upon completion of the activity authorized by this permit and the mitigation required by this permit, sign this certificate, and return it to the following address:

U.S. Army Corps of Engineers
Attn: SPL-2011-00782-TS
2151 Alessandro Drive, Suite 110
Ventura, CA 93001

Please note your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this Nationwide Permit, you may be subject to permit suspension, modification, or revocation procedures as contained in 33 C.F.R. § 330.5 or enforcement procedures such as those contained in 33 C.F.R. §§ 326.4 and 326.5.

I hereby certify the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit condition(s).

Signature of Permittee

Date

Enclosure 1: NATIONWIDE PERMIT NUMBERS 3 (Maintenance) and 43 (Stormwater Management Facilities)

TERMS AND CONDITIONS

1. Nationwide Permit(s) 3 Maintenance and 43 (Stormwater Management Facilities)

Your activity is authorized under Nationwide Permit Numbers 3 and 43, subject to the following terms.

3. Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays. (b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of and within existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an upland area unless otherwise specifically approved by the district engineer under separate authorization. The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer. (c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. 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. (d) This NWP does not authorize maintenance dredging for the primary purpose of navigation or beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). Where maintenance dredging is proposed, the pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404) Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as

proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

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

(e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

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

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the 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

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

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

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

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

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

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

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

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

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.
27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.
28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

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

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:
- (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

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

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

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

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

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

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

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days

Division PCN Checklist or a signed application form (ENG Form 4345) with an attachment providing information on compliance with all of the General and Regional Conditions. The PCN Checklist and application form are available at: <http://www.spl.usace.army.mil/regulatory>. In addition, the PCN shall include:

- a. A written statement describing how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;
 - b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity as well as the location of delineated waters of the U.S. on the site. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and area (in acres) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the mean high water mark and high tide line, should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation. All drawings for projects located within the boundaries of the Los Angeles District shall comply with the most current version of the *Map and Drawing Standards for the Los Angeles District Regulatory Division* (available on the Los Angeles District Regulatory Division website at: www.spl.usace.army.mil/regulatory/); and
 - c. Numbered and dated pre-project color photographs showing a representative sample of waters proposed to be impacted on the project site, and all waters proposed to be avoided on and immediately adjacent to the project site. The compass angle and position of each photograph shall be documented on the plan-view drawing required in subpart b of this regional condition.
4. Submission of a PCN pursuant to General Condition 31 and Regional Condition 3 shall be required for all regulated activities in the following locations:
- a. All perennial waterbodies and special aquatic sites within the State of Arizona and within the Mojave and Sonoran (Colorado) desert regions of California, excluding the Colorado River in Arizona from Davis Dam to River Mile 261 (northern boundary of the Fort Mojave Indian Tribe Reservation). The desert region in California is limited to four USGS HUC accounting units (Lower Colorado -150301, Northern Mojave-180902, Southern Mojave-181001, and Salton Sea-181002).
 - b. All areas designated as Essential Fish Habitat (EFH) by the Pacific Fishery Management Council (i.e., all tidally influenced areas - Federal Register dated March 12, 2007 (72 FR 11092)), in which case the PCN shall include an EFH assessment and extent of proposed impacts to EFH. Examples of EFH habitat assessments can be found at: <http://www.swr.noaa.gov/efh.htm>.
 - c. All watersheds in the Santa Monica Mountains in Los Angeles and Ventura counties bounded by Calleguas Creek on the west, by Highway 101 on the north and east, and by Sunset Boulevard and Pacific Ocean on the south.
 - d. The Santa Clara River watershed in Los Angeles and Ventura counties, including but not limited to Aliso Canyon, Agua Dulce Canyon, Sand Canyon, Bouquet Canyon, Mint Canyon, South Fork of the Santa Clara River, San Francisquito Canyon, Castaic Creek, Piru Creek, Sespe Creek and the main-stem of the Santa Clara River.
5. Individual Permits shall be required for all discharges of fill material in jurisdictional vernal pools, with the exception that discharges for the purpose of restoration, enhancement, management or scientific study of vernal pools may be authorized under NWP 5, 6, and 27 with the submission of a PCN in accordance with General Condition 31 and Regional Condition 3.

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

(a) This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

(b) This permit does not grant any property rights or exclusive privileges.

(c) This permit does not authorize any injury to the property or rights of others.

(d) This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

(a) Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

(b) Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

(c) Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

(d) Design or construction deficiencies associated with the permitted work.

(e) Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

(a) You fail to comply with the terms and conditions of this permit.

(b) The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

(c) Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 330.5 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. This letter of verification is valid for a period not to exceed two years unless the nationwide permit is modified, reissued, revoked, or expires before that time.

7. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with

INFORMATION HANDOUT

MATERIALS INFORMATION

[4.Aerially deposited Lead Concentration Data and Sample Location map](#)

ROUTE: 05/SB/101/22.3/23.0

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

INFORMATIONAL HANDOUT

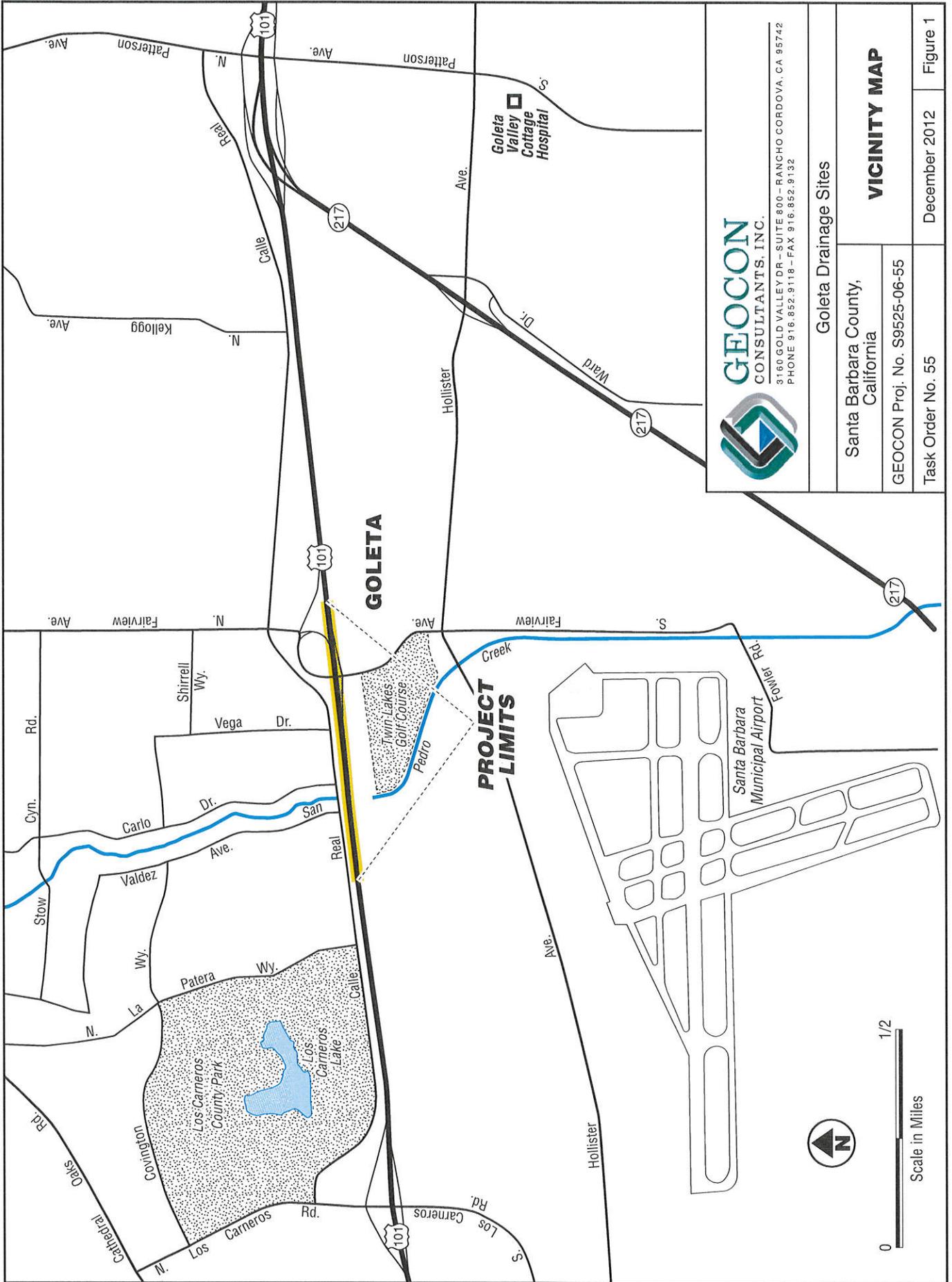
05-SB-101-22.3-23.0
GOLETA DRAINAGES
05-0G0701 (05-0000-0055)

January 23, 2013

INDEX

Aerially Deposited Lead Concentration Data
and Sample Location Maps

Department of Transportation
Construction Department
1150 Laurel Lane
San Luis Obispo, CA 93403



GEOCON
 CONSULTANTS, INC.
 3160 GOLD VALLEY DR. - SUITE 800 - RANCHO CORDOVA, CA 95742
 PHONE 916.852.9118 - FAX 916.852.9132

Goleta Drainage Sites	
Santa Barbara County, California	VICINITY MAP
GEOCON Proj. No. S9525-06-55	December 2012
Task Order No. 55	Figure 1



Scale in Miles



Match Line (See Figure 2-2)

GEOCON
 CONSULTANTS, INC.
 3180 GOLD VALLEY DR., SUITE 800 - RANCHO CORDOVA, CA 95742
 PHONE 916.852.9118 FAX 916.852.9132

Highway 101/Fairview Avenue

Goleta, Santa Barbara County, California
 GEOCON Proj. No. S9525-06-55
 Task Order No. 55

SITE PLAN

December 2012

Figure 2-1



LEGEND:
 NBPT Approximate Boring Location



Match Line (See Figure 2-1)

LEGEND:

NBP1 Approximate Boring Location



GEOCON
CONSULTANTS, INC.
3100 GOLD VALLEY DR. - SUITE 800 - RANCHO GORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

Highway 101/Fairview Avenue	
Goleta, Santa Barbara County, California	SITE PLAN
GEOCON Proj. No. S9625-06-55	
Task Order No. 55	
December 2012	
Figure 2-2	

TABLE 1
SUMMARY OF SOIL BORING COORDINATES
GOLETA DRAINAGE
SANTA BARBARA COUNTY, CALIFORNIA

BORING ID	LATITUDE	LONGITUDE
NBP1	34.439792371	-119.831698887
NB2	34.439798774	-119.831686662
NBP3	34.439403908	-119.835346428
NB4	34.439399134	-119.835353236
NBP5	34.439282725	-119.836573133
NB6	34.439283352	-119.836572976
NBP7	34.439173449	-119.837716457
NB8	34.439175820	-119.837717236
NBP9	34.439042191	-119.839151642
NB10	34.439046354	-119.839151147
SBP11	34.438731414	-119.839486239
SB12	34.438733028	-119.839492590
SBP13	34.438839339	-119.838206801
SB14	34.438934756	-119.837287901
SBP15	34.439190141	-119.834442725
SB16	34.439191368	-119.834445733
SBP17	34.439277698	-119.833535983
SB18	34.439273749	-119.833542437
SBP19	34.439469354	-119.831538241
SB20	34.439467926	-119.831533869

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - LEAD AND pH
GOLETA DRAINAGE
SANTA BARBARA COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	SOIL pH
NBP1-0.5	0.5 to 1	6.0	---	---	---	---
NBP1-1.0	1 to 1.5	39	---	---	---	---
NBP1-1.5	1.5 to 2	7.7	---	---	---	---
NBP1-2.0	2 to 2.5	9.3	---	---	---	---
NBP1-2.5	2.5 to 3	8.0	---	---	---	---
NB2-0.0	0 to 0.5	26	---	---	---	---
NB2-0.5	0.5 to 1	350	1.1	---	---	---
NB2-1.0	1 to 1.5	840	58	<0.50	2.4	8.8
NB2-1.5	1.5 to 2	18	---	---	---	---
NB2-2.0	2 to 2.5	6.1	---	---	---	---
NB2-2.5	2.5 to 3	16	---	---	---	---
NBP3-0.5	0.5 to 1	4.9	---	---	---	---
NBP3-1.0	1 to 1.5	45	---	---	---	---
NBP3-1.5	1.5 to 2	110	14	<0.50	<0.50	8.8
NBP3-2.0	2 to 2.5	3.6	---	---	---	---
NBP3-2.5	2.5 to 3	3.5	---	---	---	---
NB4-0.0	0 to 0.5	6.7	---	---	---	---
NB4-0.5	0.5 to 1	20	---	---	---	---
NB4-1.0	1 to 1.5	29	---	---	---	---
NB4-1.5	1.5 to 2	200	12	<0.50	<0.50	8.9
NB4-2.0	2 to 2.5	110	2.1	---	---	---
NB4-2.5	2.5 to 3	30	---	---	---	---
NBP5-0.5	0.5 to 1	3.9	---	---	---	---
NBP5-1.0	1 to 1.5	28	---	---	---	---
NBP5-1.5	1.5 to 2	3.4	---	---	---	---
NBP5-2.0	2 to 2.5	3.2	---	---	---	---
NBP5-2.5	2.5 to 3	6.2	---	---	---	---
NB6-0.0	0 to 0.5	13	---	---	---	---
NB6-0.5	0.5 to 1	<2.0	---	---	---	---
NB6-1.0	1 to 1.5	96	8.5	<0.50	---	9.1
NB6-1.5	1.5 to 2	5.5	---	---	---	---
NB6-2.0	2 to 2.5	5.4	---	---	---	---
NB6-2.5	2.5 to 3	3.4	---	---	---	---
NBP7-0.5	0.5 to 1	5.3	---	---	---	---
NBP7-1.0	1 to 1.5	6.7	---	---	---	---
NBP7-1.5	1.5 to 2	2.0	---	---	---	---
NBP7-2.0	2 to 2.5	3.0	---	---	---	---
NBP7-2.5	2.5 to 3	4.8	---	---	---	---

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - LEAD AND pH
GOLETA DRAINAGE
SANTA BARBARA COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	SOIL pH
NB8-0.0	0 to 0.5	2.0	---	---	---	---
NB8-0.5	0.5 to 1	41	---	---	---	---
NB8-1.0	1 to 1.5	3.8	---	---	---	---
NB8-1.5	1.5 to 2	4.7	---	---	---	---
NB8-2.0	2 to 2.5	7.1	---	---	---	---
NB8-2.5	2.5 to 3	6.6	---	---	---	---
NBP9-0.5	0.5 to 1	3.4	---	---	---	---
NBP9-1.0	1 to 1.5	1.5	---	---	---	---
NBP9-1.5	1.5 to 2	3.1	---	---	---	---
NBP9-2.0	2 to 2.5	3.7	---	---	---	---
NBP9-2.5	2.5 to 3	4.1	---	---	---	---
NB10-0.0	0 to 0.5	39	---	---	---	---
NB10-0.5	0.5 to 1	5.4	---	---	---	---
NB10-1.0	1 to 1.5	6.5	---	---	---	---
NB10-1.5	1.5 to 2	5.4	---	---	---	---
NB10-2.0	2 to 2.5	5.1	---	---	---	---
NB10-2.5	2.5 to 3	4.4	---	---	---	---
SBP11-0.5	0.5 to 1	<1.0	---	---	---	---
SBP11-1.0	1 to 1.5	4.9	---	---	---	---
SBP11-1.5	1.5 to 2	15	---	---	---	---
SBP11-2.0	2 to 2.5	7.9	---	---	---	---
SBP11-2.5	2.5 to 3	3.7	---	---	---	---
SB12-0.0	0 to 0.5	19	---	---	---	---
SB12-0.5	0.5 to 1	7.9	---	---	---	---
SB12-1.0	1 to 1.5	280	18	<0.50	<0.50	8.1
SB12-1.5	1.5 to 2	78	4.0	---	---	---
SB12-2.0	2 to 2.5	28	---	---	---	---
SB12-2.5	2.5 to 3	6.2	---	---	---	---
SBP13-0.5	0.5 to 1	5.3	---	---	---	---
SBP13-1.0	1 to 1.5	8.0	---	---	---	---
SBP13-1.5	1.5 to 2	3.4	---	---	---	---
SBP13-2.0	2 to 2.5	3.2	---	---	---	---
SBP13-2.5	2.5 to 3	3.2	---	---	---	---
SB14-0.0	0 to 0.5	9.0	---	---	---	---
SB14-0.5	0.5 to 1	390	27	<0.50	0.52	8.5
SB14-1.0	1 to 1.5	170	15	<0.50	<0.50	8.6
SB14-1.5	1.5 to 2	45	---	---	---	---
SB14-2.0	2 to 2.5	20	---	---	---	---
SB14-2.5	2.5 to 3	4.0	---	---	---	---

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - LEAD AND pH
GOLETA DRAINAGE
SANTA BARBARA COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	SOIL pH
SBP15-0.5	0.5 to 1	6.4	---	---	---	---
SBP15-1.0	1 to 1.5	14	---	---	---	---
SBP15-1.5	1.5 to 2	7.4	---	---	---	---
SBP15-2.0	2 to 2.5	2.5	---	---	---	---
SBP15-2.5	2.5 to 3	3.1	---	---	---	---
SB16-0.0	0 to 0.5	140	3.6	---	---	---
SB16-0.5	0.5 to 1	16	---	---	---	---
SB16-1.0	1 to 1.5	15	---	---	---	---
SB16-1.5	1.5 to 2	5.0	---	---	---	---
SB16-2.0	2 to 2.5	27	---	---	---	---
SB16-2.5	2.5 to 3	5.8	---	---	---	---
SBP17-0.5	0.5 to 1	6.0	---	---	---	---
SBP17-1.0	1 to 1.5	12	---	---	---	---
SBP17-1.5	1.5 to 2	15	---	---	---	---
SBP17-2.0	2 to 2.5	3.8	---	---	---	---
SBP17-2.5	2.5 to 3	7.8	---	---	---	---
SB18-0.0	0 to 0.5	310	10	<0.50	<0.50	8.8
SB18-0.5	0.5 to 1	8.7	---	---	---	---
SB18-1.0	1 to 1.5	6.7	---	---	---	---
SB18-1.5	1.5 to 2	7.1	---	---	---	---
SB18-2.0	2 to 2.5	4.7	---	---	---	---
SB18-2.5	2.5 to 3	3.7	---	---	---	---
SBP19-0.5	0.5 to 1	16	---	---	---	---
SBP19-1.0	1 to 1.5	7.6	---	---	---	---
SBP19-1.5	1.5 to 2	15	---	---	---	---
SBP19-2.0	2 to 2.5	6.0	---	---	---	---
SBP19-2.5	2.5 to 3	4.9	---	---	---	---
SB20-0.0	0 to 0.5	16	---	---	---	---
SB20-0.5	0.5 to 1	250	9.5	<0.50	<0.50	8.5
SB20-1.0	1 to 1.5	25	---	---	---	---
SB20-1.5	1.5 to 2	9.7	---	---	---	---
SB20-2.0	2 to 2.5	3.2	---	---	---	---
SB20-2.5	2.5 to 3	3.0	---	---	---	---

Notes:

B1-0

┌─── Top of sample depth interval in feet below ground surface

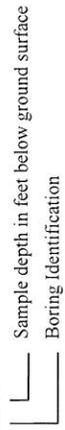
└─── Boring identification

WET = Waste Extraction Test
mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
--- = Not analyzed

TABLE 3
SUMMARY OF ANALYTICAL RESULTS - TITLE 22 METALS
GOLETA DRAINAGE
SANTA BARBARA COUNTY, CALIFORNIA

ANALYTE	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury	
SAMPLE ID	Results in milligrams per kilogram																	
NBP1-0.5	<2.0	2.0	66	<1.0	1.0	28	4.5	9.1	6.0	1.4	46	<1.0	<1.0	<1.0	41	22	<0.10	
NB6-0.5	<4.0	2.9	69	<2.0	<2.0	6.6	<2.0	6.4	<2.0	2.8	7.3	<2.0	3.2	<2.0	19	16	1.6	
NB10-2.5	<2.0	2.3	63	<1.0	<1.0	16	5.6	11	4.4	<1.0	19	<1.0	<1.0	<1.0	18	30	<0.10	
SB12-0.0	<2.0	2.1	78	<1.0	<1.0	28	4.9	11	19	1.4	40	<1.0	<1.0	<1.0	39	61	0.20	
SBP15-2.0	<2.0	3.9	9.9	<1.0	<1.0	5.6	<1.0	<2.0	2.5	<1.0	1.2	<1.0	<1.0	<1.0	5.1	6.8	<0.10	
SB20-0.5	<2.0	5.7	63	<1.0	<1.0	16	4.0	15	25.0	<1.0	20	<1.0	<1.0	<1.0	20	91	<0.10	
TTL	500	500	10,000	75	100	2,500	8,000	2,500	1,000	3,500	2,000	100	500	700	2,400	5,000	20	
10 X STL	150	50	1,000	7.5	10	50	800	250	50	3,500	200	10	50	70	240	2,500	2.0	
CHHSLs																		
Industrial	380	0.24	63,000	190	7.5	100,000	3,200	38,000	320	4,800	16,000	4,800	4,800	63	6,700	100,000	180	
Residential	30	0.07	5,200	16	1.7	100,000	660	3,000	80	380	1,600	380	380	5.0	530	23,000	18	
ESLs																		
Residential Land Use	6.3	0.39	750	4.0	1.7	750	40	230	200	40	150	10	20	1.3	16	600	1.3	
Commercial/Industrial Land Use	40	1.6	1,500	8.0	7.4	750	80	230	750	40	150	10	40	16	200	600	10	
Construction Worker Exposure	310	15	2,600	98	39	1,200,000	94	310,000	750	78	260	3,900	3,900	62	770	230,000	58	

Notes: B1-0



< = Less than laboratory reporting limits

TTL = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

CHHSLs = California Environmental Protection Agency, California Human Health Screening Levels for industrial and residential land use

TTL, STL, and CHHSLs shown for chromium are for chromium III

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2008.

INFORMATION HANDOUT

MATERIALS INFORMATION

[5.Foundation Report for San Pedro creek culvert replacement \(Br. No. 51-0341, EA 05-0G0701\) dated June 6, 2012](#)

ROUTE: 05/SB/101/22.3/23.0

Memorandum

*Flex your power!
Be energy efficient!*

To: FRITZ HOFFMAN
Senior Bridge Engineer
Office of Bridge Design Central
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN

Attn: Michael Cullen

Date: June 6, 2012

File: 05-SB-101-22.3/23.0
San Pedro Creek
Culvert Replacement
Br. No. 51-0341
EA 05-0G0701

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

Subject: Foundation Report

Scope of Work

A Foundation Report (FR) is provided for the above referenced project. The proposed project is located in the Goleta Basin, approximately nine miles west of Santa Barbara in Santa Barbara County. Improvements are proposed to increase the capacity of existing drainage structures from 10-year to 25-year storm water events in two locations: Las Vegas Creek (existing Br. No. 51-167, PM 22.57) and San Pedro Creek (existing Br. No. 51-168, PM 22.80) under State Route 101, west of Fairview Ave. A General Plan detailing the improvements was provided by Structure Design. Review of published geologic data and previous geotechnical reports, a subsurface investigation, laboratory testing, field reconnaissance, and design calculations were performed as part of the geotechnical investigation.

The purpose of this report is to document subsurface geotechnical conditions and make foundation recommendations. This report supersedes the Preliminary Foundation Report (October, 2009).

Project Description

The existing structure at San Pedro Creek is a double reinforced concrete box (RCB) culvert. The San Pedro Creek RCB carries the creek under State Route 101 mainline and the frontage road, Calle Real, adjacent to the northbound lanes. Structures Maintenance records indicate that the west wing walls of both abutments have random cracking caused by reactive aggregate.

This project proposes to increase the capacity of the culvert to accommodate a 25-year storm event, by replacing the double RCB with a single span slab bridge.

Pertinent Reports and Investigations

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

1. *Preliminary Geotechnical Design Report Las Vegas and San Pedro Creeks*, EA 05-0F070K, Caltrans, Ron Richman & Glen C. Lawson, 2002.
2. *District Preliminary Geotechnical Design Report*, EA 05-0G0701, Caltrans, Justin Kimura and Michael S. Finegan, February 2009.
3. *Preliminary Foundation Report San Pedro Creek*, EA 05-0G0701, Caltrans, Ryan Turner, October 2009.
4. *Geologic Map of the Goleta Quadrangle, Santa Barbara County, California*, Thomas W. Dibble, Jr., Helmut E. Ehrenspeck, 1987.
5. *Geologic and Geotechnical Impacts of the Proposed Fairview Ave O.C.: Goleta O.H. Bridge Replacement, Santa Barbara County, 05-SB-101-22.5*, Caltrans, Ron Richman & Michael S. Finegan., December, 1993.
6. *Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element*, Santa Barbara County Board of Supervisors, January 1979.

Physical Setting

The project is located in the Goleta Basin of Santa Barbara County. The climate in the project area is moderate year round. The mean annual precipitation is between 12 and 18 inches and the mean annual air temperature is 67° F. Winters are generally mild, with average highs in the upper 60's. The average high temperature in the summer is 75° F. Nearly all precipitation occurs during Pacific storms between October and May, with the majority falling during winter months. The main drainage features in the region are the south flowing Las Vegas Creek and San Pedro Creek, which cross through reinforced concrete box (RCB) culverts underneath State Route 101 within the project limits. Las Vegas Creek flows into San Pedro Creek, which is tributary to the Goleta Slough, and drains to the Pacific Ocean south of the project area. The region is bounded by the Santa Ynez Mountains to the north and the Pacific Ocean to the south.

Field Investigation and Laboratory Testing

A preliminary field investigation consisting of four cone penetrometer (CPT) soundings and field sampling was performed for this project in 2002. Two CPT soundings were performed near San Pedro Creek, and two CPT soundings were performed near Las Vegas Creek. In 2009-2010, six mud-rotary borings were drilled within the project limits to determine the subsurface conditions at the proposed structure locations. In-situ soil strength parameters were determined using the Standard Penetration Test (SPT) for cohesionless soils. Laboratory tests were used to determine the particle size distribution and corrosion potential of representative samples obtained at depth.

The Office of Geotechnical Design-North conducted a subsurface investigation from November, 2009 to January, 2010.

The subsurface investigation consisted of six mud rotary borings (RC-09-001 through RC-10-006). The borings were advanced using a self-casing wireline drilling method. The maximum depth of the borings was 122.0 feet. Sampling was performed using the SPT sampler. A summary of the borings follows in Table 1.

Table 1. Subsurface Exploration Summary

<i>Boring</i>	<i>Completion Date</i>	<i>Drill Rig</i>	<i>Hammer Type</i>	<i>Hammer Efficiency (%)</i>	<i>Approximate Ground Elevation (ft)</i>	<i>Boring Depth (ft)</i>
RC-09-001	11/4/2009	CME75	Auto	79	31.4	106.0
RC-09-002	12/8/2009	B47	Safety	60	31.5	97.5
RC-09-003	12/9/2009	B47	Safety	60	30.3	101.0
RC-09-004	12/16/2009	B47	Safety	60	30.8	82.5
RC-10-005	1/6/2010	B47	Safety	60	50.3	122.0
RC-10-006	1/12/2010	B47	Safety	60	27.0	87.5

Site Geology and Subsurface Conditions

Geology

The region falls within the Transverse Ranges Geomorphic Province of California. The Goleta Basin is a narrow coastal lowland along the southwestern foot of the Santa Ynez Mountains. Geologic units in the region consist of normally consolidated alluvial floodplain deposits of silt, clay, sand and gravel.

Subsurface Conditions

Field observations, in-situ sampling, and laboratory testing indicate that interbedded layers of silt, clay, sand and gravel underlie the site. Soils encountered are indicative of alluvial deposits as shown in geologic mapping of the area.

Groundwater

Monitoring wells were installed in borings RC-09-001, and RC-10-005 to observe fluctuations in groundwater levels and determine if groundwater will influence construction and foundation design. Results of the groundwater-monitoring program are summarized in Table 2.

Table 2. Groundwater Elevations

<i>Boring</i>	<i>Date</i>	<i>Groundwater Elevation(ft)</i>
RC-09-001	01/11/2010	20.1
RC-09-001	12/14/2011	21.6
RC-09-001	02/24/2012	21.8
RC-10-005	12/20/2011	14.7
RC-10-005	02/24/2012	14.6

Scour Evaluation

Scour potential will be mitigated by placement of RSP inside of the bridge to prevent undermining of the abutment walls and foundations.

Corrosion Evaluation

The Department considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: pH of less than 5.5, chloride content greater than 500 ppm, or sulphate content greater than 2000 ppm. Representative soil samples at depth were obtained and sent to the District 5 Materials Laboratory for corrosion potential evaluation. Based on the results of the corrosion analyses, the site is not considered to be corrosive. Results of the testing are presented in Table 3.

Table 3. Corrosion Testing Summary

<i>Boring</i>	<i>Depth (ft)</i>	<i>pH</i>	<i>Resistivity ohm-cm</i>	<i>Chloride ppm</i>	<i>Sulphate ppm</i>	<i>Corrosive</i>
RC-09-001	10.0-12.0	8.1	1370	-	-	NO
RC-09-001	16.0-19.0	8.3	2110	-	-	NO
RC-09-001	36.0-37.2	7.7	2740	-	-	NO
RC-09-001	54.0-55.2	8.0	3420	-	-	NO
RC-09-002	9.0-11.0	7.7	1030	-	-	NO
RC-09-002	24.0-26.0	7.7	2110	-	-	NO
RC-09-002	39.0-41.0	7.5	2290	-	-	NO
RC-09-003	8.0-10.0	7.6	860	149	238	NO
RC-09-003	22.5-24.0	8.0	2440	-	-	NO
RC-09-003	45.0-46.0	7.9	1870	-	-	NO
RC-09-004	8.0-11.0	7.5	900	162	670	NO
RC-09-004	28.0-30.0	7.4	2690	-	-	NO
RC-10-005	17.0-19.0	7.0	1760	-	-	NO
RC-10-005	53.0-55.0	7.6	4010	-	-	NO
RC-10-006	38.0-40.0	8.1	16480	-	-	NO

Seismic Recommendations

Based on the 2009 Caltrans Seismic Design Procedure, the following active and potentially active faults are located within the vicinity of the project site. The Caltrans ARS Online Tool was used to develop ARS curves for deterministic and probabilistic seismic prediction models. An average shear wave velocity of 1141 ft/sec for the upper 100 feet of soil was determined based upon the results of P-S logging performed in Boring RC-09-003. The design ARS curve is presented in figure 1. A basin factor of 1.0 was assumed for this location and the Caltrans ARS Online Tool applied a near fault factor to the data.

Table 4. Active and Potentially Active Faults

<i>Fault Name</i>	<i>Fault Type</i>	<i>Moment magnitude of maximum credible earthquake</i>	<i>Distance from fault to project site (miles)</i>	<i>Peak ground acceleration T=0 sec (gravity)</i>
San Jose Fault	Reverse	6.3	0.7	0.61
More Ranch Fault	Reverse	7.2	0.7	0.51

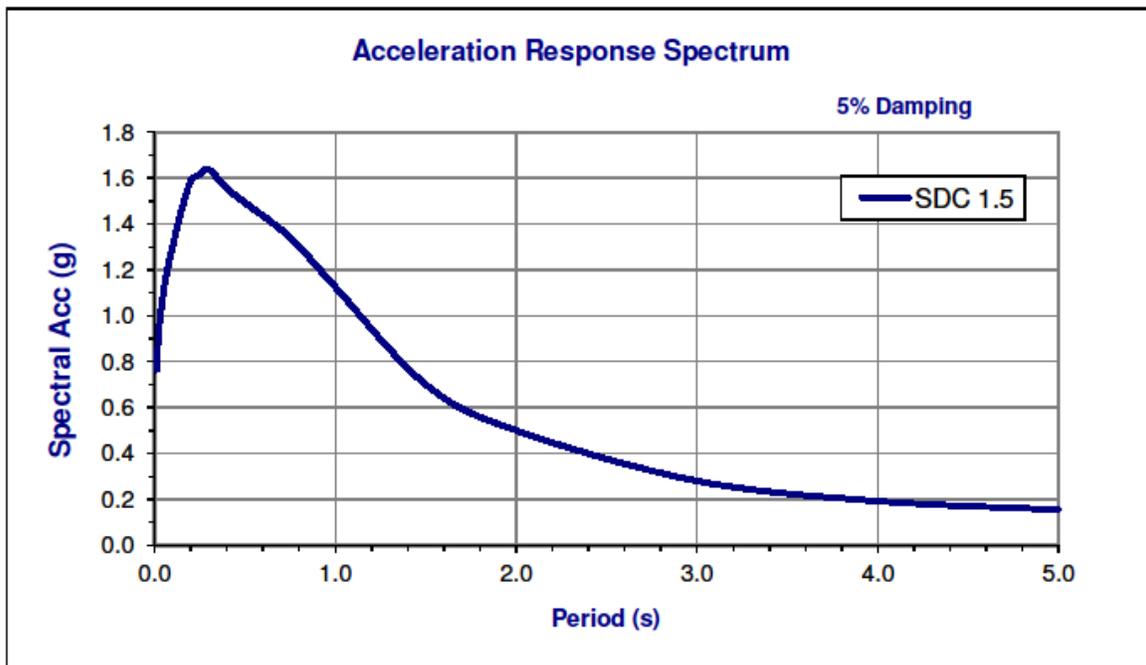


Figure 1. Design ARS Curve

Soils with a potential for liquefaction are typically loose sands below the groundwater table. Foundation soils encountered at the project site contained a high proportion of fine-grained soils, therefore liquefaction potential is low.

As-Built Foundation Data

The as built log of test borings for the Fairview Avenue Overcrossing indicate that interbedded sands, silts and clays were encountered in the borings for the original structure. Similar soil conditions were encountered in the borings drilled for this project.

Foundation Recommendations

Driven Piles

Structure Design proposes construction of a single span cast-in-place bridge with the abutments supported on Driven Class 200 Alternative W piles at the San Pedro Creek crossing. Class 200 Alternative W piles are 16" diameter x 1/2" wall pipe piles. Pipe piles are recommended to allow for pre-drilling if hard strata are encountered before reaching the design tip elevations. Design calculations for Driven Class 200 piles were performed using CTGeoDrive, an Excel spreadsheet that calculates predicted pile resistance and pile axial deflection. Groundwater was modeled at approximately 10-feet below the ground surface. LRFD design methodology was used at the abutments at the request of Structure Design, because the structure is modeled as a moment resisting frame. Structure Design provided cutoff elevations, loads, and permissible deflections. Pipe piles were assumed to plug and act as displacement piles. End bearing and skin friction were assumed to provide axial resistance. The top 5 feet of side resistance was ignored for axial resistance and included in the nominal driving resistance calculations. Recommended pile tip elevations are provided in the following tables.

Abutment Foundation Design Recommendations

Support Location	Pile Type	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Nominal Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event				
					Comp. ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1$)	Tension ($\phi=1$)			
A-1 Stage 2 Right	Class 200 Alt W	14.07	903 (7 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280
A-1 Stage 1	Class 200 Alt W	13.27	2064 (16 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280
A-1 Stage 2 Left	Class 200 Alt W	12.76	1419 (11 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280
A-2 Stage 2 Right	Class 200 Alt W	14.07	903 (7 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280
A-2 Stage 1	Class 200 Alt W	13.27	2064 (16 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280
A-2 Stage 2 Left	Class 200 Alt W	12.76	1419 (11 Piles)	1	263	0	109	0	-46 (a-I) -13 (a-II) -20(c)	-46	280

Notes:

- 1) Design tip elevations are controlled by: (a-I) Compression Strength Limit, (a-II) Compression Extreme Limit, and (c) Settlement Service Limit
- 2) The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.

Pile Data Table						
Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut. 1	Class 200 Alt W	265	N/A	-46(a), -20(c)	-46	280
Abut. 2	Class 200 Alt W	265	N/A	-46(a), -20(c)	-46	280

Notes:

- 1) *Design tip elevations for Abutments are controlled by: (a) Compression, (c) Settlement*
- 2) *The specified tip elevation shall not be raised above the design tip elevations for tension load, lateral load, and tolerable settlement.*

Construction Considerations

High groundwater may require methods to control and remove water at excavation locations. Refer to the Standard Specification section 19-3.03D for details regarding water control and foundation treatment when wet excavation and construction conditions are expected. Installation of cofferdams to maintain temporary excavation stability and prevent groundwater infiltration may be required.

Dense layers may be encountered during driving that require pre-drilling to advance through to reach the specified pile tip elevations. Limit the depth of pre-drilling to a maximum of 10 feet above the specified pile tip elevation.

Very loose and soft soils were encountered at or near the elevation of the proposed bridge abutment walls; construction equipment should be suitable to maneuver and work on soft and possibly wet soils.

Standard Special Provision 2-1.06B “Project Information”, discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the Addressee of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings.

Data and information included in the Information Handout provided to the Bidders and Contractors are:

A. Foundation Report for the bridge dated June 6, 2012.

If you have any questions or comments, please contact Ryan Turner at (805) 549-3750 or Michael Finegan at (805) 549-3194.



RYAN TURNER, P.E.
Transportation Engineer
Geotechnical Design – North
Branch D

MICHAEL S. FINEGAN, P.E.,
Branch Chief
Geotechnical Design – North
Branch D

c: Steve DiGrazia/ Project Manager
GS Corporate (email Mark_Willian@dot.ca.gov)
Jonathan Gledhill/ Design
Andrew Tan / PCE
Douglas Lambert / DME

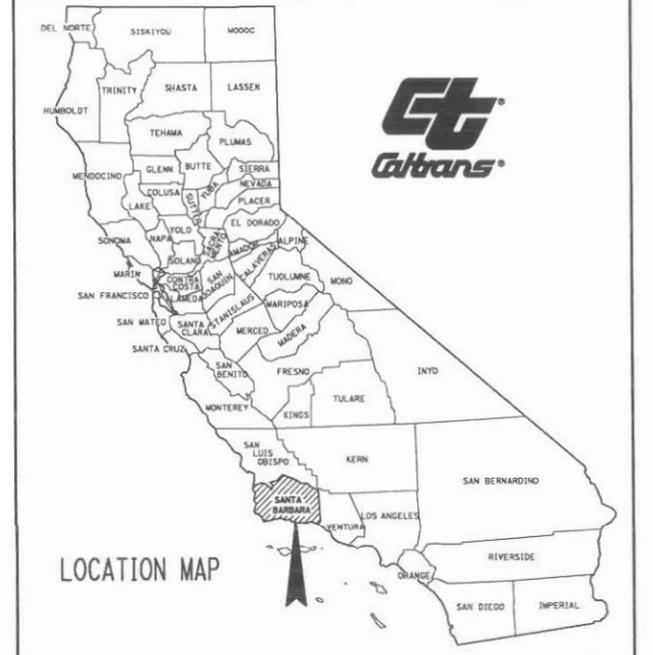
LIST OF ATTACHMENTS

Vicinity Map	Attachment 1
Geologic Map and Legend	Attachment 2
General Plan	Attachment 3
Boring Locations	Attachment 4
Foundation Data Design Tables	Attachment 5

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SANTA BARBARA COUNTY IN GOLETA
FROM 0.2 MILE SOUTH TO 0.7 MILE NORTH
OF FAIRVIEW AVENUE OVERCROSSING

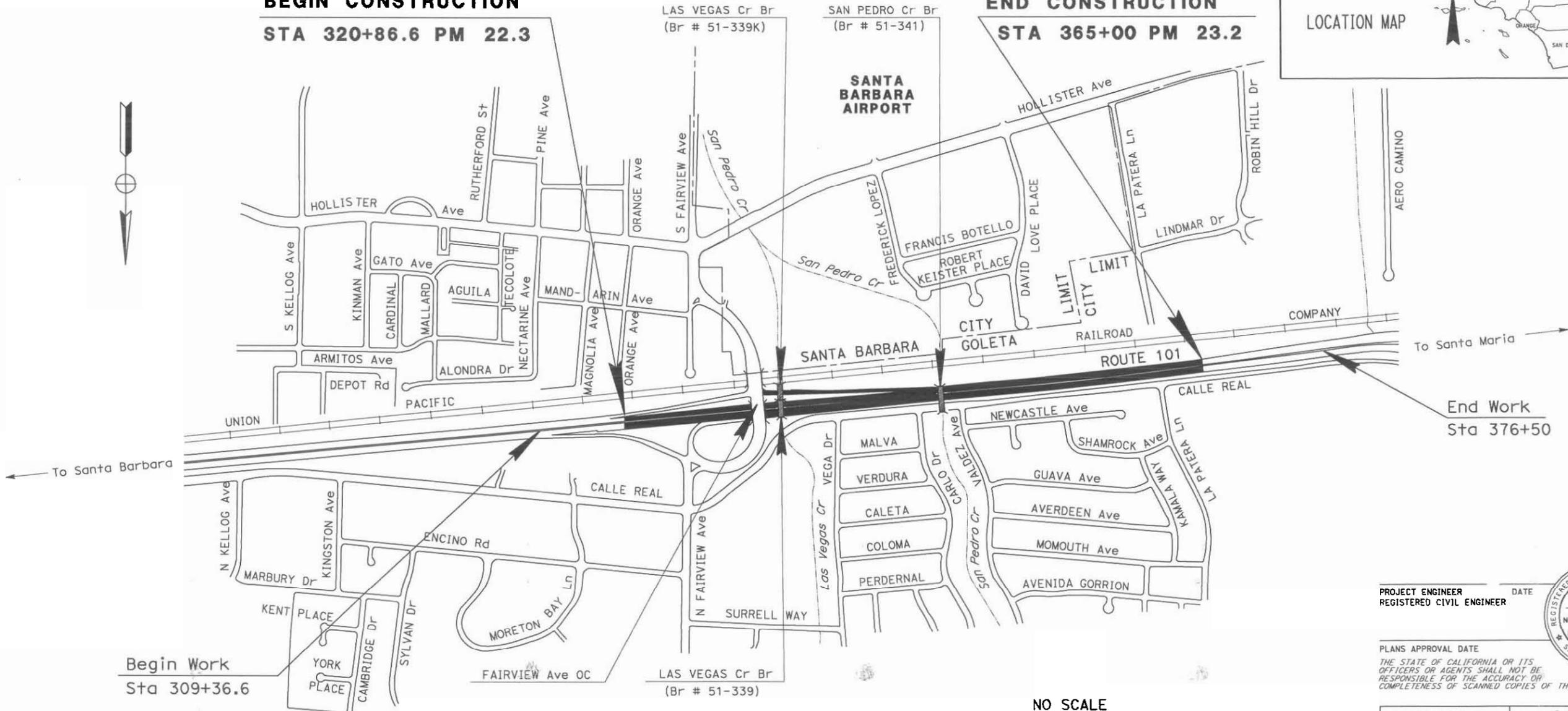
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	22.3/23.2	1	



BEGIN CONSTRUCTION
STA 320+86.6 PM 22.3

END CONSTRUCTION
STA 365+00 PM 23.2



PROJECT MANAGER
 STEVE DIGRAZIA
 DESIGN ENGINEER
 FOAD N. AL-HAMDANI

PROJECT ENGINEER _____ DATE _____
 REGISTERED CIVIL ENGINEER
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

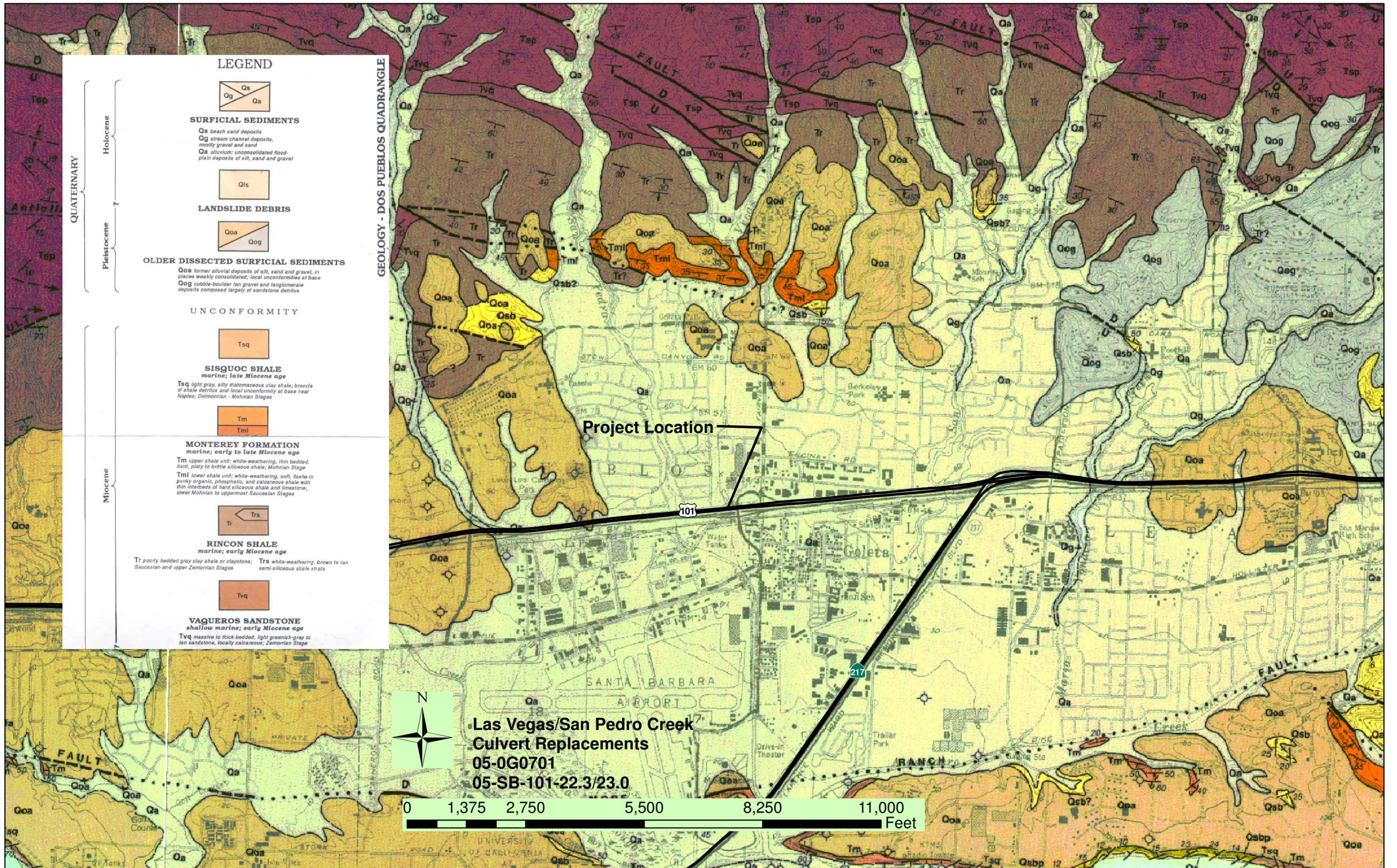


THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

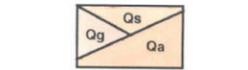
NO SCALE

CONTRACT No. **05-0G0704**
 PROJECT ID **0500000055**

DATE PLOTTED => 23-AUG-2011
 TIME PLOTTED => 14:56
 LAST REVISION 08-23-11

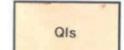


LEGEND

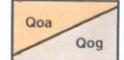


SURFICIAL SEDIMENTS

Qs beach sand deposits
 Qg stream channel deposits, mostly gravel and sand
 Qa alluvium: unconsolidated flood-plain deposits of silt, sand and gravel



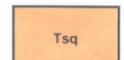
LANDSLIDE DEBRIS



OLDER DISSECTED SURFICIAL SEDIMENTS

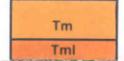
Qoa former alluvial deposits of silt, sand and gravel, in places weakly consolidated; local unconformities at base
 Qog cobble-boulder tan gravel and tanglomerata deposits composed largely of sandstone detritus

UNCONFORMITY



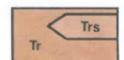
SISGUOC SHALE

marine; late Miocene age
 Tsq light gray, silty diatomaceous clay shale; breccia of shale detritus and local unconformity at base near Naples; Delmontian - Mohanian Stages



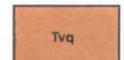
MONTEREY FORMATION

marine; early to late Miocene age
 Tm upper shale unit: white-weathering, thin bedded, hard, platy to brittle siliceous shale; Mohanian Stage
 Tml lower shale unit: white-weathering, soft, fissile to punky organic, phosphatic, and calcareous shale with thin interbeds of hard siliceous shale and limestone; lower Mohanian to uppermost Saucian Stages



RINCON SHALE

marine; early Miocene age
 Tr poorly bedded gray clay shale or claystone; Saucian and upper Zemorrian Stages
 Trs white-weathering, brown to tan semi-siliceous shale strata



VAQUEROS SANDSTONE

shallow marine; early Miocene age
 Tvq massive to thick bedded, light greenish-gray to tan sandstone, locally calcareous; Zemorrian Stage

GEOLOGY - DOS PUEBLOS QUADRANGLE

QUATERNARY

Holocene

Pleistocene

Miocene

Project Location

**Las Vegas/San Pedro Creek
 Culvert Replacements
 05-0G0701
 05-SB-101-22.3/23.0**

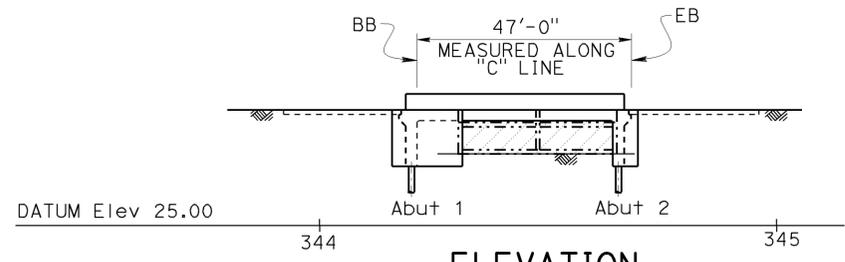


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101			

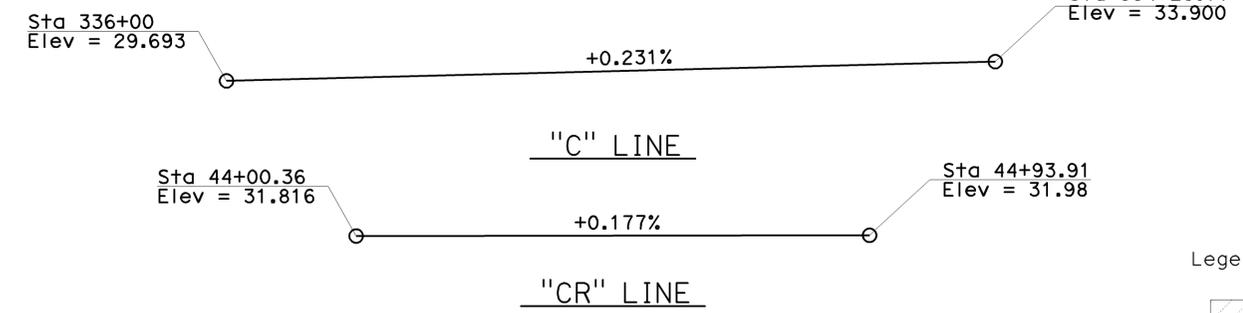
REGISTERED CIVIL ENGINEER	X	DATE
M. J. CULLEN		
No. C 40620		
Exp. 03-31-13		
CIVIL		

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.



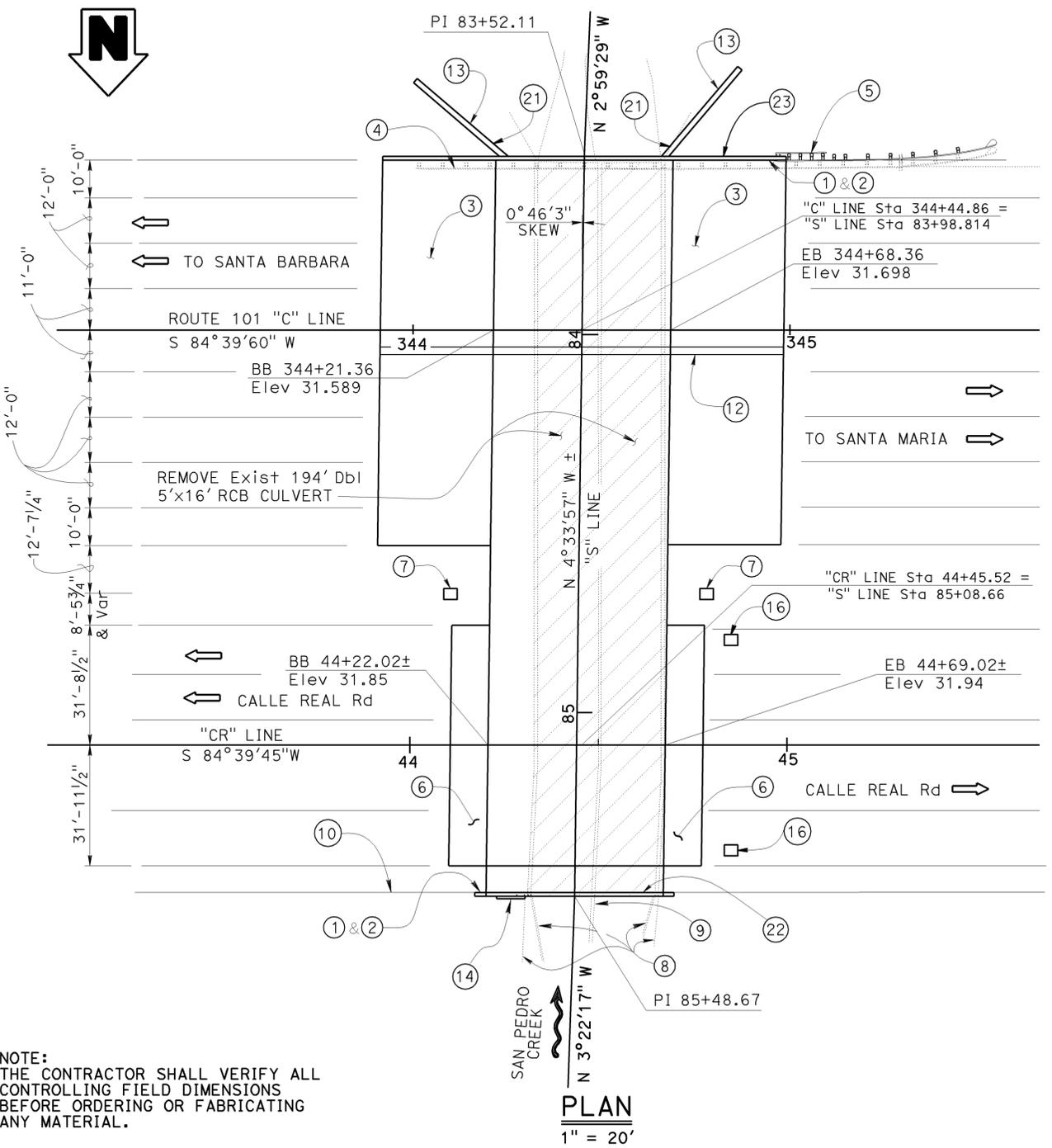
ELEVATION
1" = 20'



PROFILE GRADE
NO SCALE

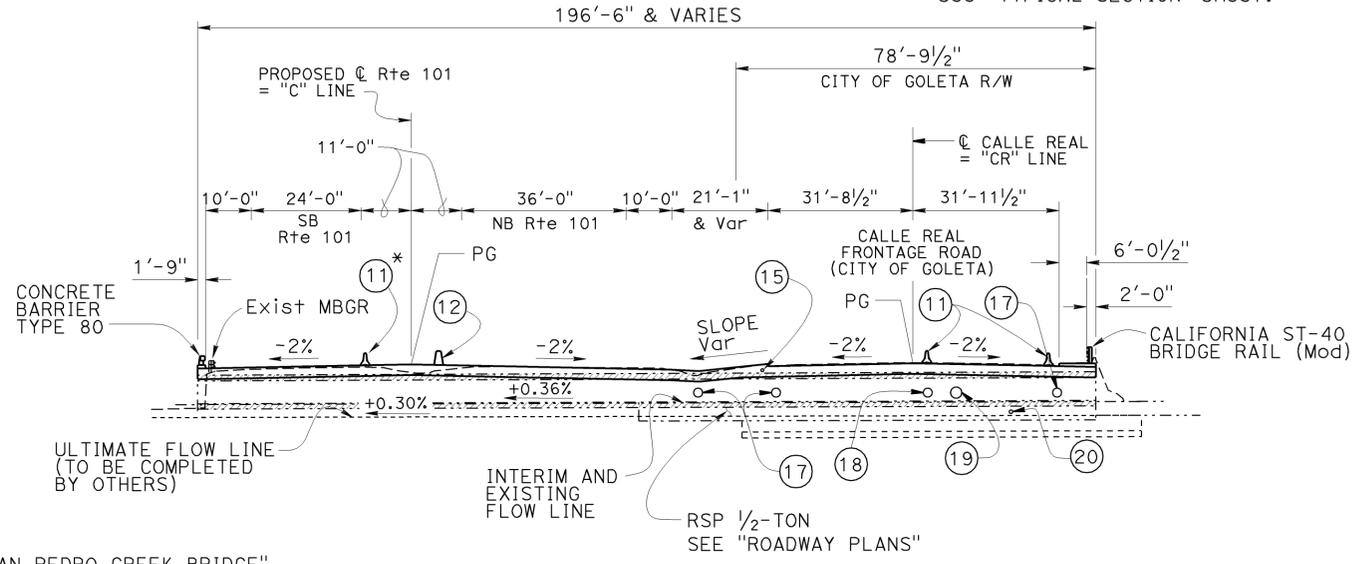
Legend:

- Limits of structure removal
- Indicates existing structure
- Indicates new structure
- * For Limits of Stage Construction, see "TYPICAL SECTION" sheet.



PLAN
1" = 20'

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



TYPICAL CROSS SECTION
1" = 20'

NOTES:

- ① Paint "SAN PEDRO CREEK BRIDGE"
- ② Paint "Br. No. 57-0341"
- ③ Structure Approach Type N(30D)
- ④ Remove Exist MBGR, see "Road Plans"
- ⑤ MBGR, see "Road Plans"
- ⑥ Structure Approach Type E0(10)
- ⑦ Drainage Inlets (Type G3), see "Road Plans"
- ⑧ Reconstruct Existing Concrete Channel Lining and Channel Walls, see "Road Plans"
- ⑨ Reconstruct Existing Debris Fin, see "Road Plans"
- ⑩ Reconstruct Existing Gates and Fencing, see "Road Plans"
- ⑪ Temporary Railing (Type K), see "Road Plans". K Rail Layout shown for Stage 1 Construction only. For Stage Construction limits, see "Typical Section" sheet.
- ⑫ Concrete Barrier Type 60A located on Bridge deck and Approach Slab

- ⑬ Wingwall
- ⑭ Construct a Closure Wall that is to be removed in the future for 25-year storm event
- ⑮ 1 - size 10.5" steel casing for 8" water pipe (by City of Goleta)
- ⑯ Drainage Inlet (Type GT3), see "Road Plans"
- ⑰ 24" Opening for Drainage Outlet pipe, see "Road Plans"
- ⑱ 24" Opening for existing Drainage Outlet pipe, see "Road Plans"
- ⑲ 30" Opening for existing Drainage Outlet pipe, see "Road Plans"
- ⑳ 10" Existing Sanitary Sewer pipe to be reconstructed and incased in 18" steel casing (by others), see "Road Plans"
- ㉑ Architectural Treatment (Exposed Aggregate)
- ㉒ Limits of California ST-40 Bridge Rail are from BB to EB
- ㉓ Concrete Barrier Type 80 extends to the Ends of the Approach Slab (Typical)

DESIGN	BY XIAODONG CHEN	CHECKED MIKE CULLEN
DETAILS	BY BRUNO JENKO	CHECKED MIKE CULLEN
QUANTITIES	BY RACHEL WASHINGTON	CHECKED GLORIA REYES-GUTIERREZ

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO.	51-0341	SAN PEDRO CREEK BRIDGE
POST MILE	22.3-23.0	
GENERAL PLAN		

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
OG-DESIGN

FUNCTIONAL SUPERVISOR
 FOND M AL-HAMMAMI

CALCULATED-DESIGNED BY
 MUSA ALHAMMAMI

REVISOR
 JONATHAN D GLEDHILL

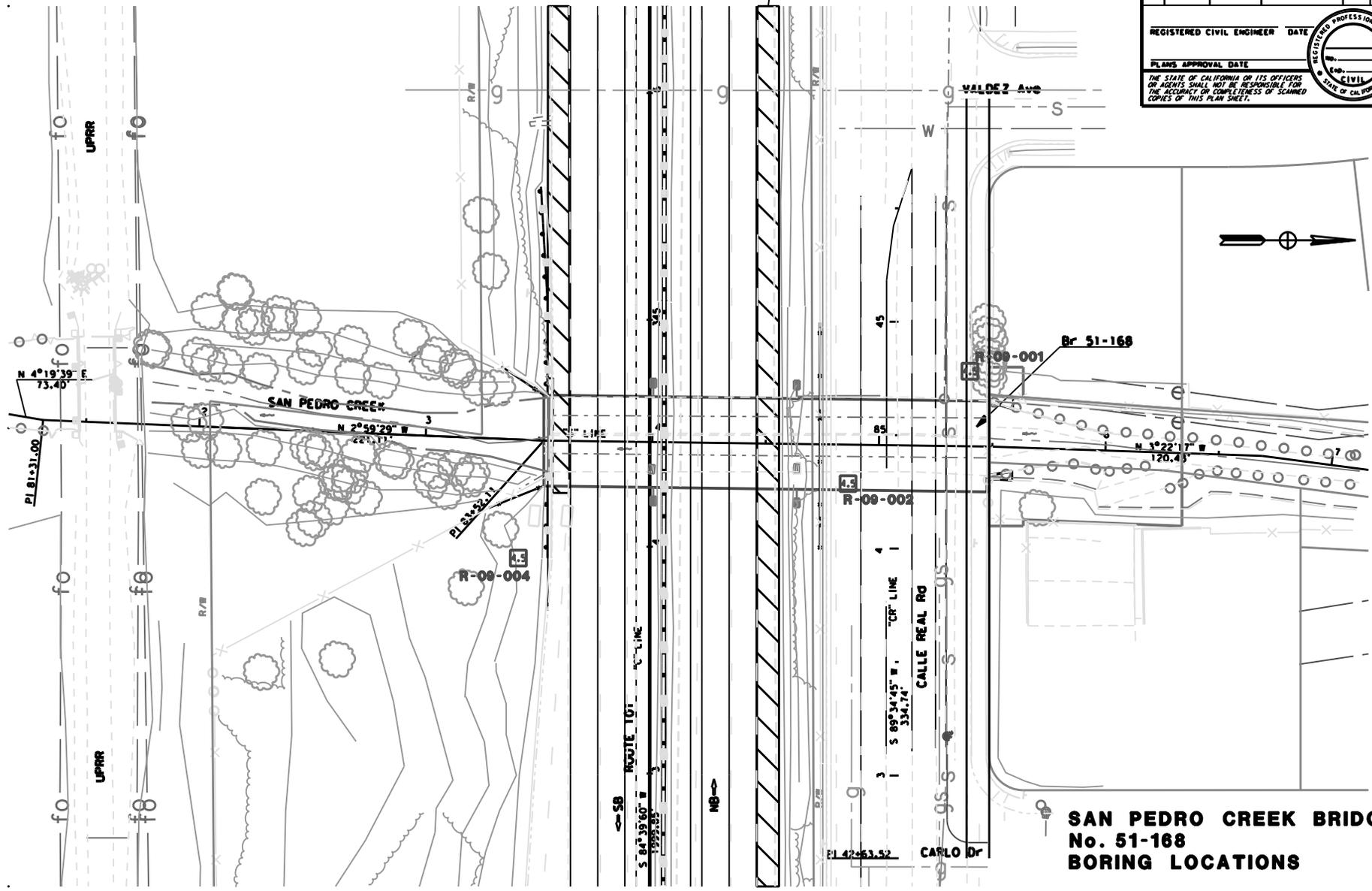
DATE REVISION

DIS	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	22.3/23.0		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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**SAN PEDRO CREEK BRIDGE
 No. 51-168
 BORING LOCATIONS**

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES

USE PNAME ** USER
 000 FILE ** REQUEST

CU 06258

EA OG0701



ATTACHMENT 1

Table 4. Design Loads to be sent from SD to GS

Support No.	Foundation Design Loads									
	Service-I Limit State (kips)			Strength Limit State (Controlling Group, kips)			Extreme Event Limit State (Controlling Group, kips)			
	Total Load		Permanent Loads	Compression		Tension	Compression		Tension	
	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Abut 1	4257	129	2970	6072	184	0	0	0		
Bent 2										
Bent 3										
Abut 4	4257	129	2970	6072	184	0	0	0		

(# 51-0341) San Pedro Creek Pile Loads

- ⊗ Service Lateral Demand Per Pile = 20 Kips
- ⊗ Strength I Lateral Demand Per Pile = 28 Kips
- ⊗ Minimum Pile Cutoff Elevation = 12.3 ft



ATTACHMENT 1

Table 3. General Foundation Information to be sent from SD to GS

Foundation Design Data Sheet									
Support No.	Design Method	Pile Type	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support	
					B	L			
A-1 Stage 2 R/Side	LRFD	Class 200	20.75	14.07	2'-6"	4'-0"	1"	7	
A-1 Stage 1	LRFD	Class 200	19.95	13.27	2'-6"	9'-3"	1"	16	
A-1 Stage 2 L+Side	LRFD	Class 200	19.44	12.76	2'-6"	6'-3"	1"	11	
							1"		

Based on CALTRANS' current practice, the total permissible settlement is one inch for multi-span structures with continuous spans or multi-column bents, one inch for single span structures with diaphragm abutments, and two inches for single span structures with seat abutments. Different permissible settlement under service loads may be allowed if a structural analysis verifies that required level of serviceability is met.

Abutment 1 Looking Up Station



ATTACHMENT 1

Table 3. General Foundation Information to be sent from SD to GS

Foundation Design Data Sheet									
Support No.	Design Method	Pile Type	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support	
					B	L			
A-2 Stage 2 R+ Side	LRFD	Class 200	20.75	14.07	2'6"	40'	1"	7	
A-2 Stage 1	LRFD	Class 200	19.95	13.27	2'6"	95'3"	1"	16	
A-2 Stage 2 L+ Side	LRFD	Class 200	19.44	12.76	2'6"	61'3"	1"	11	
							1"		

Based on CALTRANS' current practice, the total permissible settlement is one inch for multi-span structures with continuous spans or multi-column bents, one inch for single span structures with diaphragm abutments, and two inches for single span structures with seat abutments. Different permissible settlement under service loads may be allowed if a structural analysis verifies that required level of serviceability is met.

Abutment 2 Looking Up Station

INFORMATION HANDOUT

MATERIALS INFORMATION

[6.Foundation Report for Las Vegas creek culvert replacement \(Br. No. 51-0339, EA 05-0G0701\) dated August 22, 2012](#)

ROUTE: 05/SB/101/22.3/23.0

Memorandum

*Flex your power!
Be energy efficient!*

To: FRITZ HOFFMAN
Senior Bridge Engineer
Office of Bridge Design Central
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN

Date: August 22, 2012

File: 05-SB-101-22.3/23.0
Las Vegas Creek
Culvert Replacement
Br. No. 51-0339
EA 05-0G0701

Attn: Michael Cullen

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

Subject: Foundation Report

Scope of Work

A Foundation Report (FR) is provided for the above referenced project. The proposed project is located in the Goleta Basin, approximately nine miles west of Santa Barbara in Santa Barbara County. Improvements are proposed to increase the capacity of existing drainage structures from 10-year to 25-year storm water events in two locations: Las Vegas Creek (Br. No. 51-167, PM 22.57) and San Pedro Creek (Br. No. 51-168, PM 22.80) under State Route 101, west of Fairview Ave. A General Plan detailing the improvements was provided by Structure Design. Review of published geologic data and previous geotechnical reports, a subsurface investigation, laboratory testing, field reconnaissance, and design calculations were performed as part of the geotechnical investigation.

The purpose of this report is to document subsurface geotechnical conditions and make foundation recommendations. This report supersedes the Preliminary Foundation Report (October, 2009).

Project Description

The existing structure at Las Vegas Creek is a double reinforced concrete box (RCB) culvert. Las Vegas Creek RCB carries the creek under State Route 101 and the southbound Fairview Avenue off-ramp. Approximately 25 to 30 feet of embankment fill sits atop the SB off-ramp section of the Las Vegas Creek RCB. Sections of the RCB culverts under the off-ramp embankment fill have experienced substantial settlement, causing box sections to separate at the joints. Erosion of the backfill material at the separation has created a void beneath of the box. According to bridge inspection reports, Structures Maintenance has sealed the joint and grouted the void. Fill slopes for the off-ramp are well vegetated and performing moderately well; horizontal cracking was noted at the top of the fill, possibly indicating slope instability.

This project proposes to increase the capacity of the culvert carrying Las Vegas Creek to accommodate a 25-year storm event. This project will replace the mainline crossing portion of the double RCB with a single span slab bridge (Br. No. 51-0339) connecting to a single span slab bridge (Br. No. 51-0339K) spanning over a constructed open channel for Las Vegas Creek beneath the Fairview Avenue off-ramp.

Pertinent Reports and Investigations

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

1. *Preliminary Geotechnical Design Report Las Vegas and San Pedro Creeks*, EA 05-0F070K, Caltrans, Ron Richman & Glen C. Lawson, 2002.
2. *District Preliminary Geotechnical Design Report*, EA 05-0G0701, Caltrans, Justin Kimura and Michael S. Finegan, February 2009.
3. *Preliminary Foundation Report Las Vegas Creek*, EA 05-0G0701, Caltrans, Ryan Turner, October 2009.
4. *Geologic Map of the Goleta Quadrangle, Santa Barbara County, California*, Thomas W. Dibble, Jr., Helmut E. Ehrenspeck, 1987.
5. *Geologic and Geotechnical Impacts of the Proposed Fairview Ave O.C.: Goleta O.H. Bridge Replacement, Santa Barbara County, 05-SB-101-22.5*, Caltrans, Ron Richman & Michael S. Finegan., December, 1993.
6. *Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element*, Santa Barbara County Board of Supervisors, January 1979.

Physical Setting

The project is located in the Goleta Basin of Santa Barbara County. The climate in the project area is moderate year round. The mean annual precipitation is between 12 and 18 inches and the mean annual air temperature is 67^o F. Winters are generally mild with average highs in the upper 60's. The average high temperature in the summer is 75^o F. Nearly all precipitation occurs during Pacific storms between October and May, with the majority falling during winter months. The main drainage features in the region are the south flowing Las Vegas Creek and San Pedro Creek, which cross through reinforced concrete box (RCB) culverts underneath State Route 101 within the project limits. Las Vegas Creek flows into San Pedro Creek, which is tributary to the Goleta Slough, and drains to the Pacific Ocean south of the project area. The region is bounded by the Santa Ynez Mountains to the north and the Pacific Ocean to the south.

Field Investigation and Laboratory Testing

A preliminary field investigation consisting of four cone penetrometer (CPT) soundings and field sampling was performed for this project in 2002. Two CPT soundings were performed near San Pedro Creek, and two CPT soundings were performed near Las Vegas Creek. In 2009-2010, six mud-rotary borings were drilled within the project limits to determine the subsurface conditions at the proposed structure locations. In-situ soil strength parameters were determined using the Standard Penetration Test (SPT) for cohesionless soils. Laboratory tests were used to determine the particle size distribution and corrosion potential of representative samples obtained at depth.

The Office of Geotechnical Design-North conducted a subsurface investigation from November, 2009 to January, 2010.

The subsurface investigation consisted of six mud rotary borings (RC-09-001 through RC-10-006). The borings were advanced using a self-casing wireline drilling method. The maximum depth of the borings was 122.0 feet. Sampling was performed using the SPT sampler. A summary of the borings follows in Table 1.

Table 1. Subsurface Exploration Summary

<i>Boring</i>	<i>Completion Date</i>	<i>Drill Rig</i>	<i>Hammer Type</i>	<i>Hammer Efficiency (%)</i>	<i>Approximate Ground Elevation (ft)</i>	<i>Boring Depth (ft)</i>
RC-09-001	11/4/2009	CME75	Auto	79	31.4	106.0
RC-09-002	12/8/2009	B47	Safety	60	31.5	97.5
RC-09-003	12/9/2009	B47	Safety	60	30.3	101.0
RC-09-004	12/16/2009	B47	Safety	60	30.8	82.5
RC-10-005	1/6/2010	B47	Safety	60	50.3	122.0
RC-10-006	1/12/2010	B47	Safety	60	27.0	87.5

Site Geology and Subsurface Conditions

Geology

The region falls within the Transverse Ranges Geomorphic Province of California. Goleta Basin is a narrow coastal lowland along the southwestern foot of the Santa Ynez Mountains. Geologic units in the region consist of normally consolidated alluvial floodplain deposits of silt, sand and gravel.

Subsurface Conditions

Field observations, in-situ sampling, and laboratory testing indicate that interbedded layers of silt, clay, sand and gravel underlie the site. Soils encountered are indicative of alluvial deposits as shown in geologic mapping of the area.

Groundwater

Monitoring wells were installed in borings RC-09-001 and RC-10-005 to observe fluctuations in groundwater levels and determine if groundwater will influence construction and foundation design. Results of the groundwater-monitoring program are summarized in Table 2.

Table 2. Groundwater Elevations

Boring	Date	Groundwater Elevation(ft)
RC-09-001	01/11/2010	20.1
RC-09-001	12/14/2011	21.6
RC-09-001	02/24/2012	21.8
RC-10-005	12/20/2011	14.7
RC-10-005	02/24/2012	14.6

Scour Evaluation

Scour potential will be mitigated by placement of RSP inside of the bridge to prevent undermining of the abutment walls and foundations.

Corrosion Evaluation

The Department considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: pH of less than 5.5, chloride content greater than 500 ppm, or sulphate content greater than 2000 ppm. Representative soil samples at depth were obtained and sent to the District 5 Geotechnical Laboratory for corrosion potential evaluation. Based on the results of the corrosion analyses, the site is not considered to be corrosive. Results of the testing are presented in Table 3.

Table 3. Corrosion Testing Summary

<i>Boring</i>	<i>Depth (ft)</i>	<i>pH</i>	<i>Resistivity ohm-cm</i>	<i>Chloride ppm</i>	<i>Sulphate ppm</i>	<i>Corrosive</i>
RC-09-001	10.0-12.0	8.1	1370	-	-	NO
RC-09-001	16.0-19.0	8.3	2110	-	-	NO
RC-09-001	36.0-37.2	7.7	2740	-	-	NO
RC-09-001	54.0-55.2	8.0	3420	-	-	NO
RC-09-002	9.0-11.0	7.7	1030	-	-	NO
RC-09-002	24.0-26.0	7.7	2110	-	-	NO
RC-09-002	39.0-41.0	7.5	2290	-	-	NO
RC-09-003	8.0-10.0	7.6	860	149	238	NO
RC-09-003	22.5-24.0	8.0	2440	-	-	NO
RC-09-003	45.0-46.0	7.9	1870	-	-	NO
RC-09-004	8.0-11.0	7.5	900	162	670	NO
RC-09-004	28.0-30.0	7.4	2690	-	-	NO
RC-10-005	17.0-19.0	7.0	1760	-	-	NO
RC-10-005	53.0-55.0	7.6	4010	-	-	NO
RC-10-006	38.0-40.0	8.1	16480	-	-	NO

Seismic Recommendations

Based on the 2009 Caltrans Seismic Design Procedure, the following active and potentially active faults are located within the vicinity of the project site. The Caltrans ARS Online Tool was used to develop ARS curves for deterministic and probabilistic seismic prediction models. An average shear wave velocity of 1141 ft/sec for the upper 100 feet of soil was determined based upon the results of P-S logging performed in Boring RC-09-003. The design ARS curve is presented in figure 1. A basin factor of 1.0 was assumed for this location and the Caltrans ARS Online Tool applied a near fault factor to the data.

Table 4. Active and Potentially Active Faults

<i>Fault Name</i>	<i>Fault Type</i>	<i>Moment magnitude of maximum credible earthquake</i>	<i>Distance from fault to project site (miles)</i>	<i>Peak ground acceleration T=0 sec (gravity)</i>
San Jose Fault	Reverse	6.3	0.7	0.61
More Ranch Fault	Reverse	7.2	0.7	0.51

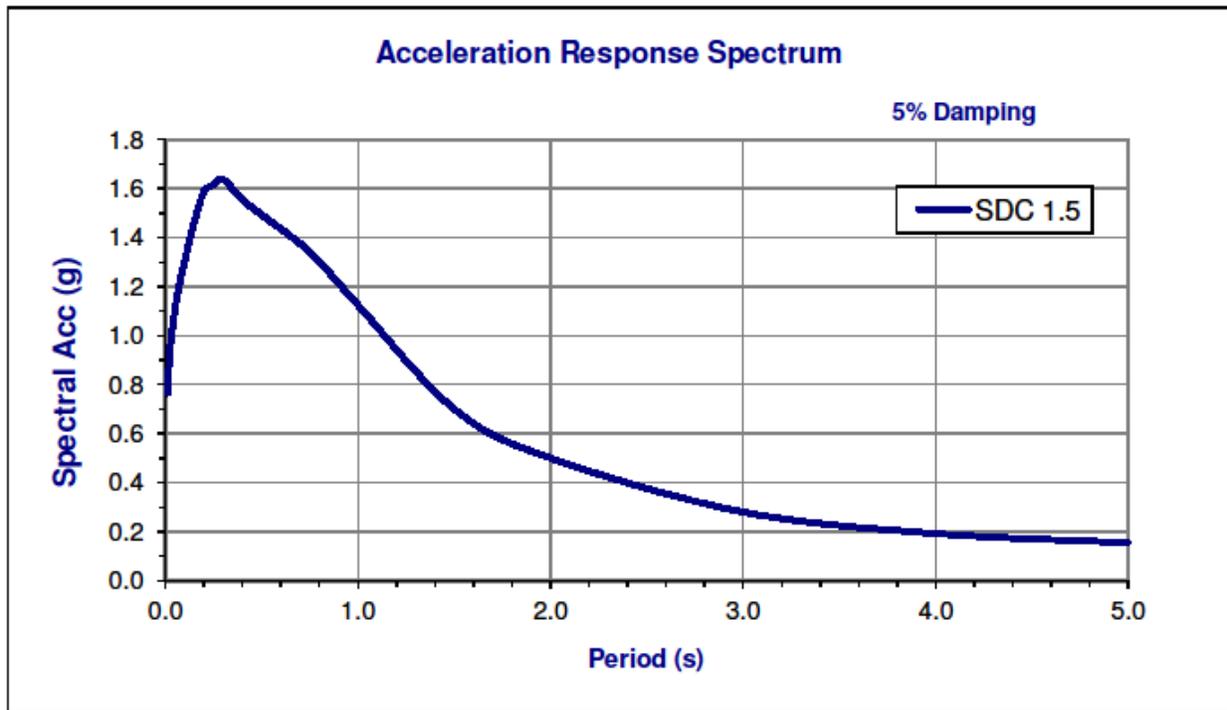


Figure 1. Design ARS Curve

Soils with a potential for liquefaction are typically loose sands below the groundwater table. Foundation soils encountered at the project site contained a high proportion of fine-grained soils, therefore liquefaction potential is low.

As-Built Foundation Data

The as built log of test borings for the Fairview Avenue Overcrossing indicate that interbedded sands, silts and clays were encountered in the borings for the original structure. Similar soil conditions were encountered in the borings drilled for this project.

Foundation Recommendations

Driven Pipe Piles

Structure Design proposes construction of a single span cast-in-place bridge with the abutments supported on driven 24" diameter x 1/2" wall pipe piles at the Las Vegas Creek mainline crossing. Pipe piles are recommended to allow for pre-drilling if hard strata are encountered before reaching the design tip elevations. Design calculations for pipe piles were performed using CTGeoDrive, an Excel spreadsheet that calculates predicted pile axial resistance and pile axial deflection. Groundwater was modeled at approximately 7 feet below the existing ground surface. LRFD design methodology was used at the abutments at the request of Structure Design, because

the structure is modeled as a moment resisting frame. Structure Design provided cutoff elevations, loads, and permissible deflections.

Plugging of pipe piles is uncertain; the length to diameter ratio is at the lower range of values recommended to assume full plugging. Field driving resistance may exceed the required nominal driving resistance before reaching the specified tip elevations if plugging does occur. Center relief drilling through the pipe pile may be required to prevent driving damage. Because pile tip elevations are controlled by lateral loading, piles shall not be cut off before reaching the design tip elevations. Design axial pile tip elevations were calculated assuming end bearing only of the area of the pipe wall, to account for the possibility that piles may not plug during driving, in which case the majority of the axial resistance would be provided by side resistance. Lateral tip elevations were calculated and provided by Structure Design using the lateral pile analysis program LPile. Recommended pile tip elevations are provided in the following tables.

Abutment Foundation Design Recommendations											
Support Location	Pile Type	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Nominal Axial Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event				
					Comp. ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1$)	Tension ($\phi=1$)			
Abut. 1	24" Dia. Pipe Pile	9.42	2793 (21 Piles)	1	269	0	114	0	-31 (a-I) -14 (a-II) -31(b) -5(c)	-31.58	269
Abut. 2	24" Dia. Pipe Pile	9.42	2793 (21 Piles)	1	269	0	114	0	-31(a-I) -14 (a-II) -31(b) -5(c)	-31.58	269

Notes:

- 1) Design tip elevations are controlled by: (a-I) Compression Strength Limit, (a-II) Compression Extreme Limit, (b) Lateral, and (c) Settlement Service Limit
- 2) The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.

Pile Data Table						
Location	Pile Type	Nominal Axial Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut. 1	24" Dia. Pipe Pile	269	N/A	-31(a), -14 (a-II), -31(b), -5(c)	-31.58	269
Abut. 2	24" Dia. Pipe Pile	269	N/A	-31(a), -14 (a-II), -31(b), -5(c)	-31.58	269

Notes:

- 1) *Design tip elevations for Abutments are controlled by: (a) Compression, (b) Lateral, (c) Settlement*
- 2) *The specified tip elevation shall not be raised above the design tip elevations for tension load, lateral load, and tolerable settlement.*

Construction Considerations

Groundwater will be encountered in the excavations to construct the bridge structure. High groundwater may require methods to control and remove water at excavation locations. Refer to the Standard Specification section 19-3.03D for details regarding water control and foundation treatment when wet excavation and construction conditions are expected. Installation of cofferdams to maintain temporary excavation stability and prevent groundwater infiltration may be required.

Dense layers may be encountered during driving that require center relief drilling to advance through to reach the specified pile tip elevations. Limit the depth of drilling to a maximum of 10 feet above the specified pile tip elevation.

Very loose and soft soils were encountered at or near the elevation of the proposed bridge abutment walls; construction equipment should be suitable to maneuver and work on soft and possibly wet soils.

Additional Information

Standard Special Provision 2-1.06B "Project Information", discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the Addressee of this report via electronic mail.

Data and information attached with the project plans are:

- A. Log of Test Borings.

Data and information included in the Information Handout provided to the Bidders and Contractors are:

- A. Foundation Report for the Retaining Wall dated August 22, 2012.

If you have any questions or comments, please contact Ryan Turner at (805) 549-3750 or Michael Finegan at (805) 549-3194.



Ryan Turner

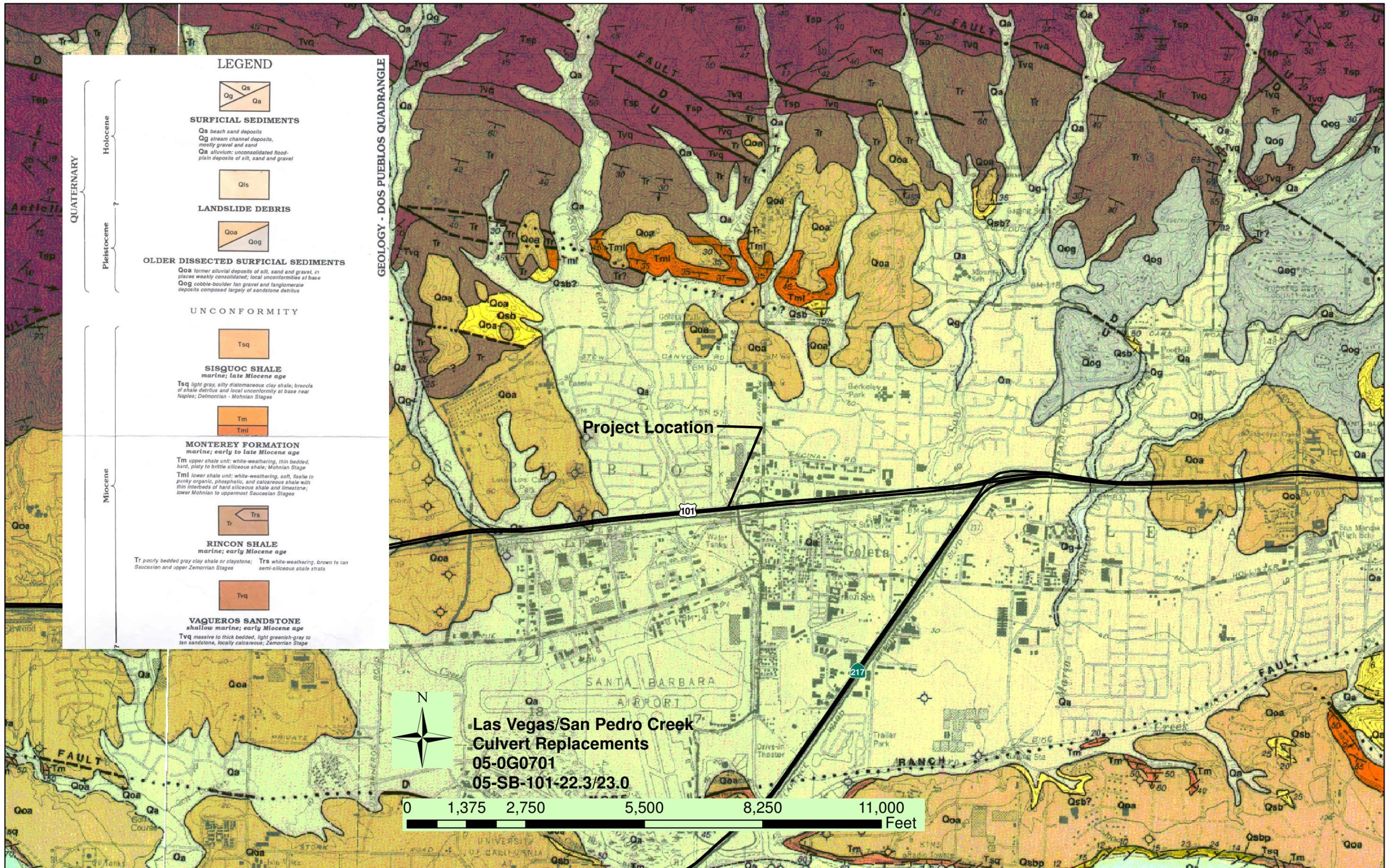
RYAN TURNER, P.E.
Transportation Engineer
Geotechnical Design – North
Branch D

MICHAEL S. FINEGAN, P.E.,
Branch Chief
Geotechnical Design – North
Branch D

c: Steve DiGrazia/ Project Manager
Jonathan Gledhill/ Design
Andrew Tan / PCE
Douglas Lambert / DME

LIST OF ATTACHMENTS

Vicinity Map	Attachment 1
Geologic Map and Legend	Attachment 2
General Plan	Attachment 3
Boring Locations	Attachment 4
Foundation Data Design Tables	Attachment 5

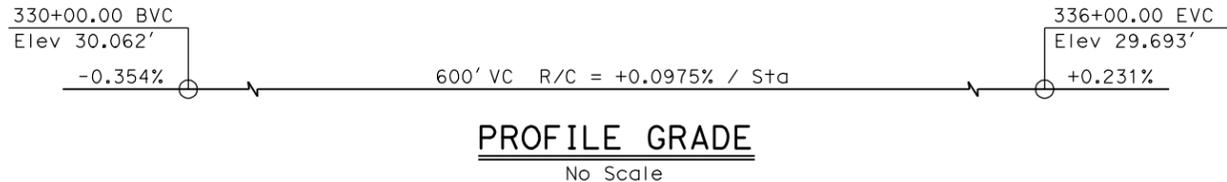


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101			

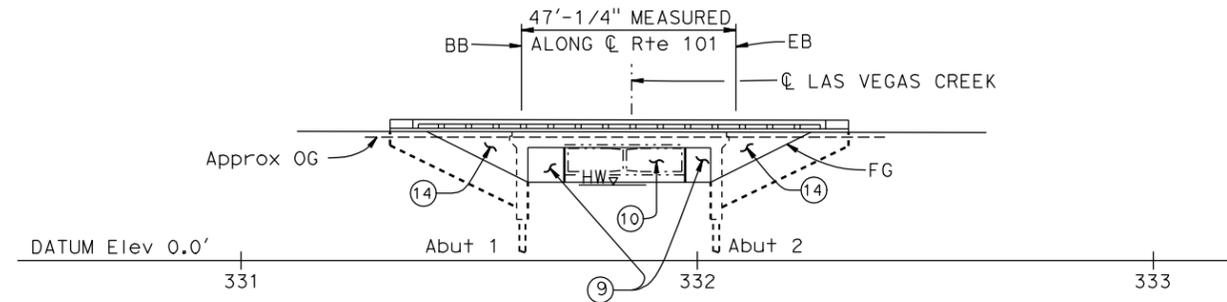
REGISTERED CIVIL ENGINEER	X	DATE	
PLANS APPROVAL DATE			

REGISTERED PROFESSIONAL ENGINEER	X	No.	X
		Exp.	X
CIVIL			

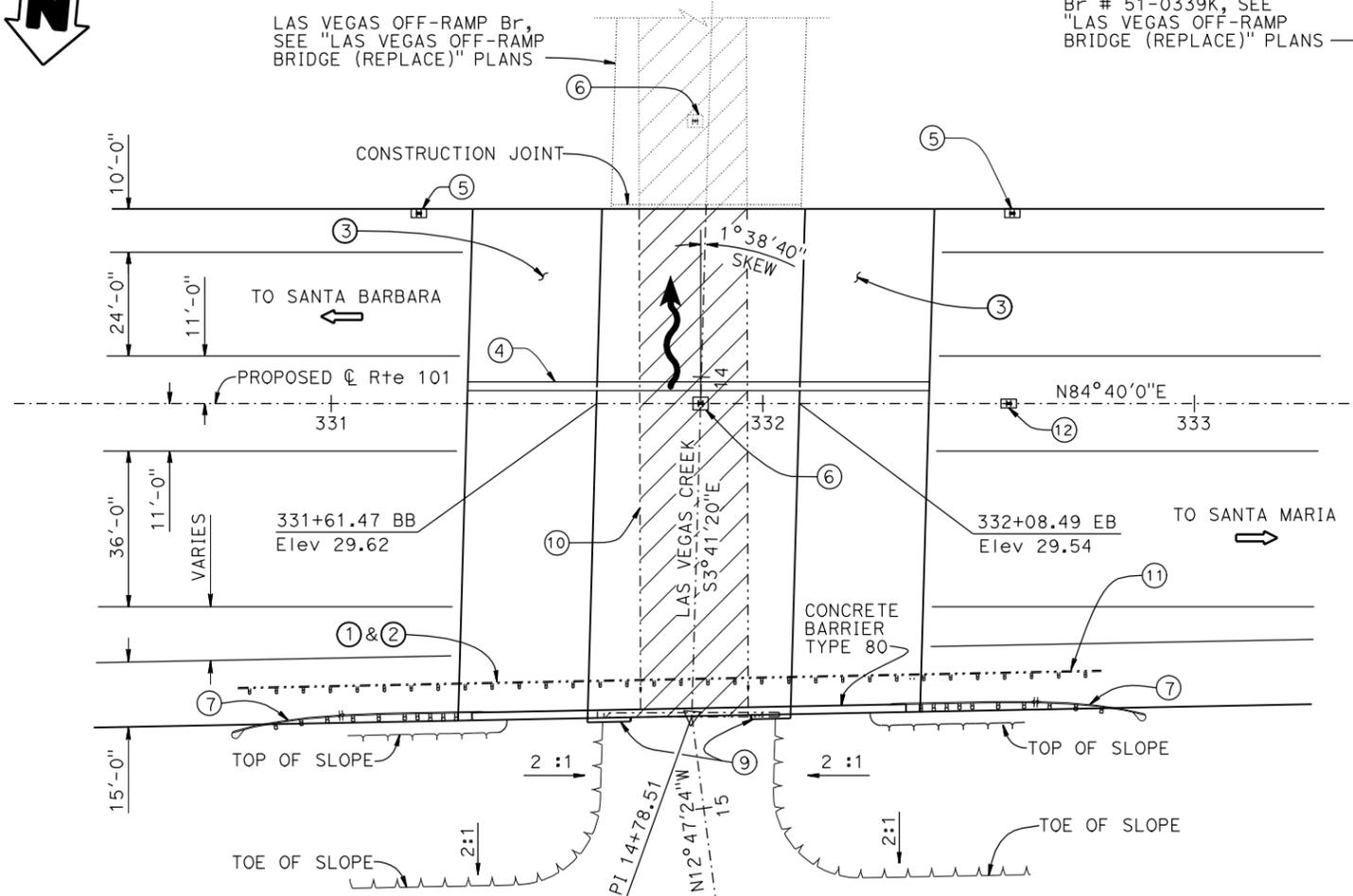
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PROFILE GRADE
No Scale



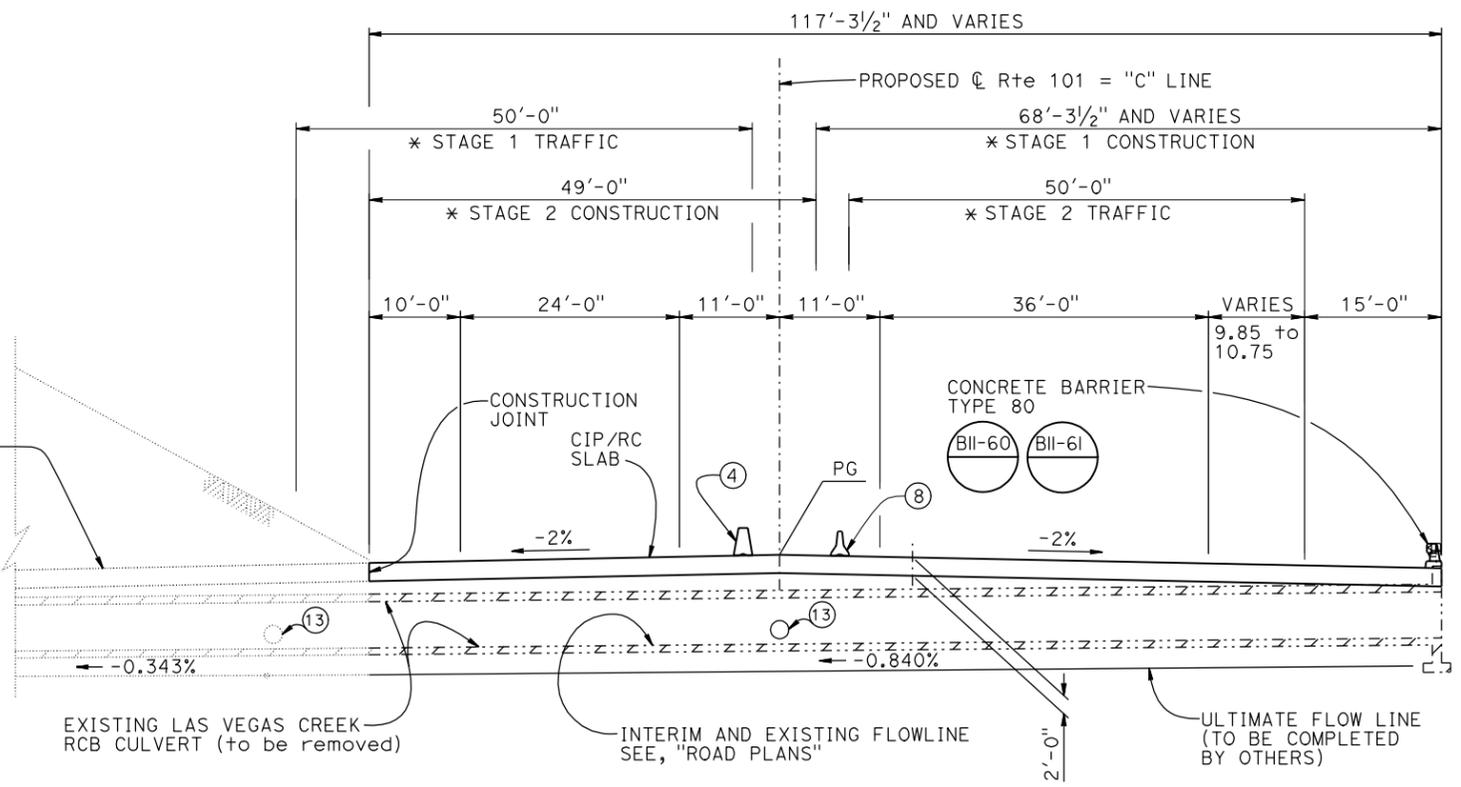
ELEVATION
1" = 20'-0"



PLAN
1" = 20'-0"

Legend:

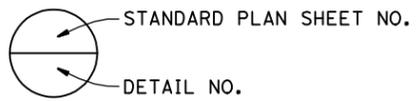
- Limits of structure removal
- Indicates existing structure
- Indicates new structure
- For Stage Construction, see "TYPICAL SECTION" sheet.



TYPICAL SECTION
1" = 10'-0"

Notes:

- ① Paint "LAS VEGAS CREEK BRIDGE"
- ② Paint "Br. No. 51-0339" and year constructed
- ③ Structure Approach Type N(30D)
- ④ Concrete Barrier Type 60A
- ⑤ Drainage Inlets (Type G3), see "Road Plans"
- ⑥ Remove Existing Drainage Inlets, see "Road Plans"
- ⑦ MBGR, see "Road Plans"
- ⑧ Temporary Railing (Type K), see "Road Plans". For stage construction limits, see "TYPICAL SECTION" sheet
- ⑨ Construct a closure wall that is to be removed in the future for 25-year storm event
- ⑩ Remove Existing Las Vegas Creek RCB Culvert
- ⑪ Remove Existing Exist MBGR, see "Road Plans"
- ⑫ Drainage Inlets (Type G2), see "Road Plans"
- ⑬ 24" Opening for drainage outlet pipe, see "Road Plans"
- ⑭ Architectural Treatment (Exposed Aggregate)



X DESIGN ENGINEER	DESIGN	BY MIKE CULLEN	CHECKED X. CHEN/H. PEREZ	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 6	BRIDGE NO.	51-0339	LAS VEGAS CREEK BRIDGE (REPLACE) GENERAL PLAN
	DETAILS	BY D. PATO/S. NG/K. CHONKRIA	CHECKED MIKE CULLEN	LAYOUT	BY X			POST MILE	22.3-23.0	
	QUANTITIES	BY GLORIA REYES-GUTIERREZ	CHECKED HILARIO TUAZON	SPECIFICATIONS	BY X			PLANS AND SPECS COMPARED	X	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3
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UNIT: 3591	PROJECT NUMBER & PHASE: 050000055 & 1	CONTRACT NO.: 0G0701	REVISION DATES	SHEET	OF
			05-02-10	08-15-12	08-09-12
				1	17

DISREGARD PRINTS BEARING EARLIER REVISION DATES

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
OG-DESIGN
 FUNCTIONAL SUPERVISOR
 FOND M AL-MANOHAR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISIONS
 REVISION NO. DATE
 REVISION BY
 DATE REVISION BY

DISP#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	22.3/23.0		

REGISTERED CIVIL ENGINEER DATE _____

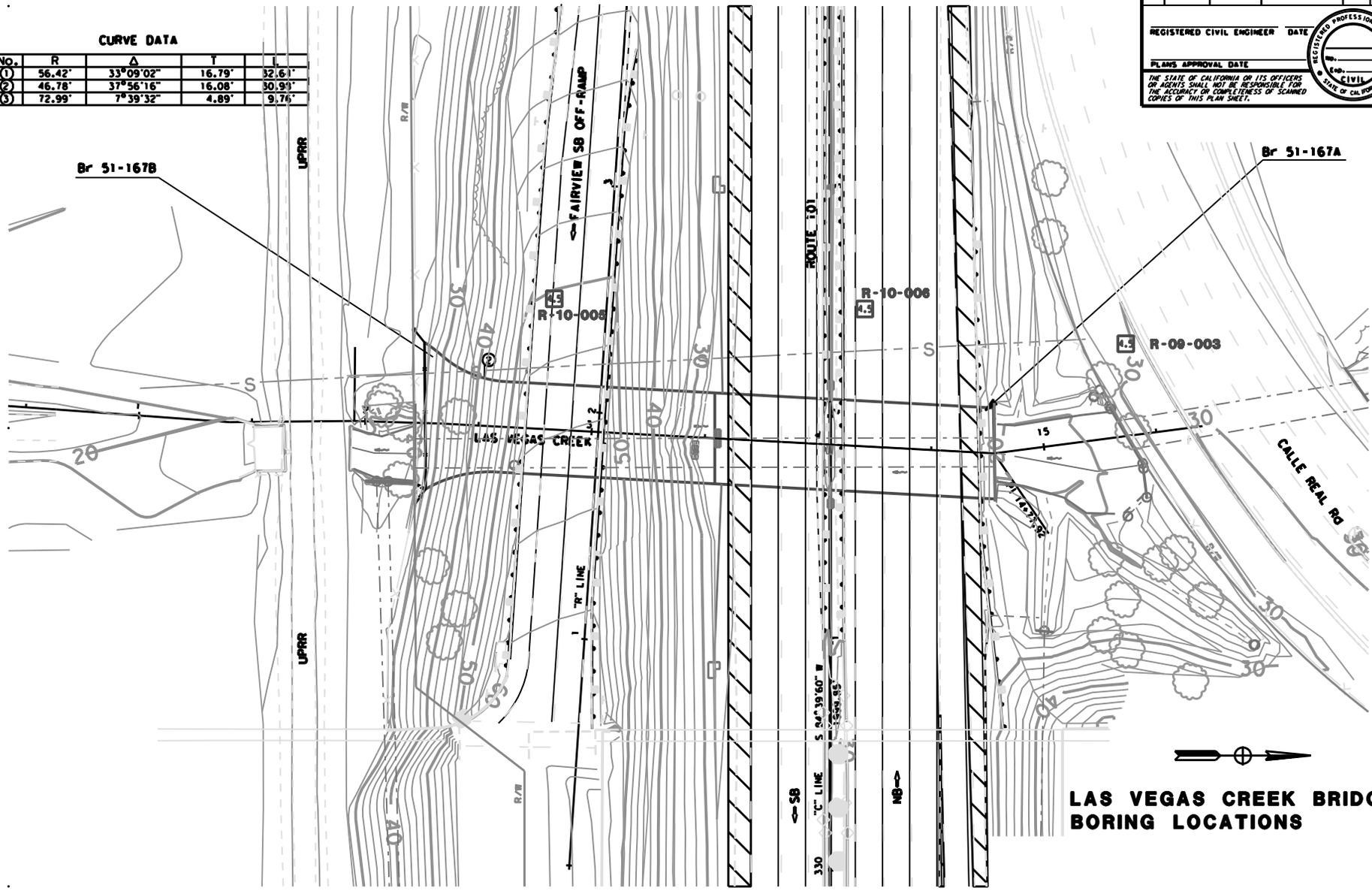
PLANS APPROVAL DATE _____

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



CURVE DATA

No.	R	Δ	T	L
①	56.42'	33°09'02"	16.79'	32.61'
②	46.78'	37°56'16"	16.08'	30.99'
③	72.99'	7°39'32"	4.89'	9.76'

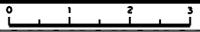


LAS VEGAS CREEK BRIDGE BORING LOCATIONS



BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES



USERNAME ** USER
 DGN FILE ** REQUEST

CU 06258

EA OG0701



ATTACHMENT 1

Table 4. Design Loads to be sent from SD to GS

Support No.	Foundation Design Loads											
	Service-I Limit State (kips)				Strength Limit State (Controlling Group, kips)				Extreme Event Limit State (Controlling Group, kips)			
	Total Load		Permanent Loads		Compression		Tension		Compression		Tension	
	Per Support	Max. Per Pile	Per Support	Per Support	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Abut 1	2793	133	1963	3948	188	0	0	2394	114	0	0	0
Bent												
Bent												
Abut 2	2793	133	1963	3948	188	0	0	2394	114	0	0	0

(# 51 - 339) Las Vegas Creek Bridge

Updated 7-25-12



ATTACHMENT 1

Table 3. General Foundation Information to be sent from SD to GS

Foundation Design Data Sheet								
Support No.	Design Method	Pile Type	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support
					B	L		
Abut 1	LRFD	24" x 5" Steel Pipe	16.5	9.42		117'-10"	1"	21
Bent	LRFD						1"	
Bent	LRFD						1"	
Abut 2	LRFD	24" x 5" Steel Pipe	16.5	9.42		117'-0"	1"	21

Based on CALTRANS' current practice, the total permissible settlement is one inch for multi-span structures with continuous spans or multi-column bents, one inch for single span structures with diaphragm abutments, and two inches for single span structures with seat abutments. Different permissible settlement under service loads may be allowed if a structural analysis verifies that required level of serviceability is met.

(#51-339) Las Vegas Creek Bridge

INFORMATION HANDOUT

MATERIALS INFORMATION

[7.Foundation Report for Fairview Off-ramp culvert replacement \(Br. No. 51-0339K, EA 05-0G0701\) dated August 23, 2012](#)

ROUTE: 05/SB/101/22.3/23.0

Memorandum

*Flex your power!
Be energy efficient!*

To: FRITZ HOFFMAN
Senior Bridge Engineer
Office of Bridge Design Central
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN

Attn: Michael Cullen

Date: August 23, 2012

File: 05-SB-101-22.3/23.0
Fairview Off-Ramp
Culvert Replacement
Br. No. 51-0339K
EA 05-0G0701

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

Subject: Foundation Report

Scope of Work

A Foundation Report (FR) is provided for the above referenced project. The proposed project is located in the Goleta Basin, approximately nine miles west of Santa Barbara in Santa Barbara County. Improvements are proposed to increase the capacity of existing drainage structures from 10-year to 25-year storm water events in two locations: Las Vegas Creek (Br. No. 51-167, PM 22.57) and San Pedro Creek (Br. No. 51-168, PM 22.80) under State Route 101, west of Fairview Ave. A General Plan detailing the improvements was provided by Structure Design. Review of published geologic data and previous geotechnical reports, a subsurface investigation, laboratory testing, field reconnaissance, and design calculations were performed as part of the geotechnical investigation.

The purpose of this report is to document subsurface geotechnical conditions and make foundation recommendations. This report supersedes the Preliminary Foundation Report (October, 2009).

Project Description

The existing structure at Las Vegas Creek is a double reinforced concrete box (RCB) culvert. Las Vegas Creek RCB carries the creek under State Route 101 and the southbound Fairview Avenue Off-Ramp. Approximately 25 to 30 feet of embankment fill sits atop the SB off-ramp section of the Las Vegas Creek RCB. Sections of the RCB culverts under the off-ramp embankment fill have experienced substantial settlement, causing box sections to separate at the joints. Erosion of the backfill material at the separation has created a void beneath of the box. According to bridge inspection reports, Structures Maintenance has sealed the joint and grouted the void. Fill slopes for the off-ramp are well vegetated and performing moderately well; minor horizontal cracking was noted at the top of the fill, possibly indicating slope instability.

This project proposes to increase the capacity of the culvert carrying Las Vegas Creek to accommodate a 25-year storm event. The project will replace the RCB underneath the Fairview Avenue off-ramp with a simple span cast-in-place slab bridge spanning over a constructed open channel. Improvement of the culvert at the off-ramp is also intended rectify the current problems with differential settlement and separated culvert segments that the existing RCB is experiencing by reducing the embankment load from the soft soils underlying the Las Vegas Creek channel. Embankment loading will be reduced by constructing a lightweight fill over the bridge with expanded polystyrene blocks.

Pertinent Reports and Investigations

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

1. *Preliminary Geotechnical Design Report Las Vegas and San Pedro Creeks*, EA 05-0F070K, Caltrans, Ron Richman & Glen C. Lawson, 2002.
2. *District Preliminary Geotechnical Design Report*, EA 05-0G0701, Caltrans, Justin Kimura and Michael S. Finegan, February 2009.
3. *Preliminary Foundation Report Las Vegas Off-ramp*, EA 05-0G0701, Caltrans, Ryan Turner, October 2009.
4. *Geologic Map of the Goleta Quadrangle, Santa Barbara County, California*, Thomas W. Dibble, Jr., Helmut E. Ehrenspeck, 1987.
5. *Geologic and Geotechnical Impacts of the Proposed Fairview Ave O.C.: Goleta O.H. Bridge Replacement, Santa Barbara County, 05-SB-101-22.5*, Caltrans, Ron Richman & Michael S. Finegan., December, 1993.
6. *Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element*, Santa Barbara County Board of Supervisors, January 1979.

Physical Setting

The project is located in the Goleta Basin of Santa Barbara County. The climate in the project area is moderate year round. The mean annual precipitation is between 12 and 18 inches and the mean annual air temperature is 67^o F. Winters are generally mild with average highs in the upper 60's. The average high temperature in the summer is 75^o F. Nearly all precipitation occurs during Pacific storms between October and May, with the majority falling during winter months. The main drainage features in the region are the south flowing Las Vegas Creek and San Pedro Creek, which cross through reinforced concrete box (RCB) culverts underneath State Route 101 within the project limits. Las Vegas Creek flows into San Pedro Creek, which is tributary to the Goleta Slough, and drains to the Pacific Ocean south of the project area. The region is bounded by the Santa Ynez Mountains to the north and the Pacific Ocean to the south.

Field Investigation and Laboratory Testing

A preliminary field investigation consisting of four cone penetrometer (CPT) soundings and field sampling was performed for this project in 2002. Two CPT soundings were performed near San Pedro Creek, and two CPT soundings were performed near Las Vegas Creek. In 2009-2010, six mud-rotary borings were drilled within the project limits to determine the subsurface conditions at the proposed structure locations. In-situ soil strength parameters were determined using the Standard Penetration Test (SPT) for cohesionless soils. Laboratory tests were used to determine the particle size distribution and corrosion potential of representative samples obtained at depth. The Office of Geotechnical Design-North conducted a subsurface investigation from November, 2009 to January, 2010.

The subsurface investigation consisted of six mud rotary borings (RC-09-001 through RC-10-006). The borings were advanced using a self-casing wireline drilling method. The maximum depth of the borings was 122.0 feet. Sampling was performed using the SPT sampler. A summary of the borings follows in Table 1.

Table 1. Subsurface Exploration Summary

<i>Boring</i>	<i>Completion Date</i>	<i>Drill Rig</i>	<i>Hammer Type</i>	<i>Hammer Efficiency (%)</i>	<i>Approximate Ground Elevation (ft)</i>	<i>Boring Depth (ft)</i>
RC-09-001	11/4/2009	CME75	Auto	79	31.4	106.0
RC-09-002	12/8/2009	B47	Safety	60	31.5	97.5
RC-09-003	12/9/2009	B47	Safety	60	30.3	101.0
RC-09-004	12/16/2009	B47	Safety	60	30.8	82.5
RC-10-005	1/6/2010	B47	Safety	60	50.3	122.0
RC-10-006	1/12/2010	B47	Safety	60	27.0	87.5

Site Geology and Subsurface Conditions

Geology

The region falls within the Transverse Ranges geomorphic province of California. The Goleta Basin is a narrow coastal lowland along the southwestern foot of the Santa Ynez Mountains. Geologic units in the region consist of normally consolidated alluvial floodplain deposits of silt, sand and gravel.

Subsurface Conditions

Field observations, in-situ sampling, and laboratory testing indicate that interbedded layers of silt, clay, sand and gravel underlie the site. Soils encountered are indicative of alluvial deposits as shown in geologic mapping of the area.

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Monitoring wells were installed in borings RC-09-001, and RC-10-005 to observe fluctuations in groundwater levels and determine if groundwater will influence construction and foundation design. Results of the groundwater-monitoring program are summarized in Table 2.

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Scour potential will be mitigated by placement of RSP inside of the bridge to prevent undermining of the abutment walls and foundations.

Corrosion Evaluation

The Department considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: pH of less than 5.5, chloride content greater than 500 ppm, or sulphate content greater than 2000 ppm. Representative soil samples at depth were obtained and sent to the District 5 Geotechnical Laboratory for corrosion potential evaluation. Based on the results of the corrosion analyses, the site is not considered to be corrosive. Results of the testing are presented in Table 3.

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RC-10-006	38.0-40.0	8.1	16480	-	-	NO

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Based on the 2009 Caltrans Seismic Design Procedure, the following active and potentially active faults are located within the vicinity of the project site. The Caltrans ARS Online Tool was used to develop ARS curves for deterministic and probabilistic seismic prediction models. An average shear wave velocity of 1141 ft/sec for the upper 100 feet of soil was determined based upon the results of P-S logging performed in Boring RC-09-003. The design ARS curve is presented in figure 1. A basin factor of 1.0 was assumed for this location and the Caltrans ARS Online Tool applied a near fault factor to the data.

Table 4. Active and Potentially Active Faults

<i>Fault Name</i>	<i>Fault Type</i>	<i>Moment magnitude of maximum credible earthquake</i>	<i>Distance from fault to project site (miles)</i>	<i>Peak ground acceleration T=0 sec (gravity)</i>
San Jose Fault	Reverse	6.3	0.7	0.61
More Ranch Fault	Reverse	7.2	0.7	0.51

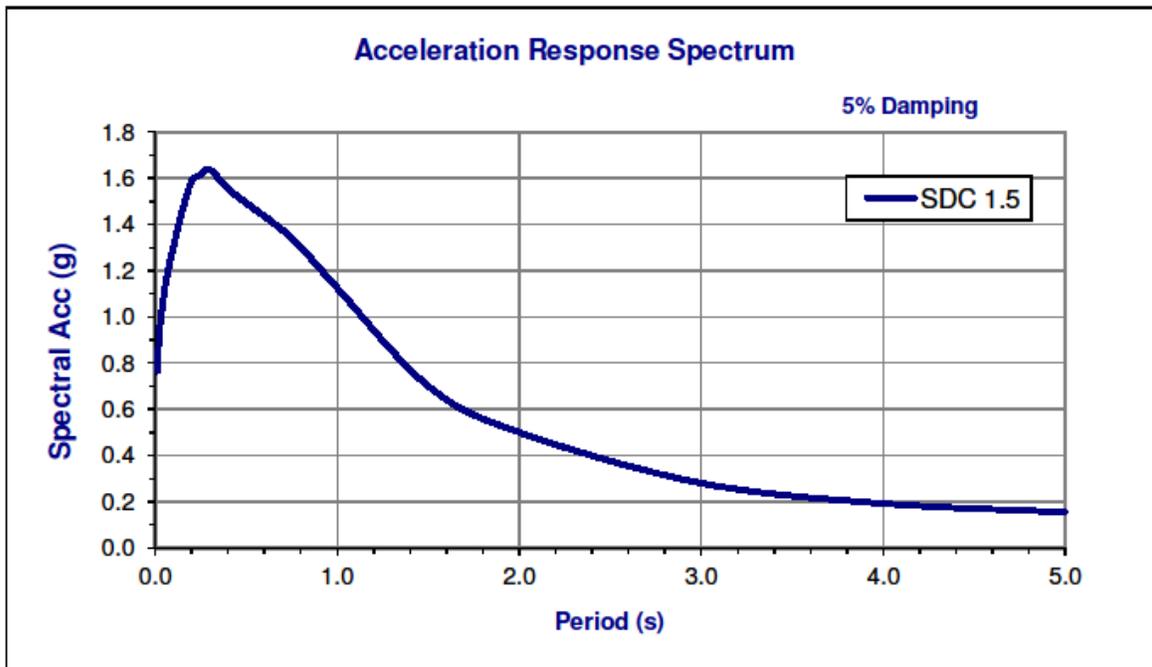


Figure 1. Design ARS Curve

Soils with a potential for liquefaction are typically loose sands below the groundwater table. Foundation soils encountered at the project site contained a high proportion of fine-grained soils, therefore liquefaction potential is low.

As-Built Foundation Data

The as built log of test borings for the Fairview Avenue Overcrossing indicate that interbedded sands, silts and clays were encountered in the borings for the original structure. Similar soil conditions were encountered in the borings drilled for this project.

Foundation Recommendations

Driven Pipe Piles

Structure Design proposes construction of a single span cast-in-place bridge with the abutments supported on driven 24" diameter x 1/2" wall pipe piles at the Fairview Avenue Off-Ramp crossing. Pipe piles are recommended to allow for pre-drilling if hard strata are encountered before reaching the design tip elevations. Design calculations for pipe piles were performed using CTGeoDrive, an Excel spreadsheet that calculates predicted pile axial resistance and pile axial deflection. LRFD design methodology was used at the abutments at the request of Structure Design, because the structure is modeled as a moment resisting frame. Structure Design provided cutoff elevations, loads, and permissible deflections.

Plugging of pipe piles is uncertain; the length to diameter ratio required to resist the design axial loads is in the lower range of values recommended to assume full plugging. Field driving resistance may exceed the required nominal driving resistance before reaching the specified tip elevations if plugging does occur. Center relief drilling may be required to prevent driving damage to the piles. Because pile tip elevations are controlled by lateral loading, piles shall not be cut off before reaching the design tip elevations. Design axial pile tip elevations were calculated assuming end bearing only of the area of the pipe wall, to account for the possibility that piles may not plug during driving, in which case the majority of the axial resistance would be provided by side resistance. Lateral tip elevations were calculated and provided by Structure Design using the lateral pile analysis program LPile. Recommended pile tip elevations are provided in the following tables.

Abutment Foundation Design Recommendations											
Support Location	Pile Type	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Nominal Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event				
					Comp. ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1$)	Tension ($\phi=1$)			
Abut. 1	24" Dia. Pipe Pile	8.70	3703 (23 Piles)	1	316	0	161	0	-28 (a-I) -13 (a-II) -32 (b) 0 (c)	-32.30	383
Abut. 2	24" Dia. Pipe Pile	8.70	3703 (23 Piles)	1	316	0	161	0	-28 (a-I) -13 (a-II) -32 (b) 0 (c)	-32.30	383

Notes:

- 1) Design tip elevations are controlled by: (a-I) Compression Strength Limit, (a-II) Compression Extreme Limit, (b) Lateral, and (c) Settlement Service Limit
- 2) The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.

Pile Data Table						
Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut. 1	24" Dia. Pipe Pile	383	N/A	-28 (a-I), -13 (a-II), -32(b), 0 (c)	-32.30	383
Abut. 2	24" Dia. Pipe Pile W	383	N/A	-28 (a-I), -13 (a-II), -32(b), 0 (c)	-32.30	383

Notes:

- 1) Design tip elevations for Abutments are controlled by: (a) Compression, (b) Lateral, (c) Settlement
- 2) The specified tip elevation shall not be raised above the design tip elevations for tension load, lateral load, and tolerable settlement.

Lightweight Fill (EPS Block)

In order to reduce the overburden load of the embankment soils on the proposed bridge structure and decrease the lateral earth pressures on the bridge abutment walls, construction of a lightweight fill over the bridge structure is proposed. Expanded polystyrene (EPS) blocks are recommended for use as the fill material; EPS blocks are very light and have adequate compressive strength to resist traffic and surcharge loading from the off-ramp traffic and roadway section. The maximum height of the fill over the bridge will be approximately 28 feet, decreasing as the off-ramp elevation drops to approximately 26 feet. Placement of 4 feet of EPS

block below the top of the bridge deck elevation is also recommended to reduce lateral earth pressures resulting from compacting soil directly against the abutment wall. Plan limits of the EPS shall extend a minimum of 20 feet as measured perpendicular to the abutment walls, to reduce the effects of surcharge loading on lateral earth pressures.

Placement of a gasoline resistant geomembrane over the EPS blocks is recommended to protect the embankment from damage in the event of a hydrocarbon fuel spill. A reinforced concrete load distribution slab is recommended between the top course of EPS blocks and the roadway section to prevent overstressing of the EPS due to concentrated loading. Slopes on the highway side of the off-ramp embankment are proposed to be constructed at approximately 1.8:1 (H:V), and slopes on the railroad side of the off-ramp embankment are proposed at approximately 1.5:1 to match the existing slopes. EPS blocks can be stacked in a stepped configuration to match the desired slope angles. Refer to the project plans and specifications for details.

After consultation with the Landscape Architecture Branch, a minimum of 3 feet of compacted fill is to be placed over the 1.8:1 sloped side of the embankment. Stacked gabion baskets are proposed to face the 1.5:1 side of the embankment. Refer to the Landscape Architecture Branch for planting and erosion control measures for each slope. Refer to the project Special Provisions for material and construction specifications for the lightweight fill and cover.

Construction Considerations

Groundwater will be encountered in the excavations to construct the bridge structure. High groundwater may require methods to control and remove water at excavation locations. Refer to Standard Specification Section 19-3.03D for details regarding water control and foundation treatment when wet excavation and construction conditions are expected. Installation of cofferdams to maintain temporary excavation stability and prevent groundwater infiltration may be required.

Temporary slopes and/or shoring for the excavation of the existing Fairview off-ramp embankment shall be designed by the contractor and approved by the engineer. Minimum limits of the lightweight fill EPS blocks are shown on the plans. Backfilling against the EPS shall be performed as a balanced operation to avoid movement of the entire EPS mass during compaction.

Dense layers may be encountered during driving that require center relief drilling to advance through to reach the specified pile tip elevations. Limit the depth of drilling to a maximum of 10 feet above the specified pile tip elevation.

Very loose and soft soils were encountered at or near the elevation of the proposed bridge abutment walls; construction equipment should be suitable to maneuver and work on soft and possibly wet soils.

Additional Information

Standard Special Provision 2-1.06B “Project Information”, discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the Addressee of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings.

Data and information included in the Information Handout provided to the Bidders and Contractors are:

A. Foundation Report for the Retaining Wall dated August 23, 2012.

If you have any questions or comments, please contact Ryan Turner at (805) 549-3750 or Michael Finegan at (805) 549-3194.



A handwritten signature in purple ink that reads "Ryan Turner".

RYAN TURNER, P.E.
Transportation Engineer
Geotechnical Design – North
Branch D

MICHAEL S. FINEGAN, P.E.,
Branch Chief
Geotechnical Design – North
Branch D

c: Steve DiGrazia/ Project Manager
Structure Construction RE Pending File/ RE_pending_file@dot.ca.gov
Jonathan Gledhill/ Design
Andrew Tan / PCE
Douglas Lambert / DME

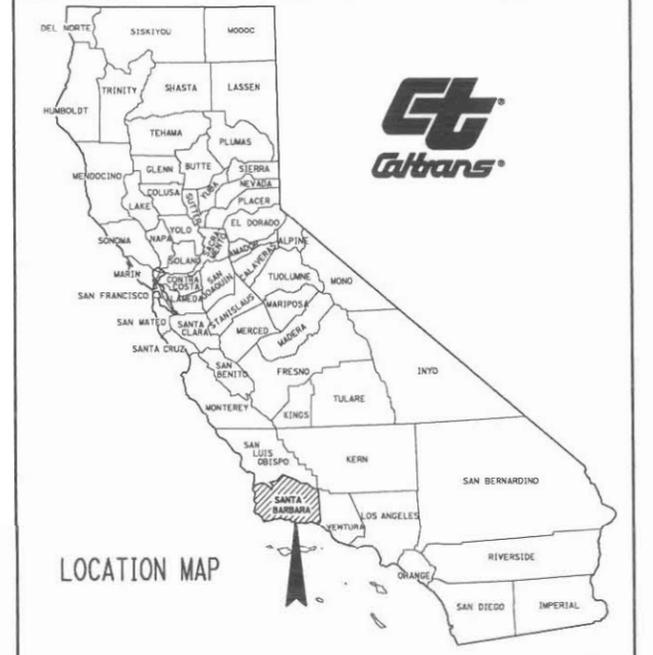
LIST OF ATTACHMENTS

Vicinity Map	Attachment 1
Geologic Map and Legend	Attachment 2
General Plan	Attachment 3
Boring Locations	Attachment 4
Foundation Data Design Table	Attachment 5

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SANTA BARBARA COUNTY IN GOLETA
FROM 0.2 MILE SOUTH TO 0.7 MILE NORTH
OF FAIRVIEW AVENUE OVERCROSSING

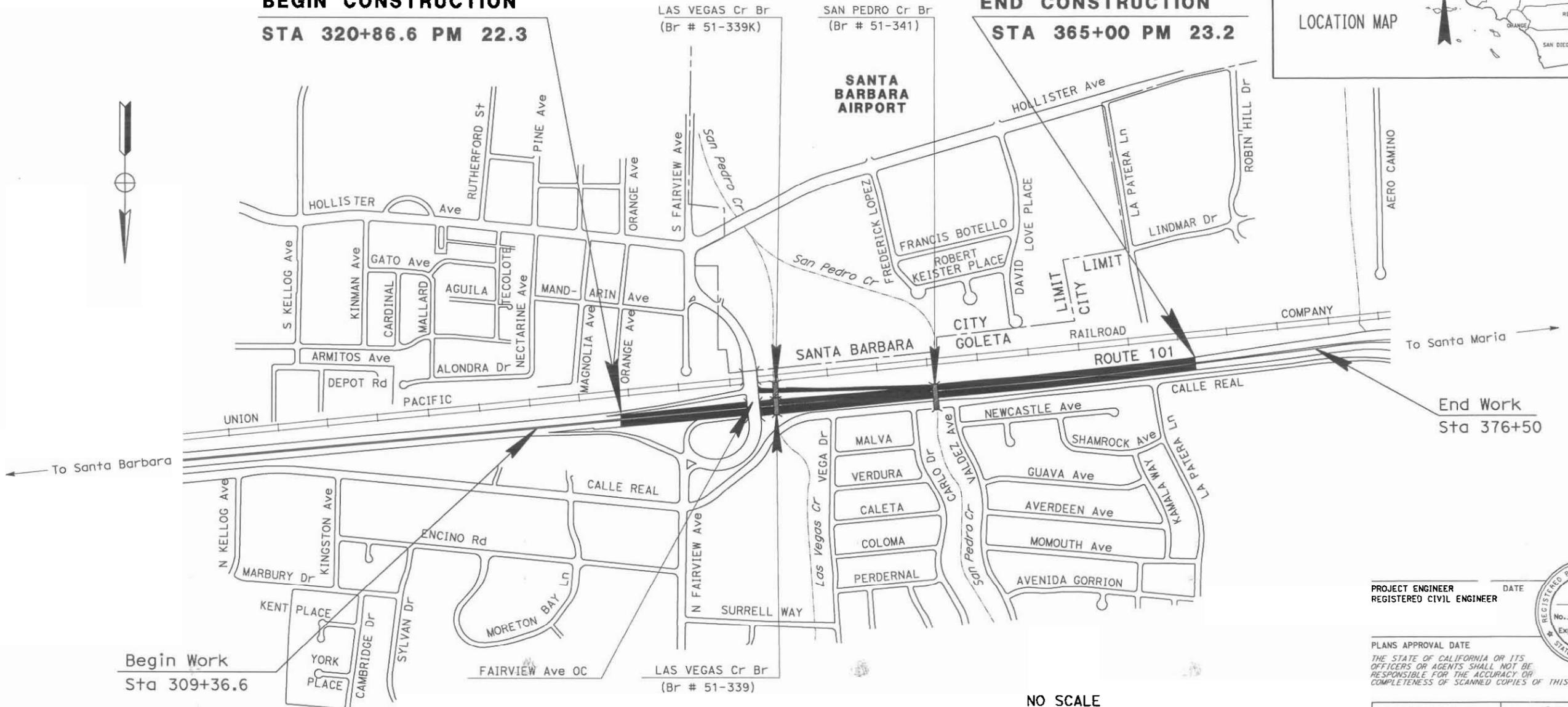
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	22.3/23.2	1	



BEGIN CONSTRUCTION
STA 320+86.6 PM 22.3

END CONSTRUCTION
STA 365+00 PM 23.2



PROJECT MANAGER
 STEVE DIGRAZIA
 DESIGN ENGINEER
 FOAD N. AL-HAMDANI

PROJECT ENGINEER _____ DATE _____
 REGISTERED CIVIL ENGINEER
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

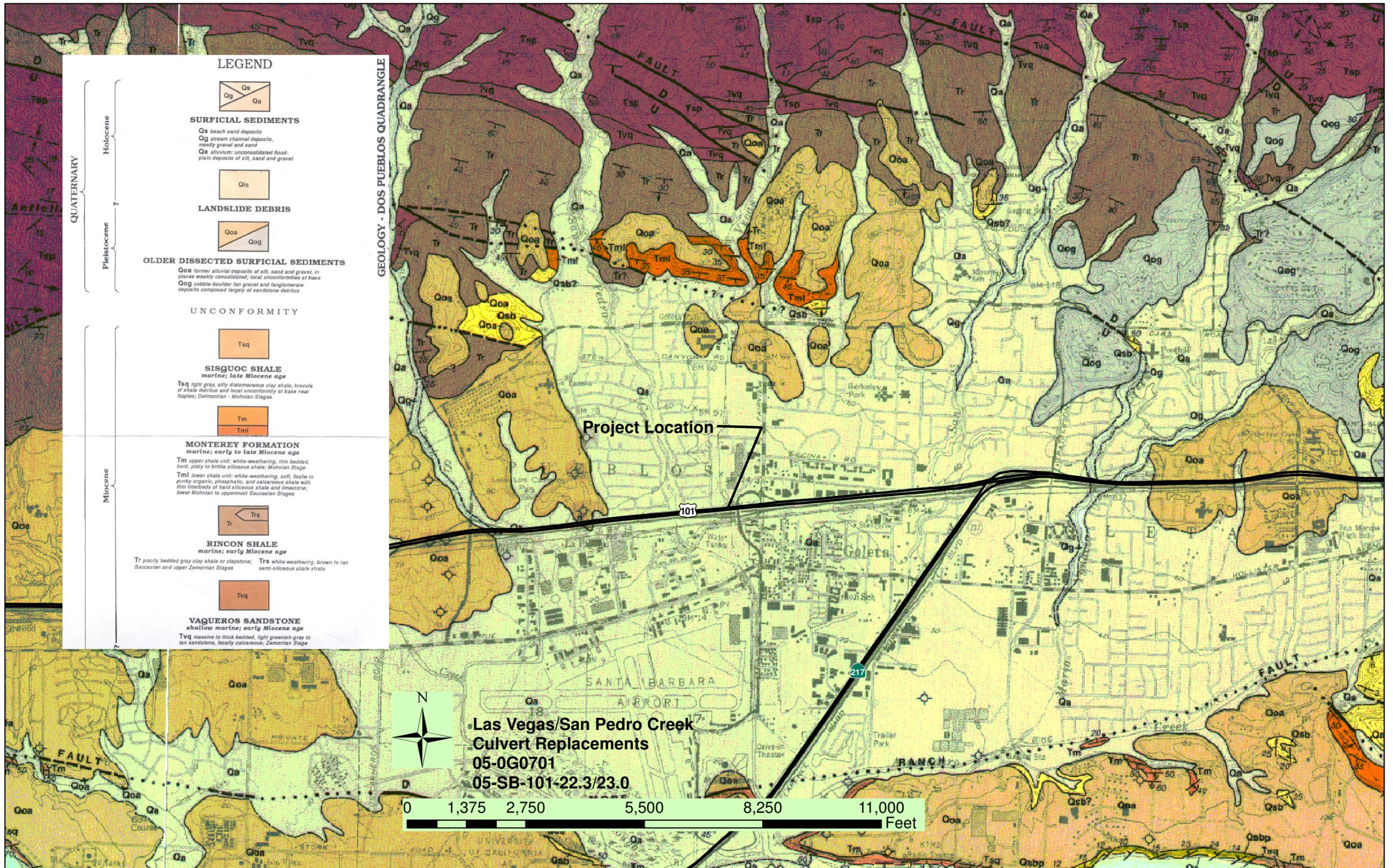


THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

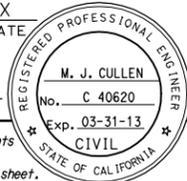
NO SCALE

CONTRACT No. **05-0G0704**
 PROJECT ID **0500000055**

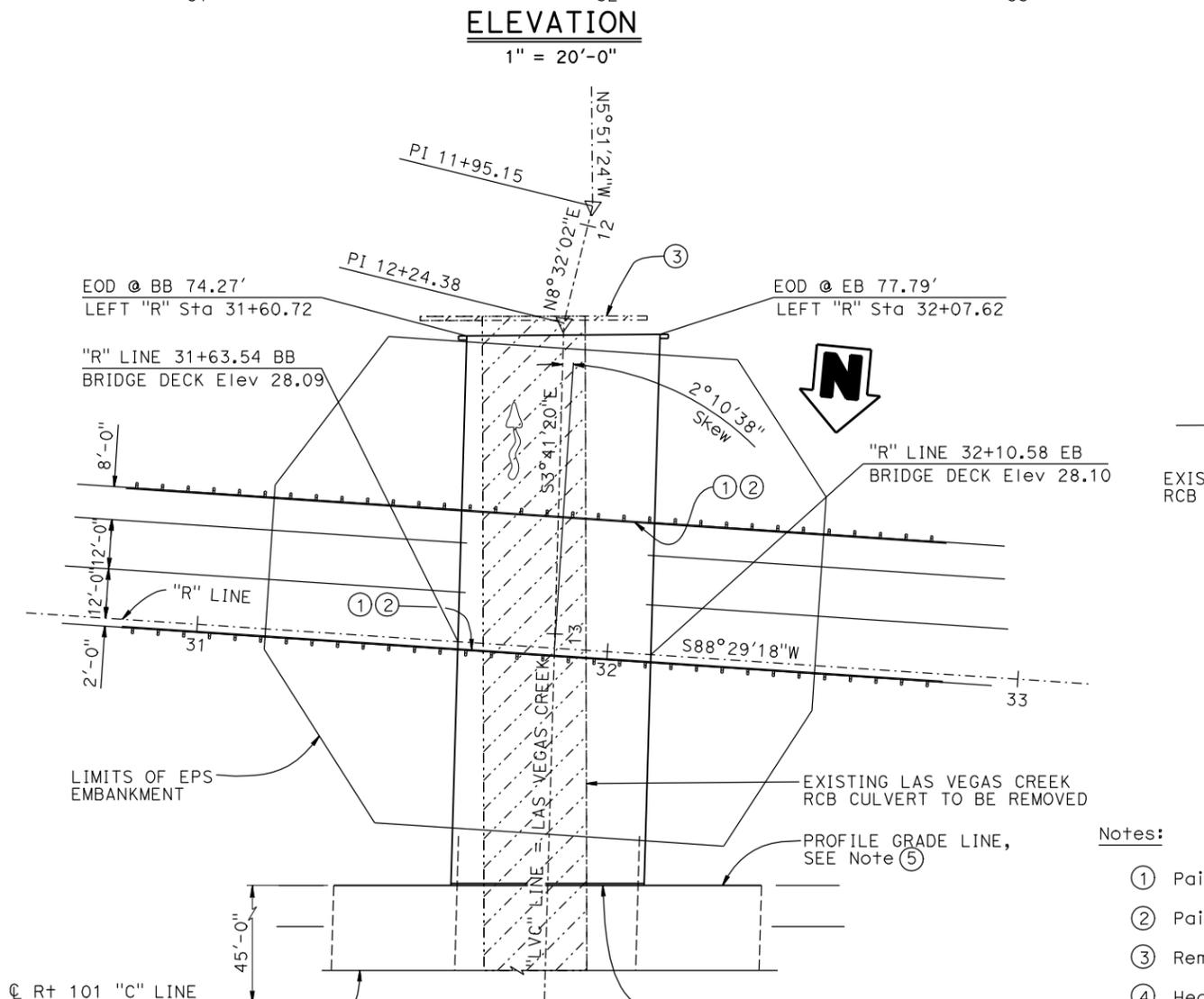
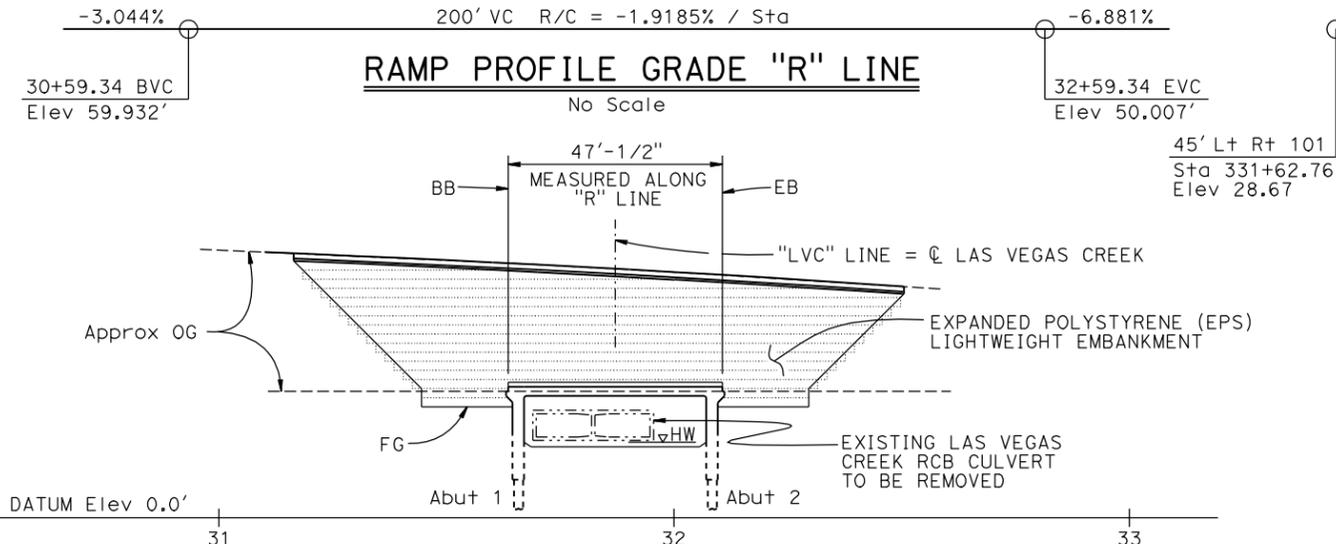
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 TIME PLOTTED => 14:56
 LAST REVISION 08-23-11



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101			

REGISTERED CIVIL ENGINEER	X	DATE
		
PLANS APPROVAL DATE		

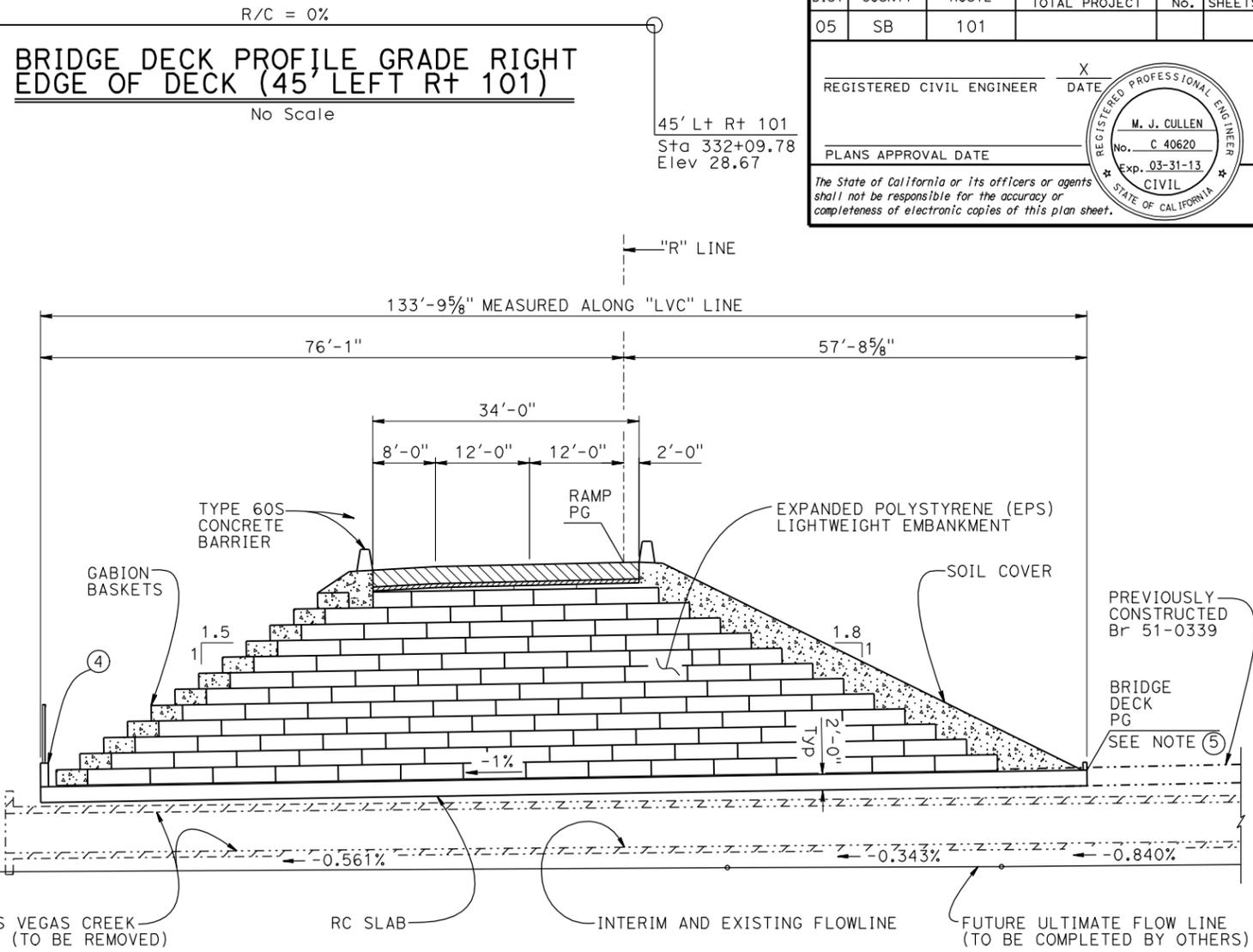
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PLAN
1" = 20'-0"

Br No 51-0339 LAS VEGAS CREEK BRIDGE, SEE "LAS VEGAS CREEK BRIDGE (REPLACE)" PLANS

1/2" EXPANSION JOINT IN SLAB ONLY 45' LEFT RT 101

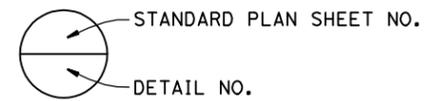


TYPICAL SECTION
1" = 10'-0"

- Notes:**
- Paint "LAS VEGAS OFF-RAMP BRIDGE"
 - Paint "Br. No. 51-0339K"
 - Remove Existing Headwall
 - Headwall and Chain Link Railing
 - Bridge Deck Profile Grade Line is 45 feet left of and parallel to C, "C" Line

Legend:

	Limits of structure removal
	Indicates existing structure
	Indicates new structure



X DESIGN ENGINEER	DESIGN	BY M. Cullen	CHECKED H. Perez	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 6	BRIDGE NO. 51-0339K	LAS VEGAS OFF-RAMP BRIDGE (REPLACE) GENERAL PLAN
	DETAILS	BY D. Pato / K. Chonkria	CHECKED M. Cullen	LAYOUT	CHECKED X			POST MILE 22.3-23.0	
	QUANTITIES	BY R. Washington	CHECKED G. Reyes-Gutierrez	SPECIFICATIONS	PLANS AND SPECS COMPARED X				

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: 3591
PROJECT NUMBER & PHASE: 0500000055 & 1 CONTRACT NO.: 0G0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
01-26-12	X	X
08-01-12		
08-15-12		

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

FILE => 51-0339k-a-gp01.dgn

USERNAME => s135425 DATE PLOTTED => 15-AUG-2012 TIME PLOTTED => 14:05

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
OG-DESIGN
 FUNCTIONAL SUPERVISOR
 FOND M AL-MANOHAR
 CALCULATED/DESIGNED BY
 MUSA ALMANOHAR
 CHECKED BY
 JONATHAN D GLEDHILL
 REVISED BY
 DATE REVISED

CURVE DATA

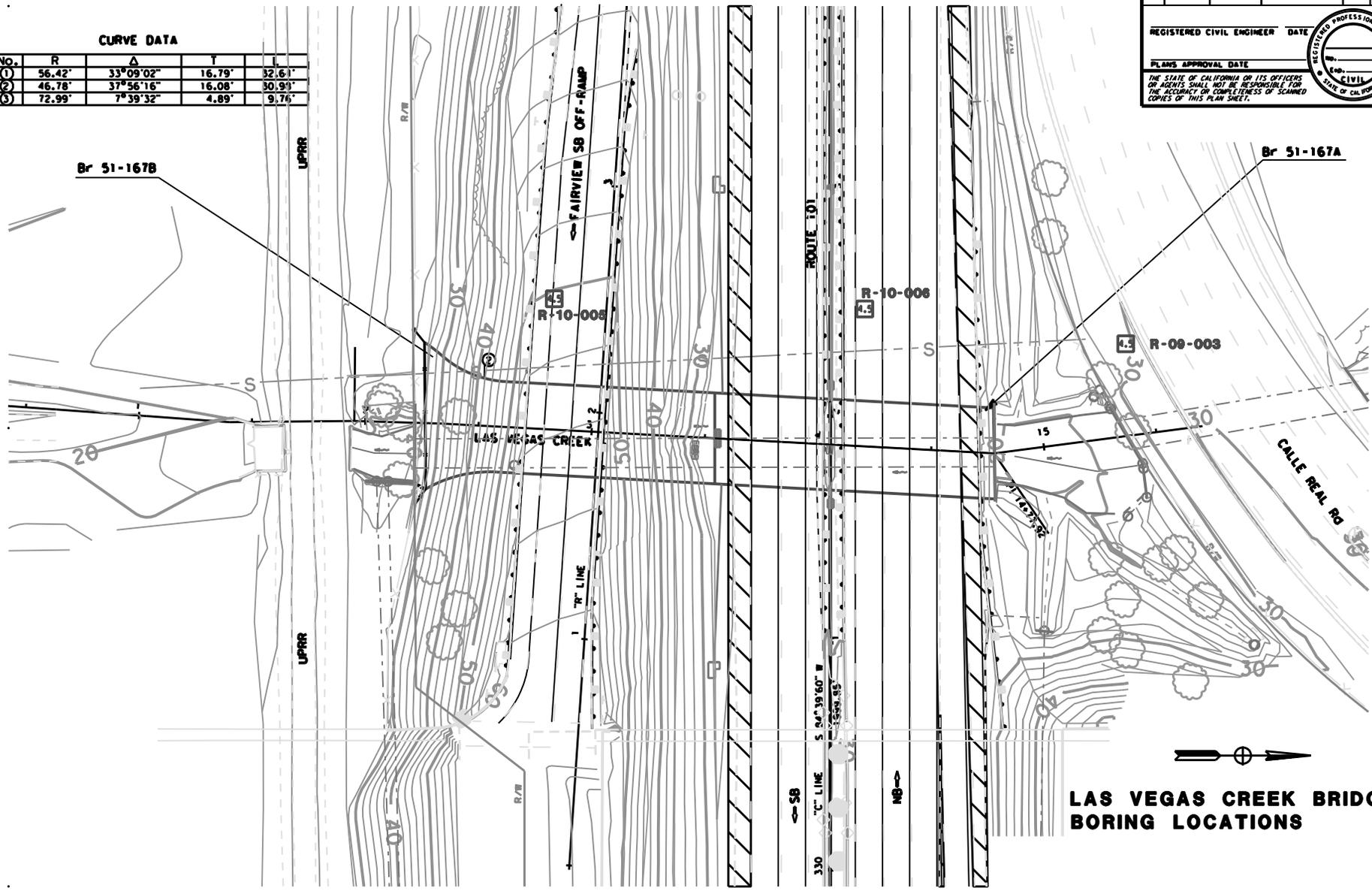
No.	R	Δ	T	L
①	56.42'	33°09'02"	16.79'	32.61'
②	46.78'	37°56'16"	16.08'	30.99'
③	72.99'	7°39'32"	4.89'	9.76'

DIS#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	22.3/23.0		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

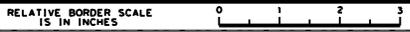
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LAS VEGAS CREEK BRIDGE BORING LOCATIONS



BORDER LAST REVISED 4/11/2008



USERNAME ** USER
 DGN FILE ** REQUEST

CU 06258

EA OG0701



ATTACHMENT 1

Table 3. General Foundation Information to be sent from SD to GS

Foundation Design Data Sheet								
Support No.	Design Method	Pile Type	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support
					B	L		
Abut 1	LRFD	24" x 55" Steel Pipe	16.2'	8.7'	4'-0"	13'-8"	1"	23
Bent 2	LRFD						1" or 2"	
Bent 3	LRFD						1" or 2"	
Abut 2	LRFD	24" x 55" Steel Pipe	16.2'	8.7'	4'-0"	13'-0"	1"	23

Based on CALTRANS' current practice, the total permissible settlement is one inch for multi-span structures with continuous spans or multi-column bents, one inch for single span structures with diaphragm abutments, and two inches for single span structures with seat abutments. Different permissible settlement under service loads may be allowed if a structural analysis verifies that required level of serviceability is met.

Las Vegas Creek Off-Ramp

#S1-339K

Updated 7-17-12



ATTACHMENT 1

Table 4. Design Loads to be sent from SD to GS

Foundation Design Loads											
Support No.	Service-I Limit State (kips)			Strength Limit State (Controlling Group, kips)			Extreme Event Limit State (Controlling Group, kips)				
	Total Load		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max. Per Pile		Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Abut 1	3703	161	3703	5083	221	0	0	3703	161	0	0
Bent 2											
Bent 3											
Abut 2	3703	161	3703	5083	221	0	0	3703	161	0	0

Las Vegas Creek Off-Ramp

#51 - 339K

Updated 7-17-12

INFORMATION HANDOUT

MATERIALS INFORMATION

[8.Revised Final Hydraulics Report for San Pedro and Las Vegas Creeks \(EA 05-0G0701\) dated December 7, 2011](#)

ROUTE: 05/SB/101/22.3/23.0

Memorandum

*Flex your power!
Be energy efficient!*

To: FRITZ HOFFMAN
Branch Chief
Structure Design North, Branch 6

Date: December 7, 2011

File: San Pedro Creek Bridge
Br. No. 51-0341
Las Vegas Creek Bridge
Br. No. 51-0339
Las Vegas Creek Off-Ramp
Br. No. 51-0339K
EA 05-0G0701

From: JOHN PHAM
Hydraulic Engineer
Structure Hydraulics and Hydrology
Structure Design Services
MS#9-HYD-1/2I

Subject: Revised Final Hydraulics Report for San Pedro and Las Vegas Creeks

The Revised Final Hydraulics Report for the above referenced project is attached for your records. If you have any questions, please call me at 916-227- 4757 or Steve NG - Branch Chief at 916-227-8018. Thank you.

Attachments

c: Richard Hunt - DM SM&I
Doug Brittsan - GS OGDN
Jimmie Pallares - DES P.I. North
Andrew Tan - DES Program Management
Steve Digrazia - District 5 Project Management
Foad Al-Hamdani - District 5 Project Design

REVISED STRUCTURES FINAL HYDRAULIC REPORT

LAS VEGAS CREEK
SAN PEDRO CREEK

Located on Route 101 in Santa Barbara County

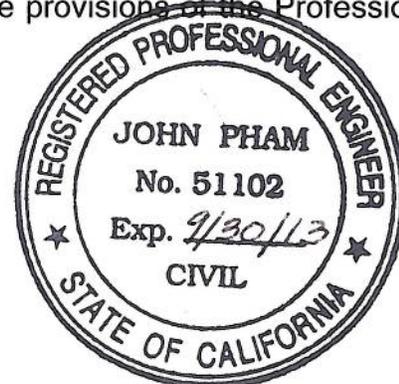
JOB: Las Vegas Creek Bridge (Br. No. 51-0339)
Las Vegas Creek Off-Ramp (Br. No. 51-0339K)
San Pedro Creek Bridge (Br. No. 51-0341)

LOCATION: 05-SB-101- P.M.22.3/23.2

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



REGISTERED CIVIL ENGINEER



REGISTRATION NUMBER C 51102

DATE: December 7, 2011

Hydrology & Hydraulics Report

General

This is the Revised Final Hydraulic Report for the proposed Las Vegas Creek Bridge, Las Vegas Creek Off-ramp and San Pedro Creek Bridge replacements. The new bridge numbers are 51-0339, 51-0339K and 51-0341, respectively. The project is located between PM 22.3 to PM 23.2 on State Route 101 in Santa Barbara County. The hydraulic data are based on the San Pedro and Las Vegas Creeks Final Hydrology and Hydraulic Analysis Report for Santa Barbara County Flood Control District, prepared by HDR Engineering, Inc and dated April, 2008. According to this hydraulics report the capacity of the channel has improved by widening at some locations as shown on the planning study with all new structures on State Route 101 including the railroad bridges at the downstream. The Santa Barbara County Flood Control and Water Conservation District had a master plan to improve the channel capacity for all the waterways in the district, including the San Pedro and Las Vegas Creeks. Caltrans District 5 Hydraulics Office and the Santa Barbara County Public Works have agreed that the 25-year flow rate will be used as the design discharges. The new structures must pass the Q-25 without causing the water to inundate State Route 101. Structure Hydraulics has studied two scenarios for San Pedro and Las Vegas Creeks. In the first approach, the proposed structures will be constructed and the channel profiles for both San Pedro and Las Vegas Creeks will be adjusted to the ultimate condition allowing conveyance of the Q-25 design discharge without overtopping State Route 101. Due to Santa Barbara County funding constraints, District 5 suggested an interim condition. In the interim condition, the proposed structures will be constructed with the addition of wing walls to restrict flow in the creek channels to replicate the existing hydraulic channel capacity. The existing channel profile and existing Union Pacific Railroad Bridges will remain in place downstream of the proposed structures

This hydraulics report should be revised when the master plan from Santa Barbara County developed. The limit of the study begins from upstream of Calle Real and ends at the downstream of the railroad bridges, and the evaluation is based upon the following:

- FEMA Flood Insurance Study for the County of Santa Barbara and FIRM panels 06083C -1354 F, revised date September 30, 2005
- Alternatives Analysis for San Pedro and Las Vegas Creeks in Goleta, Santa Barbara County prepared by Penfield & Smith, dated August 15,2001
- San Pedro and Las Vegas Creeks Capacity Improvement Project prepared by HDR Engineering, Inc. dated July, 2008

Las Vegas Creek Bridge
Br. No. 51-0339
Br. No. 51-0339K
San Pedro Creek Bridge
Br. No. 51-0341
Project No. 0500000055

- San Pedro and Las Vegas Creeks Final Hydrology and Hydraulic Analysis Report prepared by HDR Engineering, Inc. dated April, 2008
- Caltrans Bridge Maintenance Records.
- Bridge Plans provided from the Bridge Design Branch 6 , dated November 17, 2011
- Foundation Plans from Preliminary Investigate Section dated July 21, 2010.
- Proposed HEC-RAS from District 5, dated November 29, 2011

Notes:

1. All calculated vertical elevations (NAVD 88) in this report are based on the General Plans for the Las Vegas replacements from Design Section 6, dated September 2, 2010
2. Design Flood is based on the Final Hydrology and Hydraulic Analysis Report for the San Pedro and Las Vegas Creeks Capacity Improvement Project prepared by HDR Engineering, Inc. dated April, 2008
3. Channel profile is based on the current Proposed 25-yr HEC-RAS from Santa Barbara County Flood Control District , dated October 15, 2009 and Proposed Ultimate channel profile from District 5, dated November 29, 2011

Please verify datum references on the latest proposed bridge layouts and make elevation adjustments as required.

Las Vegas Creek Bridge
Br. No. 51-0339
Br. No. 51-0339K
San Pedro Creek Bridge
Br. No. 51-0341
Project No. 0500000055

Existing Las Vegas Creek Bridge (Br. No. 51-0167)

The Las Vegas Creek Bridge (Br. No. 51-0167) is located at PM 22.56 on State Route 101 in Santa Barbara County, was built in 1945, and widened in 1961. It is a double reinforced concrete box culvert with 12 feet width by 5 feet height and 100 feet length. The NBIS Item 113 code is 8, "Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles."

Proposed Las Vegas Creek Bridge (Br. No. 51-0339) and Proposed Las Vegas Creek Off-Ramp Bridge (Br. No. 51-0339K)

It is proposed to remove the existing double RC box culvert and replace it with a single span rigid frame slab bridge. The new structure has 44.0 feet length, and 241 feet total width and considered as two separate bridges: The Las Vegas Creek Bridge has a length of 121.0 feet and The Las Vegas Creek Off-Ramp Bridge begins at the end of the Las Vegas Creek Bridge and has 120.0 feet length.

Existing San Pedro Creek Bridge (Br. No. 51-0168)

The San Pedro Creek Bridge (Br. No. 51-0168) is located at PM 22.80 on State Route 101 in Santa Barbara County, was built in 1945, and widened in 1961. It is a double reinforced concrete box culvert with 16 feet width by 5 feet height and 160 feet length. The NBIS Item 113 code is 8, "Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles."

Proposed San Pedro Creek Bridge (Br. No. 51-0341)

It is proposed to remove the existing double RC box culvert and replace it with a single span rigid frame slab bridge". The dimension of the new structure is 44.0 ft length, and 196.5 ft width.

Basin

The San Pedro Creek and the Las Vegas Creek are located next to each other from the north of the City of Goleta, in the county of Santa Barbara, California. The basin watersheds are 3.82 square miles and 2.72 square miles respectively. The streams originate in the Santa Ynez Mountain and run southerly and merge together with several creeks as part of the Santa Barbara Stream Group which flow to the south through alluvial fans to the ocean. There are two different topographical areas in this area: mountains and relative flatlands. Mountain areas have rugged terrain with narrow valleys and the mean elevation is about 1100 feet. The flatlands are alluvial cones and formed with rock and sediments from the steep upstream areas. There are two distinct seasons in this region: warm summers and mild winters. The minimum annual temperature ranges from 53 ° F in January to the maximum of 68 ° F in July.

The rain season starts in December and ends in March. The mean annual precipitation ranges from 18 inches to 28 inches. However, annual amounts exceeding 45 inches have been recorded in the past.

Discharge

The discharges were obtained from the Final Hydrology and Hydraulic Analysis Report for the San Pedro and Las Vegas Creeks Capacity Improvement Project prepared by HDR Engineering, Inc. dated April, 2008. Caltrans District 5 Hydraulics Office and the Santa Barbara County Public Works have agreed that the 25-year flow rate will be used as the design discharges. The discharges are shown on TABLE 1

TABLE 1

Discharges (cubic feet per second)

Bridge Name	Design per SBFCD - Q25	100 -year
Las Vegas Creek	2,200	3,600
Las Vegas Creek Off-Ramp*	2,200**	3,600**
San Pedro Creek	2,000	3,500

* Las Vegas Creek Off-Ramp is the continuing or downstream of Las Vegas Creek Bridge

** At downstream of Las Vegas Creek Off-Ramp Bridge

Limitation of the hydraulic study

Santa Barbara Flood Control District has set an improvement plan for San Pedro and Las Vegas Creeks to increase the discharge and reduce the flooding in this area. The improvements include channel widening, a floodwall construction along San Pedro Creek to meet the 100-year flood requirements. The Union Pacific Rail Road (UPRR) also plans to improve their bridge capacities to relieve water pressure upstream and accommodate the discharge without flooding or back water effect to the structure or property adjacent to the creeks. Unfortunately, these improvements are not finalized at the time of this report; therefore, the limits of this study with the initial lay-out begins at upstream of CalTrans bridges and ends at the downstream of the UPRR bridges and this hydraulic report will need revision when Santa Barbara Flood Control District improvement plans are completed.

Waterway

The structure is required to provide a waterway area, which has sufficient capacity to pass the discharge plus adequate freeboard per section 821.3 CALTRANS Highway Design Manual. The minimum waterway required for 25-year and 100-year discharges is shown in TABLE 4.

TABLE 4

Upstream Minimum Water way (square feet)

Bridge Name	Design per SBFCD-Q25	100-year
Las Vegas Creek	301.00	363.00
Las Vegas Creek Off-Ramp*	301.00**	363.00**
San Pedro Creek	180.00	326.00

* Las Vegas Creek Off-Ramp is the continuing or downstream of Las Vegas Creek Bridge

**At downstream of Las Vegas Creek Off-Ramp Bridge.

Minimum Soffit Elevation

The minimum soffit elevation recommendations based on the discharges recommended in the Flood Capacity Master Plan by the Santa Barbara County are shown in TABLE 5.

TABLE 5

Minimum Soffit Elevation (feet)

Bridge Name	Design per SBFCD - Q25 (Includes 2 ft freeboard)	100-year
Las Vegas Creek	26.01	26.30
Las Vegas Creek Off-Ramp*	24.92**	24.47**
San Pedro Creek	28.02	31.59***

* Las Vegas Creek Off-Ramp is the continuing or downstream of Las Vegas Creek Bridge

**At downstream of Las Vegas Creek Off-Ramp Bridge.

*** The water surface elevation during 100-yr storm is about 31.59 ft, and the average upstream top of deck elevation is 31.10+/- . Therefore, the water may overtop the bridge deck

Include freeboard?

Scour and Channel Degradation

San Pedro and Las Vegas Creeks are manmade earthen channels with portions of concrete lining which do not show any signs of channel degradation/migration. The dirt banks need protection from erosion at some locations along the creeks; otherwise both creeks are in good condition. Due to lack of vertical channel stabilize data, long-term channel degradation cannot be determined and is not accounted for the calculations. The abutment total scour depths are estimated, and especially for San Pedro Creek, the foundation needs to be designed to accommodate the high entrance velocity that may cause the scour at the downstream abutments. The final supported elevation for all abutments foundation should be consulted with the Geotechnical Branch. The anticipated scour depths are shown on TABLE 6 below.

TABLE 6

Abutment scours depth (feet) / Scour elevation (feet)

Bridge Name	Design per SBFCD - Q25	100-year
Las Vegas Creek	11.93 / 5.17	15.65 / 1.45
Las Vegas Creek Off-Ramp*	N/A	N/A
San Pedro Creek	None -See Note	None -See Note

** Las Vegas Creek Off-Ramp is the continuing or downstream of Las Vegas Creek Bridge*

Note - The upstream is well protected with RSP; therefore Abutment scour is not an issue. However downstream also needs to be protected with RSP due to the high velocity discharges upstream.

Streambed

San Pedro Creek is a manmade channel mostly with dirt banks, and in some areas, there are partial concrete banks for slope protection. It has a width approximately 40 to 50 feet and five feet depth. The channel material is basically composed of loose silt and sand sediments. The channel is a concrete-lined trapezoid channel upstream from the Calle Real Road, The channel bed is relative flat and the floodplain is lightly vegetated with low-growing vegetation. Las Vegas is a narrow straight manmade channel with a width approximately 20 to 30 feet and five feet depth. The channel banks vary from native soils to riprap or concrete-lining. The channel bed is clear of vegetation and is composed of loose silt and sand sediments. More information for the channel bed composition can be found in the Log of Test Borings provided by the Foundation Investigation Branch, Division of Geotechnical Services on this project.

Drift

Both existing bridges are treated as box culverts and the maintenance issues are low, and there was not any problem caused by the drift or debris recorded in the bridge maintenance records. The degree of the potential debris at the bridges in the future is from low to moderate and should not cause any problem for the new proposed structures.

Bank Protection

Both channels are characterized with high flow velocity and bed materials mostly are loose sands which cannot resist the high water velocities during storm discharges. Considerable bank erosion may occur due to the soils composition at the upstream of the proposed structures. Structure Hydraulics recommends placing the RSP to match the district RSP lay-out.

Flood Plain Encroachment

The proposed San Pedro Creek Bridge and Las Vegas Creek Bridges are within designated Zone AE (Base flood elevations determined) at the elevations of 26.7 feet (NVD29) or 29.4 feet (NAVD88) and 28.2 feet (NVD29) or 30.9 feet (NAVD88) respectively shown on the FIRM of City of San Barbara, San Barbara County, California. Community Panel No. 06083C-1354 F dated September 30, 2005.

Recommendations from Structure Hydraulics

Santa Barbara County channel improvement plans will be used for the actual hydraulics study for the structure. District should inform Structure Hydraulics when Santa Barbara County has completed their final design so that Structure Hydraulics will update the Final Hydraulics Report.

Summary Information for the Bridge Designer

Notes:

1. All calculated vertical elevations (NAVD 88) in this report are based on the General Plans for the Las Vegas replacements from Design Section 6, dated November 17, 2011
2. Design Flood is based on the Final Hydrology and Hydraulic Analysis Report for the San Pedro and Las Vegas Creeks Capacity Improvement Project prepared by HDR Engineering, Inc. dated April, 2008
3. Channel profile is based on the current Proposed 25-yr HEC-RAS from Santa Barbara County Flood Control District , dated October 15, 2009
4. Proposed HEC-RAS from District 5, dated November 29,2011

Las Vegas Creek Bridge (Br. No. 51-0339)
Based on Q25-year

Minimum Soffit Elevation	26.01ft
Potential Scour Depth at Abutments (Q100)	15.65 ft
Potential Scour Elevation at Abutments (Q100)	1.45 ft
Required Waterway	260.00 ft ²
Average Velocity	8.57 ft/s

HYDROLOGIC SUMMARY			
Drainage Area: 2.72 square miles			
	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	Per SBCFC	100-yr	
Discharge	2,200 ft ³ /s	3,600 ft ³ /s	
Water Surface Elevation at Bridge	24.01ft	26.30 ft	
<p>Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.</p>			

Las Vegas Creek Bridge
 Br. No. 51-0339
 Br. No. 51-0339K
 San Pedro Creek Bridge
 Br. No. 51-0341
 Project No. 0500000055

Las Vegas Creek Bridge Off ramp (Br. No. 51-0339 K)
Based on Q25-year

Minimum Soffit Elevation at Downstream	24.92 ft
Potential Scour Depth at Abutments	N/A
Potential Scour Elevation at Abutments	N/A
Required Waterway	260.00 ft ²
Average Velocity	8.57 ft/s

HYDROLOGIC SUMMARY			
Drainage Area: 2.72 square miles			
	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	Per SBCFC	100-yr	
Discharge	2,200 ft ³ /s	3,600 ft ³ /s	
Water Surface Elevation at Bridge	24.01 ft	26.30 ft	
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			

Las Vegas Creek Bridge
 Br. No. 51-0339
 Br. No. 51-0339K
 San Pedro Creek Bridge
 Br. No. 51-0341
 Project No. 0500000055

San Pedro Creek Bridge (Br. No. 51-0341)
Based on Q25-year

Minimum Soffit Elevation	28.02 ft		
Potential Scour Depth at Abutments	0.00 ft		
Potential Scour Elevation at Abutments	N/A		
Required Waterway	180.00 ft ²		
Average Velocity	11.14 ft/s		
HYDROLOGIC SUMMARY			
Drainage Area: 3.82 square miles			
	Design Flood	Base Flood	Overtopping Flood/
Frequency	Per SBCFC	100-yr	
Discharge	2,000 ft ³ /s	3,500 ft ³ /s	
Water Surface Elevation at Bridge	26.02 ft	31.59 ft *	3500 cfs or greater
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			

* The water surface elevation during 100-yr storm is about 31.59 ft, and the average upstream top of deck elevation is 31.10+/- . Therefore; the water may overtop the bridge deck.

INFORMATION HANDOUT

MATERIALS INFORMATION

[9.Alternative Flared Terminal Systems](#)

ROUTE: 05/SB/101/22.3/23.0

TABLE A
POST OFFSET DIMENSIONS

Post No.	3'-0" System End Offset	3'-6" System End Offset
1	36"	42"
2	22 1/4"	27 3/4"
3	11 1/4"	16 1/4"
4	6 3/4"	10 5/8"
5	3"	6"
6	7/4"	2 3/4"
7	0"	7/4"
8	0"	0"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

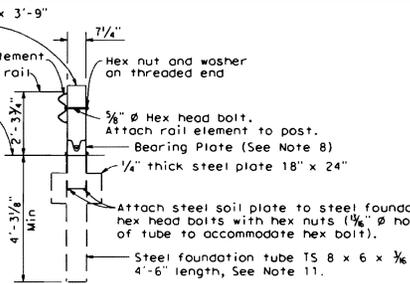
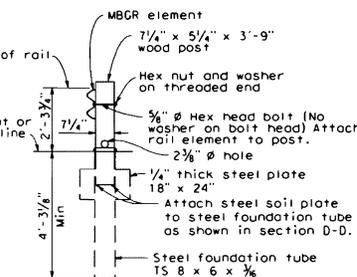
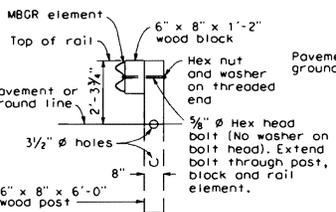
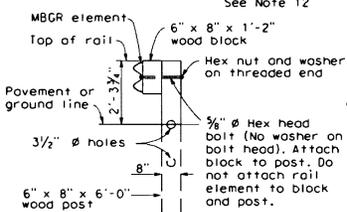
May 1, 2006
PLANS APPROVAL DATE

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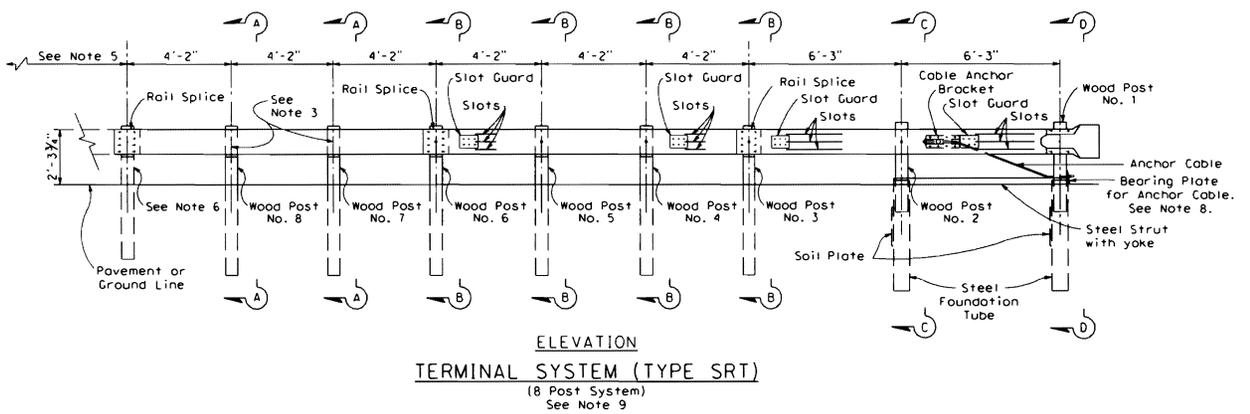
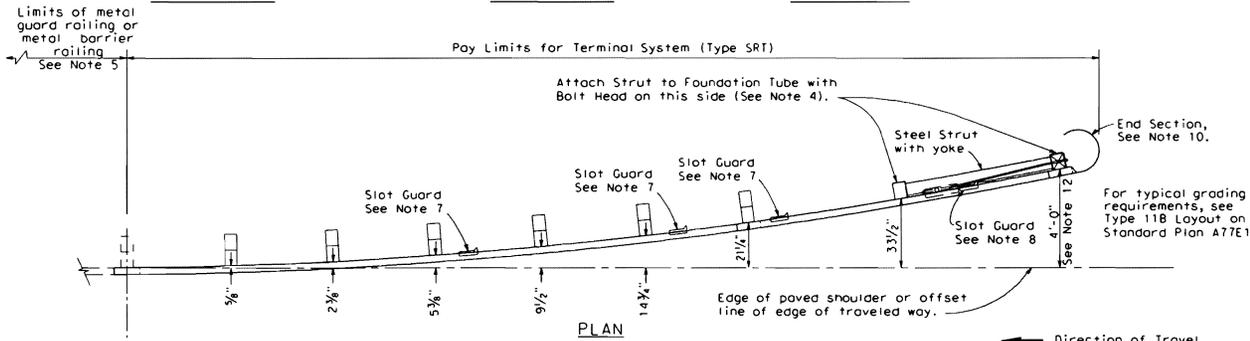
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No. C50200
Exp. 8-30-07
CIVIL
STATE OF CALIFORNIA



NOTES:

- For additional details of Terminal System (Type SRT), refer to the manufacturer's installation instructions.
- The post offset dimensions are given to the center of the traffic face of the block, except at the first two posts, where the dimension is to the center of the traffic face of the post. Offset points are to be located by chord measurements at the back of the rail equal to the nominal post spacings shown. Posts are to be set approximately radial to the railing at each post locations.
- Do not attach rail elements to posts 7 and 8.
- Attach strut to Post Nos. 1 and 2 foundation tubes with 5/8 inch diameter hex head bolts, washers and hex nuts. Bolts extend through the strut, steel foundation tube, and wood posts.
- For the length and type of metal beam guard railing or metal barrier railing the terminal system is attached to, see the Project Plans.
- Attach rail element to this post and block. Payment for this post, block and hardware is included in payment for the type of railing or barrier the terminal system is attached to, not part of payment for Terminal System (Type SRT).
- The deflector angle of the slot guard is to be positioned immediately downstream of the slots.
- For bearing plate orientation, refer to the manufacturer's installation instructions.
- For typical use of this terminal system with guard railing, see the A77E, A77F and A77G Series of Standard Plans. See Standard Plan A78E for typical use of this terminal system with single tribe beam barrier.
- A complete wrap around end section may continued to be used in existing installations. New installations shall be constructed with the 3/4 inch wrap end section shown.
- A 6'-0" length steel foundation tube, TS 8 x 6 x 3/8 without a soil plate, may be furnished and installed in place of the 4'-6" length steel foundation tube and soil plate shown. Minimum embedment of the 6'-0" length tube shall be 5'-9". A 3/2 inch diameter hex head bolt and nut shall be installed in the hole in 6'-0" length tube to keep the wood post from dropping into the tube.
- Where site conditions will not accommodate use of the standard 4'-0" system end offset, 3'-6" or 3'-0" system end offsets, as applicable, may be used. See Table A for post offset dimensions for 3'-6" and 3'-0" system end offsets.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM RAILING
TERMINAL SYSTEM
(TYPE SRT)**

NO SCALE

A77L1

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

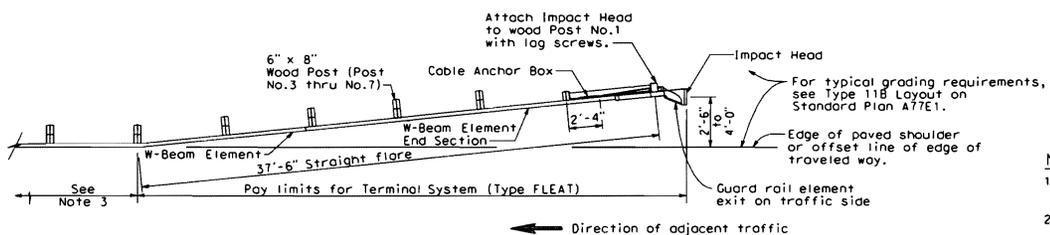
Randell D. Hiatt
 REGISTERED CIVIL ENGINEER

May 1, 2006
 PLANS APPROVAL DATE

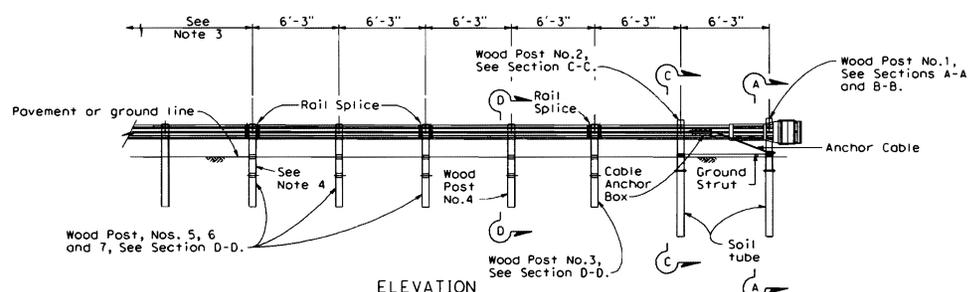
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PLAN

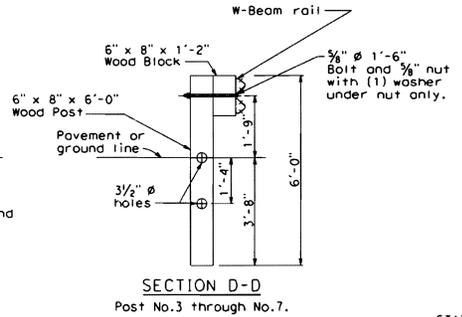
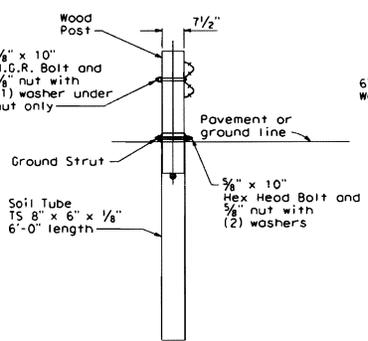
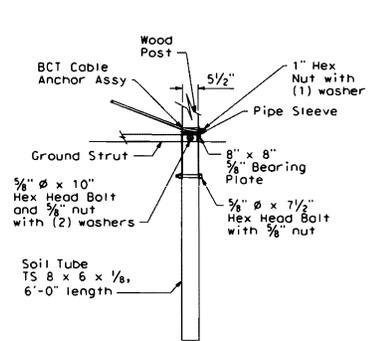
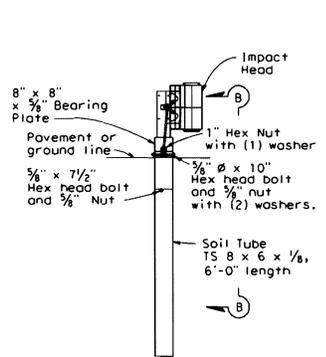


ELEVATION
TERMINAL SYSTEM (TYPE FLEAT)

NOTES:

- For additional details of Terminal System (Type FLEAT), refer to the manufacturer's installation instructions.
- Terminal System (Type FLEAT) not to be used where extrusion of the rail on the front side of the installation would be in the path of pedestrian traffic.
- For the length and type of metal beam guard railing or metal barrier railing the terminal system is attached to, see Project Plans. For typical use of this terminal system with guard railing, see the A77E, A77F and A77G Series of the Standard Plans.
- Attach rail element to this post and block. Payment for this post, block and attaching hardware is included in payment for Terminal System (Type FLEAT).

82



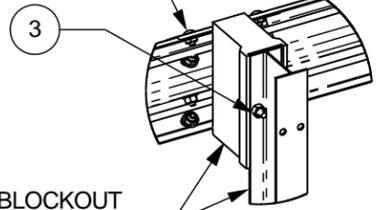
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**METAL BEAM RAILING
 TERMINAL SYSTEM
 (TYPE FLEAT)**

NO SCALE

A77L5

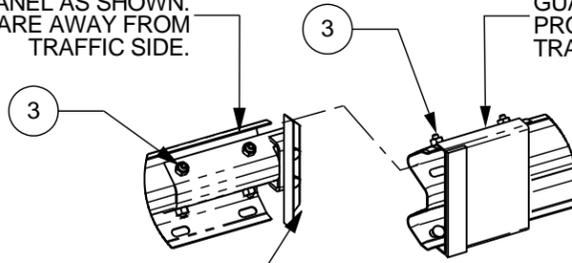
2006 STANDARD PLAN A77L5

8X SHEAR BOLTS
PART OF ITEM 2.



DETAIL 'C'

ATTACH SLIDER BRACKET P/O ITEM 1 TO
END OF GUARDRAIL PANEL AS SHOWN.
ENSURE THAT HEX NUTS ARE AWAY FROM
TRAFFIC SIDE.

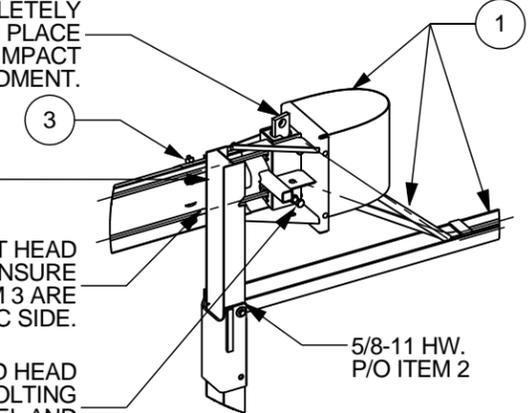


DETAIL 'B 1'

SLIDE GUARDRAIL PANEL P/O ITEM 1 OVER END OF
GUARD RAIL 1 SECURE IN PLACE USING HARDWARE
PROVIDED. ENSURE THAT HEX NUTS ARE ON
TRAFFIC SIDE.

REMOVED ANGLED BRACKET
WHEN SLIDING GUARDRAIL 1 WITH
SLIDER PANEL OVER GUARDRAIL 2.
REATTACH ANGLE BRACKET.

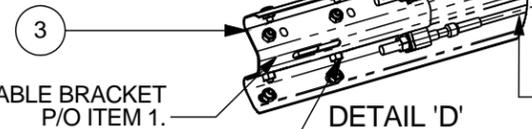
USING A PRY BAR TURN FRICTION PLATE P/O ITEM 1
COUNTER CLOCKWISE UNTIL IS COMPLETELY
AGAINST LOCKING MECHANISM, SECURE IN PLACE
USING 4X BOLTS P/O ITEM 2 ON SIDE OF IMPACT
HEAD WELDMENT.



DETAIL 'A 1'

POST & BLOCKOUT
P/O ITEM 4

TIGHTEN CABLE ASSEMBLIES UNTIL
THEY ARE NOT VISIBLY SAGGING
BETWEEN POSTS. (THERE IS NO TORQUE
REQUIREMENT FOR THE CABLES).



DETAIL 'D'

SLIDER PANEL ON TRAFFIC SIDE
SLIDER BRACKET ON INSIDE OF
GUARDRAIL PANEL.

USE GUARDRAIL HARDWARE PROVIDED
P/O ITEM 3 TO SECURE BLOCKOUT TO POST.
GUARDRAIL IS NOT BOLTED TO THE
BLOCKOUT OR POST.

NO BLOCKOUT AT POST 1.

WHEN MOUNTING IMPACT HEAD
WELDMENT TO GUARD RAIL ENSURE
THAT HEX NUTS P/O ITEM 3 ARE
ON TRAFFIC SIDE.

USE BLOCKOUTS TO HOLD HEAD
WELDMENT UP WHILE BOLTING
IT TO THE GUARDRAIL PANEL AND
POST 1.

5/8-11 HW.
P/O ITEM 2

CABLE BRACKET
P/O ITEM 1.

PASS 2X CABLE ASSEMBLIES
BETWEEN GUARDRAIL PANELS
AND BLOCKOUTS.

ENSURE THAT HEX
NUTS ARE ON INSIDE
OF GUARDRAIL PANEL.

SEE DETAIL 'C'

POST & BLOCKOUT
P/O ITEM 4.

DETAIL 'B 2'

SEE DETAIL 'A 1 & A 2'

SEE DETAIL 'B 1 & B 2'

PASS CABLE ASSEMBLY UNDER THE STEEL
STRAP ON THE GROUND STRUT AND FORWARD
THROUGH THE HOLES AT FRONT END OF
GROUND STRUT. THEN PASS CABLE ASSEMBLY
THROUGH LOWER HOLE IN IMPACT HEAD
WELDMENT AND THROUGH FRICTION PLATE AND
OUT THE BACK SIDE OF THE IMPACT HEAD.
(REPEAT FOR SECOND CABLE ASSEMBLY TO
PASS THROUGH UPPER HOLE IN IMPACT HEAD
WELDMENT).

SQUARE WASHER
ON THIS SIDE. ROUND
WASHER OTHER SIDE.
P/O ITEM 2

4X RIVET NYLON
TREE P/O ITEM 2.

DETAIL 'A 2'

REF. STRING LINE

SEE DETAIL 'D'

OFFSET POST 3 1/2" AWAY
FROM TRAFFIC TO MAKE IT
EASIER TO PUSH GUARDRAIL
WITH SLIDER PANEL OVER
GUARDRAIL 2.

1 1/2" OFFSET POST 2 AWAY FROM TRAFFIC
PER DIMENSION SHOWN.

8 1/2"

6X 28 11/16" [545]
21 7/16"

SEE DETAIL 'D'

43'-4"

4X 75" (=300")

75"

63 13/16"

4X M20X2.5 BOLTS
P/O ITEM 2.

DETAIL 'A 2'

3 1/8" MAX

REF. G.L.

BEGIN STANDARD HIGHWAY
W-BEAM GUARDRAIL.

POST 6

POST 5

POST 4

POST 3

POST 2

POST 1

SOIL ANCHOR

5X 43 1/2"

63 1/4"

68 1/8"

NOTES: UNLESS OTHERWISE SPECIFIED

- SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
- 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.
- 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.

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The information here on is proprietary to Barrier Systems Inc. shall not be disclosed, duplicated or used otherwise without the express written approval of Barrier Systems Inc.						DRAWN BY: 08/06/07 AEM			Angular ± 1/2°					
REV. CHANGES						DATE BY REQ'D NEXT ASSY. ITEM			Fractional ± 1/16"			SHEET DRAWING NUMBER REV		
									Dec. XXX= ± .010			1 OF 1 XTGTSS3 B		
									Dec. XX= ± .030					
									TITLE: X-TENSION GUARDRAIL TERMINAL SYSTEM STEEL POST WITH COMPOSITE BLOCKOUT					