City of Santa Barbara
California

PLANNING COMMISSION
STAFF REPORT

REPORT DATE: July 5, 2007

AGENDA DATE: July 12, 2007

PROJECT ADDRESS: 00 East Cabrillo Boulevard (MST2004-00878/CDP2007-00001)
Cabrillo Street Bridge over Mission Creek

TO: Planning Commission

FROM: Planning Division, (805) 564-5470
Jan Hubbell, AICP, Senior Planner
Michael Berman, Project Planner/Environmental Analyst

I. SUBJECT

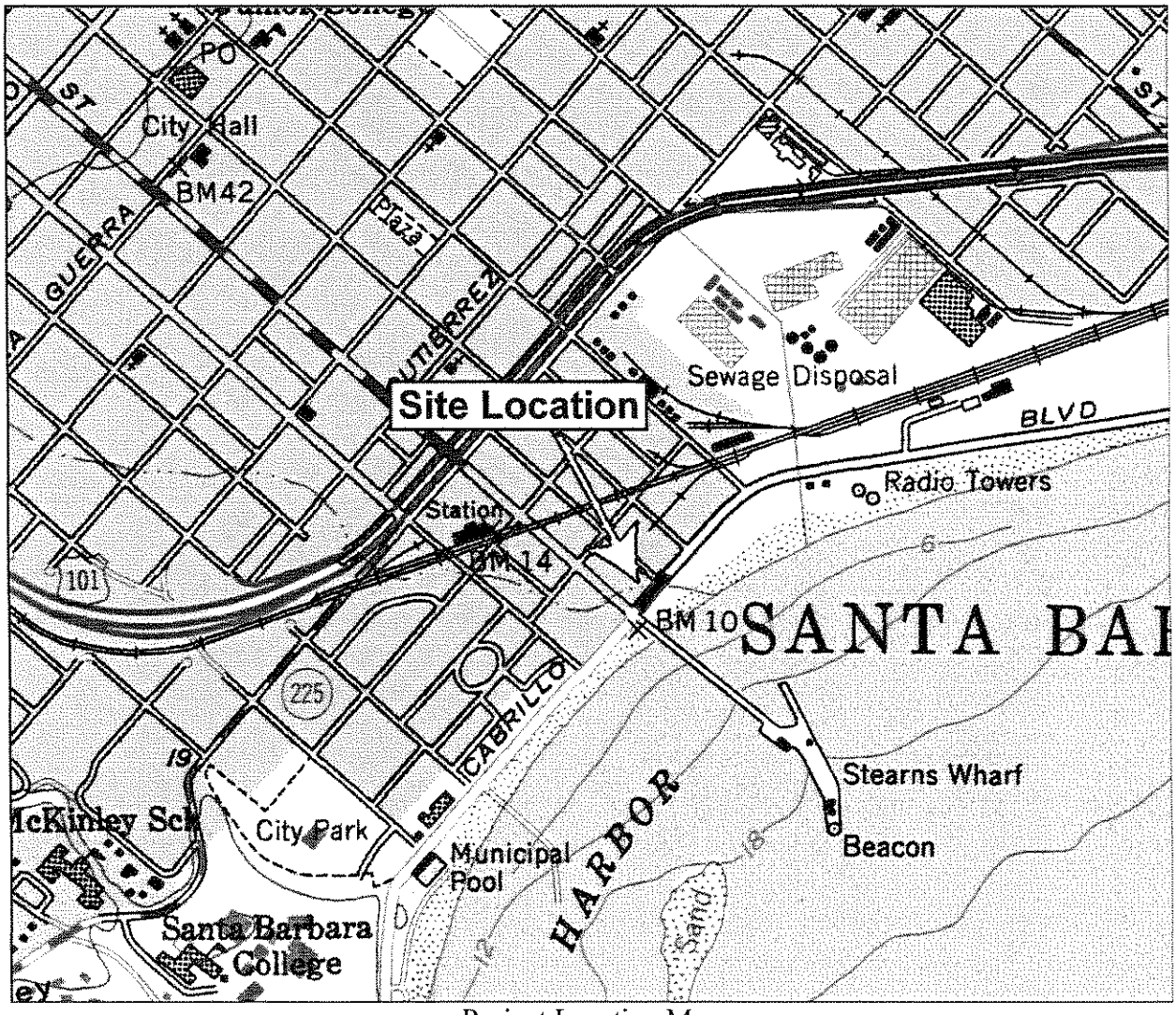
The project applicant seeks approval of a project to replace the existing deteriorated Cabrillo Bridge over Mission Creek and the deteriorated banks of Mission Creek between the Cabrillo Bridge and the State Street Bridge. Most of the project would occur in the public right-of-way for Cabrillo Boulevard but the upstream portion of the project would occur within an easement over Assessor Parcel #033-111-011 (zoned HRC-2/S-D-3) and remainder of the downstream erosion protection would be constructed in Assessors Parcel #033-120-015 (zoned P-R/S-D-3).

II. PROJECT DESCRIPTION

This project would replace the existing structurally deficient Cabrillo Boulevard Bridge over Mission Creek and improve the hydraulic conveyance of Mission Creek from State Street to the Pacific Ocean. The banks of Mission Creek from Cabrillo Boulevard to State Street would be rebuilt in compliance with the Lower Mission Creek Flood Control Feasibility Report, dated September 2000, and accompanying EIS/EIR by the Corps of Engineers and approved by the City on November 30, 2001 and by the California Coastal Commission, through the issuance of a Final Coastal Consistency determination on August 11, 2006.

III. REQUIRED APPLICATIONS

The discretionary application required for this project is a Coastal Development Permit (CDP2007-00001) to allow the proposed development in the Appealable Jurisdiction of the City's Coastal Zone (SBMC Chapter 28.44.), and a recommendation to the California Coastal Commission to approve a Coastal Development Permit for the portion of the project within the Commission's Original Jurisdiction.



Project Location Map

IV. RECOMMENDATION

Staff recommends that the Planning Commission make the findings outlined below, adopt the Final Mitigated Negative Declaration, approve the Coastal Development Permit, and recommend that the California Coastal Commission allow the project within their original jurisdiction, subject to the Conditions of Approval in Exhibit A.

V. ISSUES

A. ENVIRONMENTAL REVIEW

A Draft Mitigated Negative Declaration (MND) was prepared and released for public comment on February 26, 2007. The 30 day public comment period closed on March 28, 2007. Comments from the public were also solicited at a public hearing before the Planning Commission on March 15, 2007. Staff has summarized the comments and prepared responses to comments received. Revisions to the MND necessitated by the comments were made. The revised MND and the comments and responses attached to the MND as Exhibit F together constitute the Final Mitigated Negative Declaration (Final MND) required by CEQA. This public hearing provides an opportunity for the Planning Commission to review the adequacy of the environmental documentation submitted, review the proposed project, and take public comments on the proposed project.

B. DRAFT MITIGATED NEGATIVE DECLARATION COMMENTS AND RESPONSES

Comments on the MND were received from two public agencies, the Planning Commission, and from four members of the public. The comment letters are attached to the MND as Exhibit E. Detailed responses to all comments received are provided in the Responses to Comments document included as Exhibit F of the Final MND. Most notable comments and responses are summarized below.

The California Public Utilities Commission expressed concern that increased traffic during construction could result in vehicular traffic backing up over area railroad crossings, thereby creating a traffic hazard. The proposed construction Traffic Control Plan would provide information to the public on alternative transportation routes, monitoring of traffic, and when traffic builds up to the extent that railroad crossings are impacted, increased police presence would be ordered to ensure compliance with existing guarded railroad crossing safety procedures. The Traffic Control Plan would be reviewed and approved by the Transportation Manager to minimize traffic impacts during construction of the project.

The California Coastal Commission (CCC) comments focused on consistency with the Local Coastal Plan and CCC regulations, consistency with the Tidewater Goby Management Plan and the adequacy of proposed Western Snowy Plover mitigation. The project would result in temporary dewatering of approximately 30% of the Mission Creek estuary upstream of Cabrillo Boulevard. This is consistent with the Tidewater Goby Management Plan that requires that no more that 50% of the estuary in this area be dewatered at any one time. Also, the creek bank restoration above Cabrillo Bridge, proposed as a part of the project, is consistent with the approved Lower Mission Creek Flood Control Project (LMCFCP) because it proposes construction that was approved in that plan.

The project is consistent with the Tidewater Goby Management Plan (TGMP) because an average of approximately 10 feet of riparian vegetation is proposed on the creek bank in these areas and a vertical wall is proposed. Consistency of this portion of the project with the CCC regulations and LCP was also discussed in the LMCFCP EIS/EIR. Public Works Staff has committed to maximizing the amount of riparian vegetation in this area by reducing the height of the vertical wall as much as possible, allowing more room for sloping vegetated creek bank above the wall. Although the TGMP indicates the Laguna Channel lagoon and the Mission Creek lagoon should be separate during construction in

the Mission Creek Lagoon, the project would not separate the two lagoons, during construction if they are already merged because the project construction is proposed only on the northern edge of the lagoon and the separation of the two lagoons would cause impacts. Also, because the project impacts on the Tidewater Goby have been mitigated to less than significant levels, the separation of the two lagoons for this project would not be necessary to further reduce impacts on this species.

Downstream improvements and bridge replacement are also consistent with the LCP and TGMP. From a biological and visual perspective the proposed improvements are an improvement over the existing sackrete walls. The project has been modified to reduce the length of the eastern wall and the height of both downstream boulder walls. Use of vegetation and coconut fiber is included to minimize erosion above the boulder walls.

Additional comments focused on the need to look at alternative upstream creek bank improvements that restore the creek providing more area for riparian vegetation and sloping creek banks (eliminating the vertical wall), developing alternative downstream creek bank erosion protection that does not use exposed boulders, and minimizes the amount of erosion protection downstream of the bridge. Public Works Staff worked with their consultant to minimize the height of the vertical bank improvements on the north side of the bridge. This would allow for a wider area for riparian plantings on the east side creek bank. On the west side there is very little room and the opportunity for additional riparian plantings is therefore limited. The vertical wall was previously approved as part of the Lower Mission Creek Flood Control project that found other creek bank restoration methods to be infeasible due to the costs associated with additional land acquisition. Wing wall construction on the south side of the bridge was also reevaluated by Public Works. The height of the boulder wall on both sides of Mission Creek was reduced to the minimum necessary to provide the required erosion protection. On the east side the length of the boulder wall was reduced to the minimum length necessary to provide erosion protection. The boulders would be covered in sand as much as possible and riparian plantings would be provided above the boulder walls to provide habitat and additional erosion protection.

Public comments expressed concern about the impacts the project would have on the Arts and Crafts show, a potential for decrease in customers, loss of stalls and parking along Cabrillo Boulevard during construction and potential impacts to the income of artists and artisans.

Comments also requested a discussion of alternative bridge construction techniques to further minimize the length of the construction period and to investigate the potential for straightening the creek east of State Street. While it may be possible to further shorten the bridge construction period by closing the bridge, this approach would cause substantial traffic to be rerouted on narrow streets. This approach could result in a longer closure of the bridge than the proposed project if any difficulties resulting in construction delays are encountered and this would further lengthen the period of time that traffic that would have used the bridge is routed onto area streets. Therefore this alternative would not reduce project impacts and would increase traffic on surrounding streets.

Public Works Staff investigated the feasibility of straightening the creek. This alternative may slightly increase the hydraulic capacity of the bridge, after construction. The investigation indicated that, during construction, that this alternative would impair hydraulic conveyance during flood flows

because Mission Creek would be blocked by both the new piles for the new bridge and the old piles for part of the old bridge. This blockage would substantially increase the flood hazard during construction. Construction staging for the project, including the construction of the roadway approaches, would be more difficult. The pedestrian "overlook area", proposed for the North East Corner of Cabrillo Blvd at State Street would be difficult to accommodate as part of the project. Construction cost for the realigned Mission Creek concept would be at least 25% higher than the proposed project. Construction duration would be longer than the original alternative because of increased complexity. Since the project would cost 25% more than the proposed project, an increase of approximately $4,500,000, it is not considered to be a feasible alternative.

Due to proposed comments one revision was required in the MND. Mitigation Measure BIO-18 was revised to require a survey for Western Snowy Plover within 500 feet of project construction instead of the original 100 meter radius.

C. General Plan and Local Coastal Plan Consistency

The Final MND includes a discussion of project consistency with applicable plans and policies. In addition, the Lower Mission Creek Flood Control Feasibility Report EIR/EIS includes a discussion of project policy consistency, for the portion of the project north of Cabrillo Bridge and east of State Street that consists of creek bank reconstruction.

Cultural and Historic Resources. The proposed bridge replacement would remove an existing bridge that has been determined to be eligible for listing in the National Register and is a contributing element of the East Cabrillo Boulevard Parkway Historic District. The bridge would be removed because it has deteriorated structural integrity and insufficient hydrological capacity. Bridge replacement is therefore necessary. The impact of bridge removal would be mitigated by using the historic design elements in the new bridge and by documenting the existing bridge for archival purposes as required by the Historic Landmarks Commission. Therefore, the project is consistent with polices that General Plan polices that seek to preserve historic resources, where feasible.

The project area was surveyed and research was conducted to identify archaeological resources in the project area and no archaeological resources were identified in the project area. Therefore, the project is consistent with City goals and policies related to protection or preservation of archaeological resources.

Visual Resources. The proposed project would improve the visual appearance of the bridge itself and of the surrounding creek banks as they would be revegetated using more appropriate riparian plant species. Some of the creek bank protection has deteriorated and would also be replaced with Historical Landmarks Commission approved hardscape/landscape materials. This would ensure a good appearance for creek landscaping. Therefore the project would be consistent with General Plan policies that require the restoration, maintenance, and enhancement of visual resources

Air Quality. The proposed project would not have substantial air emissions associated with operations. During construction, emissions would result from construction equipment and exposed spoils.

Estimates of these pollutant emissions indicate that the project would not exceed pollutant loads for the air basin estimated by the air district. Therefore, the proposed project would be consistent with applicable air quality goals and policies that require the project to be consistent with Federal and State air quality standards.

Biological Resources. The proposed project would result in construction related biological impacts that can be reduced to less than significant levels with required mitigation. The project would also result in restoration of parts of Mission Creek banks. The project would enhance biological resources in the long term by restoring creek banks and providing fish refuges in the creek banks and would therefore be consistent with applicable biological goals and policies that preserve and enhance the City's ecological resources.

Drainage and Flood Control. Drainage and flood control policy requires the City to ensure that human habitation does not adversely affect public health safety and welfare. The proposed project would increase the hydrological capacity of the creek under the bridge to allow for at least the passage from a 20 year runoff event. This would help reduce upstream flooding during major storms and be consistent with the Lower Mission Flood Control Project planned capacity of Mission Creek. Proposed improvements would reduce flood hazard and ensure the bridge is safe for project loads that would accommodate public safety traffic including emergency vehicles. Therefore, the project would be consistent with the City's drainage and flood control goals.

Circulation Element. Circulation Element policy requires the City to provide a major street system that would be adequate to serve the City population needs. The project would replace a bridge that has begun to lose its structural integrity and would ensure that the roadway would be open to traffic. Therefore, the project is consistent with the circulation goals of the General Plan.

Scenic Highways Element. The Scenic Highways Element requires the City to protect and enhance the natural scenic resources of the highway corridor and to improve Mission Creek at Cabrillo Boulevard. The proposed project would replace a bridge, stream banks and sackcrete wing walls that have a dilapidated appearance and provides new creek bank plantings and erosion controls, improving the appearance of the area of Mission Creek at Cabrillo Boulevard. Therefore, the project is consistent with the goals of the Scenic Highways Element of the General Plan.

Noise Element. The Noise Element requires the City to be free of excessive noise, provide information on the noise environment for land use planning, and protect the public from noise levels that could be hazardous to hearing. Operational noise after the project would be similar to preconstruction noise levels since the existing bridge would be replaced with a similar bridge. Construction noise would be temporary and intermittent and measures are proposed in the noise section of the Initial Study to minimize the project construction noise impacts. Therefore, the project is consistent with applicable goals and policies of the Noise Element.

Local Coastal Plan

As discussed in the MND page 16 and Exhibit F, Comments and Responses, the project is consistent with the Local Coastal Plan (LCP) and all Coastal Commission regulations.

Policies and Regulations were added to Exhibit B attached to the Initial Study to ensure that all relevant policies and Coastal Commission regulations are identified and discussed. The only previously unidentified policy was Policy 6.10 that requires a setback for native vegetation. The project is consistent with Policy 6.10 because the project includes an average 10 foot wide buffer of native riparian plantings adjacent to the creek channel, to the extent that this is feasible in an urban setting. This provision of riparian vegetation on the creek banks is consistent with the Tidewater Goby Management Plan requirement for vegetation above the creek bank as well. All Coastal Act sections are reflected in the Local Coastal Plan polices, for which consistency is discussed in the Initial Study (page 16) when augmented with the discussion of Policy 6.10 that is provided in the response to comments (Exhibit F attached to the MND).

It may be necessary to temporarily relocate some of the art show booths to allow for construction of the new bridge. Local Coastal Plan (LCP) Policy 3.8 anticipated the possible need to relocate the Arts and Crafts Show permanently to Chase Palm Park. Temporary relocation of some artists and artisans during construction would therefore appear to be consistent with the Local Coastal Plan (LCP) Policy 3.8.

LCP Policy 6.3 does not allow armoring of coastal facilities unless they are necessary to protect existing principal structures and there are no less damaging alternatives. The proposed project includes hydraulic and soils studies that have indicated the type and location of erosion controls that would be constructed. The erosion controls would replace existing facilities and would be necessary to protect the bridge foundation and surrounding area from erosion during high flows in the creek and from extreme high tides. Downstream bank alternatives considered soil versus rock armoring. Rock armoring allows for steeper slope on the westerly bank which avoids the potential removal of park space. Alternatives have been considered (See Alternatives section in the Comments and Responses attached to the Initial Study as Exhibit F) and the proposed project would result in less environmental impacts than other feasible alternatives.

LCP Policy 6.4 requires that seawalls, revetments and bulkheads, shall minimize, to the degree possible, alterations of the natural landform. The proposed structure would minimize the alteration of natural landforms, making it consistent with this policy.

LCP Policy 6.5 indicates that structures are not allowed to encroach upon any beach area to a degree which impedes lateral access along the beach. The project would not permanently impede lateral access more than existing facilities that it replaces. While access along the coast may be reduced during construction the project includes a temporary multi purpose bridge (closer to the ocean than the project) and with similar capacity to existing multipurpose facilities. Also, the project would maintain one vehicular lane open in each direction during construction and would include a detour and public education efforts to ensure the temporary disruption of access is minimized and access along the coast is available during construction. Therefore, the project is consistent with this LCP policy.

Policy 6.6 requires structures on the beach to be designed to eliminate or mitigate to the maximum extent adverse impacts on local shoreline sand supply. The project would have little impact on shoreline sand supply. Therefore, the project is consistent with this LCP policy.

Policy 6.7 requires the avoidance of future protective devices on the beach that could impact sand movement and supply, except facilities necessary for public health and safety. The project would have little impact on shoreline sand movement and supply and the bridge would replace an existing bridge on the creek that is necessary to protect public health and safety, and allow safe emergency vehicle access. Therefore, the project is consistent with this LCP policy.

Policy 6.8 requires that riparian resources, biological productivity, and water quality of the City's coastal zone creeks be maintained, preserved, enhanced, and, where feasible, restored. The project would restore the creek banks and protect water quality and biological resources during construction as discussed in the biological and water quality sections of this Initial Study. After project construction the project would improve biological productivity by providing a slightly larger lagoon and restored banks with fish baffles and riparian vegetation. Policy 6.9 requires the City to comply with Regional Water Quality Control Board best management practices for Santa Barbara's watersheds and urban areas. The project includes detailed requirements to maintain water quality during construction and after construction water quality would be improved due to reduction in erosion on restored creek banks. Therefore, the proposed project would be consistent with Policies 6.8 and 6.9.

Policy 6.10 requires the City to require a setback buffer for native vegetation between the top of the bank and any proposed project. This setback will vary depending upon the conditions of the site and the environmental impact of the proposed project. The project includes an average 10 foot wide riparian buffer on the top of creek banks. The riparian area configuration varies due to site constraints. Therefore, the project is consistent with Policy 6.10.

Policy 6.11 requires alterations of rivers and streams to incorporate best management practices. Policy 6.11-A encourages new highway bridges to be designed to provide clear spans of the stream or creek and to avoid the use of pilings within the stream or creek corridor. Culverting of the creek channel shall not be permitted. The proposed project replaces a bridge with several sets of non-aligned pilings in the creek with one set of pilings aligned to permit maximum hydrologic capacity. Spanning the creek with a low profile bridge would not be possible and therefore a row of pilings in the creek is necessary. Since the number of pilings would be reduced, when compared to the existing condition and the City has looked into and found it to be infeasible to install a low profile bridge without having a single row of piles to support the span, the project is consistent with Policy 6.11-A.

Policy 6.11-B requires new highway structures be designed to protect stream and creek environments from non-point pollutants (such as oil and rubber residues from the road surface) and from accidental spills of toxic materials. The proposed bridge would be designed to divert all flows through percolation basins on the beach during construction before they are allowed to enter the estuary. After construction, flows from the roadway would be diverted to storm drain inlets where the storm runoff

could be treated before it is allowed to drain into the creek or ocean. Therefore, the project is consistent with Policy 6.11-B.

Policy 6.11-C: When highway bridges or other structures are replaced or renovated in the vicinity of streams or creeks, a emergency response and cleanup plan shall be prepared by the applicant to address accidental releases of toxic materials. During construction, there will be an emergency response plan in effect and materials onsite ready to clean up and remove any spills of toxic materials as required my mitigation measures in the Water Quality section of the MND. Therefore, the project is consistent with Policy 6.11-C.

Policy 9.1 requires that views to from and along the coast be protected preserved and enhanced. The project would replace an existing bridge with a similar bridge and would therefore not block any views not currently blocked. The project would also improve views of the area by removing deteriorated bridge, bank protection, and installing riparian vegetation above erosion protection. Therefore, the project is consistent with Policy 9.1.

Policy 9.17 requires that material, colors, and textures in new highway structures be appropriate to the region, encourages use of wooden barriers where feasible and minimization of metal guard rails. The proposed design including (materials and colors) of the bridge have been reviewed by the Historic Landmarks Commission to ensure that the bridge materials are appropriate for the area. Therefore, the project is consistent with Policy 9.17.

A. NEGATIVE DECLARATION FINDINGS

1. The Planning Commission has read and considered the Final Mitigated Negative Declaration together with comments received during the public review process. In this agency's independent judgment and analysis and on the basis of the record before the Commission, there is no substantial evidence that the project will have a significant effect on the environment.

2. Pursuant to Section §15074 of the California Environmental Quality Act Guidelines, the Planning Commission adopts the Final Mitigated Negative Declaration MST2004-00878.

3. The Planning Commission approves the Mitigation Monitoring and Reporting Program, which will monitor compliance with the mitigation measures agreed to by the applicant and conditions imposed on the project in order to mitigate or avoid significant effects on the environment.

4. The custodian of the environmental documents and record of the proceedings upon which this decision is based is the Environmental Analyst for the City of Santa Barbara Planning Division located at 630 Garden Street, Santa Barbara.

5. An Initial Study has been conducted by the lead agency, which has evaluated the potential for the proposed project to result in adverse effect, either individually

or cumulatively, on wildlife resources. For this purpose, wildlife is defined as "all wild animals, bird, plants, fish, amphibians, and related ecological communities, including the habitat upon which the wildlife depends for its continued viability." The proposed project has the potential for adverse effect on wildlife resources and their habitat. Mitigation measures have been applied such that impacts will be less than significant. The project is therefore subject to payment of the California Department of Fish and Game environmental review fee.

B. FINDINGS FOR THE COASTAL DEVELOPMENT PERMIT

1. The project is consistent with the policies of the California Coastal Act.
2. The project is consistent with all applicable policies of the City's Coastal Plan, all applicable implementing guidelines, and all applicable provisions of the Code.
3. The project is consistent with Chapter 3 (commencing with Section 30200) of the Coastal Act (Visitor Serving, Access and Recreation).

Exhibits:

A. Conditions of approval
B. Letter from the Applicant, dated June 29, 2007
C. Proposed Final MND (with attachments including MMRP as Exhibit C)

PLANNING COMMISSION CONDITIONS OF APPROVAL

00 BLOCK OF CABRILLO BOULEVARD
COASTAL DEVELOPMENT PERMIT
JULY 12, 2007

In consideration of the project approval granted by the Planning Commission and for the benefit of the owner(s) and occupant(s) of the Real Property, the owners and occupants of adjacent real property and the public generally, the following terms and conditions are imposed on the use, possession, and enjoyment of the Real Property:

A. **Project Description:** The development of the Real Property approved by the Planning Commission on July 12, 2007 is limited to the improvements shown on the plans signed by the chairman of the Planning Commission on said date and on file at the City of Santa Barbara. This project would replace the existing structurally deficient Cabrillo Boulevard Bridge over Mission Creek and improve the hydraulic conveyance of Mission Creek from State Street to the Pacific Ocean. The banks of Mission Creek from Cabrillo Boulevard to State Street would be rebuilt in compliance with the Lower Mission Creek Flood Control Feasibility Report, dated September 2000, and accompanying EIS/EIR by the Corps of Engineers and approved by the City on November 30, 2001 and by the California Coastal Commission, through the issuance of a Final Coastal Consistency determination on August 11, 2006.

B. **Landscape Plans:** The Public Works Department shall comply with the Landscape/Restoration Plan as approved by the Historic Landmarks Commission (HLC). Such plan shall not be modified unless prior written approval is obtained from the HLC. The landscaping on the Real Property shall be provided and maintained in accordance with said landscape/restoration plan.

C. **California Department of Fish and Game Fees Required.** Pursuant to Section 21089(b) of the California Public Resources Code and Section 711.4 et. seq. of the California Fish and Game Code, the approval of this permit/project shall not be considered final unless the specified Department of Fish and Game fees are paid and filed with the California Department of Fish and Game within five days of the project approval. The fees required are $2,500 for projects with Environmental Impact Reports and $1,800 for projects with Negative Declarations. Without the appropriate fee, the Notice of Determination (which the City is required to file within five days of project approval) cannot be filed and the project approval is not operative, vested, or final. The fee shall be delivered to the Planning Division immediately upon project approval in the form of a check payable to the California Department of Fish and Game.

D. **Design Review.** The following items are subject to the review and approval of the Historic Landmarks Commission (HLC). HLC shall not grant preliminary approval of the project until the following conditions have been satisfied.

EXHIBIT A

1. **HLC Review.** Bridge and restoration plans shall be subject to HLC review and approval to ensure that they are compatible with the East Cabrillo Boulevard Parkway District (CR-2).

2. **Design Elements.** The bridge railings shall utilize the same design and finish as the 1928 bridge railing (a pipe or wrought iron above the existing railing is permitted to achieve increased height required by code and the openings between pillars in the railing may be tapered to four inches on the interior of the railing, also to meet code), the bridge deck shall be similar in appearance to the existing structure with arch like structures, piers shall be round in one row, the existing monument shall be removed and replaced on the bridge, and all rip-rap on the channel banks, downstream of the project, would use stone rather than concrete (CR-3).

3. **Replacement Trees.** The project shall replace all palm trees removed as result of project construction on a one for one basis, with trees of the same variety and approximately 30 feet in height (CR-4).

E. **Community Development Requirements.** Prior to Building or Public Works Permit Application/Issuance. The following shall be finalized prior to, and/or submitted with, the application for any Building or Public Works permit:

1. **Project Environmental Coordinator Required.** Submit to the Planning Division a contract with a qualified representative for the Owner, subject to approval of the contract and the representative by the Planning Division, to act as the Project Environmental Coordinator (PEC). The PEC shall be responsible for assuring full compliance with the provisions of the Mitigation Monitoring and Reporting Program (MMRP) and Conditions of Approval to the City. The contract shall include the following, at a minimum:

   a. The frequency and/or schedule of the monitoring of the mitigation measures.

   b. A method for monitoring the mitigation measures.

   c. A list of reporting procedures, including the responsible party, and frequency.

   d. A list of other monitors to be hired, if applicable, and their qualifications.

   e. Submittal of monthly reports during demolition, excavation, grading and footing installation and monthly reports on all other construction activity regarding MMRP and condition compliance by the PEC to the Community Development Department.

   The PEC shall have authority over all other monitors/specialists, the contractor, and all construction personnel for those actions that relate to the items listed in the MMRP and conditions of approval, including the authority to stop work, if necessary, to achieve compliance with mitigation measures.

2. **Archive Plans and Photos.** Prior to demolition the bridge will be recorded in accordance with the National Park Service guidelines for Historic American Engineering Record (HAER) documentation. The documentation will include historic research, a narrative report of the history of the bridge, and photo documentation of the bridge. The HAER document will be submitted to the Library of Congress (CR-1) [I suggest you move the completion of this condition to either as a condition to be satisfied before permit issuance or conducted after permit issuance and before final inspection.]

3. **Preconstruction Surveys – Tidewater Goby.** Pre-construction monitoring surveys for tidewater goby would be implemented at the upstream, downstream, and mid-lagoon bridge areas, one year prior to construction, including one pre-spawn survey in April, and one post-spawn in August. In addition, tidewater goby monitoring surveys also would be conducted at the same time at other known tidewater goby habitats Arroyo Burro Estuary, Sycamore Creek, and/or Andree Clark Bird Refuge. Pre-construction surveys would be conducted by a biologist approved to handle tidewater gobies under a Section 10a1a recovery permit to determine the general abundance of tidewater gobies. Survey methods would follow those currently being used to measure population densities at Arroyo Burro Estuary (BIO-17).

F. The Public Works Department shall require the following measures be included as requirements in the construction contracts and reproduced on the construction drawings for the project:

1. **Construction Dust Control** – Minimize Disturbed Area/Speed. Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less (AQ-1).

2. **Construction Dust Control** - Watering. During site grading and transportation of fill materials, regular water sprinkling shall occur using reclaimed water whenever the Public Works Director determines that it is reasonably available. During clearing, grading, earth moving or excavation, sufficient quantities of water, through use of either water trucks or sprinkler systems, shall be applied to prevent dust from leaving the site. Each day, after construction activities cease, the entire area of disturbed soil shall be sufficiently moistened to create a crust (AQ-2).

   Throughout construction, water trucks or sprinkler systems shall also be used to keep all areas of vehicle movement damp enough to prevent dust raised from leaving the site. At a minimum, this will include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.

3. **Construction Dust Control – Tarping**. Trucks transporting fill material to and from the site shall be covered from the point of origin (AQ-3).

4. **Construction Dust Control – Gravel Pads**. Gravel pads shall be installed at all access points to prevent tracking of mud on to public roads (AQ-4).

5. **Construction Dust Control – Stockpiling.** If importation, exportation and stockpiling of fill material are involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation (AQ-5).

6. **Construction Dust Control – Disturbed Area Treatment**. After clearing, grading, earth moving or excavation is completed, the entire area of disturbed soil shall be treated to prevent wind pickup of soil. This may be accomplished by:

   A. Seeding and watering until grass cover is grown;

   B. Spreading soil binders;

   C. Sufficiently wetting the area down to form a crust on the surface with repeated soakings as necessary to maintain the crust and prevent dust pickup by the wind;

   D. Other methods approved in advance by the Air Pollution Control District (AQ-6).

7. **Construction Dust Control – Paving**. All roadways, driveways, sidewalks, etc., should be paved as soon as possible. Additionally, building pads should be laid as soon as possible after grading unless seeding or soil binders are used (AQ-7)

8. **Construction Dust Control – PEC.** The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when construction work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading for the structure (AQ-8).

9. **Diesel Engines**. Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) shall be utilized wherever feasible (AQ-9).

10. **Engine Size**. The engine size of construction equipment shall be the minimum practical size (AQ-10).

11. **Amount of Equipment.** The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time (AQ-11).

12. **Equipment Maintenance.** Construction equipment shall be maintained in tune per the manufacturer's specifications (AQ-12).

13. **Engine Timing.** Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or pre-combustion chamber engines (AQ-13).

14. **Catalytic Converters.** Catalytic converters shall be installed on gasoline-powered equipment, if feasible (AQ-14).

15. **Certified Pollution Controls**. Diesel catalytic converters, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California shall be installed, if available (AQ-15).

16. **Electric Equipment**. Diesel powered equipment should be replaced by electric equipment whenever feasible (AQ-16).

17. **Limited Idling.** Idling of heavy-duty diesel trucks during loading and unloading shall be limited to five minutes; auxiliary power units should be used whenever possible (AQ-17).

18. **Worker Trips.** Construction worker trips shall be minimized by requiring carpooling and by providing for lunch onsite (AQ-18).

19. **Biodiesel**. Biodiesel shall be used to the maximum extent feasible (AQ-19)

20. **Dewatering Timing.** Except for installation of sheet piles (Porta Dam or equivalent) for partial dewatering and diversion of three areas for 1) pile installation (including the temporary beachway bridge), 2) abutment construction, and 3) bank protection, construction work in the Mission Creek channel and on the banks, including construction of the cofferdams, shall not occur during the period October 1/November 1 to mid March/April 30 during an average or above-average rainfall year. The exact schedule is subject to revision dependent on weather conditions and monitoring for goby spawning. Construction work requiring dewatering/diversion in the creek shall not begin until forecasts from the National Weather Service provide reasonable assurance that the winter rainfall has ended, and/or tidewater goby monitoring shows no reasonable evidence of initiation of spawning season (BIO-1)

21. **Pile Driving Timing.** Pile driving and construction for the center line of piles on the north side of the road (Stage 1) shall be completed during the period October 1 to December 1 to avoid vibration impact in the creek during the adult steelhead migration period, which can begin as early as December 1 if there are suitable runoff conditions. Weather and other possible delays permitting, the center row of piles for the north side of the bridge will be driven and filled with concrete with the existing bridge deck intact and while the creek is not dewatered. This date may be moved forward as late as December 31 if the lagoon remains closed (i.e., has not breached by its own forces). If all the center row of pilings cannot be completed in Stage 1, the center piles on the south side of Cabrillo Boulevard currently identified for Stage 3, will be driven and filled while the cofferdams are installed and the creek is dewatered during Stage 2 (BIO-2).

22. **Construction Timing**. Bridge demolition, center bent construction, north side abutment construction, and deck placement on the north side (Stage 2) shall occur when the creek is dewatered and diverted to the flume. Bent construction and deck placement on the south side may occur before cofferdams are constructed or after the cofferdams are removed, provided the erosion and water quality protection measures (see Water Quality section) are implemented (BIO-3).

23. **Pile Driving Precaution.** Piles will be driven and filled with concrete in Stage 1 when the creek is flowing. During the phase of breaching the bridge deck, a plywood deck, construction diaper, or other method will be used underneath the bridge to collect any falling debris or concrete. To prevent the generation of silt from the physical movement of the pile into the creek bottom sediments, and to prevent leakage of concrete when filling the hollow pile, a temporary impermeable containment sleeve will be placed surrounding the base of the pile, before insertion (embedded in the creek bottom) to capture silt or leaking concrete. The containment sleeve will be wrapped at the bottom with 1/8-inch mesh screen before insertion to prevent fish from being trapped inside. The sleeve shall be connected to the bridge deck with a thick plastic sleeve to prevent concrete or debris from falling into the creek during piling installation. A monitor provided by the contractor shall ensure that the sleeve remains intact during pile construction operations, and shall inspect for leakage. If leakage occurs, the captured turbid water or concrete fluids will be tested for pH and will be pumped from between the sleeve and pipe to a portable tank (Baker tank). The waste fluids will be treated and disposed of off-site in the sewer system or other approved location (BIO-4).

24. **Cofferdam.** A cofferdam or equivalent barrier shall be placed between the abutment being installed and the open creek channel during construction to prevent spillage of construction materials and concrete. A plywood deck or construction diaper shall be placed above the Mission Creek bed when constructing the bent and placing the bridge deck. The barrier shall be designed to capture all dry or liquid materials (including concrete) and prevent discharge to the creek (BIO-5).

    The cofferdams shall be constructed of silt-free gravel bags stacked in a stable configuration with Visqueen, or similar waterproof fabric or interlocking steel plates, or a flexible temporary barrier equivalent or better than the device constructed by Portadam, Inc. may also be used to create a dry work area within the channel. Use of other inert materials shall be allowed if necessary to create a better barrier or reduce leaks, but must be approved by the California Department of Fish and Game (CDFG) and United States Fish and Wildlife Service (USFWS). The cofferdams shall be placed approximately at the locations shown in the project description. They shall form a seal along the bottom and banks of the creek and lagoon, to the maximum extent feasible. The top elevations of the cofferdams shall be at least 9 feet NAVD 88 (North American Vertical Datum, 1988), which would be sufficient to contain water in the creek and lagoon during the summer when the sandbar is closed at the beach. The downstream cofferdam will be reinforced as

necessary to withstand the impact of tidal surge from Mission Creek lagoon (BIO-8).

25. **Water Quality.** The creek shall be dewatered to allow for the installation of upstream and downstream bank protection, demolition of the existing bridge, construction of the center bent, abutments, and placement of the new bridge deck. The following measures shall be implemented during these activities to prevent water quality impacts.

- Any concrete (or grout) or other construction materials that are discharged to the dewatered creek shall be removed and disposed of off site. If the material is dry, it shall be physically removed from the work site by equipment or manual labor. If the material is liquid discharged to ponded water in the work area, the water shall be pumped and discharged to a Baker tank, and the affected muddy sediments shall be removed by equipment and disposed offsite. The contaminated water shall be tested and ph adjusted before it is disposed of at the sewer treatment plant or other approved location.
- An environmental monitor, or other qualified contractor personnel, shall be present during the construction activities listed above to monitor for discharges to the dewatered creek, particularly discharges of concrete. The monitor shall measure pH levels in any standing water near the work area on a regular basis during the day to determine if there is any discharge of concrete into the groundwater below the ground surface. Ponded water with elevated pH shall be pumped to a Baker tank and not discharged to the beach. A biological monitor will document compliance.
- The contractor shall maintain spill contingency materials onsite to be mobilized in the event of a concrete spill to the dewatered channel. These materials shall include weed-free, straw bales, Visqueen, gravel bags, and absorbent pads. They would be deployed if concrete is spilled in the channel, even if it is fully dewatered, to immediately isolate and remove the concrete.
- Limited equipment is expected to be operated within the dewatered work area. Equipment may include rubber tire backhoes and loaders or other equipment that can be lifted into the creek bed. The contractor will be required to minimize streambed disturbance. The substrate of the creek bed may be disturbed to a depth of 6 inches by equipment and personnel movement. If the streambed is too saturated even with dewatering then the contractor will work from creosote-free wood planks or other temporary inert platform typical for wetland construction Best Management Practices.

Prior to commencement of construction a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for implementation during construction, that incorporates all feasible Best Management Practices (BMPs) to reduce erosion from construction activities, to minimize the discharge of sediment during storm events, and to eliminate the discharge of non-stormwater pollutants to the maximum extent possible. The following measures shall be incorporated into the project SWPPP, which must meet state NPDES General Construction Permit requirements:

- Temporary stockpiles at the project site shall be protected from erosion by the combined use of temporary berms around the perimeter, perimeter interceptor ditches, and temporary downstream catchments as necessary and appropriate.
- Stockpiles that are present during the winter season shall be protected from erosion due to direct precipitation or runoff during the winter by the use of surface stabilization (such as erosion control blankets).
- Sediment filters/barriers will be constructed along the perimeter of the work area above Mission Creek to prevent sheet flow from discharging sediment into Mission Creek. Protection measures shall remain in place and be maintained in good condition until all disturbed soil areas are permanently stabilized by installation and establishment of landscaping, grass, mulching, or are otherwise covered and protected from erosion.
- If the streambed is determined to be unsuitable for equipment and personnel movement to the point of disturbing the streambed to a depth greater than 6 inches, then the contractor will implement a work plan equivalent to a wetland construction. This will include working from creosote-free wood planks or other temporary inert work pad. Sediment fabric will be placed under any pad to protect the streambed to the maximum extent possible.
- The SWPPP must include a contingency plan to protect the exposed work site during the winter months in the event of high runoff in the creek or tidal surges that could overtop banks and inundate work areas.
- BMPs to prevent discharge of construction materials, contaminants, wash-water, concrete, fuels, and oils that include the following measures:
- Ensure that all construction vehicles and equipment are properly maintained (off site) to prevent leaks of fuel, oil, and other vehicle fluids.

- Refuel only in bermed areas with impermeable surfaces at least 200 feet from the creek.
- Implement measures and provide materials to contain any accidental spills or leakage during the fueling of construction equipment at the site.
- Place all stored fuel, lubricants, paints, and other construction liquids in secured and covered containers within a bermed or otherwise contained area at least 200 feet from the creek.
- Prohibit equipment washing and major maintenance at the project site except at the construction staging area. Prohibit concrete washout except at the construction staging area. Concrete washout water shall be collected and stored in an onsite Baker tank to be disposed of off site. Place berms around the active work area on the road when installing piles through the roadbed during the winter to capture any construction debris or concrete in the event of rainfall; place sandbag or straw bale barriers at all storm drain inlets near the work area to capture any site runoff during winter construction. Remove all refuse and construction debris from the site as soon as possible.
- During concrete pours, the contractor shall have a qualified monitor present to measure pH within any standing water adjacent to the pour. The monitor will have onsite suitable material such as acid to neutralize contaminated water.
- A Storm Inspection Program. During extended storm events, inspections must be made during each 24-hour period. The goals of these inspections are: 1) to identify areas contributing to a storm water discharge, 2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the General Permit, and 3) whether additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible, depending upon worker safety. Each discharger shall certify annually that the construction activities are in compliance with the requirements of this General Permit. Dischargers who cannot certify annual compliance shall notify the appropriate RWQCB.
- The trenching, stockpiling, and back-filling activities associated with the temporary gas line will be incorporated into the SWPPP for this project and will incorporate BMPs for the following

- Laydown yard procedures for the storage and maintenance of equipment
- Stockpile stormwater management
- Implementation of wind erosion controls during trenching
- Stabilization of excavated material during pipeline laydown and removal
- Erosion control measures during backfill and temporary pipeline operation
- Revegetation of trenched areas post removal
- Prior to construction a SWPPP for the project will incorporate the City of Santa Barbara Procedures for the Control of Runoff into Storm Drains and Watercourses for implementation during construction,. In addition the SWPPP will incorporate specific Caltrans Category IB design BMPs. The text of the specific Caltrans requirements is incorporated as Appendix E in the URS Corporation Water Quality Assessment; the basic requirements of each BMP are summarized below as follows:

Category Non-Stormwater; NS02 Update Dewatering Operations:

- Dewatering shall be conducted in accordance with the Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010.
- The RWQCB may require a separate NPDES permit prior to the dewatering discharge of non-storm water.
- Non-storm water dewatering for discharges meeting certain conditions are allowed under an RWQCB general dewatering NPDES permit.
- Non-storm water discharges must be free of pollutants other than sediment; the discharge must be <0.25 mgd.
- Discharges must comply with regional and watershed-specific discharge requirements.
- Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges must not cause erosion at the discharge point.

Category Non-Stormwater; NS05 Clearwater Diversion:

- Diversion structures must be adequately designed to accommodate fluctuations in water depth or flow volume due to tides, storms, flash floods, etc.

- Heavy equipment driven in wet portions of a water body to accomplish work shall be completely clean of petroleum residue, and water levels shall be below the gearboxes of the equipment in use, or lubricants and fuels are sealed such that inundation by water shall not result in leaks.
- Mechanical equipment operated in the water shall not be submerged to a point above any axle of said mechanical equipment.
- Excavation equipment buckets may reach out into the water for the purpose of removing or placing fill materials. Only the bucket of the crane/excavator/backhoe may operate in a water body. The main body of the crane/excavator/backhoe shall not enter the water body, except as necessary to cross the stream to access the work site.
- Clear water diversions that require dewatering shall be conducted in accordance with policies and guidelines presented in Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010.
- Stationary equipment such as motors and pumps, located within or adjacent to a water body, shall be positioned over drip pans.
- When any artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall, at all times, be allowed to pass downstream to maintain aquatic life downstream.
- The exterior of vehicles and equipment that will encroach on a water body within the project shall be maintained free of grease, oil, fuel, and residues.
- Equipment shall not be parked below the high-water mark unless allowed by a permit.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
- Diversion structures shall be constructed with materials free of potential pollutants such as soil, silt, sand, clay, grease, or oil.

Category Non-Stormwater; NS11 Pile Driving Operations:

- Use drip pans or absorbent pads during vehicle and equipment maintenance, cleaning, fueling, and storage.
- Have spill kits and cleanup materials available at all locations of pile driving.
- Park equipment over plastic sheeting or equivalent where possible.
- Implement other BMPs as applicable, such as NS-2 "Dewatering Operations."

- When not in use, store pile-driving equipment away from concentrated flows of storm water, drainage courses, and inlets.
- Use less hazardous products, e.g., vegetable oil instead of hydraulic fluid.

Category Non-Stormwater; NS13 Material Use over Water:

- Use drip pans and absorbent materials for equipment and vehicles and ensure that an adequate supply of spill cleanup materials is available.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is expected to be idle for more than one hour.
- Maintain equipment in accordance with BMP NS-10, "Vehicle and Equipment Maintenance." If a leaking line cannot be repaired, remove equipment from over the water.
- Provide watertight curbs or toe boards to contain spills and prevent materials, tools, and debris from leaving the barge, platform, dock, etc.
- Secure all materials to prevent discharges to receiving waters via wind.
- Identify types of spill control measures to be employed, including the storage of such materials and equipment. Ensure that staff is trained regarding the deployment and access of control measures and that measures are being used.
- Discharges to waterways shall be reported to the Resident Engineer immediately upon discovery. A written discharge notification must follow within seven days.
- The SWPPP for the Cabrillo Bridge project will include a chemical monitoring plan to ensure that non-visible pollutants do not impact the water quality of Mission Creek during construction. As concrete fluids may alter pH, the non-visible pollutant to be monitored would be pH. The contractor or environmental monitor will conduct pH monitoring during concrete preparation, pouring, and curing operations. pH will be monitored twice daily at the following points during piling construction and construction in the dewatered area:
- Mission Creek during piling construction at points just upstream and downstream of the pilings
- Any standing water between the protective sleeve and steel pile casing prior to pumping and disposal
- Any standing water within the dewatered construction zone

- At the point of discharge of dewatering fluids onto the beach
- Results will be recorded and a contingency plan implemented if pH exceeds the applicable surface water quality standard (WQ-1).

26. **Temporary Bridge Construction.** No construction work or storage of materials is allowed in the Mission Creek lagoon for installation and removal of the temporary beachway bridge. No workers shall enter the lagoon; work may occur from a boat or platform during installation of the temporary utility bypasses and temporary bridge installation. Prior to installation of piles for the temporary bridge footing, erosion control fiber blankets or a sediment barrier shall be placed around the abutment locations to prevent discharge of soil or concrete into the dewatered area (BIO-6).

27. **Environmental Monitor.** An environmental monitor shall be present during pile installation and pouring of concrete to address any discharges of concrete. The contractor will maintain spill contingency materials onsite to be mobilized in the event of a concrete spill during pile and bridge construction. These materials may include straw bales, Visqueen, gravel bags, absorbent pads, and additional fiber rolls. Any concrete spilled during construction will be removed and disposed of prior to removal of the cofferdam (BIO-7).

    An environmental monitor shall inspect any ponded water in the dewatered portion of the work area on a daily basis (three times – before work begins, midday, and at the end of the day) to search for any fish that may have traveled through gaps in the cofferdams. Fish (excluding mosquito fish) shall be removed on an as-needed basis and relocated above the upper cofferdam. The number and species of fish shall be recorded (BIO-10).

28. **Fish Protection.** The installation/removal of the cofferdams and flume shall follow this sequence of tasks:

    - The Contractor shall submit to the USFWS in writing, at least four weeks prior to the onset of work, the qualifications of a biologist familiar with tidewater goby biology. This biologist will be responsible for implementing measures that involve handling and relocation of tidewater gobies. The USFWS will provide written authorization of the individual, if qualified, or denial, if unqualified.
    - The qualified biologist shall conduct a training session for all personnel associated with cofferdam construction and operations within the dewatered area prior to the onset of work.
    - A qualified biologist will assist in the preparation of the drawings and specifications for the preliminary and final engineering plans for the project that will include plans, details, and specifications for the placement/removal of cofferdams, dewatering/diversion operations, and fish capture and relocations procedures.. The fish rescue and relocation will follow the procedures included in the Natural

Environmental Study. Rescued fish will be relocated to adjacent channel areas in the estuary that are not dewatered or subject to construction disturbance. The dewatering and fish rescue plans will be submitted to the USFWS for review and approval to ensure that the proper procedures and safeguards are included to avoid unnecessary take of gobies. After blocking nets have been placed to control fish access to the area a biologist will use nets to remove any remaining fish in the area where the dewatering and flume would be constructed.

- The authorized biologist shall complete initial surveys for tidewater gobies in Mission Creek within the project area one week prior to the onset of work.
- Two parallel fish blocking nets (mesh size 1/8 inch or less) shall be placed across the creek channel immediately upstream of the upstream cofferdam to prevent fish from traveling downstream to the work area.
- Qualified biologists with federal permits to handle gobies or personnel under the supervision of a permitted biologist shall insert a seine net at the upstream cofferdam location and conduct a sweep of the channel to herd and capture all fish in the work area, ending the sweep at the downstream cofferdam location. As the sweep is ended, two parallel fish blocking nets shall be placed across the lagoon to prevent fish from traveling upstream into the work area. The authorized biologist will be approved by USFWS and CDFG for relocating tidewater goby and native species that may occur in the work area to be dewatered.
- As the initial dewatering/diversion is occurring, fish biologists shall systematically survey for fish through the work area, including tidewater gobies and western pond turtles. Fish shall be captured with a dipping net and immediately relocated upstream of the upper cofferdam. The number and species of fish shall be recorded. This fish rescue operation shall occur until the work area is completely dewatered, or until the fish biologists are confident that no fish remain in any standing water in the work area.
- A silt fence shall be placed inside the fish blocking nets (after fish survey and relocation has occurred) when the cofferdams are being constructed to prevent silt, if any, from migrating through the meshes to the creek and lagoon outside the work area.
- The cofferdams shall be constructed with water in the creek and lagoon. This will require construction personnel to work in standing water. The flume (a narrow centralized channel created by installation of metal sheet piles, Porta dam, or equivalent) shall be

placed or constructed in the creek. The system may be a continuous flexible barrier (Portadam device equivalent or better). Once the cofferdams and creek flume are installed in the wetted channel, pumping to dewater the work area between the cofferdams shall begin. Because tidewater gobies are most often on the bottom of the estuary, the intake on the pumps used for water diversion shall be covered with mesh 1/8 inch or less, and floated as long as possible to prevent tidewater gobies from being entrained and killed.

- The mesh size on the pump intake shall be 1/8 inch or less. The mesh shall be checked by the qualified biologist prior to use each day and twice daily during operation to determine that it is intact. If the mesh develops holes or other conditions that impair its function, it shall be replaced or repaired immediately.
- Once it is dewatered, the construction area may need continuous dewatering to maintain a dry working area. Three to six dewatering pits will need to be excavated within the planned work area. This will create localized low points at which to collect the water. The dewatering pits will be limited in size and depth to the maximum extent possible to achieve a dry work area.
- Each dewatering pit will be constructed using 1/8-inch or less mesh anchored by a circle of rocks. The mesh will be suspended on the perimeter of the dewatering pits and shall cover the rocks and be anchored underneath on the outside. Work area creek water shall be discharged to the beach into an excavated depression or bermed area near the lagoon. An environmental monitor with applicable USFWS and CDFG permits or authorizations shall monitor the discharge location on a continuous basis to determine if any fish are inadvertently contained in the discharge. If present, these fish shall be captured with a small net and placed in the lagoon immediately after identifying species and numbers of fish.
- The cofferdam and flume diversion shall be removed by first blocking the downstream terminus of the flume. An authorized biologist shall then conduct a sweep to clear the diversion area of fish. Once clear, the upstream end of the flume shall also be blocked. The work area will be policed by the contractor and reviewed by a biological monitor to ensure that all construction material is removed. The flume will then be dewatered and relocated to accommodate construction access or removed. During low tide the downstream cofferdam will be removed first and followed by the upstream cofferdam (BIO-9).

29. **Inspection dewatering.** The dewatering system shall be inspected prior to leaving the work site at night. It shall be inspected and maintained by the contractor during non-work days (i.e., Saturdays, Sundays, holidays) (BIO-11)

30. **Flume Design.** The flume shall be constructed as follows:

- The flume will be installed with the cofferdams and be constructed similar to a Portadam, Inc. device or better, or of plywood, inert material, or Visqueen-wrapped, silt-free gravel bags.
- The flume will be continuous and may be constructed to retain a natural sediment or manmade bottom.
- The contractor will prepare the final flume design for agency review and approval.
- The flume will maintain natural water levels and avoid potential dry spots from forming that would not naturally occur within the channel.
- The flume shall be 3 to 6 feet wide and constructed to maintain the existing channel water stratification for water temperature, salinity, pH, and natural tidal depth.
- The flume shall not disturb more than a 6-inch depth into the streambed or create the potential for scour.
- It is expected that flow rates within the flume will be higher than the existing channel. Therefore, one or two silt free gravel bags or a small pile of cobble shall be placed every ten feet alternating along the sides of the flume to provide refuge for tidewater gobies.
- Shade cloth shall be placed over the top of the flume and draped over each end to maintain the existing temperature stratification and to prevent birds from entering the flume.
- While the streambed through the work area is generally a continuous grade, slight microtopography or a low-flow channel may be present; to address this, the flume bottom will be installed to achieve the lowest possible elevation from downstream to upstream (BIO-12).

31. **Worker Training.** During the pre-construction conference with the contractor, a biologist shall conduct a training session for all construction personnel. The training shall include:

- A description of the tidewater goby, southern steelhead, brown pelican, California least tern, western snowy plover, southwestern pond turtle, and associated habitats; the general provisions of the Endangered Species Act (ESA), including species relocation by a qualified biologist and documentation requirements

- The necessity for adhering to the provisions of the ESA
- The penalties associated with violating the provisions of the ESA
- The specific measures that are being implemented to conserve the tidewater goby and southern steelhead as they relate to the project, and measures that would be required if unexpected special status species, such as southwestern pond turtle, least tern, or snowy plover are on site during construction
- The boundaries of the project (BIO-13).

32. **Riparian Plants.** The following native plants shall be used in the upstream bank protection: Atriplex lentiformis var. lentiformis – Brewer's Saltbush, Encelia californica – Bush Sunflower, Rhus integrifolia – Lemonadeberry, Mimulus auranticus – sticky monkey flower, Suaeda taxifolia – Wooly Sea Blite, Eriogonum parvifolium – Seaside Buckwheat, and Limonium californicum – Western Marsh-Rosemary. The saltbush and dwarf willow (Salix Exigua), used to create brush mattresses for erosion control (from a local source) shall also be planted above and among the ungrouted boulders on the downstream banks. Cocoanut fiber mats would be used to stabilize the soils above the boulders providing an opportunity for the native plants to get established. Other native plant species may be used if these are not readily available, subject to approval by a City-approved biologist and CDFG. Restoration efforts may also refer to "Guidelines to Evaluate, Modify and Develop Estuarine Restoration Projects for Tidewater Goby Habitat" (USFWS, Stillwater Science, Arcata, CA, May 2006), and the approved Adaptive Maintenance Plan for Mission Creek (ACOE, URS, Channel Design Recommendations 2005) (BIO-14).

33. **Biologist Inspections.** A qualified biologist shall conduct daily inspections of the construction work areas to ensure that the cofferdams remain intact, and that no gobies have entered the work areas. The biologist shall also monitor and inspect erosion control measures to be implemented as part of the project. The biologist shall conduct periodic visual surveys of the unaffected portions of the estuary to monitor the abundance and conditions of fish during construction. Weekly reports shall be provided to the USFWS to apprise them of the status of the goby and the effectiveness of the protection measures during construction (BIO-15).

34. **Water Quality Monitoring.** During flume operations, decreased through-flow in Mission Creek may alter indicator parameters such as salinity, dissolved oxygen, and temperature. Although it is unlikely that the flume will alter concentrations of indicator parameters outside of historic ranges, monitoring would establish if operations were having serious effects on water quality. Indicator parameter monitoring in Mission Creek can be implemented either as a stand alone requirement or as part of the general construction permit as follows:

- Monitoring for dissolved oxygen, salinity, and temperature will be performed twice daily at a point directly upstream and downstream

of the flume. If values are found outside of historic ranges, the cause shall be identified and steps shall be taken to return the parameter to the historic range.

- The flume will be monitored visually daily to ensure that flow is present at all times (BIO-16)

35. **Post-construction Surveys – Tidewater Goby.** Post-construction surveys for tidewater goby would be implemented for one year following completion of the project. Pst-construction surveys would be conducted by a biologist approved to handle tidewater gobies under a Section 10a1a recovery permit to determine the general abundance of tidewater gobies. Survey methods would follow those currently being used to measure population densities at Arroyo Burro Estuary (BIO-17). The results of post construction surveys shall be submitted to the Environmental Analyst by the PEC within a month of the survey .

36. **Surveys – Snowy Plover**. A daily clearance survey for the presence or absence of western snowy plovers, within a 500 foot radius of the site, shall be performed prior to construction each day. If plovers are found within this radius, and pile driving activities are expected, work shall stop until the bird relocates itself, or work will be relocated to another area of the site outside of the 500 foot radius area. If plover nests and/or plover protective nesting habits are observed within a 500 foot radius on the beach during breeding season (March-August), further surveys may be required. If plover disturbance behavior is observed within the 500 foot radius on the beach during construction activities, the qualified biologist on-site will have the authority to further evaluate the behavior, and/or determine if any action needs to be taken including requiring a stop work order until relocation has occurred (BIO-18).

37. **California Brown Pelican.** Construction workers would be informed that construction activities would halt if a California brown pelican enters the active construction area. Upon self relocation, work may be reinitiated (BIO-19).

38. **Survey – Least Turns.** A clearance survey for least terns shall be conducted by a qualified biologist prior to the commencement of construction activities on the beach area. If least terns are present, any construction activities, debris, or discharge of any construction materials would require a distance of at least 200 feet from the foraging area. Additionally, the biological monitor would be given authority to stop work if a least tern is seen within 200 feet of construction (BIO-20).

39. **Monitoring - Southwestern Pond Turtles**. During systematic fish surveys at dewatering, monitoring for presence of southwestern pond turtles shall occur when the water level reaches a depth for visual observation of turtles. If southwestern pond turtles are observed in dewatering areas, a qualified biologist with required

relocation certification shall perform relocation to an appropriate location (BIO-21).

40. **Bird Surveys.** Prior to any trees being removed during bird nesting season (February 1 to September 1) a survey shall be conducted of the trees to ensure that there are no nesting birds in the trees. Outside of bird nesting season the trees can be removed without a survey (BIO-22).

41. **Discovery Procedures and Mitigation.** Standard discovery measures shall be implemented per the City Master Environmental Assessment throughout grading and construction:

    Prior to the start of any vegetation or paving removal, demolition, trenching or grading, contractors and construction personnel shall be alerted to the possibility of uncovering unanticipated subsurface archaeological features or artifacts.

    If during any grading or construction on the site such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and a City-approved archaeologist shall be employed to assess the nature, extent and significance of any discoveries and to develop appropriate management recommendations for archaeological resource treatment, including but not limited to redirection of grading and/or excavation activities. If the findings are potentially significant, further analysis and/or other mitigation shall be prepared and accepted by the Environmental Analyst and the Historic Landmarks Commission, and implemented by the project Work in the area may only proceed after the Environmental Analyst grants authorization.

    If prehistoric or other Native American remains are encountered, a Native American representative shall be consulted, and the archaeologist and Native American representative shall monitor all further subsurface disturbances in the area of the find.

    If the discovery consists of potentially human remains, the Santa Barbara County Coroner and the California Native American Heritage Commission must also be contacted.

    A final report on the results of the archaeological monitoring shall be submitted by the City-approved archaeologist to the Environmental Analyst within 180 days of completion of the monitoring and prior to the issuance of final City permits (CR-5).

42. **Foundation Requirements.** The project shall utilize the foundation and bridge construction recommendations of the Preliminary and Final Geological Investigations that include the following:

    - Bridge be supported on Cast in Steel Shell (CISS) piles

- Diameter, length and other specifications of piles for bridge support and for bank restoration
- Bridge engineering design (G-1).

43. **Construction Notice**. At least 20 days prior to commencement of construction, the contractor shall provide written notice to all property owners and residents within 450 feet of the project area. The notice shall contain a description of the proposed project, a construction schedule including days and hours of construction, the name and phone number of the Project Environmental Coordinator (PEC) who can answer questions, and provide additional information or address problems that may arise during construction. A 24-hour construction hot line shall be provided. Informational signs with the PEC's name and telephone number shall also be posted at the site (N-1).

44. **Construction Hours.** Noise-generating construction activities (which may include preparation for construction work) shall be permitted weekdays between the hours of 8:00 a.m. and 5:00 p.m., excluding holidays observed by the City as legal holidays: New Year's Day (January 1st); Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (Last Monday in May); Independence Day (July 4th); Labor Day (1st Monday in September); Thanksgiving Day (4th Thursday in November); Day Following Thanksgiving Day (Friday following Thanksgiving); Christmas Day (December 25th). *When a holiday falls on a Saturday or Sunday, the preceding Friday or following Monday respectively shall be observed as a legal holiday (N-2)

    Occasional night work may be approved for the hours between 5 p.m. and 8 a.m. by the Chief of Building and Zoning per Section 9.13.015 of the Municipal Code) between the hours of 5 p.m. and 8 a.m. weekdays In the event of such night work approval, the applicant shall provide written notice to all property owners and residents within 450 feet of the project property boundary and the City Planning and Building Divisions at least 48 hours prior to commencement of any. Night work shall not be permitted on weekends and holidays.

45. **Construction Equipment Sound Control.** All construction equipment, including trucks, shall be professionally maintained and fitted with standard manufacturers' muffler and silencing devices (N-30).

46. **Sound Barriers.** The project shall employ sound control devices and techniques such as noise shields and blankets during the construction period to reduce the level of noise generated by pile driving and demolition. Sound barriers shall be installed as shown in the noise study design and locations, provided landowners agree to the installation of the noise barriers. Sound barriers or temporary construction zones shall be used to reduce pile driving and demolition noise levels to 120 dB where members of the public have access (N-4)

47. **Vibration.** The Rusty's Restaurant support shall be separated from the bridge and supported independently to preclude direct transmission of vibration from the

bridge to the structure resulting from pavement discontinuities created by patches on the bridge deck and work on the deck (N-5)

48. **Cracks.** A photographic survey of adjacent structures shall be completed prior to, during, and after construction to identify any cracking caused by the project. Any cracking occurring due to the project shall be repaired or compensation shall be provided to the owner for any damage due to project vibration (N-6).

49. **Worker Hearing Protection.** Worker hearing conservation requirements shall be included in contract documents and used by construction workers (N-7).

50. **Nighttime Noise.** Any equipment that must be operated during nighttime hours must be individually reviewed and treated with an enclosure, barriers, silencers or other treatments as required to limit noise at any noise sensitive use to 50 dB (A-weighted) based on measured nighttime ambient noise 45 dB and the City restriction of ambient plus 5 dB (N-8).

51. **Interior Noise**. The applicant shall negotiate an arrangement to provide noise shields (secondary windows) for adjacent businesses due to noise from pile driving and demolition or use of the front portions of the Rusty's Pizza Restaurant shall be temporarily discontinued during pile driving and demolition (N-9).

52. **Construction Truck Trips.** Prohibit large scale movements of debris or materials by trucks during nighttime hours (10 p.m. to 7 a.m.) (N-10).

53. **Warning Signs.** Post noise hazard signs at locations within 150 ft of the pile-driving areas so that passers-by would be aware that high noise levels are possible. The sigh would read: "WARNING, NOISE HAZARD AHEAD, YOU ARE ADVISED TO AVOID THE AREA, USE EAR PROTECTION OR STAY FOR LESS THAN 30 MINUTES." (N-11)

54. **Recycling.** Green waste, concrete, and steel from construction and operation shall be sent to a local recycling facility and be recycled, as proposed by the applicant (PS 1).

55. **Art and Craft Show.** Designated spaces will be created in the current "first come first served" areas of the show where members without an assigned space set up and a second row of spaces will be created where possible. Displaced artists and artisans who are left without their space due to the bridge project will be temporarily reassigned to these areas. (REC-1 Revised).

56. **Construction Traffic.** The haul routes for all construction related trucks, three tons or more, entering or exiting the site, shall be approved by the Transportation Engineer. Construction-related truck trips shall not be scheduled during peak hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) to help reduce truck traffic and noise on adjacent streets and roadways. The route of construction-related traffic shall be established to minimize trips through surrounding residential neighborhoods (T-1).

57. **Construction Parking.** Construction parking and vehicle/equipment/materials storage shall be provided as follows:

    A. During construction, free parking spaces for construction workers shall be provided in a location subject to the approval of the Transportation and Parking Manager.

    B. Storage area shall be provided for construction materials, equipment, and vehicles (T-2).

58. **Pedestrian Bridge.** The pedestrian bridge shall be constructed prior to pile driving for the main bridge to allow an alternative route for pedestrians and cyclists (T-3).

59. **Erosion Control.** Prior to construction a detailed Erosion Control Plan shall be prepared for implementation during construction, including basic requirements as follows:

    - Proposed schedule
    - Description of potentially affected areas
    - Description of soils, geology, vegetation, and creeks
    - Site Plan including contours, elevations, limits of clearing, grading, and creek configuration
    - Description of erosion control measures
    - Description of sediment detention basins
    - Description of emergency erosion and sediment control measures (WQ-3).

60. **Water Discharge.** During dewatering of the construction area, the removed water will be discharged to temporary infiltration areas on the beach near the lagoon. The discharge shall occur in accordance with NPDES General Permit (Order No. 01-119) for Low Threat Discharges, issued by the Regional Water Quality Control Board (RWQCB) (WQ-4).

NOTICE OF COASTAL DEVELOPMENT PERMIT TIME LIMITS:

The (Planning Commission's)(Staff Hearing Officer's) action approving the Coastal Development Permit shall expire two (2) years from the date of approval, per Santa Barbara Municipal Code §28.45.009.q, unless:

1. Otherwise explicitly modified by conditions of approval of the development permit, or unless construction or use of the development has commenced.

2. A Building permit for the work authorized by the coastal development permit is issued prior to the expiration date of the approval.

3. A one (1) year time extension may be granted by the Planning Commission if the construction authorized by the permit is being diligently pursued to completion and issuance of a Certificate of Occupancy. Not more than three (3) extensions may be granted.

City of Santa Barbara
Public Works Department

Interoffice Memorandum

DATE: June 29, 2007

TO: Planning Commission

FROM: Engineering Division, Public Works Department
(Prepared by Pat Kelly, Assistant Public Works Director/City Engineer)

SUBJECT: CABRILLO BOULEVARD BRIDGE REPLACEMENT PROJECT

At the upcoming July 12, 2007 Planning Commission (PC) meeting, the Public Works Department will be requesting that the PC approve the project mitigated negative declaration, and the portion of the Cabrillo Boulevard Bridge Replacement Project with the appealable area of the Coastal Zone. Staff is also requesting that the PC recommend to the California Coastal Commission that they approve the portion of the project that is within their jurisdiction.

The project will replace the existing Cabrillo Boulevard Bridge over Mission Creek and reconstruct the banks of Mission Creek from Cabrillo Boulevard to State Street to improve erosion control downstream of the bridge. The project is currently in the final design stages and it is estimated that construction will begin in the Fall of 2009.

Background

In 2004, an inspection of the Cabrillo Boulevard Bridge revealed that it is deteriorating and may not withstand future earthquakes or anticipated traffic loads. Its replacement can no longer be delayed. In 2005, City staff and Bengal Engineering began conceptual design of a replacement bridge to be used in preparing environmental studies. Due to its location at the center of the City's beachfront, the timing of this project has been carefully considered. Environmental technical reports are now complete and City staff is proceeding through the City's approval process.

Project Key Issues

At the March 15, 2007 PC public hearing, comments were received from the public regarding the project's environmental documents. The responses to public comment were effectively handled through a combined effort among Public Works Engineering and Community Development Planning staff. Staff and City consultants provided technical assistance for the response information, including technical reports. These responses and reports will be elaborated below and in the forthcoming PC staff report and attachments. As a result of the

design efforts, all project impacts would be less than significant after mitigation measures have been applied.

Public Works has worked to minimize the environmental impacts associated with this project. Staff has consulted with various City departments, divisions, and public agencies, such as the U. S. Fish & Wildlife Service, NOAA Fisheries, and California Department of Fish and Game to refine the original project description and further reduce project impacts. Primary concerns were the sensitive species that reside within the project area and the intense public use within this area. The project was designed to minimize the impacts on sensitive Tidewater Goby and Steelhead species within the creek. Public Works has worked to further reduce the length of construction and the extent of erosion controls that would be constructed as part of the project. Downstream rock boulder wing walls would cover less area than the existing wing walls and would improve the appearance of, and replace, the existing sackcrete wing walls. In addition, vegetation would be planted above the wing wall to improve the area habitat.

In response to PC comments at the March 15th PC hearing, Public Works prepared an analysis of the feasibility of the straightening of Mission Creek downstream of State Street. The slight increase in post construction hydraulic capacity that could result from straightening the creek would be offset by the decrease in hydraulic capacity during construction due to the need to install substantially more piles, the increased time needed to construct the project, increased environmental impacts due to a longer construction period, and increased construction costs. The straightening of the creek would result is a substantial increase in flood hazard during construction because more piles would be present. Further, the project cost increase due to the additional piles would be more than 25% higher (approximately $4.5M) than the proposed project. This increased cost renders this item infeasible for this project.

The project has been presented to both the Park and Recreation Commission and the Creeks Advisory Committee to solicit comments to advise the Planning Commission. Staff has met with the Cabrillo Boulevard Arts and Crafts participants to inform them of the project and coordinate planned construction with their related activities. The historical and archeological aspects of the project were addressed and approved by the Historical Landmarks Commission. The project design included the recommendations of the historic consultants, was presented to the Historical Land Marks Commission several times, and recommended changes were made.

The project was also designed to insure that one lane of vehicular traffic in each direction will remain open throughout the project. Further, a temporary multi-purpose bridge will accommodate alternative transportation during construction.

Cost Issues

The estimated total project cost is approximately $19M. Due to rapidly escalating bridge construction costs, it is important that the City complete the design, attain approvals, and bid the project as soon as possible. At the current California Consumer Price index rate of $3.5% per year, construction costs for this project are escalating at a rate of approximately $55,000 for every month that the project is delayed.

Summary

The City's Project Manager, Harold "Hal" Hill, would like to make a presentation that provides more details regarding the following:

1. A brief history of the project;
2. Visuals of the proposed work
3. What City staff has been doing to protect the environment
4. The next few steps in the design and approval process
5. The schedule for construction.

Mr. Hill's presentation will be followed by a question and answer session.

PK/JE/mj

cc: Paul Casey, Community Development Director
Pat Kelly, Assistant Public Works Director/City Engineer
Jan Hubbell, Senior Planner II
Michael Berman, Project Planner
John Ewasiuk, Principal Civil Engineer

CITY OF SANTA BARBARA
COMMUNITY DEVELOPMENT DEPARTMENT
FINAL MITIGATED NEGATIVE DECLARATION – MST2004-00878

Pursuant to the State of California Public Resources Code and the "Guidelines for Implementation of the California Environmental Quality Act of 1970," as amended to date, this Draft Negative Declaration has been prepared for the following project:

PROJECT LOCATION: **Cabrillo Boulevard between State Street and Helena Avenue**

PROJECT PROPONENT: **City of Santa Barbara Public Works Department**

PROJECT DESCRIPTION: **The project would replace the existing structurally deficient Cabrillo Boulevard Bridge over Mission Creek and improve the hydraulic conveyance of Mission Creek from State Street to the Pacific Ocean. The banks of Mission Creek from Cabrillo Boulevard to State Street would be rebuilt in compliance with the approved Lower Mission Creek Flood Control Project.**

MITIGATED NEGATIVE DECLARATION FINDING:
Based on the attached Initial Study prepared for the proposed project, it has been determined that the proposed project will not have a significant effect on the environment.

Environmental Analyst

7/2/2007
Date

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EXHIBIT C

CITY OF SANTA BARBARA
COMMUNITY DEVELOPMENT DEPARTMENT, PLANNING DIVISION

FINAL INITIAL STUDY/ ENVIRONMENTAL CHECKLIST MST2004-00878/CDP2007-00001

PROJECT: REPLACEMENT OF CABRILLO STREET BRIDGE OVER MISSION CREEK

July 2, 2007

This Initial Study has been completed for the project described below because the project is subject to review under the California Environmental Quality Act (CEQA) and was determined not to be exempt from the requirement for the preparation of an environmental document. The information, analysis and conclusions contained in this Initial Study are the basis for deciding whether a Negative Declaration (ND) is to be prepared or if preparation of an Environmental Impact Report (EIR) is required to further analyze impacts. Additionally, if preparation of an EIR is required, the Initial Study is used to focus the EIR on the effects determined to be potentially significant.

APPLICANT/ PROPERTY OWNER

Applicant: City of Santa Barbara, Public Works Department

Applicant Representative: Hal Hill, Public Works Department

Owner: City of Santa Barbara

PROJECT ADDRESS/LOCATION

The project is located on Cabrillo Boulevard between State Street and Helena Avenue in the City of Santa Barbara waterfront area (Exhibit A, Figure 1). The project would replace an existing bridge over Mission Creek on Cabrillo Boulevard. The project site is located within Township 4 North, Range 27 West, on the Santa Barbara, California, U.S. Geographical Survey 7.5-minute topographic quadrangle.

PROJECT DESCRIPTION (See *Exhibit A-Project Graphics*)

This project would replace the existing structurally deficient Cabrillo Boulevard Bridge over Mission Creek and improve the hydraulic conveyance of Mission Creek from State Street to the Pacific Ocean. The project would continue to accommodate the same number of traffic lanes and convey the same utilities as it currently does. The pedestrian component of the new bridge would be enlarged to better accommodate the pedestrian traffic in the area. The Rusty's Pizza building is currently supported by the bridge. It may be supported by the new bridge. The banks of Mission Creek from Cabrillo Boulevard to State Street would be rebuilt in compliance with the Lower Mission Creek Flood Control Feasibility Report, dated September 2000, and accompanying EIS/EIR by the Corps of Engineers and approved by the City on November, 30, 2001, and conditionally approved by the California Coastal Commission on November 1, 2001, through the issuance of a final Coastal Zone Consistency Determination on August 11, 2006.

Proposed Bridge Construction

Bridge Configuration

The existing bridge would be removed and replaced with a similar bridge that would have a total deck length of 131 feet, nine feet longer than the existing bridge. Deck width would be 110 feet, the same width as the existing bridge. The bridge would be constructed in three stages. The first stage would be installation of piles. The widths of the second and third stages of bridge construction are 44 feet, and 66 feet respectively. Curb-to-curb dimensions on the bridge would be 72 feet. Sidewalks would be six feet wide on the north side and nine feet wide on the south side. The beachway would be 10 feet wide in each direction, four feet wider than the existing beachway (multi-purpose trail).

A temporary relocation of the beachway, approximately 50 feet closer to the beach, with a 14-foot wide temporary pedestrian/bicycle bridge, is being considered as one alternative to provide a place for the Arts and Crafts Show ~~vendors~~artists and artisans, bicyclists, and pedestrians during construction. The bridge would span the channel (Exhibit A, Figure 6). The pilings and/or abutments for this bridge would be outside of the stream channel. This bridge would be removed after construction is completed.

The permanent replacement bridge would use two spans instead of three. There would be one row of piles in the middle of the bridge that aligns better with the direction of flow of Mission Creek. Therefore, the new bridge would increase hydraulic capacity. Erosion control measures would be constructed downstream of the bridge abutments. These measures will include ungrouted rock rip-rap, use of cocoanut fiber erosion control blankets, and revegetation using native plant

species to minimize erosion and scour. The existing bridge abutments would be removed after the new abutments have been constructed.

As a part of the bridge project, the banks of the Mission Creek channel, upstream from the bridge, would be reconstructed with erosion protection from State Street to Cabrillo Boulevard. Native plants would be used in the bank restoration. The attached drawing, entitled "Sections at Cabrillo Boulevard and State Street" (Exhibit A, Figure 3), shows the proposed reconstruction of the bank. At the northerly corner of Cabrillo Boulevard and State Street, the sidewalk along Cabrillo Boulevard from State street to the bridge would be widened to the north (towards Mission Creek) to allow for more pedestrian space (Exhibit A, Figure 4).

The hydraulic capacity beneath the existing bridge is limited by the fact that its two rows of pilings are not placed in a straight line. The new bridge construction will remove the old pilings and construct one row of pilings in a straight line. The new bridge will also be nine feet wider and have a thinner deck. These changes will improve hydraulic performance of Mission Creek. The proposed new bridge will have a capacity of 3,400 cubic feet per second (cfs) with one foot of freeboard from the bottom of the bridge to the water surface. The approved Lower Mission Creek Flood Control Project EIR/EIS describes how improvements for the portion of Mission Creek immediately up stream of the project would result in a hydraulic capacity that would accommodate the 20-year statistical storm which is 3,400 cfs.

Construction Method

In order to minimize the impact on the traffic in the area, the bridge would be constructed in three stages. Exhibit A, Figure 5, shows Stage 2 and Exhibit A, Figure 6, shows Stage 3. This would ensure that at least one lane of vehicular traffic would remain open in each direction on Cabrillo Boulevard at all times during construction.

Stage 1 – First the pilings would be constructed to form the foundation support for the bridge. The new support piles would be inserted behind the existing abutments and through holes bored in the deck using cast in steel shell (CISS) reinforced concrete pilings.

Stage 2 - The portion of the bridge that contains two (and a portion of a third) vehicular lanes on the north side of the bridge would be demolished and replaced. This would leave one lane of traffic in each direction on the south side of the existing bridge, plus the bicycle/pedestrian portion of the existing bridge in service. No left turns onto Stearns Warf would be permitted westbound on State Street, and Helena Avenue would be closed to vehicular traffic at Cabrillo Boulevard.

Stage 3 - The remainder of the bridge and the bicycle pedestrian bridge would be demolished. During this stage no left turns would be permitted from Helena Avenue onto State Street and westbound on State Street onto Stearns Warf. The bicycle and pedestrian traffic would be routed onto the sidewalks built during Stage 2 and/or onto a temporary bicycle/pedestrian walkway and bridge closer to the beach. The temporary bicycle/pedestrian walkway is an alternative to provide a place for the Arts and Craft Show ~~vendors~~artists and artisans, bicyclists, and pedestrians during Stage 3.

Bridge abutments would be constructed outside of the existing abutments by installing piles behind the existing abutments and then trenching and forming a cap on top of the piles. This would allow for a concrete wall to be poured in forms parallel to the edge of the creek and behind existing abutments to create the new bridge abutments. The existing abutments and soils between the two abutments would then be removed. Rock, vegetation and other erosion controls would be installed to reduce scour around the new abutments. A new temporary support structure for the building containing Rusty's Pizza at 15 E. Cabrillo Boulevard would be constructed using timber/steel framing during construction.

During demolition of the existing bridge, a cofferdam would be constructed using silt-free gravel bags and plastic sheeting and a Porta Dam or equivalent, not more than 100 feet upstream of the State Street Bridge. Downstream of the work area, in Mission Creek, a cofferdam would be constructed using silt-free gravel bags and plastic sheeting reinforced with sheet piling and/or Porta Dam or equivalent, to resist any storm surge that may occur. The cofferdams would be connected, through the work area, with a flume allowing Mission Creek to flow through the dewatered work area, appropriately covered to keep it free of demolition debris.

The new piles would be capped with formed concrete and a pre-cast reinforced concrete deck would be laid in units on the pile caps to form the bridge deck. The process of installing the pile caps and deck would be repeated on the other side of the bridge (Stage 3) while traffic flows would be maintained on the portion of the bridge constructed in Stage 2. Pavement approaches to the bridge, railings, and pavement on the bridge would be added to complete the bridge.

The contractor would be required to take precautions to ensure that concrete does not come into contact with the water in Mission Creek when concrete is poured during construction. When it is necessary to protect the fish in Mission Creek from stream bed disturbance, the construction area would be dewatered to avoid sedimentation impacts downstream. Best

Management Practices (BPMs) would be used to further reduce impacts to the stream. Water remaining in the work area after creek diversion would be removed with a submersible pump. During pile installation and construction of the two abutments and center bent (pilings plus pile cap), or other similar activities that would increase turbidity, sediments would be removed by means of settling and filtering in a depression on the beach before they percolate into ground water. Methods for protecting the creek may include using Baker Tanks or hay bale/sandbag basins lined with filter fabric. During concrete pouring activities, when the groundwater may come in contact with fresh concrete, contaminated water would be pumped out of the work area. The contaminated water would be hauled away in trucks or pumped into a city sewer main. No water that is contaminated with fresh concrete would be returned to the creek. The bridge CISS piles, or other option pile systems, would be inserted through a water proof cylinder that would prevent concrete contact with the water flowing in the creek.

The bridge deck would be constructed off-site and would be placed by cranes. The bridge bent would be constructed in a way that avoids discharging grout and other construction materials into the live stream channel work area. The abutments and bent would be isolated from the live stream channel by dewatering when it is necessary to protect fish in Mission Creek. A temporary cofferdam would direct water into a flume that would discharge downstream of the work area. In the event of an accidental grout discharge, the contractor would be required to remove any such accidentally discharged materials from the streambed by the end of each working day.

Sensitive species would be protected by both the timing and configuration of proposed construction. Construction in the creek itself is planned when Steelhead are unlikely to be migrating through the project area. The flume is expected to allow both the goby and the steelhead to travel through the project area when the site is dewatered. The project would not dewater until a biologist has indicated that the least impact on the goby are anticipated. The construction time has also been minimized to reduce impacts to sensitive species.

Mission Creek Retaining Wall Replacement

The deteriorated wooden retaining walls on both sides of Mission Creek from Cabrillo Boulevard to State Street will be replaced. The replacement retaining walls will be constructed of faux sandstone pre-cast concrete panels. First, cast in steel shell reinforced concrete pilings will be installed along the creek bank in approximately the same alignment as the existing deteriorating wood retaining walls. Then, a trench will be excavated, three feet (3') deep, along the alignment of the pilings to receive the concrete panels. The panels will then be attached to the pilings and the trench backfilled.

Downstream of the bridge, for approximately one hundred ten feet (110') on the west bank and one hundred sixty feet (160') on the east bank, the existing "sackcrete" retaining walls will be replaced with rock slope protection (RSP) consisting of boulders placed on a 1:1 (horizontal to vertical) slope (Exhibit A, Figure 11). Before the rip rap is placed, a trench will be excavated, to a three foot (3') scour depth to receive the rip rap. At the top of slope a ten foot (10') wide strip of native riparian vegetation will be planted.

Utility Relocation

Gas Main: There are two alternatives being considered for the 16-inch diameter high pressure gas main that runs through the pedestrian bridge. The alternatives are constructing a temporary by-pass pipe, attached to the temporary pedestrian bridge, and constructing a replacement pipe in the new bridge, or constructing a temporary by-pass pipe that is independently supported, near the temporary pedestrian bridge and constructing a replacement pipe in the bridge.

Reclaimed Water Main: There are two alternatives being considered for the 14-inch diameter reclaimed water main that is attached to the south side of the pedestrian bridge, as shown on Exhibit A, Figure 2. The alternatives are temporarily relocating the reclaimed water main to the temporary pedestrian bridge during demolition and construction, then replacing it in the new bridge or leaving the pipe in place and performing demolition and construction around it.

Water Main: There are two alternatives being considered for the six-inch diameter water main that runs through the bridge as shown on Exhibit A, Figure 2. The alternatives are terminating the pipe on both sides of the bridge during most of Stage 3 construction and then replacing it in the bridge near the end of construction, or leaving the pipe in place and performing demolition and construction around it.

Electricity, Telephone & Cable TV: Electricity, Telephone & Cable TV cables would be temporarily relocated in conduit attached to the temporary pedestrian bridge during construction of Stage 3. When construction is completed, they would then be relocated through the new bridge. During Stages 2 and 3, a new conduit will be placed across Cabrillo Boulevard, on the west side of the bridge, for future fiber optic cable.

Construction Timing

Construction would occur over an estimated 20 month period. All construction within the creek bed itself would occur

within the dry season from April to November. Demolition would occur during different periods during construction. It is anticipated that construction would be limited to the hours from 7:00 a.m. to 8:00 p.m. However, it is possible that unknown obstacles would make it necessary to work beyond those hours to complete each stage of work before the rainy season. If the contractor proposes to work additional hours, the contractor would be required to obtain a special permit from the Chief of Building and Zoning in accordance with Section 9.16.015 of the Municipal Code. Therefore, there is a potential for work beyond 7:00 a.m. to 8:00 p.m., including night time work, to occur.

Construction Staging

During replacement of the bridge, it would be necessary for the contractor to have space for storage, staging, and lay down. The street right-of-way would be used; however, other areas are to be considered for such uses. One area being considered for storage is at the southeast corner of Cabrillo Boulevard and Bath Street. This is the area that wraps around the north and east sides of the existing waterfront and Army Corps of Engineers (ACOE) dredge storage (Exhibit A, Figure 9). Another area being considered is a portion of Chase Palm Park, adjacent to Cabrillo Boulevard, from the bathrooms on the southeast corner of Cabrillo Boulevard and State Street to Anacapa Street (Exhibit A, Figures 4 & 5).

Traffic Control

A detailed traffic control plan would be provided to the City Traffic Engineer for review and approval during construction. The plan would provide for signs, flagmen, and provision of facilities to permit the ongoing circulation of automobile, bus, bicycle, and pedestrian uses. One vehicular travel lane would be available in each direction over the bridge during Stages 2 and 3 of construction. Pedestrian and bicycle routes would be kept open in both directions for the duration of the project.

Routes for construction related traffic and parking areas would be specified in the construction contract and would be approved by the City Traffic Engineer. The proposed construction truck route for light trucks would be a loop from Highway 101 to Garden Street to Cabrillo Boulevard to State Street to Yananoli Street to Garden Street, and back to Highway 101. The construction truck route for heavy trucks would be a loop as follows: beginning at Highway 101 to Garden Street to Cabrillo Boulevard, then right on Helena Avenue, right on Mason Street, left on Anacapa Street, right on Yananoli Street, left on Garden Street, and back to Highway 101.

Construction Traffic

Construction equipment would be the type typically used for this type of construction and include falsework, shoring lift, backhoes, front end loaders, cranes, concrete pump, trucks, pile driver, demolition equipment (e.g., headache ball, etc.), jackhammers, dewatering pumps, vacuum pump, pre-stressing jack, sawcut machine, paving machine, etc. Heavy equipment would be used for excavations, pile installation, and demolition in accordance with the schedule (Exhibit A, Figure 10).

The Construction work force would vary from 5 to 30 with a maximum of 30 workers. Construction related employee parking would require 25 parking spaces. These 25 spaces would be provided at an existing City parking lot west of the intersection of Cabrillo Boulevard and Garden Street. An estimated 33 average worker related trips per day, and a peak of 45 worker trips per day, would be generated.

The project would require an estimated 10 average daily truck trips to carry materials, waste, and equipment with a peak of 20 trips per day.

Demolition Materials Disposal

Materials, including concrete and steel from the demolition process, would be recycled locally. An estimated 230 tons of steel, 2,400 cubic yards of concrete, and 500 cubic feet of timber would be generated and trucked to a recycling facility.

Permits/Approvals/Consultations Required

The following permits, approvals and consultations would be required:

- Streambed Alteration Agreement from the California Department of Fish and Game.
- U.S. Army Corps permit.
- Coastal Development Permit.
- Regional Water Quality Control Board permit
- City of Santa Barbara, Park Commission approval of tree removal/relocation.

- CALTRANS approval of funding.
- Historic Landmark Commission approval of bridge design.
- Historical, and archaeological consultation with the State Historic Preservation Office.
- Biological consultation with the US Fish and Wildlife Service.

ENVIRONMENTAL SETTING

Land Use: The area has been largely developed in urban uses including roadway, curb and gutter, sidewalks, bicycle paths, commercial enterprises, and coastal parklands that are heavily used. The bridge serves a large volume of pedestrian, bicycle, vehicular and mass transit uses. The average annualized daily pedestrian/bicycle traffic exceeded 6,000 per day in 2003. On weekend peak periods, the number of pedestrian/bicycle traffic trips exceeded 20,000 per day in 2003. There were 23,000 two-way average daily vehicle trips on the bridge in 1999.

The vehicular portion of the bridge is five (5) lanes wide; two through lanes in each direction along with what serves as a two-way left turn lane. There are left turn lanes immediately off of the bridge structure (east end) onto Helena Avenue and onto Stearns Wharf (west end). In addition, the wide (approx. 11') shoulder adjacent to the eastbound traffic serves as a major Metropolitan Transit District (MTD) bus/Santa Barbara Trolley/Land Shark stop.

The existing bridge consists of the original structure built initially with two lanes and later widened to four lanes and a turning lane. The distance from curb to curb on the bridge is 71 feet. The bridge length is 122 feet and the width is 110 feet. A four-foot- wide sidewalk is located on the north side of the bridge and a 14-foot-wide sidewalk is located on the south side. In 1977, a Class I bicycle/pedestrian bridge was added immediately south (ocean side) of the bridge. The northern four feet of the bicycle/pedestrian bridge has a grated utility opening which carries several utilities including a 16-inch diameter high pressure gas main (Exhibit A, Figure 2). This grating would be replaced with a concrete sidewalk in the new bridge.

Artists and artisans set up booths as part of the Arts and Crafts Show in the adjacent Chase Palm Park most Sundayss during the year through a permit issued by the Parks and Recreation Department. The most prestigious and desirable spaces are immediately adjacent to the proposed construction area. Construction is expected to displace some of these booths, as well as bicycle and pedestrian traffic at times during construction.

The portion of the bridge added in 1977 included supporting pier geometry that is not compatible with the original structure. The existing bridge includes three spans of variable length. Two rows of piers are used to support the three spans, but the piers are not aligned in rows, which diminishes the hydraulic capacity beneath the bridge.

While the bridge was under Caltrans jurisdiction as Highway 225 (approximately 1933 through 1995), it appears that the building that now contains Rusty's Pizza (15 E. Cabrillo Boulevard) was connected to, and is now supported, by the bridge.

Topography: The project area is relative flat and slopes gently towards the south. The site includes Mission Creek that drains a large portion of the City.

Seismic/Geologic Conditions: Bengal Engineering (December 3, 2005) prepared a Preliminary Foundation Recommendation report that includes information regarding the existing seismic and geological conditions at the site. The contents of that report are summarized in this Initial Study, incorporated herein by reference, and is available for review at the Planning Division, 630 Garden Street, Santa Barbara.

The proposed bridge site is located in the western portion of the Transverse Ranges physiographic province of Southern California. The Transverse Ranges are a complex series of east-west trending mountain ranges and valleys. The structural orientation of this province is transverse to the general north-northwest structural trend of the other geologic provinces in California. The western segment of the Transverse Ranges province extends from Ventura County west to Point Arguello, and is dominated by the east-west trending Santa Ynez Mountain Range. The geology of the general area is dominated by Cretaceous-age to recent age sedimentary rock. The project site is located within an elevated portion of the Santa Barbara coastal plain characterized by a gently undulating, but generally south-sloping surface. The elevated feature of the plain is believed to be caused by tectonic uplift during the Quaternary age. Locally, the site area is underlain by alluvium over the south-dipping structure of the Santa Ynez Mountains.

The surficial geologic formations vary from Oligocene-age to recent age deposits. Locally, Holocene to upper Pleistocene age alluvium consisting of unconsolidated to weakly consolidated, poorly to moderately sorted silt, sand and gravel deposits underlie the project area.

The soil profile at the site consists of about five (5) feet of artificial fill underlain by alluvial soils to the maximum explored depth of about 110 feet below existing ground surface. The alluvium unit at the site consists of two distinguishable units: an upper recent alluvium unit (Qs) and a lower older alluvium unit (Qoa). Bedrock was not encountered within the depth of the exploratory borings.

About four (4) to five (5) feet of artificial fill soils were encountered in the exploratory borings. The artificial fill soils are comprised of about 12 to 16 inches of pavement material (aggregate base and asphalt concrete) over mainly moist, light brown, medium dense to dense fine-grained Sand and Silty Sand (SP/SM), and Sandy/Clayey Silt (ML).

Recent Alluvium (Qa): Similar to much of the Santa Barbara urban area, recent alluvial soils underlie the project site. These soils were encountered in the borings to a depth of about 95 to 100 feet. This unit consists of relatively interbedded thin layers of mainly gray to dark gray medium stiff to stiff, lean Sandy/Silty Clay (CL), and dense Silty Sand/Sand (SM/SP). The thickness of the interbedded soil layers ranges from thin lenses to greater than 5 (five) feet. The dry density and moisture content of the fined-grained cohesive soils range mainly from about 90 to 100 pcf and 27 to 40 %, respectively. Based on the laboratory unconfined compressive (UC) strength tests and empirical correlation with Cone Penetration Test (CPT) tip resistance, it is estimated that the undrained shear strength of the cohesive soils at the site varies mainly from about 800 to 1500 pounds per square foot (psf). The effective friction angle of the cohesive soils at the site is estimated to fall within the range of 28 to 30 degrees. The dry density and moisture content of the relatively coarse-grained SM/SP soils encountered at the site range mainly from about 105 to 110 pounds per cubic foot and 17 to 23 % moisture content, respectively. The effective friction angle of these granular soils, estimated based on empirical co-relations with Cone Penetration Test (CPT) tip resistance, varied mainly from about 36 to 39 degrees. The measured shear wave velocity of the alluvium soil encountered in the exploratory borings ranges from about 360 ft/sec to 780 ft/sec.

For design purpose, the alluvial soils at the site can be characterized as consisting of mainly two relatively uniform types of soil. These soil types include medium to stiff fine-grained lean Sandy/Silty Clay (CL) and dense coarse-grained Silty Sand/Sand (SM/SP) with engineering characteristics presented in the previous section.

Older Alluvium (Qoa): Older alluvial soils were encountered in the borings at depths ranging from 95 to 100 feet below the existing ground surface. This unit, to the maximum explored depth, consists of mainly very dense, brown, Silty Sand (SM) and Sand (SP) with interbedded thin layers of Silts (ML). The measured shear wave velocity of this unit is about 870 feet/second.

Groundwater was not measured in the exploratory borings. Based on the CPTu tests and the elevation of the bottom of the Mission Creek, the estimated depth to groundwater at the site ranges from about 8 to 10 feet below existing ground surface. Groundwater depth at the site should be expected to fluctuate with the water level in the Mission Creek and the tides, and over time and seasons.

Faulting and Seismicity: The project site is located within a seismically active region of Southern California. The general area has experienced strong earthquakes in the past (e.g., M6.8 in 1925 ad M5.1 in 1978), and are likely to experience more moderate to strong earthquakes in the future.

The project area is underlain by numerous active and potentially active faults. However, the bridge site is not located within any Alquist-Priolo Earthquake Fault Zone (EFZ) as defined by the California Geological Survey (CGS). Based on the CALTRANS' 1996 Seismic Hazard Map the Mesa-Rincon Creek (MRC) fault is the nearest seismogenic seismic source from the bridge site. The MRC is an unknown type of fault capable of generating a Maximum Credible Earthquake (MCE) of Moment Magnitude, M=7.0 and a median Peak Bedrock Acceleration (PBA) of 0.7g at the site. The CALTRANS Map shows the MRC fault located about 0.2 km north-northwest of the project site. However, based on Dibblee (1986), the MRC fault is located about 0.4 km south-southwest of the bridge site. The MRC is a south-dipping reverse fault.

Relevant faulting and ground motion parameters for the nearby active and potentially active faults that can produce significant ground motion at the site are presented below. The North Channel Slope fault is a major local reverse/thrust fault recently identified by the CGS as a Type B active fault (CGS, 2003) with a slip rate of 2.0 mm per year. The moment magnitude of the Maximum Magnitude Earthquake (Mmax) for this fault is estimated to be 7.4 by CGS.

Faults and Ground Motion Parameters

Fault Names (Symbol)	Approx. Site-to-Fault Distance (km)	Fault Type	MCE Magnitude (M)	Median PBA (g)	Median PGA (g)
Mesa-Rincon Creek (MRC)	0.4[a]	Reverse/ Oblique	7.0	0.90	0.70
North Channel Slope[b]	1.1	Reverse/Thrust	7.5[c]	0.86	0.70
More Ranch-Mission Ranch-Arroyo Parida-Santa Ana (MMA)	4.1	Normal	7.5	0.72	0.55
Santa Ynez Fault (SYZ)	10.0	Reverse/ Oblique	7.5	0.48	0.47
Pitas Point-Ventura (PPV)	11.4	Reverse/ Oblique	7.25	0.41	0.41
Oak Ridge (OKE)	17.5	Reverse/ Oblique	7.5	0.33	0.36

Notes: (a) Based on Dibblee (1986); (b) Based on CGS (2003); (c) Since no MCE magnitude is available from CALTRANS for this fault, the M_{max} magnitude from CGS (2003) rounded to the nearest quarter magnitude is used.

Flooding/Fire Hazard: There is little fire hazard in the project area as the bridge is made of concrete and steel and little flammable vegetation is located in the area, except ornamental vegetation located along the creek banks. The project area is not located within an existing Wildland Fire Hazard Area., according to the Wildland Fire Plan.

Bengal Engineering prepared a Hydrology and Hydraulic Analysis (December 5, 2005) for the proposed project that is summarized below and incorporated by reference.

The Mission Creek watershed area is bordered on the east and west by unincorporated urbanized lands, on the north by the Santa Ynez Mountains, and on the south by the Pacific Ocean. The drainage area is located in a narrow coastal zone rising steeply to the Santa Ynez Mountains in a north-south direction. The mountains rise about 3,000-3,500 feet in less than 3 miles, with crest elevations of 3,500-4,000 feet above mean sea level in the upper portions of the drainage basin. In the upper reaches, stream gradients are as steep as 2,600 feet/mile and average 1,000 feet/mile. In the lower reaches, on the alluvial plain below the foothills, slopes average approximately 150 feet/mile. Mission Creek and its tributary, Rattlesnake Creek, drain approximately 11.38 square miles of Santa Barbara watershed.

The mountains above Santa Barbara provide significant orographic uplift and receive much higher precipitation than the coastal plain. The mean seasonal precipitation for the drainage area is approximately 18-inches-per-year along the coast and 30-inches-per-year in the mountains. The majority of the precipitation occurs between November and April. Flooding typically occurs between December and March. The majority of the precipitation is a result of general winter storms associated with extra-tropical cyclones of North Pacific origin. The rainfall events that cause flooding in the Santa Barbara area are intense and are typical in coastal California. These floods are of a short duration, with extreme flooding lasting a few hours or less.

During flood events, water overflows the banks near the upper State Street Bridge and sheet flows through the Oak Park neighborhood. The floodwaters then "splits flow" nears the Junipero Street Bridge. Part of the flow remains in the main channel while the rest flows over Hwy 101 and then drains through the San Andres Street neighborhood. The two flows that split upstream at Junipero Street converge again near Carrillo Street. The flood waters typically overflows the banks again below the De la Guerra Street Bridge because of the inadequate conveyance capacity provided by the Ortega Street Bridge. The overflow trend continues until Mission Creek reaches the ocean beyond Cabrillo Boulevard Bridge. Flooding in the lower reach is also affected by the ocean tide during storms.

Breakout from the channel occurs in various locations upstream and down stream of the project site during high floods. The actual discharge in the creek under storm conditions will be influenced by these breakouts. Some of the water leaving the creek rejoins the creek flow downstream from the breakout point. Both the timing and magnitude of the peak discharge in the creek will be affected by breakout flows.

A flood insurance study (FIS) was issued by Federal Emergency Management Agency (FEMA). Only the 100-year

discharges were used in the study. The 100-year discharge cited in the FIS for Mission Creek at De la Guerra Street was 7,400 cubic ft/Sec.

After the record flood of 1995, the Corps revisited the hydrology and the hydraulics of the Mission Creek for the Lower Mission Creek (LMC) Flood Control Project and determined that the highest conveyance achievable without replacing four bridges (Bath Street Bridge, Gutierrez Street Bridge, State Street Bridge and Cabrillo Blvd Bridge) was 3,400 cubic ft/Sec, which provides approximately a 20-year (Q20) level of protection. The Flood of Record of Mission Creek at the Mission Stream Gauge was 5,120 ft3/sec in the year 1995, which equates to the 50-year (approx.) flood.

The Corps-prepared balanced hydrographs of Mission Creek were based on the measured hydrograph of January 10, 1995 flood. The Corps applied the hydrographs in hydraulics calculations for the predictions of water surface elevations

Creeks/Drainage: The proposed project would replace an existing bridge over Mission Creek. The existing bridge is supported by several sets of pylons that were constructed at different times that are not aligned. The non-aligned pylons and the configuration of the bridge restrict the existing hydrologic capacity of the creek beneath the bridge to less than the 25-year statistical storm capacity. Overtopping the bridge occurs during larger storms.

Biological Resources:

The following description is taken from a report prepared by URS Consultants, dated December 2006, and entitled Natural Environmental Study. The contents of that study are summarized below, and the contents of the reports are hereby incorporated by reference. The report is available for review at the Planning Division, 630 Garden Street, Santa Barbara.

Mission Creek discharges to East Beach at Cabrillo Boulevard. The lower portion of the creek is tidally influenced, and is therefore called Mission Creek Estuary. It extends from the beach up to Yanonali Street. The estuary includes two geographically recognizable elements: 1) the lagoon on the beach, and 2) the confined creek channel from Cabrillo Boulevard to Yanonali Street. The term "lagoon" is defined in this report as the waterbody on the beach below Cabrillo Boulevard. However, it should be recognized that the lagoon is an integral part of the larger estuary.

The creek channel above Cabrillo Boulevard is about 70 to 90 feet wide from top of bank to top of bank, and the creek bed is from 30 to about 60 feet wide. The channel banks vary considerably from Cabrillo Boulevard to Yanonali Street, and include earthen banks with vegetation, vertical banks constructed of concrete or wood, and stone walls. The creek substrate varies from sand to remnants of a prior stone channel bottom.

A lagoon is typically present year-round at the beach. The size and configuration of the lagoon varies considerably due to runoff, waves, and beach sand management. In all but drought years, winter runoff is sufficient to enlarge the lagoon such that it breaks through the sandbar formed on the beach and discharges to the ocean. If there are large or frequent runoff events, the lagoon is absent and the creek flows across the beach. As the flows diminish, sand builds up from wave action. A berm is formed when the hydrostatic pressure and water levels in the creek decline and become insufficient to displace the sandbar. As the berm is forming, the water depth and surface area of the lagoon increase until they reach an equilibrium in which inflow from the creek is equal to seepage to the ocean, and the hydrostatic pressure in the lagoon is less than the force required to displace the sandbar.

The process of forming the lagoon each winter is very dynamic. The lagoon may form and breach several times each winter. In addition, the beach sand management actions in the winter under the City's Sediment Management Program (SMP) (information below) affect the size and timing of lagoon formation. However, once a lagoon is formed, its size in the summer appears to be relatively similar from year to year, based on a review of historic aerial photographs.

Mission Creek generally flows year-round; hence, there is a base flow to the lagoon in the summer months that maintains the lagoon at a relatively constant size. The base flows in the summer are derived primarily from groundwater discharge in the lower watershed.

The depth of the lagoon in the summer typically ranges from 5 to 8 feet. The water surface elevation in the lagoon is generally determined by the height of the sandbar, which is usually about 6 to 8 feet (NAVD 88). If water surface elevations increase above these levels, the lagoon will breach the sandbar. The top of the beachway path bridge over Mission Creek along Cabrillo Boulevard is at elevation 12.6 feet. The elevation of the tops of the concrete sandbag wingwalls near the beachway bridge is about 9 to 10 feet. The elevation of the creek bed at the beachway bridge is typically 0 to 2 feet.

In 2000, and again in 2005, the City approved a Waterfront Area Sediment Management Program (SMP), which is implemented by the Waterfront and the Parks and Recreation Departments. The SMP allows the City to maintain a certain beach configuration at East Beach. The City may grade up to 200 feet from the centerline of Mission Creek and always outside of the lagoon itself, maintaining a 10-feet elevation for the berm. This grading ensures that the alignment of the

lagoon is towards the east, away from Stearns Wharf. It facilitates the merger of the Mission Creek lagoon with the water body at the mouth of Laguna Channel.

Laguna Channel is a manmade drainage that discharges to the beach about 800 feet east of Mission Creek.. During most of the year, a low-flow pump is periodically turned on to remove water accumulating in the channel upstream due to runoff, nuisance flows, or groundwater seepage. This water is discharged to a concrete flume that passes under the beachway and discharges to the beach. Two additional high/low pumps are turned on when flows increase. When the pumps are unable to keep up with the inflow during moderate to high storm flow conditions, the water level in the channel rises to flood stage. Alternatively, the tide gates are opened but only when the tides are low, allowing water to discharge directly to the beach. Once these flows have subsided, the tide gates are closed to prevent tides from entering the channel and contributing to flooding upstream.

The study area is paved and devoid of biological habitats except for the creek channel and lagoon. The creek channel contains open water estuarine habitat that supports fish and water-dependent birds. The channel does not currently have sufficient width or the appropriate bank configurations for streamside emergent wetlands. The banks are relatively steep, greater than a 1:1.5 incline, with the existing retaining wall and bridge abutments being vertical. During most of the year, the water in the creek is relatively high and at a constant elevation. The water depth is too great to allow for the growth of emergent wetland plants such as cattails. In addition, due to high-velocity winter flows, it is likely that in-stream vegetation would be washed away each winter during high creek flows.

Upstream of the State Street Bridge, there is a small bank on the east side of the creek where weedy plants are present, including pampas grass, brome grass, palms, mustard, and coyote bush. The bank on the west side of the creek is comprised of a wooden vertical wall and does not have any vegetation. The banks between Cabrillo Boulevard and State Street contain wooden vertical walls with patches of concrete rubble. The tops of the banks support a dense thicket of myoporum shrubs.

The bottom substrate of the lagoon is fine- to medium-grained sand with patches of gravel and cobble. A layer of algae, leaves, and organic detritus accumulates on the bottom substrate after each winter, particularly in the upstream half of the lagoon. Large patches of filamentous green algae are often present on the bottom substrate in the downstream half of the lagoon.

Mussels (Mytilus spp. or Galloprovincialis spp.) and barnacles (Balanus spp.) are abundant on the hard substrate associated with the wingwall and concrete pilings of the beachway path. A variety of objects (trash and garbage) was observed beneath the beachway path including hats, shopping carts, PVC pipes, rebar, palm fronds, bottles, cans, etc.

Downstream of the multipurpose trail bridge, the banks of the lagoon are protected by very old sackcrete walls. These vertical walls extend downstream approximately 150 feet on the west side and 100 feet on the east side. Turf, palm trees, and bare sand are present above these walls.

There is a 250-foot-long reach along the east bank of the creek beginning at the end of the sackcrete wall which contains a 25-foot wide band of annual and perennial vegetation that has colonized by opportunistic native and non-native plants. These species include sea rocket (Cakile maritima), rabbitsfoot grass (Polypogon monspeliensis), white sweet clover (Melilotus albus), Atriplex triangularis, and an unidentified sedge (Cyperus sp.).

Submerged or emergent vascular plants are absent from the lagoon. Vegetation in the lagoon is limited to clumps of brownish diatoms that grow on the bottom in shallow waters, and the filamentous green algae Entermorpha spp., which often forms thick, floating mats on the water surface in summer months when water temperature and salinity are relatively high.

Field surveys of the lagoon were conducted to characterize the invertebrate fauna. Benthic samples were collected at the upper, middle, and lower portions of the lagoon. Invertebrates collected from the estuary during the field survey consisted of "epibenthic" crustaceans and insects. "Infaunal" benthic organisms were not found in the samples collected from the lagoon. Survey results indicate that the invertebrate population does not affect abundance or presence of tidewater goby in Mission Creek.

The following species have been previously recorded in the lagoon: tidewater goby, prickly sculpin, staghorn scuplin, topsmelt, striped mullet, and partially armored stickleback. Two federally listed endangered species occur in the Mission Creek Lagoon: the tidewater goby (as a year-round resident) and southern steelhead (during upstream and downstream migration periods).

The lagoon and its margins are used for resting and feeding by numerous species of migratory and resident birds including waterfowl, diving and wading fishers, and shorebirds. Common species include western gull, ring-billed gull, Heermann's gull, mew gull, California brown pelican, pied-billed grebe, American coot, mallard, common loon, great egret, snowy

egret, killdeer, willet, western sandpiper, sanderling, American crow, and rock dove. Many other species are commonly observed using the lagoon, including great blue heron, green-backed heron, black-crowned night heron, Forster's tern, California gull, belted kingfisher, western grebe, marbled godwit, black-bellied plover, and spotted sandpiper, among others.

Bird use of the lagoon varies from month to month. Spring is a season of low bird diversity and abundance on East Beach, although small numbers of non-breeding western gulls, double-crested cormorants, and brown pelicans remain in the area. In early June, seabird use of the lagoon and beach area increases as western gulls, brown pelicans, and double-crested cormorants return from nearby breeding grounds on the Channel Islands. The late summer/early fall migrations bring large numbers of shorebird species into the Santa Barbara area. Larger shorebird species such as willet, whimbrel, marbled godwit, and black-bellied plover are common. Small shorebirds are commonly observed along the margins of the Laguna Channel water body, which has finer sediments than along the Mission Creek water body.

In mid-fall, gull and tern species diversity and abundance dramatically increases in the Santa Barbara area. East Beach and Mission Creek lagoon are used extensively at this time by the large flocks of loafing California, ring-billed, Heermann's, and western gulls. These birds remain in the area until spring migration in mid-March when bird diversity and abundance begins to diminish.

Most bird species occurring at Mission Creek lagoon use the gently sloping banks with extended areas of shallow water less than 10 inches in depth. This depth profile permits gulls and terns to wade into the lagoon and bathe. The ability to bathe in relatively fresh water is important to many seabirds that must continually rinse off saltwater and sand in order to maintain good feather quality. The shallow banks along the lagoon edge also allow shorebirds to forage over larger areas of optimal depth.

There are 13 sensitive species of concern that occur or have occurred historically in Mission Creek and the lagoon. They are listed in the table below, with an indication of suitable habitat presence and potential for occurrence in the study area and status of the species..

Sensitive Species

Common name	**Habitat Presence**	**Potential for Occurrence**	Status
Tidewater goby	Present	Expected	Federal Endangered, State Species of Special Concern
Southern Steelhead	Present	Expected	Federal Endangered, State Species of Special Concern
Southwestern pond turtle	Absent	Not expected	Federal Species of Concern, State Species of Special Concern
Red-legged Frog	Absent	Not expected	Federal Threatened
Western snowy plover	Present	Not expected	Federal Threatened, State Species of Special Concern
California Brown Pelican	Present	Transient	Federal Endangered, State Endangered
California least tern	Present	Likely	Federal Endangered, State Endangered, California Fully-protected
Peregrine falcon	Absent	Not expected	Federal Species of Concern, State Endangered
California Gull	Present	Unlikely	State Species of Special Concern
Long-billed curlew	Present	Likely	State Species of Special Concern
Double-crested cormorant	Present	Not expected	State Species of Special Concern
Elegant Tern	Present	Likely	State Species of Special Concern
Black skimmer	Present	Transient	State Species of Special Concern

Cultural Resources: Applied Earthworks prepared Archaeological and Historic Resources reports for the project. These reports are summarized in the Cultural Resources section and below, are incorporated by reference, and the Historic Resources Report is available for review at the Planning Division, 630 Garden Street, Santa Barbara.

The Archaeological Area of Potential Effect (APE) was established as the area of bridge construction; both sides of Mission Creek from the beach to 100 feet upstream of the State Street Bridge; bridge abutments; utility corridors; areas where the approach would be modified to match the new bridge; areas requiring landscaping; and the equipment staging/storage area at the southeast corner of Cabrillo Boulevard and Bath Street. From west to east, it extends along

Cabrillo Boulevard from 100 feet west of State Street to Santa Barbara Street on the east.

An archaeological literature and records search for the proposed project was conducted in September of 2005 at the Central Coast Information Center of the California Historical Resources Information System at the University of California, Santa Barbara. No previously recorded archaeological sites were identified within the project Area of Potential Effects (APE) as a result of this research. One previously recorded prehistoric archaeological site, CA-SBA-27, is located approximately 225 feet (68.6 meters) from the APE. Two unrecorded historical archaeological sites, a service station and driveway demolished in the early 1950s, and the Santa Barbara Lumber Company, demolished after 1931, were identified within the APE as the result of archival research.

The archaeological APE was surveyed in its entirety in September of 2005. The survey resulted in negative findings for prehistoric archaeological resources. In addition, examination of soil from geotechnical borings within the APE did not yield any cultural materials over 50 years of age. At the location of the demolished service station, wood supports or bulkheads are visible from the Cabrillo Bridge; however, much of this area is under water. No other historic archaeological material was identified.

Based on the history of the service station and the Santa Barbara Lumber Company, the potential for other deposits associated with these sites is considered unlikely. The sites qualify as Exempt from Evaluation under the Caltrans Section 106 Programmatic Agreement Attachment 4, "Properties Exempt from Evaluation," under Property Type 1: Minor, ubiquitous, or fragmentary infrastructure elements under the following categories:

- fragments of bypassed or demolished bridges; and/or
- foundations and mapped locations of buildings or structures more than 50 years old with few associated artifacts or ecofacts and
- with no potential for subsurface archaeological deposits.

The only historical resource within the APE is the Cabrillo Boulevard Bridge over Mission Creek (P-42-040445), located just east of the intersection of East Cabrillo Boulevard and State Street. This bridge is a contributing element of the East Cabrillo Boulevard Parkway Historic District. Its period of significance is from 1923 to 1928.

The Cabrillo Boulevard Bridge is the only historic property identified within the APE. The Caltrans' 1992 evaluation of the East Cabrillo Boulevard Parkway Historic District for the Carpinteria-Santa Barbara Median Widening and Interchange Project (Scott 1992) identified the bridge as a contributing element to the district. Beautification efforts along the Santa Barbara waterfront were first initiated prior to the turn of the twentieth century, when private landowners began donating waterfront property to the City. As a result, the City passed an ordinance in 1903 dedicating lands between Santa Barbara and Quarantina streets for use as a public park. By 1924, the City had acquired considerable additional beachfront properties, leading the City Planning Commission to hire planning consultant Charles Cheney. Cheney convinced the Planning Commission to also hire the Olmsted Brothers landscape architectural firm. In 1924, Cheney and the Olmsteds submitted their Major Traffic Street Plan: Boulevard and Park System for Santa Barbara California (Cheney and Olmsted Brothers 1924). One of the primary features of the Cheney/Olmsted plan was the improvement of East Cabrillo Boulevard, which called for a realignment of the road, improved water drainage, and vegetation planting. The north railing on the bridge is a remnant from the original 1913 bridge construction. The railing along the south side of the bridge consists of open balustrade.

The Cabrillo Boulevard Bridge was first built as a two-lane structure in 1913 as part of a city-wide bridge building plan. It was constructed of reinforced concrete and closed balustrades with a panel design. In 1928, the bridge was widened to four through-lanes and one turn lane as part of the Cheney/Olmsted plan. Original improvement plans called for widening both sides of the bridge, but the final expansion was restricted to the south side. A Class I bicycle and pedestrian lane were added along the south side of the bridge in 1977.

In 1992, the East Cabrillo Boulevard Parkway Historic District was delineated during a Caltrans survey for the Carpinteria-Santa Barbara Median Widening and Interchange Project (Kane and Scott 1992). The district was evaluated as eligible for listing on the NRHP under Criterion A, for its association with the city's involvement in the early years of the city planning movement in the United States, and under Criterion C, as a good example of the Olmsted Brothers work as landscape planners. The Office of Historic Preservation concurred on January 25, 1993.

The Cabrillo Boulevard Bridge was identified as a contributing element of the district. This bridge was one of three either constructed or widened during the East Cabrillo Boulevard Parkway Project, and is the only extant bridge from the historic district's period of significance (1923–1928).

Noise: The following description of the existing noise environment is based upon a report prepared by Channel Islands

Acoustics, dated, June 19, 2006, which is hereby incorporated by reference, and is available for review at the Planning Division, 630 Garden Street, Santa Barbara.

Although the project area is primarily industrial and commercial in nature, there are a few residences and other uses that could be impacted by project noise and vibration. They include:

- Permanent Residences
- Condominiums on the northerly side of Yanonali Street; westerly of Garden Street
- Penthouse residential floor of mixed use building northerly of Cabrillo Boulevard., east of Anacapa Street.
- Transient Residences
- Hotels
- Restaurant Outdoor Dining Patios
- Rusty's Pizza Parlor at NW corner of Cabrillo Boulevard and Helena Avenue
- Eladio's at NW corner of State Street and Cabrillo Boulevard
- Outdoor Recreation Areas
- Bicycle and pedestrian paths along Cabrillo Boulevard
- Park and art walk area south of Cabrillo Boulevard
- Visitors' center and Park/carousel at Garden Street and Cabrillo Boulevard
- Skateboard Park south of Cabrillo at Anacapa Street

In order to document the ambient environment, noise levels were monitored at several locations, concentrating on early morning and daytime time periods. Measurements were taken using logging sound level meters and logging real-time Analyzers. The existing Ldn values have been estimated to be 64-66 dB at the Yanonali and Multi Use residential locations and 60 dB at the side of Helena Avenue. In addition, existing traffic noise was estimated based upon existing traffic volumes.

The spectrogram of the strongest train-induced ground vibration measured near the vibration-sensitive Italian Pottery Outlet is provided in the Noise and Vibration study. The vibration level measured was 8 Hz. at the Pottery Outlet that appears to suffer no ill effects from this level of vibration, which results two to four times daily from freight train passages.

Water Quality: Extensive water quality sampling data has been collected for Lower Mission Creek and the Mission Creek Estuary. The project area of the Cabrillo Bridge replacement corresponds to the upper reach of the Mission Creek Estuary. Water quality within this area is influenced both by flows in Mission Creek and the annual morphological changes within the Mission Creek Estuary. The results of the various water quality studies in the Mission Creek watershed, estuary, and lagoon indicate the following relative to the upper Mission Creek Estuary:

- Inflows from the watershed generally do not have high concentrations of organic compounds, petroleum hydrocarbons, and heavy metals.
- The estuary and lagoon do not have high concentrations of organic compounds, petroleum hydrocarbons, and heavy metals.
- Sediments in the estuary may contain elevated concentrations of petroleum hydrocarbons and heavy metals, which may be stabilized in the sediment.
- Bacteria concentrations in the creek as it enters the estuary are generally very high.
- Bacteria concentrations in the lagoon are very high.
- Bacteria concentrations in the surf zone near the lagoon outlet are also very high, possibly only when the creek discharges to the ocean.
- Significant stratification of temperature and salinity occurs in the Lower Mission Creek estuary and lagoon during the warmer months and when the lagoon mouth is closed.
- Dissolved oxygen levels within the Lower Mission Creek estuary and lagoon fluctuate significantly during the day based on levels of algal photosynthesis and anoxic decay; this fluctuation is most apparent

during the warmer months and when the lagoon mouth is closed.

Mission Creek has a "water contact recreation (REC-1)" beneficial use designation in the Central Coast Basin Plan. REC-1 is defined as recreational uses involving water contact where ingestion of water is possible, including swimming, surfing, scuba diving, wading, fishing, etc. Water contact recreation within the proposed project area is limited. Adults and children sometimes wade or splash within the Mission Creek Estuary down-gradient from the Cabrillo Street bridge. The Basin Plan includes a numeric water quality standard for fecal coliform for waters with a REC-1 designation that would apply to Mission Creek:

The concentration of fecal coliform , based on a minimum of not less than 5 samples for any 30-day period, shall not exceed a long mean of 200 organisms /100 ml, nor shall more than 10% of total samples during any 30-day period exceed 400 organisms /100 ml. An 8.6 mile reach of Mission Creek was listed as Impaired on the 2002 California TMDL list for pathogens; the source of pathogens was identified as being from urban run-off and transient encampments. However, the RWQCB has given developing a TMDL for pathogens in Mission Creek a low priority.

The Pacific Ocean at East Beach (Mission Creek) was also identified as being impaired for pathogens on the 2002 List of Impaired Waters. The Central Coast RWQCB is currently in the process of developing a TMDL for the outlet of Mission Creek under its Santa Barbara Beaches Bacteria TMDL. The 2004 List of Impaired Waters has not yet been approved by the SWQCB.

The City of Santa Barbara has been collecting fecal indicator bacteria data from Mission Creek and its outlet on the Pacific Ocean since June 2001 as part of an urban creek and near shore monitoring program. Results of sampling show that concentrations of fecal indicator bacteria exceed human health standards. The sources of the fecal indicator bacteria in streams and near shore ocean water are not known in the Santa Barbara area but may include direct contamination from animals and transient human populations residing in the area, contamination from leaking sewer lines, or from leaking household connections to sewer lines. Contamination may enter the streams directly or be transmitted short distances through shallow ground water before discharging to the stream. Fecal bacteria contributions from resident bird populations also may be a large source of bacteria along the oceanfront.

Water quality in the Mission Creek watershed was characterized in a joint study by the City and County of Santa Barbara. Creek water was sampled at nine sites throughout the watershed during the period August 1998 to March 1999. The results indicated that water quality in the creek was good and that no applicable water quality objectives and standards from the Central Coast Regional Water Quality Board's Basin Plan were exceeded. Metals were not detected (Cd, Cr, and Hg) or were measured at very low levels (Cu, Ni, Pb, and Zn). Nutrient levels were also very low, particularly ammonia-nitrogen. Dissolved oxygen levels were very good and sediment concentrations (outside of flood flows) were low.

During the 1998/1999 study, bacteria concentrations were elevated at all stations after the first substantial rainfall event, a commonly observed condition due to the flushing effects of the first major rainfall. There was a distinct pattern of increasing bacteria concentrations from the top of the watershed to the mouth of the creek, as the creek traverses increasingly dense urban development.

In May 2001, the City initiated a comprehensive bacteriological monitoring program for City creeks, including Mission Creek. Samples are collected weekly (when water is present) at 14 sites in the watershed and analyzed for total coliform, fecal coliform, and enterococcus. The lowermost sampling location was at Montecito Street near the Railroad Station, upstream of the Mission Creek estuary. The data collected to date indicate the following:

- There are increasing levels of bacteria concentration from the top of the watershed to the bottom.
- Concentrations vary considerably from week to week, but there is no obvious seasonal trend with the exception of high values during the first flush storm.
- Bacteria levels in the lower watershed routinely exceed the standard.

The Corps of Engineers (2000) collected water quality samples at three locations along Lower Mission Creek as part of the analysis of the proposed flood control project. The results of the analysis indicate that water quality in the estuary portion of the creek was very good. Almost all analyses were below the detection limits. For example, no organochlorine pesticides, polychlorinated biphenyls, or poly nucleated aromatic hydrocarbons were detected. No heavy metals were detected, except for a low concentration of lead which was below the federal drinking water standard. Sediment samples were also analyzed at the same location. Organic compounds were not detected in the sediment samples. However, the sediment did exhibit elevated concentrations of petroleum hydrocarbons and heavy metals. Despite the elevated levels of these constituents, the concentrations of copper, lead, zinc and HPAH (high molecular weight polycyclic aromatic hydrocarbon), did not exceed the Apparent Effects Threshold (AET) set under the California Sediment Quality Guidelines.

The City of Santa Barbara has collected data on bacteria concentrations in the Mission Creek Estuary and Lagoon on several occasions. These data indicate very high levels are present in the lagoon, including fecal coliform levels that exceed the freshwater water quality objective for water contact recreation.

Sampling of indicator parameters has been conducted within the Mission Creek Estuary as part of the various studies since 1999. Temperatures in the Mission Creek estuary and lagoon are lowest in the winter (about 50-60°F), then increase to 70-80°F in the summer. Salinity levels in the Mission Creek lagoon vary greatly from season to season and from year to year depending upon whether the mouth is open, and the amount of freshwater flow and seepage in the creek. For example, the lagoon may exhibit very low salinity in the winter when the mouth is open intermittently because the high volume of freshwater displaces saltwater inflows from tides. When the lagoon is closed, salinity may be low if freshwater input is high due to prolonged runoff. However, it is more common for salinities to increase over time in a closed lagoon due to decreasing freshwater inflow, effects of evaporation from the lagoon, and continual seepage from the tides. Seasonal fluctuations in salinity and water temperature are very important in determining which aquatic species reside in the estuary at various times of the year.

Data collected in June 2000 showed that lagoon water temperatures can reach very high levels during summer months, exceeding 85°F in the lower saltwater layer. Water in the lagoon exhibits only slight increases in temperature during the day.

Salinity measurements were taken just downgradient of the Cabrillo Bridge in late May 2002. The lagoon exhibited a moderate salinity stratification in which the denser saltwater was below the lighter freshwater. Surface water was warmer than the deeper water. In general, dense saltwater at lower depths in estuaries is warmer than surface water. However, the temperature data from April 2002 suggests that the relatively high turbidity in the lagoon during April may have reduced sunlight at lower depths and prevented the warming of the lower saltwater layer.

Temperature and salinity recordings at several sites within the Mission Creek estuary were taken between May and November of 2005 (ECOR, 2005). The locations were established as the Mission Creek lower estuary, middle estuary and upper estuary and upstream of weir. The upper estuary sampling site corresponds with just downstream of Cabrillo Bridge. Strong temperature and salinity stratification were noted at all sampling sites at the upper estuary sample site. A maximum temperature difference (6.9°C) between surface and bottom waters, and a 14-fold increase in salinity between surface and bottom water layers was recorded at the upper estuary site in September and May, respectively.

The reported TDS content for groundwater in the Santa Barbara Basin in 1999 ranged from 520 to 960 mg/L. The local groundwater is very hard, containing large amounts of calcium and magnesium ions. The principal ions in the groundwater are calcium, magnesium, bicarbonate, and sulfate. The reported electrical conductivity values ranged from 790 to 1464 μmhos in 1999.

Existing Land Use

Existing Facilities and Uses: The site is used for drainage and transportation purposes. A restaurant is attached to the bridge on the north side of Cabrillo Boulevard on the east side of the bridge. To the north of the project site is a parking lot and commercial use. West of the site are commercial uses and south of the site are recreation uses.

PROPERTY CHARACTERISTICS

Assessor's Parcel Number:	033-111-011, 033-120-015 and ROW	**General Plan Designation:**	Open Space
Zoning:	PR/S-D-3, HRC-2/S-D-3	**Parcel Size:**	0.33 acres
Existing Land Use:	Transportation/Commercial	**Proposed Land Use:**	Transportation
Slope:	Less than 1%		
SURROUNDING LAND USES:			
North:	Commercial		
South:	Recreation/Beach		
East:	Roadway/Commercial/Recreation		
West:	Roadway/Commercial/Recreation		

PLANS AND POLICY DISCUSSION

Land Use and Zoning Designations:

The property upon which the bridge is located is designated Recreation/Open Space in the General Plan. Transportation facilities such as bridges are allowed uses in this land use category.

Attached as Exhibit B are the relevant General Plan and Local Coastal Plan Goals and Policies. A discussion of project consistency with these goals and policies is provided below.

General Plan Policies:

CULTURAL AND HISTORIC RESOURCES

As discussed in the Cultural Resources section, the proposed bridge replacement would remove an existing bridge that has been determined to be eligible for listing in the National Register and is a contributing element of the East Cabrillo Boulevard Parkway Historic District. The bridge would be removed because it has deteriorated structural integrity and insufficient hydrological capacity. Bridge replacement is therefore necessary. The impact of bridge removal would be mitigated by using the historic design elements in the new bridge and by documenting the existing bridge for archival purposes. This would minimize project impacts.

The project area was surveyed and research was conducted to identify archaeological resources in the project area and no archaeological resources were identified in the project area. Therefore, the project is consistent with City goals and policies related to protection or preservation of archaeological resources.

VISUAL RESOURCES

The proposed bridge would not result in any additional view blockage when compared to the existing bridge. The bridge is currently in deteriorated condition and landscaping in the area is not native. The proposed project would improve the visual appearance of the bridge itself and of the surrounding creek banks as they would be revegetated using more appropriate riparian plant species. Some of the creek bank protection has deteriorated and would also be replaced with Historical Landmarks Commission approved hardscape/landscape materials. This would ensure a good appearance for creek landscaping. Therefore, the project would be consistent with these policies.

AIR QUALITY

The proposed project would not have substantial air emissions associated with operations. During construction, emissions would result from construction equipment and exposed spoils. Estimates of these pollutants indicate that the project would not exceed pollutant loads for the air basin estimated by the air district. Therefore, the proposed project would be consistent with applicable air quality goals and policies.

BIOLOGICAL RESOURCES

The proposed project would have short term biological impacts that can be reduced to less than significant levels. The project would also result in restoration of parts of Mission Creek banks. The project would enhance biological resources

in the long term and would therefore be consistent with applicable biological goals and policies.

DRAINAGE AND FLOOD CONTROL
The proposed project would increase the hydrological capacity of the creek under the bridge to allow for passage of the 20 year storm. This would help reduce upstream flooding during major storms. Therefore, the project would be consistent with the City's drainage and flood control goals.

CIRCULATION ELEMENT
The project would replace a bridge that has begun to lose its structural integrity and would therefore ensure that the roadway would be open to traffic. Therefore, the project is consistent with the circulation goals of the General Plan.

SCENIC HIGHWAYS ELEMENT
The proposed project would replace a bridge that has a dilapidated appearance and provide new creek bank plantings and erosion controls, improving the appearance of the area of Mission Creek at Cabrillo Boulevard. The project would allow views to be available in much the same way as they presently are. Therefore, the project is consistent with the goals of the Scenic Highways Element of the General Plan.

NOISE ELEMENT
Operational noise after the project would be similar to preconstruction noise levels since the existing bridge would be replaced with a similar bridge. Construction noise would be temporary and intermittent and measures are proposed in the noise section of this Initial Study to minimize the project construction noise impacts. Therefore, the project is consistent with applicable goals and policies of the Noise Element.

LOCAL COASTAL PLAN
It may be necessary to temporarily relocate some of the art show booths to allow for construction of the new bridge. The Relevant policies (see exhibit B) indicate that City decision-makers have anticipated the possible need to relocate the Art Show permanently. Temporary relocation of some ~~vendors~~artists and artisans would therefore appear to be consistent with the Local Coastal Plan (LCP) Policy 3.8.

As required by Policy 6.3, the proposed project has included hydraulic and soils studies that have indicated the type and location of erosion controls that would be constructed. The erosion controls would replace existing facilities and would be necessary to protect the bridge foundation and surrounding area from erosion during high flows in the creek. The proposed structure would minimize the alteration of natural landforms, do not impede lateral access more than existing facilities, have little impact on shoreline sand supply, and the bridge would be placed on the creek to protect public health and safety, and allow safe emergency vehicle access. Therefore, the project is consistent with Policies 6.3 through 6.7.

The project would restore the creek banks and protect water quality and biological resources during construction as discussed in the biological and water quality sections of this Initial Study. Therefore, the proposed project would be consistent with Policy 6.8.

The proposed project replaces a bridge with several sets of non-aligned pilings in the creek with one set of pilings aligned to permit maximum hydrologic capacity. Spanning the creek with a low profile bridge would not be possible and therefore a row of pilings in the creek is necessary. Since the number of pilings would be reduced, the project is consistent with Policy 6.11A.

The proposed bridge would be designed to divert all flows through percolation basins on the beach before they are allowed to enter the estuary. During construction, there will be an emergency response plan and materials onsite ready to clean up and remove any spills of toxic materials. Therefore, the project is consistent with Policies 6.11-B and C.

The project would replace an existing bridge with a similar bridge and would therefore not block any views not currently blocked. The proposed design including (materials and colors) of the bridge will be reviewed by the HLC who would ensure that the bridge materials are appropriate for the area. Therefore, the project is consistent with policies 9.1 and 9.17.

MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

A draft Mitigation Monitoring and Reporting Program has been prepared for the project in compliance with Public Resources Code §21081.6. The draft MMRP is attached here as **Exhibit C**

ENVIRONMENTAL CHECKLIST

The following checklist contains questions concerning potential changes to the environment that may result if this project is implemented. If no impact would occur, **NO** should be checked. If the project might result in an impact, check **YES** indicating the potential level of significance as follows:

Significant: Known substantial environmental impacts. Further review needed to determine if there are feasible mitigation measures and/or alternatives to reduce the impact.

Potentially Significant: Unknown, potentially significant impacts that need further review to determine significance level and whether mitigable.

Potentially Significant, Mitigable: Potentially significant impacts that can be avoided or reduced to less than significant levels with identified mitigation measures agreed-to by the applicant.

Less Than Significant: Impacts that are not substantial or significant.

1. AESTHETICS Could the project:		**NO**	**YES** *Level of Significance*
a)	Affect a public scenic vista or designated scenic highway or highway/roadway eligible for designation as a scenic highway?		Less Than Significant
b)	Have a demonstrable negative aesthetic effect in that it is inconsistent with Architectural Board of Review or Historic Landmarks Guidelines or guidelines/criteria adopted as part of the Local Coastal Program?		Less Than Significant
c)	Create light or glare?		Less Than Significant

Visual Aesthetics - Discussion

Issues: Issues associated with visual aesthetics include the potential blockage of important public scenic views, project on-site visual aesthetics and compatibility with the surrounding area, and changes in exterior lighting.

Impact Evaluation Guidelines: Aesthetic quality, whether a project is visually pleasing or unpleasing, may be perceived and valued differently from one person to the next, and depends in part on the context of the environment in which a project is proposed. The significance of visual changes is assessed qualitatively based on consideration of the proposed physical change and project design within the context of the surrounding visual setting. First, the existing visual setting is reviewed to determine whether important existing visual aesthetics are involved, based on consideration of existing views, existing visual aesthetics on and around the site, and existing lighting conditions. Under CEQA, the evaluation of a project's potential impacts to scenic views is focused on views from public (as opposed to private) viewpoints. The importance of existing views is assessed qualitatively based on whether important visual resources such as mountains, skyline trees, or the coastline, can be seen, the extent and scenic quality of the views, and whether the views are experienced from public viewpoints. The visual changes associated with the project are then assessed qualitatively to determine whether the project would result in substantial effects associated with important public scenic views, on-site visual aesthetics, and lighting.

Significant visual aesthetics impacts may potentially result from:

- Substantial obstruction or degradation of important public scenic views, including important views from scenic highways; extensive grading and/or removal of substantial amounts of vegetation and trees visible from public areas without adequate landscaping; or substantial loss of important public open space.
- Substantial negative aesthetic effect or incompatibility with surrounding land uses or structures due to project size, massing, scale, density, architecture, signage, or other design features.
- Substantial light and/or glare that poses a hazard or substantial annoyance to adjacent land uses and sensitive receptors.

Visual Aesthetics – Existing Conditions and Project Impacts

1.a and b Scenic Views On-Site Aesthetics

The project site is located on the waterfront and is visible from the beach area and roadway adjacent to the bridge. The Visual Resources Map of the Local Coastal Plan indicates that there are important views of the wharf from the area of the proposed bridge and that some views to the north, from the project area, are already partially blocked. The bridge itself is not highly visible from most viewpoints along Cabrillo Boulevard. From State Street, the bridge is clearly visible when viewed from the sidewalk on the east side but not from the west side or from automobiles traveling on State Street (except where it crosses Cabrillo Blvd.). The view of the bridge from the eastern sidewalk is degraded because the bridge is deteriorating and cracks and rusting steel are visible. The south side the bridge is relatively new and has the appearance of bridges constructed in the last 50 years without any remarkable features. The grate covering the utilities has a utilitarian appearance and is not especially attractive to the viewer. From Cabrillo Boulevard, deteriorated chain link fence is visible on much of the northern side of the bridge and continues to State Street.

Four palm trees would be removed and replaced with four 35 foot tall trees of the same species. This impact would be less than significant because there are many similar trees in the area and the loss of four trees would not be prominent, visually. Also, the trees would be replaced. See the section on historic resources for further discussion and mitigation for loss of the trees.

During construction, the project site would have an unsightly appearance to the casual viewer due to the construction work and equipment that would be present. This impact would be temporary and therefore **less than significant**.

After construction, the bridge would have a similar appearance to the existing bridge with the same railings (replicated for historic preservation purposes) and basic configuration. Less chaotic appearing piles that would be organized in a single row beneath the bridge, replacement of the chain link fence, replacement of deteriorating concrete on the existing bridge, and the elimination of the utility grate on the southern end of the bridge would result in improvements in the appearance of the bridge. The new bridge would not protrude substantially more into any viewsheds than the existing bridge. Bank restoration approved under the Lower Mission Creek Flood Control Project would remove existing deteriorated bank shoring and replace ornamental landscaping that consists of a single plant species with a variety of plants that are native to the area improving the creek banks' appearance. Bank protection downstream would result in the removal of unsightly sacrete walls and replacement of these walls with ungrouted rock boulders, vegetation and erosion control blankets of made of cocoanut fiber, further improving the visual appearance of the area. Therefore, the project impacts on scenic and on-site views would be **less than significant**. In addition, the project would be reviewed by the Historic Landmarks Commission and that review would provide additional assurance that the new bridge appearance would not impact views in the area.

1.c) Lighting

No lighting is proposed as a part of the project. Any lighting constructed would replace existing lighting in type and location and would therefore not result in a significant change in lighting in the area. Any replaced lighting would be required to comply with the City lighting ordinance that requires lights to be shielded and directed towards the ground. Lighting impacts would therefore be **less than significant**.

Visual Aesthetics –Mitigation

None Required

Visual Aesthetics - Residual Impacts

Less than significant.

2. AIR QUALITY		**NO**	**YES**
	Could the project:		***Level of Significance***
a)	Violate any air quality standard or contribute to an existing or projected air quality violation?		Less Than Significant

b)	Expose sensitive receptors to pollutants?		Less Than Significant
c)	Create objectionable odors?		Less Than Significant
Is the project consistent with the County of Santa Barbara Air Quality Attainment Plan? Yes			

Air Quality - Discussion

Issues. Air quality issues involve pollutant emissions from vehicle exhaust and industrial or other stationary sources that contribute to smog, particulates and nuisance dust associated with grading, construction, and operational processes, and nuisance odors.

Smog, or ozone, is formed in the atmosphere through a series of photochemical reactions involving interaction of oxides of nitrogen [NO_x] and reactive organic compounds [ROC] (referred to as ozone precursors) with sunlight over a period of several hours. Primary sources of ozone precursors in the South Coast area are vehicle emissions. Sources of particulate matter (PM_{10}) include demolition, grading, road dust, agricultural tilling and mineral quarries and vehicle exhaust ($PM_{2.5}$).

The City of Santa Barbara is part of the South Coast Air Basin. The City is subject to the National Ambient Air Quality Standards and the California Ambient Air Quality Standards (CAAQS), which are more stringent than the national standards. The CAAQS apply to six pollutants: photochemical ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter, and lead. The Santa Barbara County Air Pollution Control District (SBCAPCD) provides oversight on compliance with air quality standards and preparation of the County Clean Air Plan.

Presently, Santa Barbara County is considered in attainment of the federal eight-hour ozone standard, but does not meet the state one-hour ozone standard or the standard for particulate matter less than ten microns in diameter (PM10). Insufficient data is available to determine our attainment status for either the federal standard for particulate matter less than 2.5 microns in diameter (PM2.5) or the state PM2.5 standard. The state recently adopted a new eight-hour ozone standard that became effective in May 2006. Although the state has not yet issued attainment designations, the data indicate Santa Barbara County will be considered in nonattainment of this standard.

Impact Evaluation Guidelines. A project may create a significant air quality impact from the following:

- Exceeding an APCD pollutant threshold; inconsistency with District regulations; or exceeding population forecasts in the adopted County Clean Air Plan.
- Exposing sensitive receptors, such as children, the elderly, or sick people to substantial pollutant exposure.
- Substantial unmitigated nuisance dust during earthwork or construction operations.
- Creation of nuisance odors inconsistent with APCD regulations.

Long-Term (Operational) Impact Guidelines: The City of Santa Barbara uses the SBCAPCD thresholds of significance for evaluating air quality impacts. The APCD has determined that a proposed project will not have a significant air quality impact on the environment if operation of the project will:

- Emit (from all project sources, both stationary and mobile) less than 240 pounds per day for ROC and NO_x, and 80 pounds per day for PM_{10};
- Emit less than 25 pounds per day of ROC or NO_x from motor vehicle trips only;
- Not cause a violation of any California or National Ambient Air Quality Standard (except ozone);
- Not exceed the APCD health risks public notification thresholds adopted by the APCD Board; and
- Be consistent with the adopted federal and state air quality plans for Santa Barbara.

Short-Term (Construction) Impacts Guidelines: Projects involving grading, paving, construction, and landscaping activities may cause localized nuisance dust impacts and increased particulate matter (PM_{10}). Substantial dust-related impacts may be potentially significant, but are generally considered mitigable with the application of standard dust control mitigation measures. Standard dust mitigation measures are applied to projects with either significant or less than significant effects.

Exhaust from construction equipment also contributes to air pollution. Quantitative thresholds of significance are not currently in place for short-term or construction emissions. However, SBCAPCD uses combined emissions from all

construction equipment that exceed 25 tons of any pollutant except carbon monoxide within a 12-month period as a guideline threshold for determining significance of construction emission impacts.

Cumulative Impacts and Consistency with Clean Air Plan: If the project-specific impact exceeds the ozone precursor significance threshold, it is also considered to have a considerable contribution to cumulative impacts. When a project is not accounted for in the most recent Clean Air Plan growth projections, then the project's impact may also be considered to have a considerable contribution to cumulative air quality impacts. The Santa Barbara County Association of Governments and Air Resources Board on-road emissions forecasts are used as a basis for vehicle emission forecasting. If a project provides for increased population growth beyond that forecasted in the most recently adopted CAP, or if the project does not incorporate appropriate air quality mitigation and control measures, or is inconsistent with APCD rules and regulations, then the project may be found inconsistent with the CAP and may have a significant impact on air quality.

Air Quality – Existing Conditions and Project Impacts

2.a-b) Air Pollutant Emissions

Long-Term (Operational) Emissions:

There would be minimal change in operational emissions related to the bridge replacement because it replaces an existing bridge with a similar bridge. The bridge itself would not result in operational emissions. Traffic from other projects would continue to emit a similar level of emissions to current levels. Therefore, long term impacts would be **less than significant.**

Short-Term (Construction) Emissions:

Short term emissions for construction equipment were calculated using emission factors derived from Santa Barbara Air Pollution Control District Table 1 Construction Equipment Uncontrolled Emission Factors. Construction employee vehicle emissions were calculated using URBEMIS 2002 Version 8.7. Detailed assumptions and calculations are provided in Exhibit D. The estimates of project emissions are provided in the tables below.

Emissions Estimates for Worker Daily Commute (lbs/day)

	ROG	NOX	CO	SO2	PM10
50 1 way trips/day	1.11	0.88	11.99	0.01	0.89

Construction Equipment Emissions (lbs)

	THC	AIDEHYDE	NOX	SOX	CO	ROG	PM10
Year 1	40.4	10.4	45943.5	48.2	181.6	106.5	39.1
Year 2	38.6	9.7	31470.2	52.2	147.3	79.5	73.4

During the first year, construction equipment would generate approximately 23 tons of NOX and 0.05 tons of ROC. During the second year of construction (expected to last seven months) construction equipment would generate approximately 16 tons of NOX and 0.04 tons of ROC. Since the project would not exceed the threshold of 25 tons per year, project emissions would be **less than significant**. Construction emissions would be reduced by mitigation measures recommended below. Beginning in June 2006, construction equipment would be required to use ultra-low sulfur diesel only. This is a California Air Resource Board (CARB) requirement and has not been added as a mitigation measure because the project would not begin construction before June 2006.

The Santa Barbara Air Pollution Control District (APCD) regulates bridge demolition. Concrete used to construct the existing bridge may contain asbestos The APCD requires that the applicant file an asbestos notification form and remove an y asbestos found in accordance with specific regulations.

Sensitive Receptors: Sensitive receptors are defined as children, elderly, or ill people that can be more adversely affected by air quality problems. Land uses typically associated with sensitive receptors include schools, parks, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and clinics. Construction sources of particulates and exhaust emissions are of particular concern to sensitive receptors, as is construction dust and particulate matter. The project would not include stationary sources, but sensitive receptors at the park could be affected by dust and particulates during project site grading. Exhaust and dust emissions would be intermittent during construction and park uses adjacent

to the site are expected to result in short term exposures of the public to these emissions due to the transitory nature of the park uses during construction and the availability of adjacent park areas for public use. Nuisance dust and particulates would be **less than significant** and would be further reduced through application of dust control mitigation measures. The less than significant amounts of these pollutants would result in less than significant exposure of sensitive receptors to pollutants.

2.c) Odors

The project is limited to construction of a replacement bridge, and would not include any new land uses involving odors or smoke. Construction may result in emissions that create nuisance odors that would be temporary. Therefore odor emissions would be related to construction and would be short-term nuisance impacts that are **less than significant**.

Clean Air Plan Consistency.

Consistency with the Clean Air Plan: Direct and indirect emissions associated with the project are accounted for in the CAP emissions growth assumptions. Appropriate air quality mitigation measures, including construction dust suppression, would be applied to the project, consistent with CAP and City policies. The project could be found consistent with the Clean Air Plan.

Air Quality – Recommended Mitigation

AQ-1 **Construction Dust Control – Minimize Disturbed Area/Speed.** Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.

AQ-2 **Construction Dust Control - Watering.** During site grading and transportation of fill materials, regular water sprinkling shall occur using reclaimed water whenever the Public Works Director determines that it is reasonably available. During clearing, grading, earth moving or excavation, sufficient quantities of water, through use of either water trucks or sprinkler systems, shall be applied to prevent dust from leaving the site. Each day, after construction activities cease, the entire area of disturbed soil shall be swept to remove soil from paved areas and sufficiently moistened to create a crust in unpaved areas not in the creek.

Throughout construction, sweeping of paved areas and water trucks or sprinkler systems on unpaved areas excluding the creek, shall also be used to keep all areas of vehicle movement clean or damp enough to prevent dust raised from leaving the site. At a minimum, this will include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.

AQ-3 **Construction Dust Control – Tarping.** Trucks transporting fill material to and from the site shall be covered from the point of origin.

AQ-4 **Construction Dust Control – Gravel Pads.** Gravel pads shall be installed at all access points to prevent tracking of mud on to public roads.

AQ-5 **Construction Dust Control – Stockpiling.** If importation, exportation and stockpiling of fill material are involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

AQ-6 **Construction Dust Control – Disturbed Area Treatment.** After clearing, grading, earth moving or excavation is completed, the entire area of disturbed soil shall be treated to prevent wind pickup of soil. This may be accomplished by:

A. Seeding and watering until grass cover is grown;

B. Spreading soil binders;

C. Sufficiently wetting the area down to form a crust on the surface with repeated soakings as necessary to maintain the crust and prevent dust pickup by the wind;

D. Other methods approved in advance by the Air Pollution Control District.

AQ-7 **Construction Dust Control – Paving.** All roadways, driveways, sidewalks, etc., should be paved as soon as possible. Additionally, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

AQ-8 Construction Dust Control – PEC. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when construction work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading for the structure.

The following shall be adhered to during project grading and construction to reduce NOx and PM2.5 emissions from construction equipment:

AQ-9 Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) shall be utilized wherever feasible.
AQ-10 The engine size of construction equipment shall be the minimum practical size.
AQ-11 The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
AQ-12 Construction equipment shall be maintained in tune per the manufacturer's specifications.
AQ-13 Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or pre-combustion chamber engines.
AQ-14 Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
AQ-15 Diesel catalytic converters, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California shall be installed, if available.
AQ-16 Diesel powered equipment should be replaced by electric equipment whenever feasible.
AQ-17 Idling of heavy-duty diesel trucks during loading and unloading shall be limited to five minutes; auxiliary power units should be used whenever possible.
AQ-18 Construction worker trips shall be minimized by requiring carpooling and by providing for lunch onsite.
AQ-19 Biodiesel shall be used to the maximum extent feasible.

See the SBCAPCD *Scope and Content of Air quality Sections in Environmental Documents* for land use and design measures that promote the use of alternative modes of transportation, offsite mitigation measures, energy conservation measures, and green building measures.

Air Quality - Residual Impacts

Less than significant.

3. BIOLOGICAL RESOURCES Could the project result in impacts to:		NO	YES *Level of Significance*
a)	Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?		Potentially Significant, Mitigable
b)	Locally designated historic, Landmark or specimen trees?		Potentially Significant, Mitigable
c)	Natural communities (e.g. oak woodland, coastal habitat, etc.).		Potentially Significant, Mitigable
d)	Wetland habitat (e.g. marsh, riparian, and vernal pool)?	X	
e)	Wildlife dispersal or migration corridors?		Potentially Significant, Mitigable

Biological Resources - Discussion

Issues: Biological resources issues involve the potential for a project to substantially affect biologically-important natural vegetation and wildlife, particularly species that are protected as rare, threatened, or endangered by federal or state wildlife agencies and their habitat, native specimen trees, and designated landmark or historic trees.

Impact Evaluation Guidelines: Existing native wildlife and vegetation on a project site are qualitatively assessed to identify whether they constitute important biological resources, based on the types, amounts, and quality of the resources

within the context of the larger ecological community. If important biological resources exist, project effects to the resources are qualitatively evaluated to determine whether the project would substantially affect these important biological resources. Significant biological resource impacts may potentially result from substantial disturbance to important wildlife and vegetation in the following ways:

- Elimination or substantial reduction or disruption of important natural vegetative communities and wildlife habitat or migration corridors, such as oak woodland, coastal strand, riparian, and wetlands.
- Substantial effect on protected plant or animal species listed or otherwise identified or protected as endangered, threatened or rare.
- Substantial loss or damage to important native specimen trees or designated landmark or historic trees.

Biological Resources – Existing Conditions and Project Impacts

A Natural Environmental Study was prepared for the project by URS Consultants (December 2006). A summary of the report is provided in the existing conditions section above and impacts section below, and the report is hereby incorporated by reference.

No specimen or historic trees are located in the project area. No plant species of special concern or status occur at the project site.

3.a,c,d,e) Native Wildlife and Habitat

Construction Impacts

Since no plant species of special concern or status occur at the project site, or would be affected by the proposed project construction, there would be **no impacts** on these plant species.

No wetlands are located on the project site (using Army Corps criteria) and therefore **no impacts** on wetlands would occur.

The tidewater goby was listed by the U.S. Fish and Wildlife Service (USFWS) as an endangered species and the USFWS proposed a critical habitat designation for the Mission Creek/Laguna Channel lagoon. Construction of the bridge would involve dewatering approximately one third of the lagoon area (a 650 foot long stretch of Mission Creek and lagoon) to allow for reconstruction of the creek banks north of the bridge and for bridge demolition and construction in the creek itself, for a period of about six months (April to October). Installation of the cofferdams will require the capture and relocation of gobies in the work area that would be dewatered. These activities may result in the unintentional loss of individual tidewater gobies. Additionally, because of the size of the hatchlings, it is probable that hatchling mortality will occur during the project. This impact would be mitigable because all of the standard, proven measures to capture and relocate gobies would be applied to the project in accordance with a Biological Opinion issued by U.S. Fish and Wildlife Service and described in the Mitigation Measures below. Also, the cofferdams and flume would be installed prior to tidewater goby hatchlings emerging in large numbers to minimize the potential to affect this component of the seasonal population. Dewatering of the creek would result in a **potentially significant, mitigable** impact. Project impacts to the goby would be reduced to less than significant levels because the mitigation proposed by the applicant and required in this Initial Study would ensure that the species would be disturbed as little as possible and, although the natural population varies a lot, the species would not be extirpated.

More limited dewatering is also anticipated to allow construction of the temporary multi purpose bridge abutments and the area around the west bank of the creek between the State Street Bridge over Mission Creek and the proposed new bridge. Sheet piles or other approved techniques would be used to create a dry working area. The proposed approach of using qualified biologists to relocate fish from the area to be dewatered, installation of fish blocking nets to keep them out, and monitoring would minimize the potential for take of gobies or other fish species. In all dewatering operations, use of a pump with 1/8 inch screen on the intake surrounded by a ring of boulders covered with fish net would be used to ensure no fish are entrained in the pump and pressures around the inlet do not force fish into the pump inlet. Monitoring of the discharge area to find damaged gobies or rescue any fish is also proposed. Limited dewatering of the creek would result in a **potentially significant, mitigable** impact for the same reasons provided above.

Noise and vibration during pile driving, expected to occur in the creek for about 44 days, could disturb and displace the tidewater goby. The piles to be inserted in the creek bed while there is water in the creek would be inserted within a protective waterproof sleeve that has an 1/8 inch screen on the bottom end. This sleeve would be maneuvered into place under the bridge deck and would preclude any gobies from being directly adjacent to the steel pile that would be inserted into the sleeve and driven into the ground. The gobies would therefore move away from the pile insertion point and avoid being injured by the pile insertion and be encouraged to move away from the vicinity of the pile insertion point. Turbidity

generated by pile driving would also be reduced by the sleeve. Note that only the center row of piles would be driven into the creek bed as the remaining piles would be driven outside of the existing abutments, in the creek bank. Pile insertion would result in a **potentially significant, mitigable** impact, since gobies have refuge areas away from the construction area (an estimated two thirds of their habitat in the estuary would not be disturbed).

Construction work above the wetted channel could result in discharge of construction debris and materials into the estuary. Of primary concern is the discharge of wet concrete due to the associated increase in alkalinity that can be toxic to fish. Concrete debris and equipment related leak discharges could also occur. This impact would be reduced partly because of the proposed dewatering that would reduce the potential for wet cement coming into contact with water in the creek. Piles will be driven and filled with concrete in Stage 1 when the creek is flowing. During the phase of breaching the bridge deck, a plywood deck, construction diaper, or other method will be used underneath the bridge to collect any falling debris or concrete. To prevent the generation of silt from the physical movement of the pile into the creek bottom sediments, and to prevent leakage of concrete when filling the hollow pile, a temporary impermeable containment sleeve will be placed surrounding the base of the pile, before insertion (embedded in the bottom) to capture silt or leaking concrete. The secondary containment sleeve will minimize adverse effects to aquatic species. The containment sleeve will be wrapped at the bottom with 1/8-inch mesh screen before insertion to prevent fish from being trapped inside. The sleeve will be connected to the bridge deck with a thick plastic sleeve to prevent concrete or debris from falling into the creek during piling installation. A monitor provided by the contractor will ensure that the sleeve remains intact during pile construction operations, and shall inspect for leakage. If leakage occurs, the captured turbid water or concrete fluids will be tested for pH and will be pumped from between the sleeve and pipe to a portable tank (Baker tank). The waste fluids will be disposed of off-site. Discharges into the creek would therefore result in a **potentially significant, mitigable** impact.

Construction of the new bridge will result in the temporary dewatering of a 650-foot-long reach of the Mission Creek estuary which is occupied tidewater goby habitat. It appears that the most favorable habitat in the estuary extends from the upper lagoon to State Street Bridge, which coincides with the project work limits. Dewatering a 650-foot-long reach of the estuary during a 6 to 7 month period would be a **potentially significant, mitigable** impact because: 1) it only represents a fraction of the entire estuary (~33%) so gobies can find temporary refuge elsewhere in the estuary/lagoon, 2) it is temporary, and 3) the dewatered areas will have a bypass flume to allow gobies to travel between the upper estuary and the lagoon.

NOAA Fisheries has designated Mission Creek as critical habitat for steelhead. Steelhead typically migrate to marine waters after spending one to two years in fresh water, and then spend two or three years in the ocean before returning to streams to spawn. Adult steelhead are stimulated to begin their upstream migration when there are high winter flows in the stream. The fish move upstream during receding flows when the turbidity levels are improving. Steelhead may migrate upstream when there are suitable flows during the period of December through March. It appears that individual fish or a small number of adults migrate up the creek during years with good winter runoff. Suitable spawning habitat is present in the upper reaches of Mission Creek. Steelhead are expected to travel through the lagoon during upstream and downstream migration events when the lagoon is open. By completing this pile driving early in the winter, impacts to adult steelhead that may migrate upstream would be avoided. Proposed project timing reduces this **potentially significant, mitigable** and this timing is also required mitigation.

Construction of the new bridge will result in the temporary dewatering of a 650-foot-long reach of the Mission Creek estuary. Two cofferdams would be installed and maintained at each end. The creek will be dewatered during the period March through October. Adult steelhead migration typically is over by the end of March, and smolt downstream migration typically is over by the end of May. Dewatering this portion of the estuary during this 7 to 8 month period would be **potentially significant, mitigable** because: 1) the creek bypass system proposed as part of the project is designed to allow free passage of steelhead and other fish through the work area, 2) there is no evidence that smolts oversummer in the lagoon or estuary, and 3) most of the time the smolts would migrate there would be no impediments to migration of this species due to the timing of proposed construction.

The project has the potential to disturb the brown pelican due to daytime noise and vibration, and due to discharge of construction debris and materials into the lagoon. These impacts are considered to be **less than significant** for several reasons. The disturbance would be temporary and reversible. Secondly, the use of the affected area of the lagoon by the brown pelican is not considerable due to limited food resources and water visibility, and substantial adjacent foraging areas. Thirdly, the avoidance and minimization methods presented contain measures to prevent discharge of construction debris and sediment into the lagoon at all times. Fourth, the project area is heavily used by the public and so brown pelican use of the area is infrequent. Finally, mitigation is provided to cease constructiuon if the brown pelicans are present.

Western snowy plovers, a federally listed endangered species, are rarely found near the Mission Creek lagoon and Stearns Wharf area because the high concentration of people on the beach discourages plover use. Plovers may occasionally forage or rest near the lagoon, but they are not common on the beach close to the project site primarily due to its proximity to people. The project has the potential to result in disturbances to the western snowy plover due to daytime noise and vibration during the pile-driving phase (about four months) and due to discharge of construction debris and materials into the estuary. These impacts are considered to be **less than significant** because they would all be temporary and reversible; the affected reach of the estuary is rarely used by plovers due to noise, vibration and human activities at other locations hundreds of feet from the work area; and the avoidance and minimization measures proposed as part of the project contain measures to prevent discharge of construction debris and sediment into the estuary.

The proposed bridge replacement is not within known use areas for least terns. Construction activities could cause temporary disturbances to the least tern if present due to daytime noise and vibration and discharge of construction debris and materials into the lagoon. These impacts would be **less than significant** because least terns are not expected in the project area nor would disturbances be considered sizeable, if they were present, due to limited food resources and water visibility, and substantial adjacent foraging areas. Secondly, all disturbances are temporary and reversible. Thirdly, the mitigation measures proposed as a part of the project prevent discharge of construction debris and sediment into the lagoon, and require that within a 200-foot minimum distance of project construction a biologist would monitor for least terns and would stop work within 200 feet of any least terns.

Temporary dewatering of a 650-foot-long reach of the Mission Creek estuary could result in displacing southwestern pond turtles, if present. This impact would **potentially significant, mitigable** because all of the standard, proven measures to locate, capture, and relocate turtles will be instituted, and during the goby capture and relocation activity, the biological monitor will also observe for presence of southwestern pond turtles and relocate them outside the project area. Also, the habitat disturbances are temporary and reversible and there is a low potential for this species to occur on the site.

The proposed bridge replacement is not within known use areas for red-legged frogs. Construction activities could cause the following temporary disturbances to the red-legged frogs, if present: 1) daytime noise and vibration; 2) construction work that could result in an incidental take; and 3) potential erosion and sedimentation during construction. These impacts are considered to be **potentially significant, mitigable** because they are temporary and reversible, the use of the affected area of the lagoon by the red-legged frog is not expected due to unsuitable habitat, the mitigation measures proposed as a part of the project prevent discharge of construction debris and sediment into the lagoon at all times, and a biological monitor will be on site for other sensitive species monitoring requirements, and will be able to fulfill the necessary stop work and consultation services necessary in the unlikely event that a red-legged frog were to occur in the project area.

Project impacts to palm trees that would be removed are discussed in the sections on historic and aesthetic resources and would be **less than significant** from a biological perspective. Mitigation would require replacement of the trees to be removed. Project impacts to birds that could be nesting in the trees could be **potentially significant, mitigable.** Mitigation that would result in removal of the trees when no nesting birds are available or surveying the trees prior to removal if this occurs during bird nesting season would reduce this impact to less than significant levels because the nesting birds would be avoided.

Operational Impacts

Since no plant species of special concern or status occur at the project site, or would be affected by the proposed project, there would be no impacts on theses plant species due to operation of the bridge. Cabrillo Bridge already exists and will be replaced in substantially the same location as the existing bridge. Therefore, the proposed project would result in no impacts on wildlife due to bridge operations.

3.b) Specimen Trees

There are no specimen trees in the project area and so the project would have no impacts on specimen trees.

Biological Resources – Mitigation

BIO-1 Except for installation of sheet piles (Porta Dam or equivalent) for partial dewatering and diversion of three areas for 1) pile installation (including the temporary beachway bridge), 2) abutment construction, and 3) bank protection, construction work in the Mission Creek channel and on the banks, including construction of the cofferdams, shall not occur during the period October 1/November 1 to mid March/April 30 during an average or above-average rainfall year. The exact schedule is subject to revision dependent on weather conditions and monitoring for goby spawning. Construction work requiring dewatering/diversion in the creek shall not begin until forecasts from the National Weather Service provide reasonable assurance that the winter rainfall has ended, and/or tidewater goby monitoring shows no

reasonable evidence of initiation of spawning season.

BIO-2 Pile driving and construction for the center line of piles on the north side of the road (Stage 1) shall be completed during the period October 1 to December 1 to avoid vibration impact in the creek during the adult steelhead migration period, which can begin as early as December 1 if there are suitable runoff conditions. Weather and other possible delays permitting, the center row of piles for the north side of the bridge will be driven and filled with concrete with the existing bridge deck intact and while the creek is not dewatered. This date may be moved forward as late as December 31 if the lagoon remains closed (i.e., has not breached by its own forces). If all the center row of pilings cannot be completed in Stage 1, the center piles on the south side of Cabrillo Boulevard currently identified for Stage 3, will be driven and filled while the cofferdams are installed and the creek is dewatered during Stage 2.

BIO-3 Bridge demolition, center bent construction, north side abutment construction, and deck placement on the north side (Stage 2) shall occur when the creek is dewatered and diverted to the flume. Bent construction and deck placement on the south side may occur before cofferdams are constructed or after the cofferdams are removed, provided the erosion and water quality protection measures (see Water Quality section) are implemented.

BIO-4 Piles will be driven and filled with concrete in Stage 1 when the creek is flowing. During the phase of breaching the bridge deck, a plywood deck, construction diaper, or other method will be used underneath the bridge to collect any falling debris or concrete. To prevent the generation of silt from the physical movement of the pile into the creek bottom sediments, and to prevent leakage of concrete when filling the hollow pile, a temporary impermeable containment sleeve will be placed surrounding the base of the pile, before insertion (embedded in the creek bottom) to capture silt or leaking concrete. The containment sleeve will be wrapped at the bottom with 1/8-inch mesh screen before insertion to prevent fish from being trapped inside. The sleeve shall be connected to the bridge deck with a thick plastic sleeve to prevent concrete or debris from falling into the creek during piling installation. A monitor provided by the contractor shall ensure that the sleeve remains intact during pile construction operations, and shall inspect for leakage. If leakage occurs, the captured turbid water or concrete fluids will be tested for pH and will be pumped from between the sleeve and pipe to a portable tank (Baker tank). The waste fluids will be treated and disposed of off-site in the sewer system or other approved location.

BIO-5 A cofferdam or equivalent barrier shall be placed between the abutment being installed and the open creek channel during construction to prevent spillage of construction materials and concrete. A plywood deck or construction diaper shall be placed above the Mission Creek bed when constructing the bent and placing the bridge deck. The barrier shall be designed to capture all dry or liquid materials (including concrete) and prevent discharge to the creek.

BIO-6 No construction work or storage of materials is allowed in the Mission Creek lagoon for installation and removal of the temporary beachway bridge. No workers shall enter the lagoon; work may occur from a boat or platform during installation of the temporary utility bypasses and temporary bridge installation. Prior to installation of piles for the temporary bridge footing, erosion control fiber blankets or a sediment barrier shall be placed around the abutment locations to prevent discharge of soil or concrete into the dewatered area.

BIO-7 An environmental monitor shall be present during pile installation and pouring of concrete to address any discharges of concrete. The contractor will maintain spill contingency materials onsite to be mobilized in the event of a concrete spill during pile and bridge construction. These materials may include straw bales, Visqueen, gravel bags, absorbent pads, and additional fiber rolls. Any concrete spilled during construction will be removed and disposed of prior to removal of the cofferdam.

BIO-8 The cofferdams shall be constructed of silt-free gravel bags stacked in a stable configuration with Visqueen, or similar waterproof fabric or interlocking steel plates, or a flexible temporary barrier equivalent or better than the device constructed by Portadam, Inc. may also be used to create a dry work area within the channel. Use of other inert materials shall be allowed if necessary to create a better barrier or reduce leaks, but must be approved by the California Department of Fish and Game (CDFG) and United States Fish and Wildlife Service (USFWS). The cofferdams shall be placed approximately at the locations shown in the project description. They shall form a seal along the bottom and banks of the creek and lagoon, to the maximum extent feasible. The top elevations of the cofferdams shall be at least 9 feet NAVD 88 (North American Vertical Datum, 1988), which would be sufficient to contain water in the creek and lagoon during the summer when the sandbar is closed at the beach. The downstream cofferdam will be reinforced as necessary to withstand the impact of tidal surge from Mission Creek lagoon.

BIO-9 The installation/removal of the cofferdams and flume shall follow this sequence of tasks:

- The Contractor shall submit to the USFWS in writing, at least four weeks prior to the onset of work, the qualifications of a biologist familiar with tidewater goby biology. This biologist will be responsible for implementing measures that involve handling and relocation of tidewater gobies. The USFWS will provide

written authorization of the individual, if qualified, or denial, if unqualified.

- A qualified biologist will assist in the preparation of the drawings and specifications for the preliminary and final engineering plans for the project that will include plans, details, and specifications for the placement/removal of cofferdams, dewatering/diversion operations, and fish capture and relocations procedures.. The fish rescue and relocation will follow the procedures included in the Natural Environmental Study. Rescued fish will be relocated to adjacent channel areas in the estuary that are not dewatered or subject to construction disturbance. The dewatering and fish rescue plans will be submitted to the USFWS for review and approval to ensure that the proper procedures and safeguards are included to avoid unnecessary take of gobies.
- The qualified biologist shall conduct a training session for all personnel associated with cofferdam construction and operations within the dewatered area prior to the onset of work.
- The authorized biologist shall complete initial surveys for tidewater gobies in Mission Creek within the project area one week prior to the onset of work.
- Two parallel fish blocking nets (mesh size 1/8 inch or less) shall be placed across the creek channel immediately upstream of the upstream cofferdam to prevent fish from traveling downstream to the work area.
- Qualified biologists with federal permits to handle gobies or personnel under the supervision of a permitted biologist shall insert a seine net at the upstream cofferdam location and conduct a sweep of the channel to herd and capture all fish in the work area, ending the sweep at the downstream cofferdam location. As the sweep is ended, two parallel fish blocking nets shall be placed across the lagoon to prevent fish from traveling upstream into the work area. The authorized biologist will be approved by USFWS and CDFG for relocating tidewater goby and native species that may occur in the work area to be dewatered.
- As the initial dewatering/diversion is occurring, fish biologists shall systematically survey for fish through the work area, including tidewater gobies and south western pond turtles. Fish shall be captured with a dipping net and immediately relocated upstream of the upper cofferdam. The number and species of fish shall be recorded. This fish rescue operation shall occur until the work area is completely dewatered, or until the fish biologists are confident that no fish remain in any standing water in the work area.
- A silt fence shall be placed inside the fish blocking nets (after fish survey and relocation has occurred) when the cofferdams are being constructed to prevent silt, if any, from migrating through the meshes to the creek and lagoon outside the work area.
- The cofferdams shall be constructed with water in the creek and lagoon. This will require construction personnel to work in standing water. The flume (a narrow centralized channel created by installation of metal sheet piles, Porta dam, or equivalent) shall be placed or constructed in the creek. The system may be a continuous flexible barrier (Portadam device equivalent or better). Once the cofferdams and creek flume are installed in the wetted channel, pumping to dewater the work area between the cofferdams shall begin. Because tidewater gobies are most often on the bottom of the estuary, the intake on the pumps used for water diversion shall be covered with mesh 1/8 inch or less, and floated as long as possible to prevent tidewater gobies from being entrained and killed.
- The mesh size on the pump intake shall be 1/8 inch or less. The mesh shall be checked by the qualified biologist prior to use each day and twice daily during operation to determine that it is intact. If the mesh develops holes or other conditions that impair its function, it shall be replaced or repaired immediately.
- Once it is dewatered, the construction area may need continuous dewatering to maintain a dry working area. Three to six dewatering pits will need to be excavated within the planned work area. This will create localized low points at which to collect the water. The dewatering pits will be limited in size and depth to the maximum extent possible to achieve a dry work area.
- Each dewatering pit will be constructed using 1/8-inch or less mesh anchored by a circle of rocks. The mesh will be suspended on the perimeter of the dewatering pits and shall cover the rocks and be anchored underneath on the outside. Work area creek water shall be discharged to the beach into an excavated depression or bermed area near the lagoon. An environmental monitor with applicable USFWS and CDFG permits or authorizations shall monitor the discharge location on a continuous basis to determine if any fish are inadvertently contained in the discharge. If present, these fish shall be captured with a small net and placed in the lagoon immediately after identifying species and numbers of fish.
- The cofferdam and flume diversion shall be removed by first blocking the downstream terminus of the flume. An

authorized biologist shall then conduct a sweep to clear the diversion area of fish. Once clear, the upstream end of the flume shall also be blocked. The work area will be policed by the contractor and reviewed by a biological monitor to ensure that all construction material is removed. The flume will then be dewatered and relocated to accommodate construction access or removed. During low tide, the downstream cofferdam will be removed first, followed by the upstream cofferdam.

BIO-10 An environmental monitor shall inspect any ponded water in the dewatered portion of the work area on a daily basis (three times – before work begins, midday, and at the end of the day) to search for any fish that may have traveled through gaps in the cofferdams. Fish (excluding mosquito fish) shall be removed on an as-needed basis and relocated above the upper cofferdam. The number and species of fish shall be recorded.

BIO-11 The dewatering system shall be inspected prior to leaving the work site at night. It shall be inspected and maintained by the contractor during non-work days (i.e., Saturdays, Sundays, holidays).

BIO-12 The flume shall be constructed as follows:

- The flume will be installed with the cofferdams and be constructed similar to a Portadam, Inc. device or better, or of plywood, inert material, or Visqueen-wrapped, silt-free gravel bags.
- The flume will be continuous and may be constructed to retain a natural sediment or manmade bottom.
- The contractor will prepare the final flume design for agency review and approval.
- The flume will maintain natural water levels and avoid potential dry spots from forming that would not naturally occur within the channel.
- The flume shall be 3 to 6 feet wide and constructed to maintain, to the extent feasible, the existing channel water stratification for water temperature, salinity, pH, and natural tidal depth.
- The flume shall not disturb more than a 6-inch depth into the streambed or create the potential for scour.
- It is expected that flow rates within the flume will be higher than the existing channel. Therefore, one or two silt free gravel bags or a small pile of cobble shall be placed every ten feet alternating along the sides of the flume to provide refuge for tidewater gobies.
- Shade cloth shall be placed over the top of the flume and draped over each end to maintain the existing temperature stratification and to prevent birds from entering the flume.
- While the streambed through the work area is generally a continuous grade, slight microtopography or a low-flow channel may be present; to address this, the flume bottom will be installed to achieve the lowest possible elevation from downstream to upstream.

BIO-13 During the pre-construction conference with the contractor, a biologist shall conduct a training session for all construction personnel. The training shall include:

- A description of the tidewater goby, southern steelhead, brown pelican, California least tern, western snowy plover, southwestern pond turtle, and associated habitats; the general provisions of the Endangered Species Act (ESA), including species relocation by a qualified biologist and documentation requirements
- The necessity for adhering to the provisions of the ESA
- The penalties associated with violating the provisions of the ESA
- The specific measures that are being implemented to conserve the tidewater goby and southern steelhead as they relate to the project, and measures that would be required if unexpected special status species, such as southwestern pond turtle, least tern, or snowy plover are on site during construction
- The boundaries of the project

BIO-14 The following native plants shall be used in the upstream bank protection: Atriplex lentiformis var. lentiformis – Brewer's Saltbush, Encelia californica – Bush Sunflower, Rhus integrifolia – Lemonadeberry, Mimulus auranticus – sticky monkey flower, Suaeda taxifolia – Wooly Sea Blite, Eriogonum parvifolium – Seaside Buckwheat, and Limonium californicum – Western Marsh-Rosemary. The saltbush and dwarf willow (Salix Exigua), used to create brush mattresses for erosion control (from a local source) shall also be planted above and among the ungrouted boulders on the downstream banks. Cocoanut fiber mats would be used to stabilize the soils above the boulders providing an opportunity for the native plants to get established. Other native plant species may be used if these are not readily

available, subject to approval by a City-approved biologist and CDFG. Restoration efforts may also refer to "Guidelines to Evaluate, Modify and Develop Estuarine Restoration Projects for Tidewater Goby Habitat" (USFWS, Stillwater Science, Arcata, CA, May 2006), and the approved Adaptive Maintenance Plan for Mission Creek (ACOE, URS, Channel Design Recommendations 2005).

BIO-15 A qualified biologist shall conduct daily inspections of the construction work areas to ensure that the cofferdams remain intact, and that no gobies have entered the work areas. The biologist shall also monitor and inspect erosion control measures to be implemented as part of the project. The biologist shall conduct periodic visual surveys of the unaffected portions of the estuary to monitor the abundance and conditions of fish during construction. Weekly reports shall be provided to the USFWS to apprise them of the status of the goby and the effectiveness of the protection measures during construction.

BIO-16 During flume operations, decreased through-flow in Mission Creek may alter indicator parameters such as salinity, dissolved oxygen, and temperature. Although it is unlikely that the flume will alter concentrations of indicator parameters outside of historic ranges, monitoring would establish if operations were having serious effects on water quality. Indicator parameter monitoring in Mission Creek can be implemented either as a stand alone requirement or as part of the general construction permit as follows:

- Monitoring for dissolved oxygen, salinity, and temperature shall be performed twice daily at a point directly upstream and downstream of the flume. If values are found outside of historic ranges, the cause shall be identified and steps shall be taken to return the parameter to the historic range.
- The flume shall be monitored visually daily to ensure that flow is present at all times.

BIO-17 Pre-construction monitoring surveys for tidewater goby would be implemented at the upstream, downstream, and mid-lagoon bridge areas, one year prior to construction, including one pre-spawn survey in April, and one post-spawn in August. In addition, tidewater goby monitoring surveys also would be conducted at the same time at Arroyo Burro Estuary. Pre-construction monitoring allows for collection of baseline information at the site, along with control sites trend analysis. Post-construction surveys for tidewater goby would be implemented for one year following completion of the project. A total of four surveys would be conducted including one pre-spawn survey in April/May and one post-spawn survey in August each year. Pre- and post-construction surveys would be conducted by a biologist approved to handle tidewater gobies under a Section 10a1a recovery permit to determine the general abundance of tidewater gobies. Survey methods would follow those currently being used to measure population densities at Arroyo Burro Estuary.

BIO-18 A daily clearance survey for the presence or absence of western snowy plovers, within a 500 foot radius of the site, shall be performed prior to construction each day. If plovers are found within this radius, and pile driving activities are expected, work shall stop until the bird relocates itself, or work will be relocated to another area of the site outside of the 500 foot radius area. If plover nests and/or plover protective nesting habits are observed within a 500 foot radius on the beach during breeding season (March-August), further surveys may be required. If plover disturbance behavior is observed within the 500 foot radius on the beach during construction activities, the qualified biologist on-site will have the authority to further evaluate the behavior, and/or determine if any action needs to be taken including requiring a stop work order until relocation has occurred.

~~A pre-construction clearance survey for the presence or absence of western snowy plover, within a 100-meter radius of the site shall be provided prior to construction occurring on the sandy beach. If plovers are found within this radius, work shall stop until the bird relocates itself, or work will be relocated to another area of the site outside of the 100-meter radius areas. If plover nests and/or plover protective nesting habits are observed within a 100-meter radius on the beach during breeding season (March-August) further surveys may be required. Plovers and/or nests are not anticipated during the construction.~~

BIO-19 Construction workers would be informed that construction activities would halt if a California brown pelican enters the active construction area. Upon self relocation, work may be reinitiated.

BIO-20 A clearance survey for least terns shall be conducted by a qualified biologist prior to the commencement of construction activities on the beach area. If least terns are present, any construction activities, debris, or discharge of any construction materials would require a distance of at least 200 feet from the foraging area. Additionally, the biological monitor would be given authority to stop work if a least tern is seen within 200 feet of construction.

BIO-21 During systematic fish surveys at dewatering, monitoring for presence of southwestern pond turtles shall occur when the water level reaches a depth for visual observation of turtles. If southwestern pond turtles are observed in dewatering areas, a qualified biologist with required relocation certification shall perform relocation to an appropriate

location.

BIO-22 Prior to any trees being removed during bird nesting season (February 1 to September 1) a survey shall be conducted of the trees to ensure that there are no nesting birds in the trees. Outside of bird nesting season the trees can be removed without a survey.

Please see the Water Quality section for additional mitigation measures designed to minimize project biological impacts related to water quality.

Biological Resources - Residual Impacts

Less than significant.

4. CULTURAL RESOURCES Could the project:		NO	YES *Level of Significance*
a)	Disturb archaeological resources?	X	
b)	Affect a historic structure or site designated or eligible for designation as a National, State or City landmark?		Potentially Significant, Mitigable
c)	Have the potential to cause a physical change which would affect ethnic cultural values or restrict religious uses in the project area?	X	

Cultural Resources - Discussion

Issues: Archaeological resources are subsurface deposits dating from Prehistoric or Historical time periods. Historic resources are above-ground structures and sites from historical time periods with historic, architectural, or other cultural importance. The City's built environment has a rich cultural heritage with a variety of architectural styles, including the Spanish Colonial Revival style emphasized in the rebuilding of Santa Barbara's downtown following a destructive 1925 earthquake.

Impact Evaluation Guidelines: Archaeological and historical impacts are evaluated qualitatively by archeologists and historians. First, existing conditions on a site are assessed to identify whether important or unique archaeological or historical resources exist, based on criteria specified in the State CEQA *Guidelines* and City Master Environmental Assessment *Guidelines for Archaeological Resources and Historical Structures and Sites*, summarized as follows:

- Contains information needed to answer important scientific research questions and there exists a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with an important prehistoric or historic event or person.

If important archaeological or historic resources exist on the site, project changes are evaluated to determine whether they would substantially affect these important resources.

Cultural Resources – Existing Conditions and Project Impacts

4.a) Archaeological Resources

Applied Earthworks prepared an Archaeological Survey Report for the Replacement of the Cabrillo Bridge over Mission Creek, (May 2006) that included a literature search, contact with interested parties, and a site survey of the project area. The report is summarized in the Existing Setting section above and a brief summary is provided below. The report is hereby incorporated by reference. The literature search indicated that within a 0.5 mile radius of the Area of Potential Effect (APE) there were 135 studies conducted and six archaeological sites were identified. The APE itself contains no previously recorded archaeological sites. The closest previously recorded archaeological sites are the Chumash Villages recorded in the 1920s. The interested parties contacts did not identify any archaeological sites within the APE.

As a result of the archaeological study, two previously undocumented historical archaeological sites were identified within the Area of Potential Effects (APE). These are a demolished service station and the site of the Santa Barbara Lumber Company. Based on the history of the service station and lumber company, the potential for other deposits associated with these sites is considered unlikely. The sites qualify as Exempt from Evaluation under the Caltrans Section

106 Programmatic Agreement (PA), "Properties Exempt from Evaluation," under Property Type 1: Minor, ubiquitous, or fragmentary infrastructure elements under the categories of fragments of bypassed or demolished bridges; and/or foundations and mapped locations of buildings or structures more than 50 years old with few or no associated artifacts or ecofacts, and with no potential for subsurface archaeological deposits.

The proposed project would have **no impact** on any significant archaeological site since none are known to occur within the project area (APE). Therefore, no mitigation measures are required. However, in the unlikely event that archaeological resources are identified during construction procedures outlined in the Master Environmental Assessment for unanticipated discovery of archaeological resources are recommended as mitigation measures.

4.b) Historic Resources

Applied Earthworks prepared several Historic Resources Reports (see references below) in 2006 that included a literature search, and a site survey of the project area. The reports are briefly summarized below and additional data on existing conditions from those reports is provided in the Environmental Setting section above. The reports are hereby incorporated by reference. The reports indicate that the Cabrillo Bridge over Mission Creek is within the East Cabrillo Boulevard Parkway District created in 1992 and is a contributing element towards this district. The East Cabrillo Boulevard Parkway District encompasses the boulevard and the area south of the roadway from State Street east to the Andree Clark Bird Refuge.

There is only one substantial historic resource within the project area and it is the bridge proposed for removal and replacement. The Cabrillo Bridge over Mission Creek was one of three bridges either constructed or widened during the improvement of East Cabrillo Boulevard. Of the three bridges, it is the only extant bridge from the time of significance of the historic district (1923-1928).

Since the project would demolish the existing bridge, the project impact would be **potentially significant, mitigable.** Mitigation measures that would reduce the project impacts to a less than significant level are preparing detailed archival photo documentation and engineering details of the bridge, reproducing some of the bridge architectural features in the new bridge (i.e. the arch under the bridge, the handrail, and use of stone rip-rap south of the bridge), and having HLC review and approval of the bridge design to ensure that it is compatible with the East Cabrillo Boulevard Parkway District.

The project will require the removal of four palm trees. The removal of the four palm trees would result in a **potentially significant, mitigable** impact on the historic district. The proposed project would mitigate this impact by replacing the trees with approximately 30 foot tall trees of the same variety in the general area.

4.c) Ethnic/Religious Resources

There is no evidence that the site involves any ethnic or religious use or importance. The project would have **no impact** on historic, ethnic or religious resources.

Cultural Resources – Mitigation

Required

CR-1 **Archive Plans and Photos.** Prior to demolition, the bridge will be recorded in accordance with the National Park Service guidelines for Historic American Engineering Record (HAER) documentation. The documentation will include historic research, a narrative report of the history of the bridge, and photo documentation of the bridge. The HAER document will be submitted to the Library of Congress.

CR-2 **HLC Review.** Bridge and restoration plans shall be subject to HLC review and approval to ensure that they are compatible with the East Cabrillo Boulevard Parkway District.

CR-3 **Design Elements:** The bridge railings shall utilize the same design and finish as the 1928 bridge railing (a pipe or wrought iron above the existing railing is permitted to achieve increased height required by code and the openings between pillars in the railing may be tapered to four inches on the interior of the railing, also to meet code), the bridge deck shall be similar in appearance to the existing structure with arch like structures, piers shall be round in one row, the existing monument shall be removed and replaced on the bridge, and all rip-rap on the channel banks, downstream of the project, would use stone rather than concrete.

CR-4 **Replacement Trees**. The project shall replace all palm trees removed as result of project construction on a one for one basis, with trees of the same variety and approximately 30 feet in height.

Recommended

CR-5 Discovery Procedures and Mitigation. Standard discovery measures shall be implemented per the City Master Environmental Assessment throughout grading and construction:

Prior to the start of any vegetation or paving removal, demolition, trenching or grading, contractors and construction personnel shall be alerted to the possibility of uncovering unanticipated subsurface archaeological features or artifacts.

If during any grading or construction on the site such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and a City-approved archaeologist shall be employed to assess the nature, extent and significance of any discoveries and to develop appropriate management recommendations for archaeological resource treatment, including but not limited to redirection of grading and/or excavation activities. If the findings are potentially significant, further analysis and/or other mitigation shall be prepared and accepted by the Environmental Analyst and the Historic Landmarks Commission, and implemented by the project Work in the area may only proceed after the Environmental Analyst grants authorization.

If prehistoric or other Native American remains are encountered, a Native American representative shall be consulted, and the archaeologist and Native American representative shall monitor all further subsurface disturbances in the area of the find.

If the discovery consists of potentially human remains, the Santa Barbara County Coroner and the California Native American Heritage Commission must also be contacted.

A final report on the results of the archaeological monitoring shall be submitted by the City-approved archaeologist to the Environmental Analyst within 180 days of completion of the monitoring and prior to the issuance of final City permits.

Residual Impacts:

Less than significant

5. GEOPHYSICAL CONDITIONS Could the project result in or expose people to:		***NO***	***YES*** ***Level of Significance***
a)	Seismicity: fault rupture?	X	
b)	Seismicity: ground shaking or liquefaction?		Less than Significant
c)	Seismicity: seiche or tsunami?		Less than Significant
d)	Landslides or mudslides?		Less than Significant
e)	Subsidence of the land?		Less than Significant
f)	Expansive soils?	X	
g)	Excessive grading or permanent changes in the topography?		Less than Significant

Geophysical Conditions - Discussion

Issues: Geophysical impacts involve geologic and soil conditions and their potential to create physical hazards affecting persons or property; or substantial changes to the physical condition of the site. Included are earthquake-related conditions such as fault rupture, groundshaking, liquefaction (a condition in which saturated soil looses shear strength during earthquake shaking); or seismic sea waves; unstable soil or slope conditions, such as landslides, subsidence, expansive or compressible/collapsible soils; or erosion; and extensive grading or topographic changes.

Impact Evaluation Guidelines: Potentially significant geophysical impacts may result from:

- Exposure to or creation of unstable earth conditions due to seismic conditions, such as earthquake faulting, groundshaking, liquefaction, or seismic waves.

- Exposure to or creation of unstable earth conditions due to geologic or soil conditions, such as landslides, settlement, or expansive, collapsible/compressible, or expansive soils.
- Extensive grading on slopes exceeding 20%, substantial topographic change, destruction of unique physical features; substantial erosion of soils, overburden, or sedimentation of a water course.

Geophysical Conditions – Existing Conditions and Project Impacts

The Preliminary Foundation Recommendation Report for The Replacement of Cabrillo Boulevard Bridge Over Mission Creek prepared by Bengal Engineers (December 3, 2005) that is summarized in the Environmental Setting section above and below and is hereby incorporated by reference.

5.a-c) Seismic Hazards

Fault Rupture:

There are no known faults in the project area and so the potential for faulting is very low and therefore there would be **no impacts** of fault rupture on the site.

Ground Shaking:

The proposed project would be subject to ground shaking in the event of an earthquake on a nearby fault. The bridge and foundations would also be designed to withstand the maximum credible groundshaking that is anticipated at the project site. Therefore, impacts of groundshaking and liquefaction would be mitigated by the project design and would be **less than significant.**

Liquefaction

Saturated Quaternary alluvial deposits encountered at the site are considered one of the types of deposits generally highly susceptible to liquefaction during earthquakes provided the other two criteria are satisfied (groundshaking and granular soils). As for the soil type and composition, the project site is underlain by interbedded layers of mainly fine-grained or cohesive Sandy/Silty Clay (CL) soil and cohesionless, granular Silty Sand (SM) and Sand (SP) soil layers. Soils within the thinner layers or the transition zones between alternating relatively thicker layers gradually grade from one of the above primary types to the other. These transition materials can be classified as mainly Clayey Silt or Sand (ML/SC).

In general, cohesive soils with greater than 10% clay content (grain size less than 0.002mm) and Liquid Limit greater than 32 or Plasticity Index greater than 10 to 12, are not considered susceptible to liquefaction. Laboratory tests indicate that the majority of fine-grained soil encountered at the site meets these criteria. Based on these observations and preliminary analysis using analysis as recommended in Youd et al (2001), the liquefaction potential of the fine-grained cohesive soils encountered at the site is considered very low.

The preliminary liquefaction analysis based on the CPT procedure included in Youd et al (2001), indicates that when the layers are thick enough to fully develop the CPT tip resistance, the granular soils underling the project site are generally dense and not susceptible to liquefaction. It appears that the measured CPT tip resistance in the interbedded thin granular soil layers and the soils in the transition zones above and below the dense granular layers are substantially affected by the presence of softer layers. It is Bengal Engineering's opinion that the "States" of the thin granular soil are similar to the non-liquefiable, thicker layers of dense to very dense granular soils.

Based on the above discussion and preliminary analysis, the liquefaction potential of subsurface soils at the site is considered low to very low. Results of a detailed liquefaction analysis and liquefaction-induced ground settlement, if any, will be included in the final Foundation Report (FR). Effects of liquefaction, if any, will be considered in the bridge foundation design. Therefore, project impacts associated with liquefaction would be **less than significant**.

Seiche or Tsunami:

Tsunamis are traveling sea-waves generated by sudden uplift of the sea bottom due to ground displacements during submarine earthquakes and/or landslides. Such waves can travel long distances across the ocean at a speed of about 600 miles per hour. As these waves reach the shore, their velocity decreases, but the wave height increases. Tsunami induced maximum wave run-up as much as 30 to 45 feet (10 to 15 m) has been reported during some past major offshore earthquakes. The maximum wave run-up at a location is the vertical height above the mean sea or stillwater level at which the rush of water reaches as it climbs up during a tsunami. Such massive waves can cause substantial damage to or even failure of bridge structures.

The project site is located very close to the California coastline. The California coast has experienced more than 20 tsunamis during the past two centuries. The Santa Barbara coastline has experienced several tsunamis in the past (Eisner,

2001, Moore and Taber, 1974), and is likely to experience more in the future. The November 4, 1927 M7.5 Point Arguello-Lompoc earthquake generated a maximum run-up of about six feet (2 m) (Moore and Taber, 1974, Borrero et al 2005). Borrero et al (2001) reported tsunami run up height of about six feet (2 m) in the Santa Barbara area from the 1918 M7.2 earthquake generated by the Mojave segment of the San Andreas Fault. Eisner et al (2001) reported 10 to 13 feet (3 to 4m) maximum run up heights from both the 1927 and the 1918 historical tsunamis. Based on Bolt (1999), the 1960 Chile M8.6 earthquake generated 5 feet (1.5 m) wave run-up in the Santa Barbara area.

According to McCarthy (1993), the potential for the Santa Barbara coastline to experience locally generated (nearshore) tsunamis is considered high. Houston and Garcia (1978) estimated tsunami wave run-up height of 5.5 and 11 feet in the area from 100-year and 500-year return period events, respectively. More recently, Borrero et. al (2001) estimated tsunami run-up of about 6-feet in the area based on tsunamis from purely tectonic sources. Since ground surface elevation at the abutments is about 12.5 feet above MSL, it is our opinion that there is potential that tsunamis generated by earthquakes due to movement of one of the nearby or distance offshore faults may adversely affect the proposed bridge structure.

It should be noted that Eisner et al (2001) recommends, for emergency preparedness and evacuation planning, a maximum tsunami run-up height of 43 feet (13 m) or inundation of about five (5) city blocks in the area of the project. This scenario corresponds to a rare event.

The project site and area are within the tsunami run-up area, according to the Master Environmental Assessment. The proposed bridge replaces an existing bridge that forms a portion of the area transportation system. Should a tsunami occur, the bridge would be inundated and perhaps damaged. This damage could occur to the existing bridge as well as the proposed bridge and so little new hazard to the public from the potential for a tsunami would be expected. Impacts of tsunami are therefore expected to be **less than significant**.

5.d-f) Geologic or Soil Instability

Landslides:

There are no steep landforms in the area large enough to create a landslide. Localized sloughing of soils in trenches and along creek banks could occur. Shoring along the creek banks is aging and could fail. However, the project includes installation of piles and panels to replace existing creek bank retaining structures north of the existing bridge. Installation of these new retaining structures would ensure that creek banks do not slide into the creek. Compliance with existing regulations regarding shoring of trench walls during construction would minimize the potential for sloughing of trench walls. Therefore, the impacts of landslides would be **less than significant**.

Subsidence:

No significant ground slope exists in the vicinity of the bridge, the abutments will be supported on piles, and the liquefaction potential of the supporting soils is considered low to very low. Based on these considerations, seismic hazard associated with lateral spreading at the site is considered low.

The subsurface soils at the site consist of either fine-grained cohesive soils or dense granular soils with a significant amount of fines (fraction passing #200 sieve). Such soils are not considered susceptible to significant settlement due to ground shaking during earthquakes. Furthermore, due to similar subsurface conditions, seismically induced settlement, if any, is not likely to results in any significant differential settlement between the bridge supports. Therefore, impacts of subsidence are considered to be **less than significant**.

Expansive Soils:

Soils at the site are not considered to be expansive. Therefore, there would be **no impacts** associated with expansive soils.

5.g) Topography; Grading/ Erosion

Topographic Changes Grading/ Erosion:

The proposed project does not include any elements that involve substantial topographic changes. The proposed bridge abutments and restoration of the Mission Creek banks would result in some relatively minor changes to bank configuration to ensure long term stability of the banks and abutments. The temporary pedestrian bridge over the Creek would be removed and any changes to topography on approaches to the bridges would be returned to existing conditions, after construction. Therefore, topographic changes would have a **less than significant** on the environment.

Grading would be limited to minor recontouring of Mission Creek banks to facilitate the restoration of those banks, construction of bridge abutments, and construction of approaches to the temporary bridges to deal with changes in

elevation. This grading would result in exposure of soils to erosion. The proposed project includes a restoration plan designed to minimize erosion in the area where grading would occur. The plan includes planting of native plants, installation of erosion control blankets and use of ungrouted rocks to protect the abutments from erosion when the creek flows are high. Grading/erosion impacts would be **less than significant** because the limited grading and erosion hazard caused by grading would be addressed by project mitigation measures designed to minimize erosion (see also water quality section for erosion control).

Geophysical Conditions - Mitigation

G-1 The project shall utilize the foundation and bridge construction recommendations of the Preliminary and Final Geological Investigations that include the following:

- Bridge supported on Cast in Steel Shell (CISS) piles
- Diameter, length and other specifications of piles for bridge support and for bank restoration
- Bridge engineering design

Geophysical Conditions – Residual Impacts

Less than significant

6. HAZARDS Could the project involve:		NO	YES *Level of Significance*
a)	A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?		Potentially Significant, Mitigable
b)	The creation of any health hazard or potential health hazards?	X	
c)	Exposure of people to existing sources of potential health hazards?	X	
d)	Increased fire hazard in areas with flammable brush, grass, or trees?		Less than Significant

Hazards - Discussion

Issues: Hazardous materials issues involve the potential for public health or safety impacts from exposure of persons or the environment to hazardous materials or risk of accidents involving combustible or toxic substances.

Impact Evaluation Guidelines: Significant impacts may result from the following:

- Siting of incompatible projects in close proximity to existing sources of safety risk, such as pipelines, industrial processes, railroads, airports, etc.
- Exposure of project occupants or construction workers to unremediated soil or groundwater contamination.
- Exposure of persons or the environment to hazardous substances due to improper use, storage, or disposal of hazardous materials.
- Siting of development in a high fire hazard areas or beyond adequate emergency response time, with inadequate access or water pressure, or otherwise in a manner that creates a fire hazard

Hazards – Existing Conditions and Project Impacts

6a Hazardous Material Release

Demolition and construction of the bridge would result in equipment use that includes use of oils, fuels, and chemicals in construction materials including concrete. Accidental spills of fuels, oil, and concrete in the water could result in a **potentially significant mitigable** impact on species in the creek if these materials were allowed to reach the water in the creek in sufficient quantities. Wet concrete increases the alkalinity in water to toxic levels for fish. Coffer dam

installation and dewatering the site would reduce the impacts to sensitive species within the creek because these materials could be isolated from the rest of the dry creek and removed before they contaminate the remaining water in the creek. With proper maintenance of equipment, training of construction workers in maintenance and clean up procedures, proper design of piles and forms, and onsite storage of appropriate materials and equipment to address accidental spills, hazardous materials release impacts would be reduced to less than significant levels. Pile design types have not yet been finalized. If pile designs are chosen that have the potential to release wet concrete to surface waters, precautions should be taken to ensure that there is secondary containment should accidental spills of concrete occur. Use of these measures would reduce project impacts to less than significant levels.

6b, c). Creation of Health Hazard

The proposed project would replace an existing bridge and would not be expected to create a health hazard to people. There are no known health hazards on the site. Therefore, there would be **no impacts** due to health hazards. Hazards to wildlife due to accidental release of hazardous materials are discussed above under 6a and in the Biology and Water Quality sections.

6.d) Fire Hazard

The proposed project would replace an existing bridge. No permanent fire hazard would be created. Minor temporary fire hazard may be created during construction since construction materials and fuels could be ignited. This fire hazard would be **less than significant** due to its temporary nature and limited extent.

Hazards - Mitigation

See Biology and Water Quality sections.

Hazards – Residual Impacts

Less than significant.

7. NOISE Could the project result in:		NO	YES *Level of Significance*
a)	Increases in existing noise levels?		Potentially Significant, Mitigable:
b)	Exposure of people to severe noise levels?		Potentially Significant, Mitigable:

Noise - Discussion

Issues: Noise issues are associated with siting of a noise-generator next to existing noise-sensitive land uses, and/or short-term construction-related noise.

Guidance for appropriate long-term background noise levels for various land uses are established in the City General Plan Noise Element Land Use Compatibility Guidelines. Building codes also establish maximum average ambient noise levels for the interiors of structures.

The Noise Ordinance (Chapter 9.16 of the Santa Barbara Municipal Code) governs short-term or periodic noise, such as construction noise, operation of motorized equipment or amplified sound, or other sources of nuisance noise. The ordinance establishes limitations on hours of construction and motorized equipment operations, and provides criteria for defining nuisance noise in general.

Impact Evaluation Guidelines: A significant noise impact may result from:

- Noise levels that exceed 85 dB for prolonged exposure, during construction.
- For isolated individual noise sources, exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level for any period during construction
- An increase in 5dB during nighttime hours.

Noise – Existing Conditions and Project Impacts

7.a-b) Increased Noise Level; Exposure to High Noise Levels

The existing noise environment is described above under in the Existing Conditions section. The description of the noise

environment, impacts, and mitigation measures is based upon a report prepared by Channel Islands Acoustics, dated June 19, 2006, which is hereby incorporated by reference.

Long-Term Operational Noise: The project is a bridge replacement that would not substantially increase traffic flow over the bridge. Since the project would not result in any substantial increase in long term noise, the project would have **less than significant** operational noise impacts.

Temporary Construction Noise:

Project construction traffic noise increases are a small fraction of a decibel at all locations except immediately at the edge of the roadways designated for truck traffic. Therefore, although individual trucks passing uses along Helena, Mason, Anacapa and Yanonali Streets on average once every 15-20 minutes would result in an additional noise peak, the overall noise impact would be temporary and minimal. If truck traffic were to occur at night, it would potentially impact uses along the transportation route. The impact of nighttime construction traffic would be **potentially significant, mitigable** and mitigation therefore requires that construction truck traffic be prohibited during nighttime hours.

The primary acoustical concern for this project is the impact of noise from demolition and re-construction activities. Construction noise levels in the surrounding area above 65 dB would be expected during most of the demolition and construction period, and noise levels above 85 dB would be expected during some operations.

Pile driving produces intense repetitive impulsive noise. Pile driving at a distance of 2000 feet produces peak noise levels on the order 82 dB, which translates to 118-120 dB at 50 feet. Noise levels of 140 dB would therefore be experienced only within approximately 5 feet of the impact point. It is unlikely that passers-by would be in the area long enough to experience substantial hearing damage risk. It is therefore highly unlikely that non-construction personnel would be subjected to substantial risk of hearing damage.

Noise levels above 120 dB are consistently rated as "uncomfortably loud" in the literature. It is therefore concluded that a public protection criterion for the pile insertion portion of the project would be to minimize exposure to any noise in excess of 120 dB, which translates into keeping non-construction personnel farther than 50 ft from pile insertion points and/or providing noise barriers between pile driving and public areas. Mitigation is provided that precludes access to non-construction personnel within 50 feet of pile insertion, discourages members of the public from spending substantial periods of time within 50 feet of pile driving, or use of a noise barrier that reduces noise levels to less than 120 dB within 50 feet of pile driving..

Demolition and construction activities on the bridge will cause large temporary increases in noise levels at adjacent exterior and interior use areas. Noise level increases identified in the noise study associated with pile insertion and demolition are **potentially significant, mitigable**. This impact can be mitigated by precluding the public from within 50 feet from pile driving, using equipment that reduces noise generated, requiring construction personnel to use hearing protection, or including noise barriers to reduce noise levels to below 120 dB.

The primary issue for daytime noise impact in the environments within adjacent establishments would be speech communication interference. Information in the literature indicates that for reliable speech communication at a distance of 4 ft with normal voice effort, the background noise level should be below approximately 63 dB. Noise levels are expected to exceed this threshold during particularly noisy construction activities. At raised or "loud" voice levels, communication is possible at background noise levels up to about 75 dB. Since the noise sources will be intermittent, use of spaces exposed to noise levels above 75 dB may not be totally precluded, but the environmental quality would be temporarily diminished.

Commercial establishments (primarily Eladio's and Rusty's Pizza restaurants) located adjacent to the construction area will be subjected to temporarily high noise levels from construction and demolition, potentially impacting the indoor environment. Table 11 in the Noise Study provides interior noise with a nominal outdoor-to-indoor reduction of 20 dB based on doors and windows facing the construction area being closed. Only Rusty's Pizza exceeds the 75 dB criterion but Eladio's, an adjacent multi purpose building and hotels under construction on the South end of State Street would experience background noise levels in excess of 63 dB. These background noise levels would be sufficient to intermittently interfere with speech at least during particularly noisy construction activity. This impact would be **potentially significant, mitigable**. Mitigation would require closure of the front portion of the restaurant or temporarily retrofitting the restaurants with additional noise barriers.

There may be some operations required at night, such as pumping of water, electrical generation or occasional completion of tasks that cannot be feasibly interrupted. Noise levels from projected ongoing nighttime equipment operation would be **potentially significant, mitigable**. This impact can be mitigated by requiring use of enclosures or equipment that reduces project generated noise to within 5 dB of the measured ambient noise level at residential uses.

During bridge demolition (in Stage 2), the connection between the bridge structure and Rusty's building is to be severed and Rusty's building will be transferred to temporary supports. Details of this step are not yet determined, but it is postulated that operations such as concrete sawing, inserting temporary support pilings and load transferring would be involved. These operations will expose the Rusty's Pizza Restaurant structure to vibration that will at times be sensible in the restaurant and result in interior noise radiation at "uncomfortable" levels. In addition, some of the operations could result in plaster cracking or other damage to the structure. This impact would be **potentially significant, mitigable**. Mitigation would require that the Rusty's Restaurant support be separated from the bridge and supported independently to preclude direct transmission of vibration from the bridge to the structure and by repairing or compensating the owner for any damage due to project vibration.

It is assumed that the southerly portion of the bridge carrying traffic during Stage 2 construction will be structurally isolated from the buildings on the north side of the bridge. This will prevent vibration induced by vehicles passing over minor pavement discontinuities (created when holes are bored through the bridge deck are temporarily patched to allow continued traffic) being transmitted into the structures. As discussed above, the process of disconnecting Rusty's Pizza from the bridge structure will result in vibration excitation of the Rusty's building. Vibration induced by these pavement discontinuities would be **potentially significant, mitigable**. This vibration impact can be minimized by severing the structural connection between the bridge and Rusty's prior to allowing traffic to use the lanes where discontinuities are created.

Noise – Mitigation

Required

N-1 **Construction Notice.** At least 20 days prior to commencement of construction, the contractor shall provide written notice to all property owners and residents within 450 feet of the project area. The notice shall contain a description of the proposed project, a construction schedule including days and hours of construction, the name and phone number of the Project Environmental Coordinator (PEC) who can answer questions, and provide additional information or address problems that may arise during construction. A 24-hour construction hot line shall be provided. Informational signs with the PEC's name and telephone number shall also be posted at the site.

N-2: **Construction Hours.** Noise-generating construction activities (which may include preparation for construction work) shall be permitted weekdays between the hours of 7:00 a.m. and 5:00 p.m., excluding holidays observed by the City as legal holidays: New Year's Day (January 1st); Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (Last Monday in May); Independence Day (July 4th); Labor Day (1st Monday in September); Thanksgiving Day (4th Thursday in November); Day Following Thanksgiving Day (Friday following Thanksgiving); Christmas Day (December 25th). *When a holiday falls on a Saturday or Sunday, the preceding Friday or following Monday respectively shall be observed as a legal holiday.

Occasional night work may be approved for the hours between 5 p.m. and 7 a.m. by the Chief of Building and Zoning per Section 9.13.015 of the Municipal Code) between the hours of 5 p.m. and 7 a.m. weekdays. In the event of such night work approval, the applicant shall provide written notice to all property owners and residents within 450 feet of the project property boundary and the City Planning and Building Divisions at least 48 hours prior to commencement of any work. Night work shall not be permitted on weekends and holidays.

N-3: **Construction Equipment Sound Control.** All construction equipment, including trucks, shall be professionally maintained and fitted with standard manufacturers' muffler and silencing devices.

N-4 **Sound Barriers.** The project shall employ sound control devices and techniques such as noise shields and blankets during the construction period to reduce the level of noise generated by pile driving and demolition. Sound barriers shall be installed as shown in the noise study design and locations, provided landowners agree to the installation of the noise barriers. Sound barriers or temporary construction zones shall be used to reduce pile driving and demolition noise levels to 120 dB where members of the public have access.

N-5 **Vibration.** The Rusty's Restaurant support shall be separated from the bridge and supported independently to preclude direct transmission of vibration from the bridge to the structure resulting from pavement discontinuities created by patches on the bridge deck and work on the deck.

N-6 **Cracks.** A photographic survey of adjacent structures shall be completed prior to, during, and after construction to identify any cracking caused by the project. Any cracking occurring due to the project shall be repaired or compensation shall be provided to the owner for any damage due to project vibration.

N-7 **Worker Hearing Protection.** Worker hearing conservation requirements shall be included in contract documents and used by construction workers.

N-8 **Nighttime Noise.** Any equipment that must be operated during nighttime hours must be individually reviewed and treated with an enclosure, barriers, silencers or other treatments as required to limit noise at any noise sensitive use to 50 dB (A-weighted) based on measured nighttime ambient noise 45 dB and the City restriction of ambient plus 5 dB.

N-9 **Interior Noise.** The applicant shall negotiate an arrangement to provide noise shields (secondary windows) for adjacent businesses due to noise from pile driving and demolition or use of the front portions of the Rusty's Pizza Restaurant shall be temporarily discontinued during pile driving and demolition.

N-10 **Construction Truck Trips**. Prohibit large scale movements of debris or materials by trucks during nighttime hours (10 p.m. to 7 a.m.)

Recommended

N-11 **Warning Signs**. Post noise hazard signs at locations within 150 ft of the pile-driving areas so that passers-by would be aware that high noise levels are possible. The sign would read: "WARNING, NOISE HAZARD AHEAD, YOU ARE ADVISED TO AVOID THE AREA, USE EAR PROTECTION OR STAY FOR LESS THAN 30 MINUTES.

Noise – Residual Impact

Less than significant.

8. POPULATION AND HOUSING Could the project:		NO	YES Level of Significance
a)	Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure)?		Less than Significant
b)	Displace existing housing, especially affordable housing?	X	

Population and Housing - Discussion

Impact Evaluation Guidelines: Issues of potentially significant population and housing impacts may involve:

- Growth inducement, such as provision of substantial population or employment growth or creation of substantial housing demand; development in an undeveloped area, or extension/ expansion of major infrastructure that could support additional future growth.
- Loss of a substantial number of housing units, especially loss of more affordable housing.

Population and Housing – Existing Conditions and Project Impacts

8.a) Growth-Inducing Impacts

The project would replace an existing bridge. The project would not involve a substantial increase in major public facilities such as extension of water or sewer lines or roads that would facilitate additional growth in the area. The project would not involve substantial employment growth that would increase population and housing demand. Nor would the project include any housing that could induce growth. The project would temporarily increase employment in the area for construction related purposes. This would be a minor increase in employment and it would be temporary. Therefore, growth-inducing impacts would be **less than significant**.

8.b) Housing Displacement

The project would not involve any housing displacement. **No impact** would result from the project.

Population and Housing - Mitigation

No mitigation is required.

Population and Housing – Residual Impact

Less than significant.

9. PUBLIC SERVICES Could the project have an effect upon, or result in a need for new or altered services in any of the following areas:		NO	YES *Level of Significance*
a)	Fire protection?		Less than Significant
b)	Police protection?		Less than Significant
c)	Schools?		Less than Significant
d)	Maintenance of public facilities, including roads?		Less than Significant
e)	Other governmental services?		Less than Significant
f)	Electrical power or natural gas?		Less than Significant
g)	Water treatment or distribution facilities?		Less than Significant
h)	Sewer or septic tanks?		Less than Significant
i)	Water distribution/demand?		Less than Significant
j)	Solid waste disposal?		Potentially Significant, Mitigable

Public Services - Discussion

Issues: This section evaluates project effects on fire and police protection services, schools, road maintenance and other governmental services, utilities, including electric and natural gas, water and sewer service, and solid waste disposal.

Impact Evaluation Guidelines: The following may be identified as significant public services and facilities impacts:

- Creation of a substantial need for increased police department, fire department, road maintenance, or government services staff or equipment.
- Generation of substantial numbers of students exceeding public school capacity where schools have been designated as overcrowded.
- Inadequate water, sewage disposal, or utility facilities.
- Substantial increase in solid waste disposal to area sanitary landfills.

Public Services – Existing Conditions and Project Impacts

9a,b Fire and Police Protection

The proposed project would replace an existing bridge. No substantial new demand for fire and police services would be created. One traffic lane would remain open in each direction during project construction which would allow for continued emergency access across the bridge. Also, alternative routes are available on City Streets and the 101 Freeway. A minor delay in emergency services may occur temporarily during construction if traffic volumes are high over the bridge at the time the emergency occurs. This impact would be **less than significant** because it would be temporary, intermittent, and alternative routes are available in the event that emergency access to uses on either side of the bridge is needed.

9c Schools

The proposed project does not include any residential, commercial, or industrial development. No new students would be generated by the project and there are no schools within a quarter mile of the project. Construction employees could enroll their children ion local school while they work in the city. This would result in a small increase in the number of student

enrollments at local schools during construction. Since few students would be generated and there are vacancies in the local school systems, project impacts to schools would be **less than significant**.

9 d, e, f Public Facilities/Roads/Governmental Service/ Utilities

The proposed project would replace an aging bridge that would fail if not replaced. The project therefore involves replacement of existing facilities and would not increase the need for public facilities, roads, government services and utilities. No substantial new increase in demand for government services facilities, and utilities would be created. There are existing utilities including reclaimed water, water, natural gas, cable, and electricity lines that use the bridge to cross the creek. The project includes plans to either, relocate the utilities and replace them later or to work around them while they are in place. Some of these lines could be temporarily disconnected without disrupting service because there is redundancy in the system. Therefore, the proposed project would not substantially disrupt the utilities supported by the bridge and any disruptions would be of short duration while utilities are reconnected, if necessary. Therefore, project impacts would be **less than significant**.

9.g,h,i Water and Sewer

Water

The City of Santa Barbara's water supply comes from the following sources, with the actual share of each determined by availability and level of customer demand: Cachuma Reservoir and Tecolote Tunnel, Gibraltar Reservoir and Mission Tunnel, 300 Acre Feet per Year (AFY) of contractual transfer from Montecito Water district, groundwater, State Water Project entitlement, desalination, and recycled water. Conservation and efficiency improvements are projected to contribute to the supply by displacing demand that would otherwise have to be supplied by additional sources. In 1994, based on the comprehensive review of the City's water supply in the Long Term Water Supply Alternatives Analysis (LTWSAA), the City Council approved the Long Term Water Supply Program (LTWSP). The LTWSP outlines a strategy to use the above sources to meet the projected demand of 17,900 AFY (including 1,500 AFY of demand projected to be met with conservation) plus a 10 percent safety margin for a total of 19,700 AFY. Therefore, the target for the amount of water the system will actually have to supply, including the safety margin, is 18,200 AFY. The 2003 Water Supply Management Report documents an actual system demand of 13,460 AFY and a theoretical commitment of 16,170 AFY. Of the total system production, 95% was potable water and 5% was reclaimed water.

The project involves replacement of an existing bridge and does not use water for operational purposes. Some water would be used for construction purposes and for temporary irrigation while plants in the restoration areas are established. The City's long-term water supply and existing water treatment and distribution facilities with proposed irrigation connections using reclaimed water for the landscaping would adequately serve the project. The potential increase in demand would constitute a **less than significant** impact to the City water supply.

Sewer

The project would not require any sewer connection because it is a bridge replacement project but there could be an incremental increase in the amount of waste generated by project workers that would need to be treated. Since there is sufficient capacity at the waste water treatment plant to accommodate the project there would be **less than significant** on sewer service.

9j) Solid Waste Generation/Disposal

Most of the waste generated in the City is transported on a daily basis to seven landfills located around the County. The County of Santa Barbara, which operates the landfills, has developed impact significance thresholds related to the impacts of development on remaining landfill capacity. The County thresholds are based on the projected average solid waste generation for Santa Barbara County from 1990-2005. The County assumes a 1.2% annual increase (approximately 4000 tons per year) in solid waste generation over the 15-year period.

The County's threshold for project specific impacts to the solid waste system is 196 tons per year (this figure represents 5% of the expected average annual increase in solid waste generation [4000 tons/year]). Source reduction, recycling, and composting can reduce a project's waste stream by as much as 50%. If a proposed project generates 196 or more tons per year after reduction and recycling efforts, impacts would be considered **significant and unavoidable**.

Proposed projects with a project specific impact as identified above (196 tons/year or more) would also be considered cumulatively significant, as the project specific threshold of significance is based on a cumulative growth scenario. However, as landfill space is already extremely limited, any increase in solid waste of 1% or more of the expected average annual increase in solid waste generation [4000 tons/year], which equates to 40 tons per year, is considered an adverse cumulative impact.

Long-Term (Operational). The project would not generate much operational solid waste because it involves construction of a replacement bridge and creek bank restoration. Maintenance of the restored area would generate a small amount of green waste that would be recycled into compost. Therefore, long tem impacts on landfill capacity would be **less than significant.**

Short-Term (Demolition and Construction) Materials, including concrete and steel, from the demolition process would be recycled locally. An estimated 230 tons of steel, 2,400 cubic yards of concrete, and 500 cubic feet of timber would be generated and trucked to a recycling facility. Concrete, steel, and green waste generated during construction would be short-term and **potentially significant, mitigable.** Application of recommended standard mitigation to reduce, re-use, and recycle construction waste to the extent feasible would minimize this effect because recycled items would not be sent to a landfill but would be reused.

Public Services - Mitigation

PS 1 Green waste, concrete, and steel from construction and operation shall be sent to a local recycling facility and be recycled, as proposed by the applicant.

Public Services – Residual Impacts

Less than significant.

10. RECREATION Could the project:		**NO**	**YES** *Level of Significance*
a)	Increase the demand for neighborhood or regional parks or other recreational facilities?		Less than Significant
b)	Affect existing parks or other public recreational facilities?		Potentially Significant, Mitigable

Recreation - Discussion

Issues: Recreational issues are associated with increased demand for recreational facilities, or loss or impacts to existing recreational facilities.

Impact Evaluation Guidelines: Recreation impacts may be significant if they result in:

- Substantial increase in demand for park and recreation facilities in an area under-served by existing public park and recreation facilities.
- Substantial loss or interference with existing park space or other public recreational facilities such as hiking, cycling, or horse trails.

Recreation – Existing Conditions and Project Impacts

10.a) Recreational Demand

The proposed project would replace an existing bridge and would not result in a substantial increase in demand for recreation opportunities. Therefore, project impacts on recreation demand would be **less than significant**.

10.b) Existing Recreational Facilities

The project site is located in an area where recreation facilities exist. The sidewalks, bicycle trails and park areas are heavily used for recreational purposes. On Sundays, the sidewalk and area around the multiuse trail is used by ~~vendors~~artists and artisans at the Arts and Crafts Show, to sell their work. Considerable pedestrian traffic is generated by shoppers and park users in this area. Construction at the bridge could temporarily preclude the use of this area for these purposes.

The project would result in the temporary loss of an estimated 7, 200 square feet of recreation space for one week for installation of the temporary pedestrian bridge and another week for removal of the temporary pedestrian bridge. Construction, during Stage 3 of the project (one year), would result in the temporary loss of approximately 7,000 square feet of recreation area. The temporary loss of park space used for passive recreation purposes would be **less than significant** because it is temporary, the amount of space is small relative to the passive park located in the waterfront, and there are large areas of similar parkland in the vicinity that can be used for recreational purposes.

In Stage 3 (one year) the proposed project would result in the temporary loss of 12 vendor stalls. An estimated 16

assigned vendor stalls along Cabrillo Boulevard would be temporarily eliminated. There are currently 25 unassigned stalls west of Mission Creek. During stage 3, 29 new stalls would be created along the temporary pedestrian/bicycle path for a net loss of 12 stalls. This is a **less than significant** impact. Normal attrition of ~~vendors~~artists and artisans using stalls is approximately 2 to 3 per year. Mitigation would require the City to allow the vacancies to be filled with displaced ~~vendors~~artists and artisans. Displaced ~~vendors~~artists and artisans who are left without a space would be provided vendor spaces at the east end of the vendor area.

The project includes plans to construct a pedestrian bridge over Mission Creek south of the existing bridge. The temporary bridge would be sufficient to accommodate east to west pedestrian and bicycle traffic during construction. There would be a temporary inconvenience to pedestrians since their path of travel would be slightly longer and there would potentially be noise and dust in the area during construction hours.

No construction is planned to occur on Sundays so pile driving activities would not directly impact the vendor activity.

The project would result in the permanent loss of 4 premier vendor stalls due to reconfiguration of the bridge and creek. The loss of these spaces would be **potentially significant, mitigable**. This will be mitigated by the City offering alternative premier vendor spaces to the ~~vendors~~artists and artisans who have used the spaces being eliminated as the alternative premier vendor spaces become available.

Recreation - Mitigation

REC-1: The City will allow vacancies due to attrition to be filled with ~~vendors~~artists and artisans displaced by the project. Displaced ~~vendors~~artists and artisans who are left without a space would be provided vendor spaces at the east end of the vendor area.

Recreation – Residual Impacts

Less than significant

11. TRANSPORTATION/CIRCULATION Could the project result in:		NO	YES *Level of Significance*
a)	Increased vehicle trips?		Less than Significant
b)	Hazards to safety from design features (e.g. sharp curves, inadequate sight distance or dangerous intersections)?	X	
c)	Inadequate emergency access or access to nearby uses?		Less than Significant
d)	Insufficient parking capacity on-site or off-site?		Less than Significant
e)	Hazards or barriers for pedestrians or bicyclists?		Less than Significant

Transportation - Discussion

Issues: Transportation issues include traffic, access, circulation, safety, and parking. Vehicle, bicycle and pedestrian, and transit modes of transportation are all considered, as well as emergency vehicle access. The City General Plan Circulation Element contains policies addressing circulation, traffic, and parking in the City.

Impact Evaluation Guidelines: A proposed project may have a significant impact on traffic/ circulation/ parking if it would:

Vehicle Traffic

- Cause an increase in traffic that is substantial in relation to the existing traffic load and street system capacity (see traffic thresholds below).
- Cause insufficiency in transit system.
- Conflict with the Congestion Management Plan (CMP) or Circulation Element or other adopted plan or policy pertaining to vehicle or transit systems.

Circulation and Traffic Safety

- Create potential hazards due to addition of traffic to a roadway that has design features (e.g., narrow width, roadside

ditches, sharp curves, poor sight distance, inadequate pavement structure) or that supports uses that would be incompatible with substantial increases in traffic.

- Diminish or reduce safe pedestrian and/or bicycle circulation.
- Result in inadequate emergency access on-site or to nearby uses.

Parking

- Result in insufficient parking capacity for the projected amount of automobiles and bicycles.

Traffic Thresholds of Significance: The City uses Levels of Service (LOS) "A" through "F" to describe operating conditions at signalized intersections in terms of volume-to-capacity (V/C) ratios, with LOS A (0.50-0.60 V/C) representing free flowing conditions and LOS F (0.90+ V/C) describing conditions of substantial delay. The City General Plan Circulation Element establishes the goal for City intersections to not exceed LOS C (0.70-0.80 V/C).

For purposes of environmental assessment, LOS C at 0.77 V/C is the threshold Level of Service against which impacts are measured. An intersection is considered "impacted" if the volume to capacity ratio is .77 V/C or greater.

Project-Specific Significant Impact: A project-specific significant impact results when:

(a) Project peak-hour traffic would cause a signalized intersection to exceed 0.77 V/C, or

(b) The V/C of an intersection already exceeding 0.77 V/C would be increased by 0.01 (1%) or more as a result of project peak-hour traffic.

For non-signalized intersections, delay-time methodology is utilized in evaluating impacts.

Significant Cumulative Contribution: A project would result in a significant contribution to cumulative traffic impacts when:

(a) Project peak-hour traffic together with other cumulative traffic from existing and reasonably foreseeable pending projects would cause an intersection to exceed 0.77 V/C, or

(b) Project would contribute traffic to an intersection already exceeding 0.77 V/C.

Transportation – Existing Conditions and Project Impacts

11.a) Increased vehicle trips

Long-Term Traffic

The proposed project would replace an existing bridge with a new bridge that has slightly increased capacity. Traffic would not be generated by the bridge in the long term. Therefore, the project would have **no impacts** on long term traffic.

Short-Term Construction Traffic

The overall project construction process is estimated to last approximately 22 months. An estimated 25 morning and evening hour trips would be generated by workers commuting to the site. Construction worker trips would be expected to occur outside of the morning and evening peak hours. These trips would be the maximum worker related trips and the numbers of trips would vary to lower amounts, according to the labor requirements of the project. The project would require an estimated 10 average daily truck trips to carry materials, waste, and equipment with a peak of 20 trips per day. The project would generate construction-related traffic that would occur over the 19-month construction period and would vary depending on the stage of construction.

Temporary construction traffic is generally considered an adverse but **less than significant impact**. In this case, given traffic levels in the area and the duration of the construction process, short-term construction-related traffic would be a **less than significant impact.** Standard mitigation measures are included in the project description and are recommended, including restrictions on the hours permitted for construction trips and approval of routes for construction traffic.

During the 19 month construction period there will be at least one vehicular lane open in each direction, at all times. This means that up to two lanes and a turning lane would be closed in each direction, during construction. Therefore, the capacity of the highway over the bridge would be reduced and temporary traffic delays would occur for traffic using the bridge. Given the number of traffic trips currently using the bridge these delays may, at times, be substantial. Since these delays would be temporary and other routes are available to go around the construction area, this impact would be **less than significant.**

b. Hazards to safety from design features (e.g. sharp curves, inadequate sight distance or dangerous intersections)?

The proposed project would replace a bridge in substantially the same configuration as currently exists. Therefore, the project would not create any hazards to safety due to any design features. The project would improve pedestrian facilities on the northeast side to State Street resulting in additional room for pedestrians to wait for the change in the signal. This would result in an improvement in conditions at this intersection and reduce the potential for pedestrian and vehicular conflicts at the intersection. The project impact on traffic safety would therefore be **beneficial.**

c. Inadequate emergency access or access to nearby uses?

The project as proposed would maintain at least on lane of traffic in each direction during construction. Since the project would reduce the capacity of the highway from four to two lanes over the bridge during construction, emergency vehicles may experience delays using the route during construction. Other routes for emergency vehicles are available. Also, the delays would be temporary, during construction. Therefore, project impacts on emergency routes or access would be **less than significant.**

d. Insufficient parking capacity on-site or off-site?

Within the Waterfront area and located within easy walking distance of the project site are four waterfront parking areas (B and C north and south), according to the Waterfront Area Transportation Study (WATS 2), that combined provide a total of 2,247 stalls. There are approximately 1347 on-street and 899 off-street parking stalls within the project area. Parking is also provided by private parking lots at area hotels/motels, restaurants, and retail establishments in the waterfront area.

During phases 1 and 2, there would be 6 parking spaces temporarily eliminated. During phase 3 there would be temporary loss of 12 parking spaces. The impact on street parking loss would **less than significant** because it would be temporary and would be less than 0.9% of area on-street parking, about 1.4% of area off-street parking and less than 0.6% of total area parking, representing a small fraction of available public parking. The project would also result in the permanent removal of six parking spaces along the road to make way for a new expanded turn-out pocket for the Trolley, Land Shark and bus parking. Combining the highest temporary and the permanent loss of parking spaces, the project results in the loss of less than 1.4% of area on-street parking, about 2% of area off-street parking and less than 1% of total area parking, representing a small fraction of available public parking. This impact is also **less than significant** because the removed parking spaces would be used for public transportation that discourages use of the automobile and increases the number of people that can use public transit to access the waterfront area and because the parking loss is s small proportion of parking lost and would be a temporary loss.

The number of employees anticipated at the site is expected to vary from 5 to 30. The project proponent has arranged to reserve up to 25 spaces at an existing City parking lot west of the intersection of Cabrillo Boulevard and Garden Street, during construction. In addition, staging areas are provided as described in the project description and this would provide additional parking for construction related vehicles. Most of the construction would occur during the day but not on Sundays and may overlap with events when they occur during the week and on Saturdays. However, the parking requirement for the project is a small percentage of available parking capacity in the area, would vary from less than five spaces to approximately 25 spaces, and would be temporary during construction. Most of the time there parking spaces would be available to the public on Sundays as construction is not proposed on Sundays when demand for parking peaks. There are alternative parking spaces on area surface streets to accommodate periodic overflow from the lots. Therefore, construction employee parking impacts would be **less than significant**.

e. Hazards or barriers for pedestrians or bicyclists?

Operational barriers and hazards would not be created because the project would replace the existing bridge in substantially the same configuration as the existing bridge. The existing and proposed bridges provide access along the Cabrillo Boulevard corridor.

During construction, pedestrians and cyclists using the all purpose path would be routed around the project site for safety purposes. A temporary pedestrian (all purpose) bridge is proposed as a part of the project south of the existing bridge to accommodate east/west pedestrian traffic that would have otherwise used the bridge. (see also Noise and Recreation section discussions).

Transportation – Recommended Mitigation

T-1 **Construction Traffic.** The haul routes for all construction-related trucks, three tons or more, entering or exiting the site, shall be approved by the Transportation Engineer. Construction-related truck trips shall not be scheduled during peak hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) to help reduce truck traffic and noise on adjacent streets and roadways. The route of construction-related traffic shall be established to minimize trips through surrounding residential neighborhoods.

T-2 **Construction Parking.** Construction parking and vehicle/equipment/materials storage shall be provided as follows:

A. During construction, free parking spaces for construction workers shall be provided in a location subject to the approval of the Transportation and Parking Manager.

B. Storage area shall be provided for construction materials, equipment, and vehicles.

Transportation – Residual Impact

Less than significant.

12. WATER ENVIRONMENT Could the project result in:		NO	YES *Level of Significance*
a)	Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	X	
b)	Exposure of people or property to water related hazards such as flooding?	X	
c)	Discharge into surface waters?		Potentially Significant, Mitigable
d)	Change in the quantity, quality, direction or rate of flow of ground waters?		Potentially Significant, Mitigable
e)	Increased storm water drainage?		Less than Significant

Water – Discussion

Issues: Water resources issues include changes in offsite drainage and infiltration/groundwater recharge; storm water runoff and flooding; and water quality.

Impact Evaluation Guidelines: A significant impact would result from:

Water Resources and Drainage

- Substantially changing the amount of surface water in any water body or the quantity of groundwater recharge.
- Substantially changing the drainage pattern or creating a substantially increased amount or rate of surface water runoff that would exceed the capacity of existing or planned drainage and storm water systems.

Flooding

- Locating development within 100-year flood hazard areas; substantially altering the course or flow of flood waters or otherwise exposing people or property to substantial flood hazard

Water Quality

- Substantial discharge of sediment or pollutants into surface water or groundwater, or otherwise degrading water quality, including temperature, dissolved oxygen, or turbidity.

Water Resources – Existing Conditions and Project Impacts

Existing conditions are described above in the Environmental setting section. The information used for the preparation of the hydrological components of this study was summarized from a report prepared by Bengal Engineering, Hydrology and Hydraulic Analysis, December 5, 2005. The report is hereby incorporated by reference.

Water quality existing conditions, project impact and mitigation measures were derived from URS Corporation, Water Quality Assessment, December 2006. The report is hereby incorporated by reference.

12 a) Absorption rates, drainage patterns, or the rate and amount of surface runoff. The proposed project would remove and replace an existing bridge and restore the creek banks in a similar configuration to the existing facilities. The hydraulic capacity beneath the bridge would be increased. As the bridge would be slightly wider and piles and the new bridge would be better aligned to improve hydraulic efficiency the hydraulic capacity of the bridge would be increased to accommodate the 20-year statistical storm consistent with the Lower Mission Creek Flood Control project. Absorption rates and drainage patterns would not be substantially altered because the bridge would be replaced. The project would increase the amount of surface runoff that could be conveyed the through the project site because the hydraulic capacity of the bridge would be increased. This would be a **beneficial impact** of the proposed project.

12 b) Flooding. The proposed project would have a **beneficial impact** on flooding since it would increase conveyance of flood waters to the ocean compared to the existing structure.

12 c) Discharge to Surface Waters. Mission Creek discharges to the ocean south of the project site. Mission Creek will continue to discharge to the ocean but the amount of flows would be increased. The project has the potential to discharge pollutants into Mission Creek during construction. This impact would be **potentially significant, mitigable.** Mitigation measures are provided that minimize the potential for project related pollutants from entering the creek. During construction, dewatering of the construction area may be necessary. The project includes a proposal to store, test, and treat the contaminated water from construction before discharging it to the sewer plant. Methods may include using Baker Tanks or hay bale/sandbag basins lined with filter fabric. During concrete pouring activities, when the water may come in contact with fresh concrete, contaminated water would be pumped out of the work area. The contaminated water would be hauled away in trucks to a licensed treatment facility or pumped into tanks where settling would occur and water would be tested to ensure that it is suitable for disposal prior to disposal in the city sewer main.

12 d) Water Quality.

The URS Corporation, Water Quality Assessment, December 2006, prepared for this project was used as a basis for the description of existing water quality, impact analysis, and mitigation measures provided in this Initial Study. The data summarized in that report are hereby incorporated by reference.

Permanent impacts to water quality in Mission Creek as a result of construction of the Cabrillo Bridge could result in continuous erosion of sediment from unstabilized channel banks, discharge of sediments from scour around the abutments during storm events and, changes to average temperatures, salinities, or dissolved oxygen concentrations due to changes in average water depths and flow velocity. Long term erosion would be **less than significant** because the creek banks would be repaired or armored with boulders, cocoanut fiber, and vegetation designed to minimize soil erosion during high flow events.

The concrete bank stabilization will resist erosion and scour within the creek channel. Vegetated buffers and rock riprap constructed as part of the upstream and downstream bank stabilization and abutments will minimize the erosion of sediments into the creek. Upon full replacement of the Cabrillo Street bridge, there will be **less than significant** long-term impacts to water quality in Mission Creek due to the construction.

Replacement of the Cabrillo Bridge will increase its hydraulic capacity to allow for the flow from the 20-year 24-hour storm event. However, the construction of the bridge will not alter the creek bottom substrate, channel width, and thalweg. Average water depths and velocities during dry weather will not be substantially changed from the existing condition. Long term impacts to water quality parameters such as temperature, salinity, or dissolved oxygen as a result of the increased hydraulic capacity would be **less than significant**.

Pollutants that could impact water quality in Mission Creek and that have the potential to be discharged during construction include the following:

- Sediment from the disturbed stream channel as a result of pile driving, dewatering operations, and construction
- Oil and grease resulting from equipment spills within the dewatered areas in Mission Creek
- Discharges of debris, concrete, or sediment during bridge demolition
- Discharge of sediment and oil and grease in stormwater discharged from construction staging areas
- Changes in pH due to spills of wet concrete during pouring of bridge piles, bent and abutment construction
- Changes in flow, dissolved oxygen, temperature, and salinity in Mission Creek due to operation of the flume

Construction Best Management Practices (BMPs) incorporated into the project Storm Water Pollution Prevention Program (SWPPP) and Detailed Erosion/Sediment Control Plan will address the potential water quality impacts from the discharge to Mission Creek of sediment, oil and grease, concrete (wet and dry), or construction debris. Post-storm event inspections will be performed to assess the success of the implementation of the stormwater BMPs. During concrete operations, non-stormwater BMPs for concrete waste management will be implemented. Twice daily pH monitoring of Mission Creek and the dewatering operation will be conducted. During operation of the flume, twice daily observations will be made of flow levels within the flume to ensure that flow is maintained at all times. Indicator parameters such as temperature, dissolved oxygen, and salinity will be measured on a daily basis upstream and downstream of the flume to ensure that parameters remain within historic ranges. Impacts associated with the construction of the replacement bridge would be temporary and result in a **potentially significant, mitigable** impact. Mitigation measures proposed as a part of the project would reduce construction related water quality impacts to a less than significant level.

Water Resources - Mitigation

WQ-1 The creek shall be dewatered to allow for the installation of upstream and downstream bank protection, demolition of the existing bridge, construction of the center bent, abutments, and placement of the new bridge deck. The following measures shall be implemented during these activities to prevent water quality impacts.

- Any concrete (or grout) or other construction materials that are discharged to the dewatered creek shall be removed and disposed of off site. If the material is dry, it shall be physically removed from the work site by equipment or manual labor. If the material is liquid discharged to ponded water in the work area, the water shall be pumped and discharged to a Baker tank, and the affected muddy sediments shall be removed by equipment and disposed offsite. The contaminated water shall be tested and pH adjusted before it is disposed of at the wastewater treatment plant or other approved location.

- An environmental monitor, or other qualified contractor personnel, shall be present during the construction activities listed above to monitor for discharges to the dewatered creek, particularly discharges of concrete. The monitor shall measure pH levels in any standing water near the work area on a regular basis during the day to determine if there is any discharge of concrete into the groundwater below the ground surface. Ponded water with elevated pH shall be pumped to a Baker tank and not discharged to the beach. A biological monitor will document compliance.

- The contractor shall maintain spill contingency materials onsite to be mobilized in the event of a concrete spill to the dewatered channel. These materials shall include weed-free, straw bales, Visqueen, gravel bags, and absorbent pads. They would be deployed if concrete is spilled in the channel, even if it is fully dewatered, to immediately isolate and remove the concrete.

- Limited equipment is expected to be operated within the dewatered work area. Equipment may include rubber tire backhoes and loaders or other equipment that can be lifted into the creek bed. The contractor will be required to minimize streambed disturbance. The substrate of the creek bed may be disturbed to a depth of 6 inches by equipment and personnel movement. If the streambed is too saturated, even with dewatering, then the contractor will work from creosote-free wood planks or other temporary inert platform typical for wetland construction Best Management Practices.

WQ-2 Prior to commencement of construction, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for implementation during construction that incorporates all feasible Best Management Practices (BMPs) to reduce erosion from construction activities, to minimize the discharge of sediment during storm events, and to eliminate the discharge of non-stormwater pollutants to the maximum extent possible. The following measures shall be incorporated into the project SWPPP, which must meet state NPDES General Construction Permit requirements:

- Temporary stockpiles at the project site shall be protected from erosion by the combined use of temporary berms around the perimeter, perimeter interceptor ditches, and temporary downstream catchments as necessary and appropriate.

- Stockpiles that are present during the winter season shall be protected from erosion due to direct precipitation or runoff during the winter by the use of surface stabilization (such as erosion control blankets).

- Sediment filters/barriers will be constructed along the perimeter of the work area above Mission Creek to prevent sheet flow from discharging sediment into Mission Creek. Protection measures shall remain in place and be maintained in good condition until all disturbed soil areas are permanently stabilized by installation and establishment of landscaping, grass, mulching, or are otherwise covered and protected from erosion.

- If the streambed is determined to be unsuitable for equipment and personnel movement to the point of disturbing the streambed to a depth greater than 6 inches, then the contractor will implement a work plan equivalent to a wetland construction. This will include working from creosote-free wood planks or other temporary inert work pad. Sediment fabric will be placed under any pad to protect the streambed to the maximum extent possible.
- The SWPPP must include a contingency plan to protect the exposed work site during the winter months in the event of high runoff in the creek or tidal surges that could overtop banks and inundate work areas.
- BMPs to prevent discharge of construction materials, contaminants, wash-water, concrete, fuels, and oils that include the following measures:
    - Ensure that all construction vehicles and equipment are properly maintained (off site) to prevent leaks of fuel, oil, and other vehicle fluids.
    - Refuel only in bermed areas with impermeable surfaces at least 50 feet from the creek or culvert.
    - Implement measures and provide materials to contain any accidental spills or leakage during the fueling of construction equipment at the site.
    - Place all stored fuel, lubricants, paints, and other construction liquids in secured and covered containers within a bermed or otherwise contained area at least 200 feet from the creek.
    - Prohibit equipment washing and major maintenance at the project site except at the construction staging area. Prohibit concrete washout except at the construction staging area. Concrete washout water shall be collected and stored in an onsite Baker tank to be disposed of off site. Place berms around the active work area on the road when installing piles through the roadbed during the winter to capture any construction debris or concrete in the event of rainfall; place sandbag or straw bale barriers at all storm drain inlets near the work area to capture any site runoff during winter construction. Remove all refuse and construction debris from the site as soon as possible.
    - During concrete pours, the contractor shall have a qualified monitor present to measure pH within any standing water adjacent to the pour. The monitor will have onsite suitable material such as acid to neutralize contaminated water.
- A Storm Inspection Program. During extended storm events, inspections must be made during each 24-hour period focusing on times when high floods are predicted and when tides are high). The goals of these inspections are: 1) to identify areas contributing to a storm water discharge, 2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the General Permit, and 3) whether additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible, depending upon worker safety. Each discharger shall certify annually that the construction activities are in compliance with the requirements of this General Permit. Dischargers who cannot certify annual compliance shall notify the appropriate RWQCB.
- The trenching, stockpiling, and back-filling activities associated with the temporary gas line will be incorporated into the SWPPP for this project and will incorporate BMPs for the following
    - Laydown yard procedures for the storage and maintenance of equipment
    - Stockpile stormwater management
    - Implementation of wind erosion controls during trenching
    - Stabilization of excavated material during pipeline laydown and removal
    - Erosion control measures during backfill and temporary pipeline operation
    - Revegetation of trenched areas post removal
- Prior to construction, a SWPPP for the project will incorporate the City of Santa Barbara Procedures for the Control of Runoff into Storm Drains and Watercourses for implementation during construction,. In addition the SWPPP will incorporate specific Caltrans Category IB design BMPs. The text of the specific Caltrans requirements is incorporated as Appendix E in the URS Corporation Water Quality Assessment; the basic

requirements of each BMP are summarized below as follows:

Category Non-Stormwater; NS02 Update Dewatering Operations:

- Dewatering shall be conducted in accordance with the Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010.
- The RWQCB may require a separate NPDES permit prior to the dewatering discharge of non-storm water.
- Non-storm water dewatering for discharges meeting certain conditions are allowed under an RWQCB general dewatering NPDES permit.
- Non-storm water discharges must be free of pollutants other than sediment; the discharge must be <0.25 mgd.
- Discharges must comply with regional and watershed-specific discharge requirements.
- Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges must not cause erosion at the discharge point.

Category Non-Stormwater; NS05 Clearwater Diversion:

- Diversion structures must be adequately designed to accommodate fluctuations in water depth or flow volume due to tides, storms, flash floods, etc.
- Heavy equipment driven in wet portions of a water body to accomplish work shall be completely clean of petroleum residue, and water levels shall be below the gearboxes of the equipment in use, or lubricants and fuels are sealed such that inundation by water shall not result in leaks.
- Mechanical equipment operated in the water shall not be submerged to a point above any axle of said mechanical equipment.
- Excavation equipment buckets may reach out into the water for the purpose of removing or placing fill materials. Only the bucket of the crane/excavator/backhoe may operate in a water body. The main body of the crane/excavator/backhoe shall not enter the water body, except as necessary to cross the stream to access the work site.
- Clear water diversions that require dewatering shall be conducted in accordance with policies and guidelines presented in Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010.
- Stationary equipment such as motors and pumps, located within or adjacent to a water body, shall be positioned over drip pans.
- When any artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall, at all times, be allowed to pass downstream to maintain aquatic life downstream.
- The exterior of vehicles and equipment that will encroach on a water body within the project shall be maintained free of grease, oil, fuel, and residues.
- Equipment shall not be parked below the high-water mark unless allowed by a permit.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
- Diversion structures shall be constructed with materials free of potential pollutants such as soil, silt, sand, clay, grease, or oil.

•Category Non-Stormwater; NS11 Pile Driving Operations:

- Use drip pans or absorbent pads during vehicle and equipment maintenance, cleaning, fueling, and storage.
- Have spill kits and cleanup materials available at all locations of pile driving.
- Park equipment over plastic sheeting or equivalent where possible.
- Implement other BMPs as applicable, such as NS-2 "Dewatering Operations."
- When not in use, store pile-driving equipment away from concentrated flows of storm water, drainage courses, and inlets.

- Use less hazardous products, e.g., vegetable oil instead of hydraulic fluid.

Category Non-Stormwater; NS13 Material Use over Water:

- Use drip pans and absorbent materials for equipment and vehicles and ensure that an adequate supply of spill cleanup materials is available.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is expected to be idle for more than one hour.
- Maintain equipment in accordance with BMP NS-10, "Vehicle and Equipment Maintenance." If a leaking line cannot be repaired, remove equipment from over the water.
- Provide watertight curbs or toe boards to contain spills and prevent materials, tools, and debris from leaving the barge, platform, dock, etc.
- Secure all materials to prevent discharges to receiving waters via wind.
- Identify types of spill control measures to be employed, including the storage of such materials and equipment. Ensure that staff is trained regarding the deployment and access of control measures and that measures are being used.
- Discharges to waterways shall be reported to the Resident Engineer immediately upon discovery. A written discharge notification must follow within seven days.
- The SWPPP for the Cabrillo Bridge project will include a chemical monitoring plan to ensure that non-visible pollutants do not impact the water quality of Mission Creek during construction. As concrete fluids may alter pH, the non-visible pollutant to be monitored would be pH. The contractor or environmental monitor will conduct pH monitoring during concrete preparation, pouring, and curing operations. Water pH will be monitored twice daily at the following points during piling construction and construction in the dewatered area:
    - Mission Creek during piling construction at points just upstream and downstream of the pilings
    - Any standing water between the protective sleeve and steel pile casing prior to pumping and disposal
    - Any standing water within the dewatered construction zone
    - At the point of discharge of dewatering fluids onto the beach
    - Results will be recorded and a contingency plan implemented if pH exceeds the applicable surface water quality standard

WQ-3 Prior to construction a detailed Erosion Control Plan shall be prepared for implementation during construction, including basic requirements as follows:

- Proposed schedule
- Description of potentially affected areas
- Description of soils, geology, vegetation, and creeks
- Site Plan including contours, elevations, limits of clearing, grading, and creek configuration
- Description of erosion control measures
- Description of sediment detention basins
- Description of emergency erosion and sediment control measures

WQ-4 During dewatering of the construction area, the removed water will be discharged to temporary infiltration areas on the beach near the lagoon. The discharge shall occur in accordance with NPDES General Permit (Order No. 01-119) for Low Threat Discharges, issued by the Regional Water Quality Control Board (RWQCB).

Water Resources – Residual Impact

Less than significant

MANDATORY FINDINGS OF SIGNIFICANCE.		YES	NO
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildfire population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		x
b)	Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?		x
c)	Does the project have potential impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		x
d)	Does the project have potential environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?		x

INITIAL STUDY CONCLUSION

On the basis of this initial evaluation it has been determined that with identified mitigation measures agreed-to by the applicant, potentially significant impacts would be avoided or reduced to less than significant levels. A Mitigated Negative Declaration will be prepared.

Initial Study Preparer: Michael Berman, Environmental Analyst — Date 7/2/2007

Jan Hubbell, Senior Planner — for J. Hubbell — Date 7/2/2007

EXHIBITS:

- **A. Vicinity Map and Project Plans**
- **B. General Plan and Local Coastal Plan Policy**
- **C. Mitigation Monitoring and Reporting Program**
- **D. Air Quality Calculations**
- **E. Comment Letters**
- **F. Comments and Responses**

LIST OF SOURCES USED IN PREPARATION OF THIS INITIAL STUDY

The following sources used in the preparation of this Initial Study are located at the Community Development Department, Planning Division, 630 Garden Street, Santa Barbara and are available for review upon request.

Applied Earthworks, Finding of Adverse Effect for the Replacement of the Cabrillo Bridge over Mission Creek, May 2006

Applied Earthworks, Archaeological Survey Report for the Replacement of the Cabrillo Bridge over Mission Creek, May 2006

Applied Earthworks, Historic Resources Evaluation Report for the Replacement of the Cabrillo Bridge over Mission Creek, May 2006

Applied Earthworks, Historic Property Survey Report for the Replacement of the Cabrillo Bridge over Mission Creek,

June 2006

Applied Earthworks, Programmatic 4(f) Evaluation for the Replacement of the Cabrillo Bridge over Mission Creek, June 2006

Associated Transportation Engineers, Waterfront Area Transportation Study 2, May 25, 2001

Bengal Engineering, Preliminary Foundation Recommendation Report for the Replacement of the Cabrillo Bridge over Mission Creek, December 3, 2005

Bengal Engineering, Hydrology and Hydraulic Analysis, December 5, 2005

California Environmental Quality Act (CEQA) & CEQA Guidelines

Channel Islands Acoustics, Noise and Vibration Report Cabrillo Boulevard Bridge Replacement Project, June 19, 2006

General Plan Circulation Element

General Plan Conservation Element

1995 Housing Element

General Plan Land Use Element

General Plan Noise Element w/appendices

General Plan Map

General Plan Seismic Safety/Safety Element

Geology Assessment for the City of Santa Barbara

Institute of Traffic Engineers Parking Generation Manual

Institute of Traffic Engineers Trip Generation Manual

Local Coastal Plan

Master Environmental Assessment

Parking Design Standards

Santa Barbara Municipal Code & City Charter

Special District Map

Uniform Building Code as adopted by City

URS Corporation, Natural Environmental Study, December 2006

URS Corporation, Water Quality Assessment, December 2006

US Army corps of Engineers, Lower Mission Creek Flood Control Study Final EIS/EIR, September 2000

Wildland Fire Plan

Zoning Ordinance & Zoning Map

Project Location Map

CABRILLO STREET BRIDGE OVER MISSION CREEK

USGS Santa Barbara Quadrangle

North
West
East
South

Figure 1
Regional and Local Location Map

EXHIBIT A

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB				

In Progress

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

DESIGN CONSULTANT:
BENGAL ENGINEERING
250 BIG SUR DRIVE
GOLETA, CA 93117

REGISTERED PROFESSIONAL ENGINEER
Md. Kaldiazzaman
No. C49836
Exp. 9/30/95
CIVIL
STATE OF CALIFORNIA

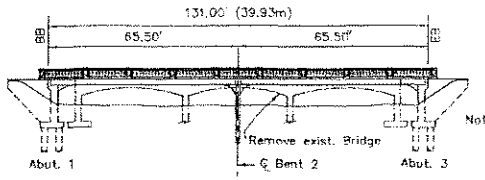
NOTES

1. For Design Notes see "Deck Contours" Sheet
2. The contractor shall verify all controlling field dimensions before ordering or fabricating any materials.
3. For Pile Data Table, see "DECK CONTOURS" sheet
4. Utilities not shown. See civil plans for utility locations.
5. See Road Plans for Lane and Sidewalk layout.

Section identification

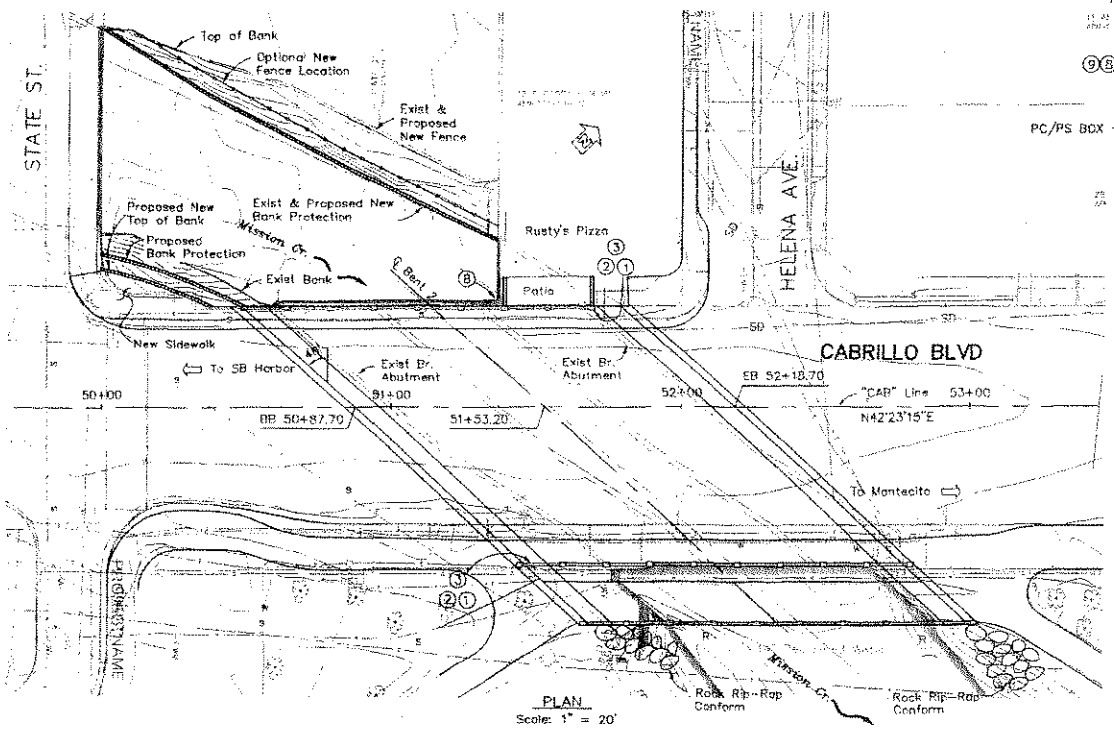
Standard plan sheet No.
Detail number

1. Paint "Br. No. 51C-350" and year completed
2. Paint "Cabrillo Blvd. Bridge"
3. Barrier Rail Aesthetics and Layout. See Civil Plans
4. See "Typical Section" Sheet for utility openings.
5. 2-10"ø Reclaimed Water
6. 18"ø High Pressure Gas If, needed
7. 8"ø Water
8. Rusty's Pizza Structure Connection
9. Concrete Barrier (Type 26 Mod.)
10. Future Utility Opening (Typ.)

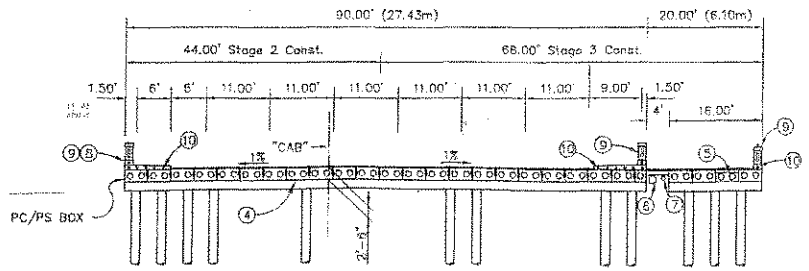


ELEVATION
Scale: 1" = 20'

Note: Bridge skew not shown
Upstream Barrier Rail Shown
See Barrier Rail aesthetic details for railing architecture



PLAN
Scale: 1" = 20'



TYPICAL SECTION
Scale: 1" = 10'-0"

Note: Not all piles shown
Bridge Pile Installation constitutes Stage 1 Construction.
Existing Structure and Utility not shown.

STANDARD PLANS, DATED MAY, 2006

A10-A,B	ABBREVIATIONS AND SYMBOLS
A62-A	EXCAVATION AND BACKFILL MISCELANEOUS DETAILS
A62-C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
A77K	GUARD RAIL CONNECTION TO BRIDGE SIDEWALK AND CURBS
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B0-13	BRIDGE DETAILS
B2-8	PILE DETAILS-CLASS 45C & CLASS 70C
B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING =2")
B11-54	CONCRETE BARRIER TYPE 26
B13-2	SLOPE PROTECTION DETAIL NO. 2

FIGURE 2: Cabrillo Boulevard Bridge - General Plan

DESIGN OVERSIGHT	DESIGN	MDW	XX	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	PREPARED FOR THE CITY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS	ENGINEERING DIVISION
	DETAILS			LAYOUT	MDW		
SIGNOFF DATE	QUANTITIES			SPECIFICATIONS			

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 3

CU
EA

BRIDGE NO. 51C-350
POST MILE +

CABRILLO BLVD BRIDGE (REPLACE)
GENERAL PLAN

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 3/26 6/09 12/8 7/31 6/16 10/12 2/14

SHEET OF

T:\Land\CabrilloBridgeReplacement\NESReport\906-232

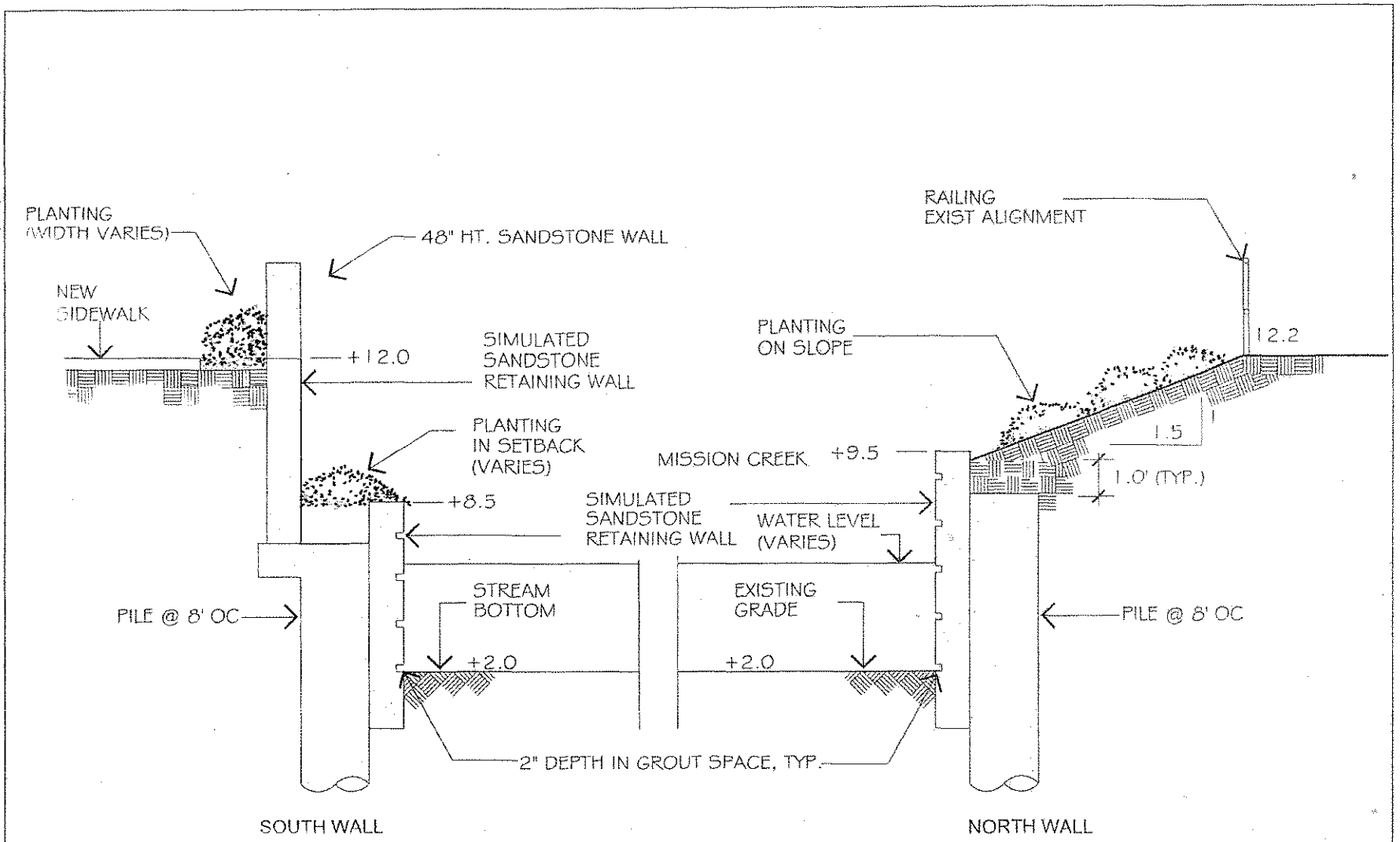
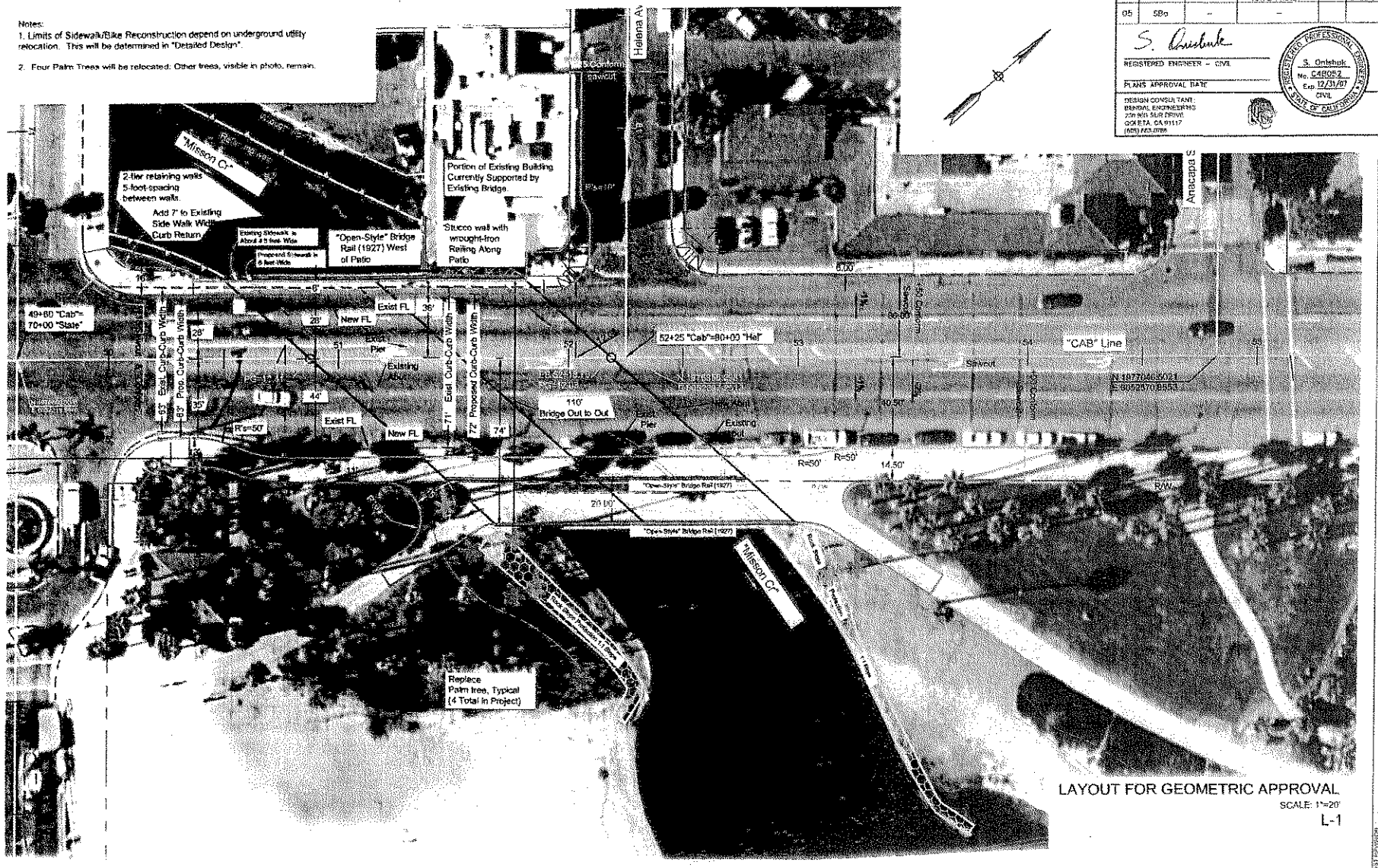


FIGURE 3
Sections at Cabrillo Blvd
and State Street.

Scale: 1/4" = 1'-0"



DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SBa	-	-		

S. Onishuk
REGISTERED ENGINEER – CIVIL
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER – S. Onishuk – No. C48052 – Exp. 12/31/07 – CIVIL – STATE OF CALIFORNIA

DESIGN CONSULTANT: BENSAL ENGINEERING 770 W. SUR DRIVE GOLETA, CA 93117 (805) 683-0788

DATE REVISED | REVISED BY

CALCULATED/ DESIGNED BY | CHECKED BY

PROJECT ENGINEERS: Md. Wahiduzzaman PE, Scott Onishuk, PE

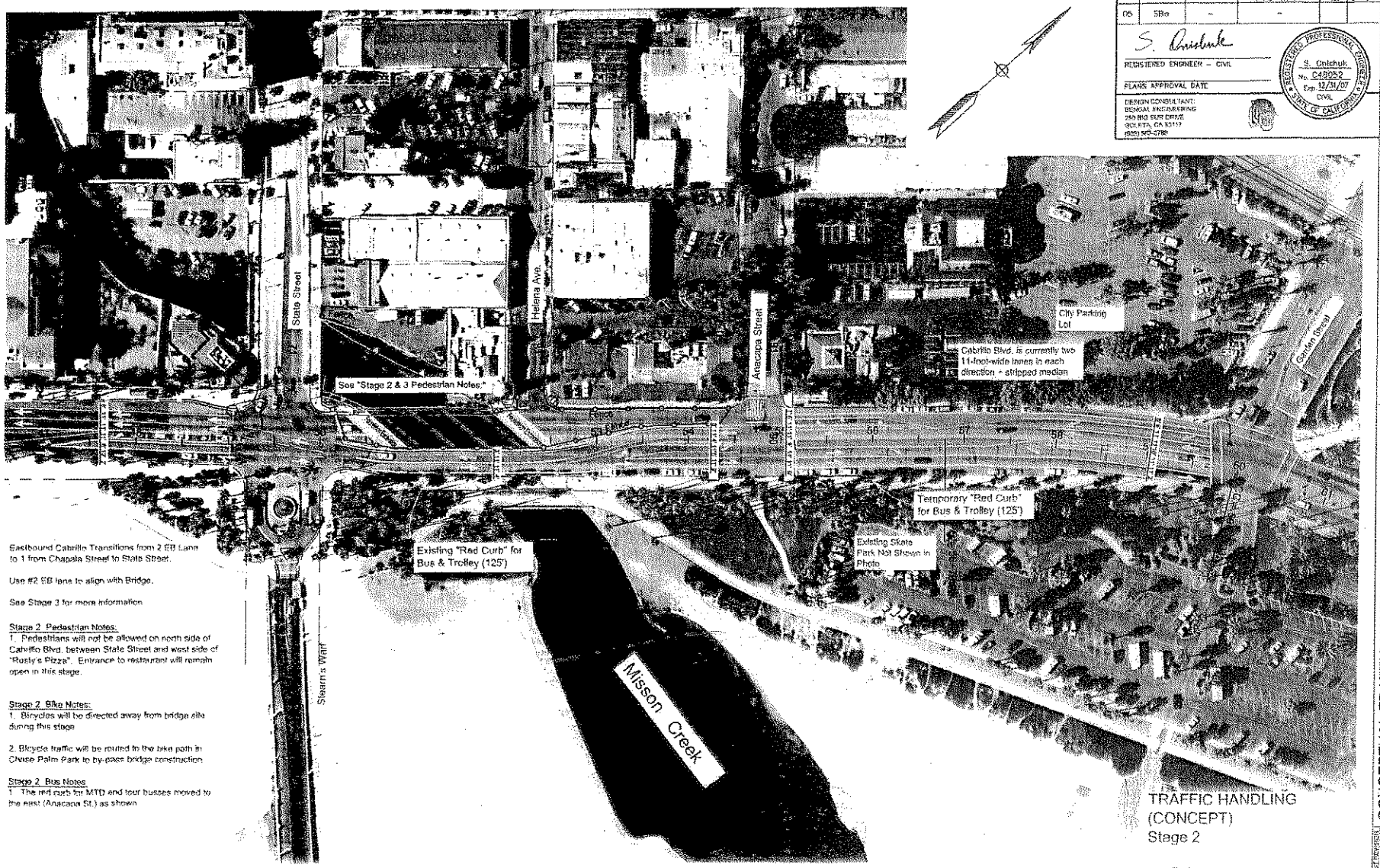
Harold Hill, PE - Project Manger, Dept. of Public Works, City of Santa Barbara

SUBMITTED FOR GEOMETRIC APPROVAL 2/26/07

FOR REDUCE PLANS ORIGINAL SCALE IS 1/2 INCHES

USER NAME:
DWG FILE:

FIGURE 4
Layout for Geometric Approval



DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SBa	-	-		

S. Onishuk
REGISTERED ENGINEER – CIVL
PLANS APPROVAL DATE

S. Onishuk
No. C48052
Exp. 12/31/07
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

DESIGN CONSULTANT:
BENGAL ENGINEERING
250 BIG SUR DRIVE
GOLETA, CA 93117
(805) 968-0788

Harold Hill, PE - Project Manager, Dept. of Public Works, City of Santa Barbara
PROJECT ENGINEERS: Md. Wahiduzzaman, PE; Scott Onishuk, PE
CALCULATED/DESIGNED BY
CHECKED BY
DATE
DATE REVISED:
REVISED BY

CONCEPTUAL TRAFFIC HANDLING PLAN

DATE REVISED: 2/20/07

FOR REDUCED PLANS (ORIGINAL SCALE IS IN INCHES) 0 1 2 3

USER NAME:
DWG FILE:

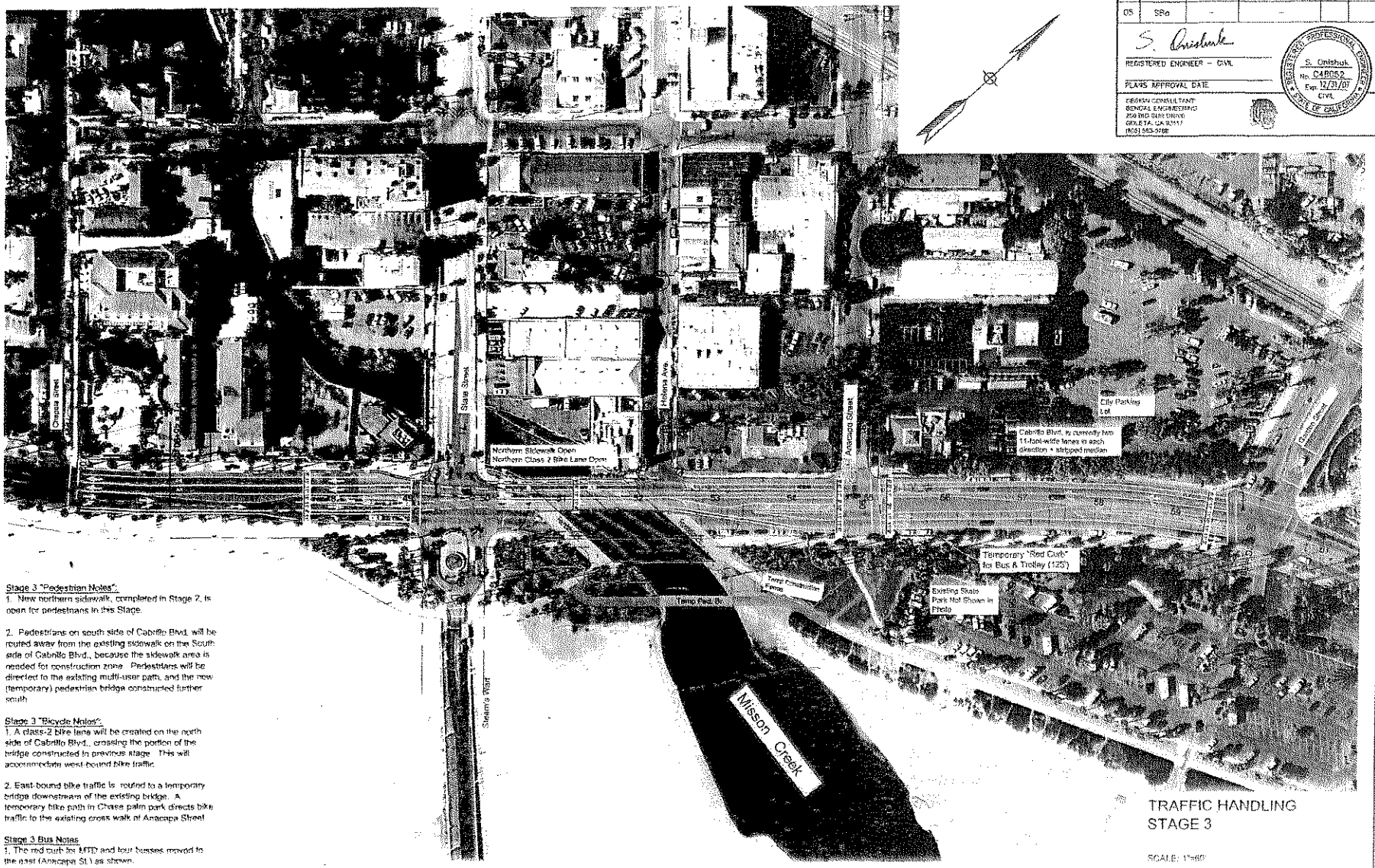
FIGURE 5
Traffic Handling (Concept) Stage 2

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SBa	-	-		

S. Onishuk
REGISTERED ENGINEER – CIVIL
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
S. Onishuk
No. C48052
Exp. 12/31/07
CIVIL
STATE OF CALIFORNIA

DEGAN CONSULTANT
BENGAL ENGINEERING
250 BIG SUR DRIVE
GOLETA, CA 93117
(805) 563-5788



Stage 3 "Pedestrian Notes":
1. New northern sidewalk, completed in Stage 2, is open for pedestrians in this Stage.

2. Pedestrians on south side of Cabrillo Blvd. will be routed away from the existing sidewalk on the South side of Cabrillo Blvd., because the sidewalk area is needed for construction zone. Pedestrians will be directed to the existing multi-user path, and the new (temporary) pedestrian bridge constructed further south.

Stage 3 "Bicycle Notes":
1. A class-2 bike lane will be created on the north side of Cabrillo Blvd., crossing the portion of the bridge constructed in previous stage. This will accommodate west-bound bike traffic.

2. East-bound bike traffic is routed to a temporary bridge downstream of the existing bridge. A temporary bike path in Chase palm park directs bike traffic to the existing cross walk at Anacapa Street.

Stage 3 Bus Notes
1. The red curb for MTD and four busses moved to the east (Anacapa St.) as shown.

TRAFFIC HANDLING
STAGE 3

SCALE: 1"=60'

CONCEPTUAL TRAFFIC HANDLING PLAN

LAST REVISION 2/20/07

Harold Hill, PE - Project Manger, Dept. of Public Works, City of Santa Barbara

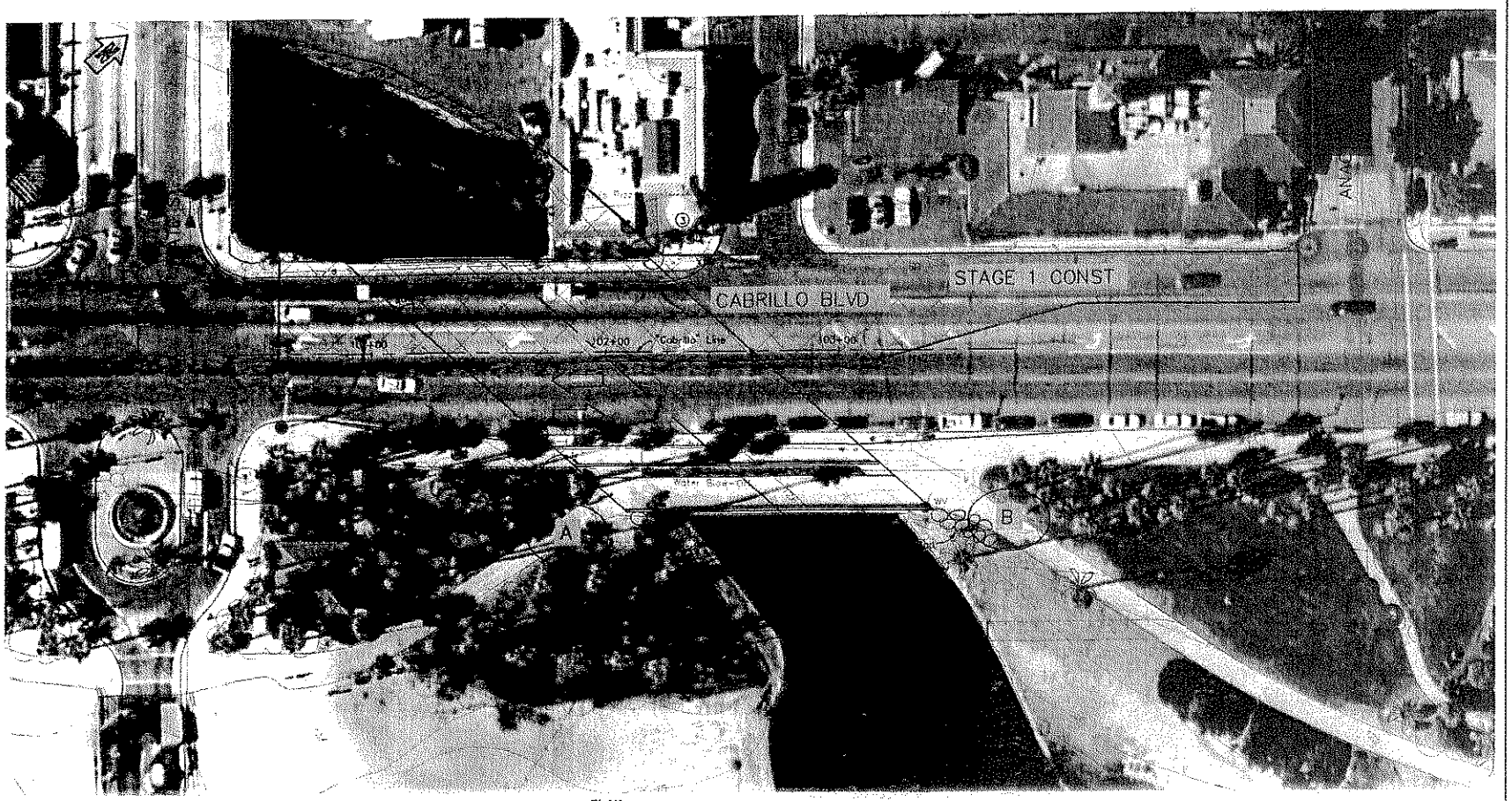
PROJECT ENGINEERS
Md. Wahiduzzaman, PE
Scott Onishuk, PE

CALCULATED/DESIGNED BY
CHECKED BY
DATE
DATE REVISED
REVISED BY

FOR REDUCE PLANS ORIGINAL SCALE IS IN INCHES
0 1 2 3

USER NAME:
DWG FILE:

FIGURE 6
Traffic Handling (Concept) Stage 3



PLAN
Scale: 1" = 20'

DESIGN OVERSIGHT	DESIGN	MDW	XX	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	PREPARED FOR THE CITY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS	ENGINEERING DIVISION	ORIGINAL DWG. 510--NEW	CABRILLO BLVD BRIDGE (REPLACE)
	DETAILS			LAYOUT	MDW				PLANNING STUDY – STAGE 1 CONST.
SIGNOFF DATE	QUANTITIES			SPECIFICATIONS					
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 3							CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES: 4/15	REVISION DATES (PRELIMINARY STAGE ONLY) SHEET

FIGURE 7: Planning Study - Stage 1 Construction

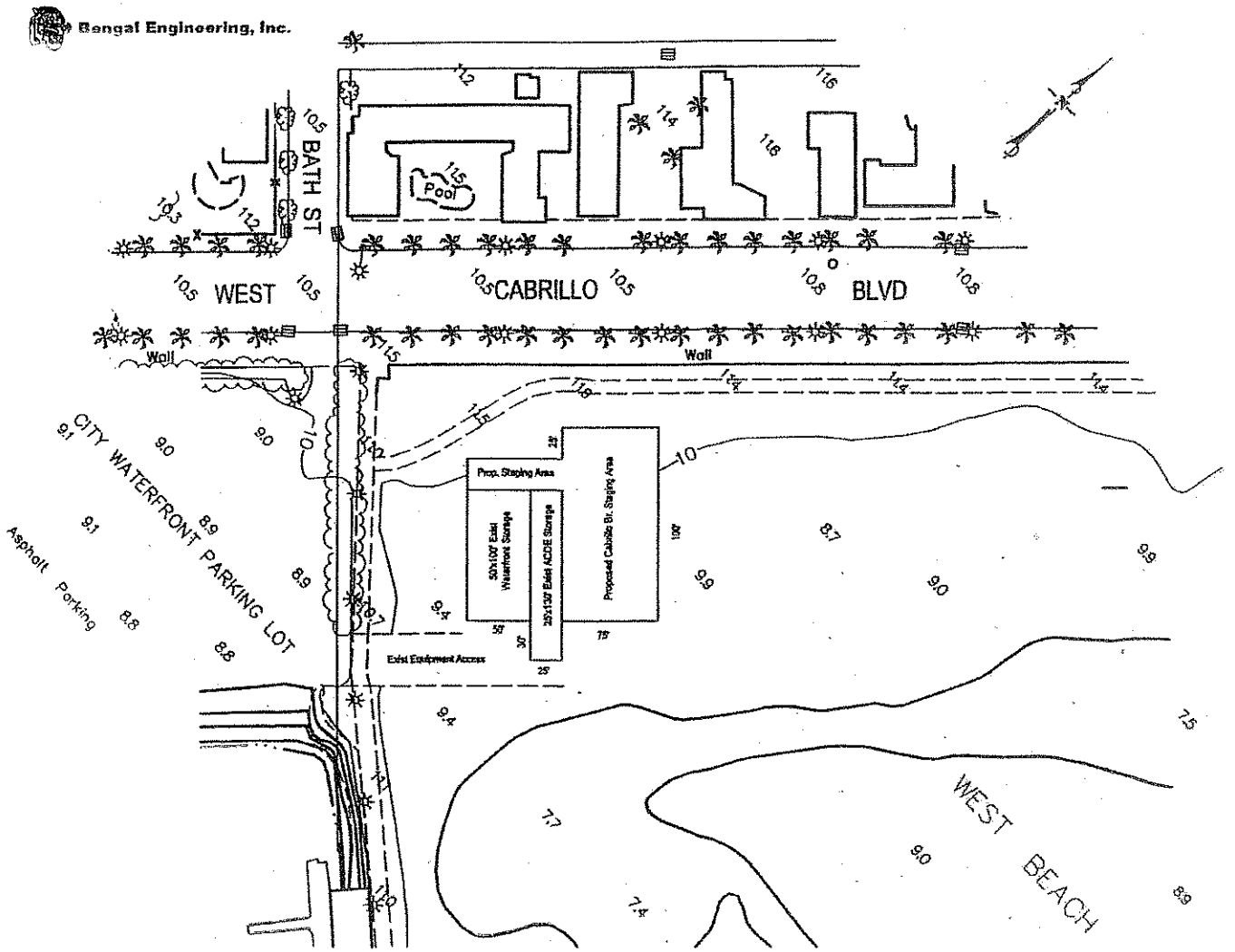
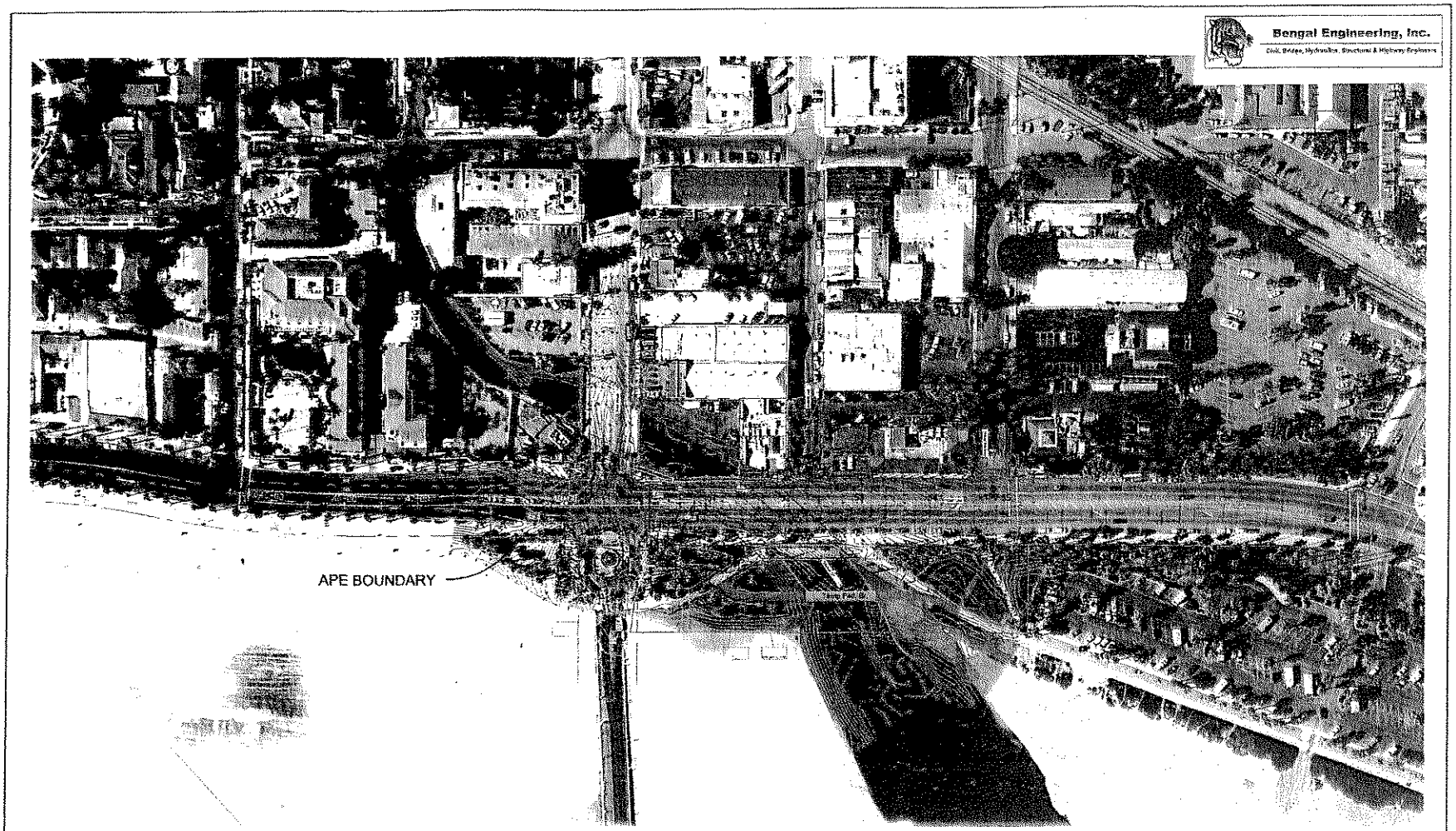


FIGURE 9
Proposed Staging Area (Scale 1" = 100')



DESIGN OVERSIGHT	DESIGN	MDW	XX	LOAD FACTOR DESIGN	LIVE LOADING HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	PREPARED FOR THE CITY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS	ENGINEERING DIVISION	BRIDGE NO. 51C-NEW / POST MILE	CABRILLO BLVD. BRIDGE (REPLACEMENT)
SIGNOFF DATE	DETAILS			LAYOUT	MDW				AREA OF POTENTIAL EFFECT (APE) MAP
	QUANTITIES			SPECIFICATIONS			CU EA	DISREGARD PRINTS DEARMV EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 11/28 / SHEET OF

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 3

APE MAP NOV 28 2005

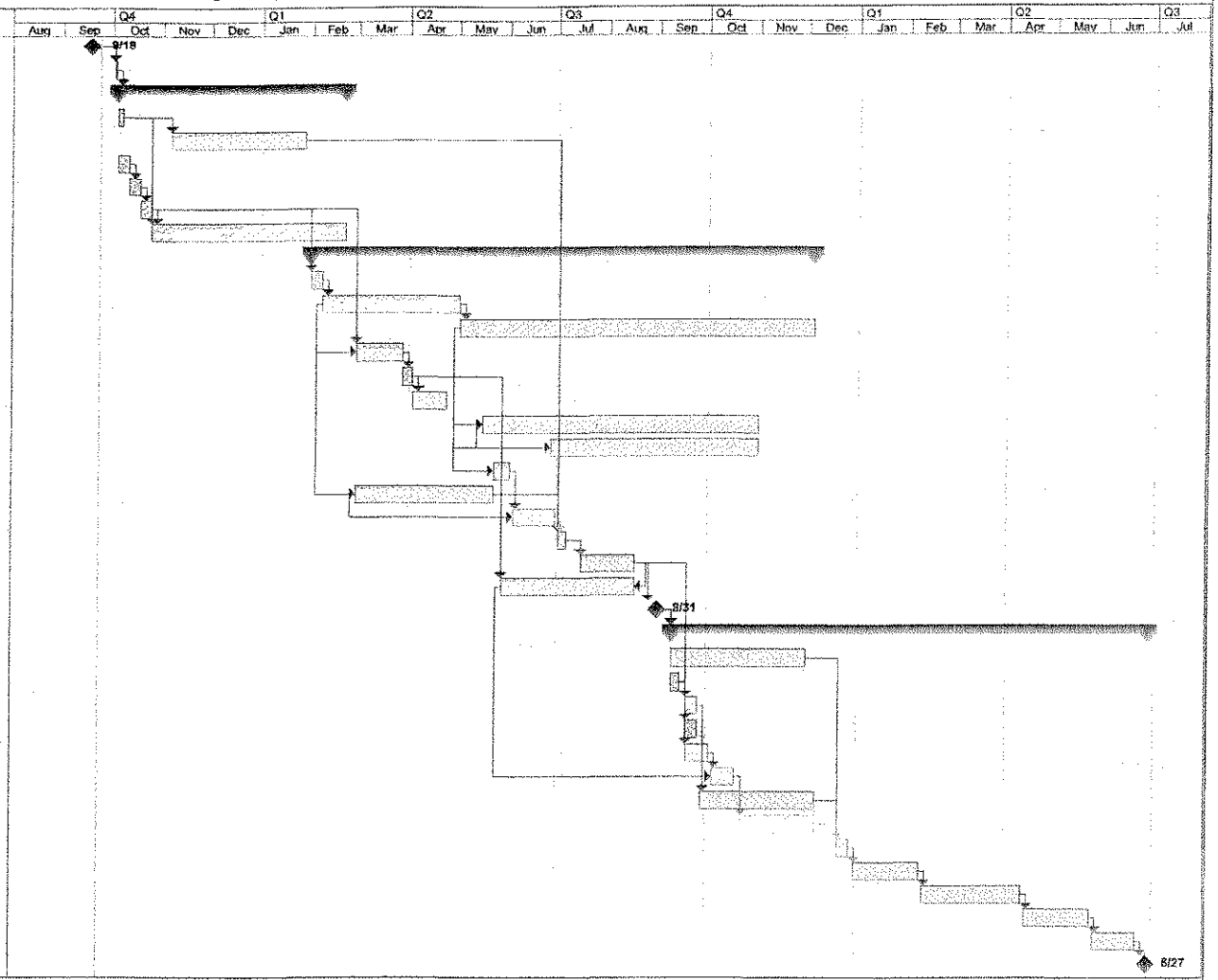
FIGURE 8: Area of Potential Effect (APE) Map

Project: Cabrillo Blvd Const 3S Compa
Date: Sat 9/23/06

Bengal Engineering, Inc.

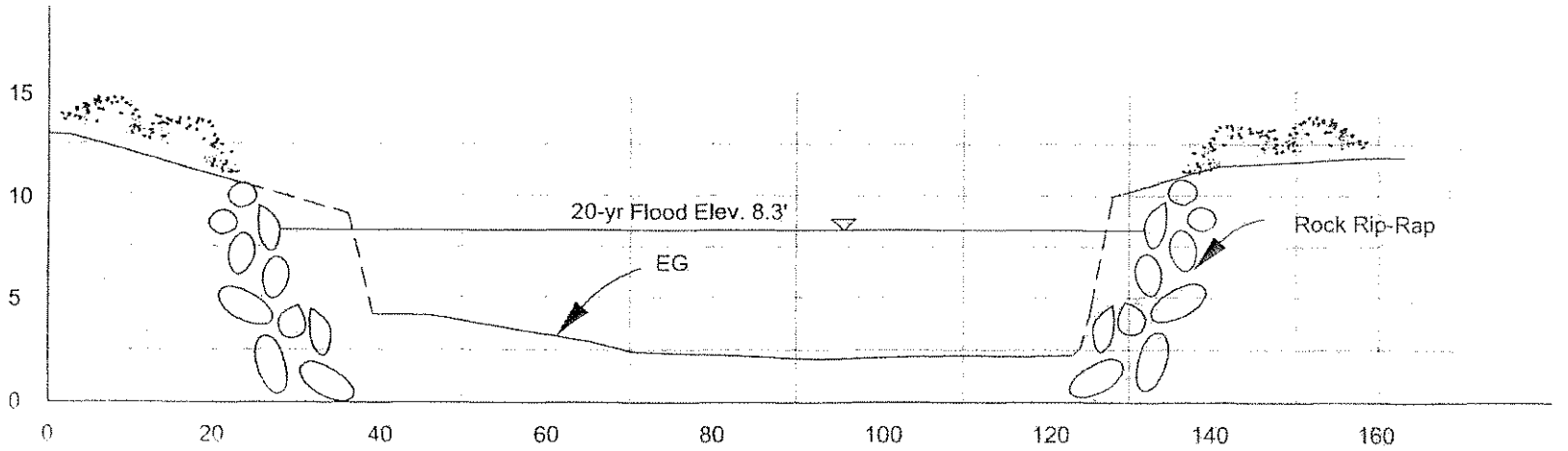
Cabrillo Blvd Bridge 3-Stage Compact Construction Winter Schedule

ID	Task Name
1	NTP
2	Pre-Con Mtg
3	Stage 1 Const
4	Biological Monitoring
5	Order PC/PS Box Deck.
6	Traffic Handling,Sign, Barrier, detour
7	Relocate Street Light
8	Temp Ped Bridge Pile Installation
9	Pile Installation (Abuts + Pier Br. North)
10	Stage 2 Const
11	Biological Monitoring
12	Partial and Localized Dewatering
13	Dewatering
14	Temporary Ped Bridge Fnds
15	Temp Br. Placement
16	Ped Detour (if needed) & Temp Utility Support
17	Up Stream Ret Wall Const
18	Dn Stream Ret Wall/Bank Const
19	Br Demolition (North Side)
20	Abutment Construction
21	Bent Const
22	PC/PS Conc Box Placement
23	Conc. Cure
24	Relocate Gas Line
25	Complete Stage 2 Const
26	Stage 3 Const
27	Order PC/PS Box Deck
28	Traffic Handling,Sign, Barrier, detour
29	Temp Utility Support
30	Relocate Street Light
31	Pile Installation (Pier Br. South, if necessary)
32	Br Demolition (South Side)
33	Abutment Construction
34	Bent Const
35	PC/PS Conc Box Placement
36	Conc. Cure
37	Establish Utilities
38	Approach & Walkway
39	Landscape
40	Complete Stage 3 Const



Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

FIGURE 10: 3-Stage Compact Construction Winter Schedule



X-Section (20' Downstream of Bridge, Looking Upstream)

CABRILLO BLVD. BRIDGE
DOWNSTREAM RIP-RAP BANK PROTECTION
1"=20'

FIGURE 11

Exhibit B

General Plan Policy and Local Coastal Plan Policy and Regulations

General Plan Policies:

CULTURAL AND HISTORIC RESOURCES

Goals

- Sites of significant archaeological, historic, or architectural resources will be preserved and protected wherever feasible in order that historic and prehistoric resources will be preserved.
- Selected structures which are representative of architectural styles of fifty or more years ago (pre-1925) will be preserved wherever feasible.

Policies

- Activities and development which could damage or destroy archaeological, historic, or architectural resources are to be avoided.
- The requirements and restrictions administered by the Landmarks Committee and the Architectural Board of Review will apply to City and other public agencies as well as private projects.

VISUAL RESOURCES

Goals

- Restore where feasible, maintain, enhance, and manage the creekside environments within the City as visual amenities, where consistent with sound flood control management and soil conservation techniques.
- Protect and enhance the scenic character of the City.
- Protect significant open space areas from the type of development which would degrade the City's visual resources.

Policies

- Development adjacent to creeks shall not degrade the creeks or their riparian environments.
- New development shall not obstruct scenic view corridors, including those of the ocean and lower elevations of the City viewed respectively from the shoreline and upper foothills, and of the upper foothills and mountains viewed respectively from the beach and lower elevations of the City.

Implementation

Strategies

- Development adjacent to creeks shall not degrade the creeks or their riparian environments.

AIR QUALITY

Goals

- Maintain air quality above Federal and State ambient air quality standards.

Policy

- Improve the attractiveness and safety of bicycle use as an alternate mode of travel for short- and medium-distance trips.

BIOLOGICAL RESOURCES

Goal

- Enhance and preserve the City's critical ecological resources in order to provide a high-quality environment necessary to sustain the City's ecosystem.

Policy

- Intertidal and marine resources shall be maintained or enhanced.

DRAINAGE AND FLOOD CONTROL

Goals

- Ensure that human habitation of the City's floodplains does not adversely affect public health, safety, and welfare.

TRANSPORTATION ELEMENT

- Provide a major street system adequate to serve the City's projected population at a level of service below that which would allow the free flow of peak hour traffic.

SCENIC HIGHWAYS ELEMENT

Goal

- The purpose of the scenic highway designation is the protection and enhancement of the natural scenic resources of the highway corridor, and the assurance that the highway incorporates not only safety, utility and economy, but also beauty.
- Improve Mission Creek at Cabrillo Boulevard

NOISE ELEMENT

Goal

To ensure that the City of Santa Barbara is free from excessive noise and abusive sounds such that: a) sufficient information concerning the City noise environment is provided for land use planning; b) strategies are developed for abatement of excessive noise levels; and c) existing low noise levels are maintained and protected.

In defining this goal, primary emphasis should be placed on protecting the general public from noise levels which may be hazardous to hearing. Second in importance is the minimization of noise induced stress, annoyance, and activity interference.

LOCAL COASTAL PLAN

Policy 3.8: The City of Santa Barbara shall consider relocation of the Arts and Crafts Show in the event one of the following site relocation opportunities becomes available:

(1) Palm Park expansion allows for more suitable relocation and enhanced parking, or

(2) Development inland of Cabrillo Boulevard provides public open space and parking such that the show may be moved to the north side of Cabrillo Boulevard, or

(3) Any other suitable location made available.

Action

- Under the ordinance establishing the Art Show, moving to an alternate location would require an approval of the electorate.

Policy 6.1: The city, through ordinance, resolutions, and development controls, shall protect, preserve, and, where feasible, restore the biotic communities designated in the City's Conservation Element of the General Plan and any future annexations to the City, consistent with PRC Section 30240.

Policy 6.2: The City will support and encourage the enforcement of all laws enacted for the purposes of preserving and protecting marine resources, maintaining optimum populations of marine organisms and maintaining the quality of the marine environment for the protection of human health.

Policy 6.3: Seawalls, revetments and bulkheads shall not be permitted unless the City has determined that they are necessary to, and will accomplish the intent of protecting existing principal structures, and that there are not less environmentally or aesthetically damaging alternatives such as relocation of structures, sand augmentation, groins, drainage improvements, etc. Determinations permitting such structures shall be based upon the findings and recommendations of geology, soils and engineering reports prepared by licensed and registered professionals in those fields.

Policy 6.4: Where permitted, such structures as seawalls, revetments and bulkheads, shall minimize, to the degree possible, alterations of the natural landform.

Policy 6.5: Seawalls, revetments, bulkheads and all other permitted structures shall not encroach upon any beach area to a degree which impedes lateral access along the beach at any tide condition.

Policy 6.6: Revetments, seawalls, bulkheads, groins, pipelines, outfalls and other necessary permitted construction shall be designed to eliminate or mitigate to the maximum extent adverse impacts on local shoreline sand supply.

Policy 6.7: To avoid the need for future protective devices that could impact sand movement and supply, no permanent above-ground structures shall be permitted on the dry sandy beach except facilities necessary for public health and safety, such as lifeguard towers and restrooms.

Policy 6.8: The riparian resources, biological productivity, and water quality of the City's coastal zone creeks shall be maintained, preserved, enhanced, and, where feasible, restored.

Policy 6.9: The City shall support the programs, plans, and policies of all governmental agencies, including those of the Regional Water Quality Control Board with respect to best management practices for Santa Barbara's watersheds and urban areas.

Policy 6.10: The City shall require a setback buffer for native vegetation between the top of the bank and any proposed project. This setback will vary depending upon the conditions of the site and the environmental impact of the proposed project.

Policy 6.11-A: New highway bridges or other highway improvements should be designed to provide clear spans of the stream or creek and to avoid the use of pilings within the stream or creek corridor. Culverting of the creek channel shall not be permitted.

Policy 6.11-B: New highway structures shall be designed to protect stream and creek environments from non-point pollutants (such as oil and rubber residues from the road surface) and from accidental spills of toxic materials.

Policy 6.11-C: When highway bridges or other structures are replaced or renovated in the vicinity of streams or creeks, a emergency response and cleanup plan shall be prepared by the applicant to address accidental releases of toxic materials.

Policy 6.12: The Andree Clark Bird Refuge shall be maintained, enhanced, and restored to a healthy and viable aquatic habitat, and shall be preserved as open space or other public, nondevelopable area.

Policy 6.13: The primary use of the Andree Clark Bird Refuge shall be as a sanctuary for migratory waterfowl and that use shall be preserved, protected, maintained, and, where necessary, enhanced.

Policy 6.14: Development adjacent to the Andree Clark Bird Refuge shall be designed and constructed in such a manner as to be compatible in terms of building location, character and intensity. Furthermore, new development in this area shall protect, and, where feasible, enhance the sensitive habitat of the Andree Clark Bird Refuge, specifically addressing issues of drainage, traffic, noise and aesthetics.

Policy 9.1: The existing views to, from, and along the ocean and scenic coastal areas shall be protected, preserved, and enhanced.

Policy 9.17: Materials, colors, and textures used in new highway structures shall be appropriate to the Santa Barbara region. Concrete, when used in sound barriers, safety barriers, overpasses, ramps, and other highway structures shall be textured and/or colored in such a manner that the appearance of these structures will be compatible with landscaping, surrounding structures, and exposed soil. Use of wooden barriers and structures shall be encouraged where feasible. Use of metal beam guard rails shall be minimized

COASTAL COMMISSION REGULATIONS

30230. Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance.

Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

30233. (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral one, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method

of placement, time of year of placement, and sensitivity of he placement area.

30235. Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

30236. Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Cabrillo Bridge Replacement Project (MST2004-00878/CDP2007-00001)

MITIGATION MONITORING AND REPORTING PROGRAM

PURPOSE

The purpose of the Cabrillo Bridge Replacement Project Mitigation Monitoring and Reporting Program (MMRP) is to ensure compliance with all mitigation measures identified in the Addendum to the Final Mitigated Negative Declaration to mitigate or avoid potentially significant adverse environmental impacts resulting from the proposed project. The implementation of this MMRP shall be accomplished by City staff and the Public Works Department, consultants and representatives. The MMRP program shall apply to all of the actions occurring under the Permit for the Cabrillo Bridge Replacement Project.

I. RESPONSIBILITIES AND DUTIES

A qualified representative from the Public Works Department, approved by the City Planning Division and paid for by the Public Works Department shall be designated as the Project Environmental Coordinator (PEC) for each department. The PEC shall be responsible for assuring full compliance with the provisions of this mitigation monitoring and reporting program to the City for actions undertaken under the Cabrillo Bridge Replacement Project. The PEC shall have authority over all other monitors/specialists, the contractor, and all construction personnel for those actions that relate to the items listed in this program.

It is the responsibility of the Public Works Department to comply with all mitigation measures listed in the attached MMRP matrix table. Any problems or concerns between monitors and construction personnel shall be addressed by the PEC and the responsible department. Staff and/or contractors hired to do work under the Cabrillo Bridge Replacement Project shall provide a schedule of activities for review and approval of the PEC. The staff or contractor shall inform the PEC of any major revisions to the construction schedule at least 48 hours in advance. The respective PEC, staff, and contractor shall meet on a weekly basis in order to assess compliance and review future activities anticipated under the construction of the Cabrillo Bridge Replacement Project.

A PRE-IMPLEMENTATION BRIEFING

The PEC shall prepare a pre-implementation briefing report. The report shall include a list of all mitigation measures and a plot plan delineating all sensitive areas to be avoided. This report shall be provided to all personnel performing work under this permit.

The pre-implementation briefing shall be conducted by the PEC. The briefing shall be attended by the PEC, supervisors of staff working on the project, necessary consultants, Planning Division Case Planner, and all contractors and subcontractors associated with the project. Additional pre-construction briefings shall be conducted when changes in the PEC, staff working on the project, and a change in contractor occurs.

This MMRP shall be presented to those in attendance at the meeting. The briefing presentation shall include project background, the purpose of the MMRP,

EXHIBIT C

duties and responsibilities of each participant, communication procedures, monitoring procedures, filling out of the mitigation monitoring matrix and summary reports, and duties and responsibilities of the PEC, staff, contractors, and project consultants.

It shall be emphasized at this briefing that the PEC and project consultants have the authority to stop construction and redirect construction equipment in order to comply with all mitigation measures.

II. IMPLEMENTATION PROCEDURES

A. REPORTING PROCEDURES

The PEC for the Public Works shall utilize the MMRP Matrix Table, attached to the Addendum to the Mitigated Negative Declaration, as the basis for daily monitoring of activities approved as a part of the project. As long as no compliance with mitigation measure issues is identified on the completed matrix table, the MMRP forms shall be kept on file at the Public Works and Parks and Recreation Departments. If the PEC identifies non-compliance or other problems with mitigation measure issues, the completed forms shall be forwarded to the Planning Division. In addition, monthly summary reports and annual summary reports on the mitigation monitoring program shall be submitted to the Planning Division by the PEC.

A. MMRP MATRIX

The following MMRP Matrix Table provides each mitigation measure, identifies the responsible party, and allows the monitor to indicate the date monitoring occurred, whether the mitigation measure has been implemented, and comments on activities, if necessary. .

The MMRP Matrix Table is intended to be used by all parties involved in monitoring the project mitigation measures, as well as project contractors and others working in the field. The Matrix Table shall be used as a compliance checklist to aid in compliance verification and monitoring requirements for all activities conducted under the Cabrillo Bridge Replacement Project, whenever activities authorized under this permit are conducted. A copy of the MMRP matrix table shall be kept in the project file at the Public Works Department as verification that compliance with all mitigation measures has occurred.

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
AQ-1 Construction Dust Control – Minimize Disturbed Area/Speed. Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.				
AQ-2 Construction Dust Control - Watering. During site grading and transportation of fill materials, regular water sprinkling shall occur using reclaimed water whenever the Public Works Director determines that it is reasonably available. During clearing, grading, earth moving or excavation, sufficient quantities of water, through use of either water trucks or sprinkler systems, shall be applied to prevent dust from leaving the site. Each day, after construction activities cease, the entire area of disturbed soil shall be sufficiently moistened to create a crust. Throughout construction, water trucks or sprinkler systems shall also be used to keep all areas of vehicle movement damp enough to prevent dust raised from leaving the site. At a minimum, this will include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.				
AQ-3 Construction Dust Control – Tarping. Trucks transporting fill material to and from the site shall be covered from the point of origin.				
AQ-4 Construction Dust Control – Gravel Pads. Gravel pads shall be installed at all access points to prevent tracking of mud on to public roads.				
AQ-5 Construction Dust Control – Stockpiling. If importation, exportation and stockpiling of fill material are involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.				
AQ-6 Construction Dust Control – Disturbed Area Treatment. After clearing, grading, earth moving or excavation is completed, the entire area of disturbed soil shall be treated to prevent wind pickup of soil. This may be accomplished by: A. Seeding and watering until grass cover is grown; B. Spreading soil binders; C. Sufficiently wetting the area down to form a crust on the surface with repeated soakings as necessary to maintain the crust and prevent dust pickup by the wind; D. Other methods approved in advance by the Air Pollution Control District.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
AQ-7 Construction Dust Control – Paving. All roadways, driveways, sidewalks, etc., should be paved as soon as possible. Additionally, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.				
AQ-8 Construction Dust Control – PEC. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when construction work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading for the structure.				
AQ-9 Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) shall be utilized wherever feasible.				
AQ-10 The engine size of construction equipment shall be the minimum practical size.				
AQ-11 The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time				
AQ-12 Construction equipment shall be maintained in tune per the manufacturer's specifications.				
AQ-13 Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or pre-combustion chamber engines.				
AQ-14 Catalytic converters shall be installed on gasoline-powered equipment, if feasible.				
AQ-15 Diesel catalytic converters, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California shall be installed, if available.				
AQ-16 Diesel powered equipment should be replaced by electric equipment whenever feasible.				
AQ-17 Idling of heavy-duty diesel trucks during loading and unloading shall be limited to five minutes; auxiliary power units should be used whenever possible.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
AQ-18 Construction worker trips shall be minimized by requiring carpooling and by providing for lunch onsite.				
AQ-19 Biodiesel shall be used to the maximum extent feasible.				
BIO-1 Except for installation of sheet piles (Porta Dam or equivalent) for partial dewatering and diversion of three areas for 1) pile installation (including the temporary beachway bridge), 2) abutment construction, and 3) bank protection, construction work in the Mission Creek channel and on the banks, including construction of the cofferdams, shall not occur during the period October 1/November 1 to mid March/April 30 during an average or above-average rainfall year. The exact schedule is subject to revision dependent on weather conditions and monitoring for goby spawning. Construction work requiring dewatering/diversion in the creek shall not begin until forecasts from the National Weather Service provide reasonable assurance that the winter rainfall has ended, and/or tidewater goby monitoring shows no reasonable evidence of initiation of spawning season.				
BIO-2 Pile driving and construction for the center line of piles on the north side of the road (Stage 1) shall be completed during the period October 1 to December 1 to avoid vibration impact in the creek during the adult steelhead migration period, which can begin as early as December 1 if there are suitable runoff conditions. Weather and other possible delays permitting, the center row of piles for the north side of the bridge will be driven and filled with concrete with the existing bridge deck intact and while the creek is not dewatered. This date may be moved forward as late as December 31 if the lagoon remains closed (i.e., has not breached by its own forces). If all the center row of pilings cannot be completed in Stage 1, the center piles on the south side of Cabrillo Boulevard currently identified for Stage 3, will be driven and filled while the cofferdams are installed and the creek is dewatered during Stage 2.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-3 Bridge demolition, center bent construction, north side abutment construction, and deck placement on the north side (Stage 2) shall occur when the creek is dewatered and diverted to the flume. Bent construction and deck placement on the south side may occur before cofferdams are constructed or after the cofferdams are removed, provided the erosion and water quality protection measures (see Water Quality section) are implemented.				
BIO-4 Piles will be driven and filled with concrete in Stage 1 when the creek is flowing. During the phase of breaching the bridge deck, a plywood deck, construction diaper, or other method will be used underneath the bridge to collect any falling debris or concrete. To prevent the generation of silt from the physical movement of the pile into the creek bottom sediments, and to prevent leakage of concrete when filling the hollow pile, a temporary impermeable containment sleeve will be placed surrounding the base of the pile, before insertion (embedded in the creek bottom) to capture silt or leaking concrete. The containment sleeve will be wrapped at the bottom with 1/8-inch mesh screen before insertion to prevent fish from being trapped inside. The sleeve shall be connected to the bridge deck with a thick plastic sleeve to prevent concrete or debris from falling into the creek during piling installation. A monitor provided by the contractor shall ensure that the sleeve remains intact during pile construction operations, and shall inspect for leakage. If leakage occurs, the captured turbid water or concrete fluids will be tested for pH and will be pumped from between the sleeve and pipe to a portable tank (Baker tank). The waste fluids will be treated and disposed of off-site in the sewer system or other approved location.				
BIO-5 A cofferdam or equivalent barrier shall be placed between the abutment being installed and the open creek channel during construction to prevent spillage of construction materials and concrete. A plywood deck or construction diaper shall be placed above the Mission Creek bed when constructing the bent and placing the bridge deck. The barrier shall be designed to capture all dry or liquid materials (including concrete) and prevent discharge to the creek.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-6 No construction work or storage of materials is allowed in the Mission Creek lagoon for installation and removal of the temporary beachway bridge. No workers shall enter the lagoon; work may occur from a boat or platform during installation of the temporary utility bypasses and temporary bridge installation. Prior to installation of piles for the temporary bridge footing, erosion control fiber blankets or a sediment barrier shall be placed around the abutment locations to prevent discharge of soil or concrete into the dewatered area.				
BIO-7 An environmental monitor shall be present during pile installation and pouring of concrete to address any discharges of concrete. The contractor will maintain spill contingency materials onsite to be mobilized in the event of a concrete spill during pile and bridge construction. These materials may include straw bales, Visqueen, gravel bags, absorbent pads, and additional fiber rolls. Any concrete spilled during construction will be removed and disposed of prior to removal of the cofferdam.				
BIO-8 The cofferdams shall be constructed of silt-free gravel bags stacked in a stable configuration with Visqueen, or similar waterproof fabric or interlocking steel plates, or a flexible temporary barrier equivalent or better than the device constructed by Portadam, Inc. may also be used to create a dry work area within the channel. Use of other inert materials shall be allowed if necessary to create a better barrier or reduce leaks, but must be approved by the California Department of Fish and Game (CDFG) and United States Fish and Wildlife Service (USFWS). The cofferdams shall be placed approximately at the locations shown in the project description. They shall form a seal along the bottom and banks of the creek and lagoon, to the maximum extent feasible. The top elevations of the cofferdams shall be at least 9 feet NAVD 88 (North American Vertical Datum, 1988), which would be sufficient to contain water in the creek and lagoon during the summer when the sandbar is closed at the beach. The downstream cofferdam will be reinforced as necessary to withstand the impact of tidal surge from Mission Creek lagoon.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-9 The installation/removal of the cofferdams and flume shall follow this sequence of tasks: • The Contractor shall submit to the USFWS in writing, at least four weeks prior to the onset of work, the qualifications of a biologist familiar with tidewater goby biology. This biologist will be responsible for implementing measures that involve handling and relocation of tidewater gobies. The USFWS will provide written authorization of the individual, if qualified, or denial, if unqualified. • The qualified biologist shall conduct a training session for all personnel associated with cofferdam construction and operations within the dewatered area prior to the onset of work. • A qualified biologist will assist in the preparation of the drawings and specifications for the preliminary and final engineering plans for the project that will include plans, details, and specifications for the placement/removal of cofferdams, dewatering/diversion operations, and fish capture and relocations procedures.. The fish rescue and relocation will follow the procedures included in the Natural Environmental Study. Rescued fish will be relocated to adjacent channel areas in the estuary that are not dewatered or subject to construction disturbance. The dewatering and fish rescue plans will be submitted to the USFWS for review and approval to ensure that the proper procedures and safeguards are included to avoid unnecessary take of gobies. After blocking nets have been placed to control fish access to the area a biologist will use nets to remove any remaining fish in the area where the dewatering and flume would be constructed. • The authorized biologist shall complete initial surveys for tidewater gobies in Mission Creek within the project area one week prior to the onset of work. • Two parallel fish blocking nets (mesh size 1/8 inch or less) shall be placed across the creek channel immediately upstream of the upstream cofferdam to prevent fish from traveling downstream to the work area. • Qualified biologists with federal permits to handle gobies or personnel under the supervision of a permitted biologist shall insert a seine net at the upstream cofferdam location and conduct a sweep of the channel to herd and capture all fish in the work area, ending the sweep at the downstream cofferdam location. As the sweep is ended, two parallel fish blocking nets shall be placed across the lagoon to prevent fish from traveling upstream into the work area. The authorized biologist will be approved by USFWS and CDFG for relocating tidewater goby and native species that may occur in the work area to be dewatered. • As the initial dewatering/diversion is occurring, fish biologists shall				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-10 An environmental monitor shall inspect any ponded water in the dewatered portion of the work area on a daily basis (three times – before work begins, midday, and at the end of the day) to search for any fish that may have traveled through gaps in the cofferdams. Fish (excluding mosquito fish) shall be removed on an as-needed basis and relocated above the upper cofferdam. The number and species of fish shall be recorded.				
BIO-11 The dewatering system shall be inspected prior to leaving the work site at night. It shall be inspected and maintained by the contractor during non-work days (i.e., Saturdays, Sundays, holidays).				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-12 The flume shall be constructed as follows: • The flume will be installed with the cofferdams and be constructed similar to a Portadam, Inc. device or better, or of plywood, inert material, or Visqueen-wrapped, silt-free gravel bags. • The flume will be continuous and may be constructed to retain a natural sediment or manmade bottom. • The contractor will prepare the final flume design for agency review and approval. • The flume will maintain natural water levels and avoid potential dry spots from forming that would not naturally occur within the channel. • The flume shall be 3 to 6 feet wide and constructed to maintain the existing channel water stratification for water temperature, salinity, pH, and natural tidal depth. • The flume shall not disturb more than a 6-inch depth into the streambed or create the potential for scour. • It is expected that flow rates within the flume will be higher than the existing channel. Therefore, one or two silt free gravel bags or a small pile of cobble shall be placed every ten feet alternating along the sides of the flume to provide refuge for tidewater gobies. • Shade cloth shall be placed over the top of the flume and draped over each end to maintain the existing temperature stratification and to prevent birds from entering the flume. • While the streambed through the work area is generally a continuous grade, slight microtopography or a low-flow channel may be present; to address this, the flume bottom will be installed to achieve the lowest possible elevation from downstream to upstream.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-13 During the pre-construction conference with the contractor, a biologist shall conduct a training session for all construction personnel. The training shall include: • A description of the tidewater goby, southern steelhead, brown pelican, California least tern, western snowy plover, southwestern pond turtle, and associated habitats; the general provisions of the Endangered Species Act (ESA), including species relocation by a qualified biologist and documentation requirements • The necessity for adhering to the provisions of the ESA • The penalties associated with violating the provisions of the ESA • The specific measures that are being implemented to conserve the tidewater goby and southern steelhead as they relate to the project, and measures that would be required if unexpected special status species, such as southwestern pond turtle, least tern, or snowy plover are on site during construction • The boundaries of the project				
BIO-14 The following native plants shall be used in the upstream bank protection: Atriplex lentiformis var. lentiformis – Brewer's Saltbush, Encelia californica – Bush Sunflower, Rhus integrifolia – Lemonadeberry, Mimulus auranticus – sticky monkey flower, Suaeda taxifolia – Wooly Sea Blite, Eriogonum parvifolium – Seaside Buckwheat, and Limonium californicum – Western Marsh-Rosemary. The saltbush and dwarf willow (Salix Exigua), used to create brush mattresses for erosion control (from a local source) shall also be planted above and among the ungrouted boulders on the downstream banks. Cocoanut fiber mats would be used to stabilize the soils above the boulders providing an opportunity for the native plants to get established. Other native plant species may be used if these are not readily available, subject to approval by a City-approved biologist and CDFG. Restoration efforts may also refer to "Guidelines to Evaluate, Modify and Develop Estuarine Restoration Projects for Tidewater Goby Habitat" (USFWS, Stillwater Science, Arcata, CA, May 2006), and the approved Adaptive Maintenance Plan for Mission Creek (ACOE, URS, Channel Design Recommendations 2005).				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-15 A qualified biologist shall conduct daily inspections of the construction work areas to ensure that the cofferdams remain intact, and that no gobies have entered the work areas. The biologist shall also monitor and inspect erosion control measures to be implemented as part of the project. The biologist shall conduct periodic visual surveys of the unaffected portions of the estuary to monitor the abundance and conditions of fish during construction. Weekly reports shall be provided to the USFWS to apprise them of the status of the goby and the effectiveness of the protection measures during construction.				
BIO-16 During flume operations, decreased through-flow in Mission Creek may alter indicator parameters such as salinity, dissolved oxygen, and temperature. Although it is unlikely that the flume will alter concentrations of indicator parameters outside of historic ranges, monitoring would establish if operations were having serious effects on water quality. Indicator parameter monitoring in Mission Creek can be implemented either as a stand alone requirement or as part of the general construction permit as follows: • Monitoring for dissolved oxygen, salinity, and temperature will be performed twice daily at a point directly upstream and downstream of the flume. If values are found outside of historic ranges, the cause shall be identified and steps shall be taken to return the parameter to the historic range. • The flume will be monitored visually daily to ensure that flow is present at all times.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-17 Pre-construction monitoring surveys for tidewater goby would be implemented at the upstream, downstream, and mid-lagoon bridge areas, one year prior to construction, including one pre-spawn survey in April, and one post-spawn in August. In addition, tidewater goby monitoring surveys also would be conducted at the same time at other known tidewater goby habitats Arroyo Burro Estuary, Sycamore Creek, and/or Andree Clark Bird Refuge. Pre-construction monitoring allows for collection of baseline information at the site, along with control sites trend analysis. Post-construction surveys for tidewater goby would be implemented for one year following completion of the project. A total of four surveys would be conducted including one pre-spawn survey in April/May and one post-spawn survey in August each year. Pre- and post-construction surveys would be conducted by a biologist approved to handle tidewater gobies under a Section 10a1a recovery permit to determine the general abundance of tidewater gobies. Survey methods would follow those currently being used to measure population densities at Arroyo Burro Estuary.				
BIO-18 A daily clearance survey for the presence or absence of western snowy plovers, within a 500 foot radius of the site, shall be performed prior to construction each day. If plovers are found within this radius, and pile driving activities are expected, work shall stop until the bird relocates itself, or work will be relocated to another area of the site outside of the 500 foot radius area. If plover nests and/or plover protective nesting habits are observed within a 500 foot radius on the beach during breeding season (March-August), further surveys may be required. If plover disturbance behavior is observed within the 500 foot radius on the beach during construction activities, the qualified biologist on-site will have the authority to further evaluate the behavior, and/or determine if any action needs to be taken including requiring a stop work order until relocation has occurred..				
BIO-19 Construction workers would be informed that construction activities would halt if a California brown pelican enters the active construction area. Upon self relocation, work may be reinitiated.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
BIO-20 A clearance survey for least terns shall be conducted by a qualified biologist prior to the commencement of construction activities on the beach area. If least terns are present, any construction activities, debris, or discharge of any construction materials would require a distance of at least 200 feet from the foraging area. Additionally, the biological monitor would be given authority to stop work if a least tern is seen within 200 feet of construction.				
BIO-21 During systematic fish surveys at dewatering, monitoring for presence of southwestern pond turtles shall occur when the water level reaches a depth for visual observation of turtles. If southwestern pond turtles are observed in dewatering areas, a qualified biologist with required relocation certification shall perform relocation to an appropriate location.				
BIO-22 Prior to any trees being removed during bird nesting season (February 1 to September 1) a survey shall be conducted of the trees to ensure that there are no nesting birds in the trees. Outside of bird nesting season the trees can be removed without a survey.				
CR-1 Archive Plans and Photos. Prior to demolition the bridge will be recorded in accordance with the National Park Service guidelines for Historic American Engineering Record (HAER) documentation. The documentation will include historic research, a narrative report of the history of the bridge, and photo documentation of the bridge. The HAER document will be submitted to the Library of Congress.-				
CR-2 HLC Review. Bridge and restoration plans shall be subject to HLC review and approval to ensure that they are compatible with the East Cabrillo Boulevard Parkway District.				
CR-3 Design Elements: The bridge railings shall utilize the same design and finish as the 1928 bridge railing (a pipe or wrought iron above the existing railing is permitted to achieve increased height required by code and the openings between pillars in the railing may be tapered to four inches on the interior of the railing, also to meet code), the bridge deck shall be similar in appearance to the existing structure with arch like structures, piers shall be round in one row, the existing monument shall be removed and replaced on the bridge, and all rip-rap on the channel banks, downstream of the project, would use stone rather than concrete.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
CR-4 Replacement Trees. The project shall replace all palm trees removed as result of project construction on a one for one basis, with trees of the same variety and approximately 30 feet in height.				
CR-5 Discovery Procedures and Mitigation. Standard discovery measures shall be implemented per the City Master Environmental Assessment throughout grading and construction: Prior to the start of any vegetation or paving removal, demolition, trenching or grading, contractors and construction personnel shall be alerted to the possibility of uncovering unanticipated subsurface archaeological features or artifacts. If during any grading or construction on the site such archaeological resources are encountered or suspected, work shall be halted immediately, the City Environmental Analyst shall be notified and a City-approved archaeologist shall be employed to assess the nature, extent and significance of any discoveries and to develop appropriate management recommendations for archaeological resource treatment, including but not limited to redirection of grading and/or excavation activities. If the findings are potentially significant, further analysis and/or other mitigation shall be prepared and accepted by the Environmental Analyst and the Historic Landmarks Commission, and implemented by the project Work in the area may only proceed after the Environmental Analyst grants authorization. If prehistoric or other Native American remains are encountered, a Native American representative shall be consulted, and the archaeologist and Native American representative shall monitor all further subsurface disturbances in the area of the find. If the discovery consists of potentially human remains, the Santa Barbara County Coroner and the California Native American Heritage Commission must also be contacted. A final report on the results of the archaeological monitoring shall be submitted by the City-approved archaeologist to the Environmental Analyst within 180 days of completion of the monitoring and prior to the issuance of final City permits.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
G-1 The project shall utilize the foundation and bridge construction recommendations of the Preliminary and Final Geological Investigations that include the following: • Bridge be supported on Cast in Steel Shell (CISS) piles • Diameter, length and other specifications of piles for bridge support and for bank restoration • Bridge engineering design				
N-1 Construction Notice. At least 20 days prior to commencement of construction, the contractor shall provide written notice to all property owners and residents within 450 feet of the project area. The notice shall contain a description of the proposed project, a construction schedule including days and hours of construction, the name and phone number of the Project Environmental Coordinator (PEC) who can answer questions, and provide additional information or address problems that may arise during construction. A 24-hour construction hot line shall be provided. Informational signs with the PEC's name and telephone number shall also be posted at the site.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
N-2: Construction Hours. Noise-generating construction activities (which may include preparation for construction work) shall be permitted weekdays between the hours of 8:00 a.m. and 5:00 p.m., excluding holidays observed by the City as legal holidays: New Year's Day (January 1st); Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (Last Monday in May); Independence Day (July 4th); Labor Day (1st Monday in September); Thanksgiving Day (4th Thursday in November); Day Following Thanksgiving Day (Friday following Thanksgiving); Christmas Day (December 25th). *When a holiday falls on a Saturday or Sunday, the preceding Friday or following Monday respectively shall be observed as a legal holiday. Occasional night work may be approved for the hours between 5 p.m. and 8 a.m. by the Chief of Building and Zoning per Section 9.13.015 of the Municipal Code) between the hours of 5 p.m. and 8 a.m. weekdays In the event of such night work approval, the applicant shall provide written notice to all property owners and residents within 450 feet of the project property boundary and the City Planning and Building Divisions at least 48 hours prior to commencement of any. Night work shall not be permitted on weekends and holidays.				
N-3: Construction Equipment Sound Control. All construction equipment, including trucks, shall be professionally maintained and fitted with standard manufacturers' muffler and silencing devices.				
N-4 Sound Barriers. The project shall employ sound control devices and techniques such as noise shields and blankets during the construction period to reduce the level of noise generated by pile driving and demolition. Sound barriers shall be installed as shown in the noise study design and locations, provided landowners agree to the installation of the noise barriers. Sound barriers or temporary construction zones shall be used to reduce pile driving and demolition noise levels to 120 dB where members of the public have access.				
N-5 Vibration. The Rusty's Restaurant support shall be separated from the bridge and supported independently to preclude direct transmission of vibration from the bridge to the structure resulting from pavement discontinuities created by patches on the bridge deck and work on the deck.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
N-6 Cracks. A photographic survey of adjacent structures shall be completed prior to, during, and after construction to identify any cracking caused by the project. Any cracking occurring due to the project shall be repaired or compensation shall be provided to the owner for any damage due to project vibration.				
N-7 Worker Hearing Protection. Worker hearing conservation requirements shall be included in contract documents and used by construction workers.				
N-8 Nighttime Noise. Any equipment that must be operated during nighttime hours must be individually reviewed and treated with an enclosure, barriers, silencers or other treatments as required to limit noise at any noise sensitive use to 50 dB (A-weighted) based on measured nighttime ambient noise 45 dB and the City restriction of ambient plus 5 dB.				
N-9 Interior Noise. The applicant shall negotiate an arrangement to provide noise shields (secondary windows) for adjacent businesses due to noise from pile driving and demolition or use of the front portions of the Rusty's Pizza Restaurant shall be temporarily discontinued during pile driving and demolition.				
N-10 Construction Truck Trips. Prohibit large scale movements of debris or materials by trucks during nighttime hours (10 p.m. to 7 a.m.)				
N-11 Warning Signs. Post noise hazard signs at locations within 150 ft of the pile-driving areas so that passers-by would be aware that high noise levels are possible. The sigh would read: "WARNING, NOISE HAZARD AHEAD, YOU ARE ADVISED TO AVOID THE AREA, USE EAR PROTECTION OR STAY FOR LESS THAN 30 MINUTES.				
PS 1 Green waste, concrete, and steel from construction and operation shall be sent to a local recycling facility and be recycled, as proposed by the applicant.				
REC-1: The City will allow vacancies due to attrition to be filled with vendors displaced by the project. Displaced vendors who are left without a space would be provided vendor spaces at the east end of the vendor area.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
T-1 Construction Traffic. The haul routes for all construction related trucks, three tons or more, entering or exiting the site, shall be approved by the Transportation Engineer. Construction-related truck trips shall not be scheduled during peak hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) to help reduce truck traffic and noise on adjacent streets and roadways. The route of construction-related traffic shall be established to minimize trips through surrounding residential neighborhoods.				
T-2 Construction Parking. Construction parking and vehicle/equipment/materials storage shall be provided as follows: A. During construction, free parking spaces for construction workers shall be provided in a location subject to the approval of the Transportation and Parking Manager. B. Storage area shall be provided for construction materials, equipment, and vehicles.				
T-3 Pedestrian Circulation. The pedestrian bridge shall be constructed prior to pile driving for the main bridge to allow an alternative route for pedestrians and cyclists.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
WQ-1 The creek shall be dewatered to allow for the installation of upstream and downstream bank protection, demolition of the existing bridge, construction of the center bent, abutments, and placement of the new bridge deck. The following measures shall be implemented during these activities to prevent water quality impacts. • Any concrete (or grout) or other construction materials that are discharged to the dewatered creek shall be removed and disposed of off site. If the material is dry, it shall be physically removed from the work site by equipment or manual labor. If the material is liquid discharged to ponded water in the work area, the water shall be pumped and discharged to a Baker tank, and the affected muddy sediments shall be removed by equipment and disposed offsite. The contaminated water shall be tested and ph adjusted before it is disposed of at the sewer treatment plant or other approved location. • An environmental monitor, or other qualified contractor personnel, shall be present during the construction activities listed above to monitor for discharges to the dewatered creek, particularly discharges of concrete. The monitor shall measure pH levels in any standing water near the work area on a regular basis during the day to determine if there is any discharge of concrete into the groundwater below the ground surface. Ponded water with elevated pH shall be pumped to a Baker tank and not discharged to the beach. A biological monitor will document compliance. • The contractor shall maintain spill contingency materials onsite to be mobilized in the event of a concrete spill to the dewatered channel. These materials shall include weed-free, straw bales, Visqueen, gravel bags, and absorbent pads. They would be deployed if concrete is spilled in the channel, even if it is fully dewatered, to immediately isolate and remove the concrete. • Limited equipment is expected to be operated within the dewatered work area. Equipment may include rubber tire backhoes and loaders or other equipment that can be lifted into the creek bed. The contractor will be required to minimize streambed disturbance. The substrate of the creek bed may be disturbed to a depth of 6 inches by equipment and personnel movement. If the streambed is too saturated even with dewatering then the contractor will work from creosote-free wood planks or other temporary inert platform typical for wetland construction Best Management Practices.				

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
Prior to commencement of construction a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for implementation during construction, that incorporates all feasible Best Management Practices (BMPs) to reduce erosion from construction activities, to minimize the discharge of sediment during storm events, and to eliminate the discharge of non-stormwater pollutants to the maximum extent possible. The following measures shall be incorporated into the project SWPPP, which must meet state NPDES General Construction Permit requirements: • Temporary stockpiles at the project site shall be protected from erosion by the combined use of temporary berms around the perimeter, perimeter interceptor ditches, and temporary downstream catchments as necessary and appropriate. • Stockpiles that are present during the winter season shall be protected from erosion due to direct precipitation or runoff during the winter by the use of surface stabilization (such as erosion control blankets). • Sediment filters/barriers will be constructed along the perimeter of the work area above Mission Creek to prevent sheet flow from discharging sediment into Mission Creek. Protection measures shall remain in place and be maintained in good condition until all disturbed soil areas are permanently stabilized by installation and establishment of landscaping, grass, mulching, or are otherwise covered and protected from erosion. • If the streambed is determined to be unsuitable for equipment and personnel movement to the point of disturbing the streambed to a depth greater than 6 inches, then the contractor will implement a work plan equivalent to a wetland construction. This will include working from creosote-free wood planks or other temporary inert work pad. Sediment fabric will be placed under any pad to protect the streambed to the maximum extent possible. • The SWPPP must include a contingency plan to protect the exposed work site during the winter months in the event of high runoff in the creek or tidal surges that could overtop banks and inundate work areas. • BMPs to prevent discharge of construction materials, contaminants, wash-water, concrete, fuels, and oils that include the following measures: • Ensure that all construction vehicles and equipment are properly maintained (off site) to prevent leaks of fuel, oil, and other vehicle fluids. • Refuel only in bermed areas with impermeable surfaces at least 200 feet from the creek. • Implement measures and provide materials to contain any accidental spills or leakage during the fueling of construction equipment at the site.				

CABRILLO STREET BRIDGE REPLACEMENT (MST2004-00878/CDP2007-00001)
MITIGATION MONITORING AND REPORTING PROGRAM MATRIX TABLE

MITIGATION MEASURE	PARTY RESPONSIBLE FOR IMPLEMENTATION	VERIFICATION		
		Date	Accomplished?	Comments
WQ-3 Prior to construction a detailed Erosion Control Plan shall be prepared for implementation during construction, including basic requirements as follows: • Proposed schedule • Description of potentially affected areas • Description of soils, geology, vegetation, and creeks • Site Plan including contours, elevations, limits of clearing, grading, and creek configuration • Description of erosion control measures • Description of sediment detention basins • Description of emergency erosion and sediment control measures				
WQ-4 During dewatering of the construction area, the removed water will be discharged to temporary infiltration areas on the beach near the lagoon. The discharge shall occur in accordance with NPDES General Permit (Order No. 01-119) for Low Threat Discharges, issued by the Regional Water Quality Control Board (RWQCB).				

Cabrillo Bridge Replacement Construction Equipment Emissions

Phase 1 = 12 months

Phase 1 Demolition

Equipment Category	Construction Equipment UEF Code	Approx. Horsepower	Fraction of use per Day	No Days	Hours of construction per day	Equip Use per day in hours	THC Factor	THC Amount	ALDEHYDE Factor	ALDEHYDE Amount	NOX Factor	NOX Amount	SOX Factor	SOX Amount	CO Factor	CO Amount	PM Factor	PM Amount		ROG Amount		PM10
Hoe Ram	4	150	0.8	5	13	10	0.55	858.0	0.28	436.80	11	17160.0	0.9	1404.0	2.45	3822.00	0.79	1232.40		1217.6		1183.104
Back Hoe	3	150	0.5	5	13	7	0.37	360.8	0.16	156.00	11	10725.0	0.87	848.3	2.28	2223.00	0.41	399.75		484.28		383.76
Excavator	3	250	0.75	5	13	10	0.37	901.9	0.16	390.00	11	26812.5	0.87	2120.6	2.28	5557.50	0.41	999.38		1210.7		959.4
Cutting Torch	10	5	0.5	5	13	7	1.01	32.8	0.20	6.50	11	357.5	0.93	30.2	4.6	149.50	0.9	29.25		36.371		28.08
Hauling Truck	8	300	0.8	5	13	10	0.37	1154.4	0.22	686.40	11	34320.0	0.89	2776.8	2.28	7113.60	0.5	1560.00		1736.9		1497.6
Catcher	10	150	0.8	5	13	10	1.01	1575.6	0.20	312.00	11	17160.0	0.93	1450.8	4.6	7176.00	0.9	1404.00		1745.8		1347.84
Fork Lift	6	150	0.8	5	13	10	0.97	1513.2	0.20	312.00	11	17160.0	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1213.056
Crane	10	200	0.8	5	13	10	1.01	2100.8	0.20	416.00	11	22880.0	0.93	1934.4	4.6	9568.00	0.9	1872.00		2327.7		1797.12
Skip Box	10	5	0.8	5	13	10	1.01	52.5	0.20	10.40	11	572.0	0.93	48.4	4.6	239.20	0.9	46.80		58.193		44.928
Air Compressor	10	20	0.9	5	13	12	1.01	236.3	0.20	46.80	11	2574.0	0.93	217.6	4.6	1076.40	0.9	210.60		261.87		202.176
Front End Loader	6	150	0.8	5	13	10	0.97	1513.2	0.20	312.00	11	17160.0	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1213.056
SUB TOTAL Grams / Day								10299.5		3084.9		166881		13514.3		45380.4		10281.4		12457		9670.12
SUB TOTAL lbs / Day							THC	22.69	ALDEHYDE	6.79	NOX	367.58	SOX	29.77	CO	99.96	PM	22.65	ROC	27.44	PM10	21.74

Phase 1 Construction

Equipment Category	Construction Equipment UEF Code	Approx. Horsepower	Fraction of use per Day	No Days	Hours of construction per day	Equip Use per day in hours	THC Factor	THC Amount	ALDEHYDE Factor	ALDEHYDE Amount	NOX Factor	NOX Amount	SOX Factor	SOX amount	CO Factor	CO Amount	PM Factor	PM Amount		ROG Amount		PM 10
Crane	10	200	0.25	160	13	3	1.01	656.5	0.2	130.00	11	7150.0	0.93	604.5	4.6	2990.00	0.3	195.00		727.42		187.2
Pile Dirving Hammer	15	200	0.75	200	13	10	0.31	604.5	0	0.00	11	21450.0	0.75	1462.5	2.9	5655.00	1.1	2145.00		550.1		2059.2
Pile Dirving Crane	10	200	0.75	200	13	10	1.01	1969.5	0.2	390.00	11	21450.0	0.93	1813.5	4.6	8970.00	0.3	585.00		2182.2		561.6
Deck Placement Crane	10	250	0.9	7	13	12	1.01	2954.3	0.2	585.00	11	32175.0	0.93	2720.3	4.6	13455.00	0.3	877.50		3273.4		842.4
Fork Lift	6	150	0.8	200	13	10	0.97	1513.2	0.2	312.00	11	17160.0	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1213.056
Back Hoe	6	150	0.5	200	13	7	0.97	945.8	0.2	195.00	11	10725.0	0.86	838.5	2.71	2642.25	0.81	789.75		1055.6		758.16
Hauling Truck	8	300	0.5	240	13	7	0.37	721.5	0.22	429.00	11	21450.0	0.89	1735.5	2.28	4446.00	0.5	975.00		1085.6		936
Pickup Truck	8	200	0.5	240	13	7	0.37	481.0	0.22	286.00	11	14300.0	0.89	1157.0	2.28	2964.00	0.5	650.00		723.71		624
Skip Box	14	5	0.75	100	13	10	0.44	21.5	0	0.00	9.78	476.8	0.71	34.6	1.96	95.55	0.82	39.98		19.52		38.376
Concrete Pump	10	15	0.8	15	13	10	1.01	167.6	0.2	31.20	11	1716.0	0.93	145.1	4.6	717.60	0.9	140.40		174.58		134.784
Air Compressor	10	5	0.9	240	13	12	1.01	59.1	0.2	11.70	11	643.5	0.93	54.4	4.6	269.10	0.9	52.65		65.467		50.544
Asphalt Paver	10	300	0.8	2	13	10	1.01	3151.2	0.2	624.00	11	34320.0	0.93	2901.6	4.6	14352.00	0.9	2808.00		3491.6		2695.68
Front End Loader	6	150	0.5	240	13	7	0.97	945.75	0.2	195.00	11	10725.0	0.86	838.5	2.71	2642.25	0.81	789.75		1055.6		758.16
SUB TOTAL Grams / Day								14181.2		3188.9		193741.3		15647.5		63426.35		11311.6		16094		10859.16
SUB TOTAL lbs / Day							THC	31.2	AIDEHYDE	7.02	NOX	426.7429	SOX	34.47	CO	139.71	PM	24.9155	ROC	35.449	PM10	23.918855

Phase 1 Totals (Lbs/Day) THC 53.92 AIDEHYDE 13.82 NOX 794.32 SOX 64.23 CO 239.66 PM 47.56 ROC 62.89 PM10 45.659207

Construction period 79.43222 tons/200 days — 6.[illegible] tons/200 days

Phase 2 = 7 months

Phase 2 Demolition

Equipment Category	Construction Equipment UEF Code	Approx. Horsepower	Fraction of use per Day	No Days	Hours of construction per day	Equip Use per day in hours	THC Factor	THC Amount	ALDEHYDE Factor	ALDEHYDE Amount	NOX Factor	NOX Amount	SOX Factor	SOX Amount	CO Factor	CO Amount	PM Factor	PM Amount		ROC Amount		PM 10
Hoe Ram	4	150	0.25	10	13	3	0.55	268.1	0.28	136.5	11	5362.50	0.9	438.8	2.45	1194.38	0.79	385.13		380.49		369.72
Back Hoe	3	150	0.5	10	13	7	0.37	360.8	0.16	156.0	11	10725.00	0.87	848.3	2.28	2223.00	0.41	399.75		484.28		383.76
Excavator	3	250	0.75	10	13	10	0.37	901.9	0.16	390.0	11	26812.50	0.87	2120.6	2.28	5557.50	0.41	999.38		1210.7		959.4
Cutting Torch	10	10	0.5	10	13	7	1.01	65.7	0.2	13.0	11	715.00	0.93	60.5	4.6	299.00	0.9	58.50		72.742		56.16
Hauling Truck	8	300	0.8	10	13	10	0.37	1154.4	0.22	686.4	11	34320.00	0.89	2776.8	2.28	7113.60	0.5	1560.00		1736.9		1497.6
Catcher	10	150	0.8	10	13	10	1.01	1575.6	0.2	312.0	11	17160.00	0.93	1450.8	4.6	7176.00	0.9	1404.00		1745.8		1347.84
Fork Lift	6	150	0.8	10	13	10	0.97	1513.2	0.2	312.0	11	17160.00	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1213.056
Crane	10	200	0.6	10	13	8	1.01	1575.6	0.2	312.0	11	17160.00	0.93	1450.8	4.6	7176.00	0.9	1404.00		1745.8		1347.84
Skip Box	10	5	0.75	10	13	10	1.01	49.2	0.2	9.8	11	536.25	0.93	45.3	4.6	224.25	0.9	43.88		54.556		42.12
Air Compressor	10	20	0.9	10	13	12	1.01	236.3	0.2	46.8	11	2574.00	0.93	217.6	4.6	1076.40	0.9	210.60		261.87		202.176
Front End Loader	6	150	0.8	10	13	10	0.97	1513.2	0.2	312.0	11	17160.00	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1213.056
SUB TOTAL Grams / Day								9213.96		2686.45		149665.3		12092.6		40495.3		8992.43		11071		8632.73
SUB TOTAL lbs / Day							THC	20.2951	AIDEHYDE	5.92	NOX	329.7032	SOX	26.6358	CO	89.20	PM	19.81	ROC	24.4	PM 10	19.01

Phase 2 Construction

Equipment Category	Construction Equipment UEF Code	Approx. Horsepower	Fraction of use per Day	No Days	Hours of construction per day	Equip Use per day in hours	THC Factor	THC Amount	ALDEHYDE Factor	ALDEHYDE Amount	NOX Factor	NOX Amount	SOX Factor	SOX Amount	CO Factor	CO Amount	PM Factor	PM Amount		ROC Amount		PM 10
Crane	10	200	0.25	140	13	3	1.01	656.5	0.2	130.0	11	7150.0	0.93	604.5	4.6	2990.00	0.9	585.00		727.42		698.3
Pile Dirving Hammer	15	200	0.75	20	13	10	0.31	604.5	0	0.0	11	21450.0	0.75	1462.5	2.9	5655.00	1.1	2145.00		550.1		526.1
Pile Dirving Crane	10	200	0.75	20	13	10	1.01	1969.5	0.2	390.0	11	21450.0	0.93	1813.5	4.6	8970.00	0.9	1755.00		2182.2		2095.0
Deck Placement Crane	10	250	0.9	15	13	12	1.01	2954.3	0.2	585.0	11	32175.0	0.93	2720.3	4.6	13455.00	0.9	2632.50		3273.4		3142.4
Fork Lift	6	150	0.8	200	13	10	0.97	1513.2	0.2	312.0	11	17160.0	0.86	1341.6	2.71	4227.60	0.81	1263.60		1689		1621.5
Back Hoe	6	150	0.5	200	13	7	0.97	945.8	0.2	195.0	11	10725.0	0.86	838.5	2.71	2642.25	0.81	789.75		1055.6		1013.4
Hauling Truck	8	300	0.5	200	13	7	0.37	721.5	0.22	429.0	11	21450.0	0.89	1735.5	2.28	4446.00	0.5	975.00		1085.6		1042.1
Pickup Truck	8	200	0.5	200	13	7	0.37	481.0	0.22	286.0	11	14300.0	0.89	1157.0	2.28	2964.00	0.5	650.00		723.71		694.8
Skip Box	14	5	0.75	100	13	10	0.44	21.5	0.22	10.7	9.78	476.8	0.71	34.6	1.96	95.55	0.82	39.98		30.245		29.0
Concrete Pump	10	15	0.8	15	13	10	1.01	157.6	0.2	31.2	11	1716.0	0.93	145.1	4.6	717.60	0.9	140.40		174.58		167.6
Air Compressor	10	5	0.9	200	13	12	1.01	59.1	0.2	11.7	11	643.5	0.93	54.4	4.6	269.10	0.9	52.65		65.467		62.8
Asphalt Paver	10	300	0.8	4	13	10	1.01	3151.2	0.2	624.0	11	34320.0	0.93	2901.6	4.6	14352.00	0.9	2808.00		3491.6		3351.9
Front End Loader	6	150	0.5	200	13	7	0.97	945.8	0.2	195.0	11	10725.0	0.86	838.5	2.71	2642.25	0.81	789.75		1055.6		1013.4
								14181.2		3199.625		193741.3		15647.5		63426.35		14626.6		16105		15460.376
							THC	31.24	AIDEHYDE	7.05	NOX.	426.7429	SOX	34.47	CO	139.71	PM	32.22	ROC	35.47	PM10	34.05

Phase 2 Totals (Lbs/day) THC 51.53 AIDEHYDE 12.96 NOX 756.45 SOX 61.10 CO 228.90 PM 52.02 ROC 59.86 PM10 53.06851

Construction period 75.6 Tons/200days — Construction period 6.0 Tons/200days

NOTES:

All Emission Factors derived from Santa Barbara Air Pollution Control District Table 1 Construction Equipment Uncontrolled Emission Factors.

Above tables reflect on-site and off-site construction equipment. Transportation to and from the site for workers emissions and for asphalt estimated separately and added below.

Phase 1 Totals (Lbs/Day)	THC	53.92	AIDEHYDE	13.82	NOX	794.32	SOX	64.23	CO	239.66	PM	47.56	ROC	62.69	PM10	45.66
Phase 2 Totals (Lbs/day)	THC	51.53	AIDEHYDE	12.96	NOX	756.45	SOX	61.10	CO	228.90	PM	52.02	ROC	59.86	PM10	53.07

Asphalt	**Acreage**	**Factor**	**ROG (lbs/day)**
Phase 1	0.4	2.62	1.05
Phase 2	0.9	2.62	2.46

Fugitive Dust	**Acreage**	**Factor**	**PM**	**PM 10 (lbs/day)**
Phase 1	0.7	10.91	7.34	4.70
Phase 2	0.7	10.91	7.51	4.81

Construction Workers Commute

Urbemis 2002 8.7		**ROG**	**NOX**	**CO**	**SO2**	**PM10**
50 1 way trips/day		1.11	0.88	11.99	0.01	0.89

SUMMARY

Phase 1			**THC**		**AIDEHYDE**		**NOX**		**SOX**		**CO**		**PM**		**ROG**	**SO2**	**PM10**
Construct Equip			53.9		13.8		794.3		64.2		239.7		47.6		62.9		45.66
Fugitive Dust													7.3				4.70
Asphalt															1.1		
Worker Commute							0.2				1.8				0.2	0	0.12
Phase 1 TOTAL			53.9		13.8		794.5		64.2		241.5		54.9		64.1	0	50.48
Phase 2																	
Construct Equip			51.5		13.0		756.4		61.1		228.9		52.0		59.9		53.07
Fugitive Dust													7.5				4.81
Asphalt															2.5		
Worker Commute							0.2				1.8				0.2	0	0.12
Phase 2 TOTAL			51.6		13.0		756.6		61.1		230.7		59.5		62.5	0	58

Significance emissions

	NOX	ROC	
Phase 1	79.4	6.3	tons
Phase 2	75.6	6.0	tons

EXHIBIT D

COMMENT LETTERS

EXHIBIT E

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

April 11, 2007

RECEIVED
APR 13 2007
CITY OF SANTA BARBARA
PLANNING DIVISION

Michael Berman
Community Development Department
City of Santa Barbara
P.O. Box 1990
Santa Barbara, CA 93102-1990

RE: Draft Mitigated Negative Declaration (MST04-00878) for the Cabrillo Bridge Replacement Project

Dear Mr. Berman,

Commission staff has reviewed the Draft Mitigated Negative Declaration (MND) for the Cabrillo Bridge Replacement Project and would like to provide your staff with the following comments for your consideration. We apologize for the delay in sending these comments to you and hope that the City will have sufficient time to respond.

As stated in the Draft MND, the Cabrillo Bridge Replacement Project would replace the existing structurally deficient Cabrillo Boulevard Bridge over Mission Creek and improve the hydraulic conveyance of Mission Creek from State Street to the Pacific Ocean. The existing bridge would be removed and replaced with a similar bridge that would have a total deck length of 131 feet, nine feet longer than the existing bridge. Vertical precast concrete walls would also be installed on the creek banks between Cabrillo Boulevard and State Street to replace existing deteriorated timber pile walls. Additionally, the City is proposing to replace the existing sackrete bank protection along Mission Creek estuary downstream of the bridge with ungrouted boulders. Construction would occur over a 21 month period and would require periods of partial and full dewatering of Mission Creek.

The project, as proposed, is located partially within the area of retained jurisdiction of the California Coastal Commission (generally south of Cabrillo Boulevard) and partially within the jurisdiction of the City of Santa Barbara Local Coastal Program (generally north of Cabrillo Boulevard). The project will, therefore, require a coastal development permit from the California Coastal Commission and a coastal development permit from the City of Santa Barbara that would be appealable to the Commission.

The City is also required, pursuant to the California Environmental Quality Act Guidelines, to ensure that any environmental impact report, negative declaration, or mitigated negative declaration for the project analyze the consistency of the project with adopted regional plans including the relevant policies of the California Coastal Act and the City's certified Local Coastal Program (LCP). Coastal policies of particular relevancy to this project include Sections 30230, 30231, 30233, 30236, and 30240 of the Coastal Act and Policies 6.1-6.14 of the City's certified LCP that limit development in and around environmentally sensitive habitat areas, stream corridors, floodplains, wetlands,

and coastal waters. These policies not only limit the type of development that can be permitted within these resources, but also provide that development must be sited and designed to prevent impacts to these resources such that no less environmentally damaging, feasible alternatives exist for the project and measures to mitigate potential impacts are employed to the maximum degree possible.

Flood Control and Alternatives.
Section 30236 of the Coastal Act states:

> *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible and be limited to (1) necessary water supply project, (2) flood control project where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat*

The stated purpose of the Cabrillo Bridge Replacement Project is to replace the existing structurally deficient Cabrillo Boulevard Bridge and improve the hydraulic conveyance of Mission Creek. The project involves the substantial alteration of Mission Creek and Estuary, including widening of the creek, replacement of abutments and piles, installation of vertical concrete walls on the banks of the creek upstream of Cabrillo Bridge, and installation of rock riprap on the banks of the creek downstream of Cabrillo Bridge. Section 30236 of the Coastal Act allows for alteration of streams for flood-control purposes only if such protection can be shown to be necessary for public safety or to protect existing development. The MND should address in detail the need for the project to protect public safety and/or existing development. Specifically, the City should provide detailed information on the flood history of the area, potential existing structures that are threatened, and information on how the project will improve flood capacity in the area.

Section 30236 also provides that any projects that include the alteration of streams for flood control purposes should only be allowed where there are no other feasible methods for protecting existing structures. Similarly, Section 30233 of the Coastal Act prevents the Commission from authorizing dredging or filling within coastal waters, such as Mission Estuary, unless the activity is the least damaging feasible alternative and potential impacts to coastal resources have been mitigated to the extent feasible. Section 30240 of the Coastal Act also provides that development in areas adjacent to environmentally sensitive habitat areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat areas,

The proposed project consists of stream alternations and flood control protection of portions of Mission Creek and the Mission Creek Estuary. While the project area has been disturbed, the remaining aquatic habitat and related vegetation in and around the stream and estuary serves as important habitat for a number of native species, including

endangered and/or threatened species (e.g. tidewater goby, steelhead trout, snowy plover, and least terns). The Draft MND currently does not include any information as to other alternatives to the project that could potentially minimize potential impacts to sensitive species, biological resources, and water quality. The City should include in the MND an alternatives analysis that considers non-structural flood control alternatives, including flood plain management, flood proofing, and relocation of threatened structures. The City should also consider structural alternatives including the use of vegetated slopes, vegetated riprap slopes, or other "soft" alternatives to the riprap and vertical wall bank protection proposed on either side of the proposed bridge. Finally, the City should consider whether it is feasible to improve fish and estuarine habitat in the project area through (1) restoration of additional buffer areas with native plants; (2) covering the proposed rock revetments downstream of the bridge and planting native species over and in between the rock; and (3) revision in the design of the proposed concrete vertical walls upstream of the bridge to provide for ribs, ledges, baffles, or other appropriate features to provide refugia and enhanced habitat for fish.

Implementation of the Tidewater Goby Management Plan

The Draft MND states that the City intends on implementing the measures proposed in the April 2005 Tidewater Goby Management Plan prepared by URS, Corporation as part of this project. As the City will recall, this plan was required by the Coastal Commission in its review of the Lower Mission Creek Flood Control Project (CD-119-99 and CD-046-06). Commission staff encourage the City to implement the management measures included in the Tidewater Goby Management Plan to the extent feasible. However, it is unclear in the Draft MND whether the following management measures included in this plan will be implemented as part of the proposed project:

- The Mission Creek Lagoon on the beach should be maintained separate from the Laguna Channel Lagoon during and immediately after construction in Mission Creek to preclude any adverse impacts of construction on the Mission Creek Lagoon from also affecting the Laguna Channel Lagoon.
- No more than one half of the estuary (upstream of Cabrillo Boulevard) will be dewatered at any time. *(Commission staff note that the Draft MND states that only 1/3 of the estuary will be dewatered. Is that estimate only including the area upstream of Cabrillo Boulevard? If not, what portion of the estuary upstream of Cabrillo Boulevard will be dewatered?)*
- The City will establish a 10-foot wide zone of native shrubs on the top of the concrete wing walls immediately below the bike path bridge. In addition, the City will establish a 20-50 foot wide zone both side of the lagoon that extends 50-200 feet downstream of the ends of the existing wing walls at the downstream side of the Cabrillo Boulevard bridge.

Please clarify whether the abovementioned measures are part of the proposed project. If not, what tidewater goby protection measures is the City proposing in lieu of these measures?

Noise and Vibration Impacts on Sensitive Bird Species

The Draft MND states that sensitive bird species, including snowy plover and least terns, could potentially be impacted from noise and vibration resulting from construction activities should these species be located and/or attempt to breed near the project area. The Noise and Vibration Study included as an appendix to the Draft MND concludes that construction of the project, particularly pile driving, could result in significantly elevated noise and vibration levels in the area surrounding the project. The MND concludes that increased vibration and noise levels could impact sensitive bird species, particularly if they have established nests or are breeding in the area. The Draft MND includes measures to mitigate this potential impact by requiring pre-construction surveys within 100 meters of the project to identify any sensitive species potentially impacted by the project. If sensitive species are found, the City is then required to stop work and develop a program for protection of these species. Given the substantial noise and vibration that may result from construction activities, our staff question whether a 100 meter survey adequately protects sensitive bird species in the area. The City, with the guidance of a qualified biologist or environmental specialist, should analyze whether nesting sensitive bird species over 100 meters away may be impacted by noise and vibration resulting from construction of the proposed project. What are the noise and vibration levels that may impact nesting bird species? How far away from the project area will pile driving and other construction activities produce these levels of noise and vibration? If there is a potential for impact, the City should either consider expanding the survey area for pre-construction avian surveys or implement additional mitigation measures to protect sensitive bird species in the area.

Construction Flume and Potential Impacts to Sensitive Aquatic Species

The project would require the full dewatering of a portion of Mission Creek for a period that could extend up to 6 months. During this time, Mission Creek would be diverted through a 3-6 foot wide flume that will run through the center of the creek channel. According to the Draft MND, it is expected that water velocities within the flume would be higher than the existing channel. Mitigation measures included in the MND, therefore, require the placement one or two clean gravel bags or a small pile of cobble every ten feet inside flume to provide refuge for aquatic species. While the Draft MND and associated biological studies describe the purpose and design of the diversion, the Draft MND and associated studies do not provide an analysis from a qualified biologist as to whether the design of the diversion will, in fact, provide adequate and suitable conditions for tidewater goby, steelhead trout, and other fish to pass through the construction area. Additionally, the Draft MND does not address whether increased velocities and reduced channel width could potentially impact water quality, erosion, or sediment conditions downstream of the flume in Mission Creek lagoon.

Wetland Analysis

It is not clear in the Draft MND whether the biological field surveys of the project area were conducted in a fashion that would identify all wetlands within the project area. Within the coastal zone, wetlands are defined by the Commission to include areas that meet any one of three wetland indicators (soils hydrology, an vegetation). The Draft MND and associated biological studies state that no wetlands, as defined by the Army Corps, would be impacted by the project. Please clarify whether the biological survey

included delineation of all wetlands or riparian areas as defined by the California Coastal Act. If no such survey or delineation was conducted, the City should undertake a delineation or survey of the project area to ensure that no "coastal act wetlands" may be impacted by the project.

Hydrologic Analysis

The Draft MND should include an analysis of potential impacts to substrate conditions, water quality, and fish habitat in Mission Lagoon that may result from changes in hydrologic conditions of Mission Creek as a result of the project. Will widening of the creek and installation of vertical concrete walls potentially impact sediment delivery to the lagoon, scouring of the creek channel, and erosion and/or sediment conditions in the lagoon?

Thank you for the opportunity to review the Draft MND at this time. Please contact me with any questions or comments regarding the abovementioned comments.

Sincerely,

Melissa Hetrick
Coastal Program Analyst

STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013

ARNOLD SCHWARZENEGGER, *Governor*

March 21, 2007

RECEIVED
MAR 26 2007
CITY OF SANTA BARBARA
PLANNING DIVISION

Michael Berman
City of Santa Barbara
630 Garden Street
Santa Barbara, CA 93101

Dear Mr. Berman:

Re: SCH# 2007021124; Cabrillo Bridge Replacement Project

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings.

The Commission's Rail Crossings Engineering Section (RCES) is in receipt of the *Notice of Completion & Environmental Document Transmittal-Negative Declaration* from the State Clearinghouse. RCES staff is concerned that the Cabrillo Bridge Replacement Project between State Street and Helena Avenue (lat= 34.41257, long=-119.68908) may cause traffic backup along adjoining streets and at intersections impacting the nearby crossings.

Commission staff identified three potentially impacted at-grade crossings of State Street (DOT# 745601T), Anacapa Street (DOT# 745603G), and Garden Street (DOT# 411769M). During construction, traffic circulation and queuing should be monitored and considered for these crossings with mitigation measures being adopted for any safety impacts.

Also, the document erroneously identified the railroad--it should listed as the Union Pacific Railroad Company.

Please advise us on the status of the project. If you have any questions in this matter, please contact me at (213) 576-7078 or at rxm@cpuc.ca.gov.

Sincerely,

Rosa Muñoz, PE
Utilities Engineer
Rail Crossings Engineering Section
Consumer Protection & Safety Division

C: Dan Miller, UPRR

Berman, Michael

From: Steve Johnson [steve@stevej.com]
Sent: Friday, March 16, 2007 2:29 PM
To: Berman, Michael
Subject: Cabrillo bridge replacement - hydrology

Michael,

Thanks for taking my call today concerning assertions made in the "Hydrology and Hydraulics Analysis" document prepared by Bengal Engineering for the Cabrillo bridge replacement project. Page 5 (PDF page 8) contains a statement that floodwaters from Mission Creek flow over Highway 101 and then drain through the San Andres Street neighborhood. I do not believe this statement is consistent with other documents, such as the 1991 FEMA study (not attached due to its large size, but I can make it available if desired").

On page 8 (PDF page 12) of the FEMA study, a breakout is discussed, but is described as follows: "Flood flows from this last breakout will affect the Highway, Mission Street, other streets near Mission Creek, and areas south of the Highway". I suspect the common Santa Barbara confusion concerning the expression "south of the Highway" may have led to the assertion that floodwaters from this breakout would impact the San Andres neighborhood. This was certainly not the case in the January 1995 "flood of record". Nor is any portion of the San Andres neighborhod contained within a FEMA-designated 100-year flood plain.

I would request that the author of the report be contacted concerning a clarification of assertion that Mission Creek floodwaters drain through the San Andres neighborhood.

Thanks.

March 28, 2007

Michael Berman
City of Santa Barbara
Public Works Department
630 Garden Street
Santa Barbara, Ca., 93101

Re: Draft Mitigated Negative Declaration for Replacement of Cabrillo Blvd Bridge over Mission Creek.

Dear Mr. Berman,

On behalf of the Environmental Defense Center, I concur with the report, concerns and recommendations which they have made regarding the above referenced report. As a citizen of Santa Barbara, I would like to have my support for their position logged in to the responses to this report.

Many thanks,

Marilyn Loperfido
Po Box 1372
Santa Barbara, CA., 93102

March 28, 2007

Michael Berman
City of Santa Barbara
Public Works Department
630 Garden Street
Santa Barbara, Ca., 93101

Re: Draft Mitigated Negative Declaration for Replacement of Cabrillo Blvd Bridge over Mission Creek.

Dear Mr. Berman,

On behalf of the Santa Barbara Arts & Crafts Show (SBACS), we thank you for the opportunity to review the draft Mitigated Negative Declaration (MND) for the replacement of the Cabrillo Street Bridge. Our comments will address **pp. 42 and 43** of the report, for the most part.

1. Please replace the term "vendors" with the term "**artists**" or "**artisans**" wherever used.

2. Please replace the term "stalls" with the terms "**spaces**, either "assigned or unassigned" wherever used. Those are the correct terms we use to describe our show members and our space allotments.

3. VISUAL IMPACT OF CONSTRUCTION: SIGNIFICANT.
The negative visual impacts of a construction site upon a venue cannot be underestimated. We are greatly concerned with the negative visual impacts of:

> **1.** Orange fencing, holes in the earth, temporary sound walls and fencing, heavy equipment and the rerouting of foot traffic can have on the success of our business at the show location, and our personal well being, since the art section falls right within the construction zone. Additionally, pedestrians and visitors as a whole tend to avoid construction sites. Due to the lengthily span of time of this project, **the potential of a negative impact** to the show as a whole **re: visitor attendance to the show is significant.**
>
> **2. Lining of the Lagoon:** We are greatly concerned with the unsightliness that a lagoon line with jumbled rocks would present to the visitor in the area. We suggest that the applicant pursue alternate options, which would produce a more visually pleasing look while still supporting the needs of the environment. We echo the proposal for vegetated rock work as submitted by the EDC.

4. INCREASED LEVELS OF CAR EXHAUST.
There is a significant concern that there will be **considerable traffic backlogs** of traffic in the easterly direction heading from State Street to Milpas Street along Cabrillo Blvd. That will have the possibility of **yielding higher levels of car exhaust** in the immediate

area as well as increasing **vehicular noise levels.** Tour buses also heavily use the area. We would like to see this issue more closely addressed.

4. SOCIO-ECONOMIC IMPACTS WHICH MIGHT RESULT IN PHYSICAL ENVIRONMENTAL IMPACTS.

a. This project will yield a significant decrease in visitor attendance to our show. This can directly affect the income of the displaced members, whether temporary or permanent, and the combined income of the show membership as a whole. As a result, many of us may need to participate in show venues outside of the SB area, thus increasing the distance or the number of times we need to travel to earn our income. The effect is **significant**.

b. A significant number of artists will **be temporarily displaced for a prolonged period** of time. The effect of this is **significant**.

c. Potential **parking access** to show members may be affected, causing us to drive further to park our vehicles. The effect is **significant**.

d. Individual show members may be impacted so significantly that they will need additional economic remediation from the city. The exact number and names of those permanently affected will not be known until this April 2007, or sometime later.
Effect is **significant**.

With these above comments as a working platform, the **SBACS** hopes to work with all parties involved to refine this project **so that the SBACS as a whole does not suffer terribly during this trying time of construction.**

We thank you for the review of our comments.

Signed,

Marilyn Loperfido
PO Box 1372
Santa Barbara, CA., 93102
SBACS Advisory Committee Alternate

RECEIVED
MAR 27 2007
CITY OF SANTA BARBARA
PLANNING DIVISION

March 26, 2007

CITY OF SANTA BARBARA
PLANNING DIVISION
ATTN: MICHAEL BERMAN, PROJECT MANAGER
PO BOX 1990
SANTA BARBARA, CA., 93102-1990

RE: Bridge Project

To whom it may concern,

My name is Lorie Morris and I have been a member of the Santa Barbara Arts and Crafts show for over 11 years. It took me 10 of those years to finally get my front row space at the artwalk – right across from El Torito, next to the rock venerating the Chase family – space numbers 49-52. I now find out that this art show space will not be available to me during the construction of the bridge. This has the potential to negatively affect me in a huge way. I depend on the income I make at the art show for my month to month living expenses. I also work a full time job but that job alone will not allow me to live in Santa Barbara due to the high cost of living in this lovely community.

I ask the commission to look at how many art show spaces will be affected by this project and #1 – if there is any way that these spaces can still be made available to the artists or #2 – if there is going to be alternative viable space made available for those artists who will lose basically their place of business for up to two years. This is a huge loss to those artists who have been setting up at this show for years and depend on it for their livelihood.

I appreciate all consideration and options being looked at.

Thank you

Lorie Morris

Lorie Morris
Gemini Photo
PO BOX 14125
Santa Barbara, CA 93107

March 26, 2007

environmental
DEFENSE CENTER

RECEIVED
MAR 27 2007
CITY OF SANTA BARBARA
PLANNING DIVISION

Michael Berman
City of Santa Barbara
Public Works Department
630 Garden Street
Santa Barbara, CA 93101

Re: Draft Mitigated Negative Declaration for Replacement of Cabrillo Street Bridge over Mission Creek

Dear Mr. Berman,

The Environmental Defense Center (EDC) reviewed the draft Mitigated Negative Declaration (MND) for the Cabrillo Bridge Replacement Project. As explained below, the MND provides an inadequate level of environmental review for this project pursuant to CEQA.

I. The Project will result in a Decrease in the Numbers of Rare, Threatened or Endangered Species; therefore, an EIR is required.

The project will reduce the numbers of tidewater gobies, a federally endangered species, in Mission Creek. Projects that would reduce the numbers or restrict the range of an endangered species mandate findings of significant impacts and preparation of EIRs. (CEQA Guidelines Section 15065) According to the MND, "because of the size of hatchlings, it is probable that hatchling mortality will occur during the [Cabrillo Bridge Replacement] project." (MND at page 23) Furthermore, "Installation of cofferdams" and "capture and relocation of gobies" "may result in the unintentional loss of tidewater gobies." (MND at page 23) Therefore, pursuant to CEQA's Mandatory Findings of Significance set forth in CEQA Guidelines Section 15065, an EIR is required for this project.

The project also may temporarily displace southwestern pond turtles, a CEQA "rare" state species of concern. The project also may disturb federally endangered western snowy plovers due to noises and vibrations during a four month period, and due to "discharge of construction debris and materials into the estuary." (MND at page 25)

II. The Analysis of Impacts to Steelhead is factually Inaccurate and Flawed.

Steelhead inhabit estuaries for extended periods of time and do not merely migrate quickly through estuaries as the MND states. The MND erroneously states that impacts to steelhead would be avoided because pile driving would be completed in early winter. (MND at page 24) First, however, steelhead migrate in early winter (beginning in December) and therefore may be expected to migrate through the project site *during* construction and pile driving. (Attachment #1) Second, lagoons play an important role in

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www.edcnet.org

Printed on Recycled Paper

steelhead development, especially in southern California. Barrier lagoons like those at the Carmel River and at Mission Creek are "a great place for young steelhead to grow strong" and "vital to the steelhead's development from juveniles to adult, ocean-going fish." (Attachment #2) Steelhead may be present in the Mission Creek Lagoon year-round according to the attached e-mail from National Oceanic and Atmospheric Administration staff biologist who specializes in coastal lagoon biology. (Attachment #3) The MND's analysis of impacts to steelhead is flawed because the MND incorrectly assumes that (1) steelhead do not migrate through the project reach until after early winter and (2) steelhead do not inhabit the Mission Creek Lagoon except briefly during migration. Analysis of impacts to steelhead must be based on factual evidence about this species' life history in a revised CEQA document i.e. an EIR.

In addition, the diversion system's bypass flume will be only 3 to 6 feet wide. (MND at page 28) If the bypass flume impedes steelhead migration, this could restrict the steelhead's geographic range within Mission Creek and trigger CEQA's Mandatory Finding of Significance. Analysis of the adequacy of this flume for attracting and facilitating steelhead migration must be undertaken in a revised CEQA document i.e. an EIR.

III. The Risk of Accidental Release of Hazardous Substances is misclassified as Potentially Significant but Mitigable.

In order to mitigate the potentially significant risk of hazardous substances spills into creeks during bridge projects, an "emergency response and clean up plan" required pursuant to City LCP Policy 6.11-C must be prepared. No such mitigation plan has been included in the MND or prepared for this project. The project's administrative draft "Water Quality Study" also includes provisions for developing a spill response plan and storing cleanup equipment onsite but fails to set forth a cleanup and response plan of action. (Water Quality Study at page 5-3) The MND classifies the risk of hazardous material spills as potentially significant but mitigable. Therefore, in order to mitigate the risk of hazardous substance spills on Mission Creek and the aforementioned species and to comply with LCP Policy 6.11-C, the City's CEQA document for this project must contain an effective and enforceable emergency response and cleanup plan.

In addition, since the diversion system's bypass flume will be open-aired, specific measures may need to be taken to prevent accidental spills into this flume.

IV. The Project Violates Various Local Policies for the Protection of the Environment.

General Plan and Local Coastal Plan policies are City laws. Projects which violate General Plan or Local Coastal Plan policies cannot be approved.

<u>General Plan Conservation Element</u>

Visual Resource Goal: "Restore where feasible, maintain, enhance and manage the creekside environments within the City as visual amenities, where consistent with sound flood control management and soil conservation techniques."

The project will conflict with this goal because the project includes vertical concrete creek banks upstream from Cabrillo and rock revetments downstream from Cabrillo. No measures require burial of the rock revetment to protect the visual qualities of the Mission Creek Lagoon. Alternatives presented in EDC's attached comments regarding the project (Attachment #4) are feasible ways to protect and enhance the creekside environment as a visual resource.

Biological Resources Policy 5.0: "The habitats of rare and endangered species shall be preserved."

The project may jeopardize individual tidewater gobies and steelhead and degrade their habitat. Alternative bank treatments presented by EDC may feasibly enhance the lagoon habitat.

Biological Resources Policy 6.0: "Intertidal and marine resources shall be maintained or enhanced."

The project can better protect and enhance intertidal resources by implementing vegetative alternatives to the rip rap revetment proposed to channel Mission Creeks' lagoon on the beach. Burying and significantly setting back any rock revetment would also better protect and enhance the biological resources of Mission Creek's lagoon.

Drainage and Flood Control Implementation Strategy 2.1: "Prohibit the construction of new structures in stream channels (except stream measurement or flood control related facilities)."

The bridge is a necessary replacement structure. However, the proposed bank stabilization structures including the vertical pre-cast concrete bank upstream from Cabrillo and the rock revetments downstream from Cabrillo can be replaced by alternatives that enhance rather than degrade biological and stream resources.

Drainage and Flood Control Implementation Strategy 4.1: "Encourage the use of natural building materials for flood control channels such as stone, heavy timber, erosion control shrubs, and wire revetment with plantings of native … flora wherever they provide a comparable degree of flood protection."

Contrary to this general plan policy, the City is replacing heavy timber walls with pre-cast concrete banks upstream from Cabrillo. As recommended by EDC in Attachment #4, the City should not be installing a vertical concrete bank in the Mission Creek Lagoon because the use of more natural building materials is feasible. Alternatives including vegetated rock work described in Dr. Ann Riley's "Restoring Streams in Cities" and submitted to the City previously in Attachment #4 are more natural than the faux

sandstone, pre-cast vertical concrete banks proposed by the City as part of this project. Therefore, the project contradicts the general plan policy for use of natural building materials.

Similarly, the City's proposal to line Mission Creek's lagoon with rock revetments south of Cabrillo fails to comply with this policy and implementation strategy. Other than immediately around the bridge's abutments, native vegetation alone can stabilize the Mission Creek Lagoon south of Cabrillo. Rock revetments extending well out into the sandy beach to channelize Mission Creek's lagoon are not necessary and cause unnecessary impacts to coastal resources. Use of vegetation to stabilize the lagoon margin is described in the Tidewater Goby Management Plan required by the Coastal Commission, and would comply with this policy's requirements for natural building materials.

Water Resources Implementation Strategy 1.2: "When deemed necessary, channelization of major creeks within the City should be conducted in such a manner as to retain as much of a natural state along the creeks as possible. The use of concrete channelization shall be discouraged in order to maximize groundwater recharge."

The project involves concrete channelization in the form of the pre-cast concrete banks. The project is not retaining as much of a natural state along Mission Creek as possible. The use of rock revetments south of Cabrillo also fails to maintain the creek in as natural a state as possible. Alternatives to the pre-cast concrete banks and the rock revetments have been proposed by EDC and would comply with this policy and implementation strategy.

Local Coastal Plan

Policy 6.1: "The City, through ordinance, resolutions, and development controls, shall protect, preserve and where feasible, restore the biotic communities designated in the City's Conservation Element…"

As noted in Attachment #3, it is feasible for the City to restore the biotic community of Mission Creek's lagoon in the context of this project. Specifically, elimination of the rock revetments from the project (or requiring the revetment structures to be substantially setback from Mission Creek and kept buried at all times) is a development control that will facilitate restoration of the lagoon banks and the lagoon itself. Similarly, using vegetated rock work instead of pre-cast concrete walls as creek banks is a potentially feasible way to restore and enhance the biotic communities of Mission Creek thereby complying with the LCP.

Policy 6.3: "Seawalls, revetments and bulkheads shall not be permitted unless the City has determined that they are necessary to, and will accomplish the intent of protecting existing principal structures, and that there are not less environmentally or aesthetically damaging alternatives …"

Policy 6.4: "Where permitted, such structures as seawalls, revetments and bulkheads, shall minimize, to the degree possible, alternations of the natural landform."

The project includes revetments which will channelize Mission Creek and create a form of shoreline armoring that could be avoided. The unsightly rock revetments can be replaced by alternatives with less visual and environmental impacts. Specifically, EDC recommends that no revetment be used to line Mission Creek's lagoon south of Cabrillo. Vegetation alone will suffice. In the event revetments are used, they must be setback from the creek and kept buried at all times to minimize environmental and visual impacts.

Policy 6.8: "The riparian resources, biological productivity, and water quality of the City's coastal zone creeks shall be maintained, preserved, enhanced, and, where feasible, restored."

As noted above, it is feasible to restore the creek through the use of more natural approaches to bank treatments. However, the use of vertical concrete walls and rock revetments fails to preserve or enhance the biological resources of Mission Creek.

Policy 6.10: "The City shall require a setback buffer for native vegetation between the top of the bank and any proposed project…."

While it is not possible to set the bridge back from the creek, the revetments could be set back from the creek and buried as a last line of defense for the bike path and other potentially threatened structures. Such setbacks will better protect the creek, allow for the lagoon to naturally expand and contract, and be effective at protecting infrastructure.

Policy 6.11-A: "New highway bridges or other highway improvements should be designed to provided clear spans of the stream or creek and to avoid the use of pilings within the stream corridor."

The replacement bridge project includes pilings in the creek channel and is not a full spanning bridge.

Policy 6.11-C: "When highway bridges or other structures are replaced or renovated in the vicinity of streams or creeks, an emergency response and cleanup plan shall be prepared by the applicant to address accidental releases of toxic materials."

As noted above, no emergency response and cleanup plan exists in the MND, project description or Water Quality Report.

V. Alternatives

A. South of Cabrillo

EDC proposes that the City eliminate the proposed use of rock revetments to armor and channelize the Mission Creek Lagoon on the beach south of Cabrillo. Some limited amount of rocks or other armoring may be used immediately around the bridge abutments but should not extend more than approximately 20 feet south of the abutments. Instead, native vegetation should be planted along the lagoon margin as described in the Tidewater Goby Management Plan.

If in the future erosion threatens the bike path, Cabrillo or, despite the City's permitted sand berm, Stearns Wharf, then the City should at that time consider installing a revetment immediately in front of the threatened structures – not lining the Mission Creek Lagoon. Revetments cause the most environmental damage when they are above ground and exposed to moving water. Any rocks or revetments used should be buried year-round to minimize visual, biological and geological impacts.

B. North of Cabrillo

EDC proposes that the City utilize an alternative to the vertical, pre-cast concrete retaining wall proposed in Mission Creek. One specific example of an alternative proposed for consideration by EDC is vegetated rock work as described in Dr. Riley's "Restoring Streams in Cities" previously submitted to the City and included with Attachment #4.

In closing, EDC would like to work with the City redefine the project to include alternatives so that the project can fulfill the community's broad goals.

Thank you for your attention to EDC's comments.

Sincerely,

Brian Trautwein
Environmental Analyst

cc:

California Coastal Commission
US Fish and Wildlife Service
US Army Corps of Engineers
National Marine Fisheries Service
California Department of Fish and Game

ATTACHMENT #1

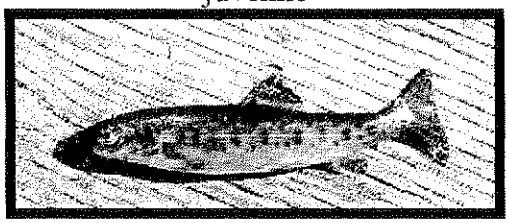
Napa County Resource Conservation District

back ✿ *RCD home*

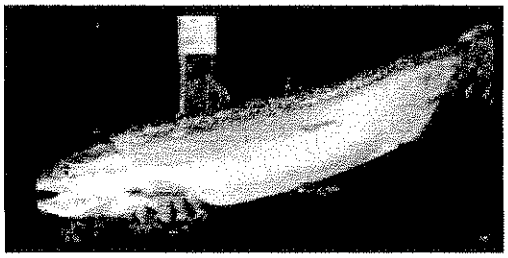
Steelhead Trout

- Importance
- Life Cycle
- Steelhead vs. Rainbow Trout
- Habitat
- Distribution
- Current Status

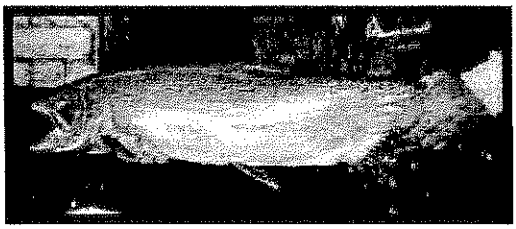
juvenile



adult female



adult male



Importance

Steelhead trout are an important component of California's diverse wildlife heritage. They are a good indicator of the health of aquatic systems because they use all portions of a river system, and require cool, clean water. Steelhead are a sport fish, with about 100,000 steelhead anglers throughout the state. If the current population of steelhead in California were to double, the state's economy from fishing revenue would increase by an estimated 37.5 million dollars.

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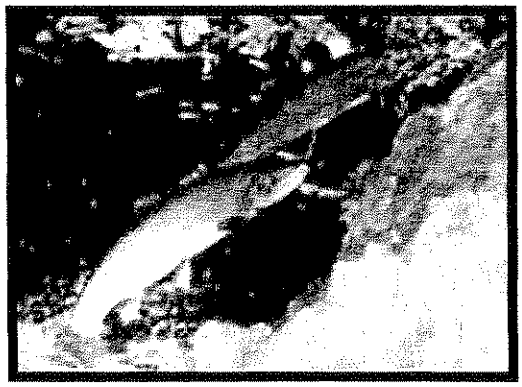
Life Cycle

Steelhead trout (Oncorhynchus mykiss) belong to the family Salmonidae which includes all salmon, trout, and chars. Steelhead are the anadromous form of rainbow trout, a salmonid species native to western North America and the Pacific Coast of Asia. The term anadromous refers to fish species born in the stream that migrate to the ocean for their adult phase. Steelhead are similar to some Pacific salmon in their life cycle and ecological requirements. They are born in fresh water streams, where they spend their first 1-3 years of life. They then emigrate to the ocean where most of their growth occurs. After spending between one to four growing seasons in the ocean, steelhead return to their native fresh water stream to spawn. Unlike Pacific salmon, steelhead do not necessarily die after spawning and are able to spawn more than once.



In California, most steelhead spawn from December through April in small streams and tributaries where cool, well oxygenated water is available year round. The female selects a site with gravel substrate where there is good flow through the gravel. She then digs a nest, called a redd, and deposits eggs, which the male then fertilizes. The eggs are covered by gravels and cobbles when the female excavates another redd just upstream.

The length of time it takes for eggs to hatch is heavily dependent on water temperature. In hatcheries with carefully controlled conditions, steelhead eggs hatch after 30 days at a temperature of 51° F. The optimal temperature for egg incubation is between 44 and 50° F (7-10° C). Eggs hatch sooner in warmer water, but the young fish are smaller and generally have lower survival rates. If

the temperature goes too high, eggs will not hatch at all. After hatching, the developing steelhead will remain in the gravel for another four to six weeks. During this time, they are called alevins and obtain nutrients from a yolk sack attached to their body. When they emerge from the gravel, they are called fry, and are able to catch their own food.

Newly emerged fry move to shallow, protected areas of the stream (usually in the stream margins). They establish feeding areas which they defend. Most juveniles can be found in riffles, although larger ones will move to pools or deep runs.

Source:
Steelhead Restoration and Management Plan for California, by Dennis McEwan and Terry Jackson, CA Department of Fish and Game

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Steelhead vs. Rainbow Trout

Rainbow trout and steelhead are the same species of fish; the two names reflect two distinct life history patterns. The name rainbow trout is used for the non-anadromous life history. Rainbow trout do not leave the stream to go to the ocean. They spend their entire life in the stream. The name steelhead refers to the anadromous life history described above.

Anadromous steelhead and resident rainbow trout did not arise from two distinct evolutionary lines. There is a close genetic and taxonomic relationship between these two forms. Anadromous forms of the trout can convert to resident populations when drought events or damming of rivers blocks their access to the ocean. Conversely, resident trout populations can become anadromous if ocean access becomes available. It is typical to have both life history patterns occurring in the same stream. In fact, resident and anadromous parents can produce offspring of both varieties. It has been speculated that there is a food availability related trigger which determines whether a particular fish emigrates to the ocean or remains in the stream. It may be that if there is abundant food in the stream and a fish is growing at a rapid rate, it will remain in the stream. If food is limited and growth is slow, the fish will have a tendency to emigrate.

This dual life history pattern of steelhead and rainbow trout makes the species more adaptable to changing environmental conditions. At the southern most limits of steelhead distribution this is particularly important due to unstable, variable climatic and hydrographic conditions.

Source: Steelhead Restoration and Management Plan for California, by Dennis McEwan and Terry Jackson, CA Department of Fish and Game

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Steelhead Habitat

Steelhead habitat requirements change as they go through different life phases. Adult steelhead need to have access to their natal streams. This means that streams must be free of barriers to migration, as the majority of spawning occurs in the upper reaches of tributaries. Adults also need access to spawning gravel in areas free of heavy sedimentation with adequate flow and cool, clear water. Steelhead utilize gravel that is between 0.5 to 6 inches in diameter, dominated by 2 to 3 inch gravel. Escape cover such as logs, undercut banks, and deep pools for spawning adults is also important.

For steelhead eggs and pre-emergent fry, the most important consideration in terms of habitat is cool water with adequate dissolved oxygen. Fine sediment will smother developing eggs, so the area must not have excessive fine silt or sand. During their first summer, juvenile steelhead are typically found in relatively shallow areas with cobble and boulder bottoms. They reside at the downstream end or in riffles less than two feet deep. Juvenile steelhead prefer areas including woody debris accumulation such as logs or tree roots. Cover structures such as boulder clusters and root wads provide both summer and winter rearing habit. Surface turbulence (or white water) provides another source of cover during the summer months. As juvenile steelhead grow, pools become an important habitat component. The best pools for habitat are those with abundant escape cover in the form of large woody debris, undercut banks, root masses, and large boulders.

Cool, clean water is essential for the survival of steelhead during all portions of their life cycle. Elevated water temperatures (>70° F) can greatly impair growth rates of juvenile steelhead if adequate food is not available. Warmer water also holds less dissolved oxygen and increases a fish's susceptibility to disease.

Source: California Salmonid Stream Habitat Restoration Manual, by Gary Flosi et al., CA Department of Fish and Game, Inland Fisheries Division

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Distribution

In North America, steelhead are found in Pacific Ocean drainages from southern California through Alaska. In Asia, they are found on the east and west coast of the Kamchatka Peninsula, with a few populations on the mainland. In the state of California, known populations occur in coastal rivers and streams from Malibu Creek in Los Angeles County up to the Smith River

ATTACHMENT #2

MONTEREY COUNTY WEEKLY

Live a little.

February 16-22, 2006

Thursday
Friday
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Sunday
Monday
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Wednesday

Cover Story
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Opinion
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Features

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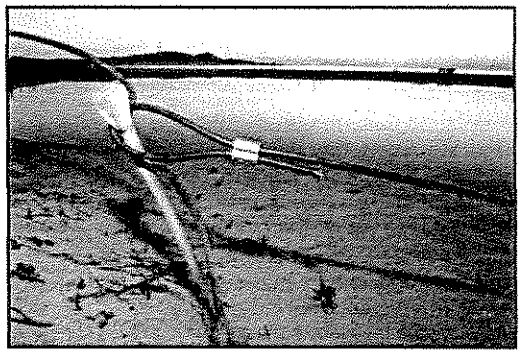
Swept Out To Sea

STEELHEAD DIE WHILE THE BATTLE OVER BREACHING THE CARMEL LAGOON CONTINUES.

Feb 16, 2006
By Ryan Masters



Nourishing Soup: Fatty foods like shrimp, arthropods and worms make the Carmel River barrier lagoon a great place for young steelhead to grow strong. *Jane Morba*

The waters of Carmel River's coastal barrier lagoon are again muddied with controversy over how a catastrophic New Year's Eve breach occured.

Some say the County's management plan failed when a controlled breach at the southern end of the sandbar migrated off a granite bedrock perch and into deeper sand. Later, a picnicking family breached the sandbar with their hands and shovels.

But others argue that the picnickers are responsible for the initial breach, which drained the lagoon.

Regardless of how it happened, experts agree that the "catastrophic breach" significantly harmed the local steelhead population.

Management of the barrier lagoon that forms where Carmel River meets the sea has been a thorny issue since the Odello family arrived from Italy in 1924 and began farming artichokes in the wetlands surrounding the river mouth.

Every year wave action builds a sandbar across the river mouth, producing the lagoon, which is vital to the steelhead's development from juveniles to adult, ocean-going fish.

"Lagoons function like feedlots for the steelhead

news.

Poison of Choice
By Michelle Caldwell
[02-16-06]
EPA looks to beef up ban on methyl bromide and replace it with another pesticide.

Swept Out To Sea
By Ryan Masters
[02-16-06]
Steelhead die while the battle over breaching the Carmel Lagoon continues.

Lutes readies for tough campaign
By Jessica Lyons
[02-16-06]
Salinas City Councilwoman looks to rally anti-sprawl vote.

High Stakes Word Problems
By Raul Vasquez
[02-16-06]
Beginning this year, all high school seniors must pass state exit exam to receive a diploma.

Public Citizen
[02-16-06]

"Hey everyone, this house is a great deal. . . Call Leslie and go see it. It's crying for a new family!" North Salinas 4 bedroom, 1.5 baths. Only $625,000 Open Saturday and Sunday, 2/11 & 2/12, 1-5pm 19 Chaparral...

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before their big journey into the sea," says Frank Emerson of the Carmel River Steelhead Association. "They're full of excellent, lipid-rich foraging foods for the fish."

Every year, winter rains swell the river, which fills the lagoon to capacity. The rise in water levels naturally breaches the sandbar for a period of time before it eventually reforms. Without human interference, the process generally allows the juvenile steelhead a choice when they want to head out into the ocean. Studies have shown that steelhead need to spend at least four to six months in the lagoon and literally double in size before then.

Yet beginning with the Odello family in the 1920s, local property owners have breached the lagoon by hand in order to avoid flooding, which occurs when the lagoon reaches 11.5 feet. For more than 30 years, the Monterey County Department of Public Works has monitored the ware level, and when flooding appears imminent, has used bulldozers to mechanically breach the lagoon.

But if the sandbar is incised at the wrong point it results in a "catastrophic breach" which drains most of the water from the lagoon and sweeps the juvenile salmon out into the ocean before they are ready. Once swept out, many juvenile fish die because their kidneys have not developed the capacity to process salt water. The ones that do survive usually have not grown to their maximum size and die earlier than their mature counterparts.

Last year, a "worst case scenario" occurred when the County breached the sandbar to the north. In conjunction with heavier than usual rainfall and wave action, this northern breach resulted in severe erosion of both the beach and the supporting sand for Scenic Road. Then a late season breach migrated back towards the middle of the sandbar in early May, a critical time for the young steelhead. The lagoon drained rapidly, resulting in what some have estimated as "hundreds" of steelhead deaths.

"For years, the lagoon has been managed on an emergency-only basis," Emerson says. "Yet every year there's an emergency—when the property owners begin worrying about flooding. We need a long-term management plan."

So, last summer, an advisory committee consisting of biologists, and representatives from local, state and federal agencies convened to develop that plan.

San Jose State Associate Professor Jerry Smith, who has studied steelhead and coastal barrier lagoons in Central California for decades, served on the committee and helped devise a method of breaching that minimizes impact on both the steelhead and private and public property.

The committee developed a plan to breach the

sandbar above a subterranean granite "sill" at the south end of the sandbar. In theory, the granite bedrock would prevent the incision from migrating north to the middle of the steelheads' sandbar and draining too much water. A well-maintained southern breach would allow the County to drain a portion of the lagoon—avoiding flooding and erosion while preserving the habitat.

In late December, the plan was implemented and a controversy was spawned.

Smith says the southern breach was a success.

"It did not completely drain so there was no adverse [effect] on fish," he says. "I looked at the initial configuration and it stayed to the south."

Yet what happened next is unclear. According to Smith, wave action naturally reformed the sandbar a few days after the breach. Then, at some point around New Year's Eve, the sandbar was compromised near the middle, resulting in a catastrophic breach.

Smith blames the breach on the family who was photographed digging a channel in the sandbar with shovels and hands.

"They breached it at the low point, at the wrong place, toward the middle of the lagoon and it drained," he says. "It doesn't take much right there. You can do it with a shovel. If they had left it alone, if there had been a need to breach...public works could have breached it again at the same point to the south."

Yet Emerson says the family who breached the sandbar isn't responsible for the resulting deaths of the steelhead. He claims that the damage was done by the County's initial breach.

"It worked for three days then the river did its own thing and cut north," Emerson says. "It fell off the granite sill into deeper sand, incised through the sand berm and drained the lagoon."

According to Emerson, the subsequent breaching was inconsequential.

"The die had been cast," Emerson says. "The channel had been established by the County."

Regardless of its cause, both sides can agree that the steelhead population was damaged by the secondary breach.

Smith says that at the time of the breach, around New Year's, it's unlikely the fish had developed enough to survive in the ocean. He cites a National Marine Fisheries Service study, which found that, in November, a full two-thirds of the population were not ready to leave.

"Even if they did survive, it'll affect their size," Smith says. "It's not just whether they've developed, it's whether they've developed

ATTACHMENT #3

Subject: Lagoon issues
Date: Mon, 09 Aug 1999 18:06:27 -0700
From: "Bob Vadas, Jr." <robertv@tib.nmfs.gov>
To: Brian Trautwein, Environmental Defense Center <edcbgt@rain.org>, KEVIN <lafferty@lifesci.ucsb.edu>, dan <dan.logan@noaa.gov>

Dear Brian Trautwein:

I appreciate your consideration of my expertise on California coastal issues. As a professional fisheries biologist acting on my own behalf (this is not a NMFS policy statement), I am concerned about the potential impacts of frequent breaching of sandbars in the Santa Barbara area. Part of my analysis includes consideration of Mission and Sycamore creeks, which have vulnerable fish species that are likely to be harmed by sandbar manipulations. These fishes include threatened-endangered species that spend their entire life (tidewater goby) or their smolt stage in lagoons before heading out to sea (steelhead trout). Indeed, steelhead are well-known to grow well in Pacific Southwest lagoons, as long as artificial breaching does not occur to harm water quality.

Indeed, frequent breaching creates salinity, thermal, and oxygen problems, though it may reduce odors. The tidewater goby, which is present in both creeks but could be doing better there, actually requires non-tidal conditions to be able to spawn in summer. Moreover, it is a weak swimmer that is susceptible to washout to the sea during breaches. Steelhead, which are present in Mission Creek but could be doing better there, are more likely to grow well if lagoons are closed during summer, because good water quality benefits their invertebrate foods and reduces fish physiologic stress. Better growth means that the trout are more likely to survive in the ocean and come back to spawn.

The odor problem is likely a result of watershed-pollution problems that need to be controlled. To use an analogy, frequent breaching of lagoons is akin to drinking alcohol to treat hypothermia, in that the alcohol causes a false feeling of warmness (as more blood flows near the skin) that actually worsens the condition (as less blood goes to the vital organs). Likewise, artificial breaching may temporarily gets rid of odor problems, but can actually worsen water quality by allowing seagrasses and other oceanic debris to get into the lagoon during summer to worsen organic enrichment (and thus odors).

Clearly, a better thought-out solution to the odor problem needs strong consideration, especially in light of federal and state endangered-species legislation. Effective nonpoint-pollution control on the southern California coast would eliminate the need for artificial breaching to the extent that it is unfortunately done. If such manipulation is to be done at all, it should be done less frequently with fish life cycles in mind and in combination with a seagrass-removal program. Please see the paragraph included below
for more information on how to reduce lagoon impacts.

Please contact me if you require further information. My postdoctoral program goes until the end of August, after which I will be working on estuarine-fish-habitat issues with the Florida Marine Research Institute.

Sincerely,

Dr. Robert L. Vadas, Jr.
NRC Postdoc. Res. Assoc.
NMFS-SWFSC
3150 Paradise Dr.
Tiburon, CA 94920

Tel. (415) 435-3149, x. 251
Fax (415) 435-3675
Internet robertv@tib.nmfs.gov
http://www.pfeg.noaa.gov/tib/staff/vadas.htm

P.S. The following is from my web site, which describes my expertise in California fisheries issues in coastal lagoons:

Bob is a NRC postdoctoral research associate in the Salmon Analysis Branch of NMFS-Tiburon, with Dr. Peter B. Adams as present advisor. He is examining the dynamics of anadromous and estuarine-resident fishes and rheophilic frogs in relation to natural and human impacts to stream-lagoonal watersheds on the California coast. He is also involved with ecologic, shallow-water, and fisheries issues in the San Francisco Bay-Delta estuary. His focus is on instream-flow, riparian, and other physicochemical needs of fishes, using empirical modeling and synthesis.

His expertise is both in field biology and instream-flow modeling, including past hydrologic- and riparian-impact work on anadromous salmonids and other Pacific Northwest fishes.

P.S. II. The following is an excerpt from a manuscript that I am working on:

Impacts of sandbar breaching to tidewater goby have been decreased by altering the frequency, timing, or location of breachings, using artificial structures to maintain higher lagoonal depths after breaching (Capelli 1998). As emphasized by Capelli (1998), if artificial breaching is to be done at all, it should simulate natural-breaching dynamics and be done at high tide, the latter to minimize lagoon-depth losses during breaching. Because Pacific Southwest lagoons are often not naturally well-flushed because of low flows and sandbar formation, in contrast to their east-coast counterparts, nutrient control may be especially important in California to avoid artificial breachings for flushing purposes (Capelli 1998).

ATTACHMENT #4

FINAL
EDC COMMENTS ON CABRILLO BLVD BRIDGE REPLACEMENT AND MISSION CREEK BANK REPLACMENT PROJECTS 2-2-07

MISSION CREEK LAGOON BANKS SOUTH OF CABRILLO BOULEVARD

The Mission Creek Lagoon is an environmentally sensitive area and should not be armored with rocks or concrete blocks as currently proposed by the City of Santa Barbara. Existing sacrete armoring downstream from the Cabrillo Blvd Bridge wing walls should be removed to restore the Mission Creek Lagoon wetlands. Installing long rip-rap revetments to armor the Mission Creek Lagoon's edges would cause unnecessary impacts to coastal resources. Rip-rap structures lining any portion of the Mission Creek Lagoon may raise potential inconsistencies with the Coastal Act and the City's LCP. As described in the City's Tidewater Goby Management Plan, the lagoon edges south of the Cabrillo Blvd Bridge wing walls should be planted with native vegetation to stabilize the lagoon shoreline and provide habitat. Vegetation as opposed to rock rip-rap revetments will enhance the highly visible landscape around Mission Creek.

Notes from the Tidewater Goby Management Plan Management Action 13C as conditioned by California Coastal Commission in 2006[1]:

- Twenty to fifty-foot wide strips of native shrubs and vegetation planted along both banks for 150 to 200 feet downstream from the Cabrillo Bridge wing walls will stabilize the lagoon banks and provide food and cover for gobies and birds.
- This vegetation will be protected from erosion because stream flow velocities are lowest around the margins of lagoons.

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[1] **Final CCC CCD, Condition 3, 2006**:
"**3. Lagoon Buffer.** As provided in Management Action 13 C in the above-referenced plan (also contained in Exhibit 8 of this staff report), the Corps of Engineers (and any future agencies implementing the management plan) shall modify the second sentence as follows: "In addition, the City will establish a 20-50 foot wide buffer zone along both sides of the lagoon that extends 150-200 feet downstream of the ends of the existing wing walls at the downstream side of the Cabrillo Boulevard bridge (Figure 5 of the above-referenced plan)." Prior to commencement of construction of the flood control project the Corps shall submit the final management plan (including buffers) to the Commission staff for its review and concurrence. The Commission staff will only consider activities which are consistent with the Coastal Act and will involve all known interested parties prior to concurring with the final plan."

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(45-feet and 75-feet long or 110-feet and 160-feet long) along the margins of the Mission Creek Lagoon ESHA and wetlands may raise potential conflicts with Coastal Act sections including but not limited to sections 30240, 30233 and 30236. If alternatives exist that avoid concrete or rock structures, these alternatives should be pursued.

City LCP Policy 6.8 and Coastal Act section 30231 require restoration of wetlands when feasible. The City's project including the planned removal of existing sacrete bank stabilizations downstream from the Cabrillo Blvd Bridge wing walls is an opportunity to restore the lagoon wetlands by eliminating hardscape and by utilizing vegetation to stabilize the lagoon to the maximum extent possible.

The federal government's contribution of 88% of the project cost does not justify including extensive rock revetments in the project. The City's interest in the federal funding does not trump the requirement for compliance with the Coastal Act, LCP and Tidewater Goby Management Plan.

Suggestion:

Remove the sacrete structures as planned. Plant and maintain the vegetation strips described in the Tidewater Goby Management Plan atop and downstream from the Cabrillo Bridge wing walls. Avoid using any rocks or concrete structures. If significant erosion begins subsequent to project completion, consider installing small rocks under the ground surface in the smallest practicable area, covering them with soil/sand, and planting ecologically appropriate native vegetation in the soil directly over the buried rocks.

Optionally, the City could propose to remove the sacrete structures and bury small rocks in front of the bike and pedestrian paths to ensure those facilities are protected from future coastal erosion. Rocks in front of the paths would not channelize Mission Creek's lagoon. Regardless of the option pursued by the City, if rocks are utilized, rocks should be buried so that they will not become exposed during winter storms and so that appropriate native vegetation can be established atop the rocks.

CREEK BANKS ABOVE CABRILLO BLVD AND BELOW STATE STREET

The banks of Mission Creek's estuary between Cabrillo Blvd and State Street consist of timber walls. The City proposes to remove the deteriorating timber walls and construct a segment of the Lower Mission Creek Flood Control Project, including vertical concrete walls lining the Mission Creek Estuary between State and Cabrillo.

The Project Description includes a single, vertical, 7 to 8 foot-tall, pre-cast concrete wall on the north bank which today is largely covered with trees. On the south side, the Project Description states that there may be two, 3.5-foot tall vertical walls with a mere 2-foot wide planting zone between the walls, or there may be a single vertical wall.

The Project Description fails to make clear whether there will be a single or double wall on the south side and is thus vague. In addition, vertical concrete walls boxing in the estuary is environmentally and aesthetically unappealing. Alternatives which maintain or enhance the lagoon ecosystem should be considered.

According to Pat Kelly, City Engineer, the creek channel capacity between State and Cabrillo does not need to be increased to accommodate the Lower Mission Creek Flood Control Project. (Personal communication January 17, 2007) Therefore, environmentally superior alternatives to vertical concrete walls should be considered. The least environmentally damaging alternative should be selected for construction. Vertical concrete walls are not the environmentally superior alternative and should not be constructed if they can be avoided.

The LCP and the Coastal Act require restoration of degraded wetlands where feasible. Replacing vertical timber walls with stabilized banks other than vertical concrete (or faux sandstone) walls would help improve the highly visible lagoon's ecological and community values. The project location is within Santa Barbara City's tourist ground-zero so great care should be taken to select an alternative that improves the lagoon's natural environment and beauty.

Biotechnical stream bank stabilization methods should be utilized to the maximum extent feasible to re-naturalize as well as stabilize Mission Creek between State and Cabrillo. Biotechnical stream bank stabilization methods utilize vegetation and roots rather than concrete structures. Ecologically-sensitive biotechnical stream bank stabilization methods are described in Chapter 9 of Dr. Anne Riley's Restoring Streams in Cities (pp. 360 – 392, attached). Unlike the City's proposed project, biotechnical approaches to stabilizing urban stream banks include utilizing vegetation as an integral component of stream banks' structural stability. These restorative approaches to bank stabilization are more appropriate given Mission Creek's environmental sensitivity, the location of the project in the coastal zone, applicable coastal policies, and the project's extremely high visibility.

If vertical structures are needed to replace the timber walls, the height of the vertical structures should be minimized to accommodate environmentally superior sloping and vegetated banks to the maximum extent feasible. All banks including concrete walls (if needed) should be covered with native vegetation (including vines such as wild blackberry, *Rubus ursinus)* to improve the lagoon's visual and ecological resources.

ADDITIONAL QUESTIONS AND COMMENTS:

1. Are the Cabrillo Bridge Replacement Project and the Lower Mission Creek Flood Control Segment between State and Cabrillo defined as two elements of the same project or as two separate projects under CEQA?

2. We understand that the City's Initial Study is "99%" complete and that the City is planning to prepare a Mitigated Negative Declaration. (Personal communication

Hal Hill, January 31, 2007) If the input from USFWS (or NOAA) indicates that the project may result in some take of Tidewater Gobies (or steelhead) or other rare species, even if those species would not be jeopardized, then CEQA may require preparation of an EIR. (CEQA Guidelines section 15065.)

3. Section 6.0 "Permits and Coordination" of the project's Water Quality Study lists the U.S. Fish and Wildlife Service (USFWS) but does not include NOAA Fisheries, the agency which administers the Endangered Species Act with regards to marine and anadromous species including steelhead. What formal and informal consultation has or is planned with NOAA? Were Biological Opinions prepared by the USFWS and NOAA? What do the NOAA and FWS Biological Opinions (BOs) and/or other correspondence state regarding steelhead and tidewater gobies? Did the federal agencies find there would be "no jeopardy"? Is there an allowed or estimated limit on the take of tidewater gobies or steelhead? Can the City provide EDC the BOs and/or other correspondence from NOAA and FWS?

4. We understand that the LCP and Coastal Act policy consistency analysis has not yet been performed for the subject project(s), and will be undertaken as part of the CEQA document.

5. The project's Water Quality Study indicates new rock rip-rap revetments will extend downstream from the Cabrillo pedestrian and bicycle bridge 110 feet (east side) and 160 feet (west side). The project's Natural Environment Study states on page 1-3 that the rock rip-rap revetments will extend below the pedestrian/bicycle bridge 45-feet (east side) and 75 feet (west side). Please clarify the project description.

6. Can the revetments south of Cabrillo be avoided, relocated away from the lagoon and/or minimized?

7. What is the technical, engineering justification for rip rap extending so far downstream from Cabrillo? Has an analysis been done showing that water velocities along the lagoon margin will cause the lagoon banks to erode and threaten any structures without the proposed rip-rap? Has an analysis been performed which shows that vegetation alone will not suffice to stabilize the lagoon margins?

Thank you for seeking EDC's input regarding the proposed actions.

cc:
Melissa Hetrick, California Coastal Commission
Martin Potter, CDFG
Natasha Lohmus, CDFG
Heather Wiley, Army Corps of Engineers
Chris Dellith, US FWS
Mathew McGoogan, NOAA

Restoring Streams in Cities

Ann L. Riley

A Guide for Planners, Policymakers, and Citizens

Upstream impacts of culverts can include the culvert acting as a dam in storms, flooding the areas behind it, and raising the water profile for floods behind it. They may cause deposition and subsequent channel filling behind the culvert. They can create headward erosion up into the watershed if they are installed too low in the ground. They are frequently blamed for blocking fish passage.

A well-known geomorphologist, Thomas Maddock, Jr., states that "because of the enormous numbers of highway culverts in the U.S., their combined impact on stream morphology is probably greater than any other of man's activities."[18]

Culvert-removal projects are being done to correct these problems. They are occurring as well in order to re-create riparian reaches as a strategy to increase a waterway's water quality by restoring the biological and physical functions of the natural system. Culvert removal has resulted in the return of reaches of City Creek in Salt Lake City, Utah; Woonsquatucket River in Providence, Rhode Island; Napa Creek in downtown Napa, California; Strawberry, Blackberry, and Codornices creeks in Berkeley, California; Baxter Creek in El Cerrito, California; and Jolly Green Giant Creek in Arcata, California. Other culvert-removal projects are under design in Washington, Minnesota, Texas, and Oregon to restore business areas and neighborhoods. In some restoration projects culverts are replaced with the ground-level crossings called fords or with bridges. Both those alternatives can impact stream dimensions and slopes, but the impacts can be much less than culverts. Where culverts must remain, realignment with stream meanders, readjustment of their slopes, and the use of culvert extenders on the up and downstream ends can reduce localized destabilization caused by excessive erosion and deposition (refer to figure 9.13).

Restoring Stream Banks

Faced with a stream-bank erosion problem, public works officials' and landowners' first instincts are usually to drop rock or riprap in eroded areas. This can cause several problems. First, because the cause of the erosion has not been removed, the problem continues. Second, the riprap is usually a blight on the landscape. Government resources agencies are increasingly opposing its use because the rock can eliminate critical fish resting and hiding areas available in more natural stream banks. Finally, the rock typically causes more erosion up and downstream and on the stream bank opposite where it is placed.

Any hard objects placed on stream banks can perpetuate erosion problems. Stream currents are deflected off rocks, concrete rubble, and other objects and create eddying that erodes the stream banks up and downstream of the objects. The hard objects can also deflect currents to the opposite bank, causing that bank to be undercut. To avoid these complications, restoration strategies are based on returning plant cover to stream banks because of the superior ability of plants to hold soil, protect banks, and create a stabilizing influence on the stream. Extremely difficult sites may require structural components such as jacks, lunkers, dirt-filled gabions, rock work, and cribwalls to rebuild a stream bank and offer temporary

stability while plants become established. Other stream-bank restoration methods based solely on live and dead plant materials in designed systems can address a majority of stream-bank restoration needs.

There are four major categories of stream-bank revegetation methods. One category emphasizes the use of dead brush, trees, or tree stumps to create channel deposition or sediment transport in desired places; the second category stresses the use of small cuttings or large poles cut from riparian trees to immediately emulate and reintroduce the structure riparian plants provide to streams; the third uses different systems or arrangements of dead and live cuttings to add structural strength to stream banks while replanting them; and the fourth uses significant structures in difficult urban situations in order to make stream-bank revegetation possible. All categories share the common trait, as restoration methods, of providing the conditions necessary to revegetate the riparian corridor along the stream.

Brush Deflectors, Tree Revetments, and Rootwads

Instead of rushing out to your bank erosion site with rock, run out to it with some dead tree branches or even a dead tree. George Palmiter reintroduced the concept in the 1980s of using brush piles staked to stream banks to reduce erosion. He devised a stream-channel inventory system that includes identifying snags that back up flood flows or deflect flows onto banks, causing harmful erosion. His stream-channel inventory produces a plan in which some snags are removed and at other sites, snags or downed trees are cabled to an eroding bank to help restore it to a vegetated environment. The cabled brush slows the velocities against the eroding bank and can create a protected environment in which plant growth can be reestablished (figure 9.14).[19]

The tree revetments bank restoration method is based on the same concept as the Palmiter brush piles. This method is being used widely and increasingly perfected by the Missouri Department of Conservation in Jefferson City.[20, 21] Whole trees are cabled against tree banks (figure 9.15), strung in a line along a bank erosion zone. Although the Missouri tree revetment program doesn't describe the integration of live plantings into the tree revetments, that is a recommended addition. The branches of the dead trees will slow velocities on the outside stream-channel bends and catch sediment and debris, making the site conducive to volunteer vegetative growth. Most disturbed sites will greatly benefit by the addition of live cuttings driven through the brush piles into the soil of the stream banks. The revetments will provide immediate protection and aid the establishment of live riparian growth. These live plants then take root, eventually stabilizing the bank and eliminating the need for the dead branches and trees.

Both of these systems are sadly underused. The plant materials are inexpensive (amounting to the cost of collection), the installation is simple, and, according to the Missouri Department of Conservation, the success rates are good—particularly for tree revetments. Experiment with these techniques as a substitute for riprap in your area.

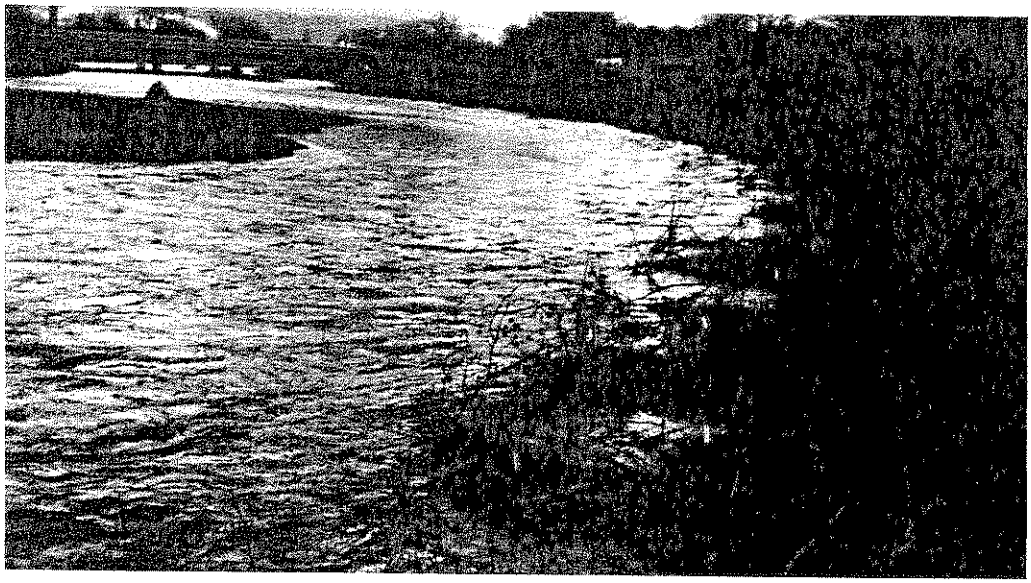


FIGURE 9.14. PALMITER BRUSH DEFLECTOR.
Lindo Creek, Chico, California.

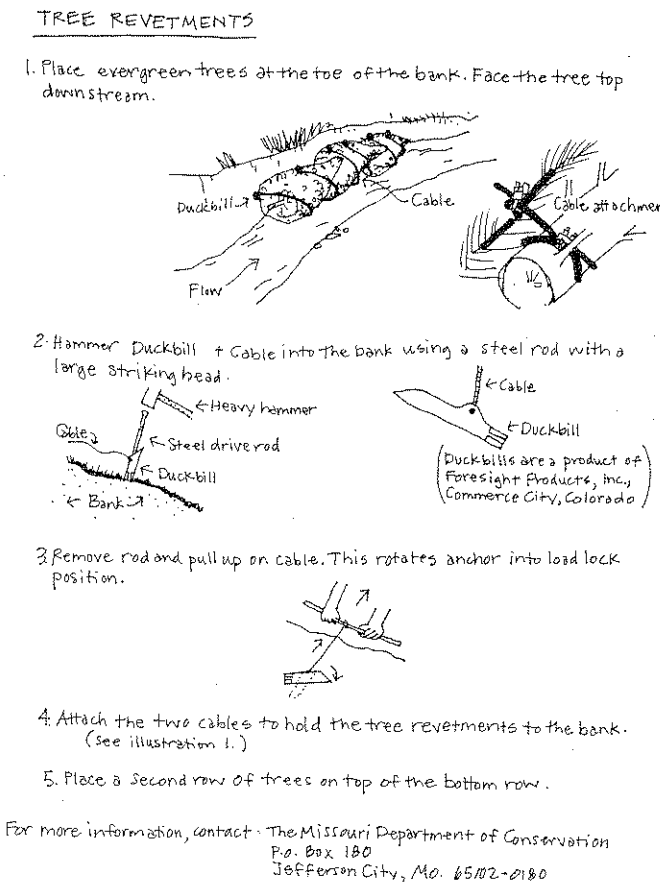


FIGURE 9.15. INSTALLING TREE REVETMENTS.

The combined use of rootwads and vortex rocks (see glossary) to return stream-channel equilibrium is a practice being refined by Dave Rosgen (see figure 9.16). Because they are usually the central structural features of his restoration projects, rootwads and vortex rocks serve as a signature for his work. Rootwads are tree trunks that are uprooted with their roots attached. Rosgen uses systematically placed rootwads to fortify stream banks and hold his desired equilibrium channel shape and meander. Vortex rocks may also do double duty as part of the step-pool formations described earlier. At the Blackberry Creek channel re-creation project in Berkeley, California, we used vortex rocks placed at the meander crossovers to both help direct the meanders and dissipate energy with small gradient drops.

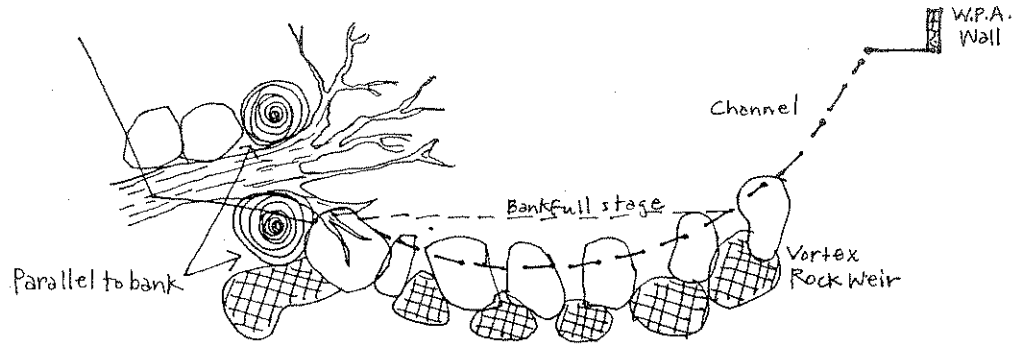
Rosgen uses rootwads because of their unique ability to emulate the naturally occurring functions of riparian tree roots, which not only hold stream banks in place, but also create a channel current eddying that serves to keep sediment suspended and transported along the watercourse. His vortex rocks placed across stream channels concentrate the stream flows toward the center of the channel, where they can then be directed toward the outside bends and help desired meanders form. The rocks not only contribute to the stream dynamics needed to transport sediment, they also create downstream scour zones for fish and invertebrate habitat.

The use of "instream structures" such as rocks, logs, tree roots, etc., has a long history in fisheries habitat restoration practices. As discussed in the earlier section "Channel Grades," structures must be placed in rivers with knowledge of the type of stream channel you are working with and a good geomorphological analysis of what the consequences of the structures will be on channel equilibrium.

Installing Brush Piles and Tree Revetments

Tree revetments and Palmiter brush piles work under the same principle: that of slowing erosive velocities at outside bends of streams. Because tree revetments appear to be a more successful approach at this time than brush piles, we recommend the use of trees. Brush piles and tree revetments are installed essentially using the same principles. (Refer to figures 9.14, 9.17 and 9.18.)

Brush piles are the most low tech and simple to use. They are particularly well suited for small streams in backyards where an urban property owner (or renter) wants to retard an erosion problem with minimum costs. Drive fence posts or—much better if you can get them—live willow posts (see next section) in parallel rows along the stream bank about 4 feet apart. Place the dead brush, cuttings, or plant material against the slope of the stream bank in between the rows of poles. Wire the brush down against the stream bank by stringing the wire in a criss-cross fashion between the posts. After completing the wiring, hammer the posts down a little farther into the ground. This helps tighten the wiring. Figure 9.18 illustrates this brush and live post revetment. Figure 9.17 shows a slightly different system in which brush piles are bundled together and then wired to fence posts driven into the bank. In some projects I combine these methods to fit the brush and live plantings



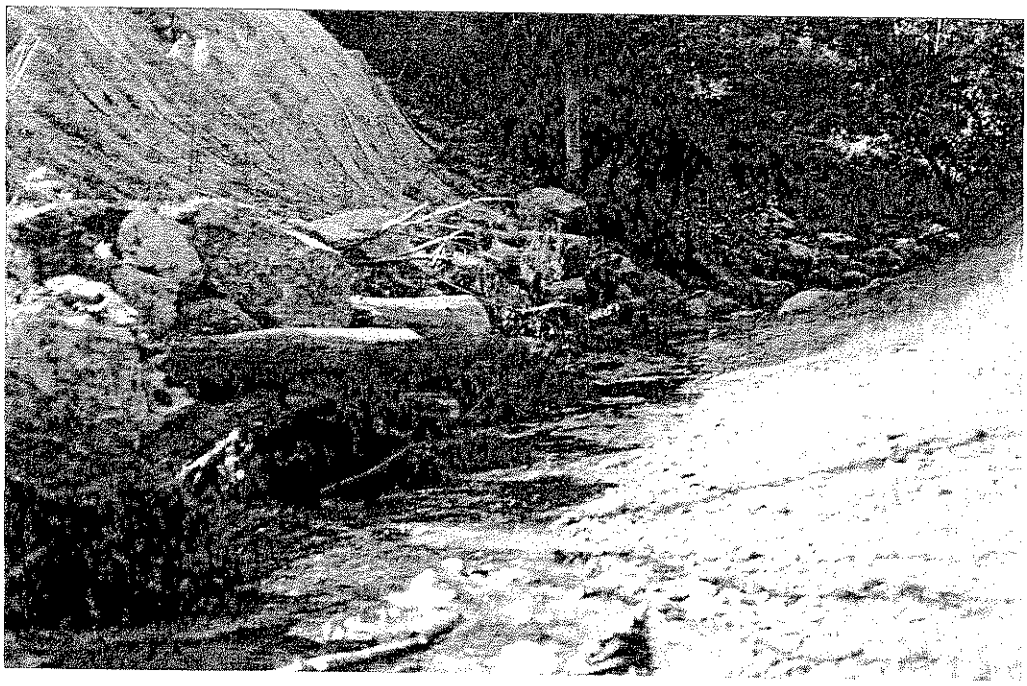


FIGURE 9.16. CHANNEL RESTORATION WITH ROOTWADS AND VORTEX ROCKS.
Installation of rootwads on Wildcat Creek at Alverado Park, Richmond, California (Dave Rosgen, 1993).

to the site conditions. Plant live stakes through the brush piles into the soil to maximize the effectiveness of the project.

Tree revetments are installed using the following steps:

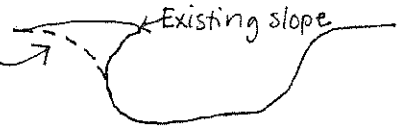
1. The trees used for the bank protection revetment should be first laid out next to a stable reach of bank downstream of your problem area. This can be accomplished by tying into an overhanging tree root. The stable point prevents water

PALMITER BRUSH PILES:

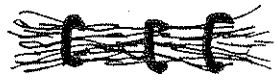
Materials: Dead trees, brush, wood debris, wire, fence posts, live stakes

Installation steps:

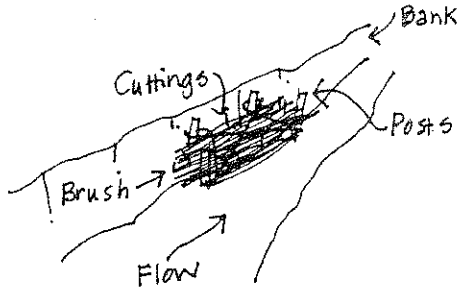
1. Grade back undercut slope



2. Bundle brush with wire



3. Lay wired brush against bank.
   Stake into the bank with fence posts.
   Wire the brush to the posts.



4. Drive cuttings into the brush piles.

For more information and a slide-tape show contact:
The Institute of Environmental Sciences
Miami University
Oxford, Ohio

FIGURE 9.17. INSTALLING BRUSH PILES.

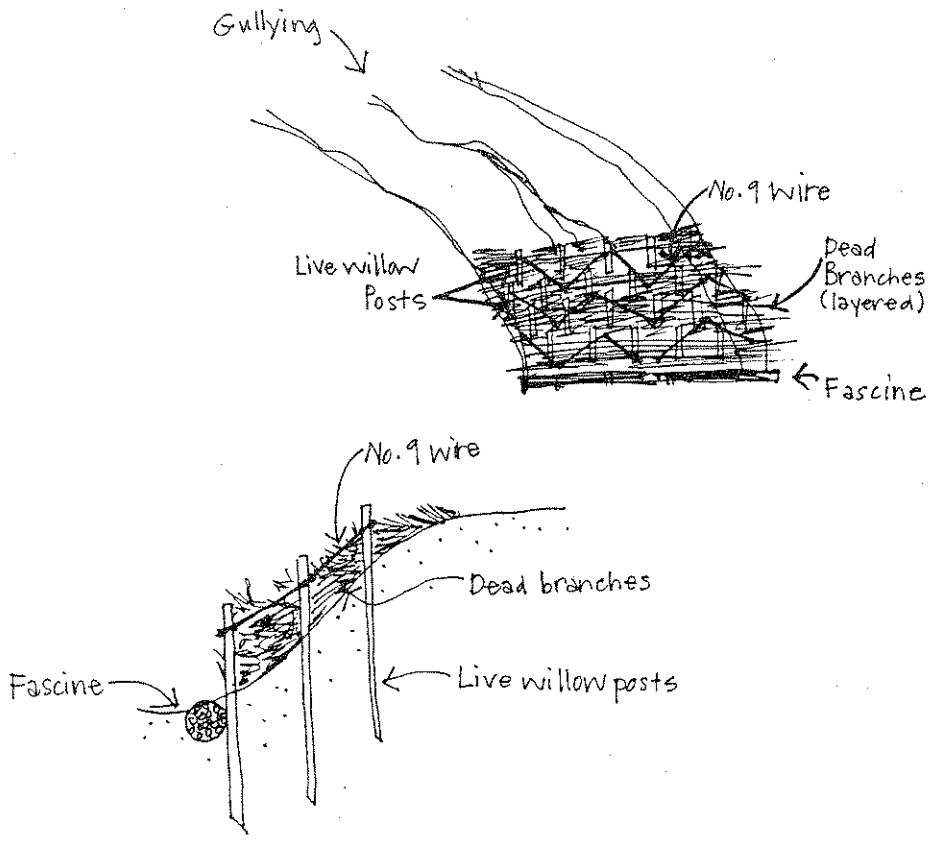


FIGURE 9.18. INSTALLING BRUSH AND LIVE POST REVETMENTS.
Installation on Proctor Creek, Atlanta, Georgia.

from cutting behind the trees and causing a structural failure. (Refer to figure 9.15.)

2. Cut or collect enough dead or live trees to make a double row (or more) at the base of each eroded bank (15–30 trees per 100 feet of bank will be necessary, depending on their length). If a tree is not branched at its base, drill holes 1 foot up the trunk of the tree large enough to accommodate the cable. Trees should be in reasonably fresh condition when installed. It is best if there is little or no loss of suppleness from drying, but realistically you will need to work with what trees are available for you.
3. Beginning on the most downstream portion of the eroded bank, place the first row of trees at the toe of the bank (where the bank meets the creek bottom) with the butts pointing upstream. Placing the first row of trees above the toe could result in undercutting of the revetment and eventual failure.
4. Anchor trees to the bank with arrowhead or duckbill anchors (figure 9.19) using $\frac{3}{16}$-inch cable. These anchors can be driven easily with a post pounder to a depth of 4 to 5 feet. Alternatively, you can use 5-½-foot metal fence posts with holes as an anchor. Attach the cable through a hole in the bottom of the post using cable clamps or crimps. Then drive the cable and post into the side of the bank.
5. Once the anchors are driven and set into the bank, cable can be strung through the hole drilled in the butt of each tree, wrapped, and fastened with either cable clamps or crimps. There should be no slack in fastening cables.
6. Trees must be snug to the toe of the bank once installed. Movement of the trees during high flow could result in structural failure.
7. Trees should be overlapped so that no significant gaps exist between trees. Likewise, there should not be any significant gaps between trees and stream bank. Each tree should overlap the preceding tree by approximately 30 percent of its length and be cabled or wired to it tightly to create a continuous structural unit.
8. Place the second row above the first row of trees in the same manner.
9. Plant live cuttings through the revetment into the stream-bank soil.

Once the tree revetment is complete, a regular inspection schedule should be maintained to avoid structural loss. After the first storm, look at the revetment to identify weak cables or wires and locate areas where flows may be trying to undercut the revetment. The corrective work after the first storm flows is as much part of the project as the initial installation. Re-anchoring loosened trees in problem areas can usually be done with minimal cost and effort. Inspection should be subsequently conducted seasonally and after every major flow event.

Practitioners of this method find that evergreen trees perform better than broadleaf trees in catching sediment and providing bank protection. They prefer just-cut live trees over dead ones, if they are available. They also emphasize the importance of installation with tight rather than slack cables. Loose cables can allow the revetments to be buffeted by high flood flows, which can cause damage to

FIGURE 9.19. DUCKBILL ANCHOR FOR SECURING TREE REVETMENTS OR BRUSH PILES. Cobbs Creek, Meadowdale Park, DeKalb County, Georgia.

stream banks. The tree revetments perform most effectively if live cuttings are driven through them into stream banks, hastening the revegetation process.

Installing Cuttings

Cuttings taken from riparian species of plants that root and grow when they are stuck in the soil serve as the foundation of stream restoration practice. Many people can equate the experience of using cuttings to taking stems from a house plant like a geranium and sticking them in pots of dirt, where, if watered, they will root and form new plants. Soil bioengineering systems use bundles and layers of live cuttings from plants to reestablish plant communities. There are several advantages to these systems. First, the plant material is essentially free except for the costs of collecting and transporting. Second, the systems provide immediate structure and stability to a slope even before rooting and growing. Finally, once plants have rooted and sprouted, the ability of such systems to bind soil and provide strength to slopes is well evidenced by many successful stabilization projects.

Description

Willows are the most common species for these systems because of the abundance of many species of willows in stream, river, and lake environments all over the country. Willow species are real survivors under even difficult conditions, and you can usually find them in quantity. There are many other species, both sun and shade loving, that can also be used. Cottonwood and dogwood species are commonly among them.

There are a variety of ways to collect, prepare, and install plant materials in soil-bioengineering systems. Cuttings, taken from branches of bushes and trees, are sometimes referred to in restoration literature as live stakes. These cuttings are literally used like stakes to hold layers of vegetation in the ground, but they provide an additional benefit to your project because they will root and grow. Cuttings may be 1–3 inches in diameter and 1½–3 feet long. Pole plantings are taken from larger plant material and may be 3–6 inches in diameter and 4–10 feet long (figure 9.20). These are obviously harder to get into the ground, but they offer significant structural benefits in protecting stream-bank toes and helping revegetate a site. Their use was started in recent years in the Southwest, where dry soils and extreme heat make it difficult for plants to survive. The large poles survive better than the smaller cuttings because they have a greater capacity to store water and energy until they develop root systems. The length of the pole also helps it tap ground water located in deeper underground aquifers. Pole plantings have now caught on around the country, and I hope that you will try using them because of their versatility.[22–24]

Collection

Small restoration projects using cuttings and poles for 100–200 feet of stream bank require at least four to five large truck loads (¾-ton truck or larger) of plant material. This quantity underscores the importance of finding an appropriate, local site for plant material. The simplest way to locate such a site is to ask local naturalists or native plant experts. Ideally, you should identify and record the location of the desired species while they are in leaf from spring to fall. Once the plants drop their leaves in dormancy, identifying some of the species you want to use becomes much more difficult.

The easiest way to collect and transport cutting and pole stock to the restoration site is to remove large branches from trees and shrubs and place them in the truck. If it's a hot, windy day or you have far to travel, tie a tarp over the plant materials to keep them from drying out and dying before you reach the project site. Once at the site, stick the butt ends of the vegetation into the creek to keep them wet. If there is no creek water to use for temporary storage, prepare the plant materials (see "Preparation" below) and put them in buckets of water after arriving at your site. Otherwise, prepare the material for planting just before you want to plant it.

Preparation

Preparation of the cuttings should involve cutting the fatter stems near the base of main branches of shrubs or trees rather than using the new growth tips, which are thinner and more vulnerable to damages. Cut pieces from the stems at least 18 inches to about 3 feet long and 1–3 inches thick for cuttings, 4–10 feet long and 3–6 inches thick for poles.

The butt end of the cutting is the end that is planted. It should be pointed when you make the cutting for two reasons. The point identifies the butt end, so you don't accidentally plant the cutting upside down in the ground, and it makes it easier to drive the cutting into the soil. Use sharp tools to make the cuttings so you don't

mangle them with loppers or pruners and thereby make them vulnerable to moisture loss and other problems.

Installation

In soft or wet soils, cuttings can be gently tamped into the ground with a mallet. Soils that are dry or compacted are harder and slower to work with. It is often necessary to prepare a hole for installing a cutting in that case. Prepare a hole for a cutting in dry soil by driving a piece of rebar into the ground and pulling it out. Gently tamp the cutting into the hole created by the rebar and avoid stripping the bark. Roots start from points in the inner bark so loosening of the bark from the wood destroys the root-sprouting ability of the cutting. Be careful not to damage or split the cutting when hammering it in because that significantly hurts its survival capabilities. The deeper the cutting is set, the better. A good goal is to bury four-fifths of it below ground. Shallow planting results in too few roots below ground, too many leaf shoots above ground, and early death to the cutting because the scanty roots cannot supply water and nutrients rapidly enough for the greater mass of foliage. Wooden or sand- or shot-filled mauls can be used instead of metal hammer heads to reduce damage to the plant material.

Figure 9.21 shows the use of cuttings to revegetate stream banks or slopes. "Joint" planting refers to planting cuttings through riprapped slopes. Planting cuttings can be difficult work if the site has been graded, compacted, and rocked with large stone. In that situation larger and longer pole cuttings may be easier to install and more successful than shorter cuttings. The revegetation strategy shown in figure 9.21 is easy to teach a neighborhood, or individual property owners, and needs only a limited amount of plant material.

Poles, the Riprap Substitute

Large "cuttings" of branches or trunks of riparian species as large as tree-planting stakes are the underused workhorses of restoration. The planting of large poles adds more structure to the toe of a slope than a rock does. First, the pole is anchored 3–5 feet or more under the streambed. Even before it is rooted, substantial catastrophic discharges and velocities would be required to move it. If a number of poles are placed close together as in a picket fence, they offer a substantial toe-of-slope wood structure. They grow into instant trees with all the structural advantages of roots and shading to help a plant succession begin on the site.

Willows and cottonwoods are particularly good species to use for poles. Cut 3–6-inch-diameter trees and branches into average lengths of 6–8 feet with a chain saw and remove all the lateral branches. Sharpen the bottom end to a point to ease planting. Planting poles in soft, moist soil is easier than planting them in hard, dry soil, but even good site conditions have challenges because of how deep you need to plant poles. At least half of the pole should be driven into the soil. Make a hole first as illustrated in figure 9.22, using a construction stake, which is a steel rod with a point on the end. This process works best with a team of two working together. One

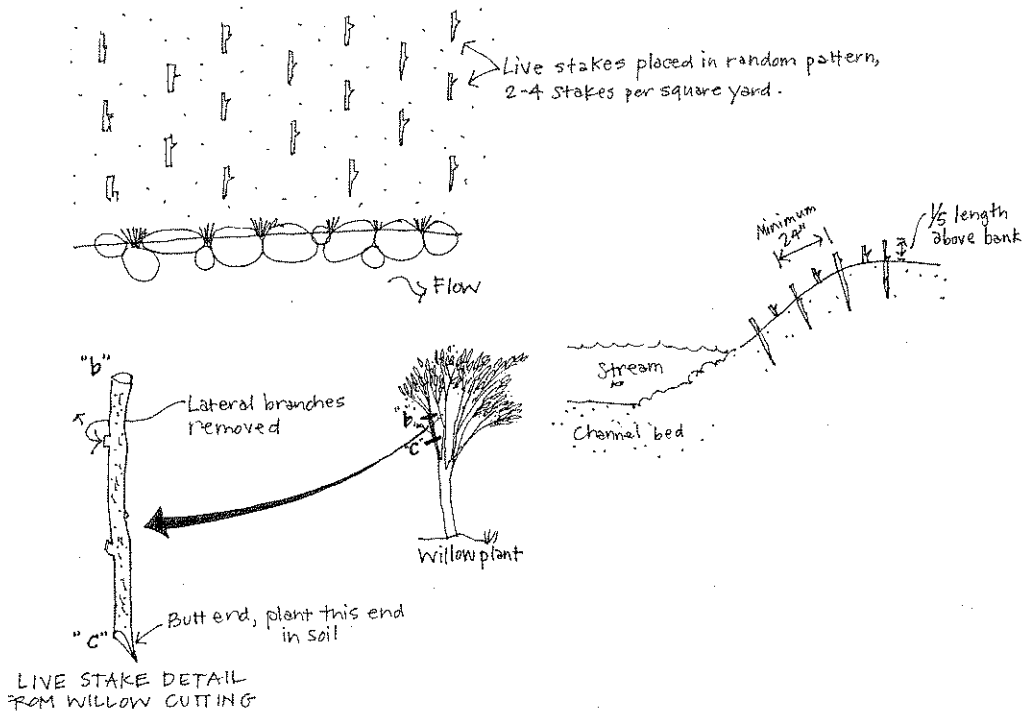
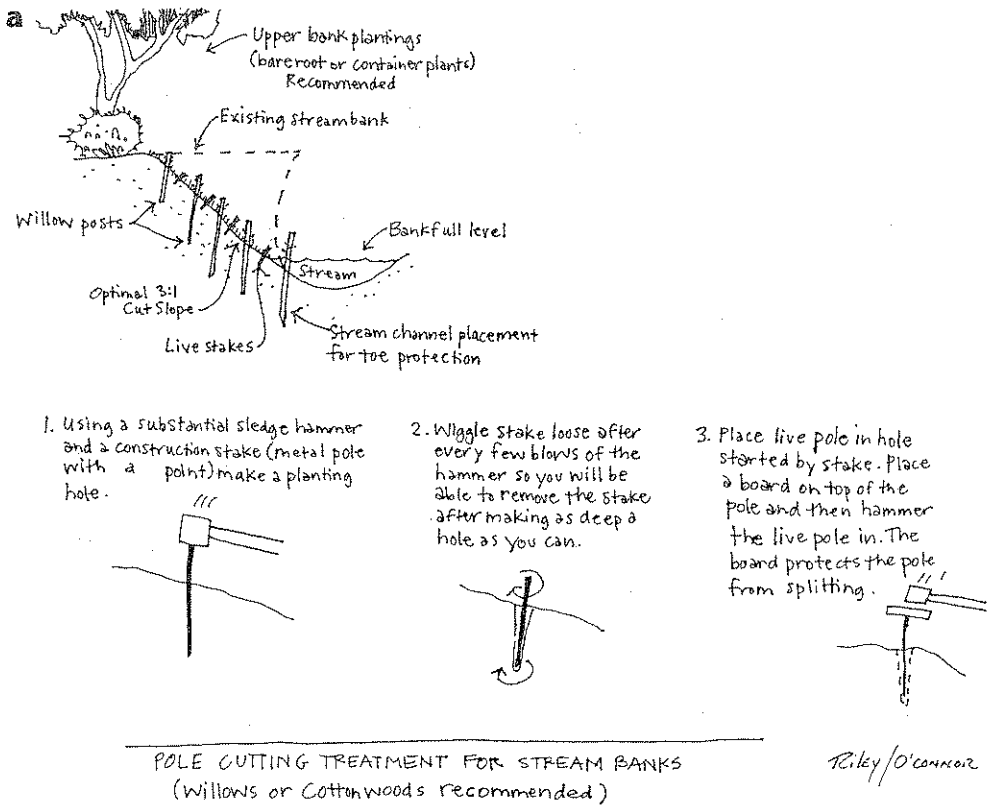


FIGURE 9.21. INSTALLING LIVE CUTTINGS.

person holds the stake, and the other hammers it in. The stake holder needs to wiggle the stake after every few blows of the hammer to make it possible to remove the stake after it has made the hole. After the hole is as deep as you can get it, remove the stake and place the live post in it. Put a 2 × 4-inch board on top of the live post to hammer it in. The board makes it easier to hammer the pole in and protects the pole from splitting. After hammering the pole in as far as you can, saw off the top few damaged inches.

The Illinois State Water Survey uses an excavator with a steel ram to mechanically make planting holes. If you have the budget to use heavy equipment, that can speed up your project, but our experience is that conservation corps labor usually installs posts efficiently and quickly. We have found that the use of a jackhammer or power auger can speed the making of good planting holes. The real advantage of mechanically made holes is that they can usually be driven deeper than manually made holes.

Poles should be set deep enough to maintain contact with the water table but not so deep that they are completely submerged for long periods of time. Long periods of submergence will kill them. Some project designs use poles installed in the stream channel to help slow and deflect flows away from a stream bank, but in those



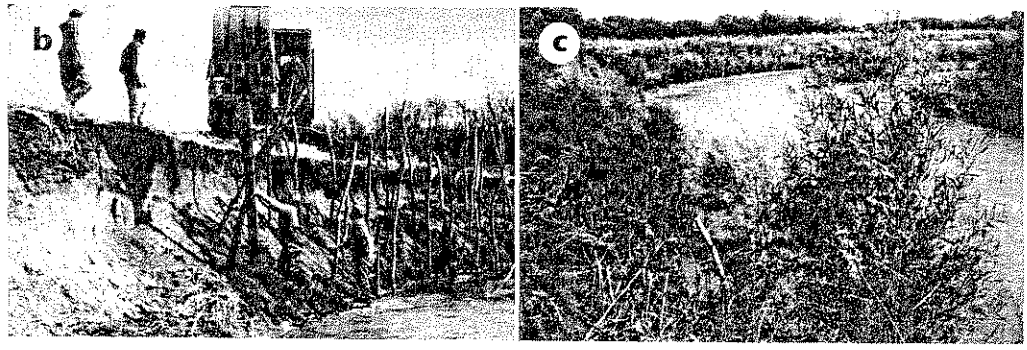


FIGURE 9.22 POLE TREATMENT FOR STREAM BANKS (WILLOWS OR COTTONWOODS RECOMMENDED).

(a) Hand installation [refer to part (a) of figure 9.20]. (b) Installation of 10-foot poles using an excavator and steel ram in Court Creek Watershed, Illinois. *Photo credit:* Illinois Water Survey. (c) Later view of same stream-bank restoration showing growth from poles. *Photo credit:* Illinois Water Survey.

cases, even if the poles die from prolonged submergence, they still serve that useful structural role.

Biotechnical Slope Stabilization

The terms being used to describe plant-based systems for stream-bank and slope restoration are *soil biotechnical slope stabilization* and *soil bioengineering*. As chapter 6 discusses, in many cases, the systems have ancient origins, going back to Sumarian and Roman civilizations. The strategies come to us today via 1930s government manuals on erosion control. Robbin Sotir, of Robbin Sotir Associates in Marietta, Georgia, can largely be credited for the recent wide exposure and reintroduction of these methods. Other firms also are now incorporating the use of these methods, increasing the availability of the technology. The Natural Resources Conservation Service is promoting the use of soil bioengineering in its engineering field handbook for slope protection and erosion control and the Army Corps of Engineers has released its first report on soil bioengineering.[25–28]

Soil bioengineering systems are composed of live and sometimes dead plant materials that are bundled or arranged in a way that provides both an immediate structural component to hold a stream bank and living plant materials, which ultimately provides long-term slope protection. A soil bioengineering system the layperson may be familiar with is a wattle, which is called a fascine by soil bioengineers so it is not confused with live bush fences also called wattles.

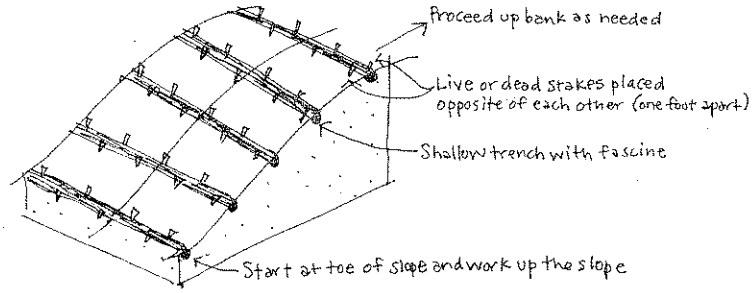
A *fascine* is a cigar-shaped bundle of cuttings planted in trenches on the contour of a slope (figure 9.23) to provide structural strength to the slope and help break the movement of runoff downslope as it enters the stream.

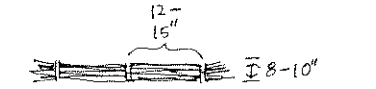
Brush layering is an appropriate system to use for revegetation of fill or a newly constructed slope. Cuttings are layered on terraces perpendicular to the slope so that they will root into the bank or hillside. The live brush is then covered with soil so that only the growing tips protrude from the slope, helping to reduce the velocity and stress of flows against stream banks (figure 9.24).

Brush matting shows up in many old erosion control documents. The growing ends of the plant material are stuck in soil, and the plants are held flat against the slope by wire. The plants take root while the mat helps prevent soil erosion and adds a protective layer across the surface of a bank or slope (figure 9.25).

Branch packing has been widely used to repair gullies or other eroding surfaces in projects on farms and in parks. In situations where runoff from roads or other surfaces is creating gullies or slope caving, the disturbance can be packed with layers of live and dead branches to fill the gully, slow runoff, and start plant growth (figure 9.26).

Geotextile fabrics are sometimes used in conjunction with these soil bioengineering systems (figure 9.27). These fabrics are woven netting made out of either synthetic or natural fibers, and they can be stapled into soils to help protect them from erosion. The oldest and most well-known fabric is jute netting, which can help reduce erosion from rain and runoff in upper slope and watershed areas but has





Prepare wattling, cigar-shaped bundles of live brush with butts alternating. The wattles are 8–10" in diameter, tied 12–15" on center. Species which root easily are preferred.

FASCINE BUNDLE (WATTLE)

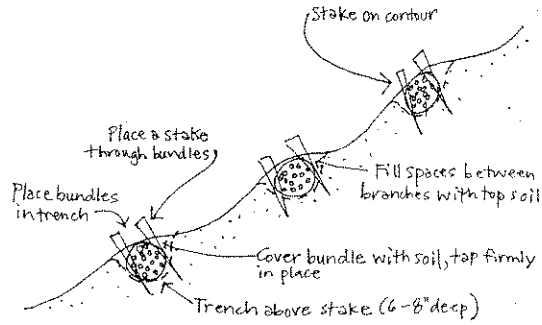


FIGURE 9.23. INSTALLATION OF FASCINES.
Refer to part (b) of figure 9.20 for photo of fascine growth.

limitations for use near stream channels because it does not function well in heavy water flows.

Synthetic fiber blankets have the disadvantage of not being biodegradable. A variety of natural fiber, erosion-control fabrics made from cotton, jute, sisal, and coir are now on the market. Coir fabrics are popular for use in waterways because they have high tensile strengths, are resistant to rot, and withstand high stream flows and velocities.[29, 30]

To repeat earlier advice, I suggest that you get help from experts who have field experience with these strategies because it is difficult to learn everything you need to know from a book or training manual.

Also, a common misconception about these plant systems is that they are limited in use because they are successful only in sunny, open stream-channel environments. In fact many shade adapted riparian species that occur in abundance can be used in these systems. Examples of such plants are dogwood (*Cornus* species), ninebark (*Physocarpus* species), berries (of the *Rubus* species), snowberry (*Symphoricarpos albus*), some species of viburnum, and elderberry (*Sambucus* species).

Fascines

Fascines are bundles of cuttings 3 feet or longer and about 8–10 inches wide. They should be planted above the elevation of the base or low flows in stream channels so that they do not die from being under water too long. The fascines are laid end to end on the contour of a slope. They protrude from the slope a few inches and that way provide a terrace that helps break up and protect the slope. The stabilization project should start at the bottom and work up the slope.

Fascines are one of the most shallow soil bioengineering systems decribed here in that the bundles are buried only a few inches below the grade of the slope. Some practitioners like to use fascines to secure, revegetate, or rebuild the bankfull channel bank. I have found, however, that fascines are very vulnerable in this active channel zone because they are not deeply imbedded and can be washed out if they have not had much time for plant growth to become well established. For this reason I restrict their use in the area of the active channel to small creeks draining watersheds under half a square mile. Their most appropriate use is for intercepting and slowing rainfall runoff down terrace slopes.

Use the following steps to install fascines, as illustrated in figure 9.23:

1. Some workers should prepare the cuttings and make the fascines while others are preparing the slope for planting by digging the trenches.
2. To make a fascine bundle, mix cuttings from a few riparian species to increase the chances that at least one species will adapt well to the site. Willows and cottonwoods, for example, won't do well if they are located too high on a dry slope with little moisture. To make the bundle, alternate butts and growing tips. When the bundle is about 10–12 inches thick, tie it together tightly with a string every 15 inches or so. It should squeeze down to an 8–10-inch bundle.

3. To prepare the slope for fascine rows, use a hand-held level to stake a level contour at the base of the hill. This is best accomplished with two people. One person holds the level and instructs the second where to place stakes on the contour every 3–4 feet. After the contour is staked, dig a 12-inch-wide and 6-inch-deep trench directly above the stakes.
4. Line the trench with fascines by coupling the ends of the fascines together. Stake them where they join to hold them together.
5. This step is the most important to do correctly. Sift and tamp soil down into the fascine with a shovel, filling it with as much dirt as possible. You want to maximize dirt-plant contact. Walk up and down the trench, packing dirt into the fascine as the finishing touch.
6. Add stakes through the bundle at the top of the trench. If you can, cross the stakes over the bundle to help hold it in.
7. Install more fascine rows in the same manner. On 2:1 slopes, space the rows 3–4 feet apart. On 3:1 slopes, space the rows no more than 6–8 feet apart.
8. If you are on a dry slope at a high elevation or in a dry western or southwestern environment, complete the project by watering the fascines with a water tank truck or other available means.
9. Figure 9.23 shows that wood stakes are used to hold the fascines into the slope. Ideally, the fascine stakes are made of 2-foot-long, 2 × 4-inch boards cut on a diagonal so that the top of the stake is flat and the bottom is a point. If it is going to be difficult to make stakes from 2 × 4s, it may be more practical to purchase bundles of 2–3-foot-long, pointed wood construction stakes from a construction-hardware retailer. Live cuttings can also be driven through the fascines both to aid in holding them in place and to help revegetate the site.

Brush Layering

Brush layering is also installed on a contour and has the advantage that it can be used to stabilize new-fill slopes. It can be combined with fascines or other systems. Rather than adding fill to reslope a bank or terrace, we recommend using the parent soil from the bank to reconstruct the slope (refer to figure 9.24). Because brush layering uses long lengths of plant material installed deeply into the slopes, I frequently use this system in combination with pole cuttings in the active bankfull channel zone. To understand what brush layering looks like, picture a lasagne in which the noodles are the plant material layered between the sauce and meat, representing the soil. The steps to installation are as follows:

1. Start the project at the bottom of the slope and work uphill.
2. Using an excavator or shovel, trench a bench or terrace on contour about 3 feet back into the hill slope. The trench should be angled downward.
3. While the trenching is being done, some workers should prepare cuttings that are approximately 4 feet long, or about a foot longer than the depth of your bench. As with fascines, you may want to try a mix of plant species.
4. Push the butt ends of the cuttings into the soil at the back of the bench. Build a

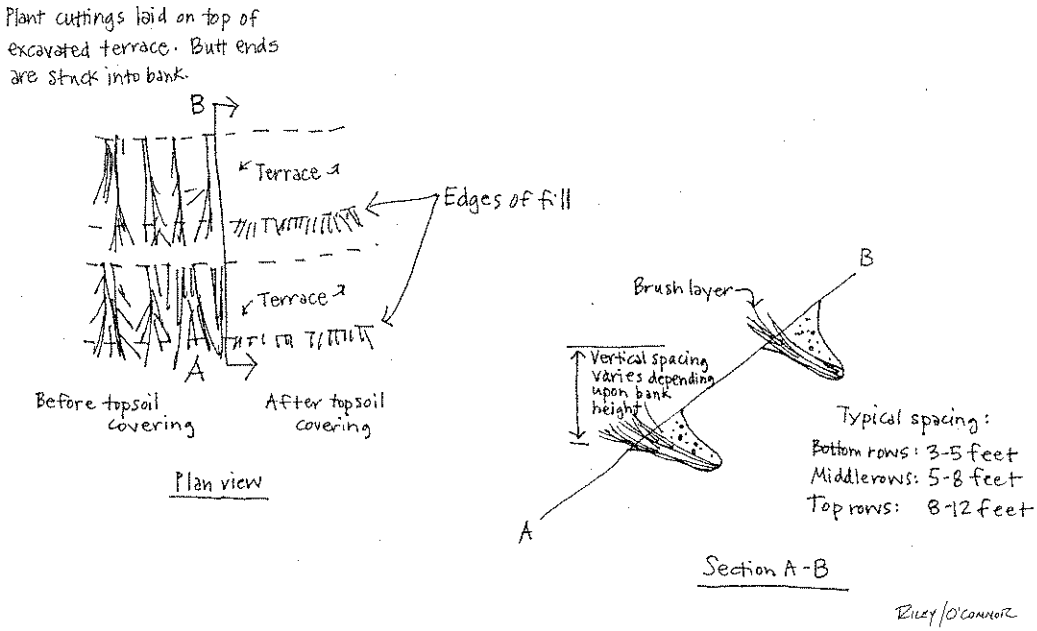


FIGURE 9.24. INSTALLATION OF BRUSH LAYERING.
Lindo Channel, Chico, California. *Photo credit:* Streaminders, Chico, California.

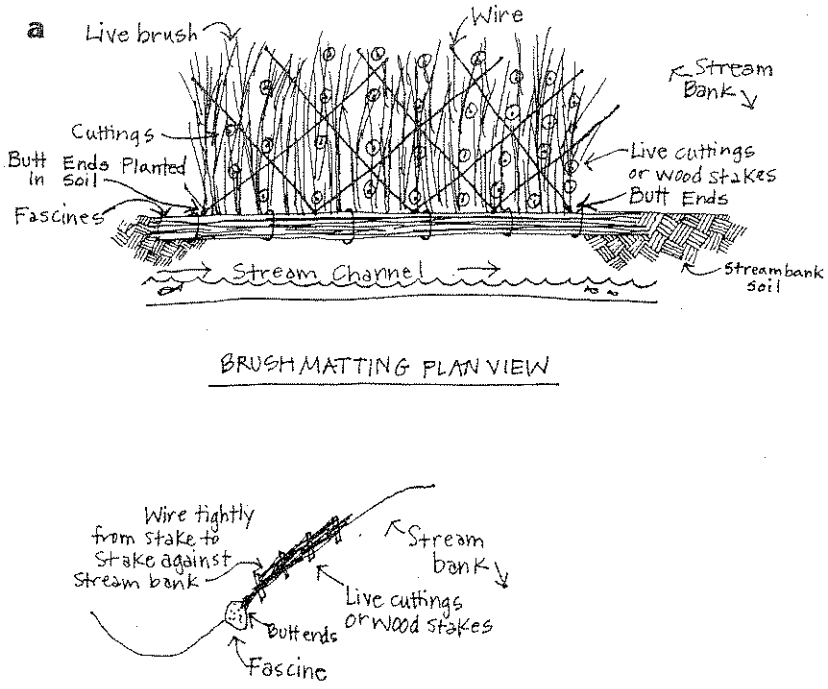


FIGURE 9.25. BRUSH MATTING SLOPE PROTECTION.
Installation by California Conservation Corps. Note the fascine at the toe of the bank in both the design specifications (a) and the bottom of the photo (b). *Photo credit:* California Department of Water Resources.

brush layer about a foot thick. Place the cuttings in layers in a criss-cross fashion on the bench.

5. Backfill the soil onto the bench and tamp it down with your feet and shovels. Each lower bench can be back-filled using soil from the trench being dug uphill. Leave about a foot of the growing tips of the cuttings extending from the slope.
6. Continue to trench benches uphill about every 4 feet on 2:1 slopes.
7. Water the project if you are on dry slopes in a dry climate.

Brush Matting

We generally restrict the use of brush matting on stream banks to filling in between brush layering, fascines, or pole plantings. Much of the system is shallow in that it is just tied against the ground surface. It's a good system for providing complete coverage on a bank or terrace, filling in unplanted spaces not covered by the other soil bioengineering systems. Brush matting is installed using the following steps: (Refer to figure 9.25.)

1. Prepare cuttings about 6 feet long or more.
2. Start the project above the base flow of the stream bank. Dig a trench parallel to the slope. Push the butt ends of the cuttings into the soil in the trench. Bend the cuttings over the slope so that they lie smoothly against it.
3. Drive live and/or dead stakes into the slope in a checkerboard pattern so that the stakes are about 18 inches apart. Also drive stakes into the trench between the butt ends of the cuttings.
4. Wire the branches down onto the slope as tightly as you can by stringing the wire in a criss-cross fashion to the stakes. Use small U-shaped fence nails hammered into the sides of the stakes to attach the wire. Hammering the nails on top of the stakes has a tendency to split them. The wire can be awkward to work with, and it can snap and break. We recommend experimenting with a coil fiber string that is now available. Regular string will break down too quickly in cold, wet, and icy weather.
5. After stringing the wire to the stakes, hammer the stakes into the ground to tighten the matting against the slope. Cover this mattress with a thin layer of soil.
6. Backfill and compact the trench where the butt ends are planted.
7. If planted in dry soil, or dry Western climates, water in the project.

MATTING

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Branch Packing

Branch packing is installed using the following steps to repair small gullies and slumps in slopes: (Refer to figure 9.26 for installation directions.)

1. Drive dead stakes or, better, live poles into the bottom of the project area. Set them 2–3 feet apart. Drive more rows of poles up the slope of the gully or slump every 2–4 feet, depending on the size of the gully.
2. Lay live cuttings between the vertical stakes on the bottom of the gully similar

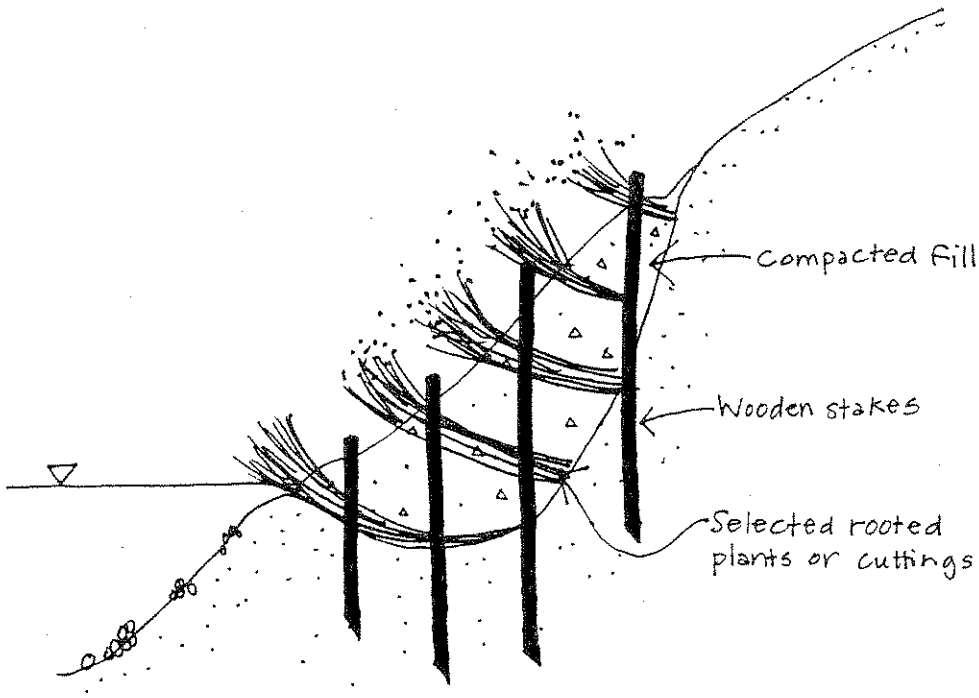


FIGURE 9.26. BRANCH PACKING SMALL GULLIES AND SLUMPS. Installation of branch packing at Cobbs Creek, Georgia. *Photo credit:* A. L. Riley. *Illustration credit:* Robbin B. Sotir and Associates, Georgia Soil and Water. Marietta, Georgia.

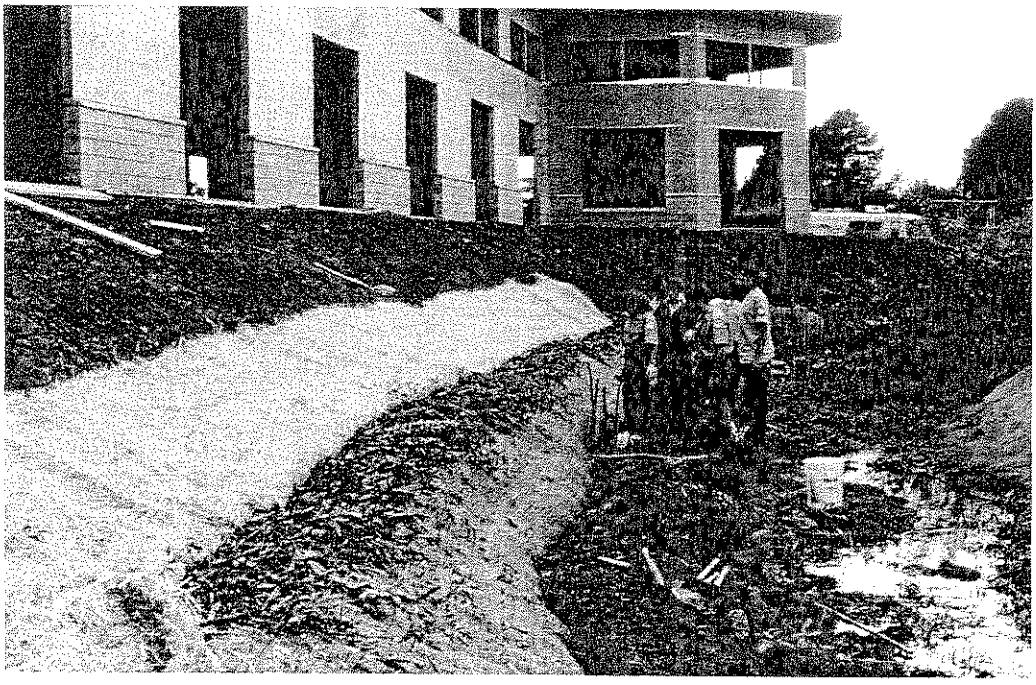


FIGURE 9.27. GEOTEXTILE EROSION CONTROL FABRICS AS COMPONENTS OF SOIL BIOENGINEERING SYSTEMS.
The fabric is laid parallel to the direction of flow. The lowest fabric type is made of coconut fiber, which withstands high velocities and the changing dynamics in the bankfull channel zone. The upper layer is straw matting. (Brush layering is installed between the two fabrics.)

to the way you would install a brush-layering project. The cuttings should stick out of the slope 6–12 inches.

3. Fill in dirt on top of the brush layers and compact it. Work up the gully this way until you have reconstructed the slope.
4. A variation on this design is to add dead vegetation across the hill slope between the poles to help break the fall of runoff down the slope and allow more slope stability so seed and other unplanted volunteer growth can take root. (Refer to figure 9.18.)
5. Water any live cuttings and poles if planting on a dry slope or in a dry western climate.

Restoration for Particularly Difficult Urban Situations

In urban settings the restorationist will be confronted with spaces that are too narrow for a creek to pass through them with the proper floodplain, meander, and channel widths. The first goal of any creek restoration design is to try all possibilities of restoring the channel width and depth, stream channel length, and meander shape that may best help the creek attain a low-maintenance equilibrium. When all possibilities of attaining the desired bankfull channel dimensions, meanders, and floodplain have been exhausted, the designer then considers how best to

compromise the creek's natural dynamics. Of course, the best design compromises the natural creek dynamics to a minimum.

The compromise the restorationist often faces is having to use "armor," as opposed to restoring stream banks to a natural state. Hardening stream banks with rock, gabions, and cribwalls can be done in aesthetic and sensitive ways, however. When enhancing or restoring some of the values to an urban creek, it is easy to get into a clash of conflicting values over what is possible and desirable for the creek. Sometimes professionals or members of the public who do not have exposure to the aesthetic and environmental potentials of a highly urbanized creek will view any enhancements or restoration as futile. The urban creek restorationist, however, appreciates the values of a creek even with its compromised functions or features. Some of the most celebrated and appreciated urban creeks and rivers are lined with WPA rock (for example, the San Antonio River), have compromised riparian vegetation, and are straighter than they should be. The downside is that these streams and rivers are not sustainable and self-renewing environments but require human intervention over time to rebuild walls, replace footings of structures, etc. The upside is that the stream or river is in place as a community presence and amenity.

The ultimate need in these compromised situations is to know what combinations of structural and revegetation solutions are options for maximizing environmental values. The objective should always be to revegetate the waterway. Conventional structural practices such as containing creeks in culverts, concrete walls, or gabion baskets should be relegated to the obsolete. There *are* environmental and practical alternatives to conventional engineering practices. We need to progress from the assumption that a compromised urbanized waterway is a lost cause to the understanding that with creative efforts it can be celebrated as an enhanced environment. Finally, we all need to guard against the "overdesigned" project. A project using too conservative an assumption regarding the ability of vegetation, soil bioengineering, and other environmentally sensitive solutions to hold streambanks is not a well-designed project.

Materials that conventionally have been used to destroy the aesthetic and environmental values of urban waterways, such as gabions, rocks, and cribwalls, can be used in new ways as tools of restoration. Gabions made up of wire baskets filled with rock and log cribwalls are familiar to many structural engineers as common building materials for everything from highways to railroad embankments and rivers. Those structures are now being used in different ways as components of restoration and enhancement projects. Even though such structures are not known for their environmental values, designed and used correctly, they can become instruments of restoration. Used incorrectly, they can remain destabilizing and harmful to the environment.

Jacks

Added to the tool chest of potential structures besides rock, gabions, and cribwalls are A-jacks and lunkers. Large steel jacks that look something like the jacks a child

plays with have been used historically as bank-rebuilding structures for moderately sized rivers. They appear in Army Corps of Engineers literature on bank restoration options. In recent years, they have been manufactured in different sizes, opening up the possibility of using them for smaller stream restoration projects as well as for larger lakeshore and riverbank projects. These jacks can be easily maneuvered and set in place by conservation crews to stabilize the toes of waterway banks. The jacks' ability to grab soil and to interlock adds to their capacity to provide shoreline or bank toe stability, which exceeds the capacity of quarry stone of similar weight. These jacks are relatively easy to handle, are versatile and can be arranged to fit various site conditions, and are environmentally unobtrusive.[31, 32] For these reasons, we consider jacks to be a restoration tool that may see wider use in the future (figure 9.28).

Lunkers

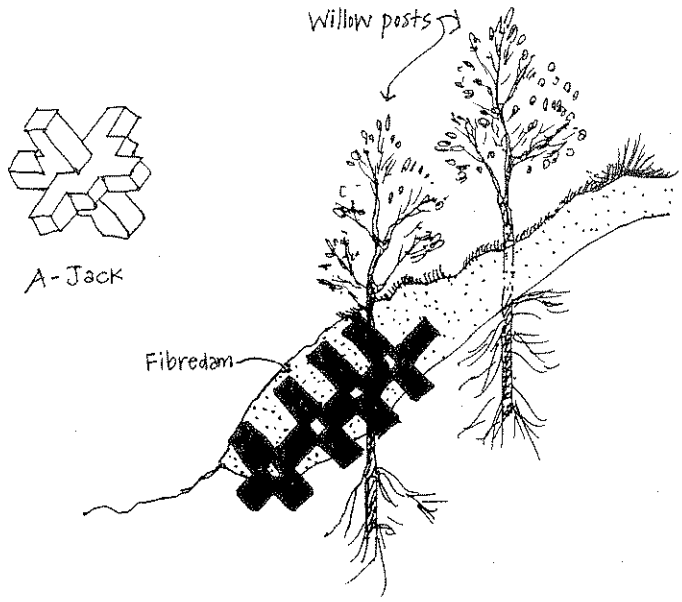
Lunkers are also enjoying wider application in conjunction with their promotion by the Illinois Water Survey.[33, 34] They are boxy structures made of boards and rebar and are often helpful in bank stabilization projects that emphasize improvement of fish habitat. The lunker is placed into an excavated bank, covered with soil, and planted with vegetation. Underneath the bank, the open box creates a cool, deep pool that can provide protection for fish (figure 9.29).

Gabions

Gabions and rock are probably the most commonly overused and misused materials in waterway projects. Gabions are wire cages filled with rock and placed on the water side of stream banks to protect the area from erosion. They are popular because they provide an inexpensive building material that is easy to purchase, transport, and handle. They are often incorrectly installed, however, and, as a result, are frequently blown out of stream banks and scattered downstream. They also have a tendency to be unsightly. However, if they are used sparingly as structures to support revegetation in difficult situations, they can be considered a restoration alternative. The correct use of gabions as a restoration tool involves the proper excavation of the stream bank, the filling of the cages with both rock and soil, and the covering of the gabions with soil and plants.

Gabions are overused because they are inexpensive, are easy to transport and install, and provide a structural fix to a problem. Almost all gabion projects could be replaced with the soil bioengineering methods described above. The only times we have used gabions have been to substitute them for concrete retaining walls in situations where structures inappropriately sited too close to a waterway needed protection. The advantage of a gabion over a concrete wall is that it is a flexible and porous structure and can be planted.

One of the disadvantages of using gabions in urban situations if they are not covered completely with soil and planted is that youngsters like to pick the rocks out of the cages and throw them around as good sport. Also, the wire of the cages is



A-jacks are interlocking concrete jacks (40 pounds) that are more stable than riprap during high intensity storms. Dense root systems of willow, dogwood and other species will intertwine throughout the A-jack rows, creating greater stability.

Illinois State Water Survey Division, Illinois Department of Energy and Natural Resources

A-JACK DESIGN AND INSTALLATION

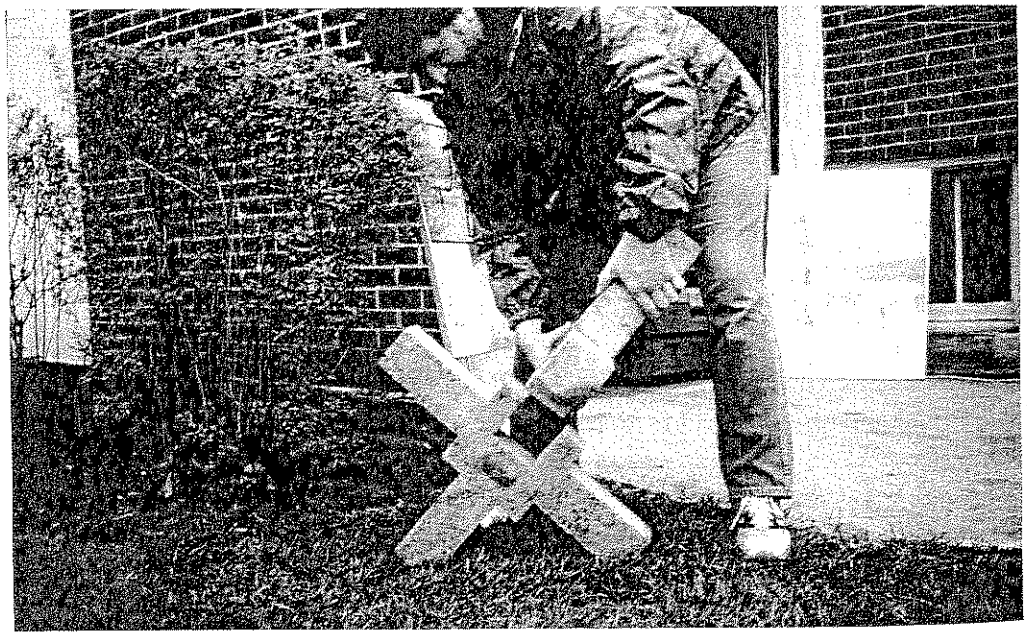
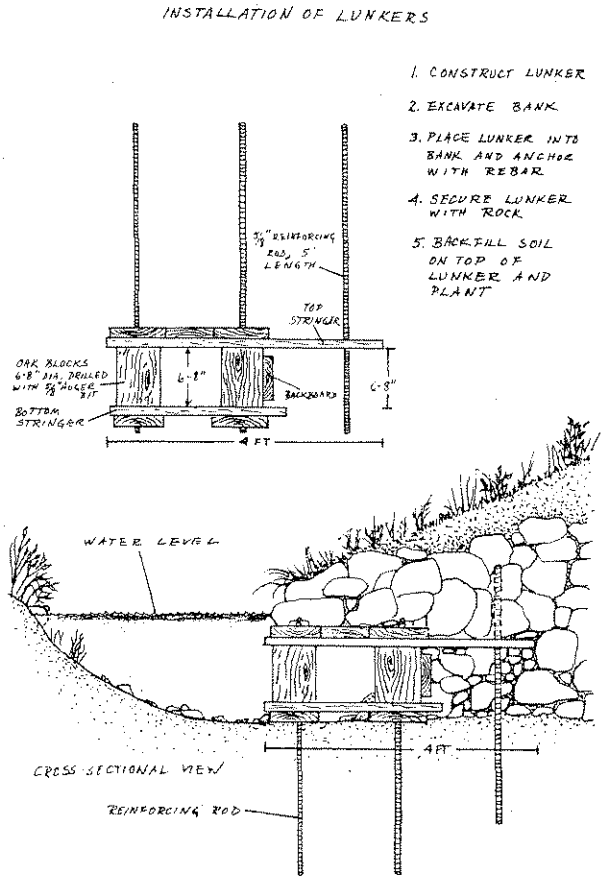


FIGURE 9.28. A-JACKS, INTERLOCKING STABILIZERS FOR TOES OF SLOPES. Two sections form an A-jack.



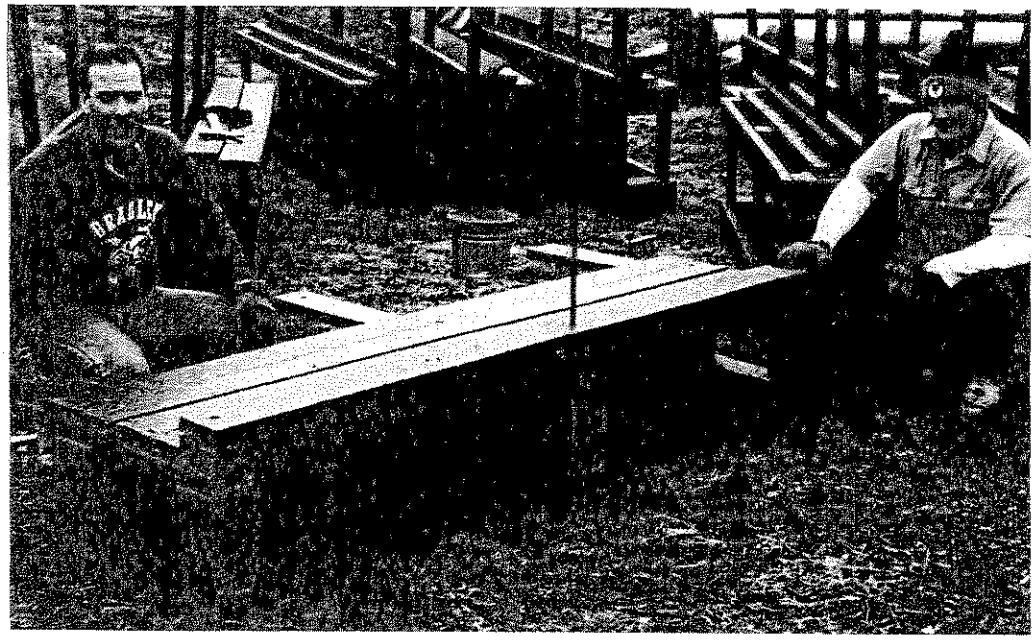


FIGURE 9.29. LUNKERS REBUILD BANKS FOR FISH HABITAT.
Lunker assembly. *Photo credit:* Illinois Water Survey.

vulnerable to decay, particularly in the salt air of coastal cities. And the wire can be cut and vandalized.

These practical problems with gabions in urban settings joined with our objective to restore ecological systems with our projects should relegate the gabion to a rarely used status to revegetate a site. When we do use one, we turn it into a planting medium filled with soil and use it as a structural component to rebuild a slope. After that it should be buried and planted on. A good gabion is an invisible gabion. Follow these steps in using gabions, which are illustrated in figure 9.30.

1. Determine the correct width and depth dimensions for the bankfull channel. Once those are determined, excavate the stream bank being restored so that the gabions fit into the bank without protruding into the bankfull channel.
2. To fill the gabion, start with a layer of rock in the bottom of the cage. Fill the spaces between the rock with soil. Continue these rock-and-soil layers until the gabion basket is filled.
3. When adding soil to the gabion, you should lay cuttings in the soil so that the growing tips stick out the holes of the basket. Also, you can line the inside of the basket with filter fabric if the potential piping of soil on the outside face is an issue.
4. After constructing the gabion in this manner, backfill soil over the top of it so that you can no longer see the basket. You may want to use some brush layering in the backfill.
5. Plant the top of the new slope with cuttings and/or container or tube stock.
6. Water the project after installation.

If the gabion is installed so that it protrudes into your bankfull channel, you may create erosion problems at best or blow the gabion out at worst.

Rock Work

Rocks can be dumped on a stream bank like trash, or they can be carefully handcrafted into aesthetic WPA-style walls that can support vegetation. While such walls are very structural, they too have a role in restoration. We refer to this as rock work, as opposed to riprap. In highly urbanized situations where houses, businesses, and other structures have been crowded next to stream corridors, the meander and movement of the stream are frequently constricted to the point that any natural erosion can quickly threaten a structure. In such constricted situations, a hand-laid rock wall can be built to provide a stable bank.

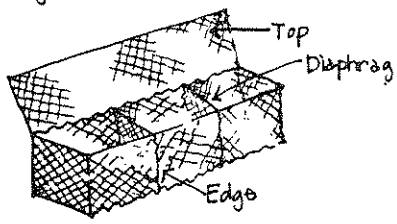
These rock work projects are in some ways a symbol of the 1930s. They were overused then, as they were installed in many situations that did not involve a conflict between eroding banks and structures. In many instances, they were probably make-work projects. The modern-day urban stream restoration movement, however, is making use of this alternative for difficult sites with vertical banks and minimum setbacks for structures. Concrete rubble can be used in place of rock and still look just like a rock wall. The spaces between the rocks or rubble pieces can be

GABIONS

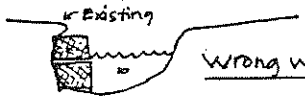
How to use correctly for Restoration Projects

1. Transport in collapsed form

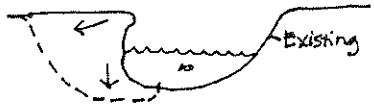
2. Construct into boxes, wiring diaphragms into the centers to add to their structural strength.



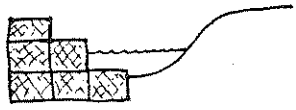
3. Correctly position the Gabions into the EXCAVATED stream bank.



A. Excavate bank back and below streambed



B. Place gabions in slope using steps (the wire boxes)



4. After placing the gabion wire boxes, fill them with soil and rock. To fill the gabion, put a layer of rock on the bottom, then fill the spaces with soil. Put another layer of rock on the soil and then fill soil in around this layer of rock. Continue this rock-soil sandwich until the basket is full. Wire the top down.

5. Place dirt on top of gabions

6. Plant on top of gabions with grasses, shrubs and trees

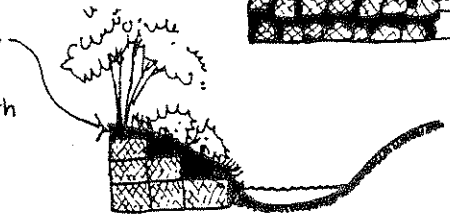


FIGURE 9.30. GABIONS AS RESTORATION STRUCTURES.

planted with cuttings as the wall is constructed. A beautiful, green-growing rock wall can be an aesthetic streamside amenity in an urban setting. It beats sheet metal or concrete any day.

Rock work is distinguished from riprapping in that it entails the careful and artful placement of work by hand along a stream channel. Refer to figure 9.31 for construction steps for a WPA-style rock wall.

1. Determine the bankfull width and depth dimensions of the channel. Excavate the stream banks back 2 feet greater than the bankfull width. Excavate the channel bed at the toe of the bankfull channel below grade about 2-½ to 3 feet. (Larger streams or rivers may require deeper installations.)
2. Starting at the trench at the toe of the slope, lay rock or concrete rubble to start your wall below the grade of the bed of the stream. This will toe-in the project and help stabilize the wall even if the creek is degrading from the impacts of urbanization.
3. When the wall height reaches above the base flows of a perennially flowing stream, add cuttings to the project. Push the butt ends of the cuttings into the stream bank as far as you can. The cuttings need at least 2 feet of soil to root in. Carefully place the rock or rubble on and next to the cuttings so you don't damage them. The cuttings should stick out of the rock wall by 6 inches.
4. To facilitate anchoring the cuttings deep into the bank as you construct the wall, hammer rebar into the bank to create planting holes. Tamp the cuttings gently into the holes.
5. Water the structure when the project is completed.

Log Cribwalls

Cribwalls are another holdover from the 1930s WPA projects (figure 9.32). They have also been widely used on freeways, in mines, and as multipurpose retaining structures. Urban stream restoration groups often use donated logs from utilities or public works tree-removal projects. The stream banks are excavated and rebuilt with a log-cabin–like structure. The structure is filled with dirt, rock, and cuttings so it can support vegetation. Like gabions and rock, this restoration alternative should be reserved for the particularly difficult projects in urban settings that require a substantial structural solution. Consider a wood cribwall as a replacement for a concrete retaining wall.

In one of our inner-city project sites, the cribwall does double duty stabilizing banks and providing safer access to the creek for children than the existing steep banks. Because they are made of logs, they also are an aesthetic addition to an urbanized area or park. As a soil bioengineering alternative, they provide a structure for the reestablishment of plant growth. The most common question asked about cribwalls is How long do they last? This is dependent on the type of wood of the logs and the severity of the climate. Wood cribbing in rainy Northern California has been observed to hold up for over a hundred years. Wood cribwalls that are well vegetated should be considered "temporary" structures in which vegetation provides

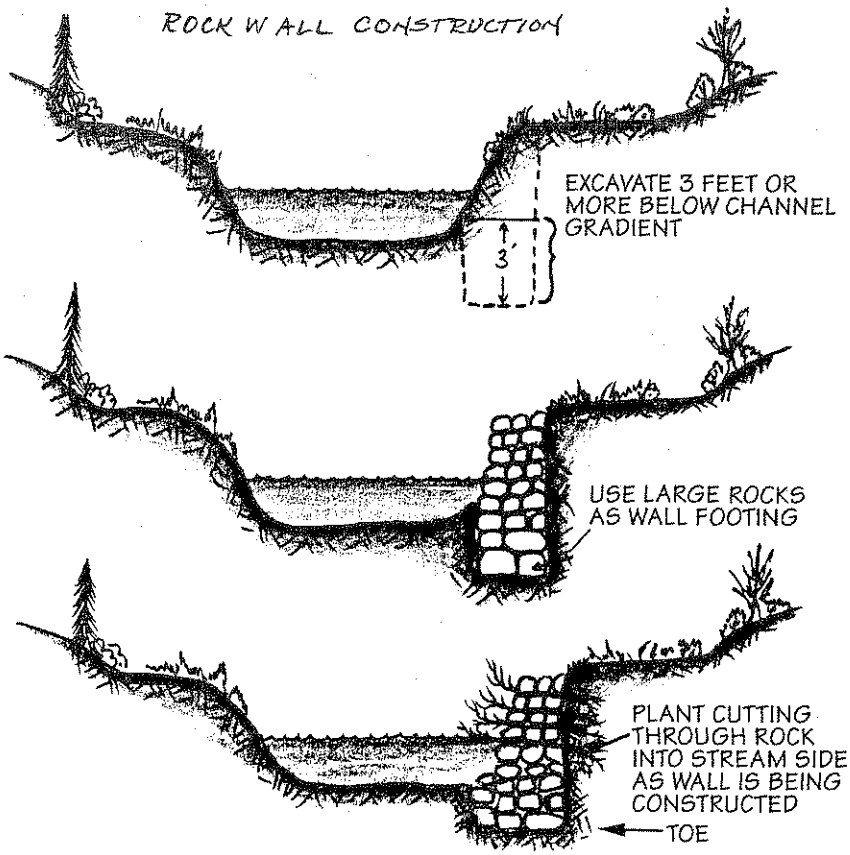


FIGURE 9.31 ROCK WALL CONSTRUCTION.
Construction of planted rubble wall, Glen Echo Creek, Oakland, California.

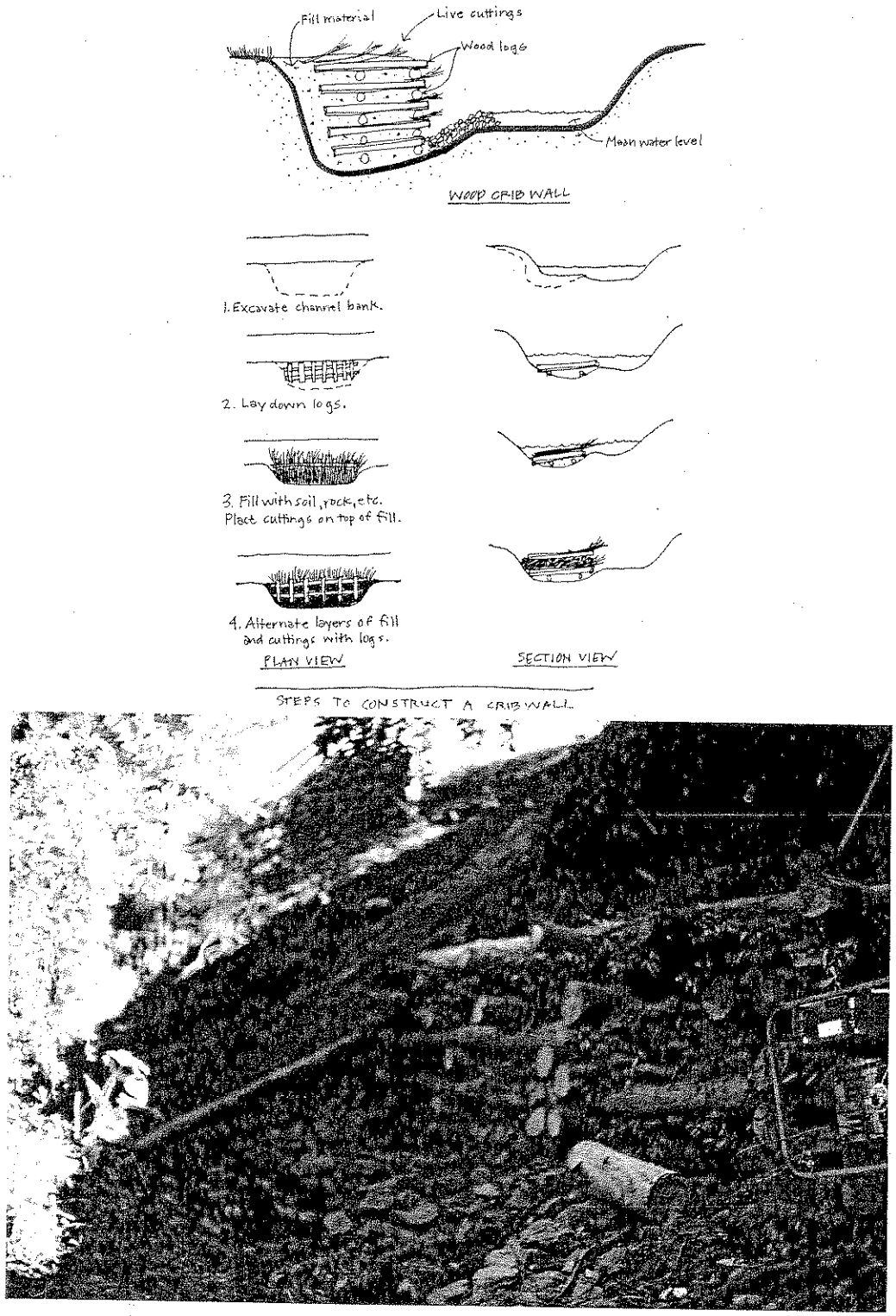


FIGURE 9.32. CRIBWALL CONSTRUCTION.
Construction of cribwall, Courtland Creek, Oakland, California.

the permanent or long-term solution to the bank restoration. Follow the steps listed below (and illustrated in Figure 9.32) to construct a wood cribwall:

1. Determine the bankfull width and depth of the channel. Excavate as much as 10 feet back into the slope from the bankfull channel. Grade the excavation at a slight angle back into the slope so that the logs in the cribwall facing the waterway will point upward. Also, excavate below the grade of the streambed by 2½–3 feet or more to toe-in the project.
2. Lay logs in the excavated area in a log-cabin fashion.
3. Fill the log structure with rock and soil. Place cuttings on the soil and cover with a layer of soil before starting the next series of logs.
4. Water the structure when the project is completed.

The Steps to Designing a Restoration Project for a Degraded Urban Waterway

The following section synthesizes the information this book has presented on restoration, so that if you have successfully absorbed the information this book has presented so far, you will be able to understand these project design steps. These are the steps we use at the Waterways Restoration Institute for daylighting a creek from a culvert and completely re-creating a stream. We also follow these steps to reshape stream channels and meanders that have been substantially impacted by straightening, widening, or armoring with concrete. This design process assumes the worst case: that all the basic components of a stream system—the bankfull channel, floodplain, riparian vegetation, and terrace—require re-creation. The design steps are as follows:

- Determine if your watershed is:
  (a) fully urbanized; (b) undergoing a new phase of urbanization, continuing from past development; or (c) in the beginning stages of urbanization. Use this information in the next steps to determine if it is necessary to design a larger floodplain into your project to absorb the consequences of future channel widening and deepening. For channels expected to undergo more future adjustments, soil bioengineering systems will need to be installed deeper than what I've been recommending below the stream bottom grade and the width of the riparian corridor restoration increased, so that even with some future stream adjustments, a protective buffer of vegetation will remain. Refer to chapter 4 if you need to review the impacts of urbanization on stream channels.

- Develop regional averages for the bankfull widths, depths, and discharges of streams for different-sized drainage areas using stream cross-sections that represent an "urban equilibrium."

- Measure the slope of your project site by dividing the change in elevation by the distance between the upstream and downstream points of a representative

COMMENTS AND RESPONSES

EXHIBIT F

CABRILLO BRIDGE REPLACEMENT PROJECT MITIGATED NEGATIVE DECLARATION (MND) COMMENTS AND RESPONSES.

Aesthetics

Comment

The negative visual impact of construction would be significant. Orange fencing, holes in the earth, and temporary sound walls, would cause a negative visual impact.

Response

Construction sites are typically unsightly but this is temporary and the contractor would be required to ensure that the site looks as visually pleasing as possible during construction. The city would ensure that the site would be properly secured and as neat as possible during construction. Since the impact is temporary and the project would improve the visual appearance of the area when completed, this impact is considered to be less than significant.

Comment

The proposed rock lining of the creek banks downstream of the proposed bridge will be unsightly and a more visually pleasing solution that is environmentally compatible would be preferred.

Response

The proposed project would include the removal of existing sackcrete walls and their replacement with rows of partially to fully submerged boulders that would include vegetation in the sand between and above the boulders. This would be a substantial improvement over the appearance of the existing sackcrete walls. The applicant has investigated methods to reduce the amount of visible boulders using vegetation, shortening the walls and burying as much of the boulder wall as possible. The applicant has explored a number of alternative methods of controlling erosion downstream of the bridge. See the discussion below for more details on which alternatives were considered and why the proposed project was selected.

Air Emissions

Comment

Reducing the number of traffic lanes on the bridge during construction would create vehicular traffic delays and result in increased exhaust emissions in the project area.

Response

The MND states on Page 44 "Therefore, the capacity of the highway over the bridge would be reduced and temporary traffic delays would occur for traffic using the bridge. Given the number of traffic trips currently using the bridge these delays may, at times, be substantial." The project would, during construction, reduce the amount of traffic

through the Cabrillo Boulevard Bridge over Mission Creek by roughly half, since the existing four through lanes would be reduced to two through lanes. The remaining trips would be routed around the project site. When drivers become informed about the construction, they would likely avoid the area and go around it. The project would create delays to traffic and overall exhaust emissions in the area would be increased incrementally. Exhaust emissions in the vicinity of Cabrillo Bridge over Mission Creek would be reduced overall because roughly half of the traffic would be detoured around the area but emissions per vehicle may increase incrementally due to the idling necessary during delays caused by reduced capacity, during construction. The impact of increased traffic delays and emissions would not be significant because they are incremental, would be temporary, and do not exceed the threshold for significance for traffic or air quality.

Biology

Comment

Breaching of the Mission Creek lagoon would have a negative impact on tidewater goby and Steelhead.

Response

The project does not include any breaching of the lagoon and, therefore, the project would not have impacts on Tidewater goby and Steelhead due to breaching of the lagoon.

Comment

The Draft MND states that snowy plover and least terns, could potentially be impacted from noise and vibration resulting from construction activities should these species be located and/or attempt to breed near the project area. The Noise and Vibration Study included as an appendix to the Draft MND concludes that construction of the project, particularly pile driving, could result in significantly elevated noise and vibration levels in the area surrounding the project. The MND concludes that increased vibration and noise levels could impact sensitive bird species, particularly if they have established nests or are breeding in the area. The Draft MND includes measures to mitigate this potential impact by requiring pre-construction surveys within 100 meters of the project to identify any sensitive species potentially impacted by the project. If sensitive species are found, the City is then required to stop work and develop a program for protection of these species. Given the substantial noise and vibration that may result from construction activities, our staff question whether a 100 meter survey adequately protects sensitive bird species in the area. The City, with the guidance of a qualified biologist or environmental specialist, should analyze whether nesting sensitive bird species over 100 meters away may be impacted by noise and vibration resulting from construction of the proposed project. What are the noise and vibration levels that may impact nesting bird species? How far away from the project area will pile driving and other construction activities produce these levels of noise and vibration? If there is a potential for impact, the City should either consider expanding the survey area for pre-construction avian surveys or implement additional mitigation measures to protect sensitive bird species in the area.

Response

Western snowy plover do not nest or breed in the study area. There are no records or documentation supporting this activity occurring in, or adjacent to, the project site. Plovers may forage in the area; however, due to the existing level of disturbance in the area, they are rarely seen at this location.

The United States Fish and Wildlife (USFWS) critical habitat status for Western snowy plover, in the project area, was removed in November 2005. The USFWS definition of critical habitat is the following: "Any habitat of listed species which is considered "critical" to the species survival and recovery." Designated critical habitat contains those physical or biological features considered essential for the conservation of the species that may require special management or protections." Therefore the USFWS currently has determined that this area is "not critical" to the plovers' recovery and or survival. Additionally, recent regular monitoring efforts by the City for other beach-front related projects further validate that the plovers are generally in the East Beach area and that plovers are rarely found near the project area (Cabrillo Bridge), due to the high concentration of human disturbances.

The potential for nesting plovers in the project area is extremely low; therefore, no impacts to nesting snowy plovers are expected. The project schedule has intentionally avoided pile driving operations during western snowy plover breeding season. This measure is a supplementary cautious avoidance measure because no nesting plovers are expected. Pile driving operations are estimated to be the "dominant source of noise on the project, and the construction plan calls for nearly all pilings to be inserted during Stage 1" (Channel Island Acoustics, Cabrillo Boulevard Bridge Replacement Noise and Vibration Analysis, Dr. Bruce Walker, March 22, 2006). Western snowy plover breeding season is March through September. The majority of pile driving activities are expected to occur between October and December 2008, with the remainder to be installed in Stage 3- September- December 2010. Both timeframes are outside the breeding season. Therefore, the exposure to the dominant construction noise vibration will not occur during breeding season, and is highly unlikely to cause impacts to nesting plovers.

There is no existing official noise and vibration threshold determined for Western Snowy plovers, and there is limited information on noise and/or vibration threshold levels for bird species in general.

Based on available information, the lower limit noise threshold that is considered likely to affect plover behavior (i.e., the disturbance threshold) is in the range of 60-70 dB, and the value that would likely approach the species' injury threshold is >90 dB. The range between the disturbance threshold and the injury threshold likely would most likely constitute an intensification of behavioral stress.

The 80dB and 85dB noise contours for pile-driver impacts indicate that potential plover habitat in the lagoon vicinity will be subjected to noise levels that could result in a take of plovers. Specifically, at a distance of 250 feet from the point source, the noise level would be approximately 85dB, and at 500 feet the level would be approximately 80dB.

As defined in the federal Endangered Species Act, the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [16 USC, Subsection 1532(19)].

This assessment of take of plovers as a consequence of project construction assumes the following two conditions: (1) that an incidental occurrence of individuals has taken place during the construction period (which as stated above, is not a predictable event); and (2) that take would be in the form of harassment, implying that species behavior would be affected (i.e., stress) and/or they would be compelled to relocate from the impacted area (i.e., displacement). No take in the form of mortality (i.e., nest eggs and/or young abandonment) is considered likely, at this time, as a consequence of project construction because they are not expected to breed in this area and surveys to determine their presence that would trigger halting construction are proposed.

Based on noise and vibration data related to a "presumed" 60 -70 dB disturbance threshold for Western snowy plovers, URS biologists recommend a wider radius than originally identified in the MND for the presence or absence clearance surveys during pre-construction monitoring efforts. The original distance identified was 100 meters (328 ft) radius; URS Biologists now recommend a 500 foot radius. The mitigation measure has been revised to have a 500 foot requirement as follows:

> A daily clearance survey for the presence or absence of western snowy plovers, within a 500 foot radius of the site, shall be performed prior to construction each day. If plovers are found within this radius, and pile driving activities are expected, work shall stop until the bird relocates itself, or work will be relocated to another area of the site outside of the 500 foot radius area. If plover nests and/or plover protective nesting habits are observed within a 500 foot radius on the beach during breeding season (March-August), further surveys may be required. If plover disturbance behavior is observed within the 500 foot radius on the beach during construction activities, the qualified biologist on-site will have the authority to further evaluate the behavior, and/or determine if any action needs to be taken including requiring a stop work order until relocation has occurred.

Comment

The project would require the full dewatering of a portion of Mission Creek for a period that could extend up to 6 months. During this time, Mission Creek would be diverted through a 3-6 foot wide flume that will run through the center of the creek channel. According to the Draft MND, it is expected that water velocities within the flume would be higher than the existing channel. Mitigation measures included in the MND, therefore, require the placement of one or two clean gravel bags or a small pile of cobble every 10 feet inside the flume to provide refuge for aquatic species. While the Draft MND and associated biological studies describe the purpose and design of the diversion, the Draft MND and associated studies do not provide an analysis from a qualified biologist as to whether the design of the diversion will, in fact, provide adequate and

suitable conditions for tidewater goby, steelhead trout, and other fish to pass through the construction area.

Response

URS, the project biologists, gathered and evaluated data about the flow velocity within the flume and the conditions for tidewater goby, steelhead trout, and other fish to pass through the construction area during summer construction time. URS biologists believe the anticipated conditions for flows within the "flume" will be adequate. The high range of variability in flow and fluctuating water levels during normal summer conditions at this location are unpredictable, and not always optimal. However, the presence of continuous populations in these natural conditions show the level of adaptation possible for the goby.

Based on the available information and discussions with local experts, many studies of fish swimming speeds closely correlate the size of the fish and the swimming speed; larger fish can swim faster than smaller ones [Dr. Camm Swift. Biologist (Tidewater Goby expert), memorandum May 21, 2007]. Therefore, adequate flow velocity for tidewater gobies may range from 1.2 feet per second (fps) to 2 fps depending on the size of the goby and the length of the passage. Ideal velocity through passage structures requires a provision for 1fps in the wetted channel. As long as provisions are made for a 1 fps continuous flow through some portions of the passage device, the flows calculated within the flume would be considered acceptable.

Substrate roughness locally slows the water velocity near the bottom and margins of the channel. The project description includes placement of sandbags and/or cobbles and gravels along the bottom of the flume. This would reduce velocity and provide refuges for fish to rest when flows are higher. For steelhead trout, a large fish species, the adequate flow velocity is approximately 3 fps. Based on the hydraulic calculations for the project (Bengal Engineering memorandum dated May 10, 2007) and the information on swimming speed velocities for fish of various sizes, the velocities predicted within the flume appear to be suitable and adequate for the steelhead and gobies to travel between the upstream estuary and the lower estuary, according to the URS biologist. Also, the gobies may choose to use the flume when velocities are lower and there are substantial windows of opportunity when the flows are expected to be lower.

According to the hydraulic calculations from Bengal Engineering, the flow velocities inside the flume during summer flows will be above 3 fps 15 - 25% of the time line. The overall range in the flume during summer construction period will vary from 0-7-fps, which represents the higher flow occurring during more extreme tides. The lower velocities are associated with the relatively low and static summer flow of the creek. The majority of the time, the flume would be retaining the summer flow of the creek. Summer flow velocities through the existing channel currently vary from 0-5 fps. (Bengal Engineering, memorandum)

Tidewater gobies are known to favor slow moving water and "seldom enter fast moving water such as riffles, falls or chutes" (Camm Swift memorandum May 21, 2007). Their

presence in all reaches of Mission Lagoon is well documented, especially in recent years due to three years of monitoring completed by the City Park and Recreation Creeks Division.

No rise in turbidity and/or creek bed scour is expected due to the placement of the flume during the summer because of the relatively low flows that are expected to occur during this period.

Comment

Please clarify whether the biological survey included delineation of all wetlands or riparian areas as defined by the California Coastal Act. If no such survey or delineation was conducted, the City should undertake a delineation or survey of the project area to ensure that no "coastal act wetlands" may be impacted by the project.

Response

The previous biological survey did not include all wetland or riparian areas as defined by the California Coastal Act. Therefore, supplemental surveys were performed on May 9, 2007, by URS Biologists to determine Coastal Wetlands as defined by the California Coastal Commission.

The entire aquatic surface area of the lagoon at its maximum high water extent, plus any adjacent wetland, can be interpreted to represent a jurisdictional coastal wetland according to the definition. Within the project limits, the area of jurisdictional coastal wetlands that was observed in the field on May 9, 2007, is depicted on Figure A and includes 0.967-acre.

The frame-of-reference for assessing impacts to coastal wetlands is focused on the 0.967-acre of wetlands occurring within the project limits because construction activities will be limited to that area and no impacts to coastal wetlands outside the project limits are anticipated to occur. Within the project limits, installation of the cofferdams would temporarily impact an estimated 0.888-acre of coastal wetlands. However, project design and project design mitigation measures outlined in the MND, as amended, would result in less than significant impacts.

Comment

The project will result in a decrease in the numbers of Rare, Threatened or Endangered species (tidewater gobies, steelhead, southwest pond turtle, and snowy plover); therefore, an Environmental Impact report is required.

Response

The project design and construction strategy together with the mitigation measures required in the MND, as amended, are designed to avoid any take of sensitive species. While the project could result in the incidental take of individual gobies, the project will not jeopardize the species. Inadvertent take is possible during a project of this scope. Consultation with NOAA fisheries biologists and the biologists preparing the technical studies for this report indicate that the project impacts would not jeopardize any sensitive

species. Goby populations fluctuate a lot depending on environmental conditions and the time of year. The project includes mitigation that would minimize the harm to the gobies and steelhead and could, altogether avoid any take of the species. Since the project is not expected to result in a significant unavoidable effect on any biological community, preparation of an EIR is not necessary.

The CEQA Section 15065 referred to in this comment is outdated.

Based on the current language of CEQA Section 15065, the word "substantially" has been added in front of the word "decrease" as highlighted below.
15065. Mandatory Findings of Significance

> (a) A lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur:
>
> (1) The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels,; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory.

The project impacts referred to in the MND, (page 23) cannot be interpreted as a "substantial decrease" in numbers, or a substantial restriction of the range for the species. The draft Natural Environment Study (NES) prepared by URS Corporation clearly states the following: "If all avoidance and minimization measures (contained in the NES December 2006) and compensatory mitigations are followed, along with incorporation of pre- and post-construction monitoring requirements, no substantial temporal or cumulative adverse impacts will occur. Further, no federal, state, or candidate plant or animal species will be substantially temporarily or permanently impacted."

Additionally, a Fall 2004 issue of Association of Environmental Professionals Environmental Assessor publication, (Volume 13, Number 4) indicates the addition of "substantial" to the pre-existing CEQA Section 15065 in the following manner: "Section 15065 has been a part of the CEQA Guidelines for decades – even predating the concept of mitigated declarations and the Endangered Species Acts. This amendment modernizes the section by providing that an EIR is triggered when a project would "substantially" reduce the number or restrict the range of an endangered, rare or threatened species. The prior guideline was triggered by any reduction or restriction, not simply a "substantial" one."

Comment

The MND analysis of Steelhead is factually inaccurate and is therefore flawed. Steelhead migrate in early winter beginning in December, when pile driving would be in progress in

the creek. Lagoons play an important role in steelhead development, especially in Southern California. The MND downplays this role for Mission Creek Lagoon.

Response

URS contacted local steelhead experts (Craig Fusaro and Mark Capelli, NOAA/NMFS) to discuss the issue of potential use of the lagoon during the summer for steelhead juveniles. Currently there are no local studies or reports that prove or disprove the use of the lagoon by juvenile steelhead during the summer. What is known is that steelhead do use the lagoon and estuary for transport corridors as is evidenced by their presence in the upper watershed.

The analysis in the NES is based on commonly accepted data for local steelhead migration patterns. However, no absolutes can be guaranteed on individual's migration start and end date, nor can the length of stay be documented. Migration upstream could occur as early as November.

The MND does not downplay value to juvenile steelhead related to estuary over summering, and the Bond is was cited to show studies indicating that steelhead juveniles summering in lagoons have higher numbers for survival. However, the issue of summering steelhead in lagoons was not highlighted in the MND because the issue related to the lagoon during the summer season was the ability to provide appropriate and adequate passage for fish, including steelhead during the flume installation.

Hazardous Materials

Comment

The risk of accidental release of hazardous substances is misclassified as "Potentially Significant, Mitigable." The project does not include an "emergency response and clean up plan" as required by LCP Policy 6.11-C.

Response

The release of hazardous substances has the potential to be significant since it could lead to impact on sensitive species or even the extirpation of sensitive species that reside in the creek and lagoon. Mitigation is therefore required to minimize this impact. This project impact is therefore correctly classified.

The mitigation measures in the MND include an extensive Storm Water Pollution Prevention Program that includes extensive measures designed to protect water quality in the event of a chemical spill. This program is more inclusive than an "emergency response and clean up plan" and so the project is consistent with the subject policy and the project has adequately mitigated the potential for emergency spills of hazardous materials.

Hydrology

Comment

Provide clarification of the accuracy of the assertion in the Bengal Engineering Hydrology Study that Mission Creek floodwaters drain through the San Andres neighborhood.

Response

The text has been revised to delete the assertion that Mission Creek floodwaters drain through the San Andres neighborhood.

Comment

Would the proposed flume cause an increase in erosion during construction because it increases the flows in the fume and higher flows cause more erosion?

Response

The hydraulic performance of the proposed flume during construction will depend on the summer flow of the creek, tide level and development of the natural sand berm at the beach. A portable cofferdam with fabric membrane may be used to construct the flume for the project during low flow conditions. Hydraulics parameters of the flumes of various sizes are shown in Attachment A.

The Lower Mission Creek Flood Control Project (LMCFCP) project considered 100 cfs of flow during dry season for the hydraulic analysis of the channel. The creek may also experience much lower flow during summer season. Flow velocity through the existing channel varies from no flow to 5-ft/sec during the summer season. It is anticipated that flow velocity through the flume will be more than 3-ft/sec about 15% to 25% of the summer construction period.

During high tide, ocean water will flow up the channel through the flume as long as the hydraulic gradient permits. The flow will pond upstream of the flume combining with the creek flow from upstream. The upstream water level will recede as the hydraulic gradient changes to the opposite direction due to the tidal change.

The ocean water level fluctuates gradually due to tidal effect. It is anticipated that during the dry construction season proposed flume sizes will accommodate the tidal changes and upstream low creek flow. The flow velocity through the flume is expected to vary from no flow to 7-ft/sec. No rise in water turbidity and creek bed scour is expected due to the placement of the flume during summer construction.

Substantial erosion would not be anticipated because the creek bed is largely rock pebbles that would not likely erode due to the installation of the flume. Also, the flume bottom could be a plastic sheet which would further reduce erosion.

Comment

Will widening of the creek and installation of vertical concrete walls potentially impact sediment delivery to the lagoon, scouring of the creek channel, and erosion and/or sediment conditions in the lagoon?

Response

After construction the project would slightly decrease velocity during high flows. This change in velocity is insufficient to increase erosion or decrease sediment transport of the channel. This amount of change in velocity is insufficient to increase erosion according to Bengal Engineering, the bridge engineers. The creek banks upstream of the bridge would be replaced in the same location as the deteriorating heavy timber walls currently exist and so would not result in a substantial change in the creek's velocity. Long term erosion associated with the banks upstream of the bridge would be reduced because the deteriorated wall would be replaced with a wall that would reduce erosion substantially.

Noise

Comment

Increased delays for traffic due to project construction would increase noise levels in the project area.

Response

The impact of construction traffic noise was analyzed in the MND and Noise Study. As stated on page 36 of the MND "Project construction traffic noise increases are a small fraction of a decibel at all locations except immediately at the edge of the roadways designated for truck traffic." The impact of construction traffic noise was analyzed. The MND goes on to explain that overall the project traffic construction noise impacts would be temporary and minimal.

Recreation

Comment

The art show space I have been using to sell my work will not be available to me during bridge construction and would result in an economic hardship.

Response

As indicated on page 42 of the MND the project would ensure that all currently accommodated artists and artisans would continue to be accommodated, during construction. However the location of the space allocation may change since during construction there will be the temporary loss of 12 spaces. Artists and craftspeople using these spaces would be accommodated elsewhere at the event.

Comment

Can my existing Arts & Crafts Show spaces (49-52) be used during construction?

Response

Spaces 49-52 will be in the construction area and would not be available to the current user. Existing arts and crafts space tenants will be allocated a new Arts & Crafts Show space during and after construction.

Comment

Will an alternative art show space be provided to those whose spaces are displaced during construction?

Response

Yes. As stated above, alternative art show space would be provided to those whose spaces are displaced during construction.

Comment

Please use the terms "artists" or "artisans" instead of vendors and the term "spaces" instead of "stalls."

Response

The MND text has been revised as requested.

Comment

Temporary displacement of artists would cause a significant effect because the artists and artisans may choose not to sell their wares at the Santa Barbara Arts and Crafts show because public attendance will be reduced due to project construction.

Response

The project is keeping two lanes of traffic open to minimize reduction of public attendance. Some artists and craftspeople may choose to sell their wares elsewhere. This would likely be temporary. Although traffic detours will occur and artists will be relocated, construction will not be scheduled on Sundays and holidays when the Arts and Crafts Show is taking please. The City will also provide additional signage directing drivers through the waterfront as well as other advertising efforts in local media.

Comment

Parking access to show members may be affected causing show participants to drive further, which would be a significant effect.

Response

There would be loss of six parking spaces during construction (see MND page 45) and parking is available across the street from the Arts and Craft Show. Therefore, a small number of people (up to 6) may have to park across the road during construction. Six vehicles traveling across the road would not cause a significant traffic impact.

Comment

How many artisans and artists would be displaced by the project construction?

Response

As indicated on Page 42 of the MND, an estimated 12 artist/craftsman spaces would be displaced during construction.

Comment

Visitor attendance at the show would be reduced because visitors and pedestrians tend to avoid construction sites. The reduction of income due to decreased business would lead many of the show participants to travel to different locations outside Santa Barbara to sell their products and this would cause a significant effect. The City must compensate the affected arts and crafts participants for income lost due to project construction.

Response

There may be a reduction in the number of pedestrians and visitors in the project area but the Arts and Crafts Show will still be open and the artists and artisans who are currently accommodated will continue to be accommodated. The Arts and Crafts Show occurs on Sundays and the project would not include construction on Sundays. Therefore, the only aspect of the project that would likely influence the number of visitors on Sundays would be the presence of a largely idle construction site (dewatering pumps would operate and monitoring would occur on weekends) and a partial detour around the site would be available. Also, the project is expected to last for about 21 months so the potential for the reduction of visitors/pedestrians would be temporary.

As indicated by the California Environmental Quality Act Guidelines Section 15131, "Economic or social effects of a project shall not be treated as significant effects on the environment." Nevertheless, the City is committed to assisting the artists and artisans to deal with the project effects on their business by providing information to the public on construction activities, signs directing traffic and public information regarding the Arts and Crafts Show, ongoing public activities and businesses in the area. As discussed in other responses, the Contractors would be required to keep the construction area in a visually presentable condition, as much as possible during construction. After construction, the site appearance would be better than it is now. Funds have been set aside to advertise the art and craft show during construction to counteract the potential for reduced attendance by the public at the Arts and Crafts Show.

Traffic

Comment

Reducing the number of traffic lanes on the bridge during construction would create delays for vehicular traffic and result in backing up of traffic to railroad crossings at State Street, Anacapa Street, and Garden Street. During construction, traffic should be monitored and queuing through the railroad crossings should be mitigated.

Response

It is possible that project construction would result in vehicular delays that would occasionally back up to the railroad crossings at State Street, Anacapa Street, and Garden Street. The project would include a construction traffic routing plan that would include monitoring traffic during construction and precautions to ensure that vehicular traffic is not trapped at any railroad crossings. The traffic control plan would include a detour from Cabrillo Boulevard to Garden Street to Yanonali Street to State Street and back to Cabrillo Boulevard. It would also include monitoring of traffic and, when traffic queues begin to build to the extent that they approach the affected railroad crossing, increased police presence would be ordered at the appropriate railroad crossings to deter illegal entry into the crossings. Electronic and other detour, warning signs, and an internet blog site for the public to obtain information on project construction detours and delays would be provided during construction. The railroad crossings are all guarded and warning lights are provided to minimize the amount of vehicular traffic stationary over the railroad crossing; therefore, minimizing the risk of a collision between a vehicle and a train.

Alternatives

Comment

The MND does not provide a discussion of alternatives to the rock revetments downstream of the proposed bridge. Rock revetments should not be placed except immediately around the bridge abutments and for 20 feet south of the new bridge.

Response

MNDs are not typically required to consider alternatives. However, several alternatives were considered during the planning process. The applicant has consulted with restoration specialists and a hydrologist and has evaluated alternative means of protecting the downstream bridge abutments and adjacent park improvements, including the bike trail facilities that provide public access to and along the coast. Alternatives considered but rejected included using piles and concrete panels to replace the sackcrete walls, reducing the length of the downstream erosion controls, revising the location of the walls, reducing the steepness of sandy banks, and using vegetation alone to minimize erosion. The piles and concrete panels were rejected because of poor visual appearance.

Constraints to locating and designing a downstream erosion protection are that the creek flows must be directed away from Stearns Wharf and that they must be in a location to protect the proposed bridge and adjacent park improvements, including the multipurpose trail that provides public access to and along the coast. The downstream erosion protection must also provide sufficient protection for the bridge abutments during large flows and high tides with surf. The applicant has revised the design and location of the downstream bank improvements. Native riparian vegetation, in combination with mostly buried large ungrouted boulders, and use of bioengineering techniques such as coconut fiber erosion control mats, would be incorporated into the plan. Problems presented by the high salinity of the soils, constantly changing beach configuration, the granular unconsolidated nature of beach soils, and the presence of non-native invasive species

adjacent to the restoration area, including crab grass, severely restrict the number of native plants that can survive in the area and provide erosion control to protect the adjacent bridge and park area.

Downstream of the bridge, the City has developed additional alternatives (See Figures B and C) to replacing the existing sackcrete wing walls with a 1:1 (horizontal to vertical) slope of large boulders partially buried in the beach sand behind the existing wall. Calculations by Bengal Engineering indicate that the lagoon banks would be stable at a 3:1 (horizontal to vertical) slope, under static submerged condition. The slope face would require protection against stream flow and wave action, however.

The west bank of Mission Creek would not have sufficient room to install a 3:1 slope without removing an additional 15 foot of park area including access to and along the coast (the project already uses about 20-25 feet of the park to install the erosion protection as originally planned and this alternative would add another 15 feet to that). However, there is sufficient room to install a 1:1 (horizontal to vertical) wall of roughly 500 pound boulders (less than 2 feet in diameter) for a distance of about 110 feet. These boulders would have sand and estuary grasses in the void space between the boulders. From the top of the boulder wall to a six-inch wide concrete park lawn barrier curb would be a 10 foot wide planting of native riparian plants that can withstand salinity, granular/shifting soils, and provide some erosion protection. This area may also include natural erosion control such as cocoanut fiber blankets. The boulders would extend up to an elevation of a minimum of 8.6 feet above sea level (extreme high tide would be at 8.6 feet above sea level).

On the eastern bank of Mission Creek down stream of the bridge a 1:1 slope wall made up of 500 pound boulders would be constructed behind the existing sackcrete wing wall. This wall would be approximately 130 feet long (shorter than the existing sackcrete wall or the originally proposed rock replacement wall that would be as long as the 160 foot long sackcrete wall). The wall would be buried about half way between the existing sackcrete wall and the bicycle/pedestrian path and would extend from the bridge abutment (See Figure C). After the sackcrete wall is removed the area behind it would be graded to a slope of 3:1 from the bottom of the wall toward the new buried boulder wall. Estuary grasses would be planted on this slope. The new wing walls are necessary to protect against erosion and are the minimum necessary to adequately protect the new bridge and adjacent infrastructure.

Comment

The question of whether the project proponent considered closing Cabrillo Bridge over Mission completely during construction and compressing the construction schedule as much as possible to minimize impacts on the public (especially from traffic) was raised. Also, could the bridge be closed permanently?

Response

The closing of the entire bridge during construction was considered and has been rejected for the reasons provided below.

Closing the bridge completely to allow for more efficient construction and possibly a shorter construction schedule, depending on unforeseen considerations such as creek flow etc., was considered. If it was possible to work 24 hours per day seven days a week, construction could be completed in less than a year, if everything went as planned. However, there are several issues related to closing the bridge completely. There are hotels in the area that would be impacted by the nighttime noise. More importantly, if things do not go as planned during construction, which is common on large construction projects, then the bridge could be completely closed for a longer period of time, even longer than the planned 21 month construction period that keeps two lanes open (one in each direction). The amount of time would depend on the difficulty encountered or if several smaller difficulties are encountered. Some of the potential problems include an unusually short dry season or long wet season(s), or finding something unexpected beneath the ground surface such as archaeological deposits and hazardous materials or underground tanks. Therefore, there is substantial risk of closing the bridge entirely and attempting to shorten the construction schedule and the time saved is not sufficient to justify the risk

Closing the bridge entirely would also mean that all of the traffic, 23,000 ADT in 1999, would need to be rerouted. There is insufficient room to construct a temporary vehicular bridge adjacent to the existing bridge, during construction as there is insufficient room to accommodate the bridge and temporary road to access it on the west side. Therefore, this traffic would need to be diverted onto surface streets in the area. This would likely cause substantial traffic delays in a number of locations and cause noise and air emissions on area streets.

The proposed project construction traffic plan would ensure that one lane in each direction is open over the bridge at all times during construction. The westbound left turn lane from Cabrillo Bridge to the Stearns Wharf would be closed for construction. In addition, a detour would be signed and advertised. A computer connected to the internet will allow the public to view the situation on a video camera and select an alternative route to avoid the bridge area. The detour would route traffic on existing routes. The proposed detour route is from Garden Street along Yanonali Street to State Street.

Permanent closure of the bridge would have similar impacts to the temporary closure of the entire bridge except that traffic would have to be routed around the site permanently, adjacent local roadways that are narrow would experience higher levels of traffic, there would be long term disruption to area neighborhoods, and emergency access would be permanently affected. Public access to and along the beach would be severely curtailed.

Comment

Consider the alternative of relocating the bridge.

Response

Cabrillo Boulevard is functionally classified as a Principal Artery for the City of Santa Barbara. It forms a major entryway to the City of Santa Barbara waterfront, providing

access to and along the coast. In addition to pedestrian and bicycle traffic, the existing bridge carries 2-lanes of vehicular traffic in each direction with an additional turn lane. The structure is within 60-feet of the State Street intersection with Cabrillo Boulevard. Sufficient space is not available between the existing bridge and the intersection to accommodate a new bridge in an adjusted alignment. Also moving the bridge to the south, would still require similar construction and result in similar impacts to the area because the resources to the south are just as sensitive (if not more so) as those found at the location of the proposed bridge replacement.

Comment

Please consider a range of alternatives including repairing the existing bridge.

Response

The structure will eventually be closed to traffic and ultimately be removed if no repair work is done. Repair options for the bridge will require augmentation of the bridge girders, slabs and foundation systems. The existing bridge hydraulic conveyance is limited to about 20-year flood conveyance of the Mission Creek. The bridge structure repair will restrict flood conveyance even further than current restrictions because the existing structure would need to be reinforced. Biological impacts would occur each time the bridge is repaired because workers would need to work in the creek bed and may need to dewater the area. This is expected to occur every 10-15 years and is estimated to last approximately one full summer each time. The creek banks upstream of Cabrillo Bridge would not be part of the repairs of the bridge and would be implemented separately, as a part of the Lower Mission Creek Flood Control Project. Separate construction of the creek banks upstream of the proposed bridge together with the multiple periodic repairs to the bridge would mean that there would be much more frequent construction in Mission Creek that would have far greater impacts than the proposed project. This is because each repair would be similarly invasive and would result in impacts due to dewatering of the project area. The multiple shorter interruptions of the creek would cause greater potential biological, visual, and recreation impacts than the proposed project and was therefore rejected.

Comment

The MND should discuss the need for the project for public safety or to protect the environment. Specifically, the City should provide detailed information on the flood history of the area, existing structures that are potentially threatened, and information on how the project will improve flood capacity.

Response

The proposed bridge replacement would ensure that public access to and along the coast is maintained with the minimum of environmental impacts. As discussed below, the primary purpose of the project is to replace a deteriorating bridge before it is weight restricted and ultimately collapses; the increased hydraulic conveyance is a byproduct of the design intended to minimize environmental impacts. Replacing the bridge would ensure that public safety is protected because an evacuation and emergency access route is kept open. Also, there will be a small decrease in flooding upstream as a result of the

increased conveyance that is also protecting public safety from flooding. The project also constructs a small portion of the Lower Mission Creek Flood Control Project. Flooding and project feasibility issues are thoroughly discussed in both the Feasibility Study and the certified Environmental Impact Statement/Environmental Impact Report, as well as other documentation provided to the Coastal commission and the Public.

Comment

The City should include an alternatives analysis that considers non-structural flood control alternatives including flood plain management, flood proofing, and relocation of threatened facilities.

Response

Although the project would improve hydraulic conveyance under Cabrillo Bridge down Mission Creek, the main reason for replacing the bridge is to prevent the bridge from collapsing and ensuring that existing public access to and along the coast is maintained. This would also ensure that emergency access in the area is adequate and public safety is protected. The project was designed to minimize impacts on the creek environment. A part of the design includes a longer bridge that allows the piles on the edge of the bridge to be installed outside of the creek bed in the existing banks and for the new bridge abutments to be constructed behind the existing abutments so that construction within the existing creek banks is minimized. This has the ancillary benefit of widening the channel between the abutments. Also, the project includes one row of aligned piles to replace two rows of misaligned piles, improving the hydraulic capacity of the bridge. Widening the abutments, realigning the piles and installing fewer piles have the effect of increasing the hydraulic conveyance of the project. Therefore, there are no non-structural flood control alternatives including flood plain management, flood proofing, and relocation of threatened facilities.

Comment

The Tidewater Goby Management Plan requires that the construction in Mission Creek maintain the separation of Mission Creek and Laguna Channel Lagoons. It is not clear that the project is consistent with this provision of the plan.

Response

The project would maintain the condition of the Mission Creek and Laguna Channel lagoons encountered when the construction is initiated. If they are merged, they will remain merged. If they are separate, they will remain separate. The construction of the proposed project and dewatering the creek would not alter the configuration of the lagoons. In implementing the project, only the wing walls and coffer dam to dewater the site would be constructed south of the bridge and this would not change how the lagoons merge.

Comment

The Tidewater Goby Management Plan requires that the construction in Mission Creek ensure that no more than half of the lagoon upstream of Cabrillo Boulevard is dewatered at any time. How much of the creek would be dewatered at any one time in that area?

Response

URS Consultants estimates that approximately 30% of the Mission Creek Estuary above Cabrillo Boulevard would be dewatered to facilitate project construction. Therefore, the project is consistent with the Tidewater Goby Management Plan.

During the dewatering activities, the incorporation of a diversion channel will provide uninterrupted and continuous flow to occur through the dewatered construction areas thereby creating a viable transportation corridor between the upper, middle and lower estuary areas. The diversion channel will also allow for the fluctuating ocean levels to flow upstream and/or recede from regular diurnal tidal effects. The diversion channel will be created by the installation of a "flume" (created by portable cofferdams temporarily narrowing the existing flow channel).

Policy

Comment

The project violates various policies for the protection of the environment.

Response

Exhibit B of the MND includes a list of applicable policies. Pages 15 and 16 of the MND include a discussion of project consistency with the policies listed in Exhibit B. The policy that requires preservation and enhancement of critical biological resources is interpreted by the City such that overall the habitat is preserved and enhanced. Therefore, some short-term construction-related impacts to the deteriorated habitat would occur. However, the project would result in an improved and enhanced habitat after construction and this would be consistent with the policy

Comment

The project is inconsistent with Drainage and Flood Control Strategy 2.1 and 4.1 that state "Prohibit the construction of new structures in stream channels (except stream measurement and flood control facilities)" and "Encourage the use of natural building materials for flood control channels such as stone, heavy timber, shrubs that provide erosion protection, and wire revetment with plantings of native ... flora wherever they provide a comparable degree of flood protection." The City is replacing heavy timber walls with pre-cast concrete banks upstream of the bridge. The City should not be installing a vertical concrete bank in the Mission Creek Lagoon because use of more natural building material is feasible. The comment includes advice on alternative bank treatments the commenter feels are more appropriate.

Response

The portion of the project located north of the bridge would be constructed in compliance with the Lower Mission Creek Flood Control Project (LMCFCP) that was analyzed in a Certified Final EIR/EIS. The project received its final Coastal Consistency Determination from the California Coastal Commission on August 11, 2006. At that

time, it was determined that the project is consistent with the Coastal Act and the Local Coastal Plan.

The bridge project offers an opportunity to complete a portion of the LMCFCP at some cost savings to the tax payers. This approach would reduce environmental impacts when compared to constructing a portion of the LMCFC Project as a separate project from the bridge project.

The EIR/EIS considered twelve alternative project designs. The alternatives considered ranged from a No Project Alternative to Alternative 12, the project that was ultimately approved. Alternative 12 proposes conveyance of 3,400 cubic feet per second (cfs), a mix of stepped vegetated walls and vertical walls, and the replacement of four bridges. Other alternatives considered included options with lower conveyance (2,500 cfs), with and without vertical walls and a varying number of bridge replacements. The feasibility study concluded that the cost of construction would exceed the benefit of the project if stepped walls were used throughout the project area due to the cost of purchasing the land and the improvements. Alternative 12 was selected based on its economic feasibility and its environmental benefits and impacts. The project would implement a portion of this environmentally preferred alternative. The alternatives discussion in the EIR/EIS is hereby incorporated by reference.

The EIR/EIS included a discussion of plans and policies (Pages 4-1 through 4-36). On Pages 4-14 and 4-15, the EIR/EIS indicates that the project is consistent with the Drainage and Flood Control Policies discussed above. Also, the existing heavy timber walls are collapsing and the proposed bank improvements would result in a more secure flood control facility than currently exists. The MND also included a listing of applicable General Plan and Coastal Plan policies and a discussion of project consistency with these policies and concluded that the project is consistent with the applicable policies.

Not all of the upstream bank protection is absolutely necessary to allow for protection of the new bridge. Replacing the bridge alone would have to include some upstream bridge abutment protection that would result in the western bank being repaired in its entirety due to the short length of this bank and some of the eastern bank would have been repaired for the same reason. The applicant included bank restoration in the project (east bank) because there would only be a short segment of the eastern bank remaining and it would be more efficient to repair that bank while the creek is dewatered for the bridge construction. Overall, this would reduce project impacts (particularly biological) since it would only be necessary to dewater the creek for the one project and repeated dewatering would be avoided.

In response to early public comment on the need to restore the creek to a more natural appearance above Cabrillo Boulevard, the City has been exploring adding more vegetated bank above the proposed concrete panel walls to the edge of the parking lot. The vertical concrete panel walls would be reduced in height so that higher saline ocean waters would be retained within the walls and not allowed to contact bare soils on the bank above the wall. The investigation would allow for lower walls and a creek bank slope that is more

gradual therefore providing more room for riparian plantings and habitat. The investigation also includes identifying plants that can provide erosion protection while surviving differing levels of salinity within the soils. More saline tolerant plants would be planted lower on the creek bank because they can withstand more salinity and would better survive the conditions.

There may be a limited opportunity to construct a slightly lower wall on the eastern creek bank allowing for a less steep angle on the slope of the bank above the wall. The City is also exploring if the creek could be expanded into the existing parking lot between Cabrillo Boulevard and State Street on the northeastern side of the creek. This would provide additional room for native riparian plantings. The ability to get additional room would be contingent upon negotiations to acquire more property and the cost of the property. This is a developed urban area and there are businesses operating on the adjacent properties that would make the cost of land acquisition in this location high. The amount and quality of the riparian area that would be obtained would be small because there is only a small segment of creek bank that would be restored. The western creek bank is too short and there is insufficient room between the intersection of State Street and Cabrillo Boulevard to add additional creek bank without reducing the size of the pedestrian and vehicular facilities that provide very important access to and along the coast.

Comment

The Tidewater Goby Management Plan requires that a 10-foot wide zone of native shrubs be established on the top of the concrete wing walls immediately below the bike path bridge. In addition, the plan specified a 20-50 foot wide native planting area that extends 20-200 feet downstream of the existing wing walls.

Response

The project is primarily focused on replacing the deteriorating bridge and protecting the new facility from erosion. Immediately south of the bridge, the existing sackcrete wing walls would be removed and would be replaced with mostly buried boulders. The exposed boulders would have estuary grasses planted between the boulders. A strip of 10-foot wide native vegetation would be planted behind the boulder retaining walls. The proposed new boulder walls would provide better fish refuge than the existing vertical sackcrete walls as they would be sloped and provide a far greater surface area with spaces for the fish to hide. The City has been working to minimize the amount of the rock wall south of the bridge and to ensure that it would provide a pleasing visual appearance.

The 20-50 foot wide native vegetation would occur adjacent to, south of, and outside the project area and could be provided by another project that would implement the plan. For the area where construction is proposed, the project implements the Tidewater Goby Management Plan concepts. The project is therefore consistent with the Tidewater Goby Management Plan.

Comment

Section 30233 of the Coastal Act prevents the Coastal Commission from authorizing dredging or filling within coastal waters, such as the Mission Creek Estuary, unless the activity is the least damaging feasible alternative and potential impacts to coastal resources have been mitigated to the extent feasible. Section 30240 of the Coastal Act also provides that development in areas adjacent to environmentally sensitive habitat areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat areas,

Response

As discussed above under the heading "Alternatives," the no project alternative, the alternative of moving the bridge, and several other bank configuration alternatives were considered but were not feasible. Different project construction alternatives were also considered. Again, the project proposed was identified as the environmentally preferred alternative. The proposed project was found to have the least environmental impacts and would result in less than significant impacts after mitigation has been implemented. Also, after the project has been completed, the fish habitat and riparian habitat will be improved substantially when compared to the existing condition. Again, it should be noted that an alternatives analysis is not required as a part of a Negative Declaration.

Comment

The project's consistency with Coastal Act Sections 30230, 30231, 30233, 30236, and 30240 related to marine resources, biological productivity and the City's Certified Local Coastal Plan policies 6.1-6.14 must be discussed.

Response

Most relevant portions of the City's Local Coastal Plan were identified in Exhibit B to the Mitigated Negative Declaration (MND) and project consistency with these policies is discussed on pages 15 and 16 of the MND. Coastal Act Sections 30230, 30231, 30233, 30236, and 30240 and Local Coastal Plan policies 6.1, 6.2, 6.9, 6.12, 6.13, and 6.14 for General biotic Resources, Creek Environments, and the Andree Clark Bird Refuge have been added to the policies in Exhibit B, attached to the Final MND, to show that these policies are not relevant to the project either because they require the City to create regulations and enforce regulations or they refer to the Andree Clark Bird Refuge that has nothing to do with the project. Therefore, no further discussion of project consistency with these policies is necessary. Policy 6.10 was not previously identified but the project is consistent with this policy that requires a setback for native vegetation because the project includes a buffer of native riparian plantings adjacent to the creek channel, to the extent that this is feasible, in an urban setting and consistent with the Tidewater Goby Management Plan.

All Coastal Act sections are reflected in the Local Coastal Plan polices, for which consistency is discussed in the MND and augmented above (Policy 6.10). Nevertheless, consistency with each relevant section of the Coastal Act is discussed further below.

Section 30230 requires protection, maintenance, and enhancement of marine resources. The proposed project would restore deteriorated creek banks and replace a deteriorated bridge over a creek that could include sensitive fish and some sensitive bird species that could occur in the project area. The project would replace the heavy timber walls on the banks and bridge. The way the proposed construction and the extensive mitigation measures in the MND are designed would protect the sensitive marine resources that would be affected by the project. The project is designed to provide overdue maintenance of the area. When the project is complete, the marine resources would be improved because erosion on the creek banks would be diminished as the bank soils would be protected and the new walls would provide fish refuges. These refuges do not currently exist for small fish, and, downstream of the project, the existing sackcrete walls would be removed and replaced with shorter structures that would also provide riparian habitat that does not currently exist.

The Coastal Commission's "Statewide Interpretive Guidelines for Wetlands and Other Wet Environmentally Sensitive Habitat Areas" provide guidance on the provisions of Section 30233(a), including "incidental public service purposes." The guidelines state that:

> "When no other alternative exists, and when consistent with the other provision of this section, limited expansion of roadbeds and bridges necessary to maintain existing traffic capacity may be permitted."

The state courts have recognized Guidelines interpretation of "incidental public service purpose" as permissible under the Coastal Act. The Coastal Commission has recently granted Coastal Development Permits for construction of bridge abutments and concrete piles for the purpose of maintaining existing road capacity. Based on these past interpretations, the Coastal Commission has considered an "incidental public service purpose" to exist if: (1) there is no less damaging feasible alternative; (2) the project is undertaken by a public agency in pursuit of its public mission; and (3) the expansion is necessary to maintain existing traffic capacity. As discussed above in the response to comments there is no less damaging feasible alternative, and the project is necessary to maintain existing traffic flow. Also, the project is being undertaken by the City, a public agency in pursuit of its public mission to provide an adequate and safe transportation system and drainage.

Section 30231 requires maintenance and protection of biological productivity and the quality of coastal waters, streams, wetlands, and estuaries, to maintain optimum populations. The proposed project is designed to minimize impacts on biological and water resources and habitat during construction. The project includes creek bank protection between State Street and Cabrillo Boulevard, a portion of the Lower Mission Creek Flood Control Project that would reduce the number of times construction in the creek would occur, minimizing impacts on the marine environment. Mitigation measures are required to ensure that the resources and habitat are protected. After construction, the project would result in an improved habitat for fish and avian species. This would be achieved by restoring the creek banks and minimizing erosion (and so protecting water

quality) by replacing damaged timbers. The creek would be slightly wider, providing more habitat and the downstream sackcrete walls would be removed and replaced with natural boulders and riparian habitat that is better than what now exists. The easterly portion of the downstream bank protection has been redesigned moving it away from the bank of Mission Creek. After the sackcrete is removed the easterly creek bank will be resorted to its natural condition. This provides an increased area for the lagoon downstream of Cabrillo Bridge to form further enhancing marine resources.

Section 30233 allows the diking, filling, or dredging of open coastal waters, wetlands, and estuaries when designed to meet certain goals. The proposed project does not include any long term diking, filling or dredging, although temporary diking and fill for repairs would be included during construction. After construction, the lagoon would be slightly larger under the bridge and downstream of the bridge the lagoon would have more room to form because the downstream bank erosion protection would be shorter.

Section 30235 permits construction of hard bank protection when natural processes would be altered when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. While the project would not alter natural processes substantially because there is already a bridge and bank protection in the project area that would be replaced, the project is consistent with this policy because it would protect already existing structures including Cabrillo Boulevard, the multipurpose trail, park area, and Stearns Wharf.

Section 30236 allows substantial alteration of streams only when they incorporate the best mitigation feasible and is limited to water supply projects, flood control projects where no other method of flood protection is available, and for fish passage projects. The proposed project does not include any substantial alterations to Mission Creek because the creek has already been channelized and the bridge and bank protection already exist. The project does include the best mitigation feasible and would alter the stream slightly by 6% widening of the bridge span and removing the two misaligned rows of piles beneath the bridge and replacing them with a single aligned row of piles. Although the project would provide increased hydraulic conveyance, this is not the primary intent of this project. The primary intent is to replace an existing bridge and creek banks that are deteriorating. The project was designed to ensure that construction minimized work within the creek bed by constructing the new bridge abutments outside of the existing abutments thereby slightly widening the bridge span. Since the project does not substantially alter the creek the project is consistent with this policy.

Section 30240 protects Environmentally Sensitive Habitat Areas (ESHAs) against significant disruptions of habitat values, allows only uses dependant on the environmental resources, and requires developments adjacent to the ESHA, park, and recreation areas to be sited and designed to prevent significant impacts that would degrade the areas and is compatible with continuance of the habitat and recreation area. The project would, after mitigation, have no significant construction impacts on the ESHA. The proposed project

would improve the habitat overall and would not have any significant impacts on the ESHA after construction. Therefore the project is consistent with this statute.

Comment

Can the alignment of Mission Creek in the project area be made straight?

Response

Realigning of the bridge would require installing new bridge piles while leaving part of the existing bridge in place to accommodate detoured traffic. This addition of piles would impair hydraulic conveyance during flood flows because Mission Creek would be blocked by both the new piles for the new bridge and the old piles for part of the old bridge. This blockage would substantially increase the flood hazard during construction. Construction staging for the project, including the construction of the roadway approaches, would be more difficult. The pedestrian "overlook area", proposed for the North East Corner of Cabrillo Blvd at State Street would be difficult to accommodate as part of the project. Construction cost for the realigned Mission Creek concept would be at least 25% higher than the proposed project. Construction duration would be longer than the original alternative because of increased complexity. Since the project would cost 25% more it is not considered to be a feasible alternative. Figure D illustrates the realignment alternative.

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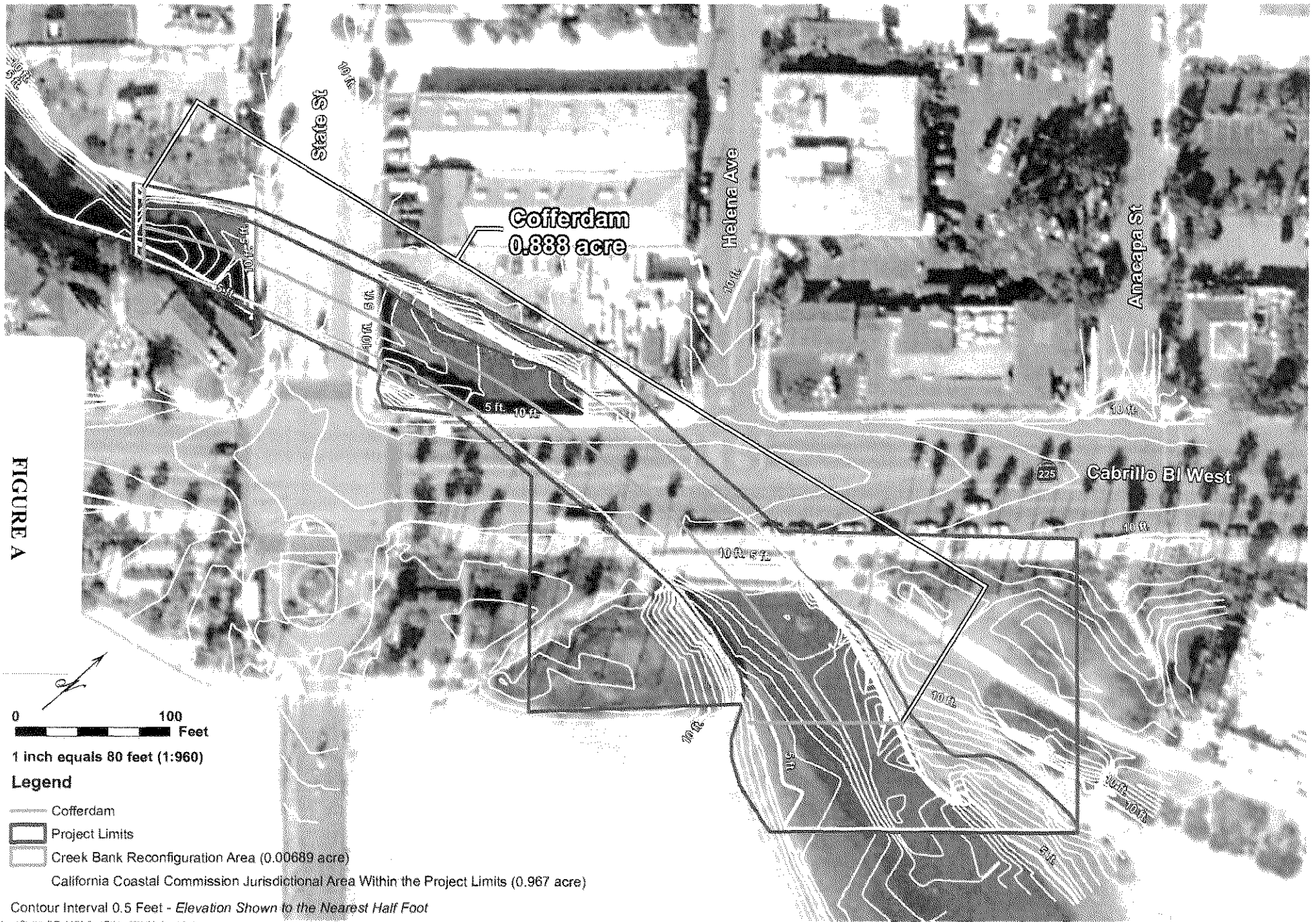
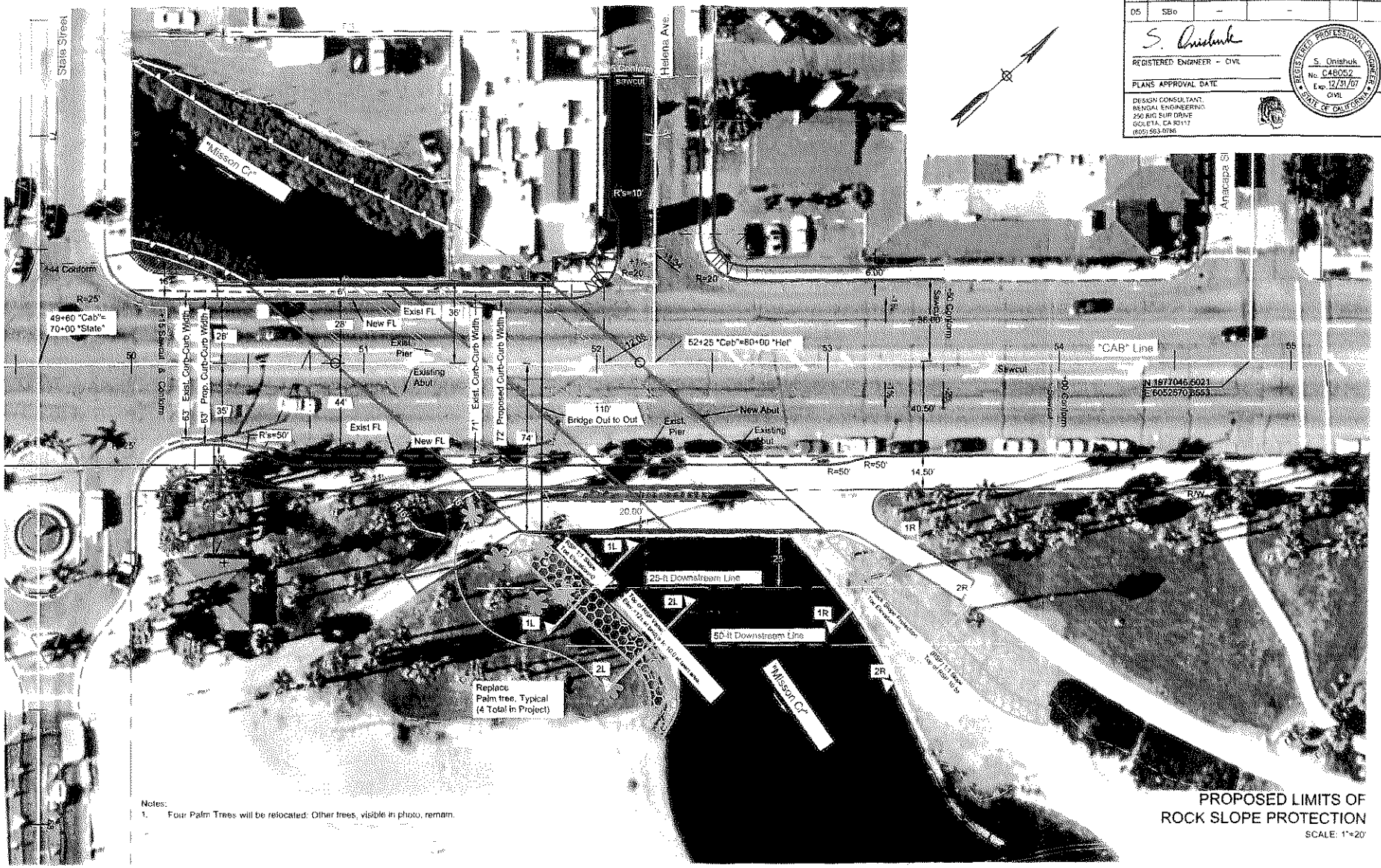


FIGURE A

Mission Creek Lagoon California Coastal Commission Jurisdictional Area Within the Project Limits



DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SBo	–	–		

S. Onishuk
REGISTERED ENGINEER – CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
S. Onishuk
No. C48052
Exp. 12/31/07
CIVIL
STATE OF CALIFORNIA

DESIGN CONSULTANT:
BENDAL ENGINEERING
250 BIG SUR DRIVE
GOLETA, CA 93117
(805) 563-0786

CALCULATED/ DESIGNED BY | DATE | DATE REVISED
CHECKED BY | REVISED BY

Harold Hill, P.E. - Project Mar

FOR REDUCE PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

USER NAME:
DWG FILE:

LAST REVISION

SUBMITTED FOR APPROVAL WEEK OF MAY 14-18, 2007

FIGURE B

FIGURE B

NOTES:
1. Sections are viewed looking upstream.
2. All RSP is at 1:1 slope as measured perpendicular to top of bank.
3. Plantings may be changed to conform to the" Restoration Planting Plan"

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SBo	--	-		

S. Onishuk
REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

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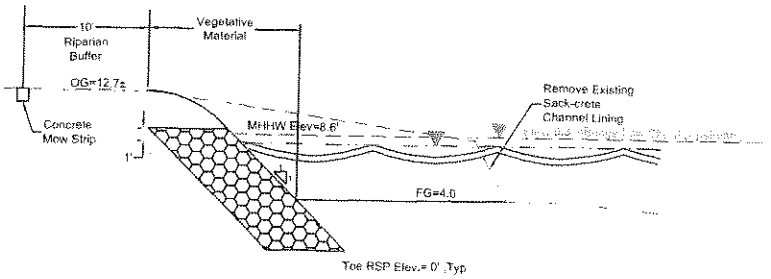
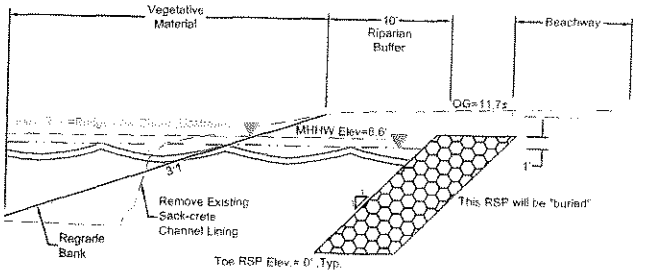
Exp. 12/31/07
CIVIL
STATE OF CALIFORNIA

DATE REVISED:
REVISED BY:
CALCULATED/ DESIGNED BY
CHECKED BY
T. PE

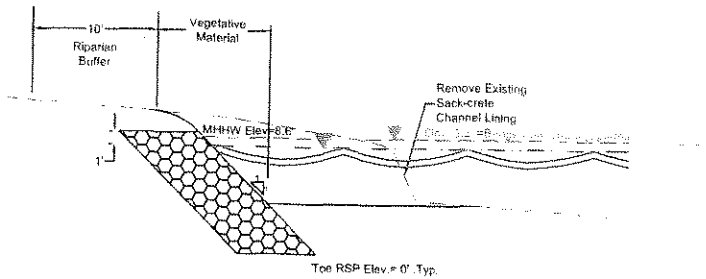


SECTION 1L-1L

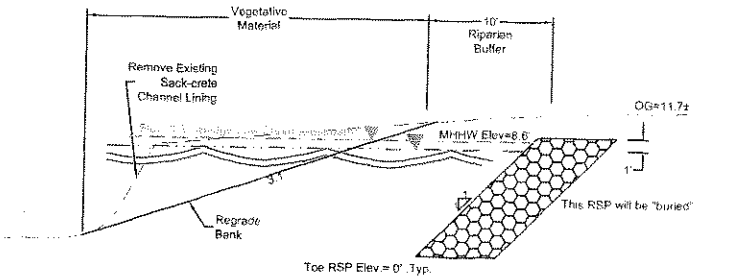


SECTION 1R-1R

FIGURE C



SECTION 2L-2L



SECTION 2R-2R

STREAM CROSS SECTIONS
MISSION CREEK AND RSP
SCALE: 1"=5'
XS-1

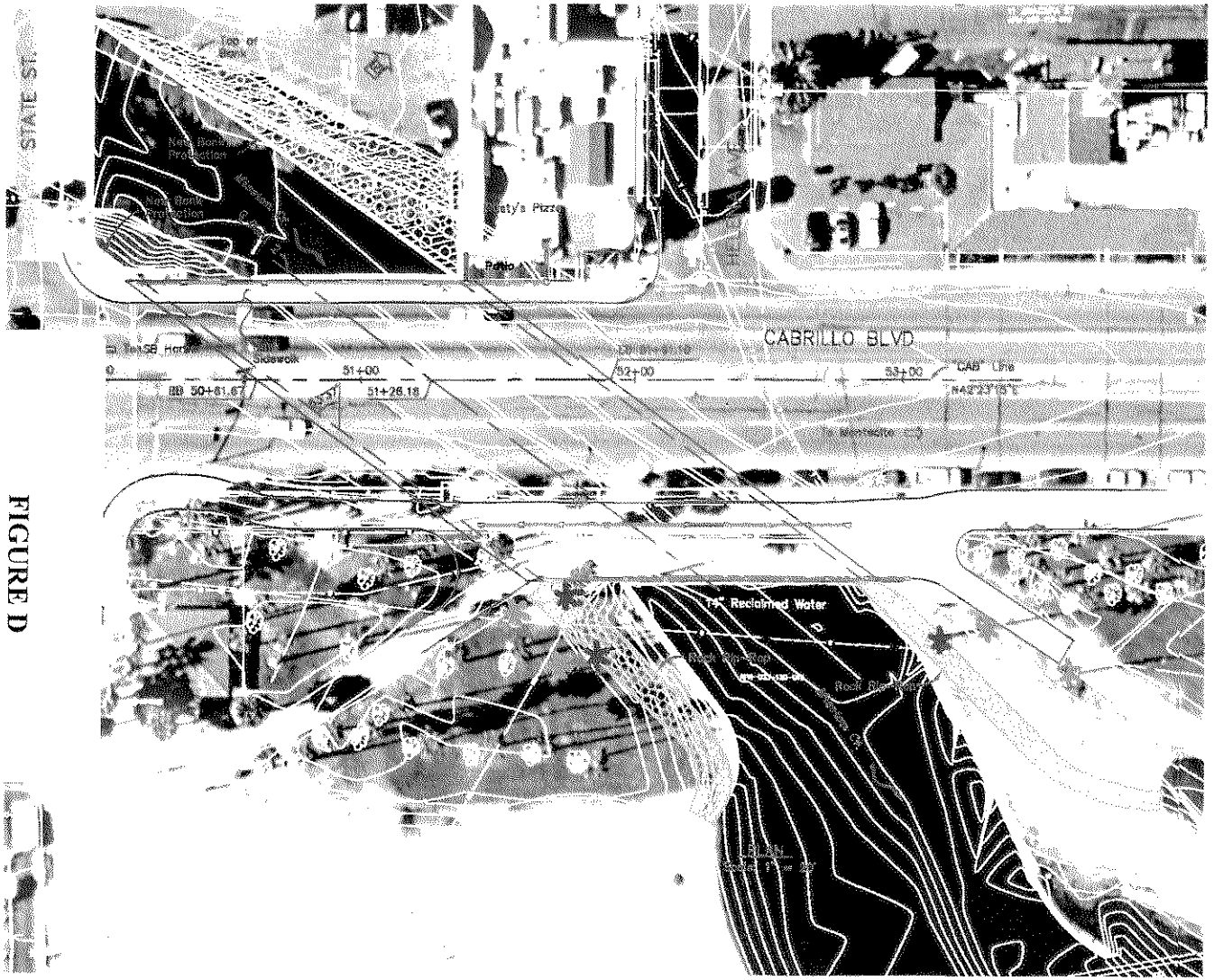
FIGURE C

SUBMITTED FOR GEOMETRIC APPROVAL
LAST REVISION

Harold Hill, PE - Project

FOR REDUCE PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

USER NAME:
DWG FILE:



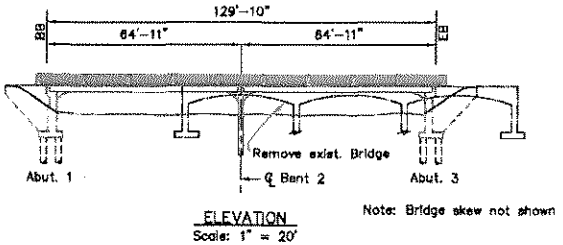


FIGURE D

Mission Creek Alternative Alignment

NO.	DESCRIPTION	DATE	APPROVED
	REVISIONS		

DESIGN MDW
DRAWN RT
CHECKED -
FLDLBK/NO.
PAGE
ATLAS

BENGAL ENGINEERIING
260 B'G SUR DRIVE, GOLETA, CA 93117
(805) 563-0788
Reg. Civil Eng. Approval Date:

Cabrillo Blvd. Bridge (Replace)
Old Bridge #51C 0326 New Bridge #51C-350

(CITY OF SANTA BARBARA
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION
Approved: Date
City Engineer

SCALE:
VERT.
HOR.
ARCH. NO. -
PROJ. NO. -
SHT. - OF - SHTS.
DWG. NO. -