Appendix D

2017 Work Plan Pre-Project Notification

Marin County Stream Maintenance Program

2017 Work Plan Pre-Project Notification to the SF Bay Regional Water Quality Control Board

Submitted June 15, 2017

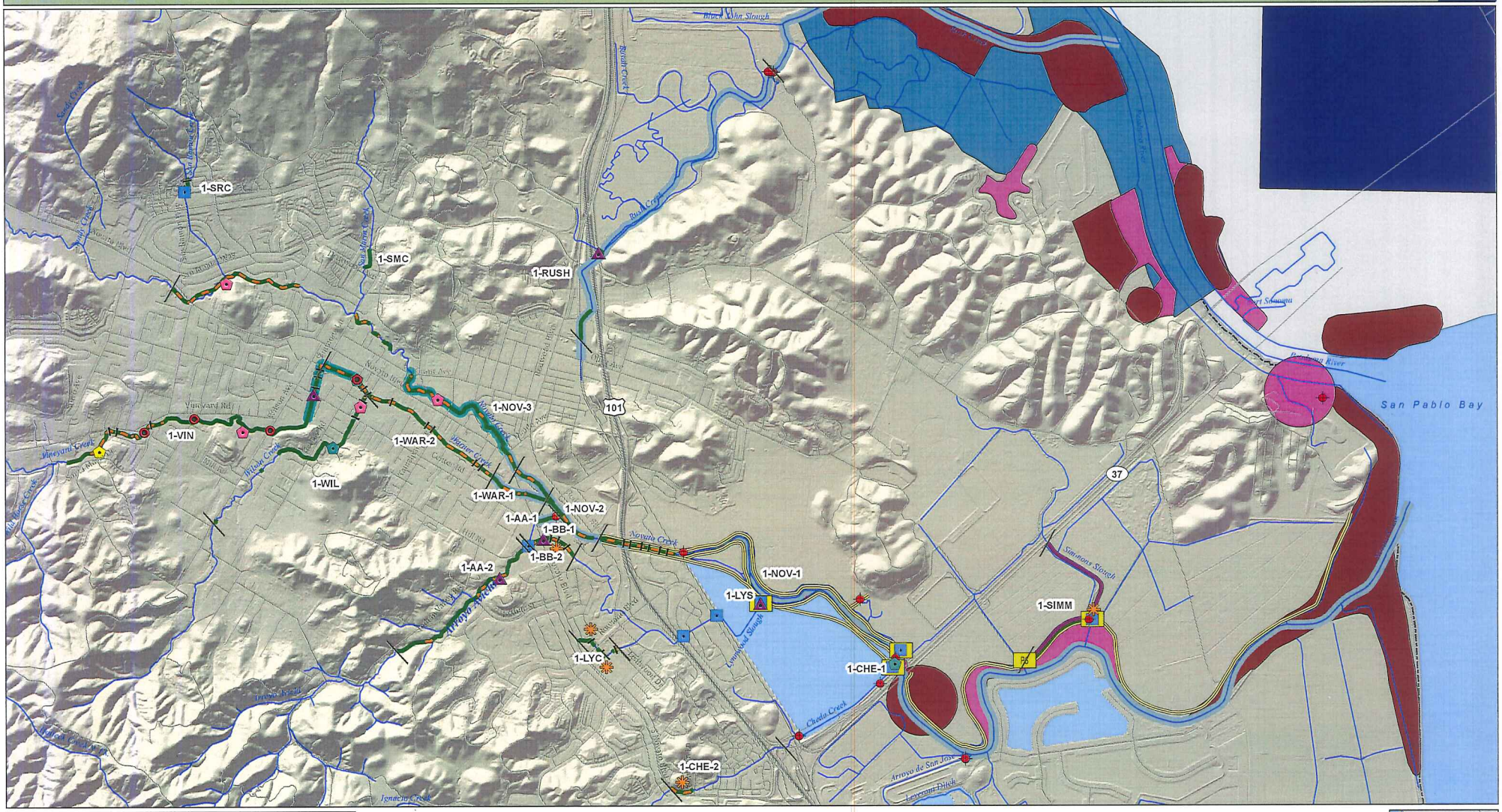
Marin County Stream Maintenance Program

2017 List of Sediment Removal Sites

Zone	Site #	Watershed	Project Site Name in SMP
1	1-RUSH	Rush Creek	Rush Creek
1	1-SIMM	Simmons Slough	Simmons Slough
1	1-VIN	Vineyard Ck	Vineyard Creek
3	3-COY-4	Coyote Creek	Coyote Creek
3	3-COY-3	Coyote Creek	Coyote Creek
3	3-COY-2	Coyote Creek	Coyote Creek
4	4-WEST-2	West Creek- Richardson Bay	West Creek
4	4-EAST-2	East Creek- Richardson Bay	East Creek
5	5-EAS-1d	Easkoot Creek - Bolinas Lagoon	Easkoot Creek
5	5-EAS-1e	Easkoot Creek - Bolinas Lagoon	Easkoot Creek
5	5-EAS-2	Easkoot Creek - Bolinas Lagoon	Easkoot Creek
9	9-MAG-3	Corte Madera Creek	965 Magnolia

Marin County Flood Control District - Stream Maintenance Program

Marin County
Flood Control and
Water Conservation District
April 2017



Map	Flood Control Zone 1 - Novato Lower Novato Creek Watershed
1	

- Fish Passage Barrier
- Vegetation Maintenance
- Levee Maintenance
- Tidal Stream
- Streams
- Sediment Removal
- Sediment Removal
- Erosion Control
- Fuels Reduction
- Cattail cutting
- Tide/Flap Gate
- Pump Station (PS)
- Trash Rack
- Site Limit
- California black rail
- California clapper rail
- California red-legged frog
- Salt-marsh harvest mouse

Restoration site
- Complete
- Ongoing
- Proposed
- Complete

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Flood Control Zone 1 - Novato

Site: 1-RUSH

Site Description:

This work site includes three separate areas of tidally-influenced Rush Creek: 1) tidegates at the downstream end near Cemetery Marsh, 2) sediment and vegetation maintenance at the culvert outlets downstream of Binford Road and 3) vegetation maintenance on a short stretch near Olive Ave between Novato Blvd and Highway 101. The tidegates are in an open salt marsh area.

Rush Creek near Olive Ave. on a veg maintenance reach

Wetlands and other Waters, including Waters of the USACE jurisdiction.

Vegetation communities:

The site is located in northern coastal salt marsh. The upstream area has cattails and a variety of non-native herbaceous and shrubby species. Downstream Site #2 drains into the marsh and Site #3 is more urbanized.

Potentially-occurring special-status species:

California black rail, California clapper rail, and salt marsh harvest mouse near the downstream tidegate.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6; BIRD-1, MAMM-1.

Maintenance Activities:

Vegetation maintenance, sediment removal and tidegate maintenance.

Best Management Practices:

A-43; A-67;A-69; A-73; A-103; A-107; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

1-RUSH: Sediment Removal from Rush Creek

Location: North of Olive/Railroad intersection; excluding the CalTrans ROW.
FC has an easement over State land with County taking responsibility to keep culvert outlets open on this drainage easement. Lat/Long: 38.1187/122.564.
Channel Description: Modified earthen flood control engineered channel; predominant vegetation type is northern coastal salt marsh; sediment removal area is dominated by open water, dense cattails and invasive grasses along Highway 101.
Tidal: Yes
Vegetation/Habitat Types: Tidal riparian; open water and cattails
Geomorphic Codes: Urban/Wildland Interface; Tidal Backwater; Debris or vegetation obstruction, sediment aggradation at outlet
Sediment Issue Severity: Medium; fills in after a decent storm
Chronic Sediment Issues: Sediment aggradation at the culvert outlet from tidal action in a tidal backwater creek reach; Removing sediment in this location would be more effective if there was a reduction of aggradation in the CalTrans reach US.
Dimensions of Work Area: 280 LF, 3 feet depth and 10 feet wide to clear the channel below a 36" culvert
Work Days:- 1-2; every 1-3 years
Equipment: Wheeled front end loader
Equipment Location During Sediment Removal: Adjacent Roadway or pull-out
Heavy Equipment Access and Staging: Across off-road area no vegetation removal
Temporary Stockpile Locations: On off-road area- no vegetation removal
Dewatering: Coffer dam and water diversion needed, therefore it falls under ACOE jurisdiction;
Permits Needed: ACOE 404; DFW 1600 RMA, RWQCB; no Special Status Species present in this project reach
Potentially Occurring Special Status Species: None in the project area; see Species designations on Site Maps attached

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

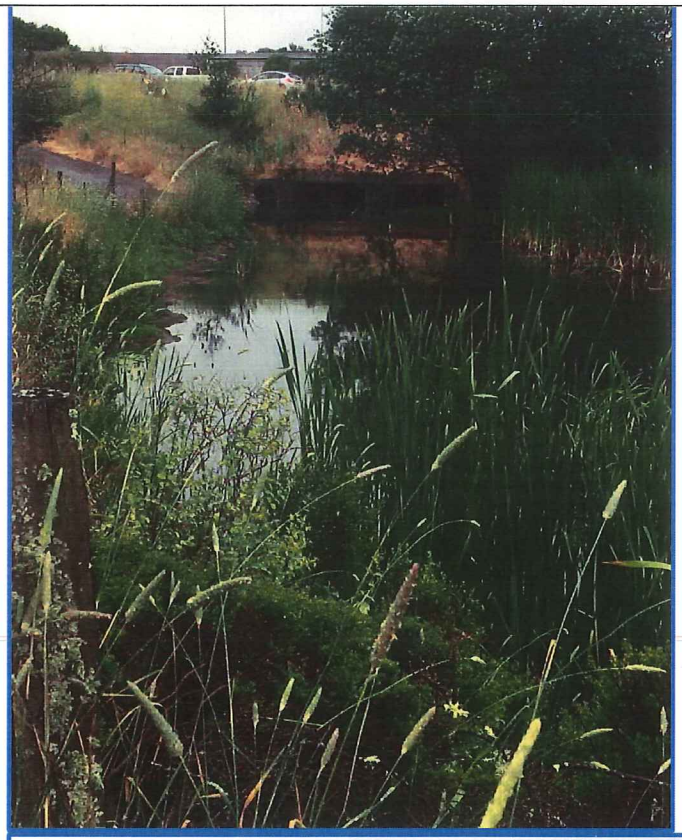
The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

1-RUSH: Sediment removal and clearing of cattails to establish a low flow channel downstream of CalTrans culverts under Highway 101. Chronic flooding of Armstrong Ave. occurs when tidal flows and storm flows converge during significant winter storms and downstream channel capacity is compromised due to complete blockage by cattails.



Flood Control Zone 1 - Novato

Site: 1-SIMM
Simmons Slough

Big Bertha pump station at Simmons Slough.

Site Description:

The work site is at the Simmons Slough pump station (which pumps water from the slough into Novato Ck. The area is tidally-influenced; adjacent land uses include flood control and agriculture. Sediment is removed to promote positive flow to Pump intake from DS HWY 37 to Novato Creek Levee and perpendicular levee screw gate to Sanitary District PS. Very low gradient; water at intake is normal; ag-gradation blocks conveyance to PS

Wetlands and other Waters, including Waters of the State:

Sediment removal may be under USACE jurisdiction

Vegetation communities:

The vegetation type at the sediment removal site is northern coastal salt marsh with salt grass and pickleweed; the levee tops around the pump station is annual grass-lands, with dominant species comprised mainly of nonnative grasses, wild radish, and bull mallow.

Potentially-occurring special-status species:

California black rail, California clapper rail, salt marsh harvest mouse.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6; BIRD-1, MAMM-1.

Maintenance Activities:

Sediment removal and pump station maintenance.

Best Management Practices:

A-43; A-103; A-107; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR-4a; VR4b; VR-5; WD-4; WD-5.

1-SIMM: Sediment Removal from Simmons Slough drainage ditch

Project Description: The work site is at the Simmons Slough pump station (which pumps water from the slough into Novato Ck. The area is tidally-influenced; adjacent land uses include flood control and agriculture. Sediment is removed to promote positive flow to Pump intake from DS HWY 37 to Novato Creek Levee and perpendicular levee screw gate to Sanitary District PS. Very low gradient; water at intake is normal; aggradation blocks conveyance to PS

Lat/Long: 38.0948 /-122.5167

Channel Description: Engineered flood control channel and ditch

Tidal: Yes

Vegetation/Habitat Types: California Annual Grassland; northern coastal salt marsh

Geomorphic Codes: Engineered silt basin; Debris or vegetation obstruction, sediment aggradation at outlet

Sediment Issue Severity: Medium; fills in after a decent storm

Chronic Sediment Issues: Sediment aggradation blocks access to pump station and causes chronic flooding of Highway 37

Dimensions of Work Area: 2880 LF; 5 feet depth; 25 feet wide

Work Days: 3-4 days;

Equipment: Long-reach excavator, hauler

Equipment Location During Sediment Removal: Top of levee

Heavy Equipment Access and Staging: across-off road area no veg to remove

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: No

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: Salt Marsh Harvest Mouse, Black rail, Ridgeway rail

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

AMMs per Special Status Species

BIRD-1: Ridgway's rail and California black rail

Several of the sites are within (5-10 sites) or immediately adjacent (15-20 sites) to suitable habitat for Ridgway's rail and California black rails. The following measures apply to all sites in or near salt or brackish marshland and will also serve to protect other tidal-marsh dependent species such as saltmarsh common yellowthroat and San Pablo song sparrow.

When working within 250 ft. of salt or brackish marshland during the period February 1st through August 31st, presence for either rail species shall be assumed.

For all maintenance activities except for mowing of levees:

- Maintenance activities shall be scheduled to occur between September 1st and January 31st to avoid the rail breeding season.

- Work shall be scheduled to occur between 8:00 AM and 4:00 PM in order to avoid early morning and late afternoon/evening hours when rails are most active.

- Work shall be scheduled to avoid periods of high tides, as the high water reduces the amount of refugial habitat for the rails. No work shall occur near salt marsh habitats within two hours before or after predicted extreme high tides of 6.5 ft. above the National Geodetic Vertical Datum (NGVD), as measured at the Golden Gate Bridge, and adjusted to the timing of local extreme high tide events at the project sites.

- Activities shall proceed as quickly as possible to reduce disturbance from noise, dust, etc.

- Removal or disturbance of emergent tidal marsh vegetation shall be avoided, and removal or disturbance of vegetation at the tidal marsh/upland interface shall be avoided to provide a buffer of refugial habitat within as wide a swath as possible (3 meter minimum) from the Mean Higher High Water (MHHW) line. If removal is necessary, the work shall be scheduled outside of the breeding season (February 1 – August 31st); all vegetation shall be removed by hand, and shall be salvaged and retained for replacement after work is completed.

- If, for any reason other than fire fuel reduction levee mowing, the District must perform maintenance activities within 250 ft. of salt or brackish marshland during the rail breeding season, the District shall retain a qualified biologist to conduct clapper rail surveys in accordance to most currently available protocols from the Department of Fish and Game and the US Fish and Wildlife Service.

MAMM-1: Salt Marsh Harvest Mouse (SMHM)

The majority of the sites are not in, nor adjacent to, salt marsh harvest mouse habitat; avoidance has been achieved for those sites. At sites XXX which are adjacent to suitable habitat for salt marsh harvest mouse and include work which may require impact to salt marsh harvest mouse habitat by removal of pickleweed, the following AMMS shall be followed:

- When implementing maintenance activities in uplands adjacent to salt or brackish marshland, vehicles will be confined to existing roads where possible, and disturbed areas shall be re-vegetated with brackish marsh species. Crews shall use matting, pontoon boards or other comparable methods whenever feasible to minimize impacts to the existing vegetation. The placement of mats will be approved by CDFW before their placement. Crews shall work exclusively from mat boards and boardwalks to minimize trampling of vegetation.

- If maintenance activities are conducted outside the breeding season, in coordination with USFWS and CDFW, pre-construction surveys shall be conducted within 5 days of the start of maintenance activities to check for presence of mice within the project sites. In addition, the ECC shall be present during maintenance-related activities along and adjacent to all suitable nesting habitat areas to ensure that salt marsh harvest mice are not present.

- Work shall be scheduled to avoid periods of high tides, as the high water reduces the amount of refugial habitat for SMHM. Generally, work should not be scheduled to occur between 2 hours before high tide and two hours after high tide.

- Removal or disturbance of emergent tidal marsh vegetation shall be avoided, and removal or disturbance of vegetation at the tidal marsh/upland interface shall be avoided to provide a buffer of refugial habitat within as wide a swath as possible.

- Training sessions shall be given to all workers to inform them of protective measures, instruct them in identification of the salt marsh harvest mouse and its habitat requirements, and inform them of when work needs to be stopped and appropriate officials informed of species presence.

- For project sites where work will intrude into tidal marsh habitat, the ECC shall survey the site prior to beginning work in order to determine the presence/absence of SMHM, and the following measures shall be implemented:

- Under the supervision of the ECC, vegetation shall be removed only with non-mechanized hand tools; no motorized equipment shall be used. Vegetation removal may begin only when no mice are observed, or with CDFW approval, and shall start at the edge farthest from the salt marsh and work its way towards the salt marsh. If a mouse of any species is observed within the areas being removed of vegetation, work

shall stop and CDFW shall be notified. Unless otherwise approved by CDFW, the mouse shall be allowed to leave on its own volition. Removal of pickleweed will generally follow Zedler (2001).

- If trenching takes place within 50 ft. of pickleweed areas, visqueen fencing shall be installed around worksites within pickleweed before excavation activities begin. CDFW will approve the size and placement of fencing. An escape ramp shall be placed in any open trench at the end of the day to allow any entrapped animals to escape.

- The ECC shall be on-site and shall halt project activities if necessary to comply with these terms.

1-SIMM: Sediment removal and clearing of cattails to establish a low flow channel to facilitate drainage to Simmons Slough pump station and reduce flooding of Highway 37

Flood Control Zone 1 - Novato

Site: 1-VIN
Vineyard Creek

Site Description:

The work site is a non-tidal, narrow riparian corridor constrained on both sides by residential development. The site includes several discontinuous sections of non-tidally influenced ripariran corridor.

Adjacent land uses are primarily residential.

Vineyard Creek at the Sonoma-Marin parcel.

Wetlands and other Waters, including Waters of the State:

Exempt from USACE jurisdiction.

Vegetation communities:

The vegetation type is north coast riparian scrub/forest. Tree species include bays, willows, alders. Understory species include wild grape, blue elderberry, Himalayan blackberry, ivy, and native and non-native grasses.

Potentially-occurring special-status species:

Steelhead trout; not present when work is completed during dry season

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6; FISH-1.

Maintenance Activities:

Fire fuel reduction, vegetation maintenance, sediment removal, and erosion control.

Best Management Practices:

A-43; A-53; A-61; A-63; A-67; A-69; A-71; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-185; A-191; A-193; A-197; A-203; A-211; A-223; A-229; CU-8; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1 through VR-5; WD-4; WD-5.

1-VIN: Sediment Removal from Vineyard Creek in the Novato Watershed

Project Location: Project is accessed from Center Road Bridge in downtown Novato

Project Description:

Lat/Long: 38.1076 -122.5917

Channel Description: The work site is an earthen non-tidal, engineered channel with a narrow riparian corridor constrained on both sides by residential development. The site includes several discontinuous sections of non-tidally influenced riparian corridor. Adjacent land uses are primarily residential.

Tidal: No

Vegetation/Habitat Types: North coast riparian scrub/forest. Tree species include bays, willows, alders. Understory species include wild grape, blue elderberry, Himalayan blackberry, ivy, and native and non-native grasses.

Geomorphic Codes: Reduction in channel gradient, widened cross-sections, debris or vegetation obstruction

Sediment Issue Severity: Medium

Chronic Sediment Issues: Trees 300 ft. US causing scour; sediments deposit at bridge; If City of Novato removes US trees, may alleviate issue

Dimensions of Work Area: 75 LF; 5 feet depth; 5-25 feet wide

Work Days: 3-4 days;

Frequency of removal: every 1-3 years

Equipment: Remove sediment under bridge by using Mini-Skid Steer Track Loader and Backhoe; hand removal and hauler

Equipment Location During Sediment Removal: Adjacent roadway or pull-out

Heavy Equipment Access and Staging: from roadway, parking lot pull-out

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: No

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: Steelhead but not during project implementation since the channel is always dry during the fall when the work is scheduled

impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

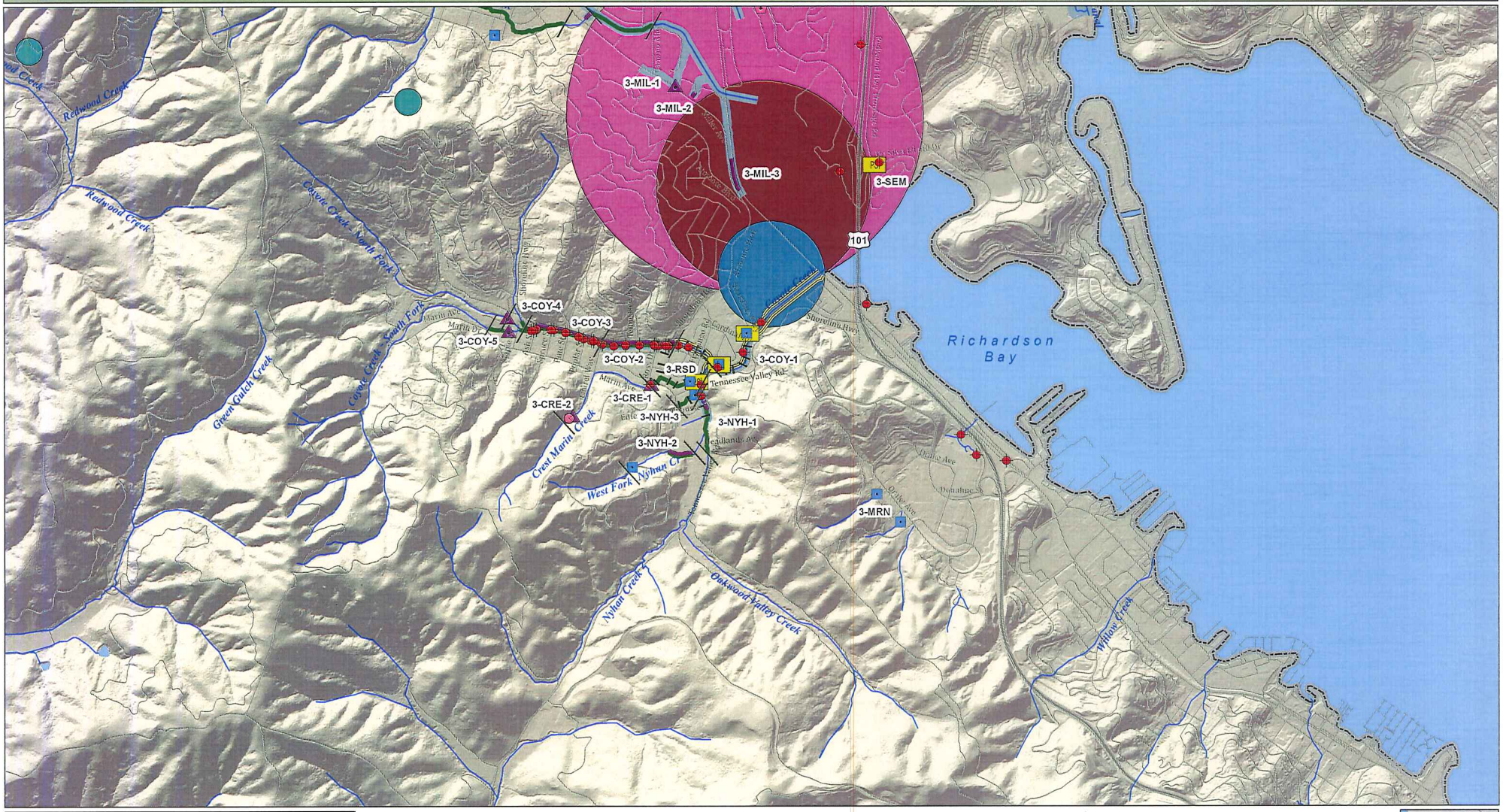
GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Marin County Flood Control and Water Conservation District - Routine Maintenance Activities

Marin County
Flood Control and
Water Conservation District
April 2017



Map	Flood Control Zone 3 - Richardson Bay Coyote Creek Watershed
5	

- Fish Passage Barrier
- Vegetation Maintenance
- Levee
- Tidal Stream
- Streams
- Sediment Removal
- Sediment Removal
- Erosion Control
- Fuels Reduction
- Tide/Flap Gate
- Pump Station
- Trash Rack
- Silt Basin
- Site Location Limit
- California black rail
- California clapper rail
- Northern spotted owl
- salt-marsh harvest mouse

Restoration site

- Complete
- Ongoing
- Proposed

1:20,000

0 0.25 0.5 1 Mi

Flood Control Zone 3 - Richardson Bay

Site: 3-COY-2
Coyote Creek

Site Description:

The site is tidal with concrete channel and extends from the start of the concrete bottom upstream to Laurel Way.

Surrounding land use is residential and commercial.

Wetlands and other Waters, including Waters of the State:

Subject to USACE jurisdiction.

Vegetation communities:

The channel bottom is concrete; predominant vegetation type on the banks is north coast riparian scrub/forest.

Potentially-occurring special-status species:

None.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6.

Maintenance Activities:

Vegetation maintenance, sediment removal, erosion control, and tidegate maintenance.

Best Management Practices:

A-43; A-53; A-61; A-63; A-67; A-69; A-71; A-73; A-103; A-107; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-185; A-191; A-193; A-197; A-203; A-211; A-223; A-229; CU-8; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1 through VR-5; WD-4; WD-5.

3-COY-2: Sediment Removal from Coyote Creek Concrete Channel

Project Location: The site is the concrete channel extending from the start of the concrete bottom downstream of Ross Dr. upstream to Laurel Way. Surrounding land use is residential and commercial.

Project Description: Remove accumulated sediment from bottom of concrete channel. Lower equipment (e.g., small loader) into channel to push material to DS end where an excavator will be placed at the top-of-bank to remove and load material.

Lat/Long: 37°52'44.29" N 122°31'58.35" W

Channel Description: Concrete

Tidal: Yes

Vegetation/Habitat Types: Concrete bottom, no emergent vegetation present; predominant vegetation type on the banks is north coast riparian scrub/forest.

Geomorphic Codes: Urban/Wildlife interface, sediment aggradation at outlet

Sediment Issue Severity: Low; chronic

Chronic Sediment Issues: Hydraulic model provides triggers; goal is to remove US sediments in concrete channel rather than lower tidal earthen channel with habitat.

Dimensions of Work Area: 1325 LF; 6 feet depth; 16 feet wide

Work Days: 3-4 days;

Frequency of removal: every 3 years

Equipment: Long-reach Excavator, Loader, Hauler

Equipment Location During Sediment Removal: Adjacent roadway or pull-out and in-channel and top of levee

Heavy Equipment Access and Staging: from roadway, parking lot pull-out, no veg to remove; across off-road areas

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: Yes

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: None

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Flood Control Zone 3 - Richardson Bay

Site: 3-COY-3
Coyote Creek

Site Description:

The site consists of a non-tidal, concrete channel. It extends from Laurel Way upstream to Ash St.

Surrounding land use is residential and commercial.

Wetlands and other Waters, including Waters of the State:

Subject to USACE jurisdiction.

Vegetation communities:

The dominant vegetation type is north coast riparian scrub/forest.

Potentially-occurring special-status species:

None.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6.

Maintenance Activities:

Vegetation maintenance, sediment removal, erosion control, and tidegate maintenance.

Best Management Practices:

A-43; A-53; A-61; A-63; A-67;A-69; A-71; A-73; A-103; A-107; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-185; A-191; A-193; A-197; A-203; A-211; A-223; A-229; CU-8; EV-1; EV-2; NR-1; NR-2; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1 through VR-5; WD-4; WD-5.

3-COY-3: Sediment Removal from Coyote Creek Concrete Channel

Project Location: The site consists of a non-tidal, concrete channel. It extends from Laurel Way upstream to Ash St. Surrounding land use is residential and commercial.

Project Description: Remove accumulated sediment from bottom of concrete channel. Lower equipment (e.g., small loader) into channel to push material to DS end where an excavator will be placed at the top-of-bank to remove and load material.

Lat/Long: 37°52'44.29" N N 122°31'58.35" W

Channel Description: Concrete

Tidal: No

Vegetation/Habitat Types: Concrete bottom, no emergent vegetation present; predominant vegetation type on the banks is north coast riparian scrub/forest.

Geomorphic Codes: Urban/Wildlife interface, sediment aggradation at outlet

Sediment Issue Severity: Low; chronic

Chronic Sediment Issues: Hydraulic model provides triggers; goal is to remove US sediments in concrete channel rather than lower tidal earthen channel with habitat.

Dimensions of Work Area: 100 LF; 6 feet depth; 16 feet wide

Work Days: 3-4 days;

Frequency of removal: every 3 years

Equipment: Long-reach Excavator, Loader, Hauler

Equipment Location During Sediment Removal: Adjacent roadway or pull-out and in-channel and top of levee

Heavy Equipment Access and Staging: from roadway, parking lot pull-out, no veg to remove; across off-road areas

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: Yes

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: None

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Flood Control Zone 3 - Richardson Bay

Site: 3-COY-4
Coyote Creek

Site Description:

The site is non-tidal and includes the reaches between Ash St. and Maple Ave.

Surrounding land use is residential and commercial.

Wetlands and other Waters, including Waters of the State:

Exempt from USACE jurisdiction.

Vegetation communities:

The predominant vegetation type is north coast riparian scrub/forest.

Potentially-occurring special-status species:

None.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6.

Maintenance Activities:

Vegetation maintenance and sediment removal.

Best Management Practices:

A-43; A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

3-COY-4: Sediment Removal from Coyote Creek Concrete Channel

Project Location: Coyote Creek between Pineo Ave. and Northern Ave., approx. 225 ft west of intersection with Maple St.

Project Description: Remove accumulated sediment from 20 ft section of earthen channel immediately US of storm drain pipe inlet leading to Coyote Creek open concrete.

Lat/Long: 37°52'48.98" N 122°32'20.35" W

Channel Description: North Fork Inlet; Open Concrete Channel

Tidal: No

Vegetation/Habitat Types: Concrete bottom, open water - no vegetation

Geomorphic Codes: Urban/Wildlife interface, Debris or vegetation obstruction

Sediment Issue Severity: Low; chronic

Chronic Sediment Issues: Upper watershed erosion on lands not owned by FC

Dimensions of Work Area: 20 LF; 6 feet depth; 16 feet wide

Work Days: 1 day

Frequency of removal: annually

Equipment: Hand removal, Hauler
Equipment Location During Sediment Removal: Adjacent roadway or pull-out

Heavy Equipment Access and Staging: from roadway, parking lot pull-out,

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: No

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: None

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

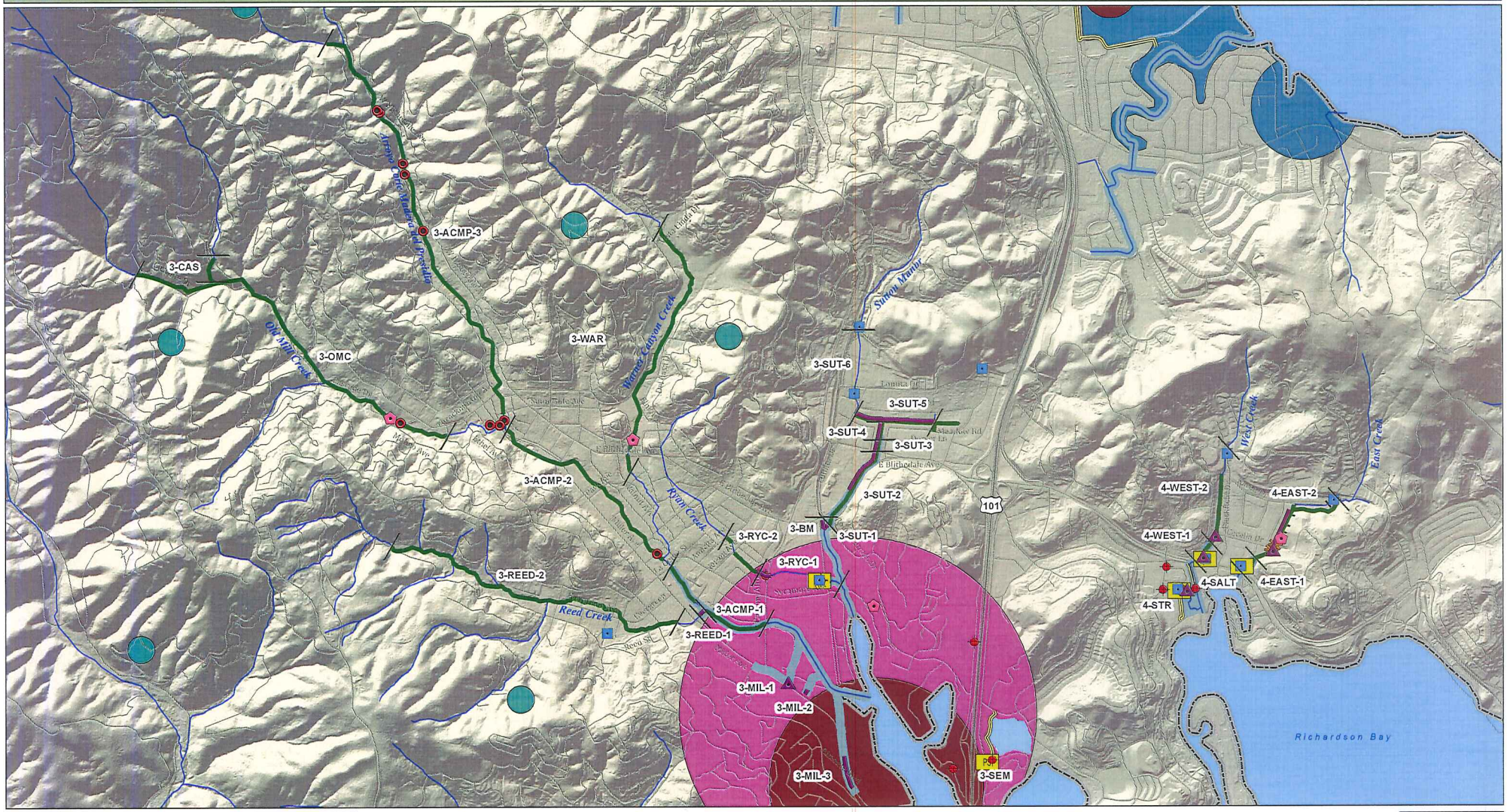
GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Marin County Flood Control and Water Conservation District - Stream Maintenance Program

Marin County
Flood Control and
Water Conservation District
April 2017



Map	Flood Control Zone 3 - Richardson Bay Arroyo Corte Madera del Presidio Flood Control Zone 4 - Bel Aire East and West Creeks
4	

Fish Passage Barrier
Cattail cutting
Vegetation Maintenance
Tidal Stream
Streams
Sediment Removal
Sediment Removal
Fuels Reduction
Tide\Flap Gate
PS Pump Station
Trash Rack
Site Limit
California black rail
California clapper rail
Northern spotted owl
salt-marsh harvest mouse

Restoration site
Complete
Ongoing
Proposed

1:20,000

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Flood Control Zone 4 - Bel Aire and Strawberry Circle

Site: 4-EAST-2
East Creek

Site Description:

This site is a non-tidal, narrow corridor between residential subdivisions, generally running behind Leland Way and Karen Way.

Wetlands and other Waters, including Waters of the State:

Vegetation communities:

The predominant vegetation type is annual grassland behind Leland Way and north coast riparian scrub/forest behind Karen Way.

Potentially-occurring special-status species:

None.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6.

Maintenance Activities:

Fire fuel reduction, vegetation maintenance, and sediment removal.

Best Management Practices:

A-43; A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

4-EAST-2: Sediment Removal from East Creek

Location: East of Leyland Way/Cecelia Way intersection in Tiburon, CA
FC has an easement over East Creek.
Project Description: Remove accumulated sediment from DS side of Cecilia Way crossing within road ROW. Equipment will be located on the bridge. Ditches: Remove sediment along 750 ft. section of channel as necessary. Equipment will be staged from private roadway; need to get signed Right-to-Enter agreement from HOA.
Channel Description: Modified earthen flood control engineered channel.
Tidal: No
Vegetation/Habitat Types: The predominant vegetation type is annual grassland behind Leland Way and north
coast riparian scrub/forest behind Karen Way.
Geomorphic Codes: Road crossing width
Sediment Issue Severity: Medium; fills in after a decent storm
Chronic Sediment Issues: Sediment aggradation at the culvert outlet from sediment
Dimensions of Work Area: 120 LF, 3 feet depth and 10 feet wide to clear the channel below a 5'X10' culvert.
Work Days: 1-2
Equipment: Long reach excavator and Hauler
Equipment Location During Sediment Removal: Adjacent Roadway or pull-out
Heavy Equipment Access and Staging: Across off-road area; no vegetation removal needed
Temporary Stockpile Locations: On off-road area
Dewatering: No
Permits Needed: DFW 1600 RMA, RWQCB
Potentially Occurring Special Status Species: None

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

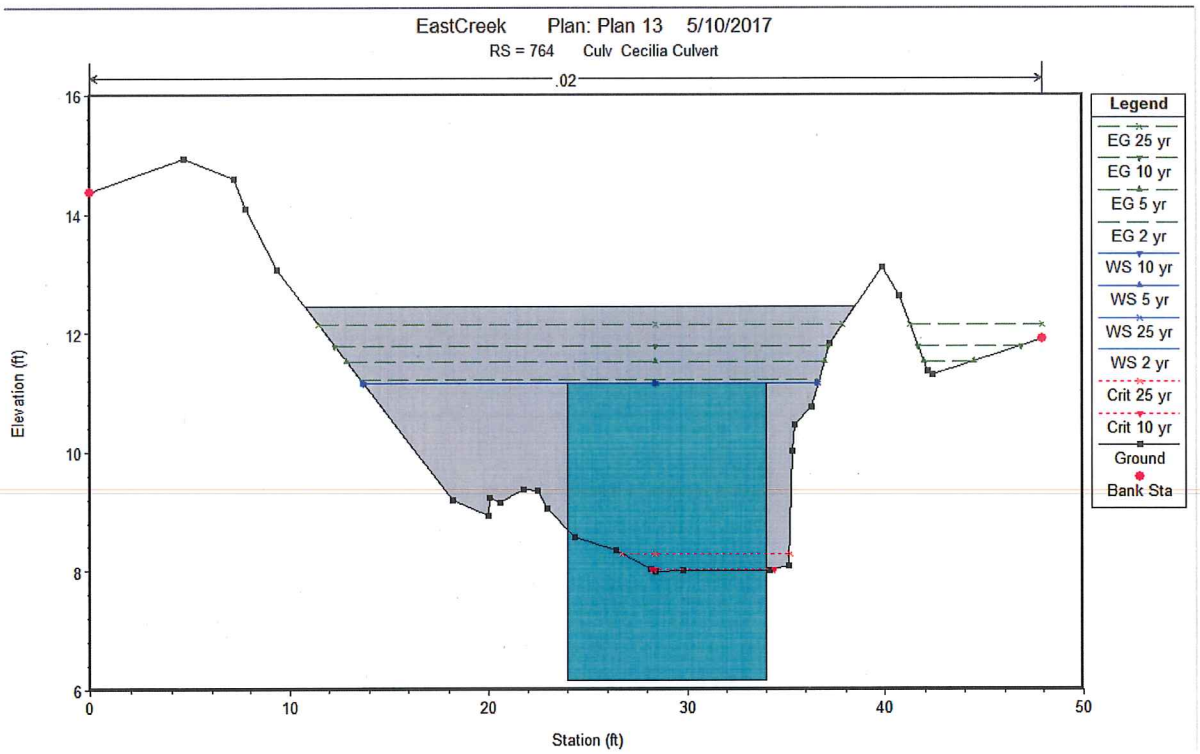
The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

4-EAST-2: Sediment removal and clearing of cattails to establish a low flow channel downstream of Cecelia Way culvert along East Creek. In 2017, a survy of the site was conducted by a licensed land surveyor. This survey data was used in a HEC-RAAS model, and the cutler was occluded by approximately 45%



Flood Control Zone 4 - Bel Aire and Strawberry Circle

Site: 4-WEST-2
West Creek

Site Description:

The site is above the extent of tidal influence and is a narrow riparian corridor running between residential backyards.

The predominant land use is residential.

Wetlands and other Waters, including Waters of the State:

Exempt from USACE jurisdiction.

Vegetation communities:

The predominant vegetation type is north coast riparian scrub/forest. Many native species have been planted as mitigation, including spicebush, blue elderberry, and redwood trees.

Potentially-occurring special-status species:

None.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6.

Maintenance Activities:

Vegetation maintenance and sediment removal.

Best Management Practices:

A-43; A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

4-WEST-2: Sediment Removal from West Creek

Location: West Creek DS of Cecilia Way.
Project Description: Remove accumulated sediment from DS side of Cecilia Way crossing within road ROW. Long reach excavator will be located on the bridge.
Channel Description: Modified earthen flood control engineered channel.
Tidal: No
Vegetation/Habitat Types: Ruderal non-natives;
Geomorphic Codes: Reduction in channel gradient
Sediment Issue Severity: Medium; fills in after a decent storm
Chronic Sediment Issues: Sediment aggradation at the culvert outlet from sediment
Dimensions of Work Area: 10 LF, 4 feet depth and 6 feet wide
Work Days: 1
Frequency: every 3years
Equipment: Long reach excavator, Wheeled Front End Loader, Hauler
Equipment Location During Sediment Removal: Adjacent roadway or pull-out; Bridge
Heavy Equipment Access and Staging: From roadway, parking lot, or pull-outs - no veg to remove
Temporary Stockpile Locations: On off-road area
Dewatering: No
Permits Needed: DFW 1600 RMA, RWQCB
Potentially Occurring Special Status Species: None

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

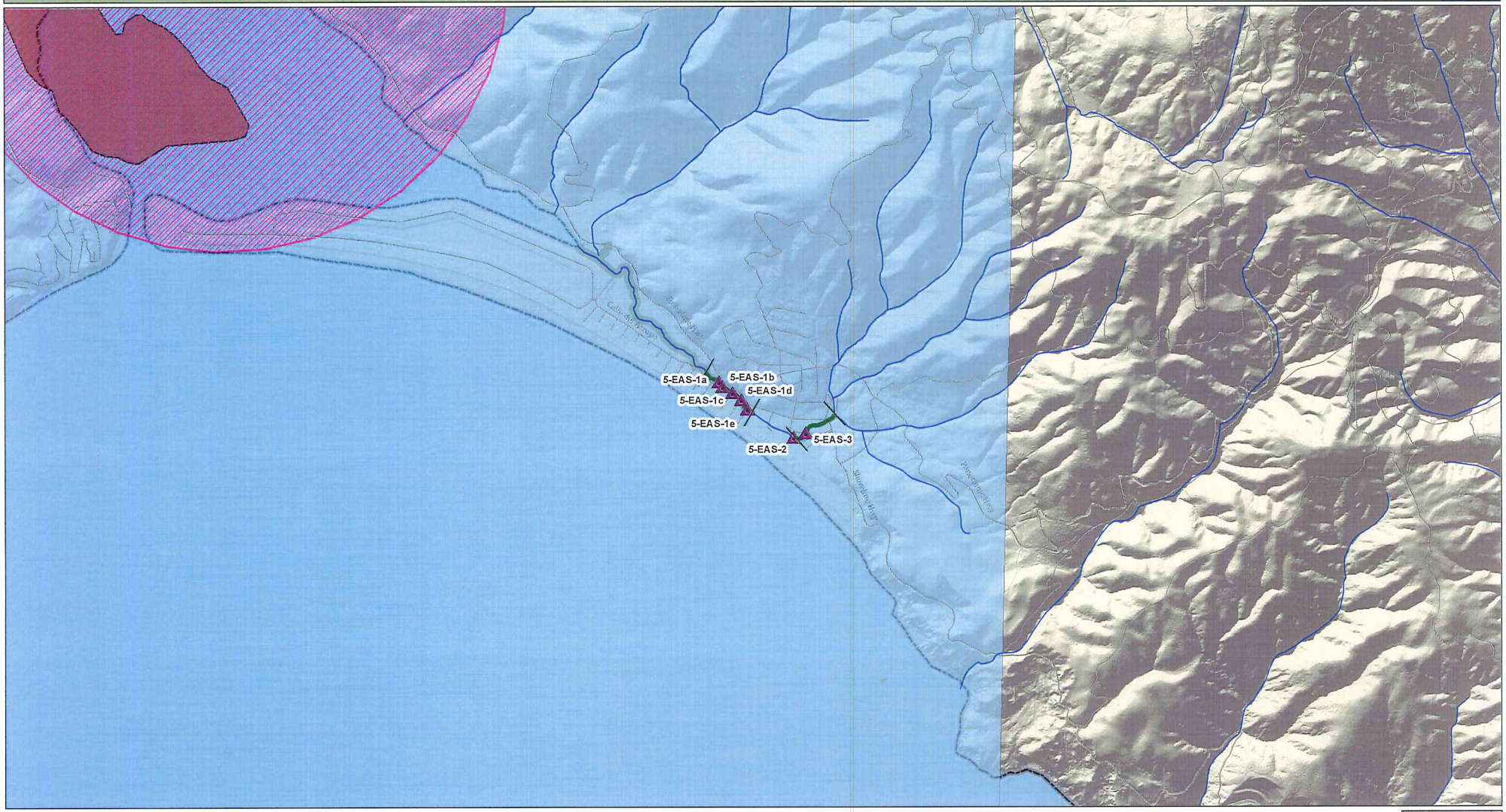
GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Marin County Flood Control and Water Conservation District - Stream Maintenance Program

Marin County
Flood Control and
Water Conservation District
April 2017



Map	Flood Control Zone 5 - Stinson Beach
10	Easkoot Creek

Fish Passage Barrier
Vegetation Maintenance
Tidal Stream
Streams
Sediment Removal
Sediment Removal
Site Limit
California black rail
California clapper rail
Monarch butterfly

1:20,000

0 0.25 0.5 1 Mi

Flood Control Zone 5 - Stinson Beach

Site: 5-EAS-2
Easkoot Creek

Site Description:

The site is a n off-channel sediment basin which is non-tidal. The site is adjacent to a parking lot on National Park Service land, behind the Parkside Cafe.

Surrounding land use is recreational and commercial.

Wetlands and other Waters, including Waters of the State:

Subject to USACE jurisdiction ???

Vegetation communities:

The dominant vegetation type is north coast riparian scrub/forest, with dominant tree species include bays, buckeyes, willows and a few alders. Shrubs include Himalayan blackberry, cape ivy, broom and pampas grass.

Potentially-occurring special-status species:

Point Reyes bird's beak, coho salmon and steelhead trout, California red-legged frog, California black rail, California clapper rail, and monarch butterfly.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6, PLA-1, FISH-1, INV-1, AMPH-1, BIRD-1.

Maintenance Activities:

Vegetation maintenance and sediment removal.

Best Management Practices:

A-43; A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

5-EAS-2-Sediment Removal Easkoot Creek at Constructed Sediment Trap

Project Description: Remove accumulated sediment from the sediment trap constructed in order to detain sediment from traveling downstream from landslides on NPS lands; causing flooding during high winter storms

Project Location: Easkoot Creek; Calle del Pradero intersection with Shoreline Highway.

Lat/Long: 37°53'54.06" N.19" N ; 122°38'27".30 W

Channel Description: Engineered flood control channel with earthen channel

Tidal: No

Vegetation/Habitat Types: Riparian on upper banks;

Geomorphic Codes: Sediment aggradation at constructed flood control trap

Sediment Issue Severity: High;

Chronic Sediment Issues: Low gradient stream with heavy sediment input from landslides on NPS lands in the upper watershed. Sediment aggradation in this system used to be more chronic until County Flood Control built the off-channel sediment trap upstream; now frequency of sediment removal in Easkoot Creek downstream is much less frequent.

Dimensions of Work Area: 20 ft. up and downstream plus 10 ft. under bridge; 25 feet wide

Work Days: 1 day;

Equipment: Long-reach excavator, hauler

Equipment Location During Sediment Removal: Top of bank; access ramp from parking lot

Heavy Equipment Access and Staging: NPS parking lot

Temporary Stockpile Locations: No temporary stockpiling; material hauled off immediately

Dewatering: No

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: Steelhead; California Red-legged Frog

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

AMMs per Special Status Species

1.1 Avoidance and Minimization Measures for Fish

The AMM described below is designed to protect fishery resources. Coho may potentially be found in Easkoot Creek in West Marin, although they aren't known to be breeding there. Steelhead trout are known to occur within Novato Creek, Ross Valley, Miller Creek and Richardson Bay, and these measures will also protect other fish species such as Chinook salmon, sturgeon, lampreys, and Sacramento splittail.

FISH-1: Salmonids

If steelhead and/or coho salmon are known to be absent from the project site based on CEMAR/CDFW surveys and there are long-standing natural or artificial downstream barriers sufficient to prevent upstream migration, then avoidance has been accomplished and no further actions are necessary.

If Coho salmon are observed in the project area during winter months or during pre-construction fish capture and relocation activities, all project activities shall cease and DFW and NMFS shall immediately be notified.

If steelhead are determined or presumed to be present in the project site, then the following Avoidance and Minimization Measures shall be implemented:

- All in-stream maintenance activities will be restricted to the low-flow period of June 15th through October 15th. Work above the top of bank or outside of the channel will not be subject to this modified work period.

- To minimize turbidity and stress to special status species, personnel shall avoid walking through stream pools and the thalweg of the channel, and shall instead walk across riffles or outside of the stream bed to access a project site.

- No equipment is to be operated from within the active stream channel unless the stream has been dewatered and fish have been relocated by a qualified and permitted biologist.

- If anadromous salmonids are present, a fisheries biologist with appropriate licenses and equipment (buckets, aerators, etc.) must be on-site to catch and move fish downstream as dewatering proceeds.

- Captured fish shall be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation, the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic

predators. Captured salmonids will be relocated, as soon as possible, to a suitable instream location in which habitat condition are present to allow for adequate survival of transported fish and fish already present. Cofferdams used to divert water shall be constructed with clean river gravel or sand bags and sealed with sheet plastic.

- If any salmonids are found dead or injured, the biologist shall contact NMFS biologist Rick Rogers by phone immediately at (707) 578-8552 or the NMFS North Central Coast Office at (707) 575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional' protective measures are required. All salmonid mortalities shall be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date and location of collection, fork length measured, and frozen as soon as possible. Frozen samples shall be retained by the biologist until specific instructions are provided by NMFS. The biologist may not transfer biological samples to anyone other than the NMFS North Central Coast Office without obtaining prior written approval from the North Central Coast Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NMFS deems appropriate.

- Intakes and outlets shall be designed to minimize turbidity and the potential to wash contaminants into the stream.

- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent amphibians from entering the pump system. On salmonid streams, the intake pipe shall be fitted with fish screens meeting CDFW and NOAA Fisheries' criteria to prevent entrainment or impingement of small fish (National Marine Fisheries Service 1997: http://swr.nmfs.noaa.gov/hcdlfishscm.pdf).

- A filtration/settling system must be included to reduce downstream turbidity (i.e. filter fabric, turbidity curtain). The selection of an appropriate system is based on the rate of discharge. If feasible, water that is pumped into a pipe shall discharge onto the top of bank into a densely vegetated area, which may require extra hose length.

- Once the project work is complete, water shall be slowly released back into the work area to prevent erosion and increased turbidity.

- The channel and soil surface shall be restored to its original or design configuration after the work is complete. Any material added to the channel or basin to provide support for the work approved under this provision shall be removed unless required for erosion control or habitat enhancement and/or restoration.

- For minor actions where the disturbance to construct cofferdams to isolate the work site would be greater than that which would occur in completing the proposed action, measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the drainage or placement of a straw wattle or filter berm of clean river gravel. Silt fences

and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.

1.2 Avoidance and Minimization Measures for Amphibians

AMPH-1: California Red-legged Frog (CRLF)

CRLF absence is presumed for all project sites in eastern Marin. Therefore, impacts are avoided, and no further surveys, studies or CRLF protection measures are required and the maintenance activities can proceed.

For the Easkoot Creek sites, 5-EAS-1, 5-EAS-2 and 5-EAS-3, where there is potential for California red-legged frog to occur, pre-construction aquatic surveys should be conducted by a qualified biologist prior to the onset of any disturbance related activities, following the protocol outlined in the Revised Guidelines on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005):

- At least 15 days prior to the onset of activities, the applicant or project proponent shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

- A Service-approved biologist shall survey the work site two weeks before the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

- Before any construction activities begin on a project, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session provided that a qualified person is on hand to answer any questions.

- A Service-approved biologist shall be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist shall ensure that this individual receives training outlined above in measure 3 and in the identification of California red-legged frogs. The monitor and the Service- approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped. The Corps and Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.

- Pre-construction surveys should consist of two separate daytime and nighttime surveys extending 300 ft. upstream and downstream (where feasible) of the proposed work sites. If special-status species are found, CDFG and/or USFWS should be contacted to determine what actions are to be taken. The 2005 Guidance recommends a total of up to eight (8) surveys to determine the presence of CRLF at or near a project site. Two (2) day surveys and four (4) night surveys are recommended during the breeding season; one (1) day and one (1) night survey is recommended during the non-breeding season. Each survey must take place at least seven (7) days apart. At least one survey must be conducted prior to August 15th. The survey period must be over a minimum period of 6 weeks (i.e., the time between the first and last survey must be at least 6 weeks). Throughout the species' range, the non-breeding season is defined as between July 1st and September 30th.

- If a maintenance activity site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than five millimeters to prevent CRLF from entering the pump system.

Flood Control Zone 5 - Stinson Beach

Site: 5-EAS-1 (a-e)
Easkoot Creek

Site Description:

The site is tidally-influenced and generally parallels Highway 1 between Calle del Ribera and Calle de Pinos.

Surrounding land use is residential.

Wetlands and other Waters, including Waters of the State:

Subject to USACE jurisdiction.

Vegetation communities:

Even though there is tidal influence, the dominant vegetation type is north coast riparian scrub/forest, with dominant tree species include bays, buckeyes, willows and a few alders. Shrubs include Himalayan blackberry, cape ivy, broom and pampas grass.

Potentially-occurring special-status species:

Point Reyes bird's beak, coho salmon and steelhead trout, California red-legged frog, California black rail, and California clapper rail, and monarch butterfly.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6, PLA-1, FISH-1, INV-1, AMPH-1, BIRD-1.

Maintenance Activities:

Vegetation maintenance and sediment removal.

Best Management Practices:

A-43; A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

5-EAS-1d-Sediment Removal Easkoot Creek at Calle del Pradero; Stinson Beach

Project Description: Remove accumulated sediment between 20 ft US and 20 ft DS of bridge crossing and 10 ft. beneath bridge. Work performed from top of bank using logn reach excavator.

Project Location: Easkoot Creek; Calle del Pradero intersection with Shoreline Highway.

Lat/Long: 37°53'57.80" N .19" N ; 122°38'35.21" W

Channel Description: Engineered flood control channel with earthen channel

Tidal: Yes

Vegetation/Habitat Types: Riparian

Geomorphic Codes: Debris or vegetation obstruction, sediment aggradation at bridge

Sediment Issue Severity: Low;

Chronic Sediment Issues: Low gradient stream with heavy sediment input from landslide son NPS lands in the upper watershed. Used to be more chronic until County Flood Control built the off-channel sediment trap upstream; now frequency of sediment removal is much less (see attached monitoring report).

Dimensions of Work Area: 20 ft. up and downstream plus 10 ft. under bridge; 25 feet wide

Work Days: 1 day;

Equipment: Long-reach excavator, hauler

Equipment Location During Sediment Removal: Top of levee

Heavy Equipment Access and Staging: across-off road area no veg to remove

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: Yes

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: Steelhead; California Red-legged Frog

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

AMMs per Special Status Species

1.1 Avoidance and Minimization Measures for Fish

The AMM described below is designed to protect fishery resources. Coho may potentially be found in Easkoot Creek in West Marin, although they aren't known to be breeding there. Steelhead trout are known to occur within Novato Creek, Ross Valley, Miller Creek and Richardson Bay, and these measures will also protect other fish species such as Chinook salmon, sturgeon, lampreys, and Sacramento splittail.

FISH-1: Salmonids

If steelhead and/or coho salmon are known to be absent from the project site based on CEMAR/CDFW surveys and there are long-standing natural or artificial downstream barriers sufficient to prevent upstream migration, then avoidance has been accomplished and no further actions are necessary.

If Coho salmon are observed in the project area during winter months or during pre-construction fish capture and relocation activities, all project activities shall cease and DFW and NMFS shall immediately be notified.

If steelhead are determined or presumed to be present in the project site, then the following Avoidance and Minimization Measures shall be implemented:

- All in-stream maintenance activities will be restricted to the low-flow period of June 15th through October 15th. Work above the top of bank or outside of the channel will not be subject to this modified work period.

- To minimize turbidity and stress to special status species, personnel shall avoid walking through stream pools and the thalweg of the channel, and shall instead walk across riffles or outside of the stream bed to access a project site.

- No equipment is to be operated from within the active stream channel unless the stream has been dewatered and fish have been relocated by a qualified and permitted biologist.

- If anadromous salmonids are present, a fisheries biologist with appropriate licenses and equipment (buckets, aerators, etc.) must be on-site to catch and move fish downstream as dewatering proceeds.

- Captured fish shall be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation, the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic

predators. Captured salmonids will be relocated, as soon as possible, to a suitable instream location in which habitat condition are present to allow for adequate survival of transported fish and fish already present. Cofferdams used to divert water shall be constructed with clean river gravel or sand bags and sealed with sheet plastic.

- If any salmonids are found dead or injured, the biologist shall contact NMFS biologist Rick Rogers by phone immediately at (707) 578-8552 or the NMFS North Central Coast Office at (707) 575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional' protective measures are required. All salmonid mortalities shall be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date and location of collection, fork length measured, and frozen as soon as possible. Frozen samples shall be retained by the biologist until specific instructions are provided by NMFS. The biologist may not transfer biological samples to anyone other than the NMFS North Central Coast Office without obtaining prior written approval from the North Central Coast Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NMFS deems appropriate.

- Intakes and outlets shall be designed to minimize turbidity and the potential to wash contaminants into the stream.

- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent amphibians from entering the pump system. On salmonid streams, the intake pipe shall be fitted with fish screens meeting CDFW and NOAA Fisheries' criteria to prevent entrainment or impingement of small fish (National Marine Fisheries Service 1997: http://swr.nmfs.noaa.gov/hcdlfishscm.pdf).

- A filtration/settling system must be included to reduce downstream turbidity (i.e. filter fabric, turbidity curtain). The selection of an appropriate system is based on the rate of discharge. If feasible, water that is pumped into a pipe shall discharge onto the top of bank into a densely vegetated area, which may require extra hose length.

- Once the project work is complete, water shall be slowly released back into the work area to prevent erosion and increased turbidity.

- The channel and soil surface shall be restored to its original or design configuration after the work is complete. Any material added to the channel or basin to provide support for the work approved under this provision shall be removed unless required for erosion control or habitat enhancement and/or restoration.

- For minor actions where the disturbance to construct cofferdams to isolate the work site would be greater than that which would occur in completing the proposed action, measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the drainage or placement of a straw wattle or filter berm of clean river gravel. Silt fences

and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.

1.2 Avoidance and Minimization Measures for Amphibians

AMPH-1: California Red-legged Frog (CRLF)

CRLF absence is presumed for all project sites in eastern Marin. Therefore, impacts are avoided, and no further surveys, studies or CRLF protection measures are required and the maintenance activities can proceed.

For the Easkoot Creek sites, 5-EAS-1, 5-EAS-2 and 5-EAS-3, where there is potential for California red-legged frog to occur, pre-construction aquatic surveys should be conducted by a qualified biologist prior to the onset of any disturbance related activities, following the protocol outlined in the Revised Guidelines on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005):

- At least 15 days prior to the onset of activities, the applicant or project proponent shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

- A Service-approved biologist shall survey the work site two weeks before the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

- Before any construction activities begin on a project, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session provided that a qualified person is on hand to answer any questions.

- A Service-approved biologist shall be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist shall ensure that this individual receives training outlined above in measure 3 and in the identification of California red-legged frogs. The monitor and the Service- approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped. The Corps and Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.

- Pre-construction surveys should consist of two separate daytime and nighttime surveys extending 300 ft. upstream and downstream (where feasible) of the proposed work sites. If special-status species are found, CDFG and/or USFWS should be contacted to determine what actions are to be taken. The 2005 Guidance recommends a total of up to eight (8) surveys to determine the presence of CRLF at or near a project site. Two (2) day surveys and four (4) night surveys are recommended during the breeding season; one (1) day and one (1) night survey is recommended during the non-breeding season. Each survey must take place at least seven (7) days apart. At least one survey must be conducted prior to August 15th. The survey period must be over a minimum period of 6 weeks (i.e., the time between the first and last survey must be at least 6 weeks). Throughout the species' range, the non-breeding season is defined as between July 1st and September 30th.

- If a maintenance activity site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than five millimeters to prevent CRLF from entering the pump system.

5-EAS-1e-Sediment Removal Easkoot Creek at Calle del Pinos; Stinson Beach

Project Description: Remove accumulated sediment between 20 ft US and 20 ft DS of bridge crossing and 10 ft. beneath bridge. Work performed from top of bank using logn reach excavator.

Project Location: Easkoot Creek; Calle del Pradero intersection with Shoreline Highway.

Lat/Long: 37°53'56.19" N ; 122°38'33.64" W

Channel Description: Engineered flood control channel with earthen channel

Tidal: Yes

Vegetation/Habitat Types: Riparian

Geomorphic Codes: Debris or vegetation obstruction, sediment aggradation at bridge

Sediment Issue Severity: Low;

Chronic Sediment Issues: Low gradient stream with heavy sediment input from landslide son NPS lands in the upper watershed. Used to be more chronic until County Flood Control built the off-channel sediment trap upstream; now frequency of sediment removal is much less (see attached monitoring report).

Dimensions of Work Area: 20 ft. up and downstream plus 10 ft. under bridge; 25 feet wide

Work Days: 1 day;

Equipment: Long-reach excavator, hauler

Equipment Location During Sediment Removal: Top of levee

Heavy Equipment Access and Staging: across-off road area no veg to remove

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: Yes

Permits Needed: DFW 1600 RMA, RWQCB;

Potentially Occurring Special Status Species: Steelhead; California Red-legged Frog

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

AMMs per Special Status Species

1.1 Avoidance and Minimization Measures for Fish

The AMM described below is designed to protect fishery resources. Coho may potentially be found in Easkoot Creek in West Marin, although they aren't known to be breeding there. Steelhead trout are known to occur within Novato Creek, Ross Valley, Miller Creek and Richardson Bay, and these measures will also protect other fish species such as Chinook salmon, sturgeon, lampreys, and Sacramento splittail.

FISH-1: Salmonids

If steelhead and/or coho salmon are known to be absent from the project site based on CEMAR/CDFW surveys and there are long-standing natural or artificial downstream barriers sufficient to prevent upstream migration, then avoidance has been accomplished and no further actions are necessary.

If Coho salmon are observed in the project area during winter months or during pre-construction fish capture and relocation activities, all project activities shall cease and DFW and NMFS shall immediately be notified.

If steelhead are determined or presumed to be present in the project site, then the following Avoidance and Minimization Measures shall be implemented:

- All in-stream maintenance activities will be restricted to the low-flow period of June 15th through October 15th. Work above the top of bank or outside of the channel will not be subject to this modified work period.

- To minimize turbidity and stress to special status species, personnel shall avoid walking through stream pools and the thalweg of the channel, and shall instead walk across riffles or outside of the stream bed to access a project site.

- No equipment is to be operated from within the active stream channel unless the stream has been dewatered and fish have been relocated by a qualified and permitted biologist.

- If anadromous salmonids are present, a fisheries biologist with appropriate licenses and equipment (buckets, aerators, etc.) must be on-site to catch and move fish downstream as dewatering proceeds.

- Captured fish shall be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation, the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic

predators. Captured salmonids will be relocated, as soon as possible, to a suitable instream location in which habitat condition are present to allow for adequate survival of transported fish and fish already present. Cofferdams used to divert water shall be constructed with clean river gravel or sand bags and sealed with sheet plastic.

- If any salmonids are found dead or injured, the biologist shall contact NMFS biologist Rick Rogers by phone immediately at (707) 578-8552 or the NMFS North Central Coast Office at (707) 575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional' protective measures are required. All salmonid mortalities shall be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date and location of collection, fork length measured, and frozen as soon as possible. Frozen samples shall be retained by the biologist until specific instructions are provided by NMFS. The biologist may not transfer biological samples to anyone other than the NMFS North Central Coast Office without obtaining prior written approval from the North Central Coast Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NMFS deems appropriate.

- Intakes and outlets shall be designed to minimize turbidity and the potential to wash contaminants into the stream.

- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent amphibians from entering the pump system. On salmonid streams, the intake pipe shall be fitted with fish screens meeting CDFW and NOAA Fisheries' criteria to prevent entrainment or impingement of small fish (National Marine Fisheries Service 1997: http://swr.nmfs.noaa.gov/hcdlfishscm.pdf).

- A filtration/settling system must be included to reduce downstream turbidity (i.e. filter fabric, turbidity curtain). The selection of an appropriate system is based on the rate of discharge. If feasible, water that is pumped into a pipe shall discharge onto the top of bank into a densely vegetated area, which may require extra hose length.

- Once the project work is complete, water shall be slowly released back into the work area to prevent erosion and increased turbidity.

- The channel and soil surface shall be restored to its original or design configuration after the work is complete. Any material added to the channel or basin to provide support for the work approved under this provision shall be removed unless required for erosion control or habitat enhancement and/or restoration.

- For minor actions where the disturbance to construct cofferdams to isolate the work site would be greater than that which would occur in completing the proposed action, measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the drainage or placement of a straw wattle or filter berm of clean river gravel. Silt fences

and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.

1.2 Avoidance and Minimization Measures for Amphibians

AMPH-1: California Red-legged Frog (CRLF)

CRLF absence is presumed for all project sites in eastern Marin. Therefore, impacts are avoided, and no further surveys, studies or CRLF protection measures are required and the maintenance activities can proceed.

For the Easkoot Creek sites, 5-EAS-1, 5-EAS-2 and 5-EAS-3, where there is potential for California red-legged frog to occur, pre-construction aquatic surveys should be conducted by a qualified biologist prior to the onset of any disturbance related activities, following the protocol outlined in the Revised Guidelines on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005):

- At least 15 days prior to the onset of activities, the applicant or project proponent shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

- A Service-approved biologist shall survey the work site two weeks before the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

- Before any construction activities begin on a project, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session provided that a qualified person is on hand to answer any questions.

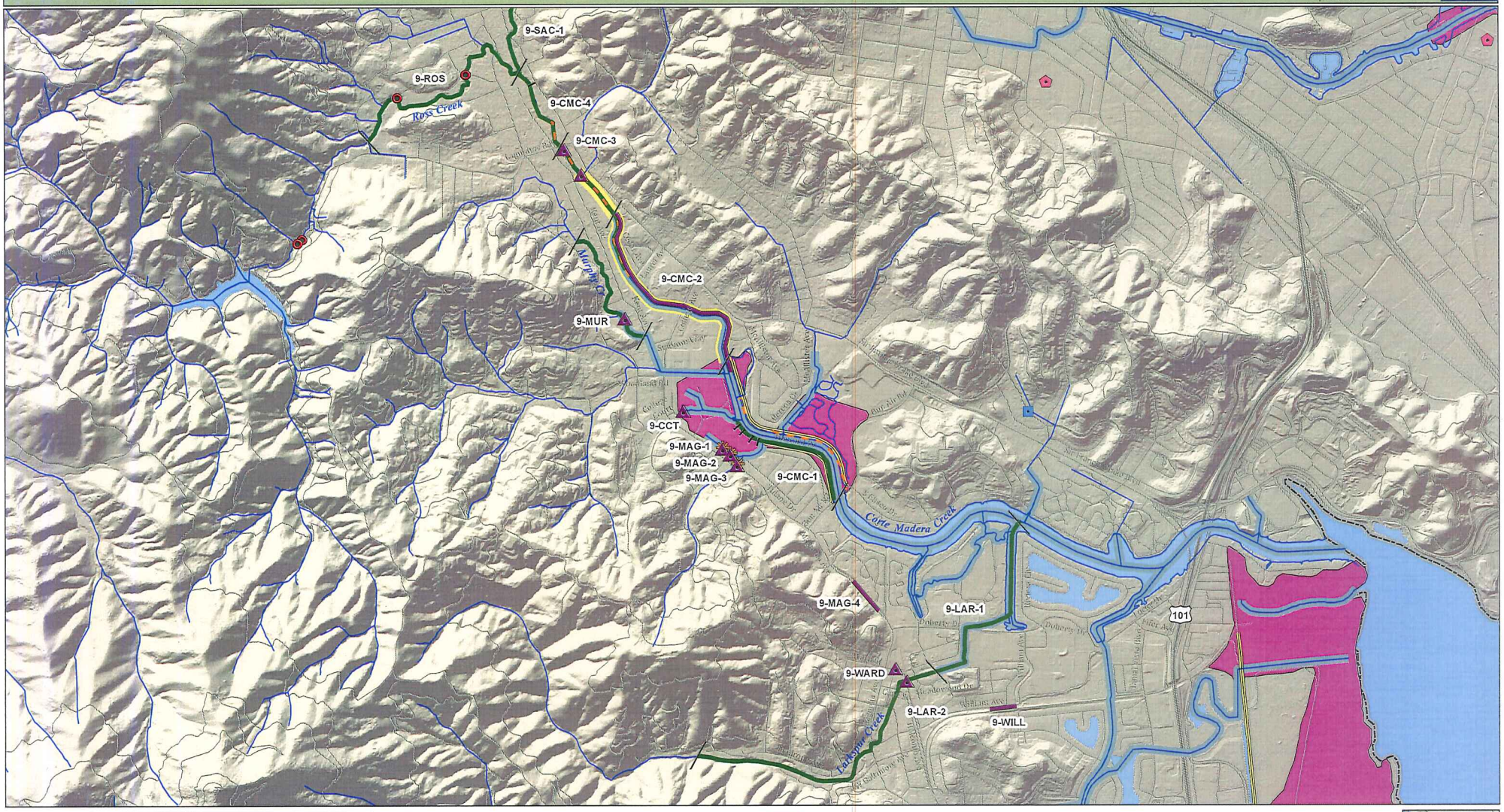
- A Service-approved biologist shall be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist shall ensure that this individual receives training outlined above in measure 3 and in the identification of California red-legged frogs. The monitor and the Service- approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped. The Corps and Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.

- Pre-construction surveys should consist of two separate daytime and nighttime surveys extending 300 ft. upstream and downstream (where feasible) of the proposed work sites. If special-status species are found, CDFG and/or USFWS should be contacted to determine what actions are to be taken. The 2005 Guidance recommends a total of up to eight (8) surveys to determine the presence of CRLF at or near a project site. Two (2) day surveys and four (4) night surveys are recommended during the breeding season; one (1) day and one (1) night survey is recommended during the non-breeding season. Each survey must take place at least seven (7) days apart. At least one survey must be conducted prior to August 15th. The survey period must be over a minimum period of 6 weeks (i.e., the time between the first and last survey must be at least 6 weeks). Throughout the species' range, the non-breeding season is defined as between July 1st and September 30th.

- If a maintenance activity site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than five millimeters to prevent CRLF from entering the pump system.

Marin County Flood Control and Water Conservation District - Stream Maintenance Program

Marin County
Flood Control and
Water Conservation District
April 2017



Map	Flood Control Zone 9 - Ross Valley Corte Madera, Larkspur, Murphy, and Ross Creeks
7	

Fish Passage Barrier
Vegetation Maintenance
Levee
Tidal Stream
Streams

Sediment Removal
Sediment Removal
Erosion Control
Fuels Reduction

Site Limit

California clapper rail
Northern spotted owl

Restoration Site
Complete
Ongoing
Proposed

1:20,000

0 0.25 0.5 1 Mi

Flood Control Zone 9 - Ross Valley

Site: 9-MAG-3
965 Magnolia Ave

Site Description:

The site is located behind the commercial building at 965 Magnolia Avenue in Larkspur.

The surrounding land use is predominantly commercial and residential development.

Wetlands and other Waters, including Waters of the State:

Exempt from USACE jurisdiction.

Vegetation communities:

The predominant vegetation type in the area is northern coastal salt marsh however the creek is dense cattails covering the channel.

Potentially-occurring special-status species:

California black rail; California clapper rail; and salt marsh harvest mouse lower in the channel out on the salt marsh but not near the sediment removal area.

Avoidance and Minimization Measures:

GAMM-1 through GAMM-6;

Maintenance Activities:

Vegetation maintenance (cattail removal) and sediment removal.

Best Management Practices:

A-67;A-69; A-73; A-109; A-113; A-117; A-141; A-151; A-157; A-161; A163; A-167; A-179; A-229; EV-1; EV-2; NR-1; NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1; VR4b; VR-5; WD-4; WD-5.

9-MAG-3: Sediment Removal from Corte Madera Creek at 965 Magnolia Ave.

Location: The site is located across the street from 965 Magnolia Avenue in Larkspur. The surrounding land use is predominantly commercial and residential development.

Lat/Long: 37.946281, -122.544933

Project Description: Sediment removal from outfall of culvert

Channel Description: This is a narrow straightened channel between the outfall of two 40-inch concrete culverts and marsh 200 feet downstream. Vegetation adjacent to the channel is mowed grass or ornamental streetscape. The predominant in-channel vegetation type is cattails.

Tidal: Yes

Geomorphic Codes: Tidal backwater; road crossing width; sediment aggradation at outfall; sediment is from tidal backwater

Vegetation/Habitat Types: Cordgrass, cattails

Chronic Sediment Issues: Sediment deposition/aggradation at the culvert outlet due to grade change and channel widening.

Quantitative Metrics: Sediment removal will be triggered when either the outfall pipes become 50% or more occluded or when the channel thalweg between the pipe outfall and the downstream pipe crossing does not have a continuous gradient.

Dimensions of Work Area: 45 LF, 3 feet depth and 10 feet wide to clear the channel below a 36" culvert

Work Days:- 1-2; every 1-3 years

Equipment: Wheeled front end loader

Equipment Location During Sediment Removal: Adjacent Roadway or pull-out

Heavy Equipment Access and Staging: Across off-road area no vegetation removal

Temporary Stockpile Locations: On off-road area- no vegetation removal

Dewatering: No coffer dam or water diversion needed,

Permits Needed: DFW 1600 RMA, RWQCB WDR

Potentially Occurring Special Status Species: California black rail; California Ridgeway rail; and salt marsh harvest mouse.

Avoidance and Minimization Measures

AMM-1: Environmental Compliance Coordinator, Buffers and Work Stoppages

- Before commencement of a maintenance activity, The District shall designate an Environmental Compliance Coordinator (ECC) who will determine the appropriate AMMs, to implement during operations based on the site fact sheets.

- The ECC shall distribute a work order to maintenance staff and contractors with a list of the AMMs and BMPs applicable to each site. The work order must be completed in a timely manner to allow time for pre-construction surveys.

- The ECC shall assess field conditions at the start of each work day. If any special status species or nesting birds are observed, the ECC shall establish buffers areas, if sufficient, or stop any activity the ECC deems may result in take or destruction of habitat. Stopped work shall not be allowed to resume until appropriate corrective measures have been completed or it has been determined that nesting is complete. The ECC shall immediately report any unauthorized impacts to the appropriate trustee agency (i.e. USFWS, NMFS, USACE, and/or CDFW). The ECC shall coordinate with Maintenance Supervisors to stop any activity the ECC or agencies deems may cause take of a listed species or their habitat. Work shall not be allowed to resume until appropriate corrective measures have been completed.

- All on-site maintenance activity personnel shall receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat before the start of work.

GAMM-2: Site Preparation/Wildlife Reconnaissance

The ECC shall walk the site each day before maintenance activities commence to locate wildlife; if any special status wildlife species are noted, work will not commence until all individuals have left the work site on their own and/or it has been determined that they are not nesting within the project site.

When maintenance activities require dewatering, a qualified fisheries biologist with appropriate permits shall be on-site to move fish.

All habitat improvements on salmon and steelhead streams shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (CDFW 2010d).

GAMM-3: Work Windows

To avoid impacts to special status species, the maintenance activities carried out shall typically occur during the summer low flow season. In addition, species-specific work windows shall be

followed to avoid impacts. Table below shows the work windows for species that may be impacted by the proposed maintenance activities. Additional information can be found within the species-specific AMMS.

GAMM-4: Trash Removal

During all activities at project sites, all construction trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following maintenance activities, all construction trash and maintenance debris shall be removed from work sites and disposed of properly.

GAMM-5: Equipment Staging

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the steam channel or adjacent to the stream, shall be positioned over drip-pans. Equipment shall be moved out of the normal high water area of the stream prior to refueling and lubricating. The ECC or Maintenance Supervisor shall ensure that contamination of habitat does not occur during such operations. Best Management Practices covering Chemical Use (Spill Prevention and Control); contained in the BASMAA Flood Control Facility Maintenance Best Management Practices Manual (BAASMA 2000) shall be followed. These BMPs are designed to prevent the discharge of chemicals to flood control channels and storm drain systems and allow prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the proposed activity.

GAMM-6: Invasive Species

The ECC shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

For all activities in creeks and bay, all gear exposed to water shall be allowed to dry for three days before being used again. Some disinfectants are OK to use per DFG and USFWS (users should check with those agencies). As a precaution against invasive quagga and zebra mussels, if kayaks or any other vessels are used in maintenance activities, crew will wash and dry them off-site prior to using them in another creek or tributary.

Table 3-1. Work windows.

		SMP Work Season																							
		January		February		March		April		May		June		July		August		September		October		November		December	
Category	Species	1-15	16-31	1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31
General	In-stream - no salmonids																								
	In-stream - salmonids																								
Vegetation	Planting																								
Invertebrate	Monarch butterfly																								
Fish	Salmonids																								
Amphibian	CA red-legged frog																								
Reptile	Northwestern pond turtle																								
Bird	Black and clapper rails																								
	Northern spotted owl																								
	Raptors and wading birds																								
	Landbirds																								
	Burrowing owl																								
Mammal	Salt marsh harvest mouse																								
	Bats																								

Species work window
SMP work season

AMMs per Special Status Species

BIRD-1: Ridgway's rail and California black rail

Several of the sites are within (5-10 sites) or immediately adjacent (15-20 sites) to suitable habitat for Ridgway's rail and California black rails. The following measures apply to all sites in or near salt or brackish marshland and will also serve to protect other tidal-marsh dependent species such as saltmarsh common yellowthroat and San Pablo song sparrow.

When working within 250 ft. of salt or brackish marshland during the period February 1st through August 31st, presence for either rail species shall be assumed.

For all maintenance activities except for mowing of levees:

- Maintenance activities shall be scheduled to occur between September 1st and January 31st to avoid the rail breeding season.

- Work shall be scheduled to occur between 8:00 AM and 4:00 PM in order to avoid early morning and late afternoon/evening hours when rails are most active.

- Work shall be scheduled to avoid periods of high tides, as the high water reduces the amount of refugial habitat for the rails. No work shall occur near salt marsh habitats within two hours before or after predicted extreme high tides of 6.5 ft. above the National Geodetic Vertical Datum (NGVD), as measured at the Golden Gate Bridge, and adjusted to the timing of local extreme high tide events at the project sites.

- Activities shall proceed as quickly as possible to reduce disturbance from noise, dust, etc.

- Removal or disturbance of emergent tidal marsh vegetation shall be avoided, and removal or disturbance of vegetation at the tidal marsh/upland interface shall be avoided to provide a buffer of refugial habitat within as wide a swath as possible (3 meter minimum) from the Mean Higher High Water (MHHW) line. If removal is necessary, the work shall be scheduled outside of the breeding season (February 1 – August 31st); all vegetation shall be removed by hand, and shall be salvaged and retained for replacement after work is completed.

- If, for any reason other than fire fuel reduction levee mowing, the District must perform maintenance activities within 250 ft. of salt or brackish marshland during the rail breeding season, the District shall retain a qualified biologist to conduct clapper rail surveys in accordance to most currently available protocols from the Department of Fish and Game and the US Fish and Wildlife Service.

MAMM-1: Salt Marsh Harvest Mouse (SMHM)

The majority of the sites are not in, nor adjacent to, salt marsh harvest mouse habitat; avoidance has been achieved for those sites. At sites XXX which are adjacent to suitable habitat for salt marsh harvest mouse and include work which may require impact to salt marsh harvest mouse habitat by removal of pickleweed, the following AMMS shall be followed:

- When implementing maintenance activities in uplands adjacent to salt or brackish marshland, vehicles will be confined to existing roads where possible, and disturbed areas shall be re-vegetated with brackish marsh species. Crews shall use matting, pontoon boards or other comparable methods whenever feasible to minimize impacts to the existing vegetation. The placement of mats will be approved by CDFW before their placement. Crews shall work exclusively from mat boards and boardwalks to minimize trampling of vegetation.

- If maintenance activities are conducted outside the breeding season, in coordination with USFWS and CDFW, pre-construction surveys shall be conducted within 5 days of the start of maintenance activities to check for presence of mice within the project sites. In addition, the ECC shall be present during maintenance-related activities along and adjacent to all suitable nesting habitat areas to ensure that salt marsh harvest mice are not present.

- Work shall be scheduled to avoid periods of high tides, as the high water reduces the amount of refugial habitat for SMHM. Generally, work should not be scheduled to occur between 2 hours before high tide and two hours after high tide.

- Removal or disturbance of emergent tidal marsh vegetation shall be avoided, and removal or disturbance of vegetation at the tidal marsh/upland interface shall be avoided to provide a buffer of refugial habitat within as wide a swath as possible.

- Training sessions shall be given to all workers to inform them of protective measures, instruct them in identification of the salt marsh harvest mouse and its habitat requirements, and inform them of when work needs to be stopped and appropriate officials informed of species presence.

- For project sites where work will intrude into tidal marsh habitat, the ECC shall survey the site prior to beginning work in order to determine the presence/absence of SMHM, and the following measures shall be implemented:

- Under the supervision of the ECC, vegetation shall be removed only with non-mechanized hand tools; no motorized equipment shall be used. Vegetation removal may begin only when no mice are observed, or with CDFW approval, and shall start at

the edge farthest from the salt marsh and work its way towards the salt marsh. If a mouse of any species is observed within the areas being removed of vegetation, work shall stop and CDFW shall be notified. Unless otherwise approved by CDFW, the mouse shall be allowed to leave on its own volition. Removal of pickleweed will generally follow Zedler (2001).

- If trenching takes place within 50 ft. of pickleweed areas, visqueen fencing shall be installed around worksites within pickleweed before excavation activities begin. CDFW will approve the size and placement of fencing. An escape ramp shall be placed in any open trench at the end of the day to allow any entrapped animals to escape.

- The ECC shall be on-site and shall halt project activities if necessary to comply with these terms.

9-Mag-3: Pre-project photos, sediment removal to clear outfall constrictions and establish low-flow gradient to the downstream marsh.