

CHAPTER 3

MAINTAINING THE BRIDGES

- Purpose and introduction.....3 - 1**
- Bridge Cleaning and Maintenance.....3 - 2**
- Bridge Vegetation Management.....3 - 3**
- Bridge Repair.....3 - 8**
- Drift Removal.....3 - 11**



PURPOSE:

The main purpose of this chapter is to help maintain a high level of water quality while maintaining our county bridges. Due to their close proximity to streams, bridges have a high potential to discharge pollutants directly into aquatic habitat. Special care should be taken while cleaning, maintaining, repairing, and controlling vegetation on county bridges.

The goals of this chapter are:

- Maintain public safety and open roads for the traveling public
- Prevent or minimize delivery of sediment and chemicals to streams
- Protect aquatic and riparian habitat



Introduction:

Bridge maintenance includes cleaning and other routine maintenance activities such as painting, patching, and vegetation control. During any of these maintenance activities, attempt to keep all substances out of the water by blocking drains, capturing debris, and transporting the waste to a safe storage site.

BRIDGE CLEANING AND MAINTENANCE

Description: Maintenance of bridge structures includes painting, scraping and patching of curbs, rails, deck joints, on wood, concrete and steel bridge components. Cleaning is done with hand and power tools. Care must be taken with the disposal of debris. Of special concern is the complete containment of existing paint residue containing lead, which is a toxic heavy metal pollutant that accumulates in animal tissues. Bridge repainting tends to be needed mostly in coastal areas where salt air causes corrosion of the steel surfaces when paint is not maintained. Severely corroded areas of a bridge will need abrasive spot blasting and priming before painting.

Environmental Concerns:

- Discharge of the following materials into the stream or storm water drainage system: epoxies, lead-based paint, metal grindings, concrete grindings and cuttings, expansion joint filler, concrete mix water, and concrete rinse water.
- Impacts on bats, swallows and other protected species, especially during nesting season.

Best Management Practices

1. Take adequate measures in maintenance activities to ensure that paint and other hazardous material do not enter waters of the State or the riparian area.
2. Keep non-hazardous materials and debris from falling from the structure into the water or the riparian area. Remove any material that falls into the water in the least destructive way possible, or leave in place if this would be less destructive to fisheries habitat. Coordinate with SLO County Public Works Environmental staff for presence of listed salmonids or their redds below bridge locations.
3. Temporarily block deck drains over streams and scuppers over streams when sandblasting, or scraping structures, to route waste debris off deck and into a safe collection facility. Allow no material to be deposited in riparian area. Stage the operation to capture and collect as much debris as possible. Transport the waste back to a Maintenance facility or approved storage site.
4. Remove large debris from bridge decks with sweeper or shovel. Scrape other material by hand before being collected or removed.
5. Develop practices to eliminate drainage systems that drain directly to streams where physically and economically feasible.
6. Collect broken or damaged treated bridge pier fender posts and dispose of the posts according to approved waste disposal practices.

7. Coordinate with San Luis Obispo County Environmental staff on the appropriate timing for performing bridge maintenance with regard to bats and swallows. Seek and apply approved methods, such as netting and other measures, to preclude future nesting on the bridge.

8. Follow these guidelines for bridge painting and bridge deck seal coating:

- a. Transport paint, chemicals and materials to and from work sites in containers with positive locking lids. Secure paint containers to the transport vehicle using approved methods (e.g., Ropes and straps). When using conventional spray equipment, monitor weather and wind direction to ensure that paint or other materials are not entering drain inlets, the storm water drainage system, or watercourses.
- b. Do not transfer or load paint or chemicals near drain inlets, the storm water drainage system, riparian areas, or watercourses.
- c. Use canvas or plastic tarps under the work area to capture any excess chemicals, paint or paint chips. Transfer material captured by the canvas or tarps into a waste container for disposal at a maintenance facility.
- d. Collect all paint or spray equipment waste material and return it to a maintenance facility. Dispose of the remaining paint or seal coat solids according to approved waste disposal procedures.
- e. Develop an emergency spill management plan for each bridge painting project.



BMP TOOLBOX

Planning and Prevention BMPs

- Seasonal Planning
- Small Spill Kit
- Plastic Covering
- Vacuum Collection Equipment

Erosion Control BMPs

- Blankets/Geotextile Fabrics
- Mulching
- Planting
- Plastic Covering
- Seeding

Sediment Control BMPs

- Coir Log/Straw Roll
- Storm Drain Inlet Protection
- Silt Mat/Vegetated Grassy Swale
- Sand Bag
- Silt Fence
- Siltation Pond/Settling Pond

* Note: Some of these are temporary measures that need to be removed upon completion of work and replaced with more permanent structures.

* Note: For Concrete work refer to ROAD MAINTENANCE (chapter 2 – 49 Concrete Work).

PERMITS

BRIDGE MAINTENANCE	
Activity or Condition	Required Permit or Limitation
Scraping, painting or seal coating.	Waste discharge permit for potential discharge of paint (especially if lead-based) and other hazardous materials may be required by RWQCB. Report of Waste Discharge must first be submitted to Regional Board. Before beginning project, a Water Pollution Control Plan must be submitted describing the BMP's to be used.
Patching and repairs to curbs, rails, decks, or components of wood, steel or concrete bridges.	<ul style="list-style-type: none"> • Maintenance of an existing bridge facility is categorically exempt from CEQA (14 CCR Section 15301). • Notify San Luis Obispo County Environmental staff about any potential waste discharge, salmonoid habitat, and bat and swallow issues. • Swallow species most often found on bridges are not listed ESA or CESA species but are protected under the Migratory Bird Treaty Act, which makes it unlawful to "take" the bird or its nest or eggs. Consult with San Luis Obispo County Environmental staff. Violators may be fined up to \$10,000, and may face up to 6 months imprisonment for misdemeanor violations of the Act.

BRIDGE VEGETATION MANAGEMENT

Description: This topic includes vegetation management around existing bridges. The primary purpose of bridge vegetation management is to maintain sight distance. Bridge vegetation management must also maintain access to the bridge structure for structure maintenance, fire safety, and to maintain the integrity of the structure.

Environmental Concerns:

- Excessive removal of riparian trees could affect stream habitat
- Excessive removal of vegetation could cause soil erosion, leading to discharge of sediment into stream or storm water discharge system.
- Noise may disturb bats and/or nesting swallows.

Best Management Practices

1. Normally remove only the vegetation required either side and under all maintained bridges for access or repair.
2. When removing mature trees (over 12-inch diameter) in riparian areas, replant two native or appropriate seedling/cuttings for every tree removed. Ensure that the replanted trees will not pose future threat to County structures. Only remove large woody debris or downed trees from the riparian area if necessary to protect and maintain the integrity of the structure.
3. Ensure no herbicide spraying or runoff of spray from other chemicals occurs on bridge and related structures located over streams or adjacent to riparian areas or wetlands.



BMP TOOLBOX

Planning and Prevention BMP's

- Seasonal Planning
- Small Spill Kit
- Plastic Covering

Erosion Control BMP's

- Blankets/Geotextile Fabrics
- Mulching
- Planting
- Plastic Covering
- Seeding

Sediment Control BMP's

- Coir Log/Straw Roll
- Storm Drain Inlet Protection
- Silt Mat/Vegetated Grassy Swale
- Sand Bag
- Silt Fence
- Siltation Pond/Settling Pond

* Note: Some of these are temporary measures that need to be removed upon completion of work and replaced with more permanent structures

Permits

VEGETATION MANAGEMENT	
Note: See San Luis Obispo County Public Works Department Tree Removal Policy	
Activity or Condition	Required Permit or Limitation
Trim or remove vegetation to allow for safe sight distance, reduce fire hazard, protect the integrity of the structure, or provide access for maintenance or construction.	<ul style="list-style-type: none"> • Comply with County Tree Ordinance • Consult with San Luis Obispo County Environmental Staff about potential issues with nesting birds in trees including bats, or swallows around structures. • Consult with San Luis Obispo County Environmental Staff about potential re-vegetation from the County's native plant nursery, or hydro-seeding.

BRIDGE REPAIR & DRIFT REMOVAL

Introduction

Bridge repair and drift removal both entail work within active flowing streams. Any in-water work requires pre-project coordination with San Luis Obispo County Department of Public Works Environmental staff, CDFG and RWQCB except in the case of an emergency (See Chapter – EMERGRNCY WORK). It is essential that temporary or permanent impacts, such as removal of large woody debris or the addition of riprap, will not have adverse effects on riparian habitat.

BRIDGE REPAIR

Description: This activity includes repair of bridges and large culverts (over six feet diameter). In-water bridge repair can include repair or replacement of riprap, drainage features, and catch basins and replacement of structural members. Bridge structural repairs that require in-water work will be coordinated with Department of Public Works Environmental Staff and permitting agencies to minimize impacts. In-water work may include permanent impacts, such as placing riprap, or temporary impacts, such as installing falsework or stream access.

Environmental Concerns

- Discharge of sediment, debris, concrete, paint, or chemicals into the stream or storm water drainage system
- Damage to or loss of riparian vegetation from excessive riprap, disposal of refuse material, or heavy equipment
- Impacts on bats, swallows, and other protected and non- protected species.

Best Management Practices

1. Ensure that the active flowing stream will not come into contact with fresh, plastic concrete. Where and when necessary, divert water away from concrete work areas during structural repairs of bridges and culverts as noted in #6 below. (SEE: Temporary Stream Diversions)
2. When repairing drainage features, consult with San Luis Obispo County Environmental Staff to reduce impacts on fish passage, and follow the guidelines set forth in the chapter on working in and around stream channels.
3. Perform any in-water work within time frames negotiated with the agencies.

4. Place all refuse material above the bank outside of the 100 year flood plain and away from waterways, riparian areas and wetlands. Dispose of material in locations and appropriate manners identified in the Erosion Control and Sediment Management chapter.

WARNING: *Discharge of pollutants into streams from stockpiles can lead to fines from other regulatory agencies.*

5. Provide stable, appropriate concrete truck chute clean-out area and require the contractor to use it to keep material from being deposited in watercourses and riparian areas.

6. Use cofferdams or other water diversion structures for structural repairs as appropriate. Do not place during spawning and egg incubation stages of local salmonids unless an emergency (See: Emergency Work) . Use during the dry season and only after the area has been cleared of residing fish species.

7. Contain saw chips where feasible.

8. Avoid use of creosote or "Penta" treated wood for permanent structures when feasible.

9. Minimize impacts to riparian vegetation and replace disturbed areas with native plants. Consult with county environmental staff to plan or coordinate any potential re-vegetation with county propagated native plants.

10. Seek to have temporary bridge structures (such as Bailey bridges) available within the county that could be used to temporarily replace a washed-out bridge in an emergency. (SEE CHAPTER ON EMERGENCY WORK)



BMP TOOLBOX

Planning and Prevention BMPs

- Seasonal Planning
- Small Spill Kit
- Plastic Covering
- Vacuum Collection Equipment

Erosion Control BMPs

- Blankets/Geotextile Fabrics
- Mulching
- Planting
- Plastic Covering
- Seeding

Sediment Control BMPs

- Coir Log/Straw Roll
- Storm Drain Inlet Protection
- Silt Mat/Vegetated Grassy Swale
- Sand Bag
- Silt Fence
- Siltation Pond/Settling Pond

* Note: Some of these are temporary measures that need to be removed upon completion of work and replaced with more permanent structures.

* Note: For Concrete work, refer to ROAD MAINTENANCE (chapter 2 – 49 Concrete Work).

PERMITS

BRIDGE REPAIR	
Activity or Condition	Required Permit or Limitation
Replacing Rip Rap or otherwise altering a channel. BMP's that may involve "take"; i.e. dewatering, cofferdams, diversion berms and stream bypass structures.	<ul style="list-style-type: none"> • Consult with County Environmental Division • CWA 404 – COE • CWA 401 – RWQCB • DFG 1601 • NOAA Fisheries Consultation
BMP's that may involve "take"; i.e. dewatering, cofferdams, diversion berms and stream bypass structures.	<ul style="list-style-type: none"> • Consult with County Environmental Division • (NOAA Fisheries or USFWS) ESA Section 10 Incidental Take Permit • DFG CESA Section 2081 Incidental Take Permit
In a Coastal Zone, work is exempt from a coastal development permit unless: <ul style="list-style-type: none"> • Subject to review under section 1601 of the Fish and Game Code • Excavation or disposal of fill is outside of the roadway prism 	Coastal Zone Development Permit
Emergency Work	<ul style="list-style-type: none"> • Consult with County Public Works Environmental Division Staff • All agencies must be notified within 14 days after work has begun (See Chapter on Emergency Work)

DRIFT REMOVAL

Description: Drift removal involves using mechanical equipment to either reach over the side of the structure and dislodge the material, or pull the drift from the side of the bridge (bank) and cut it into pieces.

Environmental Concerns

- Reduction of instream habitat quality due to removal of excessive large woody debris (LWD) from stream system.
- Damage to or loss of riparian vegetation by removal equipment.

Best Management Practices

1. Cut material only when necessary and turn drift to allow it to flow through and under the structure, where doing so would not endanger any other crossing structures downstream.
2. Repair and restore riparian areas temporarily impacted by machinery during drift removal. Long-term access for drift removal will be coordinated with San Luis Obispo Department of Public Works Environmental staff and, CDFG.
3. Perform all work within the flowing channel of any aquatic system during the appropriate in-water work window for that system, or as negotiated with CDFG (except when there is imminent danger to life, limb, or structure). (See Emergency Work Chapter)
4. Minimize channel disturbance by using, where possible, specialized equipment, such as a crane with clam shell bucket to remove debris.

PERMITS

DRIFT REMOVAL	
Activity or Condition	Required Permit or Limitation
Utilizing mechanical equipment to dislodge and allow Large Woody Debris (LWD) to pass through the structure, or pulling the drift to the side of the bridge and cut it into pieces.	<ul style="list-style-type: none"> • Consult with San Luis Obispo County Public Works Environmental Staff. • CDFG 1601 Streambed Alteration Agreement if the project may “substantially change the bed, channel, or bank of any river, stream or lake”.
Emergency Work	<ul style="list-style-type: none"> • Consult with San Luis Obispo County Public Works Environmental Staff. • Pre-project permits are not required before emergency work can begin. However, agencies must be notified within 14 days after the repair project has begun.