Santa Barbara County
Flood Control and Water Conservation District

Final Updated Debris Basin Maintenance and Removal Plan

June 2017

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CONSTRUCTION PLANS

1.0 Introduction

The Santa Barbara County Flood Control and Water Conservation District (District) prepared Debris Basin Maintenance Plans in 1996 and 2003 that describe maintenance of the District's 17 debris basins along the south coast of Santa Barbara County. In 2016 the District completed a consultation process with the Army Corps of Engineers (ACOE) and the National Marine Fisheries Service (NMFS) for the Southern California Distinct Population Segment for steelhead (*O. mykiss*). The resulting Biological Opinion requires the District to "implement a flood control maintenance plan that requires establishing and preserving essential processes that maintain features of critical habitat for endangered steelhead within the action area."

The Biological Opinion requires the District to remove or modify five Debris Basins (Referred to as Group 1 Basins) within the ensuing 10-year period (2016-2026) associated with the ACOE Standard Individual Permit that regulates the District's Debris Basin Maintenance and Removals. This Debris Basin Maintenance and Removal Plan (DBMRP) is an Addendum to the 2001 Program Environmental Impact Report for the Updated Routine Maintenance Program (PEIR), updates the 2003 Debris Basin Maintenance Plan (which was also an Addendum to the PEIR), and incorporates designs and project plans to remove five debris basins.

It is the District's intent that this plan will serve as the environmental review and public disclosure document for routine maintenance and basin modifications or removals.

Group 1 Debris Basins: Scheduled for Removal within the next 10 years

- Maria Ygnacio, Main Branch
- Maria Ygnacio, East Branch
- Rattlesnake
- San Ysidro
- Cold Springs

In addition to the five Group 1 basins, the District maintains 12 additional debris basins along the south coast of Santa Barbara County.

Debris Basins that are not included in Group 1 are as follows:

- Arroyo Paredon
- Franklin
- Gobernador
- Mission
- Montecito
- Romero
- San Antonio
- San Roque
- Santa Monica
- Toro, East
- Toro, Lower West
- Toro, Upper West

Even though these 12 basins will be maintained the same, they are further divided into two groups as described below. The debris basins are located in the foothills of the Santa Ynez Mountains upstream of the more developed urban areas. With the exception of two debris

basins (Montecito Debris Basin and Santa Monica Debris Basin), the basins were constructed after severe fires in the watersheds to collect excessive debris typically generated by burned watersheds during winter rains. Santa Monica Debris Basin was built as part of the Carpinteria Valley Watershed Project and Montecito Debris Basin was constructed to collect debris and sediment after severe flooding events in 1995 and 1998. All of the basins have been very effective at retaining excessive debris, including rocks, sediment and organic material generated by heavy rains.

Routine maintenance has occurred under a 1996 Debris Basin Maintenance Plan and more recently under the 2003 Debris Basin Maintenance Plan. Routine maintenance, as described below, allows retention of high quality habitat within each of the basins between desilting events. The District has designed this maintenance program to retain the maximum amount of debris possible while allowing riparian habitat to become established. Routine maintenance typically occurs between the months of August and November during the driest months of the year to avoid the rainy season and breeding seasons for birds and other wildlife. Figures 1.1 and 1.2 show the location of the 17 debris basins.

Map Source: County of Santa Barbara

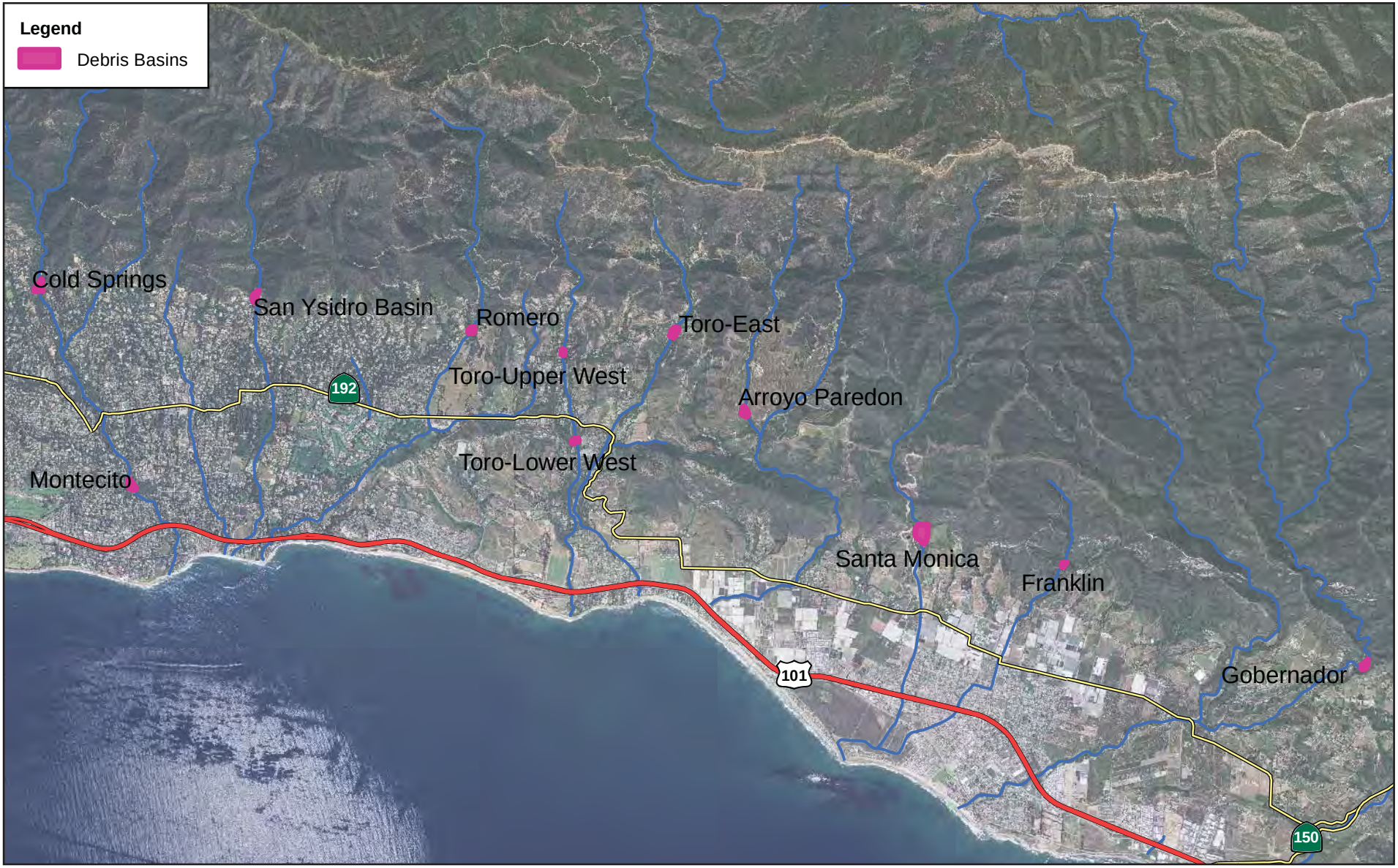

FIGURE 1.1
Debris Basin Overview – East

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Map Source: County of Santa Barbara

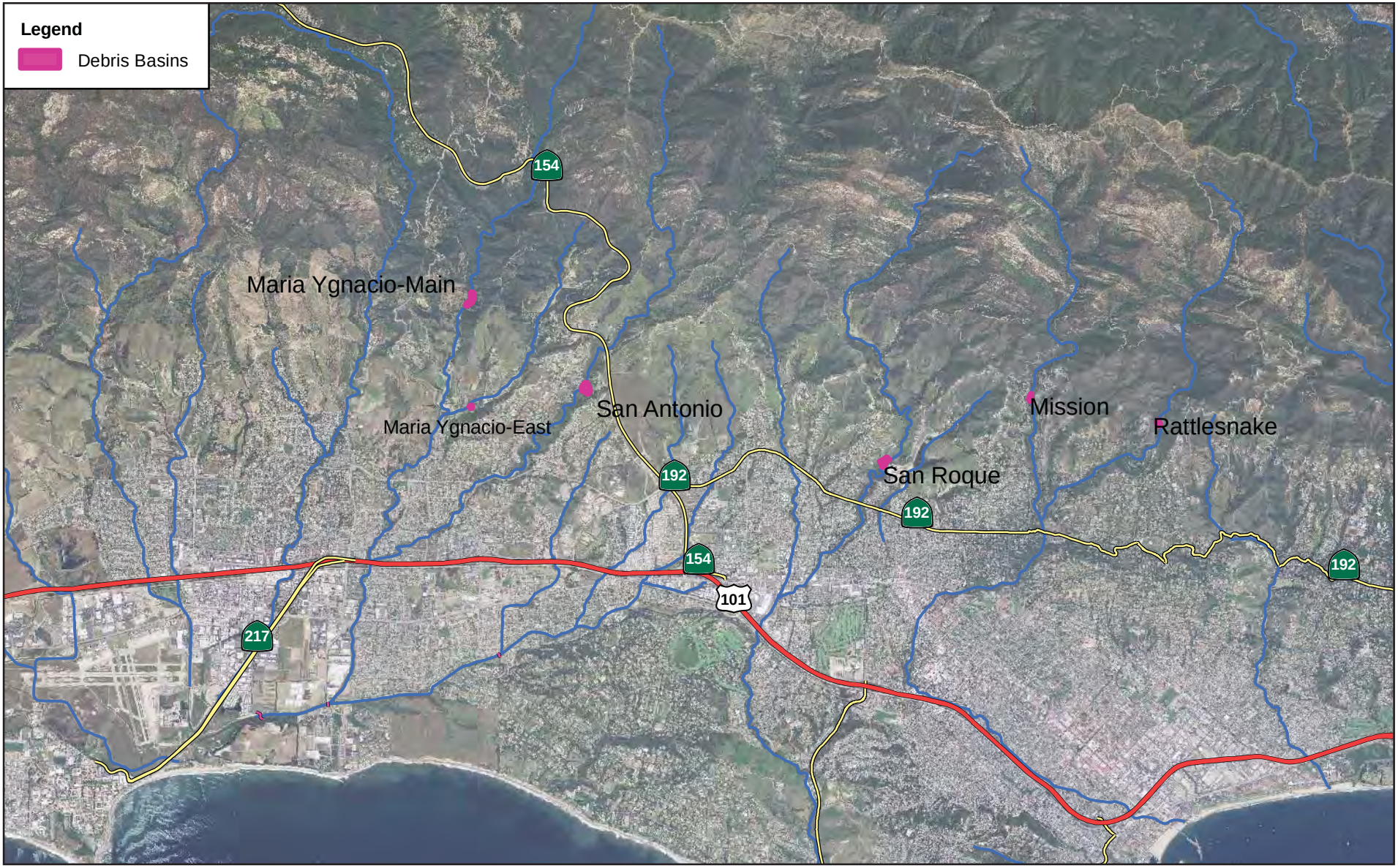

FIGURE 1.2
Debris Basin Overview – West

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2.0 Debris Basin Maintenance

In light of the schedule for removal of the Group 1 basins within the next 10 years, these basins' routine maintenance will be designed differently than the other 12 basins as described below.

2.1 Maintenance Approach for Group 1 Basins

The District surveyed most of the debris basins in 2005 to obtain updated capacity information. The current capacities are a result of the 2005 surveys. The interim maintenance approach for the five Group 1 basins is to continue to encourage sediment movement through the debris basins by maintaining a 15-foot-wide pilot channel, clear outlet structure, and other specific vegetation clear areas, however since the basins are scheduled for removal, if sediment accumulates rapidly within the basin and the outlet structure cannot be kept open, the sediment will not be mechanically removed. Accumulated sediment in Maria Ygnacio, Main Branch Basin, Rattlesnake Basin, San Ysidro Basin and Cold Springs Basin will be utilized in the removal and restoration projects. The removal of Maria Ygnacio, East Branch Basin is different than the others and will not utilize sediment accumulated in the basin for the proposed removal project.

The interim maintenance for each Group 1 Debris Basin is described in each basin's Addendum. This maintenance approach encourages sediment movement, as feasible, and also allows all accumulated sediment to remain in the system and become potential input during future storm events once the basin is removed and the stream channel is restored. If basins completely fill prior to their removal, flows will then deliver sediment over the dam embankment naturally rather than it being captured in the already full basin.

2.1.1 Proposed Schedule for Group 1 Debris Basin Removals

Debris Basin	Proposed Method of Modification	Schedule
Maria Ygnacio, Main Branch	Removal	Fall 2017
Maria Ygnacio, East Branch	Removal	Fall 2018
Rattlesnake	Removal	Fall 2018
San Ysidro	Removal	Fall 2019
Cold Springs	Removal	Fall 2025

2.2 Maintenance Approach for Non-Group 1 Basins

Group 2 basins are identified in the NMFS Biological Opinion as basins that the District will provide preliminary removal or modification plans for to the NMFS in 2022. These basins are not required to be removed or modified within the next 10 years, however the District can pursue projects on these basins if desired. There are no current plans for basin removal or modification for Group 2 basins.

Of the remaining seven basins, two have been modified to be fish passable and the remaining five basins are not on steelhead streams and there are no plans for modification or removal.

Group 2 Basins

- Arroyo Paredon
- Mission
- Romero
- San Antonio
- San Roque

Other Basins

- Franklin
- Gobernador
- Montecito
- Santa Monica
- Toro, East
- Toro, Upper West
- Toro, Lower West

2.2.1 Routine Maintenance

Routine maintenance includes keeping the outlet works and other specific areas clear of obstructive vegetation in order to minimize plugging. Maintenance of the outlet works will ensure that the basins pass all low and moderate flows so that the basins don't incrementally fill in, reducing their effectiveness when they are needed. A 15-foot-wide pilot channel will be created using heavy equipment and maintained in each basin. The pilot channel will extend from the upstream end of the basin to the outlet structure where it will increase in width to 30 feet. Material dislodged during the pilot channel establishment will be windrowed along the sides to help contain the flows within the pilot channel. Pilot channel establishment and the windrowed material will affect an area approximately 30 feet wide except immediately upstream of the outlet structure where the pilot channel and windrowed material will affect an area approximately 45 feet wide. The pilot channel will be maintained using hand tools unless flows eliminate the channel and it must be reestablished using equipment. The dam face and a 10-foot swath adjacent to the toe of the dam will be kept clear of vegetation. Vegetation management will be done with hand tools and occasional herbicide to the maximum extent feasible. Maintaining these clear areas within the basins allows the District to determine basin capacity, reduce the amount of rodent activity on the dam embankment and provide for efficient sediment transport through the basins, again to discourage incremental filling. Maintaining a specific area in each basin will allow the area outside the maintenance areas to remain colonized with native vegetation between complete desilting events.

Routine maintenance may also include minor repairs to the grouted rock dam embankments and outlet pipe that occasionally experience erosion and need to be fixed in

order to protect the structure from further erosion or failure. This type of maintenance has rarely occurred over the history of this maintenance program. Minor repairs could include addition of concrete or rock to fill in erosion holes, repair or replacement of a damaged outlet pipe, or repair of damaged rocks/concrete from debris impacts on the dam embankment. Repairs to any dam embankments will not enlarge the structure.

Prior to the 1996 commencement of the Debris Basin Maintenance Program, all vegetation within each debris basin was removed on an annual basis. Since 1996, the program allows habitat to develop within the basins while ensuring that they function properly when needed. Although the basic maintenance strategies are the same for all basins, specific actions will be described for each basin in Sections 4.0 and 5.0. After heavy rains, the basins will be inspected and organic debris that could plug the outlet works will be removed. It is the District's intent to conduct routine maintenance of the pilot channels, outlet works and dam face on an annual basis although it will periodically be necessary to conduct long-term maintenance which requires the removal of debris and sediment from the basins.

2.2.2 Long-term Maintenance

Complete debris and sediment removal from the basins will be necessary immediately after they fill if it is early in the rainy season or during the fall maintenance season if a spring inspection identifies an unacceptable amount of debris and sediment in the basin. The acceptable volume of debris and sediment that remains after the rainy season will differ from basin to basin due to different sized facilities, but when a basin is approximately 25 percent full, it will be cleaned out. Long-term maintenance will also take place after a significant fire in the watershed and all vegetation and debris will be removed in anticipation of expected increased post-fire debris flows. A desilted basin is quickly recolonized with native vegetation. Photos 2-1 and 2-2 show San Roque Basin immediately after desilting and 6 months later with native vegetation throughout the basin floor.

2.2.3 Revegetation and Woody Debris Source

Many of the debris basins have developed dense riparian forests. The development of these habitats is an anticipated benefit of the maintenance described above. In addition to providing high quality habitat, the native vegetation in these basins can provide an excellent source for the District's biotechnical bank stabilization and revegetation projects as well as source material for Key Woody Debris (KWD) and Large Woody Debris (LWD) habitat enhancement projects. Installation of KWD and LWD structures within the restored creek channel will be a component of the five debris basin removal projects as described in Section 4.0. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. can provide material necessary to implement KWD/LWD habitat features, biotechnical bank stabilization, and revegetation projects while still allowing the habitat to persist in the basins. Furthermore, selective removal and thinning will help reduce the potential for the outlet works becoming plugged if basin vegetation is uprooted during high flows.

PHOTOGRAPH 2-1
San Roque Creek 2005 Desilting

PHOTOGRAPH 2-2
Growth 6 Months after the 2005 Desilting

3.0 Environmental Review

Basin maintenance is described in the Updated Program EIR for Santa Barbara County Flood Control Routine Maintenance Activities (01-EIR-01), the Long-term Disposition of the Maria Ygnacio Creek Debris Basins Environmental Impact Report (92-EIR-2) and the Montecito Creek Debris Basin EIR (99-EIR-001). This plan contains detailed project descriptions for each basin in the form of addenda to the Program EIR. These addenda fulfill CEQA requirements and will serve as the project descriptions for any necessary permits. Debris basin removal and restoration of the creek channel does not introduce any impacts not already analyzed in the EIRs listed above.

The impact analyses and mitigation measures are based on the routine and long-term maintenance activities and the removal and restoration projects described in Sections 4.0 and 5.0. The District will continue to encourage, native vegetation to colonize each basin and will attempt to control invasive non-native plants within each basin. The Non-Group 1 basins will not be actively revegetated by the District as these facilities have consistently and quickly been recolonized with native vegetation whenever they have been maintained. Group 1 Basin removal projects will include native plant restoration of the disturbed areas.

In light of the fact that the channels through each basin will be maintained as a continuation of the natural creek through the basin, impacts have been analyzed consisted with the impact analyses for natural creek maintenance. Mitigation measures will be applied to offset those impacts as appropriate. The worst-case scenario of the basins being full of vegetation and requiring long-term maintenance, i.e., after a fire in the watershed, was used in the impact analysis. With the exception of two impacts that would be associated with the basins scheduled for removal, the impacts and mitigation measure are very similar for all of the basins because the environmental and physical factors are the same for each of the basins. The impacts and mitigation measures are fully described in Section 6.0 and apply to each basin project description, as appropriate.

4.0 Group 1 Basins

As described in Section 1.0, the March 11, 2014 Biological Opinion that the District received from NMFS and the ACOE requires the District to remove or modify five Debris Basins (Referred to as Group 1 Basins) within the ensuing 10-year period (2016-2026) associated with the ACOE Standard Individual Permit that regulates the District's Debris Basin Maintenance and Removals. Removal or modification of the five debris basins would avoid the likelihood of jeopardizing the continued existence of steelhead or destroying or adversely modifying critical habitat. Specifically, the Reasonable and Prudent Alternative (RPA) within the B.O. states, "The District shall develop and implement plans to physically modify or completely remove ten debris basin dams and, as necessary, corresponding structures on select steelhead-bearing stream within the action area for the purpose of allowing volitional passage of endangered steelhead to upstream spawning . . . ."

The B.O. requires the removal or modification of at least three of these five basins within the first 5 years of the District's 10-year Standard Individual Permit (SIP). The two remaining debris basins shall be completed no later than the end of the work window in year 10 of the SIP. The SIP was signed in May 2016 and expires in 2026.

The District has applied the Stream Simulation Method to develop the designs for all five of the project sites. The Stream Simulation Method includes several processes and procedures, including hydrogeomorphic analysis, to inform the approach for removing the barriers and restoring the stream channel at the project site. A central theme of the Stream-Simulation method is to mimic the pre-disturbed condition and/or the adjacent natural channel such that the completed project presents equivalent fish-passibility to steelhead trout as the adjacent natural channel. The resulting project reach would not result in an unforeseen fish-passage barrier, as the project mimics creek characteristics that would not exceed the typical physical limitations of adjacent stream channel. The District has provided construction plans to NMFS for their review and approval. The two Maria Ygnacio Basins have advanced plans to support the basin removals in 2017 and 2018. The three remaining debris basins (Rattlesnake, San Ysidro, and Cold Springs) have 30 percent plans that will be advanced as their construction schedules become closer. The plans depict the total impact areas even at the 30 percent level.

The District does not anticipate any significant effects upstream or downstream of the debris basins as a result of the barrier-removal projects. The District considered bed mobility and sediment transport as part of the project designs. The project sites will behave differently than the current existing condition because the projects are intended to restore natural sediment transport. The existing debris-basin dams occasionally trap sediment and debris, while the post-project condition will allow sediment and debris to move through the project reach. The completed channels are intended to be dynamic, including mobilization of bed material equivalent to the upstream/downstream reaches. The project reach is "transparent" with respect to upstream and downstream conditions.

No adverse effects are expected upstream as a result of the restored channel. The potential for headcutting and/or erosion upstream is minimized by using the Stream-Simulation

Method to match the upstream slope, surficial sediment size distribution, and bedload mobility. Sediment transport downstream would re-introduce a natural source of bedload material; this effect would be localized and would constitute an improvement to downstream habitat quality for steelhead trout by retaining natural sediment (including spawning gravel) in the stream system. The stream reaches immediately downstream of the debris basin sites are eroded and down cut as a result of sediment-deprivation. The downstream reaches have the capacity to capture and transport the sediment.

Essential habitat functions for steelhead trout would be installed and retained as part of the District's designs. The proposed projects will create and maintain channel roughness within the project areas of each site. The restored channels will include sediment of mixed sizes (based on reference site pebble count, sediment transport analysis, and the Stream-Simulation Method) to mimic the natural stream channel. Forcing features, such as boulder clusters, loose rock structures, and LWD/KWD features are included in each design, at spacing approximately every 5-7 channel widths with final placement refined by the project-specific conditions at each site. Bio-technical engineering methods will be implemented as part of channel reconstruction and revegetation to encourage bank stability and riparian vegetation.

The District's design and plans minimize the extent of vegetation removal and sediment disturbance whenever feasible. Some amount of vegetation removal and sediment manipulation is required to access the site and achieve the required slope and fish-passage objectives during project construction. Disturbance will be temporary. Vegetation removal within the basins during removal of the basins and restoration of the stream corridor would not be any more than what occurs during a complete desilting event. The District does not anticipate that any long-term vegetation removal or sediment manipulation would be required for the ongoing operation of the completed projects. The District's intent is that the sites would not involve ongoing manipulation; but rather would mimic the adjacent natural conditions (per the Stream-Simulation method).

If there was a fire in any of the Group 1 watersheds after the basin removals, the District would install temporary metal pipe debris racks at or near the basin sites that would catch large debris potentially delivered from the drainage while the watershed recovered. The District used pipe debris racks after the Gap and Jesusita Fires in watersheds that did not have debris basins. These structures are very effective at catching debris while allowing flows and sediment to continue through the system.

Approach to the Designs

Reference Reach Based Channel Restoration

The Stream Simulation Method is an approach of designing and restoring a channel segment to simulate its pre-disturbed condition and/or adjacent natural channel such that it presents no more of a challenge to movement of organisms (including steelhead trout) as the natural channel. This method was developed by the Washington Department of Fish and Wildlife (Bates et al. 2003) and expanded by the USDA (2008). The end result is not an "engineered facility" in that there are no structural components such as concrete weirs or

sills, and there is no part of the design that targets the swimming capabilities of a particular species. This method is intended to be dynamic and incorporates the natural fluvial processes including the mobilization of bed material through the reach. Section 4.1.2 provides an overview of this process and the individual debris basin design details are included in each Basin's Addendum.

Overview of Design Development Process

The following procedures are used with guidance from Part XII of the DFW publication, "California Salmonid Stream Habitat Restoration Manual," (2009) and the USDA Stream Simulation publication (August, 2008).

a. Determine Project Alignment and Profile: A longitudinal survey of the channel is performed and plotted in Excel. Stable features upstream and downstream of the basin are chosen for profile endpoints, while ignoring points that represent anomalies and scour pools. The range of potential vertical streambed adjustment (VAP) is established, holding the highest and lowest likely elevations to which it is expected the streambed may vary over time.

b. Identify Reference Reach and Develop Stream Simulation Reach Longitudinal Slopes: A nearby reference reach is identified in the vicinity of the basin and the longitudinal slope is determined and Longitudinal Geomorphic Characteristics (Pool length, pool depth, drop height, step feature length and pool to pool spacing) are identified.

c. Develop Transverse Geomorphic Characteristics; Transverse geomorphic structures such as wetted widths, bankfull widths, overbank features and forcing feature configurations are established within the reference reach. A range of representative cross sections is developed with this data.

d. Design Bed Material Size and Arrangement: Using the Wolman Pebble Count Procedure, pebble counts are performed on the reference reach for two distinct areas: (1) the wetted channel (bankfull channel) and (2) the adjacent dry overbank areas if present. Data from the count is plotted on cumulative frequency distribution log10 graphs. The graphs are then converted to particle size distribution gradations showing the particle "percent passing" D95, D84, D50 and various standard U.S. sieve sizes. The pebble count grain size distribution is verified and adjusted by methods described in the following paragraphs.

e. Channel Hydraulics: The report, "Regional Curves for Bankfull Channel Dimensions – Selected South Coast Streams" (URS Corporation, May, 2002) is used to provide guidance for determining the bankfull discharge through the reference reach. The chart entitled, "Bankfull Discharge vs. Drainage Area" is used to find the regional bankfull discharge (Qbf-regeional) in cfs. Using the Hydraflow Express extension in AutoCAD V. 10.3, an assumed Manning's roughness "n" value, variations of the representative cross-sectional dimensions are analyzed until the modeled Q = Qbf-regional.

f. Streambed Material (SBM) Grain Size Distribution: Given Qbf-regional and channel dimensions, D50 derived from the pebble count is checked against various methods for calculating D50. These values are compared, and the highest D50 is chosen for use in the design SBM gradation as it will become entrained at higher flows than the smaller D50 sizes. The following methods are used for determining D50:

Bathhurst (1987)
Robinson et al (1998)
Abt and Johnson (1991)
Pebble Count

g. Grain Distribution: Using the selected D50, a grain size distribution is developed for D100, D84, D16 and D8 from the following methods. Using best engineering judgment, the method (or combination of methods) that is (are) selected for use is that which produces a stable, well graded, site-similar grain size distribution. The following methods are used to develop the grain size distribution:

Washington Department of Fish and Wildlife (2003)
ACOE (1994) and Bates (2003)
Pebble Count

For example, the pebble count may have the highest D50, so the pebble count data is used for all SBM grain sizes > D50. However, if the pebble count distribution is gap-graded below D50, one of the other methods can be used for determining grain size Distribution < D50. Next, the grain size distribution chart is developed using estimates for intermediate grain sizes such as D95, D30, etc.

h. Verify Channel Roughness

Using the SBM particle size distribution and the design bankfull hydraulic parameters (flow area, wetted perimeter and slope), the assumed Manning's n value is verified as follows:

1. The design channel relative submergence, slope and substrate values are compared to the constraints of the nine methods for determining a roughness value (as described in Section XII, "Fish Passage Design and Implementation," of the California Salmonid Stream Habitat Restoration Manual (heretofore referenced as the CSSHR Manual)). The most applicable methods are chosen, Manning's n values are calculated, and Qbf is determined for each n value.

2. Qbf is compared to Qbf-regional. The n values associated with the Qbfs that best approximate Qbf-regional are then compared to the assumed n value.

i. Determine Bed Mobility: The simulated reach is evaluated to determine which particle size ranges remain stable and which become entrained. Per the USDA Stream Simulation publication (August, 2008). Either the Shield's Modified Critical Shear Stress equation or the Bathurst critical entrainment flow equation is used,

depending upon which equation's limiting constraints are most suitably matched to the reference channel characteristics. Note that this evaluation is not mandatory for restoration projects where the restored reach mimics the reference reach (i.e. restoration is not occurring within a culvert crossing), but is a useful tool for checking particle stability. In the event that the channel characteristics do not meet the constraints of either method, since D84 is an index for bed mobility, the SBM D84 is verified to be the same as or larger than the reference reach D84.

j. Determine SBM thickness:

   With the ACOE Engineering Manual EM 1110-2-1601, determine an appropriate SBM thickness given the D50 and D100 grain sizes.

k. Material Arrangement: Part XII of the DFW publication, "California Salmonid Stream Habitat Restoration Manual," (2009) is used as guidelines to design the simulated streambed, keystone rock, structure rocks, boulder clusters, footer rocks, and bankline rock sizes and placement.

Stream Channel Features

The configuration and design of stream features (i.e., pools, riffles, boulder clusters, forcing-features, and LWD/KWD features) is based on several guidance factors from the RPA, including the stream-simulation method, hydrogeomorphic analyses, and evaluation of reference reaches.

The RPA requires a minimum of five Large woody debris/Key woody debris (LWD/KWD) features to be installed in each of the Group 1 debris-basin watersheds. The District has determined that the debris-basin removal areas are ideal and appropriate locations for the woody debris features to be installed.

The District's design places the LWD features at outside bends, based on input and review from the contracted stream-simulation engineer (Mike Love). Section 2 C(1) of the RPA states that "The District shall describe the process for developing engineered design drawings that include the retention of one or more engineers/specialist with a documented record of designing fish-passage projects." The spacing of the LWD features is based on the project length, average bankfull channel width, pool geometry and spacing (as determined by topographical survey, reference reach surveys, and hydrogeomorphic analyses). The relationship of LWD spacing to channel width determines the frequency of LWD features per channel-width.

4.1 Cold Springs Creek Debris Basin 2017 Addendum to the Program EIR for Santa Barbara County Flood Control and Water Conservation District

4.1.1 Location

The Cold Springs Creek Debris Basin is located on Cold Springs Creek just west of 1013 E. Mountain Drive.

4.1.2 History

Cold Springs Creek Debris Basin is an engineered facility that was built in 1964 by the U.S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 20,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. Updated Survey of the basin in 2005 calculated the current basin capacity to be 12,775 cubic yards. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005. In anticipation of increased post-fire debris and sediment flows, the basin was desilted after the 2008 Tea Fire and 3,000 cubic yards of sediment was removed. Cold Springs Debris Basin is a Group 1 basin and is tentatively scheduled to be removed in 2025.

4.1.3 Setting

Cold Springs Creek originates in the Santa Ynez Mountains and drains a 2,562-acre watershed capable of producing 3800 cubic feet per second (cfs) during a 100-year return period precipitation event. Cold Springs Creek is typically perennial, however the multi-year drought has dried the drainage and it is currently not flowing as it has for the past 20+ years. The substrate consists of silty sand intermixed with large cobble and rocks. The bottom of the basin is normally vegetated with large stands of large willow trees and cattails, however the dry watershed has reduced the amount of vegetation in the basin and it is currently dominated with coyote bush with occasional willows. The side slopes are vegetated with sycamore, willow, coastal sage scrub and chaparral species. Upslope on adjacent property there are eucalyptus and oaks. Mountain Drive is located immediately east of the basin. The nearest house is 200 meters east of the dam.

4.1.4 Wildlife Survey

The site was assessed by the District Biologist on October 10, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016. The basin provides willow riparian scrub habitat along the center channel and the adjacent floor of the basin. Dominant plant species include arroyo willow, sandbar willow, and mule fat, approximately 5-7 years old. A few larger cottonwood and sycamore trees are present at the edges of the basin.

The basin was dry during the 2016 survey and no aquatic species were present onsite; however the area provides suitable habitat for Baja California treefrog and steelhead trout when water is present. The habitat is suitable for a variety of riparian birds with a mix of cover types. Birds detected in the area include Bewick's wren, linnet, Anna's hummingbird, western scrub jay, acorn woodpecker and Red tailed hawk. Raccoon, opossum and domestic dog tracks are common in the area.

4.1.5 Routine Maintenance Prior to Basin Removal

Cold Springs Basin is scheduled to be removed during the fall of 2025. Potential accumulation of sediment can occur prior to its removal over ten winter seasons between October-March of each year when rainfall typically occurs. Depending upon the costs of removing the four other Group 1 basins as well as the success meeting the proposed schedule for the four other Group 1 basins, it is possible that Cold Springs Debris Basin will be removed prior to 2025 and less opportunities for sediment accumulation would occur. The capacity of Cold Springs Basin is 12,775 yd^3.

The District's goal is to encourage sediment movement through the basin yet it is very possible that the basin will either incrementally or quickly fill with sediment over the ensuing years. The main concern is that the District does not want the basin to fill with sediment to a point where the outlet is covered but the basin is not full. This could lead to Long-term accumulation of standing water which could place an undesirable hydraulic load on the dam embankment. To avoid standing water from accumulating, the District will install a perforated stand pipe onto the existing outlet structure during the 2017 maintenance season (August-November 2017) so that if the basin fills with sediment past the outlet structure, water can still find its way to the outlet pipe throughout the ensuing years.

A routinely maintained pilot channel, outlet structure, and embankment was in place be prior to the 2016 winter and a pilot channel will be maintained each year at whatever that year's sediment elevation is until the basin is removed. Sediment will not be removed as the basin fills but will be re-graded to begin forming the creek banks that will be part of the eventual removal design. Once the basin is full of sediment, any subsequent flows or sediment will move over the embankment and be carried downstream.

The current elevations in the basin, combined with the basin configuration and proposed design for removal will support the accumulation of sediment within the basin until its removal. Accumulated sediment will be used within the basin and downstream of the basin to establish the foundation on which the streambed will be restored. Additional sediment will be incorporated onto the basin slopes and revegetated with native riparian species. Unless there is a fire in the watershed prior to the basin removal, if the basin fills it will not be desilted, but will remain full. The maximum accumulation of sediment would therefore be 12,775 yd^3.

In conjunction with the maintenance of a pilot channel, the dam face and a 10-foot swath adjacent to the toe of the dam will be kept clear of vegetation. This will be done using hand tools to the maximum extent feasible and occasional use of herbicide. Maintaining these

clear areas reduces the amount of rodent activity on the dam embankment, allows the District to inspect the dam face and provides for efficient sediment transport through the basin, again to reduce incremental filling. The basin area outside of the pilot channel will be left to colonize with native riparian vegetation

4.1.6 Project Description for Basin Removal

Cold Springs Creek Debris Basin is located along Cold Springs Creek approximately 2.5 miles upstream of the Pacific Ocean; 2,413 acres (3.8 square miles) of the contributing watershed drain to the site. The debris basin dam is an engineered facility built in 1964 by the U.S. Army Corps of Engineers as an emergency response to the Coyote Fire. It was installed to mitigate post-fire debris flows. The dam structure consists of a 16-foot-high earthen fill spillway capped with grouted rock, a rock apron, grouted rock embankments, cutoff walls and a 48-inch reinforced concrete low flow pipe.

This work is being performed to allow fish passage for Southern California steelhead and restore natural sediment delivery through the system. Excavated materials will be distributed within the basin to begin to re-establish the pre-construction grade through the creek corridor using a stable channel reach upstream of the project as a reference for the restoration design, similar to the USDA and DFW-approved Stream Simulation Method.

This site is notable for a deeply incised channel downstream of the debris basin. The scoured channel, steep topography, and limited access along Mountain Drive present constraints to the project design. The proposed project entails a "complete removal" as the grouted dam structure and culvert will be removed and no other engineered structure would be installed.

Spacing and configuration of design features (i.e., pools, riffles, boulder clusters, forcing-features, and LWD/KWD features) is based on several guidance factors from the RPA, including the stream-simulation method, hydrogeomorphic analyses, topographic survey and longitudinal profile, and evaluation of stream geometry. The District's stream-simulation engineering consultant (Mike Love and Associates) advised placement of LWD features at outside bends and at intervals overlapping with the pool/riffle features in the simulated streambed.

The Cold Spring Debris Basin design footprint is approximately 475 linear feet. Spacing of LWD features ranges from 40 to 130 feet, with average spacing approximately 80 feet. The average bankfull channel width is 18 feet, indicating that LWD features are installed every 4 to 7 channel-widths. The District's design includes boulder clusters and loose-rock forcing features in the streambed, consistent with NMFS's recommendation for roughness features every 5-7 channel widths.

4.1.7 Temporary Impacts and Restoration

The proposed project would require temporary disturbance of approximately 0.96 acre for access, grading, streambed reconfiguration, channel construction, cut and fill of restored banks, and removal of the dam and embedded concrete culvert. The barrier removal and

channel restoration project has been designed to minimize the removal of vegetation and sediment while obtaining the fish-passage objectives and the channel-stability objectives of the stream-simulation method. The impacts would be temporary. Following demolition of the barrier structures and restoration of the creek channel, the disturbed areas would be revegetated with native riparian species, including willow, alder, sycamore, oaks, and understory shrubs and herbaceous species. Bio-engineering techniques will be developed and implemented to retain native riparian vegetation when feasible and as part of channel reconstruction. Container plants and cuttings would be used for the trees and shrub species. A seed mix including emergent and wetland plants would be dispersed lightly within the creek corridor to assist with recolonization of native species, such as mugwort, Juncus species, blackberry, and others.

PHOTOGRAPH 4.1-1
Cold Springs Creek Debris Basin

Map Source: County of Santa Barbara

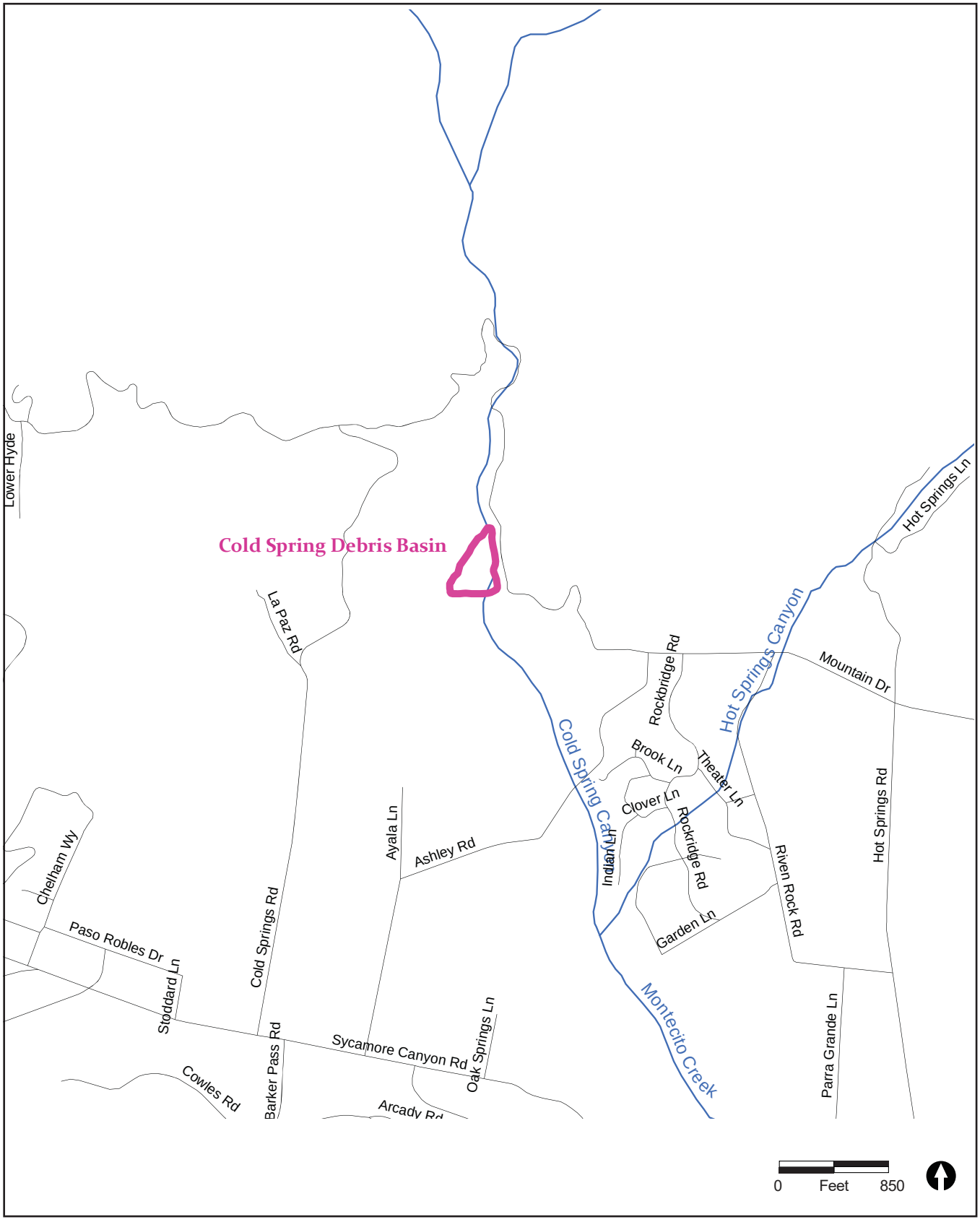


FIGURE 4.1-1
Cold Springs Creek Debris Basin Map

Map Source: County of Santa Barbara

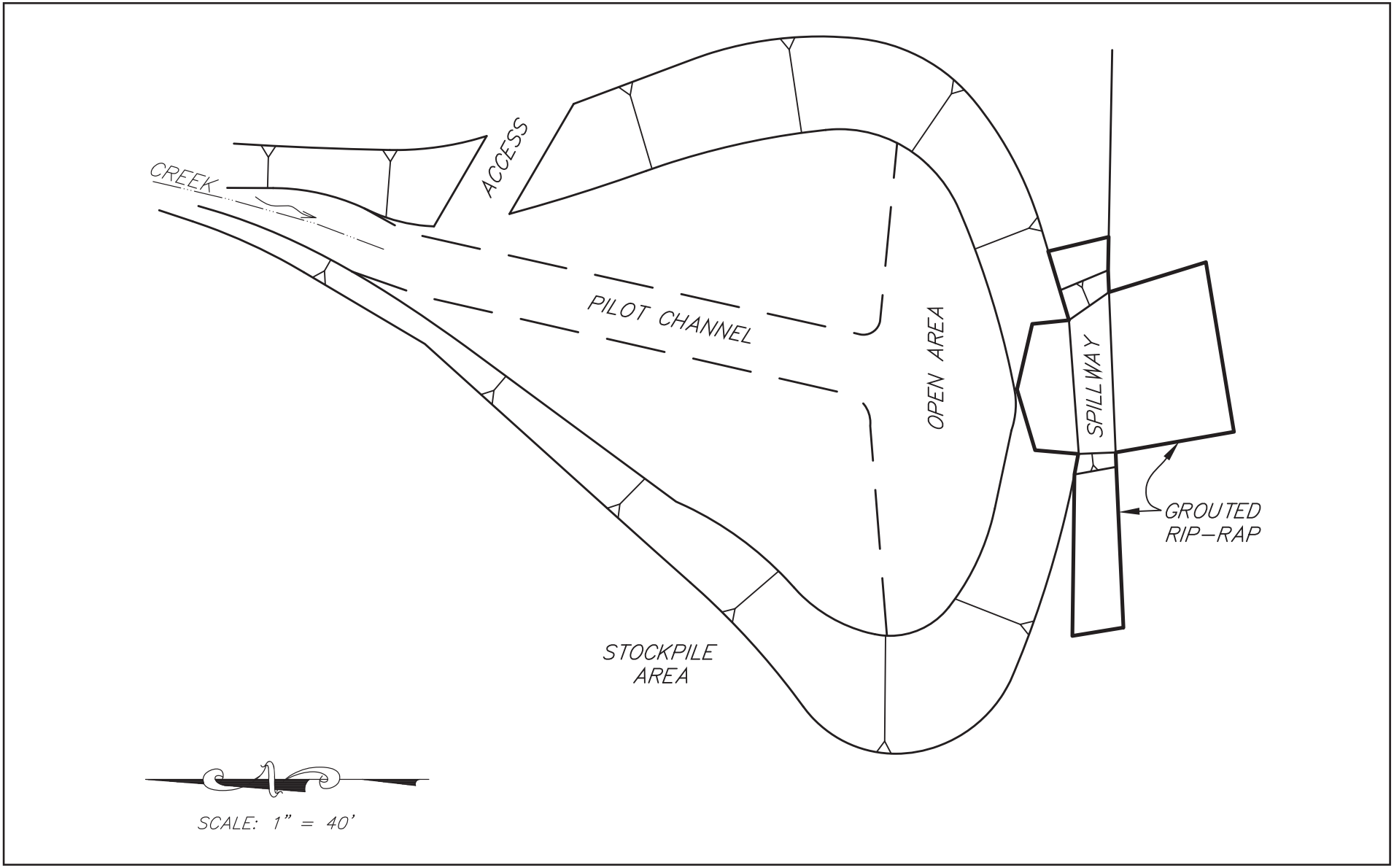


FIGURE 4.1-2
Cold Springs Creek Debris Basin Figure

M:\JOBS5\8687\env\graphics\DebrisBasin\fig4.1-2.ai 03/28/17 ccn

Cold Springs Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
APIACEAE		
Conium maculatum	Poison hemlock	I
APOCYNACEAE		
Vinca major	Periwinkle	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Gnaphalium bicolor	Bicolored everlasting	N
Isocoma menziesii	Coast golden bush	N
Lactuca serriola	Prickly lettuce	I
Picris echioides	Ox tongue	I
Venegasia carpesioides	Canyon sunflower	N
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild raddish	I
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican tea	I
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
MALVACEAE		
Malva nicaeensis	Mallow	I
Malva parvifolia	Cheeseweed	I
MYRTACEAE		
Eucalyptus sp.	Eucalyptus	I
PLATAGINACEAE		
Plantago major	Common plantain	I
Plantago lanceolata	Plantain	I
PLANTANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus mollis	Soft chess	I
Lolium multiflorum	Italian ryegrass	I
Lolium miliacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I

Cold Springs Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Malosma laurina	Laurel sumac	N
Rubus ursinus	California blackberry	N
RHAMNACEAE		
Ceanothus spinosus	Greenback ceanothus	N
Ceanothus cuneatus	Buckbrush	N
SALlCACEAE		
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha latifolia	Broad-leaved cattail	N
*N = Native; I = Introduced		

PRELIMINARY NOT FOR CONSTRUCTION

SANTA BARBARA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

COLD SPRINGS DEBRIS BASIN REMOVAL

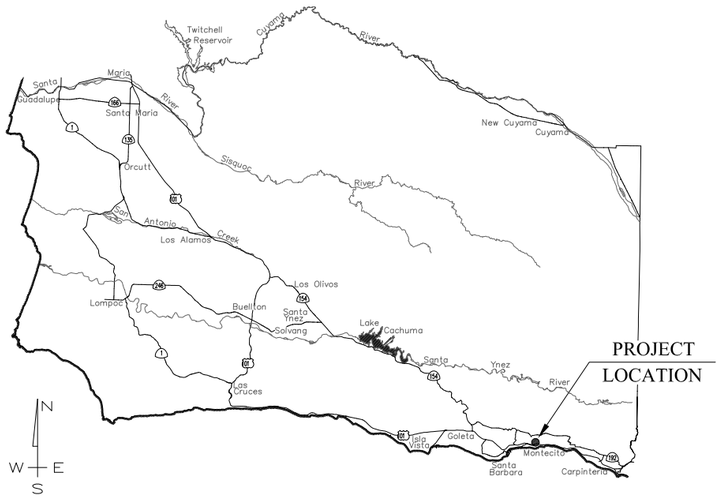
SC8355

30% PLANS

IN THE MONTECITO AREA OF SANTA BARBARA COUNTY, CALIFORNIA

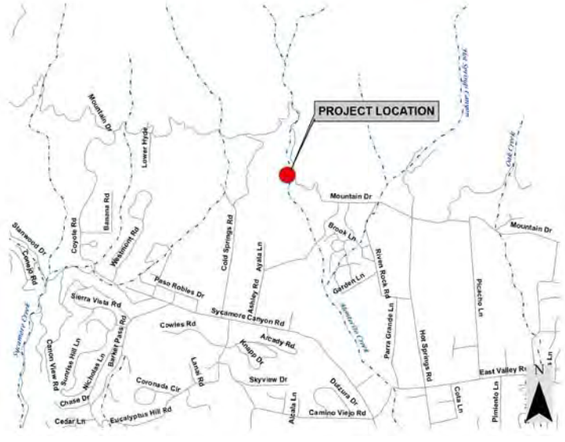
DISTRICT BOARD OF DIRECTORS

FIRST DISTRICT	Das Williams
SECOND DISTRICT	Janet Wolf
THIRD DISTRICT, CHAIR	Joan Hartmann
FOURTH DISTRICT	Peter Adam
FIFTH DISTRICT	Steve Lavagnino



VICINITY MAP
No Scale

INDEX TO SHEETS



SITE MAP
No Scale

HALF SCALE PLANS

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:	REVIEWED BY:
FLOOD CONTROL DESIGN ENGINEER DATE	COUNTY SURVEYOR DATE
REVIEWED BY:	REVIEWED BY
FLOOD CONTROL ENGINEERING MANAGER DATE	MAINTENANCE SUPERINTENDENT DATE
REVIEWED BY	REVIEWED BY
FLOOD CONTROL DEPUTY DIRECTOR DATE	ENVIRONMENTAL SERVICES MANAGER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

TITLE SHEET

DESIGNED BY:	KS
DRAWN BY:	JM
CHECKED BY:	JF

O-1130

SHEET 1 OF 10

Filename: Cold Springs DB Plans.DWG

SYMBOL LEGEND

- CONTROL POINT
- EX. CABLE TV BOX
- EX. CABLE TV VAULT
- EX. ELECTRIC BOX
- EX. ELECTRIC GUY WIRE
- EX. ELECTRIC MANHOLE
- EX. ELECTRIC METER
- EX. FIRE HYDRANT
- EX. GAS METER
- EX. GAS VALVE
- EX. IRRIGATION SPRINKLER
- EX. LUMINARY
- EX. MAILBOX
- EX. MONUMENT
- EX. POWER & TELEPHONE POLE
- EX. ROCK
- EX. SEWER CLEANOUT
- EX. SEWER MANHOLE
- EX. SIGNAGE
- EX. STORM DRAIN GRATE
- EX. STORM DRAIN MANHOLE
- EX. STRUCTURE BENCH
- EX. STRUCTURE BOLLARD/POST
- EX. TELEPHONE BOX
- EX. TELEPHONE MANHOLE
- EX. TELEPHONE POLE
- EX. TELEPHONE VAULT
- EX. BUSH/HEDGE
- EX. CACTUS
- EX. SHRUB
- EX. TREE
- EX. TREE – EUCALYPTUS
- EX. TREE – LEMON
- EX. TREE – PALM
- EX. TREE – PINE
- EX. TREE – STUMP
- EX. TREE – SYCAMORE
- EX. TREE – WILLOW
- EX. TREE – YUCCA
- EX. WATER METER
- EX. WATER SPIGOT
- EX. WATER VALVE
- EX. WATER WELL

LINETYPE LEGEND

- BOUNDARY EASEMENT LINE
- BOUNDARY RIGHT OF WAY LINE
- BOUNDARY PROPERTY LINE
- CENTERLINE
- CONTOUR LINE–MAJOR
- CONTOUR LINE–MINOR
- EX. AC EDGE OF PAVEMENT
- EX. BARBED WIRE FENCE
- EX. BRUSH
- EX. BUILDING
- EX. CABLE TV
- EX. CHAINLINK FENCE
- EX. DRAINAGE
- EX. ELECTRIC
- EX. ELECTRIC OVERHEAD
- EX. FACILITIES
- EX. FLOWLINE
- EX. GAS
- EX. GUARDRAIL
- EX. SEWER
- EX. SIDEWALK
- EX. STORM DRAIN
- EX. STRUCTURE CONCRETE
- EX. STRUCTURE WALL
- EX. TELEPHONE
- EX. WATER
- EX. WOOD RAIL FENCE
- PROPOSED FACILITIES
- PROPOSED STORM DRAIN
- RETAINING WALL GUTTER
- TEMP. CONSTRUCTION FENCE
- GRADING LIMITS

EXISTING UTILITY INFORMATION

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN. NOTE THAT INDIVIDUAL SERVICE LATERALS AND CONNECTIONS ARE NOT PLOTTED ON THE PROFILE.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1–800–422–4133.

HALF SCALE PLANS

STANDARD DETAILS AND PLANS LIST

STANDARD NO.	DESCRIPTION
	STATE DEPARTMENT OF TRANSPORTATION STANDARD PLANS (MAY 2006 EDITION)
	The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply are attached to the contract.
A10A	ACRONYMS AND ABBREVIATIONS
A10B	ACRONYMS AND ABBREVIATIONS
A10C	SYMBOLS
T13	TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS
	AMERICAN PUBLIC WORKS ASSOCIATION STANDARD PLANS
380–1	CONCRETE COLLAR FOR RCP (12" THROUGH 72")

ABBREVIATIONS

APN	ASSESSORS PARCEL NUMBER
APWA	AMERICAN PUBLIC WORKS ASSOC.
AT	ARCHITRCTURAL TEXTURE
BW	BOTH WAYS
CFS	CUBIC FEET PER SECOND
CL or C/L	CENTER LINE
CALTRANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
COUNTY	COUNTY OF SANTA BARBARA
CP	CONTROL POINT
DI	DUCTILE IRON OR DROP INLET
DW	DRIVEWAY
E	EAST OR EASTING
EG	EXISTING GROUND
EGL	ENERGY GRADE LINE
EL	ELEVATION
EP	EDGE OF PAVEMENT
ELEC	ELECTRIC
FD	FOUND
FT	FEET
G	GAS LINE
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
IP	IRON PIPE
IN	INCH
MJ	MECHANICAL JOINT
n	MANNING'S COEFFICIENT
N	NORTH OR NORTHING
OC	ON CENTER
PK	PK NAIL
Q	FLOW VELOCITY
R1	RECORD PER BOOK NN, PAGE NN OF MAPS
S	SEWER OR SLOPE OR SOUTH
SDMH	STORM DRAIN MANHOLE
SH	SHINER
SPK	SPIKE
S/W	SIDEWALK
TW or tw	TOP OF WALL
TCE	TEMPORARY CONSTRUCTION EASEMENT
TBM	TEMPORARY BENCH MARK
TSW	TOP OF SIDEWALK
TP	TOP OF PAVEMENT
W or WL	WATER LINE
WF	WALL FACE
WWF	WELDED WIRE FABRIC
V	VELOCITY
VB	VALVE BOX

HORIZONTAL AND VERTICAL CONTROL

Surveyor's Notes:
Horizontal positions for CPs CP1, CP2, CP3 were utalized from previous topo survey on file in the office of the County Surveyor, file number S557, California Coordinate System 1983 (CCS83) 1991.35 epoch.
CP2 was held for Horizontal and Vertical values. CP101 and CP103 were established by conventional observation to remove vertical errors in reobserving CP1 and CP3. Control Points CP101, and CP103–CP113 are based on holding CP2 and CP101.

Elevations (orthometric heights) are North American Vertical Datum 1988 (NAVD88) using the National Geodetic Survey's program GEOID99 holding CP2 fixed. All coordinate values shown are grid values. All distances are based on the U.S. Survey Foot
(one survey foot = 1200/3937 meters).

Contour Interval:
The contour interval is shown at 1 foot intervals with majors at every 5 feet

Basis of Bearings:
The Basis of Bearings is between CP2 and CP1 as shown in topo survey S557 on file in the office of the County Surveyor, S89°38'13"W 82.563' record horizontal distance CP2–CP1;
CP1 reshot as CP101, resulting in Basis of Bearings for current survey as S89°38'12"W 82.556' measured distance CP2–CP101. Vertical difference CP1 to CP101 0.486' measured. Original Horizontal and Vertical coordinates for CP2 were held.

Boundary Note:
No boundary shown

CONTROL POINT TABLE

CONTROL POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	RECORD
CP1	1990357.025	6063102.564	583.857	FOUND NAIL SHINER IN AP	S557
CP2	1990357.548	6063185.118	576.718	FOUND NAIL SHANK IN AP	S557
CP3	1990357.304	6063145.082	580.310	FOUND NAIL SHINER & TAG MARKED "RCE 84XX"	S557
CP101	1990357.025	6063102.571	584.343	RESHOOT CP1	SC8355
CP103	1990357.312	6063145.068	580.800	RESHOOT CP3	SC8355
CP104	1990396.376	6063170.009	563.362	SET SPIKE AND CHASER	SC8355
CP105	1990440.097	6063176.933	564.192	SET SPIKE AND CHASER	SC8355
CP106	1990462.993	6063184.109	564.405	SET SPIKE AND CHASER	SC8355
CP107	1990550.202	6063200.953	566.741	SET SPIKE AND CHASER	SC8355
CP108	1990602.897	6063227.906	568.984	SET SPIKE AND CHASER	SC8355
CP109	1990712.961	6063257.876	579.828	SET SPIKE AND CHASER	SC8355
CP110	1990554.117	6063270.389	579.726	SET SPIKE AND CHASER	SC8355
CP111	1990441.774	6063343.081	593.972	SET SPIKE AND CHASER	SC8355
CP112	1990355.548	6063253.530	583.057	SET SPIKE AND CHASER	SC8355
CP113	1990269.718	6063181.774	544.715	SET SPIKE AND CHASER	SC8355

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

GENERAL INFORMATION

DESIGNED BY: KS
DRAWN BY: JM
CHECKED BY: JF

O-1130

Filename: Cold Springs DB Plans.DWG

PRELIMINARY NOT FOR CONSTRUCTION

LEGEND

- GRADING LIMITS
- CHANNEL CONSTRUCTION LIMITS
- EXISTING DEBRIS BASIN DAM LIMITS
- PROPERTY LINE
- TEMPORARY RIGHT OF ENTRY LIMITS (T.R.E.)

1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
6+00

HALF SCALE

PLAN
SCALE: 1" = 20'

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

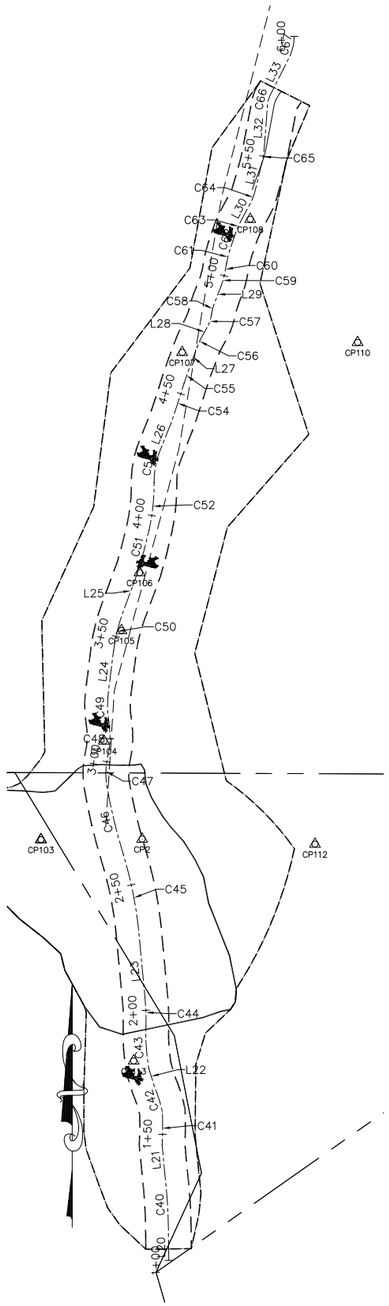
PROJECT LIMITS AND EASEMENTS

DESIGNED BY:	KS
DRAWN BY:	JM
CHECKED BY:	JF

O-1130

SHEET 3 OF 9

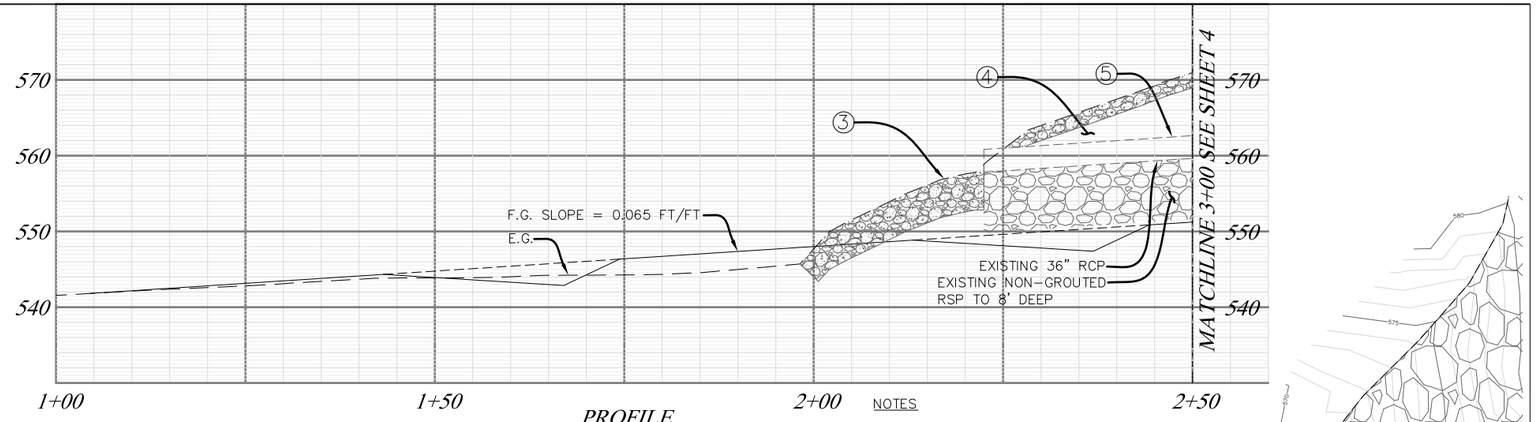
Filename: Cold Springs DB Plans.DWG



CONTROL LINE

SCALE: 1" = 30'

CONTROL LINE				
Number	Bearing	Length	Radius	Delta
C40		23.52	204.03	6°36'20"
C41		13.10	139.56	5°22'35"
C42		11.27	59.22	10°54'05"
C43		16.71	83.27	11°29'44"
C44		10.91	84.97	7°21'16"
C45		35.42	155.68	13°02'14"
C46		28.05	216.91	7°24'33"
C47		11.50	28.99	22°43'42"
C48		14.01	35.84	22°23'53"
C49		11.31	39.24	16°30'36"
C50		15.47	68.62	12°54'59"
C51		15.86	267.95	3°23'30"
C52		19.00	80.18	13°34'51"
C53		12.78	32.45	22°33'45"
C54		16.51	448.32	2°06'34"
C55		6.46	107.00	3°27'42"
C56		4.39	30.62	8°12'43"
C57		5.62	13.79	23°22'22"
C58		4.50	18.35	14°02'47"
C59		4.39	30.14	8°20'30"
C60		4.53	101.21	2°33'59"
C61		5.44	37.38	8°20'05"
C62		7.17	167.36	2°27'11"
C63		5.85	43.10	7°46'26"
C64		5.54	21.16	14°59'15"
C65		5.68	30.68	10°36'02"
C66		5.08	10.75	27°02'50"
C67		7.76	19.46	22°51'37"
L20	N0° 43' 38"W	10.43		
L21	N5° 25' 54"W	11.84		
L22	N16° 58' 45"W	6.86		
L23	N5° 25' 55"W	22.44		
L24	N7° 07' 51"E	16.92		
L25	N20° 10' 21"E	18.59		
L26	N21° 49' 03"E	11.90		
L27	N20° 31' 45"E	9.10		
L28	N29° 16' 07"E	3.87		
L29	N21° 19' 17"E	7.59		
L30	N27° 55' 39"E	7.21		
L31	N13° 45' 30"E	11.02		
L32	N4° 18' 15"E	16.74		
L33	N26° 48' 28"E	17.56		



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

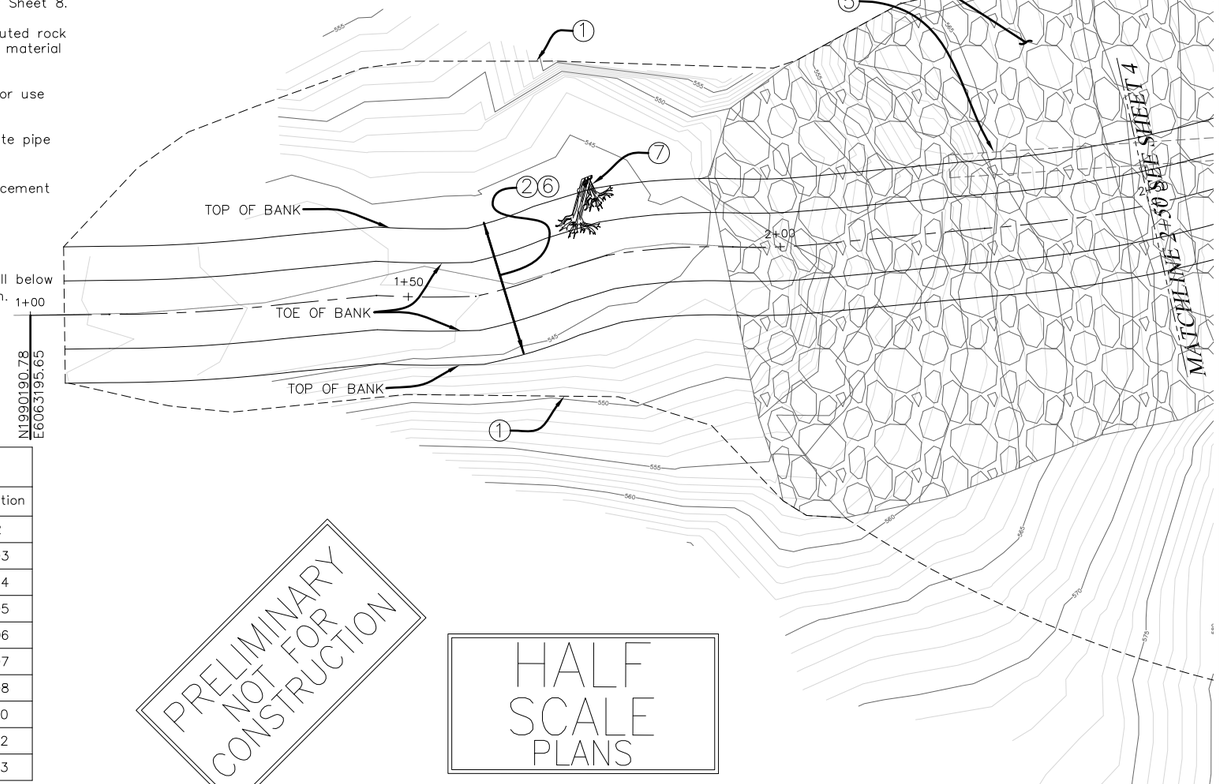
NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

1. Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.
2. Construct channel step, pool, riffle per details on Sheet 8.
3. Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction
4. Excavate dam and embankment fill and reserve for use during channel construction.
5. Remove and dispose of existing reinforced concrete pipe (RCP).
6. Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet 8.
7. Install and anchor large woody debris per detail on Sheet 8.
8. Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

Point Table				
Point #	Elevation	Northing	Easting	Description
2	576.72	1990357.55	6063185.12	CP2
103	580.80	1990357.31	6063145.06	CP103
104	563.36	1990396.38	6063170.01	CP104
105	564.19	1990440.10	6063176.93	CP105
106	564.41	1990463.00	6063184.11	CP106
107	566.74	1990550.22	6063200.95	CP107
108	568.98	1990602.92	6063227.91	CP108
110	579.73	1990554.13	6063270.40	CP110
112	583.06	1990355.55	6063253.54	CP112
113	544.71	1990269.71	6063181.77	CP113



PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS

PLAN

SCALE: 1" = 10'

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

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THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

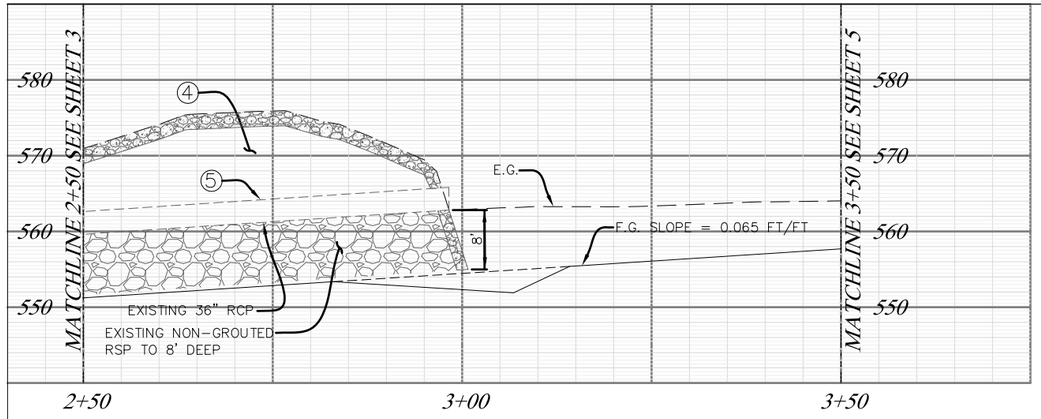
CONTROL LINE PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: JM
CHECKED BY: JF

O-1130

SHEET 4 OF 9

Filename: Cold Springs DB Plans.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

① Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.

② Construct channel step, pool, riffle per details on Sheet X.

③ Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction

④ Excavate dam and embankment fill and reserve for use during channel construction.

⑤ Remove and dispose of existing reinforced concrete pipe (RCP).

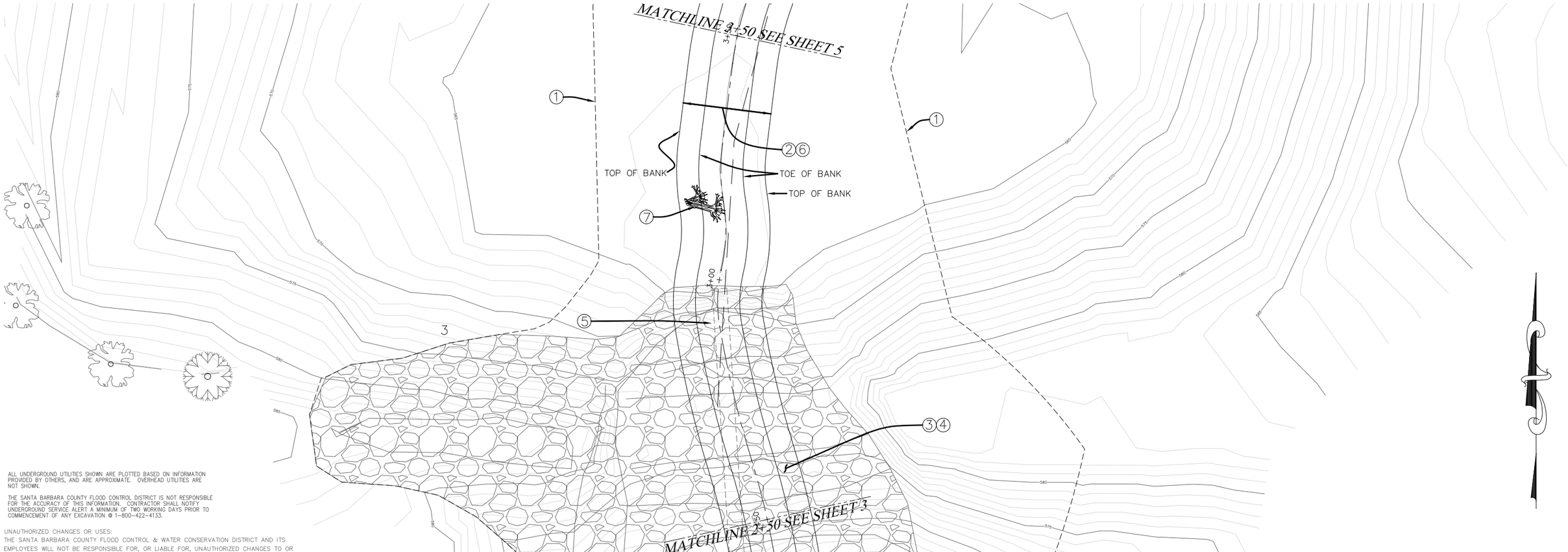
⑥ Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet X.

⑦ Install and anchor large woody debris per detail on Sheet X.

⑧ Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS



PLAN

SCALE: 1" = 10'

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS BASIN REMOVAL

AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

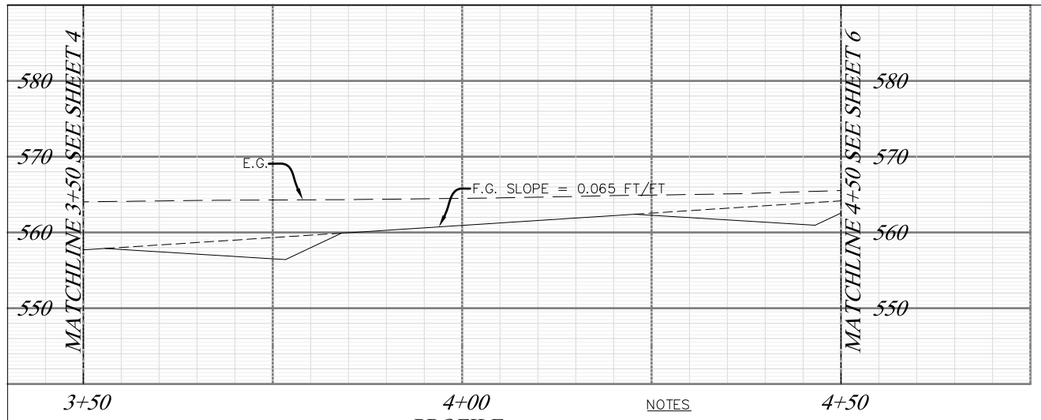
PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: JM
CHECKED BY: JF

O-1130

SHEET 5 OF 9

Filename: Cold Springs DB Plans.DWG



PROFILE
SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

1. Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.
2. Construct channel step, pool, riffle per details on Sheet X.
3. Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction
4. Excavate dam and embankment fill and reserve for use during channel construction.
5. Remove and dispose of existing reinforced concrete pipe (RCP).
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7. Install and anchor large woody debris per detail on Sheet X.
8. Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

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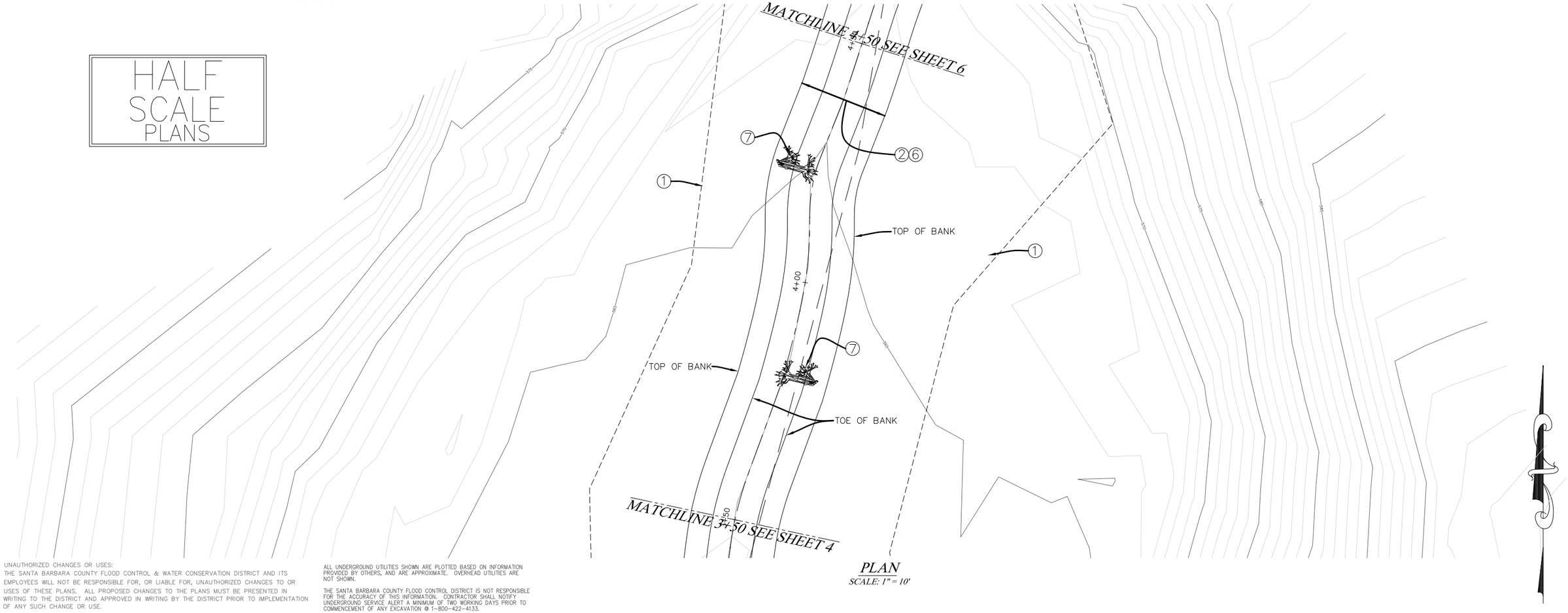

PLAN
SCALE: 1" = 10'

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

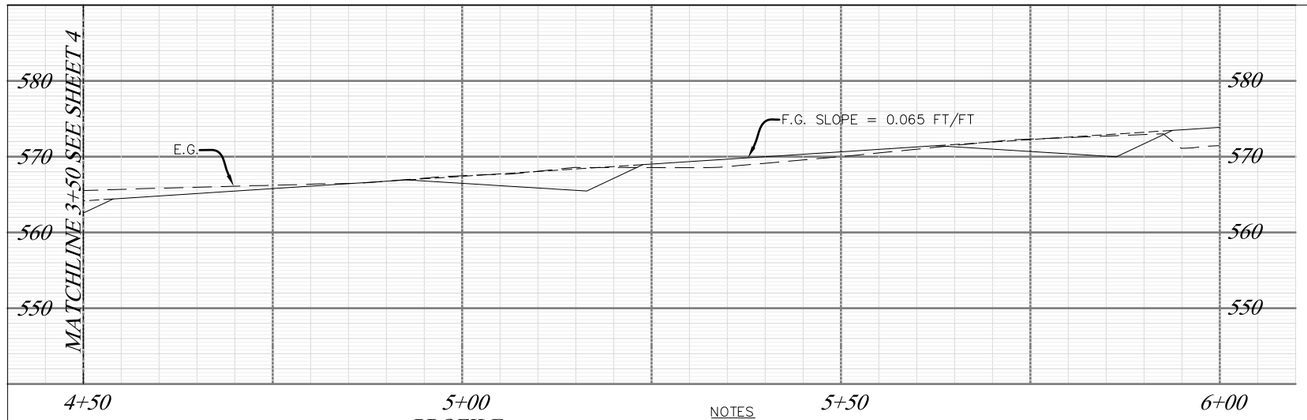
PLAN & PROFILE

DESIGNED BY:	KS
DRAWN BY:	JM
CHECKED BY:	JF

O-1130

SHEET 6 OF 9

Filename: Cold Springs DB Plans.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

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CONSTRUCTION NOTES

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HALF SCALE PLANS

PRELIMINARY NOT FOR CONSTRUCTION

PLAN

SCALE: 1" = 10'

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SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS BASIN REMOVAL

AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

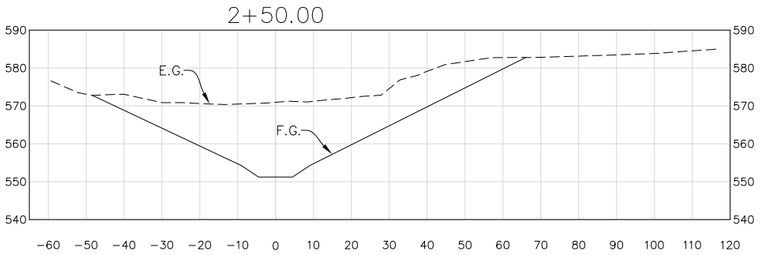
PLAN & PROFILE

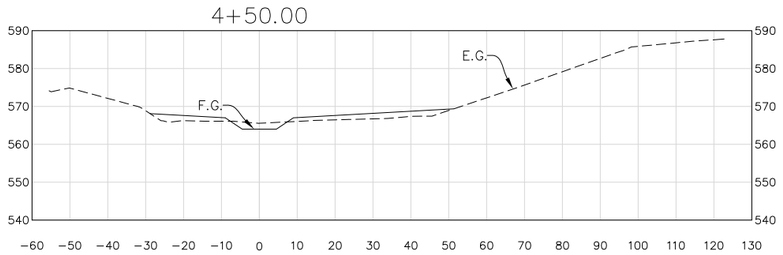
DESIGNED BY: KS
DRAWN BY: JM
CHECKED BY: JF

O-1130

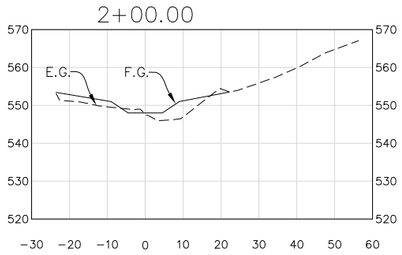
SHEET 7 OF 9

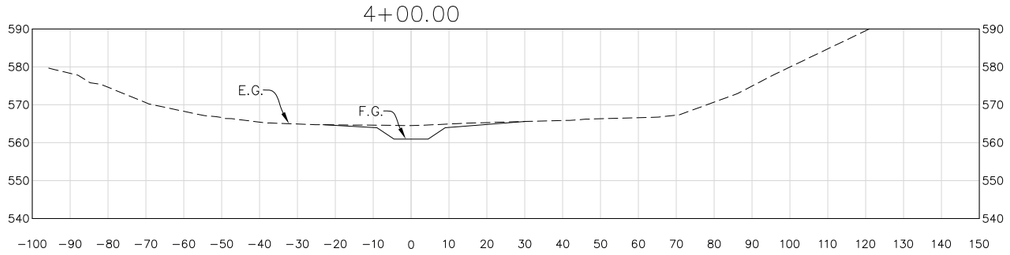
Filename: Cold Springs DB Plans.DWG

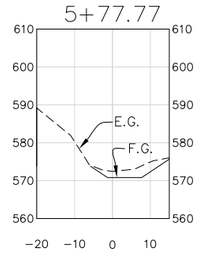


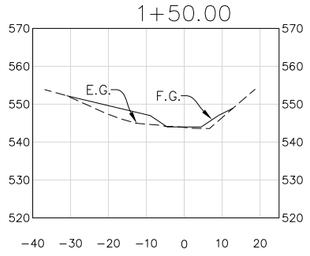


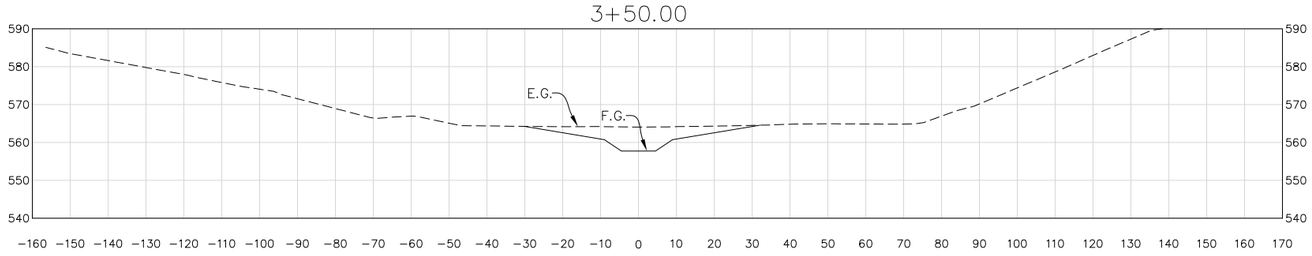
PRELIMINARY NOT FOR CONSTRUCTION

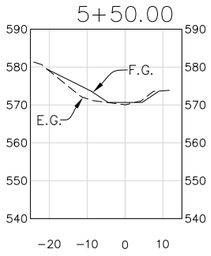


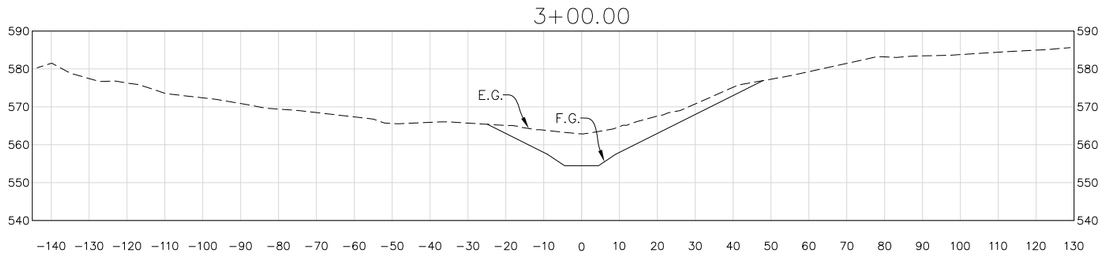


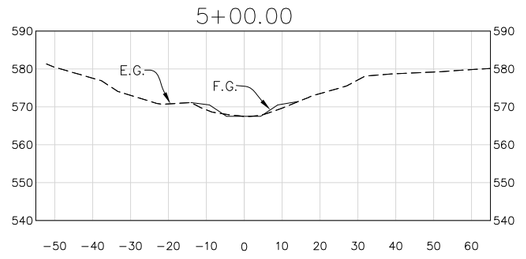












HALF SCALE PLANS

SECTIONS

SCALE: 1" = 20'

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

CROSS SECTIONS

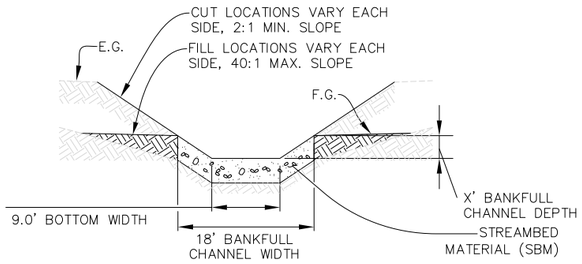
DESIGNED BY: KS
DRAWN BY: JM
CHECKED BY: JF

O-1130

SHEET 8 OF 9

Filename: Cold Springs DB Plans.DWG

PRELIMINARY
NOT FOR
CONSTRUCTION

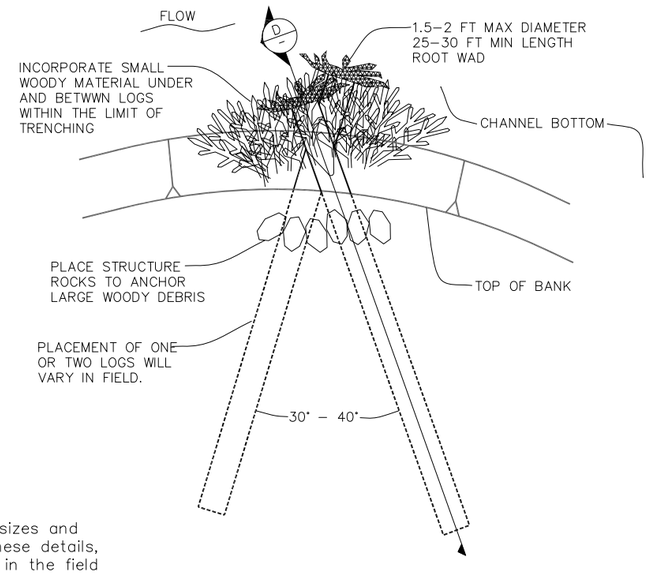


A - *TYPICAL SECTION STEP TOP*

NOT TO SCALE

B - *TYPICAL SECTION STEP TOE*

NOT TO SCALE

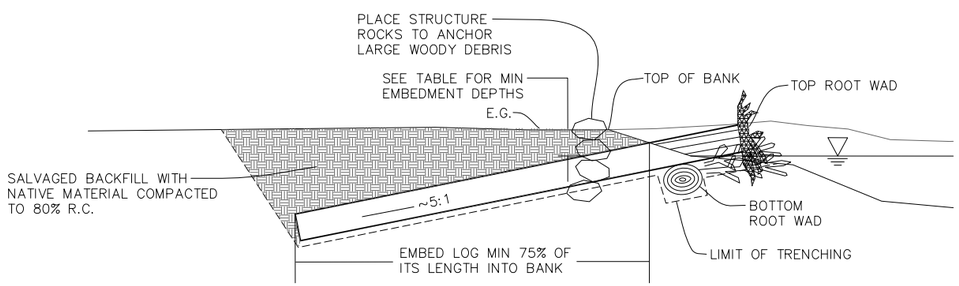


NOTE

1. Final woody debris placement, sizes and configuration may vary from these details, depending upon available sizes in the field and upon the direction of the biologist.

PLAN VIEW LARGE & SMALL WOODY DEBRIS

NOT TO SCALE



D - *SECTION LARGE & SMALL WOODY DEBRIS*

NOT TO SCALE

FULL BASIN SCENARIO
TYPICAL CUT / FILL SECTION

NOT TO SCALE

HALF SCALE PLANS

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SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL

AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

DETAILS

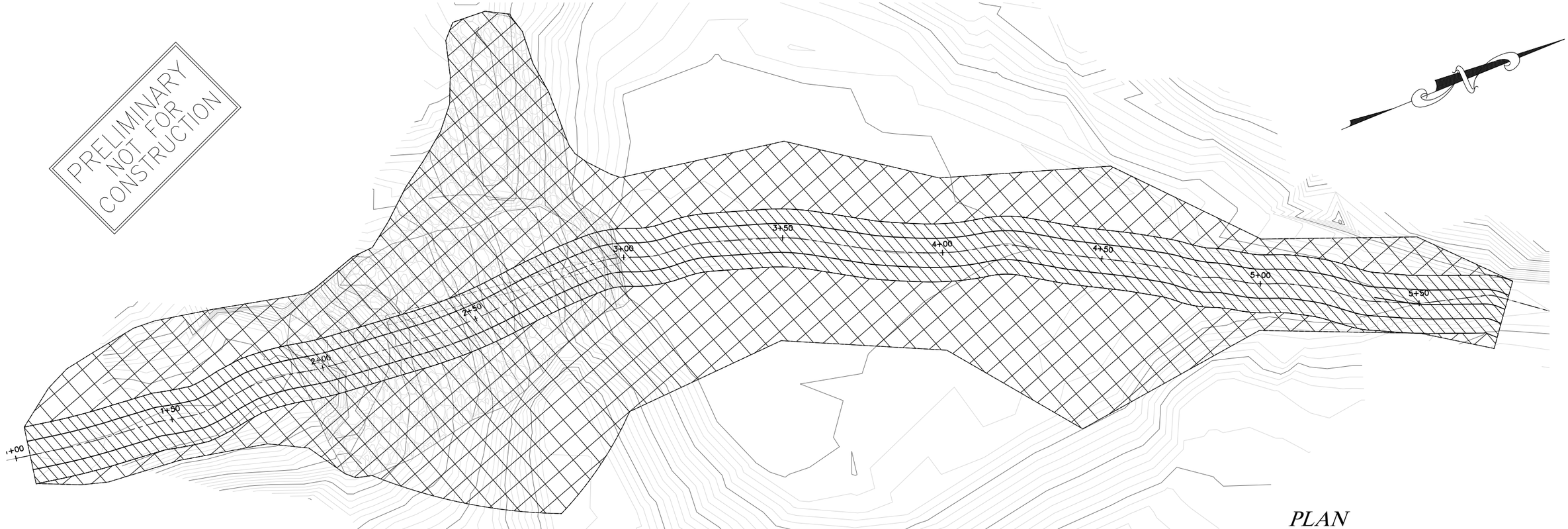
DESIGNED BY:	KS
DRAWN BY:	JM
CHECKED BY:	JF

O-1130

SHEET 9 OF 9

Filename: Cold Springs DB Plans.DWG

PRELIMINARY
NOT FOR
CONSTRUCTION



PLAN
NOT TO SCALE

NOTE:
THIS WORK IS NOT PART
OF THE CONSTRUCTION CONTRACT.

LEGEND

RESTORED STREAMBED

NATIVE RIPARIAN
SPECIES RESTORATION

HALF
SCALE
PLANS

PLANTING PALATE

RESTORED STREAMBED SEEDMIX	NATIVE RIPARIAN PLANT RESTORATION; POTENTIAL PLANT SPECIES
Yerba Mansa: *Anemopsis californica*	Arroyo Willow: *Salix lasiolepis*
Santa Barbara Sedge: *Carex barbarae*	Black Cottonwood: *Populus trichocarpa*
Common Toad Rush: *Juncus bufonius*	Alder: *Alnus rhombifolia*
California Gray Rush: *Juncus patens*	Sycamore: *Platanus racemosa*
Pale Spikerush: *Eleocharis macrostachys*	Coast live oak: *Quercus agrifolia*
Mugwort: *Artemesia douglasiana*	Mexican Elderberry: *Sambucus mexicana*
	Toyon: *Heteromeles arbutifolia*
	Ca. Blackberry: *Rubus ursinus*
	Gooseberry: *Ribes speciosum*
	Ca. Rose: *Rosa californica*

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

COLD SPRINGS DEBRIS
BASIN REMOVAL
AREA OF MONTECITO
SANTA BARBARA COUNTY, CALIFORNIA

RESTORATION AREAS

DESIGNED BY: KS
DRAWN BY: KS
CHECKED BY: MS

SHEET RA1 OF RA1
Filename: Cold Springs DB Plans.DWG

4.2 Maria Ygnacio Creek, East Branch Debris Basin 2017 Addendum to the Program EIR for Santa Barbara County Flood Control and Water Conservation District

4.2.1 Location

The Maria Ygnacio Creek, East Branch Debris Basin is located on the east branch of Maria Ygnacio Creek approximately 1,000 feet north of Via Regina.

4.2.2 History

The Maria Ygnacio Creek, East Branch Debris Basin is an engineered facility that was built in 1990 by the U. S. Department of Agriculture, Soil Conservation Service and the Santa Barbara County Flood Control District after the Painted Cave Fire burned a large percentage of the watershed. The basin was designed to trap 60,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. The basin was constructed in a fallow field immediately adjacent to the east branch of Maria Ygnacio Creek and the creek was re-routed through the basin.

An EIR was finalized in 1992 that analyzed the long-term disposition of the two Maria Ygnacio Debris Basins to be implemented after the watershed had recovered from the effects of the fire (approximately 5 years post-fire). As a result of the EIR the proposed long-term disposition of the Maria Ygnacio, East Branch Debris Basin consisted of allowing the basin to partially fill, re-grading the banks to lessen the slope, replanting the basin slopes, and surrounding areas impacted by construction of the basin, with native riparian species, and providing routine maintenance.

The basin has been maintained on an annual basis since construction. Desilting projects occurred in 1991, 1992, 1995, and 1998. Heavy rains in January 1995 filled the basin with sediment and the basin was desilted in January of that year. The basin partially filled again in March 1995 and that material was graded within the basin to create 6:1 side slopes. The basin was desilted again following the El Nino rains in 1998 but the 6:1 slopes were retained as well as the restoration plants that were planted mainly along the upper slopes surrounding the basin. Vegetation that had colonized the bottom portion of the slopes was removed in 2009, after the Jesusita Fire, in anticipation of increased flows/debris, however no sediment was removed and the restoration plants that occur along the upper slopes was not removed. The vegetation has since recovered throughout the basin floor.

4.2.3 Setting

The east branch of Maria Ygnacio Creek originates in the foothills of the Santa Ynez Mountains above suburban Goleta, CA. The watershed is comprised of 1,122 acres capable of producing 1600 cfs during a 100-year precipitation event. The surrounding land uses near the basin and within the watershed are blend of National Forest land, cattle ranches, citrus and avocado orchards, and rural home properties.

The East Branch Debris Basin site is an off-channel basin; the original basin was excavated to the east of the creek channel and the creek was diverted into the basin. The original creek channel still exists, however it is dry due to the diversion. Substrate in the basin is silty sand with sporadic cobble. A small seep in the basin contributes a trickle of water to the pilot channel nearly all year, even when the surrounding channel has gone dry.

The creek channel upstream of the basin is largely degraded, with construction rubble, ranch road crossings, washouts, and predominantly weedy vegetation. The property immediately upstream of the basin has a large barn, staging areas, outbuildings, and fences associated with agriculture and storage. Downstream of the basin, the riparian habitat is moderate to high quality, with a mixed age riparian canopy. Approximately 1300 feet downstream from the dam, the east branch joins the main stem of Maria Ygnacio Creek.

4.2.4 Wildlife Survey

The site was assessed by the District Biologist in February and March 2017. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The basin provides a blend of habitat types. The main creek corridor upstream and downstream of the site is mature willow riparian habitat. Dominant plant species include arroyo willow, sandbar willow, and mule fat with sporadic cottonwood and sycamore trees. The basin itself has been extensively revegetated with riparian and coastal sage species, such as lemonadeberry, sugarbush, coyotebrush, toyon, and coast live oak. The floor of the basin was desilted in 2009; therefore, most of the vegetation in the basin is 8 years old. The side-slopes of the basis were not disturbed in 2009; therefore, the vegetation is more mature. The old creek alignment has a dense overhead canopy of coast live oak, cottonwood, sycamores, alders, and willows.

The area provides suitable habitat for Baja California treefrog when water is present. California roach and mosquitofish have also been observed at this site. The basin site is upstream of the critical habitat for steelhead trout; this species has been detected in this watershed but not at the basin site. Raccoon, opossum, coyote, and domestic dog tracks are common in the area. The habitat is suitable for a variety of riparian birds with a mix of cover types. Birds detected in the area include common yellowthroat, acorn woodpecker, black phoebe, song sparrow, American crow, horned owl, brown towhee, Bewick's wren, western scrub jay, linnet, mourning dove, and turkey vulture.

4.2.5 Routine Maintenance Prior to Basin Removal

Maria Ygnacio, East Branch Basin in scheduled to be removed during the fall of 2018. As such, potential accumulation of sediment within the basin, prior to its removal, could occur during the winter of 2017 and 2018 when rainfall typically occurs. A routinely maintained pilot channel, outlet structure, and embankment was in place prior to the 2016 winter. Any accumulated sediment within the basin from the 2016/2017 winter will not be removed.

Maria Ygnacio, East Branch Basin typically accumulates little to no sediment except during very large storm events, therefore it isn't likely that the basin will accumulate much sediment in one season unless it is a very large rain year. If the region was to experience a heavy rainfall and runoff season and the basin were to fill in, the District would allow the basin to remain full since the removal of the functioning basin involves rerouting of the creek to its original path and no removal of the basin embankment or re-grading within the basin itself. Riparian vegetation within the abandoned basin will be supported by the existing spring that currently keeps the basin wetted year round.

4.2.5.1 Dam Embankment

In conjunction with the maintenance of a pilot channel, the dam face and a 10-foot swath adjacent to the toe of the dam will be kept clear of vegetation. This will be done using hand tools to the maximum extent feasible and occasional use of herbicide. Maintaining these clear areas reduces the amount of rodent activity on the dam embankment, allows the District to inspect the dam face and provides for efficient sediment transport through the basin, again to reduce incremental filling. The basin area outside of the pilot channel will be left to colonize with native riparian vegetation

4.2.6 Project Description for Basin Removal

The Maria Ygnacio, East Branch Basin is a Group 1 Basin that is scheduled for removal in the fall of 2018 as described in the project specifics below. Unlike other debris basin removals, the actual basin will not be removed but Maria Ygnacio Creek will be rerouted back to its original course. The basin and associated riparian habitat will remain in place. A natural spring that keeps the basin wetted will continue to support the riparian vegetation in and around the basin. Once the basin is removed, it will no longer be included in the Debris Basin Routine Maintenance Program.

The project entails a "complete removal" of the debris basin because the creek will be re-routed back into the pre-existing channel and away from the riprap dam. The soil fill at the upstream end of the basin will be removed and restored to divert flow into the original channel.

The dam structure downstream of the basin consists of an earthen filled dam capped with grouted rock rip-rap. A 36-inch RCP serves as the outlet pipe to the basin. The original creek path was blocked with compacted fill at the downstream diversion connection and with compacted soil and grouted rock at the creek upstream diversion connection. The original stream between these two points has remained unimproved. The original creek flowline at the downstream berm was sinuous and it meandered close to an earthen bank and roadway. To prevent bank degradation, the proposed channel will be situated away from this bank, and thus the original sinuosity will not be replicated at the downstream berm location. Although the meandering channel slope was 3.3 percent and the proposed slope will be 3.9 percent, the difference in velocities between these two slopes at bankfull discharge varies by only 6 percent (i.e., velocity increases from 11 feet per second (fps) to 11.5 fps). This work is being performed to allow fish passage for Southern California steelhead and restore natural sediment delivery through the system. Excavated materials

will be used to re-establish the pre-construction grade and banks through the creek corridor using a stable channel reach upstream of the project as a reference for the restoration design, similar to the USDA and DFW-approved Stream Simulation.

The Maria Ygancio East Branch design footprint is approximately 575 linear feet, comprised of two separate work areas of 400 and 175 linear feet. Spacing of LWD features is approximately 70 feet on average. The average bankfull channel width is 14 feet, indicating that LWD features are installed every 5 channel-widths, which is a greater frequency than indicated from habitat survey efforts during the past several years in the Maria Ygnacio watershed.

Spacing and configuration of design features (i.e., pools, riffles, boulder clusters, forcing-features, and LWD/KWD features) is based on several guidance factors from the RPA, including the stream-simulation method, hydrogeomorphic analyses, and evaluation of reference reaches. The District's stream-simulation engineering consultant (Mike Love and Associates) advised placement of LWD features at outside bends and at intervals overlapping with the pool/riffle features in the simulated streambed. The spacing and frequency is consistent with NMFS and the District's reference-reach surveys in the Maria Ygnacio watershed, which detected LWD features approximately every 6 channel-widths, although the reference surveys were quite variable. The District's design includes LWD every 8-12 channel widths and also includes boulder clusters and loose-rock forcing features in the streambed to achieve NMFS recommendation for roughness features every 5-7 channel widths.

The original channel has collected vegetation and soil material over the past several years due to mild erosion and deposition. The native stream bed remains buried beneath the accumulated materials. The District's project involves two excavation sites at the upstream and downstream end of the original channel. The excavation sites will match the depth of the original buried streambed material. Once flow has been diverted and restored into the original flowline, the accumulated material between the two excavation sites would disperse downstream with higher flows. Some brushing and/or soil grooming may be performed to encourage bed mobility.

4.2.7 Temporary Impacts and Restoration

The proposed project would require temporary disturbance of approximately 0.96 acre for access, grading, streambed reconfiguration, channel construction, cut and fill of restored banks, and removal of the sediment barriers.

The barrier removal and channel restoration project has been designed to minimize the removal of vegetation and sediment while obtaining the fish-passage objectives and the channel-stability objectives of the stream-simulation method.

The impacts would be temporary. Following removal of the barriers and re-connection of the original creek channel, the disturbed areas would be revegetated with native riparian species, including willow, alder, sycamore, oaks, and understory shrubs and herbaceous species. Bio-engineering techniques will be developed and implemented to retain native

riparian vegetation when feasible and as part of channel reconstruction. Container plants and cuttings would be used for the trees and shrub species. A seed mix including emergent and wetland plants would be dispersed lightly within the creek corridor to assist in recolonization of native species, such as mugwort, Juncus species, blackberry, and others.

PHOTOGRAPH 4.2-1
Maria Ygnacio Creek, East Branch Debris Basin Embankment

PHOTOGRAPH 4.2-2
Maria Ygnacio Creek, East Branch Debris Basin

PHOTOGRAPH 4.2-3
Maria Ygnacio Creek, East Branch Debris Basin Looking Downstream

Map Source: County of Santa Barbara

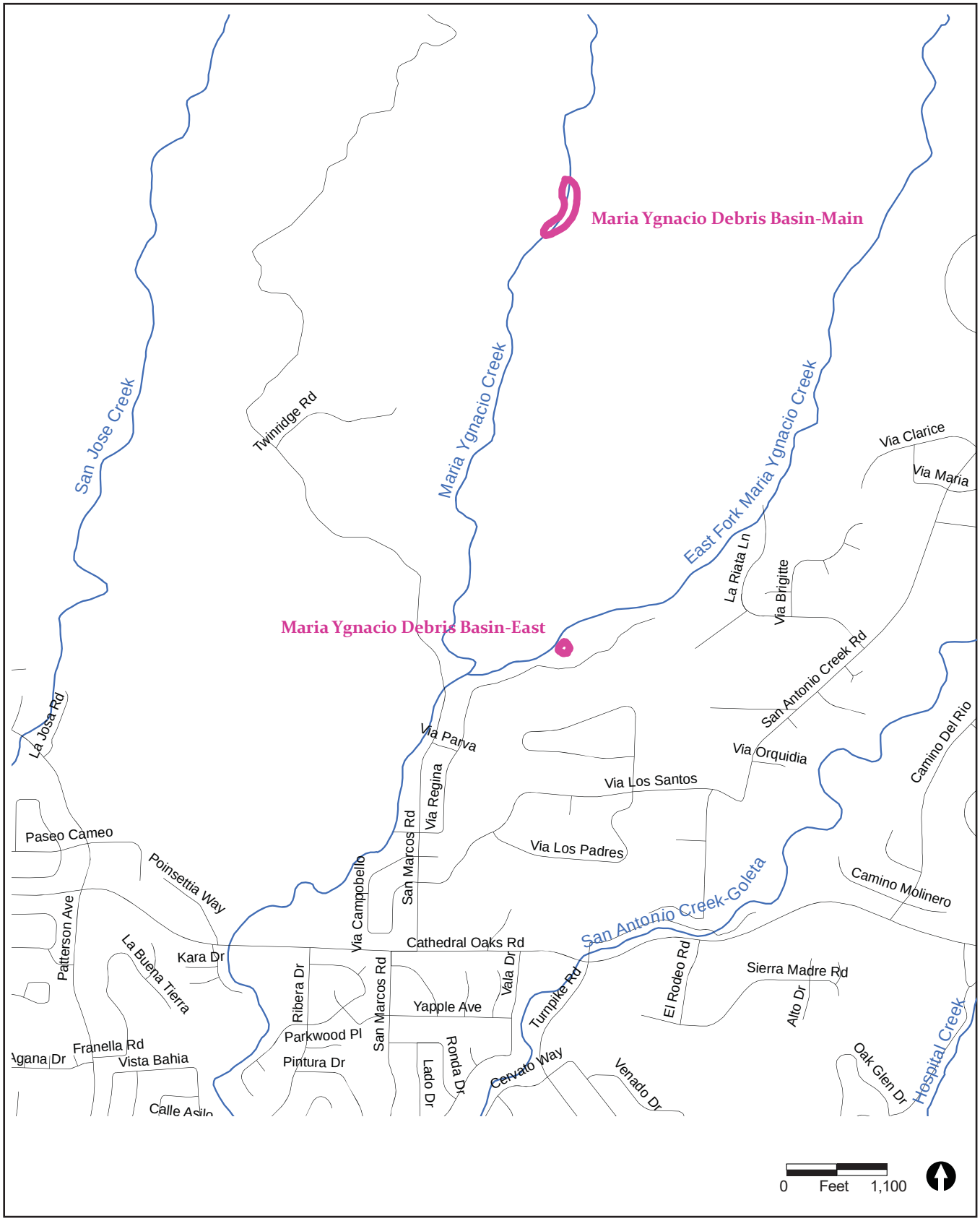


FIGURE 4.2-1
Maria Ygnacio Creek, East Branch Debris Basin Map

Map Source: County of Santa Barbara

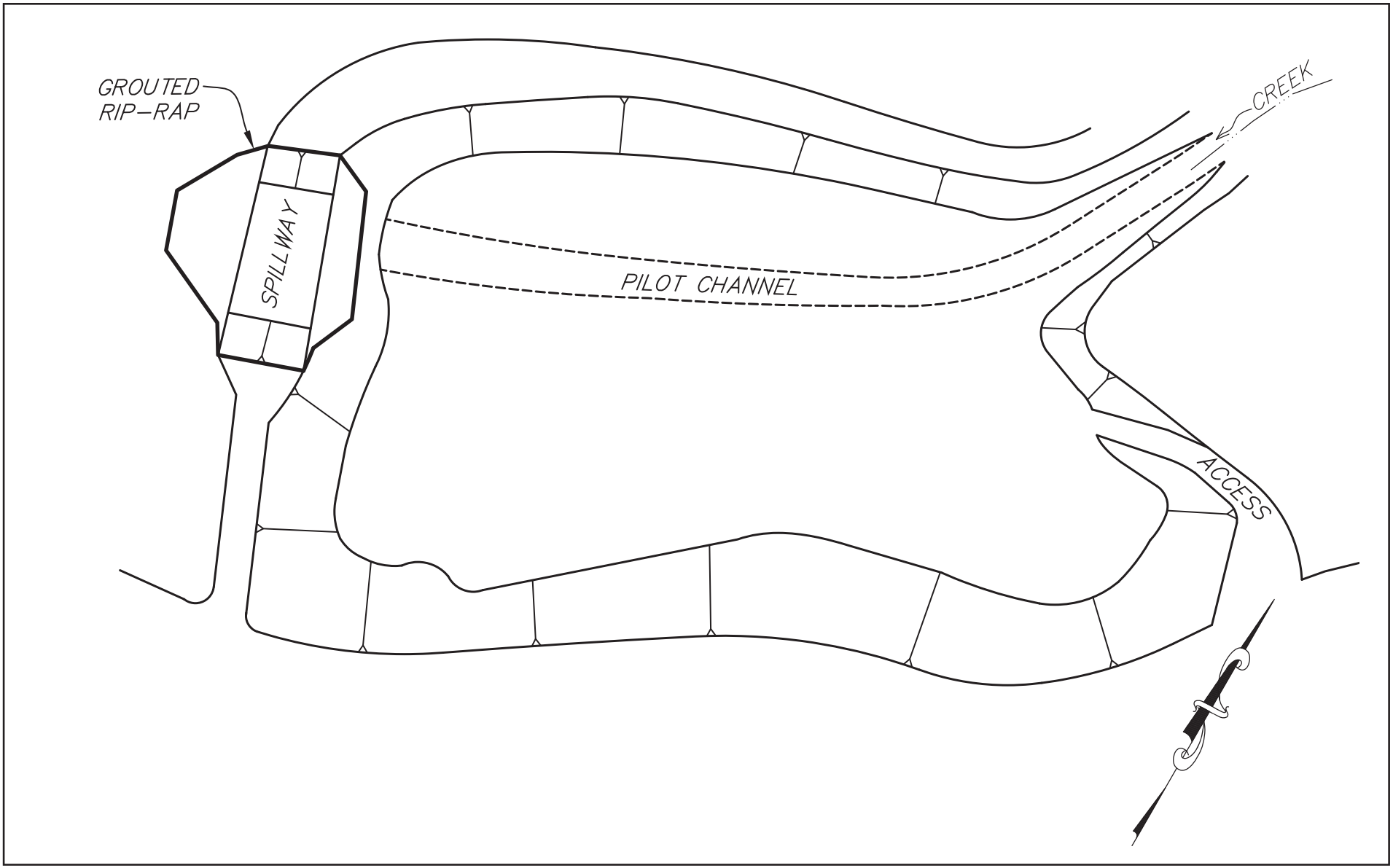


FIGURE 4.2-2

Maria Ygnacio Creek, East Branch Debris Basin Figure

M:\JOBS5\8687\env\graphics\DebrisBasin\fig4.2-2.ai 03/28/17 ccn

Maria Ygnacio Creek, East Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Malosma laurelina	Laurel sumac	N
Toxicodendron diversilobum	Poison oak	N
Rhus integrifolia	Lemonadeberry	N
Rhus ovate	Sugar bush	N
APIACEAE		
Apium graveolens	Wild celery	I
Conium maculatum	Poison hemlock	I
APOCYNACEAE		
Vinca major	Periwinkle	I
ASTERACEAE		
Ambrosia psilostachya var. *californica*	Western ragweed	N
Amaranthus albus	Tumbleweed	I
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Baccharis salicifolia	Mule fat	N
Carduus pyenocephalus	Italian thistle	I
Gnaphalium bicolor	Bicolored everlasting	N
Gnaphalium luteo-album	Cudweed everlasting	I
Isocoma menziesii	Coast golden bush	N
Lactuca serriola	Prickly lettuce	I
Picris echioides	Ox tongue	I
Venegasia carpesioides	Canyon sunflower	N
Xanthium strumarium	Cocklebur	N
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa Nasturtium-aquaticum	Watercress	I
CAPRIFOLIACEAE		
Sambucus mexicana	Elderberry	N
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican tea	I
Chenopodium berlanclieri	Berlander's goosefoot	N
Chenopodium murale	Nettle-leaved goosefoot	I
CYPERACEAE		
Cyperus esculentus	Sedge	I
Cyperus eragrostis	Tall umbrella sedge	N
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
M*elilotus alba*	White sweetclover	I

Maria Ygnacio Creek, East Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
FAGACEAE		
Quercus agrifolia	Coast live oak	N
GROSSULARIACEAE		
Ribes amarum	Gooseberry	N
HYDROPHYLLACEAE		
Phacelia viscida	Sticky phacelia	N
Phacelia ramosissima	Branching phacelia	I
LAMIACEAE		
Mentha sp.	Mint	I
LAURACEAE		
Umbellularia californica	California Bay	N
PLATAGINACEAE		
Plantago major	Common plantain	I
Plantago lanceolata	Plantain	I
PLANT ANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Elymus condensatus	Giant rye	I
Hordeum murinum	Foxtail	I
Lolium mitiacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
RANUNCULACEAE		
Clematis ligusticifolia	Creek clematis	N
RHAMNACEAE		
Rhamnus californica	Coffeeberry	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rosa californica	California rose	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
Salix laevigata	Red willow	N
SCROPHULARIACEAE		
Scrophularia californca	California figwort	N
Veronica anagallis-aquatica	Water speedwell	I
SOLANACEAE		
Datura wrightii	Jimsonweed	N
Nicotiana glauca	Tree tobacco	I
Solanum douglasii	Douglas nightshade	N
Solanum xanti	Nightshade	N

Maria Ygnacio Creek, East Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
TYPACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

PRELIMINARY
NOT FOR
CONSTRUCTION

SANTA BARBARA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL

PROJECT NO. SC8351

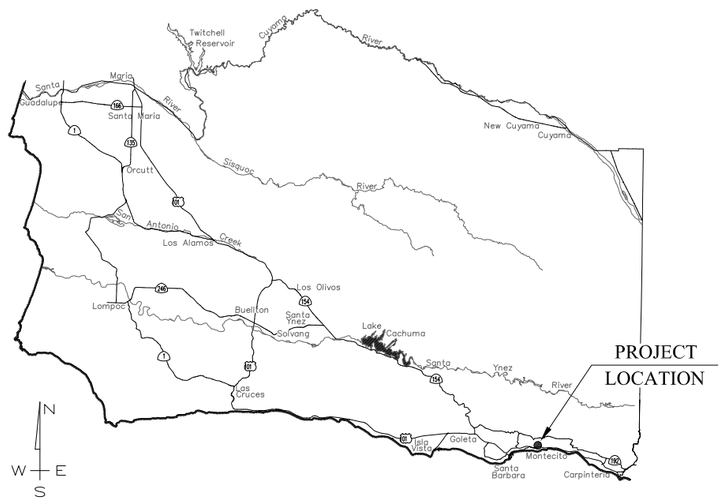
90% PLANS

IN THE GOLETA AREA
OF
SANTA BARBARA COUNTY, CALIFORNIA

G:\Group\WaterResources\Flood Control\Design\Civil Design Projects\Symbols\dwg\LSBWATERMap1.bmp

DISTRICT BOARD OF DIRECTORS

FIRST DISTRICT	Das Williams
SECOND DISTRICT	Janet Wolf
THIRD DISTRICT, CHAIR	Joan Hartmann
FOURTH DISTRICT	Peter Adam
FIFTH DISTRICT	Steve Lavagnino



VICINITY MAP
No Scale

INDEX TO SHEETS

G:\Group\WaterResources\Flood Control\Design\Civil Design Projects\Maria Ygnacio East Basin Mod\Maps\Location Map.jpg

SITE MAP
No Scale

HALF
SCALE PLANS

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:			
FLOOD CONTROL DESIGN ENGINEER DATE			
REVIEWED BY:		REVIEWED BY	
FLOOD CONTROL ENGINEERING MANAGER DATE		MAINTENANCE SUPERINTENDENT DATE	
REVIEWED BY		REVIEWED BY	
FLOOD CONTROL DEPUTY DIRECTOR DATE		ENVIRONMENTAL SERVICES MANAGER DATE	

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

TITLE SHEET

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1129

SHEET 1 OF 8

Filename: Maria Ygnacio East Plans.dwg

SYMBOL LEGEND

CONTROL POINT
EX. CABLE TV BOX (CTV)
EX. CABLE TV VAULT (CTV VAULT)
EX. ELECTRIC BOX (EBOX)
EX. ELECTRIC GUY WIRE (GWE)
EX. ELECTRIC MANHOLE (E)
EX. ELECTRIC METER (EM)
EX. FIRE HYDRANT
EX. GAS METER (GM)
EX. GAS VALVE (GV)
EX. IRRIGATION SPRINKLER
EX. LUMINARY
EX. MAILBOX (MB)
EX. MONUMENT
EX. POWER & TELEPHONE POLE (PTP)

EX. ROCK
EX. SEWER CLEANOUT
EX. SEWER MANHOLE (S)
EX. SIGNAGE
EX. STORM DRAIN GRATE
EX. STORM DRAIN MANHOLE
EX. STRUCTURE BENCH
EX. STRUCTURE BOLLARD/POST
EX. TELEPHONE BOX (TBOX)
EX. TELEPHONE MANHOLE (T)
EX. TELEPHONE POLE
EX. TELEPHONE VAULT (TELE VAULT)
EX. BUSH/HEDGE
EX. CACTUS
EX. SHRUB

EX. TREE
EX. TREE – EUCALYPTUS
EX. TREE – LEMON
EX. TREE – PALM
EX. TREE – PINE
EX. TREE – STUMP
EX. TREE – SYCAMORE
EX. TREE – WILLOW
EX. TREE – YUCCA
EX. WATER METER
EX. WATER SPIGOT
EX. WATER VALVE (WV)
EX. WATER WELL (W)

LINETYPE LEGEND

BOUNDARY EASEMENT LINE
BOUNDARY RIGHT OF WAY LINE
BOUNDARY PROPERTY LINE
CENTERLINE
CONTOUR LINE–MAJOR (10)
CONTOUR LINE–MINOR
EX. AC EDGE OF PAVEMENT
EX. BARBED WIRE FENCE
EX. BRUSH

EX. FLOWLINE
EX. STORM DRAIN
EX. BUILDING
EX. CABLE TV
EX. CHAINLINK FENCE
EX. DRAINAGE
EX. ELECTRIC
EX. ELECTRIC OVERHEAD
EX. FACILITIES

STANDARD DETAILS AND PLANS LIST

STANDARD NO.	DESCRIPTION

STATE DEPARTMENT OF TRANSPORTATION STANDARD PLANS (MAY 2006 EDITION)
The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply are attached to the contract.

A10A	ACRONYMS AND ABBREVIATIONS
A10B	ACRONYMS AND ABBREVIATIONS
A10C	SYMBOLS

ABBREVIATIONS

APN	ASSESSORS PARCEL NUMBER
APWA	AMERICAN PUBLIC WORKS ASSOC.
AT	ARCHITRCTURAL TEXTURE
BW	BOTH WAYS
CFS	CUBIC FEET PER SECOND
CL or C/L	CENTER LINE
CALTRANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
COUNTY	COUNTY OF SANTA BARBARA
CP	CONTROL POINT
DI	DUCTILE IRON OR DROP INLET
DW	DRIVEWAY
E	EAST OR EASTING
EG	EXISTING GROUND
EGL	ENERGY GRADE LINE
EL	ELEVATION
EP	EDGE OF PAVEMENT
ELEC	ELECTRIC
FD	FOUND
FT	FEET
G	GAS LINE
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
IP	IRON PIPE
IN	INCH
MJ	MECHANICAL JOINT
n	MANNING'S COEFFICIENT
N	NORTH OR NORTHING
OC	ON CENTER
PK	PK NAIL
Q	FLOW VELOCITY
R1	RECORD PER BOOK NN, PAGE NN OF MAPS
S	SEWER OR SLOPE OR SOUTH
SDMH	STORM DRAIN MANHOLE
SH	SHINER
SPK	SPIKE
S/W	SIDEWALK
TW or tw	TOP OF WALL
TCE	TEMPORARY CONSTRUCTION EASEMENT
TBM	TEMPORARY BENCH MARK
TSW	TOP OF SIDEWALK
TP	TOP OF PAVEMENT
W or WL	WATER LINE
WF	WALL FACE
WWF	WELDED WIRE FABRIC
V	VELOCITY
VB	VALVE BOX

PRELIMINARY NOT FOR CONSTRUCTION

HORIZONTAL AND VERTICAL CONTROL

Surveyor's Notes:
Horizontal positions were derived from GPS observation holding Continuously Operating Reference Stations (CORS) Coal Oil Point Reserve (COPR), Bradbary Damn (BBDM), West La Cumbre Peak (RCA2) and Casitas Station (CSST) fixed as shown on Record of Survey book 171 pages 24 and 25 based on California Coordinate System 1983 (CCS83) 1991.35 epoch.

Elevations (orthometric heights) were derived by GPS observation and converted to the North American Vertical Datum 1988 (NAVD88) using the National Geodetic Survey's program GEOID99 holding Continuously Operating Reference Stations (CORS) Casitas Station (CSST), Bradbary Damn (BBDM), West La Cumbre Peak (RCA2) and Coal Oil Point Reserve (COPR) fixed as shown on Record of Survey book 171 pages 24 and 25.

All coordinate values shown are grid values. All distances are based on the U.S. Survey Foot
(one survey foot = 1200/3937 meters).

Contour Interval:
The contour interval is shown at 1 foot intervals with majors at every 5 feet

Basis of Bearings:
The Basis of Bearings is between CORS sites BBDM AND RCA2 as shown on Record of Survey book 171 pages 24 through 25, calculated and measured as S 68°08'30.7" E, 84246.116'.

Boundary Note:
Right–Of–Way boundary not shown

EXISTING UTILITY INFORMATION

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN. NOTE THAT INDIVIDUAL SERVICE LATERALS AND CONNECTIONS ARE NOT PLOTTED ON THE PROFILE.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1–800–422–4133.

HALF SCALE PLANS

SCALE: 1" = 100'

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

GENERAL INFORMATION & ACCESS ROUTE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

SHEET 2 OF 8

Filename: Maria Ygnacio East Plans.dwg

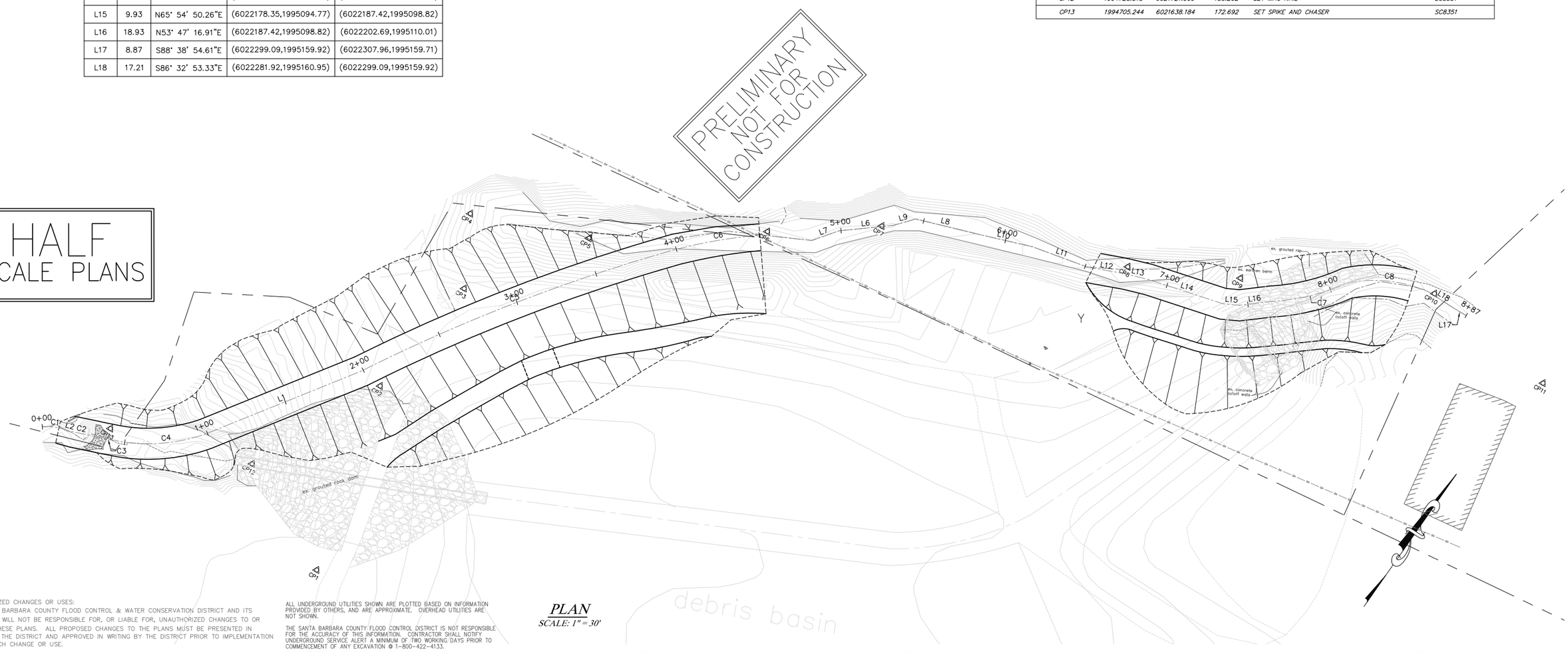
Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	99.95	N38° 36' 26.81"E	(6021688.90,1994730.02)	(6021751.27,1994808.12)
L2	4.23	N76° 55' 56.52"E	(6021615.08,1994691.49)	(6021619.20,1994692.44)
L6	32.66	N54° 51' 55.88"E	(6021957.98,1995020.41)	(6021984.69,1995039.21)
L7	17.07	N40° 58' 34.44"E	(6021946.79,1995007.53)	(6021957.98,1995020.41)
L8	34.95	N74° 28' 58.75"E	(6021994.42,1995049.09)	(6022028.09,1995058.44)
L9	13.86	N44° 33' 08.03"E	(6021984.69,1995039.21)	(6021994.42,1995049.09)
L10	36.43	N73° 34' 32.54"E	(6022028.09,1995058.44)	(6022063.04,1995068.74)
L11	34.47	N80° 59' 23.10"E	(6022063.04,1995068.74)	(6022097.08,1995074.14)
L12	23.12	N70° 47' 17.33"E	(6022097.08,1995074.14)	(6022118.91,1995081.74)
L13	14.47	N74° 11' 29.42"E	(6022118.91,1995081.74)	(6022132.83,1995085.69)
L14	46.41	N78° 42' 53.70"E	(6022132.83,1995085.69)	(6022178.35,1995094.77)
L15	9.93	N65° 54' 50.26"E	(6022178.35,1995094.77)	(6022187.42,1995098.82)
L16	18.93	N53° 47' 16.91"E	(6022187.42,1995098.82)	(6022202.69,1995110.01)
L17	8.87	S88° 38' 54.61"E	(6022299.09,1995159.92)	(6022307.96,1995159.71)
L18	17.21	S86° 32' 53.33"E	(6022281.92,1995160.95)	(6022299.09,1995159.92)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	34.58	13.89	N67° 52' 34.09"E	(6021602.30,1994686.29)	(6021615.08,1994691.49)
C2	438.11	10.26	N72° 12' 07.77"E	(6021619.20,1994692.44)	(6021628.97,1994695.58)
C3	367.20	23.22	N71° 35' 53.36"E	(6021628.97,1994695.58)	(6021651.01,1994702.91)
C4	104.70	46.99	N54° 25' 35.47"E	(6021651.01,1994702.91)	(6021688.90,1994730.02)
C5	1065.09	202.15	N39° 28' 26.24"E	(6021751.27,1994808.12)	(6021879.59,1994963.93)
C6	316.59	50.65	N51° 08' 09.89"E	(6021879.59,1994963.93)	(6021918.99,1994995.68)
C7	129.82	46.84	N47° 06' 27.75"E	(6022202.69,1995110.01)	(6022236.82,1995141.71)
C8	78.17	49.87	N66° 53' 34.39"E	(6022236.82,1995141.71)	(6022281.92,1995160.95)

CONTROL POINT TABLE

CONTROL POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	RECORD
CP1	1994692.132	6021786.376	200.604	SET 1/2" PIPE WITH MAG NAIL	S942_SC8351
CP2	1994806.042	6021765.553	200.701	SET 1/2" PIPE WITH MAG NAIL	S942_SC8351
CP3	1994881.122	6021780.627	201.619	SET 1/2" PIPE WITH MAG NAIL	S942_SC8351
CP4	1994921.732	6021761.967	195.253	SET SPIKE AND CHASER	SC8351
CP5	1994943.594	6021830.638	187.779	SET SPIKE AND CHASER	SC8351
CP6	1994999.215	6021921.215	191.691	SET SPIKE AND CHASER	SC8351
CP7	1995035.476	6021978.893	192.034	SET SPIKE AND CHASER	SC8351
CP8	1995086.199	6022118.297	198.019	SET SPIKE AND CHASER	SC8351
CP9	1995113.196	6022180.032	206.952	SET SPIKE AND CHASER	SC8351
CP10	1995161.807	6022285.076	201.662	SET SPIKE AND CHASER	SC8351
CP11	1995147.082	6022367.483	202.537	SET SPIKE AND CHASER	SC8351
CP12	1994728.318	6021721.909	180.202	SET MAG NAIL	SC8351
CP13	1994705.244	6021638.184	172.692	SET SPIKE AND CHASER	SC8351

HALF SCALE PLANS



UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.

PLAN
SCALE: 1" = 30'

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

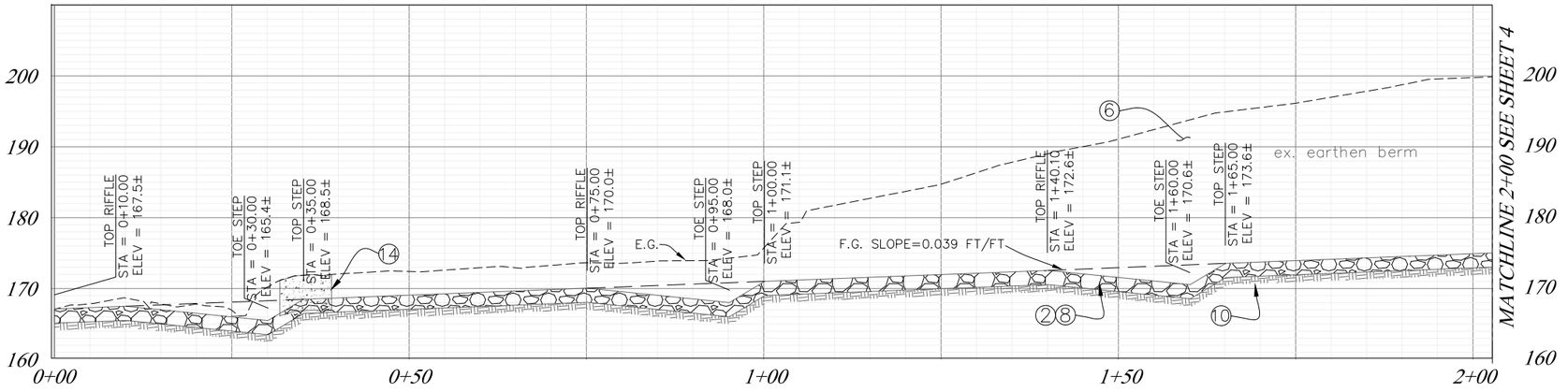
HORIZONTAL CONTROL PLAN

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

SHEET 3 OF 8

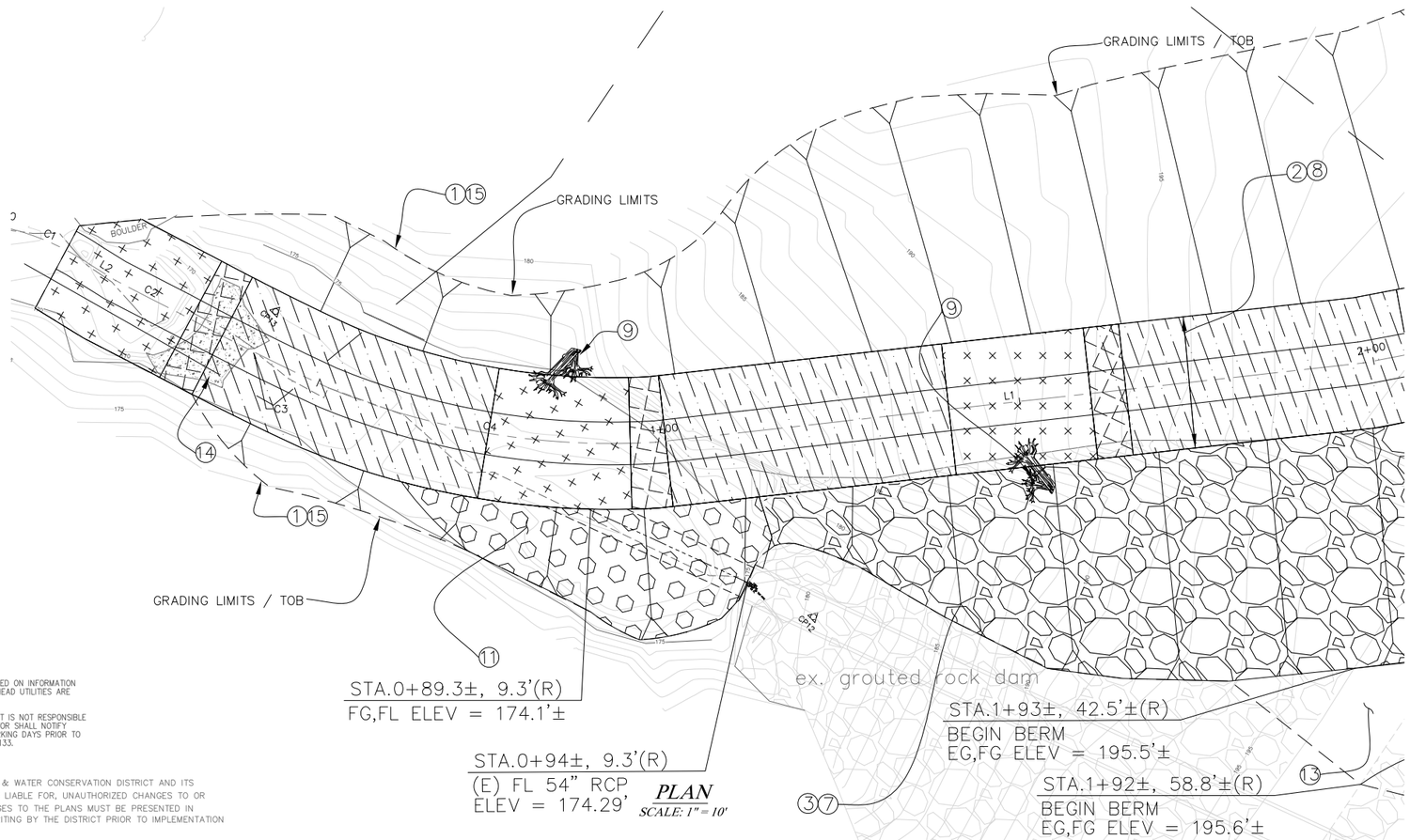
Filename: Maria Ygnacio East Plans.dwg



PRELIMINARY NOT FOR CONSTRUCTION

PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN
SCALE: 1" = 10'

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

CONSTRUCTION NOTES

① Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.

② Construct channel step, pool and riffle per details on Sheet 8.

③ Remove and break up grouted rock dam to the extent necessary for bank construction. Reserve rock for bank stabilization and as streambed material for channel construction per details on Sheet 8.

⑥ Excavate earthen berm and reserve for channel construction.

⑦ Overexcavate the creek bank and compact existing dam fill a minimum of 1' deep at 95% relative compaction. Stabilize creek bank with broken up grouted rock (BGR) per detail on Sheet 8. Cover BGR with 18" native material.

⑧ Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 8.

⑨ Install and anchor large woody debris per detail on Sheet 8.

⑩ Compact existing ground below SBM a minimum of 1' at 85% relative compaction.

⑪ Place rock slope protection light class per detail on Sheet 8.

⑬ Construct earthen embankment. Compact to 95% relative compaction.

⑭ Remove and dispose of existing concrete slurry check structure.

⑮ Conform to existing grade.

STEP
POOL
RIFFLE

HALF SCALE PLANS

GRAPHIC SCALE
1 0 .5 1 2 4

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

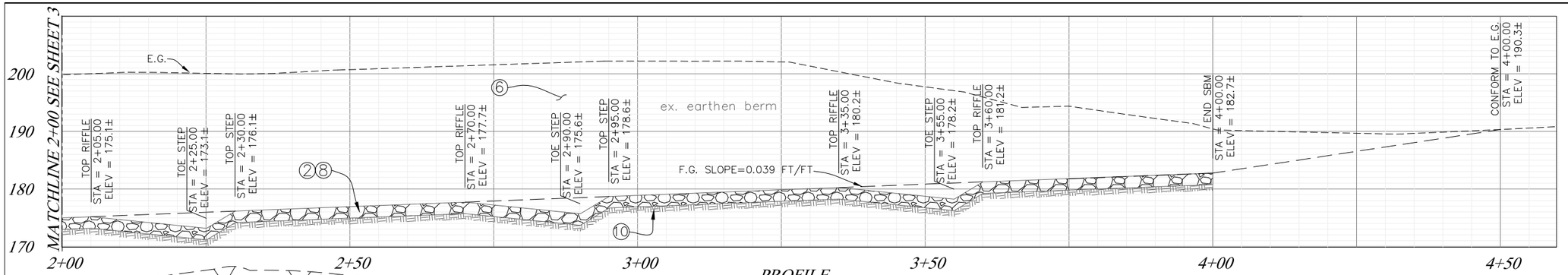
PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

SHEET 4 OF 8

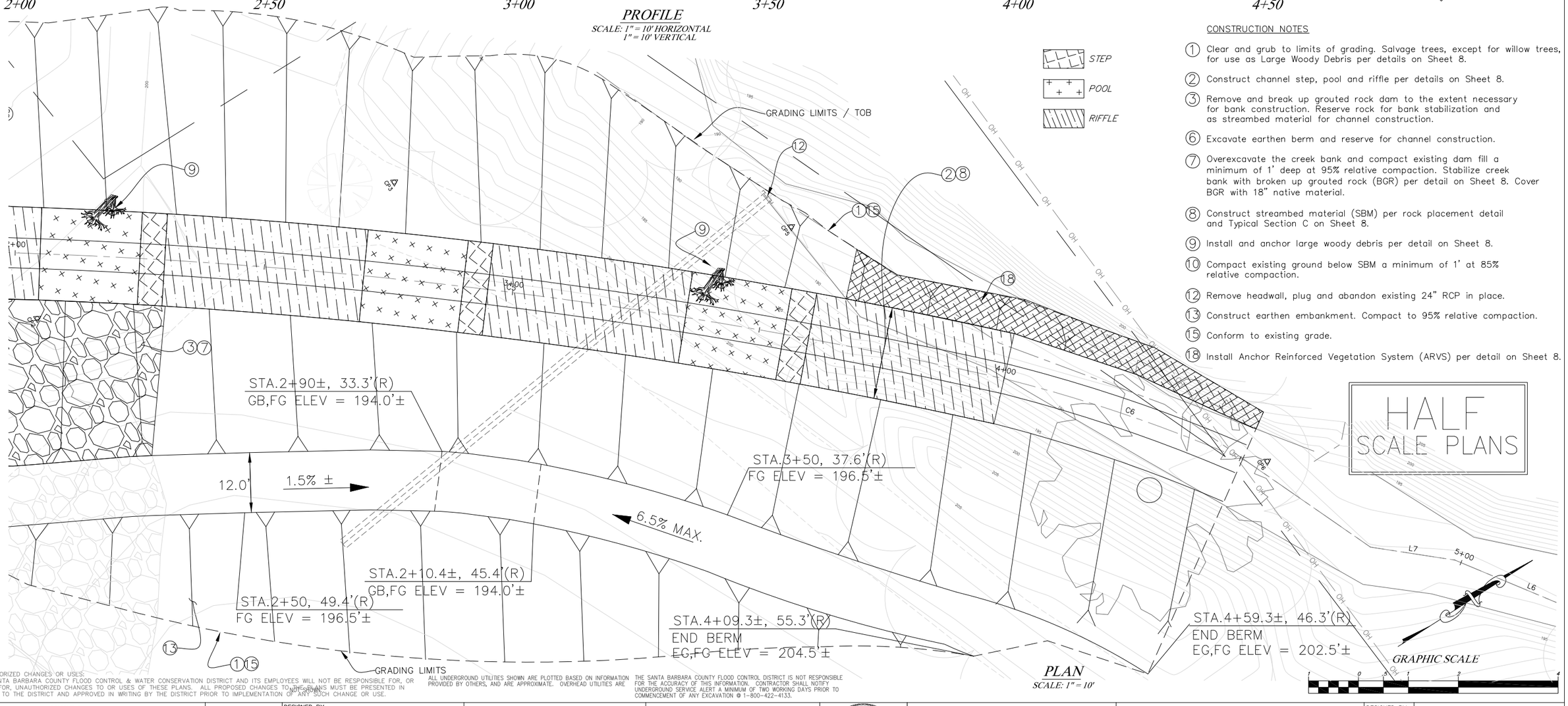
Filename: Maria Ygnacio East Plans.dwg



PRELIMINARY NOT FOR CONSTRUCTION

PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN

SCALE: 1" = 10'

GRAPHIC SCALE

1 0 .5 1 2 4

HALF SCALE PLANS

CONSTRUCTION NOTES

1. Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.
2. Construct channel step, pool and riffle per details on Sheet 8.
3. Remove and break up grouted rock dam to the extent necessary for bank construction. Reserve rock for bank stabilization and as streambed material for channel construction.
6. Excavate earthen berm and reserve for channel construction.
7. Overexcavate the creek bank and compact existing dam fill a minimum of 1' deep at 95% relative compaction. Stabilize creek bank with broken up grouted rock (BGR) per detail on Sheet 8. Cover BGR with 18" native material.
8. Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 8.
9. Install and anchor large woody debris per detail on Sheet 8.
10. Compact existing ground below SBM a minimum of 1' at 85% relative compaction.
12. Remove headwall, plug and abandon existing 24" RCP in place.
13. Construct earthen embankment. Compact to 95% relative compaction.
15. Conform to existing grade.
18. Install Anchor Reinforced Vegetation System (ARVS) per detail on Sheet 8.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

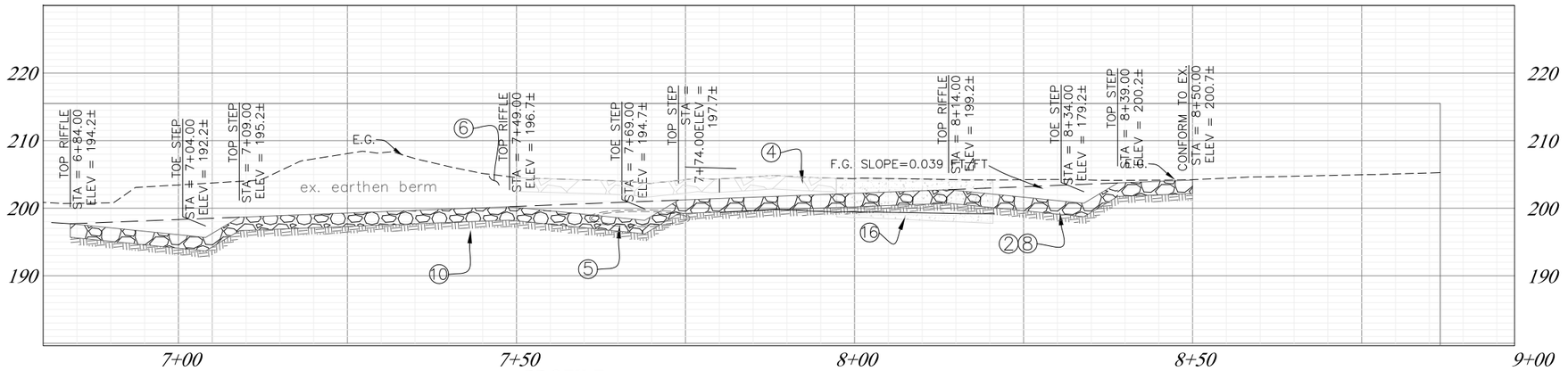
PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

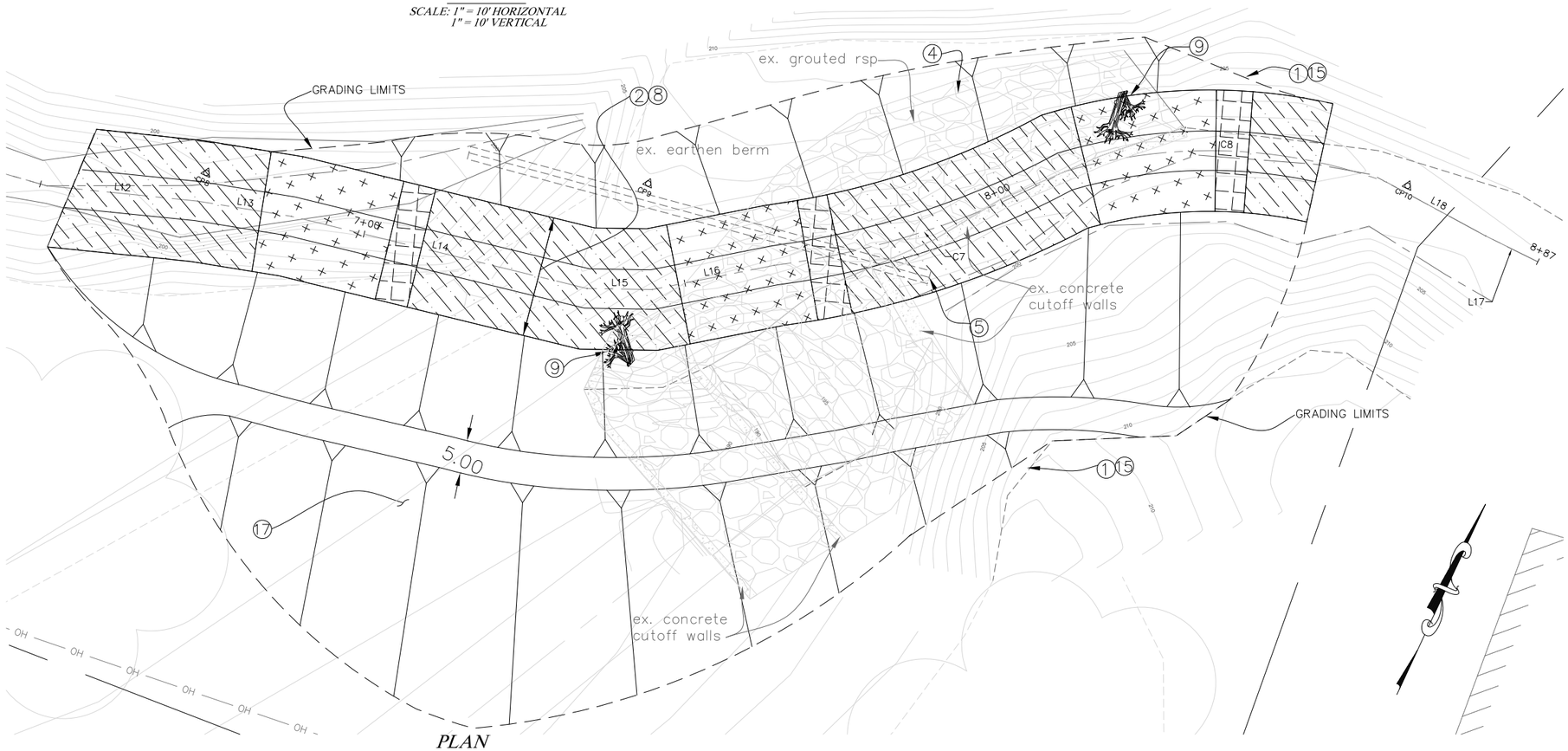
SHEET 5 OF 8

Filename: Maria Ygnacio East Plans.dwg



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN

SCALE: 1" = 10'

PRELIMINARY NOT FOR CONSTRUCTION

CONSTRUCTION NOTES

1. Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.
2. Construct channel step, pool and riffle per details on Sheet 8.
4. Remove and break up grouted rock berm. Reuse rock for bank stabilization and as streambed material for channel construction.
5. Remove and dispose of existing 24" RCP, cutoff walls and flared-end sections.
6. Excavate earthen berm and reserve for channel construction.
8. Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 8.
9. Install and anchor large woody debris per detail on Sheet 8.
10. Compact existing ground below SBM a minimum of 1' at 85% relative compaction.
15. Conform to existing grade.
16. Remove interfering portions of existing concrete cutoff walls.
17. Construct earthen embankment 12' above channel flowline elevation. Compact to 95% relative compaction.

STEP

POOL

RIFFLE

HALF SCALE PLANS

GRAPHIC SCALE

1 0 .5 1 2 4

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(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

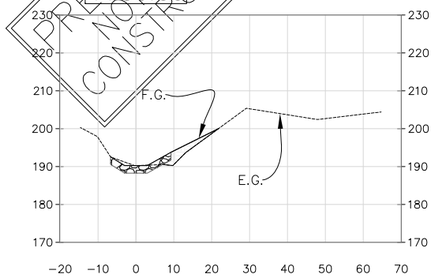
SHEET 6 OF 8

Filename: Maria Ygnacio East Plans.dwg

PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS

4+50.00



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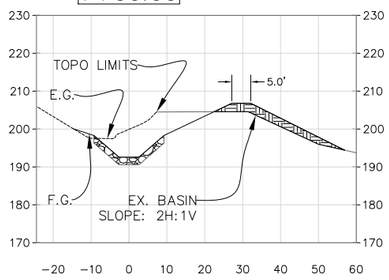

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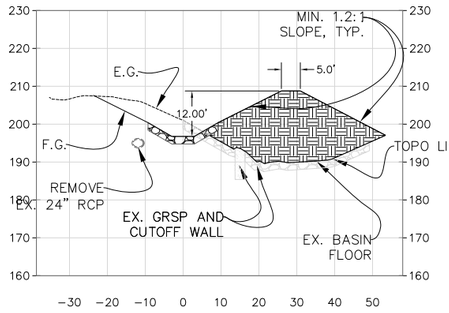

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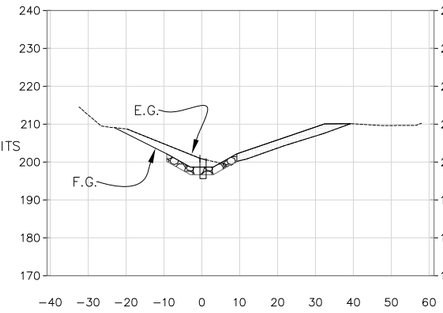

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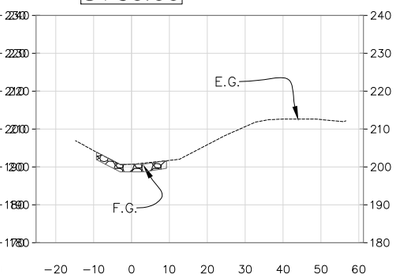

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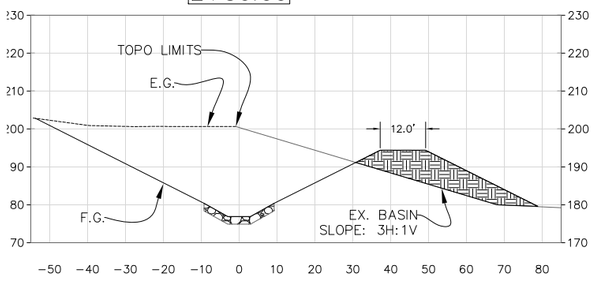

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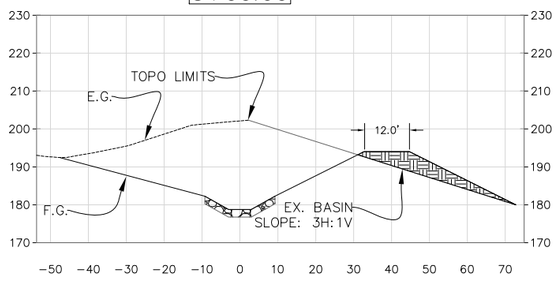

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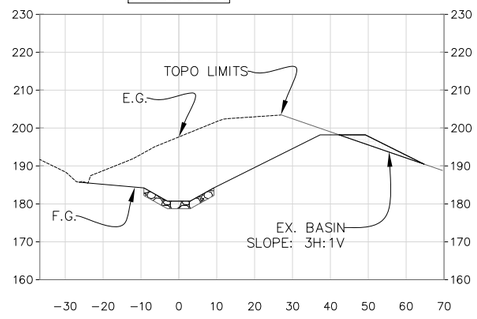

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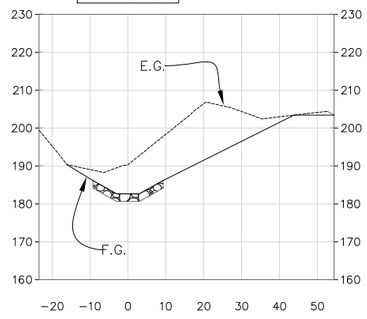

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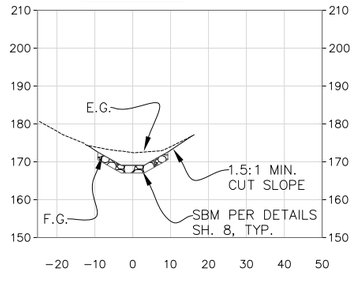

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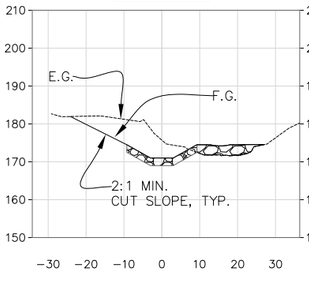

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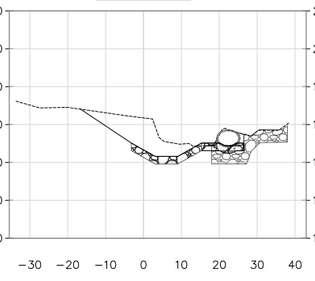

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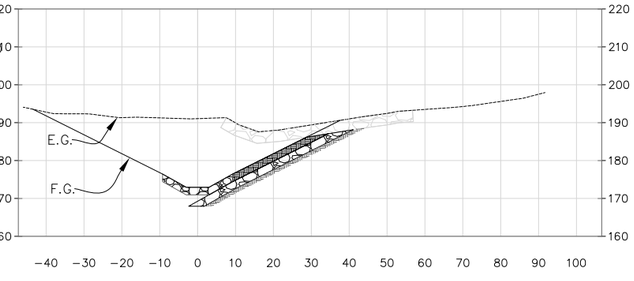

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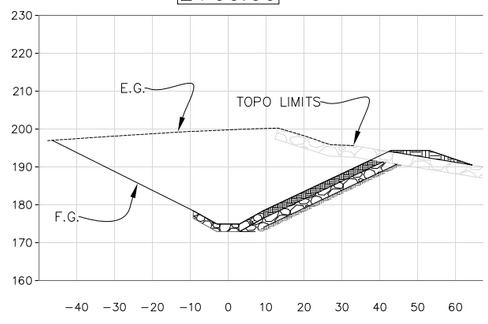

HORIZONTAL SCALE = VERTICAL SCALE: 1" = 20'

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GRAPHIC SCALE

1 0 .5 1 2 4

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

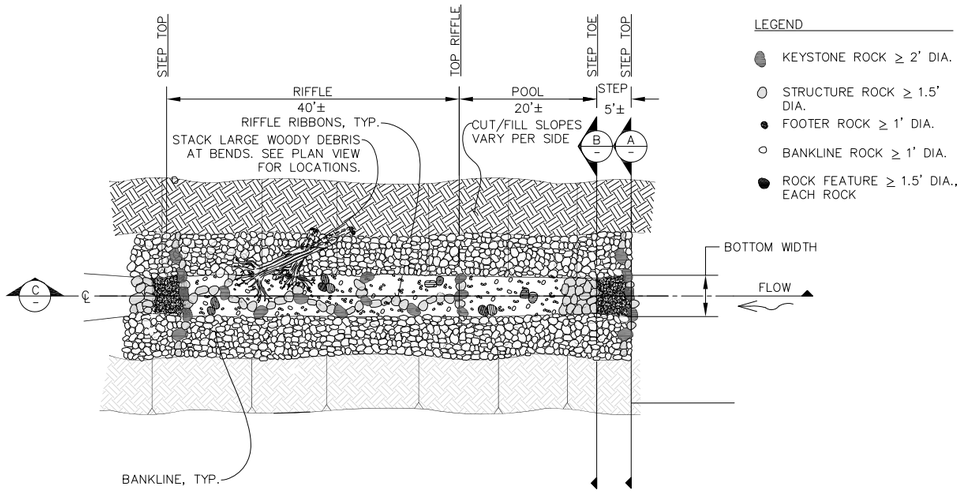
CROSS SECTIONS

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1129

SHEET 7 OF 8

Filename: Maria Ygnacio East Plans.dwg

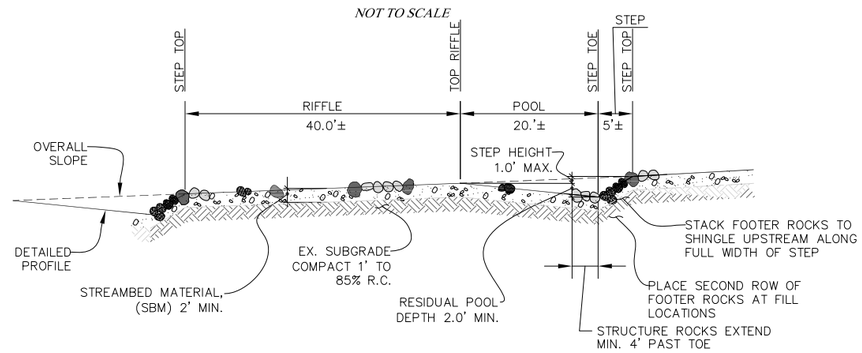


LEGEND

- KEYSTONE ROCK ≥ 2' DIA.
- STRUCTURE ROCK ≥ 1.5' DIA.
- FOOTER ROCK ≥ 1' DIA.
- BANKLINE ROCK ≥ 1' DIA.
- ROCK FEATURE ≥ 1.5' DIA., EACH ROCK

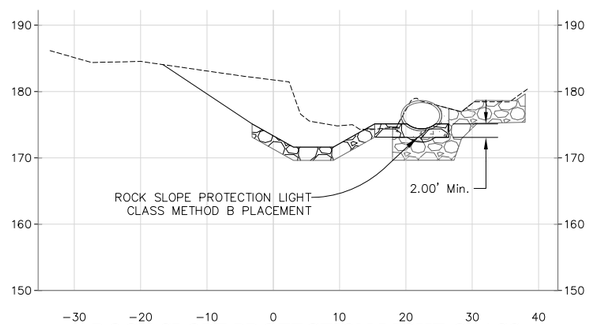
PLAN VIEW ROCK PLACEMENT DETAIL

NOT TO SCALE



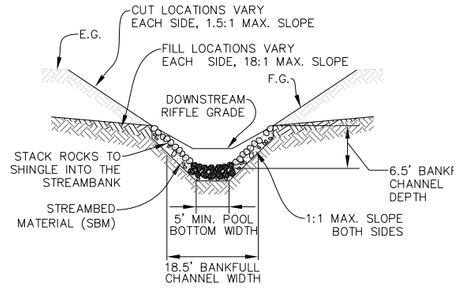
C PROFILE VIEW ROCK PLACEMENT

NOT TO SCALE



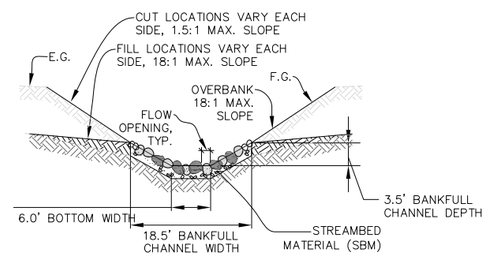
ROCK SLOPE PROTECTION LIGHT CLASS STA 0+65 ± TO STA1+12±

NOT TO SCALE



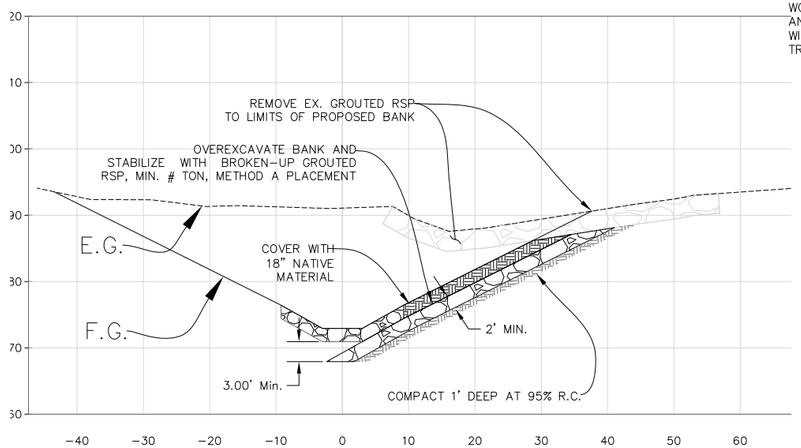
A TYPICAL SECTION STEP TOP

NOT TO SCALE



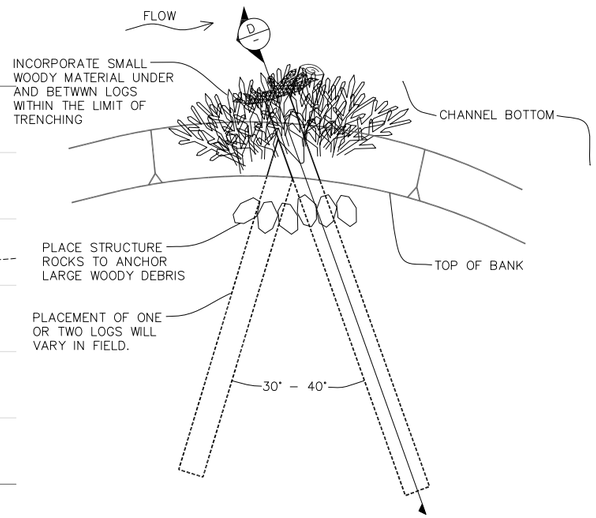
B TYPICAL SECTION STEP TOE

NOT TO SCALE



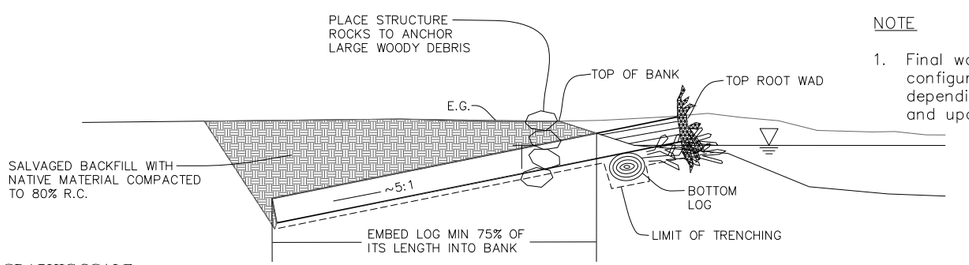
BANK STABILIZATION DETAIL STA 1+12± TO STA 2+31±

NOT TO SCALE



PLAN VIEW LARGE & SMALL WOODY DEBRIS

NOT TO SCALE



NOTE

1. Final woody debris placement, sizes and configuration may vary from these details, depending upon available sizes in the field and upon the direction of the biologist.

GRAPHIC SCALE

1 0 .5 1 2 4

D SECTION LARGE & SMALL WOODY DEBRIS

NOT TO SCALE

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL

AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

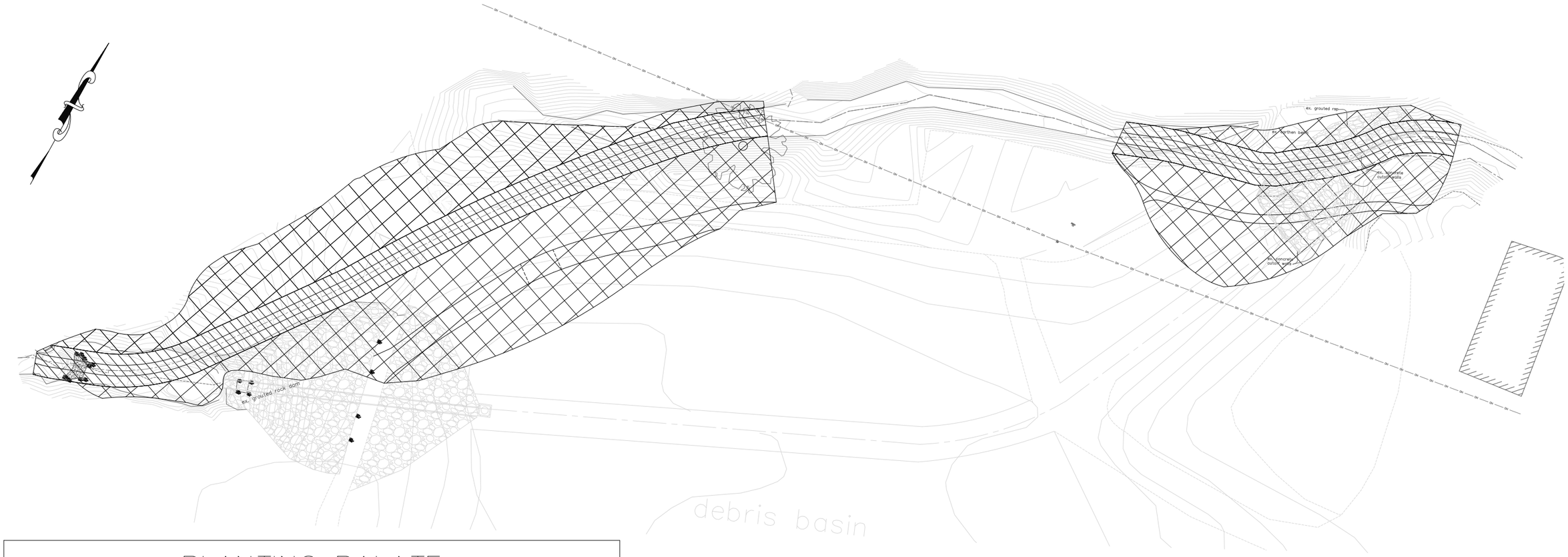
DETAILS

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1129

SHEET 8 OF 8

Filename: Maria Ygnacio East Plans.dwg



PLAN
NOT TO SCALE

PLANTING PALATE	
RESTORED STREAMBED SEEDMIX	NATIVE RIPARIAN PLANT RESTORATION; POTENTIAL PLANT SPECIES
Yerba Mansa: *Anemopis californica*	Arroyo Willow: *Salix lasiolepis*
Santa Barbara Sedge: *Carex barbarae*	Black Cottonwood: *Populus trichocarpa*
Common Toad Rush: *Juncus bufonius*	Alder: *Alnus rhombifolia*
California Gray Rush: *Juncus patens*	Sycamore: *Platanus racemosa*
Pale Spikerush: *Eleocharis macrostachys*	Coast live oak: *Quercus agrifolia*
Mugwort: *Artemesia douglasiana*	Mexican Elderberry: *Sambucus mexicana*
	Toyon: *Heteromeles arbutifolia*
	Ca. Blackberry: *Rubus ursinus*
	Gooseberry: *Ribes speciosum*
	Ca. Rose: *Rosa californica*

NOTE:
THIS WORK IS NOT PART OF THE CONSTRUCTION CONTRACT.

LEGEND

RESTORED STREAMBED

NATIVE RIPARIAN SPECIES RESTORATION

REVISIONS			
NO.	DESCRIPTION	DATE	APR

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MARIA YGNACIO EAST BRANCH
DEBRIS BASIN REMOVAL
AREA OF GOLETA
SANTA BARBARA COUNTY, CALIFORNIA

RESTORATON AREAS

DESIGNED BY: KS
DRAWN BY: KS
CHECKED BY: MS

SHEET RA1 OF RA1
Filename: Maria Ygnacio East Plans.dwg

4.3 Maria Ygnacio Creek, Main Branch Debris Basin 2017 Addendum to the Program EIR for Santa Barbara County Flood Control and Water Conservation District

4.3.1 Location

The Maria Ygnacio Creek, Main Branch Debris Basin is a Group 1 Basin located on the main branch of Maria Ygnacio Creek approximately 3,000 feet north of Old San Marcos Road. This basin is scheduled for removal in the fall of 2017.

4.3.2 History

The Maria Ygnacio Creek, Main Branch Debris Basin is an engineered facility that was built in 1990 by the U.S. Department of Agriculture Soil Conservation Service and the Santa Barbara County Flood Control and Water Conservation District after the Painted Cave Fire burned a large percentage of the watershed in June 1990. The basin was designed to trap 30,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed.

An EIR was finalized in 1992 that analyzed the long-term disposition of the two Maria Ygnacio Debris Basins to be implemented after the watershed had recovered from the effects of the fire (approximately 5 years post-fire). As a result of the EIR, the proposed long-term disposition of the Maria Ygnacio Creek, Main Branch Debris Basin consisted of allowing the basin to partially fill, re-grading the banks to lessen the slopes, replanting the basin slopes with native riparian species, and providing routine maintenance.

The basin has been maintained on an annual basis since construction. Major desilting projects occurred in 1991, 1992, 1995, 1998 and 2005. Heavy rains caused runoff in January 1995 which filled the debris basin with sediment and it was desilted in late January and February. The basin partially filled again after the March 10, 1995 storm and that material was graded within the basin to create the less steep side slopes. Native riparian restoration began at the basin in 1996 and the basin bank restoration was not removed during any subsequent desilting events.

4.3.3 Setting

The main branch of Maria Ygnacio Creek originates in the foothills of the Santa Ynez Mountains and drains a 2,617-acre watershed capable of producing 3,400 cfs during a 100-year precipitation event. Surrounding land use is rural, including citrus and avocado orchards, ranches, cattle grazing, rural homes, and National Forest land upstream.

A dirt road leads to the Debris Basin site from the south. The road involves several low-water crossings along the creek. A low water crossing directly downstream of the basin consists of concrete-grouted riprap and loose rock. This crossing was constructed as part of the debris basin construction for hauling and landowner access to private property adjacent to the debris basin. At the upstream end of the debris basin site, a grouted-rock check structure was installed along with the dam to preserve the creek grade.

Substrate within the basin is silty sand, cobble, and medium-sized boulders that have been transported into the basin from upstream. The adjacent riparian corridor is mature and well-developed with high-quality habitat when wetted. The creek often goes completely dry in summer months. The site is currently grazed during winter months and cattle activity is evident throughout.

4.3.4 Wildlife Survey

The site was assessed by the District Biologist in February and March 2017. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The basin provides willow riparian scrub habitat along the center channel and the adjacent floor of the basin. Dominant plant species include arroyo willow, sandbar willow, and mule fat with sporadic larger cottonwood and sycamore trees are present at the edges of the basin. The site is regularly grazed by cattle, resulting in a sparse understory and compacted soils in the basin.

Flowing water at the upstream check structure has created a scour-pool at the upper end of the basin. This pool provides suitable habitat for Baja California treefrog and steelhead trout when water is present. California roach, mosquitofish, and threespine stickleback have also been observed in this watershed. Raccoon, opossum and domestic dog tracks are common in the area. The habitat is suitable for a variety of riparian birds with a mix of cover types. Birds detected in the area include mallard, Bewick's wren, orange crowned warbler, song sparrow, brown towhee, common yellowthroat, California quail, Anna's hummingbird, acorn woodpecker and red tailed hawk.

4.3.5 Routine Maintenance Prior to Basin Removal

The District surveyed most of the debris basins in 2005 to obtain updated capacity information. The current capacities, as noted below, are a result of the 2005 surveys. The maintenance approach for the five Group 1 basins is to continue to encourage sediment movement through the debris basins by maintaining a 15-foot-wide pilot channel and clear outlet structure, however since the basins are scheduled for removal, if sediment accumulates rapidly within the basin and the outlet structure cannot be kept open, the sediment will not be mechanically removed. Accumulated sediment in Maria Ygnacio, Main Branch Basin will be utilized in the removal and restoration project.

Maria Ygnacio, Main Branch Basin is scheduled to be removed during the fall of 2017. As such, potential accumulation of sediment within the basin prior to its removal could occur during the winter of 2016/2017 when rainfall typically occurs. The capacity of Maria Ygnacio, Main Branch Basin is 11,825 yd^3 which would be the maximum accumulation of sediment if the basin were to fill.

This maintenance approach encourages sediment movement, as feasible, and also allows all accumulated sediment to remain in the system and become potential input during future storm events once the basin is removed and the stream channel is restored. If the basin

completely fills prior to its removal, flows will then deliver sediment over the dam embankment naturally rather than it being captured in the already full basin.

Routine maintenance includes keeping the outlet works and other specific areas clear of obstructive vegetation in order to minimize plugging. Maintenance of the outlet works will ensure that the basins pass all low and moderate flows so that the basins don't incrementally fill-in.

4.3.5.1 Outlet Works

A routinely maintained pilot channel, outlet structure, and embankment were maintained prior to the 2016 winter and the District will try to keep the outlet structure clear throughout the 2016/2017 winter months. Depending upon the time of year, if heavy rains produce enough runoff to plug the outlet structure, but not fill the basin with sediment, the District may try to expose the outlet using an excavator to encourage passage of sediments and flows so the basin doesn't accumulate large amounts of standing water that could place pressure on the dam embankment for an extended period. If the basin becomes completely filled with sediment the outlet will not be exposed and any subsequent flows or sediment will move over the embankment and be carried downstream.

While the District's goal is to encourage sediment movement through the basin, the current elevations in the basin, combined with the basin configuration and proposed design for removal, will support any accumulation of sediment within the basin until its removal. Accumulated sediment will be used within and downstream of the basin to establish the foundation on which the streambed will be restored. Any additional accumulated sediment will be incorporated onto the basin slopes and revegetated with native riparian species. Unless there is a fire in the watershed prior to the basin removal, if the basin fills it will not be desilted, but will remain full.

4.3.5.2 Dam Embankment

In conjunction with the maintenance of a pilot channel, the dam face and a 10-foot swath adjacent to the toe of the dam will be kept clear of vegetation. This will be done using hand tools to the maximum extent feasible and occasional use of herbicide. Maintaining these clear areas reduces the amount of rodent activity on the dam embankment, allows the District to inspect the dam face and provides for efficient sediment transport through the basin, again to reduce incremental filling. The basin area outside of the pilot channel will be left to colonize with native riparian vegetation

4.3.6 Project Description for Basin Removal

The Maria Ygnacio, Main Branch Basin is a Group 1 Basin that is scheduled for removal in the fall of 2017 as described in the project specifics below. Once the basin is removed, it will no longer be included in the Debris Basin Routine Maintenance Program.

4.3.7 Temporary Impacts and Restoration.

The proposed project would require temporary disturbance of approximately 1.04 acres for access, grading, streambed reconfiguration, channel construction, cut and fill of restored banks, and removal of the dam, summer crossing, and inlet structures. The barrier removal and channel restoration project has been designed to minimize the removal of vegetation and sediment while obtaining the fish-passage objectives and the channel-stability objectives of the stream-simulation method. The impacts would be temporary. Following demolition of the barrier structures and restoration of the creek channel, the disturbed areas would be revegetated with native riparian species, including willow, alder, sycamore, oaks, and understory shrubs and herbaceous species. Bio-engineering techniques will be developed and implemented to retain native riparian vegetation when feasible and as part of channel reconstruction. Container plants and cuttings would be used for the trees and shrub species. A seed mix including emergent and wetland plants would be dispersed lightly within the creek corridor to assist in recolonization of native species, such as mugwort*, Juncus* species, blackberry, and others.

PHOTOGRAPH 4.3-1
Maria Ygnacio Creek, Main Branch Debris Basin Inlet Structure

PHOTOGRAPH 4.3-2
Maria Ygnacio Creek, Main Branch Debris Basin Looking Upstream

PHOTOGRAPH 4.3-3
Maria Ygnacio Creek, Main Branch Debris Basin Embankment

PHOTOGRAPH 4.3-4
Maria Ygnacio Creek, Main Branch Debris Basin
Summer Crossing Looking Upstream

Map Source: County of Santa Barbara

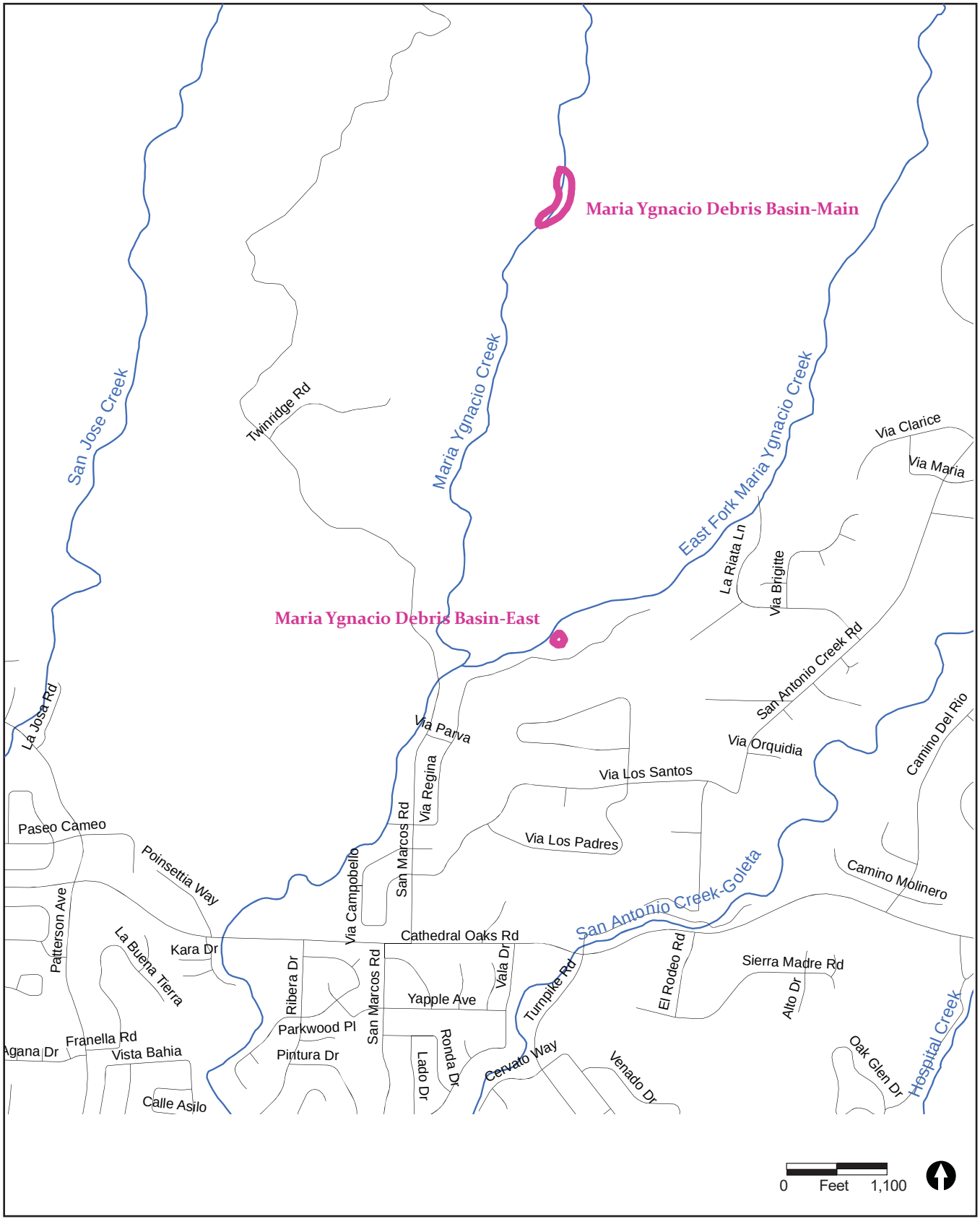

FIGURE 4.3-1
Maria Ygnacio Creek, Main Branch Debris Basin Map

Map Source: County of Santa Barbara

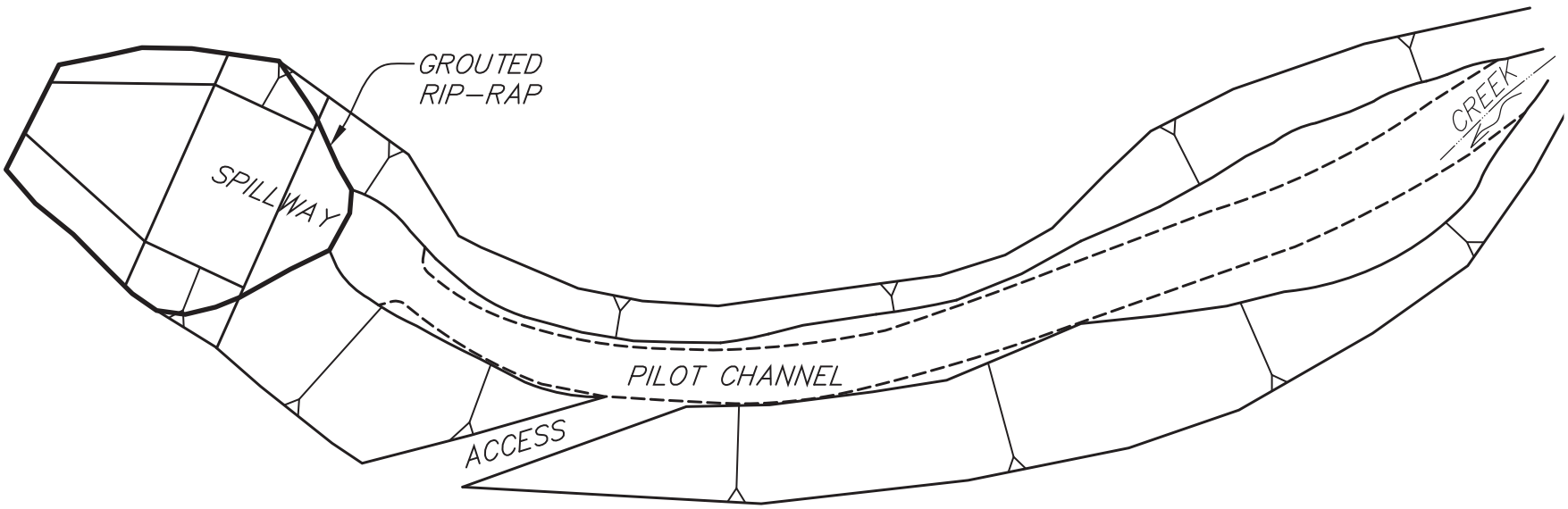

FIGURE 4.3-2

Maria Ygnacio Creek, Main Branch Debris Basin Figure

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Maria Ygnacio Creek, Main Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Malosma laurina	Laurel sumac	N
Toxicodendron diversilobum	Poison oak	N
Rhus integrifolia	Lemonadeberry	N
Rhus ovata	Sugar bush	N
APIACEAE		
Apium graveolens	Wild celery	I
Conium macujatum	Poison hemlock	I
APOCYNACEAE		
Vinca major	Periwinkle	I
ASTERACEAE		
Ambrosia psilostachya var. *california*	Western ragweed	N
Amaranthus albus	Tumbleweed	I
Artemesia californica	California Sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Baccharis salicifolia	Mule fat	N
Carduus pyenocephalus	Italian thistle	I
Gnapbalium bicolor	Bicolored everlasting	N
Gnaphalium luteo-album	Cudweed everlasting	I
Isocoma menziesii	Coast golden bush	N
Lactuca serriola	Prickly lettuce	I
Picris ecbioides	Ox tongue	I
Venegasia carpesioides	Canyon sunflower	N
Xanthium strumarium	Cocklebur	I
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa Nasturtium-aquaticum	Watercress	I
CAPRIFOLIACEAE		
Sambucus mexicana	Elderberry	N
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican Tea	I
Chenopodium berlanclieri	Berlander' s goosefoot	N
Chenopodium murale	Nettle-leaved goosefoot	I
CYPERACEAE		
Cyperus esculentus	Sedge	I
Cyperus eragrostis	Tall umbrella sedge	N
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I

Maria Ygnacio Creek, Main Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
FAGACEAE		
Quercus agrifolia	Coast live oak	N
GROSSULARJACEAE		
Ribes amarum	Gooseberry	N
HYDROPHYLLACEAE		
Phacelia viscida	Sticky phacelia	N
Phacelia ramosissima	Branching phacelia	I
LAMIACEAE		
Mentha sp.	Mint	I
LAURACEAE		
Umbellularia califomica	California bay	N
PLATAGINACEAE		
Plantago major	Common plantain	I
Plantago lanceolata	Plantain	I
PLANT ANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Elymus condensatus	Giant rye	N
Hordeum murinum	Foxtail	I
Lolium miliacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
RANUNCULACEAE		
Clematis liguslicifolia	Creek clematis	N
RHAMNACEAE		
Rhamnus califomica	Coffee berry	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rosa californica	California rose	N
Rubus ursinus	California blackberry	N
SALACACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
Salix laevigata	Red willow	N
SCROPHULARIACEAE		
Scrophularia californica	California figwort	N
Veronica anagallis-aquatica	Water speedwell	I
SOLANACEAE		
Datura wrightii	Jimsonweed	N
Nicotiana glauca	Tree tobacco	I
Solanum douglasii	Douglas nightshade	N
Solanum xanti	Nightshade	N

Maria Ygnacio Creek, Main Branch Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

PRELIMINARY NOT FOR CONSTRUCTION

95% PLANS

SANTA BARBARA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

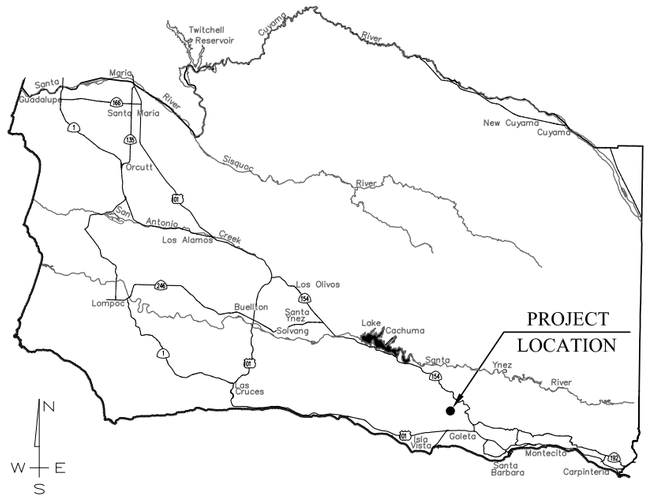
MARIA YGNACIO DEBRIS BASIN MODIFICATION

SC8349

IN THE GOLETA AREA OF SANTA BARBARA COUNTY, CALIFORNIA

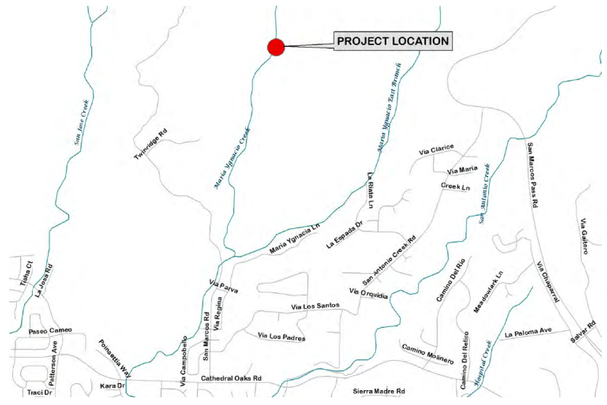
DISTRICT BOARD OF DIRECTORS

FIRST DISTRICT	Salud Carbajal
SECOND DISTRICT	Janet Wolf
THIRD DISTRICT	Doreen Farr
FOURTH DISTRICT, CHAIR	Peter Adam
FIFTH DISTRICT	Steve Lavagnino



VICINITY MAP
No Scale

INDEX TO SHEETS



SITE MAP
No Scale

HALF SCALE PLANS

REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69230 — Exp. — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:	REVIEWED BY:
FLOOD CONTROL DESIGN ENGINEER — DATE	COUNTY SURVEYOR — DATE
REVIEWED BY:	REVIEWED BY
FLOOD CONTROL ENGINEERING MANAGER — DATE	MAINTENANCE SUPERINTENDENT — DATE
REVIEWED BY	REVIEWED BY
FLOOD CONTROL DEPUTY DIRECTOR — DATE	ENVIRONMENTAL SERVICES MANAGER — DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

TITLE SHEET

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1127

SHEET 1 OF 10

Filename: MARIA YGNACIO PLANS2.DWG

SYMBOL LEGEND

CONTROL POINT	EX. ROCK	EX. WATER METER (WM)
EX. CABLE TV BOX (CTV)	EX. SEWER CLEANOUT	EX. WATER SPIGOT
EX. CABLE TV VAULT (CTV VAULT)	EX. SEWER MANHOLE (S)	EX. WATER VALVE (WV)
EX. ELECTRIC BOX (EBOX)	EX. SIGNAGE	EX. WATER WELL (W)
EX. ELECTRIC GUY WIRE (GWE)	EX. STORM DRAIN GRATE	
EX. ELECTRIC MANHOLE (E)	EX. STORM DRAIN MANHOLE (D)	
EX. ELECTRIC METER (EM)	EX. STRUCTURE BENCH	
EX. FIRE HYDRANT	EX. STRUCTURE BOLLARD/POST	
EX. GAS METER (GM)	EX. TELEPHONE BOX (TBOX)	
EX. GAS VALVE (GV)	EX. TELEPHONE MANHOLE (T)	
EX. IRRIGATION SPRINKLER	EX. TELEPHONE POLE (TP)	
EX. LUMINARY (or)	EX. TELEPHONE VAULT (TELE VAULT)	
EX. MAILBOX (MB)	EX. COTTONWOOD TREE	
EX. MONUMENT	EX. TREE CANOPY	
EX. POWER & TELEPHONE POLE (P+TP)		

LINETYPE LEGEND

BOUNDARY EASEMENT LINE	EX. FLOWLINE
BOUNDARY RIGHT OF WAY LINE	EX. GAS
BOUNDARY PROPERTY LINE	EX. GUARDRAIL
CENTERLINE	EX. SEWER
CONTOUR LINE–MAJOR (10)	EX. SIDEWALK
CONTOUR LINE–MINOR	EX. STORM DRAIN
EX. AC EDGE OF PAVEMENT	EX. STRUCTURE CONCRETE
EX. BARBED WIRE FENCE	EX. STRUCTURE WALL
EX. BRUSH	EX. TELEPHONE
EX. BUILDING	EX. WATER
EX. CABLE TV	EX. WOOD RAIL FENCE
EX. CHAINLINK FENCE	PROPOSED FACILITIES
EX. DRAINAGE	PROPOSED STORM DRAIN
EX. ELECTRIC	RETAINING WALL GUTTER
EX. ELECTRIC OVERHEAD	TEMP. CONSTRUCTION FENCE
EX. FACILITIES	

EXISTING UTILITY INFORMATION

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN. NOTE THAT INDIVIDUAL SERVICE LATERALS AND CONNECTIONS ARE NOT PLOTTED ON THE PROFILE.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1–800–422–4133.

STANDARD DETAILS AND PLANS LIST

STANDARD NO.	DESCRIPTION
	STATE DEPARTMENT OF TRANSPORTATION STANDARD PLANS (MAY 2006 EDITION)
	The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply are attached to the contract.
A10A	ACRONYMS AND ABBREVIATIONS
A10B	ACRONYMS AND ABBREVIATIONS
A10C	SYMBOLS
T13	TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS
	AMERICAN PUBLIC WORKS ASSOCIATION STANDARD PLANS
380–1	CONCRETE COLLAR FOR RCP (12" THROUGH 72")

ABBREVIATIONS

APN	ASSESSORS PARCEL NUMBER	IN	INCH
APWA	AMERICAN PUBLIC WORKS ASSOC.	MJ	MECHANICAL JOINT
AT	ARCHITRCTURAL TEXTURE	n	MANNING'S COEFFICIENT
BW	BOTH WAYS	N	NORTH OR NORTHING
CFS	CUBIC FEET PER SECOND	OC	ON CENTER
CL or C/L	CENTER LINE	PK	PK NAIL
CALTRANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Q	FLOW VELOCITY
		R1	RECORD PER BOOK NN, PAGE NN OF MAPS
COUNTY	COUNTY OF SANTA BARBARA		
CP	CONTROL POINT	S	SEWER OR SLOPE OR SOUTH
DI	DUCTILE IRON OR DROP INLET	SDMH	STORM DRAIN MANHOLE
DW	DRIVEWAY	SH	SHINER
E	EAST OR EASTING	SPK	SPIKE
EG	EXISTING GROUND	S/W	SIDEWALK
EGL	ENERGY GRADE LINE	TW or tw	TOP OF WALL
EL	ELEVATION	TCE	TEMPORARY CONSTRUCTION EASEMENT
EP	EDGE OF PAVEMENT		
ELEC	ELECTRIC	TBM	TEMPORARY BENCH MARK
FD	FOUND	TSW	TOP OF SIDEWALK
FT	FEET	TP	TOP OF PAVEMENT
G	GAS LINE	W or WL	WATER LINE
GB	GRADE BREAK	WF	WALL FACE
HDPE	HIGH DENSITY POLYETHYLENE	WWF	WELDED WIRE FABRIC
HGL	HYDRAULIC GRADE LINE	V	VELOCITY
IP	IRON PIPE	VB	VALVE BOX

HORIZONTAL AND VERTICAL CONTROL

Surveyor's Notes:
Horizontal positions of CP1, CP2, CP3 were derived from GPS observation holding Continuously Operating Reference Stations (CORS) Casitas Station (CSST), Bradbary Dam (BBDM), West La Cumbre Peak (RCA2) and Coal Oil Point Reserve (COPR) fixed as shown on Record of Survey book 171 pages 24 and 25 based on California Coordinate System 1983 (CCS83) 1991.35 epoch.

Elevations (orthometric heights) were derived by GPS observation and converted to the North American Vertical Datum 1988 (NAVD88) using the National Geodetic Survey's program GEOID99 holding Continuously Operating Reference Stations (CORS) Casitas Station (CSST), Bradbary Dam (BBDM), West La Cumbre Peak (RCA2) and Coal Oil Point Reserve (COPR) fixed as shown on Record of Survey book 171 pages 24 and 25.

All coordinate values shown are grid values. All distances are based on the U.S. Survey Foot
(one survey foot = 1200/3937 meters).

Traverse and topo was done using conventional instrument model Trimble S6 December 2015.

Contour Interval
The contour interval is shown at 1 foot intervals with majors at every 5 feet

Basis of Bearings
The Basis of Bearings between CORS sites BBDM and COPR as shown on Record of Survey book 171 pages 24–25, calculated and measured as S 25°40'52.3" E, 68196.28'.

Ground to Grid Factors
Convergence Factor: −1° 01' 16.78127" Scale Factor: 0.999933872
Combined Factor: 0.999925429 Factors Calculated for: CP1

Boundary Note:
Boundary not shown

CONTROL POINT TABLE

CONTROL POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	RECORD
CP200	2040131.045	5965288.612	790.233	BBDM	RS 171/24–25
CP201	1978671.236	5994842.364	45.798	COPR	RS 171/24–25
CP202	1973711.998	6148083.803	650.516	CSST	RS 171/24–25
CP203	2008765.404	6043478.15	3985.398	RCA2	RS 171/24–25
CP1	1999170.75	6021674.069	292.226	SET 1/2" PIPE WITH MAG NAIL	S940
CP2	1999245.437	6021590.076	291.466	SET 1/2" PIPE WITH MAG NAIL	S940
CP3	1999088.337	6021557.998	275.266	SET 1/2" PIPE WITH MAG NAIL	S940
CP4	1999220.495	6021764.463	289.088	SET 1/2" PIPE WITH MAG NAIL	S940
CP5	1999242.393	6021744.020	279.466	SET SET SPIKE AND CHASER	S940
CP6	1999314.128	6021797.622	278.024	SET SET SPIKE AND CHASER	S940
CP7	1999321.055	6021880.561	290.350	SET SET SPIKE AND CHASER	S940
CP8	1999515.885	6021933.157	296.236	SET SET SPIKE AND CHASER	S940
CP9	1999719.327	6021910.893	308.926	SET SET SPIKE AND CHASER	S940
CP10	1999729.738	6021791.121	290.981	SET SET SPIKE AND CHASER IN ROCK	S940
CP11	1999649.755	6021818.172	280.725	SET SET SPIKE AND CHASER	S940
CP12	1999552.721	6021780.163	281.634	SET SET SPIKE AND CHASER	S940
CP13	1999452.004	6021829.730	279.927	SET SET SPIKE AND CHASER	S940
CP14	1999062.031	6021472.073	262.593	SET MAG NAIL AND CHASER IN CONCRETE	S940

REVISIONS NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69239 — Exp. ____ — CIVIL — STATE OF CALIFORNIA

DESIGNED BY: _____
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

GENERAL INFORMATION

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1127

SHEET 2 OF 10

Filename: MARIA YGNACIO PLANS2.DWG

ACCESS PLAN

NOT TO SCALE

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69239 — Exp. _____ — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

ACCESS ROAD

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1127

SHEET 3 OF 9

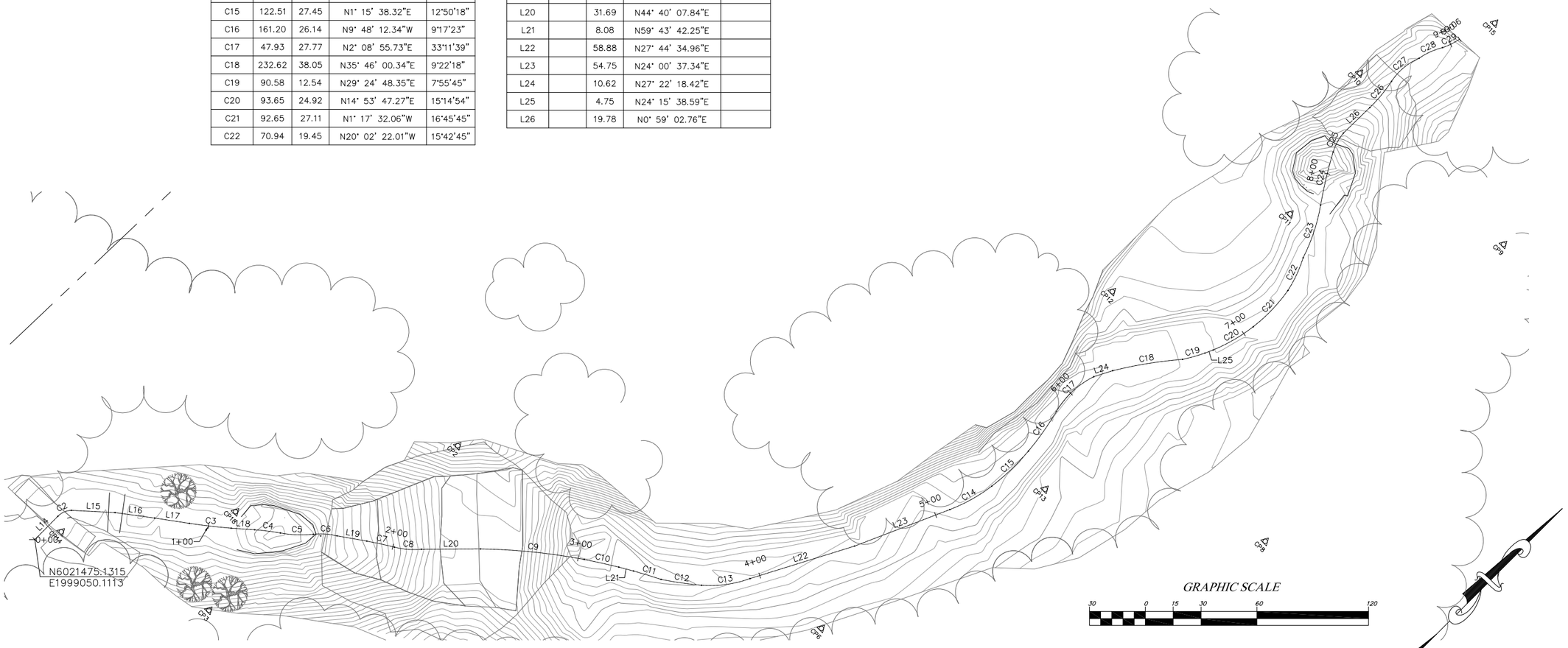
Filename: MARIA YGNACIO ACCESS PLAN.DWG

PRELIMINARY NOT FOR CONSTRUCTION

CONTROL LINE				
Number	Radius	Length	Line/Chord Direction	Delta
C2	10.52	8.13	N21° 14' 30.20"E	44°15'07"
C3	308.22	22.63	N51° 35' 29.97"E	4°12'22"
C4	122.58	13.95	N52° 08' 26.18"E	6°31'20"
C5	62.06	17.75	N47° 12' 34.06"E	16°23'04"
C6	37.34	12.86	N48° 52' 58.42"E	19°43'53"
C7	190.47	15.20	N57° 17' 32.19"E	4°34'18"
C8	41.56	14.71	N49° 26' 14.21"E	20°16'54"
C9	327.09	56.07	N50° 48' 05.21"E	9°49'17"
C10	419.63	19.02	N57° 32' 28.19"E	2°35'48"
C11	264.31	15.58	N61° 58' 12.07"E	3°22'35"
C12	196.32	21.90	N53° 17' 08.92"E	6°23'31"
C13	62.57	26.60	N37° 08' 19.02"E	24°21'34"
C14	90.68	25.84	N15° 50' 42.41"E	16°19'50"
C15	122.51	27.45	N1° 15' 38.32"E	12°50'18"
C16	161.20	26.14	N9° 48' 12.34"W	9°17'23"
C17	47.93	27.77	N2° 08' 55.73"E	33°11'39"
C18	232.62	38.05	N35° 46' 00.34"E	9°22'18"
C19	90.58	12.54	N29° 24' 48.35"E	7°55'45"
C20	93.65	24.92	N14° 53' 47.27"E	15°14'54"
C21	92.65	27.11	N1° 17' 32.06"W	16°45'45"
C22	70.94	19.45	N20° 02' 22.01"W	15°42'45"

CONTROL LINE				
Number	Radius	Length	Line/Chord Direction	Delta
C23	99.65	29.89	N26° 38' 33.75"W	17°11'17"
C24	239.19	29.32	N31° 43' 31.31"W	7°01'21"
C25	29.11	11.71	N16° 41' 27.75"W	23°02'46"
C26	81.97	18.24	N5° 23' 32.15"W	12°45'10"
C27	33.63	19.74	N5° 02' 41.72"E	33°37'38"
C28	36.82	13.88	N20° 41' 30.49"E	21°36'20"
C29	38.45	10.19	N18° 39' 25.55"E	15°11'08"
L14		17.63	N0° 23' 00.61"W	
L15		23.51	N47° 56' 10.72"E	
L16		21.43	N52° 52' 00.77"E	
L17		18.89	N53° 41' 41.06"E	
L18		12.67	N48° 52' 46.06"E	
L19		16.25	N55° 00' 23.28"E	
L20		31.69	N44° 40' 07.84"E	
L21		8.08	N59° 43' 42.25"E	
L22		58.88	N27° 44' 34.96"E	
L23		54.75	N24° 00' 37.34"E	
L24		10.62	N27° 22' 18.42"E	
L25		4.75	N24° 15' 38.59"E	
L26		19.78	N0° 59' 02.76"E	

Point Table				
Point #	Elevation	Northing	Easting	Description
2	291.47	1999245.44	6021590.08	CP2
3	275.27	1999088.34	6021558.00	CP3
6	278.02	1999314.14	6021797.63	CP6
8	296.24	1999515.91	6021933.18	CP8
9	308.92	1999719.37	6021910.91	CP9
10	290.98	1999729.78	6021791.13	CP10
11	280.72	1999649.79	6021818.18	CP11
12	281.63	1999552.75	6021780.17	CP12
13	279.92	1999452.03	6021829.74	CP13
14	262.59	1999062.03	6021472.07	CP14
15	289.03	1999800.07	6021823.42	CP15
18	262.91	1999135.86	6021530.74	CP18



GRAPHIC SCALE

30 0 15 30 60 120

CONTROL LINE
SCALE: 1" = 30'

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69239 — Exp. _____ — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

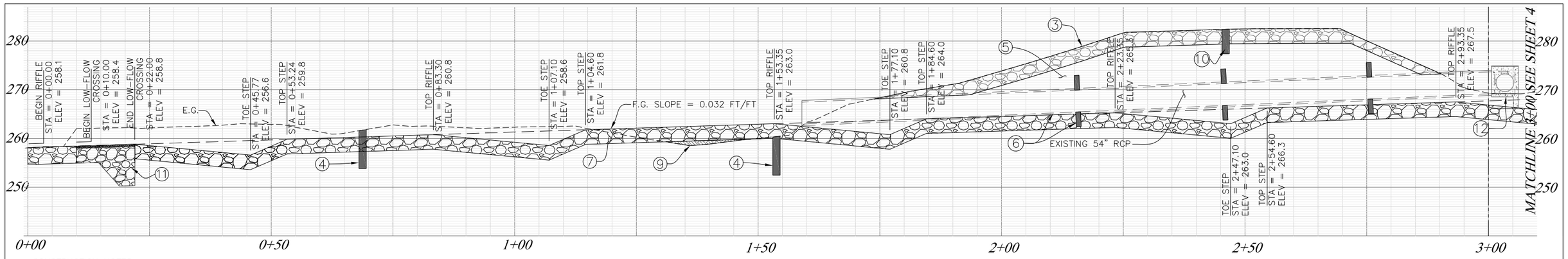
SANTA BARBARA COUNTY, CALIFORNIA

CONTROL LINE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1127

Filename: MARIA YGNACIO PLANS2.DWG



CONSTRUCTION NOTES

(1) Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris per details on Sheet 8.

(2) Construct channel step, pool, riffle and construct overbank per details on Sheet 6.

(3) Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction

(4) Remove and dispose of concrete cutoff wall to 5' deep below grade. Remove and dispose of reinforcing.

(5) Excavate dam and embankment fill and reserve for use during channel and overbank construction.

(6) Remove and dispose of existing reinforced concrete pipe (RCP) and anti-seep concrete slurry collars.

(7) Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 6.

(8) Install and anchor large woody debris per detail on Sheet 6.

(9) Place Creek Fill material required to build up channel to SBM grade. See cross sections for limits of Creek Fill material. Compact existing native material below SBM and compact Creek Fill below SBM a minimum of 2' at 85% relative compaction.

(10) Remove and dispose of concrete cutoff walls at apex of grouted rock dam and grouted rock sill. Remove and dispose of reinforcing.

(11) Remove existing concrete low flow crossing and install RSP low flow crossing per details on Sheet 9.

(12) Remove and dispose of cube-type inlet structure and cutoff wall.

(14) Protect existing cottonwood trees in place.

PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS

PROFILE

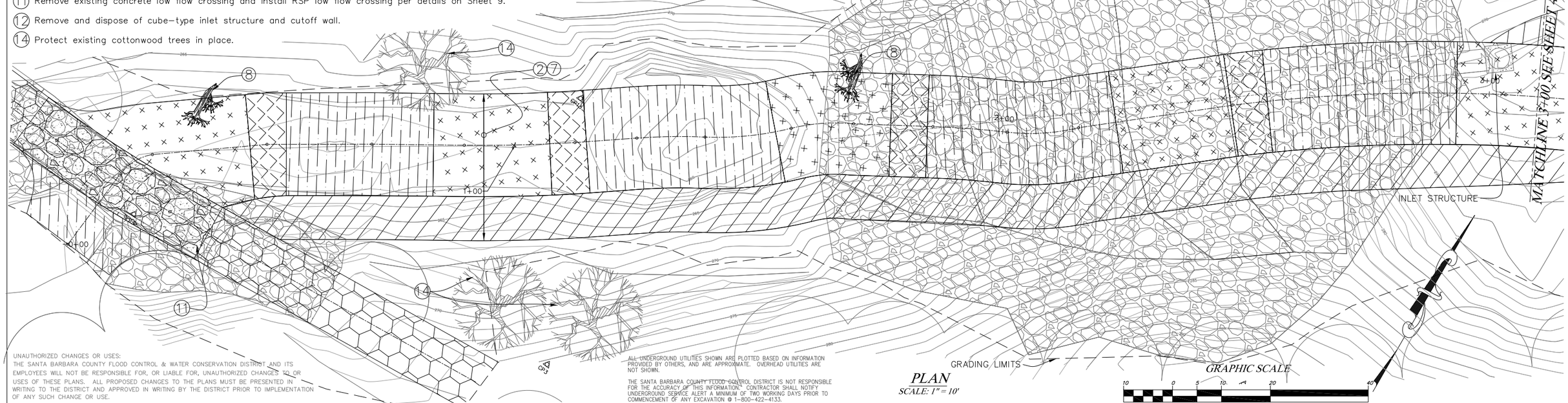
SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

1. Profile shown is approximate and may change with field conditions.

STEP
POOL
RIFFLE
OVERBANK

GRADING LIMITS



PLAN

SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER KAREN M. SULLIVAN No. C 69239 Exp. CIVIL STATE OF CALIFORNIA

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

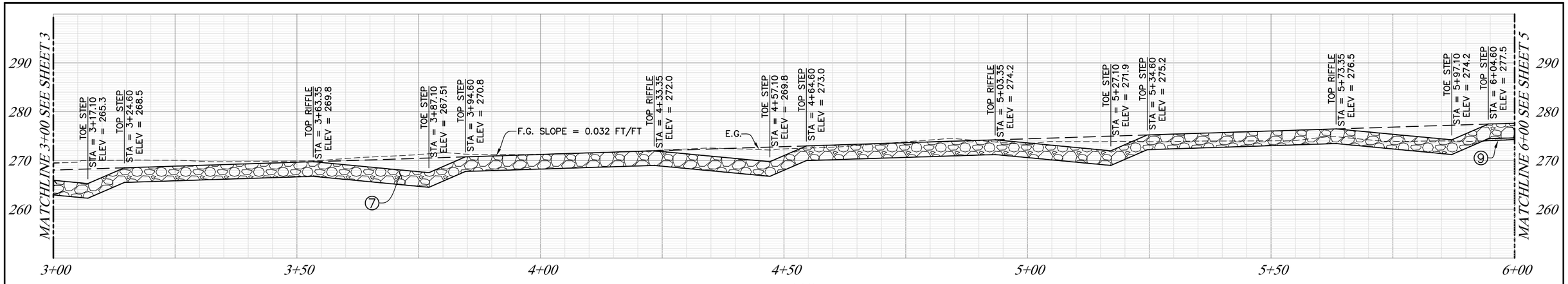
PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1127

SHEET 5 OF 10

Filename: MARIA YGNACIO PLANS2.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

① Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris.

② Construct channel step, pool, riffle and construct overbank per details on Sheet 6.

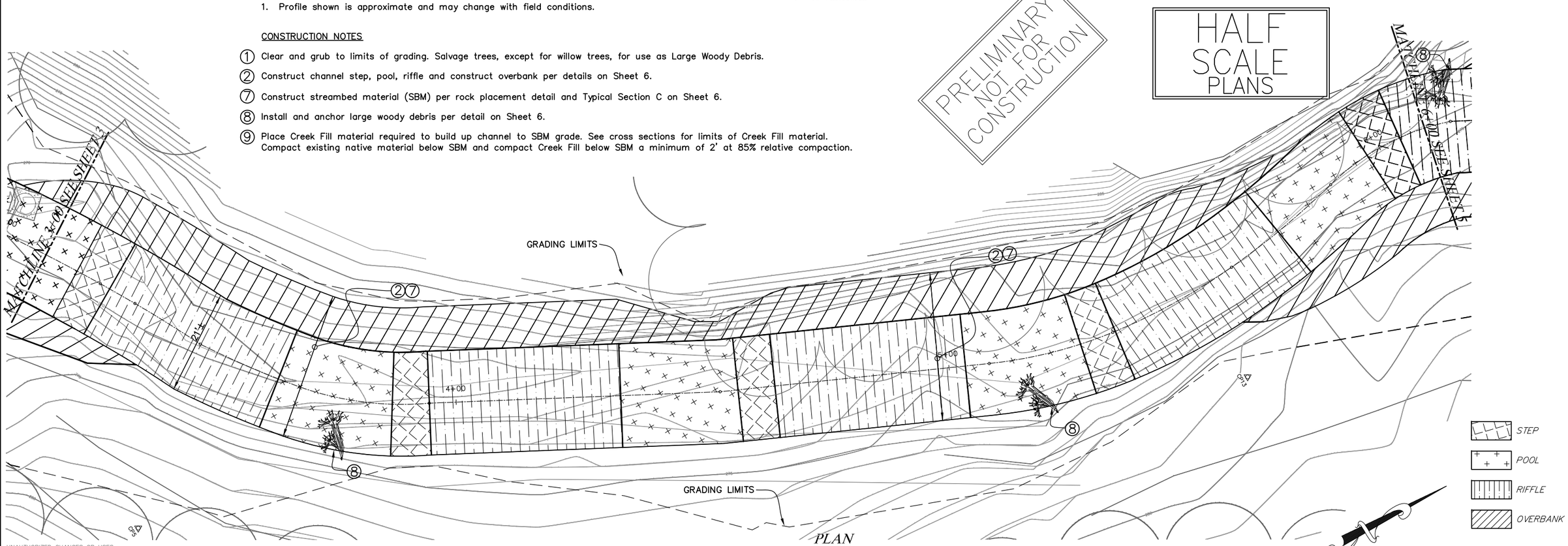
⑦ Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 6.

⑧ Install and anchor large woody debris per detail on Sheet 6.

⑨ Place Creek Fill material required to build up channel to SBM grade. See cross sections for limits of Creek Fill material. Compact existing native material below SBM and compact Creek Fill below SBM a minimum of 2' at 85% relative compaction.

PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS



PLAN

SCALE: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER KAREN M. SULLIVAN No. C 66230 Exp. CIVIL STATE OF CALIFORNIA

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

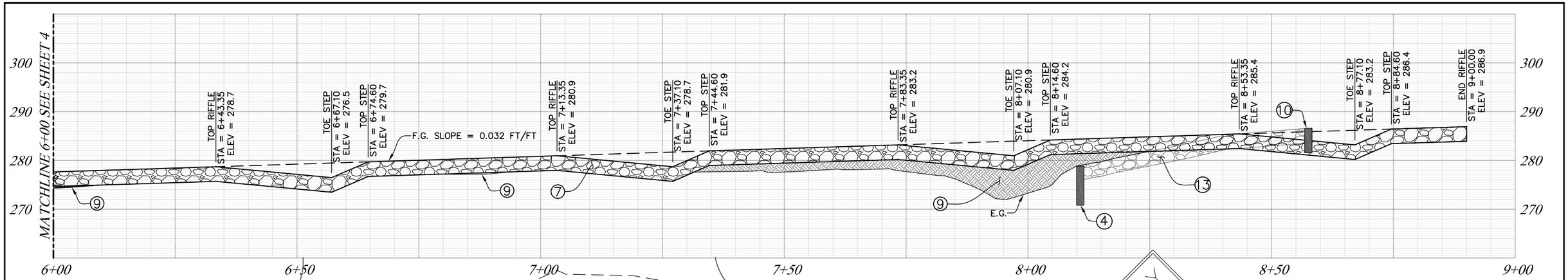
PLAN & PROFILE

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1127

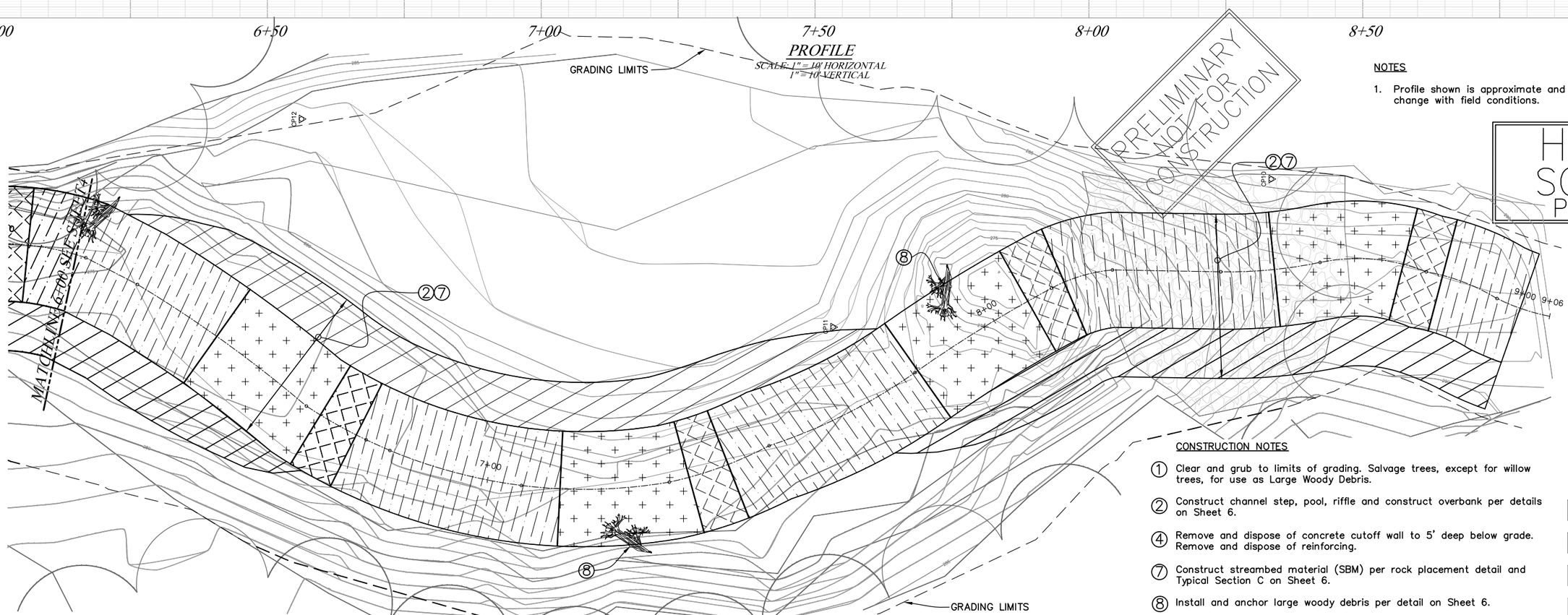
SHEET 6 OF 10

Filename: MARIA YGNACIO PLANS2.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN

SCALE: 1" = 10'

PRELIMINARY NOT FOR CONSTRUCTION

NOTES

1. Profile shown is approximate and may change with field conditions.

HALF SCALE PLANS

CONSTRUCTION NOTES

① Clear and grub to limits of grading. Salvage trees, except for willow trees, for use as Large Woody Debris.

② Construct channel step, pool, riffle and construct overbank per details on Sheet 6.

④ Remove and dispose of concrete cutoff wall to 5' deep below grade. Remove and dispose of reinforcing.

⑦ Construct streambed material (SBM) per rock placement detail and Typical Section C on Sheet 6.

⑧ Install and anchor large woody debris per detail on Sheet 6.

⑨ Place Creek Fill material required to build up channel to SBM grade. See cross sections for limits of Creek Fill material. Compact existing native material below SBM and compact Creek Fill below SBM a minimum of 2' at 85% relative compaction.

⑩ Remove and dispose of concrete cutoff walls at apex of grouted rock dam and grouted rock sill. Remove and dispose of reinforcing.

⑬ Remove and break–up grouted rock sill and reserve rock for use as streambed material for channel construction.

STEP
POOL
RIFFLE
OVERBANK

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GRAPHIC SCALE
10 0 5 10 20 40

REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER KAREN M. SULLIVAN No. C 69239 Exp. CIVIL STATE OF CALIFORNIA

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1127

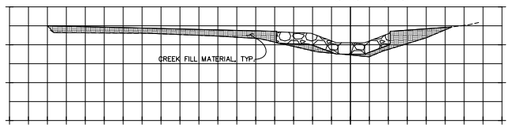
SHEET 7 OF 10

Filename: MARIA YGNACIO PLANS2.DWG

PRELIMINARY NOT FOR CONSTRUCTION

HALF SCALE PLANS

7+00.00



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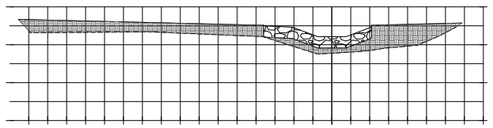

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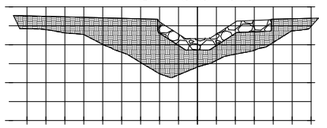

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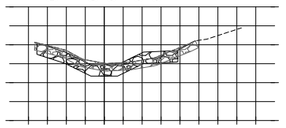

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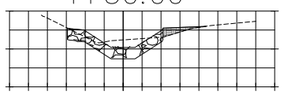

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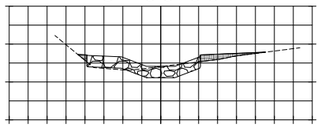

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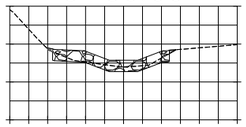

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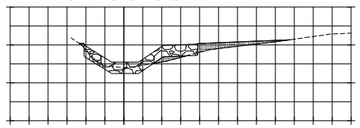

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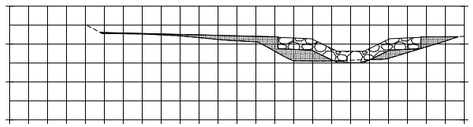

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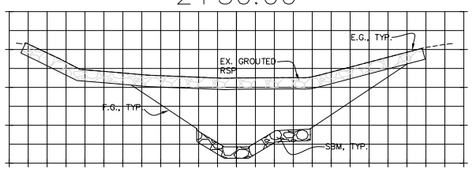

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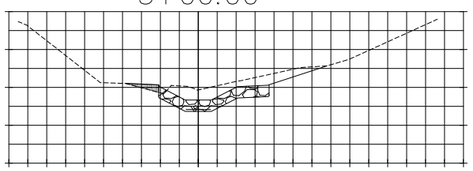

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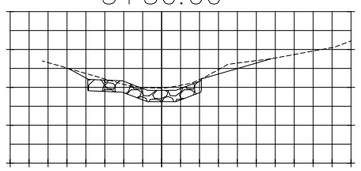

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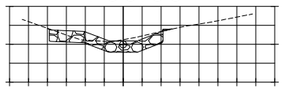

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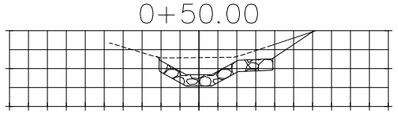

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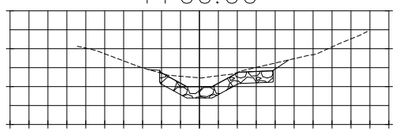

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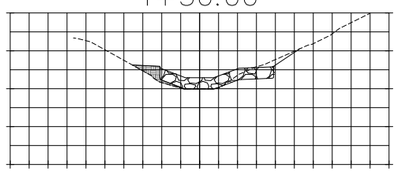

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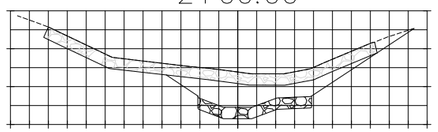

HORIZONTAL SCALE = VERTICAL SCALE: 1" = 20'

GRAPHIC SCALE

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER KAREN M. SULLIVAN No. C 69239 Exp. CIVIL STATE OF CALIFORNIA

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

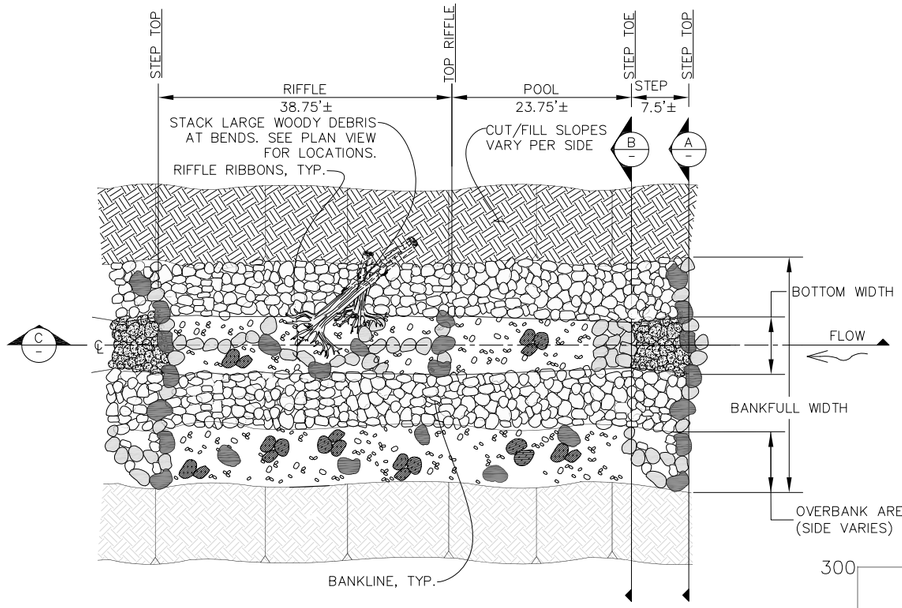
CROSS SECTIONS

DESIGNED BY: KS
DRAWN BY: SB/JT
CHECKED BY: JF

O-1127

SHEET 8 OF 10

Filename: MARIA YGNACIO PLANS2.DWG

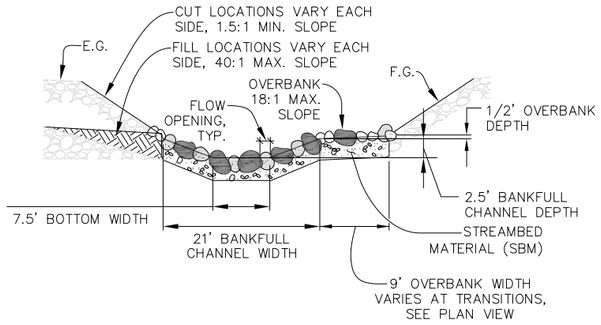


PLAN VIEW ROCK PLACEMENT DETAIL

NOT TO SCALE

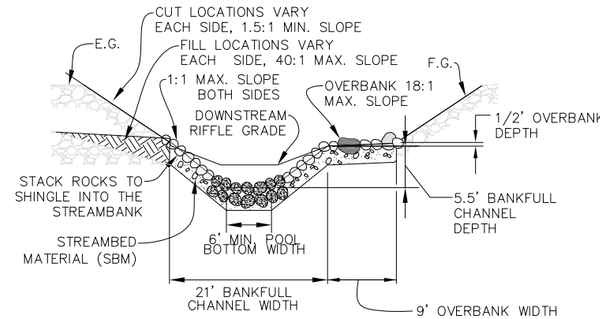
LEGEND

- KEYSTONE ROCK ≥ 3' DIA.
- STRUCTURE ROCK ≥ 2' DIA.
- FOOTER ROCK ≥ 1.5' DIA.
- BANKLINE ROCK ≥ 1.5' DIA.
- ROCK FEATURE ≥ 2' DIA., EACH ROCK



A - TYPICAL SECTION STEP TOP

NOT TO SCALE

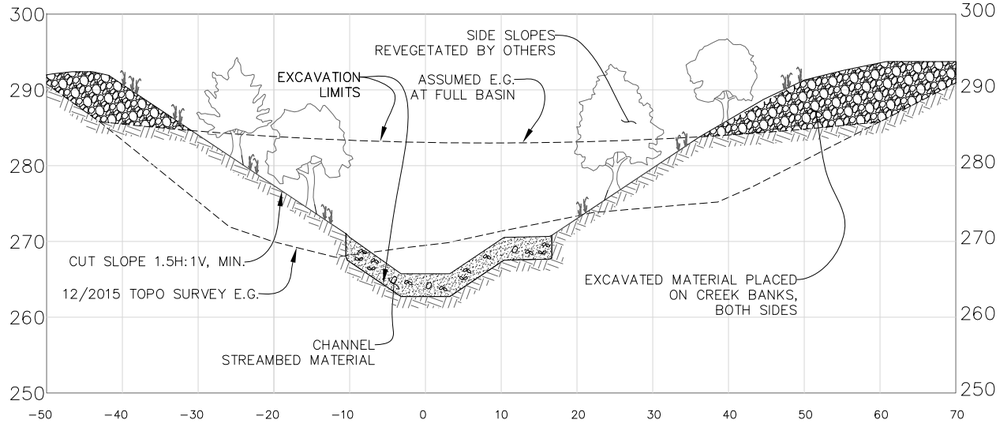


B - TYPICAL SECTION STEP TOE

NOT TO SCALE

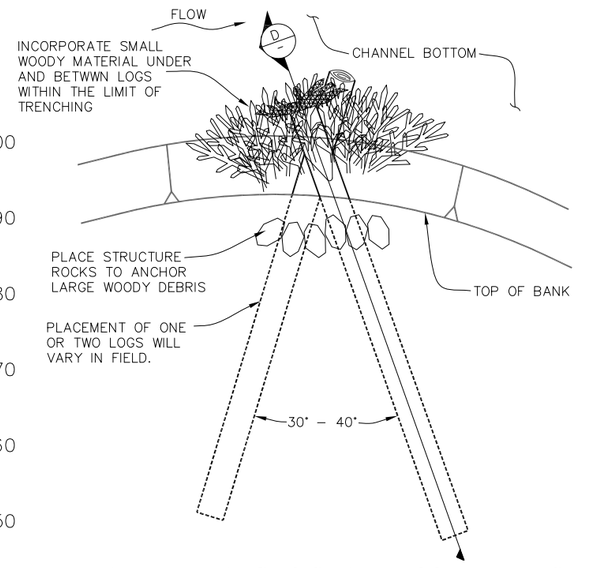
NOTE

1. Final woody debris placement, sizes and configuration may vary from these details, depending upon available sizes in the field and upon the direction of the biologist.



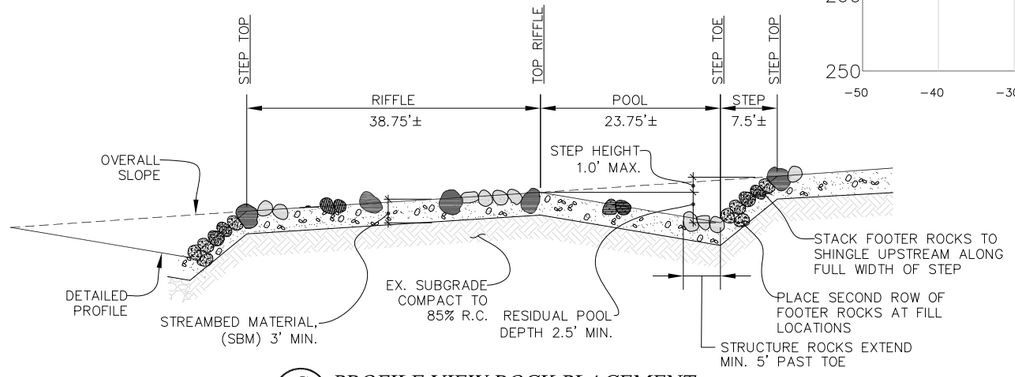
FULL BASIN SCENARIO
TYPICAL CUT / FILL SECTION

NOT TO SCALE



PLAN VIEW LARGE & SMALL WOODY DEBRIS

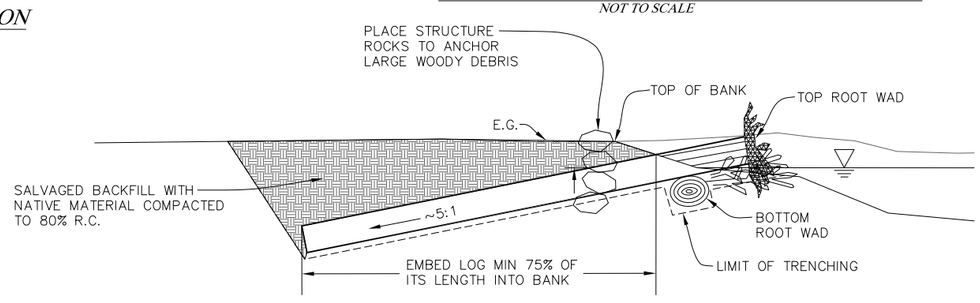
NOT TO SCALE



C - PROFILE VIEW ROCK PLACEMENT

NOT TO SCALE

PRELIMINARY NOT FOR CONSTRUCTION



D - SECTION LARGE & SMALL WOODY DEBRIS

NOT TO SCALE

REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69239 — Exp. ____ — CIVIL — STATE OF CALIFORNIA

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

DETAILS

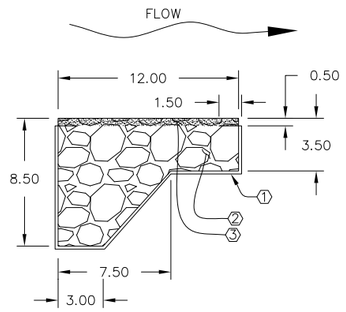
DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1127

SHEET 9 OF 10

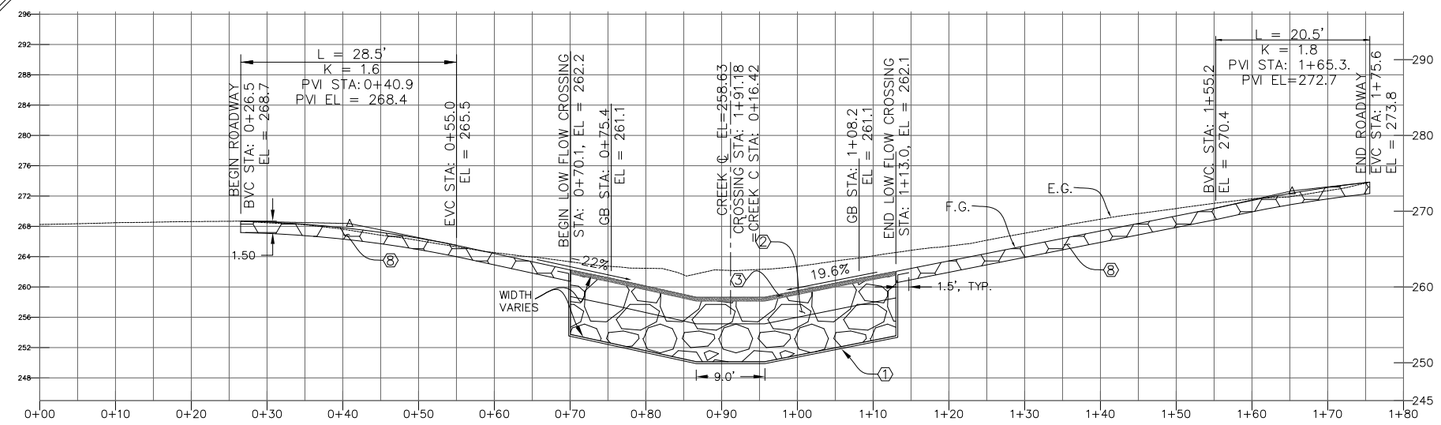
Filename: MARIA YGNACIO PLANS2.DWG

PRELIMINARY NOT FOR CONSTRUCTION



A - TYPICAL SECTION LOW FLOW CROSSING

NOT TO SCALE

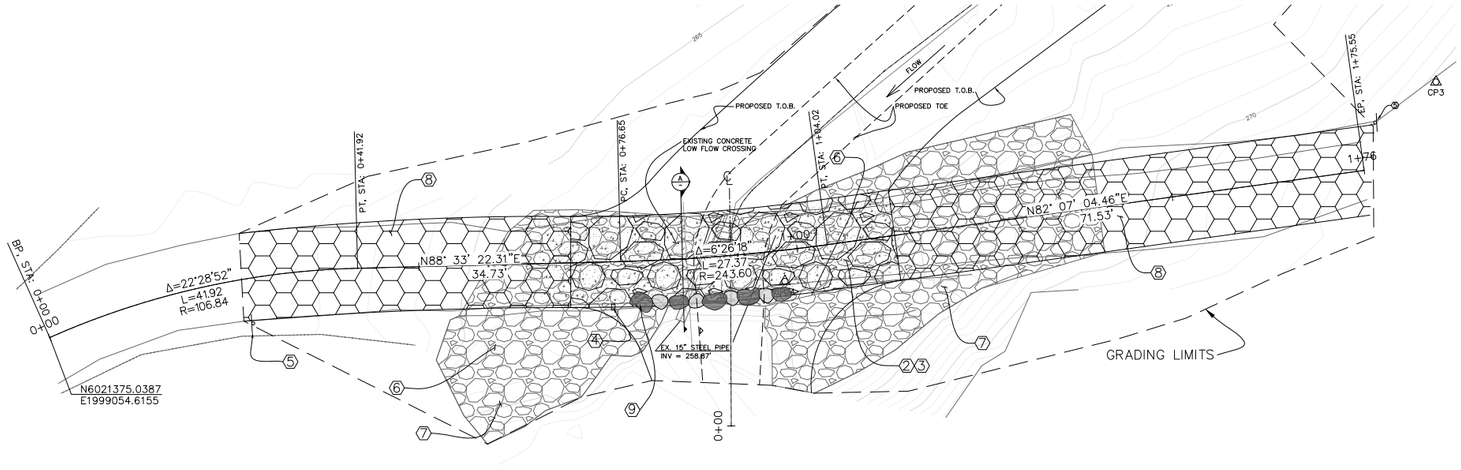


PROFILE VIEW LOW FLOW CROSSING

SCALE: 1" = 10'

CONSTRUCTION NOTES

1. Install Rock Slope Protection Fabric Class 8. Anchor fabric 1.5' at 1/2' below finish grade.
2. Install Rock Slope Protection Backing No. 2.
3. Install 6" Class A Aggregate Choke Course. Fill voids with streambed material.
4. Install Arizona D.O.T. Flood Gauge W8-19.
5. Install Arizona D.O.T. 24" x 30" "DO NOT ENTER WHEN FLOODED" sign.
6. Break-up and remove existing grouted rock. Salvage and reuse rock as streambed material. Remove and dispose of concrete, steel pipe and rebar.
7. Reconstruct low flow crossing embankment, and compact to 90% relative compaction.
8. Place gabion rock, placement method B. Compact to 90% relative compaction.
9. Place keystone and structure rock per the details on Sheet 9.



PLAN VIEW LOW FLOW CROSSING

SCALE: 1" = 10'

HALF SCALE PLANS

UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER — KAREN M. SULLIVAN — No. C 69239 — Exp. _____ — CIVIL — STATE OF CALIFORNIA

DESIGNED BY: _____

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

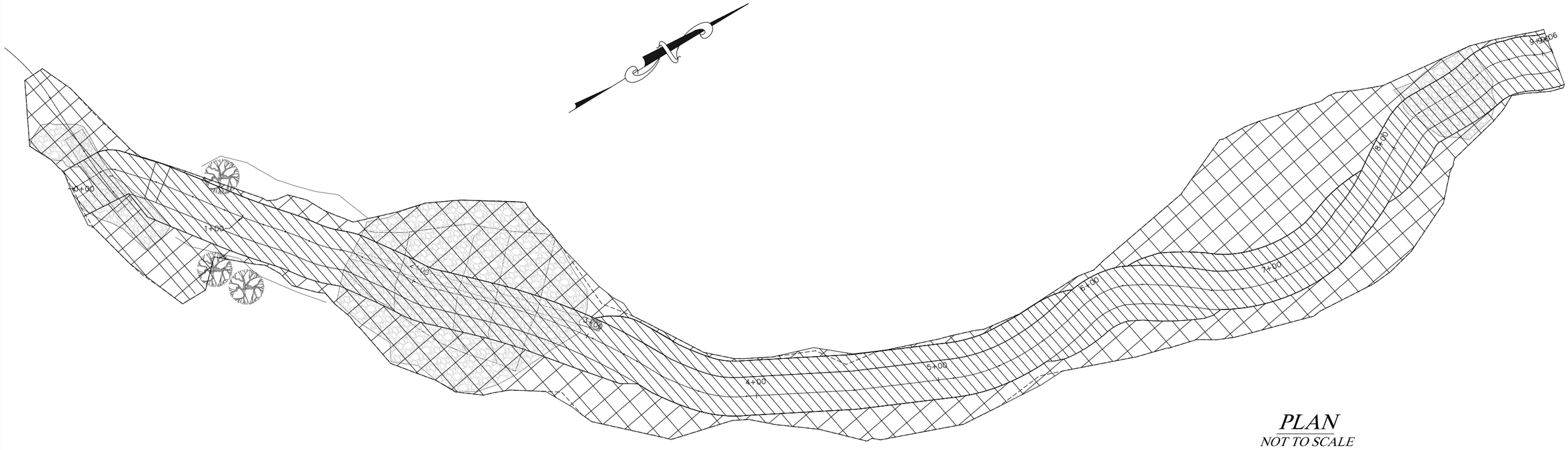
LOW FLOW CROSSING

DESIGNED BY:	KS
DRAWN BY:	SB/JT
CHECKED BY:	JF

O-1127

SHEET 10 OF 10

Filename: MARIA YGNACIO PLANS2.DWG



PLAN
NOT TO SCALE

NOTE:
THIS WORK IS NOT PART
OF THE CONSTRUCTION CONTRACT

LEGEND

RESTORED STREAMBED

NATIVE RIPARIAN
SPECIES RESTORATION

PLANTING PALATE

RESTORED STREAMBED SEEDMIX	NATIVE RIPARIAN PLANT RESTORATION; POTENTIAL PLANT SPECIES
Yerba Mansa: *Anemopsis californica*	Arroyo Willow: *Salix lasiolepis*
Santa Barbara Sedge: *Carex barbarae*	Black Cottonwood: *Populus trichocarpa*
Common Toad Rush: *Juncus bufonius*	Alder: *Alnus rhombifolia*
California Gray Rush: *Juncus patens*	Sycamore: *Platanus racemosa*
Pale Spikerush: *Eleocharis macrostachys*	Coast live oak: *Quercus agrifolia*
Mugwort: *Artemesia douglasiana*	Mexican Elderberry: *Sambucus mexicana*
	Toyon: *Heteromeles arbutifolia*
	Ca. Blackberry: *Rubus ursinus*
	Gooseberry: *Ribes speciosum*
	Ca. Rose: *Rosa californica*

REVISIONS			
NO.	DESCRIPTION	DATE	APR

REGISTERED PROFESSIONAL ENGINEER KAREN M. SULLIVAN No. C 69239 Exp. CIVIL STATE OF CALIFORNIA

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SANTA BARBARA COUNTY WATER RESOURCES

MARIA YGNACIO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

RESTORATION AREAS

DESIGNED BY:	KS
DRAWN BY:	KS
CHECKED BY:	MS

SHEET RA1 OF RA1
Filename: MARIA YGNACIO PLANS2.DWG

4.4 Rattlesnake Creek Debris Basin 2017 Addendum to the Program EIR for Santa Barbara County Flood Control and Water Conservation District

4.4.1 Location

The Rattlesnake Creek Debris Basin is located on Rattlesnake Creek approximately 800 feet upstream of Las Canoas Road and 600 feet east of St. Mary's Seminary.

4.4.2 History

Rattlesnake Creek Debris Basin is an engineered facility that was built in 1964 by the U.S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 8,300 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. Updated Survey of the basin in 2005 calculated the current basin capacity to be 2880 cubic yards. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005. The basin was also desilted after the 2008 Tea Fire and 2009 Jesusita Fire in anticipation of increased post fire debris and sediment flows. Rattlesnake Debris basin is a Group 1 basin and is tentatively scheduled to be removed in 2018.

4.4.3 Setting

Rattlesnake Creek originates in the foothills of the Santa Ynez Mountains and drains a 2,202-acre watershed capable of producing 3,700 cfs during a 100-year return period precipitation event. Since the basin was last desilted in 2009, riparian vegetation has colonized the basin with alders and willows growing along both sides of the basin and small patches of cattails, willow herb and several other weedy species within the basin floor. Hiking trails pass through the basin as this corridor is a popular recreation area. The basin is surrounded by chaparral and oak trees with the dam located at the south end. A well-developed riparian corridor exists to the north and south of the basin. There is an open field to the southwest of the basin where spoils have been stockpiled in the past. Access is from Las Canoas Road approximately 0.5 mile east of the entrance to St. Mary's Seminary.

4.4.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on January 26, 2017. Vegetation types in the basin and adjacent property includes willow riparian forest, coast live oak woodland, and California sagebrush scrub. Upstream and downstream of the debris basin site, the riparian corridor is composed of mature coast live oak canopy and willow riparian forest. Cottonwood and sycamore trees are common. The basin contains arroyo willow, sandbar willow, cottonwood, and sycamore trees approximately 8 years old, following the last desilting event in 2009.

The basin often goes completely dry during the summer months and drought periods, excluding amphibians and other aquatic species. When water is present, the habitat can support Baja California treefrogs, coast garter snake, mosquitofish, and steelhead/rainbow trout.

Bird species detected in the vicinity include black phoebe, brown towhee, western scrub jay, red-tailed hawk, and other migratory birds. The area is associated with a popular hiking trail; human activity and dog tracks are common.

4.4.5 Routine Maintenance Prior to Basin Removal

Potential accumulation of sediment can occur within the basin when rainfall typically occurs prior to its removal in 2018. The maintenance approach is to continue to encourage sediment movement through the debris basin by maintaining a 15-foot-wide pilot channel and clear outlet structure, however since this basin is scheduled for removal, if sediment accumulates rapidly within the basin and the outlet structure cannot be kept open, the sediment will not be mechanically removed. Accumulated sediment would then be utilized in the removal and restoration project.

This maintenance approach encourages sediment movement, as feasible, and also allows all accumulated sediment to remain in the system and become potential input during future storm events once the basin is removed and the stream channel is restored. If the basin completely fills prior to its removal, flows will then deliver sediment over the dam embankment naturally rather than it being captured in the basin.

Routine maintenance is designed to minimize plugging of the outlet works. And ensure that the basin passes low and moderate flows so that the basin doesn't incrementally fill-in.

4.4.5.1 Pilot Channels

Using either heavy equipment or hand tools, a 15-foot-wide pilot channel will be maintained that will extend from the upstream end of the basin to the outlet structure where the pilot channel will increase in width to 30 feet. If winter flows damage the pilot channel, equipment will be used to reestablish it and material dislodged during the pilot channel establishment will be windrowed along the sides to help confine the flows within the pilot channel. Pilot channel establishment with equipment, and the windrowed material, will affect an area approximately 30 feet wide except immediately upstream of the outlet structure where the pilot channel and windrowed material will affect and area approximately 45 feet wide.

Vegetation will be allowed to colonize the windrowed material as well as rest of the basin floor. The pilot channel will be maintained clear of obstructive vegetation (woody vegetation and thick stands of cattails or bulrush) using hand tools and herbicide to allow flows and sediment to pass through the system, however low growing herbaceous vegetation will be left within the pilot channel.

4.4.5.2 Outlet Works

In order to keep the basin draining and sediment moving through, the area around the outlet structure will be kept clear of sediment and obstructive vegetation as described below.

A routinely maintained pilot channel, outlet structure, and embankment were in place prior to the 2016 winter and the District will try to keep the outlet structure clear throughout the winter months which is done without extra maintenance during normal and most moderate rainfall years. Depending upon the time of year, if heavy rains produce enough run off to plug the outlet structure, but not fill the basin with sediment, the District may try to expose the outlet, during both the winter of 2017/2018 by using an excavator to encourage passage of sediments and flows so the basin doesn't accumulate large amounts of standing water that could place pressure on the dam embankment for an extended period. Once the 2016/2017 winter is over, if the outlet structure is covered and the basin is not full of sediment, the District will expose the outlet structure and create a pilot channel through the basin during the 2017 maintenance season (August 2017) prior to the 2017 winter and management of the basin will follow the description above for the 2016 winter. If the basin becomes completely filled with sediment prior to basin removal, the outlet will not be exposed and any subsequent flows or sediment will move over the embankment and be carried downstream.

While the District's goal is to encourage movement of sediment through the basin, the current elevations in the basin, combined with the basin configuration and proposed design for removal will support the accumulation of sediment within the basin until its removal. Accumulated sediment will be used within the basin and downstream of the basin to establish the foundation on which the streambed will be restored. Additional sediment will be incorporated onto the basin slopes and revegetated with native riparian species. Unless there is a fire in the watershed prior to the basin removal, if the basin fills it will not be desilted, but will remain full. The maximum accumulation of sediment would therefore be 2880 yd^3. Page 7 of the design plans includes a figure showing how the sediment would be distributed during the removal project if the basin is full.

4.4.5.3 Dam Embankment

In conjunction with the maintenance of a pilot channel, the dam face and a 10-foot swath adjacent to the toe of the dam will be kept clear of vegetation. This will be done using hand tools to the maximum extent feasible and occasional use of herbicide. Maintaining these clear areas reduces the amount of rodent activity on the dam embankment, allows the District to inspect the dam face and provides for efficient sediment transport through the basin, again to reduce incremental filling. The basin area outside of the pilot channel will be left to colonize with native riparian vegetation

4.4.6 Project Description for Basin Removal

The Rattlesnake Creek Debris Basin is located on the Rattlesnake Creek tributary to Mission Creek, and is located approximately 6.3 miles from the Pacific Ocean.

Approximately 1,114 acres (1.7 square miles) of the contributing watershed drain to the site. The debris basin dam is an engineered facility built in 1964 by the U.S. Army Corps of Engineers (U.S. ACOE) as an emergency response to the Coyote Fire. It was installed to mitigate post-fire debris flows by trapping 8,300 cubic yards of coarse and fine-grained sediment transported downstream towards the City of Santa Barbara and the Pacific Ocean. The dam structure consists of a 22-foot-high earthen fill spillway capped with grouted rock, a rock apron, grouted rock embankments, cutoff walls and a 54-inch reinforced concrete low flow pipe and inlet box. An excerpt from the 1964 U.S. ACOE project drawings illustrating Rattlesnake Debris Basin project is included in Figure 5.11 on the following page. The Santa Barbara County Flood Control and Water Conservation District (District) along with the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) will be working together to deconstruct the debris basin with the aim of restoring this creek reach to its natural riparian function and geomorphic equilibrium.

This work is being performed to allow fish passage for Southern California steelhead and to restore natural sediment delivery to this system. Excavated materials will be distributed within the basin to re-establish the pre-construction grade through the creek corridor using a stable channel reach upstream of the project as a reference for the restoration design, similar to the USDA and DFW-approved Stream Simulation Method.

The proposed project entails a "complete removal" as the grouted dam structure and culvert will be removed and no other engineered structure would be installed.

Spacing and configuration of design features (i.e., pools, riffles, boulder clusters, forcing-features, and LWD/KWD features) is based on several guidance factors from the RPA, including the stream-simulation method, hydrogeomorphic analyses, topographic survey and longitudinal profile, and evaluation of stream geometry. The District's stream-simulation engineering consultant (Mike Love and Associates) advised placement of LWD features at outside bends and at intervals overlapping with the pool/riffle features in the simulated streambed.

The Rattlesnake Debris Basin design footprint is approximately 390 linear feet. Spacing of LWD features is approximately 70 feet on average. The average bankfull channel width is 20 feet, indicating that LWD features are installed every 3-5 channel-widths. The District's design also includes boulder clusters and loose-rock forcing features in the streambed, to achieve NMFS recommendation for roughness features every 5-7 channel.

Once the basin is removed, it will no longer require maintenance under the Debris Basin Routine Maintenance Program.

4.4.7 Temporary Impacts and Restoration

The proposed project would require temporary disturbance of approximately 0.5 acre for access, grading, streambed reconfiguration, channel construction, cut and fill of restored banks, and removal of the dam and embedded concrete culvert.

The barrier removal and channel restoration project has been designed to minimize the removal of vegetation and sediment while obtaining the fish-passage objectives and the channel-stability objectives of the stream-simulation method.

The impacts would be temporary. Following demolition of the barrier structures and restoration of the creek channel, the disturbed areas would be revegetated with native riparian species, including willow, alder, sycamore, oaks, and understory shrubs and herbaceous species. Bio-engineering techniques will be developed and implemented to retain native riparian vegetation when feasible and as part of channel reconstruction. Container plants and cuttings would be used for the trees and shrub species. A seed mix including emergent and wetland plants would be dispersed lightly within the creek corridor to assist in recolonization of native species, such as mugwort, Juncus species, blackberry, and others.

PHOTOGRAPH 4.4-1
Rattlesnake Creek Debris Basin Looking Downstream

PHOTOGRAPH 4.4-2
Rattlesnake Creek Debris Basin Embankment

PHOTOGRAPH 4.4-3
View of Rattlesnake Creek Debris Basin

Map Source: County of Santa Barbara

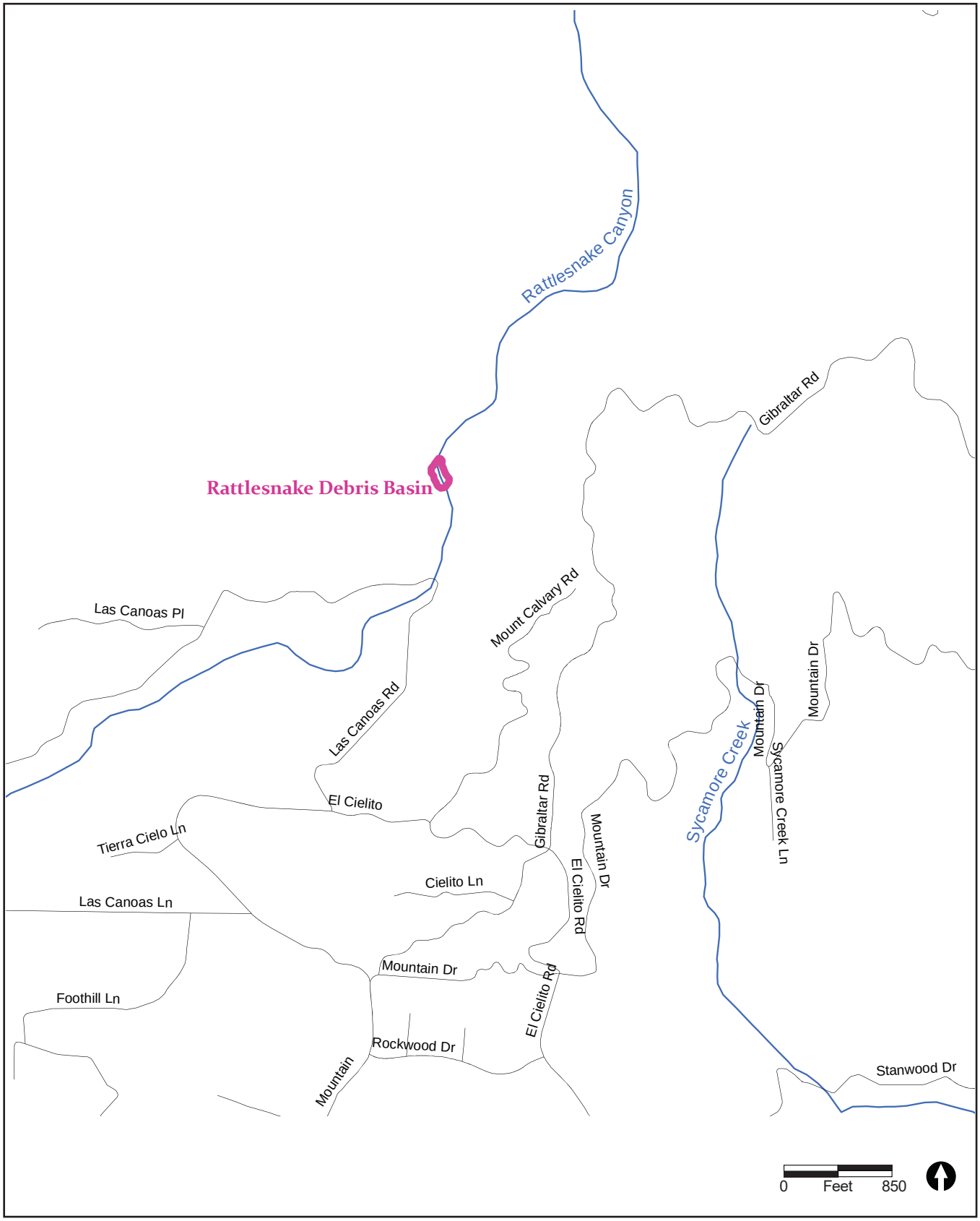


FIGURE 4.4-1
Rattlesnake Creek Debris Basin Map

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Map Source: County of Santa Barbara

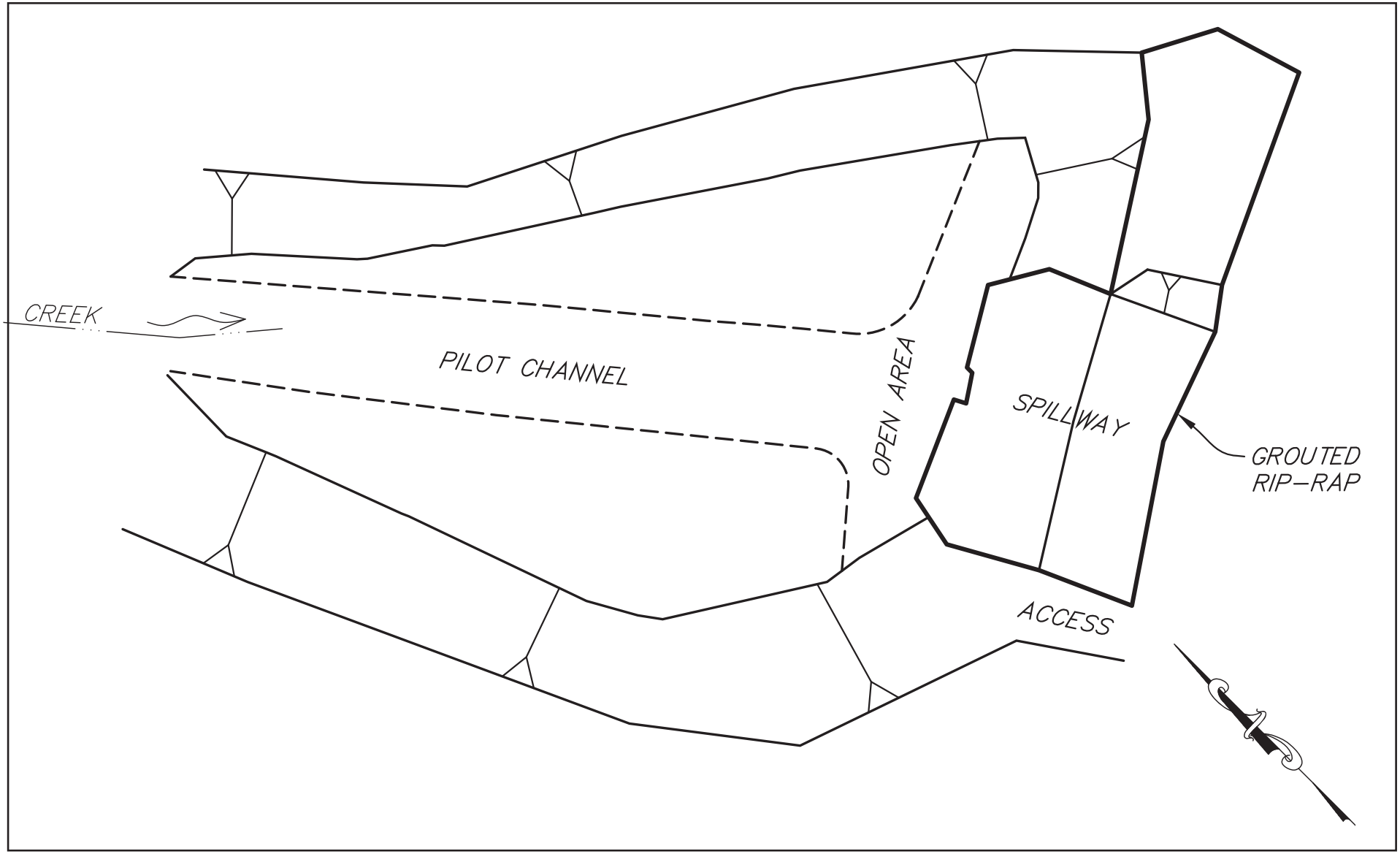

FIGURE 4.4-2
Rattlesnake Creek Debris Basin Figure

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Rattlesnake Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDlACEAE		
Toxicodendron diversilobum	Poison oak	N
Malosma laurina	Laurel sumac	N
APlACEAE		
Conium maculatum	Poison hemlock	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Baccharis pilularis	Coyotebrush	N
Picris echioides	Ox tongue	I
Sylibum marianum	Milk thistle	I
Xanthium strumarium	Cocklebur	I
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa Nasturtium-aquaticum	Watercress	I
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican tea	I
Chenopodium murale	Nettle-leaved goosefoot	I
CYPERACEAE		
Cyperus alternifolius	African umbrella sedge	I
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
MALVACEAE		
Malva parvifolia	Cheeseweed	I
PLATAGINACEAE		
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Hordeum murinum	Foxtail	I
Lolium miliacea	Rice grass	I
Penniserum clandestinum	Kikuyu grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Polygonum punctatum	Dotted water smartweed	N
Rumex crispus	Curly dock	I

Rattlesnake Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

PRELIMINARY NOT FOR CONSTRUCTION

SANTA BARBARA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

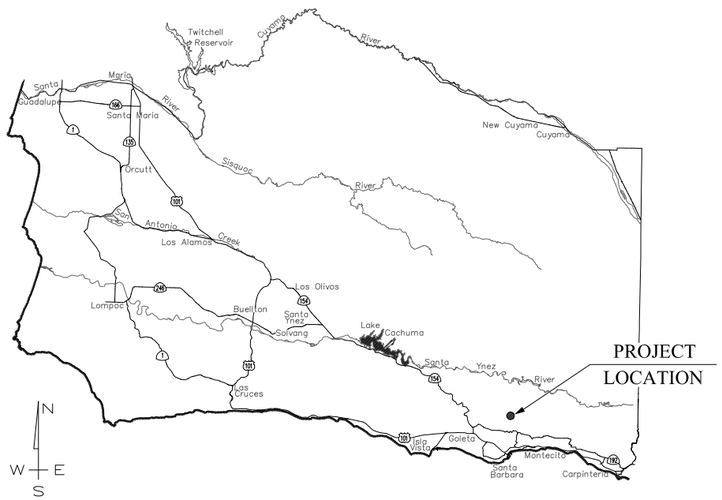
RATTLESNAKE DEBRIS BASIN REMOVAL

SC8352

IN THE MONTECITO AREA OF SANTA BARBARA COUNTY, CALIFORNIA

DISTRICT BOARD OF DIRECTORS

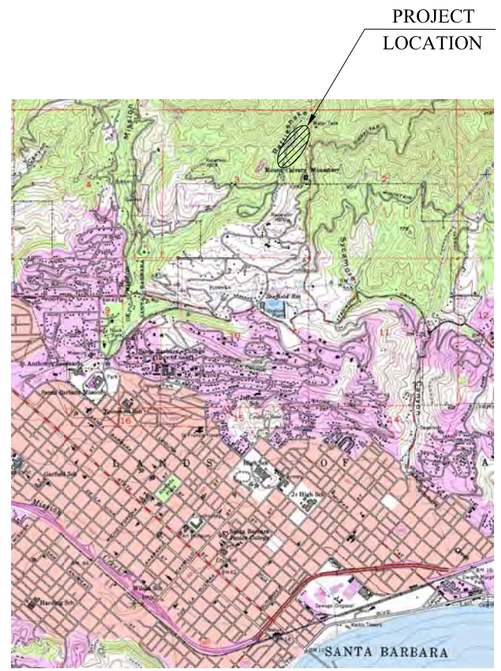
FIRST DISTRICT	Salud Carbajal
SECOND DISTRICT	Janet Wolf
THIRD DISTRICT	Doreen Farr
FOURTH DISTRICT, CHAIR	Peter Adam
FIFTH DISTRICT	Steve Lavagnino



VICINITY MAP
No Scale

INDEX TO SHEETS

HALF SCALE PLANS



SITE MAP
No Scale

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:		REVIEWED BY:	
FLOOD CONTROL DESIGN ENGINEER	DATE	COUNTY SURVEYOR	DATE
REVIEWED BY:		REVIEWED BY	
FLOOD CONTROL ENGINEERING MANAGER	DATE	MAINTENANCE SUPERINTENDENT	DATE
REVIEWED BY		REVIEWED BY	
FLOOD CONTROL DEPUTY DIRECTOR	DATE	ENVIRONMENTAL SERVICES MANAGER	DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

TITLE SHEET

DESIGNED BY:	KS
DRAWN BY:	SB/OR
CHECKED BY:	JF

O-XXXX

SHEET 1 OF 7

Filename: RATTLESNAKE_PLANS.DWG

SYMBOL LEGEND

CONTROL POINT
EX. CABLE TV BOX
EX. CABLE TV VAULT
EX. ELECTRIC BOX
EX. ELECTRIC GUY WIRE
EX. ELECTRIC MANHOLE
EX. ELECTRIC METER
EX. FIRE HYDRANT
EX. GAS METER
EX. GAS VALVE
EX. IRRIGATION SPRINKLER
EX. LUMINARY
EX. MAILBOX
EX. MONUMENT
EX. POWER & TELEPHONE POLE

EX. ROCK
EX. SEWER CLEANOUT
EX. SEWER MANHOLE
EX. SIGNAGE
EX. STORM DRAIN GRATE
EX. STORM DRAIN MANHOLE
EX. STRUCTURE BENCH
EX. STRUCTURE BOLLARD/POST
EX. TELEPHONE BOX
EX. TELEPHONE MANHOLE
EX. TELEPHONE POLE
EX. TELEPHONE VAULT
EX. BUSH/HEDGE
EX. CACTUS
EX. SHRUB

EX. TREE
EX. TREE – EUCALYPTUS
EX. TREE – LEMON
EX. TREE – PALM
EX. TREE – PINE
EX. TREE – STUMP
EX. TREE – SYCAMORE
EX. TREE – WILLOW
EX. TREE – YUCCA
EX. WATER METER
EX. WATER SPIGOT
EX. WATER VALVE
EX. WATER WELL

LINETYPE LEGEND

BOUNDARY EASEMENT LINE
BOUNDARY RIGHT OF WAY LINE
BOUNDARY PROPERTY LINE
CENTERLINE
CONTOUR LINE–MAJOR
CONTOUR LINE–MINOR
EX. AC EDGE OF PAVEMENT
EX. BRUSH

EX. BUILDING
EX. DRAINAGE
EX. ELECTRIC
EX. ELECTRIC OVERHEAD
EX. FLOWLINE
EX. STORM DRAIN
EX. STRUCTURE CONCRETE
PROPOSED FACILITIES

EXISTING UTILITY INFORMATION

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN. NOTE THAT INDIVIDUAL SERVICE LATERALS AND CONNECTIONS ARE NOT PLOTTED ON THE PROFILE.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1–800–422–4133.

HALF SCALE PLANS

STANDARD DETAILS AND PLANS LIST

STANDARD NO.	DESCRIPTION

STATE DEPARTMENT OF TRANSPORTATION STANDARD PLANS (MAY 2006 EDITION)
The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply are attached to the contract.

A10A	ACRONYMS AND ABBREVIATIONS
A10B	ACRONYMS AND ABBREVIATIONS
A10C	SYMBOLS

ABBREVIATIONS

APN	ASSESSORS PARCEL NUMBER
APWA	AMERICAN PUBLIC WORKS ASSOC.
AT	ARCHITRCTURAL TEXTURE
BW	BOTH WAYS
CFS	CUBIC FEET PER SECOND
CL or C/L	CENTER LINE
CALTRANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
COUNTY	COUNTY OF SANTA BARBARA
CP	CONTROL POINT
DI	DUCTILE IRON OR DROP INLET
DW	DRIVEWAY
E	EAST OR EASTING
EG	EXISTING GROUND
EGL	ENERGY GRADE LINE
EL	ELEVATION
EP	EDGE OF PAVEMENT
ELEC	ELECTRIC
FD	FOUND
FT	FEET
G	GAS LINE
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
IP	IRON PIPE
IN	INCH
MJ	MECHANICAL JOINT
n	MANNING'S COEFFICIENT
N	NORTH OR NORTHING
OC	ON CENTER
PK	PK NAIL
Q	FLOW VELOCITY
R1	RECORD PER BOOK NN, PAGE NN OF MAPS
S	SEWER OR SLOPE OR SOUTH
SDMH	STORM DRAIN MANHOLE
SH	SHINER
SPK	SPIKE
S/W	SIDEWALK
TW or tw	TOP OF WALL
TCE	TEMPORARY CONSTRUCTION EASEMENT
TBM	TEMPORARY BENCH MARK
TSW	TOP OF SIDEWALK
TP	TOP OF PAVEMENT
W or WL	WATER LINE
WF	WALL FACE
WWF	WELDED WIRE FABRIC
V	VELOCITY
VB	VALVE BOX

HORIZONTAL AND VERTICAL CONTROL

Surveyor's Notes:
Horizontal positions for points CP1 & CP3 were derived from GPS–RTK observation holding base stationed at CP3 fixed as CP3 per County Surveyor Office Field Notes from Survey Project S556.

Based on the CORS sites shown on Record of Survey book 171 pages 24 thru 25. California Coordinate System 1983 Zone 5 (CCS83) 1992 Adjustment. North American Vertical Datum 1988 (NAVD88) using the National Geodetic Survey's program GEOID99.

Elevations (orthometric heights) were derived by GPS–RTK observation holding base stationed at CP3 fixed as CP3 per County Surveyor Office Field Notes from Survey Project S556.

CP3 was held for local Northing, Easting and Elevation. CP1 was remeasured from CP3 using conventional robotic total station.

Resulting survey measured with conventional robotic total station.

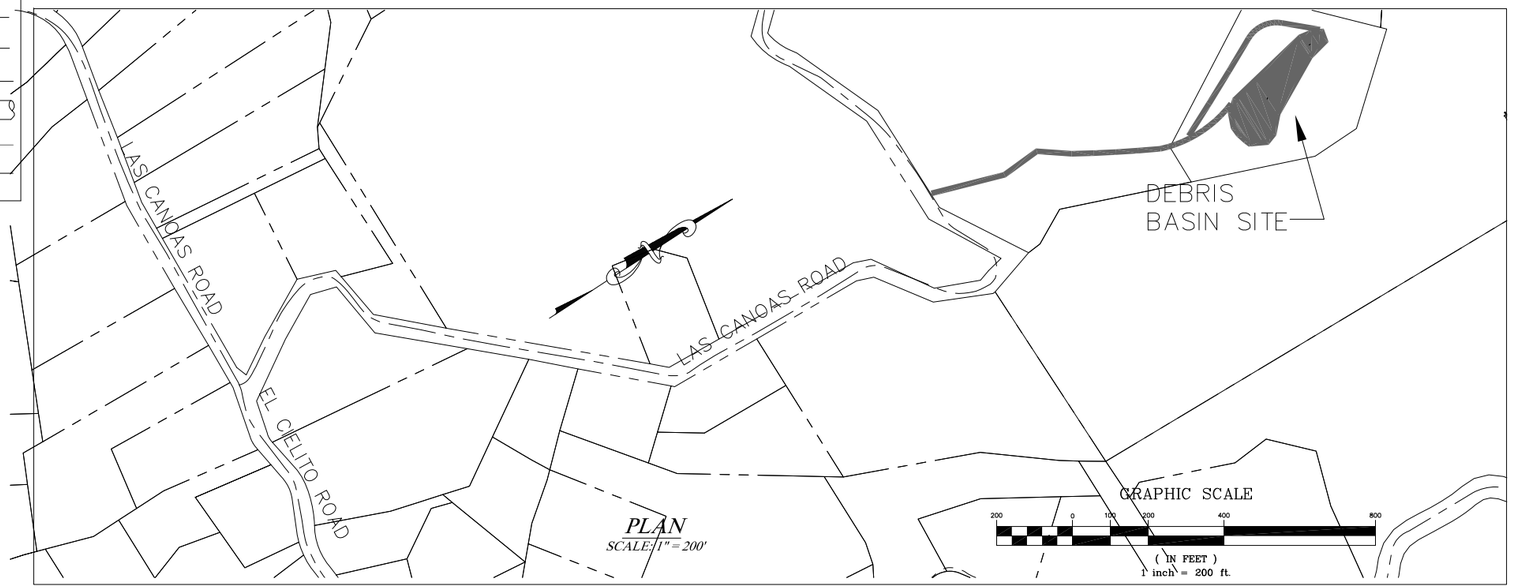
All coordinate values shown are grid values. All distances are based on the U.S. Survey Foot (one survey foot = 1200/3937 meters).

Contour Interval:
The contour interval is shown at 1 foot intervals with majors at every 5 feet

Basis of Bearings:
The Local Basis of Bearings is between CP3 and CP1 found as described
Record: S71°16'51"W, 72.06'
Measured: S71°16'27"W, 72.02'

Boundary Note:

NONE SHOWN



PLAN
SCALE: 1" = 200'

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

GENERAL INFORMATION & ACCESS PLAN

DESIGNED BY: KS
DRAWN BY: OR
CHECKED BY: JF

O-XXXX

SHEET 2 OF 7

Filename: RATTLESNAKE_PLANS.dwg

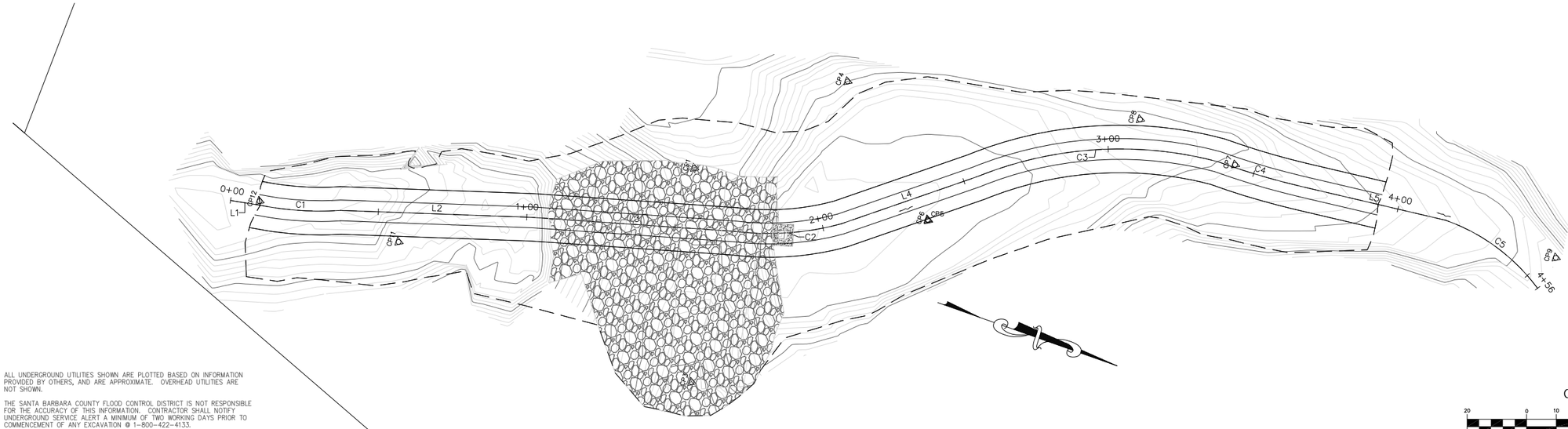
Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	9.71	N10° 13' 31.34"W	(6051657.18,1993839.46)	(6051655.46,1993849.01)
L2	64.78	N17° 21' 45.29"W	(6051648.01,1993875.52)	(6051628.68,1993937.35)
L3	68.18	N15° 27' 55.69"W	(6051628.68,1993937.35)	(6051610.50,1994003.05)
L4	48.19	N38° 33' 26.02"W	(6051596.23,1994035.83)	(6051566.19,1994073.52)
L5	50.12	N6° 16' 26.50"W	(6051532.84,1994177.51)	(6051527.37,1994227.32)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	106.07	27.62	N15° 42' 16.78"W	(6051655.46,1993849.01)	(6051648.01,1993875.52)
C2	92.74	35.98	N23° 31' 31.60"W	(6051610.50,1994003.05)	(6051596.23,1994035.83)
C3	128.50	82.76	N23° 04' 10.63"W	(6051566.19,1994073.52)	(6051534.32,1994148.35)
C4	253.58	29.21	N2° 53' 24.08"W	(6051534.32,1994148.35)	(6051532.84,1994177.51)
C5	65.76	39.00	N17° 04' 46.12"E	(6051527.37,1994227.32)	(6051538.65,1994264.06)

CONTROL POINT TABLE

CONTROL POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	RECORD
CP1	1993982.992	6051594.998	945.455	FOUND NAIL SHANK IN AERIAL PANEL	S556
CP3	1994006.115	6051663.237	950.876	FOUND NAIL SHANK IN AERIAL PANEL	S556
CP4	1994021.916	6051550.324	939.440	SET SPIKE AND CHASER	SC8352
CP5	1994062.855	6051585.207	934.568	SET SPIKE AND CHASER	SC8352
CP6	1994063.022	6051585.432	934.637	SET SPIKE AND CHASER	SC8352
CP7	1994154.221	6051533.367	940.525	SET SPIKE AND CHASER	SC8352
CP8	1994118.989	6051529.616	939.228	SET SPIKE AND CHASER	SC8352
CP9	1994266.418	6051526.945	952.794	SET SPIKE AND CHASER	SC8352
CP10	1993897.328	6051651.461	921.154	SET SPIKE AND CHASER	SC8352
CP11	1993897.416	6051651.518	921.903	SET SPIKE AND CHASER	SC8352
CP12	1993848.730	6051654.160	917.946	SET SPIKE AND CHASER	SC8352

PRELIMINARY NOT FOR CONSTRUCTION



CONTROL LINE
SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

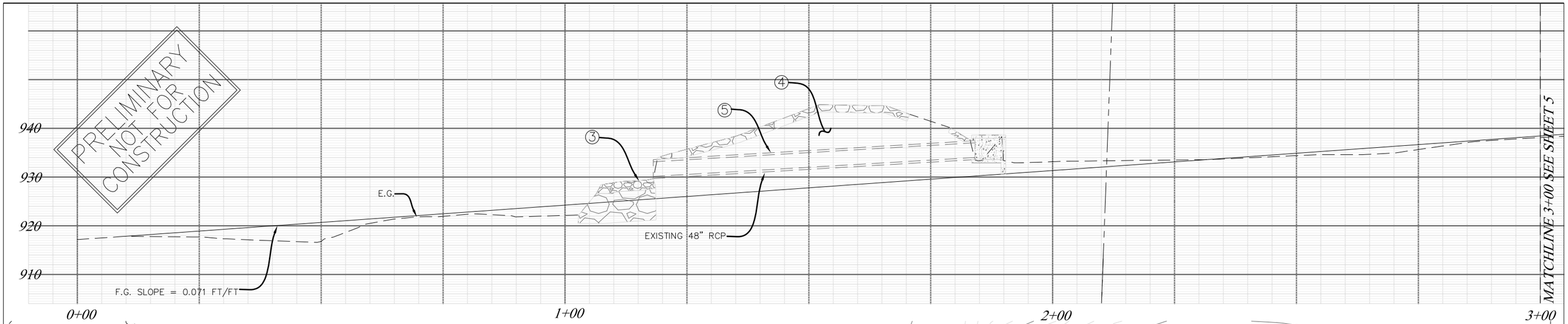
HORIZONTAL CONTROL

DESIGNED BY:	K.S.
DRAWN BY:	O.R.
CHECKED BY:	J.F.

O-XXXX

Filename: RATTLESNAKE_PLANS.DWG

PRELIMINARY NOT FOR CONSTRUCTION

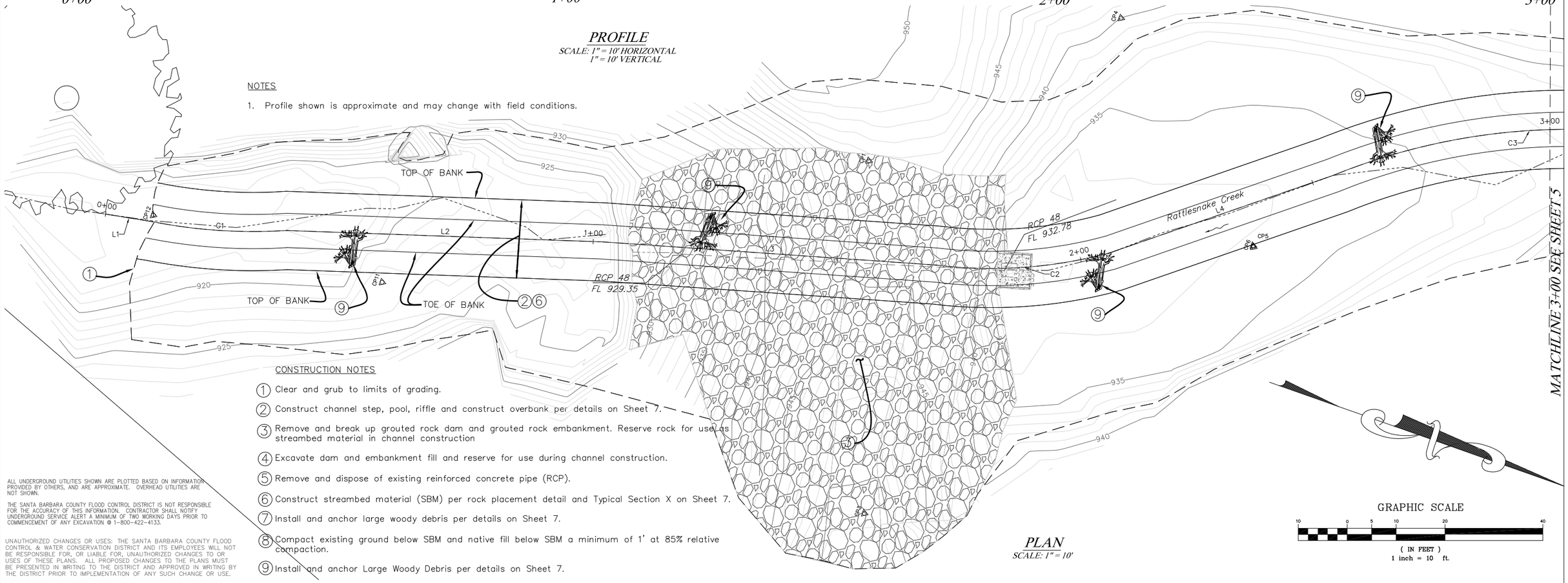


PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

NOTES

1. Profile shown is approximate and may change with field conditions.



CONSTRUCTION NOTES

1. Clear and grub to limits of grading.
2. Construct channel step, pool, riffle and construct overbank per details on Sheet 7.
3. Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction
4. Excavate dam and embankment fill and reserve for use during channel construction.
5. Remove and dispose of existing reinforced concrete pipe (RCP).
6. Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet 7.
7. Install and anchor large woody debris per details on Sheet 7.
8. Compact existing ground below SBM and native fill below SBM a minimum of 1' at 85% relative compaction.
9. Install and anchor Large Woody Debris per details on Sheet 7.

PLAN

SCALE: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

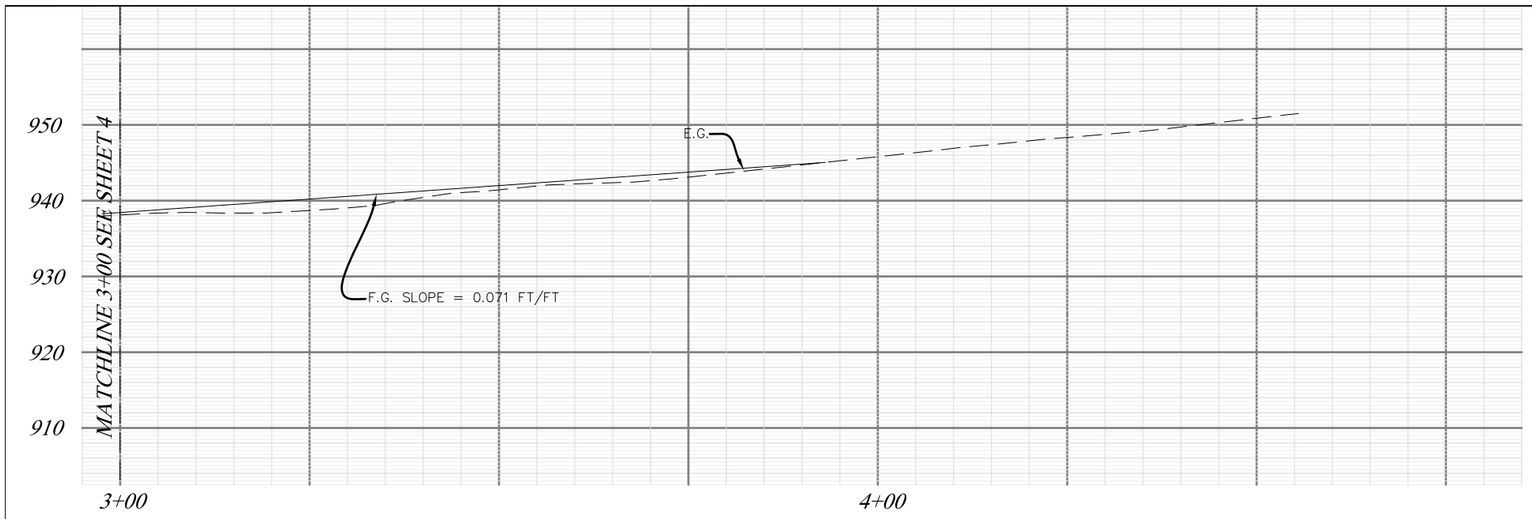
SANTA BARBARA COUNTY, CALIFORNIA

PLAN & PROFILE

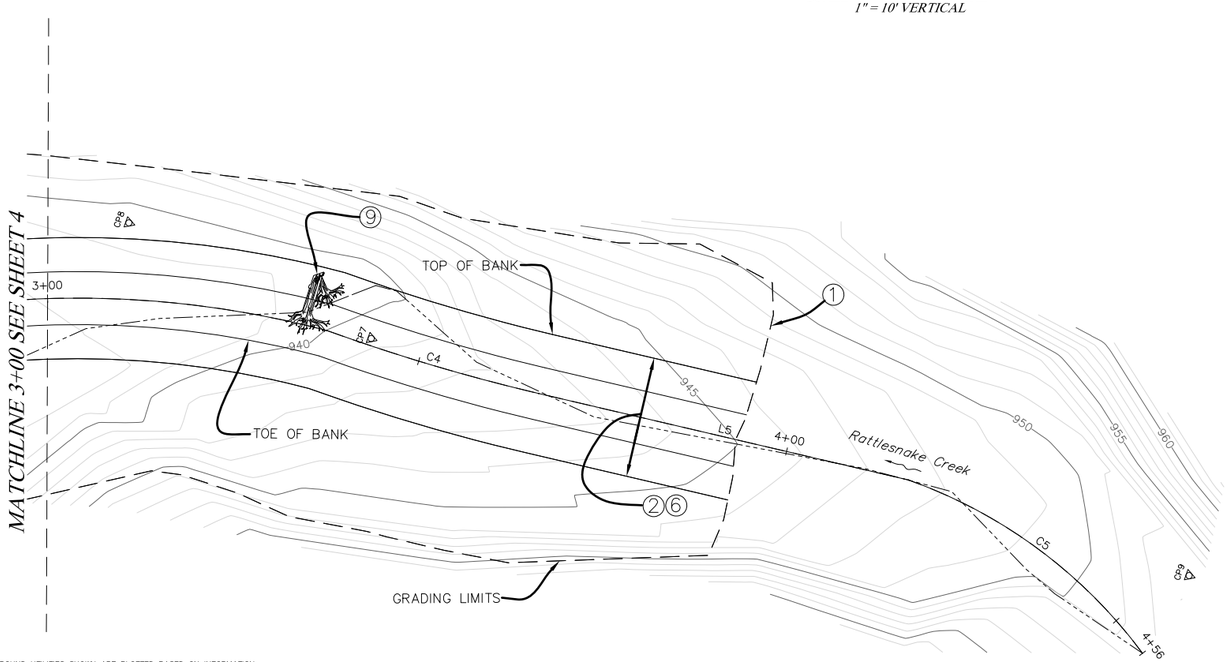
DESIGNED BY:	K.S.
DRAWN BY:	O.R.
CHECKED BY:	J.F.

O-XXXX

Filename: RATTLESNAKE_PLANS.DWG



PROFILE
SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN
SCALE: 1" = 10'

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

(1) Clear and grub to limits of grading.

(2) Construct channel step, pool, riffle and construct overbank per details on Sheet 7.

(6) Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet 7.

(7) Install and anchor large woody debris per detail on Sheet 7.

(8) Compact existing ground below SBM and native fill below SBM a minimum of 1' at 85% relative compaction.

(9) Install and anchor Large Woody Debris per details on Sheet 7.

PRELIMINARY NOT FOR CONSTRUCTION

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

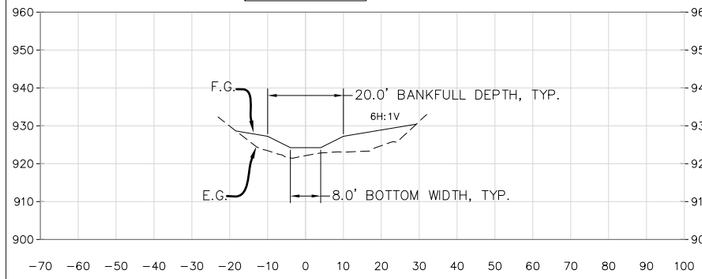
PLAN & PROFILE

DESIGNED BY: KS
DRAWN BY: SB/OR
CHECKED BY: JF

O-XXXX

Filename: RATTLESNAKE_PLANS.DWG

1+00.00



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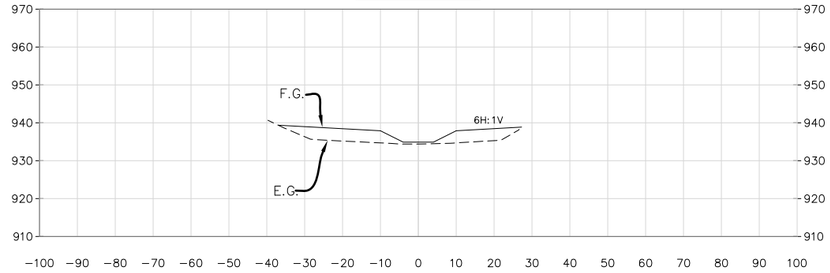

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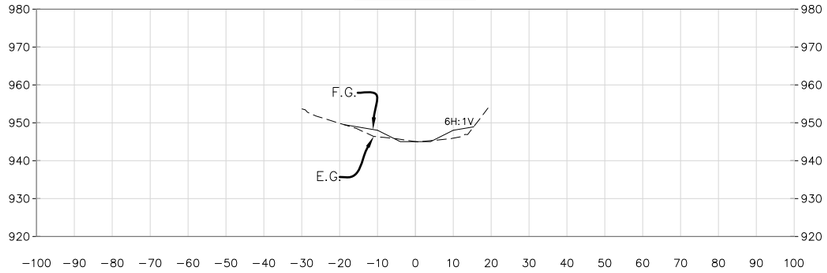

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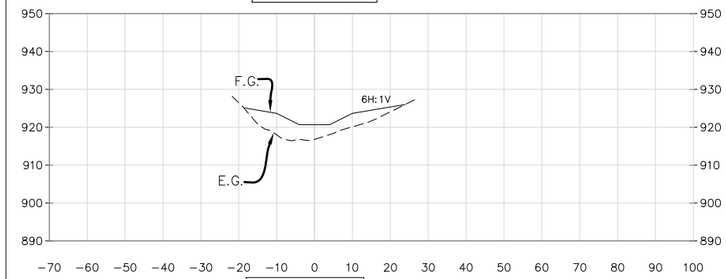

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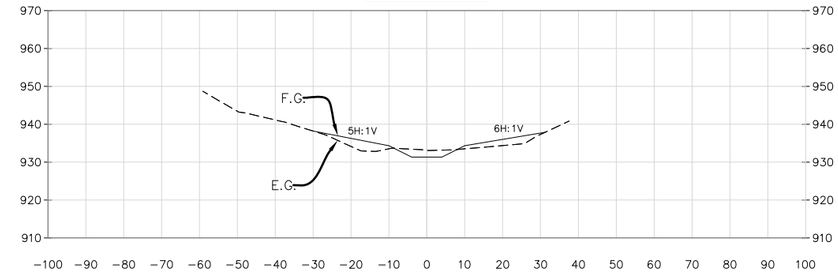

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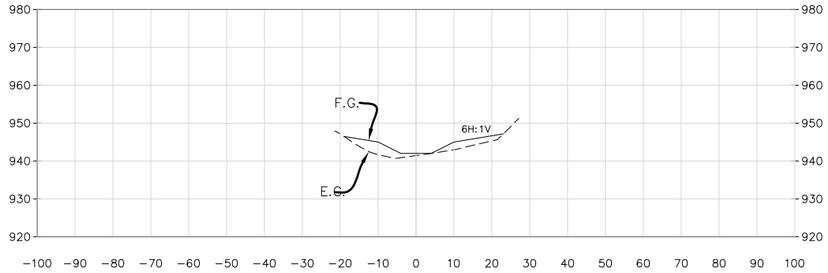

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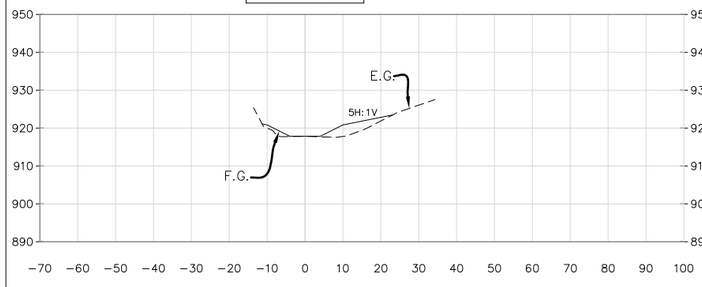

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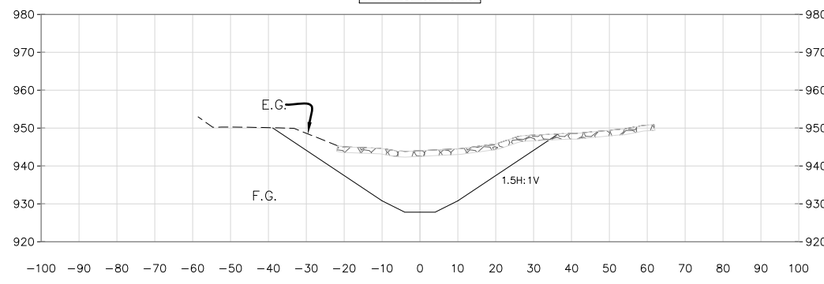

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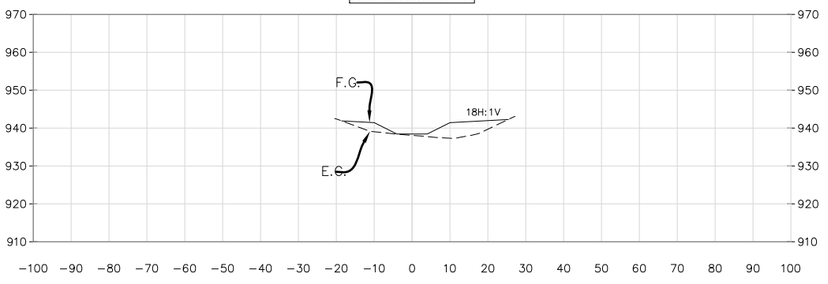

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HALF SCALE PLANS

HORIZONTAL SCALE = VERTICAL SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

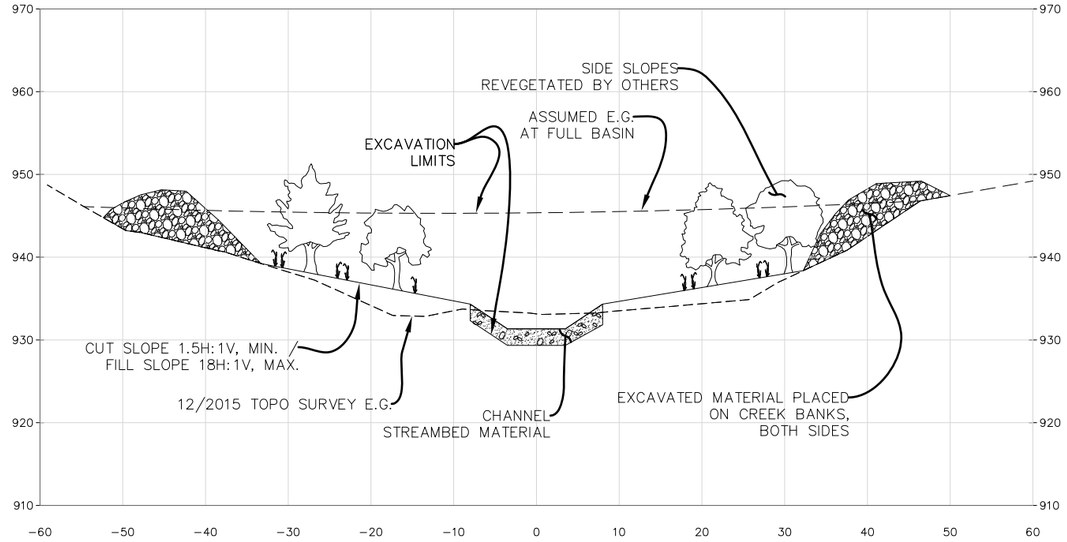
CROSS SECTIONS

DESIGNED BY:	XX
DRAWN BY:	XX
CHECKED BY:	XX

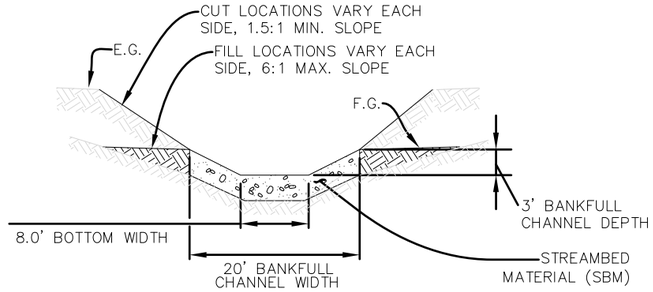
O-XXXX

Filename: XXXXXX.DWG

PRELIMINARY NOT FOR CONSTRUCTION

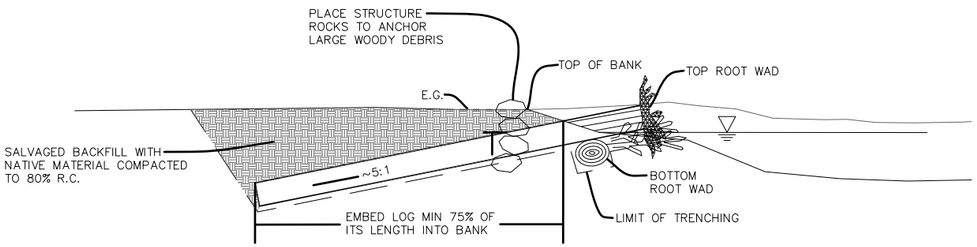


FULL BASIN SCENARIO
TYPICAL CUT / FILL SECTION
NOT TO SCALE

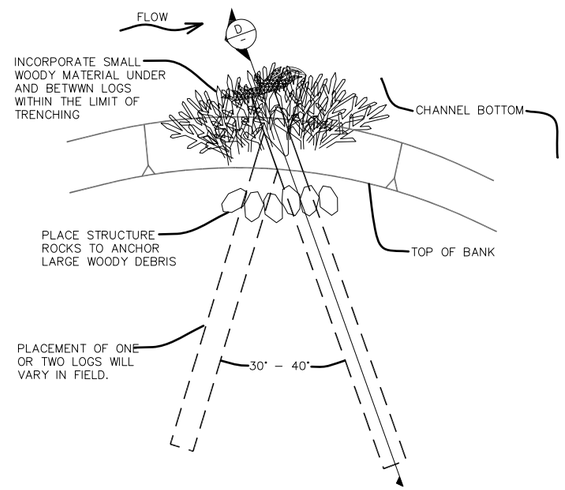


A - *TYPICAL SECTION STEP TOP*
NOT TO SCALE

HALF SCALE PLANS



D - *SECTION LARGE & SMALL WOODY DEBRIS*
NOT TO SCALE



PLAN VIEW LARGE & SMALL WOODY DEBRIS
NOT TO SCALE

NOTE

1. Final woody debris placement, sizes and configuration may vary from these details, depending upon available sizes in the field and upon the direction of the biologist.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

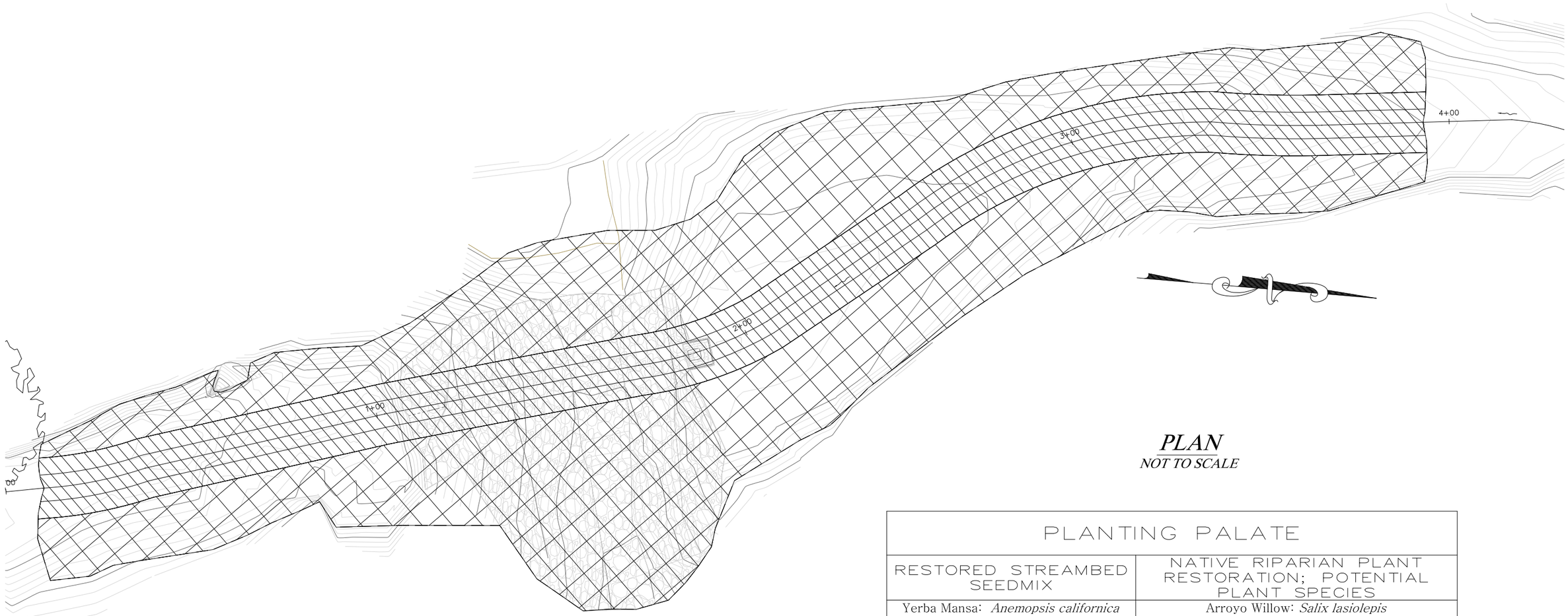
DETAILS

DESIGNED BY: K.S.
DRAWN BY: O.R.
CHECKED BY: J.F.

O-XXXX

SHEET 7 OF 7

Filename: RATTLESNAKE_PLANS.DWG



PLAN
NOT TO SCALE

LEGEND

RESTORED STREAMBED

NATIVE RIPARIAN
SPECIES RESTORATION

HALF
SCALE
PLANS

NOTE:
THIS WORK IS NOT PART OF
THE CONSTRUCTION CONTRACT.

PLANTING PALATE	
RESTORED STREAMBED SEEDMIX	NATIVE RIPARIAN PLANT RESTORATION; POTENTIAL PLANT SPECIES
Yerba Mansa: *Anemopsis californica*	Arroyo Willow: *Salix lasiolepis*
Santa Barbara Sedge: *Carex barbarae*	Black Cottonwood: *Populus trichocarpa*
Common Toad Rush: *Juncus bufonius*	Alder: *Alnus rhombifolia*
California Gray Rush: *Juncus patens*	Sycamore: *Platanus racemosa*
Pale Spikerush: *Eleocharis macrostachys*	Coast live oak: *Quercus agrifolia*
Mugwort: *Artemesia douglasiana*	Mexican Elderberry: *Sambucus mexicana*
	Toyon: *Heteromeles arbutifolia*
	Ca. Blackberry: *Rubus ursinus*
	Gooseberry: *Ribes speciosum*
	Ca. Rose: *Rosa californica*

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

RATTLESNAKE DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

RESTORATION AREAS

DESIGNED BY:	KS
DRAWN BY:	KS
CHECKED BY:	MS

SHEET RA1 OF RA1

Filename: RATTLESNAKE_PLANS.DWG

4.5 San Ysidro Creek Debris Basin 2017 Addendum to the Program EIR for Santa Barbara County Flood Control and Water Conservation District

4.5.1 Location

The San Ysidro Creek Debris Basin is located on San Ysidro Creek at the end of West Park Lane in Montecito.

4.5.2 History

San Ysidro Creek Debris Basin is an engineered facility that was built in 1964 by the U. S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 11,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. A basin survey in 2005 determined that the updated basin capacity is 7945 cubic yards. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994 the basin was maintained on an as-needed basis. Desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

4.5.3 Setting

San Ysidro Creek originates in the foothills of the Santa Ynez Mountains and drains a 2,621-acre watershed capable of producing 3500 cfs during a 100-year return period precipitation event.

The basin is surrounded by eucalyptus trees with the dam located at the south end. A well-developed riparian corridor exists to the north of the basin with chaparral habitat intermixed with oaks and an occasional cottonwood beyond the eucalyptus trees to the east. West Park Lane, a trailhead, and homes are located to the east of the basin.

This site is constrained by an active water main line that crosses the creek approximately 50 feet downstream of the debris basin dam. The water line is owned and operated by the Montecito Water District (MWD). The line is encased in concrete which traverses the creek banks and crosses the channel. The encased water line acts as a secondary dam and check-structure, holding the elevation of the creek channel and creating a deep scour pool downstream of the project area.

4.5.4 Wildlife Survey

The site was assessed by the District Biologist on October 10, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The downstream end of the debris basin dam is dominated by remnant cattails, indicating prolonged wet conditions (although the site was dry during assessment). Within the basin, vegetation is comprised of willow riparian scrub with interspersed cottonwood trees and

mixed ceanothus species. The site provides good riparian habitat for birds and wildlife, despite the busy trailhead adjacent to the site. Wildlife observations include: Bewick's wren, northern mockingbird, orange crowned warbler, Anna's hummingbird, brown towhee, western scrub jay, black phoebe, and house finch. Baja California treefrogs and bullfrogs have been detected previously at the site, but the area has been dry for most of the past few years. Western fence lizards were detected on the basin embankment. The site is designated critical habitat for steelhead trout. Raccoon tracks and domestic dog tracks are common, as well as evidence of frequent human traffic from the trailhead.

4.5.5 Routine Maintenance Prior to Basin Removal

San Ysidro Basin is scheduled to be removed during the fall of 2019. Once the basin is removed, it will no longer require maintenance under the Debris Basin Routine Maintenance Program. Potential accumulation of sediment can occur prior to its removal when rainfall typically occurs. The maintenance approach is to continue to encourage sediment movement through the debris basin by maintaining a 15-foot-wide pilot channel and clear outlet structure, however since this basin is scheduled for removal, if sediment accumulates rapidly within the basin and the outlet structure cannot be kept open, the sediment will not be mechanically removed. Accumulated sediment would then be utilized in the removal and restoration project.

This maintenance approach encourages sediment movement, as feasible, and also allows all accumulated sediment to remain in the system and become potential input during future storm events once the basin is removed and the stream channel is restored. If the basin completely fills prior to its removal, flows will then deliver sediment over the dam embankment naturally rather than it being captured in the basin.

Routine maintenance includes maintaining a pilot channel through the basin and keeping the outlet works and other specific areas clear of obstructive vegetation in order to minimize plugging. Maintenance of the outlet works will ensure that the basin passes low and moderate flows so that the basin doesn't incrementally fill-in.

4.5.5.1 Pilot Channels

Using either heavy equipment or hand tools, a 15-foot-wide pilot channel will be maintained that will extend from the upstream end of the basin to the outlet structure where the pilot channel will increase in width to 30 feet. If winter flows damage the pilot channel, equipment will be used to reestablish it and material dislodged during the pilot channel establishment will be windrowed along the sides to help confine the flows within the pilot channel. Pilot channel establishment with equipment, and the windrowed material, will affect an area approximately 30 feet wide except immediately upstream of the outlet structure where the pilot channel and windrowed material will affect and area approximately 45 feet wide.

Vegetation will be allowed to colonize the windrowed material as well as rest of the basin floor. The pilot channel will be maintained clear of obstructive vegetation (woody vegetation and thick stands of cattails or bulrush) using hand tools and herbicide to allow flows and

sediment to pass through the system, however low growing herbaceous vegetation will be left within the pilot channel.

4.5.5.2 Outlet Works

In order to keep the basin draining and sediment moving through, the area around the outlet structure will be kept clear of sediment and obstructive vegetation as described below.

A routinely maintained pilot channel, outlet structure, and embankment was in place prior to the 2016 winter and the District will try to keep the outlet structure clear throughout the winter months which is done without extra maintenance during normal and most moderate rainfall years. Depending upon the time of year, if heavy rains produce enough run off to plug the outlet structure, but not fill the basin with sediment, the District may try to expose the outlet using an excavator to encourage passage of sediments and flows so the basin doesn't accumulate large amounts of standing water that could place pressure on the dam embankment for an extended period. Once each winter is over, if the outlet structure is covered and the basin is not full of sediment, the District will expose the outlet structure and create a pilot channel through the basin during the 2017 and 2018 maintenance seasons prior to the winter and management of the basin will follow the description above. If the basin becomes completely filled with sediment during prior to basin removal, the outlet will not be exposed and any subsequent flows and sediment will move over the embankment and be carried downstream.

While the District's goal is to encourage movement of sediment through the basin, the current elevations in the basin, combined with the basin configuration and proposed design for removal would support the accumulation of sediment within the basin until its removal. Accumulated sediment would be used within and downstream of the basin to establish the foundation on which the streambed will be restored. Additional sediment would be incorporated onto the basin slopes and revegetated with native riparian species. Unless there is a fire in the watershed prior to the basin removal, if the basin fills it will not be desilted, but will remain full. The maximum accumulation of sediment would therefore be 7945 yd^3.

4.5.5.3 Dam Embankment

In conjunction with the maintenance of a pilot channel, as feasible, the dam face and a 10 feet swath adjacent to the toe of the dam will be kept clear of vegetation. This will be done using hand tools to the maximum extent feasible and occasional use of herbicide. Maintaining these clear areas reduces the amount of rodent activity on the dam embankment, allows the District to inspect the dam face and provides for efficient sediment transport through the basin, again to reduce incremental filling. The basin area outside of the pilot channel will be left to colonize with native riparian vegetation

4.5.6 Project Description for Basin Removal

The San Ysidro Creek Debris Basin is located along San Ysidro Creek approximately 2 miles upstream of the Pacific Ocean. 2,176 acres (3.4 square miles) of the contributing watershed drain to the site. The debris basin dam is an engineered facility built in 1964 by the U.S. Army Corps of Engineers (U.S. ACOE) as an emergency response to the Coyote Fire. It was installed to mitigate post-fire debris flows by trapping 11,000 cubic yards of coarse and fine-grained sediment transported downstream towards the Town of Montecito and the Pacific Ocean. The dam structure consists of a 16-foot high earthen fill spillway capped with grouted rock, a rock apron, grouted rock embankments, cutoff walls and a 48-inch reinforced concrete low flow pipe.

The Santa Barbara County Flood Control and Water Conservation District (District), along with the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), will be working together to deconstruct the debris basin with the aim of restoring this creek reach to its natural riparian function and geomorphic equilibrium.

This work is being performed to allow fish passage for Southern California steelhead and restore natural sediment delivery to the system. The proposed project entails a "complete removal" as the grouted dam structure and culvert will be removed and no other engineered structure would be installed.

Excavated materials will be distributed within the basin to begin to re-establish the pre-construction grade through the creek corridor using a stable channel reach upstream of the project as a reference for the restoration design, similar to the USDA and DFW-approved Stream Simulation Method.

The San Ysidro Debris Basin design footprint is approximately 320 linear feet. Spacing of LWD features ranges from 20 to 90 feet, with average spacing approximately 55 feet. The average bankfull channel width is 18 feet, indicating that LWD features are installed every 3 to 5 channel-widths. Spacing and configuration of design features (i.e., pools, riffles, boulder clusters, forcing-features, and LWD/KWD features) is based on several guidance factors from the RPA, including the stream-simulation method, hydrogeomorphic analyses, topographic survey and longitudinal profile, and evaluation of stream geometry. The District's stream-simulation engineering consultant (Mike Love and Associates) advised placement of LWD features at outside bends and at intervals overlapping with the pool/riffle features in the simulated streambed. The District's design also includes boulder clusters and loose-rock forcing features in the streambed, consistent with NMFS's recommendation for roughness features every 5-7 channel widths.

Montecito Water District owns and maintains a 24-inch waterline that crosses San Ysidro Creek approximately 70 feet downstream of the San Ysidro Debris Basin dam embankment that is encased in grouted rock. This waterline was in place prior to the construction of the debris basin. Over many years, the creek bed has down-cut more than 7 feet at the pipeline, creating a complete fish migration barrier. Because this waterline is very close to the debris basin removal project, and in the interest of completing the restoration of this area of San Ysidro Creek, the District is coordinating with Montecito Water District to

combine the relocation of their water pipeline with the basin removal project and will pursue grant funding to increase the likelihood of this joint project occurring. Neither the District nor Montecito Water District is required to remove the waterline; however, the two agencies are interested in pursuing this if possible as it is timely given the District's pending basin removal.

If this becomes a joint project, the waterline will most likely be suspended over the creek at a safe height to pass flows and debris and the creek bed will be restored along with the basin removal and creek restoration. With the water line removal, the project length will extend approximately 150 feet below the dam embankment in order to create an appropriate slope through the project reach.

4.5.7 Temporary Impacts and Restoration

The proposed project would require temporary disturbance of approximately 0.55 acre for access, grading, streambed reconfiguration, channel construction, cut and fill of restored banks, and removal of the dam and embedded concrete culvert. The barrier removal and channel restoration project has been designed to minimize the removal of vegetation and sediment while obtaining the fish-passage objectives and the channel-stability objectives of the stream-simulation method. The impacts would be temporary. Following demolition of the barrier structures and restoration of the creek channel, the disturbed areas would be revegetated with native riparian species, including willow, alder, sycamore, oaks, and understory shrubs and herbaceous species. Bio-engineering techniques will be developed and implemented to retain native riparian vegetation when feasible and as part of channel reconstruction. Container plants and cuttings would be used for the trees and shrub species. A seed mix including emergent and wetland plants would be dispersed lightly within the creek corridor to assist with recolonization of native species, such as mugwort, Juncus species, blackberry, and others.

PHOTOGRAPH 5.4-1
San Ysidro Creek Debris Basin Looking Downstream

PHOTOGRAPH 5.4-2
San Ysidro Creek Debris Basin Embankment

PHOTOGRAPH 5.4-3
San Ysidro Creek Debris Basin Looking Upstream

PHOTOGRAPH 5.4-4
San Ysidro Creek Debris Basin

PHOTOGRAPH 4.5-5
Montecito Water District Waterline Located
Approximately 70 Feet Downstream of the Debris Basin

Map Source: County of Santa Barbara

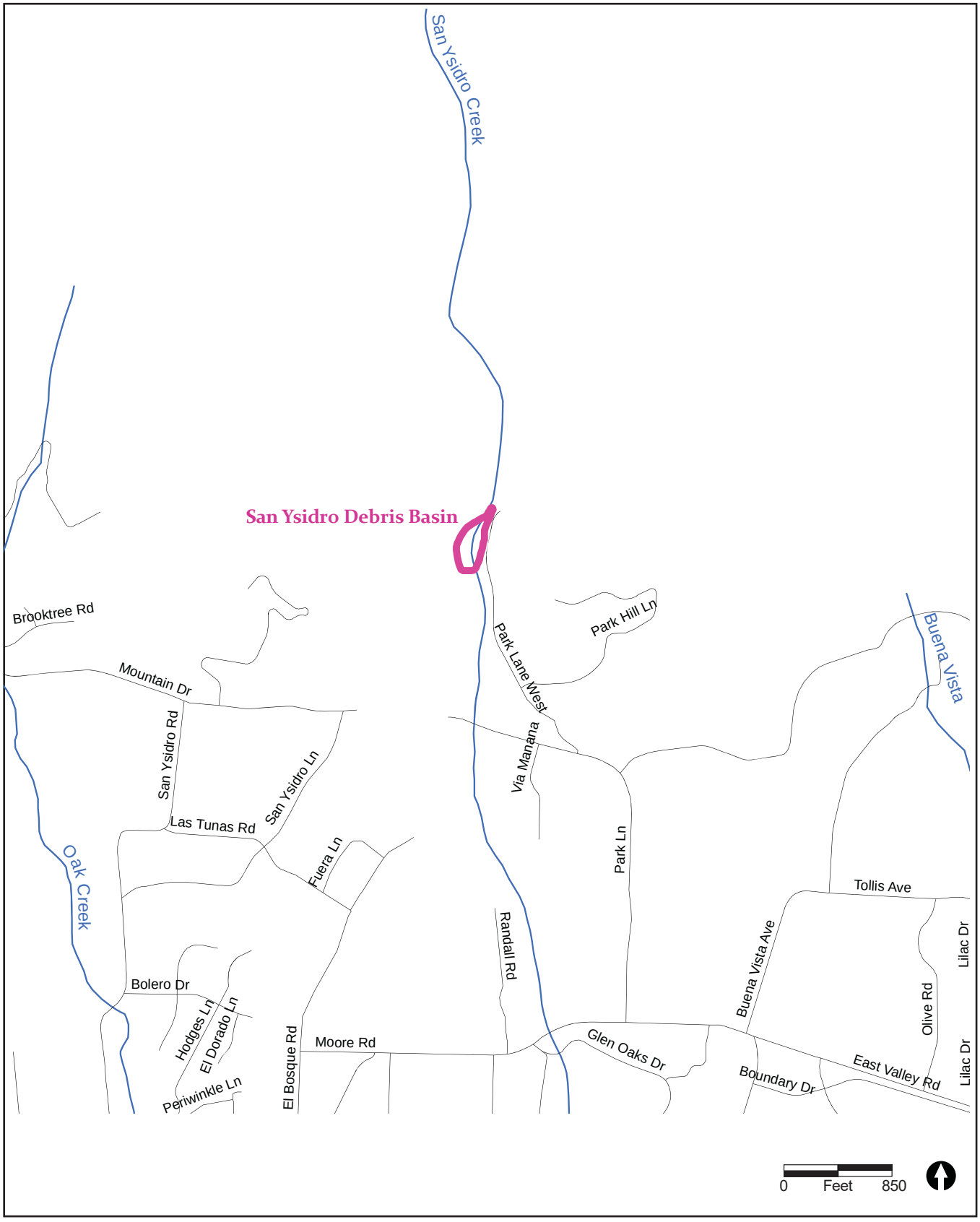


FIGURE 4.5-1
San Ysidro Creek Debris Basin Map

Map Source: County of Santa Barbara

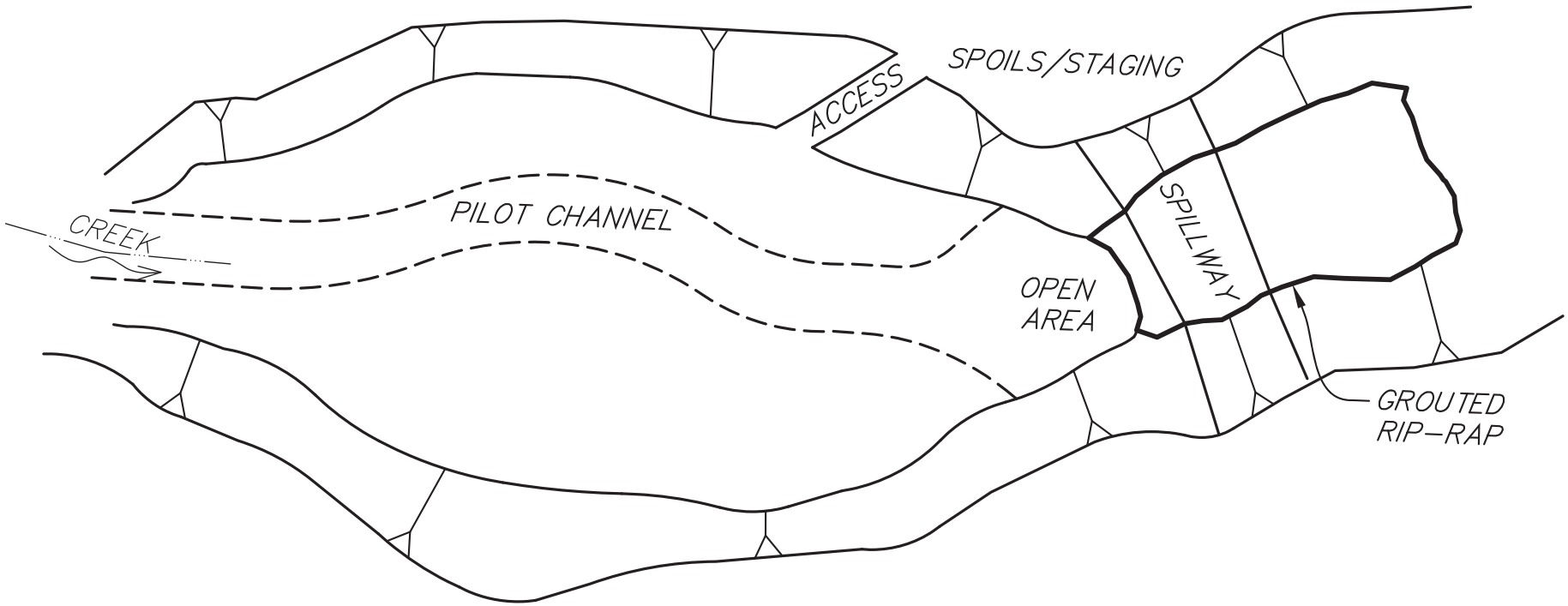


FIGURE 4.5-2
San Ysidro Creek Debris Basin Figure

M:\JOBS5\8687\env\graphics\DebrisBasin\fig4.5-2.ai 03/28/17 ccn

San Ysidro Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
Malosma laurina	Laurel sumac	N
APIACEAE		
Conium maculatum	Poison Hemlock	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Baccharis salicifolia	Mule fat	N
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	I
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa nasturtium-aquaticum	Watercress	I
CAPRIFOLIACEAE		
Sambucus mexicana	Elderberry	N
CYPERACEAE		
Cyperus eragrostis	Tall umbrella sedge	N
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
LAMIACEAE		
Mentha sp.	Mint	I
MYRTACEAE		
Eucalyptus sp.	Eucalyptus	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Cortadena jubata	Pampas grass	I
Lolium multiflorum	Italian ryegrass	I
Polypogon monspeliensis	Rabbitsfoot grass	I

San Ysidro Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
RANUNCULACEAE		
Clematis ligusticifolia	Creek clematis	N
RHAMNACEAE		
Ceanothus spinosus	Greenbark ceanothus	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Nicotiana glauca	Tree tobacco	I
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Broad-leaved cattail	N
*N = Native; I = Introduced		

PRELIMINARY NOT FOR CONSTRUCTION

SANTA BARBARA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

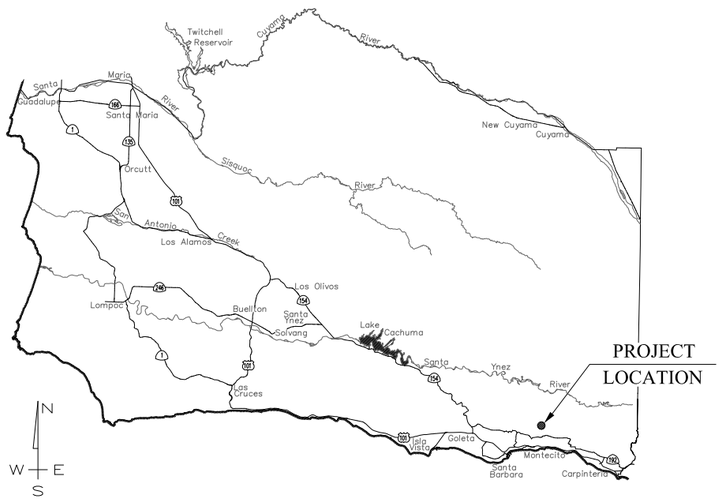
SAN YSIDRO DEBRIS BASIN REMOVAL

SC8356

IN THE MONTECITO AREA OF SANTA BARBARA COUNTY, CALIFORNIA

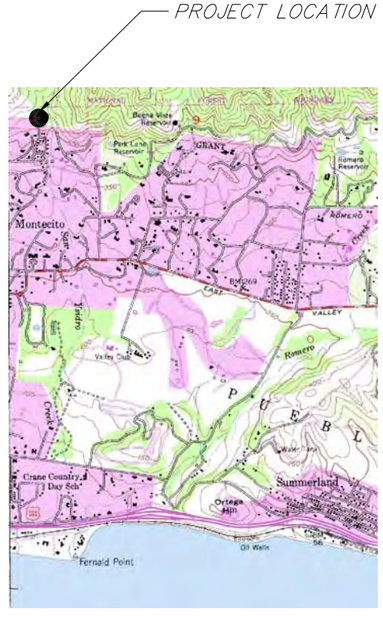
DISTRICT BOARD OF DIRECTORS

FIRST DISTRICT	Salud Carbajal
SECOND DISTRICT	Janet Wolf
THIRD DISTRICT	Doreen Farr
FOURTH DISTRICT	Peter Adam
FIFTH DISTRICT	Steve Lavagnino



PROJECT LOCATION

VICINITY MAP
No Scale



INDEX TO SHEETS

HALF SCALE PLANS

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:		REVIEWED BY:	
FLOOD CONTROL DESIGN ENGINEER	DATE	COUNTY SURVEYOR	DATE
REVIEWED BY:		REVIEWED BY	
FLOOD CONTROL ENGINEERING MANAGER	DATE	MAINTENANCE SUPERINTENDENT	DATE
REVIEWED BY		REVIEWED BY	
FLOOD CONTROL DEPUTY DIRECTOR	DATE	ENVIRONMENTAL SERVICES MANAGER	DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

TITLE SHEET

DESIGNED BY:	KS
DRAWN BY:	OR
CHECKED BY:	JF

O-1131

SHEET 1 OF 8

Filename: San Ysidro DB Plans.DWG

SYMBOL LEGEND

CONTROL POINT	EX. ROCK	EX. TREE
EX. CABLE TV BOX (CTV)	EX. SEWER CLEANOUT	EX. TREE – EUCALYPTUS
EX. CABLE TV VAULT (CTV VAULT)	EX. SEWER MANHOLE (S)	EX. TREE – LEMON
EX. ELECTRIC BOX (EBOX)	EX. SIGNAGE	EX. TREE – PALM
EX. ELECTRIC GUY WIRE (GWE)	EX. STORM DRAIN GRATE	EX. TREE – PINE
EX. ELECTRIC MANHOLE (E)	EX. STORM DRAIN MANHOLE (D)	EX. TREE – STUMP
EX. ELECTRIC METER (EM)	EX. STRUCTURE BENCH	EX. TREE – SYCAMORE
EX. FIRE HYDRANT	EX. STRUCTURE BOLLARD/POST	EX. TREE – WILLOW
EX. GAS METER (GM)	EX. TELEPHONE BOX (TBOX)	EX. TREE – YUCCA
EX. GAS VALVE (GV)	EX. TELEPHONE MANHOLE (T)	EX. WATER METER (WM)
EX. IRRIGATION SPRINKLER	EX. TELEPHONE POLE	EX. WATER SPIGOT
EX. LUMINARY or	EX. TELEPHONE VAULT (TELE VAULT)	EX. WATER VALVE (WV)
EX. MAILBOX (MB)	EX. BUSH/HEDGE	EX. WATER WELL (W)
EX. MONUMENT	EX. CACTUS	
EX. POWER & TELEPHONE POLE (PTP)	EX. SHRUB	

LINETYPE LEGEND

BOUNDARY EASEMENT LINE (E/L)	EX. FLOWLINE
BOUNDARY RIGHT OF WAY LINE (R/W)	EX. GAS (G)
BOUNDARY PROPERTY LINE (P/L)	EX. GUARDRAIL
CENTERLINE	EX. SEWER (S)
CONTOUR LINE–MAJOR (10)	EX. SIDEWALK
CONTOUR LINE–MINOR	EX. STORM DRAIN
EX. AC EDGE OF PAVEMENT	EX. STRUCTURE CONCRETE
EX. BARBED WIRE FENCE	EX. STRUCTURE WALL
EX. BRUSH	EX. TELEPHONE (T)
EX. BUILDING	EX. WATER (W)
EX. CABLE TV	EX. WOOD RAIL FENCE
EX. CHAINLINK FENCE	PROPOSED FACILITIES
EX. DRAINAGE	PROPOSED STORM DRAIN
EX. ELECTRIC (E)	RETAINING WALL GUTTER
EX. ELECTRIC OVERHEAD (OH)	TEMP. CONSTRUCTION FENCE
EX. FACILITIES	

EXISTING UTILITY INFORMATION

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN. NOTE THAT INDIVIDUAL SERVICE LATERALS AND CONNECTIONS ARE NOT PLOTTED ON THE PROFILE.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1–800–422–4133.

STANDARD DETAILS AND PLANS LIST

STANDARD NO.	DESCRIPTION
	STATE DEPARTMENT OF TRANSPORTATION STANDARD PLANS (MAY 2006 EDITION)
	The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply are attached to the contract.
A10A	ACRONYMS AND ABBREVIATIONS
A10B	ACRONYMS AND ABBREVIATIONS
A10C	SYMBOLS
T13	TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS
	AMERICAN PUBLIC WORKS ASSOCIATION STANDARD PLANS
380–1	CONCRETE COLLAR FOR RCP (12" THROUGH 72")

HORIZONTAL AND VERTICAL CONTROL

Surveyor's Notes:
Horizontal positions for points CP1, CP2 & CP3 were derived from County Surveyor Office Field Notes from Survey Project S559. Based California Coordinate System 1983 Zone 5 (CCS83) 1991.35 EPIC Adjustment.

Elevations (orthometric heights) were derived by holding CP2 fixed per Field Notes from Survey Project S559. North American Vertical Datum 1988 (NAVD88) using the National Geodetic Survey's program GEOID99.

CP2 was held for local Northing, Easting and Elevation. Resulting survey measured with conventional robotic total station.

All coordinate values shown are grid values. All distances are based on the U.S. Survey Foot (one survey foot = 1200/3937 meters).

Contour Interval:
The contour interval is shown at 1 foot intervals with majors at every 5 feet

Basis of Bearings:
The Local Basis of Bearings is between CP2 and CP1 found as described in field survey file S559 on file in the office of the County Surveyor.
Record: N79°11'18"E, 147.00' R
Measured: N79°11'23"E, 146.98' M

Boundary Note:
NONE SHOWN

ABBREVIATIONS

APN	ASSESSORS PARCEL NUMBER	IN	INCH
APWA	AMERICAN PUBLIC WORKS ASSOC.	MJ	MECHANICAL JOINT
AT	ARCHITRCTURAL TEXTURE	n	MANNING'S COEFFICIENT
BW	BOTH WAYS	N	NORTH OR NORTHING
CFS	CUBIC FEET PER SECOND	OC	ON CENTER
CL or C/L	CENTER LINE	PK	PK NAIL
CALTRANS	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Q	FLOW VELOCITY
		R1	RECORD PER BOOK NN, PAGE NN OF MAPS
COUNTY	COUNTY OF SANTA BARBARA		
CP	CONTROL POINT	S	SEWER OR SLOPE OR SOUTH
DI	DUCTILE IRON OR DROP INLET	SDMH	STORM DRAIN MANHOLE
DW	DRIVEWAY	SH	SHINER
E	EAST OR EASTING	SPK	SPIKE
EG	EXISTING GROUND	S/W	SIDEWALK
EGL	ENERGY GRADE LINE	TW or tw	TOP OF WALL
EL	ELEVATION	TCE	TEMPORARY CONSTRUCTION EASEMENT
EP	EDGE OF PAVEMENT		
ELEC	ELECTRIC	TBM	TEMPORARY BENCH MARK
FD	FOUND	TSW	TOP OF SIDEWALK
FT	FEET	TP	TOP OF PAVEMENT
G	GAS LINE	W or WL	WATER LINE
GB	GRADE BREAK	WF	WALL FACE
HDPE	HIGH DENSITY POLYETHYLENE	WWF	WELDED WIRE FABRIC
HGL	HYDRAULIC GRADE LINE	V	VELOCITY
IP	IRON PIPE	VB	VALVE BOX

CONTROL POINT TABLE

CONTROL POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	RECORD
CP1	1989952.28	6072596.820	554.110	FOUND NAIL AND SHINER AT CL OF DAM	S559
CP2	1989924.71	6072452.447	544.391	FOUND MAG NAIL AND SHINER IN AC	S559
CP3	1989908.630	6072516.862	551.710	FOUND 1/2 " PIPE AND MAG NAIL	S559
CP4	1989867.480	6072616.838	546.634	SET SPIKE AND CHASER	SC8356
CP5	1989834.995	6072470.299	526.702	SET SPIKE AND CHASER	SC8356
CP6	1989940.506	6072473.159	545.409	SET SPIKE AND CHASER	SC8356
CP7	1990006.348	6072435.969	536.493	SET SPIKE AND CHASER	SC8356
CP8	1990181.597	6072437.778	542.885	SET MAG NAIL AND CHASER	SC8356
CP9	1990062.495	6072446.917	536.878	SET SPIKE AND CHASER	SC8356
CP10	1990267.213	6072491.672	556.627	SET SPIKE AND CHASER	SC8356

HALF SCALE

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY: _____
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

GENERAL INFORMATION

DESIGNED BY: KS
DRAWN BY: OR
CHECKED BY: JF

O-1131

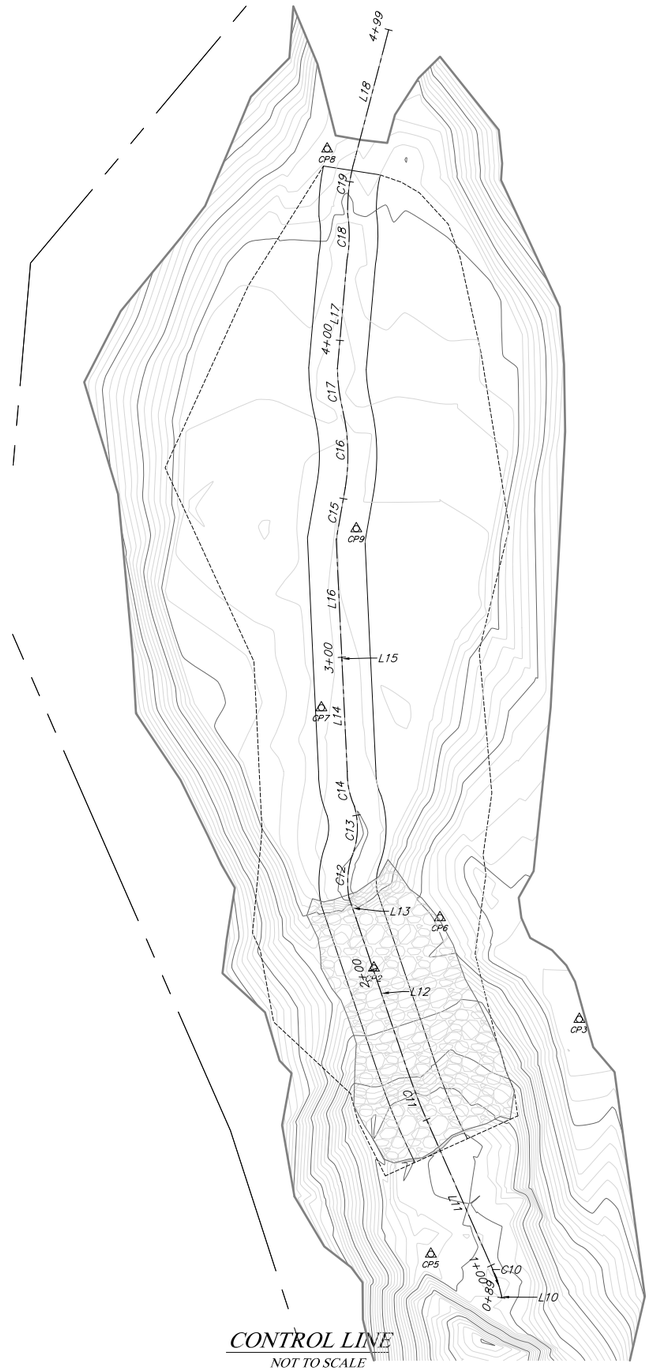
SHEET 2 OF 8

Filename: San Ysidro DB Plans.dwg

PRELIMINARY
NOT FOR
CONSTRUCTION

Control Line				
Number	Line/Chord Direction	Length	Radius	Delta
C10	N15° 37' 10.21"W	6.05	60.70	5°42'23"
C11	N21° 16' 41.57"W	18.06	200.10	5°10'19"
C12	N4° 50' 40.05"E	14.05	25.92	31°03'06"
C13	N1° 55' 54.12"E	15.17	23.88	36°22'54"
C14	N11° 34' 34.73"W	11.30	25.37	25°30'41"
C15	N9° 53' 15.15"E	16.58	5045.49	0°11'18"
C16	N1° 42' 26.23"W	23.96	62.36	22°01'01"
C17	N7° 28' 08.77"W	13.60	63.38	12°17'39"
C18	N0° 44' 45.89"E	14.65	44.35	18°55'47"
C19	N7° 50' 39.79"E	18.04	56.62	18°15'31"
L10	N9° 06' 16.38"E	0.48		
L11	N23° 51' 55.75"W	53.25		
L12	N18° 41' 27.39"W	49.88		
L13	N18° 41' 27.39"W	6.70		
L14	N2° 43' 21.41"W	34.89		
L15	N2° 43' 21.41"W	0.90		
L16	N2° 43' 21.41"W	36.94		
L17	N5° 03' 25.63"E	34.24		
L18	N14° 39' 04.27"E	41.18		

Point Table				
Point #	Elevation	Northing	Easting	Description
2	544.39	1989924.71	6072452.45	CP2
3	551.71	1989908.63	6072516.86	CP3
5	526.70	1989834.99	6072470.30	CP5
6	545.41	1989940.51	6072473.16	CP6
7	536.49	1990006.36	6072435.97	CP7
8	542.88	1990181.62	6072437.78	CP8
9	536.88	1990062.51	6072446.92	CP9



HALF
SCALE
PLANS

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UNAUTHORIZED CHANGES OR USES:
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

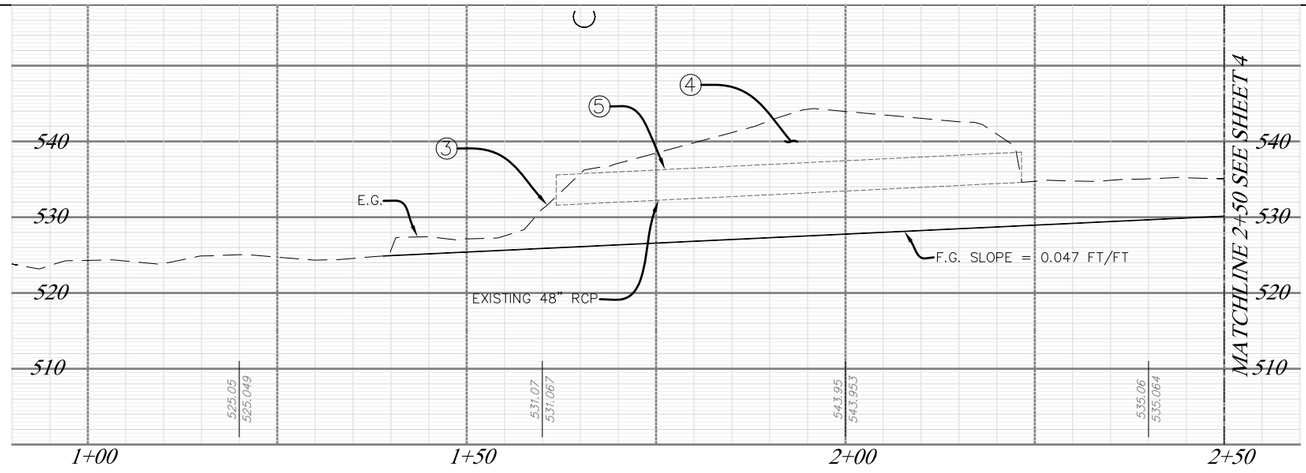
CONTROL LINE

DESIGNED BY: KS
DRAWN BY: SB/OR
CHECKED BY: JF

O-1131

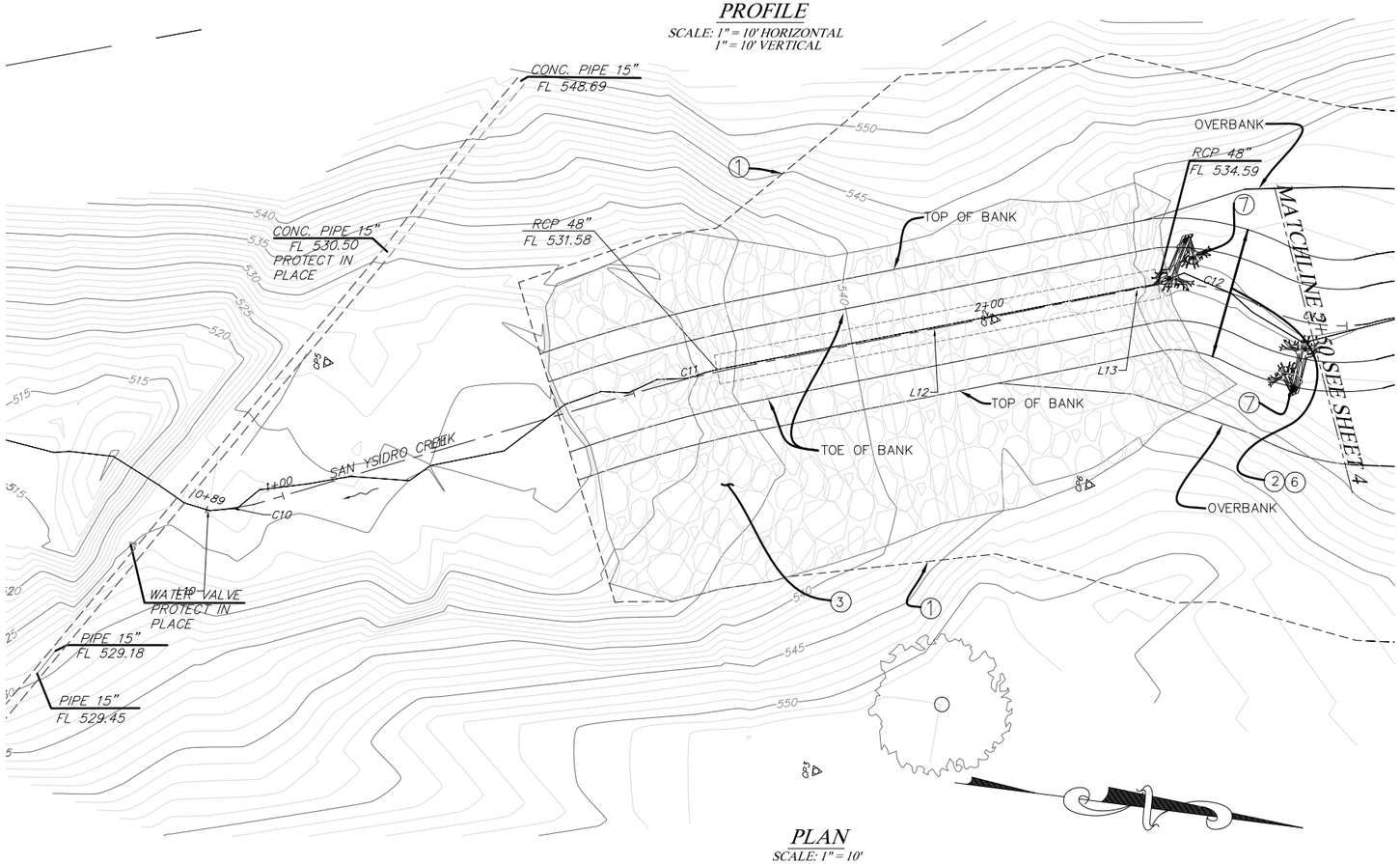
SHEET 3 OF 8

Filename: San Ysidro DB Plans.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN

SCALE: 1" = 10'

GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

1. Clear and grub to limits of grading.
2. Construct channel step, pool, riffle and construct overbank per details on Sheet X.
3. Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction
4. Excavate dam and embankment fill and reserve for use during channel construction.
5. Remove and dispose of existing reinforced concrete pipe (RCP).
6. Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet X.
7. Install and anchor large woody debris per detail on Sheet X.
8. Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

PRELIMINARY NOT FOR CONSTRUCTION

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REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

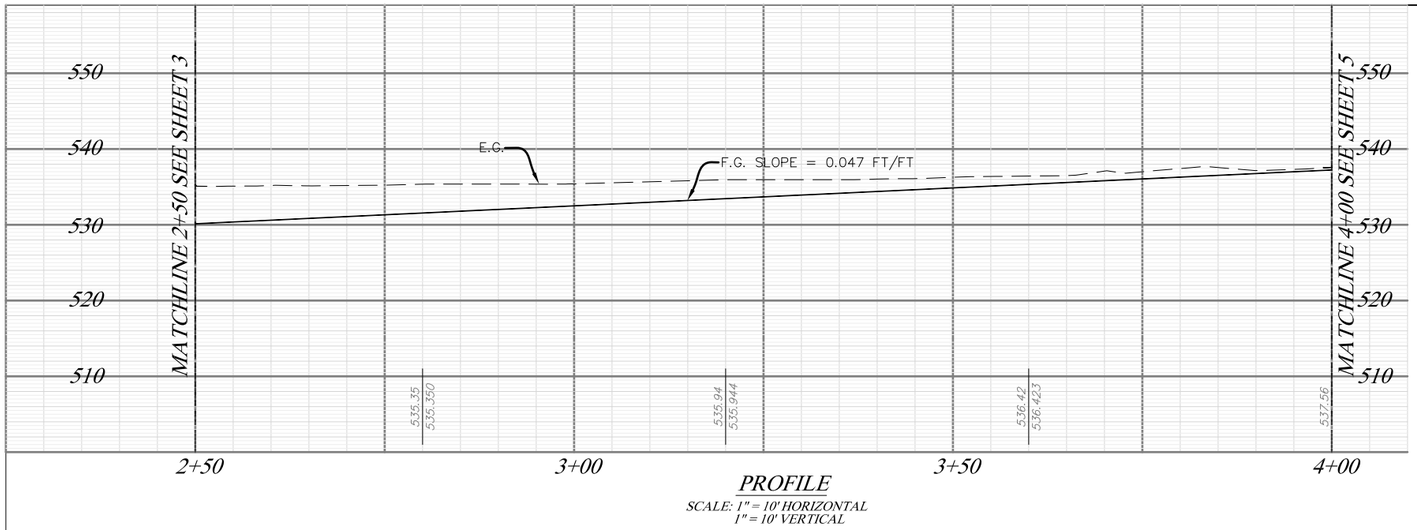
PLAN & PROFILE

DESIGNED BY:	KS
DRAWN BY:	SB/OR
CHECKED BY:	JF

O-1131

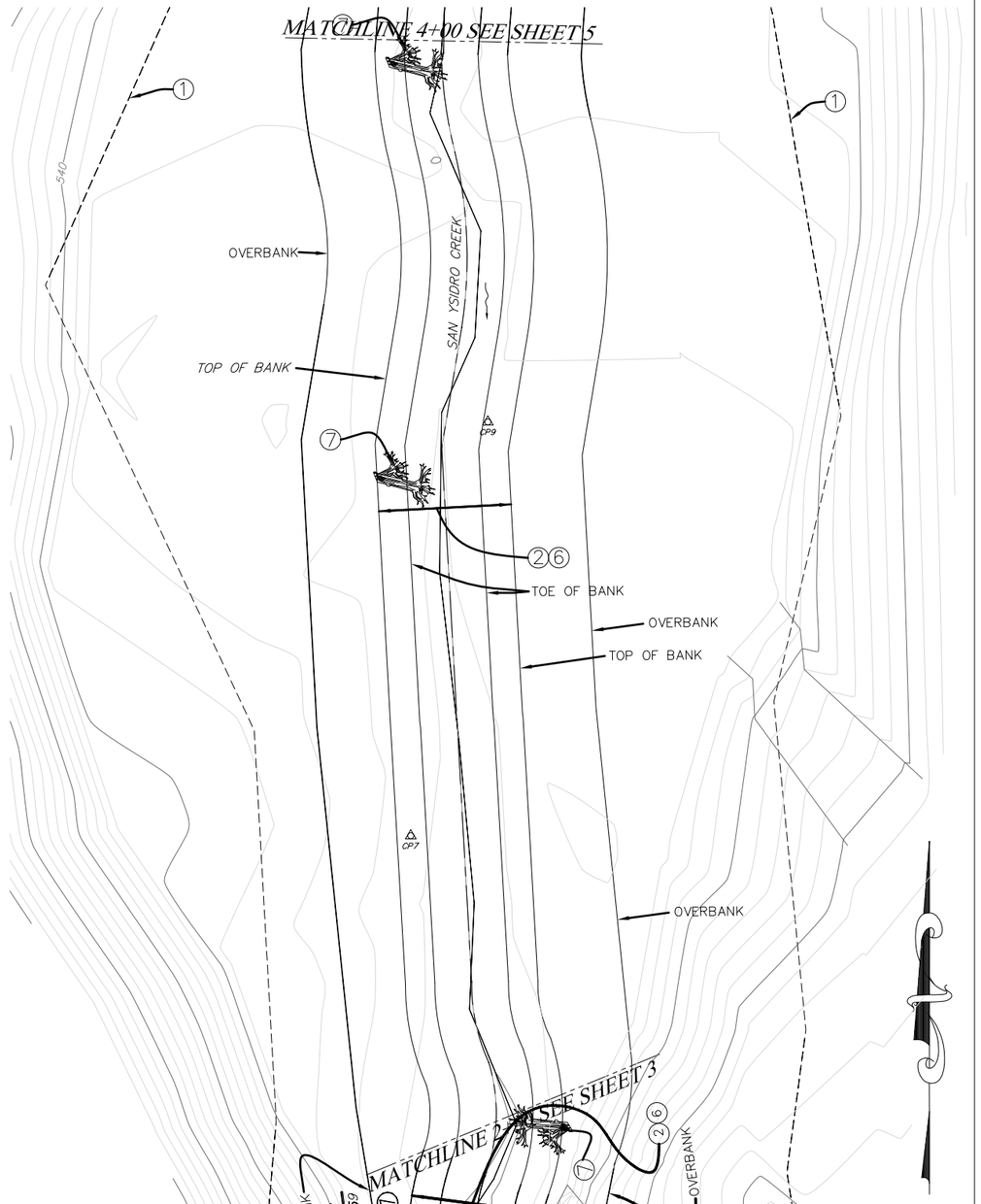
SHEET 4 OF 8

Filename: San Ysidro DB Plans.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL



PLAN

SCALE: 1" = 10'

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

(1) Clear and grub to limits of grading.

(2) Construct channel step, pool, riffle and construct overbank per details on Sheet X.

(3) Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction

(4) Excavate dam and embankment fill and reserve for use during channel construction.

(5) Remove and dispose of existing reinforced concrete pipe (RCP).

(6) Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet X.

(7) Install and anchor large woody debris per detail on Sheet X.

(8) Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

PRELIMINARY NOT FOR CONSTRUCTION

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GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:

FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

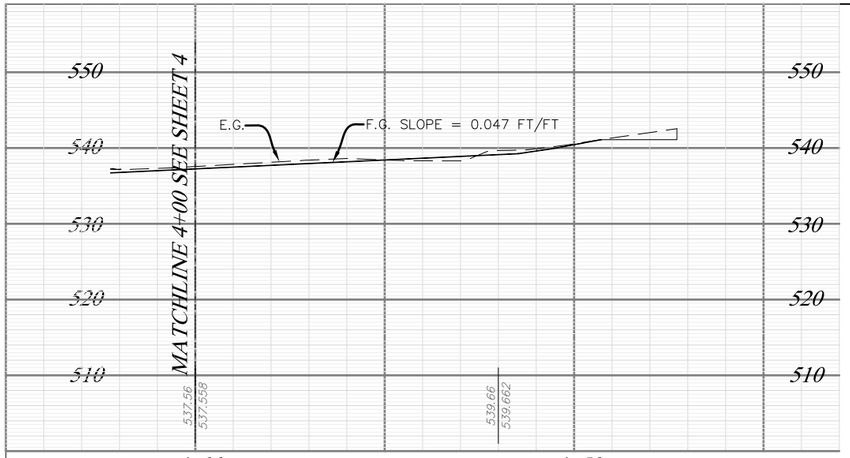
PLAN & PROFILE

DESIGNED BY:	KS
DRAWN BY:	SB/OR
CHECKED BY:	JF

O-1131

SHEET 5 OF 8

Filename: San Ysidro DB Plans.DWG



PROFILE

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

PRELIMINARY NOT FOR CONSTRUCTION

NOTES

1. Profile shown is approximate and may change with field conditions.

CONSTRUCTION NOTES

① Clear and grub to limits of grading.

② Construct channel step, pool, riffle and construct overbank per details on Sheet X.

③ Remove and break up grouted rock dam and grouted rock embankment. Reserve rock for use as streambed material in channel construction

④ Excavate dam and embankment fill and reserve for use during channel construction.

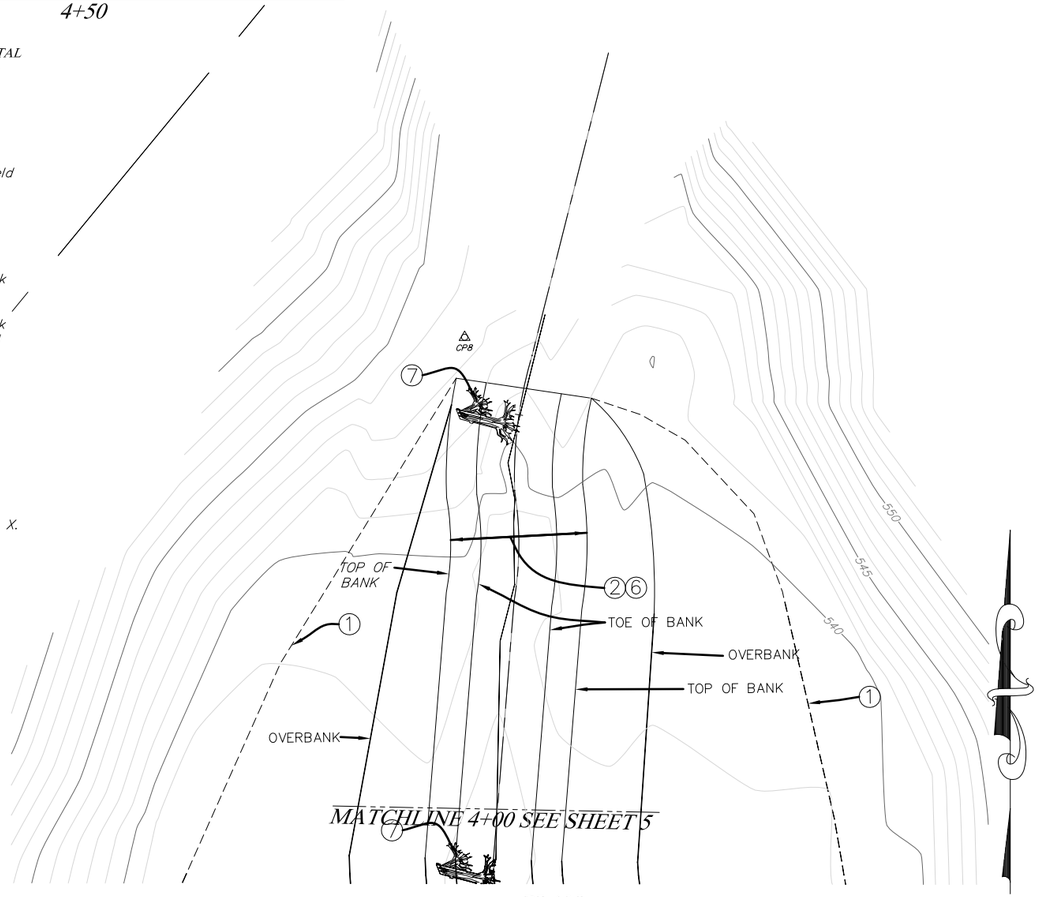
⑤ Remove and dispose of existing reinforced concrete pipe (RCP).

⑥ Construct streambed material (SBM) per rock placement detail and Typical Section X on Sheet X.

⑦ Install and anchor large woody debris per detail on Sheet X.

⑧ Compact existing ground below SBM and native fill below SBM a minimum of 2' at 85% relative compaction.

HALF SCALE PLANS



PLAN

SCALE: 1" = 10'

GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

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FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

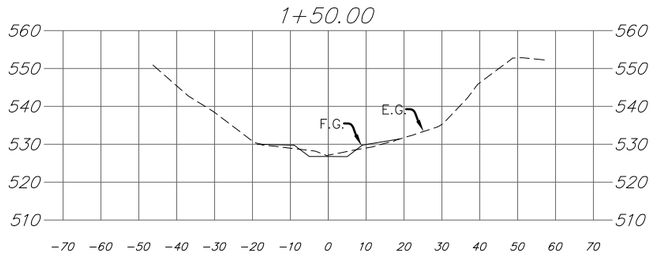
PLAN & PROFILE

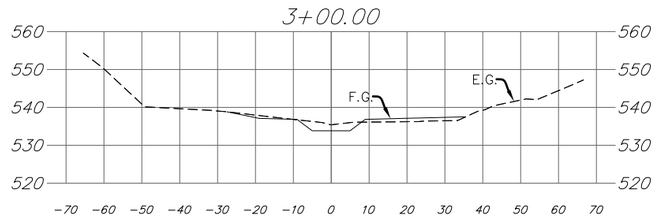
DESIGNED BY: KS
DRAWN BY: SB/OR
CHECKED BY: JF

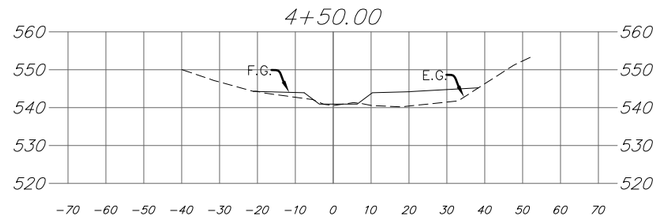
O-1131

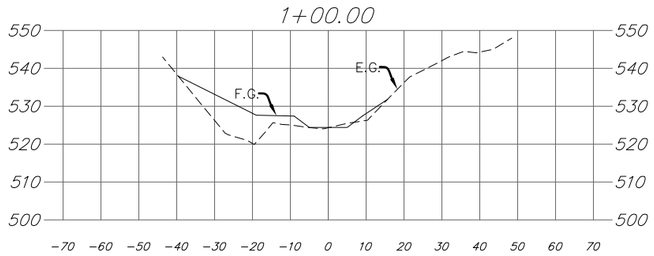
SHEET 6 OF 8

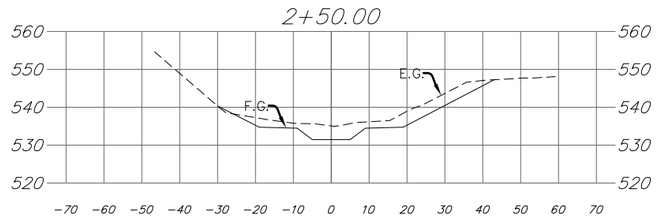
Filename: San Ysidro DB Plans.DWG

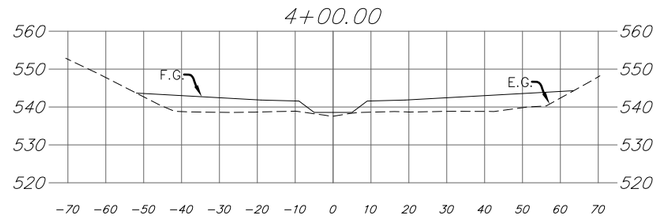


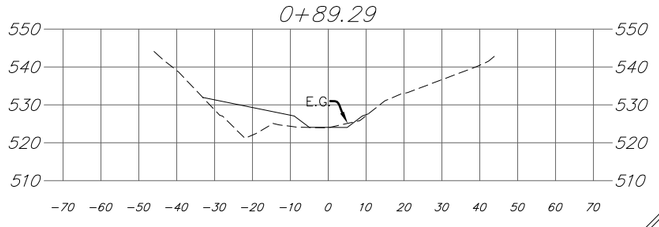


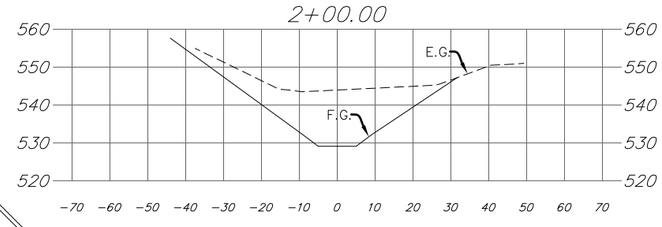


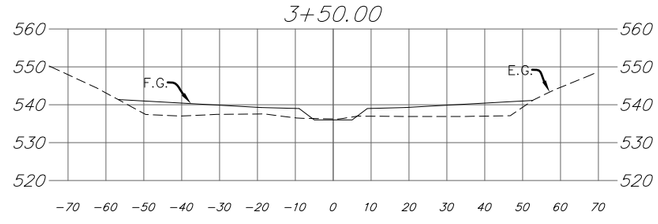












PRELIMINARY NOT FOR CONSTRUCTION

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SECTIONS
SCALE: 1" = 20'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

REVISIONS			
NO.	DESCRIPTION	DATE	APR

DESIGNED BY:
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SANTA BARBARA COUNTY
FLOOD CONTROL AND
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130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

CROSS SECTIONS

DESIGNED BY: KS
DRAWN BY: SB/OR/JM
CHECKED BY: JF

O-1131

SHEET 7 OF 8

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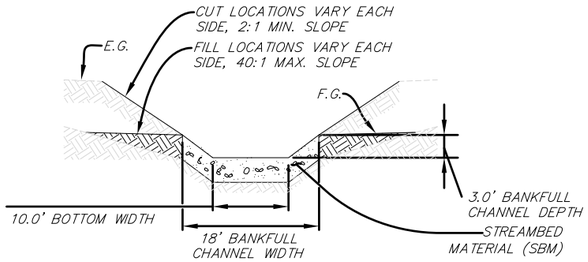
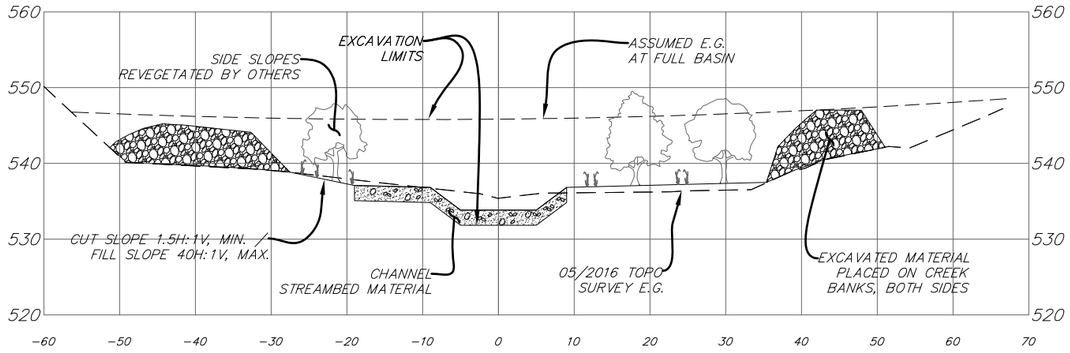
PRELIMINARY
NOT FOR
CONSTRUCTION



A - TYPICAL SECTION STEP TOP
NOT TO SCALE

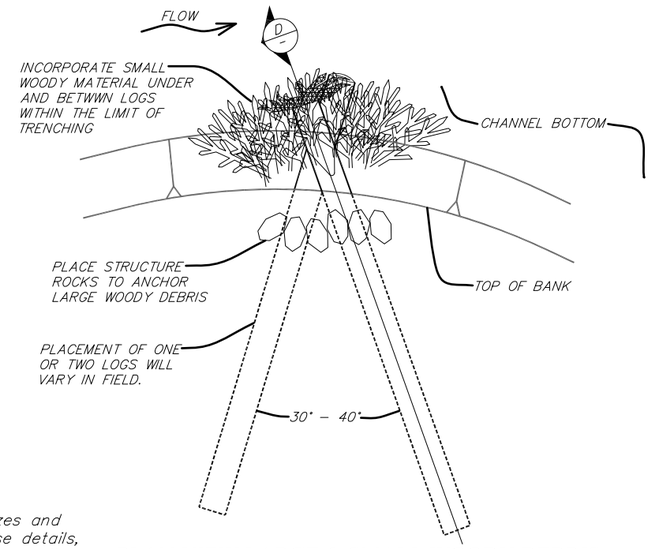
B - TYPICAL SECTION STEP TOE



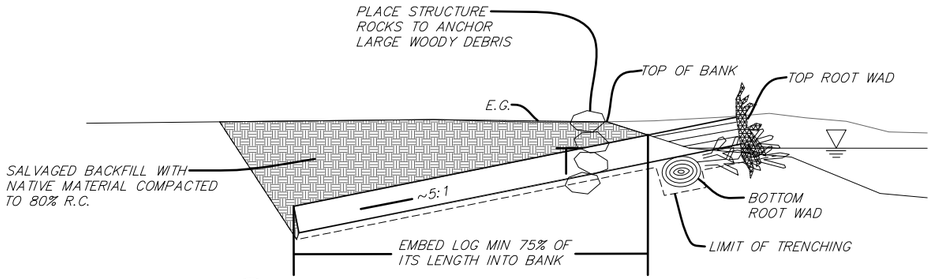
FULL BASIN SCENARIO
TYPICAL CUT / FILL SECTION
NOT TO SCALE

NOTE

1. Final woody debris placement, sizes and configuration may vary from these details, depending upon available sizes in the field and upon the direction of the biologist.



PLAN VIEW LARGE & SMALL WOODY DEBRIS
NOT TO SCALE



D - SECTION LARGE & SMALL WOODY DEBRIS
NOT TO SCALE

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SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

DETAILS

DESIGNED BY: KS
DRAWN BY: SB/OR
CHECKED BY: JF

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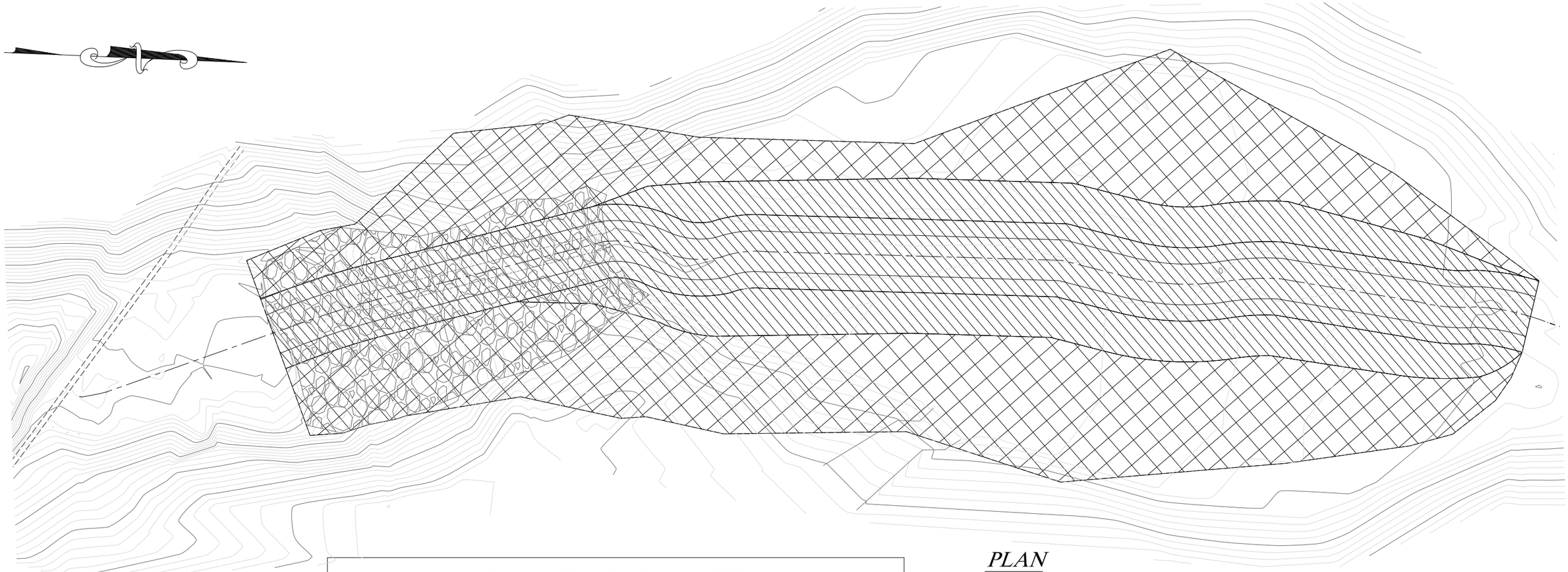
SHEET 8 OF 8

Filename: San Ysidro DB Plans.DWG



PLAN
NOT TO SCALE

PLANTING PALATE

RESTORED STREAMBED SEEDMIX	NATIVE RIPARIAN PLANT RESTORATION; POTENTIAL PLANT SPECIES
Yerba Mansa: *Anemopsis californica*	Arroyo Willow: *Salix lasiolepis*
Santa Barbara Sedge: *Carex barbarae*	Black Cottonwood: *Populus trichocarpa*
Common Toad Rush: *Juncus bufonius*	Alder: *Alnus rhombifolia*
California Gray Rush: *Juncus patens*	Sycamore: *Platanus racemosa*
Pale Spikerush: *Eleocharis macrostachys*	Coast live oak: *Quercus agrifolia*
Mugwort: *Artemesia douglasiana*	Mexican Elderberry: *Sambucus mexicana*
	Toyon: *Heteromeles arbutifolia*
	Ca. Blackberry: *Rubus ursinus*
	Gooseberry: *Ribes speciosum*
	Ca. Rose: *Rosa californica*

LEGEND

RESTORED STREAMBED

NATIVE RIPARIAN SPECIES RESTORATION

NOTE:
THIS WORK IS NOT PART OF THE CONSTRUCTION CONTRACT.

REVISIONS			
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FLOOD CONTROL AND
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130 E. VICTORIA STREET
SANTA BARBARA, CA 93101
(805) 568-3440

SAN YSIDRO DEBRIS
BASIN REMOVAL

SANTA BARBARA COUNTY, CALIFORNIA

RESTORATION AREAS

DESIGNED BY:	KS
DRAWN BY:	KS
CHECKED BY:	MS

SHEET RA1 OF RA1

Filename: San Ysidro DB Plans.DWG

5.0 Non-Group 1 Basins

The District maintains 12 other basins in addition to the Group 1 Basins. These basins are further divided into Group 2 Basins and Other Basins. Group 2 debris basins are a set of 5 basins also identified in the NMFS Biological Opinion. The removal or modification of Group 2 basins is not required by the NMFS within the next 10 years however, as a condition of the Biological Opinion, the District is required to provide the ACOE and NMFS with preliminary 30 percent design plans in 2022 for the possible modification or removal of these basins to potentially be used at an undefined time in the future. If the District wants to pursue grant funds for the removal or modification of these basins, NMFS would support a project, however the long-term disposition of these basins will most likely be addressed after 2026. If modification or removal of any Group 2 basins becomes a project, the District will update the DBMRP to reflect these new projects.

Maintenance of the following twelve basins will follow the maintenance program described in Section 2.2 and within each Basin Addendum.

Group 2 Debris Basins

- Arroyo Paredon
- Mission
- Romero
- San Antonio
- San Roque

Other Basins

Outside of the Group 1 and Group 2 basins, the District maintains an additional 7 debris basins.

- Franklin
- Gobernador
- Montecito
- Santa Monica
- Toro, East
- Toro, Upper West
- Toro Lower West

5.1 Arroyo Paredon Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.1.1 Location

The Arroyo Paredon Creek Debris Basin is located on Arroyo Paredon Creek approximately 1,000 feet upstream of the confluence with Oil Canyon Creek.

5.1.2 History

Arroyo Paredon Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 24,500 cubic yards of flood debris. A 2005 basin survey showed the actual capacity to be 8,360 cubic yards. The basin has been maintained on an as-needed basis since 1994. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.1.3 Setting

Arroyo Paredon Creek originates in the foothills of the Santa Ynez Mountains and drains an 833-acre watershed capable of producing 1650 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Arroyo Paredon Creek Debris Basin with debris and it was desilted in late January and February. Another large storm in March 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998 and 2005.

The basin was inspected in October 2016 and there was no flow and the creek bed was completely dry. The substrate consists of silty sand and cobbles near the base of the debris basin dam and large rocks at the upstream end. The basin has well established native vegetation (mostly willow, coyote brush, and cottonwood) throughout except for the channel invert where a 15-foot-wide pilot channel is maintained. Vegetation in the pilot channel consisted mostly of fennel. A patch of nonnative tamarisk was also observed in the northwest corner of the basin.

Agriculture runoff and a small tributary enter the basin at the north end while the main creek enters at the northeast. There are avocado orchards to the north and west of the basin. A road is located to the east of the basin with chaparral beyond. A riparian corridor exists to the northeast of the basin. The dam is located at the southwest end of the basin.

5.1.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on October 11, 2016. When wetted, the basin provides suitable habitat for amphibians and riparian birds and other wildlife, including several bird species (see below). The basin often goes

completely dry during the summer months and drought periods, excluding amphibians and other aquatic species.

The Arroyo Paredon Debris Basin site is at the upstream terminus of the designated critical habitat for southern steelhead trout. This species has not been detected at the site during field surveys, but has been detected downstream in Arroyo Paredon Creek. The creek reaches surrounding the Debris Basin often go dry for several months per year, excluding southern steelhead trout from occupying the site. Southern steelhead trout may occur in the area when sufficient water depth and water quality conditions exist. No other special-status species are known to occur at Arroyo Paredon Debris Basin.

5.1.5 Project Description

The Arroyo Paredon Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance would include complete debris removal after the basin fills or after there is a significant fire in the watershed. Embankment modification or removal may occur to provide fish passage through the basin area.

5.1.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 6700 square feet and will allow for approximately 20,500 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin buy non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.1.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years.

Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from the road that services the orchard and extends beyond the access to Toro Canyon Park as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.1.8 Revegetation Source

This debris basin has developed a dense riparian forest. The vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.1.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.1-1
Arroyo Paredon Creek Debris Basin

Map Source: County of Santa Barbara

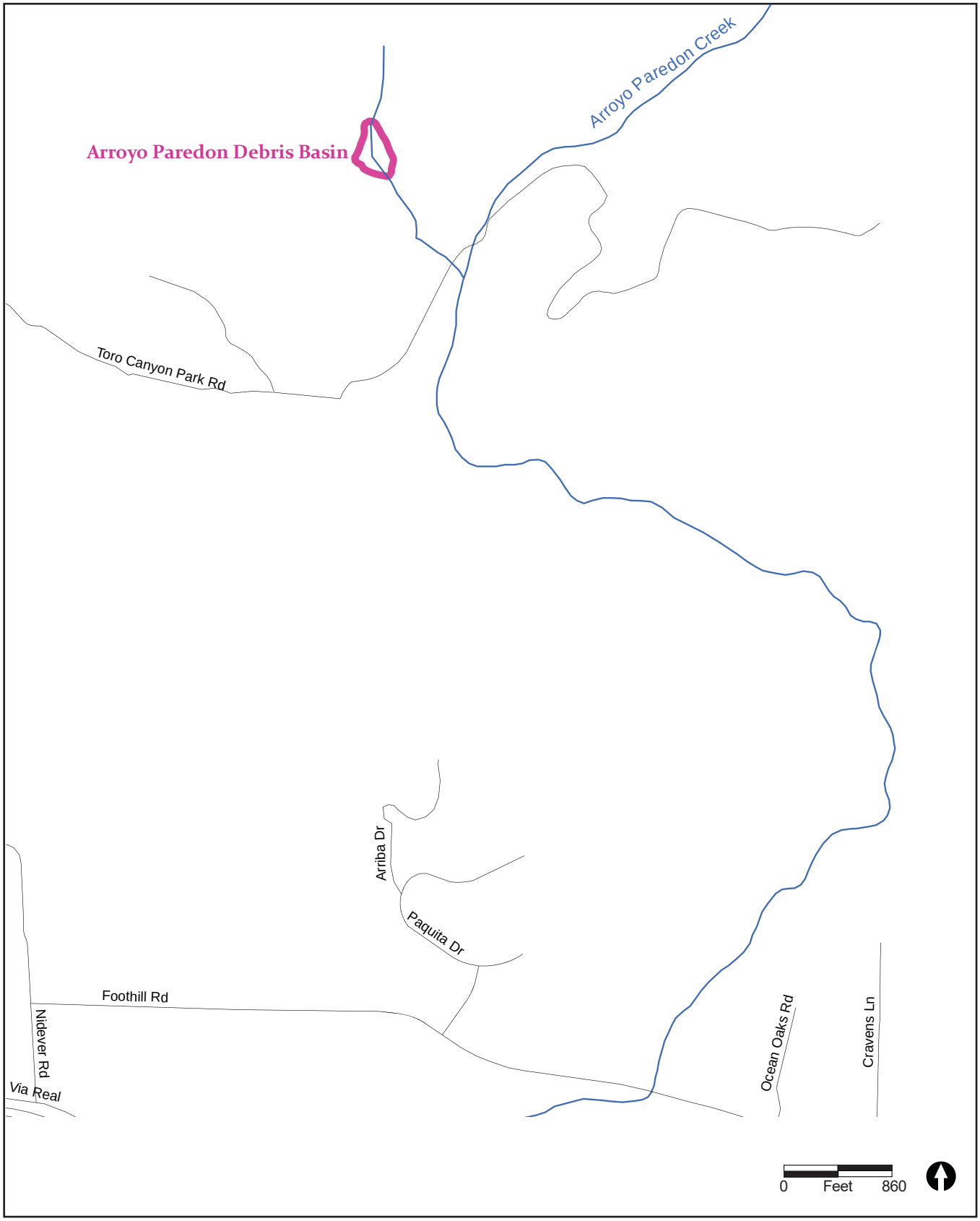

FIGURE 5.1-1
Arroyo Paredon Creek Debris Basin Map

M:\JOBS5\8687\env\graphics\DebrisBasin\fig5.1-1.ai 03/28/17 ccn

Map Source: County of Santa Barbara

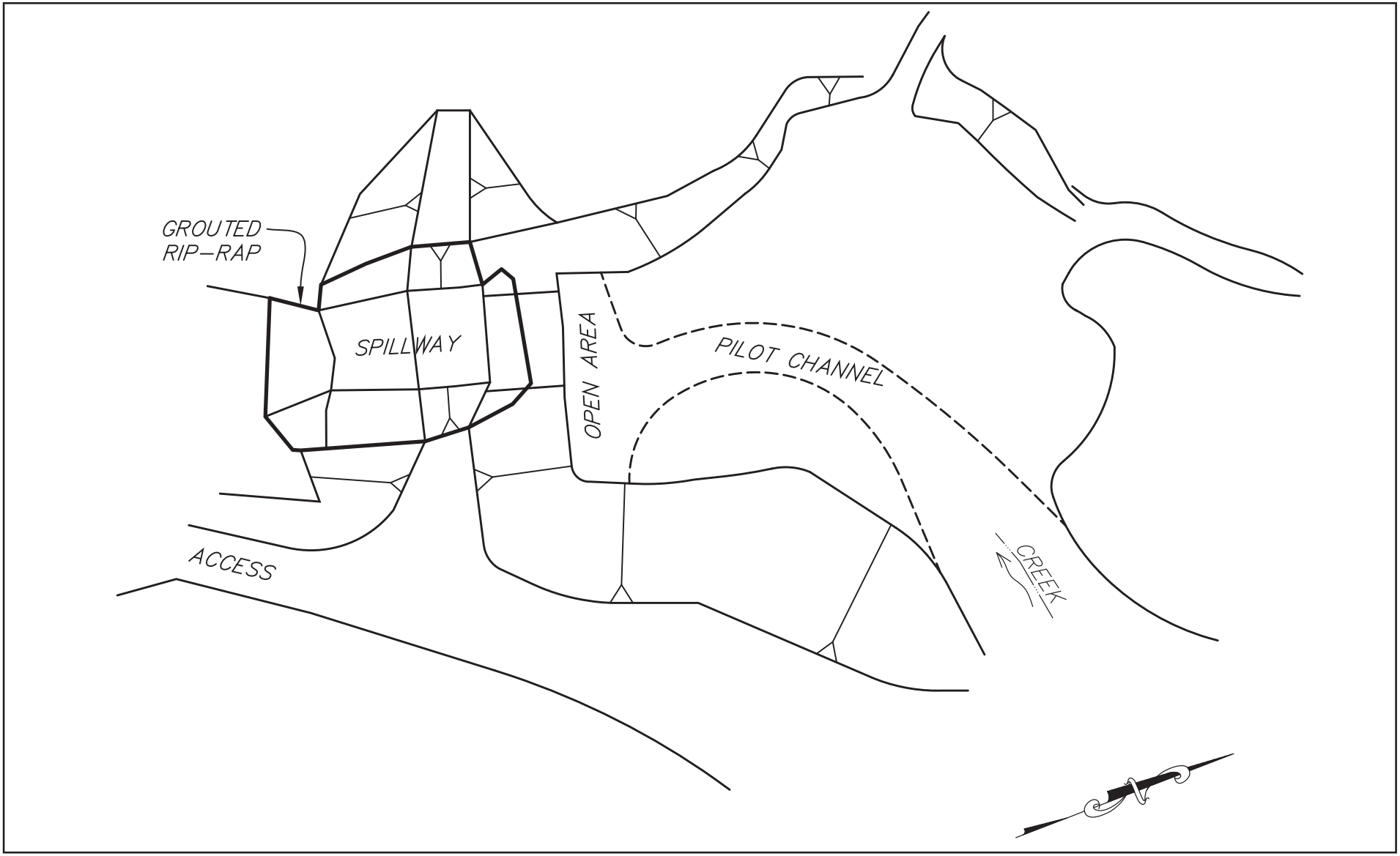

FIGURE 5.1-2
Arroyo Paredon Creek Debris Basin Figure

M:\JOBS5\8687\env\graphics\DebrisBasin\fig5.1-2.ai 03/28/17 ccn

Arroyo Paredon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicoclendron diversilobum	Poison oak	N
Schinus molle	Pepper tree	I
Schinus terebinthifolius	Pepper tree	I
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALlACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Ambrosia psilostachya var. californica	Western ragweed	N
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Picris echioides	Ox tongue	I
BRASSICACEAE		
B*rassica nigra*	Black mustard	I
EQUISETACEAE		
E*quisetum telmateia* var. *braunii*	Giant horsetail	N
EUPHORBJACEAE		
Ricinus communis	Castor Bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
MALVACEAE		
Malva parvifolia	Cheeseweed	I
PLANT ANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Lolium multiflorum	Italian ryegrass	I
Lolium miliacea	Rice grass	
P*olypogon monspeliensis*	Rabbitsfoot grass	I
POLYGONACEAE		
Rumex crispus	Curly dock	I
ROSACEAE		
Malosma laurina	Laurel sumac	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
Solanum xanti	Nightshade	N
TYPACEAE		
Typha latifolia	Broad-leaved cattail	N
*N = Native; I = Introduced		

5.2 Franklin Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.2.1 Location

The Franklin Creek Debris Basin is located on the main branch of Franklin Creek Approximately 4,800 feet north of Casitas Pass Road in Carpinteria.

5.2.2 History

Franklin Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 12,400 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. An updated survey of the basin in 2005 calculated the current basin capacity to be 5,965 cubic yards. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.2.3 Setting

The main branch of Franklin Creek originates in the foothills of the Santa Ynez Mountains and drains a 523-acre watershed capable of producing 1050 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Franklin Creek Debris Basin and it was desilted in late January and February. Another large storm in March 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998. The substrate consists of silty sand with cobbles at the upstream end of the basin.

There is chaparral and oaks surrounding the basin. The access road runs along the east side of the creek south of the dam. A poorly developed riparian corridor exists to the south of the basin although north of the basin the riparian corridor is very well developed. The dam is located to the south.

5.2.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on October 11, 2016. While many other streams in the region have gone completely dry during drought months, Franklin Debris Basin retained a trickle of flow through the basin site. When wetted, the basin provides suitable habitat for amphibians and riparian birds and other wildlife, including several bird species (see below). Common wildlife species at the site include raccoon, opossum, western fence lizard, domestic dog and cat. Several bear tracks and trails were observed at the site in 2016, indicating frequent visitation to the trickle of water in the basin by bears and likely other wildlife species.

Franklin Debris Basin is not designated critical habitat for southern steelhead trout. This species has not been detected at the site during field surveys and dispersal is unlikely due to extensive concrete modification and barriers in Franklin Channel throughout the City of Carpinteria. No other special-status species are known to occur at Franklin Debris Basin. Red legged frogs have been observed in nearby watersheds at Santa Monica Debris Basin; however no indication of this species has been detected at Franklin Debris Basin.

5.2.5 Project Description

The Franklin Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.2.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 4700 square feet and will allow for approximately 6200 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin but non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap. The outlet pipe has had a multi-opening structure installed to reduce the frequency of plugging with debris.

5.2.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Casitas Pass Road as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.2.8 Revegetation Source

This debris basin has not developed a dense riparian forest. Nevertheless, dense riparian vegetation may colonize the basin over time. If this occurs, the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

PHOTOGRAPH 5.2-1
Franklin Creek Debris Basin

PHOTOGRAPH 5.2-2
Franklin Creek Debris Basin

Map Source: County of Santa Barbara

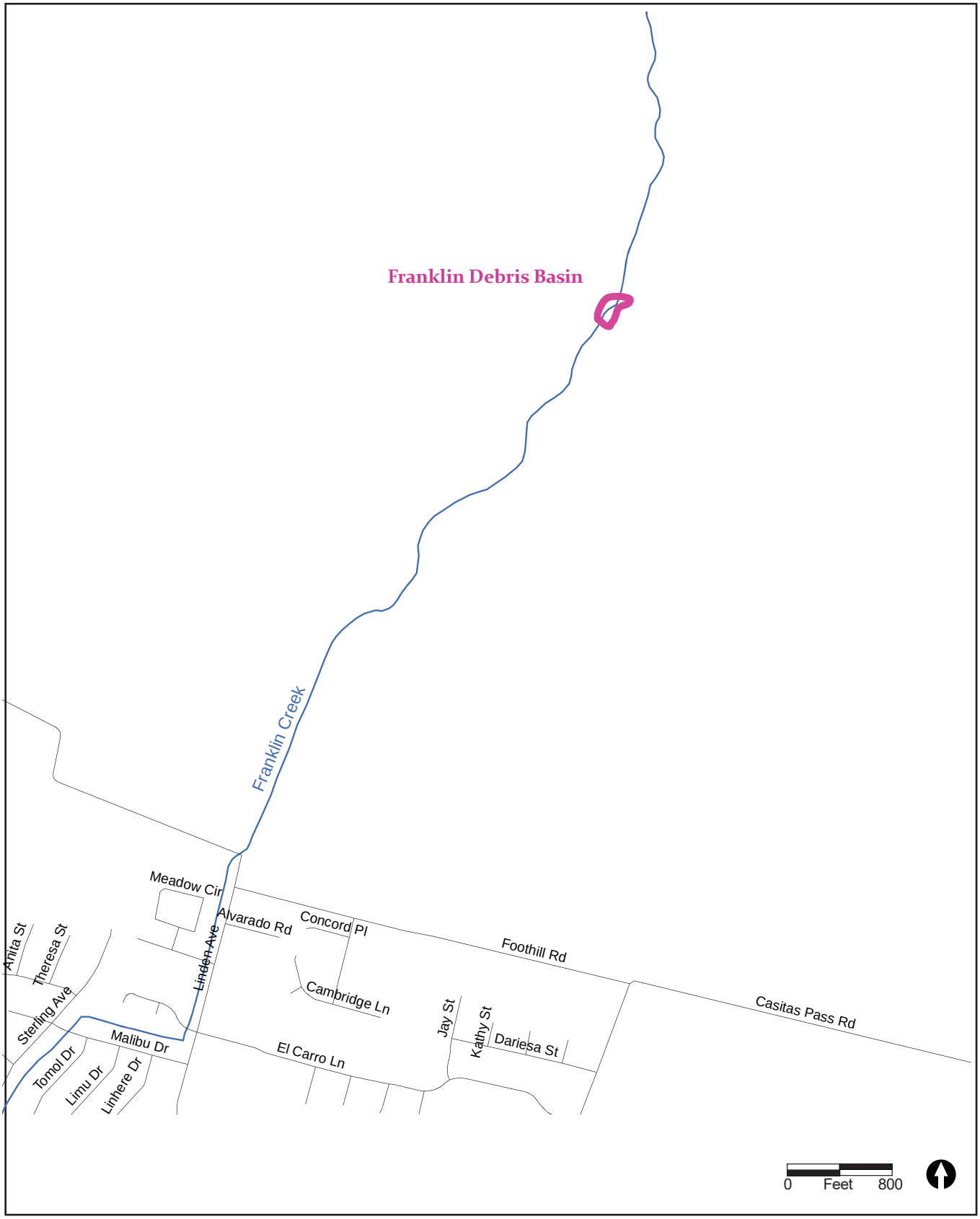

FIGURE 5.2-1
Franklin Creek Debris Basin Map

Map Source: County of Santa Barbara

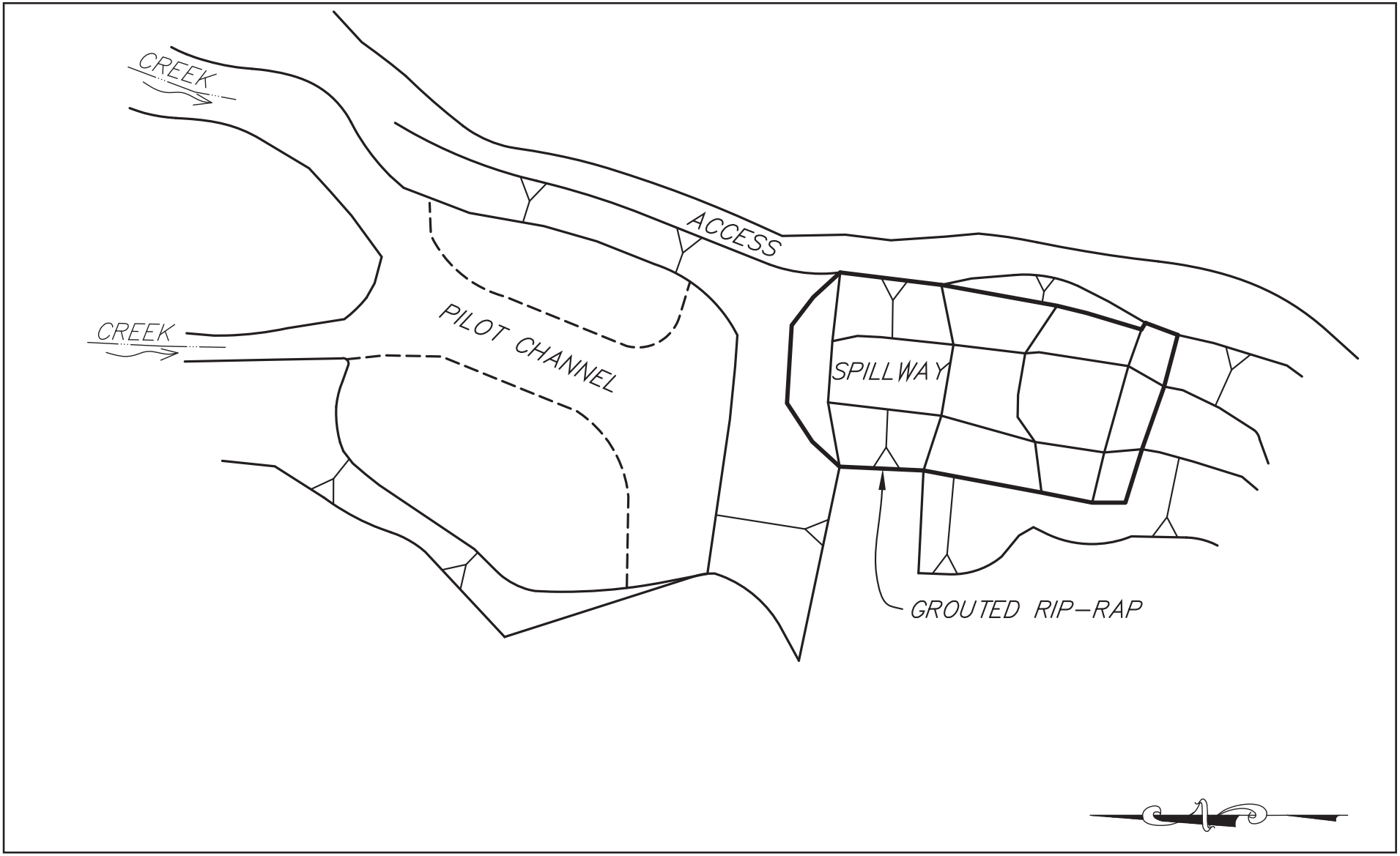

FIGURE 5.2-2
Franklin Creek Debris Basin Figure

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Franklin Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia douglasiana	Mugwort	N
Gnaphalium bicolor	Bicolored everlasting	N
Venegasia carpesioides	Canyon sunflower	N
Xanthium strumarium	Cocklebur	I
BETULACEAE		
Alnus rhombifolia	White alder	N
CAPRIFOLIACEAE		
Sambucus Mexicana	Elderberry	N
EQUISETACEAE		
Equisetum telmateia var. braunii	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
HYDROPHYLLACEA		
Phacelia ramosissima	Branching phacelia	I
PLATAGINACEAE		
Plantago major	Common plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus mollis	Soft chess	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
ROSACEAE		
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
Salix lucida	Yellow willow	N
SCROPHULARIACEAE		
Scrophularia californica	California figwort	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.3 Gobernador Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.3.1 Location

The Gobernador Creek Debris Basin is located on Gobernador Creek approximately 1,000 feet north of 7000 Gobernador Canyon Road.

5.3.2 History

Gobernador Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 46,500 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. A 2005 basin survey showed the actual capacity to be 25,275 cubic yards. The basin has been maintained on an as-needed basis since 1994. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

In 2008, the District modified the Gobernador Debris Basin dam with the goal of providing adequate conditions for fish passage while maintaining the flood-protection functionality of the site. The design of the project consisted of cutting down through the dam embankment, removing the culvert, and constructing an open channel. A formed concrete inlet structure serves to trap large debris but allow water, silt, sand and gravel to pass into the constructed channel downstream. A steel gate was constructed just downstream of the concrete inlet structure that can be closed, if needed. Gate closure scenarios may involve a wildfire in the watershed or anticipated large storm event, otherwise the gates will remain open. The constructed channel has an overall gradient of about 5 percent over a length of about 150 feet, similar to conditions directly upstream and downstream of the project site. Three pools were constructed to provide resting areas for migrating fish. The intervening roughened channel segments include embedded boulder structures to maintain channel grade, bed material of a specified grain-size distribution, and surface boulder clusters to provide velocity shadows. Through natural sorting of material, the intervening channel segment has formed into a shifting mosaic of shallow pools and riffles, in addition to the three major constructed pools.

During the first few years after construction, the concrete apron at the most downstream pool showed signs of scour, creating what may have become an increased jump height for steelhead in the future. The scoured area was not severe, but was identified as a potential area of concern during the District's monitoring.

The downstream concrete sill was modified in 2014 to remedy this potential problem. The edge of the concrete sill was chipped away with jackhammers to reduce the length. Several medium-sized boulders were placed adjacent and on top of the remaining sill and grouted into place as roughening features. The incipient soured hole downstream of the apron was temporarily excavated, and several large boulders were placed in the pit as a loose-rock structure.

5.3.3 Setting

Gobernador Creek originates in the foothills of the Santa Ynez Mountains and drains a 5,086-acre watershed capable of producing 4900 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Gobernador Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998 and 2005.

The basin was inspected on December 12, 2016 and there was no flow due to the ongoing drought. The substrate consists of mostly cobble with some larger rocks at the upstream end. The bottom of the basin is covered with a mix of predominantly willows with several sycamores and cottonwoods. Vegetation within the basin is dense and mature with nearly 100 percent foliar cover due to the fact that only the creek channel is maintained since the modification in 2008.

There is a steep hillside to the east and south of the basin with chaparral and oaks to the north. A limited riparian corridor exists to the west of the basin with rural residential parcels and avocado orchards along the banks. A well-developed riparian corridor is located upstream o the basin. The dam is located at the west end of the basin.

5.3.4 Wildlife Survey

The site was assessed by the District Biologist on December 12, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The basin provides willow riparian scrub habitat along the center channel and the adjacent floor of the basin. Dominant plant species include arroyo willow, cottonwood, and sycamore, approximately 10-12 years old. The basin provides extensive wildlife habitat for riparian birds and wildlife. Although the basin has been dry for multiple years, several coast range newts were observed in the pilot channel. When the basin has retained flowing water during the wet season, Baja California treefrogs and steelhead trout (resident /juvenile individuals) have been observed in the basin and the associated pools. Ocean-run migrating steelhead have not been detected at the site. Raccoons, opossum, and bear tracks have also been observed at the site. Birds observed or identified by call heard included: Bewick's wren, northern mockingbird, white crowned sparrow, orange crowned warbler, Anna’s hummingbird, song sparrow, black phoebe, brown towhee, scrub jay, acorn woodpecker, common yellowthroat and California quail.

5.3.5 Project Description

The Gobernador Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after there is a significant fire in the watershed and the gates need to be closed for a period of time and sediment accumulates within the basin.

5.3.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the through the modified channel. The pilot channel in Gobernador is the defined creek channel itself. Since the basin is not maintained in the same manner as the other intact basins, there is a defined creek bed within the basin, with mature vegetation throughout the rest of the basin.

Maintenance in the basin is very similar to the District's routine creek maintenance, in that vegetation growing within the 15-foot-wide creek bed is brushed and spot-sprayed to maintain channel conveyance. All bank vegetation is left in place and only branches projecting into the active channel are limbed. The purpose of the maintenance program is to retain a pilot channel through the main basin, so that flowing water from upstream reaches the appropriate opening at the basin spillway without excessive obstructions. The pilot channel preserves the functionality of the basin and allows water and sediment to move downstream through the watershed. Tree-trimming and brushing prevents debris snags from forming in the basin and potentially blocking sediment transport at the spillway.

5.3.7 Long-term Maintenance

Since the 2008 modification was performed, sediment excavation from the basin has not been necessary. In addition to the bi-annual monitoring inspections, the District Maintenance Superintendent inspects the area annually to determine maintenance needs. The trigger for sediment-excavation is when the basin is more than 25 percent full of sediment. A wildfire upstream or extreme weather forecasts may change any of the maintenance triggers and cause the District to close the gates.

5.3.8 Revegetation Source

This debris basin has developed a dense riparian forest and the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the inlet structure becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.3.9 Engineering Analysis

Maintenance of the pilot channel will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal

will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.3-1
Gobernador Creek Debris Basin

PHOTOGRAPH 5.3-2
Gobernador Creek Debris Basin

Map Source: County of Santa Barbara

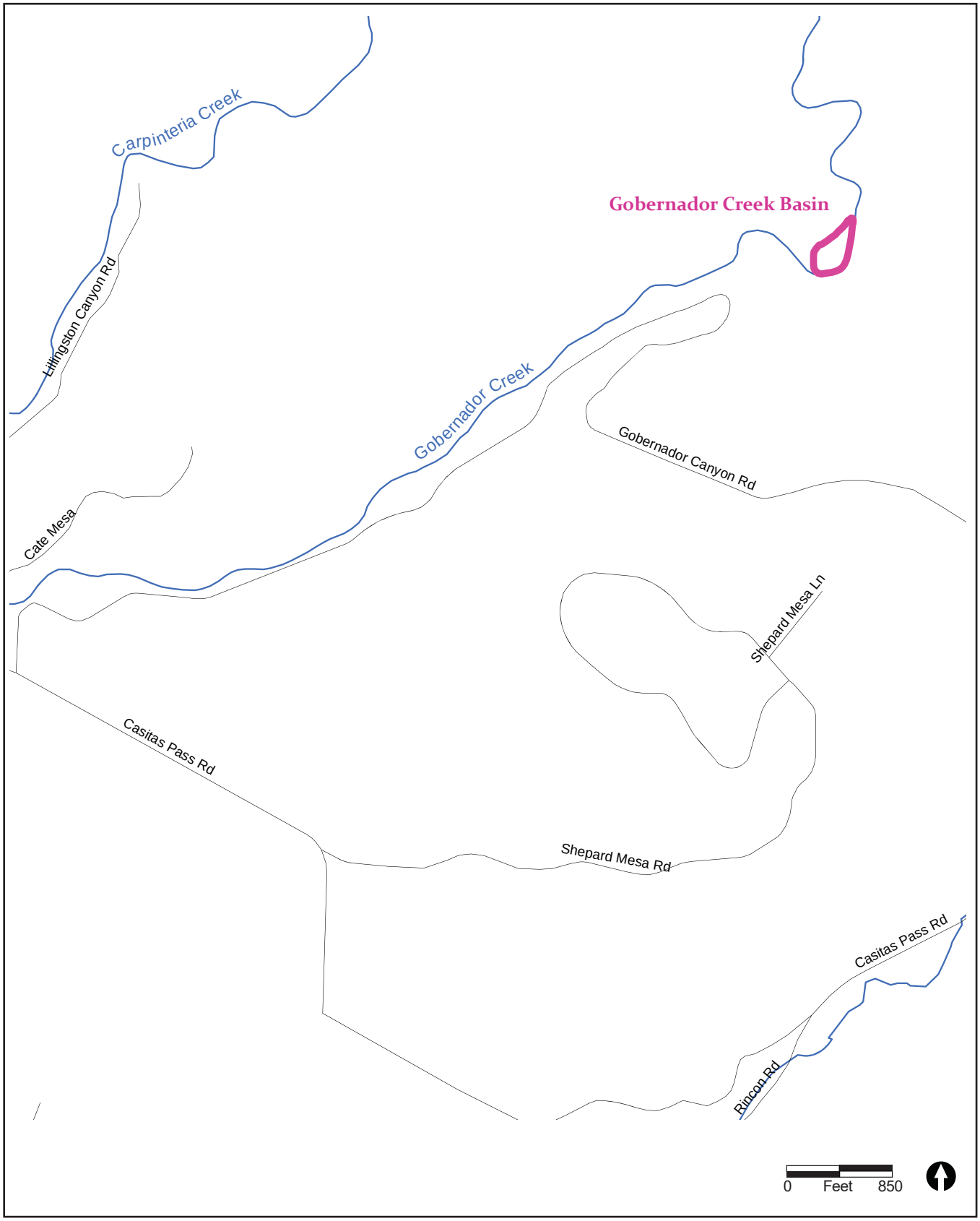

FIGURE 5.3-1
Gobernador Creek Debris Basin Map

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Map Source: County of Santa Barbara

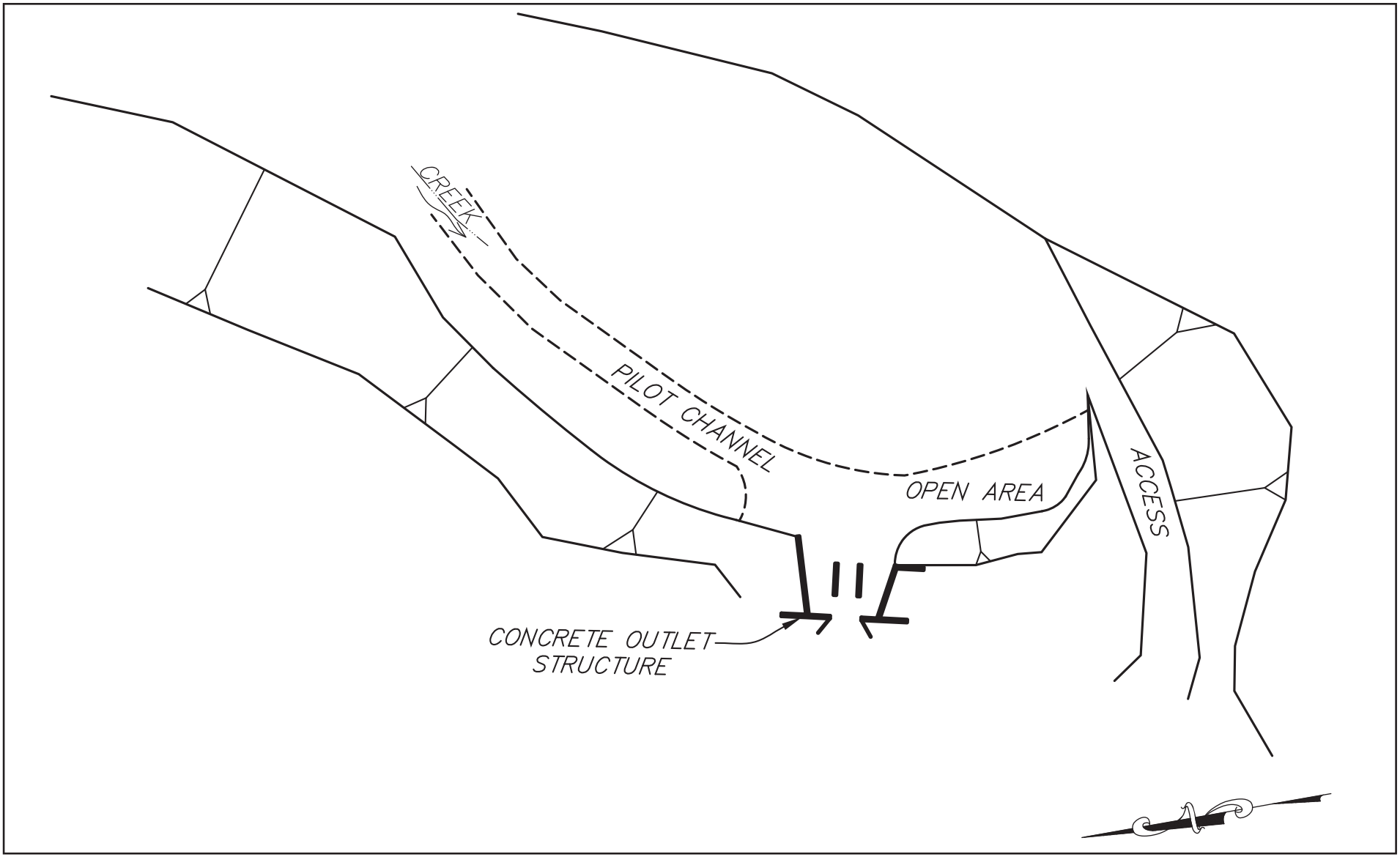

FIGURE 5.3-2
Gobernador Creek Debris Basin Figure

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Gobernador Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Gnaphalium bicolor	Bicolored everlasting	N
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	I
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild raddish	I
Rorippa Nasturtium-aquaticum	Watercress	I
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican tea	I
Chenopodium murale	Nettle-leaved goosefoot	I
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
LAMIACEAE		
Mentha sp.	Mint	I
LAURACEAE		
Umbellularia californica	California bay	N
MALVACEAE		
Malva nicaeensis	Mallow	I
Malva parvifolia	Cheeseweed	I
PLATAGINACEAE		
Plantago major	Common plantain	I
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Hordeum murinum	Foxtail	I
Lolium multiflorum	Italian ryegrass	I
Lolium miliacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I

Gobernador Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
POLYGONACEAE		
Polygonum arenastrum	Common knotweed	I
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Nicotiana glauca	Tree tobacco	I
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Broad-leaved cattail	N
*N = Native; I = Introduced		

5.4 Mission Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.4.1 Location

The Mission Creek Debris Basin is located on Mission Creek approximately 2,000 feet upstream of the Botanic Gardens off of Mission Canyon Road.

5.4.2 History

Mission Creek Debris Basin is an engineered facility that was built in 1964 by the U.S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 15,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. An updated 2005 basin survey showed the actual capacity to be 4,100 cubic yards. The basin has been maintained on an as-needed basis since 1987. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005. The basin was also desilted in 2009 to prepare for winter storms after the Jesusita Fire burned most of the watershed above the basin.

5.4.3 Setting

Mission Creek originates in the foothills of the Santa Ynez Mountains and drains a 7,589-acre watershed capable of producing between 5,800 and 7,500 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Mission Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998 and 2005. In 2009 following the Jesusita Fire that burned most of the Mission Creek watershed, the basin was approximately 15 percent full, but completely cleaned out in preparation for large amounts of sediment to fill the basin during winter storms. Since 2009, the only work done within the basin has been maintenance of the pilot channel. As a result, vegetation has colonized the basin floor. Due to a 5-year drought period there is no water flowing in the basin, but there appears to be water subsurface as thick vegetation continues to grow.

The basin is surrounded by chaparral and oak trees with the dam located at the south end. A small plateau is located to the east of the dam and serves as a temporary stockpile site during desilting operations. A well-developed riparian corridor exists to the north and south of the basin. Access is from Mission Canyon Road through a private driveway over which the District has an easement.

5.4.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on January 18, 2017. Vegetation types in the basin and adjacent property includes willow riparian forest, coast live oak woodland, and California sagebrush scrub. California

sycamore woodland occurs upstream of the debris basin site. Within the basin, the habitat is a mosaic of cattail marsh, weedy disturbed areas, mixed chaparral, and mixed age willow thickets.

The basin often goes completely dry during the summer months and drought periods, excluding amphibians and other aquatic species. When water is present, the habitat can support Baja California treefrogs, coast garter snake, mosquitofish, and steelhead/rainbow trout. Bird species observed in the vicinity in 2016-17 include mourning dove, acorn woodpecker, American crow, spotted towhee, black phoebe, northern flicker, song sparrow, and California quail. Migratory birds may nest in or near riparian vegetation at the basin site and within the riparian corridor.

5.4.5 Project Description

The Mission Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.4.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 10,500 square feet and will allow for approximately 18,000 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin but non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.4.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years.

Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Mission Canyon Road as shown on the attached map. Some debris may be stockpiled immediately east of the dam in the open area adjacent to the access if necessary or hauled to an appropriate disposal site if one is available.

5.4.8 Revegetation Source

This debris basin has not developed a dense riparian forest. Nevertheless, dense riparian vegetation may colonize the basin over time. If this occurs, the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.4.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.4-1
Mission Creek Debris Basin

Map Source: County of Santa Barbara

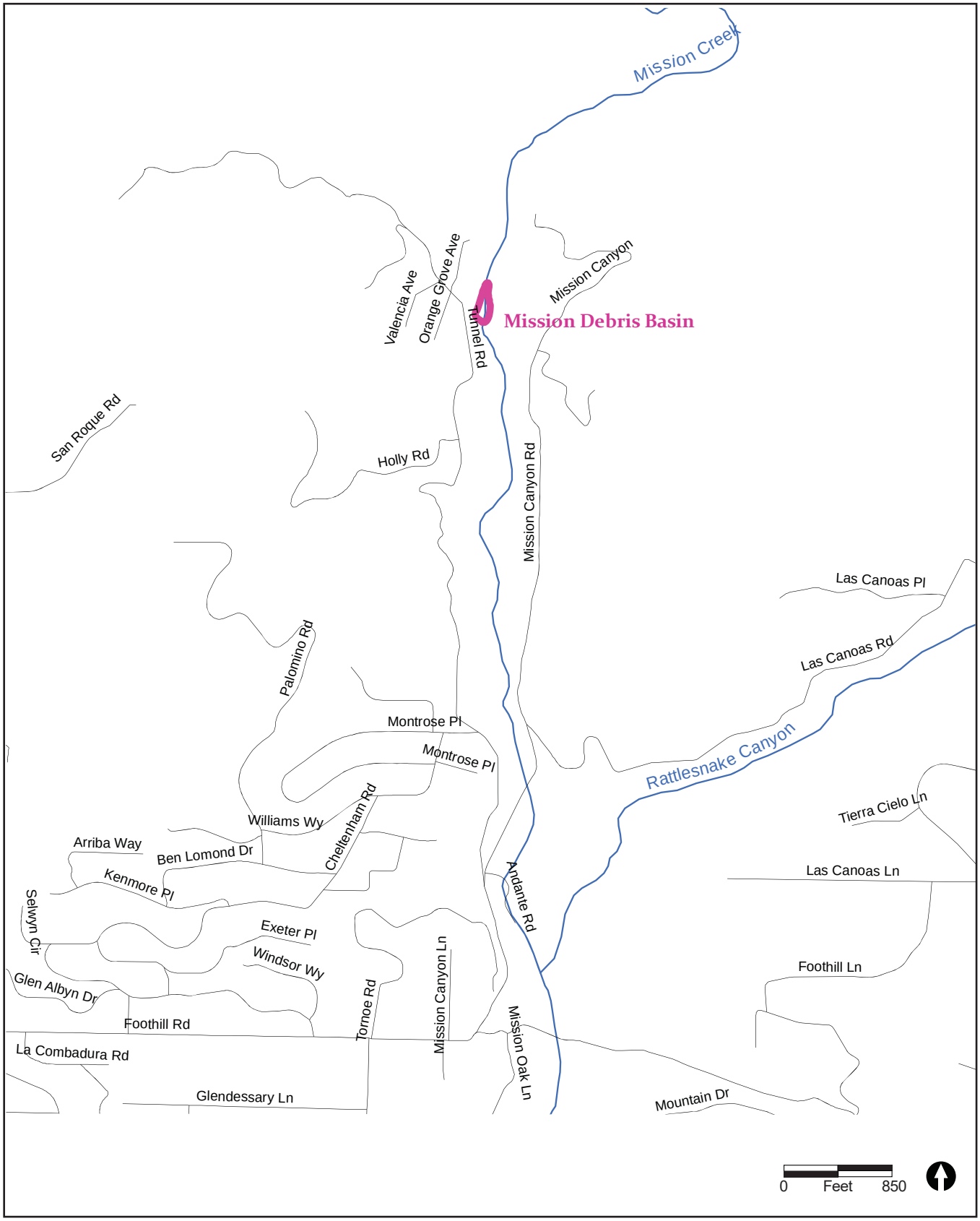

FIGURE 5.4-1
Mission Creek Debris Basin Map

Map Source: County of Santa Barbara

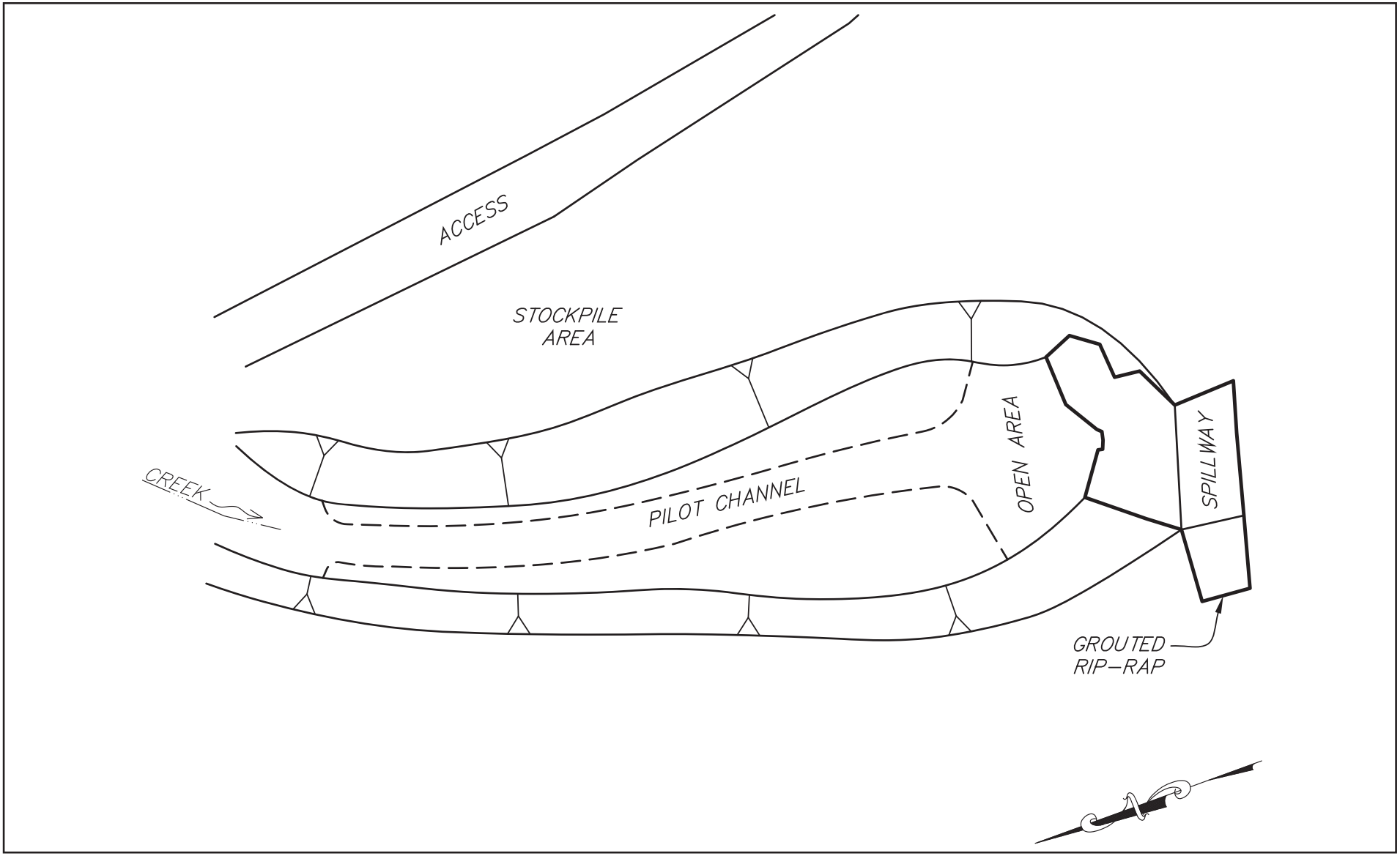

FIGURE 5.4-2
Mission Creek Debris Basin Figure

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Mission Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
Malosma laurina	Laurel sumac	N
APIACEAE		
Conium maculatum	Poison hemlock	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	N
BRASSICACEAE		
Raphanus sativus	Wild radish	I
Rorippa nasturtium-aquaticum	Watercress	I
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
MALVACEAE		
Malva parvifolia	Cheeseweed	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Hordeum murinum	Foxtail	I
Lolium miliacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathi folium	Willow smartweed	I
Rumex crispus	Curly dock	I
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
SCROPHULARIACEAE		
Scrophularia californica	California figwort	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
Solanum xanti	Nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.5 Montecito Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.5.1 Location

The Montecito Creek Debris Basin is located on Montecito Creek just east of Olive Mill Road and south of the Casa Dorinda retirement facility.

5.5.2 History

Montecito Creek Debris Basin is an engineered facility that was completed in 2002 by the Santa Barbara County Flood Control District after repeated flooding due to sedimentation in 1995 and 1998. The basin was designed to trap 5500 cubic yards of flood debris in anticipation of accelerated erosion of the watershed. The Debris Basin project includes a fishway along the east side of the basin, designed and implemented in consultation with NMFS, to allow for fish passage.

The upstream end of the basin involves the fishway merging back into the existing privately owned concrete channel. This transitional area was further modified for improved sediment transport and fish passage in 2011 by constructing a slot and weir structure along the floor of the concrete. To date, the modification in 2011 has been successful in diverting sediment into the main basin rather than into the fishway.

The main basin was excavated completely after the major storm season in 2005. Past maintenance at Montecito Basin has also involved periodic sediment removal from the transitional area and the fishway, minor concrete sealing and drain repairs, and annual maintenance of a pilot channel through the main basin.

5.5.3 Setting

Construction of the Montecito Creek Debris Basin was completed in September 2002. Once construction was complete, the District began restoration along the basin slopes and overbank areas surrounding the basins. Coast live oak trees that had been boxed and removed from the site prior to construction were returned and planted along the slopes. Box sizes ranged from 24 inches up to 96 inches. Other species planted at the site include willows, sycamore, toyon, elderberry, California sage, California rose, blackberry, and mugwort.

Restoration at the basin has been successful and now provides high quality riparian habitat as well as screening from Olive Mill Road which is directly to the northwest of the basin. The other sides of the basin are surrounded by wooded low density residential areas and Casa Dorinda Retirement Home.

Because steelhead trout are known to inhabit Montecito Creek, construction of the debris basin incorporated a fishway along the east bank of the facility. This fishway consists of resting pools at the upstream and downstream end of the basin and a concrete lined channel

with baffles inserted at intervals to slow water velocities through the fishway to allow steelhead to navigate both upstream and downstream.

5.5.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on October 10, 2016. The site is directly adjacent to a busy roadway within light-density residential development, which limits wildlife activity somewhat, although riparian bird activity is typically high within the riparian corridor. Other wildlife consists of urban-tolerant species such as raccoon, opossum, and western fence lizard. Montecito Creek is designated critical habitat for steelhead trout and several resident/juvenile individuals have been detected in the fishway pools over the past several years (ocean-running adult fish have not been observed at the site).

The basin floor has been colonized by willow sprouts, cattails, nutsedge, bulrush and willow herb, particularly in the southwest corner of the basin where water ponds. The basin floor generally remains wet from seepage, although the site has gone dry during the persistent drought from 2014 through 2016. The adjacent banks and terraces are populated with a mixed stand of oak trees, laurel sumac, willow trees, and other riparian trees and shrubs.

5.5.5 Project Description

The Montecito Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.5.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a D-5 dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide (see Figure 1.1 in Section 1.0, Introduction).

The pilot channel through the main basin will be maintained with a combination of weed-whacking, chainsaws and loppers, spot spray, and/or equipment operating in the channel. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

Maintenance at this site includes management within the fishway and associated inlet and outlet pools, such as removing accumulated sediment, re-sealing concrete seams as needed, graffiti removal, and concrete pothole repair. The modification in 2011 was designed to reduce sediment input into the fishway and reduce the need for ongoing maintenance; however sediment management will be still be required in some cases.

Maintenance at this site may also include repairs for weep holes, drain pipes, and concrete aprons and block walls. Furthermore, the existing at grade check structures located

immediately downstream of the fishway may have to be repaired. Repair includes filling scour holes that develop that compromise the check structures or the channel walls.

5.5.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years given average or less rainfall, the basin may have to be cleaned more than once on excessive rainfall years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Olive Mill Road and the adjacent gravel roadway leading to the downstream end of the basin. Debris will be hauled to an appropriate disposal site after desilting.

5.5.8 Revegetation Source

The banks of this basin have been revegetated with riparian plants. The bottom of the basin has been colonized over time. The vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plans. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet works becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.5.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance. Maintaining the fishway is necessary to ensure that it can function as designed to allow fish passage.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.5-1
Montecito Creek Debris Basin

PHOTOGRAPH 5.5-2
Montecito Creek Debris Basin

Map Source: County of Santa Barbara

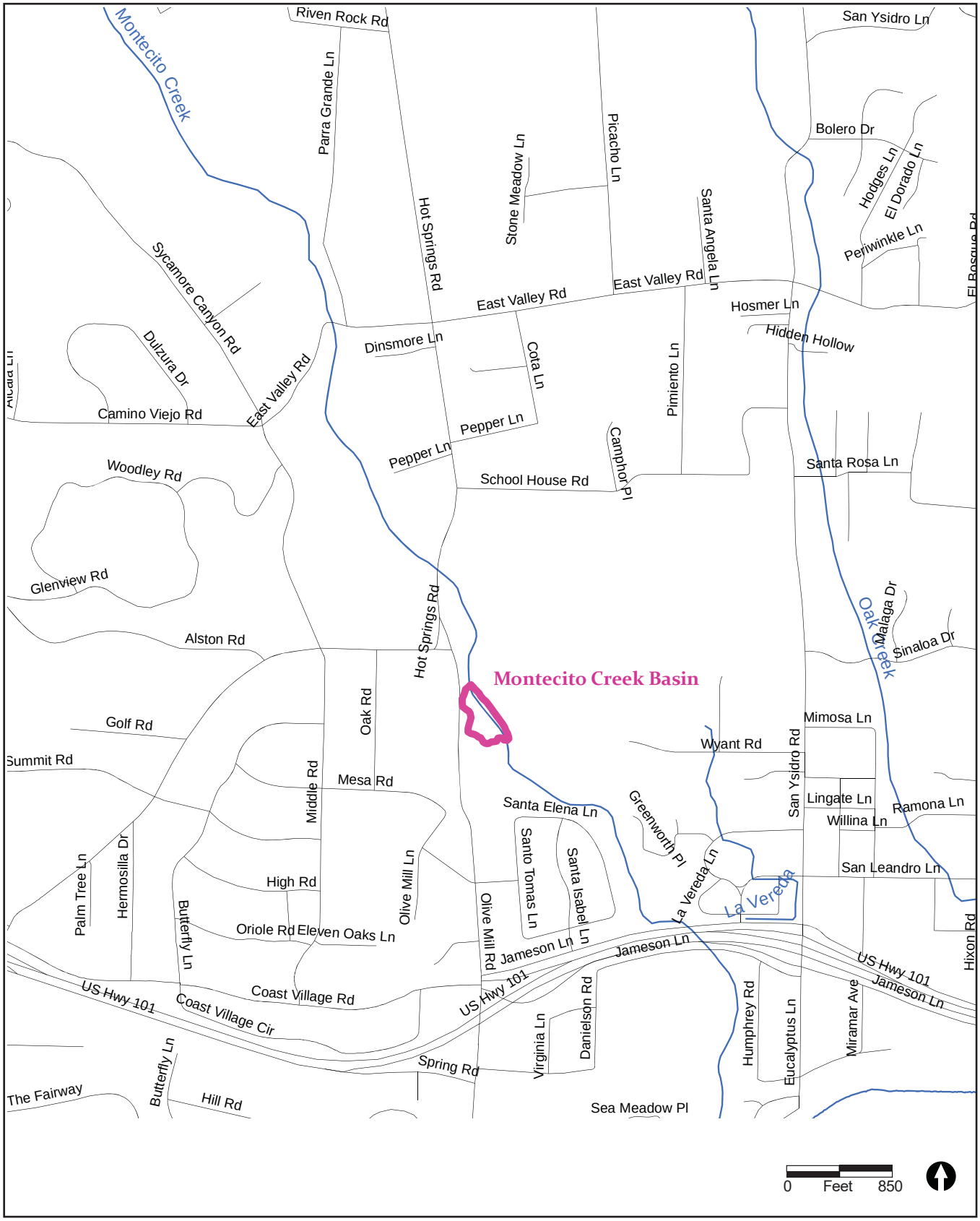

FIGURE 5.5-1
Montecito Creek Debris Basin Map

Map Source: County of Santa Barbara

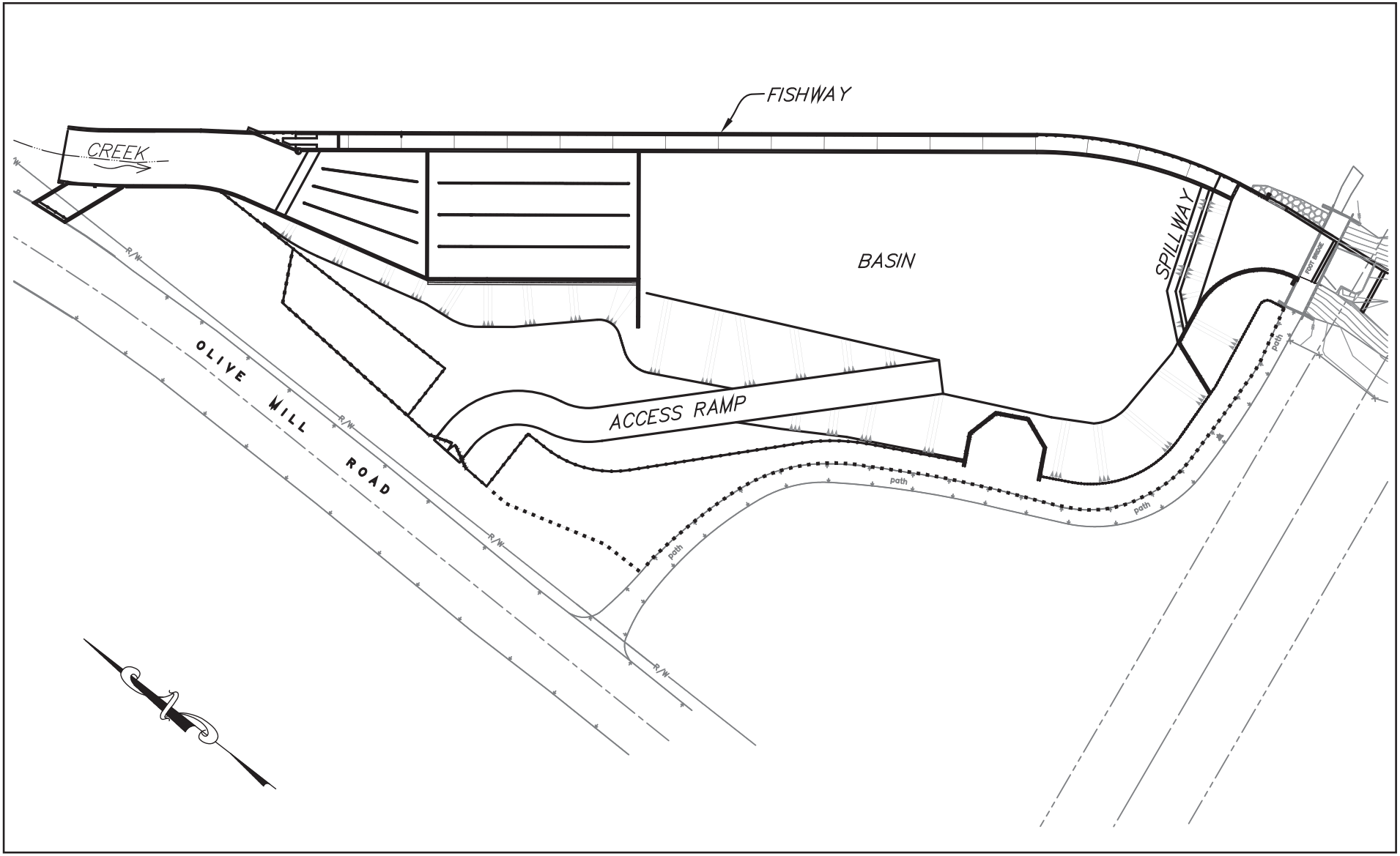

FIGURE 5.5-2
Montecito Creek Debris Basin Figure

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Montecito Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Malosma laurina	Laurel sumac	N
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Baccharis salicifolia	Mule fat	N
Venegasia carpesioides	Canyon sunflower	N
BETULACEAE		
Alnus rhombifolia	White alder	N
CAPRIFOLIACEAE		
Sambucus mexicana	Elderberry	N
FAGACEAE		
Quercus agrifolia	Coast live oak	N
GROSSULARICEAE		
Ribes amarum	Gooseberry	N
LAURACEAE		
Umbellularia californica	California bay	N
PLATAGINACEAE		
Plantago major	Common plantain	I
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Elymus condensatus	Giant rye	I
Lolium miliacea	Rice grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
RANUNCULACEAE		
Clematis ligusticifolia	Creek clematis	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rosa californica	California rose	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
Solanum xanti	Nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.6 Romero Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.6.1 Location

The Romero Creek Debris Basin is located on Romero Creek just east of 975 Romero Canyon Road in Montecito.

5.6.2 History

Romero Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 27,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. The basin has been maintained on an as-needed basis since 1994. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.6.3 Setting

Romero Creek originates in the foothills of the Santa Ynez Mountains and drains a 1,303-acre watershed capable of producing 3400 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Romero Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998 and 2005. The basin was inspected in October and December 2016 and was consistently dry. The substrate consists of silty sand, gravel, and cobbles with large rocks at the upstream end of the basin. The bottom is well vegetated (except for the pilot channel) with about 85 percent cover consisting of a mix of willows, ceanothus, coyotebrush, and non-native weeds and grasses.

A small tributary enters the basin from the east and Romero Creek flows into the basin from the north. A well-developed riparian corridor exists to the north of the basin. Hard chaparral with oaks and many sycamores surround the basin. The dam is located at the south end of the basin.

5.6.4 Wildlife Survey

The site was assessed by the District Biologist on December 9, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016. The basin provides dense willow riparian scrub habitat throughout the floor of the basin. The vegetation is nearly all the same age and size, due to the last excavation in 2005. Arroyo willow is the dominant species.

The basin was dry during the 2016 survey and no aquatic species were present onsite. Birds detected in the area include Bewick's wren, American crow, coyote tracks, and small mammals and indicated by burrows. The basin typically goes dry during summer months, providing only ephemeral habitat for aquatic species such as the Baja California treefrog.

5.6.5 Project Description

The Romero Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.6.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 13,600 square feet and will allow for approximately 28,300 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin but non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.6.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Romero Canyon Road as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.6.8 Revegetation Source

Riparian vegetation has developed in this debris basin. This condition is an anticipated benefit of the maintenance described above. In addition to providing high quality habitat, the native vegetation in this basin can provide an excellent source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plans. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term

maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.6.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.6-1
Romero Creek Debris Basin

PHOTOGRAPH 5.6-2
Romero Creek Debris Basin

Map Source: County of Santa Barbara

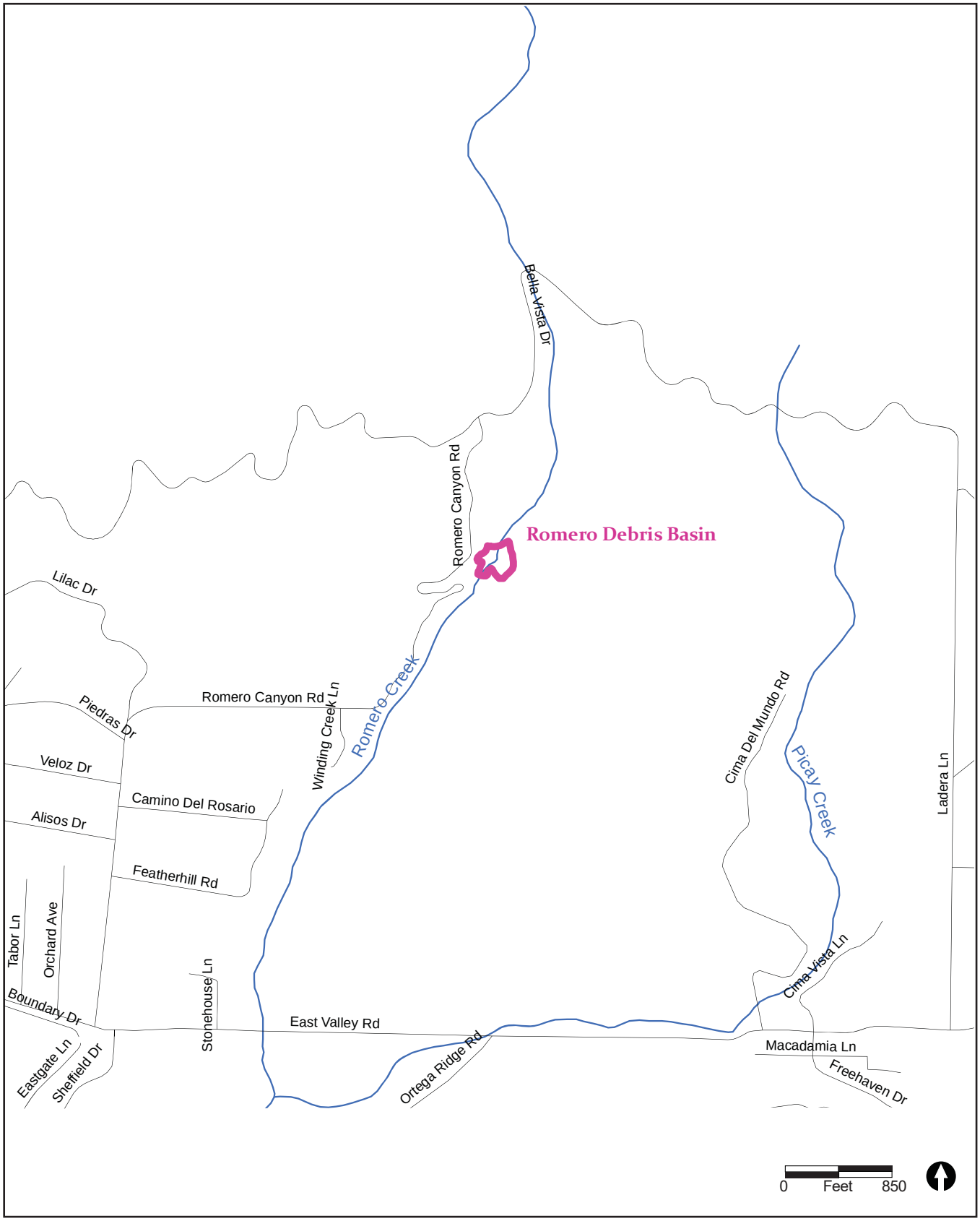

FIGURE 5.6-1
Romero Creek Debris Basin Map

Map Source: County of Santa Barbara

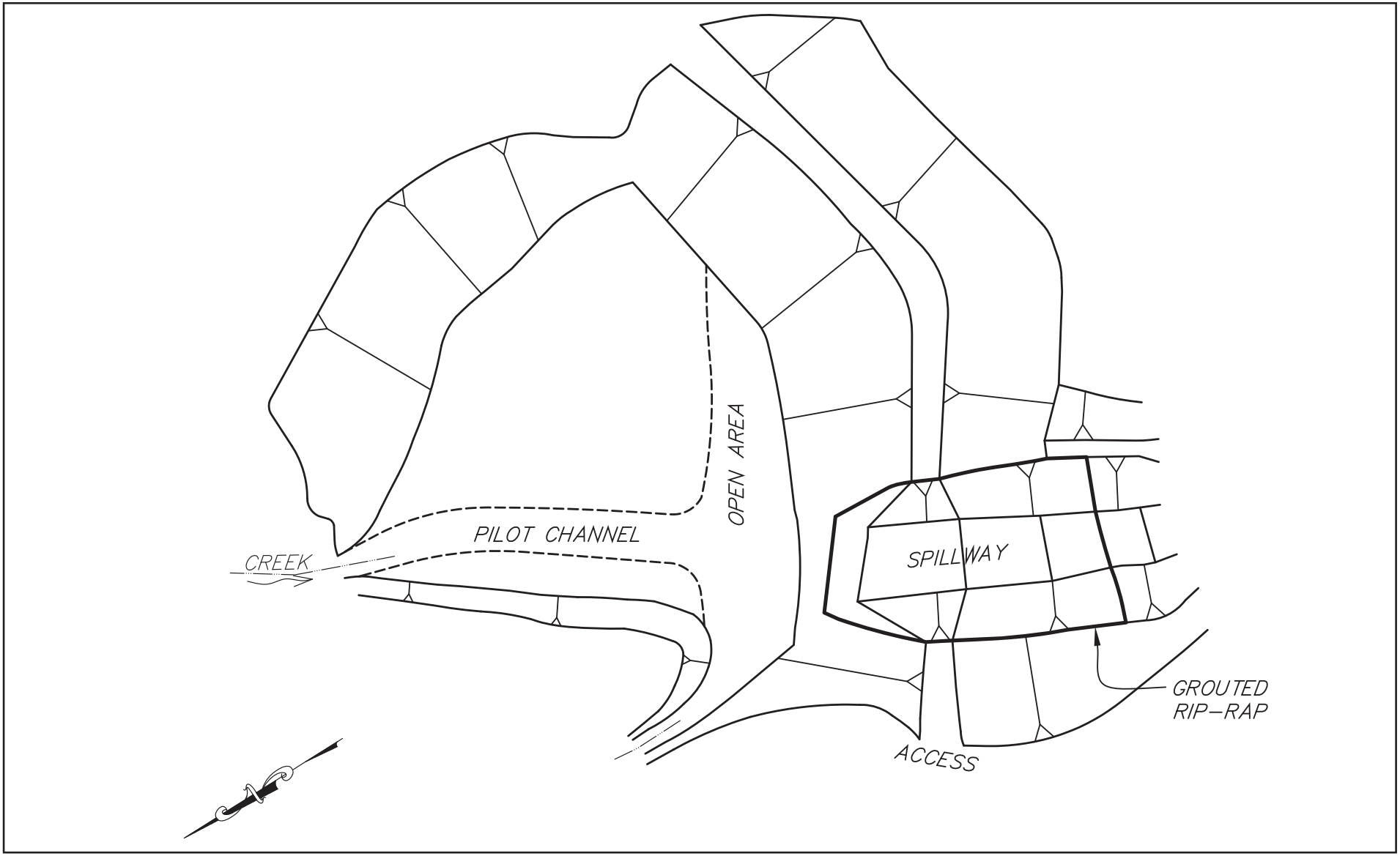

FIGURE 5.6-2
Romero Creek Debris Basin Figure

Romero Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALIACEAE		
Ageratina adenpohora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Gnaphalium luteo-album	Cud weed everlasting	I
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	I
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa nastunium-aquaticum	Watercress	I
CYPERACEAE		
Cyperus alternifolius	African umbrella sedge	I
Eragrostis sp.	Sedge	N
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
PLATAGINACEAE		
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Cortadena jubata	Pampas grass	I
Lolium multiflorum	Italian ryegrass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Rumex crispus	Curly dock	I
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N

Romero Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
Salix laevigata	Red willow	N
SCROPHULARIACEAE		
Mimulus cardinalis	Scarlet monkeyflower	N
SOLANACEAE		
Nicotiana glauca	Tree tobacco	I
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.7 San Antonio Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.7.1 Location

The San Antonio Creek Debris Basin is located on San Antonio Creek approximately 2,000 feet upstream of Tuckers Grove County Park.

5.7.2 History

San Antonio Creek Debris Basin is an engineered facility that was built in 1964 by the U.S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 34,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Major desilting projects occurred in 1967, 1978, 1983, 1990, twice in 1995, and in 2002.

Heavy rains caused runoff in January 1995 which filled San Antonio Debris Basin with sediment and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again in 2002 following the major rains of 1998. Very high rainfall in 2005 resulted in the basin filling with sediment; the site was desilted in 2005 as well.

The Jesusita Fire in 2009 burned 42 percent of the watershed upstream of San Antonio Basin. As part of emergency response and flood preparation, the District performed over-excavation of this site in the fall season following the fire. While the overall footprint of the debris basin was unchanged, the District excavated the floor of the basin to an additional 3-foot depth to increase sediment capacity during the sensitive period while the watershed recovered.

The San Antonio Creek watershed continued to shed sediment during the next 2 seasons. The District desilted a pilot channel through the basin in fall 2010; and after a series of rain events, the basin filled with sediment again and the District desilted the site under emergency permits. The basin gradually filled with sediment over the following several months and another excavation of 1500 cubic yards was performed in fall 2011.

As the basin has periodically been filled and repeatedly excavated, the contours and capacity of the basin have adjusted. Recent estimates of total capacity are approximately 19,000 cubic yards, depending on the depth of excavation.

The basin has not been desilted since fall 2011. Annual maintenance in 2011 through 2016 has involved period spot-spray of weeds and growth along the dam embankment, brushing of the 15-foot pilot channel, and weed-whacking a 10-foot band along the toe of the embankment to keep the outlet culvert from becoming obstructed.

5.7.3 Setting

San Antonio Creek originates in the foothills of the Santa Ynez Mountains and drains a 3,230-acre watershed capable of producing 3,700 cfs during a 100-year return period precipitation event. The substrate consists of sand soil and cobbles.

The dam is located at the southwest end of the basin with chaparral and oaks to the northeast and west. There is also low density residential area to the west. A well-developed riparian corridor exists upstream and downstream of the basin along the riparian corridor of San Antonio Creek.

5.7.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on October 5, 2016. When wetted, the basin provides suitable habitat for amphibians and riparian birds and other wildlife. Typical observations include Baja California treefrog, California treefrog, mosquitofish, California roach, western fence lizard, coyote, domestic dog and cat tracks, deer, western cottontail, and many bird species (see below). The basin often goes completely dry during the summer months and drought periods, excluding fish and many amphibians.

A single red-legged frog (RLF) adult was discovered in the pool immediately downstream of the debris basin culvert during a wildlife survey in 2011. RLF had not been recorded at this site before. No RLF were detected in the basin itself, where water depth was only a few inches not likely to support RLF in the dry season, but in the wet season it would be possible for RLF to move between the basin and the creek habitat downstream/upstream.

San Antonio Creek, and the Debris Basin site, are designated critical habitat for southern steelhead trout. This species has not been detected at the site during field surveys, but may occur in the area when sufficient water depth and water quality conditions exist. No other special-status species are known to occur at San Antonio Debris Basin.

5.7.5 Project Description

San Antonio Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete desilting after the basin fills and/or after a significant fire in the watershed.

5.7.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure.

The pilot channel will be maintained by removing obstructive vegetation with chainsaws, weed whackers, and loppers. Spot-spray of herbicide will be applied as necessary to prevent the regrowth of obstructive vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam and the culvert/outlet structure itself. The dam face will also be brushed and spot-sprayed to remove vegetation. Maintenance of the pilot channel and toe of dam will disturb approximately 20,500 square feet while allowing approximately 1.7 acres of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin but non-native vegetation will be eradicated when feasible.

The outlet pipe and the concrete spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and concrete spillway when they are cracked or chipped by pouring more concrete. The outlet pipe may have a multi-opening structure installed in the future to reduce the frequency of plugging with debris.

5.7.7 Long-term Maintenance

Long-term maintenance will consist of complete desilting of the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-1 0 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from San Antonio Creek Road as shown on the attached map. Debris may be stockpiled immediately west of the basin in the large open field if necessary or hauled to an appropriate disposal site if one is available.

5.7.8 Revegetation Source

Riparian vegetation cyclically colonizes the basin over time. The vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while maintaining habitat that develops between long-term maintenance episodes. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds. Furthermore, selective removal and thinning will help reduce the potential for the outlet works becoming plugged when basin vegetation is uprooted during high flows.

5.7.9 Engineering Analysis

Maintenance of the pilot channel and the culvert opening will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that may be generated from heavy rains and high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted alter there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a nonburned watershed.

PHOTOGRAPH 5.7-1
San Antonio Creek Debris Basin

PHOTOGRAPH 5.7-2
San Antonio Creek Debris Basin

Map Source: County of Santa Barbara

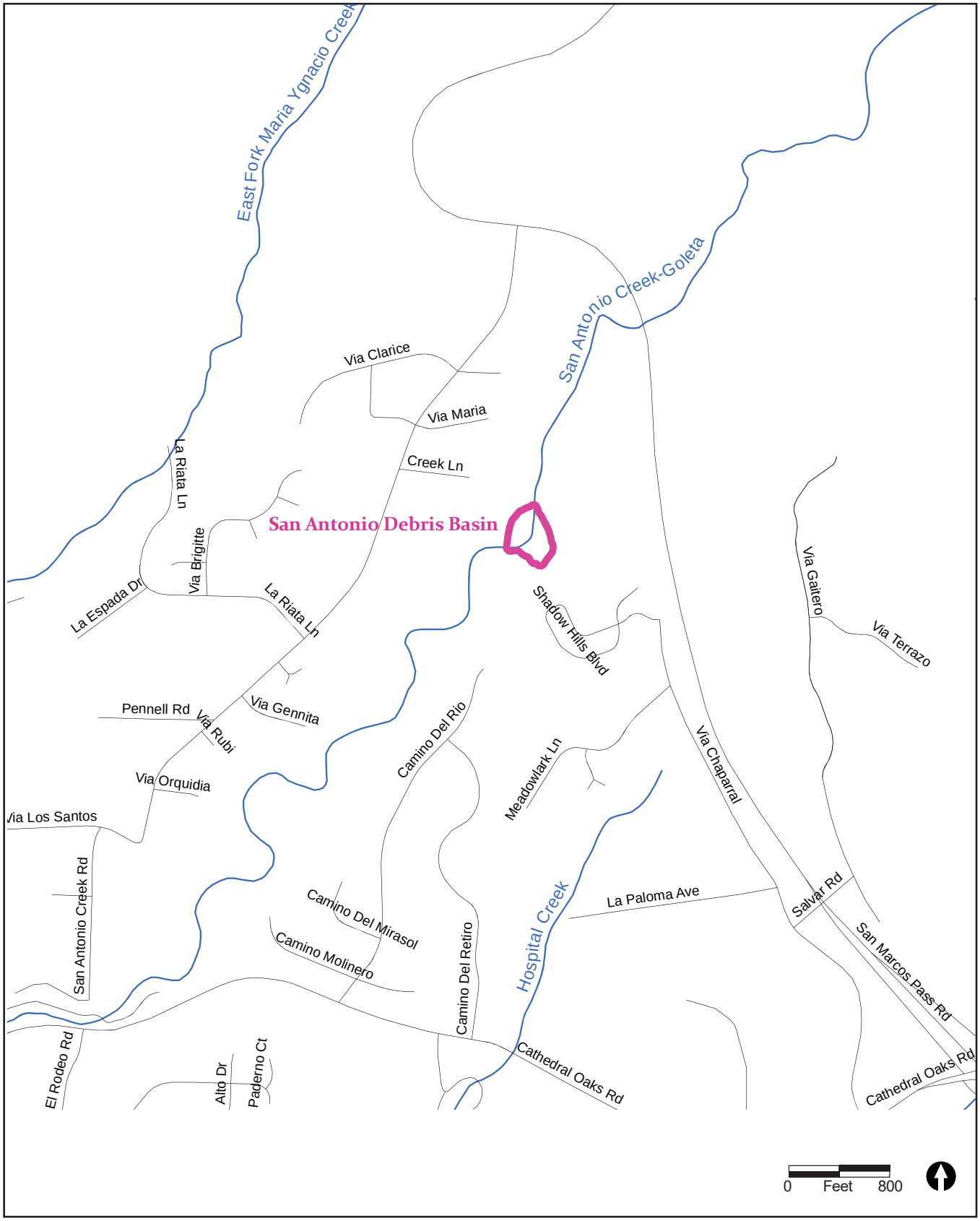

FIGURE 5.7-1
San Antonio Creek Debris Basin Map

Map Source: County of Santa Barbara

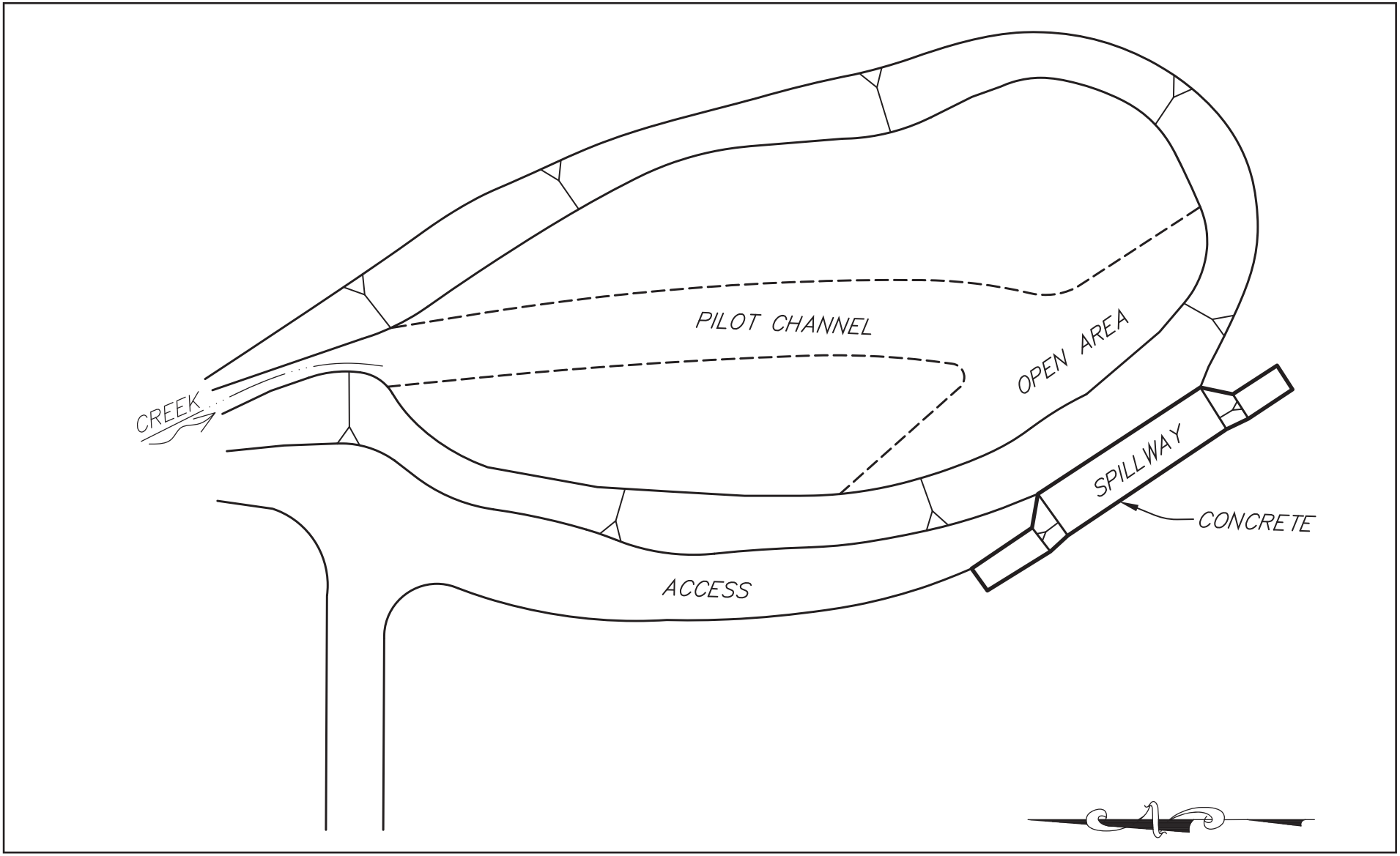

FIGURE 5.7-2
San Antonio Creek Debris Basin Figure

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San Antonio Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
APIACEAE		
Conium maculatum	Poison hemlock	I
ASTERACEAE		
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	I
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
PLATANACEAE		
Platanus racemosa	California sycamore	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
*N = Native; I = Introduced		

5.8 San Roque Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.8.1 Location

The San Roque Creek Debris Basin is located on San Roque Creek approximately 2,000 feet north of Foothill Road.

5.8.2 History

San Roque Creek Debris Basin is an engineered facility that was built in 1964 by the U.S. Army Corps of Engineers after the Coyote Fire burned a large percentage of the watershed. The basin was designed to trap 40,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed.

The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Major desilting projects occurred in 1967, 1978, 1983, twice in 1995, and once in 1998. Very high rainfall in 2005 resulted in the basin filling with sediment; the site was desilted in 2005 as well.

The Jesusita Fire in 2009 burned 78 percent of the watershed upstream of San Roque Basin. As part of emergency response and flood preparation, the District performed over-excavation of this site in the fall season following the fire. While the overall footprint of the debris basin was unchanged, the District excavated the floor of the basin to an additional 3-foot depth to increase sediment capacity during the sensitive period while the watershed recovered. The basin filled with sediment over the course of the two years following the fire. The District excavated sediment to the original capacity in fall 2011.

The basin has not been desilted since 2011. Annual maintenance in 2011 through 2016 has involved period spot-spray of weeds and growth along the dam embankment, brushing of the 15-foot pilot channel, and weed-whacking a 10-foot band along the toe of the embankment to keep the outlet culvert from becoming obstructed.

5.8.3 Setting

San Roque Creek originates in the foothills of the Santa Ynez Mountains and drains a 3,032-acre watershed capable of producing 4300 cfs during a 100-year return period precipitation event. The substrate consists of sand, silty sand and cobbles.

The dam is located at the south end of the basin with an avocado orchard to the west. A well-developed riparian corridor exists to the north of the basin with chaparral habitat intermixed with oaks to the east. A popular trail traverses the edge of the basin and continues up and down the riparian corridor.

5.8.4 Wildlife Survey

Several previous wildlife surveys, as well as field notes and observation records have been compiled. A follow-up wildlife survey was performed by the District Biologist on October 5, 2016. When wetted, the basin provides suitable habitat for amphibians and riparian birds and other wildlife. Typical observations include Baja California treefrog, California treefrog, mosquitofish, California roach, western fence lizard, coyote, domestic dog and cat tracks, raccoon, and many bird species (see below). The basin often goes completely dry during the summer months and drought periods, excluding fish and many amphibians.

San Roque Creek, and the Debris Basin site, are designated critical habitat for southern steelhead trout. This species has not been detected at the site during field surveys, but may occur in the area when sufficient water depth and water quality conditions exist. No other special-status species are known to occur at San Roque Debris Basin.

5.8.5 Project Description

San Roque Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete desilting after the basin fills with sediment and/or after a significant fire in the watershed.

5.8.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure

The pilot channel will be maintained by removing obstructive vegetation with chainsaws, weed whackers, and loppers. Spot-spray of herbicide will be applied as necessary to prevent the regrowth of obstructive vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam and the culvert/outlet structure itself. The dam face will also be brushed and spot-sprayed to remove vegetation. Maintenance of the pilot channel and toe of dam will disturb approximately 20,500 square feet while allowing approximately 1.7 acres of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin but non-native vegetation will be eradicated when feasible.

The outlet pipe and the concrete spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and concrete spillway when they are cracked or chipped by pouring more concrete. The outlet pipe may have a multi-opening structure installed in the future to reduce the frequency of plugging with debris.

5.8.7 Long-term Maintenance

Long-term maintenance will consist of complete desilting of the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from San Roque Road or Ontare Road, as shown on the attached map. Debris may be stockpiled immediately west of the basin in the large open field if necessary or hauled to an appropriate disposal site if one is available.

5.8.8 Revegetation Source

Riparian vegetation cyclically colonizes the basin over time. The vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while maintaining habitat that develops between long-term maintenance episodes. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds. Furthermore, selective removal and thinning will help reduce the potential for the outlet works becoming plugged when basin vegetation is uprooted during high flows.

5.8.9 Engineering Analysis

Maintenance of the pilot channel and the culvert opening will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that may be generated from heavy rains and high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted alter there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.8-1
San Roque Creek Debris Basin

PHOTOGRAPH 5.8-2
San Roque Creek Debris Basin

Map Source: County of Santa Barbara

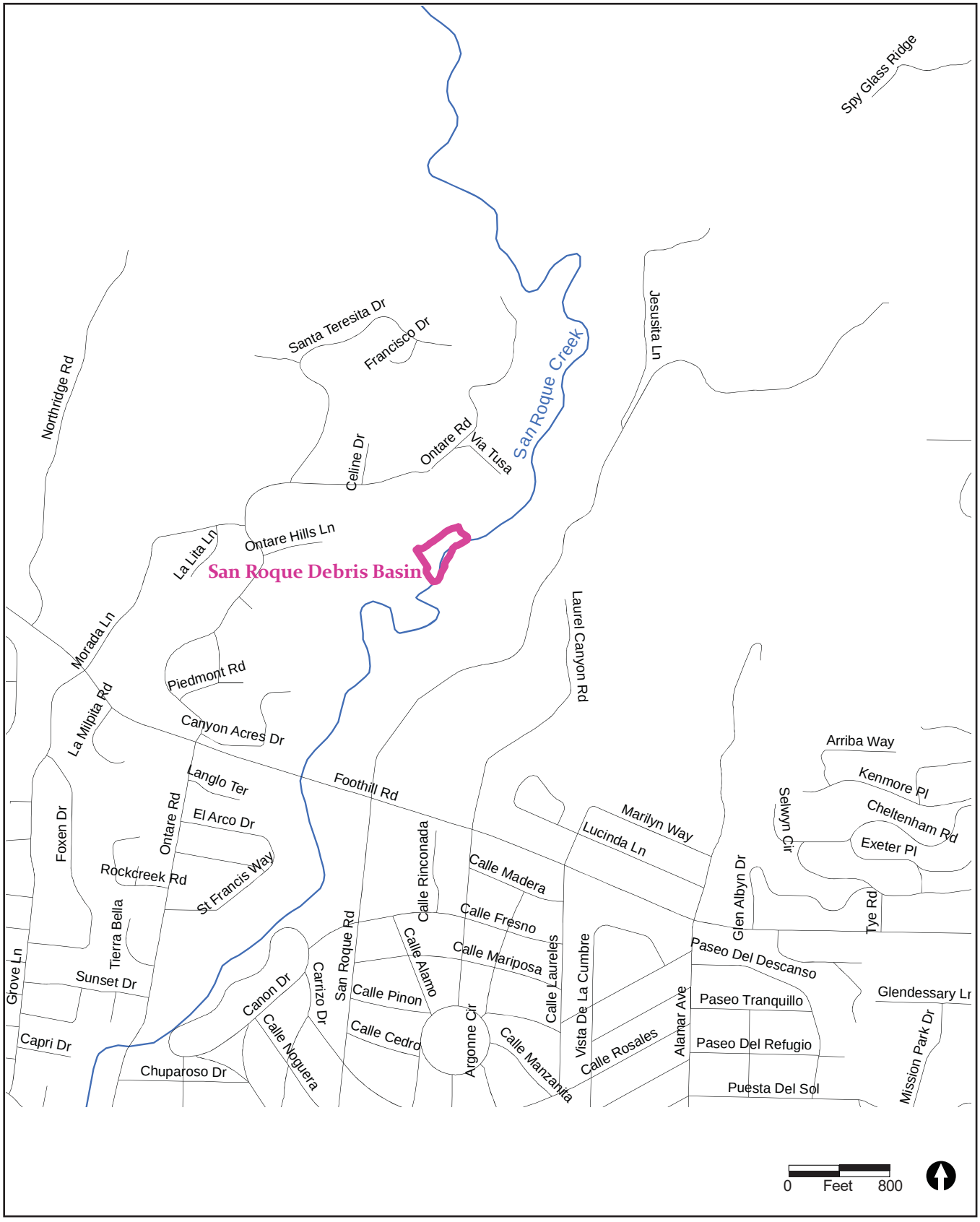

FIGURE 5.8-1
San Roque Creek Debris Basin Map

Map Source: County of Santa Barbara

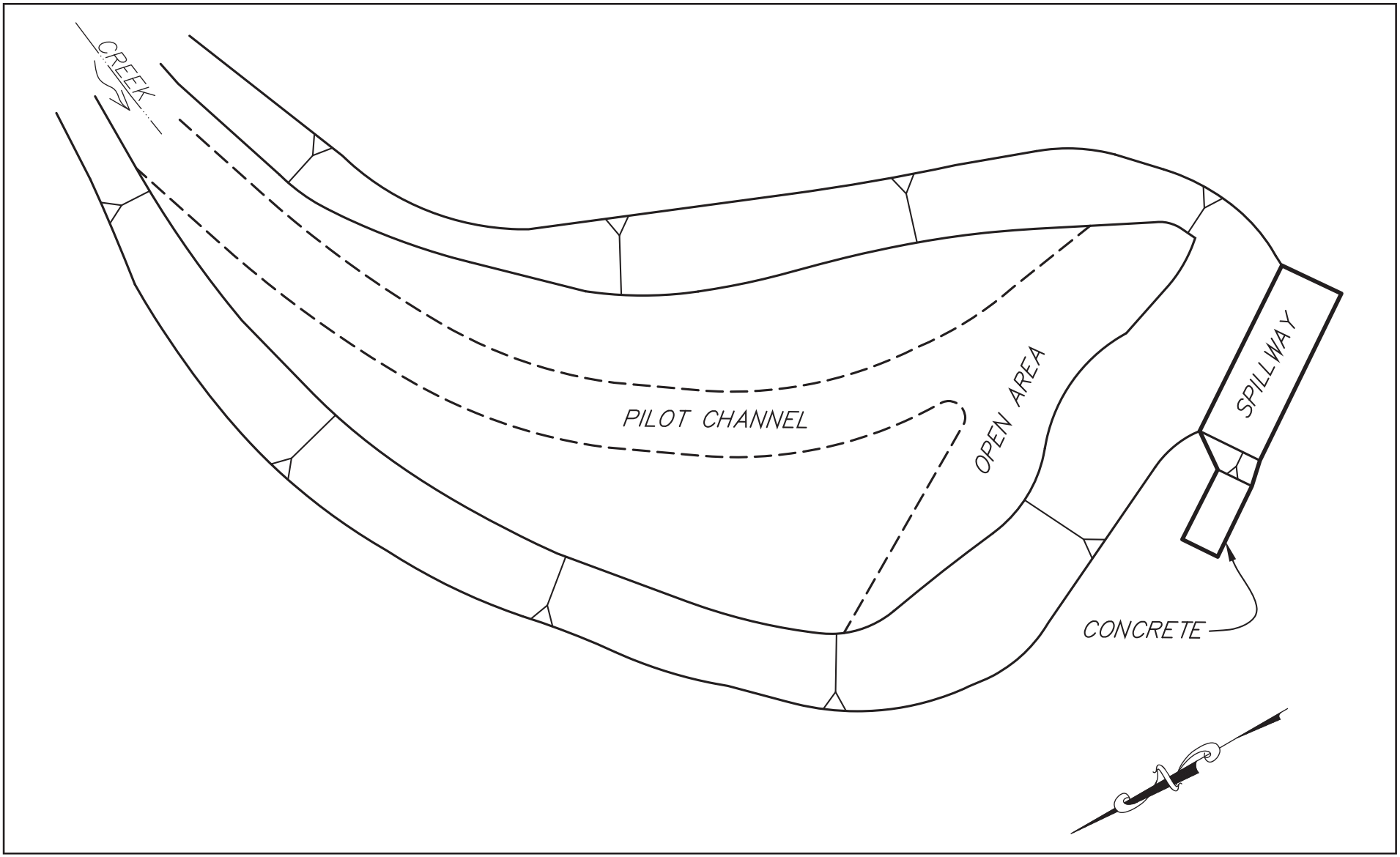

FIGURE 5.8-2
San Roque Creek Debris Basin Figure

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San Roque Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
APIACEAE		
Conium maculatum	Poison hemlock	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebrush	N
Baccharis salicifolia	Mule fat	N
Gnaphalium luteo-album	Cud weed everlasting	I
Lactuca serriola	Prickly lettuce	I
Picris echioides	Ox tongue	I
Sylibum marianum	Milk thistle	I
Xanthium strumarium	Cocklebur	I
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	Coast live oak	N
LAMIACEAE		
Mentha sp.	Mint	I
MALVACEAE		
Malva parvifolia	Cheeseweed	I
PLATAGINACEAE		
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Lolium multiflorum	Italian ryegrass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Polygonum punctatum	Dotted water smartweed	N
ROSACEAE		
Heteromeles arbutifolia	Toyon	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N

San Roque Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.9 Santa Monica Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.9.1 Location

The Santa Monica Creek Debris Basin is located on Santa Monica Creek approximately 3,500 feet upstream of Foothill Road in Carpinteria.

5.9.2 History

Santa Monica Creek Debris Basin is an engineered facility that was built in 1977 by the U.S.D.A. Soil Conservation Service as an element of the Carpinteria Valley Watershed Project. The basin was designed to trap 208,000 cubic yards of flood debris. The basin was maintained on an as-needed basis. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005. Two of the towers within the basin that allow water to continue to flow downstream as the basin fills were repaired in 2006 due to being damaged in storm flows.

5.9.3 Setting

Santa Monica Creek originates in the foothills of the Santa Ynez Mountains and drains a 2,337-acre watershed capable of producing 4500 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Santa Monica Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998. The basin was completely filled in 2005 and desilted. Since 2005, the only work that has been done in the basin is maintenance of the pilot channel. As a result riparian vegetation has colonized the basin floor and created high quality riparian habitat, thus extending the riparian corridor down into the basin where it did not exist before.

The Santa Monica Creek Debris Basin is a very large debris basin with a two tiered dam face. The dam is over 60 feet high on the upstream and approximately 150 feet high on the downstream side. The dam is covered with large rip-rap with concrete spillway located on the east side of the basin.

The spillway is approximately 1,600 feet long and discharges into a plunge pool. The plunge pool is approximately 300 feet long, 150 feet wide and 30 feet deep when clean. The plunge pool also acts as a sediment catch basin and is desilted as needed. The plunge pool was last desilted in October of 2012 as it was 70 percent full of sediment and debris. The spillway enters at the north end of the pool onto grouted rip-rap and the plunge pool discharges directly into a concrete channel to the south.

Santa Monica enters the basin over a grouted rip-rap inlet at the northwest corner. Most flows pass through the basin to one of the three concrete outlet towers. The towers are located at the west side of the basin and are at different elevations. The towers have four screened openings

and discharge into a drainage swale adjacent to the spillway. The water discharged through the outlet towers enters the plunge pool immediately east of the spillway.

Santa Monica Creek Debris Basin is located in a relatively step section of the creek in an area dominated by chaparral habitat. There is an orchard to the east, west and south with a well-developed riparian corridor to the northwest. The main access is located off Foothill Road immediately west of Santa Monica Creek and runs along the west side of the concrete channel, plunge pool, and spillway up to the basin. There is access across the top of the dam and the basin can be entered from access ramps at both the east and west sides of the basin.

5.9.4 Wildlife Survey

The site was assessed by the District Biologist on October 19, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The following species have been detected at the debris basin site: red-tailed hawk, American crow, western scrub jay, black phoebe, common yellowthroat, mocking bird, brown towhee, Baja California treefrog (juveniles and adults), western fence lizard, as well as bear and canine tracks.

During 2002, southwestern pond turtles were observed at the plunge pool but have not been detected subsequently. The District Biologist detected an adult RLF at the upstream end of the Santa Monica plunge pool and in the upstream channel is 2011 and 2012. A few larger tadpoles in the plunge pool were likely RLF but positive identification could not be made without capture. Based on the sightings in 2011 and 2012, the District assumes that RLF may be present in low numbers at the plunge pool during wet conditions. However, since the RLF sightings, the plunge pool, debris basin, and adjacent channels have gone dry for many months at a time, limiting the ability of aquatic animals to persist at the site.

During the fall 2016 assessment, the plunge pool was completely dry and the main basin had just a trickle of seepage water in a few small puddles. Baja California treefrog tadpoles were detected but no RLF or other special-status species were observed.

The main basin has dense but young willow riparian scrub vegetation. The plunge pool is mostly denuded of vegetation due to persistent dry conditions.

5.9.5 Project Description

The Santa Monica Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance would include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.9.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or

loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structures. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the plot channel and the open area will disturb approximately 27,000 square feet and will allow for approximately 48,000 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin buy non-native vegetation will be eradicated when feasible.

The outlet towers, spillway, and dam will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet towers and spillway when they are cracked or chipped by pouring more concrete. The dam is maintained by spraying weeds and replacing rip-rap.

The plunge pool will be desilted on an as-needed basis. All flows are routed through the plunge pool and it is constantly filling with sediment. The plunge pool functions as a sediment trap and thus keeps a large quantity of sediment from filling the Carpinteria Salt Marsh. Approximately 20,000 cubic yards of material is desilted from the plunge pool every 5 years. The sediment is usually deposited at the farm field to the east. The plunge pool was last desilted in 2012.

5.9.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Long-term debris basin maintenance will typically be accompanied by plunge pool desilting. Access will be taken from Foothill Road as described above and shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.9.8 Revegetation Source

Riparian vegetation has developed in this debris basin. This condition is an anticipated benefit of the maintenance described above. In addition to providing high quality habitat, the native vegetation in this basin can provide an excellent source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce

the potential for the outlet works to become plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.9.9 Engineering Analysis

Maintenance requirements for Santa Monica Creek Debris Basin are established by the Division of Safety of Dams. Since the dam is over 25-foot-high, an inspection is done annually. The maintenance proposed in this plan is consistent with the Division of Safety of Dams requirements.

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.9-1
Santa Monica Creek Debris Basin Plunge Pool Below Basin

PHOTOGRAPH 5.9-2
Santa Monica Creek Debris Basin

Map Source: County of Santa Barbara

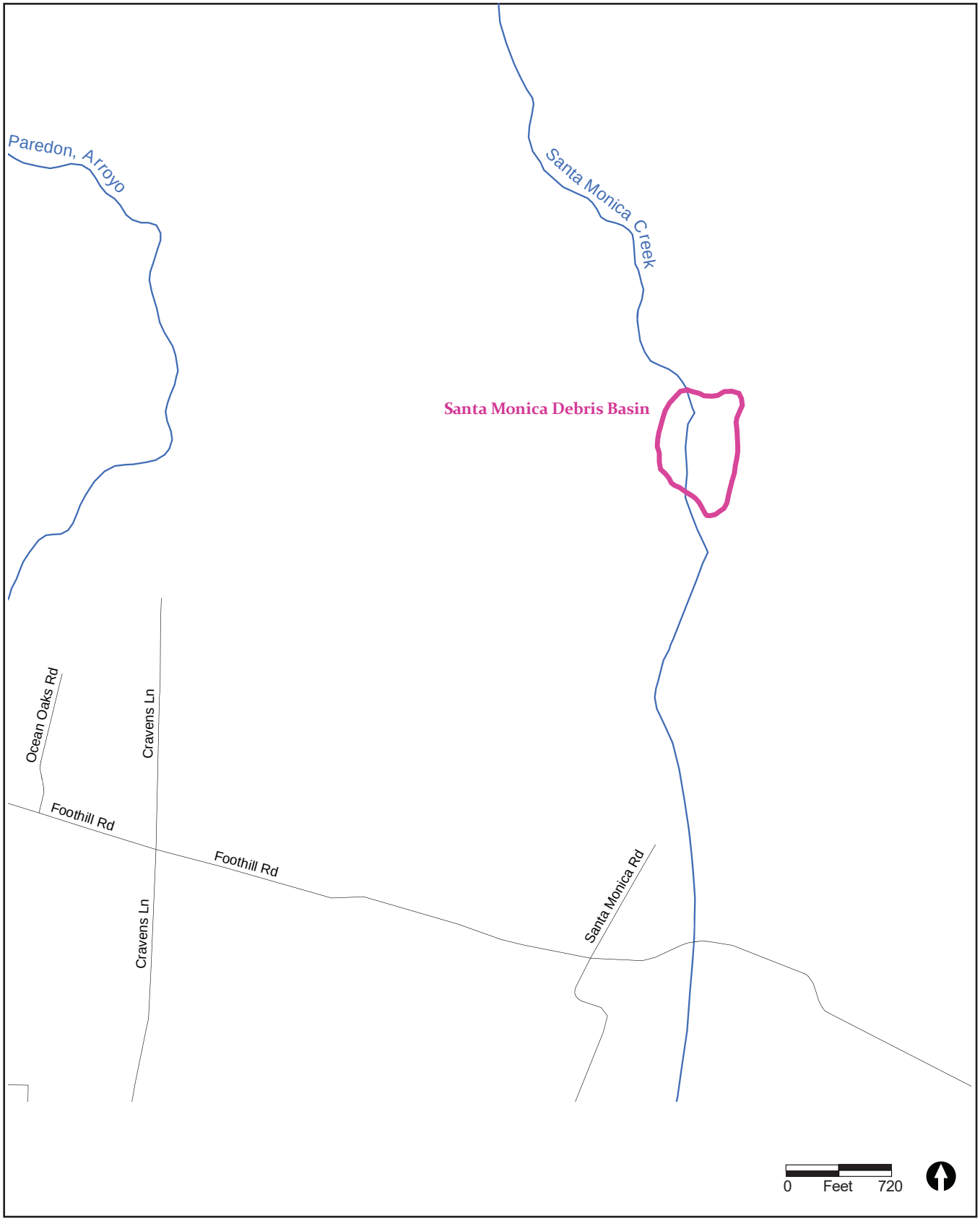

FIGURE 5.9-1
Santa Monica Creek Debris Basin Map

Map Source: County of Santa Barbara

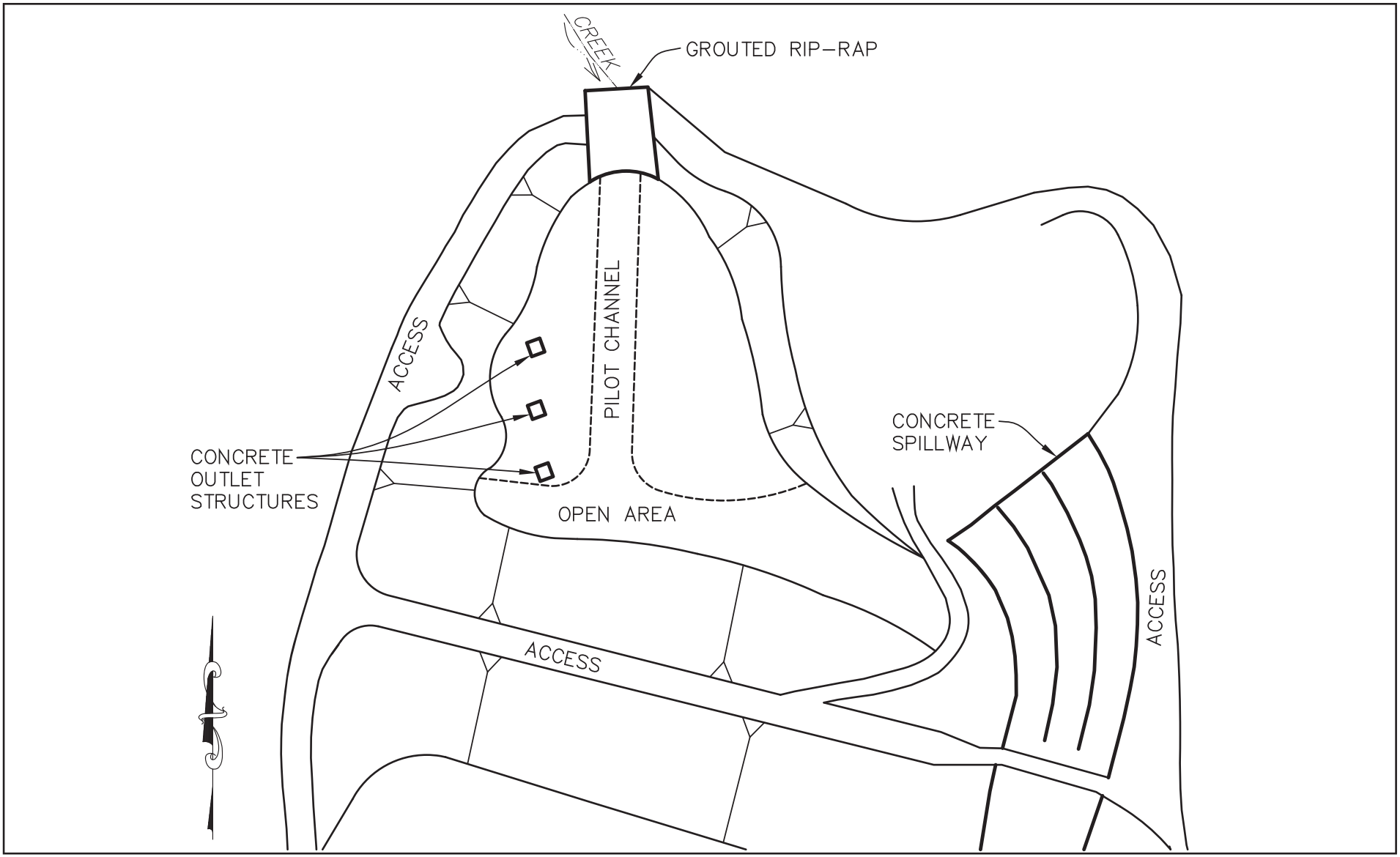

FIGURE 5.9-2
Santa Monica Creek Debris Basin Figure

Santa Monica Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
Schinus molle	Pepper tree	I
APIACEAE		
Conium maculatum	Poison hemlock	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Isocoma veneta	Coast golden bush	N
Picris echioides	Ox tongue	I
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
Rorippa nasturtium-aquaticum	Watercress	I
EQUISETACEAE		
Equisetum telmateia var. braunii	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
LAMIACEAE		
Mentha sp.	Mint	I
LAURACEAE		
Umbellularia californica	California bay	N
PLATAGINACEAE		
Plantago lanceolata	Plantain	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Hordeum murinum	Foxtail	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
Rumex crispus	Curly dock	I
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.10 East Toro Canyon Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.10.1 Location

The East Toro Canyon Creek Debris Basin is located on East Toro Canyon Creek approximately 5,000 feet northeast of East Valley Road.

5.10.2 History

East Toro Canyon Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 15,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. A 2005 basin survey showed the actual capacity to be 4805 cubic yards. The basin was maintained on an annual basis after construction until 1987. Between 1987 and 1994, the basin was maintained on an as-needed basis. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.10.3 Setting

East Toro Canyon Creek originates in the foothills of the Santa Ynez Mountains and drains an 869-acre watershed capable of producing 2600 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled East Toro Canyon Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998. The substrate consists of silty sand and cobbles with large rocks at the upstream end of the basin.

There is chaparral and oaks to the north, east and south of the basin. A riparian corridor exists to the northeast of the basin and downstream of the dam. The dam is located to the south and Toro Canyon Road is located to the west of the basin.

5.10.4 Wildlife Survey

The site was assessed by the District Biologist on October 17, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

This basin is high in the watershed and generally goes completely dry for several months of the year. During drought periods, the site may be dry for the entire year. The following wildlife species have been detected on site: spotted towhee, song sparrow, western scrub jay and American crow.

The habitat at the basin is comprises of a blend of willow riparian scrub species and coastal chaparral species such as bigpod ceanothus and laurel sumac. The basin site lacks very large mature trees in the canopy due to excavation in 2005.

5.10.5 Project Description

The East Toro Canyon Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.10.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 9100 square feet and will allow for approximately 19,500 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin buy non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.10.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Casitas Pass Road as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.10.8 Revegetation Source

This debris basin has not developed a dense riparian forest. Nevertheless, dense riparian vegetation may colonize the basin over time. If this occurs, the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore,

selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.10.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.10-1
East Toro Canyon Creek Debris Basin

Map Source: County of Santa Barbara

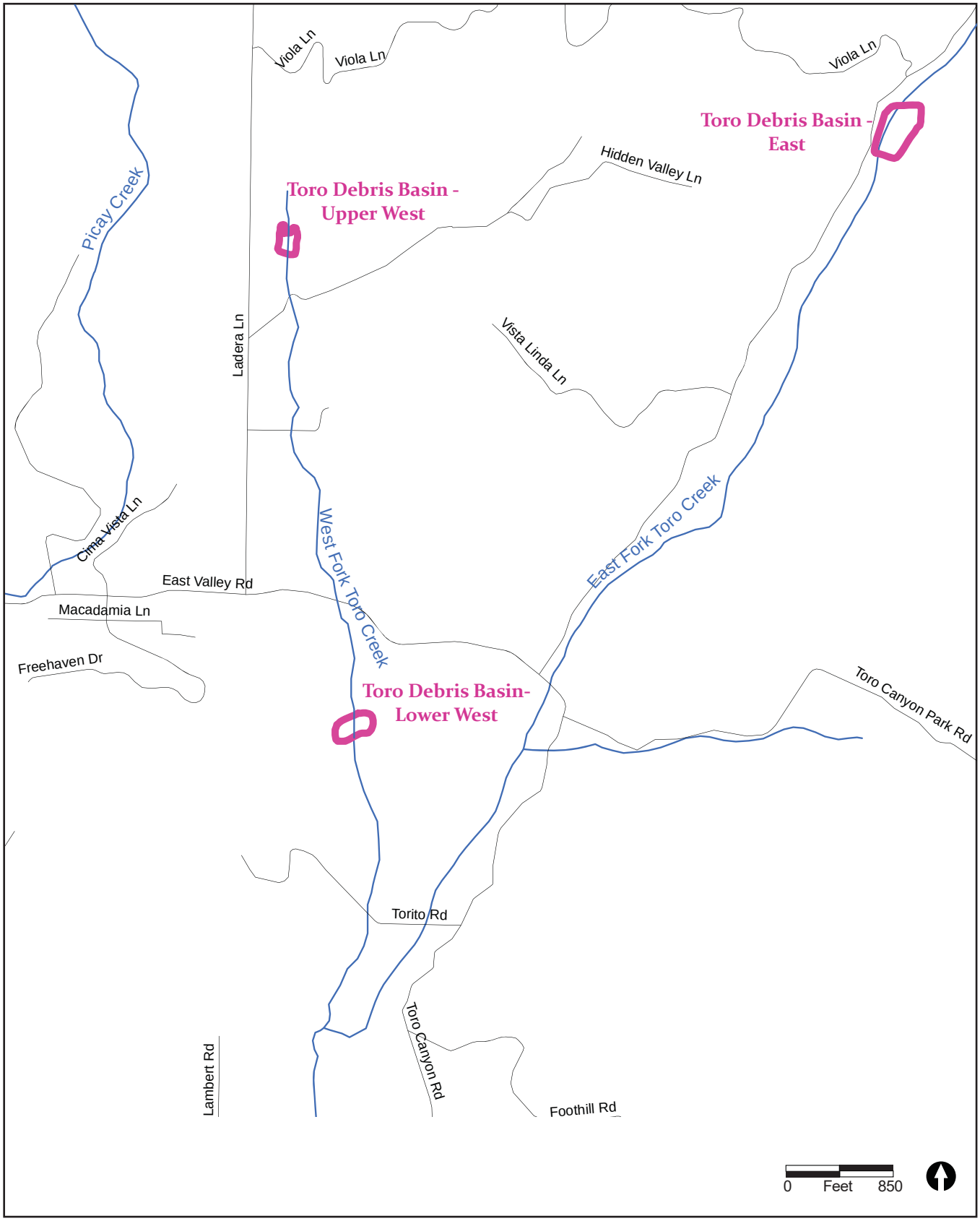

FIGURE 5.10-1
East Toro Canyon Creek Debris Basin Map

Map Source: County of Santa Barbara

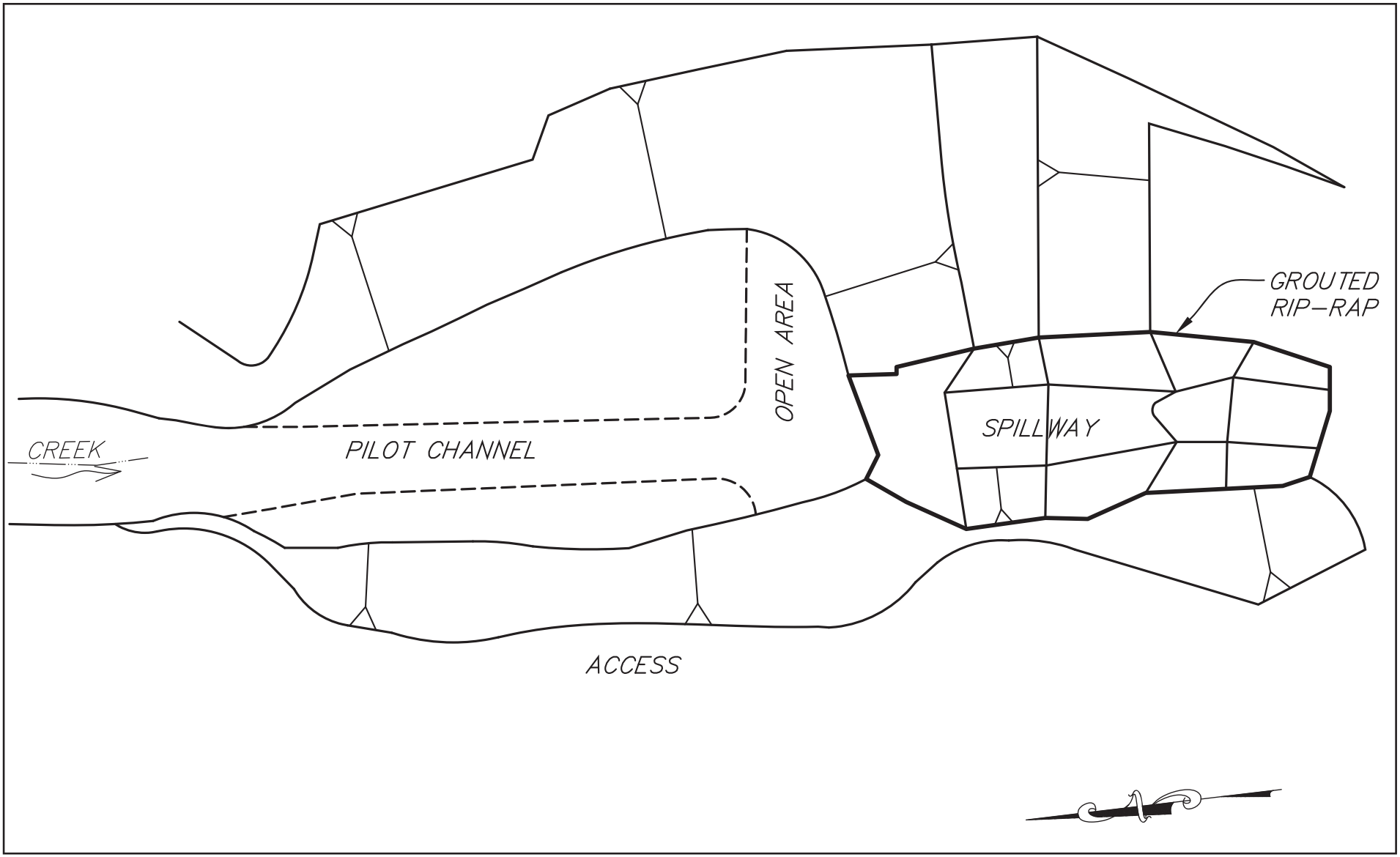

FIGURE 5.10-2
East Toro Canyon Creek Debris Basin Figure

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East Toro Canyon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
Malosma laurina	Laurel sumac	N
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Xanthium strumarium	Cocklebur	I
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	California sycamore	N
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Lolium multiflorum	Italian ryegrass	I
Pennisetum clandestinum	Kikuyu grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Rumex crispus	Curly dock	I
ROACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Populus balsamifera	Black cottonwood	N
Salix lasiolepis	Arroyo willow	N
SCROPHULARIACEAE		
Scrophularia californica	California figwort	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.11 Lower West Toro Canyon Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.11.1 Location

The Lower West Toro Canyon Creek Debris Basin is located on West Toro Canyon Creek approximately 800 feet south of East Valley Road in Montecito.

5.11.2 History

Lower West Toro Canyon Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 56,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. A 2005 basin survey showed the actual capacity to be 19,545 cubic yards. The basin has been maintained on an as-needed basis since 1994. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.11.3 Setting

West Toro Canyon Creek originates in the foothills of the Santa Ynez Mountains and drains a 986-acre watershed capable of producing 2400 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Lower West Toro Canyon Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998. The substrate consists of silty sand and cobbles with large rocks at the upstream end of the basin.

There is chaparral and oaks to the north, east and west of the basin. A riparian corridor exists to the northeast of the basin. The dam and a very large embankment are located to the south.

5.11.4 Wildlife Survey

The site was assessed by the District Biologist on November 15, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016.

The basin provides good wildlife habitat with a mix of cover types with willow riparian scrub species and chaparral species. The habitat includes willow riparian shrub species and several invasive weeds such as castor bean, pride-of-Madeira, and acacia species. The center channel is mostly bare cobble and gravel, but the adjacent sides of the basin are well-populated with riparian cover.

Animal tracks observed in the basin included white-tailed deer, raccoon and canine. Birds observed or identified by call heard included: Bewick's wren, orange crowned warbler, Anna’s hummingbird, brown towhee, western scrub jay, acorn woodpecker, and common yellowthroat.

The basis was completely dry during the assessment. Remnants of cattails near the dam face indicate that water has been present in the recent past but has since gone dry. The site generally goes dry during summer months and may be completely dry all year during periods of drought. When water is present at the basin, waterfowl and amphibians such as Baja California treefrog may be present. The basin is not considered critical habitat for steelhead trout and no special-status fish species have been detected at the site.

5.11.5 Project Description

The Lower West Toro Canyon Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.11.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 9100 square feet and will allow for approximately 19,500 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin buy non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.11.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Casitas Pass Road as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.11.8 Revegetation Source

This debris basin has not developed a dense riparian forest. Nevertheless, dense riparian vegetation may colonize the basin over time. If this occurs, the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore, selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.11.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.11-1
Lower West Toro Canyon Creek Debris Basin

PHOTOGRAPH 5.11-2
Lower West Toro Canyon Creek Debris Basin

Map Source: County of Santa Barbara

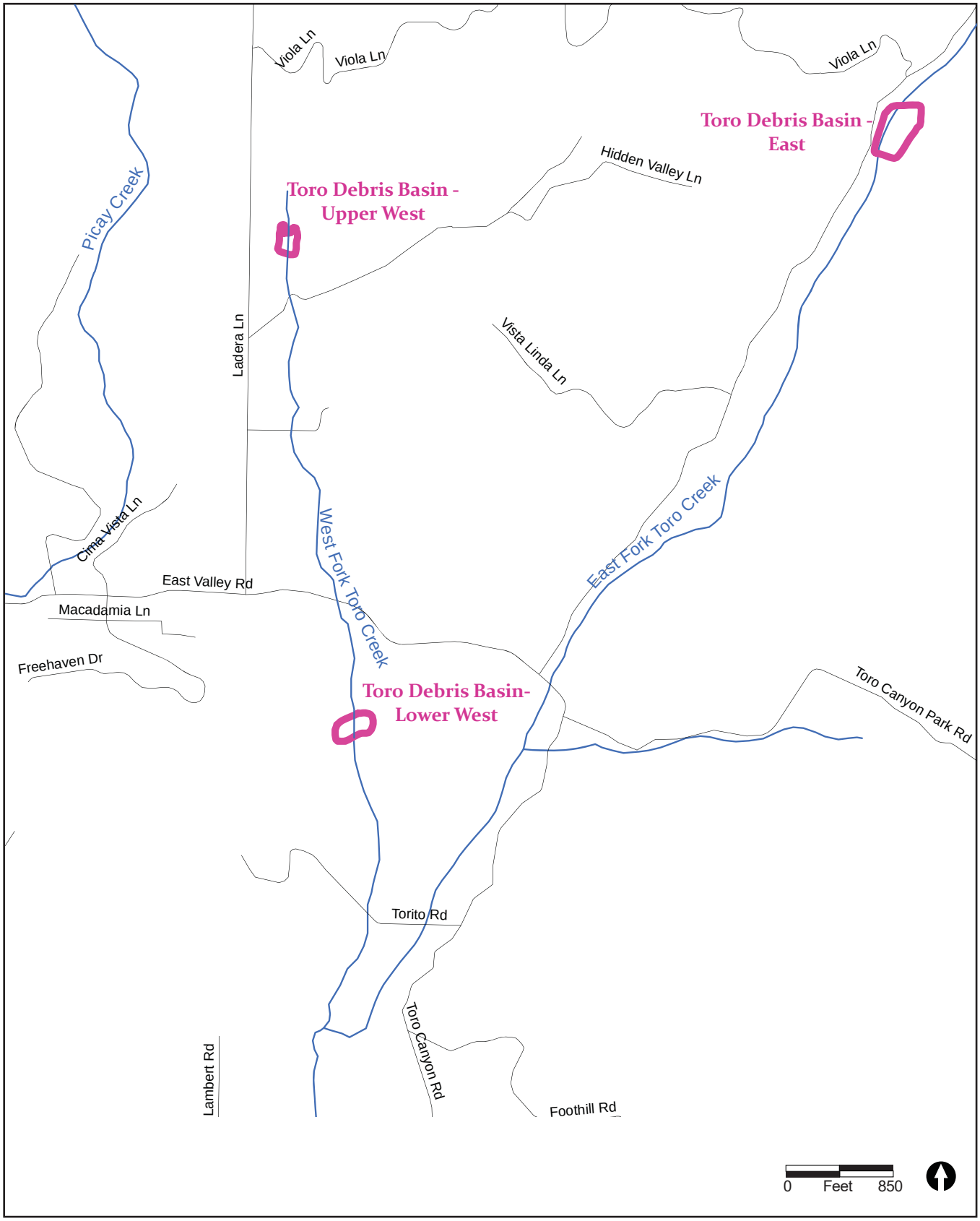

FIGURE 5.11-1
Lower West Toro Canyon Creek Debris Basin Map

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Map Source: County of Santa Barbara

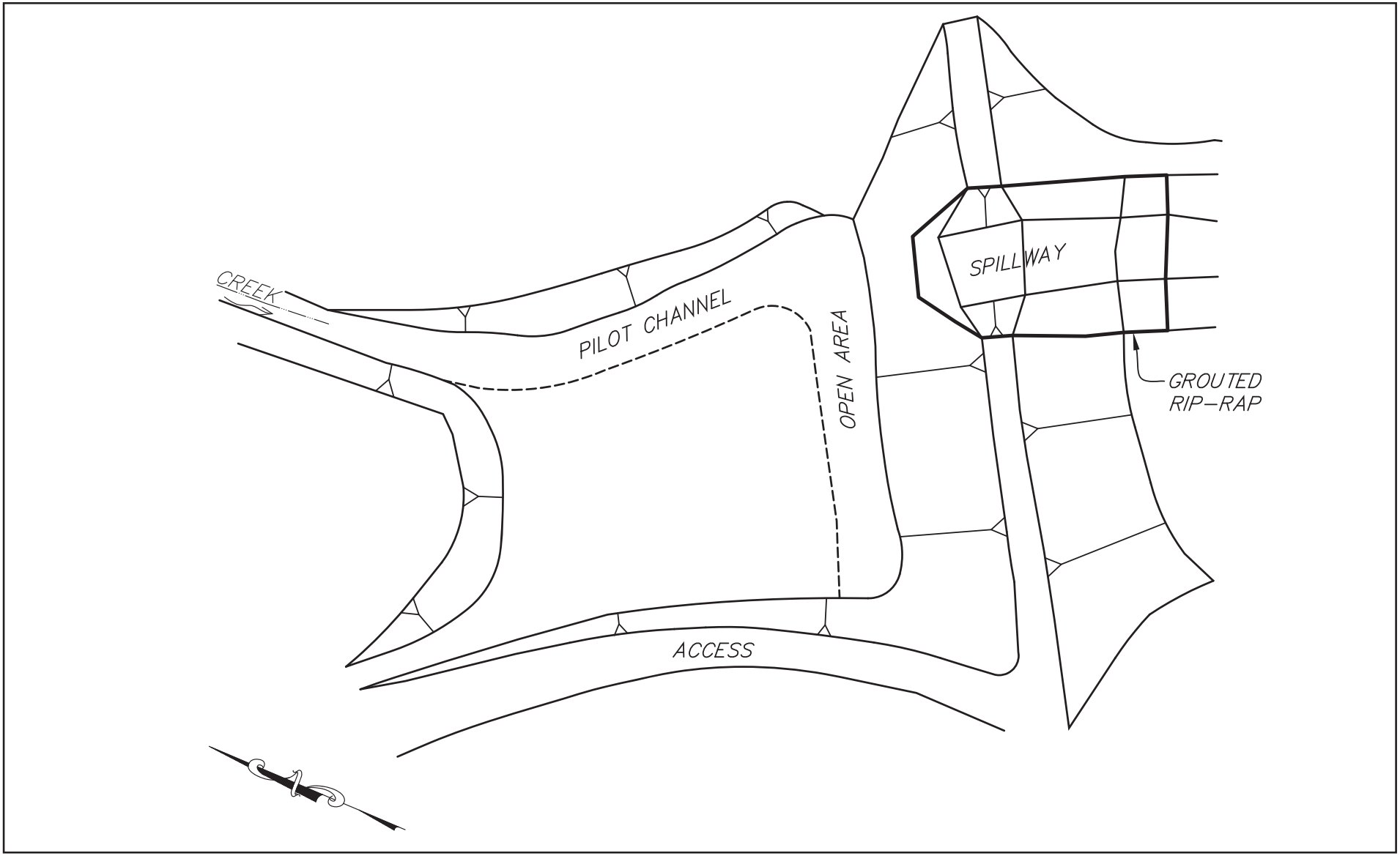

FIGURE 5.11-2

Lower West Toro Canyon Creek Debris Basin Figure

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Lower West Toro Canyon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
ANACARDIACEAE		
Toxicodendron diversilobum	Poison oak	N
Malosma laurina	Laurel sumac	N
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Baccharis salicifolia	Mule fat	N
Gnaphalium luteo-album	Cudweed everlasting	I
Lactuca serriola	Prickly lettuce	I
Senecio mikanioides	German ivy	I
Venegasia carpesioides	Canyon sunflower	N
BETULACEAE		
Alnus rhombifolia	White alder	N
BRASSICACEAE		
Brassica nigra	Black mustard	I
Raphanus sativus	Wild radish	I
CYPERACEAE		
Cyperus alternifolius	African umbrella sage	I
Cyperus eragrostis	Tall umbrella sage	N
EQUISETACEAE		
Equisetum telmateia var. *braunii*	Giant horsetail	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FABACEAE		
Melilotus alba	White sweetclover	I
FAGACEAE		
Quercus agrifolia	California sycamore	N
LAMIACEAE		
Mentha sp.	Mint	I
LAURACEAE		
Umbellularia californica	California Bay	N
MALVACEAE		
Malva parvifolia	Cheeseweed	I
MYRTACEAE		
Eucalyptus sp.	Eucalyptus	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
PLATAGINACEAE		
Plantago lanceolata	Plantain	I
POACEAE		

Lower West Toro Canyon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Pennisetum clandestinum	Kikuyu grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Polygonum lapathifolium	Willow smartweed	I
ROACEAE		
Heteromeles arbutifolia	Toyon	N
Rubus ursinus	California blackberry	N
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
Salix laevigata	Red willow	N
SCROPHULARIACEAE		
Scrophularia californica	California figwort	N
SOLANACEAE		
Solanum douglasii	Douglas nightshade	N
TYPHACEAE		
Typha sp.	Cattail	N
*N = Native; I = Introduced		

5.12 Upper West Toro Canyon Creek Debris Basin Maintenance 2017 Addendum to the Program EIR for Santa Barbara County Flood Control Routine Maintenance

5.12.1 Location

The Upper West Toro Canyon Creek Debris Basin is located on West Toro Canyon Creek approximately 500 feet north of Hidden Valley Lane in Montecito.

5.12.2 History

Upper West Toro Canyon Creek Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The basin was designed to trap 29,000 cubic yards of flood debris in anticipation of accelerated erosion of the denuded watershed. A 2005 basin survey showed the actual capacity to be 8,750 cubic yards. The basin has been maintained on an as-needed basis since 1994. Major desilting projects occurred in 1969, 1978, 1983, twice in 1995, 1998, and 2005.

5.12.3 Setting

West Toro Canyon Creek originates in the foothills of the Santa Ynez Mountains and drains a 986-acre watershed capable of producing 2,400 cfs during a 100-year return period precipitation event. Heavy rains caused runoff in January 1995 which filled Upper West Toro Canyon Creek Debris Basin with debris and it was desilted in late January and February. Another large storm on March 10, 1995 filled the basin again and the cleanout was repeated. The basin was cleaned again following the El Nino rains in 1998. The substrate consists of silty sand and cobbles with large rocks.

There are chaparral and eucalyptus trees to the north and east. A well-developed riparian corridor exists further north of the basin. The dam is located to the south with a poorly developed riparian corridor and very large rocks downstream of the dam. There is a low-density residential development to the west of the basin with some chaparral.

5.12.4 Wildlife Survey

The site was assessed by the District Biologist on November 15, 2016. Results were compared with previously conducted wildlife surveys in 2003 and observations from several years of maintenance inspections through 2016. This basin is surrounded by chaparral species, bishop pine, laurel sumac, and does not contain a developed riparian habitat. Some willow saplings and ceanothus species are present in the basin, but the canopy is limited in height and density. Non-native species such as fan palm, pride-of-Madeira, cape ivy, and acacia trees are interspersed throughout the area.

The basin was completely dry during the assessment, and typically goes dry for several months during the summer, limited suitability for aquatic species. Wildlife observed at the site include western fence lizard, song sparrow, scrub jay, and brown towhee. No sensitive species were observed during the survey.

5.12.5 Project Description

The Upper West Toro Canyon Creek Debris Basin will be maintained on a routine basis to ensure that it will be able to function properly when there are high flows. Long-term maintenance will include complete debris removal after the basin fills or after there is a significant fire in the watershed.

5.12.6 Routine Maintenance

Routine maintenance consists of maintaining a 15-foot-wide pilot channel from the upstream end of the basin to the outlet works. The pilot channel will be established with a dozer or loader and the excess material will be windrowed along the sides of the pilot channel affecting a total area approximately 30 feet wide. The pilot channel will be widened to 30 feet beginning 30 feet upstream of the outlet structure. The pilot channel will be maintained by removing obstructive vegetation with chainsaws and loppers. Herbicide will be applied as necessary to prevent the regrowth of vegetation. Pilot channel shaping with a dozer will be conducted on an as needed basis and obstructive vegetation removal will be conducted annually.

An open area in front of the dam face will also be maintained by removing obstructive vegetation on an as needed basis. The open area in front of the dam face will extend approximately 10 feet from the toe of the dam into the basin except at the outlet structure where it will be incorporated into the pilot channel. The dam face will also be kept free of vegetation. Maintenance of the pilot channel and the open area will disturb approximately 9100 square feet and will allow for approximately 19,500 square feet of the basin to be colonized by native vegetation. No revegetation by the District will be conducted in the basin buy non-native vegetation will be eradicated when feasible.

The 48-inch outlet pipe and the grouted rip-rap spillway will be maintained on an as-needed basis. Typically, maintenance consists of repairing the RCP outlet pipe and spillway when they are cracked or chipped by pouring more concrete and adding rip-rap.

5.12.7 Long-term Maintenance

Long-term maintenance will consist of complete debris removal from the basin. This will be necessary after the basin fills approximately 25 percent or roughly every 5-10 years. Complete debris/vegetation removal will also be conducted if there is a significant fire in the watershed. Access will be taken from Casitas Pass Road as shown on the attached map. Debris will be hauled to an appropriate disposal site after desilting.

5.12.8 Revegetation Source

This debris basin has not developed a dense riparian forest. Nevertheless, dense riparian vegetation may colonize the basin over time. If this occurs, the vegetation may be used as a source for the District's biotechnical bank stabilization and revegetation projects described in the Annual Routine Maintenance Plan. Selective removal and thinning of species such as willow, cottonwood, sycamore, blackberry, etc. will provide the material necessary to implement biotechnical bank stabilization and revegetation projects while still allowing the habitat that develops between long-term maintenance episodes to persist. Furthermore,

selective removal and thinning will help reduce the potential for the outlet pipe becoming plugged when basin vegetation is uprooted during high flows. Plant material collected from the basins will be used for biotechnical bank stabilization and revegetation projects within nearby watersheds.

5.12.9 Engineering Analysis

Maintenance of the pilot channel and the open area will ensure that the basin will pass low to moderate flows as well as providing for efficient sediment transport to minimize incremental filling of the basin. This will reduce the frequency of long-term maintenance.

Long-term maintenance is necessary to ensure that the basin will trap a significant amount of debris that can be generated from heavy rains that produce high flows. Complete debris/vegetation removal will be conducted if the basin is approximately 25 percent full to ensure maximum efficiency in case of high flows. Complete debris/vegetation removal will also be conducted after there is a significant fire in the watershed. This is necessary because a burned watershed can produce as much as 20 times the amount of debris by comparison with a non-burned watershed.

PHOTOGRAPH 5.12-1
Upper West Toro Canyon Creek Debris Basin

Map Source: County of Santa Barbara

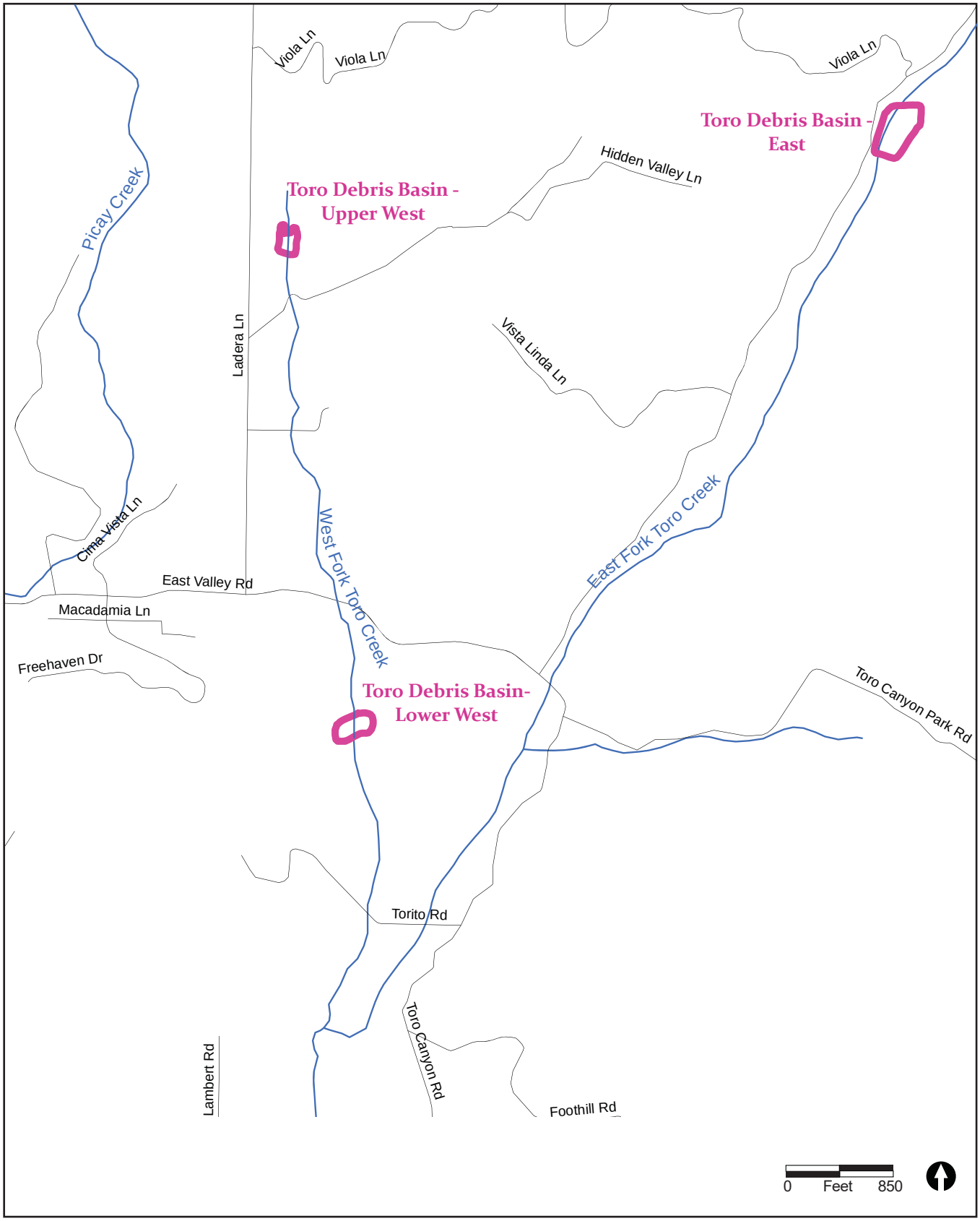

FIGURE 5.12-1
Upper West Toro Canyon Creek Debris Basin Map

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Map Source: County of Santa Barbara

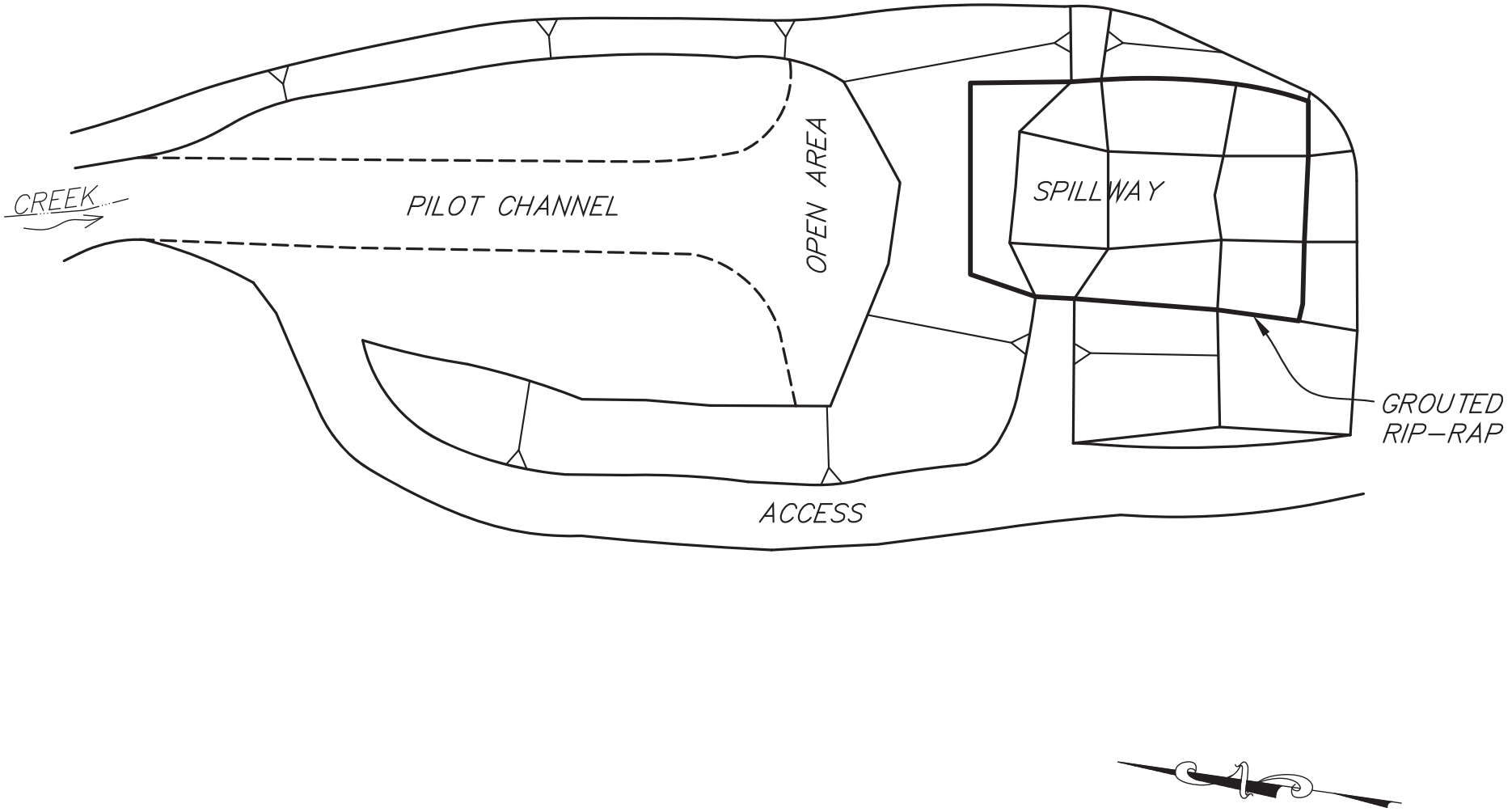

FIGURE 5.12-2

Upper West Toro Canyon Creek Debris Basin Figure

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Upper West Toro Canyon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
APIACEAE		
Conium maculatum	Poison hemlock	I
ARALIACEAE		
Ageratina adenophora	Ironweed	I
ASTERACEAE		
Artemesia californica	California sagebrush	N
Artemesia douglasiana	Mugwort	N
Baccharis pilularis	Coyotebush	N
Gnaphalium luteo-album	Cudweed everlasting	I
Picris echioides	Ox tongue	I
Xanthium strumarium	Cocklebur	I
BRASSICACEAE		
Brassica nigra	Black mustard	I
CAPRIFOLIACEAE		
Sambucus mexicana	Elderberry	N
CHENOPODIACEAE		
Chenopodium ambrosioides	Mexican tea	I
CYPERACEAE		
Cyperus alternifolius	African umbrella sage	I
Cyperus eragrostis	Tall umbrella sage	N
EUPHORBIACEAE		
Ricinus communis	Castor bean	I
FAGACEAE		
Quercus agrifolia	California sycamore	N
MALVACEAE		
Malva nicaeensis	Mallow	I
Malva parvifolia	Cheeseweed	I
MYRTACEAE		
Eucalyptus sp.	Eucalyptus	I
PLATANACEAE		
Platanus racemosa	California sycamore	N
POACEAE		
Avena fatua	Wild oat	I
Bromus diandrus	Ripgut grass	I
Bromus mollis	Soft chess	I
Hordeum murinum	Foxtail	I
Pennisetum clandestinum	Kikuyu grass	I
Polypogon monspeliensis	Rabbitsfoot grass	I
POLYGONACEAE		
Rumex crispus	Curly dock	I
ROACEAE		
Heteromeles arbutifolia	Toyon	N
Malosma laurina	Sumac	N
Rubus ursinus	California blackberry	N

Upper West Toro Canyon Creek Debris Basin Vascular Plant List		
Scientific Name	Common Name	Origin*
SALICACEAE		
Salix lasiolepis	Arroyo willow	N
SOLANACEAE		
Solanum xanti	Nightshade	N
*N = Native; I = Introduced		

6.0 Impacts and Mitigation

6.1 Impacts

Impacts identified for this project have been taken directly from the Updated Program EIR for Santa Barbara County Routine Maintenance Activities (01-EIR-01) (PEIR). Only the impacts that apply to this project are included. Some of the impacts listed below are considered Class I (unavoidable significant) under the worst-case scenario assumptions of the PEIR. However, routine maintenance and debris basin removal will not result in what would be considered Class I impacts. Long-term maintenance could result in Class I impacts if a significant amount of vegetation is present. This would only be the case if the basin is colonized by native vegetation and there is a fire in the watershed necessitating complete debris/vegetation removal in preparation for expected debris flows or if the basin is over 25 percent full and has been colonized by native vegetation. Complete debris removal after the basin has filled as a result of severe flooding would typically result in limited impacts as all the biological resources will be buried under debris.

Class I Impacts: The PEIR includes both the Annual Creeks Maintenance and Debris Basin Maintenance Programs. The PEIR identified four significant, immitigable impacts (Class I). These impacts would generally not be significant at individual locations. However, they may be cumulatively significant for all affected sites over time throughout the County. Mitigation measures to reduce the magnitude of these impacts are also indicated.

Class II Impacts: The routine maintenance and removal of basins would result in numerous significant, but mitigable impacts. Mitigation measures that would reduce the impacts to a less than significant level are included in the table below.

Class III Impacts: While by definition Class III Impacts are less than significant and therefore do not require mitigation, mitigation measures are recommended to minimize adverse impacts

6.2 Mitigation Measures

Mitigation measures identified for this project have also been taken directly from the PEIR. Only the mitigation measures that apply to the identified impacts are included. No mitigation measures involving revegetation after routine or long-term maintenance are included because routine maintenance will disturb very few plants within the pilot channel and in front of the dam embankment, and vegetation removed from the basin due to periodic desilting of the basin (whether it be in response to a fire in the watershed, the basin incrementally filling to at least 25 percent or more full, or after severe flooding) will be limited to the basin floor where vegetation has been allowed to become established where there previously was none when this Debris Basin Maintenance Program began.

The table below lists the impacts and associated mitigation measures identified in the Program EIR for each issue area impacted by this project, which includes both Debris Basin Maintenance and Removal. In a few cases, impacts and mitigation measures apply to a debris basin removal project but not to the routine maintenance project. Section 6.3 lists the full text of impacts and mitigation measures in alphabetical order for easy reference.

Summary of Class I, Class II, and Class III Impacts Debris Basin Maintenance and Removal	
Resource Area Impacts	**Mitigation Measure**
Class I	Residual Impact: This impact would generally not be significant at individual maintenance locations. However, it may be cumulatively significant for all affected sites over time
Water Quality, EIR Section 5.2	
WQ-A Potentially Reduce the Amount of Natural Bio filtering	H-1 Maintenance Need Analysis B-2 Minimize Vegetation Removal from Channel Bottom W-3 Reseeding Channel Bottom Areas
Wetlands, Riparian Habitat, and Rare Plants, EIR Section 5.3	
WRR-A Reduce Amount of Quality of Channel Bottom Habitat	B-2 Minimize Vegetation Removal from Channel Bottom B-3 Construction Monitoring During Vegetation Removal
Fish, Aquatic Species, and Wildlife, EIR Section 5.4	
FAW-A Displace Wildlife Due to Vegetation Removal in Channel Bottom	B-2 Minimize Vegetation Removal from Channel Bottom B-3 Construction Monitoring During Vegetation Removal
FAW-B Adverse Effects of Maintenance on Aquatic Habitat	H-1 Maintenance Need Analysis B-2 Minimize Vegetation Removal from Channel Bottoms
Class II	**Residual Impact:** Less Than Significant
Water Resources-Hydrology and Hydraulics, EIR Section 5.1	
H-D Effect of Equipment on Channel Bed	H-1 Maintenance Need Analysis B-7 Post Maintenance Channel Bed Treatment
Water Quality, EIR Section 5.2	
WQ-B Potentially Adverse Herbicide Concentrations	W-2 Responsible Herbicide Application W-6 Public Education Regarding Creek Water Quality W-7 Reporting Water Quality Incidents
WQ-C Accidental Spills and Leaks	W-4 Prevent Accidental Spills and Leaks
Wetlands, Riparian Habitat, and Rare Plants, EIR Section 5.3	
WRR-D Temporary Habitat Disturbance	B-4 Restore Temporarily Disturbed Areas
WRR-E Displace Sensitive Plants	B-3 Construction Monitoring During Maintenance Activities (NOTE not officially assigned to this impact) B-5 Pre-construction Biological Surveys and Avoidance Measures B-6 Construction Monitoring for Sensitive Species
Fish, Aquatic Species, and Wildlife, EIR Section 5.4	
FAW-E Displace or Remove Sensitive Fish and Wildlife	B-5 Pre-construction Biological Surveys and Avoidance Measures B-6 Construction Monitoring for Sensitive Species
FAW-F Fish and Wildlife Exposure to Herbicide	W-2 Responsible Herbicide Application
Air Quality, EIR Section 5.5	
AQ-A Equipment Emissions	A-1 Reduce Emissions
AQ-B Fugitive Dust Emissions	A-2 Reduce Fugitive Dust
Noise, EIR Section 5.6	
N-A Maintenance Equipment Noise	N-1 Minimize Noise
Cultural Resources, EIR Section 5.7	
C-A Disturb Cultural Resources	C-1 Unexpected Archeological Finds C-2 Archeological Surveys
Recreation, EIR Section 5.8	
R-A Potentially Adverse Herbicide Concentrations	W-2 Responsible Herbicide Application
R-B Impacts of Reduced Sediment Supply to Beaches	R-2 Disposal of Sediments at Beaches

Summary of Class I, Class II, and Class III Impacts Debris Basin Maintenance and Removal	
Resource Area Impacts	**Mitigation Measure**
Class III Impacts	**Residual Impact:** Less Than Significant
Water Resources-Hydrology and Hydraulics, EIR Section 5.1	
H-E Impact of Removing Channel Obstructions (Excessive Desilting)	H-1 Maintenance Need Analysis H-2 Extent of Desilting H-3 Post Desilting Restoration W-3 Reseeding Channel Bottom Areas
H-F Altered Channel Sinuosity and Slope	H-4 Pilot Channel Construction
H-I Impacts of Reduced Sediments	H-1 Maintenance Need Analysis
Water Quality, EIR Section 5.2	
WQ-D Temporary Sedimentation and Turbidity	W-1 Reduce Sedimentation
WQ-E Increase Water Temperatures	B-2 Minimize Vegetation Removal from Channel Bottom
Wetlands, Riparian Habitat, and Rare Plants, EIR Section 5.3	
WRR-F Facilitate Weed Colonization	B-4 Restore Temporarily Disturbed Areas[1] W-3 Maintain Bio filtering by Reseeding Channel Bottom Areas
Fish, Aquatic Species, and Wildlife, EIR Section 5.4	
FAW-H Increased Water Temperatures in Aquatic Habitats	B-2 Minimize Vegetation Removal from Channel Bottom
FAW-I Effects of Sediments and Turbidity on Aquatic Organisms	W-1 Reduce Sedimentation
FAW-J Impact of Accidental Released on Aquatic Organisms	W-4 Prevent Accidental Spills and Leaks
Recreation, EIR Section 5.8	
R-C Temporary Disruption of Trail and Park Use	R-1 Minimize Impacts to Trail and Park Users
R-D Reduced Beach Sand Supply	R-2 Disposal of Sediments at Beaches
Visual Resources, EIR Section 5.9	
V-B Visual Impacts at Basins	B-4 Restore Temporarily Disturbed Areas[2]
Public Health, EIR section 5.10	
PH-A Excessive Herbicide Release and Exposure	W-2 Responsible Herbicide Application

[1]Mitigation Measure B-4, as it relates to Impact WRR-F is assigned to the reduce impacts associated with Debris Basin Removal rather than Basin Maintenance because removal projects will include the removal of dam embankments and restoration of the creek corridor that will benefit from native plant restoration to ensure weeds do not colonize the newly formed creek banks.

[2]Mitigation Measure B-4 is not officially assigned to this Class III Visual Resources Impact in the PEIR because routine maintenance and recolonization of native vegetation at the debris basins would not result in impacts requiring mitigation, however, the debris basin removal projects will remove the dam embankments and the creek channel will be reconfigured through the basin. This could result in short term visual impacts at some of the basins located near roads or trails that will be reduced with native plant restoration of the disturbed areas.

6.3 Alphabetical Listing of Impacts and Mitigation Measures

A

Impacts

AQ or A = Air Quality

AQ-A. Equipment Emissions. Temporary emissions of reactive organic compounds (ROC), particulate matter, and NOx associated with gasoline and diesel-powered heavy- duty maintenance equipment, as well as employee vehicles and trucks transporting excavated materials to and from maintenance sites. (Class II Impact)

AQ-B. Fugitive Dust Emissions. Temporary emissions of fugitive dust (particulate matter) due to earth moving activities during maintenance, including channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, pilot channel construction, and access ramp construction. (Class II Impact)

Mitigation Measures

A-1 – Reduce Emissions. Implement the following Santa Barbara County APCD- approved measures for each piece of heavy-duty diesel construction equipment to minimize NO_X emissions: (1) The engine size of construction equipment shall be the minimum practical size; (2) Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated clean diesel engines) should be utilized wherever feasible; (3) The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest number is operating at any one time; (4) Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or precombustion chamber engines; (5) Catalytic converters shall be installed on gasoline- powered equipment, if feasible; (6) Diesel catalytic converters shall be installed, if available; and (7) Diesel powered equipment should be replaced by electrical equipment, whenever feasible.

A-2 – Reduce Fugitive Dust. Implement the following Santa Barbara County APCD-approved measures to minimize fugitive dust emissions: (1) After clearing, grading, earth moving or excavation is complete, the disturbed area must be treated with watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur; (2) During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency shall be required whenever the wind speed exceeds 15 mph. Reclaimed water shall be used whenever possible; (3) Minimize the amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less; (4) Gravel pads should be installed at all access points to prevent tracking of mud onto public roads; (5) If importation, exportation, and stockpiling of fill material is involved, soil stockpiled for more than two

days shall be covered, kept moist, or treated with soil binders to prevent dust generation; (6) Trucks transporting fill material to and from the site shall be tarped; and (6) Dust control requirements shall be shown on all grading plans.

B

Mitigation Measures

B-2 – Minimize Vegetation Removal from Channel Bottom. The District shall minimize vegetation removal from the channel bottom to the least amount necessary to achieve the specific maintenance objectives for the reach (i.e., removing obstructive vegetation or silt-trapping vegetation). Brushing and herbicide application for vegetation control on the channel bottom shall be conducted in a non-continuous, mosaic-like manner, to the extent feasible, allowing small patches of in-channel native vegetation to persist.

B-3 - Construction Monitoring During Maintenance Activities. The District Biologist shall monitor maintenance activities daily to ensure that the appropriate methods and limits are used. Results of the monitoring shall be documented in the annual post-maintenance report. These activities include brushing, herbicide application, channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, grade stabilizer construction or repair, pilot channel construction, and access ramp construction.

B-4 - Restore Temporarily Disturbed Areas. The District shall restore channel banks containing riparian or wetland vegetation that are temporarily disturbed by maintenance or construction activities associated with the following: channel shaping, placement of bank protection, ramp construction, and repair or construction of bank protection and grade stabilizers. Restoration objectives, methods, plant species, maintenance, and monitoring shall follow the guidelines in the updated restoration plan described in the Program EIR. The restoration of channel bed habitats shall only occur if it would not conflict with the maintenance needs in the affected reach.

B-5 – Pre-Construction Biological Surveys and Avoidance Measures. A District biologist shall inspect all maintenance areas in creeks and basins during the annual spring field assessments (April and May) to determine if any sensitive plants, fish, or wildlife species are present, or habitats for these species are present. If the species are present, the District shall modify maintenance activities to avoid removal or substantial disturbance of the key habitat areas or features. Avoidance and impact minimization measures shall be described in the Annual Plan for each maintenance project. If a rare plant could be affected, the District shall relocate the plant by cultivation or seeding methods to a suitable nearby site. If a sensitive fish or wildlife species will be present at a maintenance site during the work period, the District shall schedule the work to avoid the species, if possible. If avoidance is not feasible, the District shall attempt to relocate the species or population with approval from the California Department of Fish and Game, US Fish and Wildlife Service or National Marine Fisheries Service, as appropriate. This measure applies to all currently known sensitive species that occur in maintained drainages and basins, as well as species that are determined to be sensitive in the future. Endangered species experts with handling permits

shall be consulted during relocation efforts to provide additional assurances that relocation is effective. Such consultation shall include assistance in field efforts, as warranted.

B-6 – Construction Monitoring for Sensitive Species. The District Biologist shall monitor, on a daily basis, earth and vegetation disturbing maintenance activities located at and adjacent to locations where sensitive species are known to occur. The need for monitoring and the areas to be monitored shall be determined during the annual field assessment in the spring. The objective of the monitoring is to ensure that key habitat features or species locations are avoided.

B-7 – Post Maintenance Channel Bed Treatment. The District shall roughen the channel bed after channel desilting maintenance to create microtopography that will encourage re-establishment of aquatic habitats over time. Pools and riffles shall be recreated in the work area if they were removed during maintenance, to the extent feasible. Modifications of the creek bed shall be consistent with geomorphological considerations identified through mitigation measure H-1.

C

Impacts

CR and C = Cultural Resources

CR-A. Disturb Cultural Resources. There is a remote potential for certain earth- disturbing maintenance activities to disturb buried prehistoric and historic archeological sites and isolated artifacts. This impact would occur only on undisturbed upland sites outside watercourse channels and basins due to incidental excavation grading banks for stabilization, installing or repairing bank protection, and constructing access ramps. (Class II Impact).

Mitigation Measures

C-1 – Unexpected Archeological Finds. If cultural materials are unexpectedly uncovered during maintenance activities, the District shall immediately consult with a qualified archeologist who shall inspect the material and coordinate with the District to halt or redirect earth-disturbing maintenance work until the significance of the material is determined, and the location is cleared for further work.

C–2 – Archeological Surveys. The District shall conduct an archeological field investigation in maintenance areas that may be disturbed by excavation activities associated with routine maintenance when such work occurs in upland areas outside watercourses and basins that: (1) appear to represent undisturbed ground not subject to previous excavations or significant grading; and (2) contain known significant archeological sites. The investigation shall be conducted by a qualified cultural resource specialist.

F

Impacts

FAW = Fish Aquatic Species and Wildlife

FAW-A. Displace Wildlife due to Vegetation Removal in the Channel Bottom. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. These actions could reduce foraging and loafing habitat for certain riparian and wetland dependent bird species. It can also reduce habitat heterogeneity for reptiles and small mammals, and degrade aquatic habitats by removing protective cover and increasing temperatures. While the long-term functions and values of the habitat temporarily disturbed by maintenance would be replaced through the District's updated habitat restoration program, there will be a temporal impact to wildlife that cannot be fully mitigated. (Class I Impact)

FAW-B. Adverse Effects of Maintenance on Aquatic Habitat. Channel shaping, bank stabilization by placing fill or grading banks, sandbar removal, excessive removal and/or thinning of in-channel vegetation, and pilot channel construction could reduce vegetation cover, pools and gravel beds, organic input from overhanging vegetation supporting aquatic productivity, and instream cover and debris providing micro-habitat. In addition, fish and aquatic organisms could be directly displaced. These impacts are temporary and reversible. (Class I Impact)

FAW-E. Displace or Remove Sensitive Fish and Wildlife. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, channel shaping, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could remove and displace sensitive fish and wildlife species, depending upon location and time of year. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. Species that could be directly affected include the southern steelhead trout, arroyo chub, southwestern pond turtle, two-striped garter snake, San Diego horned lizard, California red-legged frog, silvery legless lizard, and tri-colored blackbird. Species that could be indirectly affected due to habitat modification include southwestern willow flycatcher, least Bell's vireo, yellow warbler, yellow breasted chat, purple martin, warbling vireo, Wilson's warbler, Swainson's thrush, blue grosbeak. (Class II Impact)

FAW-F. Fish and Wildlife Exposure to Herbicide The analyses presented in Section 5.2.3 indicated that the application of herbicides to control emerging vegetation on the channel bed is not expected to introduce substantial amounts of herbicide to the water in the drainage where fish, aquatic organisms, and humans could be exposed, because of reasons: (1) no herbicide is directly applied to open water; (2) overspray is minimized by precise spraying by trained field crews; (3) most spraying occurs in the fall when flows are absent in drainages; (4) glyphosate is strongly absorbed by soil particles and not easily mobilized once

it has contact with soils or wet sediments; and (5) residual herbicide in soils or sediments are subject to microbial degradation. However, there is a potential, albeit very remote, that adverse herbicide concentrations may be temporarily present in aquatic areas immediately after spraying due to excessive or poor application. (Class II Impact)

FAW-H. Increased Water Temperatures in Aquatic Habitats. Brushing and spraying cause the removal of vegetation in the channel bed which could increase the temperature of water present due to greater solar radiation. The higher temperatures could adversely affect the quality of aquatic habitats in the channel bottom, if present. (Class III Impact)

FAW-I. Effects of Sediments and Turbidity on Aquatic Organisms. The following activities could cause a temporary increase in sediment and turbidity levels: brushing, mowing, and spraying channel bed vegetation; channel shaping, desilting, bank stabilization by placing fill or grading banks, pilot channel construction, equipment movement on the channel bed, and pilot channel clearing in basins. The higher levels could adversely affect fish and aquatic organisms present in any aquatic habitats. (Class III Impact)

FAW-J. Impact of Accidental Releases on Aquatic Organisms. There is a very low potential for the accidental discharge of fuel, oil, and herbicides to a channel or debris basin during routine maintenance. Such spills may affect fish and aquatic organisms, if present. (Class III Impact)

H

Impacts

H = Hydrology

H-D. Effect of Equipment on Channel Bed. For large maintenance projects, the movement of equipment in the channel bed can disrupt any armored layer on the channel bed and loosen sediments. It may also reduce the channel topographic diversity, which imparts a certain resistance to flow, thereby increasing flow velocities and sediment transport capacity. (Class II Impact)

H-E. Impact of Removing Channel Obstructions (Excessive Desilting). Excessive desilting could result in lowering the channel bed below its previous invert elevation, which could contribute to oversteepened banks that are prone to failure. This impact is expected to occur very infrequently, if at all, and would only have localized hydraulic impacts. (Class III Impact)

H-F. Altered Channel Sinuosity and Slope. Creation of a straight pilot channel could theoretically reduce sinuosity, increase channel slope, and cause channel bed degradation. This impact is expected to occur very infrequently, if at all, and would only have localized hydraulic impacts. (Class III Impact)

H-I. Impacts of Reduced Sediments. Periodic removal of the sediments from the basins contributes to the reduction in overall sediment supply to the downstream reaches of the

drainages. Reduced sediment supply can result in channel degradation over time. (Class III Impact)

Mitigation Measures

H-1 – Maintenance Need Analysis. The District shall evaluate relevant hydraulic factors when determining the need, type, and extent of channel maintenance for non-exempt watercourses where natural geomorphic processes are largely intact. Key factors that shall be included in the evaluation include: (1) hydraulic benefits of maintaining the bankfull channel (if present) dimensions, natural sinuosity, and natural channel bed roughness; and (2) potential adverse hydraulic effects of excessive brushing, channel shaping, equipment activity in the channel, and bank hardening. Hydraulic principles of creating and maintaining channel stability and sediment transport equilibrium shall be applied, if applicable. The analyses and determinations relevant to this issue shall be documented in the Annual Plan. Clear maintenance objectives with attainable benefits for the protection of life, property, and habitat shall be established for each project and presented in the Annual Plan. A primary objective of this measure is to minimize maintenance activities to the extent feasible, consistent with District's program objectives.

H-2 – Extent of Desilting. The depth of channel desilting shall not cause bank undercutting or channel headcutting. The District shall make a field determination of the maximum depth of desilting based on channel capacity objectives, an evaluation of channel invert elevation and slope through the project reach, and a consideration of the maximum allowable bank length and slope that would cause bank instability. To the extent feasible, banks and bank vegetation shall not be disturbed or reconstructed during desilting to avoid destabilizing the banks.

H-3 – Post Desilting Restoration. After desilting, the District shall restore the channel geometry at the desilting site to a more natural state, as feasible, based on the channel shape, dimension, and slope upstream and downstream of the project site. The channel geometry shall be designed to enhance post-maintenance sediment transport through the desilted reach. If banks are disturbed during desilting, they should be set at a slope that matches existing undisturbed banks and stabilized, to the extent feasible and taking into account available right of way.

H-4 – Pilot Channel Construction. If it is necessary to construct a pilot channel or substantially modify an existing low flow channel, the District shall attempt to maintain the low flow channel length, width, slope, substrate, and sinuosity that are characteristic of the project reach, as determined by field observations of undisturbed low flow channels upstream and downstream of the project reach.

N

Impacts

N = Noise

N-A. Maintenance Equipment Noise. Maintenance activities that require the use of heavy equipment, such as channel shaping and desilting, could temporarily increase the ambient indoor and outdoor noise levels for noise-sensitive receptors located in close proximity to the watercourse where maintenance work is conducted. This impact would be limited to weekdays between 8 AM and 5 PM, with a limited duration of several days at any one location. Increased ambient noise levels could cause a nuisance to noise sensitive receptors, such as residences, schools, nursing homes, and day care centers. (Class II Impact)

Mitigation Measures

N-1 – Minimize Noise. Routine maintenance work shall be limited to weekdays and the hours of 7:30 AM and 4:30 PM. Equipment and haul trucks shall be equipped with functioning and properly maintained muffler systems, including intake silencers where necessary. Additional reductions in noise emissions shall be provided, as feasible, by performing noisy operations, such as chipping and loading spoils into dump trucks on the banks, as far away as practicable from sensitive receptors.

P

PH = Public Health and Safety

PH-A. Excessive Herbicide Release and Exposure. Excessive application of herbicide to vegetation on the bottom of a channel or debris basin, including substantial application to the bed itself and open water, could result in increased concentrations in downstream water, which could affect the public. Excessive application of herbicide to vegetation could also adversely affect hikers using the watercourse as a trail or for recreation. This situation would arise from poor application methods or procedures, and is expected to occur rarely, if at all. (Class III Impact)

R

Impacts

R = Recreation

R-A. Potentially Adverse Herbicide Concentrations. The application of herbicides to control emerging vegetation on the channel bed is not expected to introduce substantial amounts of herbicide to the water in the drainage where fish, aquatic organisms, and humans could be exposed. However, there is a potential for localized elevated concentrations of glyphosate in drainages due to excessive application of herbicides or poor application methods that result in overspray which would degrade water quality, and affect recreational users along creeks. This impact would be localized and temporary. (Class II Impact)

R-B. Impacts of Reduced Sediment Supply to Beaches. Periodic removal of the sediments from the basins contributes to the reduction in overall sediment supply to local beaches. (Class II Impact)

R-C. Temporary Disruption of Trail and Park Use. Maintenance activities near a public trail may disrupt the use of the trail for a short period of time, and/or disrupt the use of the creek for informal recreation. (Class III Impact)

R-D. Reduced Beach Sand Supply. The periodic removal of sediments from debris basins contributes to the cumulative loss of beach sand supply. (Class III Impact)

Mitigation Measures

R–1 – Minimize Impacts to Trail and Park Users. To the extent feasible, the District shall provide temporary detours for hikers using public trails that must be closed for maintenance work. All work areas shall be marked by signs, and by flagging if necessary to protect the public from hazardous conditions. The District shall notify appropriate County and City parks departments prior to initiating maintenance work in public parks. The work area shall be visibly marked, and measures taken to prevent public entry. If feasible, work shall be restricted to off-peak park hours.

R-2 – Disposal of Sediments at Beaches. Sediments removed from debris basins or creeks on the South Coast during long-term maintenance of the basins and during routine maintenance of creeks, respectively, shall be disposed at local beaches to the extent feasible. Only suitably sized sediments shall be disposed at the beaches, as permitted by applicable regulatory agencies.

V

Impacts

V = Visual

V-B. Visual Impacts in Basins. The grading of a pilot channel in the middle of a debris basin would reduce the amount of vegetation in the basin. The removal of vegetation and accumulated sediment from debris basins will periodically reduce the amount of riparian vegetation in the basin. These impacts would be minor because they are temporary and affect a very small area; the basin (i.e., visual setting) is a man-made feature; and public access to the basin and/or nearby public viewing locations is generally prohibited. (Class III Impact).

W

Impacts

WQ and W = Water Quality

WQ-A. Potentially Reduce the Amount of Natural Biofiltering. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. It could potentially reduce the bio-filtration effects (if any) of emergent wetlands present along the wetted channel and debris basin bottom. As such, maintenance activities could contribute to an overall decrease in water quality. (Class I Impact)

WQ-B. Potentially Adverse Herbicide Concentrations. The application of herbicides to control emerging vegetation on the channel bed is not expected to introduce substantial amounts of herbicide to the water in the drainage where fish, aquatic organisms, and humans could be exposed because of the following reasons: (1) no herbicide is directly applied to open water; (2) overspray is minimized by precise spraying by trained field crews; (3) most spraying occurs in the fall when flows are absent in drainages; (4) glyphosate is strongly absorbed by soil particles and not easily mobilized once it has contact with soils or wet sediments; and (5) residual herbicide in soils or sediments are subject to microbial degradation. However, there is a potential for localized elevated concentrations of glyphosate in drainages due to excessive application of herbicides or poor application methods that result in overspray which would degrade water quality. While this impact would be localized and temporary, it is considered a significant, but mitigable cumulative impact because of the wide use of herbicides throughout the county. (Class II Impact)

WQ-C. Accidental Spills and Leaks. Accidental leakage or spill of fuel and/or oil from heavy equipment working within or directly adjacent to the watercourse or in a debris basin can cause discharge of pollutants to the creek, which would degrade water quality. This impact is anticipated to be highly localized because most accidental spills are limited in quantity (e.g., less than 50 gallons) and would occur in the dry season when flows are absent. Potential accidental spills of herbicides from applicators. (Class II Impact)

WQ-D. Temporary Sedimentation and Turbidity. Channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, pilot channel construction, access ramp construction, and excessive removal and/or thinning of in-channel vegetation could cause localized increases in suspended sediments and turbidity which could temporarily degrade water quality. This impact would also occur due to debris basin desilting and to a lesser degree, to pilot channel and outlet works clearing. (Class III Impact)

WQ-E. Increase Water Temperatures. Brushing and spraying remove of vegetation from the channel bed which could reduce shade and increase water temperatures. The magnitude of the impact is low because most of the vegetation affected under the program does not occur

in standing water nor provide critical shading. The District does not remove bank vegetation, which provides most of the shade along creeks, as part of the program. (Class III Impact)

WRR = Wetland, Riparian Habitat and Rare Plants

WRR-A. Reduce Amount and Quality of Channel Bottom Habitat. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. Although the functions and values of the habitat temporarily disturbed by maintenance would be replaced through the District's habitat restoration program, there is a potentially adverse cumulative effect of annual habitat disturbances throughout the County. (Class I Impact)

WRR-C. Access Ramp Habitat Impacts. Construction or maintenance of access ramps could temporarily reduce the amount of riparian habitat. (Class II Impact)

WRR-D. Temporary Habitat Disturbance. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could temporarily remove wetland, riparian and aquatic habitats in work areas. (Class II Impact)

WRR-E. Displace Sensitive Plants. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, channel shaping, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could remove regionally rare plant species This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. This impact is expected to occur infrequently because so few sensitive plants occur in the areas maintained. (Class II Impact)

WRR-F. Facilitate Weed Colonization. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could facilitate colonization of disturbed areas by non-native invasive weeds. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. (Class III Impact)

Mitigation Measures

W-1 – Reduce Sedimentation. The District shall minimize the amount of surface disturbance and vegetation removal to the extent feasible during all maintenance activities in order to reduce the area of disturbed soils that could be eroded during winter runoff. No stockpiles or dewatering operations shall be established in the channel bed or basin bottom. All fill shall be compacted to reduce erosion. All disturbed banks and terraces above the low flow channel shall be seeded with appropriate riparian grasses and herbs and/or planted with willows,

mule fat, or other woody plant species. The objectives of the seeding and/or planting are to stabilize these areas and reduce erosion. The selection of species to be used and the density of seeding or planting shall balance the need for maintaining channel capacity while meeting these objectives. If work must occur in a wetted channel that has continuous flow downstream of the work site, the District shall either temporarily divert streamflow around the work site, or provide temporary sediment containment downstream of the site. In addition, the District shall check silt fencing, diversions, and settling ponds twice a day.

W-2 – Responsible Herbicide Application. To the extent feasible, the primary herbicide application each year shall occur during the months of August through November, when stream flows are minimal. In some instances, a follow-up application will be made in the spring to reduce the frequency of maintenance. Herbicides shall be applied by hand- held sprayers rather than from truck mounted sprayers to the extent feasible. The dilution and application of herbicides shall be conducted in strict accordance with all label recommendations, including all restrictions related to public health, worker safety, and the protection of aquatic organisms. Herbicides shall not be applied when winds at the application site exceed 5 miles per hour, within 12 hours of a forecasted rain event, or when vegetation surfaces are covered with water from recent rainfall or dew. Herbicides shall be applied carefully to plant surfaces in minimal effective amounts, minimizing drift to non-target plants and overspray onto the ground or to open water. Signs shall be placed to warn the public if herbicides are applied within 50 feet of any public recreation location, such as a trail, picnic spot, or other site of regular human activity. The signs shall remain for 48 hours after the application of the herbicide. The District shall also notify residences and businesses located adjacent to drainages to be treated with herbicides. Notification shall occur by mail within 7 days of the planned maintenance work.

W-3 – Maintain Biofiltering by Reseeding Channel Bottom Areas. To the extent feasible and consistent with the maintenance objectives, the District shall avoid removal of emergent herbaceous wetland vegetation on the channel bottom that is rooted in or adjacent to the low flow channel or a pond. This same type of vegetation shall be protected, to the extent feasible, during the removal of taller obstructive woody vegetation on the channel bottom. In addition, the District shall re-seed desilted channel areas that formerly contained emergent vegetation, provided that suitable native seeds from plants that provide biofiltration are available and that the new vegetation will not significantly affect channel conveyance or significantly increase the need for future maintenance. Seeding shall occur after the major winter runoff has occurred and stream flows have receded to prevent loss of seeds.

W-4 - Prevent Accidental Spills and Leaks. The mixing and dispensing of herbicides and equipment fueling or maintenance shall not occur within a channel or a basin. Spill containment and clean-up procedures for herbicides and vehicle fuels and oils shall be developed by the District. All field personnel shall be trained and all field vehicles shall be equipped with appropriate materials.

W-5 – Water Quality Monitoring During Herbicide Application for Large Projects. The District shall monitor concentrations of glyphosate downstream of large maintenance projects that involve herbicide application. Large projects are defined as projects that

involve continuous or near-continuous herbicide application along reaches of more than 250 feet where there is flowing water along the entire reach. Water samples shall be collected from the flowing water at the following locations: Site A - above the work site, representing the ambient water quality conditions; Site B - immediately downstream of the work site; and Site C - approximately 200 feet downstream of the work site. Samples shall be collected using the following protocol: (1) Prior to herbicide application – samples at Site A, and Sites B and C if there is a storm drain outlet or similar feature within the maintenance reach that may contribute off-site flow and possible herbicides to the water samples; (2) 24 and 96 hours after herbicide application – samples at Sites A, B, and C. If glyphosate concentrations exceed 15 mg/l in the 24-hour sample or 10 mg/l in the 96-hour sample, the District shall modify the spray program at all remaining maintenance sites to be sprayed. Modification may include reducing the rate of herbicide application and/or using hand removal techniques. The District shall continue to apply herbicides only if the glyphosate concentrations are consistently below the 24- and 96-hour thresholds. If the 24- and/or 96-hour thresholds are exceeded five times during the maintenance year, regardless of location, the District shall cease application of herbicides in aquatic situations until the program can be modified to reduce concentrations to the acceptable range.

W-6 – Public Education Regarding Creek Water Quality. The District shall prepare information brochures for residents located along maintained drainages that explain: (1) how the District applies herbicides in a responsible manner, and provides guidelines on how landowners can use herbicides for residential and commercial uses in a similarly responsible manner to minimize water quality impacts to the creeks; and (2) how landowners can reduce pollution to the creek from their activities by employing best management practices for landscape fertilization; disposal of household paints, hazardous materials and petroleum products; management of trash and landscaping debris; and handling of pet wastes. The brochure shall be prepared in coordination with Project Clean Water and mailed to affected areas on a 3-year rotating basis. It shall include the Project Clean Water phone numbers for technical assistance and for reporting illegal dumping. The brochure shall also include information on how landowners can make their land available for habitat restoration under the routine maintenance program.

W-7 – Reporting Water Quality Incidents. The District shall train its maintenance crews to identify and report incidents or materials observed in the creeks during routine maintenance work that could cause significant water quality impacts, including illegal dumping of trash, pet waste, and green waste; homeless encampments; and drain outlets with evidence of poor water quality. The staff shall contact appropriate authorities in the County or affected municipalities.

7.0 California Environmental Quality Act (CEQA) Findings

7.1 Consideration of the Addenda and Full Disclosure

The Board of Directors has considered the Addenda in the Debris Basin Maintenance and Removal Plan prepared for the Santa Barbara County Flood Control District, together with the previously certified Program EIR (01-EIR-01) prepared for the Santa Barbara County Flood Control's Updated Routine Maintenance Program. The Addenda reflect the independent judgment of the Board of Directors and have been completed in compliance with CEQA. The Addenda, together with the prior PEIR are adequate for this proposal. On the basis of the whole record, including the Addenda, the previously certified CEQA document, and any public comments received, the Board of Directors finds that the projects described in the Debris Basin Maintenance and Removal Plan will not create any new significant effects or a substantial increase in the severity of previously identified significant effects on the environment. Therefore, since there are no substantial changes proposed in the project which will require major revisions to the Updated Routine Maintenance PEIR, no substantial changes have occurred with respect to the circumstances under which the project is undertaken, and there is no new information of substantial importance, no subsequent environmental review shall be prepared according to CEQA Guidelines Sections 15162 and 15168 (c)(2).

7.2 Location of Documents

The documents and other materials which constitute the record of proceedings upon which this decision is based are in the custody of the Santa Barbara County Flood Control District located at 130 E. Victoria Street, Suite 200, Santa Barbara, CA 93101.

7.3 Environmental Reporting and Monitoring Program

Public Resources Code Section 21081.6 and CEQA Guidelines Section 15091(d) require the District to adopt a reporting and monitoring program for the project and conditions of the project adopted to mitigate or avoid significant effects on the environment. The approved project descriptions, mitigation measures, with their corresponding permit monitoring requirements, are hereby adopted as the reporting and monitoring program for these projects. The District will provide the monitoring and reporting to ensure compliance during project implementation.