RMDP
APPENDIX A

RMDP MAINTENANCE MANUAL
STORM DRAIN AND WATER QUALITY FEATURE
ROUTINE MAINTENANCE PRACTICES

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1.0 INTRODUCTION AND BACKGROUND

The development of the Newhall Ranch Specific Plan (NRSP) requires that stormwater runoff, dry weather urban runoff, and other waters discharged from the project satisfy Los Angeles Basin Plan, Los Angeles County MS4 Permit, Construction NPDES Permit, and NRSP Sub-Regional Stormwater Mitigation Plan requirements. Additional requirements are developed from specific planning areas during flood protection design reviews, Standard Urban Storm Water Mitigation Plan (SUSMP) review, and final transportation infrastructure elements needed to satisfy traffic circulation. A Resource Management and Development Plan (RMDP) has been developed to describe construction of facilities to meet these various requirements, specifically where impacts from the facilities occur to native habitats or special-status species under the jurisdiction of California Department of Fish and Game (CDFG) or Army Corps of Engineers (Corps).

Construction of many of the facilities will require authorization under several environmental permits: (1) Master Streambed Alteration Agreement (MSAA) from CDFG; (2) Individual 404 Permit from Corps; (3) 401 Water Quality Certification or WDRs from Los Angeles Regional Water Quality Control Board (RWQCB); and (4) Biological Opinion from US Fish and Wildlife (USFWS). These permits and approvals also specify water quality, treatment, and flow requirements for waters leaving the project site in addition to specific restrictions and mitigation measures for the protection of sensitive environmental resources. Facilities that may be required include: Debris Retaining Inlets (DRIs); Dry Extended Detention Basins; Infiltration Facilities; Wetponds; Vegetated Swales; Culverts; Drop Structures; Grade Control Structures; Storm Drain Outfalls; Bridges; Bridge abutments; and Bank Stabilization. The RMDP describes the NRSP development along the Santa Clara River, its main Tributaries (Castaic Creek, Chiquito Canyon, San Martinez Grande, Potrero Canyon, Long Canyon, and Lion Canyon) and minor unnamed drainages (Middle, Ayers, Magic Mountain canyons, and others) with specific focus on elements within jurisdiction.

Of note, many of the treatment features include components that are "naturalized," whereby treatment is dependent upon such things as wet soils, open/ponded water, native and wetland vegetation growth, buried or vegetated rip-rap or gravel, or other components that mimic the natural environment. As the more anthropogenic features (hard armoring, gunite, grouted riprap, pavement, soil cement, concrete, pipe, or other engineering systems) are integral to the systems, it is necessary to identify the extent and frequency of various maintenance activities that may occur and describe impacts that may result.

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1.1 Maintenance Manual Organization

This manual has been organized into the following Sections:

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  - 1.2.2 Bank Stabilization on the Santa Clara River
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3.0 Associated Documents

1.2 Storm Drain System Features

Various types of facilities may be constructed in response to meeting treatment and hydromodification control standards for development area runoff. Each feature is designed to meet certain functions, primarily related to flow attenuation or control of hydromodification and water quality treatment through removal of pollutants of concern. While certain features

are depended upon only for infiltration/control of irrigation dry weather urban runoff, others may be dedicated to treating the first flush of a storm event. Regional control features (such as the restored tributaries, extended detention basins, and wetponds/lakes) may be integral to passing the entire flow from the watershed while providing infiltration, attenuation, and water quality treatment.

Each facility is likely to include stormwater inlet or outlet structures, soil cement/gunite/grouted or un-grouted rip-rap bank stabilization, and access points. The runoff controls are integral to the overall discharge treatment train (such as Debris Retaining Inlets, flow splitters, and catch basin inserts) but due to their physical location may not be within the limits of RMDP jurisdiction, and as such are not subject to the RMDP permit conditions or maintenance provisions/restrictions. To the extent that the RMDP permits provide coverage for impacts to biological resources similar to those that may develop at these features, it is intended that the RMDP Maintenance Manual can be utilized. The long-term use of the RMDP Maintenance Manual for non-jurisdictional features is at the discretion of the Permittee for such maintenance (Newhall Land, Home Owners Association (HOA), Landscape Maintenance District (LMD), Los Angeles County Department of Public Works (LACDPW), or other 3rd Party).

1.2.1 Partially-Engineered Open Channels

In the Tributaries, geomorphic principles will be used in combination with on-site controls to design stable stream channels given the expected hydrologic and sediment regimes of each tributary. A minimum of hard, engineered structural elements will be used within the stream channel so that a natural appearance will be preserved while the new stream channel form can remain stable and provide commensurate stream functions and values. The NRSP includes five partially-engineered open channels: Chiquito Canyon, San Martinez Grande Canyon, Lion Canyon, Long Canyon, and Potrero Canyon. These open channels will include management measures (a combination of in-stream grade control structures (point stabilizers and step-drop pools), bank protection, and stormwater runoff volume reduction and detention) to protect the channel bed and banks from hydromodification impacts.

The grade control structures are designed to contain the hydraulic “jump” of the ultimate drop in streambed elevation within the structure so higher velocities are dissipated within this area. The drop may be from 5 to 40 feet in vertical height (the largest of which is at the Lion Canyon Drainage confluence with the Santa Clara River. The hard structures may be backfilled with natural soil to re-establish the existing streambed.

1.2.2 Bank Stabilization on the Santa Clara River

While the Santa Clara River will generally remain in a natural condition, the RMDP includes installation of bank stabilization along portions of the Santa Clara River over the approximately next 20 years for bridge abutments and flood control stabilization for various development projects. The location of bank stabilization along the river was selected so that it would generally be located in non-jurisdictional upland areas adjacent to the river.

1.3 Need for Maintenance

LACDPW requires that all flood control and drainage improvements be maintained to ensure performance at their design levels. As described below, both hard and soft systems may require Minor and Major Maintenance to restore intended functions. Many of the features are components of restored creek systems, and as such, should require little to no routine minor maintenance. Major maintenance may be required in the event of a failure or damage from an unusually large storm (> than the 10 year event), and may be expected, if ever, once in a decade or less frequently. Minor maintenance may occur at frequencies from monthly, quarterly, annually, or other frequency determined during design (life cycle/replacement period).

These facilities generally are designed to reduce flow velocities, and therefore may create nuisance standing water, sediment deposition, and excessive growth conditions if not properly maintained. Maintenance involves the periodic inspection of the improvements to: (1) verify that the structures are intact; (2) monitor vegetative growth at or near the structures that may affect the integrity of the structure; and (3) determine if sediment or vegetation is blocking the conveyance of storm flows. Vegetation and accumulated sediment would be removed when the design capacity has been reduced to pre-determined levels and any damage that impairs the function of the structure would need to be repaired.

Periodic vegetation removal within the River and main Tributaries would not be required under the RMDP. However, individual structures within the conveyance system will require some maintenance, such as removal of woody vegetation, sediment and debris that may block or impede the function of inlets, outlets, culverts, drop structures, water quality and flow attenuation basins, and infiltration structures. Other features may be dependent upon routine scarification of the ground surface to maintain intended function, such as with infiltration basins, and retention basins, or to clear standing water from outfalls or infiltration swales. A third class of treatment facilities are wholly dependent upon establishment of stable wetland and open water habitats, with most routine maintenance restricted to removal of accumulated sediments and replacement of wetland vegetation at established service intervals.

This manual also includes a monitoring and remedial response plan for stabilized tributary drainages where major flood events could precipitate maintenance events that necessitate repair, replacement, or modification of an improperly functioning channel system. In those cases, review of the project may be appropriate as a Maintenance action or as a Construction Project depending on the extent of repairs/replacement or design changes that substantially alter the extent or nature of the original project impacts.

As discussed above, many of the control features are constructed outside of Agency jurisdiction (i.e., waters of the U.S. or waters of the State). As maintenance of these features may, from time to time, encounter issues similar to those encountered at features in the jurisdictional zones, at the discretion of the Permittee, this Maintenance Manual, and the Subnotification process, may be used to notify Agencies of proposed maintenance activities. It is expected that the following maintenance activities, in general, will not submit pre-maintenance notification or require any reporting due to their size and likelihood of generating sensitive habitats or supporting special-status species:

- Vegetation clearing and/or sediment removal at Debris Basins with <5,000 cubic yards of debris capacity.
- Vegetation clearing or sediment removal of Debris Retaining Inlets (DRIs).
- Vegetation clearing or sediment removal from seasonally dry culverts and outlets, if maintenance is conducted during periods of no flowing water, and nesting birds are not present.
- Areas where "permanent impacts" were determined and mitigated for during the Subnotification Process and special-status species habitat is not present or reasonably expected at the time of maintenance activities.
- Visual Inspections, where no equipment access is required. This may include hand trimming of brush, scrub species, or minor pruning of native trees to facilitate access (foot trail).

It is anticipated that all other maintenance activities would provide notification to the applicable Agencies to ensure adequate protection of Federal and State Endangered (ESA) and California Species of Special Concern species during maintenance activities, although where jurisdiction is not present, that notification will be at the discretion of the owner.

1.4 Regulatory Setting

This Maintenance Manual is a component of the jurisdictional permits for the implementation of the Resource Management and Development Plan (RMDP) for the Newhall Ranch Specific Plan Area. This manual constitutes the post-construction maintenance plan for facilities constructed

pursuant to RMDP approvals. The RMDP permits recognize maintenance beyond the term of the maintenance of the NRSP, therefore 50 year permit terms Apply to RMDP permits, including: **Master Streambed Alteration Agreement (CDFG MSAA #1600-2004-0016-R5); Incidental Take Permit – Multiple Species (CDFG ITP #2081-XXXXXXXXX); Master Corps 404 Permit (404 Permit #2003-01264-AOA); 401 Certification/Waste Discharge Requirements (WDR) LARWQCB (WDR #XX-XXX); and Biological Opinion (FWS BO #XX-XXX-X)**. Collectively these permits and agreements constitute the environmental approvals necessary to construct and maintain facilities within waters of the United States and/or waters of the State.

The features described in this Maintenance Manual are also integral to the implementation of the Newhall Ranch Specific Plan (NRSP) stormwater management plans, and in many cases, specifically implement concepts of hydromodification control, zero discharge, nuisance flow management, first flush trash and debris containment, and other concepts of federal, state, and local storm water requirements. The NRSP stormwater plan involves three submittal Tiers, to be completed at various stages of project development, approval and construction. Tier plans are intended to be further refined as project elements are taken to final design and approval. The first Tier is the Sub-Regional Stormwater Mitigation Plan (SWMP), which describes management of the entire NRSP area. The Sub-regional SWMP includes concept-level, low impact/site design development criteria and source control, treatment control, and hydromodification control Best Management Practices (BMPs) to be incorporated into each development project within the sub-region. The NRSP Sub-regional SWMP has been developed using a watershed-based approach that addresses pollutants of concern and hydrologic conditions of concern that can affect aquatic and riparian habitat and natural resources, including species associated with these habitats and natural communities. The Tier one plan has been submitted to LA Regional Water Quality Control Board for review.

The second Tier involves submittal and approval of a Project Water Quality Technical Report (WQTR) by Los Angeles County. The WQTR is prepared to ensure consistency with the terms and content of the NRSP Sub-Regional SWMP for each project within the sub-region (e.g., Landmark Village, Mission Village, Homestead Village, and Potrero Valley). The Project WQTR will provide more specific information and detail concerning how the provisions of the NRSP Sub-Regional SWMP will be implemented within the area covered by the Project WQTR, based upon the actual proposed land uses from the tentative tract maps filed with the County of Los Angeles.

The third Tier consists of a final Project SUSMP (Standard Urban Storm Water Mitigation Plan) that will be consistent with the terms and content of both the NRSP Sub-Regional SWMP and the Project WQTR and Drainage Concept Report for each project within the sub-region. The Project SUSMP will demonstrate that the project applicant is complying with the County-certified EIR mitigation measures. The Project SUSMP will identify, at a minimum: (1)

implementation of low impact/site design strategies (as appropriate); (2) source control BMPs; (3) treatment control BMPs; (4) hydromodification control BMPs; and (5) the mechanism(s) by which long-term operation and maintenance of all structural BMPs will be provided, at the project site level.

This Maintenance Manual provides a summary of anticipated maintenance activities, expected impacts from maintenance activities, and minimization/mitigation measures incorporated into flood protection, stormwater, and nuisance water control system operations to meet the long-term maintenance needs of the SUSMP. Typical approaches to maintenance for each of the features is presented along with standard restrictions and special-status species protection measures to ensure impacts from such operations are minimized. These measures are generally the same as those required during new construction.

1.5 Developer Responsibilities Prior to Transfer

Prior to the transferring of a storm drain or water quality feature to the ultimate system owner/Permittee, it is the responsibility of the Developer to maintain the system in proper operating condition. This may include maintaining vegetation growth, as needed, to facilitate the final inspection and acceptance of the structure by the long term maintenance owner/Permittee. The original Subnotification authorization for construction of the feature will be considered enforce during this period of time and no further Subnotifications will be completed for any maintenance activities prior to transfer. As some temporal habitat may form at the structure, the species protection measures required for construction shall be followed during this transition period (e.g., restrictions on equipment operating in ponded water, storage of petroleum products, nesting restrictions, etc.).

1.6 Owner/Permittee Responsibilities

Each of the features contemplated in the SUSMP will be transferred to another entity for long-term operation and maintenance. This manual provides structure maintenance guidelines to the following anticipated post-development owners/permittees:

- LACDPW, LMD or an HOA will assume responsibility for maintaining the improvements as part of their routine maintenance program.
    - A Geologic Hazard Abatement District (GHAD) may also be developed to assume responsibility and ownership of these features. If a GHAD is established, it would possess specific funding for minor and major maintenance/repairs, a professional management team with technical expertise in the features being maintained; and responsibility for system wide operations.

- LACDPW will likely assume operation and maintenance responsibilities for the BMPs that are constructed by the County or are "regional" in nature.
- Upon agreement, LACDPW may assume operations and maintenance responsibilities for BMPs constructed by others on County property, including right-of-ways or stormwater easements.
- Other entities, such as an HOA, an LMD, or an independent maintenance contractor may have maintenance responsibility for BMPs located on private property, such as parking lots.
- LA County will have overriding authority, thru Builder-Agreements, to restore proper function to any feature they deem necessary in the event the HOA or LMD fails to perform maintenance.
- Maintenance activities may be contracted out to local firms; however, the maintenance responsibility remains with the owner.
- The natural or created creek channel and riverbed areas, which may contain HOA, LMD or LA County facilities, will be under the stewardship and control of Centers for Natural Land Management (CNLM) with maintenance easements, established as necessary, to ensure that flood protection and treatment/conveyance systems function properly. The open-space areas between hard structures are expected to be free of routine maintenance, reverting to a "natural" state.

As this document applies to a development that will be implemented over approximately 20 years, it is reasonable to expect technological advances to result in modification of the flood protection and runoff treatment systems. Therefore, this document should be considered a "living document," subject to addition and revision. The Subnotification process, described further below, may be used for requesting Agency approval of revisions or changes to this document.

1.7 Effects of Maintenance Activities

The project includes routine maintenance activities associated with the proposed bank stabilization, bridges, culverts, storm drain outlets, inlet structures, and water quality/storm flow attenuation features. Impacts were evaluated for the maintenance activities described later in this document and are presented here for ease of reference.

Maintenance activities would be implemented on an as-needed basis. The widths of the proposed bank stabilization and bridges were designed to allow the vegetation in the river channel to grow to its natural maximum density without the need for clearing the channel for conveyance. The main tributary drainages have been designed to be bed-stable, with hydromodification effects mitigated while still carrying the design storm flow. As such, the length of bank stabilization to

be inspected and cleared of vegetation under this program is limited to exposed gunite bank stabilization at bridge abutments. This manual, as a component of the RMDP, shall constitute the approved maintenance procedures to minimize and avoid impacts to endangered species and to minimize impacts to other riparian resources and special-status species. The following project design features have been incorporated to reduce, and in many cases, eliminate routine maintenance, and therefore, avoid impacts:

- The use of buried soil cement, and other buried bank stabilization, eliminates the need to clear a zone at the base of the riverbank or creek-bank where buried bank stabilization is located.
- Grade control and drop structures are designed to be primarily self-cleaning with limited need for sediment removal or vegetation control.
- Bridges, in general, are designed with sufficient clearance to allow passage of flood flows while allowing natural vegetation in the channel bottom.
- Large trees would be allowed to grow in the upland or transitional habitat zones (typically consisting of upland scrub and grassland mitigation areas constructed along the margins of stream courses), at or near buried soil cement and other bank stabilization features.

Where maintenance is necessary, activities would be subject to the *General* and *Feature-Specifi*c Maintenance Measures discussed in this manual (*Sections 2.1 and 2.2, below*). Based on these considerations, routine maintenance activities in the project area are anticipated to be minor in scope and effect, although the location, frequency, and aerial extent of future maintenance activities cannot be fully predicted. Typical impacts to riparian habitat due to a single routine maintenance activity can be estimated as is done in the following examples:

Example No. 1: Channel Clearance near Bridges. There is a need to clear vegetation 25 feet upstream and downstream of proposed culverts and certain bridges. This clearing would be accomplished by mechanical equipment that would access the riverbed or creekbed via a service ramp or across dry scrub habitat, travel across the riverbed or creekbed to the bridge or culvert location, and then remove woody vegetation (*i.e.*, large trees that may collect flood debris). The estimated extent of impact for each bridge is indicated in the *Feature-Specific* section below.

Example No. 2: Removing Trees from Rip-rap. Owner/Permittee will need to remove large trees that are four or more inches in diameter from rip-rap, and from a 15-foot-wide zone at the base of the rip-rap or exposed gunite lining at bridges to ensure that the structural integrity of the rip-rap or lining is maintained. If feasible, trees would be removed by hand or equipment from the service road at the top of the bank stabilization. If this method is not feasible, crews would access the riverbed from the nearest service ramp, travel across the riverbed to the maintenance

location, then remove vegetation working from a 30-foot-wide zone at the base of the rip-rap or exposed gunite. Only hand held equipment would be used to cut the vegetation. Equipment would primarily be limited to that equipment necessary to provide access to the upper branches of large trees and equipment necessary to haul the cut materials from the riverbed. Typical disturbance of riverbed habitats under this example would be less than 0.2 acre, assuming a work area 100 by 30 feet and a 500-foot-long temporary access road.

Example No. 3: Clearing Storm Drain Outlets. There will be an ongoing need to remove sediments and woody vegetation from storm drain outlets. The proposed outlet design would include concrete, or grouted riprap, apron on selected outlets to discourage the establishment of vegetation at the mouth of the outlet. If sufficient vegetation and sediments accumulate at an outlet, owner/Permittee would need to access the river and remove the obstruction using light equipment (e.g., bobcat, small excavator, backhoe, D-6 Dozer) or hand crews, and create up to a 10-foot-wide pilot channel up to 75 feet in length. Typical disturbance of riverbed habitats under this example would be less than 0.2 acre.

Example No. 4: Clearing Debris Basin/water quality or flow attenuation basins. There will be an ongoing need to remove sediments and woody vegetation from debris basins and water quality or flow attenuation basins to ensure adequate flood capacity and infiltration performance. The proposed designs would include soft-bottom basin areas with subdrains, underdrains, and specialized outlet structures, some to discourage the establishment of vegetation while in other areas being fully dependent upon vegetation establishment for proper function. If sufficient vegetation and sediments accumulate, vegetation is no longer performing as intended, or infiltration is no longer occurring, owner/Permittee would need to access the feature and remove, repair, replace or otherwise correct the deficiency using heavy equipment (e.g., Dozer, loader, excavator), light equipment (e.g., Bobcat tractors) and/or hand crews. The extent of maintenance is graphically indicated in *Feature-Specific* information below. Depending on the capacity of any given structure, the acreage would be highly variable (from less than 1 acre-foot up to 50 acre-foot capacity).

1.7.1 Impact of Emissions from Maintenance

Maintenance activities would cause emissions due to equipment operation, vehicle trips, and dust emissions associated with the periodic clearing of vegetation from bridges and culverts, removal of vegetation from rip-rap, and repair of flood control facilities. These emissions would be localized and short-term. Emissions from periodic maintenance activities are expected to be minimal.

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2.0 MAINTENANCE MANUAL

2.1 General Measures

Subsection 7.7 of the RMDP provides descriptions of restrictions and conditions to avoid, minimize, and mitigate impacts to sensitive habitats and special-status species during implementation of maintenance activities. The general mitigation measures adopted for Construction under the RMDP are applicable to Maintenance Activities as listed below. Slight modification to the Construction measures have been made where necessary to make measures specific to Maintenance.

2.1.1 Access, Work Zone Restrictions & Monitoring

A-1 Maintenance plans shall include necessary design features and construction notes to ensure protection of vegetation communities and special-status plant and aquatic wildlife species adjacent to maintenance activities. In addition to applicable erosion control plans and performance under SCAQMD Rule 403d dust control (SCAQMD 2005), the Project stormwater pollution prevention plan (SWPPP), as applicable, shall include the following minimum BMPs. As many Maintenance activities may not require a SWPPP due to project size, where necessary, a separate written plan shall be implemented with these requirements. Together, the implementation of these requirements shall ensure protection of adjacent habitats and wildlife species during maintenance. At a minimum, the following measures/restrictions shall be incorporated into the SWPPP, and noted on maintenance plans where appropriate, to avoid impacting special-status species during maintenance activities:

- Avoid planting or seeding invasive species in development areas within 200 feet of native vegetation communities.
- Provide location and details for any dust control fencing along Project boundaries (BIO-71).
- Vehicles shall not be driven or equipment operated in areas of ponded or flowing water, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as otherwise provided for in the 404 Permit or 1603 Agreement.
- Silt settling basins installed during the maintenance process shall be located away from areas of ponded or flowing water to prevent discolored, silt-bearing water from reaching areas of ponded or flowing water during normal flow regimes.
- If a stream channel has been altered during the construction and/or maintenance operations, its low flow channel shall be returned as nearly as practical to

pre-Project topographic conditions without creating a possible future bank erosion problem or a flat, wide channel or sluice-like area. The gradient of the streambed shall be returned to pre-Project grade, to the extent practical, unless it represents a wetland restoration area.

- Temporary structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
- Staging/storage areas for construction equipment and materials shall be located outside of the ordinary high water mark.
- Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks of materials that could be deleterious to aquatic life if introduced to water.
- Stationary equipment such as motors, pumps, generators, and welders which may be located within the riverbed maintenance zone shall be positioned over drip pans. No fuel storage tanks shall be allowed in the riverbed.
- No debris, bark, slash sawdust, rubbish, cement or concrete or washing thereof, oil, petroleum products, or other organic material from any maintenance, or associated activity of whatever nature, shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, watercourses included in the permit. When maintenance operations are completed, any excess materials or debris shall be removed from the work area.
- No equipment maintenance shall be done within or near any stream where petroleum products or other pollutants from the equipment may enter these areas with stream flow.
- The operator shall install and use fully covered trash receptacles to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash.
- The operator shall not permit pets on or adjacent to the maintenance site.
- No guns or other weapons are allowed on the maintenance site during maintenance, with the exception of the security personnel and only for security functions. No hunting shall be authorized/permitted during maintenance (BIO-70).

A-2 All native riparian trees with a three-inch diameter at breast height (dbh) or greater in temporary maintenance areas shall be replaced using one- or five-gallon container plants, containered trees, or pole cuttings in the temporary maintenance areas in the winter following the maintenance disturbance. The mitigation ratios for temporary impacts to

vegetation communities are described in BIO-2. The growth and survival of the replacement trees shall meet the performance standards specified in BIO-6. In addition, the growth and survival of the planted trees shall be monitored until they meet the self sustaining success criteria in accordance with the methods and reporting procedures specified in BIO-6, BIO-7, BIO-11, and BIO-12 (BIO-15).

A-3 Native vegetation, which is free of invasive species, within temporary maintenance work areas may be mulched and spread, where appropriate, over the temporary impact areas once maintenance work is complete in order to facilitate revegetation. If vegetation is cut to ground level only, with the likelihood of re-growth, then cuttings may be removed from the maintenance site for recycling.

A-4 Man-made features (such as debris basins, water quality basins, infiltration structures, and water quality swales) constructed in upland locations are not jurisdictional features, however, measures in this maintenance plan are to be applied to those structures to protect fish and wildlife resources..

A-5 Equipment shall not be operated in areas of ponded or flowing water unless authorized by CDFG and USFWS (BIO-45).

A-6 Silt settling basins installed during the maintenance process shall be located away from areas of ponded or flowing water to prevent discolored, silt-bearing water from reaching areas of ponded or flowing water during normal flow regimes (BIO-70).

A-7 Water containing mud, silt, or other pollutants from maintenance activities shall not be allowed to enter a flowing stream or be placed in locations that may be subject to normal storm flows during periods when storm flows can reasonably be expected to occur (BIO-49).

A-8 If a stream channel has been altered during maintenance, the low flow channel shall be returned as nearly as practical to pre-Project topographic conditions without creating a possible future bank erosion problem or a flat, wide channel or sluice-like area. The gradient of the streambed shall be returned to pre-Project grade, to the extent practical, unless it represents a wetland restoration area (BIO-70).

A-9 Temporary structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur (BIO-70).

A-10 Staging/storage areas for maintenance equipment and materials shall be located outside of the ordinary high water mark (BIO-70).

A-11 Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks of materials that could be deleterious to aquatic life if introduced to water (BIO-70).

A-12 Stationary equipment, such as motors, pumps, generators, and welders that may be located within the riverbed maintenance zone shall be positioned over drip pans. No fuel tanks shall be allowed in the riverbed (BIO-70).

A-13 No debris, bark, slash sawdust, rubbish, cement or concrete or washing thereof, oil, petroleum products, or other organic material from any maintenance activity shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, watercourses included in the permit. When maintenance is completed, any excess materials or debris shall be removed from the work area (BIO-70).

A-14 No equipment maintenance shall be done within or near any stream where petroleum products or other pollutants from the equipment may enter these areas with stream flow (BIO-70).

A-15 Vehicles shall not be driven or equipment operated in areas of ponded or flowing water, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as authorized by CDFG, Corps and USFWS.

A-16 The Permittee shall install and use fully covered trash receptacles to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. All trash should be removed at the end of each work day (BIO-70).

A-17 If arroyo toad are present, the Permittee's maintenance activities shall be limited to the period of daylight hours; no night work is authorized.

A-18 To reduce the potential for the spread of New Zealand mud snails and weeds (including weed seeds) during Project clearing and maintenance, all heavy equipment proposed for use on the Project site shall be verified cleaned (including wheels, tracks, undercarriages, and bumpers, as applicable) before delivery to the Project site. Equipment must be documented as mud snail and weed free upon delivery to the Project site initial staging area, including: (1) vegetation clearing equipment (skid steer loaders, loaders, dozers, backhoes, excavators, chippers, grinders, and any hauling equipment, such as off-road haul trucks, flat bed, or other vehicles); (2) earth-moving equipment (scrapers, dozers, excavators, loaders, motor-graders, compactors, backhoes, off-road water trucks, and off-road haul trucks); and (3) all Project-associated vehicles (including personal vehicles) that, upon inspection by the monitoring biologist, are deemed to present a risk for spreading mud snails or weeds. Equipment shall be cleaned at existing construction yards or at a wash station. The biological monitor shall document that all construction equipment (as described above) has been cleaned prior to working within the Project work site. Any equipment/vehicles determined to not be free of mud snails and weeds shall immediately be sent back to the originating construction yard for washing, or wash station where rinse water is collected and disposed of in either a sanitary sewer or other legal point of disposal. Equipment/vehicles moved from the site must be inspected, and

re-washed as necessary, prior to re-engaging in maintenance activities in the Project work area. A written daily log shall be kept for all vehicle/equipment washing that states the date, time, location, type of equipment washed, methods used, and location of work (BIO-52).

2.1.2 Special-Status Aquatic Species Avoidance/Mitigation

B-1 Prior to initiating maintenance of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other maintenance activities that result in any disturbance to the banks or wetted channel, aquatic habitats within maintenance sites and access roads, as well as all aquatic habitats within 300 feet of maintenance sites and access roads, shall be surveyed by a qualified biologist for the presence of the unarmored threespine stickleback, arroyo chub, and Santa Ana sucker. The Corps and CDFG shall be notified at least 14 days prior to the survey and shall have the option of attending. The biologist shall file a written report of the survey with both agencies within 14 days of the survey and no later than 10 days prior to any maintenance work in the riverbed. If there is evidence that fish spawn has occurred in the survey area, then surveys shall cease unless otherwise authorized by USFWS. If surveys determine that gravid fish are present, that spawning has recently occurred, or that juvenile fish are present in the proposed maintenance areas, all activities within aquatic habitat will be suspended. Maintenance within aquatic habitats shall only occur when it is determined that juvenile fish are not present within the Project area (BIO-43).

B-2 Conduct focused surveys for California red-legged frogs. Prior to initiating maintenance of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other maintenance activities, all maintenance sites and access roads within the riverbed as well as all riverbed areas within 1,000 feet of maintenance sites and access roads shall be surveyed at the appropriate season for California red-legged frogs. The applicant shall contract with a qualified biologist to conduct focused surveys for California red-legged frogs. If detected in or adjacent to the Project area, no work will be authorized within 500 feet of occupied habitat until the applicant provides concurrence from the USFWS to CDFG and Corps. If present, the applicant shall implement measures required by the USFWS Biological Opinion for California red-legged frog that either supplement or supersede these measures. If present, the applicant shall develop and implement a monitoring plan that includes the following measures in consultation with the USFWS and CDFG:

1. The applicant shall retain a qualified biologist with demonstrated expertise with California red-legged frogs to monitor all maintenance activities in potential red-legged frog habitat and assist the applicant in the implementation of the monitoring program. This person will be approved by the USFWS prior to the

onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of California red-legged frogs.

2. Prior to the onset of maintenance activities, the applicant shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:

   a. A detailed description of the California red-legged frogs, including color photographs;

   b. The protection the California red-legged frog receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;

   c. The protective measures being implemented to conserve the California red-legged frogs and other species during maintenance activities associated with the proposed Project; and

   d. A point of contact if California red-legged frogs are observed.

3. All trash that may attract predators of the California red-legged frogs will be removed from work sites or completely secured at the end of each work day.

4. Prior to the onset of any maintenance activities, the applicant shall meet on site with staff from the USFWS and the authorized biologist. The applicant shall provide information on the general location of maintenance activities within habitat of the California red-legged frogs and the actions taken to reduce impacts to this species. Because California red-legged frogs may occur in various locations during different seasons of the year, the applicant, USFWS, and authorized biologist will, at this preliminary meeting, determine the seasons when specific maintenance activities would have the least adverse effect on California red-legged frogs. The goal of this effort is to reduce the level of mortality of California red-legged frogs during maintenance.

5. Work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the USFWS/CDFG. All workers will be advised that equipment and vehicles must remain within the fenced work areas.

6. The authorized biologist will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any California red-legged frogs from within the fenced area to suitable habitat outside of the fence. If California red-legged frogs are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary in concurrence with the USFWS/CDFG.

7. Fencing to exclude California red-legged frogs will be at least 24 inches in height.

8. The type of fencing must be approved by the authorized biologist and the USFWS/CDFG.

9. Maintenance activities that may occur immediately adjacent to breeding pools or other areas where large numbers of California red-legged frogs may congregate will be conducted during times of the year (fall/winter) when individuals have dispersed from these areas. The authorized biologist will assist the applicant in scheduling its work activities accordingly.

10. If California red-legged frogs are found within an area that has been fenced to exclude California red-legged frogs, activities will cease until the authorized biologist moves the California red-legged frog(s).

11. If California red-legged frogs are found in a maintenance area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the California red-legged frogs. The authorized biologist in consultation with USFWS/CDFG will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist and USFWS.

12. Any California red-legged frogs found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, access to deep perennial pools, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.

13. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

14. Staging areas for all maintenance activities will be located on previously disturbed upland areas, if possible, designated for this purpose. All staging areas will be fenced.

15. To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (DAPTF 2009) will be followed at all times (BIO-18).

B-3 Prior to initiating maintenance of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other maintenance activities, all maintenance sites and access roads within the riverbed as well as all riverbed areas within 500 feet of maintenance sites and access roads shall be surveyed at the appropriate season for southwestern pond turtle. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between April 1 and June 1. The survey schedule may be adjusted in consultation with CDFG to reflect the existing weather or stream conditions. The applicant shall develop a Plan to address the relocation of southwestern pond turtle. The Plan shall include but not be limited to the timing and location of the surveys that would be conducted for this species; identify the locations where more intensive efforts should be conducted; identify the habitat and conditions in the proposed relocation site(s); the methods that would be utilized for trapping and relocating individuals; and provide for the documentation/recordation of the numbers of animals relocated. The Plan shall be submitted to CDFG for approval 60 days prior to any ground-disturbing activities within potentially occupied habitat.

If southwestern pond turtles are detected in or adjacent to the Project, nesting surveys shall be conducted. Focused surveys for evidence of southwestern pond turtle nesting shall be conducted in, or adjacent to, the Project when suitable nesting habitat exists within 1,300 feet of occupied habitat in an area where Project-related ground disturbance will occur (*e.g.*, development, ground disturbance). If both of those conditions are met, a qualified biologist shall conduct focused, systematic surveys for southwestern pond turtle nesting sites. The survey area shall include all suitable nesting habitat within 1,300 feet of occupied habitat in which Project-related ground disturbance will occur. This area may be adjusted based on the existing topographical features on a case-by-case basis with the approval of CDFG. Surveys will entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation.

If a southwestern pond turtle nesting area would be adversely impacted by maintenance activities, the applicant shall avoid the nesting area. If avoidance of the nesting area is determined to be infeasible, the authorized biologist shall coordinate with CDFG to

identify if it is possible to relocate the pond turtles. Eggs or hatchlings shall not be moved without written authorization from CDFG.

The qualified biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of southwestern pond turtle. Clearance surveys for pond turtles shall be conducted within 500 feet of potential habitat by the authorized biologist prior to the initiation of maintenance each day. The resume of the proposed biologist will be provided to CDFG for approval prior to conducting the surveys (BIO-50).

B-4 Prior to maintenance activities, a qualified biologist shall conduct surveys for the western spadefoot toad within all portions of the Project site containing suitable breeding habitat. If the western spadefoot toad is found on site, measures including habitat creation at a 2:1 ratio, pre-construction surveys, relocation of adults/tadpoles and egg masses, and monitoring for five years will be implemented.

B-5 Requires focused surveys for the spring snail (*Pyrgulopsis castaicensis* n. sp.) by a qualified biologist prior to the commencement of maintenance activities in any drainage area supporting perennial flow. Any individuals of the *Pyrgulopsis castaicensis* n. sp. found within the Middle Canyon drainage shall be relocated to appropriate habitat within Middle Canyon Spring. If *Pyrgulopsis castaicensis* n. sp. are discovered during aquatic and semi-aquatic pre-maintenance surveys in any other perennial flowing water, the applicant shall consult with CDFG prior to initiating disturbance of the area. A report documenting the number of *Pyrgulopsis castaicensis* n. sp. located, the conditions of the area, and where the species has been relocated to, if applicable, shall be submitted to CDFG within 60 days following the relocation (BIO-86).

B-6 Stream diversion bypass channels will be constructed when the active wetted channel is within the work zone. Diversion bypass channels will be built in accordance with BIO-44 and in consultation with CDFG/USFWS. Equipment shall not be operated in areas of ponded or flowing water unless authorized by CDFG/USFWS.

The diversion channel shall be of a width and depth comparable to the natural river channel. In all cases where flowing water is diverted from a segment of the stream channel, the bypass channel will be constructed prior to the diversion of the active stream. The bypass channel will be constructed prior to diverting the stream, beginning in the downstream area and continuing in an upstream direction. Where feasible and in consultation with CDFG/USFWS, the configuration of the diversion channel will be curved (sinuous) with multiple sets of obstructions (*i.e.*, boulders, large logs, or other CDFG/USFWS-approved materials) placed in the channel at the point of each curve (*i.e.*, on alternating sides of the channel). If emergent aquatic vegetation is present in the original channel, the applicant will transplant suitable vegetation into the diversion

channel and on the banks prior to or at the time of the water diversion. A qualified restoration ecologist will supervise the construction of the diversion channels on site. The integrity of the channel and diversion shall be maintained throughout the intended diversion period. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area.

Construction of diversion channels shall not occur if surveys determine that gravid fish are present, spawning has recently occurred, or juvenile fish are present in the proposed maintenance areas.

At the conclusion of the diversion, either at the commencement of the winter season, or the completion of maintenance, the applicant will coordinate with CDFG/USFWS to determine if the diversion should be left in place or the stream returned to the original channel. If CDFG/USFWS determine the stream should be diverted to the original channel, the original channel will be modified prior to re-diversion (*i.e.*, while dry) to construct curves (sinuosity) into that channel, including the placement of obstructions (*i.e.*, boulders, large logs, or other CDFG/USFWS-approved materials). The original channel will be replanted with emergent vegetation as the diversion channel was planted. If the diversion channel is abandoned, the boulders will remain in place (BIO-45).

B-7 During any stream diversion or culvert installation activity, a qualified biologist(s) shall be present and shall patrol the areas within, upstream, and downstream of the work area. The biologists shall inspect the diversion and inspect for stranded fish or other aquatic organisms. Under no circumstances shall the unarmored threespine stickleback be collected or relocated, unless USFWS personnel or their agents implement this measure. Any event involving stranded fish shall be recorded and reported to CDFG and USFWS within 24 hours (BIO-46).

B-8 Installation of bridges, culverts, or other structures shall not impair the movement of fish and aquatic life. Bottoms of temporary culverts shall be placed at or below channel grade. Bottoms of permanent culverts shall be placed below channel grade. Culvert crossings shall include provisions for a low flow channel where velocities are less than two feet per second to allow fish passage (BIO-48).

2.1.3 Special-Status Bird Species Avoidance/Mitigation

C-1 All maintenance and repair work, excluding emergency work (defined as maintenance activities of an urgent nature, requiring rapid implementation, but which do not otherwise meet the criteria of an emergency under Fish and Game Code, Section 1610), shall occur between August 1 and March 15 (which is outside of the breeding season for special-status riparian birds, such as the least Bell's vireo) for facilities along the Santa Clara

River. In-channel maintenance work that must occur between March 15 and August 1 in these areas shall follow the additional procedures below.

C-2 Within 30 days of ground-disturbing activities associated with maintenance activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically March through August in the Project region, or as determined by a qualified biologist), the applicant shall have weekly surveys conducted by a qualified biologist to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. Pre-maintenance surveys shall include nighttime surveys to identify active rookery sites. The surveys shall continue on a weekly basis, with the last survey being conducted no more than seven days prior to initiation of disturbance work. If ground-disturbing activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than seven days will have elapsed between the survey and ground-disturbing activities (BIO-56).

C-3 If active nests are found, clearing and maintenance within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, at the discretion of the biologist in consultation with CDFG, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. In the event that golden eagles establish an active nest in the River Corridor SMA, the buffers will be established in consultation with CDFG. Potential golden eagle nesting will be reported to CDFG within 24 hours. Limits of maintenance to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers and maintenance personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when maintenance activities will occur near active nest areas to ensure that no inadvertent impacts to these nests occur. Results of the surveys shall be provided to CDFG in the annual mitigation status report (BIO-56).

C-4 For listed riparian songbirds (least Bell's vireo, southwestern willow flycatcher, yellow-billed cuckoo) USFWS protocol surveys shall be conducted. If active nests are found, clearing and maintenance within 300 feet of the nest shall be postponed or halted, at the discretion of the biologist in consultation with CDFG and USFWS, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. If no active nests are observed, maintenance may proceed. If active nests are found, work may proceed provided that maintenance activity is located at least 300 feet from active nests (or as authorized through the context of the Biological Opinion and 2081b Incidental Take Permit). This buffer may be adjusted provided noise levels do not exceed 60 dBA hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician (BIO-56).

If the noise meets or exceeds the 60 dBA Leq threshold, or if the biologist determines that the maintenance activities are disturbing nesting activities, the biologist shall have the authority to halt the maintenance and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the maintenance activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dBA Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, maintenance shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to CDFG and USFWS (BIO-56).

C-5 For coastal California gnatcatcher, the applicant shall conduct USFWS protocol surveys in suitable habitat within the Project area and all areas within 500 feet of access or maintenance-related disturbance areas. Suitable habitats, according to the protocol, include "coastal sage scrub, alluvial fan, chaparral, or intermixed or adjacent areas of grassland and riparian habitats." A permitted biologist shall perform these surveys according to the USFWS' (1997a) Coastal California Gnatcatcher Presence/Absence Survey Guidelines. If a territory or nest is confirmed, the USFWS and CDFG shall be notified immediately. If present, a 500-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. No Project activities may occur in these areas unless otherwise authorized by USFWS and CDFG. Maintenance activities in suitable gnatcatcher habitat will be monitored by a full-time qualified biologist. The monitoring shall be of a sufficient intensity to ensure that the biologist could detect the presence of a bird in the maintenance area (BIO-56).

C-6 Thirty days prior to maintenance activities, a qualified biologist shall conduct CDFG protocol surveys to determine whether the burrowing owl is present at the site. The surveys shall consist of three site visits and shall be conducted in areas dominated by field crops, disturbed habitat, grasslands, and along levee locations, or if such habitats occur within 500 feet of a maintenance zone. If located, occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. If the burrowing owl is detected but nesting is not occurring, maintenance work can proceed after any owls have been evacuated from the site using CDFG-approved burrow closure procedures and after alternative nest sites have been provided in accordance with the CDFG Staff Report on Burrowing Owl Mitigation (10-17-95) (BIO-57).

C-7 Unless otherwise authorized by CDFG, a 500-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season. This protected area will remain in effect until August 31 or at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently (BIO-57).

C-8 Results of the surveys and relocation efforts shall be provided to CDFG in the annual mitigation status report (BIO-57).

a. All surfaces on new antennae and phone/utility towers shall be designed and operated with anti-perching devices in conformance with APLIC standards to deter California condors and other raptors from perching. During maintenance the area shall be kept clean of debris, such as cable, trash, and construction materials. The applicant shall collect all microtrash and litter (anything shiny, such as broken glass), vehicle fluids, and food waste from the Project area on a daily basis. Workers will be trained on the issue of microtrash: what constitutes microtrash, its potential effects on California condors, and how to avoid the deposition of microtrash.

b. The applicant shall retain a qualified biologist with knowledge of California condors to monitor maintenance activities within the Project area. The resumes of the proposed biologist(s) will be provided to CDFG for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. During clearing and grubbing of maintenance areas, the qualified biologist shall be present at all times. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed landing in the Project area, the applicant shall avoid further maintenance within 500 feet of the sighting until the animals have left the area, or as otherwise authorized by CDFG and USFWS. All condor sightings in the Project area will be reported to CDFG and USFWS within 24 hours of the sighting. Should condors be found roosting within 0.5 mile of the maintenance area, no maintenance activity shall occur between one hour before sunset to one hour after sunrise, or until the condors leave the area, or as otherwise directed by USFWS. Should condors be found nesting within 1.5 miles of the maintenance area, no maintenance activity will occur until further authorization occurs from CDFG and USFWS.

c. To further protect California condor potentially foraging in the Project area over the long term from negative interactions with humans and/or artificial structures, the applicant or the JPA or the NLMO shall remove dead cattle

that are found or reported within 1,000 feet of a residential or commercial development boundary. Dead cattle shall be relocated to a predetermined location within the High Country SMA or Salt Creek area. The locations where carcasses shall be placed shall be a minimum of 1,000 feet from a development area boundary. Appropriate locations for transfer of carcasses include open grasslands and oak/grassland areas where condors can readily detect carcasses and easily land and take off without encountering physical obstacles such as powerlines and other utility structures. The proposed locations would be selected and approved by the CDFG and USFWS. Pursuant to this measure, a telephone number for reporting dead cattle shall be provided and actively maintained. Any cattle carcasses transferred to the relocation areas shall be reported to the USFWS Condor group (BIO-82).

2.1.4 Special-Status Mammal, Reptile, and Insect Species Avoidance/Mitigation

D-1 Prior to maintenance work, the applicant shall develop a relocation plan for coast horned lizard, silvery legless lizard, coastal western whiptail, rosy boa, San Bernardino ringneck snake, and coast patch-nosed snake. The Plan shall include the specific survey and relocation efforts that would occur for maintenance activities that occur both during the activity period of the special-status species (generally March to November) and for periods when the species may be present in the work area but difficult to detect due to weather conditions (generally December to February). Qualified biologists shall conduct surveys to capture and relocate individuals 30 days prior to maintenance activities in suitable habitat. The qualified biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of these species. Clearance surveys for special-status reptiles shall be conducted by a qualified biologist prior to the initiation of maintenance activities each day BIO-54).

D-2 Thirty days prior to maintenance activities in suitable habitat, a qualified biologist shall conduct a survey, within the proposed disturbance zone and within 200 feet of the disturbance zone, for American badger. If American badgers are present, occupied habitat shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during the pup-rearing season and a minimum 200 foot buffer established. This buffer may be reduced based on the location of the den upon consultation with the CDFG. Maternity dens shall be flagged for avoidance, identified on maintenance maps, and a qualified biologist shall be present during maintenance. If avoidance of a non-maternity den is not feasible, badgers shall be relocated either by trapping or by slowly excavating the burrow before or after the rearing season. Any relocation of badgers shall occur only after consultation with the CDFG (BIO-41).

D-3 Thirty days prior to maintenance activities in suitable habitat, a qualified biologist shall conduct a survey, within the proposed disturbance zone and within 200 feet of the disturbance zone, for San Diego desert woodrat. If active San Diego desert woodrat nests (stick houses) are identified within the disturbance zone or within 100 feet of the disturbance zone, a fence shall be erected around the nest site adequate to provide the woodrat sufficient foraging habitat, at the discretion of the qualified biologist in consultation with CDFG. Maintenance activities within the fenced area will be postponed or halted until young have left the nest. The biologist shall serve as a monitor during those periods when disturbance activities will occur near active nest areas to ensure that no inadvertent impacts to these nests will occur. If avoidance is not possible, a qualified biologist shall relocate nests off site, to be spaced no closer than 100 feet apart. Collection and relocation of animals shall only occur with the proper scientific collection and handling permits (BIO-58).

D-4 Thirty days prior to maintenance activities in suitable habitat, a qualified biologist shall conduct a survey, within the proposed disturbance zone and within 200 feet of the disturbance zone, for San Diego black-tailed jackrabbit. If San Diego black-tailed jackrabbits are present, non-breeding rabbits shall be flushed from areas to be disturbed. Dens, depressions, nests, or burrows occupied by pups shall be flagged and ground-disturbing activities avoided within a minimum of 200 feet during the pup rearing season. This buffer may be reduced based on the location of the den upon consultation with the CDFG. Occupied maternity dens, depressions, nests, or burrows shall be flagged for avoidance and a biological monitor shall be present during maintenance activities. Unattended young shall be relocated to suitable habitat by a qualified biologist. Collection and relocation of animals shall only occur with the proper scientific collection and handling permits (BIO-58).

D-5 Prior to initiating maintenance of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other maintenance activities, all maintenance sites and access roads within the riverbed as well as all riverbed areas within 300 feet of maintenance sites and access roads shall be surveyed at the appropriate season for two-striped garter snake and south coast garter snake. Focused surveys shall consist of a minimum of four daytime surveys, to be completed between April 1 and September 1. The survey schedule may be adjusted in consultation with CDFG to reflect the existing weather or stream conditions. If located, the species will be relocated to suitable pre-approved locations identified in the two-striped garter snake and/or south coast garter snake Relocation Plan. The applicant shall develop a Plan to address the relocation of two-striped garter snake and south coast garter snake. The Plan shall include but not be limited to the timing and location of the surveys that would be conducted for each species, identify the locations where more intensive efforts should be conducted,

identify the habitat and conditions in the proposed relocation site(s), identify the methods that would be utilized for trapping and relocating the individual species, and provide for the documentation/recordation of the species and number of animals relocated. The Plan shall be submitted to CDFG for approval 60 days prior to any ground-disturbing activities, within potentially occupied habitat.

The qualified biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of two-striped garter snake and/or south coast garter snake. Clearance surveys for garter snakes shall be conducted within 200 feet of potential habitat by the authorized biologist prior to the initiation of maintenance each day. The resume of the proposed biologists will be provided to CDFG for approval prior to conducting the surveys (BIO-89).

D-6 No earlier than 30 days prior to the commencement of maintenance activities, a pre-construction survey shall be conducted by a qualified biologist to determine if active roosts of bats (special-status and common species) are present on or within 300 feet of the Project disturbance boundaries. Should an active maternity roost be identified (in California, the breeding season of native bat species is generally from April 1 through August 31), the roost shall not be disturbed and maintenance within 300 feet shall be postponed or halted, until the roost is vacated and juveniles have fledged. Surveys shall include rocky outcrops, caves, structures, and large trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities). Trees and rocky outcrops shall be surveyed by a qualified bat biologist (*i.e.*, a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle bats). If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (*i.e.*, not removed) by the Project. If avoidance of the maternity roost must occur, the bat biologist shall survey (through the use of radio telemetry or other CDFG approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of CDFG that there are alternative roost sites used by the maternity colony and young are not present then no further action is required.

If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Large concrete walls (*e.g.*, on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative potential roosting habitat appropriate for maternity colonies. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. CDFG shall also be notified of any hibernacula or active nurseries within the maintenance zone (BIO-61).

If non-breeding bat hibernacula are found in trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (*e.g.*, installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern coastal California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist in consultation with CDFG shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (*i.e.*, there shall be no less or more than one night between initial disturbance and the grading or tree removal). These actions should allow bats to leave during nighttime hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight.

If an active maternity roost is located on the Project site, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (*i.e.*, prior to March 1) or after young are flying (*i.e.*, after July 31) using the exclusion techniques described above (BIO-61).

D-7 Pre-construction surveys for San Emigdio blue butterfly shall occur in all areas containing host plants in sufficient density to support this species. A qualified Lepidoptera biologist shall conduct focused surveys at a time of year and during weather conditions when the detection of eggs, larvae, or adults is possible. All occupied habitat shall be mapped and the locations provided to CDFG. Should the removal of quail brush or other documented host plants from occupied San Emigdio blue butterfly habitat in Potrero Canyon or other areas be required, the plants shall be removed when eggs and larvae are not present (*i.e.*, mid-September to March). Removal of quail brush plants from the documented habitat in Potrero Canyon may only be conducted from April through early September if it is determined by a qualified biologist that eggs and/or larvae are not present on the plants to be removed (BIO-65).

2.1.5 Invasive Species Control

E-1 As the features constructed to treat and control stormwater and non-stormwater runoff often include permanent pools of water or hydraulic and soil conditions conducive to infestation by non-native species (both plant and animal), the following mitigation measures have been developed to establish criteria and methods to prevent or eradicate such species.

E-2 Monitoring of storm-water height at Dry Basins:

a. If standing water more than 6 inches in depth is found within any of the ponds during the summer months, measures should be implemented to change the outlet from the pond to assure continual draining and to allow the floor to dry for a period of at least six weeks.

b. The purpose of this maintenance action is to eradicate non-native frog species and mosquitoes within the pond, while allowing the pond to function as intended.

c. Alternatively, the ponds may be pumped and inflow diverted for 6 weeks during the summer to accomplish this same goal. Water removed from the pond facilities for maintenance may be spread in open space areas that have been approved by DFG or trucked to an approved water disposal site.

d. This does not apply to Wet Ponds, Lakes, or other features where a permanent wetted pool is a function of the design. Other methods shall be employed in the event of an infestation.

E-3 Invasive vegetation, such as giant reed, castor bean, Pampas grass, and tamarisk must be removed. Invasive species should never contribute more than 25% of the vegetated area of the basin or feature. For more information on invasive weeds, including biology and control of listed weeds, refer to the encyclopedia located at the California Department of Food and Agriculture website (http://www.cdfa.ca.gov/wma) and the California Invasive Plant Council website (http://portal.cal-ipc.org/weedlist).

a. The Permittee shall remove any non-native vegetation (e.g., tree tobacco, castor bean, giant cane) from the maintenance work area and shall dispose of it in a manner and a location which prevents its reestablishment.

b. Removal shall be done at least twice annually during the spring/summer season, as needed.

i. Giant cane, if present, shall be cut to a height of 6 inches or less, and the stumps painted with an herbicide approved for aquatic use within 5 minutes of cutting.

ii. Herbicides shall be applied at least three times during the period from May 1 to October 1 to eradicate these plants.

c. Where proposed methods for removing giant cane deviate from this procedure, the Permittee shall present the alternate methods, in writing, to the Department for review and approval, prior to maintenance.

d. Whenever possible, invasive species shall be removed by hand or by hand-operated power tools, rather than by chemical means.

e. If there is a possibility that the herbicides could come into contact with water, the Permittee shall employ only those herbicides, such as Rodeo (Glyphosate), which are approved for aquatic use. If surfactants are required, they shall be restricted to non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use.

f. The Permittee shall apply any herbicides/pesticides in accordance with state and federal law.

i. No herbicides/pesticides shall be used where threatened or endangered species occur.

ii. No herbicides/pesticides shall be used when wind velocities are above 5 miles per hour.

iii. No herbicides/pesticides shall be used on native vegetation unless specifically authorized, in writing, by the Department.

E-4 Any temporary erosion control features, such as straw bales, should be free of invasive weed species. All erosion control fabric, straw bales, or other features should be removed at the end of the maintenance activity. Straw bales should not be used in wetted areas where sensitive fish require the soil for any portion of their life cycles.

E-5 At the completion of maintenance activities (no later than April 1 of the year following maintenance activity) a maintenance completion report shall be submitted to CDFG, the Corps and the Los Angeles Regional Water Quality Control Board. The report shall include the dates of maintenance, a description of the maintenance area, description of maintenance completed, summary of pre-maintenance biological surveys, summary of biological monitoring completed during maintenance activity, photo documentation of completed maintenance activity, and whether any special status plant or animal species were encountered, and if so, details of their relocation or exclusion from the work area.

2.2 Feature-Specific Measures

2.2.1 Channel Clearing Near Bridges

FS-A1 Vegetation and/or debris will be removed on an as-needed basis, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, as determined by Permittee from the bridges listed below. Vegetation and debris may be removed by heavy equipment. Equipment within the river shall be operated within the above-described removal areas which shall be demarcated with temporary fencing or staking:

A. Commerce Center Bridge: no clearing required

B. Hwy 126 Bridge over Castaic Creek: 25 feet upstream, 25 feet downstream, 420-foot-wide bridge

C. Hwy 126 Bridge/Culvert & bike trail over Chiquito Canyon Creek: 25 feet upstream & 25 feet downstream along 100-foot-wide bridge; and Sediment removal to maintain minimum vertical clearance beneath roadway

D. Hwy 126 Culvert & bike trail over San Martinez Grande Canyon Creek: 25 feet upstream & 25 feet downstream along 100-foot-wide bridge; and Sediment removal to maintain minimum vertical clearance beneath roadway

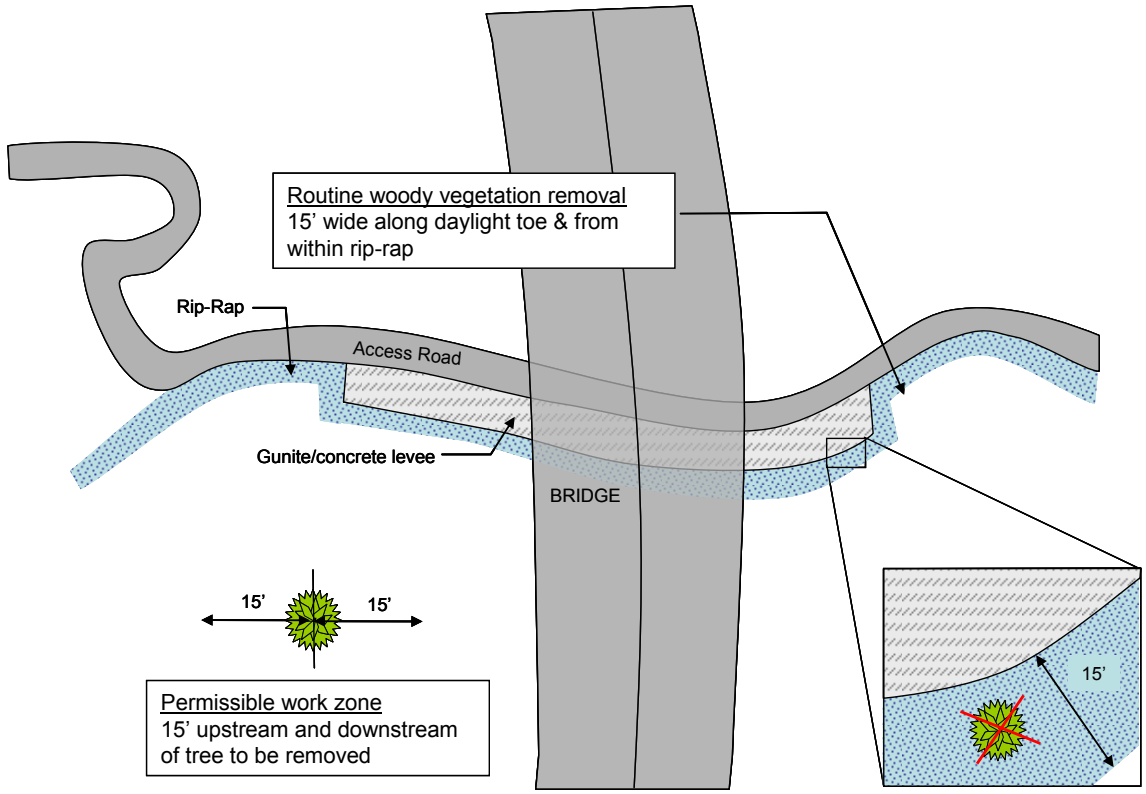
E. Long Canyon Bridge: no clearing required

F. Potrero Canyon Bridge: no clearing required

2.2.2 Removal of Vegetation from Rip-Rap

FS-B1 For new ungrouted rip-rap, grouted rip-rap, and concrete lining constructed along the Santa Clara River under the 404 permit and 1605 Agreement (typical limited to storm drain outlets and bridge locations), Permittee may remove trees that grow in levees, and may remove large trees, defined as trees with trunks 4 inches in diameter at breast height (dbh), within 15 feet of the levee toe in order to maintain the structural integrity of the levees, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4,. Whenever possible this work shall be performed from the levee access road. If access to the bottom of the river is required, the work area shall be limited to a 30-foot-wide zone extending outward from the levee at the invert and 15 feet upstream and downstream on either side of the tree to be removed. Hand held equipment shall be used.

Vegetation Removal from Rip-Rap



FS-B2 For new rip-rap constructed as a component of a drop structure, stormwater quality or flow attenuation basin, storm drain inlet or outlet, or other management system, where, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, growth will impede the proper function of the rip-rap, Permittee may remove trees that grow in the structure, and may remove large trees, defined as trees with trunks 4 inches in diameter at breast height (dbh), within 15 feet of the exposed rip-rap structure to maintain the structural integrity of the structure. Where vegetation is specifically designed to be integral to the rip-rap structure, then such maintenance will not be performed. See specific facilities below for further details.

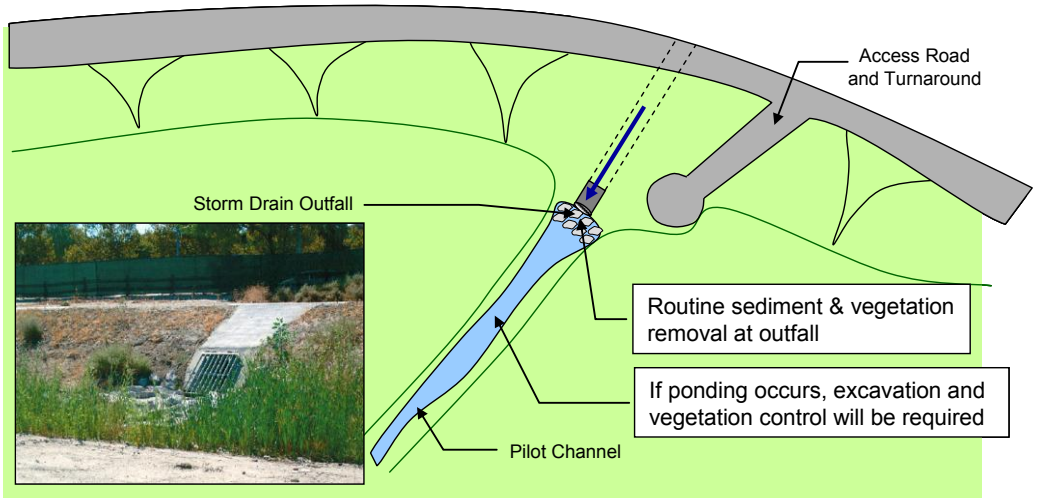
2.2.3 Cleaning Storm Drain Outfalls

FS-C1 Sediment buildup at existing storm drain outfalls shall be removed on an as needed basis as determined by the Permittee. The County shall use light equipment to create a swale up to 75 feet long and 10 feet wide, to allow water to drain. Equipment such as a Caterpillar D-8 or equivalent may enter areas of the river as long as they avoid areas of ponded or flowing water (not including water discharging from the storm drain) to remove sediment. Large riparian trees defined as trees with trunks in excess of four

inches in diameter at breast height (dbh) shall be avoided. The maintenance area shall be demarcated with flagging. New storm drain outfalls shall be designed with a rock apron to maintain a clear area large enough to provide hydraulic capacity to maintain flow from the storm drain. Equipment shall be introduced into the river by means of an earth ramp constructed on the sideslope in the immediate vicinity, or from an adjacent invert access ramp if within 1,000 feet of the area to be maintained. If the equipment must access the riverbed, care will be taken to minimize impacts to vegetation and to avoid destruction of large trees, defined as trees with trunks in excess of four inches in diameter.

FS-C2 In order to drain stagnant water that is causing an odor problem at any outfall, the Permittee may dig a swale using a Caterpillar D-6 or its equivalent or may hand shovel a swale, up to 75 feet long and 10 feet wide to allow standing water to percolate. The Permittee shall notify the Corps and CDFG prior to performing this work. The procedures described to identify and relocate endangered species from live streams and ponded water shall be followed.

Storm Drain Outfall



2.2.4 Bridge Repair

FS-D1 Whenever practical, repairs to bridges shall be made from the bridge deck. If this is not practical, minimum encroachment upstream and/or downstream of the bridge will be acceptable. The maintenance work area for structural repairs shall be limited to 30 feet on either side of the bridge and under the bridge itself. Equipment shall be introduced into the river by means of an earth ramp constructed on the sideslope in the immediate vicinity, or from an adjacent invert access ramp if within 1,000 feet of the bridge. If the equipment must access the riverbed, care shall be taken to minimize impacts to

vegetation and to avoid destruction of large trees, defined as trees with trunks in excess of four inches in diameter at breast height (dbh). Best management practices shall be employed during the bridge repair work to prevent pollutants from being discharged to the stream channel.

2.2.5 Repairs to Bank Stabilization

FS-E1 Structural repairs to levees, storm drain outfalls, water quality facilities, utility crossings, etc. shall be performed on an as-needed basis to maintain the integrity of the structures. The work area shall be limited to the section of the structure, plus a 30-foot work area extending out from the levee at the invert and upstream and downstream within the 30-foot width of the structure to be repaired. Best management practices shall be employed during the repair work to prevent pollutants from being discharged to a stream channel.

2.2.6 Water Quality Treatment and Flow Attenuation Facilities

FS-F1 Water quality treatment and flow attenuation facilities (basins, swales, and filters) are installed outside of the river or creek bed. These facilities may be planted with native wetland plants and may include permanent open water features. The water quality treatment and flow attenuation facilities shall be maintained on a regular basis to ensure proper function while also paying strict attention to prevention and abatement of nuisance conditions. Depending on the extent that any such feature supports special-status riparian or other nesting bird species, maintenance of these facilities is recommended to occur between August 15st and March 15th. The additional survey requirements discussed previously may be conducted to work outside of this period where work is required in areas that support nesting of special-status species. These features are further discussed below with specific activities applicable to each.

2.2.6.1 Extended Detention Basin

FS-G1 **Description—**Extended detention basins (EDBs) store stormwater runoff for sufficient periods of time to promote the removal of pollutants primarily through sedimentation. EDBs are designed with outlets that detain the runoff volume from the water quality design storm for some minimum time (in this case 48 hours) to allow particulates and associated pollutants to settle out. These basins are not designed or anticipated to contain standing water for periods in excess of 48 hours. The EDBs will also incorporate a series of gravel-filled subsurface flow trenches that will provide water quality treatment and facilitate evapotranspiration and percolation of dry weather flows and small storm events within the basin footprint. In addition, a specially constructed dry well that will support deep subsurface percolation of dry weather flows that may exceed the capacity of the gravel trenches will be provided. EDBs are constructed

outside of jurisdictional areas, although if abandoned, or otherwise not properly maintained, native riparian habitats may develop.

FS-G2 **EDB Basin Vegetation—**Vegetation provides erosion protection from both wind and water and biofiltration of stormwater. Intended basin vegetation includes:

A. The bottom and slopes of the extended detention basin shall be vegetated. Where located in CDFG jurisdiction, only appropriate native plants are allowed. In all areas, including non-jurisdictional areas, invasive species shall not be used. This includes plants listed on either the California Department of Food and Agriculture website (http://www.cdfa.ca.gov/wma) or the California Invasive Plant Council website (http://portal.cal-ipc.org/weedlist).

B. The basin bottom should not be planted with trees, shrubs, or other large woody plants that may interfere with sediment removal activities.

C. Only native perennial grasses, forbs, or similar vegetation that can be replaced via seeding should be used on the basin bottom

FS-G3 **EDB Basin Maintenance Access**—Maintenance access road(s) shall be provided for and maintained to the control structure and other drainage structures associated with the basin.

A. An access ramp should extend to the basin bottom to avoid damage to vegetation planted on the basin slope.

B. Access roads may terminate with a maintained turn around areas of 40 feet by 40 feet.

APPENDIX A
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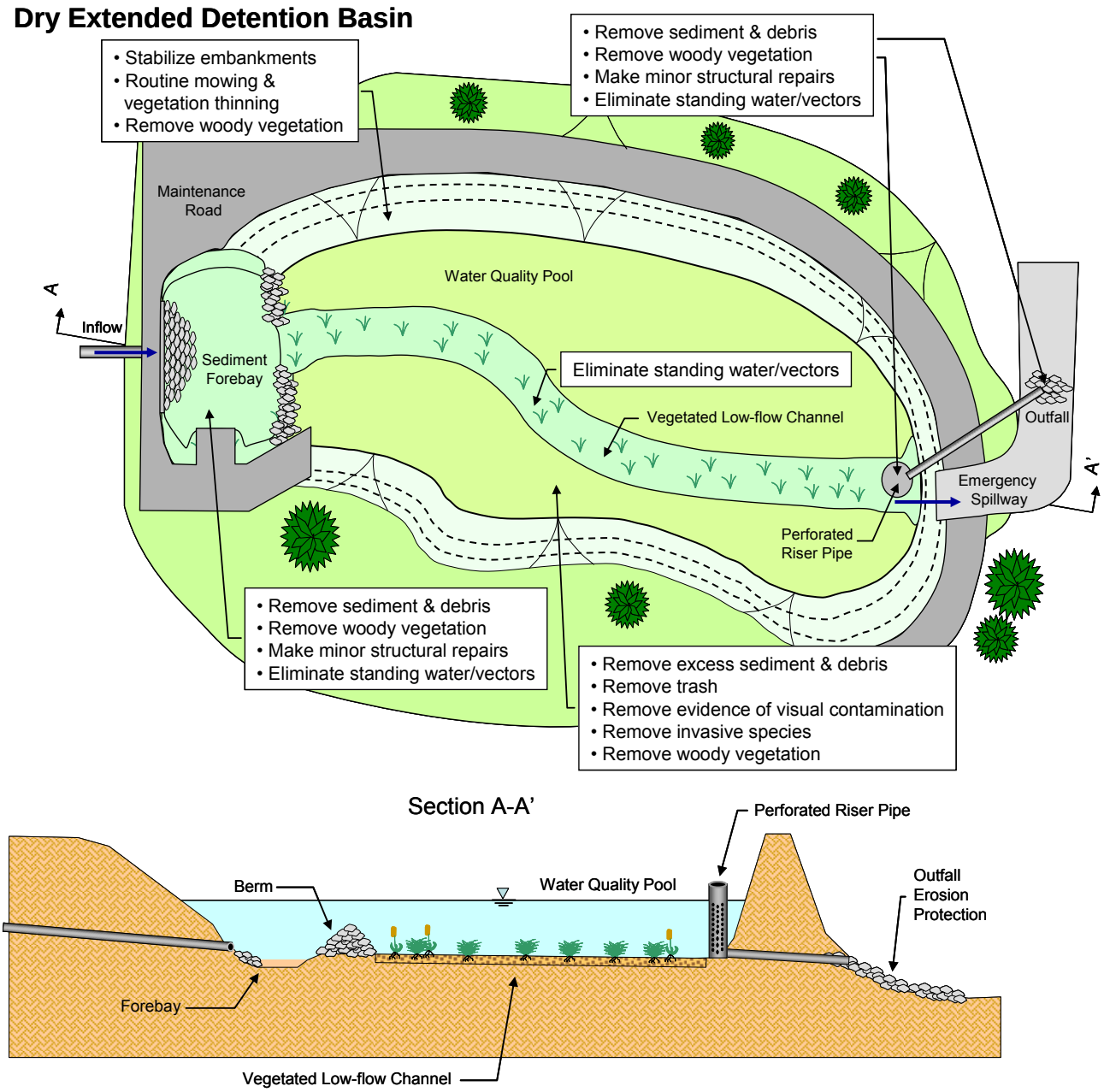

FS-G4 **EDB Basin General Requirements**—Maintenance is of primary importance if extended detention basins are to continue to function as originally designed. A specific maintenance plan shall be formulated for each facility outlining the schedule and scope of maintenance operations, as well as the data handling and reporting requirements. The following are general maintenance requirements:

A. The basin should be inspected annually prior to the wet season and after major storm events (>0.75 in/24 hours) if spot checks of some basins indicated widespread damage/maintenance needs.

B. Trash and debris should be removed as needed, but at least annually prior to the beginning of the wet season.

C. Site vegetation should be maintained as follows:

1. Vegetation, large shrubs, or trees that limit access or interfere with basin operation should be pruned or removed, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, and where feasible, outside the bird nesting season.
2. Slope areas that have become bare should be revegetated and eroded areas should be regraded prior to being revegetated.
3. Grass should be mowed to 4 to 9 inches high, and grass clippings should be removed.
4. Fallen leaves and debris from deciduous plant foliage should be raked and removed.
5. Invasive vegetation must be removed and replaced with noninvasive species. Invasive species should never contribute more than 25% of the vegetated area (5% if located in CDFG jurisdiction).
6. Dead vegetation should be removed if it exceeds 10% of area coverage. Vegetation should be replaced immediately to maintain cover density and control erosion where soils are exposed.
7. No herbicides or other chemicals shall be used to control vegetation.

D. Sediment buildup exceeding 50% of the forebay capacity should be removed.

E. Sediment from the remainder of the basin should be removed when 6 inches of sediment accumulates.

F. Sediments should be tested for toxic substance accumulation in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed.

G. Following sediment removal activities, replanting and/or reseeding of vegetation may be required for reestablishment.

2.2.6.2 Vegetated Swales

FS-H1 **Description**—Vegetated swales are open, shallow channels with low-lying vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. Vegetated swales provide pollutant removal through settling and filtration in the vegetation (usually grasses) lining the channels, provide the opportunity for volume reduction through infiltration and evapotranspiration, and reduce the flow velocity in addition to conveying stormwater runoff. An effective vegetated swale achieves uniform sheet flow over and through a densely vegetated area for a period of several minutes. Swales that are integrated within a project may use turf or other more intensive landscaping, while swales that are located on the project perimeter, within a park, or close to an open space area may be planted with a more naturalistic plant palette.

FS-H2 **Swales Vegetation**—Swales must be vegetated in order to provide adequate treatment of runoff. It is important to maximize water contact with the vegetation and the soil surface. Intended swale vegetation includes:

A. Mix of erosion-resistant plant species that effectively bind the soil.

B. A diverse selection of low growing plants that thrive under the specific site, climatic, and watering conditions should be specified.

C. A mixture of dry-area and wet-area grass species that can continue to grow through silt deposits is most effective.

D. Drought-tolerant grasses should be specified to minimize irrigation requirements.

FS-H3 **Swales Maintenance Access—**A maintenance access road may or may not be incorporated into a swale design. A suitable location for an access road may exist at the inlet or outlet. Along the length of the swale, access will be dependent upon adjacent land uses: paved roadways; parking lots; bike paths; park or open space; or otherwise developed areas.

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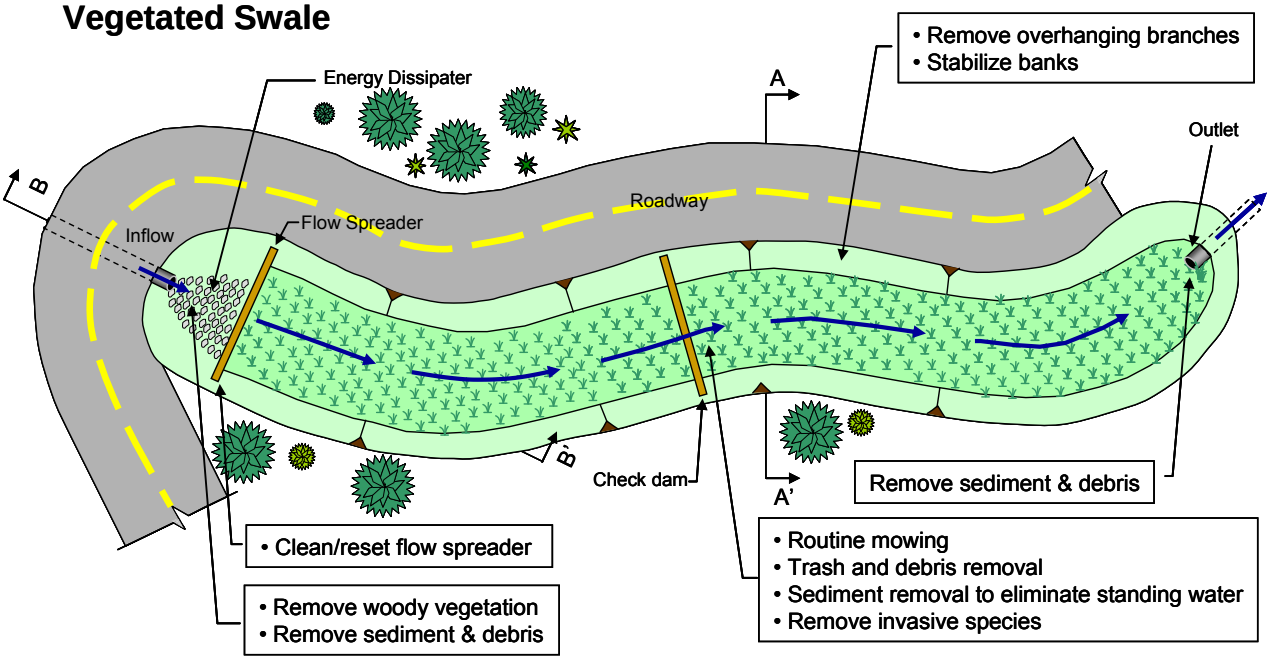
Vegetated Swale



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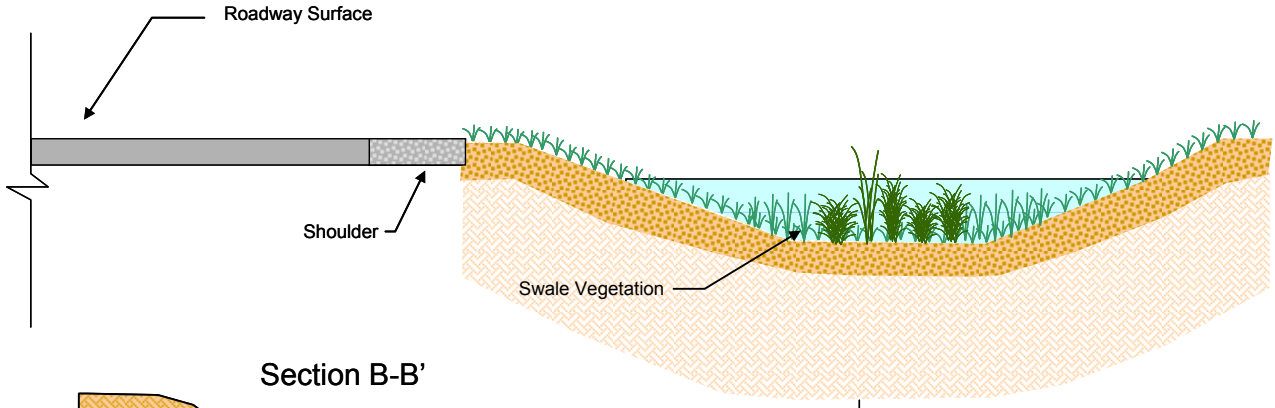

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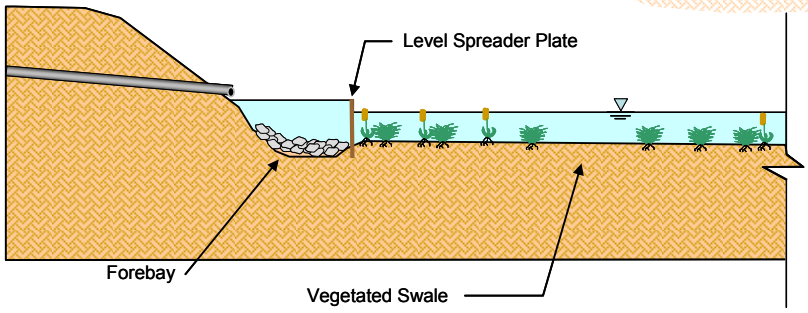

FS-H4 **Swales General Requirements**

A. Inspect vegetated swales for erosion or damage to vegetation after every storm greater than 0.75 inch for on-line swales, if spot checks of some swales indicated widespread damage/maintenance needs, and at least twice annually for off-line swales.

B. Each swale should be checked for debris and litter and areas of sediment accumulation.

C. Swale inlets (curb cuts or pipes) should maintain a calm flow of water entering the swale. Remove sediment as needed at the inlet if vegetation growth is inhibited in greater than 10% of the swale or if the sediment is blocking even distribution and entry of the water.

D. Flow spreaders should provide even dispersion of flows across the swale. Sediment and debris should be removed from the flow spreader if blocking flows. Splash pads should be repaired if needed to prevent erosion. Spreader level should be checked and re-leveled if necessary.

E. Side slopes should be maintained to prevent erosion that introduces sediment into the swale.

F. Slopes should be stabilized and planted using appropriate erosion control measures when native soil is exposed or erosion channels are forming.

G. Swales should drain within 48 hours of the end of a storm. Till the swale if compaction or clogging occurs. The perforated underdrain pipe, if present, should be cleaned if necessary.

H. Vegetation should be healthy and dense enough to provide filtering while protecting underlying soils from erosion:

1. Vegetation, large shrubs or trees that interfere with landscape swale operation should be pruned, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4.
2. Fallen leaves and debris from deciduous plant foliage should be removed.
3. Grassy swales should be mowed to keep grass 4 to 6 inches in height.

4. Invasive vegetation must be removed and replaced with noninvasive species. Invasive species should never contribute more than 25% of the vegetated area (5% if located in CDFG jurisdiction).

I. Check dams (if present) should control and distribute flow across the swale. Causes for altered water flow and/or channelization should be identified and obstructions cleared. Check dams and swale should be repaired if damaged.

J. Trash and debris, sediment, visual contamination (e.g., oils), noxious or nuisance weeds, should all be removed.

2.2.6.3 Infiltration Facilities

FS-I1 **Description**—Infiltration facilities include infiltration basins and infiltration trenches. In general, infiltration facilities are similar to stormwater detention systems but are constructed with a highly permeable base that is specifically designed to infiltrate runoff. It is usually not practical to infiltrate runoff at the same rate that it is generated; therefore, these facilities generally include both a storage component and a drainage component.

A. Infiltration Basins are usually shallow with flat, vegetated bottoms and side slopes and can be incised by excavating a depression below the existing grade or constructed above grade by constructing a perimeter berm.

B. Infiltration Trenches are long, narrow, rock-filled trenches that receive stormwater runoff from small drainage areas. These facilities may include a shallow depression at the surface, but the majority of runoff is stored in the void space between the stones and infiltrates through the sides and bottom of the trench.

C. Infiltration facilities are ideal for hydromodification control, where surface runoff volume reductions are desired. Infiltration facilities are also good candidates for the removal of sediment, particulate bound pollutants, and bacteria. The primary pollutant removal processes in infiltration facilities include volume and associated pollutant load reduction, sedimentation, filtration, and adsorption.

FS-I2 **Infiltration Vegetation**

A. Infiltration Basin

1. A thick mat of drought tolerant grass should be established on the basin floor and sideslopes. Grass may need to be irrigated during establishment.

B. Infiltration Trench

1. Infiltration trenches shall be kept free of vegetation. Trees and other large vegetation should be planted away from trenches such that drip lines do not overhang infiltration beds, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4.

FS-I3 **Infiltration Maintenance Access**

A. Infiltration Basin—require access provisions similar to EDBs. Maintenance access road(s) shall be maintained to the control structure and other drainage structures associated with the basin (e.g., inlet, emergency overflow or bypass structures).

1. An access ramp should extend to the basin bottom to avoid damage to vegetation planted on the basin slope.
2. Access roads may terminate with a maintained turn around areas of 40 feet by 40 feet.

B. Infiltration Trench

1. The facility and outlet structures must all be safely accessible during wet and dry weather conditions.
2. An access road along the entire length of the trench is required unless the trench is located along an existing road or parking lot that can be safely used for maintenance access.
3. If the infiltration facility becomes plugged and fails, then access is needed to excavate the facility to remove and replace the filter bed media, as well as to increase all dimensions of the facility by 2 inches to provide a fresh surface for infiltration. To prevent damage and compaction, access must be able to accommodate a backhoe working at “arms length.”

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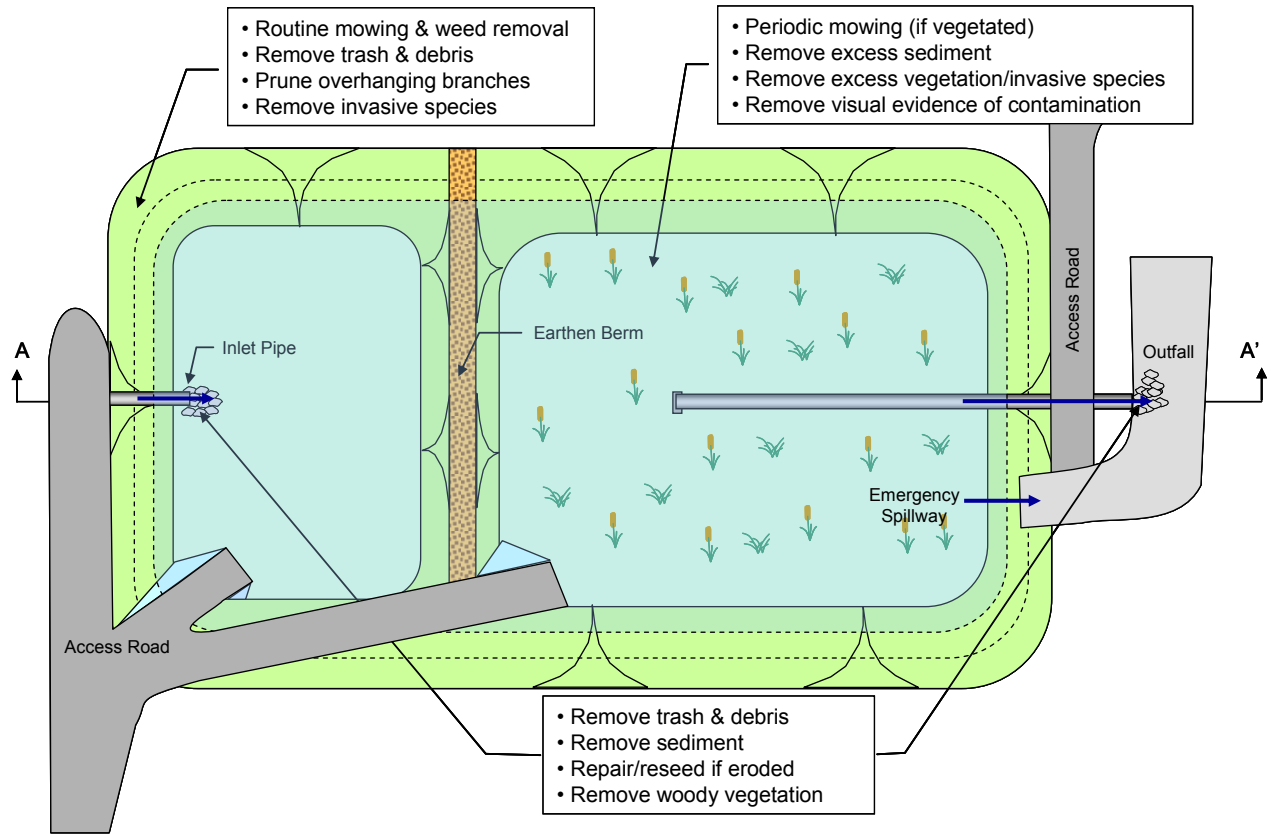
Infiltration Basin



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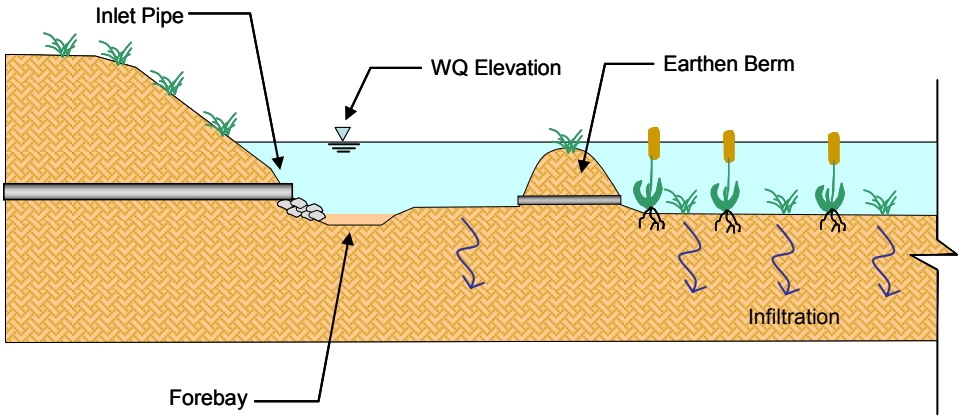

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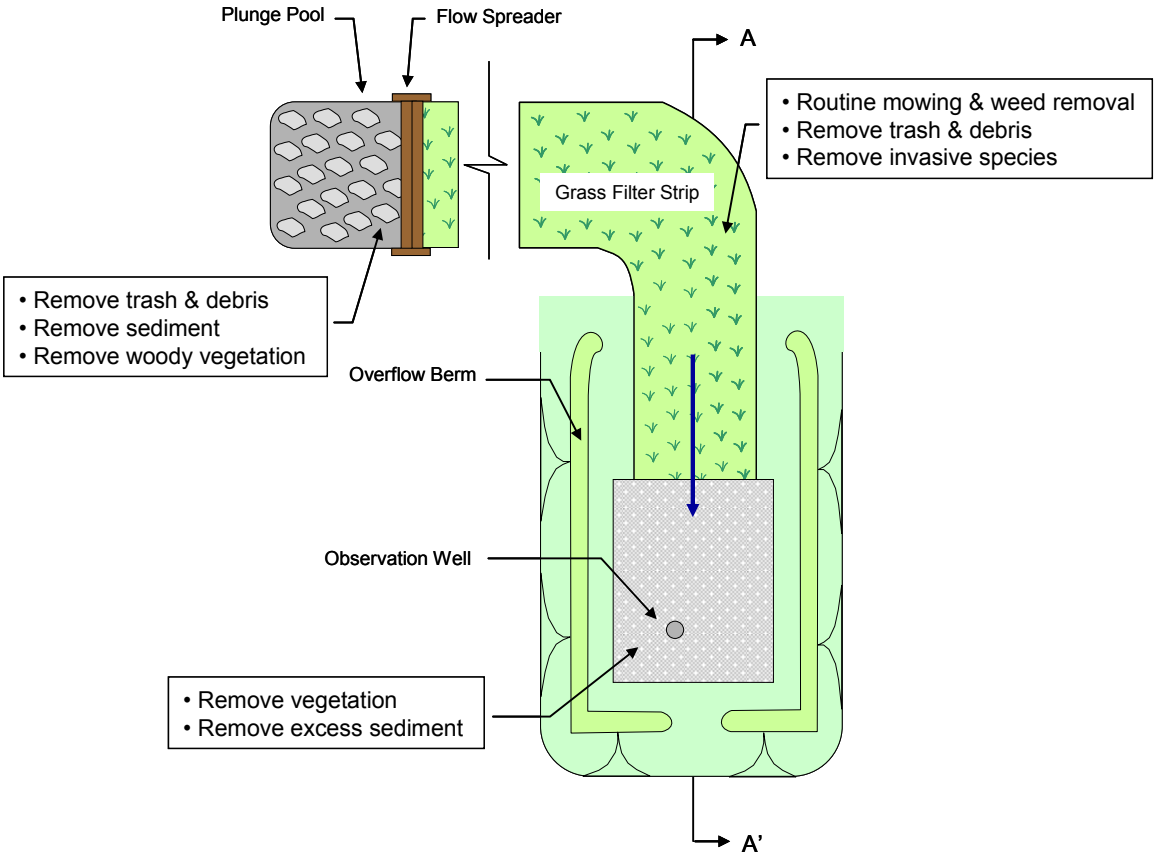
Infiltration Trench



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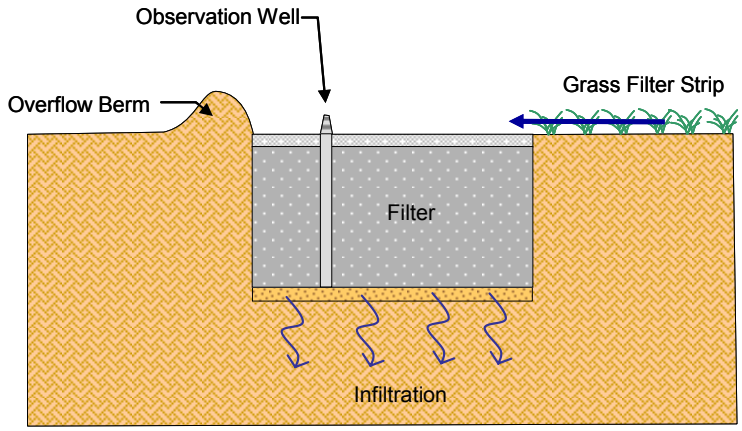

FS-I4 **Infiltration General Requirements—**Infiltration facility maintenance should include frequent inspections to ensure that water infiltrates into the subsurface completely within the recommended infiltration time of 72 hours or less after a storm. A specific maintenance plan shall be formulated specifically for each facility outlining the schedule and scope of maintenance operations, as well as the data handling and reporting requirements. The following are general maintenance requirements:

A. Regular inspection should determine if the sediment removal structures require routine maintenance. Facilities should be inspected at least annually.

B. Maintenance activities triggered by a potentially clogged facility include:

1. Check for debris/sediment accumulation, rake surface and remove sediment (if any) and evaluate potential sources of sediment and debris.
2. For basins, removal of the top layer of native soil may be required to restore infiltrative capacity.
3. For trenches, assess the condition of the top aggregate layer for sediment buildup and crusting. Remove top layer of pea gravel and replace, or if necessary, the entire trench may need to be excavated and replaced.
4. For trenches, if there is a tear in the filter fabric, repair or replace.
5. Any debris or algae growth located on top of the infiltration facility should be removed.

C. Trash and debris should be removed as needed, but at least annually prior to the beginning of the wet season.

D. Site vegetation should be maintained, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, as frequently as necessary to maintain the aesthetic appearance of the site, and as follows:

1. Large shrubs, or trees that limit access or interfere with basin operation, should be pruned or removed.
2. Slope areas that have become bare should be revegetated and eroded areas should be regraded prior to being revegetated.
3. Invasive vegetation must be removed and replaced with noninvasive species. Invasive species should never contribute more than 25% of the vegetated area (5% if located in CDFG jurisdiction).

E. For infiltration basins, sediment buildup exceeding 50% of the forebay capacity should be removed. Sediment from the remainder of the basin should be removed when 6 inches of sediment accumulates.

F. Following sediment removal activities, replanting and/or reseeding of vegetation may be required for reestablishment.

2.2.6.4 Wetponds

FS-J1 **Description**—Wetponds are constructed, naturalistic ponds with a permanent or seasonal pool of water. Aquascape facilities, such as artificial lakes, are a special form of wet pool facility that can incorporate innovative design elements to allow them to function as a stormwater treatment facility in addition to an aesthetic water feature. Wetponds require base flows to exceed or match losses through evaporation and/or infiltration and they must be designed with the outlet positioned and/or operated in such a way as to maintain a permanent pool. The applications for wetponds are similar to those of extended detention (EDB) basins and include peak flow attenuation (with EDB), volume reduction, and pollutant removal. It is acceptable for wetponds to dry out for part of the year.

FS-J2 **Wetpond Vegetation**

A. A stabilization/revegetation plan should be prepared for aquatic, temporarily submerged, areas.

B. If the second cell of the wetpond is 3 feet or shallower, the bottom area shall be planted with emergent wetland vegetation

C. Emergent aquatic vegetation shall be planted to cover 25-75% of the area of the permanent pool.

D. Outside of the pond, native, or non-invasive non-native, vegetation adapted for site conditions shall be used in non-irrigated sites.

FS-J3 **Wetpond Maintenance Access—**Maintenance access road(s) shall be provided to the control structure and other drainage structures associated with the basin.

A. The access ramp should extend to the basin bottom to avoid damage to vegetation planted on the basin slope.

B. Access roads may terminate with a maintained turn around areas of 40 feet by 40 feet.

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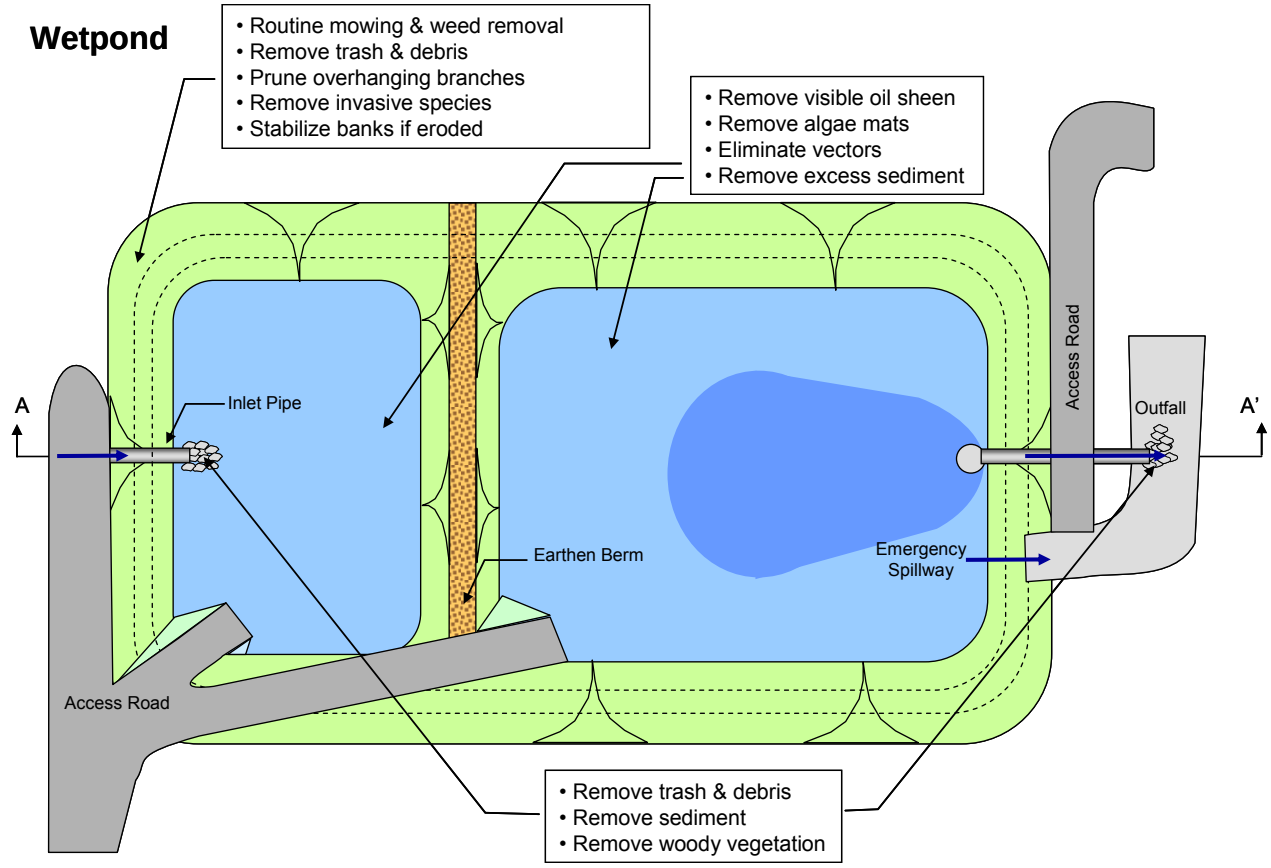

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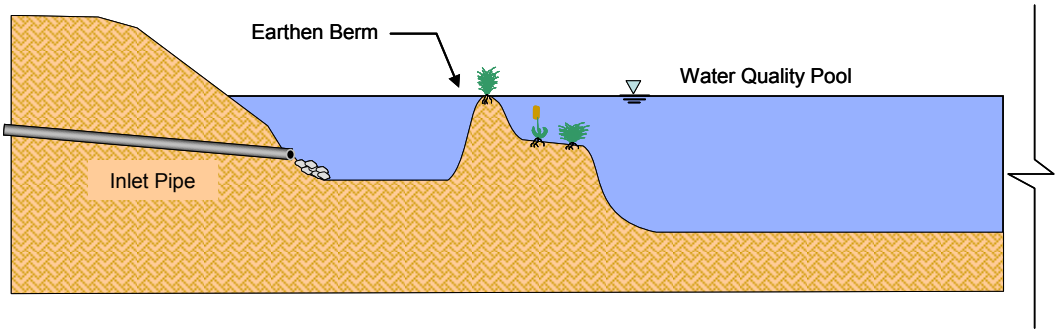


FS-J4 **Design Requirements Specific to Lakes—**Lakes designed to provide treatment may be used for stormwater quality management. A specific maintenance plan shall be formulated for each facility outlining the schedule and scope of maintenance operations, as well as the data handling and reporting requirements. Many of the wetpond design specifications are applicable to lakes, but specific design features are also required:

A. For example, a consistent water supply is required to maintain the wet pool in the lake year around and to flush the system at maximum turn-over of 30-days to reduce the potential for the build-up of salts and nutrients in the lake. Lakes should also have depths greater than 8 feet, and preferably up to 15 feet at the center, to reduce light penetration, maintain a lower average temperature, allow for temperature stratification, and minimize evaporation.

B. Additional design elements specific to lakes to provide stormwater treatment and to maintain the water quality in the lake include wetland planters, biofilter beds, dry weather flow pretreatment, aeration, and stormwater retention. Submerged wetland planters may be constructed on shelves or floating rafts within the lake to assist in promoting overall water quality through filtering.

C. Pretreatment filters also should be provided to treat all dry weather flows prior to entering the lake.

D. Adequate capacity should be provided in the lake to contain a permanent pool, retain the water quality design storm, and provide storage of runoff for irrigation reuse.

FS-J5 **Wetpond General Requirements—**Maintenance is of primary importance if wetponds are to continue to function as originally designed. A specific maintenance plan shall be formulated for each facility outlining the schedule and scope of maintenance operations, as well as the data handling and reporting requirements. The following are general maintenance requirements:

A. The wetpond should be inspected at a minimum annually and after major storm events (>0.75 in/24 hours) if spot checks of some facilities indicated widespread damage/maintenance needs.

B. Trash and debris should be removed as needed, but at least annually prior to the beginning of the wet season.

C. Site vegetation should be maintained, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, as follows:

1. Large shrubs, or trees that limit access or interfere with basin operation, should be pruned or removed.
2. Slope areas that have become bare should be revegetated and eroded areas should be regraded prior to being revegetated.
3. Invasive vegetation must be removed and replaced with noninvasive species. Invasive species should never contribute more than 25% of the vegetated area (5% if located in CDFG jurisdiction).

D. Sediment buildup exceeding 6 inches over the design sediment storage capacity in the first cell should be removed. Sediment from the second pond cell should be removed when 6 inches of sediment accumulates.

E. Following sediment removal activities, replanting and/or reseeding of vegetation may be required for reestablishment.

2.2.6.5 Stormwater Wetland Basins

FS-K1 **Description—**A stormwater wetland basin is a treatment system consisting of a sediment forebay and a permanent micro-pool with aquatic vegetation covering a large portion of the basin. Stormwater wetlands typically include components such as an inlet with energy dissipation, a sediment forebay for settling out coarse solids and to facilitate maintenance, a base with shallow sections (1 to 2 feet deep) planted with emergent vegetation, deeper areas or micro pools (3 to 5 feet deep) , and a water quality outlet structure. The aquatic vegetation and the associated biological unit processes are a fundamental part of stormwater wetland basins.

A. Stormwater wetlands are a treatment BMP designed to capture and treat pollutants to protect receiving waters, including natural wetlands and other ecologically sensitive habitat. The accumulation of pollutants in sediment and vegetation of stormwater wetlands may impact the health of aquatic biota. As such, periodic sediment and vegetation removal within stormwater wetlands may be required. These maintenance activities may further interrupt the use of stormwater wetlands by wildlife.

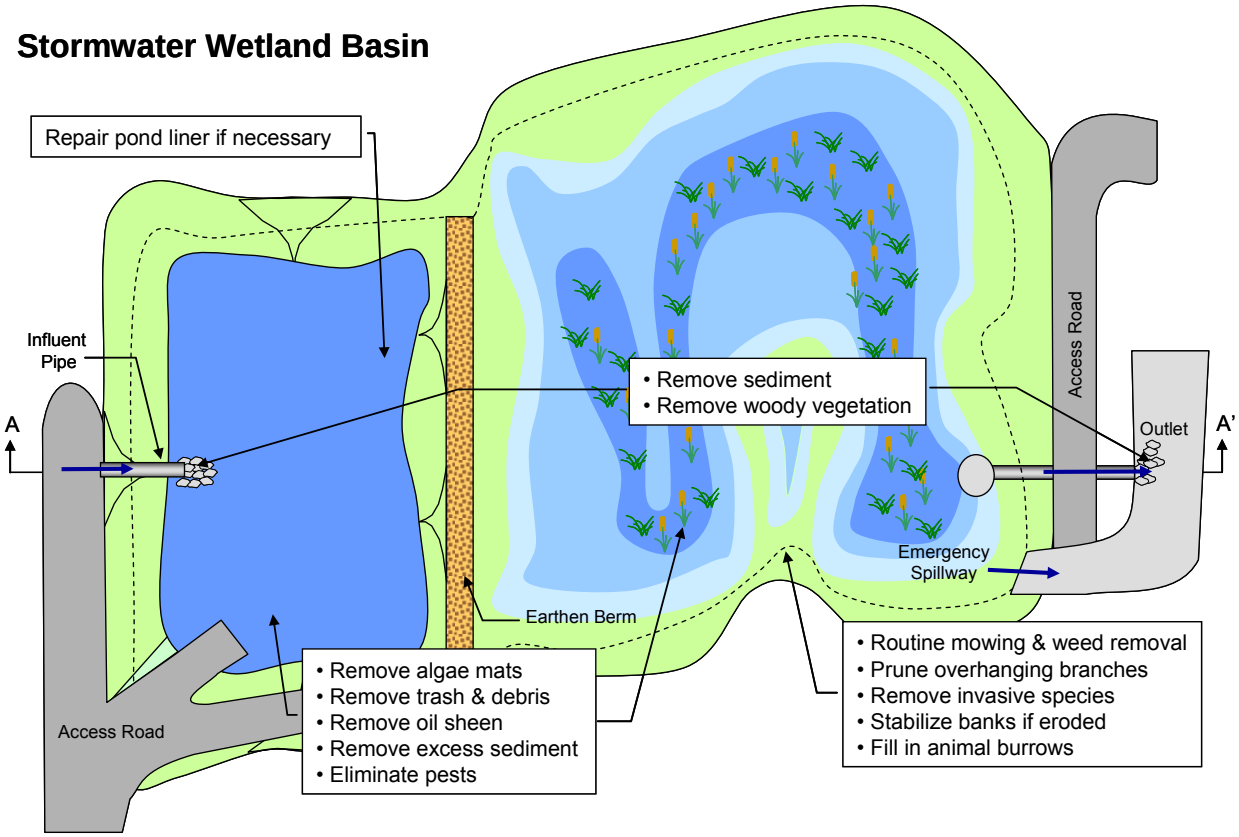
B. The applications for stormwater wetlands are similar to those of wetponds and include peak flow attenuation, volume reduction, and pollutant removal. The pollutant removal processes that occur in wetlands include sedimentation, filtration, plant uptake and storage, and microbially-mediated transformations.

FS-K2 **Wetland Basin Vegetation—**The wetland cell shall be planted with emergent wetland plants following the recommendations of a wetlands specialist.

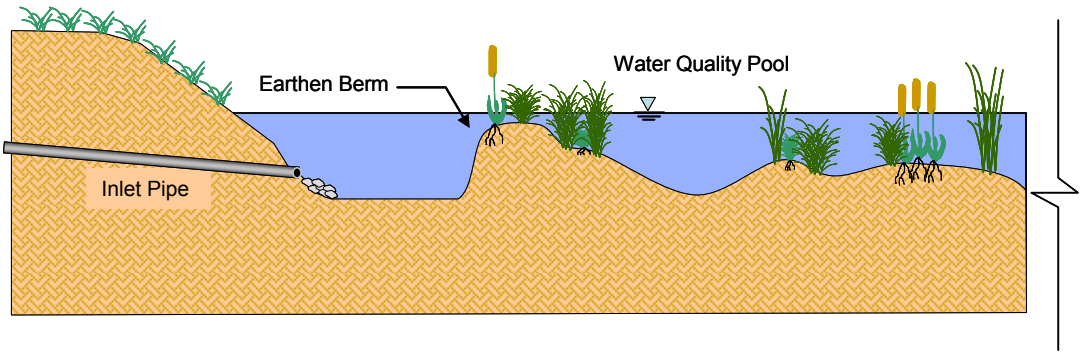
FS-K3 **Wetland Basin Maintenance Access -** Maintenance access road(s) shall be provided to the control structure and other drainage structures associated with the basin.

A. An access ramp may extend to the basin bottom to avoid damage to vegetation planted on the basin slope.

B. Access roads may terminate with a maintained turn around areas of 40 feet by 40 feet.



Section A-A'



FS-K4 **Wetland Basin General Requirements**—A specific maintenance plan shall be formulated for each facility outlining the schedule and scope of maintenance operations, as well as the data handling and reporting requirements. The following are general maintenance requirements:

A. The stormwater wetland basin should be inspected annually and after major storm events (>0.75 in/24 hours) if spot checks of some basins indicated widespread damage/maintenance needs.

B. Trash and debris should be removed as needed, but at least annually prior to the beginning of the wet season.

C. Site vegetation should be maintained, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, as frequently as necessary to prevent clogging of outlets, creation of dead volumes, and barriers to mosquito fish to access pooled areas, and as follows:

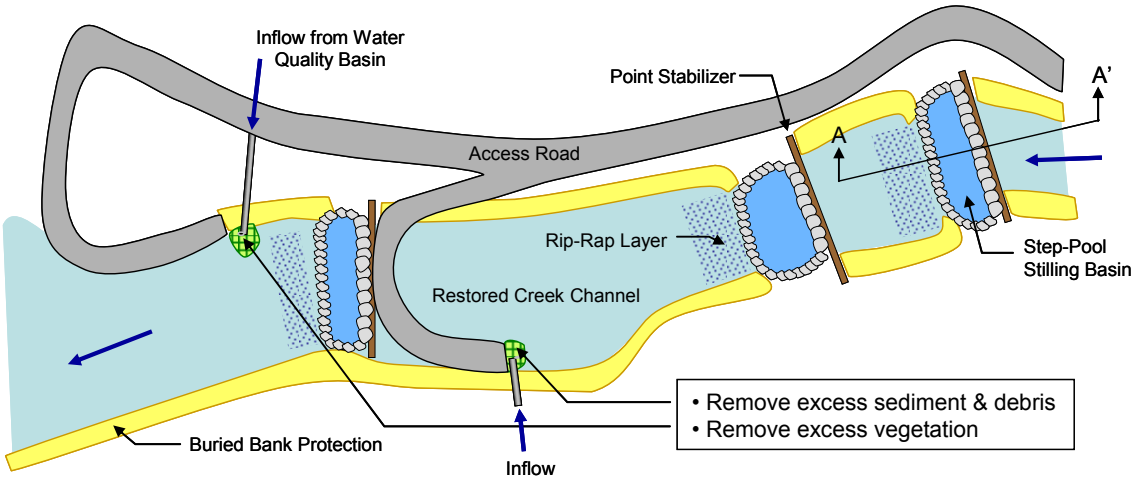
D. Vegetation, large shrubs, or trees that limit access or interfere with basin operation should be pruned or removed, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4. Slope areas that have become bare should be revegetated and eroded areas should be regraded prior to being revegetated. Invasive vegetation must be removed. Invasive species should never contribute more than 25% of the vegetated area (5% if located in CDFG jurisdiction). Dead vegetation should be removed if it exceeds 10% of area coverage. This does not include seasonal die-back where roots would grow back later in colder areas.

E. Sediment buildup exceeding 6 inches over the storage capacity in the first cell should be removed.

2.2.7 Restored Tributaries

FS-L1 **Description**—The main Tributary drainages (Chiquito, San Martinez Grande, Potrero, Long, and Lion) are intended to have some measure of remaintenance during the development of the NRSP. In some cases the entire drainage will be replaced both horizontally and vertically, while in others, only portions of the drainage will be realigned with minor horizontal and vertical modification by installing grade control structures. The resulting corridors are intended to be functioning native riparian and scrub habitats with stable banks and beds. Subsequent to the establishment of native vegetation in the restored channels/creeks, ongoing maintenance will be minimal. A Geomorphology Monitoring and Management Plan (Plan) will be prepared as part of the Project to ensure that the re-engineered drainages along the major tributaries (Long, Lion, Potrero, Chiquito, and San Martinez Grande Canyons) comply with the mitigation objectives and the design goals outlined in the basis of design. Specifically, the Plan shall detail the measures to be implemented to ensure the integrity of the structural elements and maintenance of the intended state of 'constrained dynamic equilibrium' (*i.e.*, the channels are expected to somewhat change their width, depth and location on the floodplain periodically in response to changing rainfall and vegetation dynamics, but that the channel is expected to pass through all flow structures [e.g., drop structures or step-pools] and that between structures the channel is expected to stay within a predefined corridor and not encroach on infrastructure or fill slopes).

Step-Pool Drop Structures



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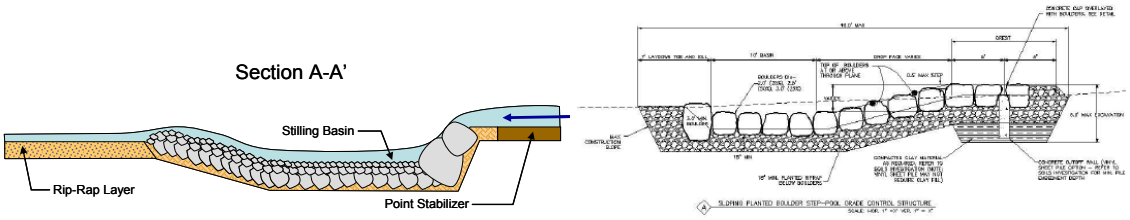
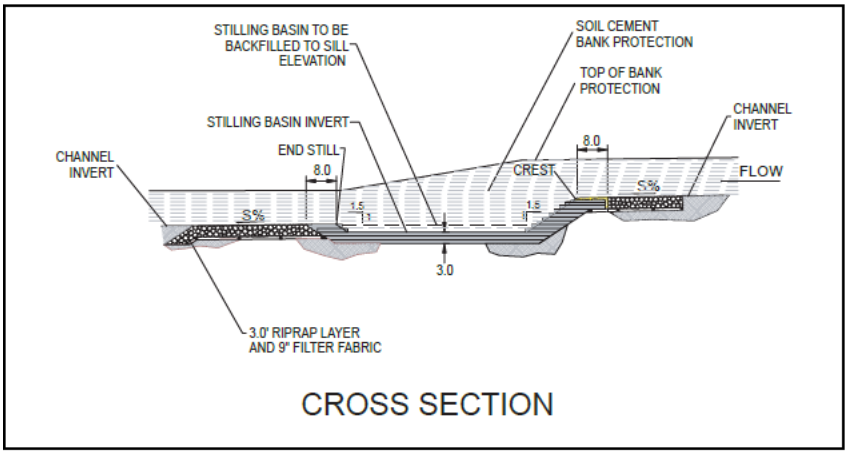




Conceptual Soil Cement Grade Control Structure Design

FS-L2 **Geomorphology Monitoring and Management Plan (Plan)**—The Plan shall specify the following: (1) a framework to collect baseline data to characterize conditions immediately after maintenance; (2) a post-development monitoring program; (3) a framework to develop threshold parameters and performance standards that activate adaptive management measures across a series of potential future scenarios, including encroachment on infrastructures or excessive infilling of step-pool structures, etc.; and, (4) contingency plans and appropriate remedial measures in the event that management efforts are not successful. The Plan shall be subject to the final approval by the U.S. Army Corps of Engineers, CDFG, and LA DPW prior to maintenance. Specific elements of the plan are further described in measures below.

FS-L3 **Creek Corridor Landscape Maintenance—**the following are anticipated activities, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4:

A. Removal of dead/dying vegetation near trails

B. Trim vegetation impeding on trails or other common areas

C. Fire Break/Weed Abatement Zone Mowing

D. Trail Maintenance (including equestrian trail markers)

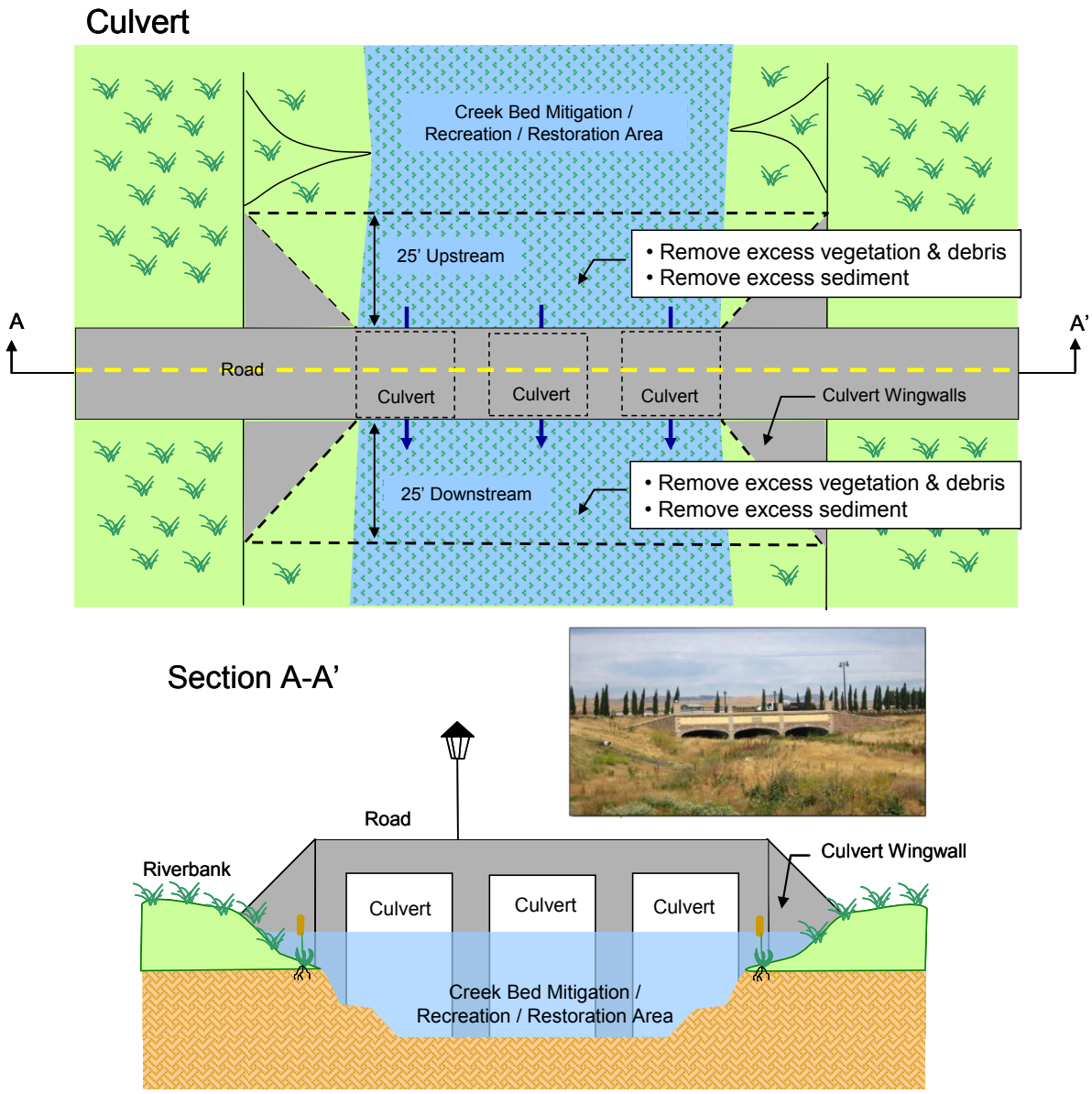
FS-L4 **Culverts/Low Bridges**—The accumulation of course-grained sediment within the stilling basins of grade control structures or culverts can reduce the structures ability to provide adequate energy dissipation as well as reduce flow capacity. Excessive vegetative growth may block a culvert resulting in flooding or damage to the structure.

A. Visual inspections are recommended quarterly and after large storm events (> than the 10 year event).

B. Vegetation and/or debris will be removed, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4, on an as-needed basis, as determined by Permittee, from the culverts and bridges listed below:

1. Chiquito Canyon Creek Crossings: 3 locations, 25 feet upstream & 25 feet downstream, 50-foot-wide crossings
2. San Martinez Grande Canyon Creek Crossings: 2 locations, 25 feet upstream, 25 feet downstream, 50-foot-wide crossings
3. Potrero Canyon Creek Crossings: 5 locations, 25 feet upstream, 25 feet downstream, 50-foot-wide crossings
4. Ayers Canyon Creek Crossing: 1 location, 25 feet upstream, 25 feet downstream, 50-foot-wide crossing
5. Long Canyon Creek Crossings: 2 locations, 25 feet upstream, 25 feet downstream, 50-foot-wide crossings
6. Magic Mountain Pkwy Bridge over Long Canyon Creek: No clearing required
7. Lion Canyon Creek Crossing: 1 location, 25 feet upstream, 50-foot-wide crossing
8. Commerce Center Drive over Middle Canyon Drainage: 2 locations, 25 feet upstream, 25 feet downstream, 50-foot-wide crossings

C. Vegetation and debris may be removed by heavy equipment. Equipment shall be operated within areas marked with temporary fencing or staking.



FS-L5 **Grade Control Structures**—are buried vertical structures intended to prevent excessive channel bed erosion and must function pursuant to the intended design. Buried rock, concrete, plastic liners, or other materials may be used to create the vertical boundary. The structure typically extends beyond the wetted bank of the creek into upland areas.

A. Visual inspections are recommended quarterly and after large storm events (> than the 10 year event).

B. Excessive bank erosion attributed to a point stabilizer will require that the structure be exposed and repaired, replaced or augmented as necessary to restore proper function.

C. As these structures generally do not require maintenance and the areas where they will be located will be revegetated with native scrub and riparian habitats, in the event access is required for maintenance, it will be overland, with travel thru native habitats of up to 1,000 feet. Access points will be at the direction of a biologist and will avoid established native vegetation to the extent practicable.

FS-L6 **Drop Structures—**These structures generally include the following components: buried point stabilizer, upstream flow spreader (either hard structure or vegetated strip), rigid armored crest (top), rigid or flexible armored chute, and an energy dissipating splash pool. Materials used to construct these structures may vary and include riprap, soil cement, and concrete. The height from crest to pool may be from 5 feet to 40 feet in vertical elevation change.

A. Visual inspections are recommended after large storm events (> than the 10 year event).

B. The structures are intended to be designed to be self clearing and cleaning, such that vegetation growth should not impede the function of the drop or pool and that sediment buildup is limited to the pool area where it will likely be mobilized in the next storm event.

1. In the event vegetative growth threatens the integrity of the crest, chute or splash pool, such vegetation may be hand cut and removed, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4.
2. Sediment is to be removed when accumulation impedes function or causes nuisance conditions.
3. The accumulation of course-grained sediment within the stilling basins of grade control structures or culverts can reduce the structures ability to provide adequate energy dissipation.

C. These features will likely be within reasonable distance of a service road, therefore access will be limited to short distance travel over open scrub habitat, with temporary access impacts of 200 feet × 12 feet wide.

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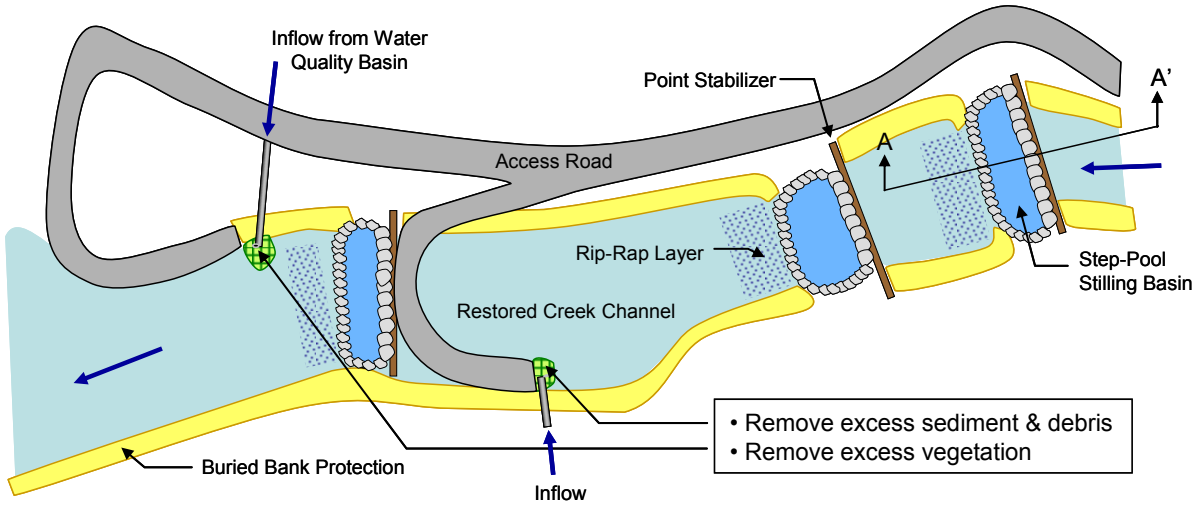
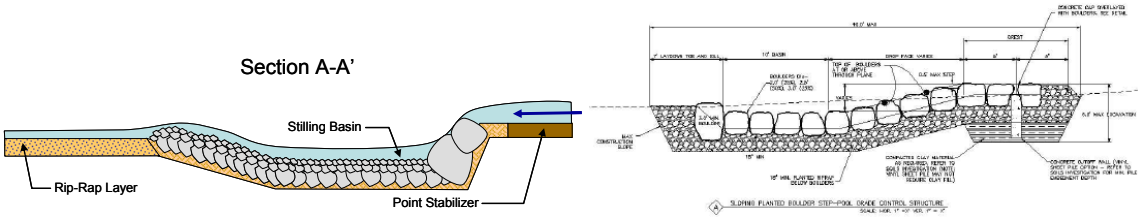
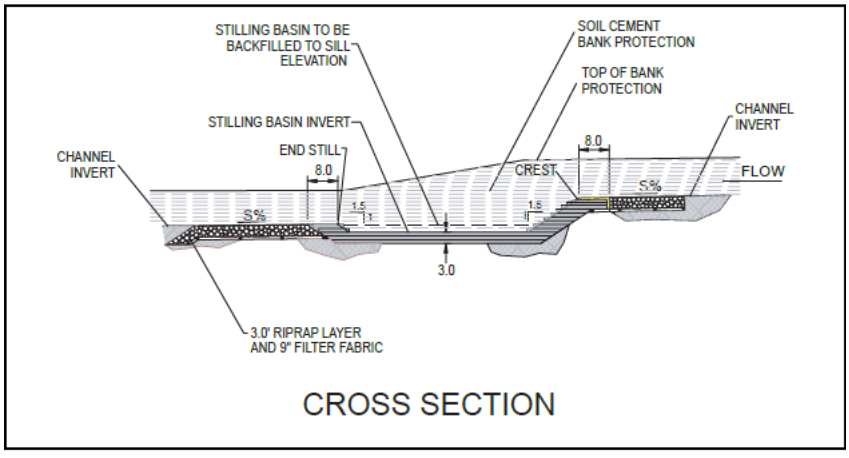
Step-Pool Drop Structures







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FS-L7 **Clearing of Creek Channel and Banks—**General vegetation clearing will not be required within the banks of the Tributaries.

A. Invasive species may require control and methods described in *General* conditions would apply.

B. Clearing of excess sedimentation to enable proper flow characteristics, or to abate nuisance ponding conditions, may be required, subject to nesting bird restrictions described in Section 2.1.2, Condition B-4. In these instances the grade control structures, point stabilizers, and activities in the watershed should be evaluated for the causes of excess sedimentation and measures implemented to correct the problem.

FS-L8 **As-built Status Report and Flood Event Inspections**

A. Immediately after construction the following activities shall be carried out:

1. An as-built survey shall be conducted in accordance with Geomorphology Mitigation Measure GRR-7 from the Newhall Ranch RMDP-SCP EIS/EIR (survey shall include a full longitudinal profile of the channel thalweg (deepest point across the low flow channel), in addition to breaks of slope (top and bottom of low flow channel bank) and all in-channel structures).

2. Also in accordance with GRR-7, channel floodplain and valley toe shall be mapped into three classes of channel migration zone: "green zones" where channel migration is permissible, "yellow zones" which should trigger site inspections by a qualified engineer or geomorphologist leading to possible stabilization actions, and "red zones" which should trigger immediate repair and stabilization efforts.

B. In years 1, 3, 5, 10, and 20 following construction and after a flow event exceeding the 10-year recurrence interval, the following activities shall be carried out:

1. A re-survey of the channel longitudinal profile and cross-sections using GPS (sub-meter accuracy or better). The longitudinal profile shall include a point on the thalweg every 50 feet where there are no visible steps or gradient changes in the channel profile, with additional points at any gradient changes. Where there are visible steps greater than 1 foot in height, these shall be captured at least with a survey point at the top and bottom of each step, and labeled as "knickpoints." Top and base of both low flow channel banks shall

also be surveyed every 50 feet to create a 5 point cross section (top of left bank, base of left bank, thalweg, base of right bank, top of right bank).

2. The longitudinal profile shall be surveyed in more detail through in-channel structures such as step-pools, with particular attention to the scour pool geometry.

3. A visual inspection of each step-pool structure shall be performed. The inspection shall look for evidence of soil piping or washing out between rocks, movement of rock out of position (e.g., into the scour pool), presence of visible geotextile or cut-off wall materials, evidence for outflanking of the structure, exposure of the base of the toe rock.

4. The longitudinal profile shall be compared to the as-built profile and the as-built step-pool structures, so that scour relative to the depth of the rock armor can be noted.

5. The low flow channel configuration shall be compared with the channel migration zones.

C. After all flood events exceeding the 10-year recurrence interval flow, then a qualified geomorphologist or civil engineer shall conduct an inspection of the channel to evaluate for signs of erosion, "knickpoints," flanking of structures, and piping or erosion around the project structures. If the results of the inspection indicate evidence of channel instability, then a more detailed site investigation shall be carried out to determine whether corrective action is required.

FS-L9 **Flood Event Remedial Action Response—**The monitoring data described above will be used to determine whether remedial actions or more detailed studies are required. The criteria used to trigger more detailed investigations or maintenance/remedial actions will include (but will not be limited to) the following:

A. If the low-flow channel migrates into the "yellow zone," then a qualified geomorphologist or civil engineer shall conduct a more detailed investigation to determine the probability of further migration into a "red zone." If channel migration towards a "red zone" is occurring at a rate less than 3 feet per year, then this would trigger more frequent site inspections. These inspections shall include annual inspections and inspections after every large flow event (5-year recurrence interval flow or greater) until the channel migration ceases or the channel migrates away from the "red zone." If the rate of migration towards a "red zone" exceeds 3 feet per year or is within 10-feet of a "red zone," then

remedial actions will be implemented to stabilize the channel and restore channel functionality to comply with the basis of design criteria.

B. If channel erosion exposes the toe protection of the step-pools, then a qualified geomorphologist or civil engineer shall conduct a more detailed investigation to and develop a remedial plan to stabilize the channel and structure (e.g. extend toe protection deeper, or use grade control downstream to restore the channel bed elevation at the step-pool).

C. If channel erosion results in a decrease in the channel elevation of 1-foot or greater over a length of more than 50 feet or forms "knickpoints," then a qualified geomorphologist or civil engineer shall conduct a more detailed investigation to determine whether the erosion/channel incision is likely to migrate and threaten the stability of project structures. If the results of the investigation indicate that the stability of the structures is in jeopardy, then a remedial plan will be developed to stabilize the channel and structure (e.g., keying in additional boulder ramps to the channel bed).

D. If channel aggradation occurs such that step-pool structures are buried by sediment and/or the low-flow channel is no longer well-defined, then a qualified geomorphologist or civil engineer shall conduct a more detailed investigation to determine whether the aggradational trend is short-term or long-term. For the purposes of this monitoring program, "short term" means that the structure was not buried in the previous monitoring survey and "long term" means that the structure was buried during the previous monitoring survey. If aggradation appears to be short-term, then a pilot channel shall be cut through the original step-pool alignment to ensure that subsequent erosive flows do not flank the step-pools and jeopardize the channel stability. The pilot channel shall have the same dimensions as the original design channel. If aggradation appears to be long-term and the aggradation does not threaten the stability of the channel, then the channel shall be allowed to form itself (no sediment removal shall be carried out). However, if the aggradation appears to be long-term and potentially threatens the stability of the channel, then a remedial plan will be developed to stabilize the channel.

E. Remedial plans described above will require review and approval by CDFG and Corps prior to implementing the remedial actions.

FS-L10 **Control of Undesirable Geomorphic Response**—In addition to the measures identified above, potential remedial techniques to prevent, mitigate, abate, or

control undesirable geomorphic response may be required to ensure proper function of flood control facilities. These measures will include (but will not be limited to) the following:

A. Repair, maintenance or replacement of creek structures and development improvements.

B. Stabilization (either partial or total) of eroded areas or failures of the creek slopes by removal and replacement with appropriate materials.

C. Maintenance of erosion control measures that, where feasible, will consist of bio-engineering techniques.

D. Placement of subsurface drainage devices (e.g., underdrains, or horizontal drilled drains).

E. Slope correction (e.g., gradient change, slope trimming or contouring).

F. Maintenance of additional surface ditches and/or ponds, sediment traps, or backfill of eroded channels. Concrete V-ditches may be added in some cases to function as low flow or nuisance water management systems to alleviate channel bed soil saturation issues or to minimize vegetative growth where growth impairs the proper function of a facility.

FS-L11 **Catastrophic Failures—**events related to full or partial failure of a structure will require, in some instances, immediate response and repair, sometimes during storm flow conditions.

A. Immediate implementation of repair or maintenance work to protect life or property or to maintain public service facilities in time of a proclaimed state of emergency shall follow the notification procedures of the Agency permits.

B. Extensive damage may require remaintenance or repair to creek bank stabilization (soil cement, gunite, grouted and ungrouted riprap, and other erosion control systems).

C. Geotechnical Instrument Installation and Monitoring may be required to investigate and control unstable subsurface geologic conditions.

D. If a Geological Hazard Abatement District (GHAD) is created, it will have a site specific Monitoring Program, including specific activities to be conducted to ensure safe geologic conditions in the project areas.

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E. Major landslides may require filling, regrading, stabilization and debris removal from the Tributaries and other stormwater control system features.

F. Open Space Maintenance may be required after a damaging flood event or fire event to protect property and human health.

G. Revegetation efforts may be implemented for public safety, restoration, or aesthetic reasons within a damaged project area.

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3.0 ASSOCIATED DOCUMENTS

This manual was developed based on several related documents. Some sections have been included in their entirety while others have been paraphrased, amended or corrected to be specific to the RMDP features expected within the Newhall Ranch Specific Plan development. These documents include:

- Valencia Company Natural River Management Plan (FEIR/FEIS, NRMP Permits, 1998–1999)
- DRAFT County of Los Angeles Department of Public Works Stormwater Best Management Practice Design and Maintenance Manual (January 2007)
- Newhall Ranch Resource Management & Development Plan (RMDP) (October 2008)
- Newhall Ranch Sub-Regional Stormwater Management Plan (SWMP) (January 2008).