Integrated Pest Management Program for Ventura County Flood Control Facilities 2016

Submitted to:
Ventura County Board of Supervisors
acting as the Watershed Protection District
Board of Directors

Submitted by:
Ventura County Public Works Agency
Watershed Protection District

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Table of Contents

List of Tables

List of Figures

Appendices

Executive Summary

This 2016 "*Integrated Pest Management Program for Ventura County Flood Control Facilities*" (IPMP) provides the objectives and methods for pest management at Ventura County Watershed Protection District facilities. These facilities include dams, levees, open channels, pipes, and culverts. The focus of this IPMP is on the pesticides (rodenticides and herbicides) that are used to control burrowing rodents that infest earthen flood-control facilities and the vegetation that grows within our earthen and rock-lined facilities. This IPMP is an update to the IPMP approved by the Ventura County Board of Supervisors in 2006 and continues to promote environmentally sensitive pest-control methods that will protect the public from flood hazards and comply with Board policy to minimize the use of anticoagulants.

Federal and state agencies provide oversight of the structural condition and hydraulic capacity of District facilities, requiring strict zero-tolerance programs for the eradication of rodents and vegetation. Levees, dams, and earthen embankments provide an ideal habitat for burrowing rodents such as ground squirrels and gophers who can seriously weaken earthen flood-control facilities resulting in flooding or catastrophic failure. Uncontrolled plant growth can clog channels, reducing the effective capacity of the facility and can also break loose during a storm event, collecting debris and blocking downstream culverts.

The District maintains flood-control facilities along approximately 195 miles of right of way. Seventeen additional dams have been accepted into the District's flood-control system for operation and maintenance since the adoption of the 2006 IPMP. All of the District's flood-control channels, levees, and dams are included in this updated IPMP and now are prioritized by a new risk classification system to determine if anticoagulant bait will be used. The District currently uses anticoagulant bait at only the highest risk facilities, representing 37 miles (19%) of the flood-control system.

Research has found that owls and hawks can reduce the rodent populations on levees and dams and reduce rodenticide application. Discussions the Ojai Raptor Center, and staff at the Santa Barbara County PWA, have resulted in the development of a pilot program for a selected 12,000 foot portion of the Revolon Slough levee system. The program includes the installation of raptor facilities designed to attract Barn Owls, Red Tail Hawks, and Red Shouldered Hawks. A study documenting small mammal populations at District facilities will also be performed.

This IPMP's goal is also to use the minimum amount and concentration of herbicide necessary to manage vegetation growth. The District will continue herbicide application and mechanical vegetation control using a three phase program. These phases are "Inspection," "Evaluation," and "Application." The District only uses herbicide products classified by the U.S. Environmental Protection Agency as "Slightly Toxic."

The IPMP is implemented by the District's Flood Control Maintenance Division with support from the District's Environmental Services Section, environmental consultants, and specialized contractors. Efficiency has been achieved and costs reduced by training staff to perform basic rodent activity inspections while doing their other weekly maintenance tasks.

The District will continue to evaluate new methods of pest control including the use of low-pressure grouting in rodent burrows. An outreach program to encourage the public to use low toxicity pesticides will be implemented in 2016.

1.0 Introduction

This 2016 "*Integrated Pest Management Program for Ventura County Flood Control Facilities*" (IPMP) provides the objectives and methods for pest management at Ventura County Watershed Protection District facilities. This IPMP addresses the pesticides (rodenticides and herbicides) used to control burrowing rodents that infest earthen flood-control facilities and vegetation that grows within our facilities. This IPMP is an update to the IPMP approved by the Ventura County Board of Supervisors (BOS) in 2006 and continues to promote environmentally sensitive pest-control methods that will protect the public from flood hazards while minimizing effects on the environment.

The specific objectives of the IPMP are as follows:

- Maintain the structural integrity and the hydraulic capacity of District flood-control facilities
- Provide guidelines for invasive plant species removal projects
- Utilize the most environmentally sensitive and economically feasible approaches for pest control
- Reduce the application rates of pesticides to the minimum necessary
- Document compliance with the requirements of federal and state regulations
- Provide adequate staffing and resources to implement the IPMP

Historically, the District applied pesticides to maintain the structural integrity and hydraulic capacity of flood-control channels, levees, and dams. Concerns over the use of and potentially harmful effects of pesticides led the District to develop an *Integrated Pest Management Program* in 2006[1]. Six years of experience managing this program has led to the refinements in this updated IPMP. This IPMP also incorporates the District's Aquatic Pesticide Application Plan which provides detailed procedures for herbicide application in aquatic areas.

In 2005, the BOS, acting on *Assembly Bill 1548*, directed agencies to minimize the use of anticoagulant rodenticides. Dr. Terrell P. Salmon, PhD, a wildlife specialist, evaluated the District's rodent control program and found that burrowing rodents had caused structural damage to District facilities, and also concluded that the diphacinone bait used by the District was not the primary anticoagulant ingredient in the secondary poisoning of coyotes, bobcats, and mountain lions in the Ventura County area.

This IPMP addresses the pesticides (rodenticides and herbicides) used to control burrowing rodents and vegetation within District flood-control facilities.

The BOS approved the original Integrated Pest Management Program on December 12, 2006. This program, however, only addressed the use of rodenticides, not herbicides. The program limited anticoagulant treatment to primarily "Critical Facilities," which were identified as high risk earthen dams and levees. The application methods allowed for diphacinone were bait stations and hand broadcasting. The District ceased the application of anticoagulant bait at "Non-Critical Facilities" upon implementation of the 2006 IPMP.

This IPMP incorporates District's field experience, recent expansion of the flood-control infrastructure, changing federal and state regulations, and recent public safety risk evaluations. The Plan provides regulatory-approved application protocols consistent with the Board of Supervisors (BOS) policy to minimize the use of anticoagulant and other pesticides.

1.1 Potential Pest Damage

Uncontrolled pests can seriously weaken earthen flood-control facilities such as levees or dams and may result in flooding, or even sudden and catastrophic failure. Over 100 dams and levees have failed in the U.S. because of rodent damage and uncontrolled vegetation. Further discussion of the damage caused by rodents and vegetation is provided in Sections 4 and 5.

Over 100 dams and levees have failed in the U.S. because of rodent damage and uncontrolled vegetation.

1.2 Regulatory Oversight

This IPMP specifies procedures that comply with all federal and state requirements for rodent and vegetation control. Mandates and regulations from numerous federal and state agencies control many of the goals and procedures of the IPMP. Regulations cover the use, application methods, storage, concentration, and reporting of pesticides. Federal and state agencies also provide oversight of the structural condition and hydraulic capacity of District facilities, requiring zero-tolerance programs for the eradication of rodents and vegetation.

Control of rodents and vegetation is also an integral part of the Federal Flood Insurance Community Rating System. Proof of compliance with a thorough and detailed IPMP has resulted in better scores and correspondingly lower flood insurance rates for Ventura County residents in potential inundation areas.

1.2.1 Regulatory Oversight – Rodenticides

Pesticide applications are strictly controlled by the U.S. Environmental Protection Agency (EPA) under the Federal Insecticide, Fumigation, and Rodenticide Act (FIFRA). Flood-control facilities are inspected and highly regulated by federal and state agencies since their failure can cause loss of life and significant property damage. These regulating agencies include the United States Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA), and the California Division of Safety of Dams (DSOD).

This IPMP complies with all federal pesticide use requirements under FIFRA.

A single rodent burrow can result in catastrophic failure of an earthen dam or levee. Reducing burrowing rodents is essential to protect life and insurance values. Therefore, the Secretary of the Army directs in the Code of Federal Regulations (CFR) *Title 33 Part 208*, Section 208.10 (b), that measures shall be taken to exterminate burrowing animals and repair damage caused by erosion or other forces. This mandate requires a zero-tolerance approach to rodent damage on levees and dams.

In, CFR Title 44 Part 65, Section 65.10(a) FEMA will only recognize compliance with the National Flood Insurance Program for those levee systems "that meet, and continue to meet, minimum design, operation, and maintenance standards…"

Uncontrolled vegetation growth and visible rodent infestation or damage can cause flood-control facilities to fail regulatory inspections and become uncertified. Homes located behind uncertified levees are considered unprotected and are required by FEMA to purchase flood insurance. Uncertified flood-control facilities are also ineligible for replacement or repair funding from the USACE if they suffer damage in a storm.

USACE requires a zero-tolerance policy for rodent and vegetation damage on levees.

US Army Corps of Engineers®

1.2.2 Regulatory Oversight – Herbicides

Local oversight is provided by the State Water Resources Control Board (SWRCB) and the Ventura County Agricultural Commissioner.

A requirement under the Emergency Aquatic Pesticide Permit No. 2001-12-DWQ obtained from the SWRCB addresses short-term seasonal discharges of pollutants associated with aquatic pesticide applications for pest management to waters of the United States. The permit requires that:

> "The discharger must comply with effluent and receiving water limitations and must develop and implement an Aquatic Pesticides Application Plan (APAP)." [2]

The APAP was originally prepared by the District in 2004 and was recently updated in 2014. The pesticide application program describes the necessary elements to sufficiently address herbicide treatment in all proposed aquatic treatment areas. These locations are listed in the APAP and all procedures used and prevention measures taken when applying pesticides in an aquatic application are provided. In certain areas, there is a regulatory (USACE, CDFW, and US Fish & Wildlife Service [USFWS]) restriction on accessing channels containing water with heavy equipment to remove weeds. The District follows the application and use conditions established in the following permits: Order Nos. 2004-0009-DWQ, 2013-0002-DWQ.

1.3 Environmental Concerns with the Use of Rodenticides

Anticoagulants have been widely used by the general population and public agencies to control rodents. The Santa Monica Mountain National Recreation Area and other government agencies, universities, and non-profit groups began studying the effects of anticoagulant poisoning on carnivores in and around Ventura County in 1996. This occurred shortly after the National Parks Service reported numerous carnivore deaths associated with secondary anticoagulant poisoning. Carnivores that consumed poisoned rodents were also poisoned. Coyotes were found with high enough concentrations of anticoagulants to produce direct mortality, and anticoagulants ingested by bobcats were linked to mange-related deaths.[3]

In February of 2005, California Assembly Member Fran Pavley introduced Assembly Bill 1548, which granted authority to the County Boards of Supervisors to limit the sale and use of certain anticoagulant rodenticides within their jurisdictions. The Ventura County BOS, acting on *Assembly Bill 1548*, directed the General Service and Public Works Agencies to minimize the use

of anticoagulant rodenticides within County-owned properties and facilities. Dr. Terrell P. Salmon, PhD, a wildlife specialist at University of California Cooperative Extension, was subsequently hired by the District to study the District's methods of rodent control. Dr. Salmon reviewed the rodent control program in place at the time, visited many of the District facilities, and met with District staff through June, August, and October of 2006. Dr. Salmon found that burrowing rodents had caused structural damage to District facilities.

The District will promote a public outreach program to encourage the use of lower toxicity baits by homeowners, and raptor perches and nesting facilities by farmers.

Dr. Salmon also concluded that the diphacinone bait used by District was not the primary anticoagulant ingredient in the reported deaths of coyotes, bobcats, and mountain lions in the Ventura County area. The common anticoagulants detected were brodifacoum and bromadiolone.[4] Brodifacoum and bromadiolone are present in household and other second-generation anticoagulants, and their concentrations are higher and more toxic than the diphacinone used by the District. Their use by farms, schools, parks, golf courses, and housing developments is not regulated or controlled.

The District will continue to meet BOS goals to minimize the application rates of anticoagulants while preventing rodent damage to the extent feasible. A web-based public outreach program to encourage the use of lower toxicity baits will begin in 2015.

1.4 Environmental Concerns with the Use of Herbicides

The District controls vegetation by hand weeding, disking soft-bottom channels and basins, mowing, and herbicide applications. The District also applies pre-emergent herbicides prior to rainfall events to reduce germination of plants. Public concerns over the District's use of glyphosate-based herbicides has resulted in several public meetings and many private discussions to inform and educate the public on its appropriate use.

The *Ventura River Arundo Removal Demonstration Project* was performed in 2004 and compared four physical and herbicide methods for giant reed (*Arundo donax)* removal (Table 1).[5] The evaluation concluded that complete hand removal of giant reed stalk and root boles was cost-prohibitive on large-scale projects. Foliar application of a glyphosate-based herbicide and mowing were the most economical methods. Mowing, however, will not be effective on its own since giant reed quickly re-sprouts. The cut and daub method is more costly than foliar application but is effective in minimizing re-sprouts. The results of this study were presented in a public meeting in 2005.

Table 1. Giant Reed Removal Method Comparison

Method	Cost per acre for 100% *Giant reed* density
Cut Stump Application of Herbicide (Cut/Daub) & Biomass Removal	$36,788
Foliar Application of Herbicide	$24,852
Stalk Removal Only (Mow and remove)	$23,628
Hand Removal of Stalks and Root Boles	$723,750

Note: Costs adjusted to 2014 $.

The District will continue to post the monthly vegetation control schedule on the Public Works website so concerned citizens may have advance knowledge of District operations.

The Best Management Practices presented in the *Final Program EIR 2008* (BMPs 9, 10, 13, 23) were designed to reduce environmental impacts from the District's herbicide use.[6] These BMPs were approved by the CDFW, RWQCB, USACE, USFWS, and the National Marine Fisheries Services and are summarized below:

> **BMP 9 –** Aquatic pesticide application compliance and protocols require following manufacturer's directives specific to wind and weather conditions.
>
> **BMP 10 –** Leave vegetation on upper basin slopes above the 20 percent capacity elevation unless shrubs/trees jeopardize stability.
>
> **BMP 13** – Maintain no more than a 15-foot wide vegetation-free zone at the toe of the bank when thinning or removing vegetation.
>
> **BMP 23** – Apply protocols to prevent the propagation of invasive plants.

District herbicide application will follow these BMPs and is not expected to cause significant adverse impacts to endangered, threatened, rare species, or locally important species. The application will not significantly impact existing wetland, riparian, and coastal habitats, or migration corridors.

2.0 2006 Integrated Pest Management Program

The BOS approved the original Integrated Pest Management Program on December 12, 2006. The program, however, only addressed the use of rodenticides and did not address herbicides. The program limited anticoagulant treatment to critical facilities, which were identified as high risk earthen dams and levees. The methods in the IPMP included diphacinone application in bait stations and by hand broadcasting. The District voluntarily reduced the application of anticoagulant bait at non-critical facilities. Hand broadcasting of zinc phosphide was also allowed on a limited basis per the product label, California Department of Pesticide Regulations, and direction by the Ventura Agricultural Commissioner.

In 2007, the District completed a field trial of rodenticide application methods.[7] The report concluded that broadcasting and fixed bait stations are suitable for ground squirrel control and

full implementation of the 2006 IPMP would maximize facility protection while reducing potential impacts to non-target wildlife and the environment.

Monitoring of rodent activity at District flood-control facilities began in the fall of 2008 and bait applications started in 2009. Since diphacinone bait is highly diluted when applied with oat flakes, an average of only 17.4 pounds was applied at District facilities in between 2009 and 2013. This represents an average application rate of 0.0070 lbs. of diphacinone per treated channel mile (Table 2).

Table 2. Pounds of Diphacinone Applied

Year	Total Lbs Applied	Average Application Rate (Lbs/mile)
2009	18.1	0.0075
2010	12.6	0.0046
2011	19.3	0.0071
2012	21.8	0.0080
2013	15.0	0.0078
Average	*17.4*	*0.0070*

Yearly fluctuations in the amount of bait applied may be attributed to a variety of environmental factors that can influence burrowing rodent populations. These include the presence of predators, rainfall, food supplies, water sources, and seasonal temperatures.

3.0 Flood Control Facility Inventory

The District maintains flood-control facilities along approximately 195 miles of right of way. These facilities include dams, levees, open channels, pipes, and culverts. Seventeen additional dams have been accepted into the District's flood-control system for operation and maintenance since the adoption of the 2006 IPMP. These dams are included in this IPMP and are listed below:

- Arielle Detention Basin
- Bridgegate Detention Basin
- Conejo Mountain Basin Number 2
- Conejo Mountain Basin Number 3
- Conejo Mountain Basin Number 4
- Conejo Mountain Basin Number 5
- Covington Detention Basin
- Erringer Detention Basin
- Erringer Debris Basin
- Little Simi Detention Basin
- Muirfield Detention Basin
- North Simi Detention Basin
- North Simi Debris Basin
- Number 2 Canyon Debris Basin
- Rudolph Detention Basin
- Sycamore Detention Basin
- Walnut Canyon Debris Basin

In the 2006 IPMP, 33 dams and levees were classified as critical facilities and were designated as eligible for the application of diphacinone bait. Other "non-critical" District facilities were to be treated with zinc phosphide or alternative methods of rodent control. The District has recently replaced its "critical facility" designations with a risk classification system. This approach evaluates existing flood-control facilities and identifies and prioritizes those facilities

with the highest risk for loss of life in the event of a failure. Additionally, it classifies facilities on a tiered basis based on potential impacts to transportation infrastructure, other critical facilities, and economic losses to adjacent developments. The classification number determines if the facility is eligible for anticoagulant bait use.

Accordingly, the District has recently subdivided and classified all flood-control facilities within the District's inventory into 600 smaller reaches. Each has an assigned tracking (reach) number. Facilities originally identified in the 2006 IPMP as one facility are now be represented by multiple reaches in this updated IPMP. A risk classification of between 1 and 5 has been assigned to each reach based upon the flowing criteria:

Risk Class 1

- Failure will result in the loss of one or more lives
- Damage to police and fire stations, hospitals, water and wastewater treatment plants
- Flood impacts to 1000 or more habitable structures

Risk Class 2

- Failure will result in potential loss of life or meets threshold of velocity >5 feet per second and/or depth >1 feet
- Flood impacts to 100 or more habitable structures
- Damage to public offices, nursing facilities and power stations
- The facility is regulated and inspected by a federal or state agency such as the Army Corps of Engineers (USACE), National Resource Conservation Service (NRCS), or California Department of Safety of Dams (DSOD) (debris/detention basins)

Risk Class 3

- Failure will result in severe damage to major transportation facilities; damage to schools
- Flood impact to 10 or more habitable structures

Risk Class 4

- Failure will result in damage to secondary transportation facilities
- Flooding to populated areas
- Flood impacts to 1 or more habitable structures

Risk Class 5

- Failure will impact agricultural, open space or sparsely populated areas

The District currently uses anticoagulant bait only at high Risk Class 1 & 2 dams and levees.

Table 3 shows that the District maintains a flood-control system with 195 miles of total length. The District, however, currently treats only 37 miles of the system with anticoagulant bait. These are Risk Class 1 and 2 facilities comprising dams and levees. This represents only 19% of the overall flood-control system. Other Risk Class 1 and 2 facilities will only be treated with

anticoagulant bait if the alternative rodent control methods currently being used become ineffective. Class 3, 4, and 5 reaches (facilities) will continue to be treated with alternative non-anticoagulant rodent control methods on an as needed bases.

Table 3 - Risk Classification of Flood Control Facilities by Zone

Risk Class	Facility Length (miles)				Total (miles)	Percent
	Zone 1	Zone 2	Zone 3	Zone 4		
1	5.1	9.9	12.4	0.0	27.4	14.1%
2	2.0	26.1	25.8	0.0	51.7	27.6%
3	1.2	16.9	21.4	1.0	40.5	20.8%
4	3.5	13.6	34.0	1.0	52.1	26.7%
5	6.6	5.7	8.8	0.1	23.3	10.9%
Total	18.5	72.2	102.4	2.1	195.2	100.0%

4.0 Rodent Control

This IPMP provides strategies and methodologies to promote environmentally sensitive rodent control while protecting District facilities. The three rodent control implementation phases of the IPMP are Inspection, Evaluation and selection of Treatment Method, and Reporting. These phases are demonstrated in the IPMP – Rodent Control Flowchart (Appendix B).

The District's field experience, expansion of the infrastructure, changing regulations, and risk evaluations are incorporated into each phase. This IPMP provides consistent and regulatory-approved application protocols, which are in line with the Board of Supervisors' policy to minimize the use of anticoagulant pesticides.

4.1 Damage from Burrowing Rodents

Levees, dams, and earthen embankments provide ideal habitat for burrowing rodents such as ground squirrels (*Spermophilus beechi*) and Botta's pocket gophers (*Thomomys bottae*). [8]

During UC Davis studies, levees were surveyed for mammal burrows to determine the association between burrowing mammals and particular habitats. Squirrel infestations are much more likely to be found in earthen facilities adjacent to agricultural and populated areas than facilities adjacent to open fallow fields. Adjacent crop fields, orchards, and gardens provide a rich source of these foods that increase squirrel populations. California ground squirrels eat primarily the nuts, fruits, flowers, stems, and leaves of a variety of plants.[10]


Figure 1. California Ground Squirrel and Exposed Rodent Burrow on Calleguas Creek Levee

Levees are built with tightly compacted soil in order to withstand the pressure from the water body on one side of the embankment.[9] For this reason, the soil-excavating activities of burrowing mammals are a significant threat to the structural integrity of levees. California ground squirrels often live on levees and exhibit the potential for especially destructive burrowing activity because of their elaborate and potentially long tunnel systems.[10]

The burrow of one ground squirrel can be long enough to perforate a narrow levee (Figure 1).[11] Burrows on opposite sides of a levee or dam can be sufficiently close to nearly pierce even wider dams. The UC Davis studies found that California ground squirrel burrows were an average of 25 feet in length.[12] Botta's pocket gophers were found to excavate an estimated 12 cubic yards of soil per acre annually.

The longest burrow system ever recorded was unearthed in San Luis Obispo County; it totaled 741 feet in aggregate length, had 33 entrances, displaced 5 tons of soil, and was inhabited by 11 adult squirrels. A burrow system was also unearthed in Fresno County that extended 28 feet below the surface.[13]

The longest ground squirrel burrow system ever recorded totaled 741 feet in aggregate length and displaced 5 tons of soil.

If the dam or levee is full of water, the hydraulic pressure can push the water through the burrows forming a pipeline through the facility (Figure 2). This erosive effect, known as "piping," can quickly destroy earthen structures causing complete failure. Even after burrows have been abandoned, the damage to the levee remains and burrows can collapse over time, which might cause the levee to subside. The cost of repairing rodent damage greatly exceeds the cost of prevention. The cost to repair one failed levee could easily exceed the entire annual budget of the IPMP.

Figure 2. Fox Debris Basin "Piping" Damage as a Result of Seepage through Rodent Burrows

The longer a population of squirrels inhabits a levee, the greater the likelihood that continued excavation will result in burrow enlargement. Burrows of California ground squirrels were shorter in length in areas where squirrel numbers were regularly controlled compared with areas of little or no control.[13]

Additionally, the loose soil deposited at burrow entrances erodes easily, thereby altering the levee profile.[14] Consequently, sections of levees damaged by burrowing activities of ground squirrels are more difficult to maintain and require more intensive monitoring, repairing and patrolling by maintenance crews to prevent levee failures.

4.2 Weekly Inspection and Monitoring

The objective of inspections is to determine locations of rodent activity on and near District facilities. Each area shall be observed for bait consumption and carcasses. Fresh burrows or holes shall be recorded and then filled with dirt to leave the surface smooth for future observations. The findings and observations will be recorded on the inspection summary (Appendix C). As described in the "IPMP – Rodent Control" Flowchart, staff will look for and record the following items during the inspection process:

- Burrows and holes
- Squirrels, gophers
- Animal carcasses
- Adjacent food sources
- Vandalism
- Amount of bait consumed/applied
- Wildlife species

The worksheet includes all of the wildlife species (of concern) historically observed in the target area. Wildlife identification training will be provided to IPMP staff.

4.3 Evaluation and Selection of Treatment Method

Each inspection record shall be reviewed and evaluated by a specialist with a Qualified Applicator Certification (QAC) to determine the rodent control method. The evaluation directs the type of bait to be used and which bait stations need to be filled, relocated, and removed within the reaches. The evaluation also determines whether hand broadcasting or fumigation is recommended based on the criteria specified in this section. Protocol listed in the "IPMP – Rodent Control" Flowchart (Appendix B) will be followed and the results of each evaluation recorded. Success criteria are measured by the decrease of new burrows, infestations showing less activity, and carcasses found.

Seasonal ground squirrel activities are also examined when considering treatment alternatives during the evaluation phase (Table 4).

Table 4 - Seasonal Ground Squirrel Activities

Methods	Winter		Spring		Summer		Fall	
Adults Active	X	X	X	X	X	X	X	X
Breeding Season	X	X						
Young Emerge				X	X			
Green Forage	X	X	X	X	X			
Seed Forage	X			X	X	X	X	
Fumigation	X	X		X	X		X	X
Baits	X	X		X	X	X	X	
Habitat Modification	X	X	X	X	X	X	X	X
Biological Control	X	X	X	X	X	X	X	X

X - Indicates activity or appropriate treatment season

District experience has shown that fumigation and baiting are effective and preferred rodent control options. These methods, solely or in combination, will be specified during the evaluation phase.

4.3.1 Fumigation

Aluminum phosphide fumigation is used by the District and has been shown to be effective in exterminating ground squirrels and gophers in their burrows, when soil is moist. Fumigation has been found to be effective where there is access to the burrows when the target rodents were active. Fumigation, however, is more labor intensive than baiting. Since 2009, the District has only used fumigation for about 1% of all applied rodenticides. Fumigation is highly controlled by the EPA and the California Department of Pesticide Regulation (CDPR).

4.3.2 Rodenticide Baiting

The District has found baiting to be the most effective method to control ground squirrels to prevent facility damage. Baiting is used under most circumstances encountered in the field and is effective against ground squirrels. Zinc phosphide and diphacinone are the types of grain-

based baits applied by the District and its contractors. Broadcast areas are marked with flags for follow-up observations during inspections.

Zinc Phosphide is administered as a coated oat flake at 2.0% concentration when broadcast by hand once activity is observed. This method is reactive and does not prevent damage to facilities. It is a quick-acting bait and does not accumulate in the carcasses of rodents. Zinc phosphide has been a registered rodenticide for over 50 years. The limitation on use, however, restricts application. Because the bait is quick acting, the rodent may not consume a lethal dose before getting sick. If this occurs, the rodent may become bait shy. Therefore, the Ventura Agricultural Commissioner prohibits the use of zinc phosphide to no more than twice at the same location in any 12-month period. Label requirements restrict its use to prevent impacts to endangered non-target species. Zinc phosphide cannot be used in water, waterways, on stream banks, or in marshes. It cannot be applied if rainfall is predicted or in irrigated areas.

Diphacinone anticoagulant bait is approved for use on District's levees and dams. It is administered as a coated oat flake (or pellet) in bait stations and broadcast by hand after clean bait applications determine squirrel presence. As described in the Rodent Control Flow Chart, staff will determine application based on habitat and observations. Diphacinone is a first generation anticoagulant bait. The District uses two types of diphacinone oat flake bait. The first type has a concentration of 0.01% and is broadcast. The second type has a concentration of 0.005% and is used in fixed bait stations (Figure 3). The equivalent anticoagulant bait, chlorophacinone, has similar characteristics to diphacinone and will be used in the same manner.

Figure 3. Bait Station

The quantity of bait broadcast by hand is limited for quick consumption based on the rodent infestation level, so the burrowing rodents do not leave excess bait on the ground for non-target animals or birds to ingest.

Bait stations are the District's preferred and most common application method because they utilize anticoagulant bait at half of the concentration of broadcast bait, and the bait is confined within stations that prevent access to animals larger than squirrels. In areas of continued reinvasion, a small amount of bait (1-2 oz.) may remain in stations that are subject to re-infestation (as approved by the Ventura Agricultural Commissioner). This will exterminate rodents exploring facilities from adjacent properties thereby preventing further infestations. A detailed schematic of bait station design is provided in Appendix D.

All rodenticide use at District facilities is supervised by qualified applicators who have completed annual training and recertification. All rodenticides applied are recorded by date, specific locations, and type, and are reported to the Ventura Agricultural Commissioner and the California Department of Pesticide Regulation.

4.3.3 Raptor Rodent Control Pilot Program

Figure 4. Red Tailed Hawk

Research has found that owls and hawks (Figures 4 and 5) can reduce the rodent populations on levees and dams. Discussions with Kim Stroud, Director of the Ojai Raptor Center, and staff at the Santa Barbara County PWA, have resulted in the development of a pilot program for a selected 12,000 foot portion of the Revolon Slough levee system. The program includes the installation of raptor perches and nesting facilities designed to attract Barn Owls, Red Tail Hawks, and Red Shouldered Hawks. Elements of the program are as follows:

1. **Select Test Site Areas**

   Similar 6,000 foot reaches of the Revolon Slough have been selected as Control and Test Sites. The Control Site will be maintained per the IPMP with rodenticide. Rodent control at Test Site will be exclusively by raptors.

2. **Establish Baseline Conditions**

   A baseline is established by surveying and identifying any rodent activity and burrows in the designated control and test areas. All burrows in control and test areas are backfilled with grout to establish a rodent-free test site.

3. **Install Raptor Facilities**

   Raptor perches are placed in an alternating pattern at 500 foot intervals, along both banks of the test areas. Barn Owl boxes and Red Tail Hawk platforms will be placed at 500 feet off sets from the levees on adjoining properties.

4. **Monitoring Raptors**

   Raptor facilities are monitored weekly to record bird species occupying the boxes and platforms.

5. **Monitor for Rodent Damage**

   Test and control areas are monitored weekly to record if rodent populations are reestablishing. Record and fill any new rodent burrows. Track pilot test costs for the Test and Control sites. If preliminary observations during the first month after installation indicate raptor activity, additional raptor facilities will be added for reaches in Zone 1 and Zone 2. Monitoring will proceed for 12 months at each site.

Figure 5. Barn Owl

Initial costs to construct and install the raptor facilities in the Revolon Slough test area are expected to be less than $5,000. Maintenance costs are expected to be less than existing rodent control efforts using rodenticides as only annual cleanout of the Owl Boxes is anticipated.

A final report will be prepared comparing results of the Control and Test Sites. The final report will provide a detailed cost analysis and any budget Implications. An assessment of the success of the pilot test will be made and recommendations for future raptor program developments will be provided.

4.3.4 Alternative Methods

The alternative methods listed below have not been shown to be consistently effective and are not recommended for use under this IPMP.

Physical controls incorporated into levee construction/design such as rodent-proof fabric barriers and hardened materials have been evaluated for retrofitting levees. Implementation of currently available rodent-proofing systems to existing facilities is currently financially infeasible as costs could exceed $1 million per mile. However, strategies for rodent control at new facilities will be seriously considered. Materials such as soil-cement can provide rodent-proof facilities and be incorporated into future designs.

Trapping has been shown to be effective in reducing gophers in selected non-public areas but has only been used rarely by the District. Mechanical traps have not been implemented due to the risk posed by the traps to the public, their pets, and other non-target species. Trapping is also labor intensive and is more expensive than baiting and is not recommended for most facilities.

Additional methods described in the 2005 IPMP and not selected for use because they are ineffective, include:

- scaring with mannequins or artificial owls
- contraception with treated bait
- shooting with firearms

4.4 Reporting Activities

An overall monthly evaluation is added to the inspection report reviewing information recorded at all sites monitored for ground squirrel activities. The evaluation is based on data, consideration of treatment alternative, food sources, and the number of rodents reduced or increased from previous records (Appendix C – Monthly inspection summary/report). Weekly inspection data will be combined and submitted into a monthly report. The report includes the following:

- specific reach location and bait station number
- observations of rodents and other wildlife
- description of alternative food sources (if applicable)
- type and amount of rodenticides applied and/or consumed
- evaluation of success and recommendations

The monthly reports summarize any problems observed at the facility (i.e. vandalism) and any recommendations for alternate methods specific to the area. Significant facility damage is photographed for recording and evaluation.

5.0 Vegetation Control

This IPMP provides strategies and methodologies to promote environmentally sensitive vegetation control while protecting District facilities.

The three vegetation control implementation phases of the IPMP are Inspection, Evaluation and Application. These phases are demonstrated in the IPMP – Vegetation Control Flowchart (Appendix B).

The District's field experience, expansion of the infrastructure, changing regulations, and risk evaluations are incorporated into each phase. This IPMP provides consistent and regulatory-approved application protocols.

5.1 Damage from Uncontrolled Vegetation

Uncontrolled vegetation threatens the hydraulic capacity and structural integrity of District flood-control facilities. Plant growth can clog channels and reduce the effective capacity of the facilities. This vegetation can also break loose during storm events and block downstream culverts. The vegetation can prevent accurate visual inspections for rodent burrows as well.

Tree roots can provide a pathway for water to penetrate earthen flood-control facilities in a manner similar to rodent burrows, especially following root death and decay. Roots can extend vertically and horizontally through and across levees and dams.[15] Larger trees that are located on embankment slopes can cause significant damage when they fall (Figure 4). The tree trunk and branches block flow in the channel, while the dislodged root ball can leave a large gap on the structure.

Figure 6. Levee with Tree Damage

Many levee systems in California currently have mature trees located on or within 15 feet of them. It has been mandated by the USACE that these trees be removed. This requirement has been very controversial and has led to alternative levee designs that widen the levees with a "sacrificial" area that can be planted with trees. The sacrificial strip can erode during a storm event and still leave enough of the levee to provide flood protection. This is currently the only alternative that allows trees to remain on or near levees. The District, however, does not have levees wide enough to place a sacrificial strip where trees can be planted.

(*Arundo donax*)
giant reed

(*Cirsium* spp.)
thistles

(*Brassica* spp.)
mustards

(*Ricinus communis*)
castor bean

(*Nicotiana glauca*)
tree tobacco

(*Typha* spp.)
Cattail

Figure 7. Plant Species

Problematic plant species at District facilities include: annual grasses, giant reed, thistles, mustards, castor bean, tree tobacco, cattails, willows, and many other plants (Figure 5).

5.2 Inspection

Visual inspections determine the need to schedule spraying, removal, or mowing of obstructive vegetation. Vegetation growth is highly dependent upon weather. The warmer temperatures in spring and the rainfall during winter months encourage vegetation growth. Wide variations in herbicide use may occur from year to year due to weather conditions. Formal inspections of all District open channels and dams for vegetation conditions are scheduled as part of the pre-storm season readiness protocols. In addition, all channels are inspected by staff during storm patrols throughout the winter season noting any vegetation problems.

5.3 Evaluation of Vegetation Treatment Method

Specific vegetation control methods and target areas are determined during the evaluation phase (Vegetation Control Flowchart -Appendix B). These include spraying or mechanical control methods. The District has found herbicide to be economical and highly effective for wide-spread application. Pre-emergent herbicides are applied on bare ground and access roads in the early winter prior to a rain event. This prevents seed germination and the rapid weed growth normally observed in the spring and summer.

Table 5. Vegetation Control Methods

Method	Criteria	Equipment & Vehicles
Hand Methods – Weed Cutting	Use in areas that vehicular mounted mowers or grinders cannot reach	Weed trimmer, pole saw, hedge trimmer, man lift
Mowing	Use on slopes and basins prior to storm season	Skid steer and excavator with mower attachments
Discing	Use in basin floors and channel bottoms prior to storm season	D6 Bulldozer with disk attachment
Grinding	Use on giant reed to reduce stocks to a mulch	Skid steer or tractor with grinder attachment
Hand Spraying – on Foot	Apply up to 2 times a year in areas that truck mounted boom sprayers or hoses cannot reach	Backpack mounted sprayer
Hand Spraying – Truck	Apply up to 2 times a year along channels, levees, and dams in wet areas that boom spraying cannot reach	500 gallon capacity truck with 300 foot spray hose attachment
Boom Spraying	Apply up to 2 times a year along channels, levees, and dams	1000 or 500 gallon capacity truck with boom sprayer attachment

Herbicides There are three classes of herbicides: Class I – Most Toxic; Class II – Moderately Toxic; and Class III – Slightly Toxic. The District only uses herbicide products that are classified as Class III "Slightly Toxic" and approved by the EPA. Appropriate herbicides are selected from the list in Table 6 based upon the location of the target plants. Application guidelines for herbicides specified for aquatic use are provided in the APAP.

Table 6. Class III Herbicides Used by the District

Product	Active Ingredient	Type of Application
Roundup™	Glyphosate	Low-volume foliar
Accord ™	Glyphosate	Low-volume foliar
Rodeo®	Glyphosate	Land & aquatic use
AquaMaster ®	Glyphosate	Land & aquatic use
Garlon 4™	Triclopyr	Stump & basal use
Landmark® XP	Sulfometuron-M Chlorsulfuron	Pre-emergent on bare ground
Milestone® VM Plus	Triethylamine salt	Woody & broadleaf
Diuron 4L™	Dichlorophenyl	Grasses & broadleaf
Imazapyr	Imidazolinone	Grasses & broadleaf

Depending on the reach area and vegetation targeted for removal, herbicides may be mixed with dispersion aids to minimize drifting and adjuvants to improve coverage or penetration. The applicator follows the mixing protocol on the manufacturer's label.

The method evaluation specifies the minimum amount and concentration of herbicide necessary to manage vegetation growth and maintain hydraulic capacity in flood-control channels.

Mechanical methods (discing and mowing) and hand removal of plant species are also vegetation control options. When appropriate, undesirable vegetation in dry channels and basin bottoms is removed mechanically or by hand crews. Mechanical removal can be more cost effective than spraying when larger flat areas are treated.

When surface water is present, mechanical removal of vegetation is prohibited by the environmental permits issued to the District because it produces large quantities of silt that degrades water quality. Mechanical methods sometimes require retreatment because some roots are left behind, and because seed propagation may still occur. A combination of mowing and spraying will be typically selected as part of future vegetation control activities.

5.4 Herbicide Application

Herbicides are applied only to the target plant species minimizing drift and non-target application. All products are mixed following label instructions and at the lowest percentage required to eradicate selectively targeted vegetation. Direct application of material to any water surface absent of vegetation is avoided.

Throughout the growing season, foliage of actively growing plants (less than 36 inches high) are sprayed with a glyphosate-based herbicide. Glyphosate is effective when applied directly to foliage and to the freshly cut surfaces of plant stalks. The larger woody vegetation and giant reed (*Arundo donax)* are cut and then daubed with a high concentration glyphosate herbicide to minimize re-sprouts. In the winter months a pre-emergent herbicide is applied to inhibit weed growth.

Flood Control Maintenance controls vegetation by spraying herbicide on all vegetation on engineered slopes and embankments at dams and levees twice yearly or as necessary. The fifteen foot wide federally-mandated buffer zones along levees is also kept clear of any vegetation. The interior surface of each basin is sprayed with herbicide to control vegetation.

All herbicides applied on District property are supervised by qualified applicators who have completed annual training and recertification. All toxic material use is reported to the Ventura County Agricultural Commissioner and the California Department of Pesticide Regulations.

A mechanized spray truck equipped with a spray boom, hand-spraying backpack equipped rigs, or similar pumping systems is used for spray applications of herbicides (Figure 6). Fully operational crews and spray trucks are stationed at the Saticoy and Moorpark Operation Yards and are utilized on a full time basis.

All pesticides are properly labeled and stored at room temperature in a dry place until applied in the field.

Figure 8. Backpack Spray Applicator

An annual schedule is prepared at the beginning of each calendar year for the locations of herbicide applications throughout the county. This schedule is subject to modification during the year based on the effects of the weather on plant growth (Appendix E).

6.0 Facility Repairs

As part of the IPMP procedures, the District repairs rodent damage at flood-control facilities. Currently, the District uses heavy tracked vehicles such as bulldozers to crush burrows and consolidate the soil. This method, however, may not reach deeper voids in the subsurface and cannot be implemented in areas with rip rap (large rock). Therefore, the District will adopt low-pressure grouting repair procedures similar to those used on the California Aqueduct and the Sacramento River delta levees (Figure 9).

The low-pressure injection of a bentonite-cement grout into rodent burrows has been shown to exterminate existing rodent infestation and provide a permanent repair of the burrow damage at the same time. This is accomplished without the use of rodenticide (Figure 7). This method will not prevent damage, but if used, could reduce the overall rodenticide application rate for a reach. Initial testing of this method by the District has shown favorable results.

The grouting program will follow these procedures:

- Inspection staff will flag all open rodent burrows and inspect the tunnels with a boroscope.
- Inspection staff will record burrow locations in the weekly inspection report.
- Staff will compare burrow locations with habitat maps of any endangered/sensitive wildlife that might use an abandoned rodent burrow. Staff will add the burrow locations lying outside of these habitats to a Rodent Burrow Repair Inventory. Rodent locations lying inside a habitat area will require further study to verify they are vacant. When shown to be vacant, they will immediately be covered to prevent re-occupancy, flagged and recorded by Staff.
- Grouting staff will mobilize each week to grout rodent holes in the inventory.
- The grouting crew will consist of four staff and a truck equipped with a grout pump, mixing bins, and hoses.
- A sediment-control fence to hold back spillage or free-flowing grout will be placed downstream of the lowest elevation burrow hole that is visible.
- A cement and water grout mixed to the consistency of pancake batter will be used to fill holes at low pressure. The low pressure will prevent damage to earthen facilities from blowouts.

Figure 9. Bentonite Cement Injection Grouter

- When pumped grout emerges from a downstream hole, the hole will be stuffed with burlap. The pumping will continue until back pressure is achieved at the inlet hole. This will allow the entire rodent burrow to be filled.

- The grouting crew will note in the Rodent Burrow Repair Inventory which burrows were repaired.
- Open burrows will be deodorized prior to filling to discourage reentry.

The grouting program will be submitted for approval by the USACE, CDFW, RWQCB and USFWS prior to implementation as part of the District's annual environmental permit reporting requirements.

7.0 IPMP Resources

The IPMP is managed by the District's Flood Control Maintenance Division (FCM) with support from the District's Environmental Services Section, environmental consultants, and specialized contractors.

7.1 Resources for Rodent Control

Historically, rodent control has been performed by specialized contractors. During 2014, the District supplemented rodent control contractors with FCM staff. District staff includes qualified rodenticide applicators who typically work in teams of two for all field operations.

The use of FCM staff resulted in several improvements in the rodent control program. All FCM staff are trained to detect rodent activity on District facilities, even though they may be on the facility for other assignments. This has provided more responsive reporting of rodent activity and damage. FCM staff have developed improvements that have been incorporated into this IPMP. These include the individual numbering of the bait stations for better tracking and redesign of the bait stations for better security, access, and durability.

FCM staff have improved the monitoring of rodent activity, resulting in bait stations being moved, added, and removed from facilities on a much greater frequency than when contractors performed the work. This has ultimately resulted in greater efficiency and a reduction in the rate of anticoagulant bait application, which is an important mandate from the Board of Supervisors.

FCM staff have reduced the cost of implementing rodent control by innovation, attentive monitoring, and focused application at District facilities. Efficiency has been achieved and costs reduced by training staff to perform basic rodent activity inspections while doing their other weekly maintenance tasks.

7.2 Resources for Vegetation Control

District FCM staff currently includes the qualified applicators needed to perform all vegetation control and herbicide application work required by the District. The District's current fleet of spray trucks, trailer-mounted spray applicators, backpack sprayers, and mowing equipment is sufficient for District needs. (Figure 8)

Figure 10. Truck Mounted Spray Applicator

FCM spray crews are mobilized from both the Saticoy and Moorpark Operation Yards. A maintenance worker specialist who holds an applicator's certification leads each crew. All spray crews are managed by a Public Works supervisor.

8.0 Public Outreach

A Public Toxicity Reduction Program to educate the District's adjacent residents and farmers on methods to control pests using lower toxicity baits will begin in 2015. The program will demonstrate how to apply and effectively use lower toxicity baits with the goal of reducing secondary poisoning. The use of Class I and II herbicides will also be discouraged. The proper application and environmental benefits of using Class III "Slightly Toxic" herbicides will be presented. The District will provide a limited number of bait stations to residents willing to participate in the Toxicity Reduction Program and provide instruction on how to obtain the lower toxicity baits and Class III herbicides.

Additional public outreach activities will be as follows:

- A webpage will be developed listing rodent control practices for the public.
- The District will continue to post monthly vegetation control schedules on the Public Works website so concerned citizens may have advance knowledge of spraying operations.
- Ongoing efforts will continue to inform the public on updated knowledge and effective protocols to reduce toxic applications.
- Alternative bait station designs and control methods will continue to be evaluated and discussed with the public.
- The use of raptor perches and nesting stations will be encouraged.

The District will continue to welcome suggestions and comments from members of the community and interested parties regarding the IPMP, with the goal of optimizing the use of pesticides while maintaining the integrity of our flood-control infrastructure and public safety.

9.0 Small Mammal Study

The District will initiate the following study in 2016 to determine whether or not populations of non-target species are ingesting anticoagulant rodenticides at District facilities. The purpose of this study is to provide District, State, and Federal resource management agencies with more information on possible exposure of non-target species to anticoagulant rodenticides used at these facilities.

The study is designed to answer the question:

- Are non-target species being affected by anticoagulant rodenticide use at District facilities, and;

Study Design A review of literature pertinent to anticoagulant rodenticides use and possible impacts to non-target species, and discussion with experts and agencies provided information on current practices and recommendations for design of the Small Mammal Study. Tracking, trapping, and visual surveys will document small mammal species richness and density along dams, levees, or channels with and without anticoagulant use and non-facilities (reference sites).

A Geographic Information System (GIS) approach will be used to identify suitable study and reference sites using the following information layers: District zones, facility type, bait dispersion method, and land use. The District facility sites will be reviewed with GIS tools to select sites for field study with the goal of comparing rodent communities along facilities with anticoagulant rodenticide use with ecologically-similar facilities (waterways) where anticoagulant rodenticides are not used.

Suitable study sites are facilities in rural or natural areas with little or no adjacent agricultural activities where rodenticides also may be used. The study results at facilities will be compared to reference sites established in each of the two general habitat types in which rural District facilities occur in coast live oak or willow riparian woodland, and floodplain alluvial scrub habitat.

Non-target mammal species richness and activity around bait stations and bait broadcast sites will be assessed using tracking plates that will record species and activity based on type and number of footprints.

Live trapping provides a more rigorous method of estimating seasonal and distance-based population trends in non-target rodent species. Live-trapping will occur at the same sites used for the tracking study. Trapping will be conducted four times (spring, summer, fall, and winter) to assess seasonal variation in rodent density. Traps will be set in late afternoon and checked in early morning for three successive nights. Rodents will be sexed, measured, and marked with an indelible ink pen in order to estimate population density.

Two individuals of each species captured at each location will be euthanized and frozen for tissue collection. One individual will be collected at the proximal (bait station) and distal ends of the transect to see if anticoagulant rodenticide levels decrease with increasing distance from the bait station. Liver tissue will be collected for analysis of anticoagulant rodenticide residues.

As an additional measure of rodent activity around bait stations, rodent fecal samples will be collected from a random sample of bait stations at the same sites that will be used for the tracking plate and live-trapping study. Analysis will be conducted four times/year concurrent with tracking plate and live-trap surveys (spring, summer, fall, and winter). Fecal pellets will be identified to genus to determine if non-target rodents are entering bait stations.

Time-constrained surveys will be used to assess contact between granivorous birds at sites where zinc phosphide-laced bait is broadcast for rodent control. Surveys will be conducted at three randomly-selected sites to determine species richness, number of individuals, and to record feeding behavior of birds that may be feeding on treated grain. Surveys will be concurrent with tracking plate, live-trapping, and fecal pellet surveys (spring, summer, fall, and winter).

The information collected in the study will be analyzed using appropriate parametric and non-parametric statistical tests. The study will also consider the results of the raptor study in its conclusions. The results of the study will be used to modify IPMP practices and methods.

Appendix A
District Facilities

Zone 1 Flood Control Facilities

Reach	Name	Description	Critical Facility Rating	Length LF	Anticoagulant Treatment LF
			CFR	ML	LF
41011	VENTURA RIVER LEVEE	PACIFIC OCEAN THRU MAIN ST	1	2,492	2,492
41012	VENTURA RIVER LEVEE	MAIN ST-HWY 33	1	10,113	10,100
41015	VENTURA RIVER LEVEE	HWY 33 U/S (SHORT LEVEE)	1	1,085	1,085
41021	VENTURA RIVER - CASITAS SP	FRESNO CYN - HWY 33	1	5,808	4,925
41031	VENTURA RIVER	LIVE OAK ACRES LEVEE	1	4,636	4,126
41032	VENTURA RIVER	RIVERSIDE BANK PROTECTION	1	1,046	1,036
41901	MATILIJA DAM	OFF HWY 33	1	1,263	**
41902	STEWART DEBRIS BASIN	END OF CAÑADA ST	1	660	660
41205	OAK VIEW DRAIN	HWY 33 - OAK VIEW AVE	2	494	**
41217	LIVE OAK CREEK DIV	VTA RIVER - BURNHAM RD	2	1,030	**
41232	MIRROR LAKE DRAIN	INLET STRUCT - TRAILER PARK	2	1,521	542
41241	MIRROR LAKE TRIB	MIRROR LAKE DN - HWY 33	2	400	400
41311	COZY DELL	VENTURA RIV - MCDONALD CYN	2	813	**
41421	FOX CANYON	STEWART CANYON - FOX ST	2	35	**
41422	FOX CANYON	FOX ST - GRAND AVE	2	3,268	**
41551	SAN JON BARRANCA	PACIFIC OCEAN - PRINCE BARR	2	810	**
41562	PRINCE BARRANCA	R R - HURST AVE	2	1,452	1,263
41903	DENT DEBRIS BASIN	VENTURA	2	350	350
41904	LIVE OAK CK DIV/DTB	U/S OF BURNHAM ROAD	2	210	210
41911	MCDONALD CANYON DAM	U/S HWY 33 ON FAIRVIEW RD	2	400	400
41023	VENTURA RIVER	300FT D/S - 400FT U/S	3	700	
41110	STANLEY AVE DRAIN	VENTURA RIVER U/S - HWY 33	3	500	
41121	DENT DRAIN	VENTURA RIVER - HWY 33	3	314	
41181	FRESNO CANYON	VENTURA RIV - HWY 33	3	875	
41412	STEWART CANYON	STA ANA ST - OJAI AVE	3	1,175	
41553	SAN JON BARRANCA	S OF MAIN ST THRU POLI ST	3	545	
41701	PARKVIEW SECONDARY	FRESNO CYN THRU PARKVIEW DR	3	590	
41716	KENEWA ST SECONDARY	SAN ANTONIO CRK - THE NW	3	504	
41912	MCDONALD TRIB STRUCT	TRIB	3	990	
41134	CANADA DE SAN JOAQUIN	VENTURA AVE U/S	4	1,436	
41152	CANADA LARGA	LINED SEC THROUGH HWY 33	4	251	
41222	SKYLINE DRAIN	CUT-OFF STRUCT - RC PIPE	4	470	
41224	SKYLINE DRAIN	VALLEY MEADOWS DR U/S	4	566	
41231	MIRROR LAKE DRAIN	VTA RVR THRU BONMARK DR - INLET STRUC	4	527	
41232	MIRROR LAKE DRAIN	INLET STRUCT - TRAILER PARK	4	1,521	
41241	MIRROR LAKE TRIB	MIRROR LAKE DN - HWY 33	4	400	
41282	HAPPY VALLEY DRAIN	LOMITA (LOWER) - TICO RD	4	2,333	
41283	HAPPY VALLEY DRAIN	TICO RD - LOMITA (UPPER)	4	1,122	
41284	HAPPY VALLEY DRAIN	LOMITA (UPPER) - EL ROBLAR	4	3,053	
41303	MCDONALD CANYON	U/S HWY 33	4	200	
41414	STEWART CANYON	CANADA ST - DEBRIS BASIN	4	1,375	
41443	THACHER CREEK	BOARDMAN RD - HWY150	4	833	
41554	SAN JON BARRANCA	POLI ST U/S	4	977	
41561	PRINCE BARRANCA	SAN JON BARRANCA THRU R.R.	4	1,280	
41703	GRANDE VISTA ST SENCONDARY	R.R. - GRANDE VISTA ST	4	56	
41705	MOUNTAIN VIEW ST SECONDARY	BTWN LOTS 167 & 168 @ MT VIEW ST	4	136	
41717	HOWARD AVE SECONDARY	BRANDT - HOWARD AVE	4	1,060	

Zone 1 Flood Control Facilities			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
41729	PEKING SECONDARY	VENTURA RIVER - HWY 33	4	354	
41712	FELIZ DRIVE SECONDARY	SKYLINE DRAIN - FELIZ DRIVE	4	731	
41041	VENTURA RIVER	HWY 150 - MATILIJA DAM	5	320	
41056	N FORK MATILIJA CREEK	VENTURA RIVER U/S	5	15,400	
41122	DENT DRAIN	HWY 33 THRU VENTURA AVE	5	2,104	
41124	DENT DRAIN	VENTURA AVE - DB	5	2,664	
41131	CANADA DE SAN JOAQUIN	HWY 33 - VENTURA RIVER	5	300	
41218	LIVE OAK CREEK DIV	BURNHAM ROAD - DETENTION DAM	5	1,080	
41221	SKYLINE DRAIN	VENTURA RIVER TO CUT - OFF STRUCTURE	5	85	
41264	HAPPY VALLEY DRAIN SOUTH	LA LUNA AVE - LOMITA AVE (LOWER)	5	450	
41281	HAPPY VALLEY DRAIN	VENTURA RIVER - LOMITA AVE (LOWER)	5	591	
41285	HAPPY VALLEY DRAIN	EL ROBLAR DRIVE - HWY 33	5	954	
41301	MCDONALD CANYON	COZY DELL - BOX SECTION	5	697	
41411	STEWART CANYON	SAN ANTONIO CRK - STA ANA ST	5	580	
41423	FOX CANYON	GRAND AVE - DALY RD	5	2,369	
41424	FOX CANYON	DALY RD U/S	5	1,800	
41552	SAN JON BARRANCA	PRINCE BARRANCA - SOUTH OF MAIN ST	5	2,152	
41564	PRINCE BARRANCA	POLI ST U/S (500*)	5	85	
41721	DENT SECONDARY	VENTURA RIVER - HWY 33	5	314	
41727	HARRISON SECONDARY	VENTURA RIVER - HWY 33	5	927	
41728	CAL TRANS SECONDARY	VENTURA RIVER - HWY 33	5	50	
41730	RAMONA ST SECONDARY	VENTURA RIVER - HWY 33	5	280	
41731	SIMPSON ST SECONDARY	VENTURA RIVER - HWY 33	5	432	
41732	VINCE STREET SECONDARY	VENTURA RIVER - HWY 33	5	389	
41751	FREEWAY SIDE DRAIN # 1	VENTURA RIVER - HWY 33	5	145	
41752	FREEWAY SIDE DRAIN # 2	VENTURA RIVER - HWY 33	5	265	
41753	FREEWAY SIDE DRAIN # 3	VENTURA RIVER - HWY 33	5	100	
41754	FREEWAY SIDE DRAIN # 4	VENTURA RIVER - HWY 33	5	210	
41755	FREEWAY SIDE DRAIN # 5	VENTURA RIVER - HWY 33	5	130	
			Total linear feet		97,633
			and miles		18.5

* underground

** This facility will only be treated with anticoagulant bait if other rodent control methods are ineffective.

The District is not currently treating this facility with anticoagulant bait.

Zone 2 Flood Control Facilities

Reach	Name	Description	Critical Facility Rating	Length LF	Anticoagulant Treatment LF
			CFR	RL	LF
42021	SANTA CLARA R LEVEE	HWY 101 - HWY 118 (S BANK)	1	24,929	24,590
42025	SANTA CLARA R LEVEE	SATICOY DIKE	1	2,545	2,545
42132	CAMARILLO HILLS DRAIN	CAMARILLO AIRPORT FENCE - WOOD	1	6,186	6,186
42321	TSUMAS CREEK	PACIFIC OCEAN - HUENEME RD	1	2,953	**
42511	BROWN BARRANCA	SC RIVER - TELEPHONE RD	1	2,857	2,857
42901	ARUNDELL DEBRIS BASIN	SAXTON CYN RD	1	1,168	686
43305	SESPE CREEK LEVEE	HWY 126 - TELEGRAPH RD	1	5,621	5,383
43306	SESPE CREEK LEVEE	TELEGRAPH RD - GOODENOUGH RD	1	5,398	5,256
43904	WARRING DEBRIS BASIN	END OF WARRING RD	1	667	465
42012	SANTA CLARA RIVER	HARBOR BLVD - VICTORIA AVE	2	3,983	1,305
42017	SANTA CLARA R LEVEE	W OF VICTORIA - VENTURA RD	2	7,216	3,400
42035	SANTA CLARA R LEVEE	SANTA PAULA GROINS @ AIRPORT	2	2,309	**
42131	CAMARILLO HILLS DRN	REVOLON CHNL	2	2,501	2,501
42161	NYELAND DRAIN	BEARDSLEY WASH - ALMOND DR	2	3,227	**
42162	NYELAND DRAIN	ALMOND DR THRU SANTA CLARA AVE	2	3,703	**
42181	SANTA CLARA DIVERSON	BEARDSLEY W - SANTA CLARA AVE DRN	2	7,000	**
42191	SANTA CLARA AVE DRN	NYLAND DRAIN - CENTRAL AVE	2	1,172	**
42192	SANTA CLARA AVE DRN	CENTRAL AVE - WRIGHT RD	2	3,340	**
42193	SANTA CLARA AVE DRN	WRIGHT RD - LA AVE	2	2,070	**
42205	CENTRAL AVE DRAIN	S C RIVER - VINEYARD AVE (1958*)	2	1,287	**
42311	RICE ROAD DRAIN	OXNARD IND - ROSE AVE	2	2,568	2,264
42312	RICE ROAD DRAIN	ROSE AVE - HWY 1	2	5,464	**
42313	RICE ROAD DRAIN	HWY 1 - CHANNEL IS BLVD	2	1,167	**
42314	RICE ROAD DRAIN	CHANNEL IS BLVD - SAN MATEO	2	1,681	**
42317	RICE ROAD DRAIN	WOOLEY RD - 5TH ST	2	5,250	**
42318	RICE ROAD DRAIN	5TH ST - SANTA LUCIA	2	2,730	**
42319	RICE ROAD DRAIN	STA LUCIA ST - COLONIA RD (CAMINO DEL SOL)	2	1,746	**
42322	TSUMAS CREEK	HUENEME RD - REDWOOD ST	2	9,205	**
42351	OXNARD WEST DRAIN	VICTORIA AVE - PATTERSON RD	2	3,985	**
42352	OXNARD WEST DRAIN	PATTERSON RD - VENTURA RD	2	3,853	**
42353	OXNARD WEST DRAIN	CHANNEL IS BLVD - BAY BLVD	2	970	**
42354	OXNARD WEST DRAIN	BAY BLVD - 9TH ST	2	5,758	**
42361	W WOOLEY RD DRAIN	CHANNEL ISL BLVD - HEMLOCK ST	2	2,011	**
42362	W WOOLEY RD DRAIN	HEMLOCK ST THRU WOOLEY RD	2	4,189	**
42401	ARUNDELL BARRANCA	VEN MARINA - HARBOR BLVD	2	1,985	**
42402	ARUNDELL BARRANCA	HARBOR BLVD - ARUNDELL CIR	2	4,041	4,041
42403	ARUNDELL BARRANCA	ARUNDELL CIR - MAIN ST	2	2,550	**
42404	ARUNDELL BARRANCA	MAIN ST THRU ESTATES AVE	2	411	**
42405	ARUNDELL BARRANCA	ESTATES AVE - LOMA VISTA RD	2	4,586	**
42406	ARUNDELL BARRANCA	LOMA VISTA RD - FOOTHILL RD	2	5,681	**
42407	ARUNDELL BARRANCA	FOOTHILL RD - VICTORIA AVE	2	400	**
42408	ARUNDELL BARRANCA	VICTORIA AVE - PLAINVIEW ST	2	2,012	**
42409	ARUNDELL BARRANCA	PLAIN VIEW ST - DB	2	50	**
42421	BARLOW BARRANCA	ARUNDELL BARR - TELEGRAPH RD	2	3,068	**
42471	HARMON BARRANCA	S C RIVER - RR	2	2,750	**
42472	HARMON BARRANCA	R.R THRU BRISTOL RD	2	1,240	**
42474	HARMON BARRANCA	LEMUR ST-TELEPHONE RD	2	2,320	**
43051	FAGAN CANYON	SC RIVER - LINED CHNL	2	1,180	**
43052	FAGAN CANYON	LINED CHNL - HWY 126	2	526	**

Zone 2 Flood Control Facilities			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
43053	FAGAN CANYON	HWY 126 - 500' U/S HARVARD	2	1,977	**
43055	FAGAN CANYON	MAIN ST - NO END CEMETERY RD	2	810	**
43201	POLE CREEK	SC RIVER TO LINING	2	2,938	**
43202	POLE CREEK	LINING - SESPE ST	2	2,052	**
43203	POLE CREEK	SESPE ST - 4TH ST	2	3,283	**
43901	JEPSON DEBRIS BASIN	SNOW CYN	2	500	500
43903	REAL DEBRIS BASIN	REAL CYN	2	867	390
43905	POLE CREEK DB	DS HWY 126, FILLMORE	2	2,938	**
43906	ADAMS DEBRIS BASIN	ON ADAMS BARRANCA	2	1,067	550
42018	SANTA CLARA R LEVEE	VENTURA RD - HWY 101	3	2,565	
42036	SANTA CLARA RIVER	SANTA PAULA CRK TO HWY 23	3	1,615	
42102	REVOLON SLOUGH	LAGUNA RD - PLEASANT VALLEY	3	6,757	
42104	REVOLON SLOUGH	P V RD - CAM HILL DRAIN	3	5,187	
42303	ORMOND LAGOON WTRWY	PLEASANT VALLEY RD - HWY 1	3	10,350	
42304	ORMOND LAGOON WTRWY	HWY 1 - WOOLEY RD	3	2,528	
42332	HUENEME DRAIN	PUMP STA - FOOT BRIDGE	3	360	
42355	OXNARD WEST DRAIN	9TH - 5TH ST	3	1,855	
42391	EL RIO DRAIN	SC RIVER - VINEYARD AVE	3	5,924	
42392	EL RIO DRAIN	VINEYARD AVE THRU HWY 101 (2153*)	3	2,103	
42423	BARLOW BARRANCA	LOMA VISTA RD - FOOTHILL RD	3	1,850	
42432	TELEPHONE RD DRAIN	HWY 101 - COPLAND DR	3	1,294	
42441	RESERVOIR BARRANCA	ARUNDELL BARR - TELEGRAPH RD	3	900	
42475	HARMON BARRANCA	TELEPHONE RD - FWY 126	3	323	
42476	HARMON BARRANCA	HWY 126 THRU TELEGRAPH RD	3	1,100	
42477	HARMON BARRANCA	TELEGRAPH RD - FOOTHILL RD	3	150	
42482	ONDLANDO BARRANCA	FOOTHILL RD - VIA BAJA	3	422	
42504	SUDDEN BARRANCA	TELEPHONE RD - DARLING RD	3	2,404	
42505	SUDDEN BARRANCA	DARLING RD - TELEGRAPH RD (3913*)	3	3,913	
42506	SUDDEN BARRANCA	TELEGRAPH RD - FOOTHILL RD	3	2,121	
42542	WASON BARRANCA	HWY 126 - TELEGRAPH RD	3	3,743	
43061	SANTA PAULA CREEK	SC RIVER - MAIN ST	3	3,300	
43062	SANTA PAULA CREEK	MAIN ST - MUPU SCHOOL	3	12,340	
43181	GRIMES CANYON	SC RIVER - RIVERSIDE AVE	3	3,928	
43221	CAVIN ROAD DRAIN	SC RIVER - HWY 126	3	1,468	
43222	CAVIN ROAD DRAIN	TELEGRAPH RD - DEBRIS BASIN	3	1,071	
43252	REAL CANYON	HOWE RD - WARRING WASH	3	2,610	
43255	REAL CANYON	CENTER ST - DEBRIS BASIN	3	1,600	
43263	WARRING WASH	CENTER ST - DEBRIS BASIN	3	1,975	
43271	WARRING WASH SOUTH	STA CLARA RIV - PACIFIC ST	3	3,370	
43902	CAVIN RD DEBRIS BASIN	CAVIN RD	3	300	
43907	FAGAN DEBRIS BASIN	N OF SANTA PAULA CEMETERY	3	0	
42009	SATICOY STORAGE/STKP	SO END OF SATICOY AVE	4	1,000	
42101	REVOLON SLOUGH	WOOD RD - LAGUNA RD	4	2,370	
42154	BEARDSLEY WASH	CENTRAL AVE - (Zone 3)	4	2,254	
42301	ORMOND LAGOON WTRWY	J ST DRAIN - RR XING	4	6,896	
42302	ORMOND LAGOON WTRWY	RR XING - PLEASANT VALLEY RD	4	4,114	
42342	SILVER STRAND DRAIN	SANTA PAULA AVE DRAIN SYSTEM	4	281	
42346	SILVER STRAND DRAIN	SANTA MONIC AVE DRAIN SYSTEM	4	474	
42349	SILVER STRAND DRAIN	SAN NICHOLAS AVE DRAIN SYSTEM	4	360	
42461	MOON DITCH	SC RIVER - HWY 101	4	2,880	

Zone 2 Flood Control Facilities			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
42463	MOON DITCH	NIGHTINGALE ST - BRISTOL RD	4	1,010	
42473	HARMON BARRANCA	BRISTOL RD - LEMUR ST	4	700	
42481	ONDLANDO BARRANCA	HARMON BARRANCA - FOOTHILL RD (1907*)	4	733	
42493	CLARK BARRANCA	BLACKBURN RD - TELEGRAPH RD	4	2,630	
42501	SUDDEN BARRANCA	SC RIVER - RR XING	4	997	
42502	SUDDEN BARRANCA	RR XING -TELEPHONE RD	4	1,781	
42522	SATICOY DRAIN	SATICOY PARK - HWY 126	4	2,080	
42532	FRANKLIN BARRANCA	SHEET PILINGS - HWY 126	4	6,252	
42534	FRANKLIN BARRANCA	HWY 126 - FOOTHILL RD	4	3,960	
42701	MONTALVO GOLF C SEC	SC RIVER - OLIVAS PK DR	4	2,474	
43041	PECK RD SECONDARY	SC RIVER - SANTA MARIA	4	3,276	
43042	PECK RD SECONDARY	STA MARIA ST - HARVARD BLVD	4	650	
43056	FAGAN CANYON	CEMETERY RD U/S	4	2,427	
43161	BARDSDALE DITCH	SC RIVER - W BARDSDALE AV	4	3,010	
43182	GRIMES CANYON	RIVERSIDE AVE - BARDSDALE AVE	4	1,700	
43191	BASOLO DITCH	SC RIVER - GUIBERSON RD	4	3,200	
43204	POLE CREEK	U/S OF END OF LINER	4	475	
43251	REAL CANYON	SC RIVER - HOWE RD	4	2,027	
43253	REAL CANYON	WARRING WASH - CAMULOS ST	4	917	
43254	REAL CANYON	CAMULOS ST - CENTER RD	4	1,877	
43262	WARRING WASH	U/S END LINER - CENTER ST	4	1,452	
43351	JEPSON WASH	SESPE CRK - GRAND AVE	4	2,151	
43352	JEPSON WASH	GRAND AVE	4	1,121	
43362	KEEFE DITCH	GRAND AVE U/S	4	149	
43701	WILLARD RD SECONDARY	SC RIVER - 2800'S OF HWY	4	4,150	
43009	PIRU STORAGE & STOCKPILE	TORREY AND HOWE RD (667)	5	667	
42031	SANTA CLARA R SIDE DRAIN	HWY 118 - SO MTN RD Side Drain 1 - 1A	5	2,139	
42037	SANTA CLARA R LEVEE	BARDSDALE LEVEE	5	3,836	
42151	BEARDSLEY WASH	CAMARILLO HILLS DN - HWY 101	5	6,174	
42152	BEARDSLEY WASH	HWY 101 - CENTRAL AVE	5	3,674	
42381	DORIS AVE DRAIN	EDISON CANAL - VICTORIA AVE	5	6,971	
42491	CLARK BARRANCA	SC RIVER - NO BANK DR	5	1,264	
42531	FRANKLIN BARRANCA	SC RIVER - SHEET PILINGS	5	25	
42541	WASON BARRANCA	FRANKLIN BARR - HWY 126	5	1,122	
42552	ELLSWORTH BARRANCA	RR TRACK - HWY 126	5	480	
43261	WARRING WASH	REAL CYN - U/S END OF LINING	5	1,722	
43308	SESPE CREEK	BANK PROTECTION ALONG GOODENOUGH RD	5	450	
43361	KEEFE DITCH	SESPE CRK - GRAND AVE	5	1,681	
			Total linear feet	381,400	
			and miles	72.2	

* underground

** This facility will only be treated with anticoagulant bait if other rodent control methods are ineffective.

The District is not currently treating this facility with anticoagulant bait.

Zone 3 Flood Control Facilities

Reach	Name	Description	Critical Facility Rating	Length LF	Anticoagulant Treatment LF
			CFR	RL	LF
45021	CALLEGUAS CREEK	HWY 1 - BROOME RANCH XING	1	11,800	11,800
45023	CALLEGUAS CREEK	BROOME RNCH XING - HUENEME RD	1	8,660	8,660
45063	ARROYO LAS POSAS	HUNT WASH - S GRIMES CYN	1	3,020	**
45065	ARROYO LAS POSAS	S GRIMES CYN - HITCH BLVD	1	334	**
45101	REVOLON SLOUGH	HWY 1 - LAS POSAS RD	1	6,870	**
45141	CAMARILLO HILLS DN	WOOD RD(Z2) - LAS POSAS RD	1	7,858	7,858
45903	W CAMARILLO HILLS DB W BRN	E END ESTABAN DR, CAMARILLO	1	900	204
45907	RAMONA DB	N END RAMONA PL, CAMARILLO	1	603	603
46013	CONEJO CREEK	HOWARD RD - SANIT PLANT	1	2,240	2,240
46015	CONEJO CREEK	HWY 101 - MISSION OAKS DRAIN	1	5,090	5,090
46016	CONEJO CREEK	MISSION OAKS DN - UPLAND DRN	1	5,090	5,090
46903	POTRERO DENT BASIN EAST	OFF POTRERO RD, T.O.	1	200	**
47011	ARROYO SIMI	HITCH BLVD - GABBERT CYN	1	2,700	**
47017	ARROYO SIMI	ALAMOS CYN TO SYCAMORE CYN	1	1,500	**
47385	DRY CANYON	ALAMO ST - AVENIDA SIMI	1	1,550	**
47903	SYCAMORE CANYON DAM	E OF MADERA RD SIMI VALLEY	1	1,800	1,800
47905	TAPO HILL DIVR DB #1	DITCH RD SIMI VALLEY	1	660	400
47906	TAPO HILL DIVR DB #2	DITCH RD SIMI VALLEY	1	660	665
47907	RUNKLE CANYON DAM	@ RUNKLE RESERVIOR SIMI V	1	1,230	442
47908	LAS LLAJAS CYN DAM	NE TEXAS AVE, SIMI VALLEY	1	557	557
47911	NO SIMI DET/DEB BASIN	U/S HIGHWAY 118 - ERRINGER RD	1	1,068	1,068
47919	WALNUT CANYON DEBRIS BASIN	WALNUT CANYON DEBRIS BASIN	1	697	500
47921	ARIELLE DETENTION BASIN	END OF GREENBRIAR	1	250	250
45025	CALLEGUAS CREEK	HUENEME RD - LEWIS RD	2	7,670	7,670
45027	CALLEGUAS CREEK	LEWIS RD - 850'U/S CREEK RD	2	2,420	2,420
45033	CALLEGUAS CREEK	PLEASANT VLY RD - HWY 101	2	3,860	3,743
45037	CALLEGUAS CREEK	ADOLFO RD - CEDARBOOK	2	2,720	2,720
45051	ARROYO LAS POSAS	SEMINARY RD - COYOTE CYN	2	980	**
45035	CALLEGUAS CREEK	HWY 101 - ADOLFO RD	2	2,900	2,900
45103	REVOLON SLOUGH	LAS POSAS RD - HUENEME RD	2	8,210	8,210
45105	REVOLON SLOUGH	HUENEME RD - WOOD RD (Z2)	2	7,940	7,940
45133	PLEASANT VALLEY RD DRAIN	W GATE - END OF R/W	2	4,020	**
45144	CAMARILLO HILLS DN	HWY 101 - PONDEROSA DR	2	1,750	**
45147	CAMARILLO HILLS DN	PONDEROSA RD - ARNEILL DRAIN	2	2,580	**
45201	ARNEILL DRAIN	CAMARILLO HILLS DN - ARNEILL	2	1,280	**
45451	SOMIS DRAIN	CALLEGUAS CRK - LEWIS RD	2	3,370	**
45902	EDGEMORE DB	C ALBERCA CAMARILLO	2	345	345
45906	LAS POSAS ESTATES DAM	E END RAMONA PL, CAMARILLO	2	766	766
45908	FERRO DB	LA AVE/STA CLARA AVE	2	500	325
45909	HONDA WEST DB	U/S LA LOMA RD, SOMIS	2	825	175
45910	FOX DB	SOMIS RD, SOMIS	2	737	375
45911	COYOTE DB	E OF DONLON RD SOMIS	2	510	510
45912	PUERTA ZUELLA DB	OFF DONLON RD, SOMIS	2	660	**
46074	ARROYO SANTA ROSA	ASR TRIB - SANTA ROSA RD	2	2,000	**
46075	ARROYO SANTA ROSA	STA ROSA RD - E LAS POSAS RD	2	3,040	**
46076	ARROYO SANTA ROSA	EAST LAS POSAS RD - VISTA GRANDE	2	500	300
46081	ARROYO STA ROSA TRIB	ARROYO STA ROSA - LINED SEC	2	527	**
46083	ARROYO STA ROSA TRIB	LINED SECTION	2	3,410	**
46084	ARROYO STA ROSA TRIB	LINED SECTION TO DB	2	510	**

Zone 3 Flood Control Facilities

			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
46106	ARROYO CONEJO	T.O. N DRAIN - HWY 23 (1648*)	2	1,582	**
46113	S BRANCH ARROYO CONEJO BASIN	BORCHARD RD - WENDY DR	2	5,630	5,630
46121	CONEJO MOUNTAIN CREEK	ARROYO CONEJO SOUTH BRANCH U/S	2	1000	**
46151	OLSEN CHANNEL	N FORK A CONEJO - AVE DE LOS ARBOLES	2	210	**
46152	OLSEN CHANNEL	A D L ARBOLES - WILDWOOD AVE (716*)	2	1,504	**
46221	LANG CREEK	ARROYO CONEJO TO HILLCREST DR (328*)	2	328	**
46222	LANG CREEK	HILLCREST DR - WILBER RD	2	2,540	**
46231	THOUSAND OAKS NORTH	ARR CONEJO - FLITNER RD	2	1,320	**
46241	ERBES ROAD DRAIN	ARROYO CONEJO TO HILLCREST DR (2390*)	2	2,390	**
46902	SANTA ROSA RD DB #2	E OF VISTA ARROYO DR, T.O.	2	114	114
46904	POTRERO DB WEST	OFF POTRERO RD, T O	2	280	**
46906	CONEJO MTN CRK DET B #1	U/S CYPRESS ELEM SCH	2	950	950
46907	CMB 2 DET BASIN	CONEJO MOUNTAIN	2	950	890
46908	CMB 3 DET BASIN	CONEJO MOUNTAIN	2	740	740
46909	CMB 4 DET BASIN	CONEJO MOUNTAIN	2	520	520
46910	CMB 5 DEBRIS BASIN	CONEJO MOUNTAIN	2	360	360
46911	LANG CREEK DET/DEB BASIN	@ WESTLAKE BLVD	2	515	515
47037	ARROYO SIMI	R.R. - YOSEMITE AVE	2	4,230	**
47038	ARROYO SIMI	YOSEMITE AVE - KATHERINE BL	2	3,700	**
47111	WALNUT CANYON	GABBERT CYN CHNL - R.R.	2	3,080	**
47172	HAPPY CAMP CANYON	LA AVE - WESTWOOD (2085*)	2	450	**
47201	NO.2 CANYON	ARROYO SIMI - HWY 118 (718*)	2	1,315	**
47202	NO.2 CANYON	HWY 118 - BERAGAN ST (370*)	2	182	**
47331	OAK CANYON	SYCAMORE CANYON DAM U/S	2	400	**
47342	NORTH SIMI DRAIN	EASY ST - FIRST ST	2	2,630	**
47343	NORTH SIMI DRAIN	FIRST ST - COCHRAN ST	2	1,260	**
47344	NORTH SIMI DRAIN	COCHRAN ST - CALDWELL AVE	2	1,060	**
47351	BUS CANYON	ARROYO SIMI - L A AVE	2	249	**
47353	BUS CANYON	PACIFIC AVE - ROYAL AVE	2	1,940	**
47354	BUS CANYON	ROYAL AVE - BENNETT ST	2	3,880	**
47383	DRY CANYON	DRY CYN LAT - COCHRAN ST	2	2,534	**
47391	DRY CANYON E TRIB	DRY CYN - SYCAMORE DR	2	2,220	**
47401	RUNKLE CANYON	ARR SIMI - APPLETON RD DN	2	1,870	**
47403	RUNKLE CANYON	FITZGERALD RD - WATSON AVE	2	1,810	**
47404	RUNKLE CANYON	WATSON AVE - DAM	2	2,150	**
47432	TAPO HILLS DIVERSION	SYCAMORE DR - RESERVOIR DR	2	2,110	**
47512	LAS LLAJAS CANYON	LA AVE - COCHRAN ST	2	2,700	**
47551	WHITE OAK CREEK	ARR SIMI - HUMMINGBIRD CRK	2	1,423	**
47552	WHITE OAK CREEK	HUMMINGBIRD CRK - NELDA ST	2	760	**
47554	WHITE OAK CREEK	COCHRAN ST - HWY 118	2	789	**
47561	HUMMINGBIRD CREEK	WHITE OAK CRK - ALSCOT AVE	2	1,560	**
47562	HUMMINGBIRD CREEK	ALSCOT AVE - KUEHNER DR	2	1,308	**
47901	GABBERT DB	HWY 118 MOORPARK	2	110	110
47904	ERRINGER RD DB	COVINGTON AVE, SIMI VALLEY	2	428	400
47917	LITTLE SIMI " LINE C" DET BASIN	ARROYO SIMI @ SPRING ST	2	350	350
47920	MUIRFIELD DETENTION BASIN	MUIRFIELD AND ARIELLE	2	200	200
47922	COVINGTON DET BASIN	COVINGTON AND RUDOLPH	2	388	388
47923	CROSBY DET BASIN	CROSBY AND RUDOLPH	2	410	410
47924	SYCAMORE PARK DB	400' EAST OF CROSBY	2	345	345
47925	ERRINGER DET BASIN	SE OF COVINGTON	2	690	536

Zone 3 Flood Control Facilities

			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
48025	POTRERO CREEK	LAKE ELEANOR CRK - POTRERO RD	2	2,840	**
45143	CAMARILLO HILLS DN	LAS POSAS RD - HWY 101	3	1,680	
45145	CAMARILLO HILLS DN	E ON PONDEROSA DR - MOBIL AV	3	6,430	
45148	CAMARILLO HILLS DN	ARNEILL DN - LAS POSAS RD	3	3,110	
45161	EDGEMORE DRAIN	CAM HILLS DN - LAS POSAS RD	3	2,750	
45171	W CAMARILLO HILLS DN	PONDEROSA DR - LAS POSAS RD	3	3,400	
45181	MISSION DRAIN	PONDEROSA RD - LAS POSAS RD	3	3,780	
45183	MISSION DRAIN	N SIDE OF LAS POSAS RD	3	1,280	
45191	PONDEROSA DRAIN	MOBIL AVE - ARNEILL RD	3	1,520	
45192	PONDEROSA DRAIN	ARNEILL RD U/S (747*)	3	783	
45293	SANTA CLARA AVE DN	MESA SCHOOL THRU LA VISTA	3	1,360	
45431	LEWIS ROAD DRAIN	CALLEGUAS CRK - LEWIS RD	3	2,500	
45432	LEWIS ROAD DRAIN	LEWIS RD - PLEASANT VALLEY R	3	4,000	
45452	SOMIS DRAIN	S END OF SHARON TO LEWIS	3	147	
45453	SOMIS DRAIN	LEWIS RD - PONDEROSA DRIVE	3	2,990	
45454	SOMIS DRAIN	PONDEROSA DR - LAS POSAS RD	3	2,400	
45522	COYOTE CANYON	HWY 118 - DEBRIS BASIN	3	242	
45531	PUERTA ZUELLA BARRANCA	COYOTE CANYON - DEBRIS BASIN	3	400	
45701	EDGEMORETRIB SEC SR1	W OF GETMAN ST - EUCLID E	3	852	
46133	NEWBURY PARK SD NO.2	JENNY DR - HIGH SCHOOL	3	150	
46165	A CONEJO NO FORK	KEATS AVE - MOORPARK RD (852*)	3	4,178	
46232	THOUSAND OAKS NORTH	WILBER RD - MOORPARK FRWY	3	1,800	
46800	JENNY DR SEC #74	S OF HENRY DR - N OF CARL ST	3	952	
46801	CONEJO VALLEY SEC#65	REINO RD - U/S KNOLLWOOD RD	3	1,310	
46905	SO BR ARROYO CNJO DB	W SIDE REINO RD U/S KIMBER	3	545	
47014	ARROYO SIMI	SPRING ST - S.P.R.R.	3	3,450	
47033	ARROYO SIMI	LINED SECTION	3	1,360	
47035	ARROYO SIMI	LINED SECTION - R.R.	3	2,450	
47039	ARROYO SIMI	KATHERINE BLVD U/S	3	4,180	
47102	GABBERT CANYON	LA AVE - WALNUT CYN CHANNEL	3	1,370	
47103	GABBERT CANYON	WALNUT CYN CHNL - DEBRIS BAS	3	2,980	
47112	WALNUT CANYON	R R - MOORPARK SD#1	3	6,590	
47123	PEACH HILL WASH	HOME AC - PEACH HILL RD (385*)	3	1,620	
47321	SYCAMORE CANYON	ARR SIMI - TIERRA REJADA RD	3	1,880	
47322	SYCAMORE CANYON	TIERRA REJADA RD - BONITA DR	3	3,440	
47325	SYCAMORE CANYON	BONITA DR - D/S END OF GOLF COURSE	3	360	
47361	BUS CANYON TRIB	BUS CYN - 4TH ST (BOX)	3	450	
47362	BUS CANYON TRIB	4TH ST - 1ST ST	3	1,290	
47363	BUS CANYON TRIB	1ST ST- ARCANE ST	3	1,240	
47371	ERRINGER ROAD DRAIN	ARROYO SIMI - ROYAL AVE	3	985	
47373	ERRINGER ROAD DRAIN	ROYAL AVE - FITZGERALD RD	3	2,420	
47382	DRY CANYON	LA AVE - DRY CYN LATERAL	3	894	
47384	DRY CANYON	COCHRAN ST- ALAMO ST	3	4,304	
47389	DRY CYN W FORK	DRY CYN U/S - ERRINGER RD	3	422	
47422	TAPO CANYON	LA AVE - COCHRAN ST	3	3,460	
47423	TAPO CANYON	COCHRAN ST - AVENIDA SIMI	3	5,540	
47501	SANTA SUSANA WEST DN	ARROYO SIMI - COCHRAN ST	3	4,310	
47502	SANTA SUSANA WEST DN	COCHRAN ST - ALAMO ST	3	3,380	
47503	SANTA SUSANA WEST DN	ALAMO ST - TAPO ST	3	1,740	
47511	LAS LLAJAS CANYON	ARROYO SIMI - LA AVE	3	750	

Zone 3 Flood Control Facilities

			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
47513	LAS LLAJAS CANYON	COCHRAN ST - ALAMO ST	3	1,170	
47750	BLACK CANYON SECONDARY	KATHERINE RD & SYLVAN DRIVE	3	1,410	
47760	SANTA SUSANA KNOLLS SECONDARY	BLACK CANYON RD - KATHERINE ST - R R	3	950	
49078	KATHERINE STREET SECONDARY #1	KATHERINE - S P R R @ ELBERTA AVE	3	60	
49080	KATHERINE STREET SECONDARY #2	KATHERINE - S P R R @ SABINA CIRCLE	3	60	
49081	KATHERINE STREET SECONDARY #3	KATHERINE - S P R R @ EUNICE ST	3	60	
45009	ADOLFO STOCK/STORE Y	CAMARILLO	4	1,200	
45029	CALLEGUAS CREEK	850' U/S CAMARILLO RD - CONEJO CRK	4	2,420	
45163	EDGEMORE DRAIN	LAS POSAS RD - BASIN	4	2,430	
45173	W CAMARILLO HILLS DN	LAS POSAS RD - JUNCTION	4	3,100	
45175	W CAMARILLO HILLS DN	WEST BRANCH - DEBRIS BASIN	4	720	
45211	ANACAPA DRAIN	CAMARILLO HILLS DRAIN - LAS POSAS RD	4	120	
45224	LAS POSAS ESTATES DN	RAMONA DRAIN - AVOCADO PL	4	1,070	
45225	LAS POSAS ESTATES DN	AVOCADO PL - LAS POSAS DB	4	960	
45231	N RAMONA PLACE DRAIN	LAS POSAS ESTATES DRAIN TO DB	4	1,860	
45252	HONDA BARRANCA	CENTER SCHOOL RD - HWY 118	4	200	
45271	ARROYO COLORADO	HONDA BARRANCA - LA LOMA	4	100	
45433	LEWIS ROAD DRAIN	PLEASANT VLY RD - 3M DRIVE (1631*)	4	1,009	
45461	SOMIS DRAIN WEST TRIBUTARY	LAS POSAS RD U/S (679*)	4	1,551	
46014	CONEJO CREEK	SANITATION PLNT - HWY 101	4	5,560	
46031	EAST CAMARILLO DRAIN	CONEJO CREEK - ADOLFO RD (2085*)	4	915	
46037	EAST CAMARILLO DRAIN	ADOLFO RD U/S	4	821	
46042	MISSION OAKS DRAIN	SANTA ROSA RD - MISSION BLVD	4	110	
46077	ARROYO SANTA ROSA	VISTA GRANDE - MOORPARK RD	4	11,400	
46103	ARROYO CONEJO	ARROYO CONEJO S BRN - HILLCREST (304*)	4	176	
46111	SO BRCH ARROYO CONEJO	ARROYO CONEJO - VENTU PARK RD	4	2,570	
46112	SO BRCH ARROYO CONEJO	VENTU PARK RD - BORCHARD RD	4	3,490	
46114	SO BRCH ARROYO CONEJO	WENDY DR - REINO RD	4	2,812	
46115	SO BRCH ARROYO CONEJO	REINO RD - KIMBER DR	4	3,090	
46118	SO BRCH ARROYO CONEJO	LYNN RD - REINO RD (SOUTH)	4	868	
46131	NEWBURY PARK SD NO.2	S BN ARROYO CONEJO - JENNY DR	4	1,120	
46141	NEWBURY PARK SD NO.1	S BRN ARROYO CONEJO - MICHAEL DR	4	257	
46142	NEWBURY PARK SD NO.1	MICHAEL DR - THERESA DR	4	1,250	
46143	NEWBURY PARK SD NO.1	THERESA DR - BORCHARD RD	4	106	
46161	A CONEJO N FORK	ARROYO CONEJO - LYNN RD	4	325	
46164	A CONEJO N FORK	LYNN RD - KEATS AVE (656*)	4	904	
46167	A CONEJO N FORK	MOORPARK RD - HWY 33	4	6,290	
46171	A CONEJO N FORK TRIB	A CONEJO NF - CAL MADRESELVA	4	370	
46172	A CONEJO N FORK TRIB	CALLE MADRESELVA - HWY 33	4	1,150	
46181	CASTANO CHANNEL	A CONEJ NF - A D LOS ARBOLES	4	1,640	
46182	CASTANO CHANNEL	A D L ARBOLES - CAL ALMENDRO	4	486	
46183	CASTANO CHANNEL	C ALMENDRO - POTTER AVE (714*)	4	986	
46191	CASTANO TRIB	CASTANO CHANNEL - C DAMASCO	4	864	
46192	CASTANO TRIB	CAL DAMASCO - UPPINGHAM DR	4	1,720	
46202	WAVERLY CHANNEL	LYNN RD - YOUNG AVE	4	2,140	
46203	WAVERLY CHANNEL	YOUNG AVE - MOORPARK RD N	4	3,520	
46223	LANG CREEK	WILBER RD - GAINSBOROUGH (201*)	4	1,099	
46224	LANG CREEK	GAINSBOROUGH RD - HWY 23	4	4,620	
46226	LANG CREEK	LOW EL MONTE DR - MARVIEW DR	4	2,360	
46235	THOUSAND OAKS NORTH	RANCHO RD U/S	4	1,410	

Zone 3 Flood Control Facilities

			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
46702	BLANCHARD RD SECONDY	ARR STA ROSA/BLANCHARD RD	4	2,830	
46703	DUVAL RD DN SEC #2	A STA ROSA U/S @ DUVAL RD (1308*)	4	522	
46706	E LAS POSAS RD E SEC SR9	E LAS POSAS RD NORTH	4	588	
46712	E PRADERA RD SECONDARY SR8	U/S END PRADERA RD - SANTA ROSA (534*)	4	520	
46740	CALLE SALTO SECONDARY #89	SOUTH END NORTH CALLE SALTO	4	169	
46748	CALLE PECOS SECONDARY #97	CALLE PECOS NORTH, W OF CL YUCCA (182*)	4	19	
46749	LYNN RANCH SEC #98	S OF C DOS RIOS - S OFCPECOS	4	1,700	
46751	FLORES/CORTA SEC #102	BETWEEN C CORTA & C FLORES	4	422	
46752	C DOS RIOS SEC #104	C DOS RIOS & C YUCCA (736*)	4	188	
46763	HENDRIX AVE SECONDARY	JANSS RD & HENDRIX AVE (152*)	4	152	
47005	MOORPARK MAINT YARD	7150 WALNUT CANYON RD	4	464	
47012	ARROYO SIMI	GABBERT CYN - BEL TRAMO RD	4	5,960	
47013	ARROYO SIMI	BEL TRAMO RD - SPRING ST	4	7,640	
47021	ARROYO SIMI	SYCAMORE CYN - MADERA BRI	4	2,260	
47022	ARROYO SIMI	MADERA BRIDGE - L.A. AVE	4	5,420	
47024	ARROYO SIMI	L.A. AVE - ERRINGER RD	4	6,180	
47025	ARROYO SIMI	ERRINGER RD - ROYAL AVE	4	7,950	
47027	ARROYO SIMI	ROYAL AVE - TAPO CYN RD	4	6,470	
47031	ARROYO SIMI	TAPO CYN RD - LINED SECTION	4	4,666	
47114	WALNUT CANYON	MOORPARK SD#1 - BOX SECTION	4	2,640	
47131	HOME ACRES DRAIN	PEACH HILL DRAIN - HITCH BLVD (BOX) (611*)	4	817	
47151	MOORPARK STORM DRAIN NO. 2	ARROYO SIMI - LOS ANGELES AVE (1131*)	4	49	
47161	CASTRO-WILLIAMS	ARROYO SIMI - DEBRIS BASIN	4	1,080	
47182	STRATHERN CANYON	LA AVE - EAST FORK JCT	4	1,930	
47184	STRATHERN CANYON	EAST FORK U/S	4	733	
47341	NORTH SIMI DRAIN	ARROYO SIMI - EASY ST	4	348	
47345	NORTH SIMI DRAIN	CALDWELL ST - HWY 118	4	1,116	
47364	BUS CANYON TRIB	ARCANE ST - FITZGERALD RD	4	1,980	
47375	ERRINGER ROAD DRAIN	FITZGERALD RD - DAM (1235*)	4	1,520	
47381	DRY CANYON	ARROYO SIMI - LA AVE	4	1,950	
47386	DRY CANYON	AVD SIMI -TAPO HILLS DIVERSN	4	608	
47402	RUNKLE CANYON	APPLETON RD DN - FITZGERALD	4	1,730	
47411	APPLETON ROAD DRAIN	RUNKLE CANYON U/S	4	1,240	
47421	TAPO CANYON	ARR SIMI - LA AVE	4	2,848	
47424	TAPO CANYON	AVENIDA SIMI - WALNUT ST	4	2,870	
47425	TAPO CANYON	WALNUT ST - 2000' NORTH	4	2,120	
47433	TAPO HILLS DIVERSION	RESERVOIR DR U/S	4	4,010	
47521	KADOTA FIG DRAIN	LAS LLAJAS CYN - EL PRADO DN	4	1,630	
47522	KADOTA FIG DRAIN	EL PRADO DN - WALNUT ST	4	1,910	
47523	KADOTA FIG DRAIN	KADOTA FIG DN - EL PRADO ST	4	405	
47531	MARR DIVERSION	LAS LLAJAS CYN - TEXAS AVE	4	1,560	
47532	MARR DIVERSION	TEXAS AVE - PRESIDIO DR	4	2,890	
47553	WHITE OAK CREEK	NELDA ST- COCHRAN ST	4	2,120	
47563	HUMMINGBIRD CREEK	KUEHNER DR - HWY 118	4	1,204	
47571	PIEDRA CANYON	ARR SIMI - R.R.	4	415	
47918	NO. 2 CANYON DEBRIS BASIN	U/S END OF BERAGAN ST	4	1,400	
49001	VISTA LARGO SECONDARY	END OF VISTA LARGO DRIVE	4	208	
49003	HACIENDA DRIVE SECONDARY	BETWEEN 1014 & 1022 HACIENDA DRIVE	4	176	
49004	CARMEL DRIVE SECONDARY	CARMEL DRIVE NORTH	4	155	
49005	CADIZ DRIVE SECONDARY (#5)	BETWEEN 1090 & 1110 CADIZ DR - SINALOA RD	4	200	

Zone 3 Flood Control Facilities

			Critical Facility Rating	Length LF	Anticoagulant Treatment LF
49059	FLOOD ST (SIMI SUB ZONE)	BEHIND 3259 - 3291 FAXTON CT	4	160	
49123	SYLVAN DR #123 (SIMI SUB ZONE)	BETWEEN 6291/6297 SYLVAN DR - R.R.	4	194	
45211	ANACAPA DRAIN	CAMARILLO HILLS DRAIN - LAS POSAS RD	5	120	
45053	ARROYO LAS POSAS	COYOTE CANYON - SAND CANYON	5	320	
45067	GROVES PLACE DRAIN	ARROYO LAS POSAS @ MILE 0.1, U/S	5	85	
45226	LAS POSAS EST DRN DV	BEARDSLEY - L POSAS EST DRN	5	2,552	
45241	BEARDSLEY WASH Z3	DROP STRUCTURE #2	5	100	
45243	BEARDSLEY WASH Z3	DROP STRUCTURE #3 @ BELLA VISTA	5	100	
45245	BEARDSLEY WASH Z3	DROP STRUCTURE #4 (D/S TRIPLE ARCH)	5	360	
45246	BEARDSLEY WASH Z3	DROP STRUCTURE #4	5	1,340	
45247	BEARDSLEY WASH Z3	CONNELLY TRIPLE ARCH	5	637	
45251	HONDA BARRANCA	MILLIGAN BARRANCA - CTR SCHOOL RD	5	1,050	
45255	HONDA BARRANCA	PRICE RD - HONDA BARRANCA E FORK	5	180	
45261	HONDA BARR	HONDA BARRANCA - LA LOMA AVE U/S	5	95	
45262	HONDA BARRANCA E FORK	LA LOMA AVE U/S	5	1,200	
45285	MILLIGAN BARRANCA	1ST STRUCTURE	5	400	
45286	MILLIGAN BARRANCA	2ND STRUCTURE U/S	5	400	
45301	FERRO DITCH	HWY 118 - DB	5	2,050	
45401	GUADALASTA TRIBUTARY	GUADALASCA DRAIN @ MILE 2.84	5	200	
45503	FOX BARRANCA	BASIN - HWY 118	5	175	
45505	FOX BARRANCA	HWY 118 - BERYLWOOD RD	5	1,219	
45567	LONG CANYON	LOWER STOCKTON RD - UPPER STOCKTON RD	5	300	
45913	GROVE PLACE DROP STRUCTURE	SOMIS	5	92	
46011	CONEJO CREEK	CALLEGUAS CRK - PANCHO RD	5	3,250	
46012	CONEJO CREEK	PANCHO RD - HOWARD RD	5	3,480	
46051	UPLAND ROAD DRAIN	CONEJO CRK - SANTA ROSA RD	5	1,400	
46071	ARROYO SANTA ROSA	CONEJO CREEK - HILL CANYON RD	5	1,100	
46072	ARROYO SANTA ROSA	HILL CYN RD - BLANCHARD ROAD DRAIN	5	3,243	
46073	ARROYO SANTA ROSA	BLANCHARD RD - A SANTA ROSA	5	306	
46086	ARROYO SANTA ROSA EAST TRIB	ARROYO SANTA ROSA @ MILE 1.1 U/S	5	520	
46225	LANG CREEK	HWY 23 - LOWER EL MONTE DR	5	260	
46701	ROTSLER DITCH SEC #5	STA ROSA RD - 2300' SO'LY	5	2,300	
46704	ROSE LANE DRAIN SECONDARY	A STA ROSA - STA ROSA RD	5	500	
46707	N REDONDO CIR SECONDARY SR11	ARROYO STA ROSA - N REDONDO CIR	5	515	
46708	N LOS PINOS CIR SECONDARY SR7	E LAS POSAS RD - N LOS PINOS CIR	5	532	
46756	CALLE LAS CASAS SECONDARY (#108)	CALLE LAS CASAS NORTH	5	264	
46757	CALLE ARROYO WEST SECONDARY (#109)	CALLE ARROYO WEST OF CALLE PECOS	5	362	
47015	ARROYO SIMI	S.P.R R - #2 CYN	5	815	
47016	ARROYO SIMI	#2 CYN - ALAMOS CYN	5	5,150	
47101	GABBERT CANYON	ARROYO SIMI - LA AVE	5	3,360	
47121	PEACH HILL WASH	ARR SIMI - HOME ACRES DRAIN	5	2,000	
47174	HAPPY CAMP CANYON	WESTWOOD ST - CAMPUS PARK	5	3,510	
47355	BUS CANYON	BENNETT ST U/S	5	200	
47387	DRY CANYON	TAPO HILLS DIVERSION U/S	5	392	
49006	CARMEL DRIVE S SECONDARY	CUL DE SAC CARMEL DR SOUTH	5	30	
			Total linear feet	540,774	
			and miles	102.4	

* underground

** This facility will only be treated with anticoagulant bait if other rodent control methods are ineffective.

The District is not currently treating this facility with anticoagulant bait.

Zone 4 Flood Control Facilities

Reach	Name	Description	Critical Facility Rating: CFR	Length LF: RL	Anticoagulant Treatment LF: LF
48901	BRIDGEGATE DEBRIS BASIN	U/S END OF BRIDGEGATE ST	2	109	109
48023	POTRERO CREEK	WESTLAKE BL - LAKE ELEANOR CRK	3	2,315	
48031	LAKE ELEANOR CREEK	POTRERO CRK - WESTLAKE BLVD	3	1,482	
48071	MEDEA CREEK	LA CO LINE - CONIFER ST	3	1,227	
48021	POTRERO CREEK IN CHANNEL DB	LAKE WESTLAKE - WESTLAKE BLVD	4	2,456	
48025	POTRERO CREEK	LAKE ELEANOR CRK - POTRERO RD	4	2,436	
48072	MEDEA CREEK	CONIFER ST - OAK HILLS DR	4	349	
48902	WESTLAKE DB	WESTLAKE	5	300	
		Total linear feet		10,674	
		and miles		2.0	

The District is not currently treating this facility with anticoagulant bait.

Appendix B
Rodent Control and Vegetation Control Flowcharts

IPMP Rodent Control Flowchart

Inspection

Inspection by IPMP staff (O&M or Contractors)

Observe
Burrows & holes
Squirrels, gophers
Animal carcasses
Adjacent food sources
Vandalism
Amount of bait consumed

Drive by inspection by O&M staff performing other duties

Observe
Burrows & holes
Squirrels, gophers
Animal carcasses

Evaluation & Selection of Treatment Method

Are animals present?

Squirrels

Is site a dam or levee?

hand broadcast clean bait and flag area

Are there more than 3 active burrows?

Small area

Large area

Install clean bait in bait stations every 200' of infestation

Gophers

Fill hole and smooth surface. Recheck in one week for disturbance or activity at rocks.

Application of Rodenticide

Was clean bait consumed in 24 hrs?

Not a levee/dam

Hand broadcast Zinc phosphide (semiannually), *

Levee/dam small area

Hand broadcast Zinc phosphide (semiannually) or 0.01% Diphacinone bait*

Levee/dam large area

Add 0.005% Diphacinone bait to bait stations*

Remove unconsumed clean bait

Remove bait when treatment is complete when infestation is no longer a problem

Fumigate with Aluminum phosphide or Carbon monoxide*

Continue weekly Inspection of infestation area

Reporting

Prepare Reach Report
Date, time, weather conditions
# of burrows/holes (type)
Number of colonies/animals
Public contacts
ALL OBSERVATIONS

Submit report to IPMP Coordinator to review recommendations, add evaluation and selection

Send monthly report to Agricultural Commissioner & CA Department of Pesticide Regulation

*Alternative Methods
Trapping
Place raptor boxes
Modify habitat
Contraception
Frightening
Repellents
Shooting
New toxic baits
Grout injection

Yes
No

IPMP Vegetation Control Flowchart

Inspection

Inspection of vegetation in flood control facilities

Does vegetation impede access, prevent inspection, or hinder flow?

Is plant invasive?

No action

Refer to management for further consideratoin

Evaluation of Treatment Method

Is 1/4" rain projected within 24 hrs ?

No action

Is site drivable?

Is site > 2 miles long?

Select large boom spray truck

Select small boom spray truck

Is length > 200' long?

Select small truck w/hose spray nozzle

Select backpack sprayers

Is wind direction off site, > 8 mph, or are people present?

No action

Is treatment area aquatic?

Is treatment area terrestrial?

Is treatment period between Oct and April?

No action

Application of Pesticides

Apply Aquatic approved Glyphosate herbicide (53.8) diluted to 1% as per label

Apply Glyphosate herbicide (50.2) diluted to 1% per label

Apply annual pre-emergent herbicide in early rain season

Mow excess vegetation

Reporting

Record daily in Maintstar and field log

- reach
- type
- vehicle
- quantity
- weather
- wind direction & speed
- method

ALL OBSERVATIONS

Send monthly report to Agrcultural Commissioner & CA Department Pesticide Regulation Quantities & NOI

Submit annual aquatic pesticide use report to RWQCB

Yes

No

Appendix C
IPMP Monthly Inspection Summary/Report

IPMP Monthly Inspection Summary/Report for Zone 3

Facility Name: **So. Branch Arroyo Conejo**

Location: Borchard Rd to Wendy Dr

Number: 46113 Type: Levee

Month of

General description of site:

Zinc P. applied: 6/2014

Wildlife Species (3): Coastal California Gnatcatcher, California Least Tern, California Red-Legged Frog, Least Bell's Vireo, Western Snowy Plover, Southwestern Willow Flycatcher, Tidewater Goby

Tech	Visit Date/Time	No. of Bait Stations	Bait Code	Bait Consumed (1)	Bait Applied (1)	Comments and Evaluation (2)
Week 1						
Week 2						
Week 3						
Week 4						
Monthly Evaluation Summary and Recommendations						

Notes

(1) Note amount of bait consumed since previous visit and the amount placed at current visit

(2) Note any carcass found, rodent activity on site or on adjacent properties, vandalism, general conditions, rodent food sources

(3) Circle endangered wildlife species observed during visit

D1 - Diphacinone for bait stations (0.005% concentration)

D2 - Diphacinone for broadcast (0.01% concentration)

Z3 - Zinc Phosphide

A4 - Aluminum Phosphide (fumigation -moist soil)

C - Untreated crimped oat groats (for bait acceptance trial)

IPMP Supplemental Inspection Summary for Multiple Bait Stations

Facility Name: Visit Date/Time:

Number:

Station No.	Bait Code	Bait Consumed	Bait Applied	Station No.	Bait Code	Bait Consumed	Bait Applied	Station No.	Bait Code	Bait Consumed	Bait Applied

General observations or notes:

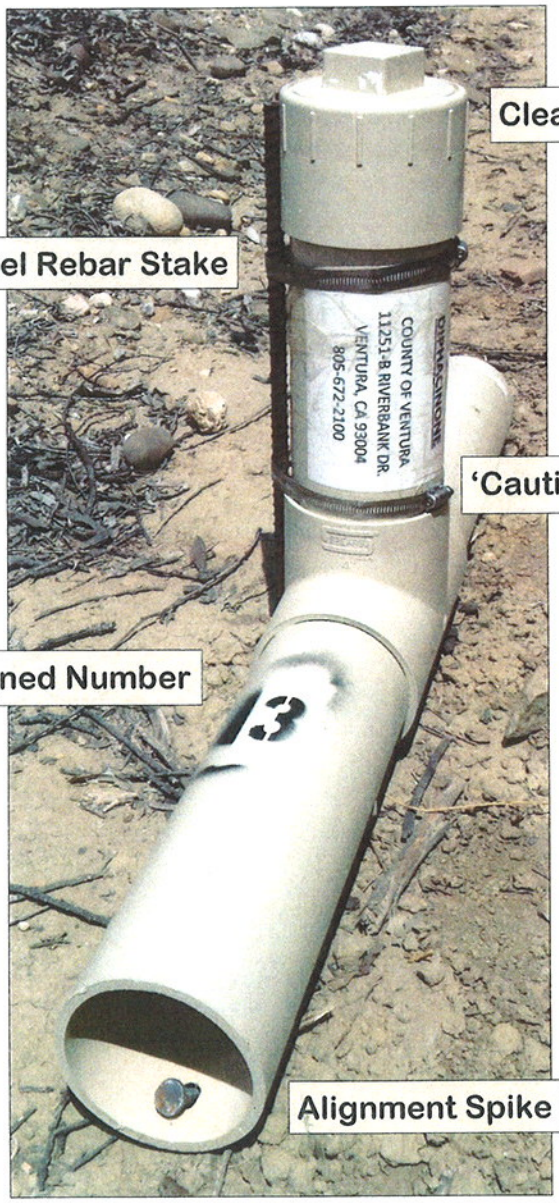
Notes

(1) Note amount of bait consumed since previous visit and the amount placed at current visit

(2) Note any carcass found, rodent activity on site & on adjacent properties, vandalizim, general conditions, rodent food sources

Appendix D

Bait Station Design Details



Clean Out Top

Steel Rebar Stake

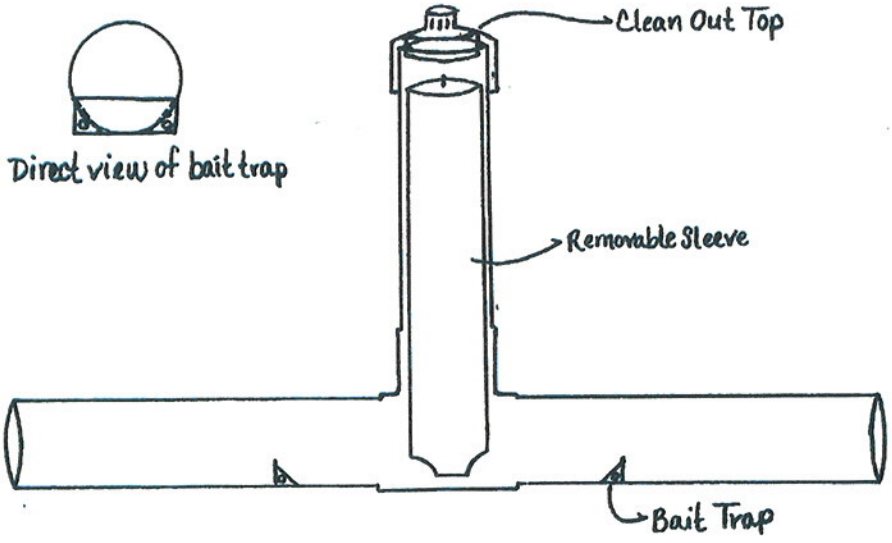
'Caution' - Agency Label

Assigned Number

Alignment Spike

Painted 4" PVC
Height: 18''
Length: 36''

Future Improvements to station will include barcode



Appendix E

Proposed Vegetation Treatment Schedule

January/February

Zone 1	***Creeks/Channels*** – Fresno Canyon, Happy Valley, Howard Ave., Mirror Lake, Parkview, Skyline, Stewart, Thacher, Ventura ***Basins*** – Stewart
Zone 2	***Creeks/Channels*** – Arundell, Bardsdale, Barlow, Basolo, Beardsley, Brown, Cavin Rd., Clark, El Rio, N. El Rio, Franklin, Grimes Canyon, Harmon, Los Angeles Ave., Moon, Nyeland, Nyeland Lateral A, Pleasant Valley Rd., Pole, Rice Rd., Santa Clara, Santa Clara Ave., Santa Paula, Saticoy, Saticoy Storage, Sespe, Stroube, Sudden, Warring S., Wason ***Basins*** – Arundell, Cavin Rd.
Zone 3	***Creeks/Channels*** – Arneill, Arroyo Santa Rosa, Blanchard Rd., Conejo, Camarillo Hills, Duval Rd., Medea, Potrero, Ponderosa, Rostler Ditch 5 ***Basins*** – Number 2 Canyon, Coyote, W. Camarillo Hills W., Little Simi "Line C"

March/April

Zone 1	***Creeks/Channels*** – Canada De S. Joaquin, Canada Larga, Fox Canyon, Fresno Canyon, Happy Valley, Live Oak, McDonald, McDonald Canyon, Mirror Lake, Parkview, San Jon, Stewart Canyon, Ventura (Bank Protection), Ventura ***Basins*** – Dent, Stewart
Zone 2	***Creeks/Channels*** – Arundell, Bardsdale, Barlow, Beardsley, Brown, Clark, El Rio, Fagan, Franklin, Grimes Canyon, Harmon, Hueneme, Jepson, Keefe, Los Angeles Ave., Mills, Moon, Nyeland, Oxnard Industrial, Oxnard W., Pole, Real, Reservoir, Rice Rd., Santa Clara, Santa Clara Ave., Saticoy, Saticoy Maintenance Yard, Saticoy Storage, Sespe, Sudden, Telephone Rd., Warring, Warring S., Wason, W. Wooley Rd. ***Basins*** – Adams, Arundell, Fagan, Real, Warring
Zone 3	***Creeks/Channels*** – Arroyo Colorado, Arroyo Conejo, Arroyo Conejo S. Branch, Arroyo Conejo N. Fork, Arroyo Simi, Camarillo Hills, Castano, Kadota Fig, Lang, Las Llajas Canyon, Las Posas Estates, Milligan, Medea, Moorpark Maintenance Yard, N. Simi, Tapo Hills, Thousand Oaks N., Upland Rd., Waverly ***Basins*** – Bridgegate, Coyote, Fox, Honda West, Lang, Las Llajas Canyon, Las Posas Estates, N. Simi, Ramona, Runkle Canyon, Tapo Hills Basins 1-2, Sycamore Canyon, Walnut Canyon

May/June

Zone 1	***Creeks/Channels*** – Happy Valley, Live Oak, McDonald Canyon, McDonald, Mirror Lake, Stewart Canyon, Ventura ***Basins*** – Dent, Live Oak, Matilija
Zone 2	***Creeks/Channels*** – Beardsley, Brown, Camarillo Hills, Cavin Rd., Central Ave., Doris Ave., El Rio, N. El Rio, Franklin, Grimes Canyon, Harmon, Hueneme, J St., Los Angeles Ave., Montalvo Golf Course, Moon, Nyeland, Nyeland Lateral A, Peck Rd., Pole, Real, Revolon, Rice Rd., Santa Clara, Santa Clara Ave., Saticoy, Sudden, Warring, Warring S. ***Basins*** – Arundell, Warring
Zone 3	***Creeks/Channels*** – Adolfo Storage, Arroyo Conejo N., Arroyo Conejo S., Arroyo Santa Rosa, Arroyo Santa Rosa, Arroyo Simi, Beardsley Wash, Blanchard Rd., Calleguas, Camarillo Hills, Camrosa, Conejo, E. Camarillo, Duval Rd, Flores/Corta #102, Honda, Lynn Ranch #98, Mission Oaks, Newbury Park, Runkle Storage, Storm Drains 1-2, Olsen, Upland Road, Walnut Canyon, Waverly ***Basins*** – W. Camarillo Hills W. Branch, Canyon No. 2, Coyote, Ferro, Fox, Las Posas Estates, Little Simi "Line C", Portrero West, Ramona, Santa Rosa Rd. Basin 2

July/August

Zone 1	***Creeks/Channels*** – Canada De S. Joaquin, Canada Larga, Howard Ave., Live Oak, McDonald, McDonald Canyon, Mirror Lake, Prince, Ventura ***Basins*** – Dent, Matilija, Stewart
Zone 2	***Creeks/Channels*** – Arundell, Bardsdale, Barlow, Beardsley, Brown, Doris Ave., Fagan, Franklin, Grimes Canyon, Harmon, Keefe, Los Angeles Ave., Ondulando, Real, Reservoir, Revelon, Rice Rd., Santa Clara, Santa Clara Ave., Saticoy, Saticoy Maintenance Yard, Sespe, Sudden, Warring, Warring S., Wason, Willard, W. Wooley Rd. ***Basins*** – Adams, Arundell, Fagan, Jepson, Real
Zone 3	***Creeks/Channels*** –Arroyo Santa Rosa, Arroyo Simi, Blanchard Rd, Calleguas, Camarillo Hills, No. 2 Canyon, Conejo, Jenny Drive 74, , Lynn Ranch 98, Potrero, Revolon, Tapo Hills ***Basins*** – Conejo Mountain Creek Basin 1, Erringer Rd, Las Llajas Canyon, Sycamore Canyon, Tapo Hills Basins 1-2

September/October

Zone 1	***Creeks/Channels*** – Cozy, McDonald Canyon, Stewart ***Basins*** – Stewart
Zone 2	***Creeks/Channels*** – Arundell, Bardsdale, Barlow, Basolo, Beardsley, Brown, Camarillo Hills, Cavin Rd., Central Ave., Doris Ave., El Rio, Fagan, Franklin, Harmon, Moon, Nyeland, Nyeland lateral A, Oxnard Industrial, Real, Reservoir, Santa Clara, Santa Clara Ave., Saticoy, Saticoy Maintenance Yard, Saticoy Storage, Sespe, Stroube, Ventura, Warring, Warring S., Wason ***Basins*** – Adams, Jepson, Warring
Zone 3	***Creeks/Channels*** – Arroyo Colorado, Arroyo Conejo N. Fork, Arroyo Conejo S. Branch, Arroyo Las Posas, Arroyo Santa Rosa, Arroyo Simi, Bus Canyon, Calleguas, Camarillo Hills, Castano, Conejo, Dry Canyon, Dry Canyon E., Gabbert Canyon, S. Grimes Canyon, Groves Place, Honda, Kadota Fig, Lang, Las Llajas Canyon, Medea, Marr, Milligan, Newbury Park, N. Simi, Oak Canyon, Olsen, Revolon, Santa Clara Ave., Santa Rosa, Tapo Canyon, Upland Rd, Waverly, White Oak ***Basins*** – Conejo Mtn. Creek Basins 2-5, Honda W., Lang, Potrero Rd, Puerta Zuella, Santa Rosa Basin 2, Little Simi 'Line C', N. Simi, Sycamore Canyon Dam

November/December

Zone 1	***Creeks/Channels*** – Canada De S. Joaquin, Happy Valley, Howard Ave., Mirror Lake, Prince, San Jon, Ventura ***Basins*** – Dent, Matilija
Zone 2	***Creeks/Channels*** – Arundell, Bardsdale, Barlow, Basolo, Beardsley, Camarillo Hills, Clark, Doris Ave., Fagan, Franklin, Grimes Canyon, Harmon, J St., Jepson, Keefe, Pole, Real, Revolon, Rice Rd., Santa Clara, Saticoy, Sespe, Stroube, Sudden, Ventura, Warring, Warring S., Willard Rd, W. Wooley Rd. ***Basins*** – Arundell, Fagan
Zone 3	***Creeks/Channels*** – Arroyo Conejo N. Fork, Conejo, Happy Camp Canyon, Lang, Peach Hill ***Basins*** – Lang Creek

Appendix F

References

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