Sonoma County Water Agency
Stream Maintenance Program (SMP)

# Annual Notification for 2013 Maintenance Projects

Prepared for:
**The SMP Inter-Agency Working Group**

Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95406
Contact: Keenan Foster
707/547-1941

April 25, 2013

Sonoma County Water Agency. 2013. *2013 Maintenance Projects—Annual Notification*. April. Santa Rosa, CA.

# Sonoma County Water Agency
# Stream Maintenance Program
# 2013 Projects

## TABLE OF CONTENTS

**Section**


Project List and Locations ..... 1
- A. Sediment Removal and Bank Stabilization Project List and Type ..... 1a
- B. Sediment Removal and Bank Stabilization Project Site Locations and General Information ..... 1b
- C. Sediment Removal and Bank Stabilization Project Settings and Resources ..... 1c
- D. Vegetation Management Activities ..... 1d

Site Specific Photographs/Project Designs ..... 2

Summary of Maintenance Project Sizes, Extents, and Potential Effects ..... 3
- A. Sediment Removal Projects ..... 3a
- B. Bank Stabilization Projects ..... 3b
- C. Listed and Special-Status Species – Potential Area of Effect ..... 3c
- D. Cultural Resources – Potential Area of Effect ..... 3d

Annual Mitigation Plan ..... 4
- A. On-site Mitigation Activities ..... 4a
- B. Off-Site Mitigation Activities ..... 4b

Annual Sediment Disposal Plan ..... 5
- A. Sediment Sampling and Testing ..... 5a
- B. Sediment Disposal and Reuse ..... 5b

Appendix A. Site Specific Photos

Appendix B. Project Maps with CNDDB Overlay

Appendix C. Project Designs

Appendix D. Project Location Maps with CTS Occurrence Overlay

Appendix E. California Department of Fish and Wildlife Application Materials

Appendix F. Sediment Disposal Memorandum to North Coast Regional Water Quality Control Board

Appendix G. WPP Project Descriptions

Appendix H. SMP Addendum (Post-Construction Cross Sections)

# Section 1
# Project List and Locations

## 1A. Sediment Removal and Bank Stabilization Project List and Type

The following sediment removal and bank stabilization projects are anticipated for the 2013 maintenance season:

### Zone 1A

- **Four Localized Sediment Removal Projects at:**
  - Brush Creek Reach 2 & Austin Creek 1: At confluence
  - Ducker Creek Reach 2: At double box culvert by Rinconada Drive
  - Roseland Creek Reach 1: At cattle crossings above Llano Road
  - Windsor Creek Reach 3/4: At culvert on Natalie Drive
- **Twelve Reach Scale Sediment Removal Projects at:**
  - Colgan Creek  Reach 3, 4: Between Bellevue Avenue and Todd Road
  - Colgan Creek Reach 5: From Hearn Avenue south to start of concrete banks
  - Forestview Creek Reach 2, 3: Between Fulton Road and Guerneville Road
  - Hinebaugh Creek Reach 3, 4, 5: Redwood Drive to County Club Drive
  - Starr Creek Reach 2: Railroad tracks to Oak Park Street
  - Steele Creek Reach 2: Between Marlow Road and Ridley Avenue
  - Todd Creek Reach 1, 2: Between U.S. Hwy. 101 and railroad tracks
- **Seven Sediment Basin/Instream Basin Clearings at:**
  - Cook Creek Reach 2 (basin): East of Petaluma Hill Road
  - Copeland Creek Reach 3/4: At Country Club Drive
  - Copeland Creek Reach 4/5: At Snyder Lane
  - Five Creek Reach 1: At Snyder Lane
  - Paulin Creek Reach 5/6: At road crossings of McBride, Range and Hardies

- Todd Creek Reach 5: Upstream of Dolores Lane at rocked crossing below culvert
- Wilfred Creek Reach 1: At Snyder Lane

- **Five Reservoir Inlet Clearings at:**
  - Brush Creek Reservoir
  - Matanzas Creek Reservoir
  - Piner Creek Reservoir
  - Santa Rosa Creek Reservoir (Spring Lake)
  - Fish Ladder in Santa Rosa Creek Diversion Structure, adjacent to Montgomery Drive

## Zone 2A

- **Seven Reach Scale Sediment Removal Projects at:**
  - Corona Creek Tributary Reach 1: From North end of Holm Road to Corona Road
  - East Washington Creek Reach 3, 4, 5: From McGregor Avenue to the airport
  - Lichau Creek Reach 1: Between Hwy 101 and Stony Point Road
  - Lynch Creek Reach 1: From Hwy 101 to the Petaluma River
  - Washington Creek Reach 6: Maria Drive to Sonoma Mountain Parkway
- **Two Sediment Basin/Instream Basin Clearings at:**
  - Adobe Creek Reach 1/2: Above and below South McDowell Boulevard
  - Jessie Lane Creek Reach 1: At culvert on Petaluma Boulevard

## Zone 3A

- **One Reach Scale Sediment Removal Project at:**
  - Nathanson Creek Bypass Reach 1: Upstream of Napa Road

# 1B. Sediment Removal and Bank Stabilization Project Site Locations and Other Geographic Information

The following table presents location and geographic information for each of the 2013 project sites.

**Table 1-1: Location and Other Geographic Information for Project Sites**

| Project Site | Creek | Tributary To | SMP Reach | USGS Quad, Township, Range, Section | Latitude/ Longitude |
|---|---|---|---|---|---|
| **ZONE 1A** | | | | | |
| ***Localized Scale Sediment Removal Projects*** | | | | | |
| Brush Creek & Austin Creek, at confluence | Brush Creek and Austin Creek | Santa Rosa Creek | Brush 2 and Austin 1 | Santa Rosa Quad, T7N, R7W, Section 7 | 38.463 N, -122.677 W |
| Ducker Creek at Rinconada Dr double box culvert | Ducker Creek | Austin Creek | Ducker 2 | Santa Rosa Quad, T7N, R7W, Section 7 | 38.472 N, -122.67 W |
| Roseland Creek at cattle crossings above Llano Rd | Roseland Creek | Laguna de Santa Rosa | Roseland 1 | Sebastopol Quad, T6N, R8W, Section 5 | 38.396 N, -122.774 W |
| Windsor Creek at Natalie Dr culvert | Windsor Creek | Mark West Creek | Windsor 3 and 4 | Healdsburg Quad, T8N, R9W, Section 12 | 38.556 N, -122.81 W |
| ***Reach Scale Sediment Removal Projects*** | | | | | |
| Colgan Creek between Bellevue Ave and Todd Rd | Colgan Creek | Laguna de Santa Rosa | Colgan 3 and 4 | Santa Rosa Quad, T6N, R8W, Section 3 and 4 | 38.394 N, -122.738 W |
| Colgan Creek Hearn Ave south to concrete banks | Colgan Creek | Laguna de Santa Rosa | Colgan 5 | Santa Rosa Quad, T7N, R8W, Section 35 | 38.413 N, -122.721 W |
| Forestview Creek from Fulton Rd to Guerneville Rd | Forestview Creek | Peterson Creek | Forestview 2 and 3 | Sebastopol Quad, T7N, R8W, Section 17 and 18 | 38.454 N, -122.775 W |
| Hinebaugh Creek Country Club Dr to Redwood Dr | Hinebaugh Creek | Laguna de Santa Rosa | Hinebaugh 3, 4, and 5 | Cotati Quad, T6N, R8W, Section 23 and 24 | 38.351 N, -122.708 W |
| Starr Creek from railroad tracks to Oak Park St | Starr Creek | Windsor Creek | Starr 2 | Healdsburg Quad, T8N, R9W, Section 11 | 38.55 N, -122.821 W |
| Steele Creek between Marlow Rd and Ridley Ave | Steele Creek | Piner Creek | Steele 2 | Santa Rosa Quad, T7N, R8W, Section 16 | 38.45 N, -122.749 W |

| Project Site | Creek | Tributary To | SMP Reach | USGS Quad, Township, Range, Section | Latitude/ Longitude |
|---|---|---|---|---|---|
| Todd Creek between Hwy 101 and railroad tracks | Todd Creek | Bellevue-Wilfred Channel | Todd 1 and 2 | Santa Rosa Quad and Cotati Quad, T6N, R8W, Section 11 and 14 | 38.376 N, -122.719 W |
| ***Instream Sediment Basin Clearing Projects*** | | | | | |
| Cook Creek Basin east of Petaluma Hill Rd | Cook Creek | Coleman Creek | Cook 2 | Cotati Quad, T6N, R7W, Section 18 | 38.364 N, -122.675 W |
| Copeland Creek at Country Club Drive | Copeland Creek | Laguna de Santa Rosa | Copeland 3 and 4 | Cotati Quad, T6N, R8W, Section 25 | 38.343 N, -122.69 W |
| Copeland Creek at Snyder Ln | Copeland Creek | Laguna de Santa Rosa | Copeland 4 and 5 | Cotati Quad, T6N, R8W, Section 25 | 38.343 N, -122.685 W |
| Five Creek at Snyder Ln | Five Creek | Crane Creek | Five 1 | Cotati Quad, T6N, R8W, Section 13 | 38.361 N, -122.685 W |
| Paulin Creek at road crossings of McBride, Range and Hardies | Paulin Creek | Piner Creek | Paulin 5 and 6 | Santa Rosa Quad, T7N, R8W, Section 10 | 38.463 N, -122.733 W |
| Todd Creek below culvert at Dolores Ln | Todd Creek | Bellevue-Wilfred Creek | Todd 5 | Santa Rosa Quad, T6N, R8W, Section 2 | 38.395 N, -122.71 W |
| Wilfred Creek at Snyder Ln | Wilfred Creek | Bellevue-Wilfred Creek | Wilfred 1 | Cotati Quad, T6N, R8W, Section 13 | 38.371 N, -122.686 W |
| ***Reservoir Inlet Clearing Projects*** | | | | | |
| Brush Creek Reservoir | Brush Creek | Santa Rosa Creek | N/A | Santa Rosa Quad, T7N, R7W, Section 6 | 38.487 N, -122.671 W |
| Matanzas Creek Reservoir | Matanzas Creek | Santa Rosa Creek | N/A | Santa Rosa Quad, T7N, R7W, Section 32 | 38.405 N, -122.652 W |
| Piner Creek Reservoir | Paulin Creek | Santa Rosa Creek | N/A | Santa Rosa Quad, T7N, R8W, Section 11 | 38.466 N, -122.706 W |
| Santa Rosa Creek Reservoir (Spring Lake) | Santa Rosa Creek | N/A | N/A | Santa Rosa Quad, T7N, R7W, Section 17 | 38.46 N, -122.654 W |
| Fish Ladder in Santa Rosa Creek Diversion Structure | Santa Rosa Creek | Spring Lake | Santa Rosa Div. 1 | Santa Rosa Quad, T7N, R7W, Section 17 | 38.46 N, -122.654 W |
| **ZONE 2A** | | | | | |
| ***Reach Scale Sediment Removal Projects*** | | | | | |

| Project Site | Creek | Tributary To | SMP Reach | USGS Quad, Township, Range, Section | Latitude/ Longitude |
|---|---|---|---|---|---|
| Corona Creek Trib 1 North end Holm Rd to Corona Rd | Corona Creek Tributary | Corona Creek | Corona Trib 1 | Cotati Quad, T5N, R7W, Section 18-20 | 38.269 N, -122.665 W |
| E. Washington Creek from airport to McGregor Ave | E. Washington Creek | Washington Creek | East Washington 3, 4 and 5 | Glen Ellen Quad, T5N, R7W, Section 26 and 27 | 38.253 N, -122.61 W |
| Lichau Creek between Hwy 101 and Stony Point Rd | Lichau Creek | Petaluma River | Lichau 1 | Cotati Quad, T5N, R7W, Section 18 | 38.275 N, -122.676 W |
| Lynch Creek between Hwy 101 and Petaluma River | Lynch Creek | Petaluma River | Lynch 1 | Petaluma Quad, T5N, R7W, Section 28 | 38.249 N, -122.635 W |
| Washington Creek from Maria Dr to Sonoma Mtn Pkwy | Washington Creek | Petaluma River | Washington 6 | Glen Ellen Quad, T5N, R7W, Section 27 | 38.257 N, -122.619 W |
| ***Instream Sediment Basin Clearing Projects*** | | | | | |
| Adobe Creek above and below S. McDowell Blvd | Adobe Creek | Petaluma River | Adobe 1 and 2 | Petaluma River Quad, T5N, R7W, Section 33 | 38.232 N, -122.599 W |
| Jessie Lane Creek at culvert by Petaluma Blvd. | Jessie Lane Creek | Petaluma River | Jessie Lane 1 | Cotati Quad, T5N, R7W, Section 29 | 38.253 N, -122.649 W |
| **ZONE 3A** | | | | | |
| ***Reach Scale Sediment Removal Projects*** | | | | | |
| Nathanson Creek Bypass upstream of Napa Rd. | Nathanson Creek | Schell Creek | Nathanson 1 | Sonoma Quad, T5N, R5W, Section 18 | 38.278 N, -122.457 W |

# 1C. Sediment Removal and Bank Stabilization Project Settings and Resources

## Channel Characterization Sheets and Site Photos

Channel characterization sheets for the 2013 project sites were developed for, and included in, Chapter 4 of the Stream Maintenance Program (SMP) Manual. The channel characterization sheets contained within the Manual provide baseline information on the maintenance reach's setting, physical processes, geomorphic conditions, biologic conditions, and management considerations. The channel characterization sheets also include photographs depicting typical conditions of the reach. Program reviewers are directed to viewing the reach characterization sheets in the Manual (Chapter 4) to provide an overview of reach conditions.

Current photographs showing the specific location of maintenance activities for the 2013 project sites are provided in Appendix A.

## Potential Habitat for Listed Species

Based on possible species occurrence as shown in the table below, the applicable species-specific Best Management Practices (BMPs) (identified in Table 7-1 of the SMP Manual) will be applied when conducting maintenance activities. Specifically, the BMPs which will be applied according to maintenance activity type are listed in Table 1-2. This table is an excerpt of Table 7-2 from the SMP Manual. Maps displaying the project location relative to known biological resources (California Natural Diversity Database) (CNDDB) are included in Appendix B.

Table 1-3 presents habitat potential for listed species by reach. As shown in the table, none of the project reaches are known to support or provide suitable habitat for California freshwater shrimp, Central California Coast Coho salmon, or California Coastal Chinook salmon. Fifteen project sites (Adobe 1 and 2, Austin 1, Brush 2, Copeland 3, 4, and 5, Hinebaugh 3, 4, and 5, Jessie 1, Lichau 1, Lynch 1, Santa Rosa Creek Reservoir and Santa Rosa Creek Diversion/Fish Ladder) provide potential habitat or there is a known occurrence, at or adjacent to the reach for Central California Coast Steelhead. Additionally, the project sites that show potential habitat for the western pond turtle include: Adobe 1 and 2, Austin 1, Brush 2, Brush Creek Reservoir, Colgan 3, 4, and 5, Copeland 3, 4, and 5, Cook 2, Corona Tributary 1, Ducker 2, East Washington 3, 4, and 5, Five 1, Forestview 2 and 3, Hinebaugh 3, 4 and 5, Jessie 1, Lichau 1, Lynch 1, Matanzas Creek Reservoir, Paulin 5 and 6, Piner Creek Reservoir, Roseland 1, Santa Rosa Creek Reservoir, Santa Rosa Creek Diversion/Fish Ladder, Starr 2, Steele 2, Todd 1, 2 and 5, Windsor 3 and 4 and Wilfred 1.

Several project reaches may provide potential upland aestivation habitat for California Tiger Salamander (CTS), specifically: Colgan 3, 4, and 5, Copeland 3, 4, and 5, Forestview 2 and 3, Hinebaugh 3, 4, and 5, Roseland 1, Todd 1, 2, and 5, and Wilfred 1. CTS Best Management Practices (BMPs) (BR-12, BR-13, and BR-14) are implemented for vegetation management activities and ground disturbing projects in these areas. Additional information regarding potential effects on California tiger salamander, areas of disturbance and compensatory mitigation can be found in Section 3C of this notification.

2013 maintenance areas potentially supporting California red-legged frog include Adobe 1 and 2, Austin 1, Brush 2, Brush Creek Reservoir, Cook 2, Corona Tributary 1, Ducker 2, East Washington 3, 4, and 5, Jessie 1, Lichau 1, Lynch 1, Matanzas Creek Reservoir, Nathanson Creek Bypass 1, Piner Creek Reservoir, Santa Rosa Creek Reservoir, Santa Rosa Creek Diversion/Fish Ladder, Starr 2, Washington 6, and Windsor 3 and 4. Furthermore, Cook 2, Copeland 5 and the Santa Rosa Creek Diversion/Fish Ladder may include potential habitat for Foothill yellow-legged frog. Finally, none of the anticipated 2013 maintenance reaches have the potential to support special-status plant species.

**Table 1-2: Best Management Practices by Activity**

| BMP | Name | Sediment Removal | Bank Stabilization | Vegetation Management | | | | | | | Other Activities | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Willow Removal | Blackberry Removal | Cattail Removal | Tree Pruning and Exotics Removal | Tree Removal and Relocation | Mowing | Nursery Stock Tree Planting | Reservoir Debris Removal | Sediment Disposal |
| **General Impact Avoidance and Minimization** | | | | | | | | | | | | |
| GEN-1 | Work Window | X | X | X | | X | X | X | X | | X | X |
| GEN-2 | Staging and Stockpiling of Materials | X | X | X | X | X | X | X | X | X | X | X |
| GEN-3 | Channel Access | X | X | X | X | X | X | X | X | X | X | |
| **Air Quality Protection** | | | | | | | | | | | | |
| AQ-1 | Dust Management | X | X | X | X | X | X | X | X | X | X | X |
| AQ-2 | Enhanced Dust Management | X | X | X | X | X | X | X | X | X | X | X |
| **Biological Resources Protection** | | | | | | | | | | | | |
| BR-1 | Area of Disturbance | X | X | X | X | X | X | X | X | X | X | |
| BR-2 | Pre-maintenance Educational Training | X | X | X | X | X | X | X | X | X | X | |
| BR-3 | Biotechnical Bank Stabilization | | X | | | | | | | | | |
| BR-4 | Impact Avoidance and Minimization During Dewatering | X | X | | | | | | | | | |
| BR-5 | Fish and Amphibian Species Relocation Plan | X | X | | | | | | | | | |
| BR-6 | On-Call Wildlife Biologist | X | X | X | X | X | X | X | X | X | X | X |
| BR-7 | Special Status Plants | X | X | X | X | X | X | X | X | X | X | X |
| BR-8 | Nesting Migratory Bird and Raptor Pre-maintenance Surveys | X | X | X | X | X | X | X | X | X | X | X |
| BR-10 | California Red-legged Frog Avoidance and Impact Minimization Measures for Ground-Disturbing Activities | X | X | | | | | | | | X | X |
| BR-11 | California Red-legged Frog Avoidance and Impact Minimization for Vegetation Management | | | X | X | X | X | X | X | X | | |
| BR-12 | California Tiger Salamander Avoidance and Impact Minimization Measures for Sediment and Debris Removal | X | | X | | X | | | | | X | X |

| BMP | Name | Sediment Removal | Bank Stabilization | Vegetation Management: Willow Removal | Blackberry Removal | Cattail Removal | Tree Pruning and Exotics Removal | Tree Removal and Relocation | Mowing | Nursery Stock Tree Planting | Other Activities: Reservoir Debris Removal | Sediment Disposal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR-13 | California Tiger Salamander Avoidance and Impact Minimization Measures for Bank Stabilization | | X | | | | | | | | | |
| BR-14 | California Tiger Salamander Avoidance and Impact Minimization Measures for Vegetation Management | | | X | X | | X | X | X | X | X | |
| BR-15 | Foothill Yellow-legged Frog Avoidance and Impact Minimization Measures for Ground-Disturbing Activities | X | X | | | | | | | | X | X |
| BR-16 | Foothill Yellow-legged Frog Avoidance and Impact Minimization Measures for Vegetation Management | | | X | X | X | X | X | X | X | | |
| BR-17 | Western Pond Turtle Pre-maintenance Surveys for Ground-Disturbing Activities | X | X | X | X | X | X | X | X | X | X | |
| BR-18 | Zone 1A Salmonid Avoidance and Impact Minimization Measures | X | X | X | | X | | | | X | | |
| **Cultural Resources Protection** | | | | | | | | | | | | |
| CR-2 | Cultural Resources Investigation | | X | | | | | | | | | |
| CR-3 | Previously Undiscovered Cultural Resources | X | X | X | X | X | X | X | X | X | X | X |
| CR-4 | Previously Undiscovered Palentological Resources | X | X | X | X | X | X | X | X | X | X | X |
| CR-5 | Staff Cultural Resources Training | X | X | X | X | X | X | X | X | X | X | X |
| CR-7 | Ecosystem Restoration Program | | | X | X | X | X | X | X | X | | |
| **Hazardous Materials Safety** | | | | | | | | | | | | |
| HAZ-1 | Spill Prevention and Response Plan | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-2 | Equipment and Vehicle Maintenance | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-3 | Equipment and Vehicle Cleaning | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-4 | Refueling | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-5 | On-Site Hazardous Materials Management | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-6 | Existing Hazardous Sites or Waste | X | X | X | X | X | X | X | X | X | X | X |
| HAZ-7 | Fire Prevention | X | X | X | X | X | X | X | X | X | X | X |

| BMP | Name | Sediment Removal | Bank Stabilization | Vegetation Management | | | | | | | Other Activities | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Willow Removal | Blackberry Removal | Cattail Removal | Tree Pruning and Exotics Removal | Tree Removal and Relocation | Mowing | Nursery Stock Tree Planting | Reservoir Debris Removal | Sediment Disposal |
| HAZ-8 | Testing and Disposal of Spoils | X | X | | | | | | | | X | X |
| **Vegetation Management** | | | | | | | | | | | | |
| VEG-1 | Removal of Existing Vegetation | X | X | X | | | X | X | | X | | |
| VEG-2 | Use of Herbicides | | | X | X | X | X | X | | | | |
| VEG-3 | Planting and Revegetation After Soil Disturbance | X | X | | | | X | X | | X | | |
| **Water Quality and Channel Protection** | | | | | | | | | | | | |
| WQ-1 | Apply Erosion Control Fabric to or Hydroseeding of Exposed Soils | X | X | X | X | X | X | X | | | X | X |
| WQ-2 | Prevent Scour Downstream of Sediment Removal | X | | | | | | | | | | |
| WQ-3 | In-Channel Grading | X | X | | | | | | | | | |
| **Good Neighbor Policies** | | | | | | | | | | | | |
| GN-1 | Work Site Housekeeping | X | X | X | X | X | X | X | X | X | X | X |
| GN-2 | Public Outreach | X | X | X | X | X | X | X | X | X | X | X |
| GN-3 | Noise Control | X | X | X | X | X | X | X | X | X | X | X |
| GN-4 | Traffic Flow, Pedestrians, and Safety Measures | X | X | X | X | X | X | X | X | X | X | X |
| GN-5 | Odors | X | X | | | | | | | | X | X |

**Table 1-3: Habitat Potential for Listed Species by Reach**

| Reach | Listed Species | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | California Freshwater Shrimp | California Red-legged Frog | California Tiger Salamander | Foothill Yellow-legged Frog | Western Pond Turtle | Central California Coast Steelhead | Central California Coast Coho | California Coastal Chinook | Plants |
| ***ZONE 1A*** | | | | | | | | | |
| ***Localized Scale Sediment Removal Projects*** | | | | | | | | | |
| Austin 1 | U | P | U | U | P | O(M) | U | U | U |
| Brush 2 | U | P | U | U | P | O(M/R) | U | U | U |
| Ducker 2 | U | P | U | U | P | U | U | U | U |
| Roseland 1 | U | U | 1(620.6); 2(4687.3); 3(750.5) | U | P | U | U | U | U |
| Windsor 3 | U | P | U | U | P | U | U | U | U |
| Windsor 4 | U | P | U | U | P | U | U | U | U |
| ***Reach Scale Sediment Removal Projects*** | | | | | | | | | |
| Colgan 3 | U | U | 2 | U | P | U | U | U | U |
| Colgan 4 | U | U | 2 | U | P | U | U | U | U |
| Colgan 5 | U | U | 1(2026.6); 2(5693.9) | U | P | U | U | U | U |
| Forestview 2 | U | U | 4 | U | P | U | U | U | U |
| Forestview 3 | U | U | 4 | U | P | U | U | U | U |
| Hinebaugh 3 | U | U | 1(36.1); 2(1450.1); 3(142.7) | U | P | P(M) | U | U | U |
| Hinebaugh 4 | U | U | 3 | U | P | P(M) | U | U | U |
| Hinebaugh 5 | U | U | 5 | U | P | P(M) | U | U | U |
| Starr 2 | U | P | U | U | P | U | U | U | U |
| Steele 2 | U | U | U | U | P | U | U | U | U |
| Todd 1 | U | U | 1(521.0); 2(1492.4) | U | P | U | U | U | U |
| Todd 2 | U | U | 2 | U | P | U | U | U | U |
| ***Instream Sediment Basin Clearing Projects*** | | | | | | | | | |

| Reach | Listed Species | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | California Freshwater Shrimp | California Red-legged Frog | California Tiger Salamander | Foothill Yellow-legged Frog | Western Pond Turtle | Central California Coast Steelhead | Central California Coast Coho | California Coastal Chinook | Plants |
| Cook 2 (basin) | U | P | U | P | P | U | U | U | U |
| Copeland 3 | U | U | 3 | U | P | O(M) | U | U | U |
| Copeland 4 | U | U | 3 | U | P | O(M/R) | U | U | U |
| Copeland 5 | U | U | 3 | P | P | O(M/R) | U | U | U |
| Five 1 | U | U | U | U | P | U | U | U | U |
| Paulin 5 | U | U | U | U | P | U | U | U | U |
| Paulin 6 | U | U | U | U | P | U | U | U | U |
| Todd 5 | U | U | 3 | U | P | U | U | U | U |
| Wilfred 1 | U | U | 2(1851.6); 3(6025.9) | U | P | U | U | U | U |
| ***Reservoir Inlet Clearing Projects*** | | | | | | | | | |
| Brush Creek Reservoir | U | P | U | U | P | U | U | U | U |
| Matanzas Creek Reservoir | U | P | U | U | P | U | U | U | U |
| Piner Creek Reservoir | U | P | U | U | P | U | U | U | U |
| Santa Rosa Creek Reservoir | U | P | U | U | P | P | U | U | U |
| Santa Rosa Creek Div. 1/Fish Ladder | U | P | U | P | P | O* | U | U | U |
| ***ZONE 2A*** | | | | | | | | | |
| ***Reach Scale Sediment Removal Projects*** | | | | | | | | | |
| Corona Trib 1 | U | P | U | U | P | U | U | U | U |
| East Washington 3 | U | P | U | U | P | U | U | U | U |
| East Washington 4 | U | P | U | U | P | U | U | U | U |
| East Washington 5 | U | P | U | U | P | U | U | U | U |
| Lichau 1 | U | P | U | U | P | O(M) | U | U | U |
| Lynch 1 | U | P | U | U | P | 0(M) | U | U | U |
| Washington 6 | U | P | U | U | U | U | U | U | U |
| ***Instream Sediment Basin Clearing Projects*** | | | | | | | | | |
| Adobe 1 | U | P | U | U | P | O(M) | U | U | U |
| Adobe 2 | U | P | U | U | P | O(M) | U | U | U |
| Jessie 1 | U | P | U | U | P | O* | U | U | U |
| ***ZONE 3A*** | | | | | | | | | |
| ***Reach Scale Sediment Removal Projects*** | | | | | | | | | |
| Nathanson 1 | U | P | U | U | U | U | U | U | U |

Source: SMP Manual Table 7-4 as updated by the BO processes and new data (March 2012)

**Legend**

O Known occurrence in reach
O* Presence documented within adjacent reach or tributary; not applicable for fish if known barrier or reach goes dry
P Potential habitat (includes areas rated potential or marginal)
M Migration corridor (fish only)
S Known or potential spawning habitat (fish only)
R Known or potential rearing habitat (fish only)
U Unsuitable habitat, unlikely to occur and/or no known occurrence

CTS Habitat Rankings*

1 - Within 500 ft of a known occurrence
2 - Between 500ft-2200ft of a known occurrence
3 - Between 2200 ft and 1.3 mi of a known occurrence
4 - Greater than 1.3 mi, but within SRPCS range (no mitigation required)

*Parentheses following CTS habitat ranks notate distance (in feet) of each rank for reaches with more than one CTS ranking

# 1D. Vegetation Management Activities

During the 2013 maintenance season, vegetation maintenance will include tree and brush thinning, and removal of exotic species and other vegetation blockages to improve hydraulic capacity and retain or enhance appropriate habitat. Vegetation maintenance will be completed according to Appendix E of the SMP Manual (*Vegetation Management Plan*) as well as the associated terms and conditions of all programmatic permits and biological opinions.

For 2013, vegetation maintenance will be completed in the locations as shown below. Note that maintenance generally occurs in only a portion of the identified reach, not the entire reach length. An addendum will be sent out in August to supplement this list if any subsequent requests for vegetation management are made for areas not shown below. The submission and approval of such an addendum is specified in the DFG Streambed Alteration Agreement (No. 1600-2009-0399-R3) for the SMP.

**Table 1-4. 2013 Vegetation Management Activities**

| Creek | Vegetation Management Activity | | | |
|---|---|---|---|---|
| | *Willow Pruning* | *Blackberry Hand Removal* | *Blackberry Mowing* | *Exotics Removal* |
| ***Zone 1A- Windsor Creek Subbasin*** | | | | |
| Airport 1 | | | ✓ | |
| Airport 2 | | | ✓ | |
| Starr Trib 1 | | ✓ | | |
| Windsor 1 | ✓ | | ✓ | |
| Windsor 4 | ✓ | | | |
| ***Zone 1A- Santa Rosa Creek Subbasin*** | | | | |
| Abramson 1 | | | ✓ | |
| Austin 1 | ✓ | ✓ | ✓ | ✓ |
| Austin 2 | ✓ | | ✓ | |
| Austin 3 | ✓ | | ✓ | |
| Brush 1 | ✓ | | | |
| Brush 2 | ✓ | ✓ | ✓ | |
| College 1 | ✓ | ✓ | ✓ | |
| Forestview 1 | ✓ | | | |

| Creek | Vegetation Management Activity | | | |
|---|---|---|---|---|
| | *Willow Pruning* | *Blackberry Hand Removal* | *Blackberry Mowing* | *Exotics Removal* |
| Middle Brush 1 | ✓ | | | |
| Paulin 3 | | ✓ | | |
| Paulin 7 | | ✓ | | ✓ |
| Peterson 1 | ✓ | | | |
| Piner 7 | ✓ | | | |
| Santa Rosa 1 | ✓ | | | |
| Santa Rosa 2 | ✓ | | | |
| Santa Rosa 3 | ✓ | | | |
| Santa Rosa 4 | ✓ | | | |
| Santa Rosa 5 | ✓ | | | |
| Santa Rosa 6 | ✓ | | | |
| Santa Rosa 7 | ✓ | | | |
| Spring 2 | | ✓ | | |
| Spring 3 | | ✓ | | |
| Steele 1 | | ✓ | ✓ | ✓ |
| Steele 5 | ✓ | | | ✓ |
| ***Zone 1A- Roseland and Colgan Subbasin*** | | | | |
| Colgan 1 | ✓ | | | |
| Colgan 2 | ✓ | | ✓ | |
| Colgan 3 | | | ✓ | |
| Colgan 4 | ✓ | | ✓ | |
| Colgan 5 | | | ✓ | |
| Colgan 6 | ✓ | | | |
| Colgan 7 | | | | |
| Roseland 1 | ✓ | | | |
| Roseland 2 | ✓ | | | |
| Roseland 3 | ✓ | | ✓ | |
| Roseland 4 | ✓ | | ✓ | |
| ***Zone 1A- Upper Laguna Subbasin*** | | | | |
| Copeland 1 | ✓ | | | |
| Copeland 2 | ✓ | | ✓ | |
| Copeland 3 | ✓ | | | |
| Copeland 4 | ✓ | | | |
| Copeland 5 | ✓ | | | |
| Crane 1 | ✓ | | | |
| Crane 2 | ✓ | | | |
| Five 1 | ✓ | | | |
| Hinebaugh 1 | | | ✓ | |
| Hinebaugh 2 | ✓ | | | |
| Hinebaugh 3 | ✓ | | | |
| Hinebaugh 4 | ✓ | | | |
| Hinebaugh 5 | ✓ | | | |
| Hinebaugh 6 | ✓ | | | |
| Hinebaugh 7 | ✓ | | | |
| Laguna 1 | ✓ | | | |
| Laguna 2 | ✓ | | | |
| Laguna 6 | ✓ | ✓ | | |

| Creek | Vegetation Management Activity | | | |
|---|---|---|---|---|
| | *Willow Pruning* | *Blackberry Hand Removal* | *Blackberry Mowing* | *Exotics Removal* |
| South Fork Copeland 1 | ✓ | | | |
| South Fork Copeland 2 | ✓ | | | |
| Todd 2 | ✓ | | ✓ | |
| Todd 5 | ✓ | | | |
| Wilfred Extention1 | ✓ | | | |
| Wilfred 1 | ✓ | | | |
| ***Zone 2A-Petaluma Subbasin*** | | | | |
| Adobe 1 | ✓ | ✓ | | |
| Adobe 2 | ✓ | | | |
| Adobe 3 | ✓ | | ✓ | |
| Corona Creek Tributary 1 | ✓ | ✓ | ✓ | |
| Corona 2 | ✓ | | | |
| Corona 3 | ✓ | | | |
| Corona 4 | ✓ | | | |
| Corona 5 | ✓ | | | |
| East Washington 4 | | | ✓ | |
| East Washington 5 | | | ✓ | |
| McDowell 2 | ✓ | | ✓ | ✓ |
| Thompson 1 | ✓ | ✓ | | |
| Washington 6 | | | | ✓ |
| ***Zone 3A- Sonoma Subbasin*** | | | | |
| Fryer 1 | | ✓ | | ✓ |
| Fryer 3 | ✓ | | | |
| ***Zone 6A- Dry Creek*** | | | | |
| West Slough 1 | ✓ | ✓ | | |

# Section 2
# Site Specific Photographs/Project Designs

This section explains project designs and photographs which describe specific maintenance locations and site conditions. Appendix A illustrates pre-maintenance conditions for each proposed project location. Design drawings for each project are presented in Appendix C. These drawings display the following information for each 2013 project:

- Longitudinal profiles comparing the existing grade and the project design
- Plan views showing existing conditions, Ordinary High Water Mark (OHWM), and maintenance locations
- Channel cross-sections showing existing conditions and the project design

The project designs have been arranged in the following order:

Brush Creek

Colgan Creek

Corona Trib_1

Ducker Creek

E. Washington Creek

Forestview Creek

Hinebaugh Creek

Lynch Creek

Nathenson Creek

Paulin Creek

Roeland Creek

Starr Creek

Steele Creek

Todd Creek

Washington Creek

Willowbrook Creek

Windsor Creek

Five-Wilfred-Adobe-Copeland-Cook In-stream Detention Basins

# Section 3
# Summary of Maintenance Project Sizes, Extents, and Potential Effects

The following tables describe the areal and length extents of the 2013 maintenance projects and their potential effects to Waters of the State/U.S. and listed species.

## 3A. Sediment Removal Projects

| Project Site | Length (linear feet) | Volume Removed (cu. yds.) | Acres Disturbed: Waters of the U.S. (below OHWM) | Acres Disturbed: Waters of the State (below TOB*) |
|---|---|---|---|---|
| **ZONE 1A** | | | | |
| **Localized Scale** | | | | |
| Brush 2/Austin 1 | 278 | 819 | 0.13 | — |
| Ducker 2 | 90 | 36 | 0.01 | — |
| Roseland 1 | 910 | 1,241 | 0.59 | — |
| Windsor 3/4 | 134 | 175 | 0.07 | — |
| **Reach Scale** | | | | |
| Colgan 3, 4, 5 | 6,494 | 5,881 | 2.06 | — |
| Forestview 2, 3 | 3,243 | 901 | 0.93 | — |
| Hinebaugh 3, 4, 5 | 5,160 | 4,639 | 2.38 | 0.05 |
| Starr 2 | 800 | 444 | 0.28 | — |
| Steele 2 | 1,542 | 171 | 0.21 | — |
| Todd 1, 2 | 4,050 | 1,727 | 1.33 | — |
| **Instream Sediment Basin Clearing0.13** | | | | |
| Cook 2(basin) | 200 | 150 | 0.18 | — |
| Copeland 3/4 | 200 | 400 | 0.21 | — |
| Copeland 4/5 | 205 | 750 | 0.21 | — |
| Five 1 | 120 | 100 | 0.11 | — |
| Paulin 5/6 | 655 | 469 | 0.16 | 0.02 |
| Todd 5 | 665 | 458 | 0.22 | — |
| Wilfred 1 | 200 | 100 | 0.05 | — |
| **Reservoir Inlet Clearing** | | | | |
| Brush Creek Reservoir | n/a | 250 | 0.05 | — |
| Matanzas Creek Reservoir | n/a | 250 | 0.05 | — |

| Project Site | Length (linear feet) | Volume Removed (cu. yds.) | Acres Disturbed | |
|---|---|---|---|---|
| | | | Waters of the U.S. (below OHWM) | Waters of the State (below TOB*) |
| Piner Creek Reservoir | n/a | 250 | 0.05 | — |
| Santa Rosa Creek Reservoir | n/a | 100 | 0.06 | — |
| Santa Rosa Creek Fish Ladder | 40 | 18 | 0.01 | |
| **ZONE 2A** | | | | |
| **Reach Scale** | | | | |
| Corona Trib 1 | 3,100 | 1,860 | 0.96 | — |
| East Washington 3, 4, 5 | 3,500 | 2,473 | 0.77 | — |
| Lichau 1 | 775 | 254 | 0.31 | — |
| Lynch 1 | 1,090 | 2,826 | 0.88 | — |
| Washington 6 | 1,780 | 1,607 | 0.43 | — |
| **Instream Sediment Basin Clearing** | | | | |
| Adobe 1/2 | 80 | 750 | 0.08 | — |
| Jessie 1 | 25 | 15 | 0.01 | — |
| **ZONE 3A** | | | | |
| **Reach Scale** | | | | |
| Nathanson 1 | 695 | 730 | 0.21 | — |
| **Project Totals** | **35,967** | **29,766** | **12.98** | **0.07** |

*TOB is short for Top of Bank

# 3B. Bank Stabilization Projects

There are no bank stabilization projects planned for the 2013 maintenance season.

# 3C. Listed and Special-Status Species – Potential Area of Effect

## *California Tiger Salamander*

As described above in Section 1C and Table 1-3, there are three species listed under the Federal Endangered Species Act that could be potentially impacted by the 2013 maintenance projects. One of these species, California tiger salamander (CTS), is also listed under the California Endangered Species Act. The SMP Manual and associated Biological Opinions (BOs) from the USFWS and National Marine Fisheries Service (NMFS) describe the necessary avoidance and minimization measures required for these species that supports the incidental take authorization. SMP managers and biologists reviewed the 2013 maintenance project locations and proposed activities. Based on this review the Water Agency concluded that impacts to CTS are the only potential impacts to listed species that require compensatory mitigation for the season.

Table 3-1 below identifies 2013 SMP maintenance reaches within 1.3 miles of known CTS occurrences. Maintenance project areas (above the ordinary high water mark – the zone potentially supporting rodent burrows and providing CTS upland habitat) are given for the project areas within the 1.3 mile buffer zone of known occurrences. Resource maps indicating the location of 2013 SMP projects in relation to CNDDB data can be found in Appendix B, and maps used to calculate CTS distance rankings to determine this season's mitigation needs can be found in Appendix D.

SMP channels do not provide suitable breeding habitat for California tiger salamanders but the upper banks of channels may provide upland aestivation habitat. Gopher burrows that may support CTS will be flagged by a qualified biologist and avoided during project construction. SMP 2013 projects requiring CTS BMP implementation are Colgan 3, 4, and 5, Copeland 3, 4, and 5, Hinebaugh 3, 4, and 5, Roseland 1, Todd 1, 2, and 5, and Wilfred 1.

**Table 3-1. 2013 Projects Requiring Compensatory Mitigation for CTS**

| Project Site | Area Disturbed (above OHWM) | Compensatory Mitigation Required (as per FWS BO) Ratio | Total required (sq.ft.) |
|---|---|---|---|
| ***Reach Scale Sediment*** | | | |
| | ***Zone 1A*** | | |
| Colgan 3 | 0 | 1:1 | 0 |
| Colgan 4 | 0 | 1:1 | 0 |
| | 0 | 2:1 | 0 |
| Colgan 5 | 0 | 1:1 | 0 |
| | 150 | 2:1 | 300 |
| Hinebaugh 3 | 1,933 | 1:1 | 1,933 |
| | 0 | 1:1 | 0 |
| Hinebaugh 4 | 0 | 0.2:1 | 0 |
| Hinebaugh 5 | 0 | 0.2:1 | 0 |
| | 0 | 2:1 | 0 |
| Todd 1 | 0 | 1:1 | 0 |
| Todd 2 | 0 | 1:1 | 0 |
| ***Sediment Basin*** | | | |
| | ***Zone 1A*** | | |
| Copeland 3 | 0 | 0.2:1 | 0 |
| Copeland 4 | 0 | 0.2:1 | 0 |
| Copeland 5 | 0 | 0.2:1 | 0 |
| | 0 | 1:1 | 0 |
| Roseland 1 | 0 | 0.2:1 | 0 |
| Todd 5 | 0 | 0.2:1 | 0 |
| Wilfred 1 | 0 | 0.2:1 | 0 |
| **Project Totals** | **2,083 sq. ft. (0.048 acres)** | | **2,233 sq. ft. (0.051 acres)** |

Based on the guidance of the SMP's Programmatic USFWS Biological Opinion and Consistency Determination from the CDFW, the Water Agency agrees to compensate for effects to CTS through purchase of credits from a USFWS and CDFW approved conservation bank for the CTS. The Water Agency has purchased 0.14 acres of credit to date. This credit has been used to mitigate for impacts resulting from 2010, 2011, and 2012 Projects. The CTS mitigation requirements for 2010, 2011, and 2012 were 0.034, 0.05, and 0.002, respectively. The total combined CTS impact mitigation for the past three seasons is 0.086; therefore our current available CTS credits are equivalent to 0.054 acre (0.14 - 0.086). As seen in Table 3-1, 0.051 acre is the foreseen CTS credit needed for the 2013 season. This would leave 0.003 (0.054 - 0.051) credits available for 2014 field season. To provide coverage for 2014 and 2015 field season, the Water Agency will pursue purchasing an additional 0.28 acres of credit from USFWS and CDFW approved local mitigation banks. This mitigation for CTS habitat disturbance is provided in addition to already required SMP on-site and off-site mitigation activities which will be implemented in 2013 as well as associated BMPs described below (see Section 4 and Appendix E).

To address stream maintenance effects on CTS in locations where the species has the potential to occur (SMP Manual Table 7-3), the Water Agency will (according to BMPs BR-12, BR-14, and BR-14 California Tiger Salamander Avoidance and Impact Minimization Measures for Sediment and Debris Removal, Bank Stabilization, Vegetation Management, and the USFWS BO) undertake the following measures:

1. For sediment and debris removal maintenance activities occurring in areas where California tiger salamander (CTS) has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys of upland habitats and identify areas with small mammal burrows. Areas with an abundance of small mammal burrows will be flagged and avoided by maintenance crews.

2. Maintenance activities will be restricted to the streambed and avoid disturbance to adjacent upland habitat.

3. Sediment and debris removal activities shall minimize removal of upland vegetation and soil compaction.

4. If upland banks must be traversed by heavy equipment to access a streambed, the route will be located where no small mammal burrows are present and will be delineated by temporary fencing to minimize upland habitat disturbance.

5. If burrows or other suitable aestivation habitat are present where sediment or debris removal activities are proposed, a qualified biological monitor or a biologist with an Incidental Take Permit will be on call during project activity in proximity to upland CTS habitat. The biological monitor will have the authority to stop work if a CTS is encountered until such a time as the animal is moved to an area away from the project site.

6. Maintenance activities located in proximity to upland CTS habitat will be scheduled to avoid the CTS migration season (October 15 – June 30). If work must be completed during the migration season, barrier fencing will be installed to exclude CTS from maintenance areas.

7. In the event that a CTS is encountered within the maintenance area, a biologist with an Incidental Take Permit, or biologist approved by the USFWS, will move the salamander to a safe location with suitable underground refugia (e.g., open burrow of appropriate depth) outside of the maintenance area. Actions taken to move CTS will be consistent with applicable USFWS and CDFW regulations and permits.

8. The USFWS Sacramento Field Office will be contacted within 48 hours of any CTS observations.

In addition to the conservation measures articulated for ground-disturbing activities, the Water Agency will also implement the following CTS measures to avoid potential impacts to salamanders during vegetation maintenance activities occurring within potential habitat for the species:

1. For vegetation management activities occurring in areas where CTS has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys of upland habitats and identify areas with small mammal burrows. Areas with an abundance of small mammal burrows will be flagged and avoided by maintenance crews.

2. Based on surveys, if CTS is identified as potentially present, then access across upland channel banks and adjacent upland habitats will be by foot only. Vehicles will be restricted to existing access roads.

3. A qualified biological monitor, or biologist with an Incidental Take Permit, will be on call during project activity in proximity to upland CTS habitat. The biological monitor will have the authority to stop work if a CTS is encountered until such a time as the animal is moved to an area away from the project site.

4. In the event that a CTS is encountered within the maintenance area, a biologist with an Incidental Take Permit, or biologist approved by the USFWS, will move the salamander to a safe location with suitable underground refugia (e.g., open burrow of appropriate depth) outside of the fenced maintenance area. Actions taken to move CTS will be consistent with applicable USFWS and CDFW regulations and permits.

5. The USFWS Sacramento Field Office will be contacted within 48 hours of any CTS observations.

## *California Red-Legged Frog*

To address stream maintenance effects on California red-legged frog in locations where the species has the potential to occur (See SMP Manual Table 7-3), the Water Agency will (according to BMPs BR-10 and BR-11 California Red-legged Frog Avoidance and Impact Minimization Measures for Ground-Disturbing and Vegetation Management Activities and the USFWS BO) undertake the following measures:

1. For ground-disturbing maintenance activities occurring in areas where California red-legged frog has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct USFWS-approved protocol level surveys to determine the potential presence of red-legged frogs. For ground-disturbing maintenance activities that are in areas where California red-legged frogs are identified as potentially occurring and no protocol level surveys are conducted, red-legged frogs will be presumed present.

2. If suitable breeding is habitat is encountered, the USFWS will be contacted and any site-specific recommendations will be implemented.

3. If red-legged frogs are present or assumed present, a qualified biological monitor, or a biologist with an Incidental Take Permit pursuant to Section 10(A)(1)(b) for the Act, will inspect the area daily before the start of work and will be present during maintenance

activities in sensitive habitats. If appropriate, Water Agency staff will install exclusionary fencing.

4. In the event that a red-legged frog is encountered within the maintenance area, the USFWS will be contacted within 48 hours of any red-legged frog observations, and a qualified biologist will move the frog to a safe location outside of the project area. Actions taken to move red-legged frog will be consistent with applicable Service and CDFW regulations and permits. The biological monitor will have the authority to stop work if a red-legged frog is encountered until such a time as the frog may be moved to an area outside of the project area fencing.

5. If dewatering of a creek is required, dipnet and seine surveys for red-legged frog tadpoles will be completed prior to initiation of dewatering. Captured tadpoles will be moved to a safe location elsewhere in the creek.

California red-legged frog protocol level surveys will be conducted for SMP 2013 ground-disturbing projects within areas considered potential habitat. Protocol level surveys require eight visits and two of these visits must occur after July 1. If significant resources are encountered during ongoing surveys, field results will be sent to the USFWS prior to commencing project activities.

On April 10th, Water Agency biologists conducted initial evaluations of the project sites with the potential to support California red-legged frogs (as listed in Table 1-3 of this Notification) to assess whether potential frog habitat exists. At the time of the submittal of this Notification, a review of these initial site evaluations by USFWS to resolve which project sites will require protocol level surveys was pending.

Reaches potentially requiring California red-legged frog protocol level surveys are summarized below (Table 3-2). As of April 18th, all protocol level surveys are pending. As surveys are completed for these stream segments and maintenance activities are monitored, the SMP database will continue to track current spatial presence or absence of the species and these data will be shared with the USFWS.

**Table 3-2. 2013 Projects on Reaches potentially requiring CRLF protocol level and habitat level surveys**

| Location | Protocol Level Survey Conducted |
|---|---|
| ***Localized Scale Sediment*** | |
| Brush Creek 2/Austin 1 | 2013 surveys pending |
| Ducker Creek 2 | 2013surveys pending |
| Windsor Creek 3/4 | 2013surveys pending |
| ***Reach Scale Sediment*** | |
| Corona Creek Tributary 1 (Zone 2A) | 2013 surveys pending |
| East Washington Creek 3, 4, and 5 (Zone 2A) | 2013 surveys pending |
| Lichau Creek 1 (Zone 2A) | 2013 surveys pending |

| | |
|---|---|
| Lynch Creek 1 (Zone 2A) | 2013 surveys pending |
| Nathanson Creek Bypass 1 (Zone 3A) | 2013 surveys pending |
| Starr Creek 2 | 2013 surveys pending |
| Washington Creek 6 (Zone 2A) | 2013 surveys pending |
| ***Sediment Basin Clearing*** | |
| Adobe Creek ½ (Zone 2A) | Conducted in 2010; 2013 surveys pending |
| Cook Creek 2 (basin) | Conducted in 2010; 2013 surveys pending |
| Jessie Lane Creek 1 (Zone 2A) | 2013 surveys pending |
| ***Reservoir Inlet Clearing (2009 permitted projects)*** | |
| Brush Creek Reservoir | Conducted in 2010; 2013 surveys pending |
| Matanzas Creek Reservoir | Conducted in 2010; 2013 surveys pending |
| Piner Creek Reservoir | Conducted in 2009; 2013 surveys pending |
| Santa Rosa Creek Reservoir (Spring Lake) | Conducted in 2010; 2013 surveys pending |
| Santa Rosa Creek Fish Ladder | Conducted in 2012; 2013 surveys pending |

*Located in Zone 1A unless otherwise denoted.

In addition to the conservation measures articulated for ground-disturbing activities, the Water Agency will also implement the following CRLF measures to avoid potential impacts to frogs during vegetation maintenance activities occurring within potential habitat for the species (2013 SMP vegetation maintenance project locations are listed in Table 1-4 of the this Notification):

1. For vegetation maintenance activities occurring in areas where red-legged frog has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys of aquatic habitats and identify potential red-legged frog breeding and foraging areas. These areas will be flagged and avoided by maintenance crews.

2. In areas where red-legged frog could potentially occur, field crews conducting hand trimming of vegetation will access channel banks by foot only and will avoid entering open water. Vehicles will be restricted to existing access roads.

3. In work sites where potential red-legged frog breeding and foraging areas were identified during the pre-maintenance survey, a qualified biological monitor or a biologist with an Incidental Take Permit, pursuant to Section 10(a)(1)(b) of the Act will be on-site during project activity in sensitive habitats. The biological monitor will have the authority to stop work if a red-legged frog (or any of its life stages) is encountered until such a time as the frog may be moved to an area away from the project site.

4. The USFWS will be contacted within 48 hours of any red-legged frog observations.

## *Site Surveys for Presence of Special-Status Plants*

None of the anticipated 2013 project reaches provide potential habitat for special-status plant species, based on survey requirements established in Table 7-3 of the SMP Manual. General habitat and focused surveys for SMP plant species were conducted for stream reaches that are considered to have (based on best professional judgment of SCWA botanists) some potential to support vernal pool species or are near known or historic populations. For the 2013 spring flowering season surveys were included for reaches along Colgan (reaches 3, 4, and 5) , as well as along Lichau Creek Reach 1. Vernal pool species were in full flower on Santa Rosa Plain at Alton Lane Preserve between March 27 and April 10. Sonoma sunshine (*Blennosperma bakeri*) was in about mid-bloom (Photo 1 and 2 below) on April 3. A population of Burke's goldfields was surveyed at the Sonoma County Airport and was found to be at antithesis on April 10, 2013. (Photo 3 below). Sebastopol meadowfoam (*Limanthes vinulans*)was observed blooming on the Santa Rosa Plain at the Water Agency's Todd Road Well site as well as in fields along Todd Road west of Stony Point Road.(Photo 4 below). No special-status plant species were observed during focused surveys conducted along Colgan and Lichau project reaches during the blooming season in April 2013.

**Photo 1Sonoma Sunshine- Alton Preserve- 3/27/13**

**Photo 2- Close up Sonoma Sunshine- Alton Preserve- 3/27/13**

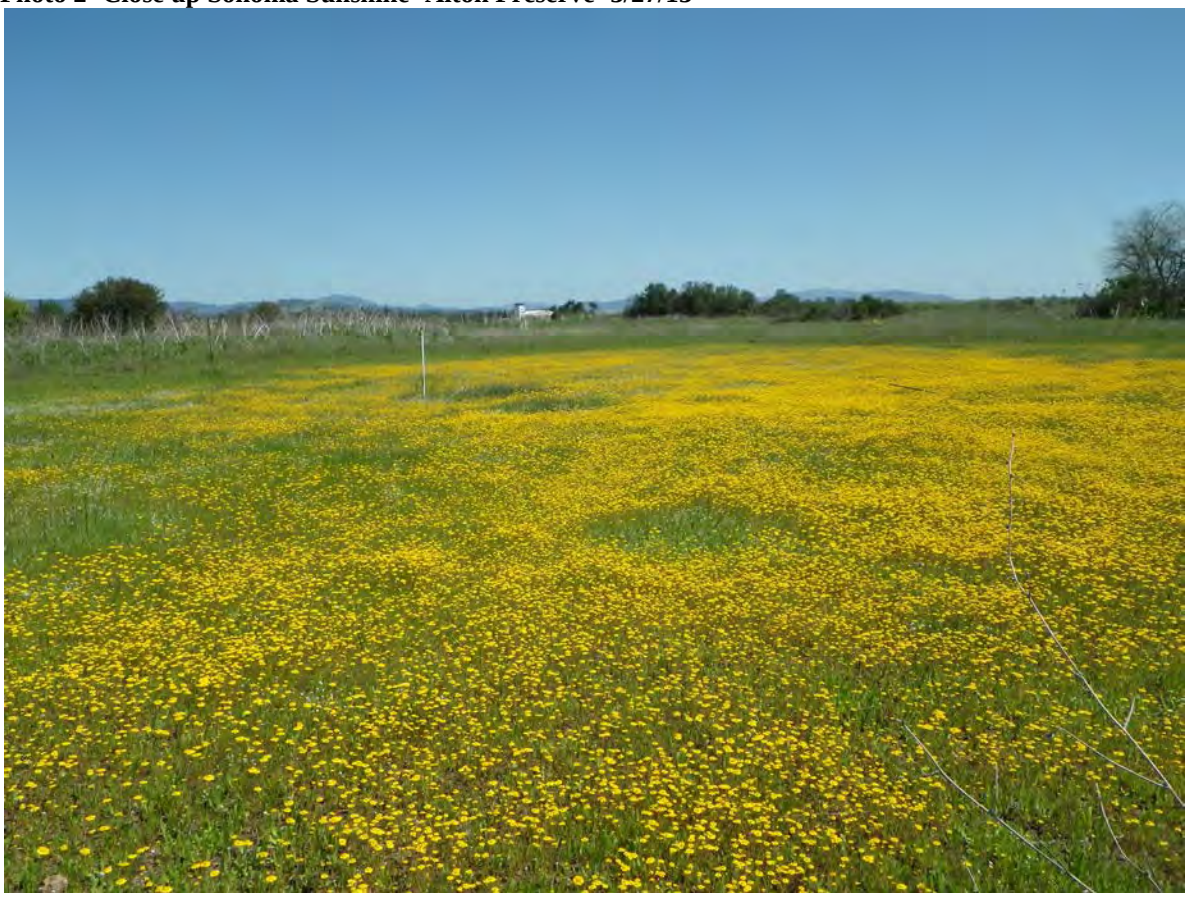


**Photo 3- Sonoma County Airport- Burke's goldfields- April 10, 2013.**

**Photo 4. Todd Road Wells, Sebastopol Meadowfoam- April 15, 2013.**

### *Foothill Yellow-legged Frog*

Pre-construction surveys for foothill yellow-legged frog are required at Cook 2, Copeland 5, and the Santa Rosa Creek Diversion/Fish Ladder.

To address stream maintenance effects on Foothill yellow-legged frog in locations where the species has the potential to occur (See SMP Manual Table 7-3), The Water Agency will (according to BMPs BR-15 and BR-16 Foothill Yellow-legged Frog Avoidance and Impact Minimization Measures for Ground-Disturbing and Vegetation Management Activities and the USFWS BO) undertake the following measures:

1. For ground-disturbing activities occurring in areas where foothill yellow-legged frog has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys to assess habitat within the proposed maintenance area.

2. A qualified biologist will inspect the maintenance area daily before the start of work. If appropriate, Water Agency staff will install exclusionary fencing. In the event that foothill yellow-legged frogs are encountered within the maintenance area, a qualified biologist will move the frog to a safe location outside of the maintenance area. Actions taken to move foothill yellow-legged frog will be consistent with applicable CDFW regulations and permits.

3. If dewatering a creek segment is required, a qualified biologist will conduct visual and dipnet surveys and move captured frogs and tadpoles to a safe location in the creek. Actions taken to move foothill yellow-legged frog will be consistent with applicable CDFW regulations and permits.

4. CDFW will be notified within 48 hours of any foothill yellow-legged frog observations.

In addition to the conservation measures articulated for ground-disturbing activities, the Water Agency will also implement the following measures to avoid potential impacts to frogs during vegetation maintenance activities occurring within potential habitat for the species:

1. For vegetation maintenance activities occurring in areas where foothill yellow-legged frog has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys of aquatic habitats and identify potential foothill yellow-legged frog breeding and foraging areas. These areas will be flagged and avoided by maintenance crews.

2. Based on surveys, if foothill yellow-legged frog is identified as potentially present, then field crews will access channel banks by foot only and will avoid entering open water. Vehicles will be restricted to existing access roads.

### *Western Pond Turtle*

Western pond turtles potentially occur in all proposed 2013 SMP project sites except Nathanson Creek Bypass Reach 1 and Washington Creek Reach 6. However, these sites will be checked for possible turtles prior to any construction.

To address stream maintenance effects on Western Pond Turtle in locations where the species has the potential to occur (See SMP Manual Table 7-3), the Water Agency will (according to BMPs BR-17 Western Pond Turtle Pre-maintenance Surveys for Ground-Disturbing Activities and the USFWS BO) undertake the following measures:

1. For projects located in areas where western pond turtle has been identified as potentially occurring (see SMP Manual Table 7-3), a qualified biologist will conduct pre-maintenance surveys to assess habitat within the proposed maintenance area. The timing of surveys will be coordinated with the Maintenance Coordinator and be completed immediately prior to construction.

2. If suitable instream habitat for the western pond turtle is present in the maintenance area, a qualified biologist will inspect the maintenance area daily before the start of work. In the event that a western pond turtle is encountered before or during the maintenance activity, a qualified biologist will move the turtle to a safe location outside of the work area. Actions taken to move western pond turtle will be consistent with applicable CDFW regulations and permits.

3. If dewatering of a creek segment is required, a qualified biologist will be present and will move turtles – if found – to a safe location in the creek. Actions taken to move western pond turtle will be consistent with applicable CDFW regulations and permits.

4. CDFW will be notified within 48 hours of any western pond turtle observations.

## 3D. Cultural Resources Protection

None of the Water Agency's 2013 proposed projects involve excavation into soils beyond the as-built design. Furthermore, there are no newly proposed sediment disposal sites. As such, there will not be any potential areas of effect to cultural resources (as described in the BMPs for Cultural Resources, SMP Table 7-1). However, prior to the commencement of ground-disturbing activities, all Water Agency personnel will receive training on the importance of protecting cultural resources (BMP CR-5: *Staff Cultural Resources Training Program*), and if buried resources are accidentally discovered during ground-disturbing activities, appropriate measures will be implemented. These measures (BMPs CR-3: *Previously Undiscovered Cultural Resources* and CR-4: *Previously Undiscovered Paleontological Resources*) are described in detail in Chapter 7 of the SMP Manual.

# Section 4
# Annual Mitigation Plan

This section describes the mitigation activities proposed for the 2013 maintenance projects. Sections 4A and 4B describe on-site and off-site mitigation activities, respectively. Table 4-6 summarizes maintenance project funding for the off-site Watershed Partnerships Program (WPP).

Table 4-5 provides summary statistics for areas impacted and mitigated for the 2013 maintenance season. Details project descriptions for each WPP projects utilized for the 2013 field season are included in Appendix G.

## 4A. On-Site Mitigation Activities (Tier 1)

On-site impact mitigation will be implemented at the specific project reach where the maintenance work was conducted. SMP Chapter 8 provides detail on how on-site mitigation is evaluated and designed to address impacts in the immediate maintenance project area, considering restoration and enhancement opportunities in the reach. On-site mitigation activities will restore or improve habitat that is affected by the sediment removal or bank stabilization activities within the general reach footprint in which the disturbance has occurred. On-site restoration typically restores and enhances a larger area than is impacted by maintenance activities. However, for simplicity in accounting, the on-site mitigation is calculated as a 1:1 ratio (acres disturbed to acres restored). As described in Chapter 8 of the SMP Manual, Tier 1 on-site mitigation activities include a robust planting program to develop a fuller riparian corridor and the removal of exotic and invasive species to enhance instream habitat and remove migration barriers.

More detailed descriptions of Tier 1 mitigation is provided in the Annual Summary Report (provided by January 31$^{st}$) following completion of the restoration planting. In general restoration aims to add to existing vegetation and replace habitat that was disturbed during sediment removal or bank work. In general restoration is intended to shepherd the riparian zone through a successional process that incorporates transitioning the vegetation from an early seral state to a climax. The seral to climax shift primarily involves going from higher to lower density of trees as each matures. Specific treatments are selected to restore the type of habitat lost and enhance the existing vegetation. In other words, if a given reach currently supports an extensive riparian corridor, restoration efforts focus on creating complexity in canopy layers (adding native shrub and grass understory) along with re-establishing instream graminoids (aquatic sedges, rushes and grasses). If a given reach has few trees or shrubs, then restoration focuses on establishing riparian habitat following the conceptual planting design (Figure 8-3 in the SMP Manual). Commonly, projects follow the conceptual planting designs, however, larger channels such as the lower Laguna de Santa Rosa and Santa Rosa Creek provide additional areas

that can accommodate additional "planting lines" (areas where woody plants can be allowed in the stream cross section with a minimal loss to capacity). The preliminary planting approach for each project and type is identified in the table below (additional opportunities are indicated where feasible):

**Table 4-1: Tier 1 Mitigation Summary**

| MAINTENANCE PROJECT | RESTORATION ACTIVITY |
|---|---|
| ***ZONE 1A*** | |
| **Localized Scale Sediment Removal** | |
| Brush Creek 2 & Austin Creek 1 | Upper bank plantings –upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Ducker Creek 2 | Upper bank plantings –upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Roseland Creek 1 | Upper bank plantings –upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Windsor Creek 3/4 | Upper bank plantings –upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| **Reach Scale Sediment Removal** | |
| Colgan Creek 3, 4, and 5 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Forestview Creek 2 and 3 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Hinebaugh Creek 3, 4, and 5 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Starr Creek 2 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Steele Creek 2 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |

| MAINTENANCE PROJECT | RESTORATION ACTIVITY |
|---|---|
| Todd Creek 1 and 2 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| **Sediment Basin/Instream Basin Sediment** | |
| Cook 2 | None* |
| Copeland 3 & 4 | None |
| Copeland 4 & 5 | None |
| Five 1 | None |
| Paulin 5 & 6 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Todd 5 | None** |
| Wilfred 1 | None |
| **Reservoir Inlet Clearing** | |
| Brush | None |
| Matanzas | None |
| Piner | None |
| Santa Rosa | None |
| Santa Rosa Div. 1/ Fish Ladder | None |
| ***ZONE 2A*** | |
| **Reach Scale Sediment Removal** | |
| Corona Creek Tributary 1 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| East Washington Creek 3, 4, and 5 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Lichau Creek 1 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Lynch Creek 1 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| Washington Creek 6 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| **Sediment Basin/Instream Sediment Basin Sediment** | |
| Adobe Creek 1/2 | None |

| MAINTENANCE PROJECT | RESTORATION ACTIVITY |
|---|---|
| Jessie Lane Creek 1 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |
| ***ZONE 3A*** | |
| **Reach Scale Sediment Removal** | |
| Nathanson Creek Bypass 1 | Upper bank plantings -upland and riparian trees and shrubs<br>Toe riparian tree and shrub plantings<br>Establishing native grasses<br>Establishing instream graminoids |

*None- sediment basin impacts are initially attributed to Tier 3 mitigation. Future projects in same area are not subject to additional mitigation

**While a first-time clearing of the Todd 5 instream sediment basin is proposed for 2013, a Tier 3 mitigation will not be needed as the Tier 1 reach-scale mitigation project that occurred on Todd 5 in 2008 covers the impacts for re-establishing the design grade of the instream sediment basin.

For the 2013 maintenance year, projects that will be at sites previously established as instream sediment basin clearing areas (which also includes reservoir inlets, concrete lined channels and fish ladders) or that are intended to serve as sediment basin clearing areas in the future include the following (note that the date of establishment is included after the reach designation in parenthesis):

- Adobe 1 &2 (2009)
- Colgan 3 & 4 (2012)
- Cook 2 (2008)
- Copeland 3 & 4 (2008)
- Copeland 4 & 5 (2008)
- Five 1 (2010)
- Jessie Land Creek 1
- Paulin 5 & 6 (2013)
- Todd 5 above Dolores Lane (2013)
- Wilfred 1 (2009)
- Brush Creek Reservoir inlet (2011)
- Matanzas Creek Reservoir Inlet (2011)
- Piner Creek reservoir Inlet (2011)
- Santa Rosa Creek Reservoir (2011)
- Santa Rosa Div. 1 fish ladder (2012)

# 4B. Off-Site Mitigation Activities (Tiers 2 and 3)

As described in the SMP Manual, off-site mitigation is provided to address the temporal gap between when on-site impacts occur and when on-site mitigation is provided. Tier 2 mitigation

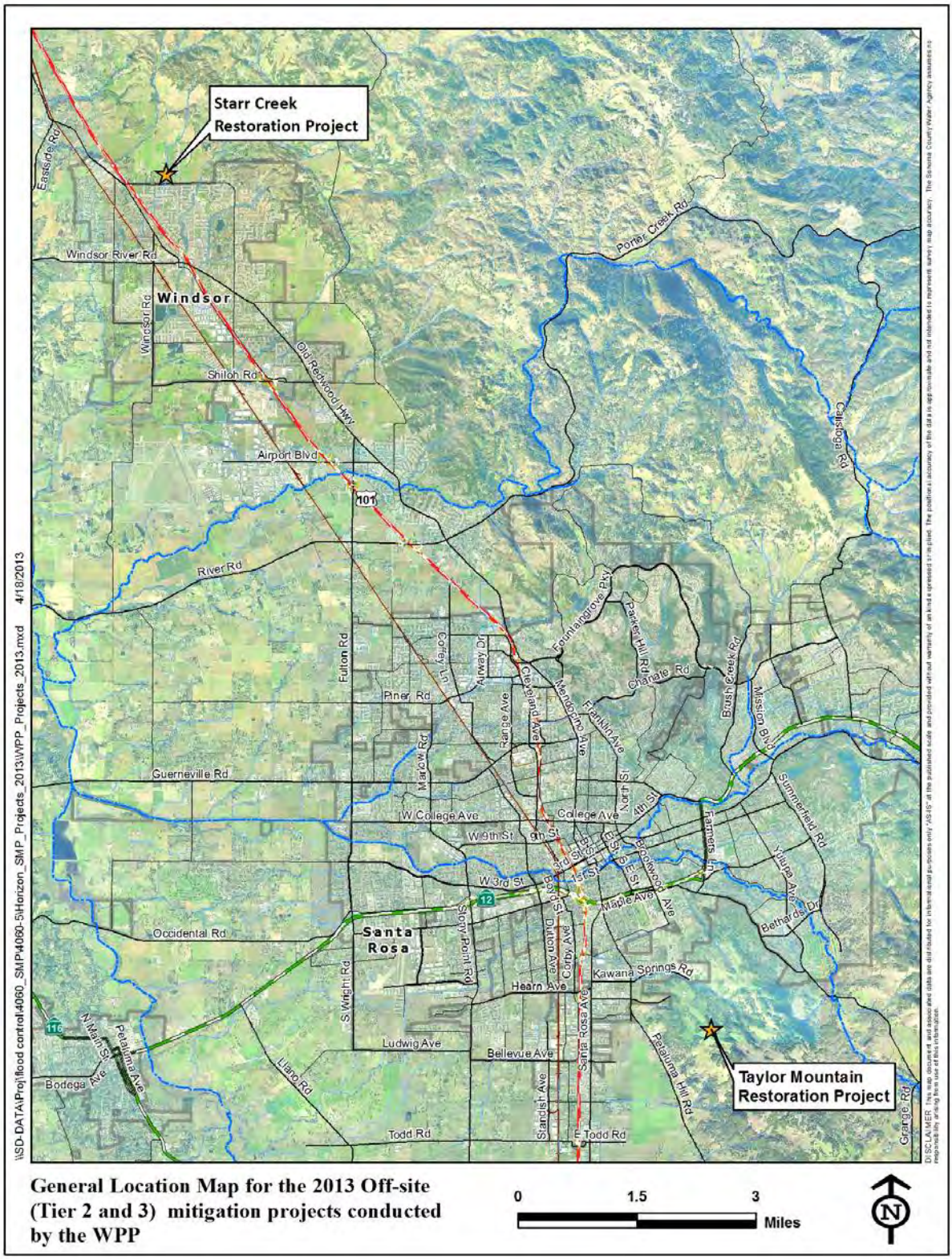
provides in-kind mitigation at neighboring SMP reaches that afford an opportunity for mitigation. Tier 3 mitigation projects provide restorative and mitigating watershed solutions that address SMP impacts at an off-site location. Tier 3 mitigation is implemented through a 10% matching contribution of SMP maintenance costs. SMP off-site watershed mitigation is led and funded by the Water Agency through a Watershed Partnerships Program (WPP) grant program to distribute funding to partnering agencies. These projects are implemented collaboratively with local non-profit agencies and Resource Conservation Districts (RCDs)

WPP partners are required to meet SMP permit requirements during development and implementation of their projects. Taken together with Tier 1 onsite mitigation these projects address the impacts of 2013 maintenance activities by conducting in-kind riparian and stream restoration in geographic proximity to this year's SMP maintenance. The success criteria and commitments described in Chapter 8 of the SMP Manual regarding implementation of off-site restoration projects apply to all of the 2013 WPP projects. These criteria and commitments include describing planting success rates (75%), a 5-yr monitoring period with annual reporting, and a description of what happens in the event of unsuccessful projects. 2013 WPP project locations are designated in Figure 4-1 below. WPP project proposals are included in Appendix C. Cost and area accounting for 2013 WPP proposed projects is indicated in Tables 4-2 through 4-5.

Construction costs and the quantity of WPP projects needed each year to meet the temporal need vary. On average the Water Agency's ten percent matching contributions provide between $50,000 and $120,000 to the WPP project fund. Generally, while this funding is adequate to meet the minimum need of ten percent of the area affected for each given year, specific partner's propose projects of a larger scale than the mitigation needed. For this reason the Water Agency has contributed between $200,000 and $250,000 to the WPP each year since 2008. This approach has provided for watershed restoration to be accomplished in advance of the impacts associated with stream maintenance, and has provided vitally needed support for local restoration nonprofits. Additionally, this approach has vastly increased program flexibility and has provided a way to bank temporal mitigation in advance of the actual work. The banked mitigation accounts can then be assigned as needed to appropriate impacts dependant on regulatory approval.

For 2013, two projects are being brought forward as Tier 3 Mitigation, a Center for Environmental Stewardship Project (2013 Starr Creek Restoration Project) and a project put forward by Point Reyes Observatory (now Point Blue Conservation Science): 2013 STRAW Taylor Mountain Restoration Project. The Point Blue project on Taylor Mountain has yet to be fully described in terms of anticipated work. The project will be focused on riparian restoration and enhancement, and sediment reduction. Precise details of the proposed Tier 3 WPP project will be forwarded to the Inter-Agency Workgroup for approvals as the scope and agreement is developed.

**Figure 4-1: General Location Map for the 2013 Off-site (Tier 2 and 3) mitigation projects.**




General Location Map for the 2013 Off-site (Tier 2 and 3) mitigation projects conducted by the WPP

**Table 4-2: List of Tier 3 Restoration Projects**

| Project Name | Project Size | Project Cost | Year To Be Completed | Project Purpose |
|---|---|---|---|---|
| Center for Environmental Stewardship: 2013 Starr Creek Restoration Project | 1.00 acres | $54,322 | 2014 | Invasive plant removal and installation of native vegetation to improve habitat quality, utilizing volunteers from The Center |
| PRBO: 2013 STRAW Taylor Mountain Restoration Project* | TBD | TBD | TBD | TBD |
| **Totals** | **TBD** | **TBD** | | |

*Project details for the 2013 STRAW Taylor Mountain Restoration Project were being finalized at the submittal of this Notification. Project details will be submitted for review prior to the commencement of any related activity.

**Table 4-3. Summary of Maintenance Costs and Off-Site Mitigation Contributions**

| Project | Cost | Off-Site Mitigation Contribution |
|---|---|---|
| ***Localized Sediment Removal Projects*** | | |
| Brush Creek 2/Austin Creek 1 | $52,126 | $5,212 |
| Ducker Creek 2 | $5,128 | $513 |
| Roseland Creek 1 | $21,453 | $2,145 |
| Windsor Creek 3/4 at Natalie Dr | $21,012 | $2,101 |
| ***Reach Scale Sediment Removal Projects*** | | |
| Colgan Creek 3, 4, and 5 | $89,281 | $8,928 |
| Corona Creek Tributary 1 (Zone 2A) | $67,531 | $6,753 |
| East Washington 3, 4, and 5 (Zone 2A) | $102,241 | $10,224 |
| Forestview Creek 2 and 3 | $47,964 | $4,796 |
| Hinebaugh Creek 3, 4, and 5 | $204,120 | $20,412 |
| Lichau Creek 1 (Zone 2A) | $27,784 | $2,778 |
| Lynch Creek 1 (Zone 2A) | $100,533 | $10,053 |
| Nathanson Creek Bypass 1 (Zone 3A) | $32,672 | $3,267 |
| Starr Creek 2 | $25,442 | $2,544 |
| Steele Creek 2 | $27,577 | $2,758 |
| Todd Creek 1 and 2 | $92,018 | $9,202 |
| Washington Creek 6 (Zone 2A) | $73,813 | $7,381 |
| ***Sediment Basin/Instream Basin Clearing Projects*** | | |
| Adobe Creek 1/2 at S. McDowell Blvd (Zone 2A) | $40,510 | $4,051 |
| Cook Creek 2 (basin) at Petaluma Hill Blvd | $8,102 | $810 |
| Copeland Creek 3 /4 at Country Club Dr | $21,605 | $2,161 |
| Copeland Creek 4/5 at Snyder Ln | $40,510 | $4,051 |
| Five Creek 1 at Snyder Ln | $5,401 | $540 |
| Jessie Lane Creek 1 at Petaluma Blvd (Zone 2A) | $810 | $81 |
| Paulin Creek 5/6 at Hardies, Range and McBride crossings | $41,765 | $4,177 |
| Todd 5 at rocked crossing | $23,889 | $2,389 |
| Wilfred Creek 1 at Snyder Ln | $5,401 | $540 |
| ***Reservoir Inlet Clearing Projects*** | | |

| Project | | Cost | Off-Site Mitigation Contribution |
|---|---|---|---|
| Brush Creek Reservoir | | $4,801 | $480 |
| Matanzas Creek Reservoir | | $12,003 | $1,200 |
| Piner Creek Reservoir | | $4,801 | $480 |
| Santa Rosa Creek (Spring Lake) Reservoir | | $12,003 | $1,200 |
| Fish ladder in Santa Rosa Div. 1 | | $600 | $60 |
| **Cost and Mitigation Totals** | | | |
| | Zone 1A total | $767,002 | $76,700 |
| | Zone 2A total | $413,222 | $41,322 |
| | Zone 3A total | $32,672 | $3,267 |
| ***Maintenance Cost and Mitigation Requirements (Total)*** | | ***$1,212,896*** | ***$121,289*** |

*located in Zone 1A unless otherwise denoted

**Table 4-4. 2012 Proposed Mitigation Projects**

| 2012 WPP Mitigation Projects | |
|---|---|
| Center for Environmental Stewardship: 2013 Starr Creek | $54,322 |
| PRBO Conservation Science: 2013 Taylor Mountain* | TBD |
| WPP total | TBD |
| **Off Site Mitigation Funding provided by SCWA in 2012** | **TBD** |
| **2013 Off Site Mitigation Funding Requirement** | **$121,298** |
| **Difference Between 2013 Off Site Funding Requirement and Identified 2013 WPP Projects** | **-$66,976** |
| **Carry-over Mitigation Projects from 2012** | **$74, 400** |
| **Carry-over Mitigation Projects from 2011** | **$115,130** |
| **Utilized Mitigation Credit** | **$66,976** |
| **Total Funded Mitigation Credit Available to Apply to Subsequent Seasons** | **$122,554** |

*Project details for the 2013 STRAW Taylor Mountain Restoration Project were being finalized at the submittal of this Notification. Project details will be submitted for review prior to the commencement of any related activity. Table 4-4 balances the needed mitigation requirement for 2013 by utilizing funded mitigation credit accumulated since 2008.

**Table 4-5. Accounting of Impacts and Mitigation**

| Project by Type | Impact (acres) | Mitigation (acres) | Ratio of Mitigation to Impact |
|---|---|---|---|
| **On-Site Mitigation** | | | |
| ***Localized Sediment Removal*** | | | |
| Brush Creek 2/Austin Creek 1 | 0.13 | 0.13 | 1:1 |
| Ducker Creek 2 | 0.01 | 0.01 | 1:1 |
| Roseland Creek 1 | 0.59 | 0.59 | 1:1 |
| Windsor Creek 3/4 | 0.07 | 0.07 | 1:1 |
| ***Reach-Scale Sediment Removal*** | | | |
| Colgan Creek 3, 4, and 5 | 2.06 | 2.06 | 1:1 |
| Corona Creek Tributary 1 (Zone 2A) | 0.96 | 0.96 | 1:1 |
| East Washington 3, 4, and 5 (Zone 2A) | 0.77 | 0.77 | 1:1 |
| Forestview Creek 2 and 3 | 0.93 | 0.93 | 1:1 |
| Hinebaugh Creek 3, 4, and 5 | 2.43 | 2.43 | 1:1 |
| Lichau Creek 1 (Zone 2A) | 0.31 | 0.31 | 1:1 |
| Lynch Creek 1 (Zone 2A) | 0.88 | 0.88 | 1:1 |
| Nathanson Creek Bypass 1 (Zone 3A) | 0.21 | 0.21 | 1:1 |
| Starr Creek 2 | 0.28 | 0.28 | 1:1 |
| Steele Creek 2 | 0.21 | 0.21 | 1:1 |
| Todd Creek 1 and 2 | 1.33 | 1.33 | 1:1 |
| Washington Creek 6 (Zone 2A) | 0.43 | 0.43 | 1:1 |
| ***Sediment Basin/Instream Basin Clearing*** | | | |
| Adobe Creek 1/2 at S. McDowell Blvd (Zone 2A) | n/a | n/a | Sed-Basin, 2008** |
| Cook Creek 2 (basin) at Petaluma Hill Blvd | n/a | n/a | Sed-Basin, 2008 |
| Copeland Creek 3 /4 at Country Club Dr | n/a | n/a | Sed-Basin, 2008 |
| Copeland Creek 4/5 at Snyder Ln | n/a | n/a | Sed-Basin, 2008 |
| Five Creek 1 at Snyder Ln | n/a | n/a | Sed-Basin, 2010 |
| Jessie Lane Creek 1 at Petaluma Blvd (Zone 2A) | 0.01 | 0.01 | 1:1 |
| Paulin Creek 5/6 at Hardies, Range and McBride crossings | 0.18 | 0.18 | 1:1 |
| Todd 5 at rocked crossing above Dolores Lane | n/a | n/a | Sed-Basin, 2013*** |
| Wilfred Creek 1 at Snyder Ln | 0.05 | n/a | Sed-Basin, 2010 |
| ***Reservoir Inlet Clearing*** | | | |
| Brush Creek Reservoir | n/a | n/a | Sed-Basin, 2011 |
| Matanzas Creek Reservoir | n/a | n/a | Sed-Basin, 2011 |
| Piner Creek Reservoir | n/a | n/a | Sed-Basin, 2011 |
| Santa Rosa Creek (Spring Lake) Reservoir | n/a | n/a | Sed-Basin, 2011 |
| Santa Rosa Div. 1 fish ladder | n/a | n/a | Sed-Basin, 2012 |
| **Total** | **11.79** | **11.79** | **1:1** |
| **Off-Site Mitigation (Projects new for 2013)** | | | |
| Center for Environmental Stewardship: 2013 Starr Creek | | 1.00 | |
| PRBO Conservation Science: 2013 Taylor Mountain | | TBD | |
| ***New 2013 Offsite Mitigation Project(s) total*** | | ***1.00*** | |

| **2013 Impact to Mitigation Accounting** | **Impact (acres)** | **Mitigated (acres)** | **Replacement Ratio** |
|---|---|---|---|
| **Total Tier 1 Impact** | **11.79** | **11.79** | **1:1** |

| | | | |
|---|---|---|---|
| **Additional Required Temporal Mitigation (10% of 11.79)** | | **1.18** | **1:0.10** |
| **Total Mitigation Area Required** | | **12.97** | |
| *Total mitigation area required includes all affected Tier 1 areas (11.79 acres) plus 10 percent additional area (1.179 acres)* | | | |
| **Total Required Mitigation Area for 2013 (Tier 1 Impacts +10 % for Temporal Impacts) (11.79+ 1.179)** | | **12.97** | **1:1.1** |
| | | | |
| **2013 Tier 2 and 3 Contribution Total ( Temporal Mitigation)** | | **1.00** | |
| **2013 Tier 2 and Tier 3 Requirement** | | **1.18** | |
| **2013 Temporal Mitigation Less the Required 10 Percent Area (1.00-1.18)** | | **-0.18** | |
| | | | |
| **2013 Tier 2 and 3 Mitigation Area Carryover (1.00-1.18)** | | **-0.18** | |
| **2012 Tier 2 and 3 Mitigation Area Carryover** | | **10.4** | |
| **2012-2013 Combined Tier 2 and Tier 3 Mitigation Carryover (-0.18+10.4)** | | **9.22** | |

*Located in Zone 1A unless otherwise denoted

**** Sed-Basins are instream focused sediment collection areas. Utilizing these areas frequently significantly reduces sediment loads downstream. The SMP treats reservoir inlets, concrete lined channels, and fish ladders as instream focused sediment removal areas. The SMP assumes that initial impacts for re-establishing design grade for instream sediment basins will be mitigated through Tier 3 projects. For follow-up (often annual) sediment removal, mitigation will not be required as these areas will be disturbed regularly and permanent plant establishment would be impossible. Dates indicate the year of establishment as a sediment basin and subsequent completion of a one-time Tier 3 mitigation.

***While a first-time clearing of the Todd 5 instream sediment basin is proposed for 2013, a Tier 3 mitigation will not be applicable. Instead, the Tier 1 reach-scale mitigation project that occurred on Todd 5 in 2008 covers the impacts for re-establishing the design grade of the instream sediment basin

# Section 5
# Annual Sediment Disposal Plan

The 2013 annual sediment testing and disposal plan was developed in collaboration with the North Coast and San Francisco Regional Water Quality Control Boards (Regional Boards). The sediment testing requirements for the Stream Maintenance Program are defined in the Regional Board's Monitoring and Reporting Program (MRP) issued for the joint Order for 401 Certification and Waste Discharge Requirements (Order No. R1-2009-0049). At the request of SCWA and through discussions with the Regional Boards, the testing requirements were refined in 2013 to better target pollutant sources.

This section provides an overview of the refined sediment testing plan and the proposed disposal sites for the 2013 maintenance projects. At this time (April 30, 2013), sediment test results are pending and will be provided to regulatory agencies, once lab results are received, anticipated in late-May.

## 5A. Sediment Sampling and Testing

### Approach and Methods

At the time the MRP was developed, little was known regarding the nature and extent of potential environmental pollutants in stream sediments within the SMP area. Thus, the MRP was developed with a conservative and comprehensive analyte list that includes Resource Conservation and Recovery Act (RCRA) priority pollutants and emerging pollutants of concern.

The 2009 maintenance year was the first year which the MRP sediment testing requirements were implemented. Sediment testing results from 2009 varied due to methodology consistency issues at the laboratory and using different sediment sampling protocols during collection. In addition to these issues, in 2009 the Regional Board was uncertain about which standards the sediment disposal site should be held to. As a result, the 2009 sediment disposal site was not approved for use in 2009, and the majority of 2009 sediment removal activities were not conducted.

In preparation for the 2010 maintenance season, the Water Agency met with the Regional Board on two occasions in early 2010 to review the MRP sampling requirements, and the required analyte testing list in particular. Through discussions with Regional Board staff, the

analyte list was refined to better detect sediment characteristics relevant to the SMP program area.

Based on guidance from the Regional Boards, the analyte list was refined to consider watershed position, surrounding land use, sediment type (gravel, sand, clay content) on site-by-site bases. This screening approach based on these watershed conditions improved the methodology for detecting anthropogenic contaminants (as opposed to naturally occurring contaminants). For example, maintenance sites located in or near industrial areas in the lower watershed would be tested for a wider range of potential contaminants; whereas, sites located in residential areas in the upper watershed would be tested for a smaller range of potential contaminants. An amendment to standardize sampling and testing requirements throughout Sonoma County was requested and approved by the San Francisco Regional Water Quality Control Board beginning with the 2013 season. Refinements to the MRP are described further below and illustrated in Tables 5-1 and 5-2.

Beginning in 2010, sediment sampling techniques were standardized and improved compared to previous sediment sampling efforts. Additional time was spent to train the sampling crew in proper decontamination and handing of sampling equipment and on proper sampling techniques. All equipment that contacts sediment samples were decontaminated with Alconox soap (an anionic, residue-free detergent) and isopropyl alcohol, then thoroughly rinsed with deionized water. The sampling equipment was rewashed with Alconox soap and thoroughly rinsed with deionized water immediately prior to and between each sampling event (between sampling sites, but not between composite samples). Latex-free gloves were worn by the sampling crew at all times. Decontaminated equipment and the lab sample containers were transported to and from the decontamination area and the sampling site in a plastic bag to prevent contamination.

To ensure the quality of test results received would meet MRP reporting level requirements, the Water Agency contracted with Columbia Analytical Laboratories (CAS) in Kelso, Washington for the 2012 and 2013 sediment testing seasons. This laboratory specializes in analysis of freshwater sediments and operates a specialized lab for low-level detection of dioxin.

## Analytes Tested by Site

**Table 5-1** includes the EPA test methods and reporting limits applied to the 2010 sediment samples. This list reflects the modifications made to the original 2009 MRP analyte list. The specific revisions made to the MRP analyte table are listed below.

- Total Metals – list reduced to the following 10 metals consistent with Method 6020A for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc.
- Volatile Organic Compounds (VOCs) – Method 8260B (no change)

- Polycyclic Aromatic Hydrocarbons (PAHs) – Method 8270C (using more targeted subset within broad Method 8270C list)
- Polychlorinated biphenyls (PCBs) and Organochlorine Pesticides – Method 8082A instead of 8081 (no analysis for Kepone because it is not used in the U.S.)
- Organophosphorus Pesticides – Method 8270C instead of 8141A (no analysis for azinphos-ethyl, ethion, famphur, simazine, thionazin because these pesticides are not used in the U.S.)
- Dioxin/Furans – Method 8290 (lab that can properly meet the detection limits)
- Total Organic Carbon – added to better detect for anthropogenic hydrocarbons in conjunction with Method 8270C (PAHs) which substitutes for TPH testing.
- pH, fluoride, asbestos, nonylphenol – no change from MRP

## Approach for 2013 Sediment Sampling and Testing

For the 2013 season, sediment sampling and testing will be conducted according to the requirements of the MRP and as detailed in the Sediment Sampling and Analysis Guidelines in Appendix B of the SMP Manual. Maintenance reaches, estimated quantities of sediment to be removed, the number of samples to be collected, suite of analytes to be tested are shown in Table 5-2 below. Notes to explain the sampling proposal are also provided. As indicated in the table, the "full suite" of analytes includes those listed in Tables 1 and 2 of the amended MRP. However, analysis for TPH and PCB congeners will not be conducted, per Regional Board approvals received on February 24, 2012. Test results since 2010 have not detected elevated traces of PCB congeners in any of the samples collected from a wide variety of locations. Detected levels of TPH's since 2010 indicated that all measured hydrocarbon concentrations detected originated from terrestrial plants, not anthropogenic petroleum or petroleum-based products. The "subset" list of analytes includes metals listed in Tables 1 and 2, total organic carbon, and total solids.

**Table 5-2: Proposed Sediment Sampling Plan for 2013**

| **Sample Location** | **Sample ID** [Full Suite (FS) or Subset (SU)] | **Notes for Lab** | **Sample Collection Location** (station numbers on plan set) |
|---|---|---|---|
| **ZONE 1A – SANTA ROSA (Zone 1A Analyte List)** | | | |
| Windsor Creek 3/4 | SU001 | See Zone 1A list | 134+03<br>133+09 |
| Starr Creek 2 | FS002 | | 43+75 |
| Paulin Creek 5/6 | FS003 | | 702+14<br>695+06<br>687+95 |
| Steele Creek 2 | FS004 | | 634+44<br>631+77 |
| Forestview Creek 2/3 | SU005 | | 532+35<br>549+60 |

| **Sample Location** | **Sample ID** [Full Suite (FS) or Subset (SU)] | **Notes for Lab** | **Sample Collection Location** (station numbers on plan set) |
|---|---|---|---|
| Brush Creek 2 | FS006 | Additional tests: 8260 and RCI | Composite of 3 wedges |
| Roseland Creek 1 | FS007 | | Crossing #1<br>Crossing #6 |
| Colgan 3/4 | FS008 | Additional tests: 8260 and RCI | Downstream Sample:<br>143+70<br>146+00<br>159+98<br>154+18<br>176+22 |
| Colgan 4/5 | FS009 | Additional tests: 8260 and RCI | Upstream Sample:<br>189+79<br>200+45<br>197+94<br>191+60<br>202+61<br>281+00 (reach 5) |
| Todd Creek 1/2 | FS010 | Additional tests: 8260 and RCI | 18+76 (reach 1)<br>37+24 (reach 2) |
| Todd Creek 2 | FS011 | Additional tests: 8260 and RCI | Downstream of Hwy 101<br>43+78<br>42+12 |
| Todd Creek 5 | FS012 | Additional tests: 8260 and RCI | 115+84 |
| Hinebaugh Creek 3/4 | FS013 | | 188+32<br>195+35<br>192+49<br>-0+07<br>11+81 (reach 4) |
| Hinebaugh Creek 5 | FS014 | | 25+35<br>19+21 |

| Sample Location | Sample ID [Full Suite (FS) or Subset (SU)] | Notes for Lab | Sample Collection Location (station numbers on plan set) |
|---|---|---|---|
| **ZONE 2A – PETALUMA (Zone 2A/3A Analyte List)** | | | |
| Lichau/Willowbrook 1 | FS015 | See Zone 2A/3A List: Additional 8082A (PCB Aroclors) | 9+92 |
| Corona Creek Tributary 1 | FS016 | Additional 8082A (PCB Aroclors) | 14+37<br>21+87<br>27+08 |
| Lynch 1 | FS017 | Additional 8082A (PCB Aroclors) | 4+91<br>7+00 |
| Lynch 1 | FS019 | Additional 8082A (PCB Aroclors) | 11+03<br>13+00 |
| Washington 6 | FS020 | Additional 8082A (PCB Aroclors) | 73+78<br>67+42<br>58+45 |
| E. Washington 3/4/5 | FS021 | Additional 8082A (PCB Aroclors) | 48+82<br>52+17 |
| E. Washington 3/4/5 | FS022 | Additional 8082A (PCB Aroclors) | 58+72<br>55+46 |
| Adobe Creek Sediment Basin | FS023 | Additional 8082A (PCB Aroclors) | In basin |
| **ZONE 3A – SONOMA (Zone 2A/3A Analyte List)** | | | |
| Nathanson Creek Bypass 1 | FS024 | Additional 8082A (PCB Aroclors) | 7+04 |

Total 23

# Table 1: Sediment Sample Analyte List for Zone 1A

| EPA Test Method[1] | Analyte | Reporting Limit for Soil (dry weight mg/kg) | Analyte | Reporting Limit for Soil (mg/kg) |
|---|---|---|---|---|
| | **Conventional Parameters** | | | |
| | Grain Size (%) | 0.1 | | |
| **9060** | Total organic carbon (TOC) (%) | 0.1 | | |
| | Total solids (%) | 0.1 | | |
| **6020** | **Total Metals** | | | |
| | Arsenic | 0.1 | Mercury (total) | 0.02 |
| | Cadmium (total) | 0.1 | Nickel (total) | 0.1 |
| | Chromium (total) | 0.1 | Selenium (total) | 0.1 |
| | Copper (total) | 0.1 | Silver (total) | 0.1 |
| | Lead (total) | 0.1 | Zinc (total) | 1 |
| **8081 or 8082A** | **Organochlorine Pesticides** | | | |
| | Aldrin | 0.02 | Dieldrin | 0.02 |
| | α-HCH (hexachlorocyclohexane) | 0.02 | Endosulfan I | 0.02 |
| | β-HCH | 0.02 | Endosulfan II | 0.02 |
| | γ-HCH (Lindane) | 0.02 | Endosulfan sulfate | 0.02 |
| | δ-HCH | 0.02 | Endrin | 0.02 |
| | Chlordane (tech) | 0.02 | Endrin aldehyde | 0.02 |
| | 2,4'-DDD | 0.02 | Heptachlor | 0.02 |
| | 4,4'-DDD | 0.02 | Heptachlor epoxide | 0.02 |
| | 2,4'-DDE | 0.02 | Toxaphene | 0.02 |
| | 4,4'-DDE | 0.02 | | |
| | 2,4'-DDT | 0.02 | | |
| | 4,4'-DDT | 0.02 | | |
| | Total DDT | NA | | |
| **8270C Modified or 8270D[2]** | **Poly Aromatic Hydrocarbons (PAHs)** | | | |
| | 2-Methylnaphthalene | 0.2 | Chrysene | 0.2 |
| | Acenaphthene | 0.2 | Dibenz(a,h)anthracene | 0.2 |
| | Acenaphthylene | 0.2 | Fluoranthene | 0.2 |
| | Anthracene | 0.2 | Fluorene | 0.2 |
| | Benz(a)anthracene | 0.2 | Indeno(1,2,3-cd)pyrene | 0.2 |
| | Benzo(a)pyrene | 0.2 | Naphthalene | 0.2 |
| | Benzo(b)fluoranthene | 0.2 | Perylene | 0.2 |
| | Benzo(k)fluoranthene | 0.2 | Phenanthrene | 0.2 |
| | | | Pyrene | 0.2 |
| | | | Low molecular weight PAHs, sum | NA |
| | | | High molecular weight PAHs, sum | NA |
| | | | PAHs, total | NA |
| **8015-Modified and 3550A-cleanup[3]** | **Aliphatics (SHC) (aka TPH) (µg/g dry weight)** | | | |
| | Individual *n*-alkanes from $nC_9$-$nC_{40}$ | 0.05 | TPH as Diesel | 1.0 |
| | Pristane | 0.05 | TPH as Gasoline | 1.0 |

| **EPA Test Method**[1] | **Analyte** | **Reporting Limit for Soil** (dry weight mg/kg) | **Analyte** | **Reporting Limit for Soil** (mg/kg) |
|---|---|---|---|---|
| | Phytane | 0.05 | TPH as Motor Oil | 2.0 |

[1] The most recent version of EPA's Test Methods will be used.
[2] Analysis of the completed extended list of PAHs, including ~40 parent and alkylated PAH homologues, will be conducted by the laboratory. Only the listed PAHs will be reported to the regulatory agencies. However, **ALL PEAKS SHALL BE REPORTED.**
[3] Analysis of TPHs will be performed using appropriate cleanup methods (e.g., EPA Method 3550A with silica gel and alumina column) to remove naturally occurring biogenic material. In addition, results for individual alkanes, ranging from ~C9-C40 will be reported by the laboratory so that biogenic hydrocarbons can be distinguished from petrogenic (petroleum-related) sources.

# Table 2: Sediment Sample Analyte List for Zone 2A and Zone 3A

| EPA Test Method[1] | Analyte | Reporting Limit for Soil (dry weight mg/kg) | Analyte | Reporting Limit for Soil (mg/kg) |
|---|---|---|---|---|
| | **Conventional Parameters** | | | |
| | Grain Size (%) | 0.1 | | |
| **9060** | Total organic carbon (TOC) (%) | 0.1 | | |
| | Total solids (%) | 0.1 | | |
| **6020** | **Total Metals** | | | |
| | Arsenic | 0.1 | Mercury (total) | 0.02 |
| | Cadmium (total) | 0.1 | Nickel (total) | 0.1 |
| | Chromium (total) | 0.1 | Selenium (total) | 0.1 |
| | Copper (total) | 0.1 | Silver (total) | 0.1 |
| | Lead (total) | 0.1 | Zinc (total) | 1 |
| **8082A** | **Polychlorinated biphenyls (PCBs)** | | | |
| | Aroclor 1016 | 0.20 | | |
| | Aroclor 1221 | 0.20 | | |
| | Aroclor 1232 | 0.20` | | |
| | Aroclor 1242 | 0.20 | Total Aroclors | NA |
| | Aroclor 1248 | 0.20 | | |
| | Aroclor 1254 | 0.20 | | |
| | Aroclor 1260 | 0.20 | | |
| **8081 or 8082A** | **Organochlorine Pesticides** | | | |
| | Aldrin | 0.02 | Dieldrin | 0.02 |
| | α-HCH (hexachlorocyclohexane) | 0.02 | Endosulfan I | 0.02 |
| | β-HCH | 0.02 | Endosulfan II | 0.02 |
| | γ-HCH (Lindane) | 0.02 | Endosulfan sulfate | 0.02 |
| | δ-HCH | 0.02 | Endrin | 0.02 |
| | Chlordane (tech) | 0.02 | Endrin aldehyde | 0.02 |
| | 2,4'-DDD | 0.02 | Heptachlor | 0.02 |
| | 4,4'-DDD | 0.02 | Heptachlor epoxide | 0.02 |
| | 2,4'-DDE | 0.02 | Toxaphene | 0.02 |
| | 4,4'-DDE | 0.02 | | |
| | 2,4'-DDT | 0.02 | | |
| | 4,4'-DDT | 0.02 | | |
| | Total DDT | NA | | |
| **8270C or 8270D[2]** | **Poly Aromatic Hydrocarbons (PAHs)** | | | |
| | 2-Methylnaphthalene | 0.2 | Chrysene | 0.2 |
| | Acenaphthene | 0.2 | Dibenz(a,h)anthracene | 0.2 |
| | Acenaphthylene | 0.2 | Fluoranthene | 0.2 |
| | Anthracene | 0.2 | Fluorene | 0.2 |
| | Benz(a)anthracene | 0.2 | Indeno(1,2,3-cd)pyrene | 0.2 |
| | Benzo(a)pyrene | 0.2 | Naphthalene | 0.2 |
| | Benzo(b)fluoranthene | 0.2 | Perylene | 0.2 |
| | Benzo(k)fluoranthene | 0.2 | Phenanthrene | 0.2 |
| | | | Pyrene | 0.2 |
| | | | Low molecular weight PAHs, sum | NA |
| | | | High molecular weight PAHs, | NA |

| EPA Test Method[1] | Analyte | Reporting Limit for Soil (dry weight mg/kg) | Analyte | Reporting Limit for Soil (mg/kg) |
|---|---|---|---|---|
| | | | sum | |
| | | | PAHs, total | NA |
| **8015-Modified and 3550A-cleanup[3]** | **Aliphatics (SHC) (aka TPH) (µg/g dry weight)** | | | |
| | Individual *n*-alkanes from $nC_9$-$nC_{40}$ | 0.05 | TPH as Diesel | 1.0 |
| | Pristane | 0.05 | TPH as Gasoline | 1.0 |
| | Phytane | 0.05 | TPH as Motor Oil | 2.0 |

[1] The most recent version of EPA's Test Methods will be used.
[2] Analysis of the completed extended list of PAHs, including ~40 parent and alkylated PAH homologues, will be conducted by the laboratory. Only the listed PAHs will be reported to the regulatory agencies. However, **ALL PEAKS SHALL BE REPORTED.**
[3] Analysis of TPHs will be performed using appropriate cleanup methods (e.g., EPA Method 3550A with silica gel and alumina column) to remove naturally occurring biogenic material. In addition, results for individual alkanes, ranging from ~C9-C40 will be reported by the laboratory so that biogenic hydrocarbons can be distinguished from petrogenic (petroleum-related) sources.

## As Indicated:

| EPA Test Method[1] | Analyte | Reporting Limit (dry weight mg/kg) | Analyte | Reporting Limit (mg/kg) |
|---|---|---|---|---|
| **8260** | VOCs | 0.005 ppm MTBE | **RCI** | Sulfide <50<br>Cyanide 1<br>Flashpoint 100 deg.F or 50 deg. C |

## Representative Sampling Photos

The exact locations of all the sediment sampling sites will be provided in a matrix along with the sample results. Below are two photos taken during sediment sampling events conducted in April 2013.

Starr Creek 2 - Sampling Site (4/23/13)

Steele Creek 2 – Sampling Site (4/23/13)

# 5B. Sediment Disposal and Reuse

As described in the SMP Manual, the Water Agency will continue to make every effort to beneficially reuse as much of the excavated materials from the maintenance sites as possible. The Water Agency also supports local businesses and seeks partnerships with landowners and local businesses in close proximity to the maintenance sites who may wish to use the collected sediment. To support the 2013 maintenance activities, the Water Agency has identified three local landowners and businesses to potentially receive sediment excavated from the stream channels. These include: Wheeler Zamaroni, Grab N' Grow Soil Products, and Sweetlane Nursery. Each of these sites are upland and would not directly discharge water or sediment to surface waterbodies.

Use of these sites would be approved by the regulatory agencies prior to the onset of maintenance. Site approval is based on the sediment test results which will be reviewed in May/June 2013.

- **Grab N' Grow**
  Grab N' Grow Products processes and sells soil products for farmers, gardeners, and landscapers. The company is located at 2759 Llano Road in Santa Rosa. The facility recycles over 80,000 cubic yards of organic materials including green waste (tree trimmings and landscaping waste) and agricultural waste each year. Grab N' Grow produces soil mixes, compost, and groundcover materials.

  This facility has the potential capacity to receive the entirety of the sediment removed as part of 2012 maintenance activities. Grab N' Grow is primarily interested in material that can be used to augment other materials for use as fill. The Water Agency and Grab N' Grow have a written agreement for soil disposal.

- **Wheeler Zamaroni**
  Wheeler Zamaroni is a local company that sells landscape and building materials, and custom fabricated stone. The company operates at a 30-acre facility located at 3500 Petaluma Hill Road in south Santa Rosa. The Water Agency has an agreement with this company. A copy of the finalized agreement was provided to the Regional Board as part of the 2010 Notification process.

  No SMP sediments would be resold as soil products, such as for gardening or soil amendments, due to the potential for redistribution of anthropogenic bioaccumulative materials present in the stream sediments. Wheeler Zamaroni is primarily interested in material that they can sort into sand and gravels for reuse.

- **Sweetlane Nursery**
  Mr. Ed Grossi's property is located at 6652 Petaluma Hill Road in Rohnert Park. On this property, Mr. Grossi operates a landscaping nursery and grows feed grains for dairy cattle. He also maintains an open area to process soil material for potting and resale. Mr. Grossi has an existing agreement with the Water Agency to accept sediment from stream channels in the SMP area. As approved by the Regional Board's Executive Officer, the Grossi property has received and reused sediment from stream maintenance activities for the past two years. The memorandum of agreement between Mr. Grossi and the Water Agency was previously submitted to the regulatory agencies and does not expire until 2023.

Looking north from southeast corner of Grossi property to area where sediment will be placed for sorting and reuse (3/24/2010)

This site has the potential capacity to receive the entirety of sediment excavated from the 2013 maintenance sites. Sediment excavated from the Rohnert Park and Cotati areas would be taken to Grossi's property to reduce transportation costs. SMP sediment would not be used for agricultural purposes, such as growing feed grasses or reuse as potting soils. The sediment will be reused as fill material only.

- **Sonoma County Landfill**
  The Sonoma County Landfill, located at 500 Meecham Road north of Petaluma, is permitted as a Class III landfill and will accept properly sampled and analyzed soil found to be acceptable for disposal in a Class III landfill.

- **Beretta Dairy**
  The Beretta Dairy, located at 3215 Llano Road in Santa Rosa, could possibly reuse excavated creek sediment from Roseland Creek. Sediment removal will occur within their property and could be placed in pre-approved locations on site.

- **Dairy Bedding**
  The Water Agency has received inquiries from several local dairies in the Stony Point Rd. vicinity about the use of SMP sediment for use as bedding material. Any agreement with local dairies would require that material be placed in preapproved locations upon evaluation by Water Agency staff and could not be used as fill in wetlands or sensitive areas. The Water Agency will discuss this option further with Water Board staff.

# Appendix A

## Site Specific Photos

# 2013 Maintenance Activities: Site Specific Photographs

## Localized Sediment Removal

Brush 2. Looking downstream from conflunence with Austin Creek. Zone 1 A. Photo taken March 27, 2013.

Ducker 2. Looking downstream to double box culvert at Riconada Drive crossing. Zone 1A. Photo taken March 27, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Roseland 1. Looking upstream from first cattle crossing above Llano Road. Zone 1A. Photo taken April 2, 2013.

Windsor 3. Culvert at Natalie Drive. Zone 1A. Photo taken March 25, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

## Reach Scale Sediment Removal

Colgan 3. Looking upstream from Todd Road bridgehead. Zone 1A. Photo taken March 26, 2013.

Colgan 4. Looking downstream near Bellevue Avenue crossing. Zone 1A. Photo taken March 26, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Colgan 5. From start of concrete banks looking upstream. Zone 1A. Photo taken March 27, 2013.

Corona Tributary 1. From the north end of Holm Road looking downstream. Zone 2A. Photo taken March 26, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

East Washington 3. At McGregor Avenue bridgehead looking upstream. Zone 2A. Photo taken March 26, 2013.

East Washington 4: Looking upstream across from where the western end of Bordeaux Drive parallels the access road. Zone 2A. Photo taken March 26, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

East Washington 5: From Garfield Drive bridgehead looking upstream. Zone 2A. Photo taken March 26, 2013.

Forestview 2. Looking upstream from the Forestview Drive bridgehead. Zone 2A. Photo taken March 26, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Forestview 3. Looking downstream from the Fulton Road bridgehead. Zone 1A. Photo taken March 25, 2013.

Hinebaugh 3. Looking upstream from the Redwood Drive bridgehead. Zone 1A.  Photo taken April 5, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Hinebaugh 4. Looking downstream from Statefarm Drive crossing. Zone 1A. Photo taken April 2, 2013.

Hinebaugh 5. Looking downstream from the railroad crossing. Zone 1A. Photo taken April 2, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Lichau 1. Looking upstream from the Stony Point Road brigdehead. Zone 2A. Photo taken March 26, 2013.

Lynch 1. Looking downstream from channel, adjacent to Park Lane access gate. Zone 2A. Photo taken March 26, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Nathanson Bypass 1. Looking downstream from walking bridge. Zone 3A. Photo taken March 27, 2013.

Starr 2. Looking downstream from culvert at northern end of reach. Zone 1A. Photo taken March 25, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Steele 2. Looking downstream, next to access road turnaround. Zone 1A. Photo taken March 25, 2013.

Todd 1. Looking downstream from the Scenic Avenue bridgehead. Zone 1A. Photo taken March 27, 2013.

## 2013 Maintenance Activities: Site Specific Photographs

Tood 2. Looking upstream from toe, adjacent to Con-Way and Cresco buildings. Zone 1A. Photo taken March 27, 2012.

Washington 6. Looking upstream from the Maria Drive bridgehead. Zone 2A. Photo taken March 26, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

## Sediment Basin/Instream Basin Clearing Projects

Adobe 1. Looking downstream from South McDowell Boulevard bridgehead. Zone 2A. Photo taken March 26, 2013.

Adobe 2. Looking upstream from South Mcdowell Boulevard bridgehead. Zone 2A. Photo taken March 26, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Cook Creek Basin. From eastern end of basin, looking towards Petaluma Hill Boulevard. Zone 1A. Photo taken April 2, 2013.

Copeland 3. Looking downstream from Country Club Drive bridgehead. Zone 1A. Photo taken March 27, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Copeland 4: Looking upstream from Country Club Drive bridgehead. Zone 1A. Photo taken March 27, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Copeland 4. Looking downstream from Snyder Lane bridgehead. Zone 1A. Photo taken March 27, 2013.

Copeland 5. Looking upstream from the Synder Land bridgehead. Zone 1A. Photo taken March 27, 2013.

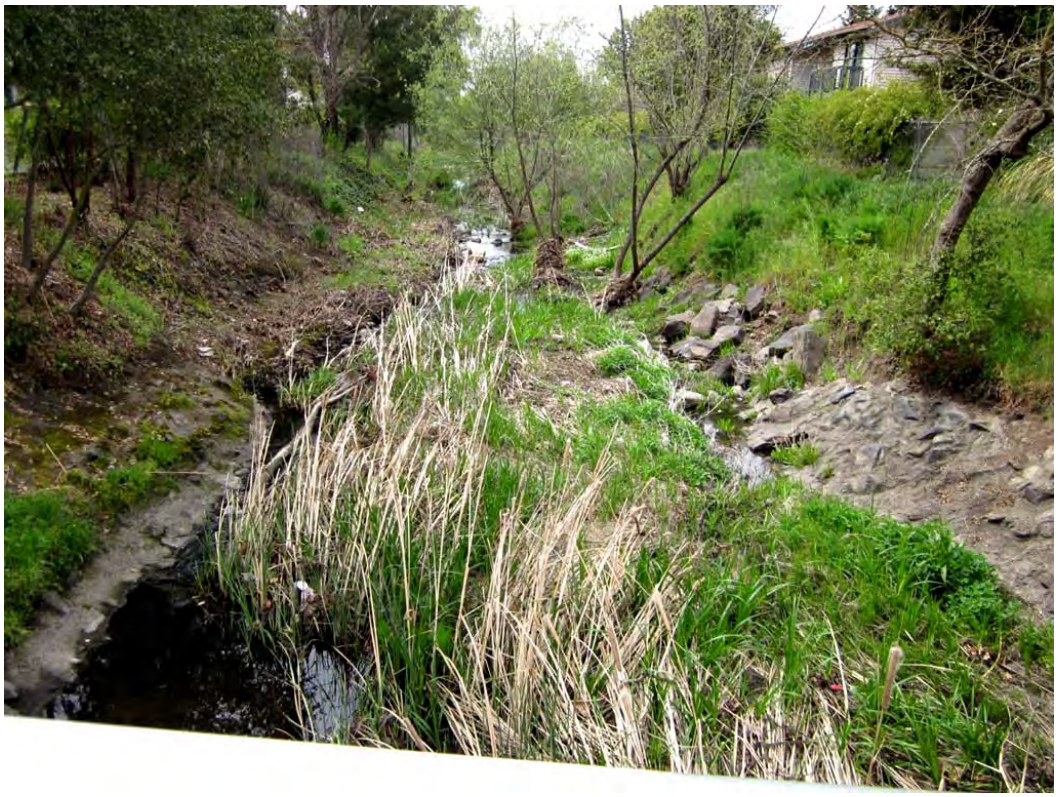
Five 1. Looking downstream near the Snyder Lane crossing. Zone 1A. Photo taken March 27, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Jessie Lane 1. At Petaluma Boulevard bridgehead. Zone 2A. Photo taken March 26, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Paulin 6. Looking upstream from McBridge Lane bridgehead. Zone 1A. Photo taken March 25, 2013.



Paulin 6. Looking downstream from the McBride Lane bridgehead. Zone 1A. Photo taken March 25, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Paulin 6. Looking downstream to the Range Avenue bridgehead. Zone 1A. Photo taken March 25, 2013.

Paulin 6. Looking upstream towards the Range Avenue bridgehead. Zone 1A. Photo taken March 25, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Paulin 6: Looking upstream from Hardies Lane bridgehead. Zone 1A. Photo taken March 25, 2013.

Paulin 5. Looking downstream from Hardies Lane bridgehead. Zone 1A. Photo taken March 25, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Todd 5. Northern-most end of reach, at rocked crossing looking downstream. Zone 1A. Photo taken March 27, 2013.

Wilfred 1. Looking downstream from culvert at Synder Lane crossing. Zone 1A. Photo taken March 27, 2012.

## Reservoir Inlet Clearing

# 2013 Maintenance Activities: Site Specific Photographs

Brush Creek Reservoir Inlet. Zone 1A. Photo taken April 2, 2013.

Matanzas Creek Reservoir Inlet. Zone 1A. Photo taken April 2, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Piner Creek Reservoir Inlet. Zone 1A. Photo taken April 2, 2013.

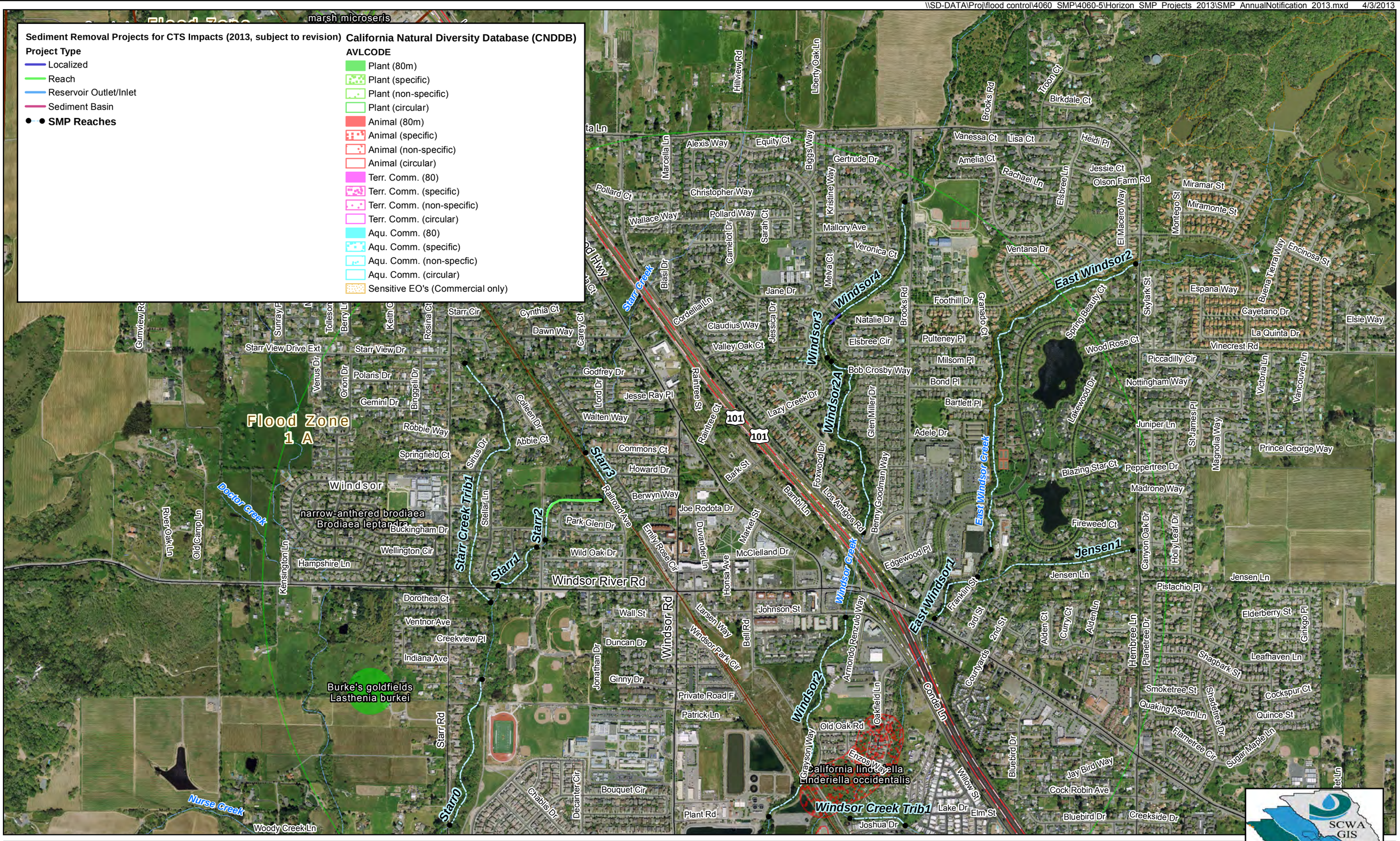
Santa Rosa Creek Fish Ladder. Zone 1A. Photo Taken April 2, 2013.

# 2013 Maintenance Activities: Site Specific Photographs

Santa Rosa Creek Reservoir Inlet. Zone 1A. Photo taken April 2, 2013.

# Appendix B

## Project Maps with CNDDB Overlay




**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Windsor A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N

SCWA GIS

# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Santa Rosa A

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

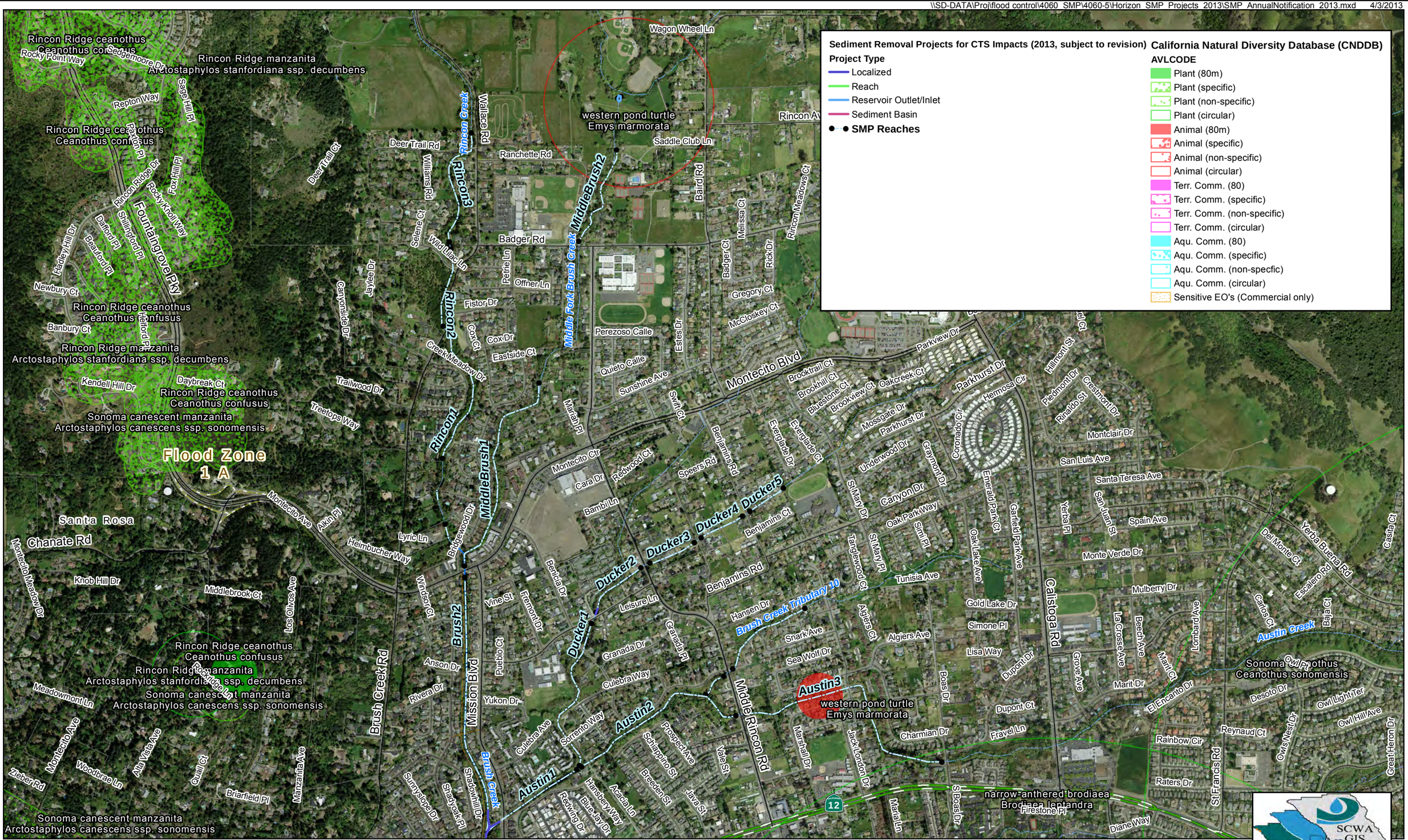
N

# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Santa Rosa B

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N

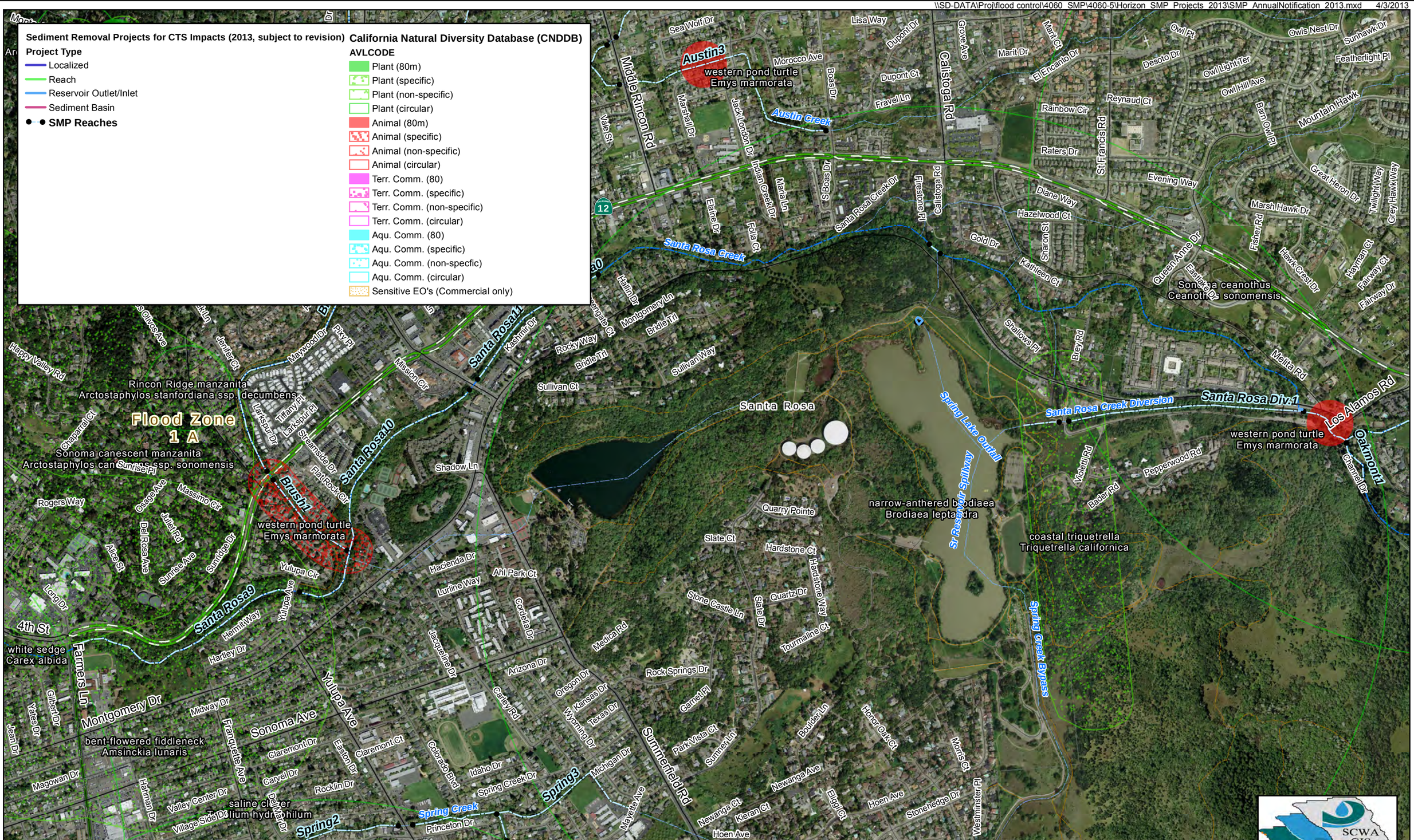



**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Santa Rosa C**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N



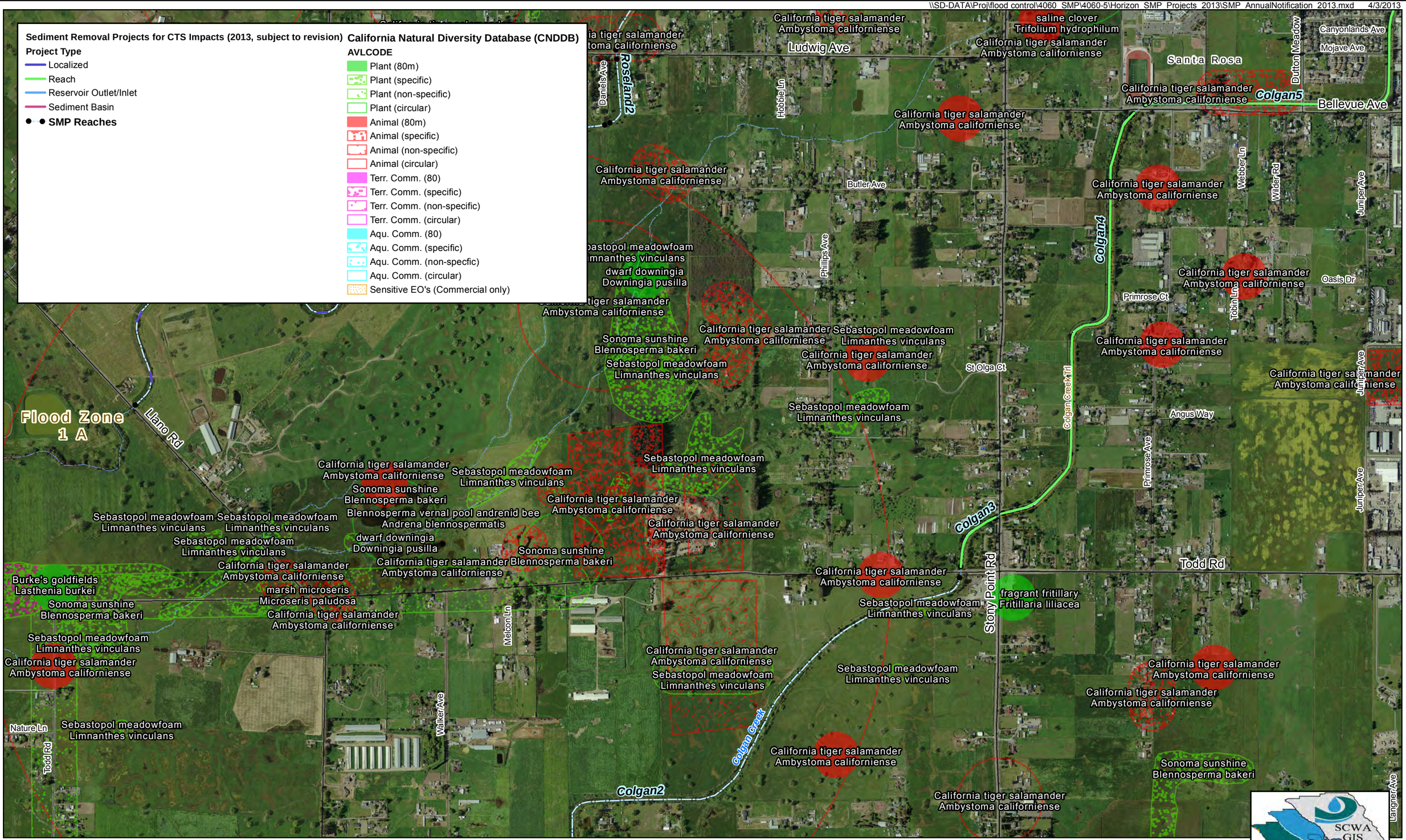

# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Santa Rosa D

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\Horizon_SMP_Projects_2013\SMP_AnnualNotification_2013.mxd 4/3/2013

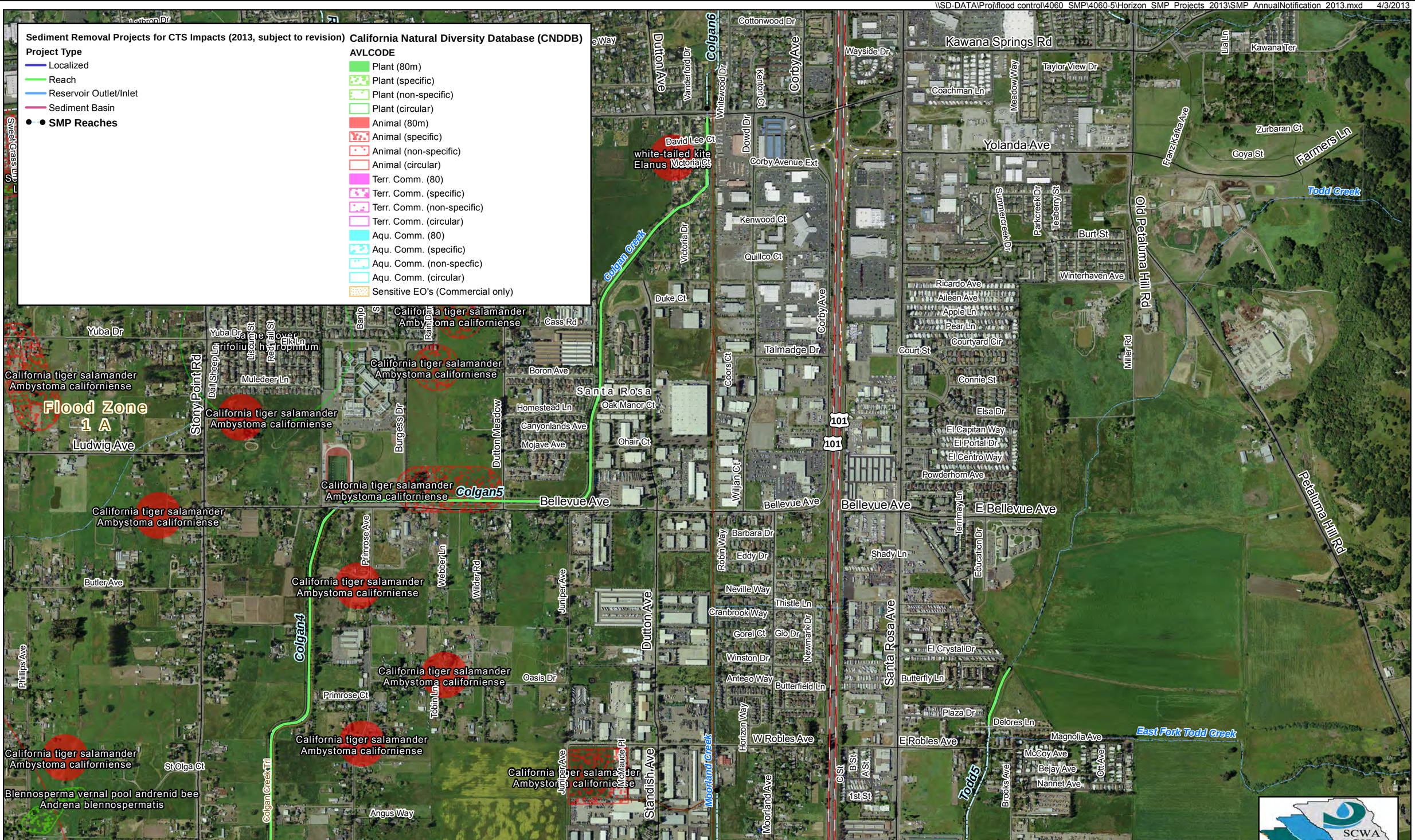



**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Santa Rosa E**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N

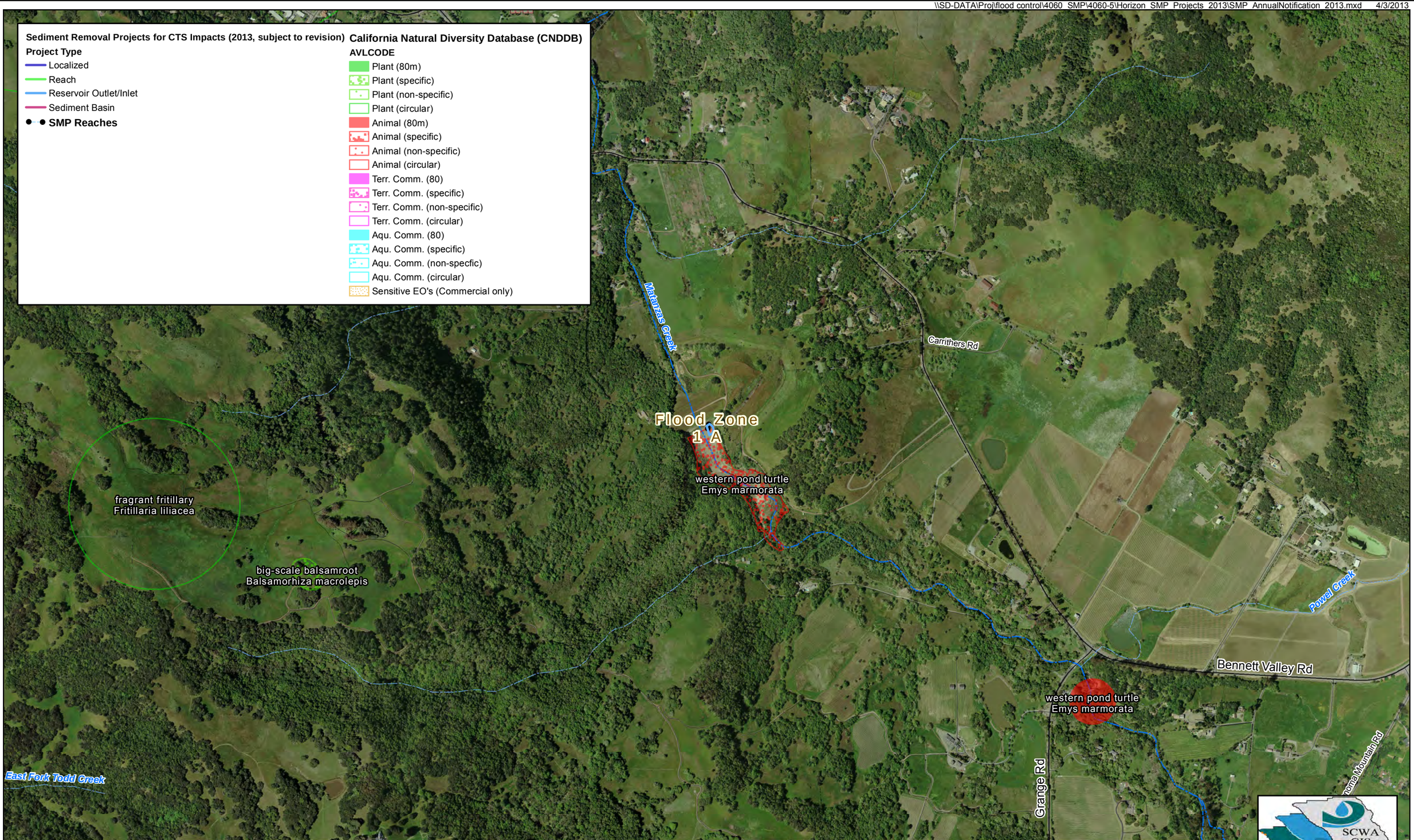



# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Santa Rosa F

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N

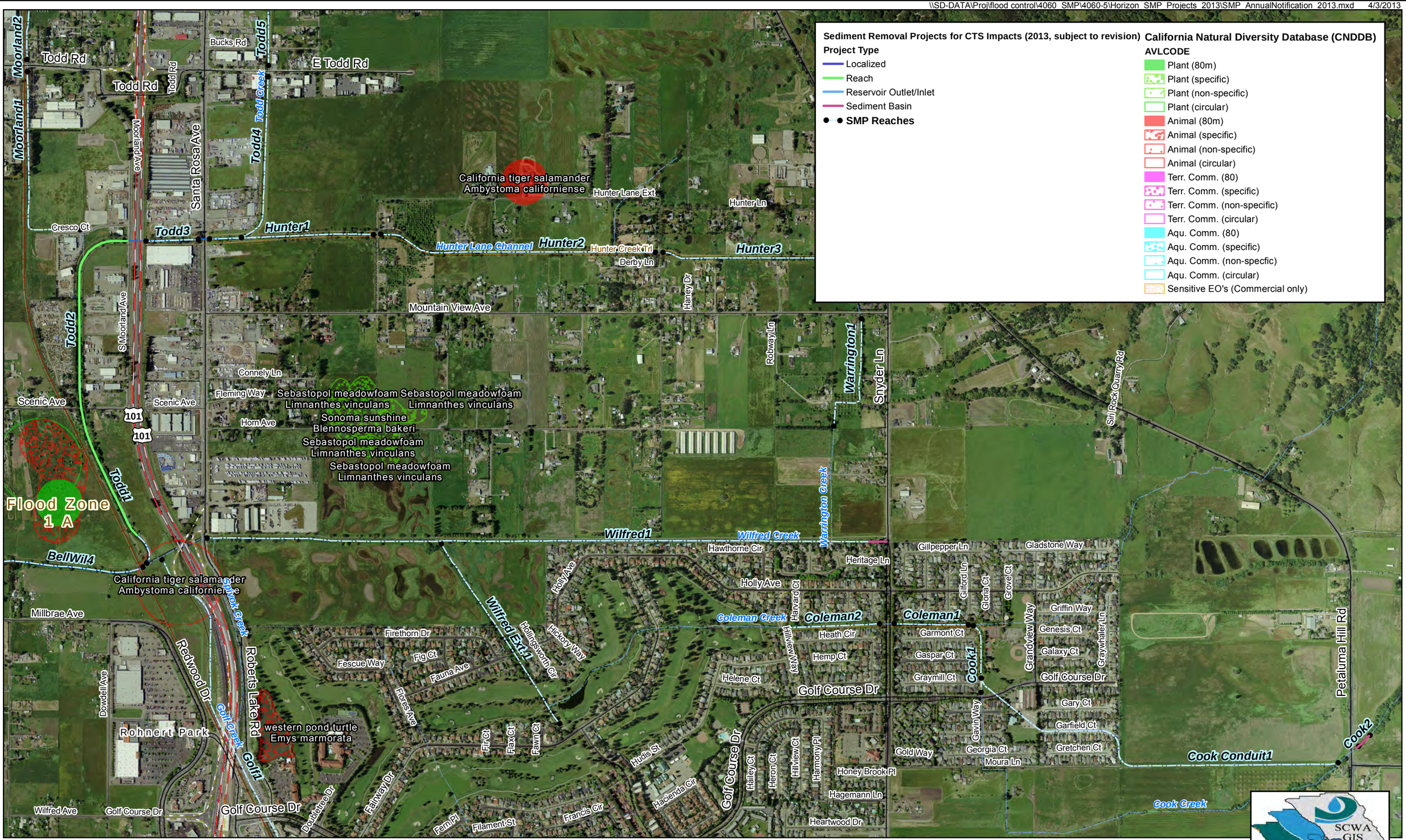



**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Santa Rosa G**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N




**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Rohnert Park A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

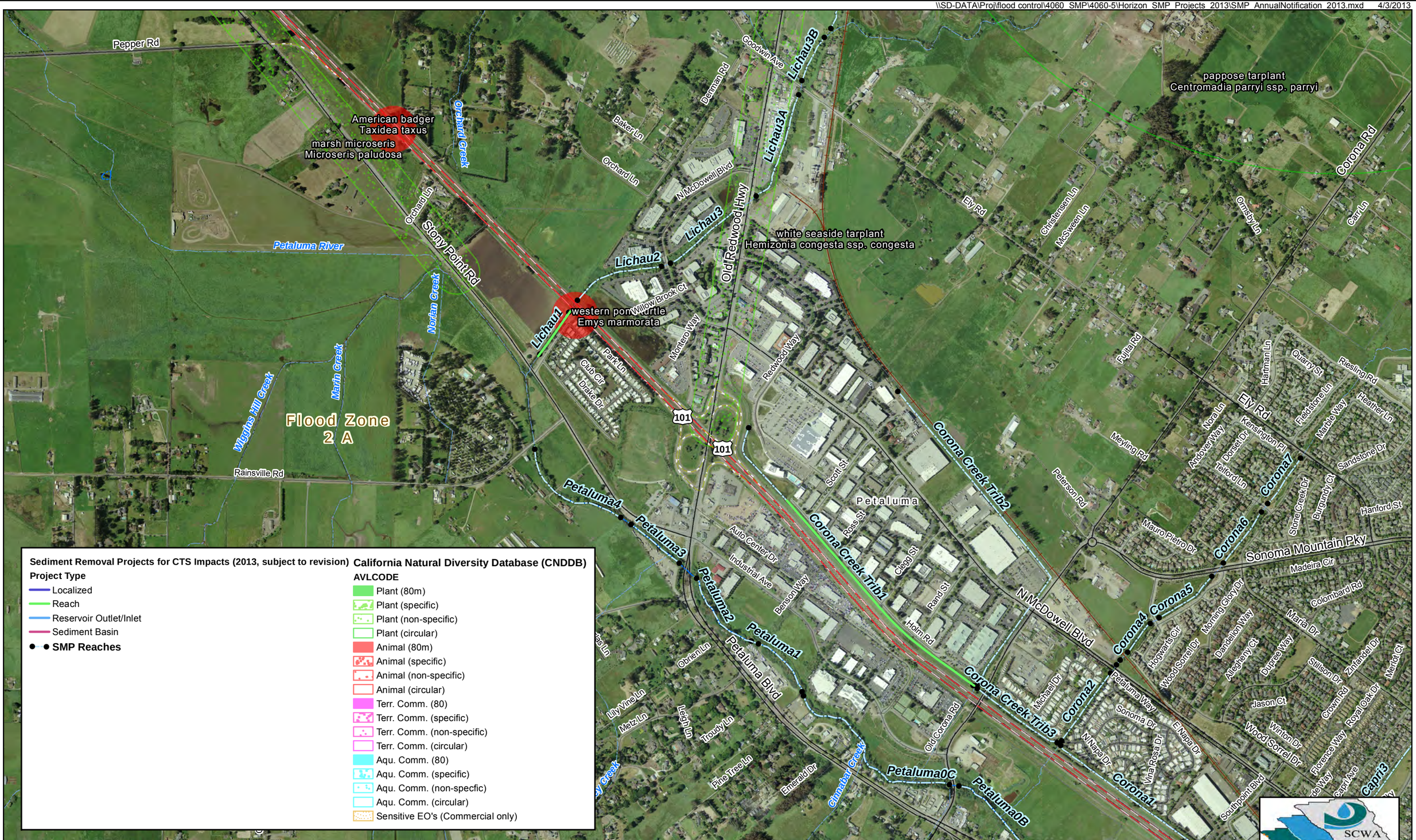
N

**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Rohnert Park B**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet

N




# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Petaluma A

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

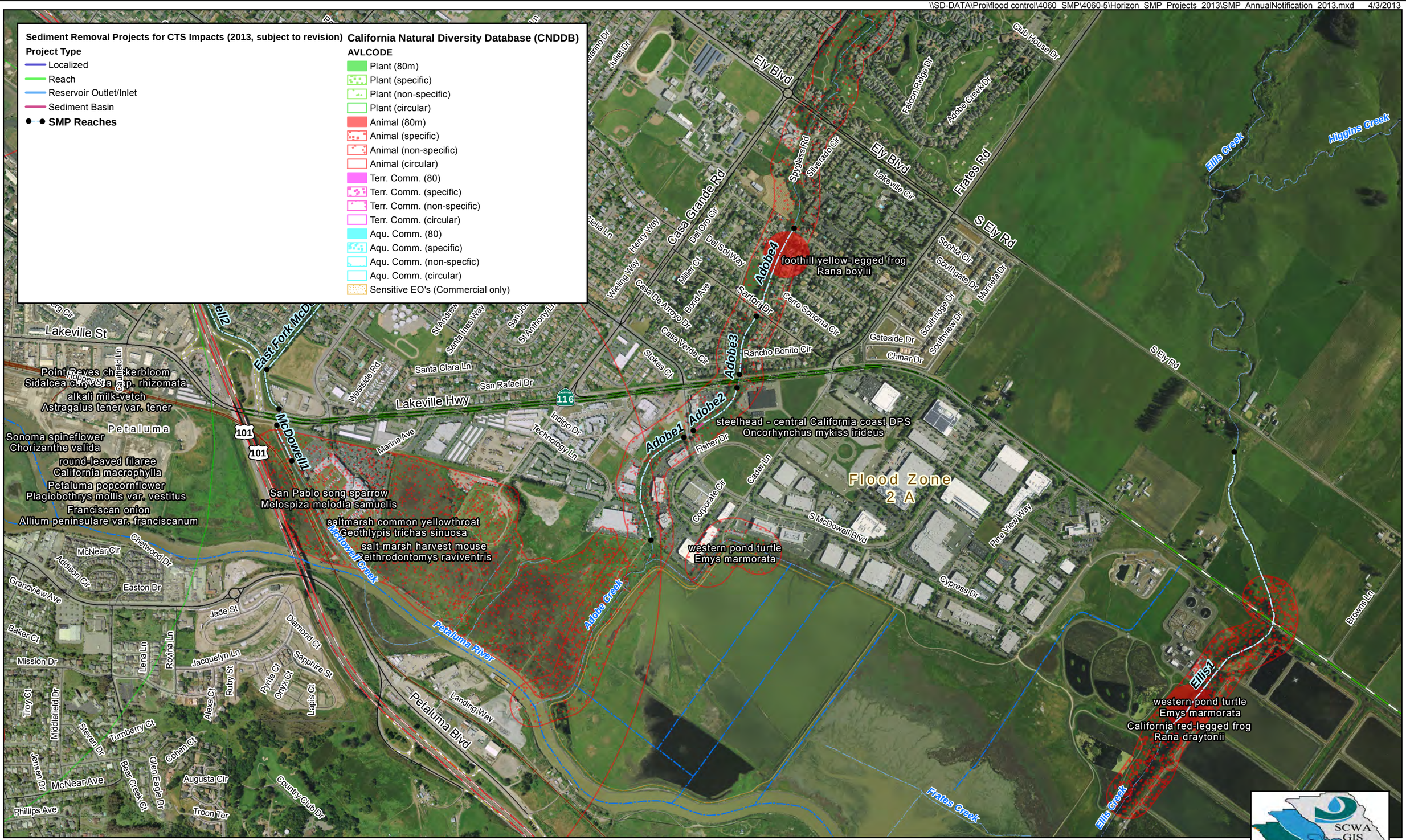
0 1,000 2,000 Feet

N

**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Petaluma B**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

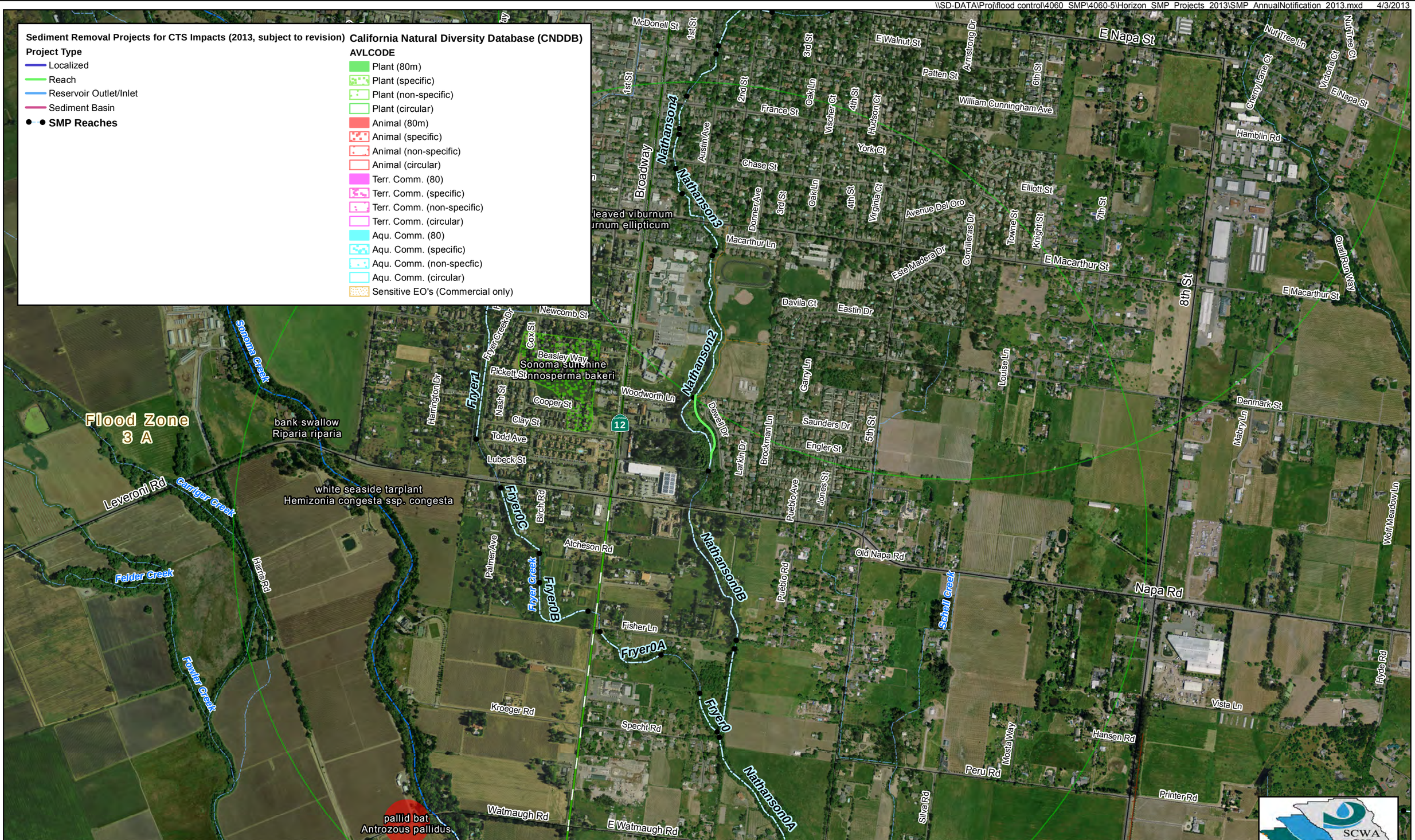
0 1,000 2,000 Feet




**Stream Maintenance Program Projects**
**2013 Sediment Projects**
**Petaluma C**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 1,000 2,000 Feet




# Stream Maintenance Program Projects
## 2013 Sediment Projects
### Sonoma A

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

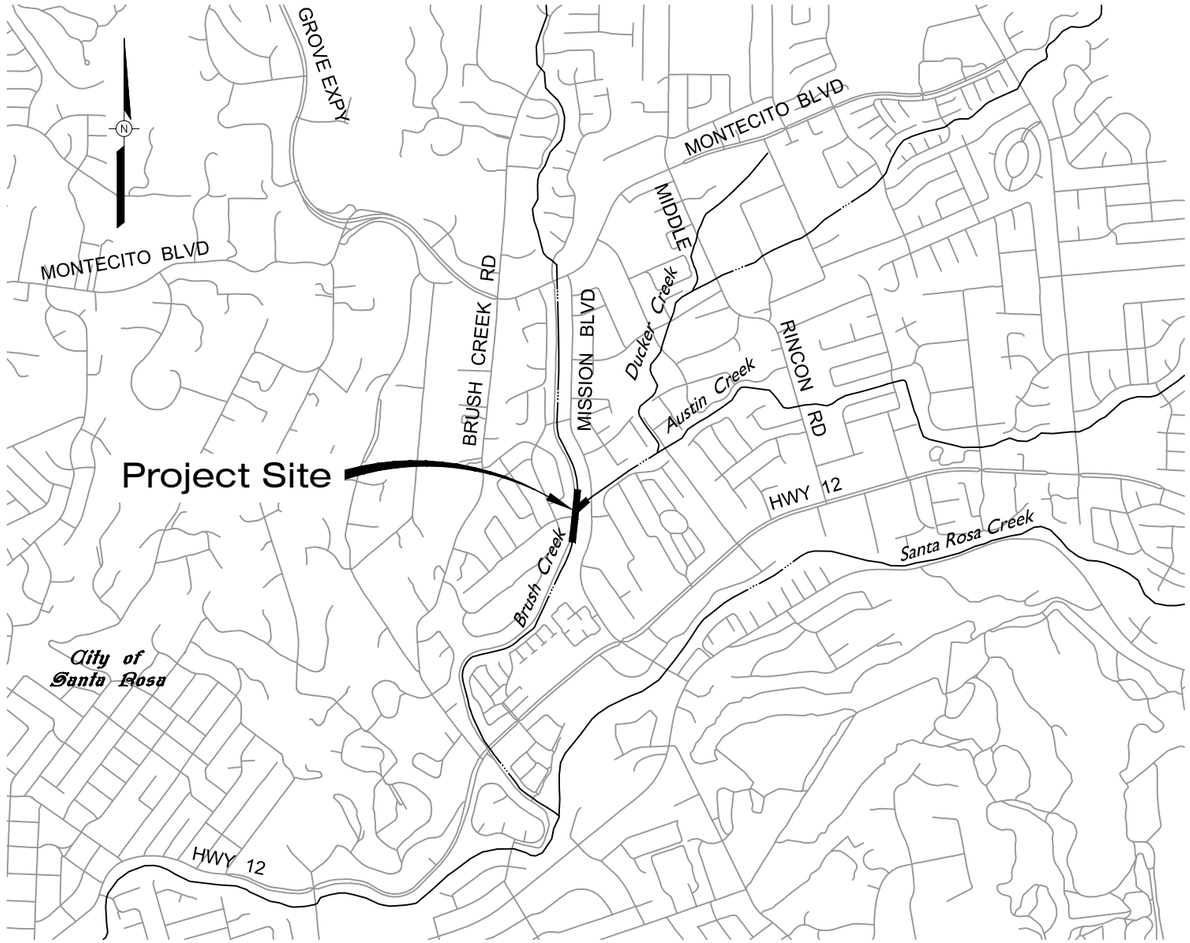
0 1,000 2,000 Feet

N

# Appendix C

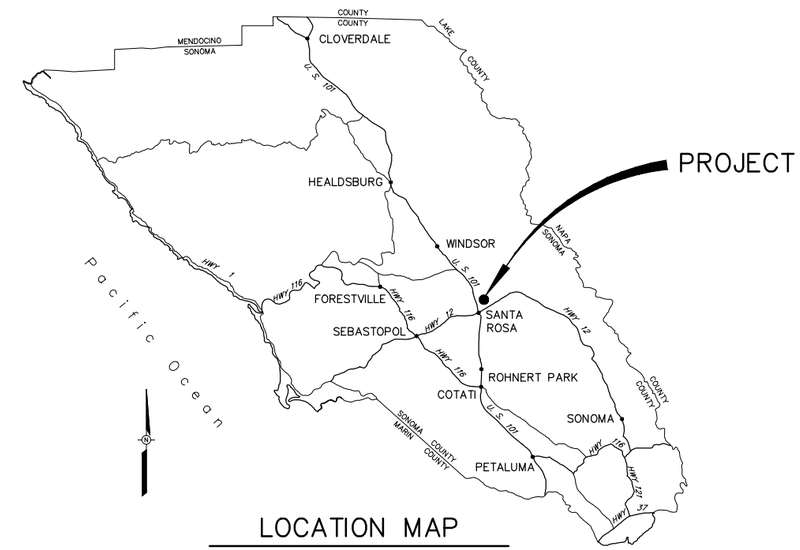
## Project Designs

# ZONE 1A - LAGUNA DE SANTA ROSA WATERSHED BRUSH CREEK AND AUSTIN CREEK - REACH 2 LOCALIZED SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G–1 | TABLE, INDEX TO DRAWINGS, AND LOCATION MAPS |
| 2 | C–1 | BRUSH CREEK AND AUSTIN CREEK SEDIMENT REMOVAL PLAN |
| 3 | C–2 | BRUSH CREEK AND AUSTIN CREEK SEDIMENT REMOVAL SECTIONS AND TABLES |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

ONE 1A - LAGUNA DE SANTA ROSA WATERSHED
BRUSH CREEK AND AUSTIN CREEK - REACH 2
INDE TO DRAWINGS LOCATION AND VICINITY MAP

FILE NAME: 2013_Br s Cr _Ge eral.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF

PLAN

SCALE 1" 20

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN

DATE: 1/02/2013

DRAWN: ----

REVIEWED:

ONE 1A - LAGUNA DE SANTA ROSA WATERSHED

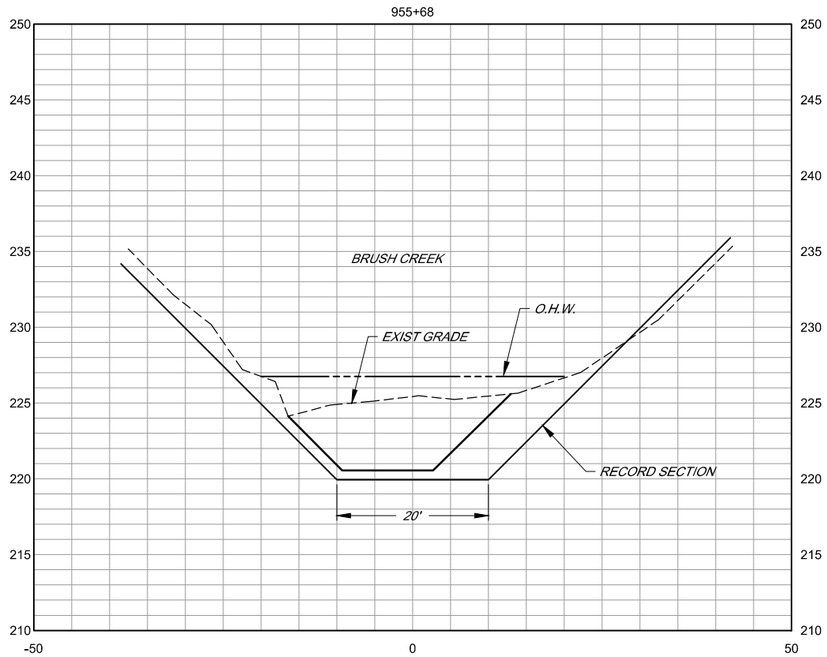
BRUSH CREEK AND AUSTIN CREEK - REACH 2
SEDIMENT REMOVAL PLAN

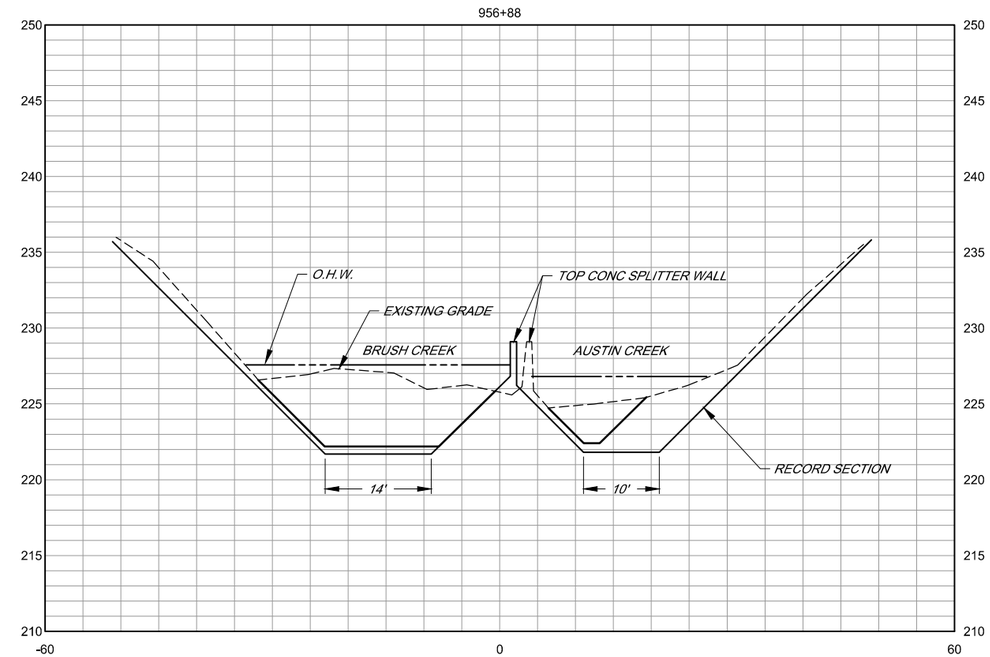
FILE NAME: 2013_ r s _ r

CONTRACT NUMBER:

DRAWING NUMBER: C-1

SHEET 2 OF 3




## SECTIONS

SCALE HORI 1" = 10'
VERT 1" = 5'

| BRUSH CREEK (CHANNEL 40) | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAD | STA 954+72 TO STA 955+94<br>STA 956+30 TO SAT957+22 | 122<br>92<br>TOTAL = 214 | 22.2 | 2,708<br>2,042<br>TOTAL = 4,750 | 4<br>4.5<br>AV. 4.25 | 401<br>340<br>TOTAL = 741 |

| AUSTIN CREEK (BRUSH CREEK TRIBUTARY CHANNEL 43) | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAD | STA 956+52 TO STA 957+22 | 64 | 11 | 704 | 3 | 78 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

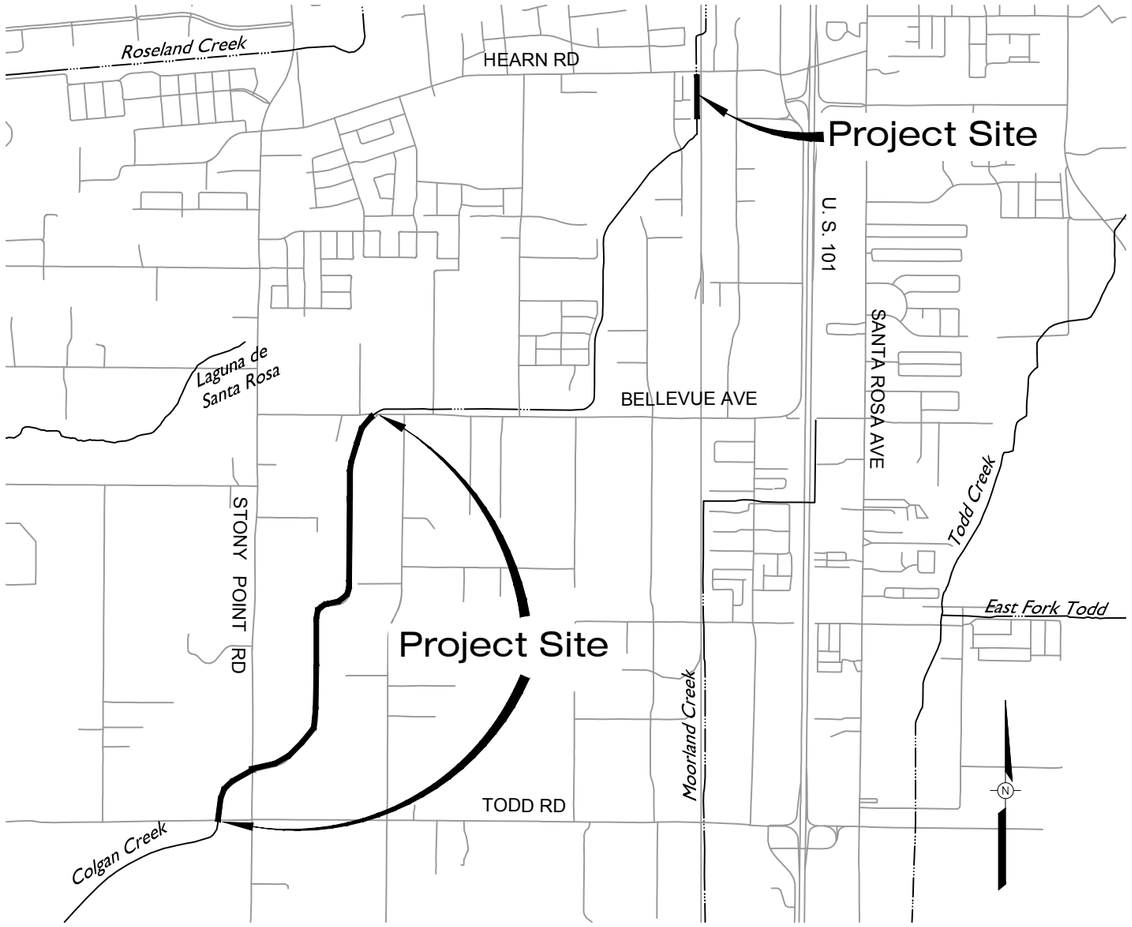
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

ONE 1A - LAGUNA DE SANTA ROSA WATERSHED
BRUSH CREEK AND AUSTIN CREEK - REACH 2
SEDIMENT REMOVAL SECTIONS AND TABLES

FILE NAME: 2013_
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 3

# SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
# COLGAN CREEK - REACHS 3, 4 AND 5
# REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE

LOCATION MAP

NOT TO SCALE

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G–1 | INDEX TO DRAWINGS, LOCATION AND VICINITY MAPS |
| 2 | C–1 | PLAN AND PROFILE STA 141+00 TO STA 153+00 |
| 3 | C–2 | PLAN AND PROFILE STA 153+00 TO STA 165+00 |
| 4 | C–3 | PLAN AND PROFILE STA 165+00 TO STA 177+00 |
| 5 | C–4 | PLAN AND PROFILE STA 177+00 TO STA 189+00 |
| 6 | C–5 | PLAN AND PROFILE STA 189+00 TO STA 201+00 |
| 7 | C–6 | PLAN AND PROFILE STA 201+00 TO STA 206+00 |
| 8 | C–7 | CROSS SECTIONS STA 141+36 TO STA 189+79 |
| 9 | C–8 | CROSS SECTIONS STA 191+60 TO STA 204+60 |


GENERAL NOTES:

1. FISH HABITAT FEATURES 2 TO 3 UP TO 25 LONG WILL BE ADDED WHERE APPROPRIATE.

| COLGAN CREEK REACH 3 | | | | | | |
|---|---|---|---|---|---|---|
| E CAVATION | | | | | | |
| PRO ECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH LINEAR FT. | AVERAGE WIDTH LINEAR FT. | AREA S UARE FT. | DEPTH FT. | C.Y. TO REMOVE |
| ACCUMULATED SEDIMENT REMOVAL USING E CAVATOR OR FRONT END LOADER OPERATING IN CHANNEL | STA 141+36 TO STA 204+60 | 6,324 | 14 | BELOW O.H.W. 88,536 | 1.76 | BELOW O.H.W. 5,780 |
| PLUG REMOVAL | STA 275+75 TO STA 282+05 | 170 (WORK THIS REACH) | 8 | BELOW O.H.W. 1,360 | 2 | BELOW O.H.W. 101 |
| | TOTAL | 6,494 | | 89,896 | | 5,881 |

## NOTE

INSTALLATION OF 4-5 FISH HABITAT FEATURES UP TO 25-FEET LONG WHERE APPROPRIATE.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

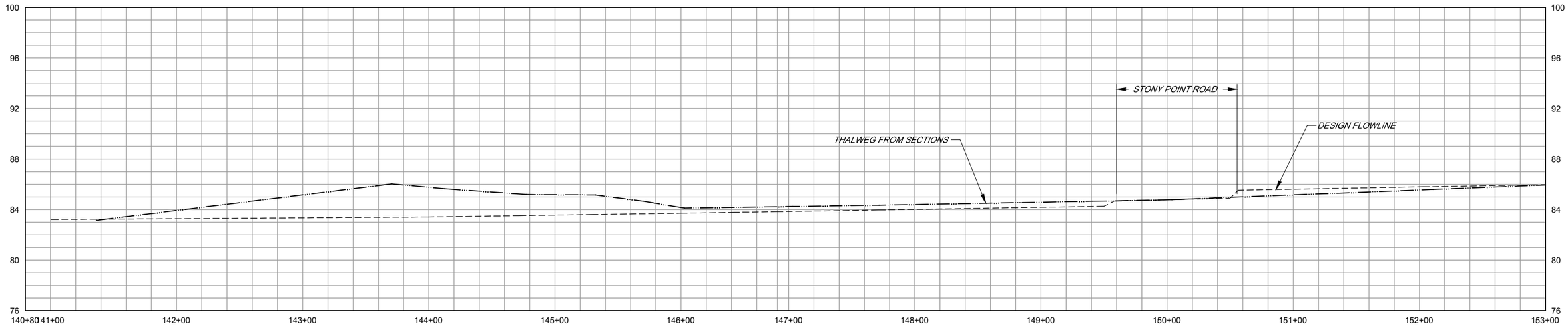
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: SMP
REVIEWED:

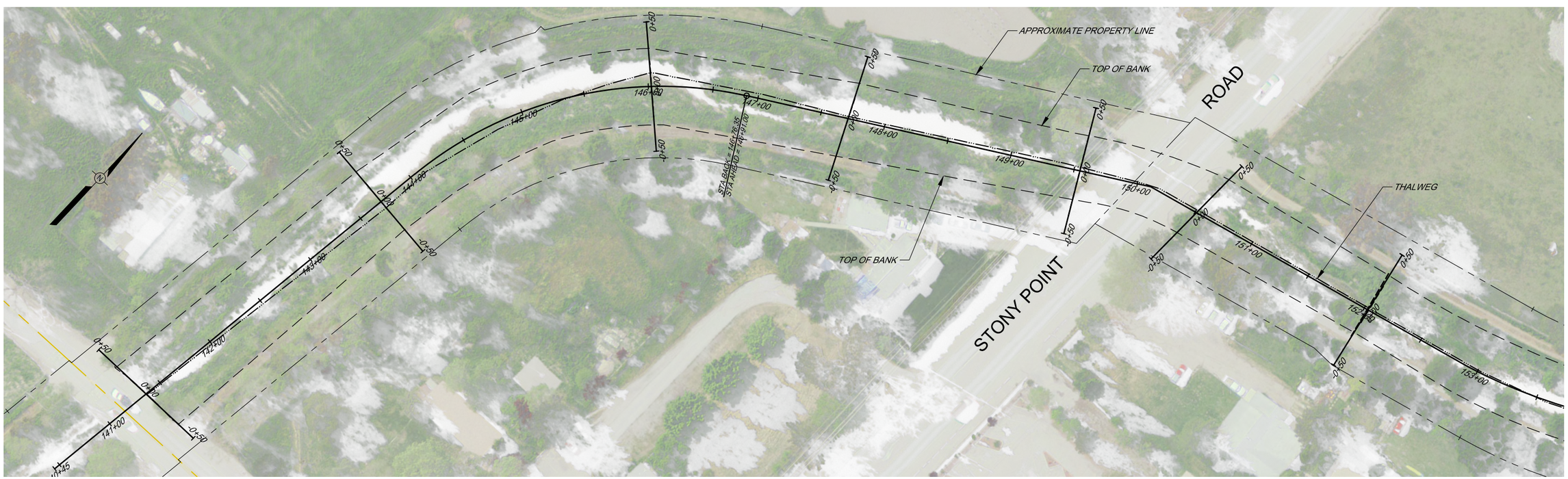
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
COLGAN CREEK - REACHS 3 4 AND 5
INDE TO DRAWINGS LOCATION AND VICINITY MAPS

FILE NAME: 2013_C lga Cr _Ge eral.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 10




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

COLGAN CREEK - REACHS 3, 4 AND 5

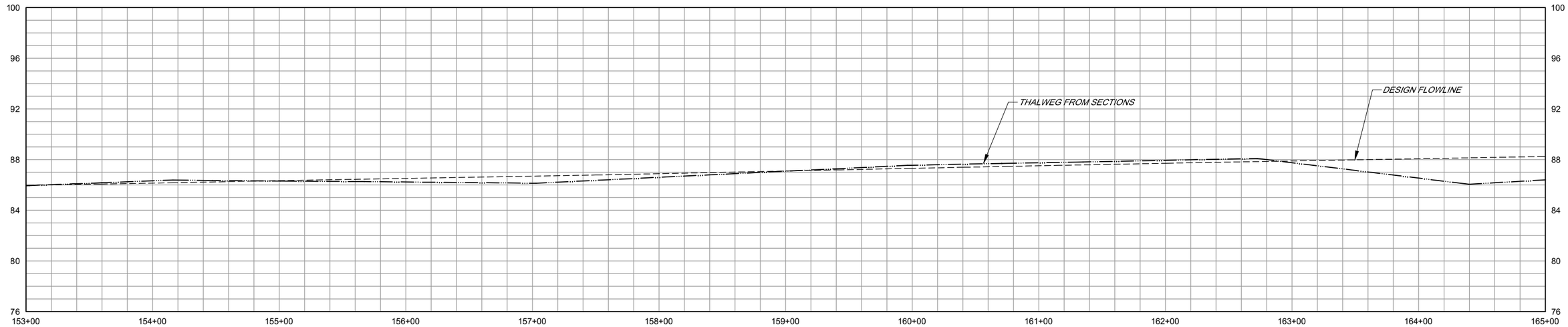
PLAN AND PROFILE STA 141+00 TO STA 153+00

FILE NAME: 2013_C:\Iga\Cr_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-1

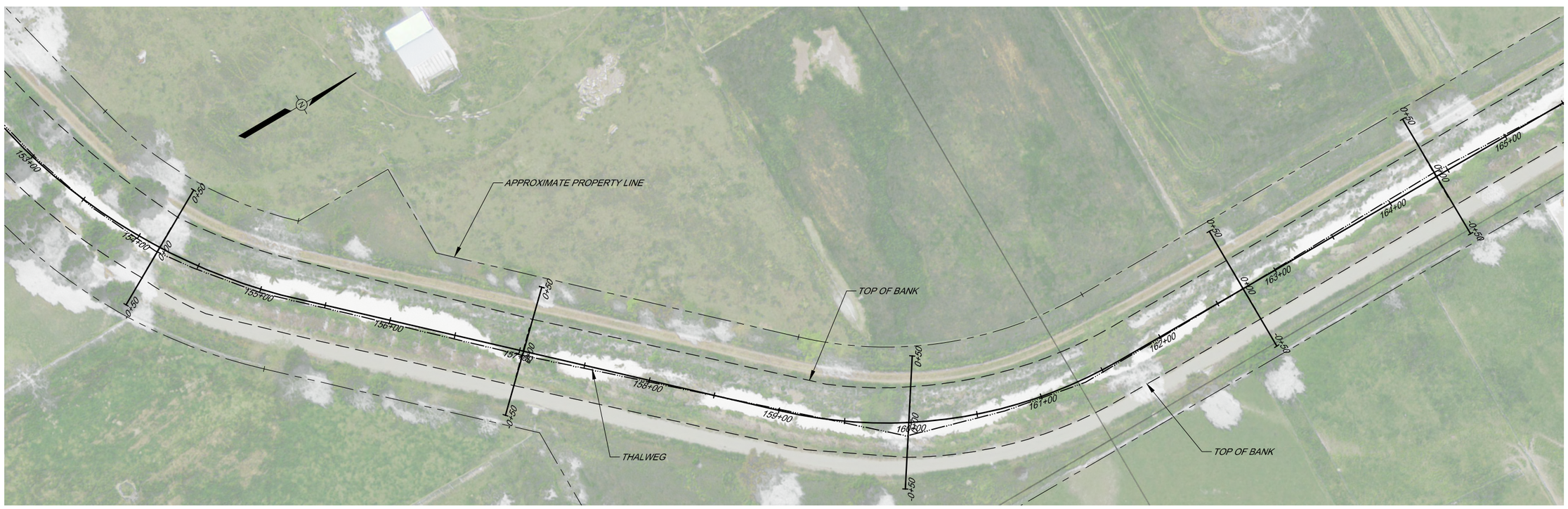
SHEET 2 OF 10

\\sdr-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5

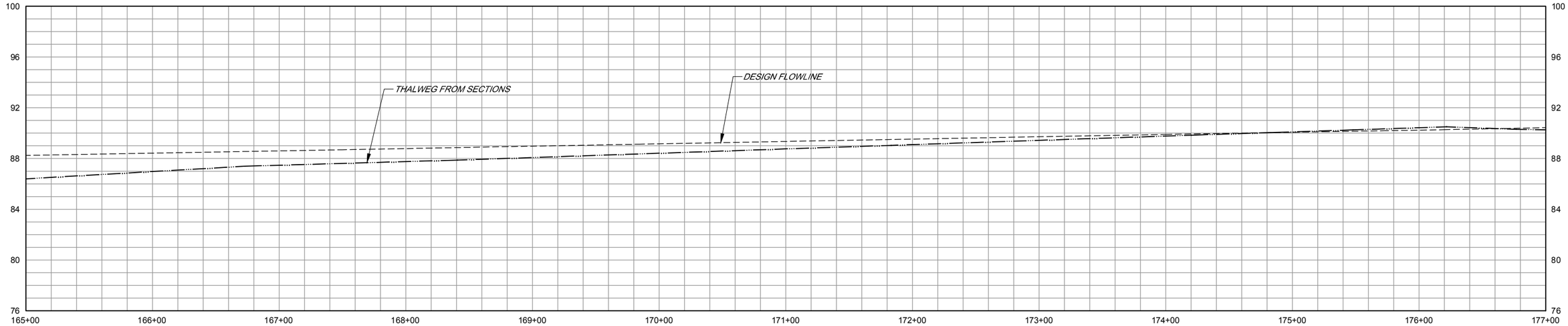
PLAN AND PROFILE STA 153+00 TO STA 165+00

FILE NAME: 2013_C:\lga\Cr_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-2

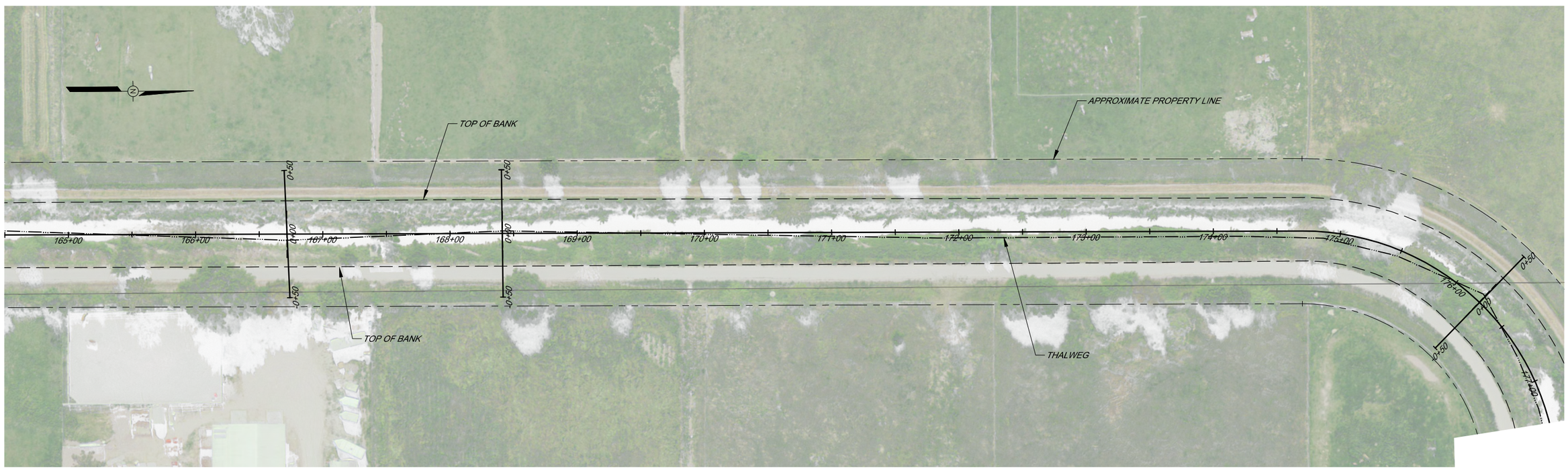
SHEET 3 OF 10

\\sd-data\proj\Flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5

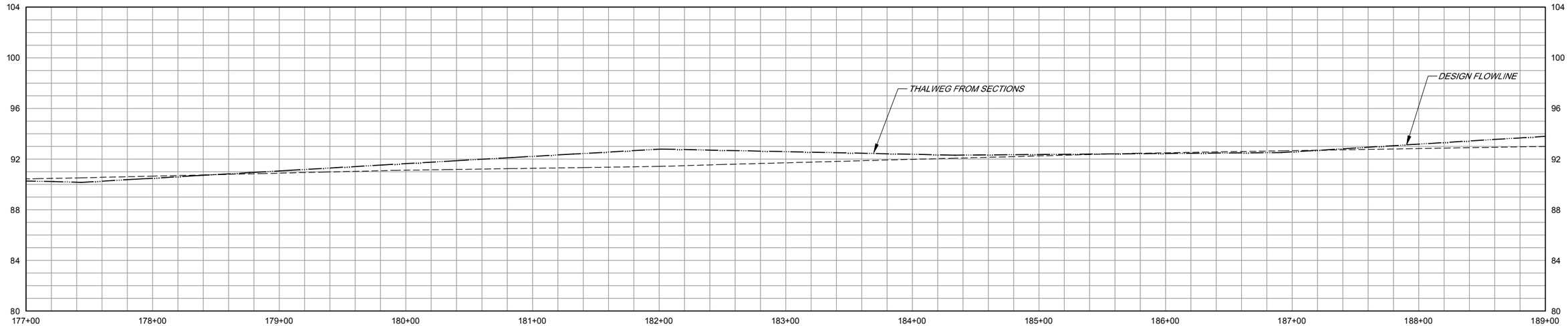
PLAN AND PROFILE STA 165+00 TO STA 177+00

FILE NAME: 2013_C lga Cr _Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-3

SHEET 4 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE .

SCALE HORI 1" 40
VERT 1" 4

PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5

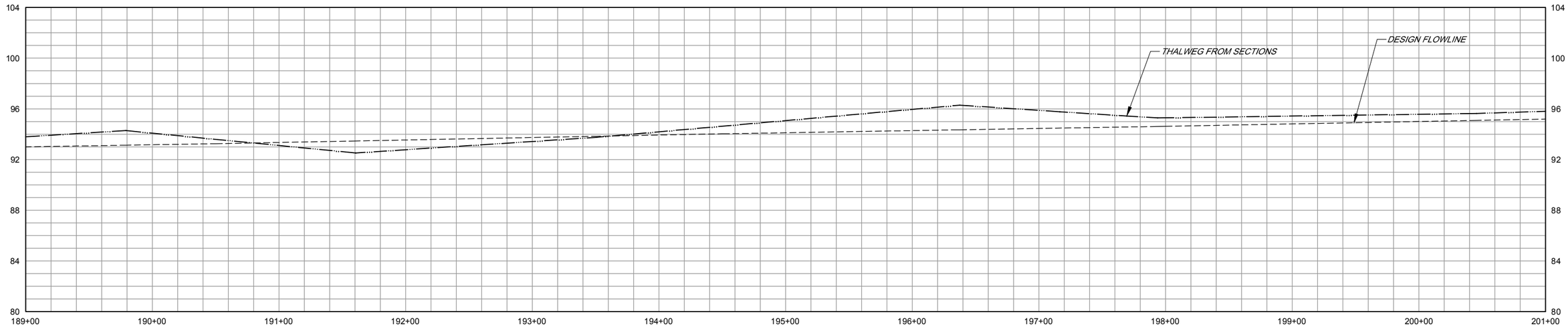
PLAN AND PROFILE STA 177+00 TO STA 189+00

FILE NAME: 2013_C lga Cr _Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-4

SHEET 5 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE .

SCALE HORI 1" 40
VERT 1" 4

PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5

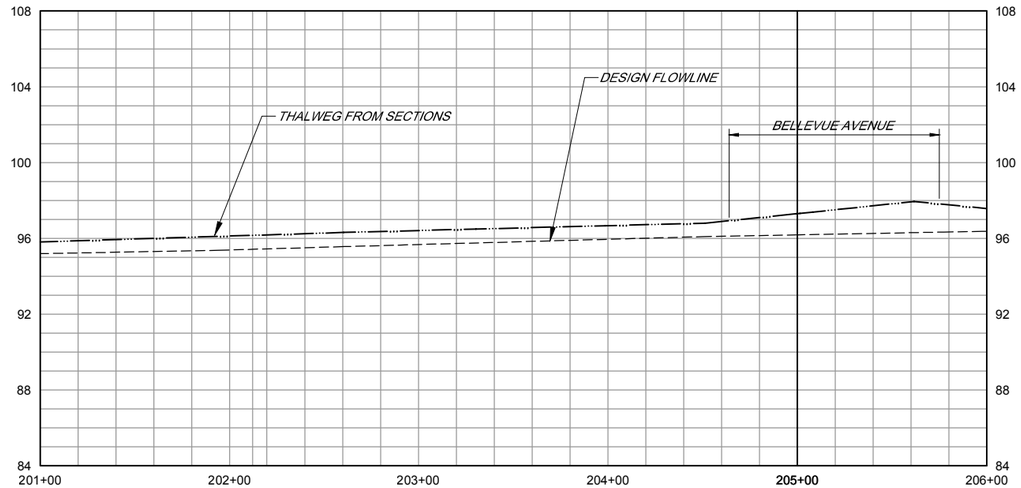
PLAN AND PROFILE STA 189+00 TO STA 201+00

FILE NAME: 2013_C:\lga:Cr:_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-5

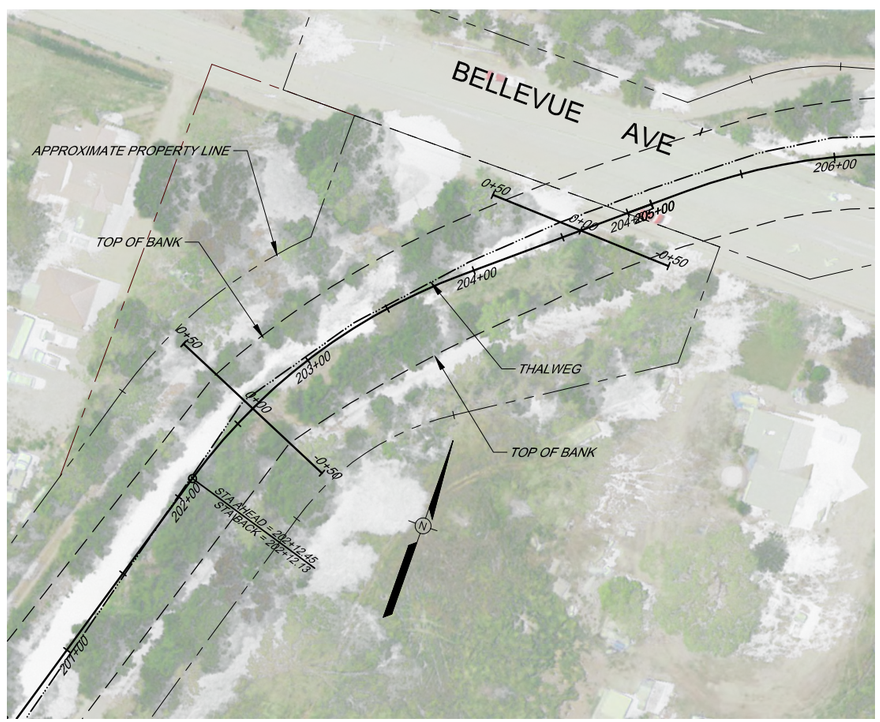
SHEET 6 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

COLGAN CREEK - REACHS 3 & 4 AND 5

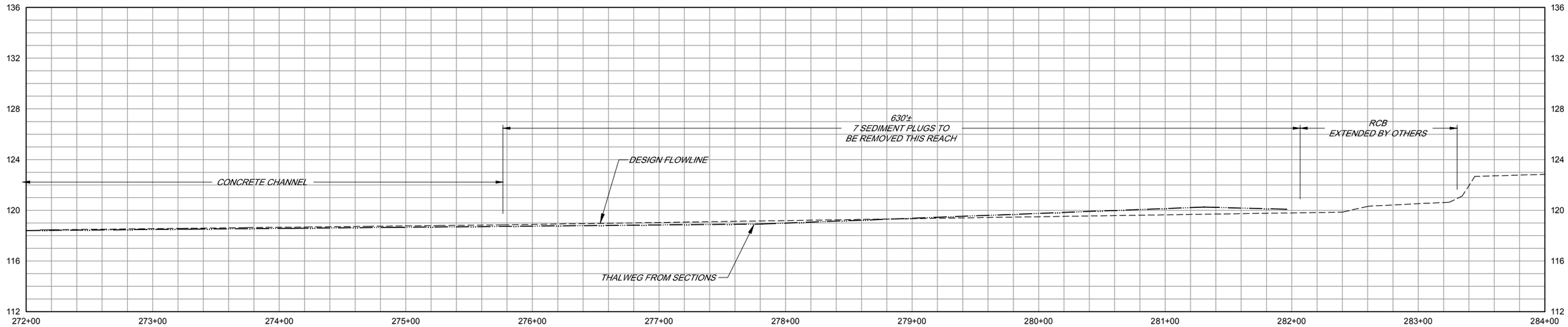
PLAN AND PROFILE STA 201+00 TO STA 206+00

FILE NAME: 2013_Colgan Cr_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-6

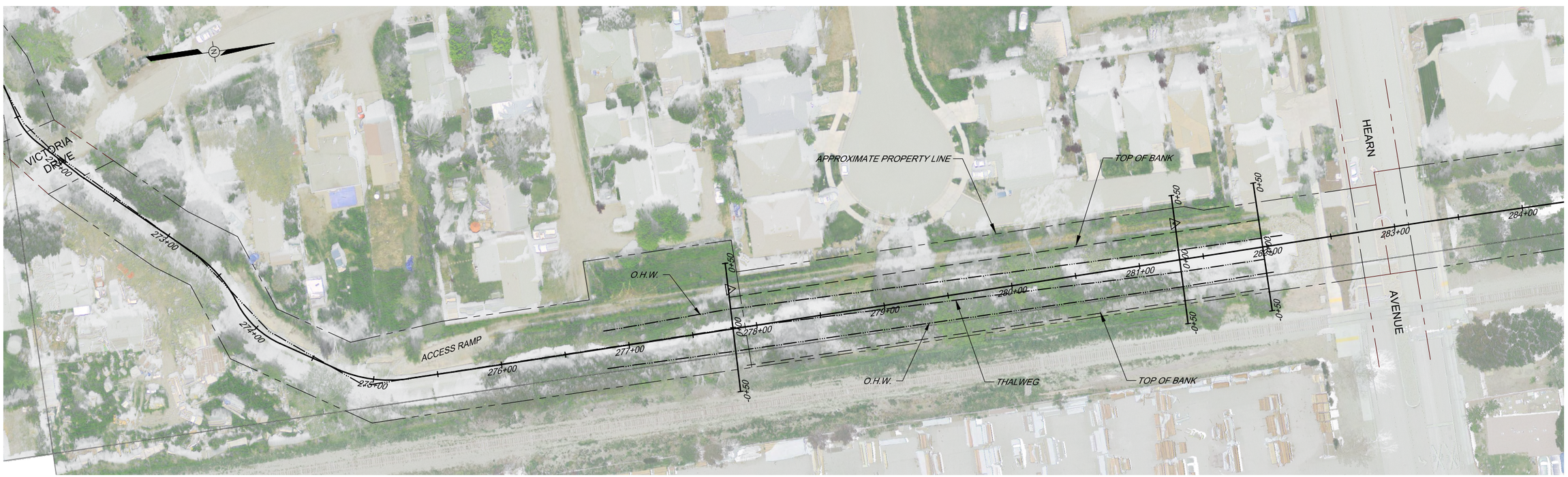
SHEET 7 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED - ONE 1A

COLGAN CREEK - REACHS 3-4 AND 5

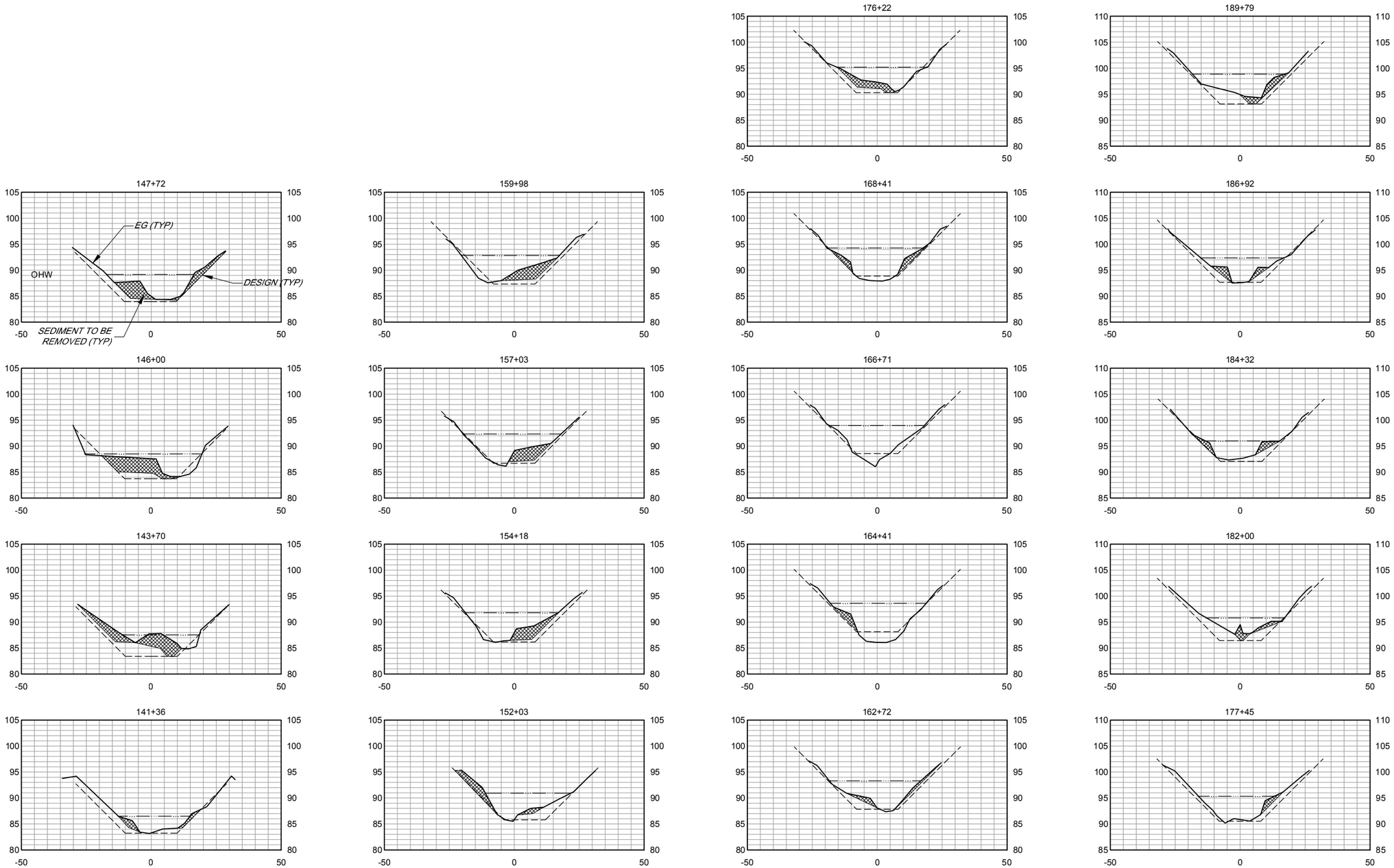
PLAN AND PROFILE STA 272+00 TO STA 284+00

FILE NAME: 2013_C:\lga\Cr_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-7

SHEET 8 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil




SECTIONS .

SCALE HORI 1" 20
VERT 1" 10

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5

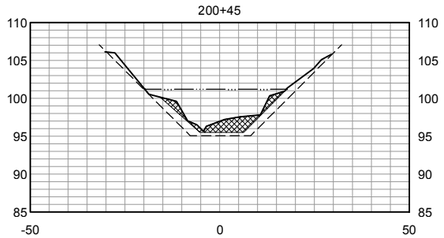
CROSS SECTIONS STA 141+36 TO STA 189+79

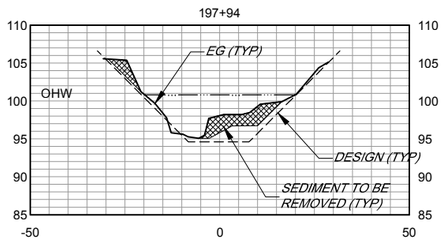
FILE NAME: 2013_C lga Cr _Civil.dwg
CONTRACT NUMBER: ..

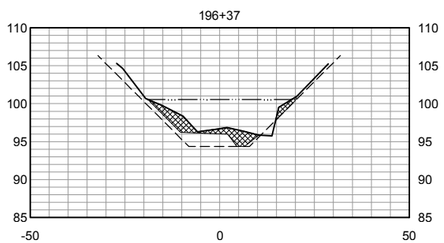
DRAWING NUMBER: C-8

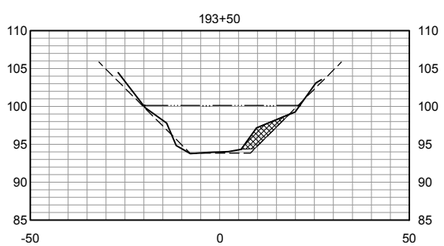
SHEET 9 OF 10

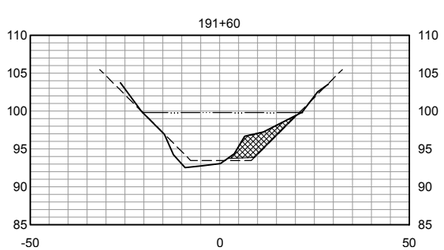
\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil

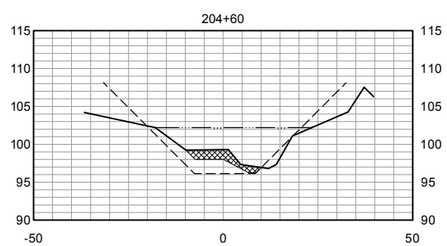


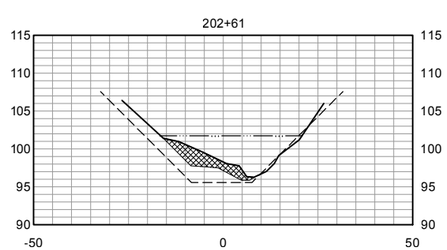



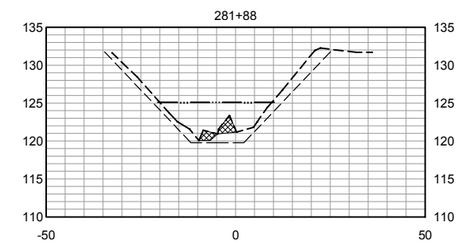



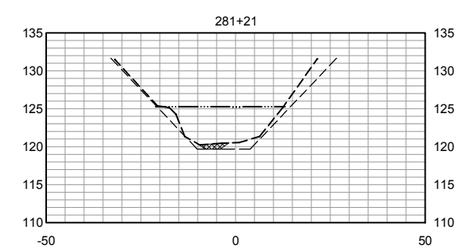



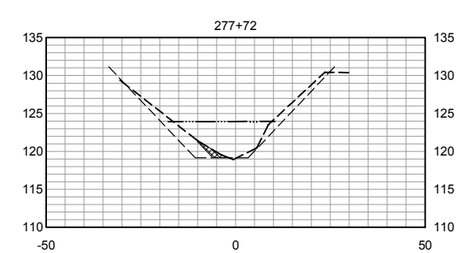



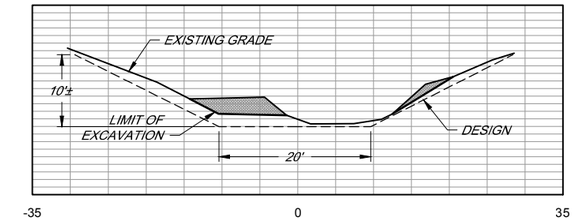



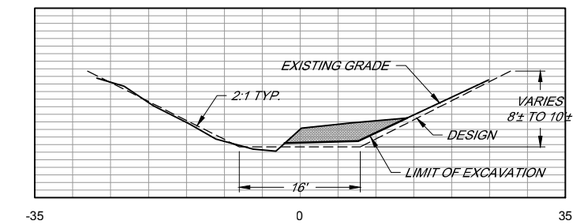

SECTIONS .

SCALE HORI 1" 20
VERT 1" 10



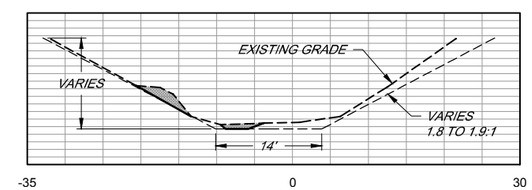

TYPICAL SECTION DOWNSTREAM OF STONY POINT ROAD .

NOT TO SCALE



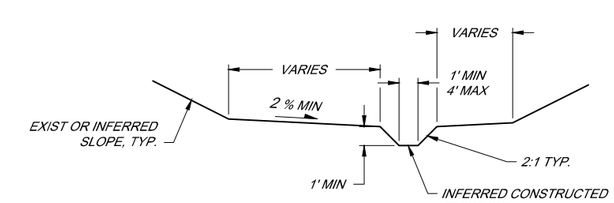

TYPICAL SECTION UPSTREAM OF STONY POINT ROAD
TO BELLEVUE AVENUE .

NOT TO SCALE




TYPICAL SECTION UPSTREAM STA 275+78 TO HERN AVENUE .

NOT TO SCALE




SEDIMENT REMOVAL LOW FLOW CHANNEL SECTION .

NOT TO SCALE

BAR LENGTH ON ORIGINAL
DRAWING EQUALS ONE INCH.
ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 13 MAR 2013
DRAWN : SMP
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

COLGAN CREEK - REACHS 3 4 AND 5
CROSS SECTIONS STA 191+60 TO STA 204+60

FILE NAME: 2013_C:\lga\Cr_Civil.dwg
CONTRACT NUMBER: ..

DRAWING NUMBER: C-9

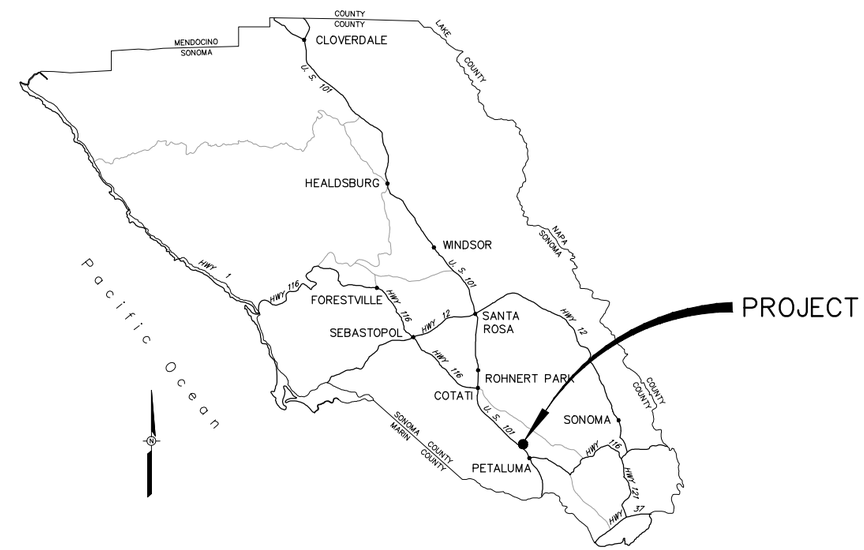
SHEET 10 OF 10

\\sd-data\proj\flood control\zone 1a\Colgan Creek\2013_SedRemoval\2013_ColganCrk_Civil

# SMP - PETALUMA BASIN ZONE 2A
# CORONA CREEK - REACH 1
# REACH SCALE SEDIMENT REMOVAL

VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| CORONA CREEK TRIBUTARY 1 | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION (BELOW OHW) | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED CHANNEL. | STA 0+00 TO STA 31+00 | 3,100 | 13.5 | 41,850 | 1.2 | 1,860 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCATION, AND VICINITY MAPS |
| 2 | C-1 | PLAN AND PROFILE STA 0+00 TO STA 12+00 |
| 3 | C-2 | PLAN AND PROFILE STA 12+00 TO STA 24+00 |
| 4 | C-3 | PLAN AND PROFILE STA 24+00 TO STA 32+00 |
| 5 | C-4 | SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

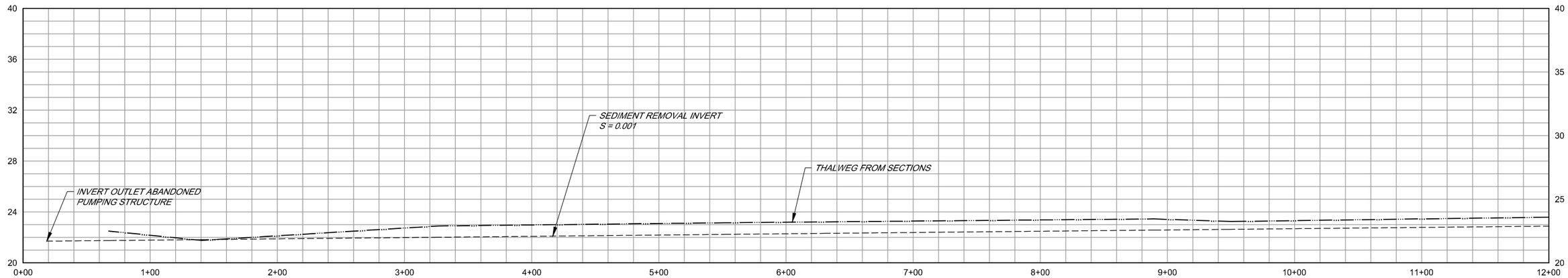
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: A. FACENDINI
REVIEWED:

SMP - PETALUMA BASIN □ONE 2A
CORONA CREEK - REACH 1
INDE□ TO DRAWINGS□LOCATION□AND VICINITY MAPS

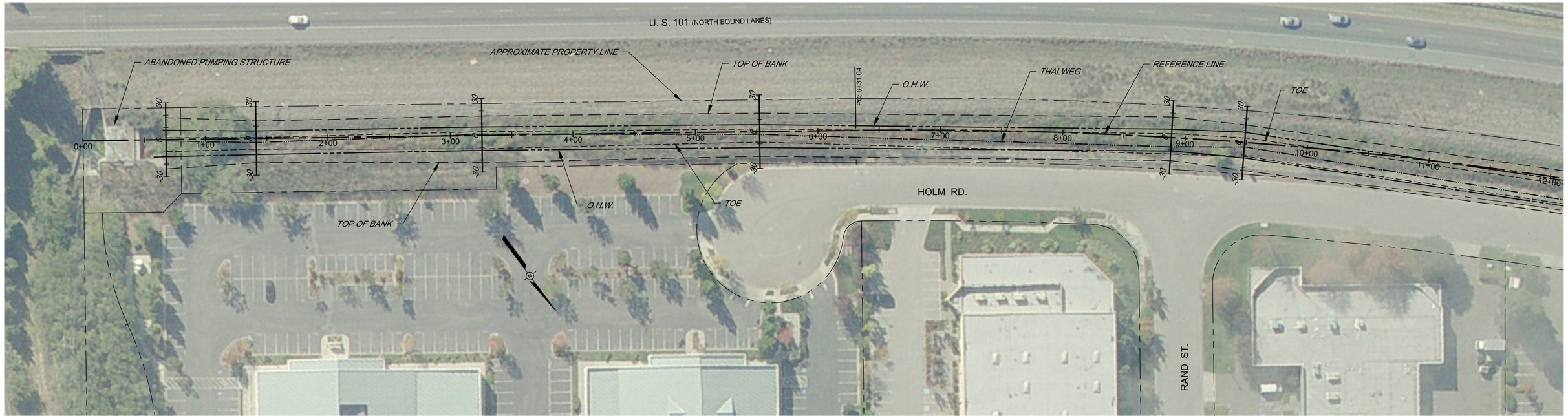
FILE NAME: 2013_C□r□□a_Ge□
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF

\\sdr-data\proj\flood control\zone 2a\Corona\2013_Corona-Trib-1\2013_Corona_Gen




PROFILE .

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN .

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

SONOMA COUNTY WATER AGENCY

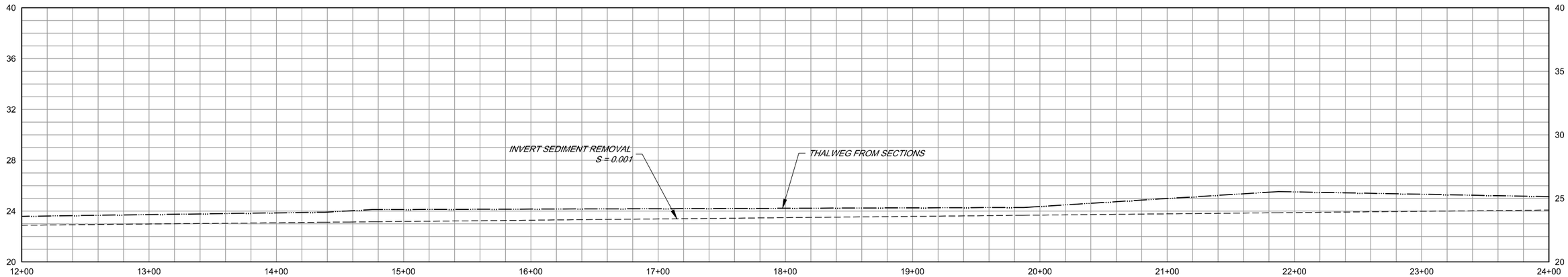
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ----
REVIEWED :

SMP - PETALUMA BASIN ONE 2A

CORONA CREEK - REACH 1

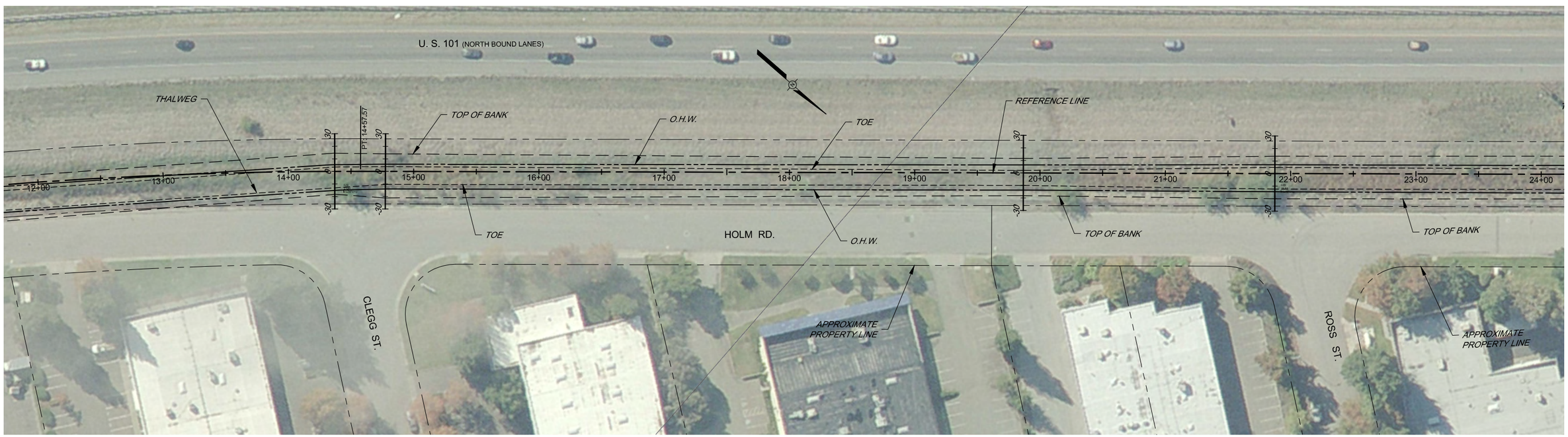
PLAN AND PROFILE STA 0+00 TO STA 12+00

FILE NAME: 2013_C r a_tri 1_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 5




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ----
REVIEWED :

SMP - PETALUMA BASIN ONE 2A

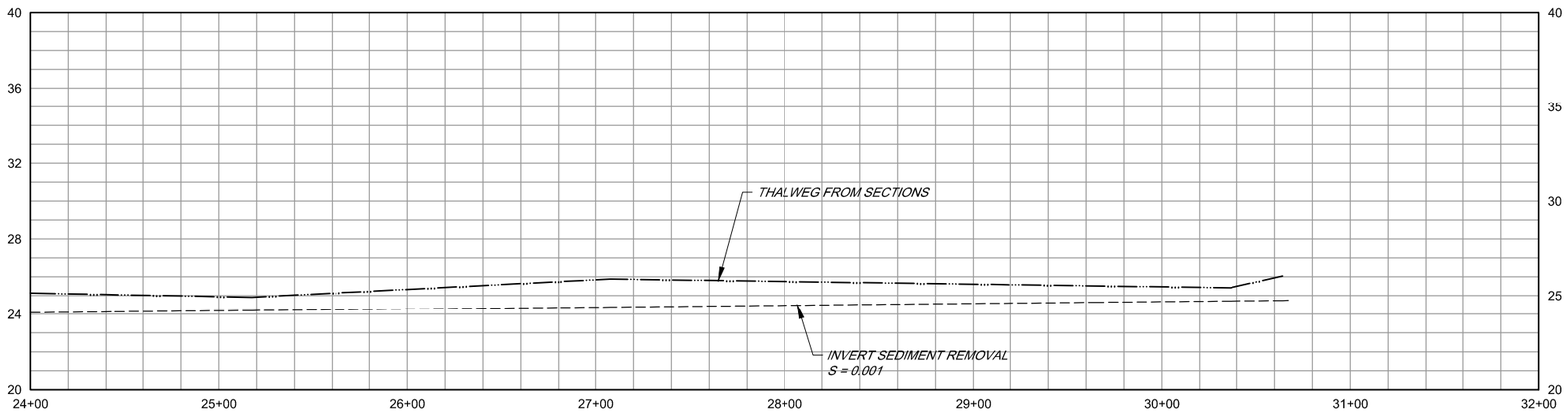
CORONA CREEK - REACH 1

PLAN AND PROFILE STA 12+00 TO STA 24+00

FILE NAME: 2013_C r a_tri -1_CIVIL
CONTRACT NUMBER:

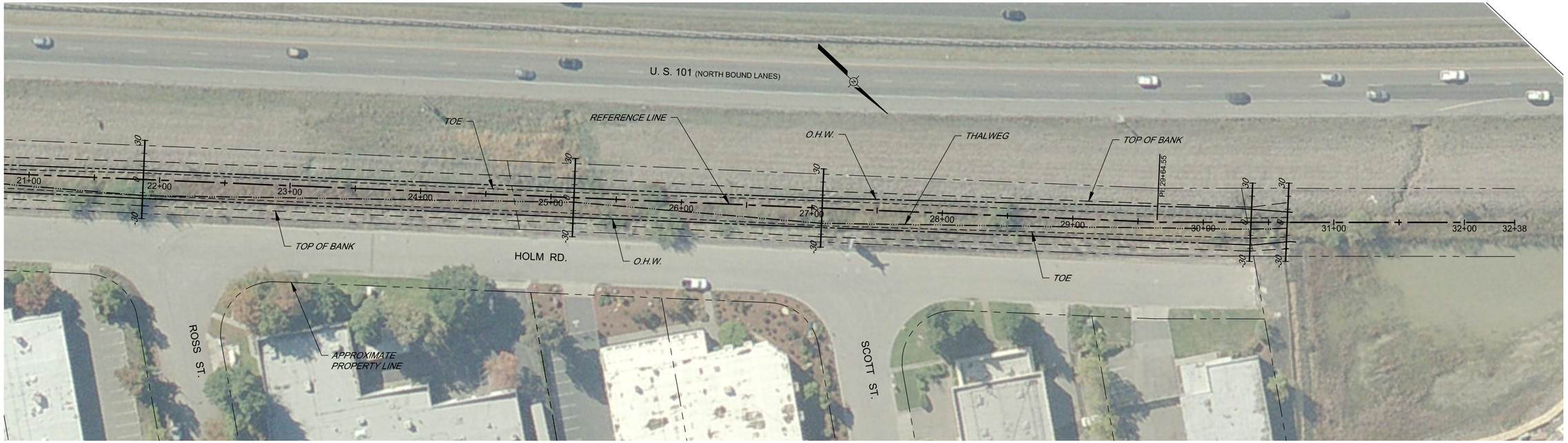
DRAWING NUMBER: C-2

SHEET 3 OF 5




PROFILE .

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN .

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

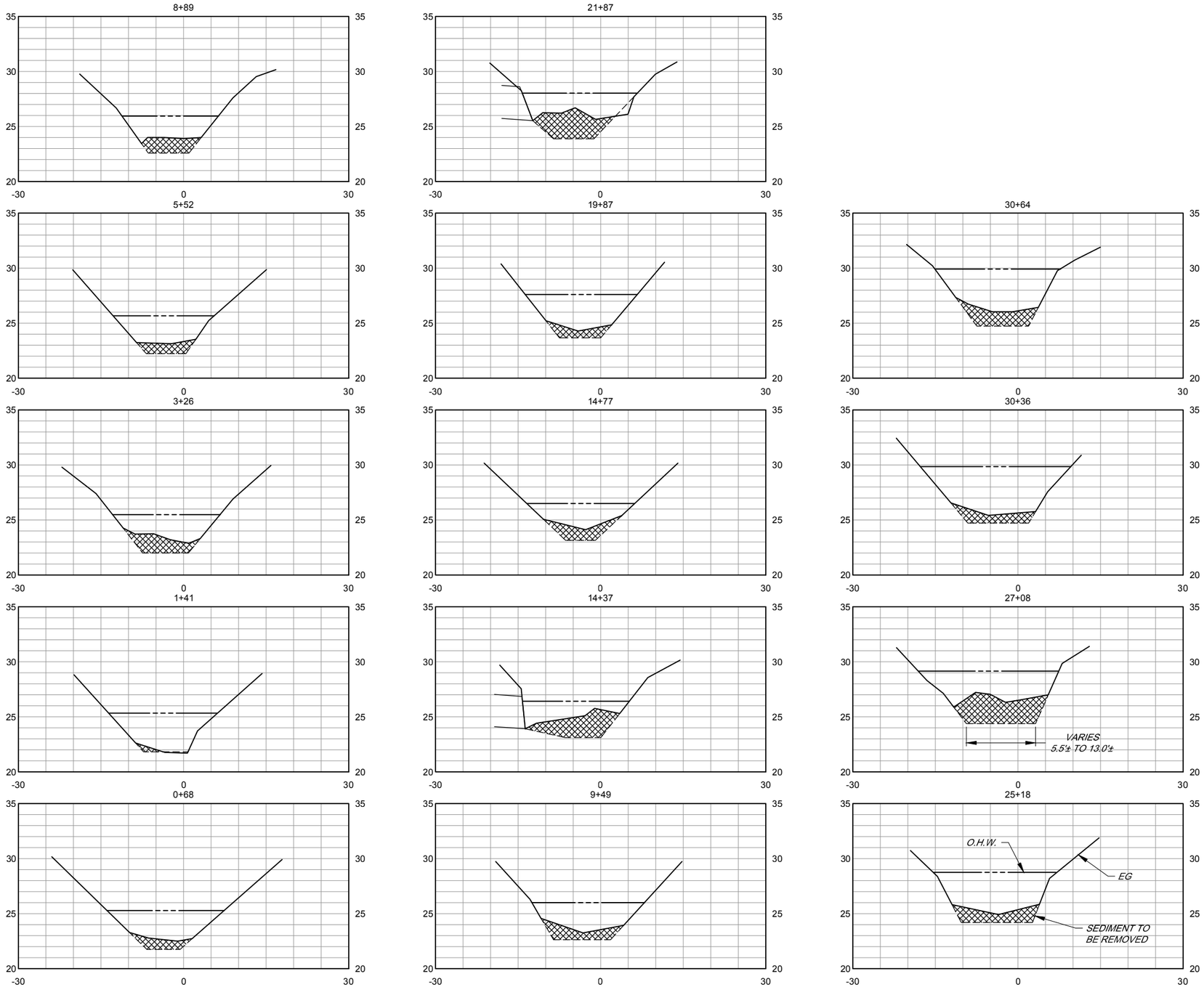
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ----
REVIEWED :

SMP - PETALUMA BASIN ZONE 2A

CORONA CREEK - REACH 1

PLAN AND PROFILE STA 24+00 TO STA 32+00

FILE NAME: 2013_Corona_tri-1_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 5




SECTIONS

SCALE HORI□ 1" □ 10□
VERT 1" □ 5□

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

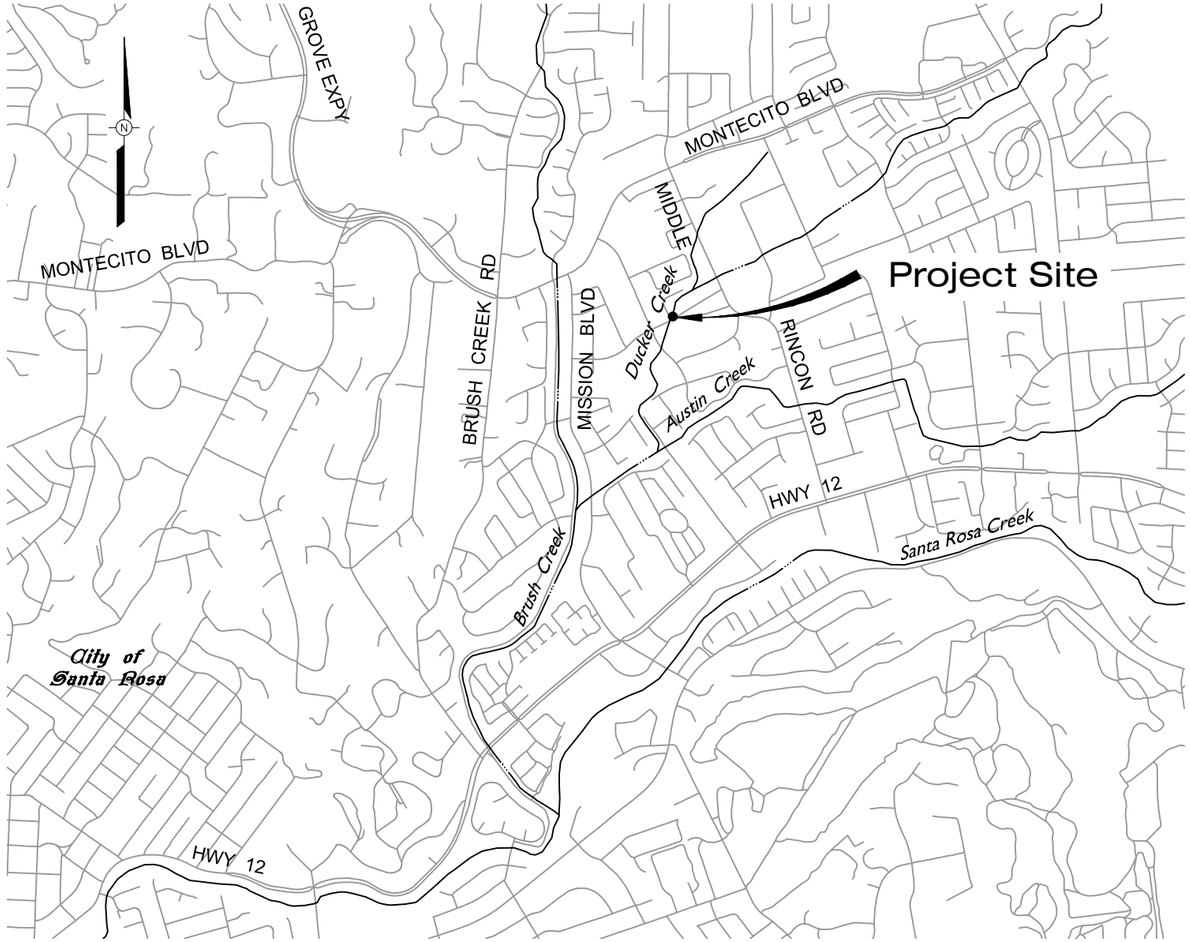
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

SMP - PETALUMA BASIN □ONE 2A
CORONA CREEK - REACH 1
SECTIONS

FILE NAME: 2013_C□r□□a_tri□-1_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 5 OF 5

# ZONE 1A - LAGUNA DE SANTA ROSA WATERSHED DUCKER CREEK REACH 2 LOCALIZED SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE

LOCATION MAP

NOT TO SCALE

## INDEX TO DRAWINGS

| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G–1 | INDEX TO DRAWINGS, LOCATION AND VICINITY MAPS |
| 2 | C–1 | SEDIMENT PLUG REMOVAL PLAN, SECTION AND TABLE |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

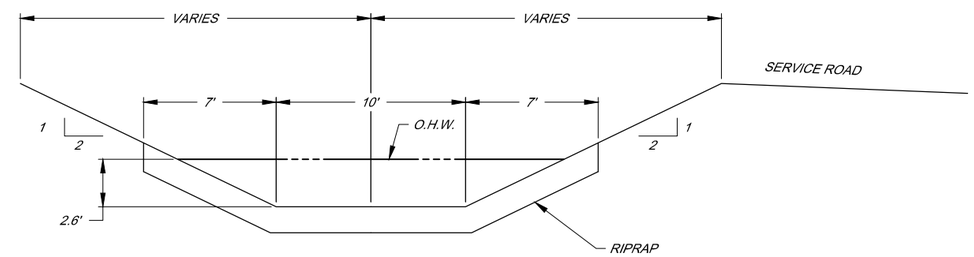
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

ONE 1A - LAGUNA DE SANTA ROSA WATERSHED
DUCKER CREEK REACH 2
INDE TO DRAWINGS LOCATION AND VICINITY MAP

FILE NAME: 2013_D erCr_G.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF

S:\Data Pr d tr e to DUCKER_CRK.2013_DUCKER

PLAN
SCALE 1" = 40'




TYPICAL SECTION
SCALE 1" = 4'

| DUCKER CREEK - BRUSH CREEK CHANNEL 42" | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OPERATING FROM SERVICE ROAD | WEST SIDE CHANNEL STA 990+38 TO STA 990+78 | 40 | 4 | BELOW O.H.W. 160 | 1 | BELOW O.H.W. 6 |
| | EAST SIDE CHANNEL STA 990+38 TO STA 990+88 | 50 | 8 | BELOW O.H.W. 400 | 2 | BELOW O.H.W. 30 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

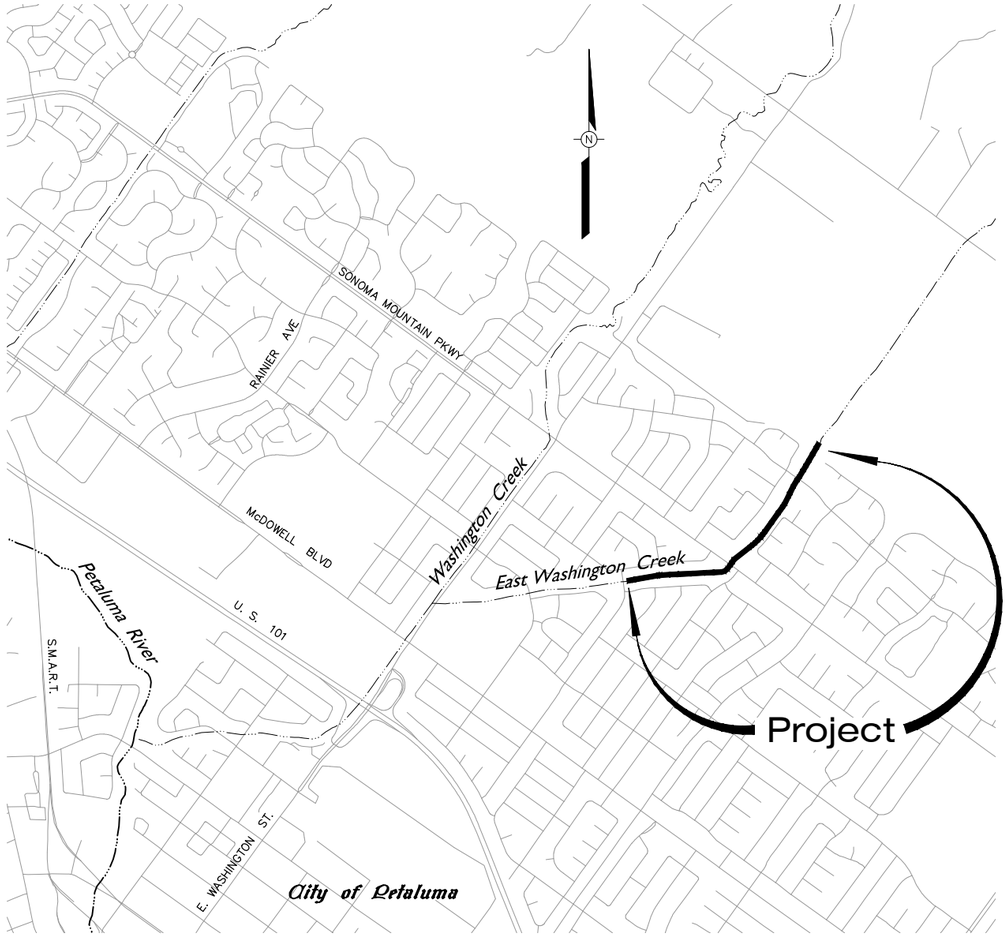
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

ZONE 1A - LAGUNA DE SANTA ROSA WATERSHED

SEDIMENT PLUG REMOVAL
PLAN, SECTION AND TABLE

FILE NAME: 2013_SED-REMOVAL_DUCKER
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 2

# SMP - PETALUMA BASIN ZONE 2A EAST WASHINGTON CREEK - REACH 3, 4 AND 5 REACH SCALE SEDIMENT REMOVAL




## VICINITY MAP

NOT TO SCALE

## LOCATION MAP

NOT TO SCALE

| EAST WASHINGTON CREEK REACH 3□4□AND 5 | | | | | | |
|---|---|---|---|---|---|---|
| E□CAVATION | | | | | | |
| PRO□ECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH □LINEAR FT.□ | AVERAGE WIDTH □LINEAR FT.□ | AREA □S□UARE FT.□ | DEPTH □FT.□ | C.Y. □TO REMOVE□ |
| ACCUMULATED SEDIMENT REMOVAL USING E□CAVATOR OR FRONT END LOADER OPERATING IN CHANNEL | REACH 3 STA 25+50 TO STA 40+00 | 1□450 | 6.3 | BELOW O.H.W. 9□135 | 0.5 | BELOW O.H.W. 169 |
| | REACH 4 STA 40+00 TO STA 54+77 | 1□477 | 11 | BELOW O.H.W. 16□247 | 2.5 | BELOW O.H.W. 1□504 |
| | REACH 4 STA 54+77 TO STA 60+507 | 573 | 14.5 | BELOW O.H.W. 8,308 | 2.6 | BELOW O.H.W. 800 |
| | TOTAL | 3,500 | | 33,690 | | 2,473 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCATION, AND VICINITY MAPS |
| 2 | C-1 | SEDIMENT REMOVALE PLAN AND PROFILE STA 24+00 TO STA 34+00 |
| 3 | C-2 | SEDIMENT REMOVALE PLAN AND PROFILE STA 34+00 TO STA 44+00 |
| 4 | C-3 | SEDIMENT REMOVALE PLAN AND PROFILE STA 44+00 TO STA 54+00 |
| 5 | C-4 | SEDIMENT REMOVALE PLAN AND PROFILE STA 54+00 TO STA 61+00 |
| 6 | C-5 | SEDIMENT REMOVAL SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

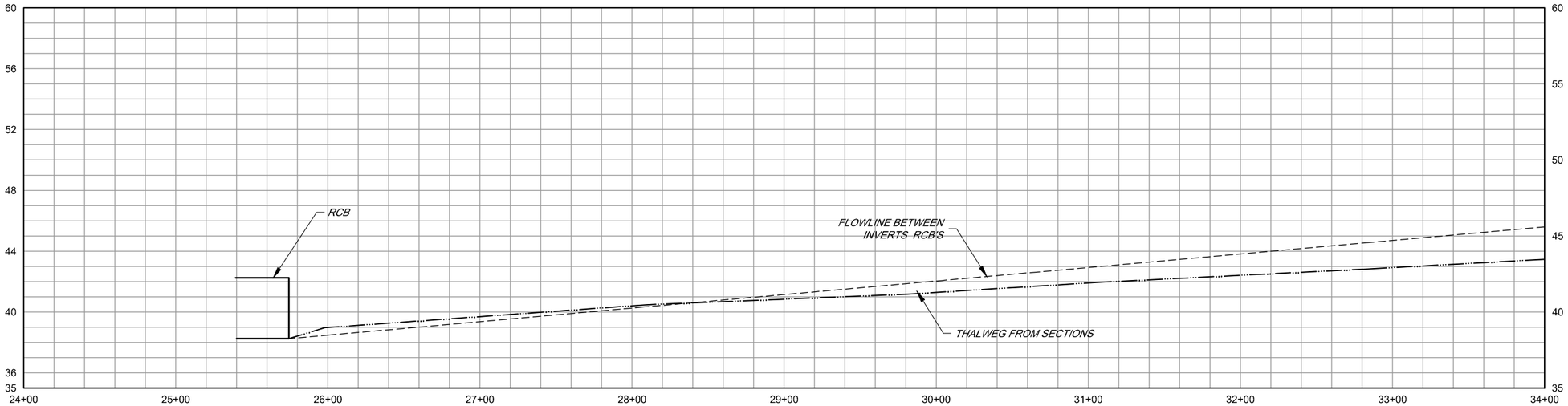
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

SMP - PETALUMA BASIN □ONE 2A
EAST WASHINGTON CREEK - REACH 3□4 AND 5
INDE□ TO DRAWINGS□LOCATION□AND VICINITY MAPS

FILE NAME: 2013_E-Was□□gt□□_Ge□□.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 6

\\sdr-data\proj\flood control\zone 2a\E_WASHINGTON\2013_E-Washington\2013_E-Washington_Gen




PROFILE .

SCALE HORI 1" 40
VERT 1" 4

PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

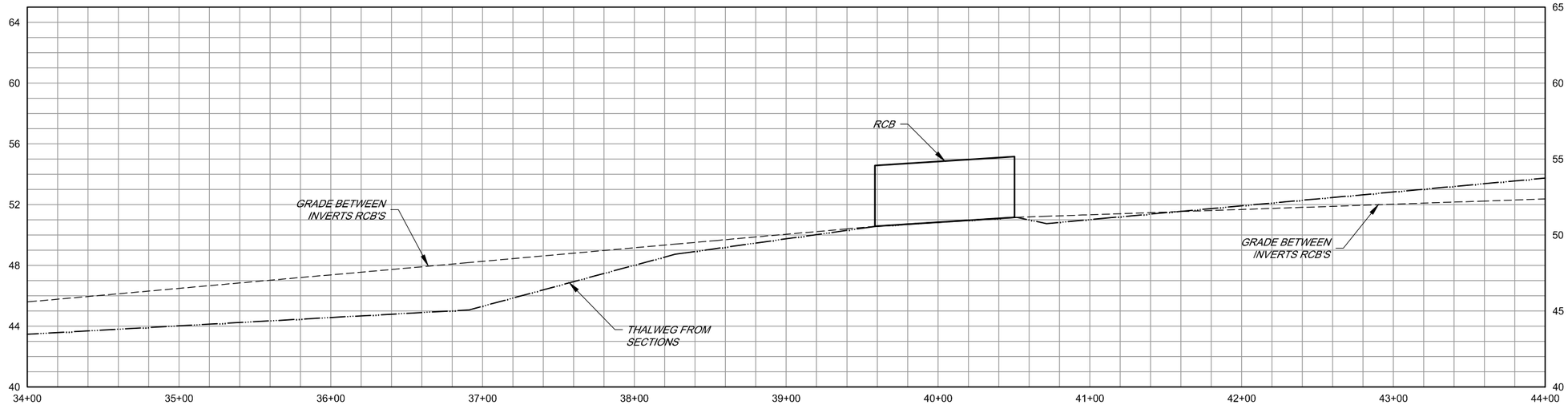
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

EAST WASHINGTON CREEK - REACHS 3 4 AND 5

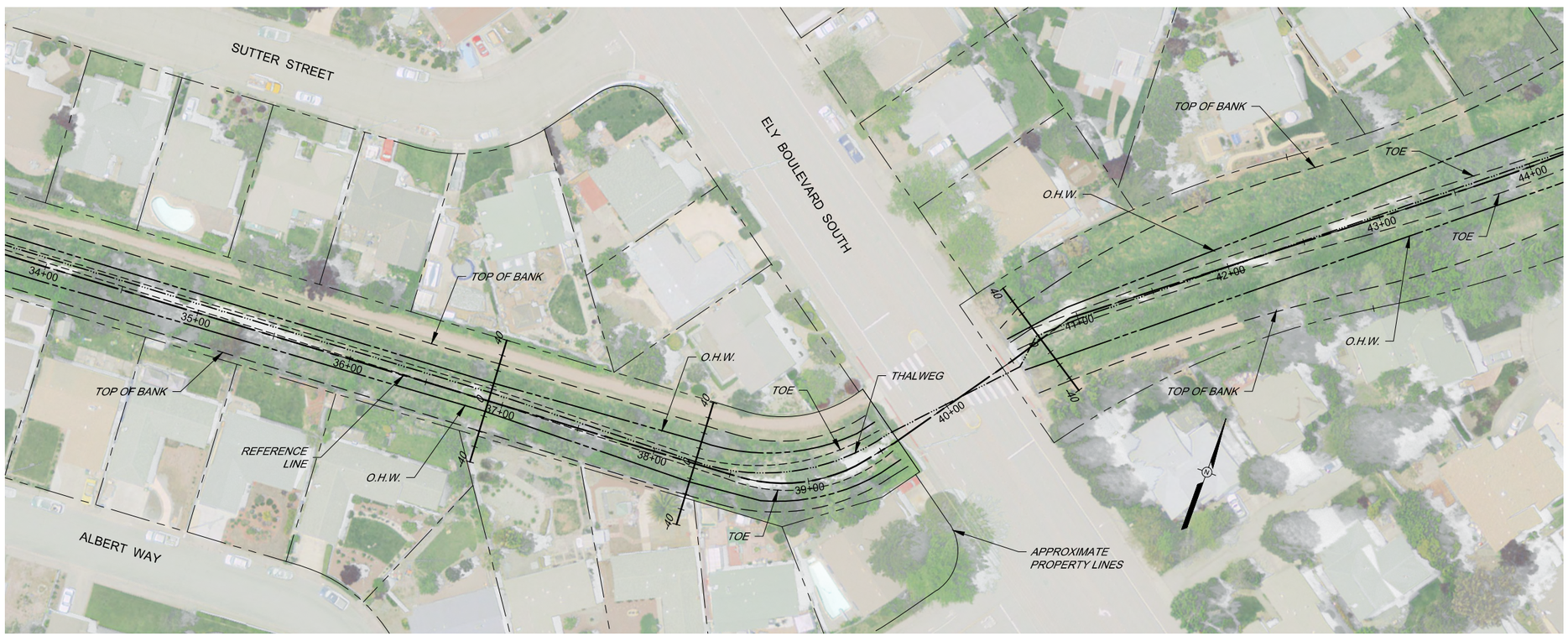
SEDIMENT REMOVAL PLAN AND PROFILE STA 24+00 TO STA 34+00

FILE NAME: 2013_E-Was gt _ ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 6




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

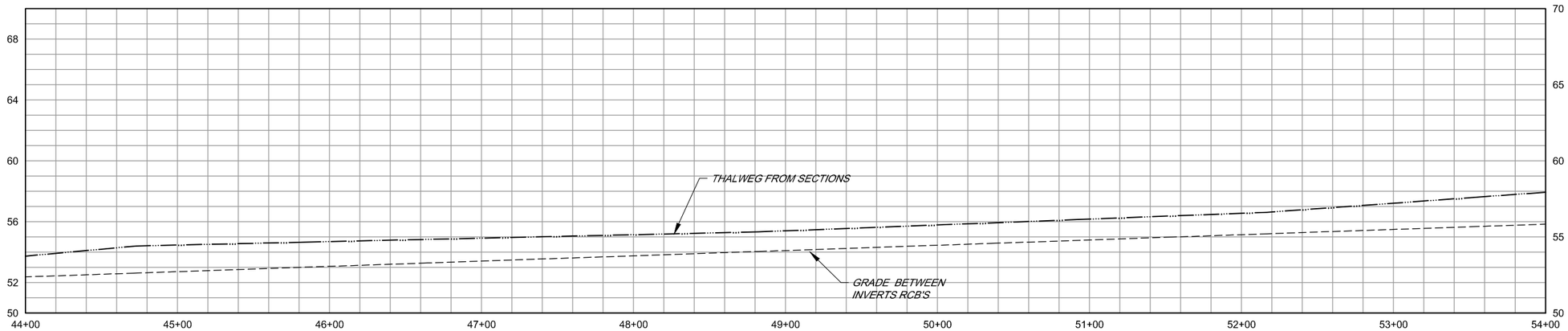
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ADF
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

EAST WASHINGTON CREEK - REACHS 3 4 AND 5

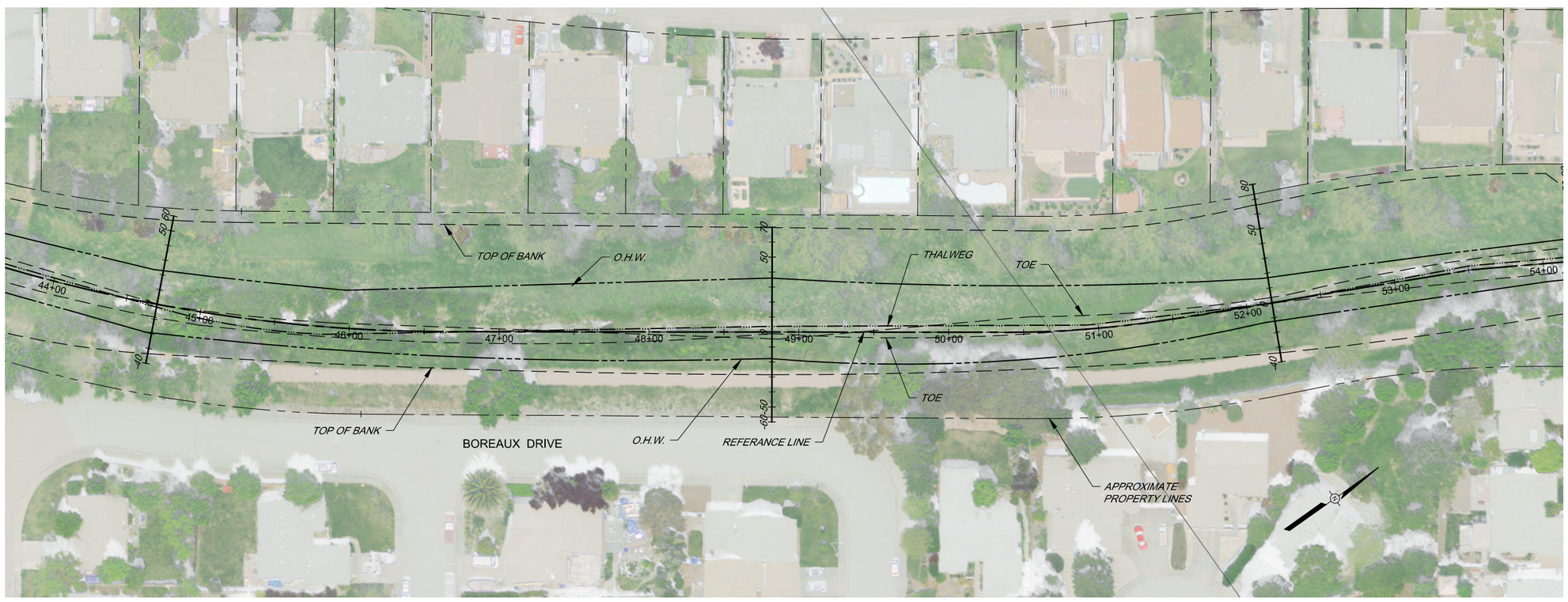
SEDIMENT REMOVAL PLAN AND PROFILE STA 34+00 TO STA 44+00

FILE NAME: 2013_E-Was gt _ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 6




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

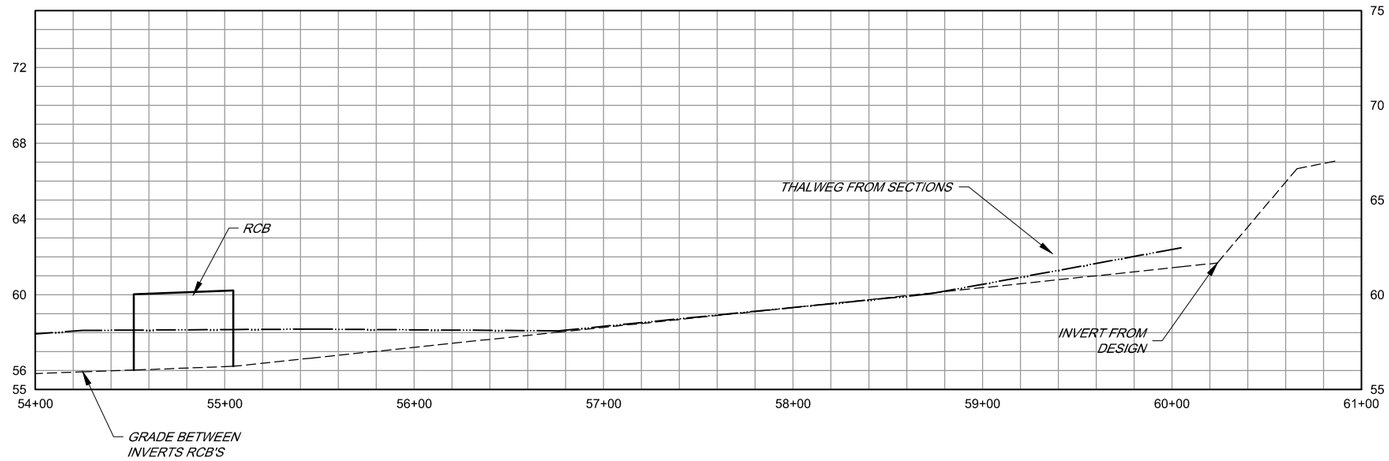
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

EAST WASHINGTON CREEK - REACHS 3 4 AND 5

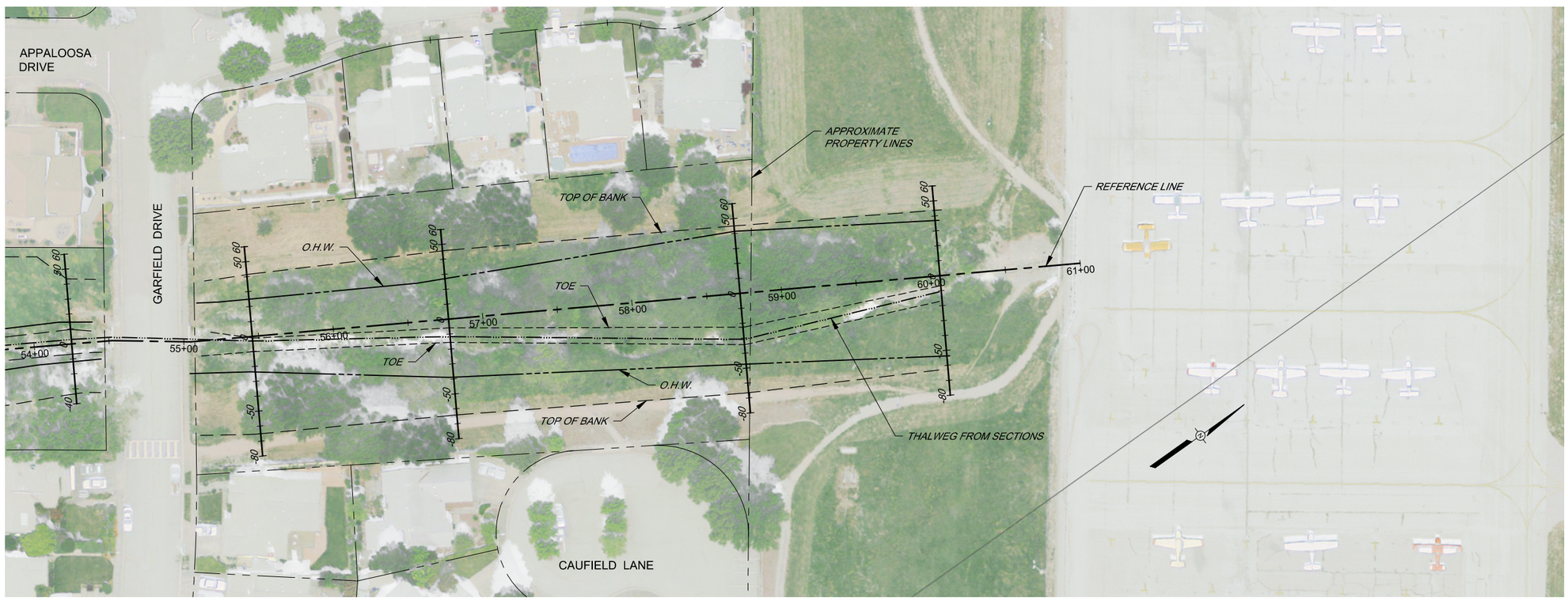
SEDIMENT REMOVAL PLAN AND PROFILE STA 44+00 TO STA 54+00

FILE NAME: 2013_E-Was igt _ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 6




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

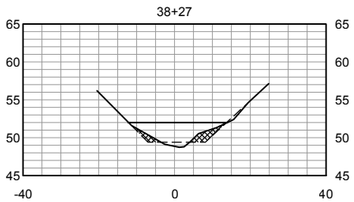
SONOMA COUNTY WATER AGENCY

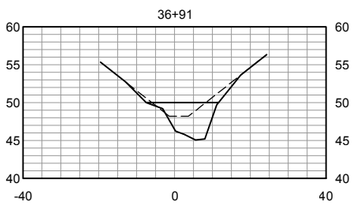
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ADF
REVIEWED :

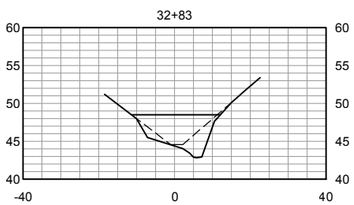
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
EAST WASHINGTON CREEK - REACHS 3 4 AND 5
SEDIMENT REMOVAL PLAN AND PROFILE STA 54+00 TO STA 61+00

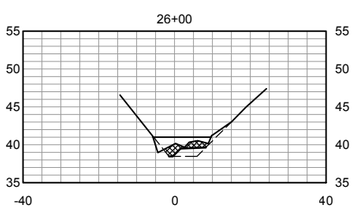
FILE NAME: 2013_E-Was gt _ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 5 OF 6

3d-data r d tr e 2a E_WASHINGTON 2013_E-Was gt

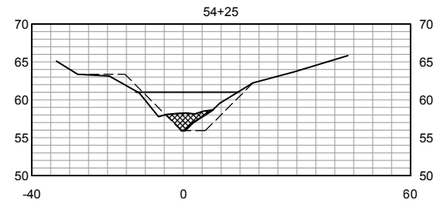


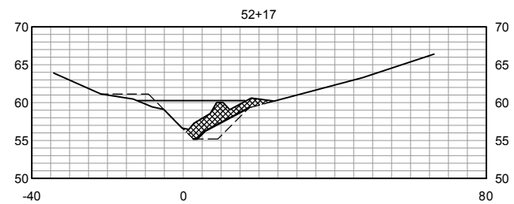



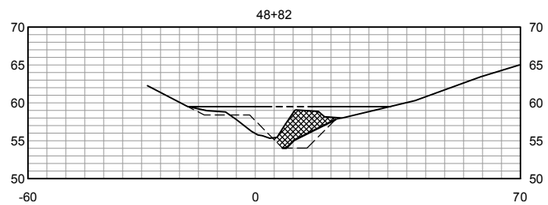



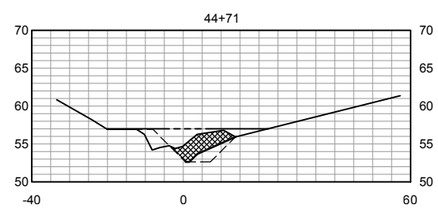


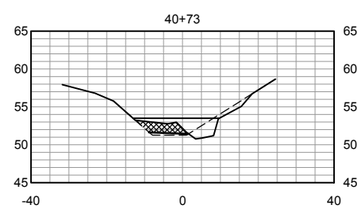

REACH 3



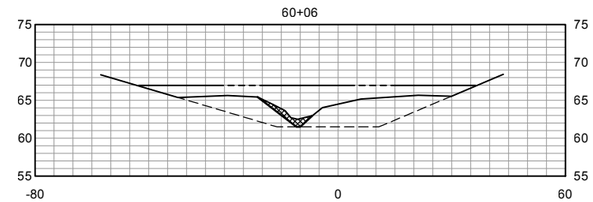



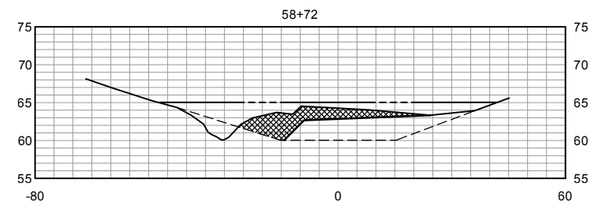



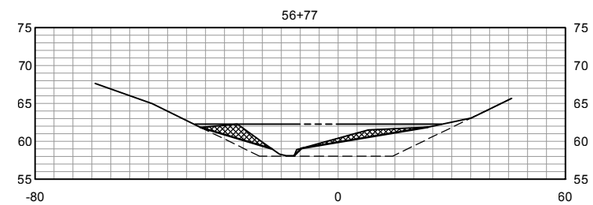



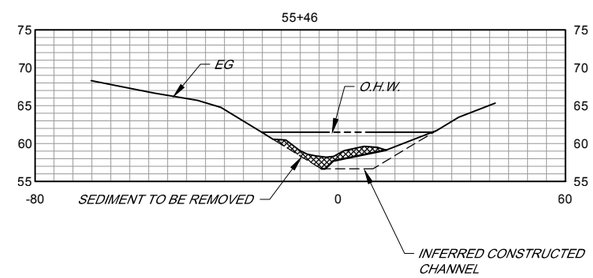




REACH 4

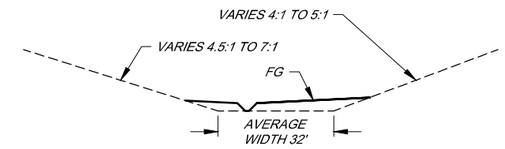


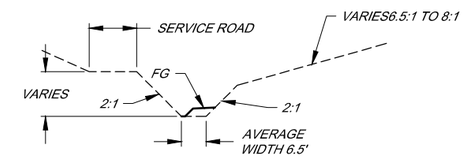



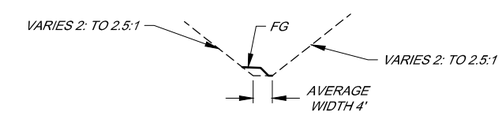

REACH 5




REACH 5



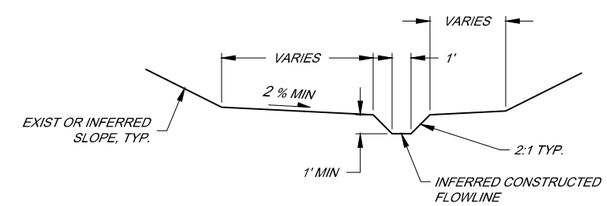

REACH 4




REACH 3

## TYPICAL SECTIONS

NOT TO SCALE




## SEDIMENT REMOVAL LOW FLOW CHANNEL SECTION

□LOW FLOW CHANNEL TO MEANDER ALONG E□ISTING THALWEG□

NOT TO SCALE

## SECTIONS

SCALE HORI□ 1" □ 20□
VERT 1" □ 10□

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

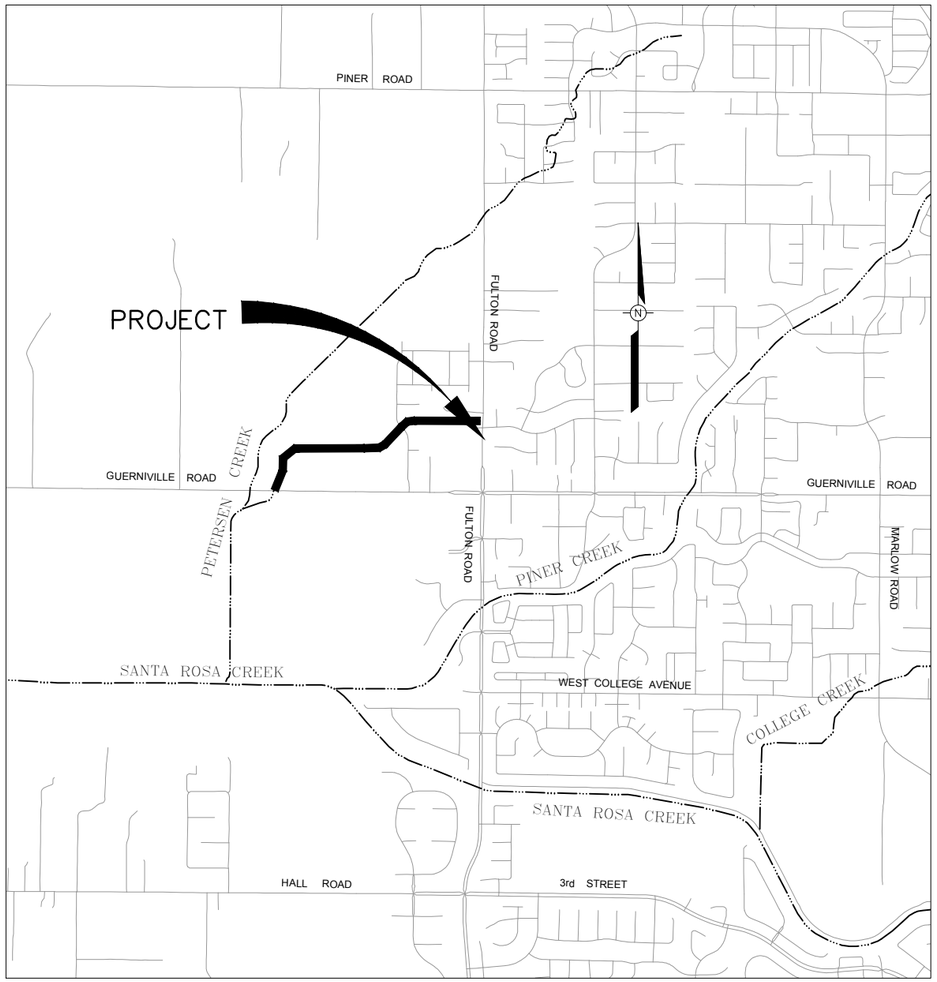
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED □ONE 1A
EAST WASHINGTON CREEK - REACHS 3□4 AND 5
SEDIMENT REMOVAL SECTIONS

FILE NAME: 2013_E-Was□□gt□□_□ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-5
SHEET 6 OF 6

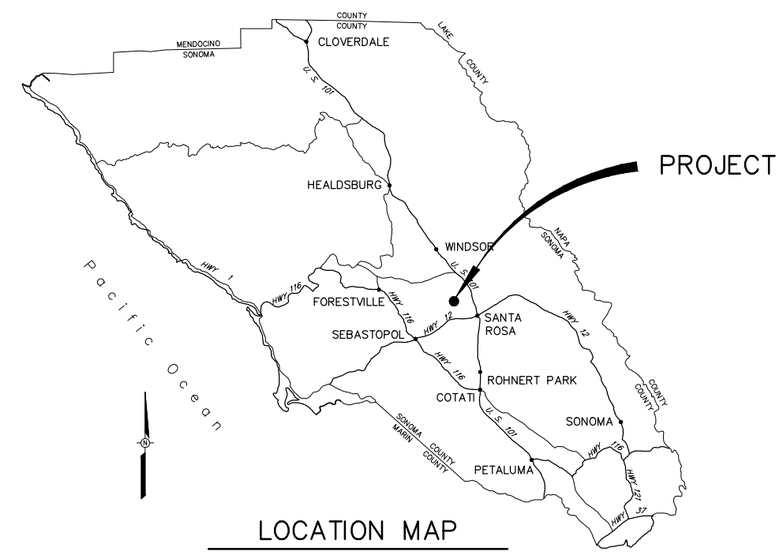
a:d-data□r□□□d □□□tr□□□e 2a E_WASHINGTON 2013_E-Was□gt□□

# SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
# FORESTVIEW CREEK - REACH 2 AND 3
# REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| FORESTVIEW CREEK SMP REACH 2 AND 3 | | | | | | |
|---|---|---|---|---|---|---|
| WORK TO BE DONE WITHIN CHANNEL | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH LINEAR FT. | AVERAGE WIDTH LINEAR FT. | AREA SQUARE FT. | DEPTH FT. | C.Y. TO REMOVE |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING FROM SERVICE ROAD OR IN THE DEWATERED CHANNEL. | STATION 518+00 TO STATION 550+43 | 3243 | 12.5 | BELOW OHW 40537 | 0.6 | BELOW OHW 901 |

INDEX TO DRAWINGS


| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS LOCATION VICINITY MAPS AND TABLE |
| 2 | C-1 | PLAN PRIOFILE STA 518+00 TO STA 528+00 |
| 3 | C-2 | PLAN PRIOFILE STA 528+00 TO STA 540+00 |
| 4 | C-3 | PLAN PRIOFILE STA 540+00 TO STA 550+50 |
| 5 | C-4 | SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

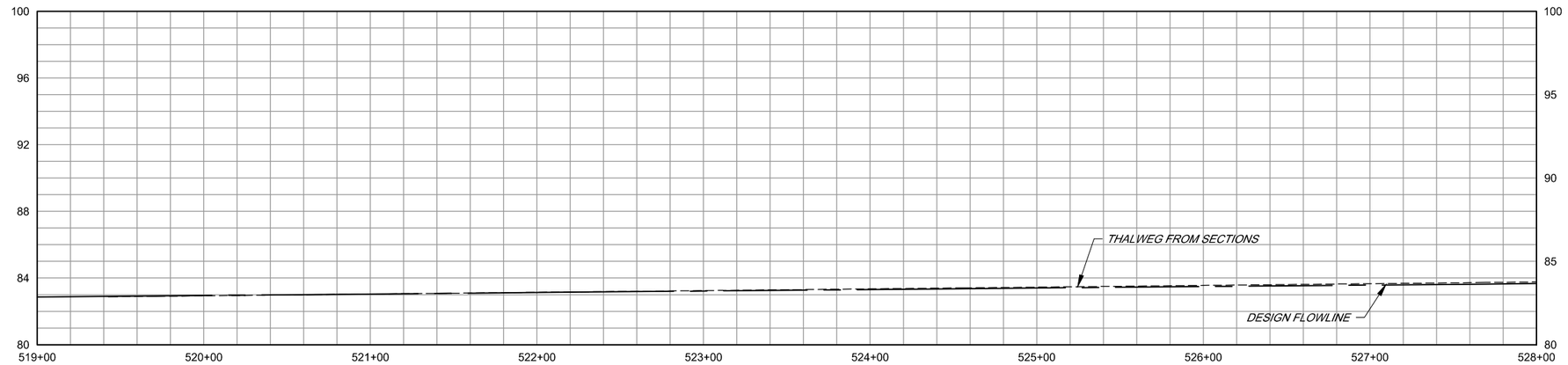
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

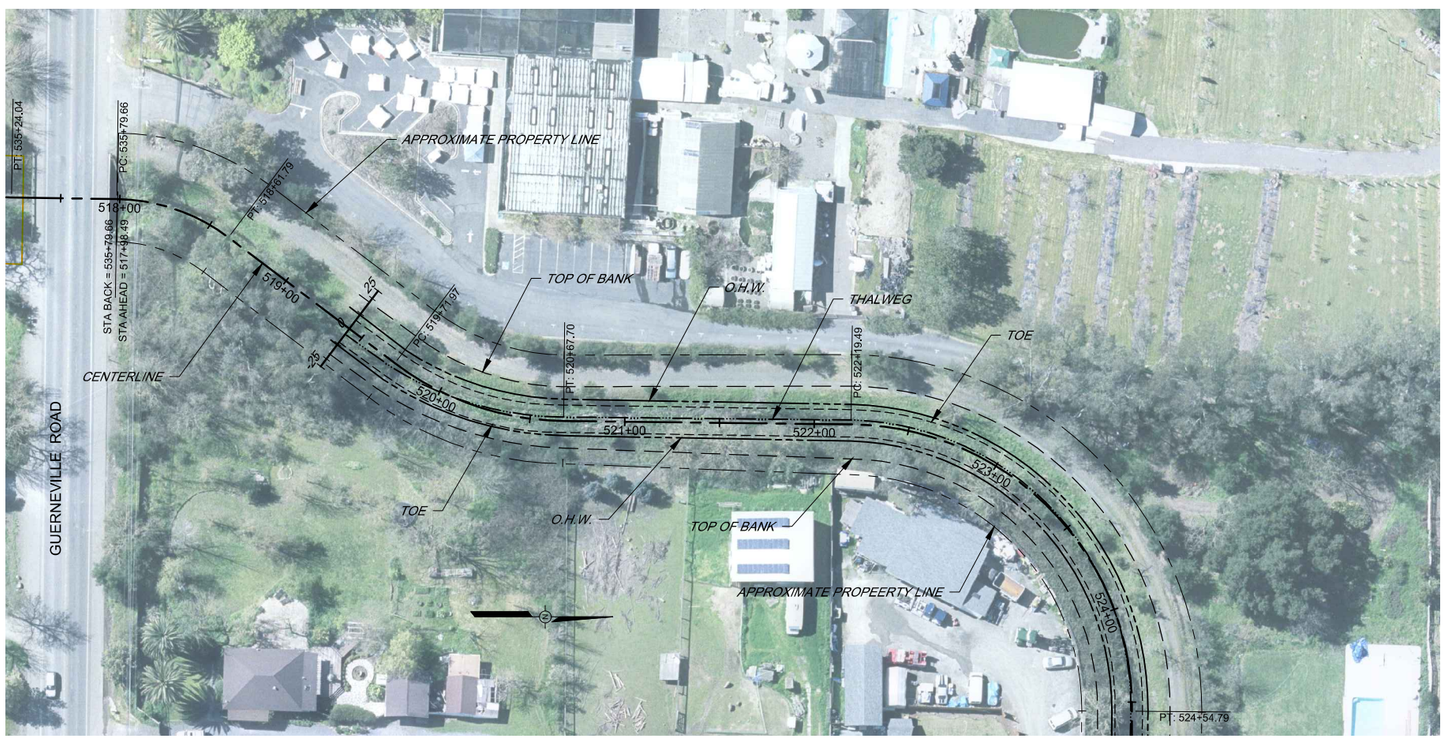
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
FORESTVIEW CREEK - REACH 2 AND 3 - INDEX TO DRAWINGS LOCATION VICINITY MAPS AND TABLE

FILE NAME: 2013_F:restview-G.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 5



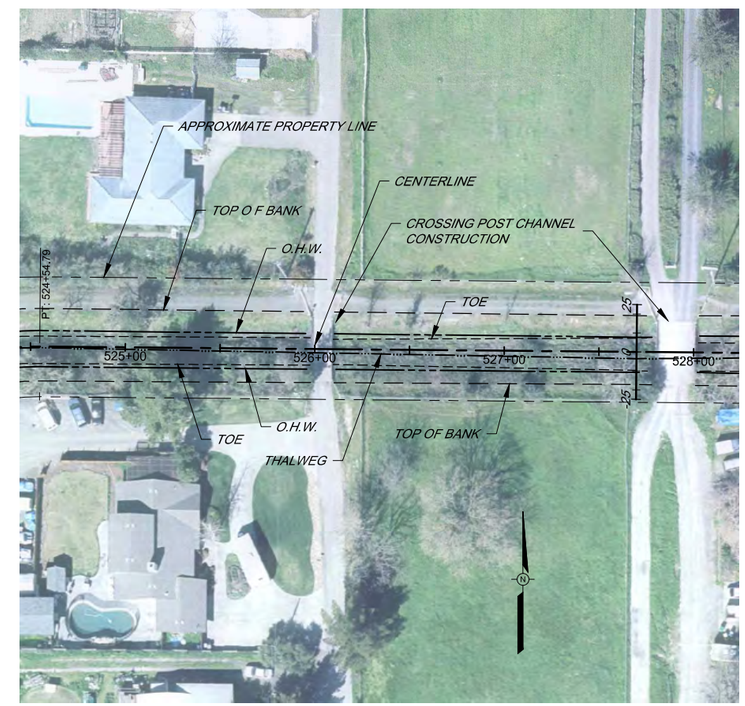

PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

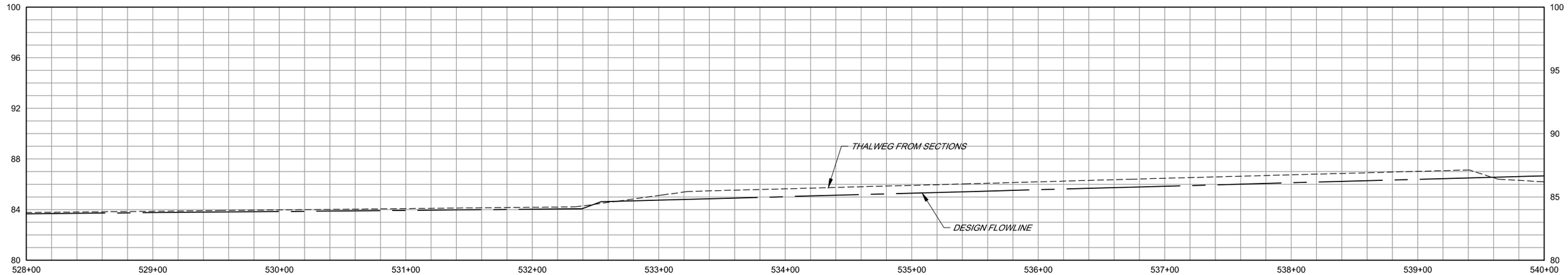
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

---

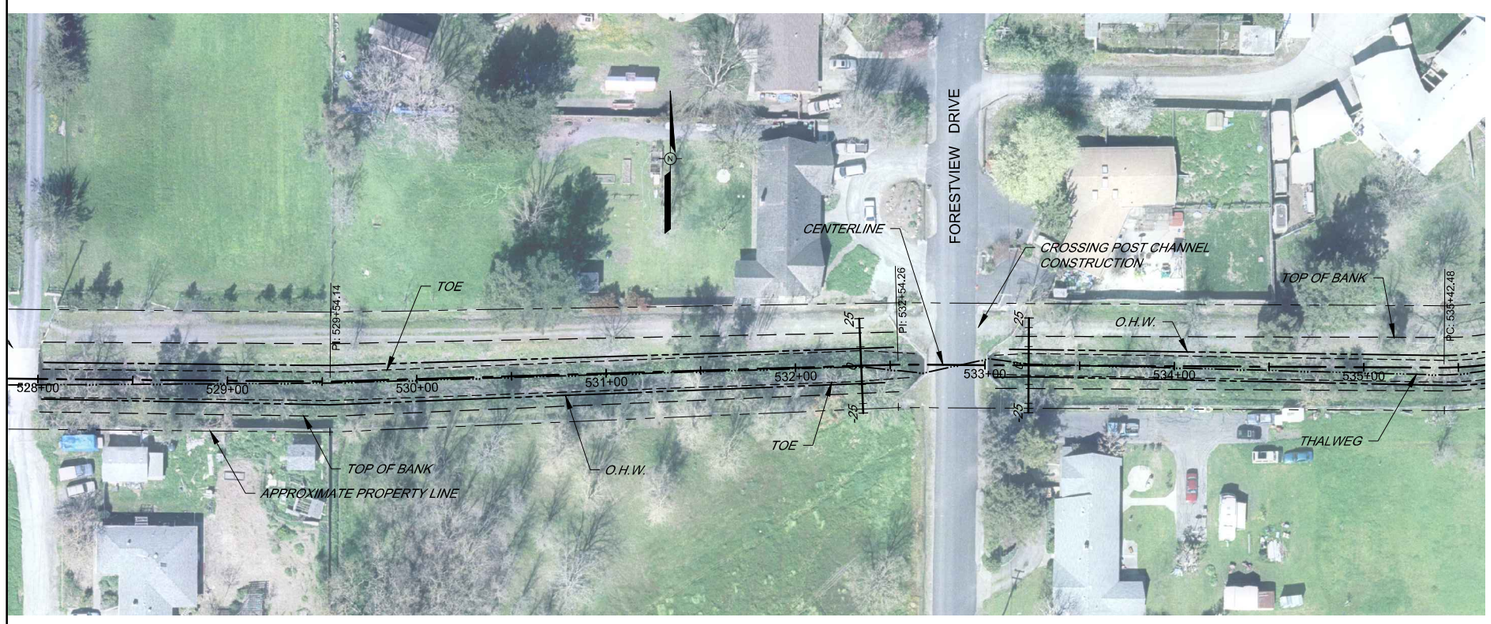
PLAN PRIOFILE STA 518+00 TO STA 528+00

FILE NAME: 2013_F restview-C
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF ##




PROFILE .

SCALE HORI: 1" = 40'
VERT 1" = 4'




PLAN .

SCALE 1" = 40'

PLAN .

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

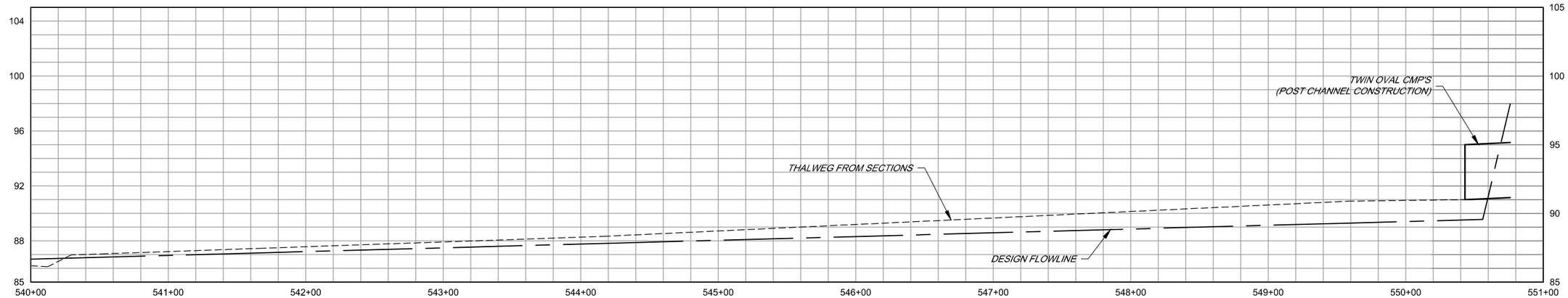
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

---

PLAN PRIOFILE STA 528+00 TO STA 540+00

FILE NAME: 2013_F restview-C
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF ##

d:\3d-data\ d \ r \ s 1a F restview_Cr 20013-F restview




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'

PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

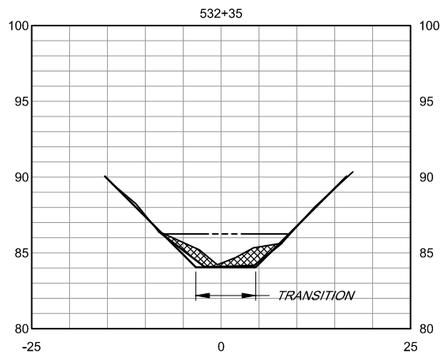
SONOMA COUNTY WATER AGENCY

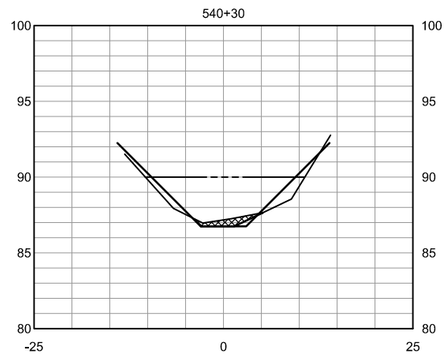
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

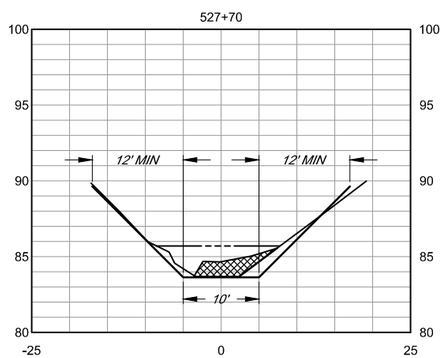
SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

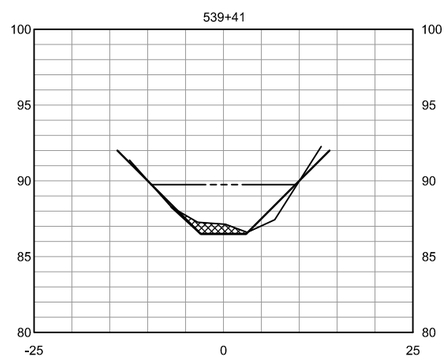
FORESTVIEW CREEK - REACH 2 AND 3
PLAN & PRIOFILE STA 540+00 TO STA 550+50

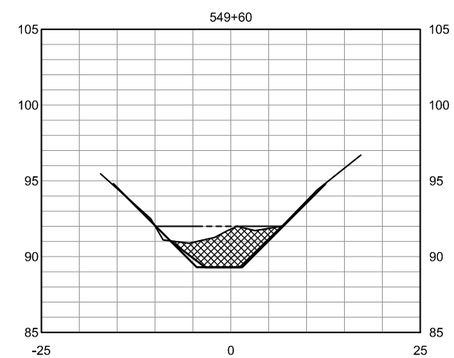
FILE NAME: 2013_Forestview-C
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 5

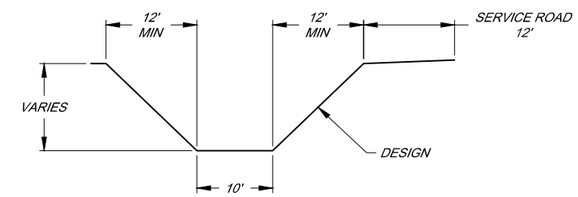


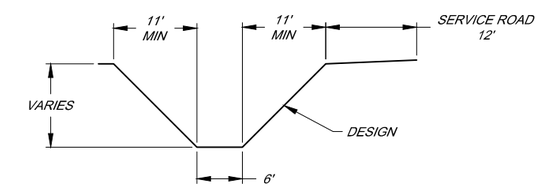



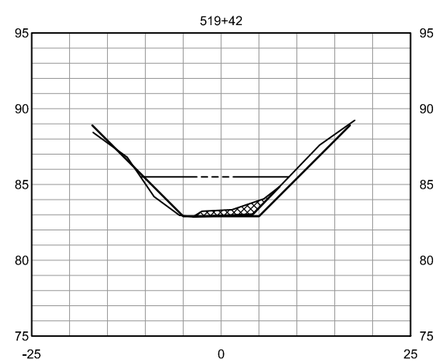

STA 517+98 TO STA 532+19

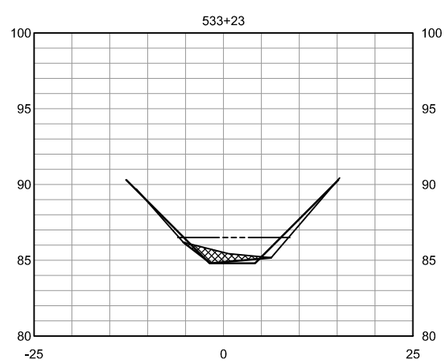


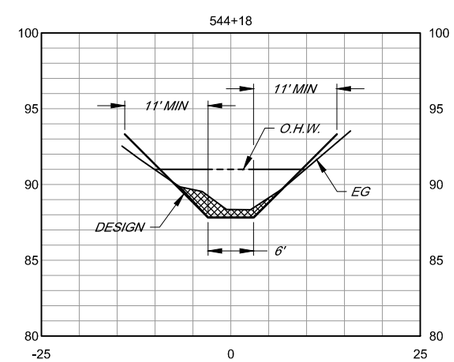

STA 532+57 TO FULTON ROAD

TYPICAL SECTIONS .

N.T.S.




SECTIONS .

SCALE HORI: 1" = 10'
VERT 1" = 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

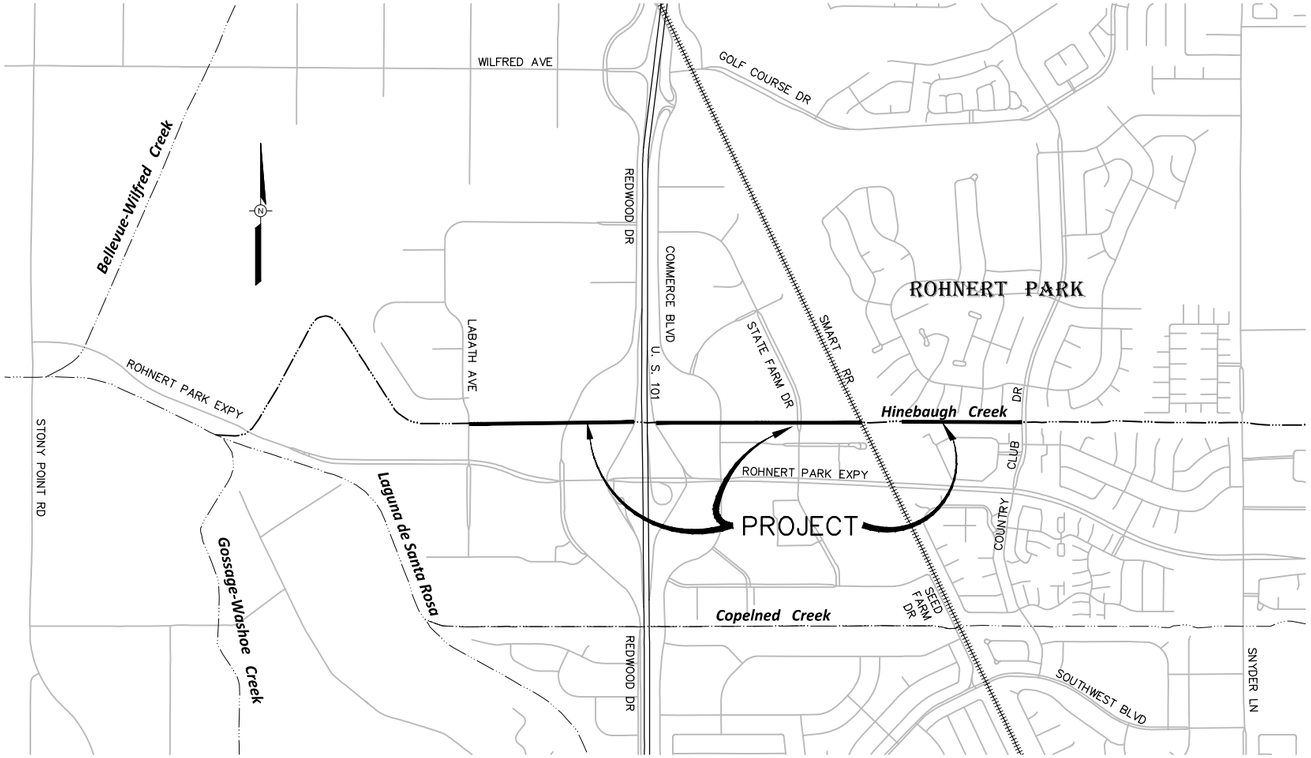
SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

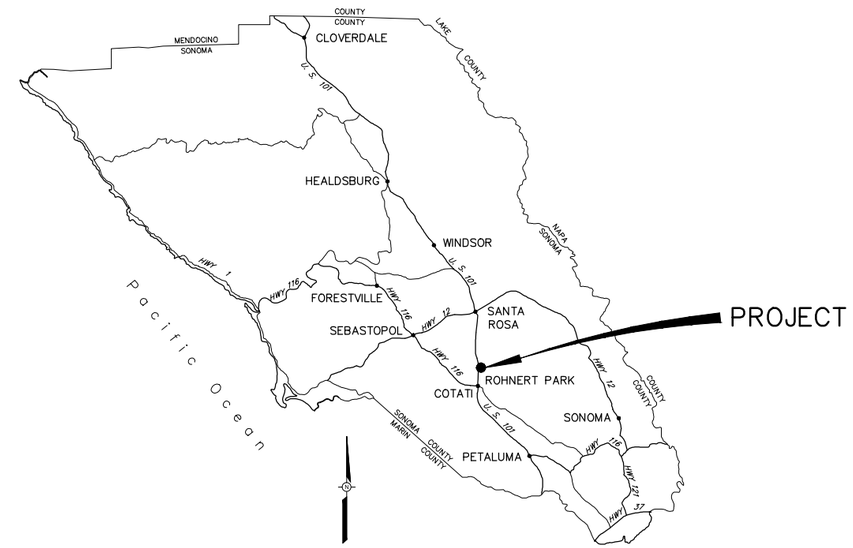
FORESTVIEW CREEK - REACH 2 AND 3 SECTIONS

FILE NAME: 2013_Forestview-C
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 5 OF 5

d:\d-data\cr\cd\cr\cr\e1a\F:\restview\restview_Cr_20013-F:\restview

# HINEBAUGH CHANNEL - REACH 3, 4 AND 5 REACH SCALE SEDIMENT REMOVAL




VICINITY MAP
SCALE 1" = 1000'

| HINEBAUGH CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | AVERAGE DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAR OR FRONT END LOADER OPERATING IN CHANNEL | SMP - 3<br>STA 186+50<br>TO<br>STA 195+50 | 900 | 43.8 | ABOVE O.H.W. 2,083<br>BELOW O.H.W. 37,337 | 1.6 | ABOVE O.H.W 540<br>BELOW O.H.W. 1,796 |
| | SMP - 3<br>STA -0+10<br>TO<br>STA 8+25 | 835 | 26.5 | 22,128 | 1.0 | 820 |
| | SMP - 4<br>STA 8+25<br>TO<br>STA 18+50 | 1,025 | 21.2 | 21,730 | 0.8 | 643 |
| | SMP - 5<br>STA 18+50<br>TO<br>STA 27+00 | 850 | 12.4 | 10,540 | 0.7 | 273 |
| | SMP - 5<br>STA 32+00<br>TO<br>STA 47+50 | 1,550 | 7.6 | 11,780 | 1.3 | 567 |
| TOTALS: | | LENGTH = 5160 | | AREA<br>ABOVE O.H.W. 2,083<br>BELOW O.H.W. 103,515 | | ABOVE O.H.W 540<br>BELOW O.H.W. 4,099 |

## INDEX TO DRAWINGS



| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, TABLE, LOCATION AND VICINITY MAPS |
| 2 | C-1 | PLAN & PROFILE STA 186+00 TO STA 196+00 |
| 3 | C-2 | PLAN & PROFILE STA -1+00 TO STA 8+40 |
| 4 | C-3 | PLAN & PROFILE STA 8+40 TO STA 18+60 |
| 5 | C-4 | PLAN & PROFILE STA 18+60 TO STA 30+00 |
| 6 | C-5 | PLAN & PROFILE STA30+00 TO STA 42+00 |
| 7 | C-6 | PLAN & PROFILE STA42+00 TO STA 49+00 |
| 8 | C-7 | SECTIONS |
| 9 | C-8 | SECTIONS |



BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

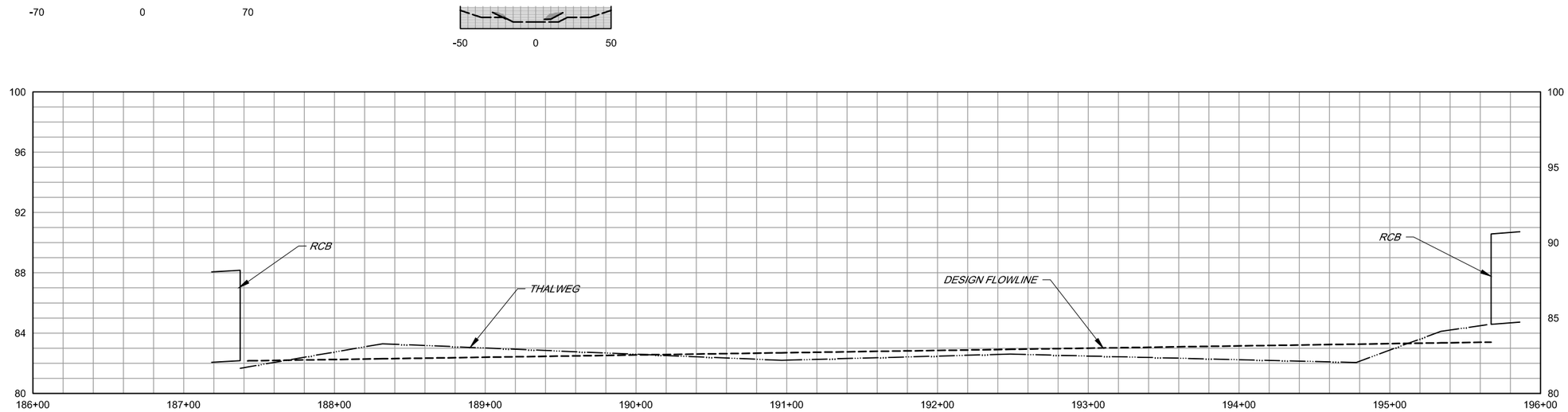
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

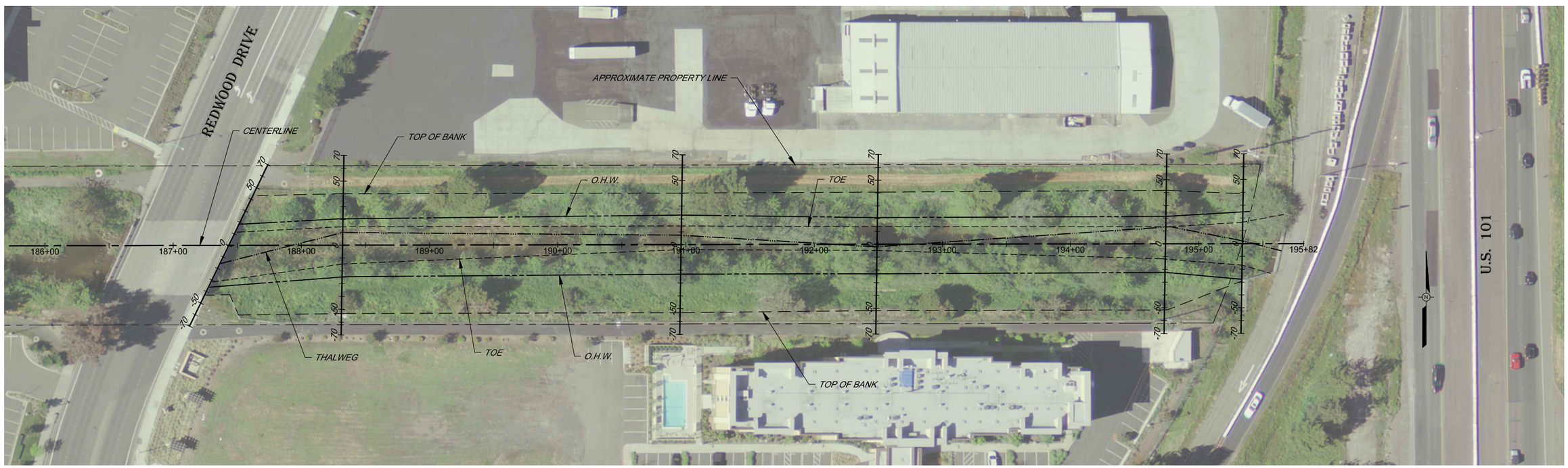
SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
HINEBAUGH CHANNEL - REACH 3,4 AND 5
INDEX TO DRAWINGS,TABLE,LOCATION AND VICINITY MAPS

FILE NAME: 2013_HINEBAUGH_G
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 10




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

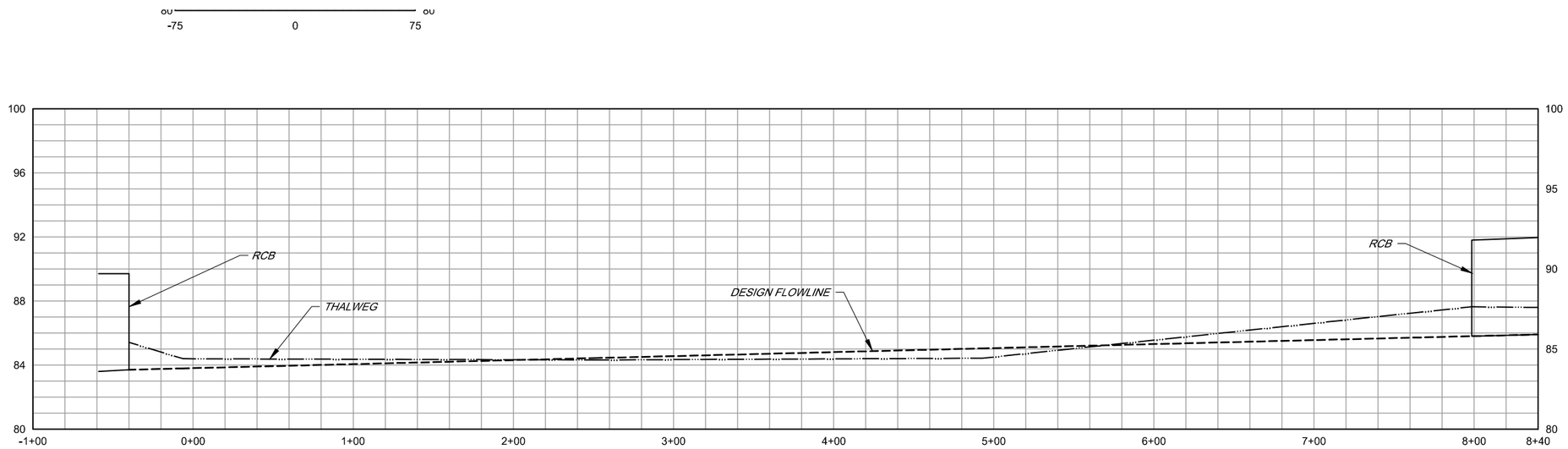
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

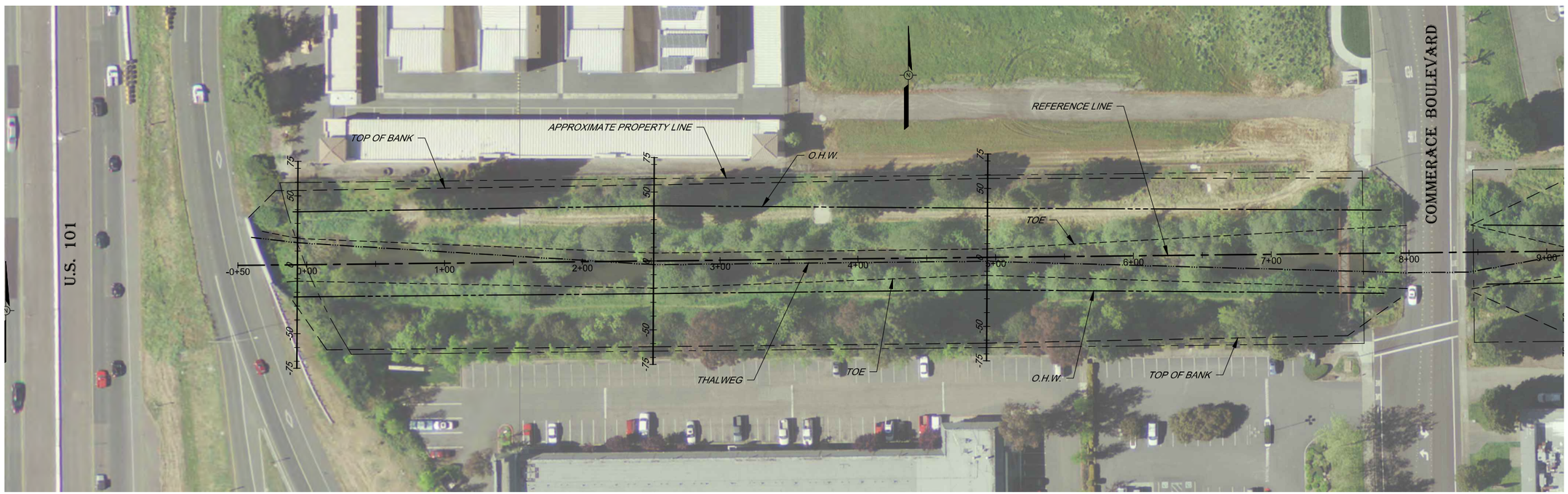
PLAN & PROFILE STA 186+00 TO STA 196+00

FILE NAME: 2013_Hi[illegible]-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 10




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

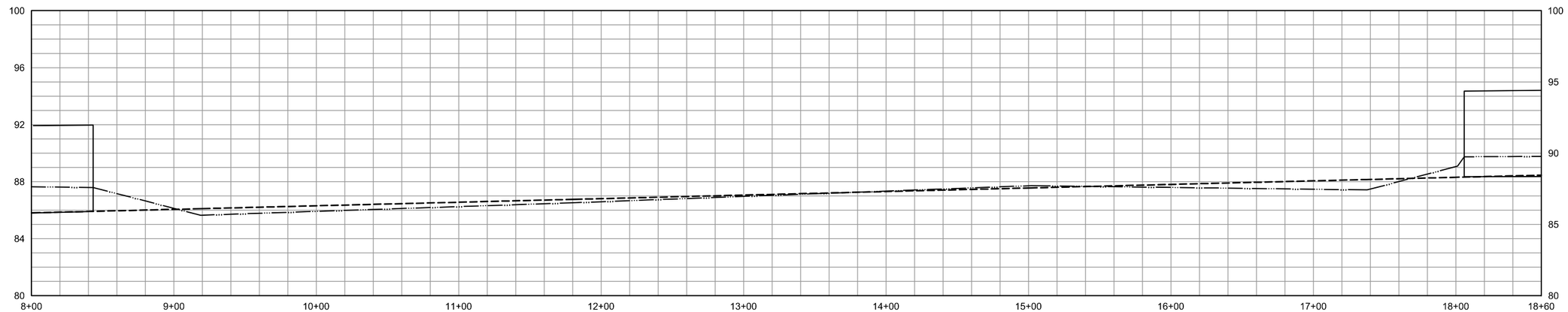
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

PLAN & PROFILE STA -1+00 TO STA 8+40

FILE NAME: 2013_Hi_e_a_g_-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 10




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'

PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

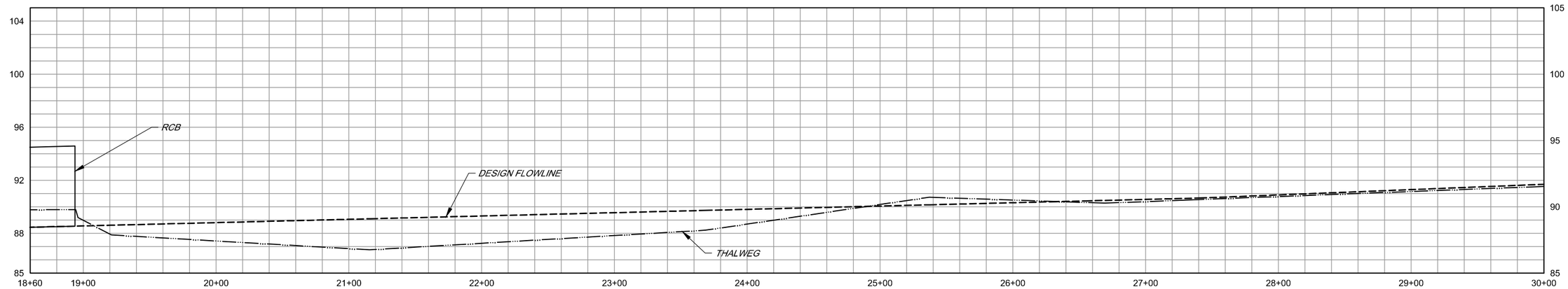
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

PLAN & PROFILE STA 8+40 TO STA 18+60

FILE NAME: 2013_Hi[illegible]-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 10




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'

PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

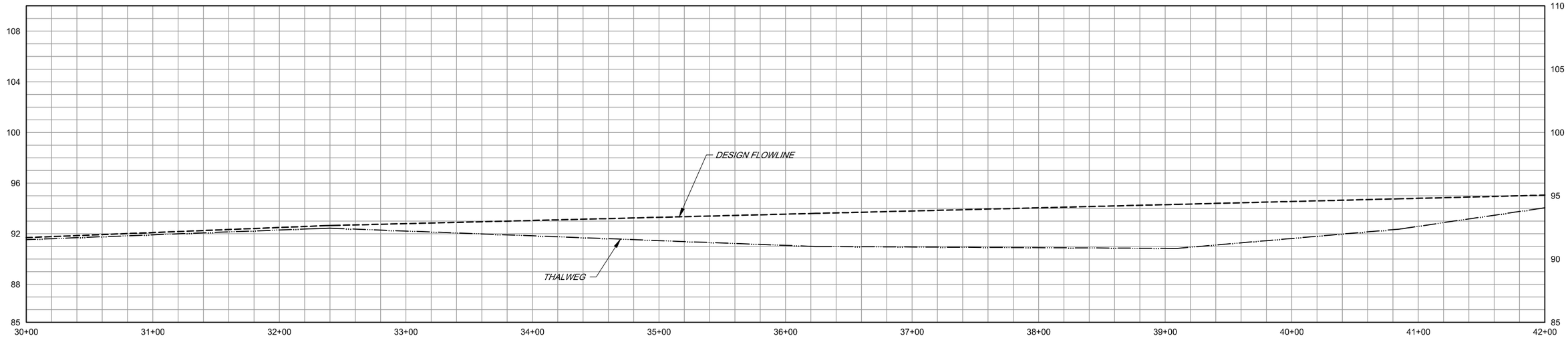
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

PLAN & PROFILE STA 18+60 TO STA 30+00

FILE NAME: 2013_Hiereaag-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 5 OF 3




PROFILE .

SCALE HORI 1" 40
VERT 1" 4

PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

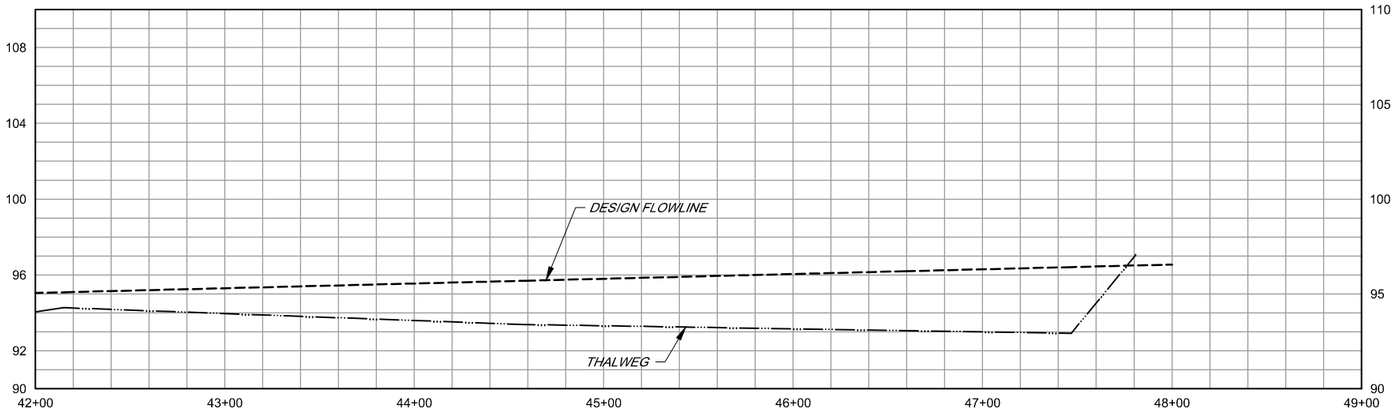
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ----
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

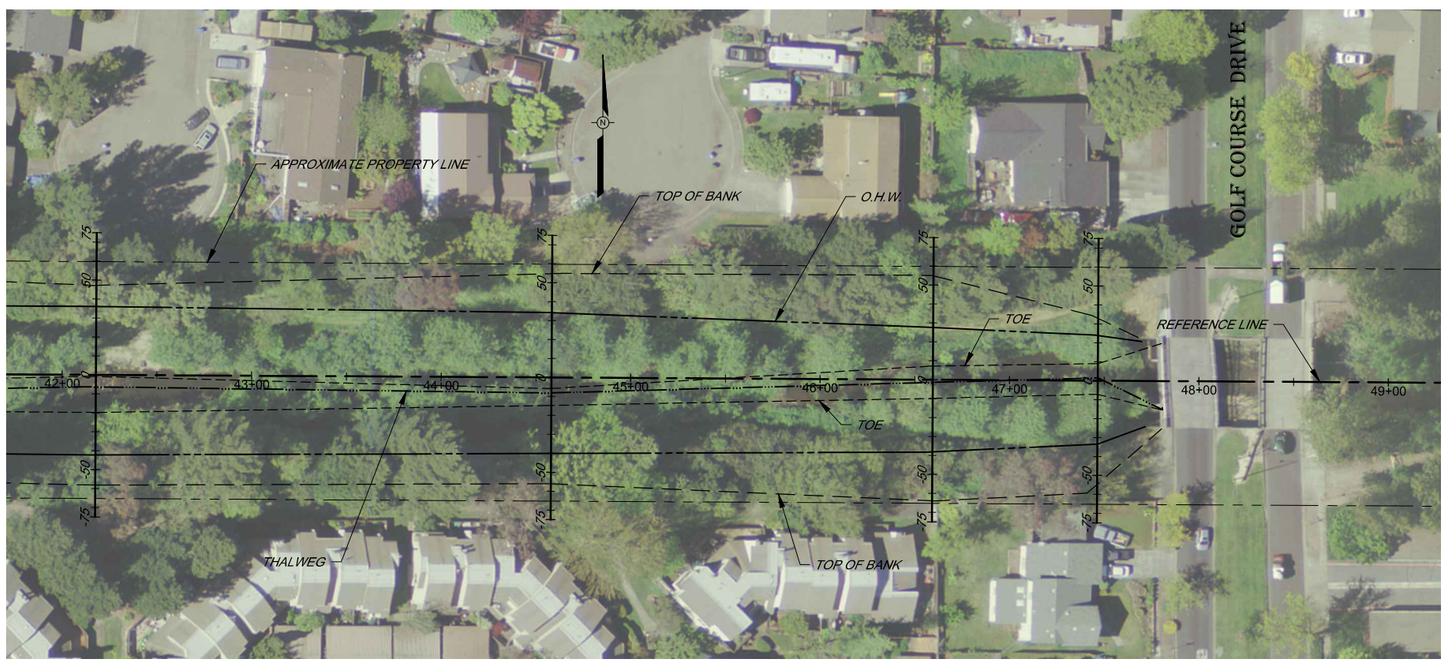
PLAN PROFILE STA30+00 TO STA 42+00

FILE NAME: 2013_Hi e a g -CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-5
SHEET 6 OF 3




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

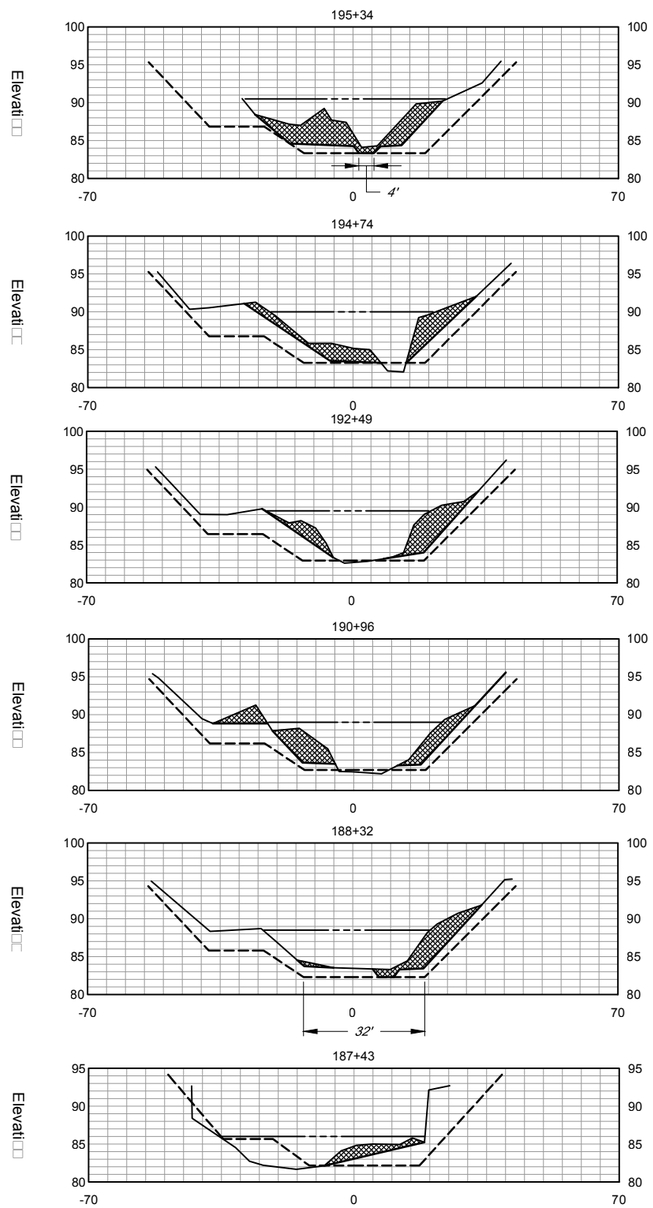
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED - ZONE 1A

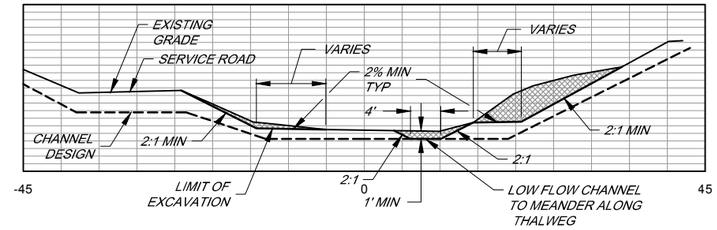
PLAN - PROFILE STA42+00 TO STA 49+00

FILE NAME: 2013_Hi[illegible]-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-6
SHEET 7 OF 10



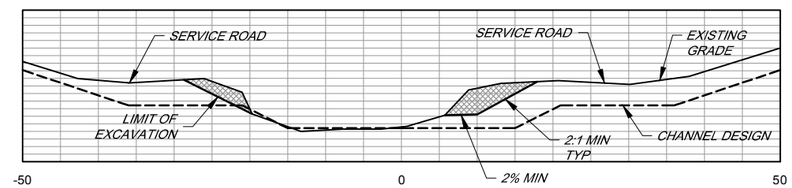

SECTIONS SMP-3

SCALE HORI 1" 20
VERT 1" 10



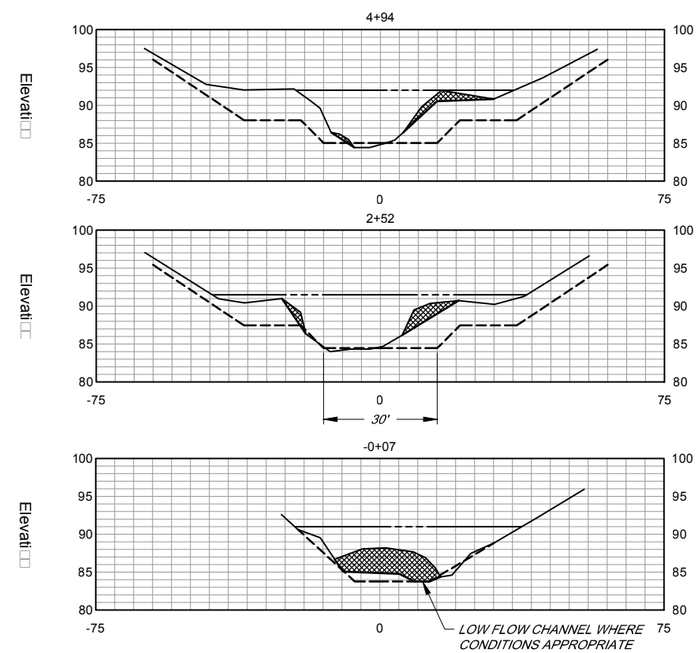

TYPICAL SECTION DOWNSTREAM U.S. 101 .

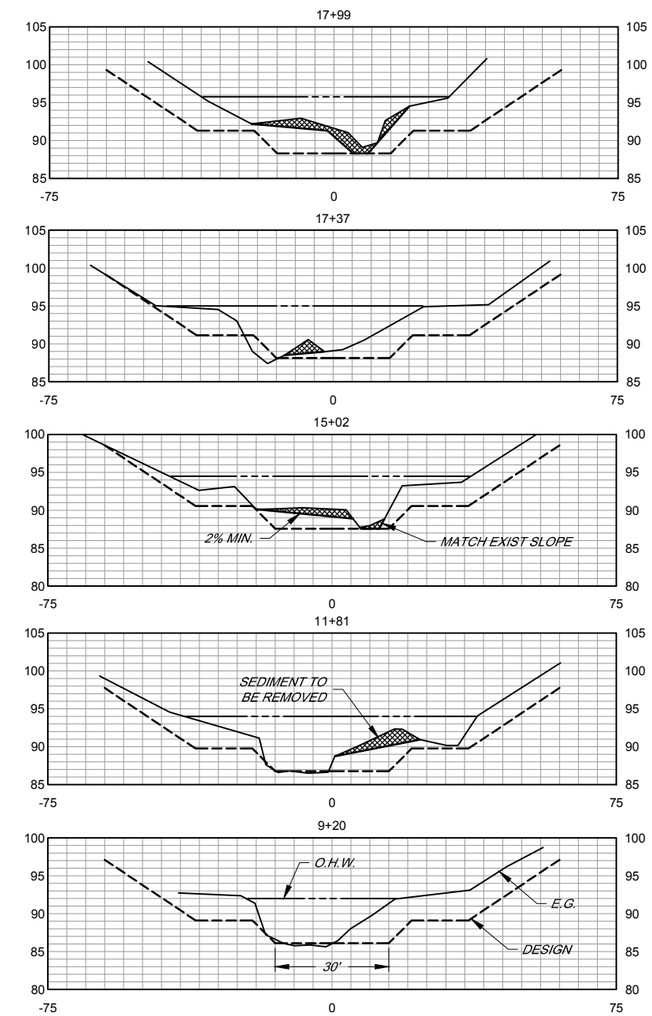
SCALE 1" 20




TYPICAL SECTION UPSTREAM U.S. 101 .

SCALE 1" 20




SECTIONS SMP-4 .

SCALE HORI 1" 20
VERT 1" 10

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

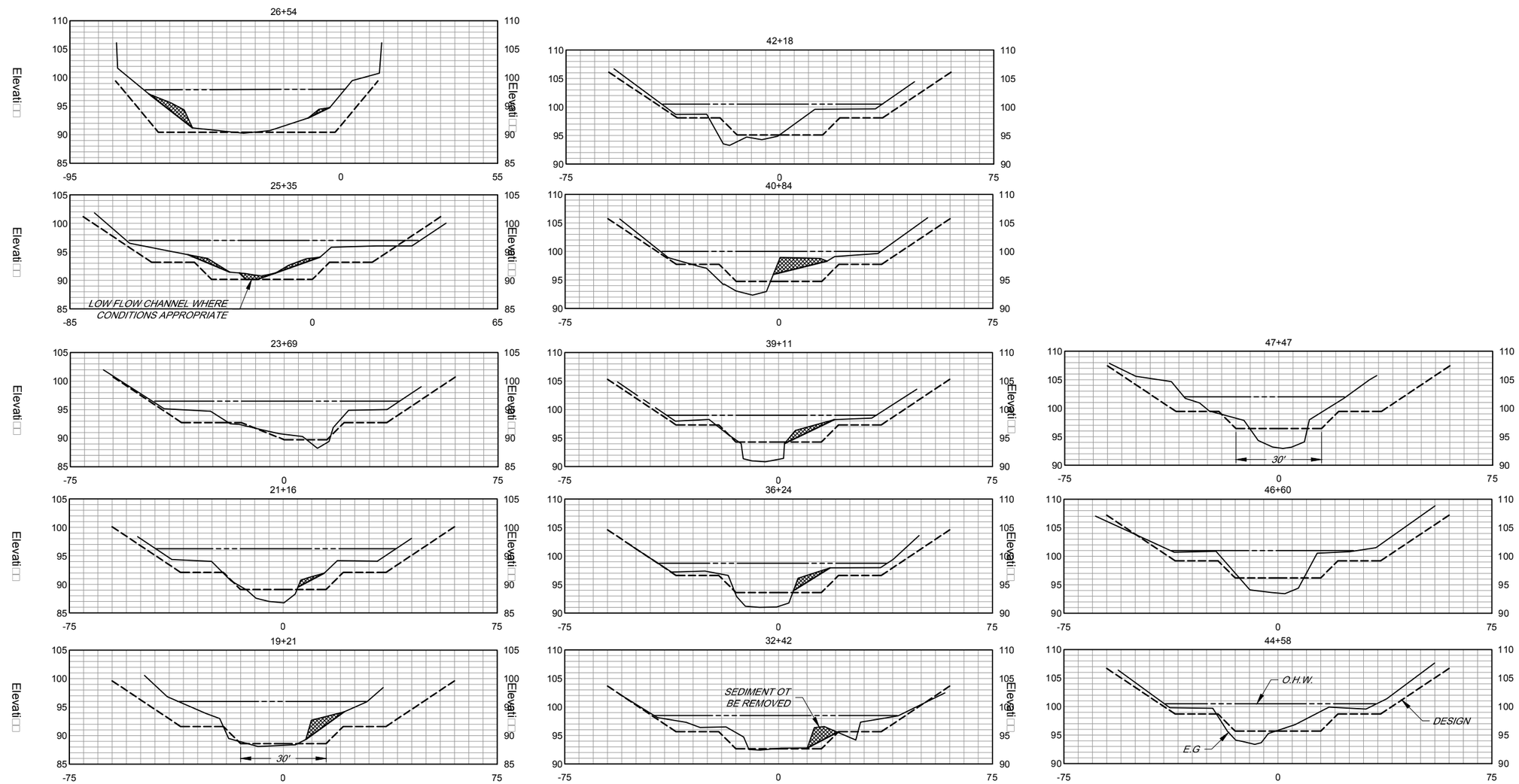
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ----
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

SECTIONS

FILE NAME: 2013_Hi e a g -CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-7
SHEET 8 OF 10




SECTIONS SMP-5 .

SCALE HORI 1" 20
VERT 1" 10

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

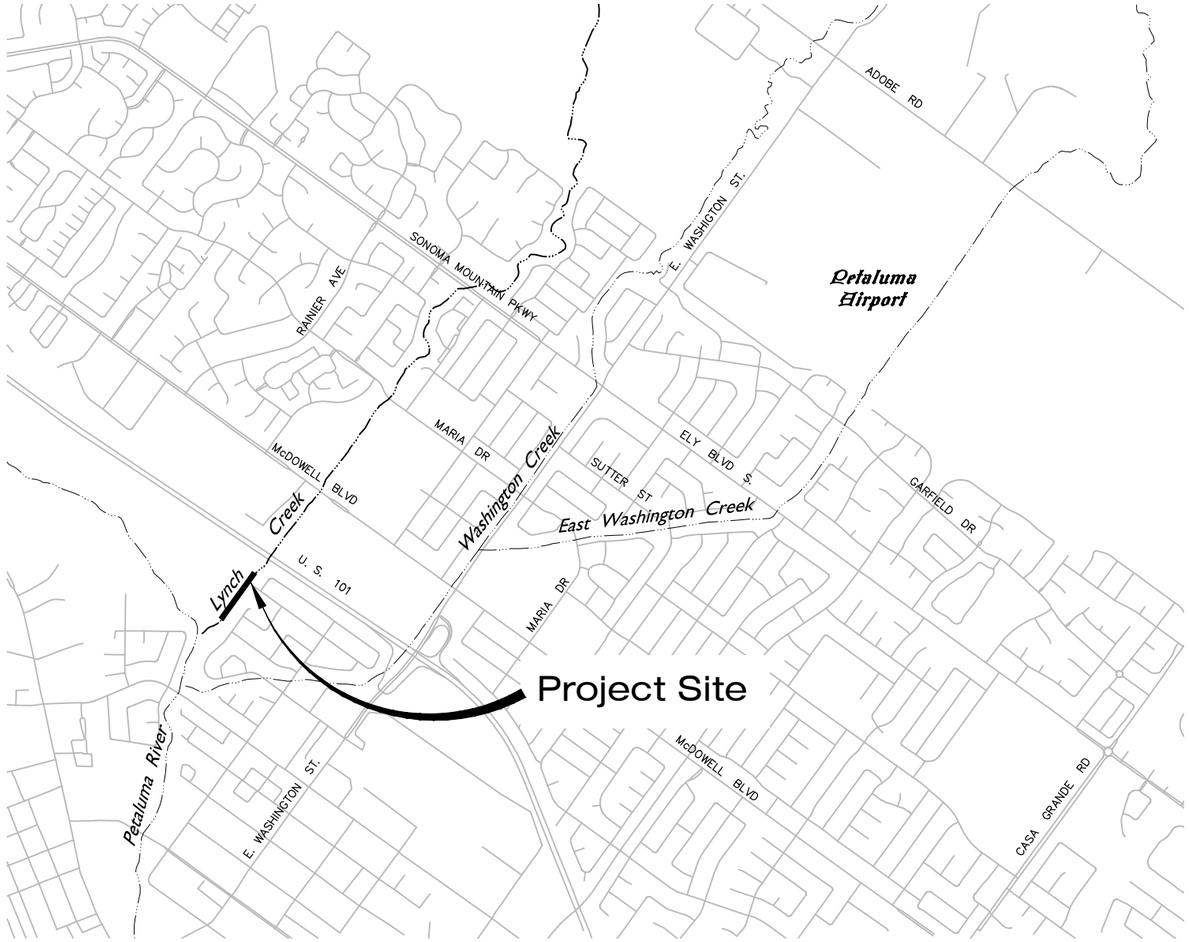
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ---
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
HINEBAUGH CHANNEL - REACH 5
SECTIONS

FILE NAME: 2013_Hi e a g -CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-8
SHEET 9 OF 10

# SMP - PETALUMA RIVER WATERSHED ZONE 2A LYNCH CREEK - REACH 1 REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE

LOCATION MAP

NOT TO SCALE

| LYNCH CREEK – REACH 1 | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OPERATING FROM BANKS OR IN CHANNEL | STA 3+00 TO STA 13+90 | 1,090 | 35 | 38,150 | 2 | 2,826 |

## INDEX TO DRAWINGS


| Sheet Number | Sheet Title | Sheet Description |
|---|---|---|
| 1 | G–1 | TABLE, INDEX TO DRAWING, VICINITY AND LOCATION MAPS |
| 2 | C–1 | PLAN AND PROFILE STA 0+00 TO STA 12+00 |
| 3 | C–2 | PLAN AND PROFILE STA 12+00 TO STA 14+00 AND SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

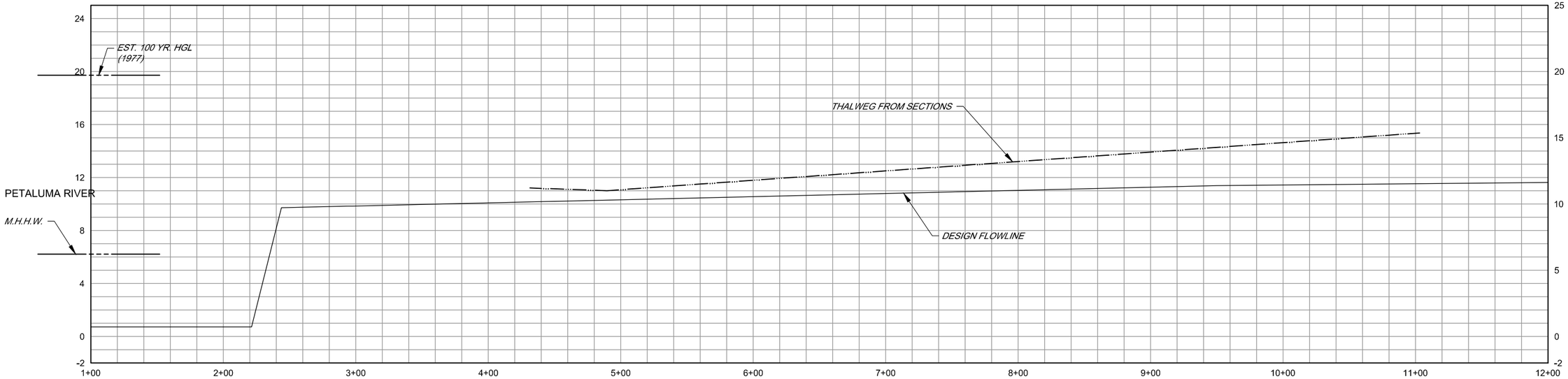
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : A FACCENDINI
REVIEWED :

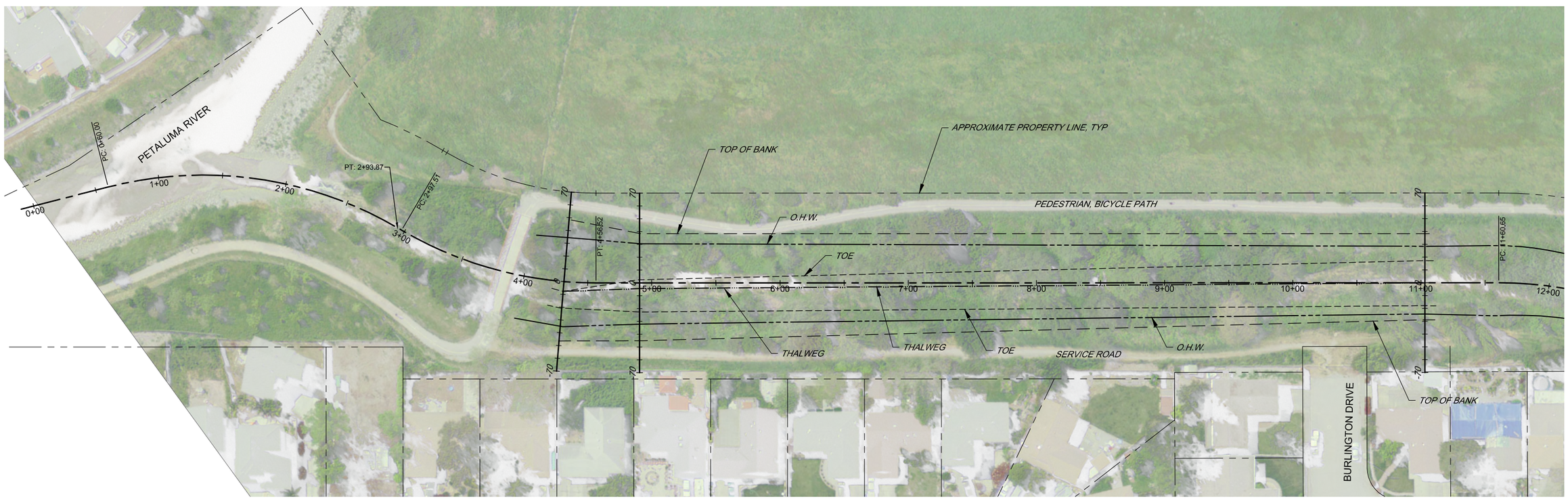
SMP - PETALUMA RIVER WATERSHED ZONE 2A
LYNCH CREEK - REACH 1
TABLE INDEX TO DRAWING VICINITY AND LOCATION MAPS

FILE NAME: 2013_LYNCH-GENERAL.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 3




PROFILE .

SCALE HORI 1" 40
VERT 1" 4




PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

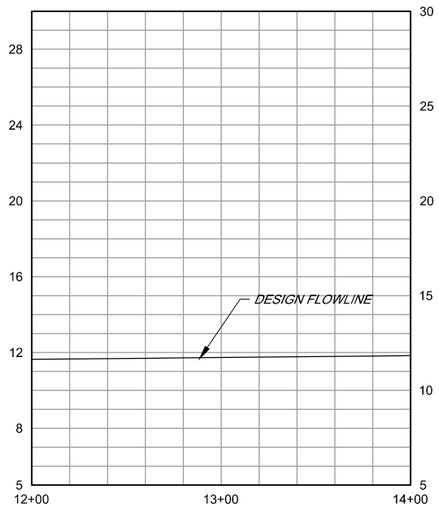
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : A FACCENDINI
REVIEWED :

SMP - PETALUMA RIVER WATERSHED ONE 2A

LYNCH CREEK - REACH 1

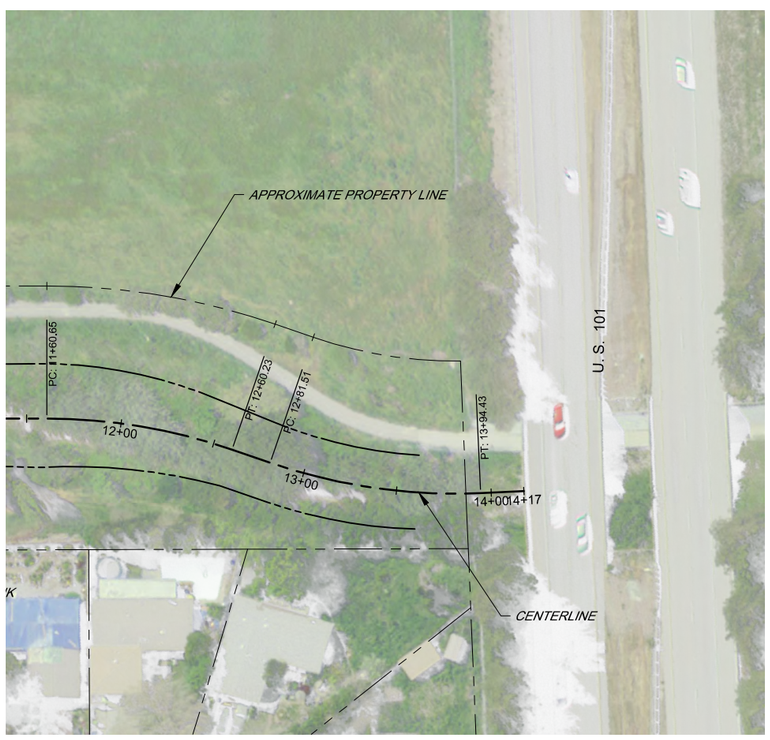
PLAN AND PROFILE STA 0+00 TO STA 12+00

FILE NAME: 2013_LYNCH-CIVIL.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 3



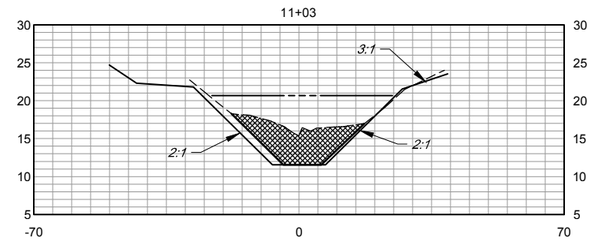

PROFILE .

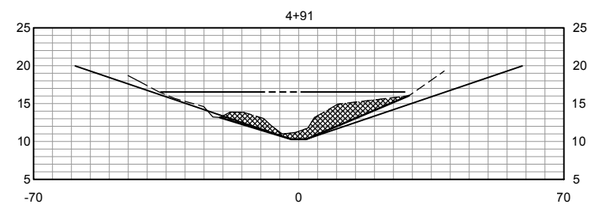
SCALE HORI: 1" = 40'
VERT 1" = 4'

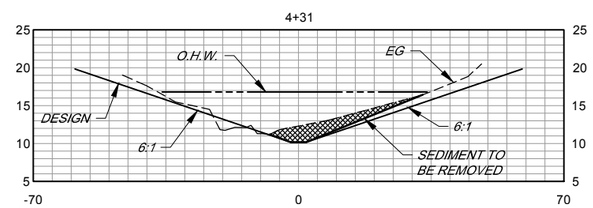



PLAN .

SCALE 1" = 40'

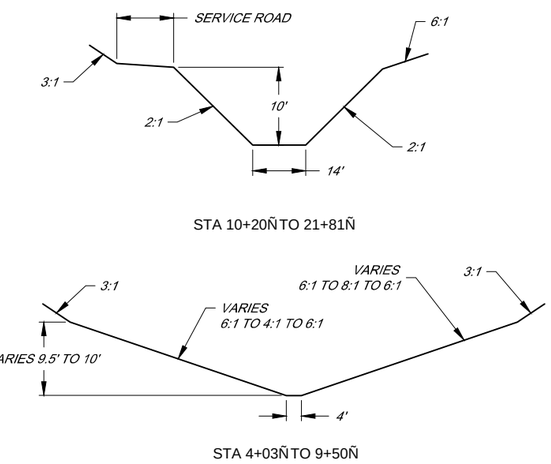



SECTIONS .

SCALE HORI: 1" = 20'
VERT 1" = 10'




TYPICAL SECTIONS (DESIGN) .

NOT TO SCALE

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : A FACCENDINI
REVIEWED :

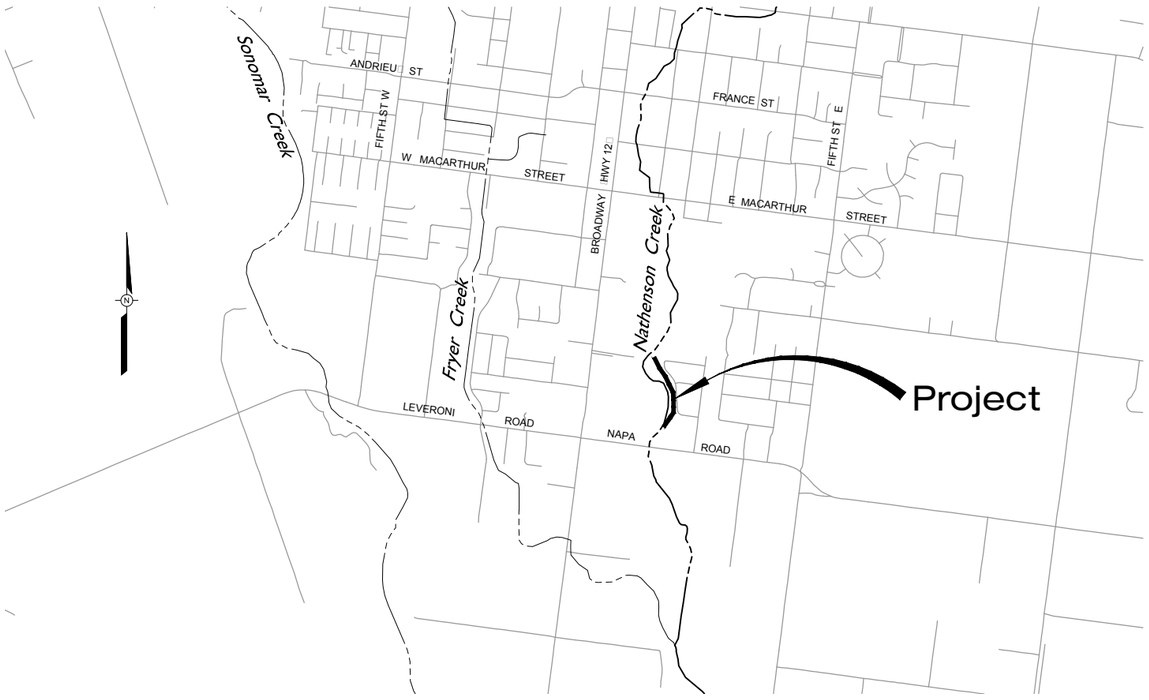
SMP - PETALUMA RIVER WATERSHED (ONE 2A)

LYNCH CREEK - REACH 1

PLAN AND PROFILE STA 12+00 TO STA 14+00 AND SECTIONS

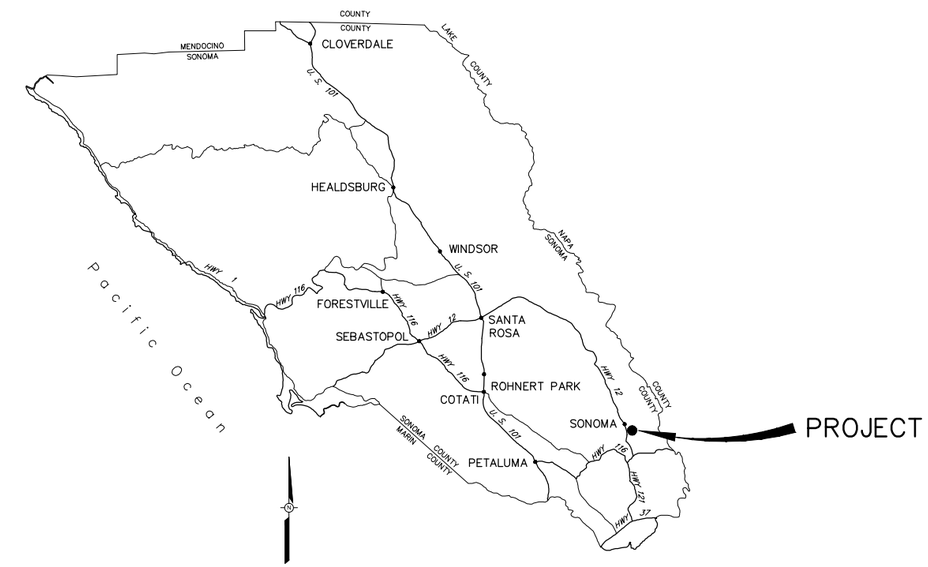
FILE NAME: 2013_LYNCH-CIVIL.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 3

# SMP - SONOMA CREEK WATERSHED ZONE 3A NATHANSON CREEK BYPASS CHANNEL - REACH 1 REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| NATHANSON CREEK BYPASS CHANNEL – REACH 1 | | | | | | |
|---|---|---|---|---|---|---|
| VALLEY OF THE MOON ZONE 3A | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH LINEAR FT. | AVERAGE WIDTH LINEAR FT. | AREA SQUARE FT. | DEPTH FT. | C.Y. TO REMOVE/FILL |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED CHANNEL. | STATION 0+85 TO STATION 7+80 | 695 | 12.9 | 8,966 | 2.2 | 730 |

INDEX TO DRAWINGS

| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS TABLE VICINITY AND LOCATION MAPS |
| 1 | C-1 | SEDIMENT REMOVAL SITE PLAN AND WEIR SITE PLAN PROFILE |
| 2 | C-2 | Profile and sections |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
2 JAN 2013

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

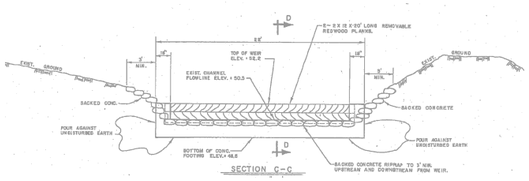
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

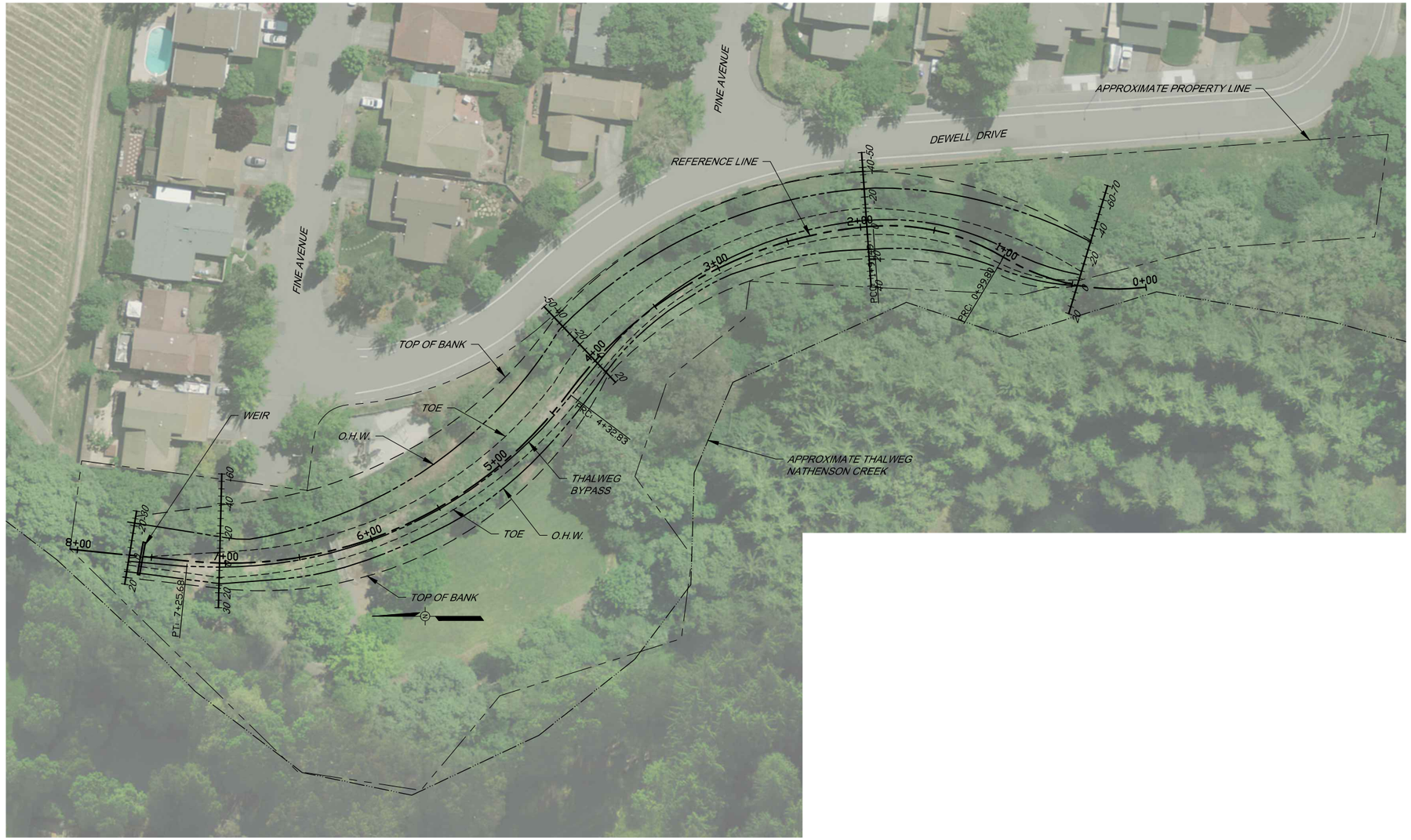
SMP - SONOMA CREEK WATERSHED ZONE 3A
NATHANSON CREEK BYPASS CHANNEL - REACH 1
INDEX TO DRAWINGS TABLE VICINITY AND LOCATION MAPS

FILE NAME: 2013_Nathanson_G.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 3




PROFILE WEIR 1993

SCALE: N.T.S.




PLAN WEIR 1993

SCALE: 1" 40

PLAN

SCALE: 1" 40

NOTE:
SEDIMENT REMOVAL ELEVATIONS ARE ON A DIFFERENT VERTICAL DATUM THAN WEIR ELEVATIONS.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

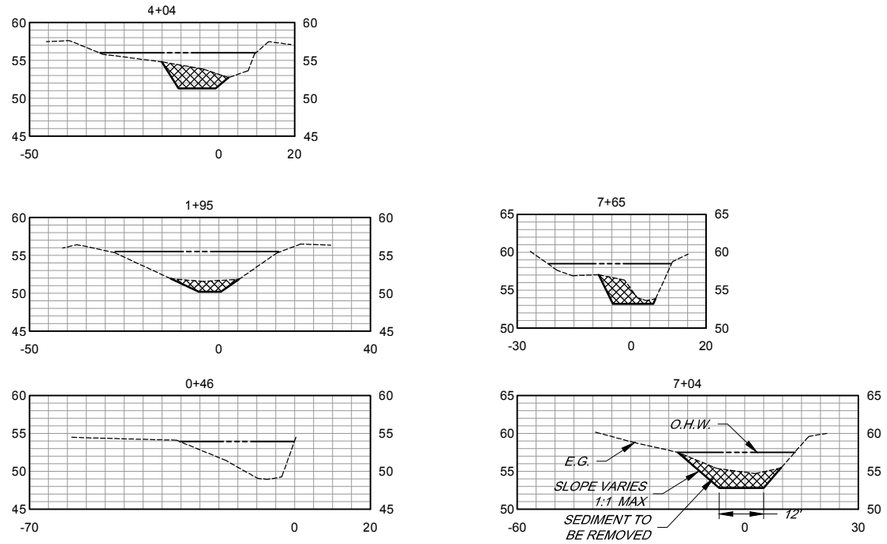
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

NATHANSON CREEK BYPASS CHANNEL - REACH 1

SEDIMENT REMOVAL SITE PLAN AND WEIR SITE PLAN PRO

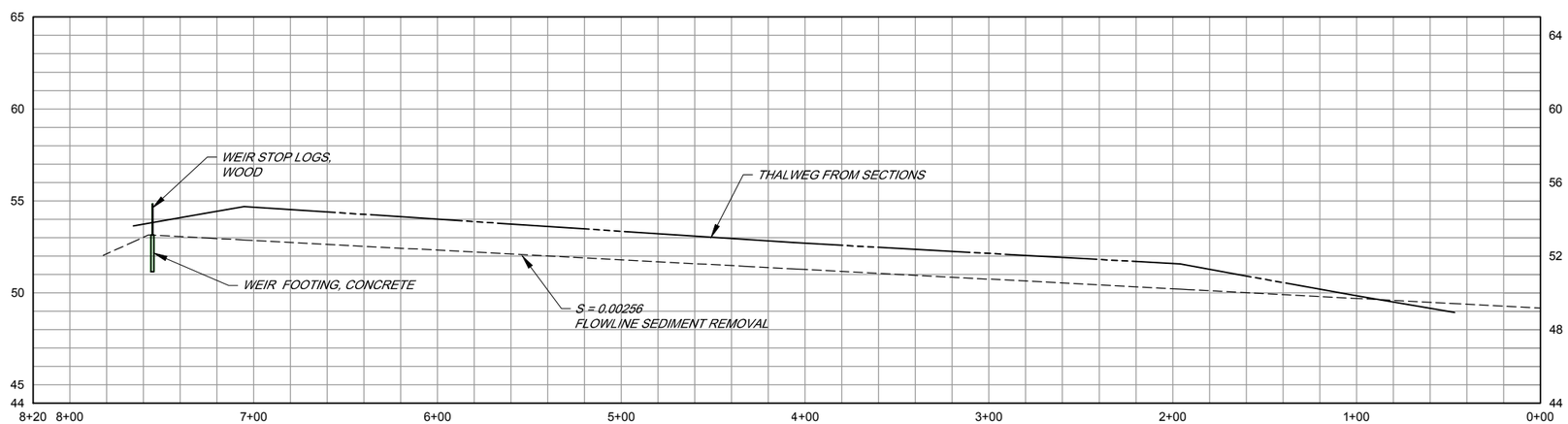
FILE NAME: 2013_Nat a s _C
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 1 OF

3rd-data r d tr e 3a NATHANSON 2013-NATHANSON_CRK




## SECTIONS

SCALE: HORI 1" 20
VERT 1" 10




## PROFILE - BYPASS CHANNEL

SCALE: HORI 1" 40
VERT 1" 4

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | PLAN<br>SCALE: 1" 20 | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

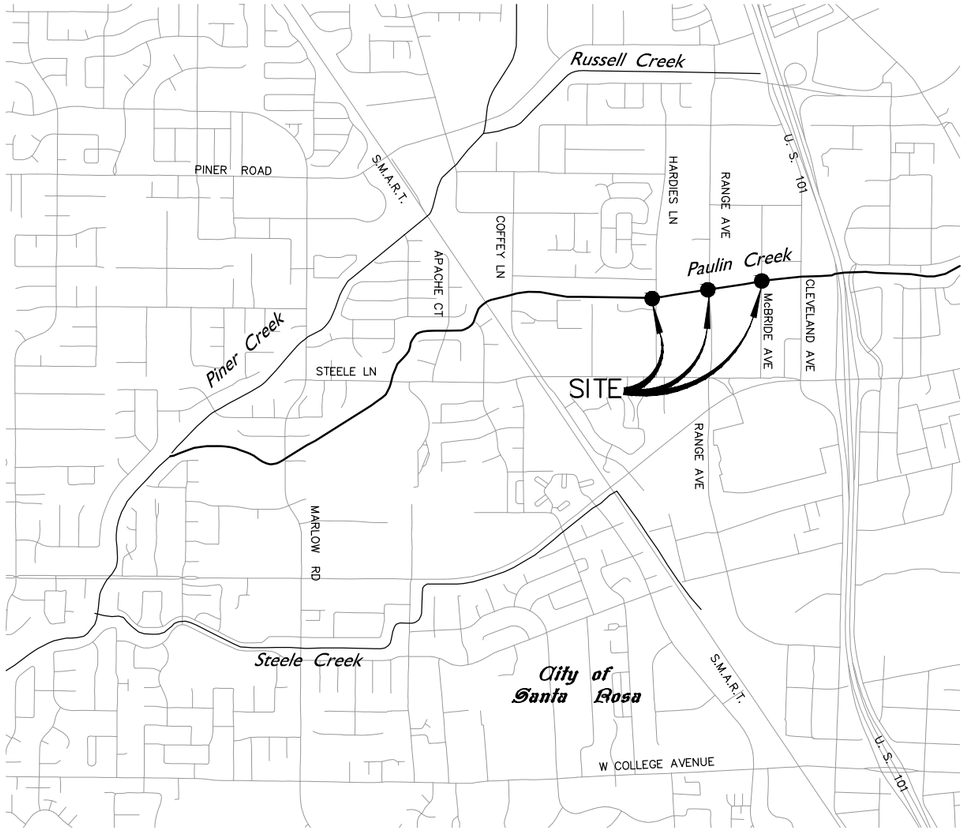
NATHANSON CREEK BYPASS CHANNEL - REACH 1

PROFILE AND SECTIONS

FILE NAME: 2013_Nat a s _C
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 2 OF

35-data r d r a 3a NATHANSON 2013-NATHANSON_CRK

# PAULIN CREEK - REACHES 3, 4, 5 & 6
# LOCALIZED REACH SEDIMENT REMOVAL




VICINITY MAP

SCALE: 1"= 1000'

LOCATION MAP

NOT TO SCALE

| PAULIN CREEK (PINER CHANNEL 6C) | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION (BELOW OHW UNLESS OTHERWISE NOTED) | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| | STA 687+40 TO STA 689+50 | 210 | 11.5 | 790 ABOVE OHW<br>1355 BELOW OHW<br>TOTAL 2145 | 2.0 | 30 ABOVE OHW<br>70 BELOW OHW<br>TOTAL 100 |
| | STA 692+90 TO STA 693+35 | 45 | 7 | 315 | 1.4 | 16 |
| | STA 694+60 TO STA 696+60 | 200 | 10 | 200 ABOVE OHW<br>1800 BELOW OHW<br>TOTAL 2000 | 2.0 | 15 ABOVE OHW<br>133 BELOW OHW<br>TOTAL 148 |
| | STA 701+40 TO STA 703+60 | 220 | 16.8 | 3696 | 1.5 | 205 |
| TOTALS | | 655 | | 990 ABOVE O.H.W.<br>7166 BELOW O.H.W.<br>TOTAL: 8156 | | 45 ABOVE O.H.W.<br>424 BELOW O.H.W.<br>TOTAL: 469 |

INDEX TO DRAWINGS

| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | TABLE INDEX TO DRAWINGS LOCATION AND VICNITY MAPS |
| 2 | C-1 | PLAN AND PROFILE STA 686+00 TO STA 690+00 AND SECTIONS |
| 3 | C-2 | PLAN AND PROFILE STA 692+50 TO STA 696+80 |
| 4 | C-3 | PLAN AND PROFILE STA 701+20 TO STA 703+60 |
| 5 | C-4 | SECTIONS - STA 692+50 TO STA 696+80 |
| 6 | C-5 | SECTIONS - STA 701+20 TO STA 703+60 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A

PAULIN CREEK - REACHES 3 4 5 6 TABLE

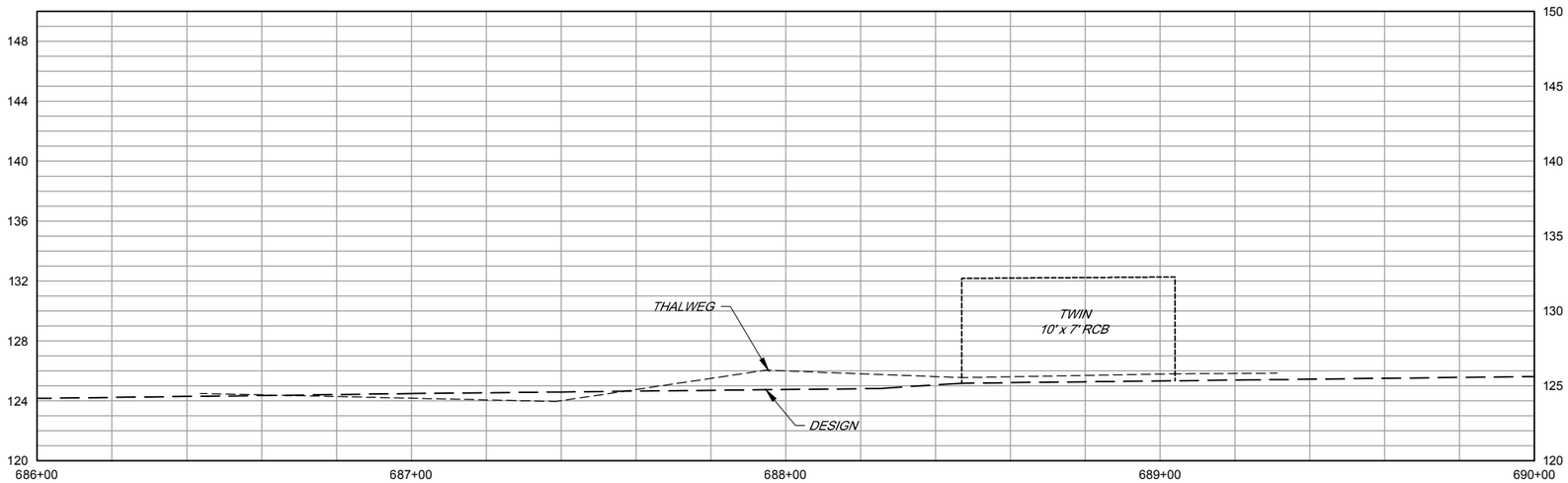
INDEX TO DRAWINGS LOCATION AND VICNITY MAPS

FILE NAME: 2013_PaulinCreek_Gen.dwg
CONTRACT NUMBER: ----

DRAWING NUMBER: G–1

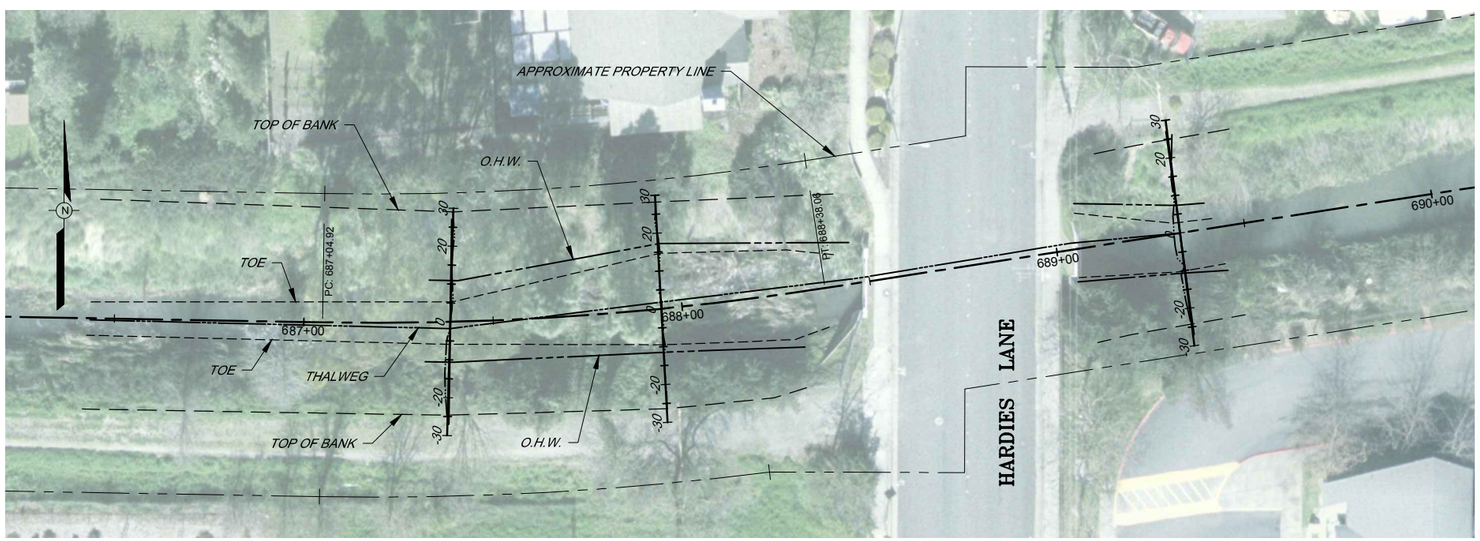
SHEET 1 OF 11

\\sd-data\proj\flood control\zone 1a\PAULIN\2013_Paulin\2013_PaulinCreek_Gen



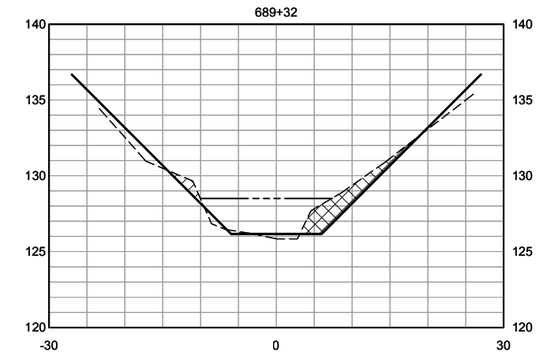

## PROFILE

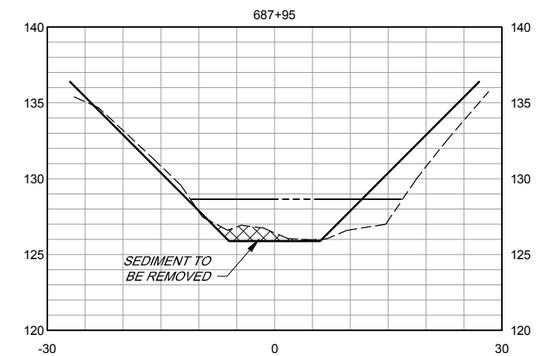
SCALE: HORIZ 1" = 20'
VERT 1"= 5'

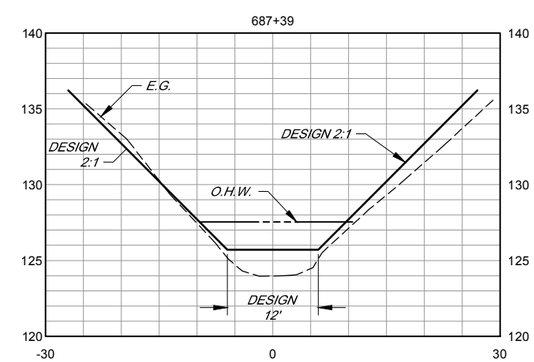



## PLAN

SCALE: 1"= 20'




## CROSS SECTIONS

SCALE: HORIZ 1" = 10'
VERT 1"= 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

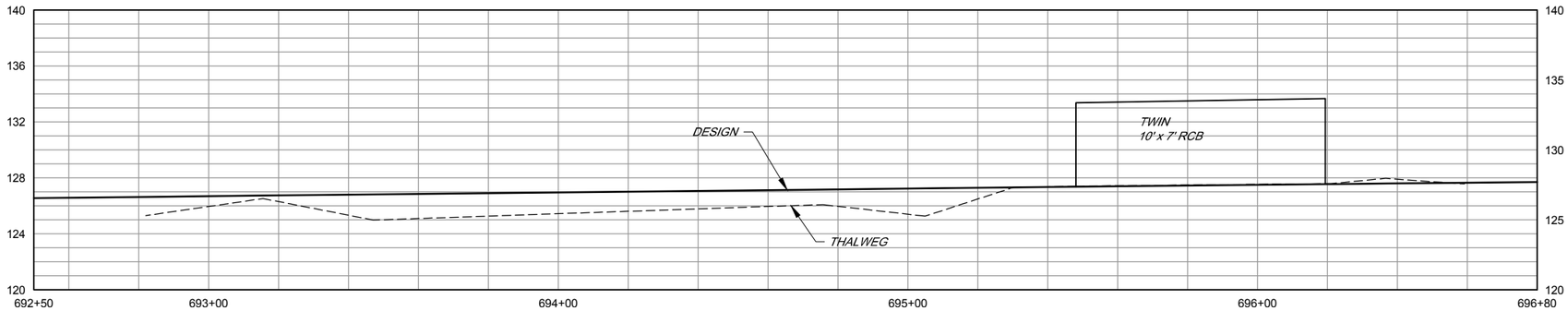
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

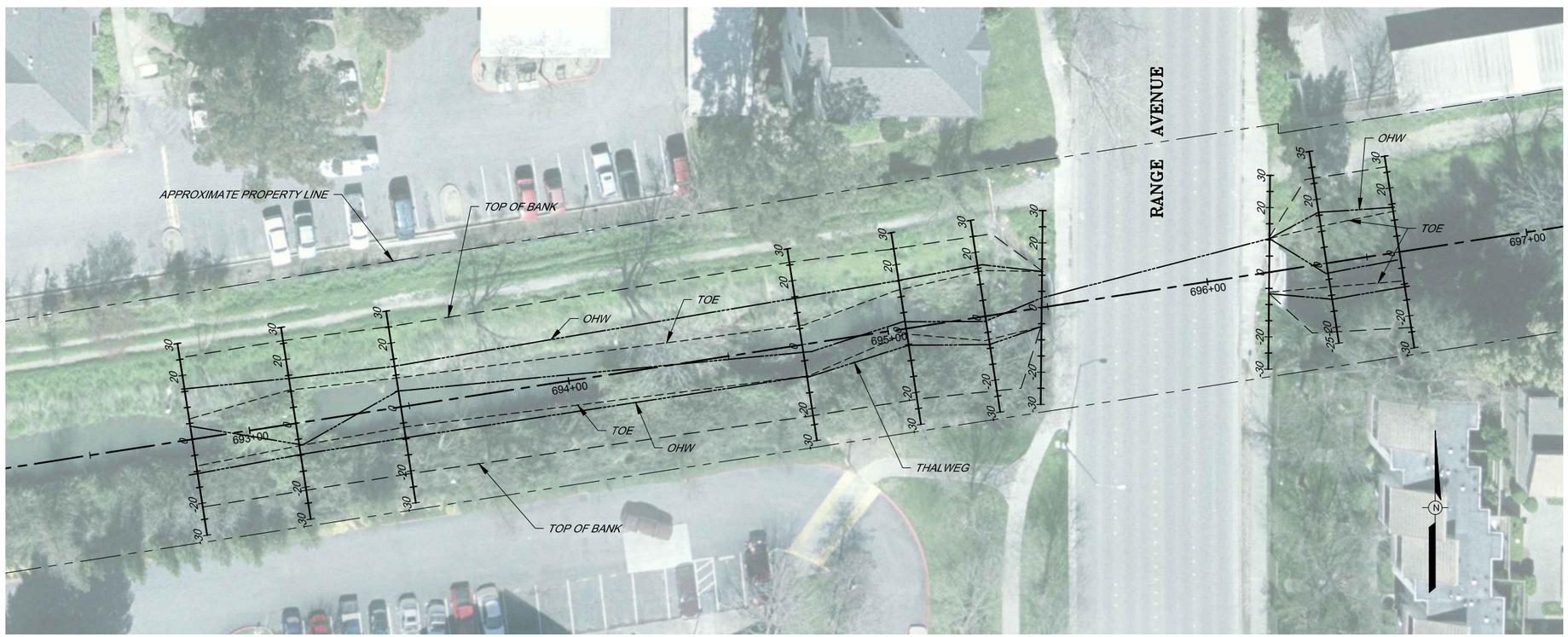
SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
PAULIN CREEK - REACH 5 AND 6 PLAN AND PROFILE
STA 686+00 TO STA 690+00 AND SECTIONS

FILE NAME: 2013_PaulinCreek_Civil.dwg
CONTRACT NUMBER: ----
DRAWING NUMBER: C–1
SHEET 2 OF 10




## PROFILE

SCALE: HORIZ 1" = 20'
VERT 1"= 5'




## PLAN

SCALE: 1"= 20'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

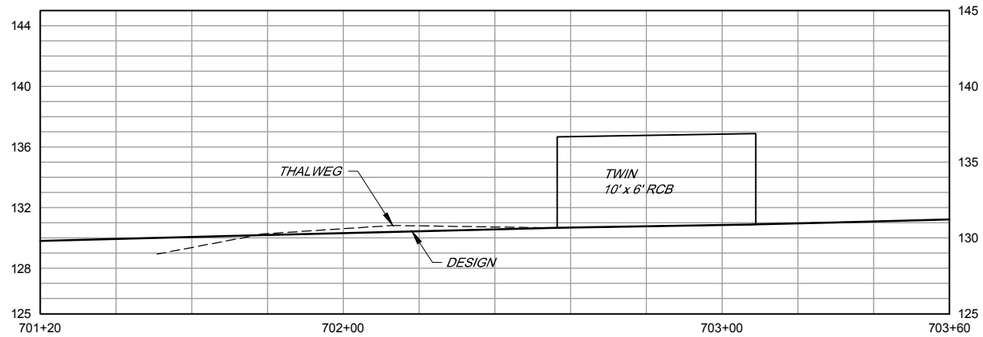
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

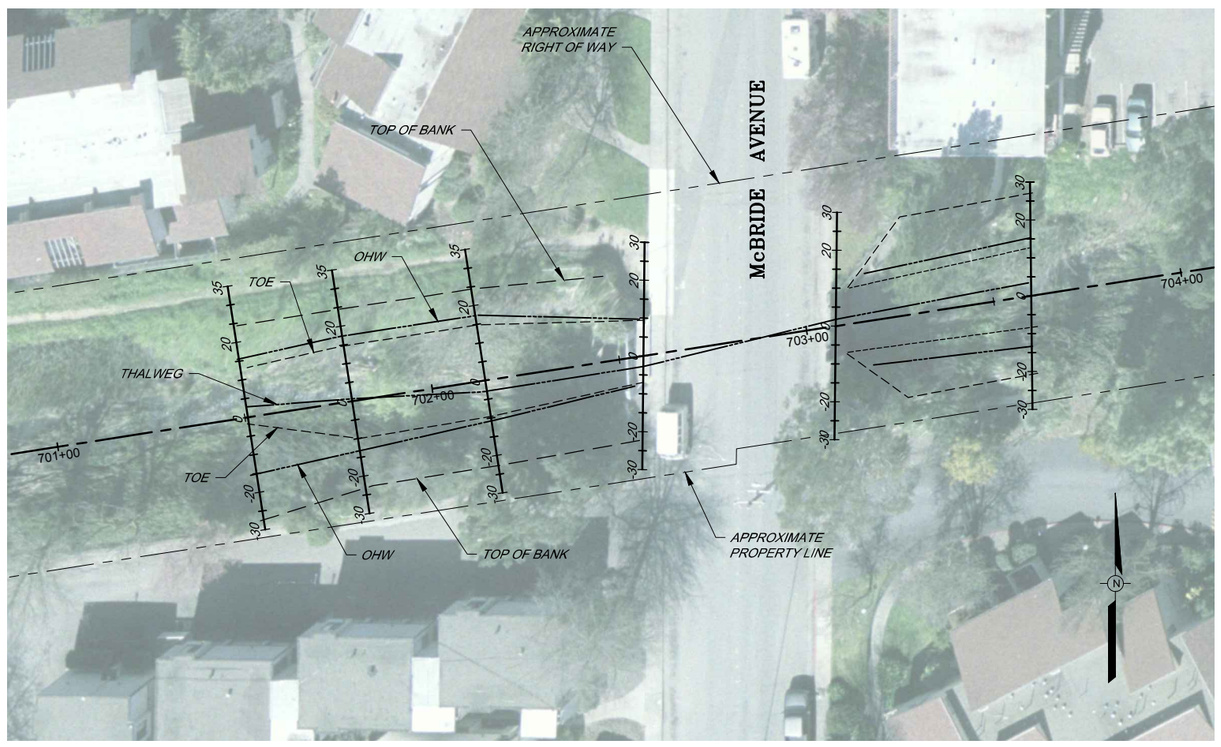
SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
PAULIN CREEK - REACH 6
PLAN AND PROFILE STA 692+50 TO STA 696+80

FILE NAME: 2013_PaulinCreek_Civil.dwg
CONTRACT NUMBER: ----
DRAWING NUMBER: C-2
SHEET 3 OF 10




## PROFILE

SCALE: HORIZ 1" = 20'
VERT 1"= 5'




## PLAN

SCALE: 1"= 20'

## CROSS SECTIONS

SCALE: HORIZ 1" = 10'
VERT 1"= 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

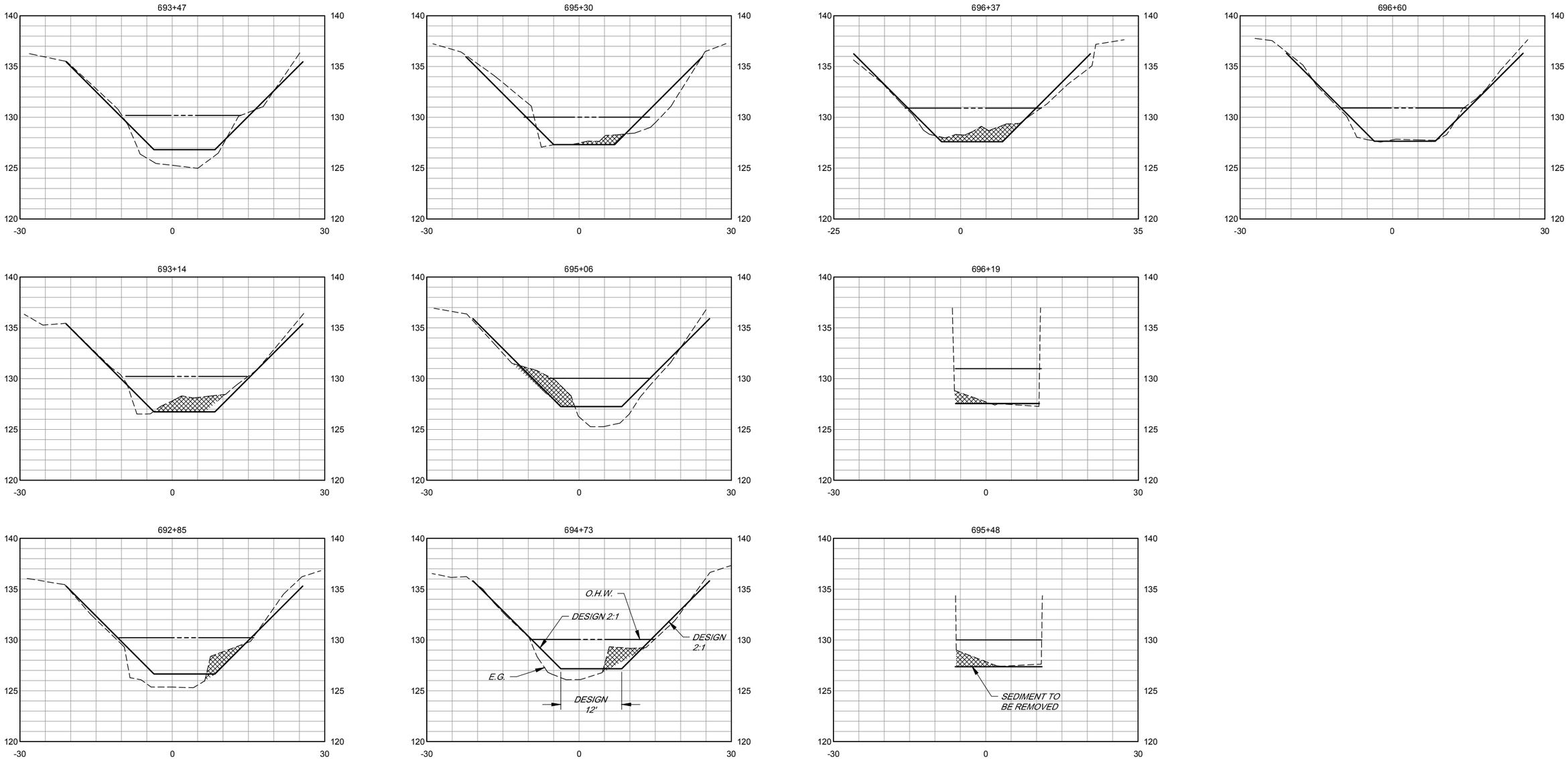
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
PAULIN CREEK - REACH 6
PLAN AND PROFILE STA 701+20 TO STA 703+60

FILE NAME: 2013_PaulinCreek_Civil.dwg
CONTRACT NUMBER: ----
DRAWING NUMBER: C-3
SHEET 4 OF 10




## CROSS SECTIONS

SCALE: HORIZ 1" = 10'
VERT 1"= 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

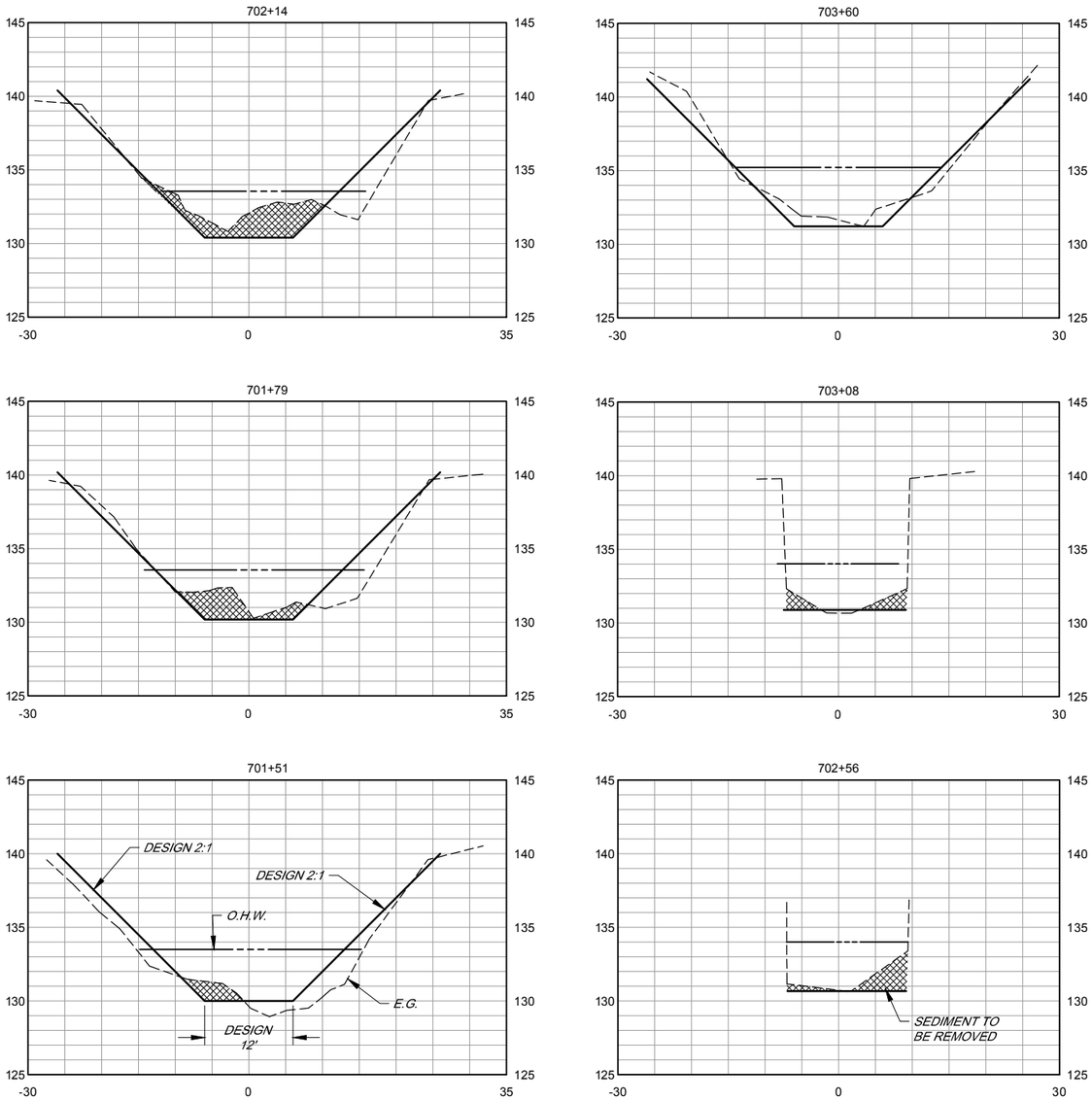
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
PAULIN CREEK - REACH 6
SECTIONS - STA 692+50 TO STA 696+80

FILE NAME: 2013_PaulinCreek_Civil.dwg
CONTRACT NUMBER: ----
DRAWING NUMBER: C–4
SHEET 5 OF 10

3d-data r d tr f e ta PAULIN 2013_Pa ll 2013_Pa ll Cree_Civil




## CROSS SECTIONS

SCALE: HORIZ 1" = 10'
VERT 1"= 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

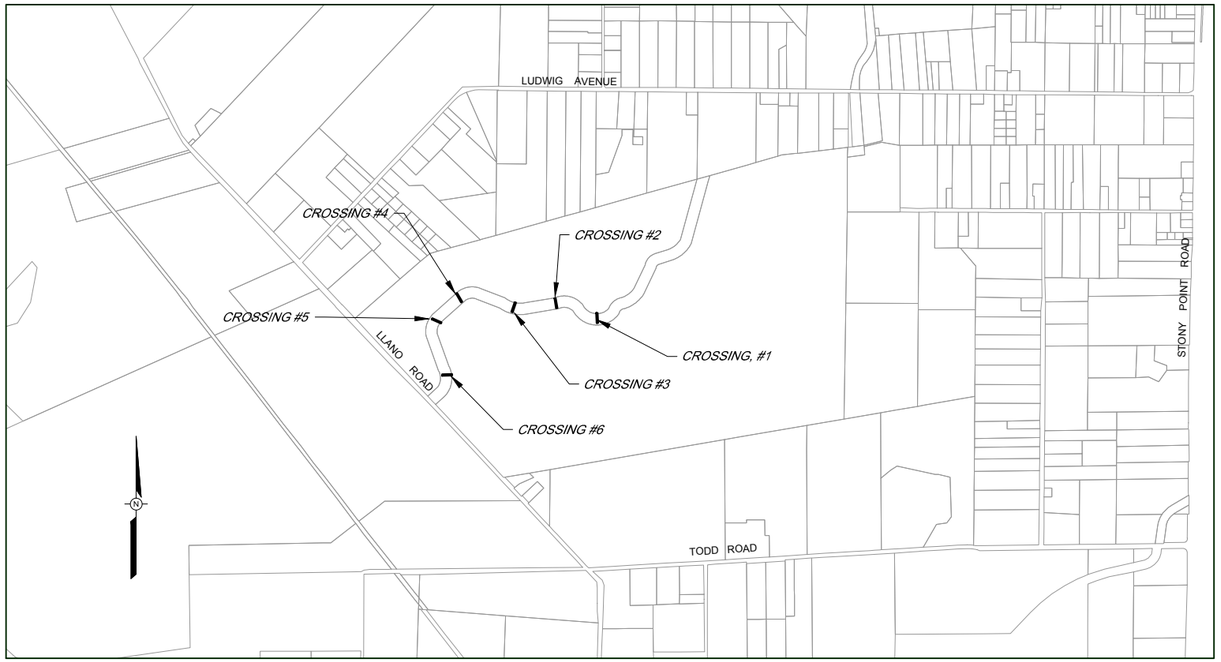
SCALE : AS SHOWN
DATE : 90%
DRAWN : SMP
REVIEWED :

SMP – LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
PAULIN CREEK - REACH 6
SECTIONS - STA 701+20 TO STA 703+60

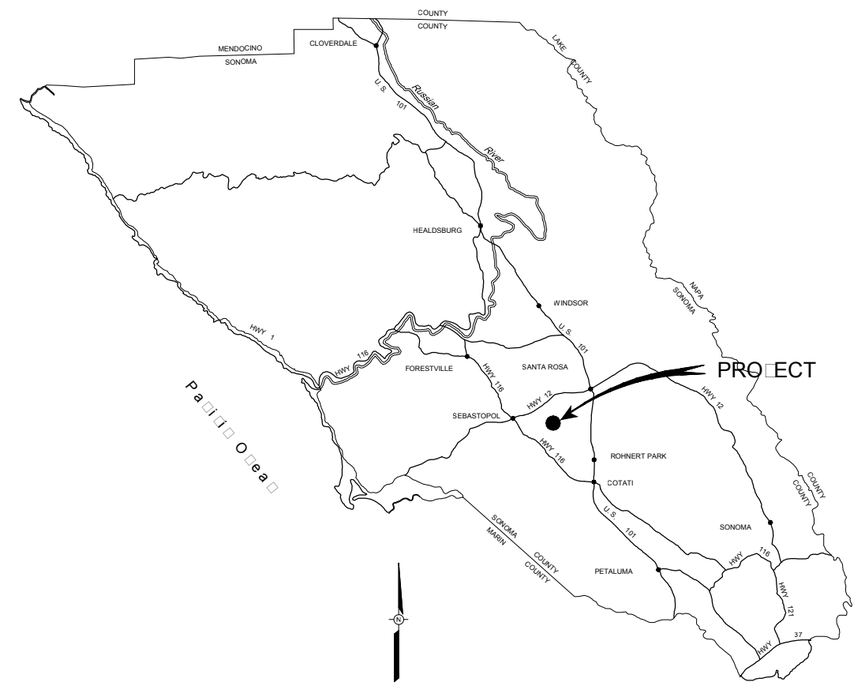
FILE NAME: 2013_PaulinCreek_Civil.dwg
CONTRACT NUMBER: ----
DRAWING NUMBER: C–5
SHEET 6 OF 10

3d-data T d tr e ta PAULIN 2013_Pa II 2013_Pa II Cree _Civil

# SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A ROSELAND CREEK - REACH 1 LOCALIZED REACH SEDIMENT REMOVAL




VICINITY MAP
NOT TO SCALE




LOCATION MAP
NOT TO SCALE

| ROSELAND CREEK SMP 1 CATTLE CROSSINGS | | | | | | |
|---|---|---|---|---|---|---|
| WORK TO BE DONE WITHIN CHANNEL | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING FROM CROSSING OR IN THE DEWATERED CHANNEL. | CROSSING #1 | 122 | 28.6 | 3,489 | 1.5 | 194 |
| | CROSSING #2 | 122 | 32.7 | 3,989 | 1.5 | 222 |
| | CROSSING #3 | 122 | 33.2 | 4,050 | 1.5 | 225 |
| | CROSSING #4 | 122 | 35.2 | 4,294 | 1 | 159 |
| | CROSSING #5 | 122 | 40.9 | 4,980 | 1 | 185 |
| | CROSSING #6 | 122 | 37.8 | 4,612 | 1.5 | 256 |
| TOTAL: (BELOW O.H.W.) | | 910 | | 25,744 | | 1,241 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

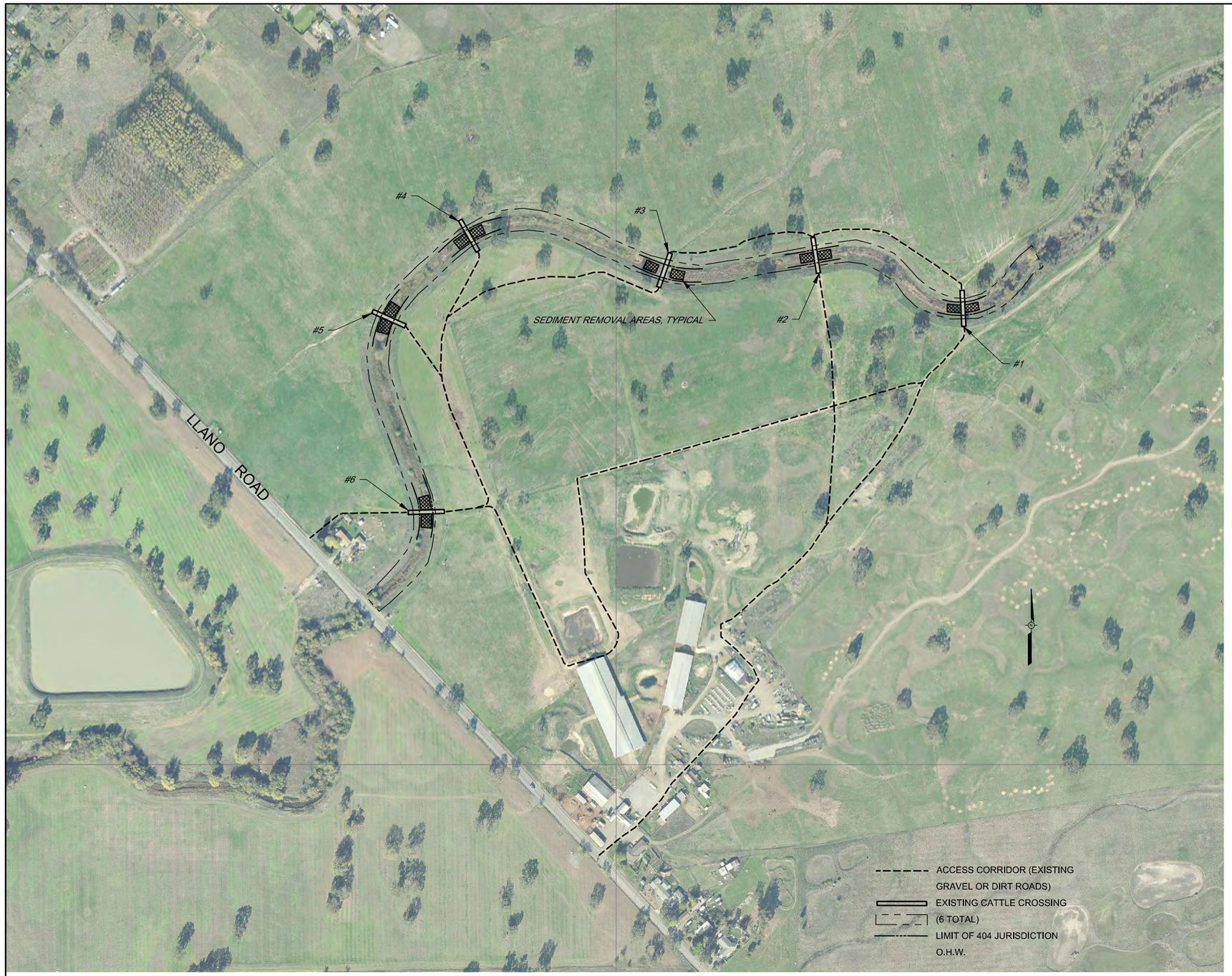
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

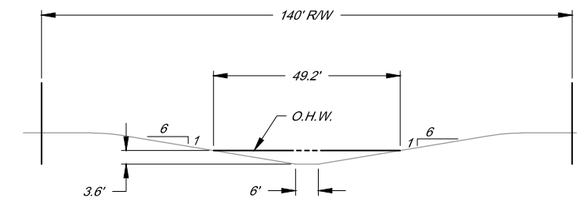
SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: SMP
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
ROSELAND CREEK - REACH 1 - LOCATION & VICINITY MAPS INDEX TO DRAWINGS AND TABLE

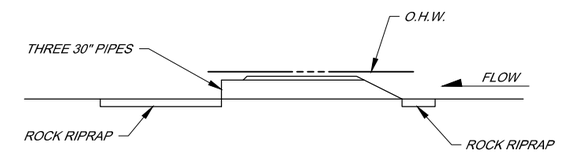
FILE NAME: 2013_R:sela:d-G.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 2




SITE PLAN .
SCALE 1" □ 200□




TYPICAL RECORD SECTION .
NOT TO SCALE




PROFILE - E□ISTING CATTLE CROSSING .
NOT TO SCALE

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

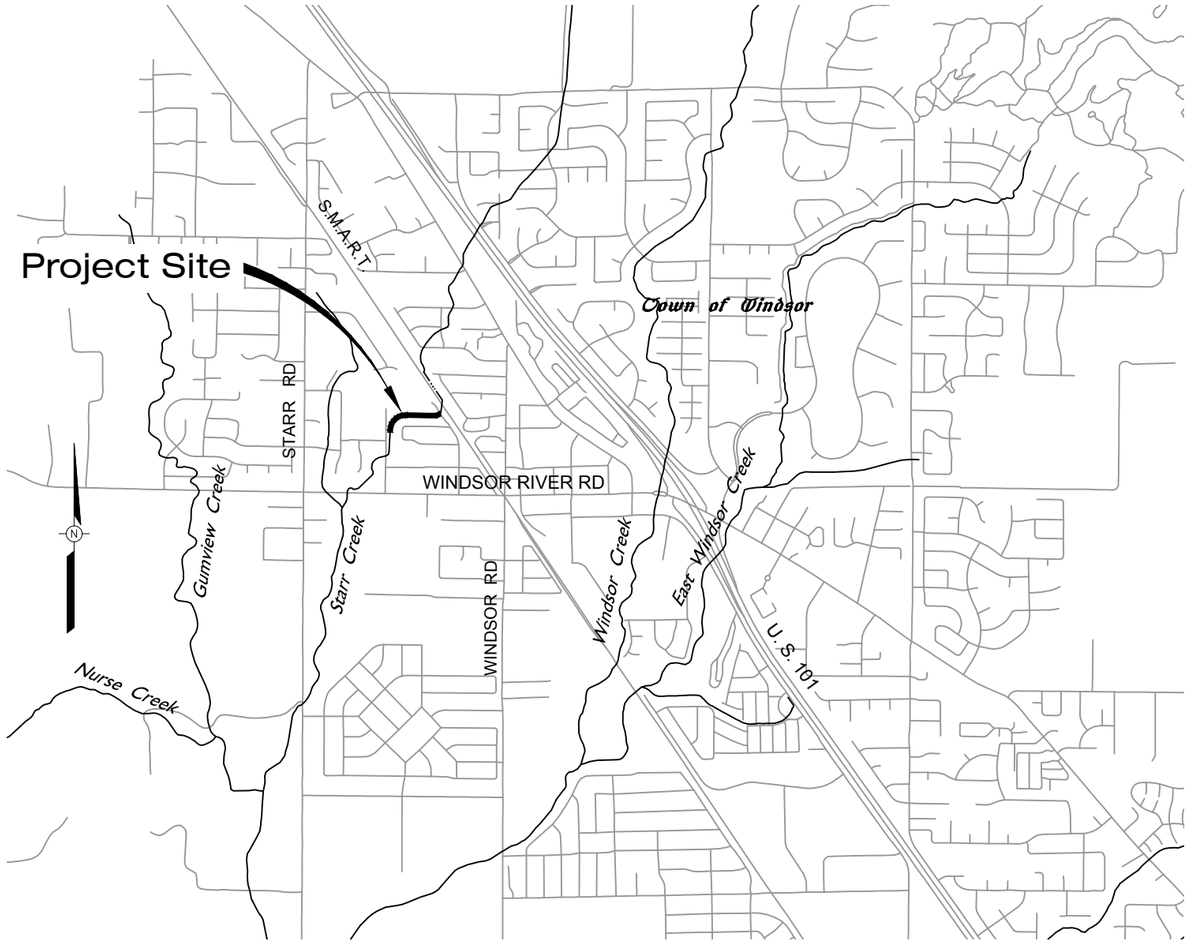
SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED □ONE 1A

ROSELAND CREEK - REACH 1SEDIMENT PLUG REMOVAL AT LOW FLOW CATTLE CROSSINGS

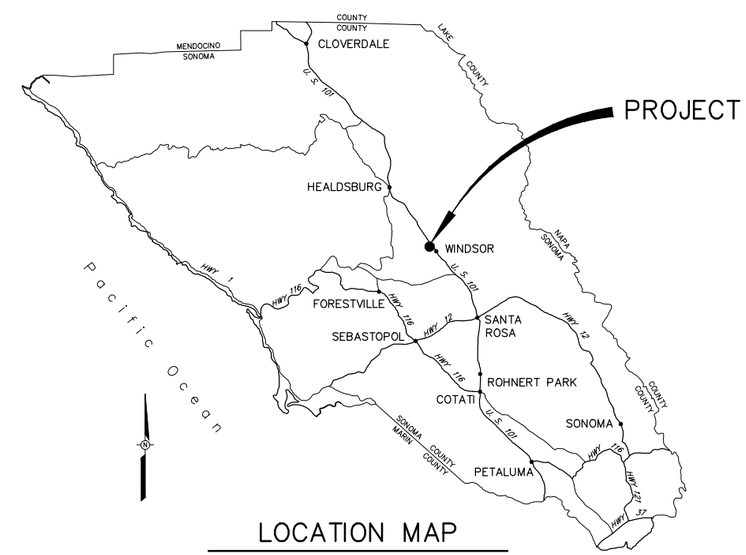
FILE NAME: 2013_R□sela□d-C
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 2

# SMP - LAGUNA de SANTA ROSA WATERSHED ZONE 1A
# STARR CREEK - REACH 2
# REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| STARR CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAR OR FRONT END LOADER OPERATING IN CHANNEL | STA 36+00 TO STA 44+00 | 800 | 15 | 12,000 | 1 | 444 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCATION AND VICINITY MAPS |
| 2 | C-1 | PLAN AND PROFILE STA 36+00 TO STA 45+00 |
| 3 | C-2 | SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

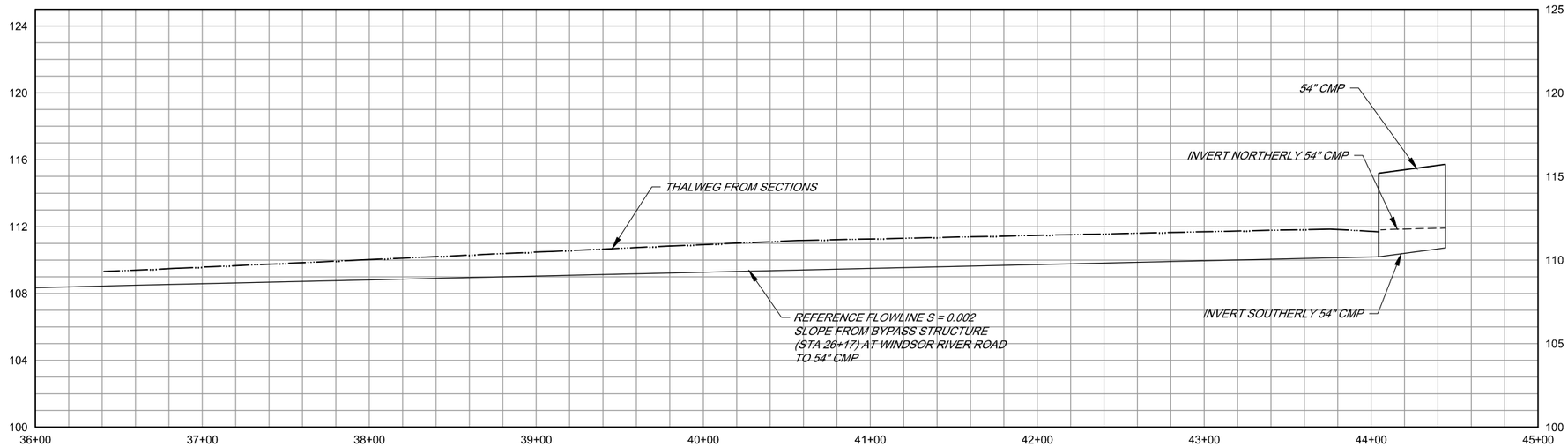
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

SMP - LAGUNA de SANTA ROSA WATERSHED ZONE 1A
STARR CREEK - REACH 2
INDEX TO DRAWINGS LOCATION AND VICINITY MAPS

FILE NAME: 2013_StarrCr_General.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 3




PROFILE .

SCALE HORI 1" 40
VERT 1" 4

PLAN .

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

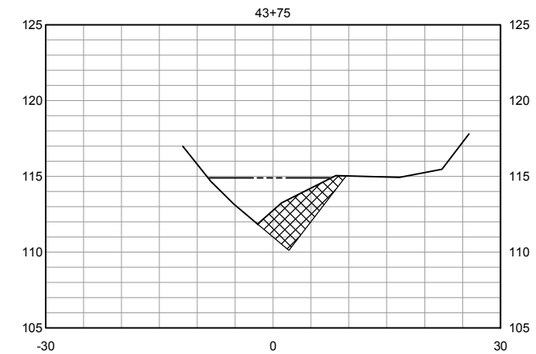
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

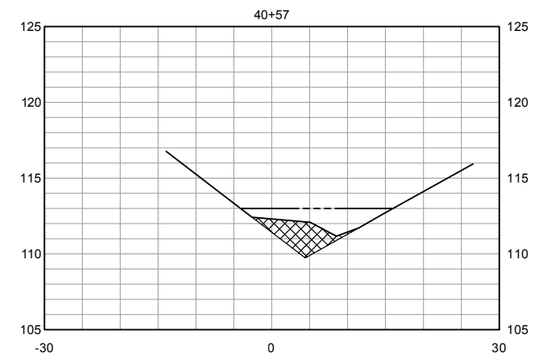
SMP - LAGUNA de SANTA ROSA WATERSHED ONE 1A

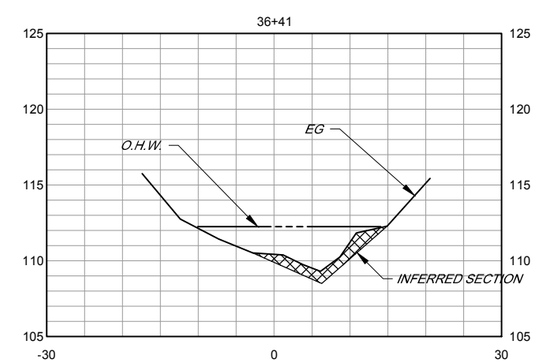
STARR CREEK - REACH 2

PLAN AND PROFILE STA 36+00 TO STA 45+00

FILE NAME: 2013_Starr-Cr_ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 3




SECTIONS

SCALE HORI 1" 10
VERT 1" 5

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

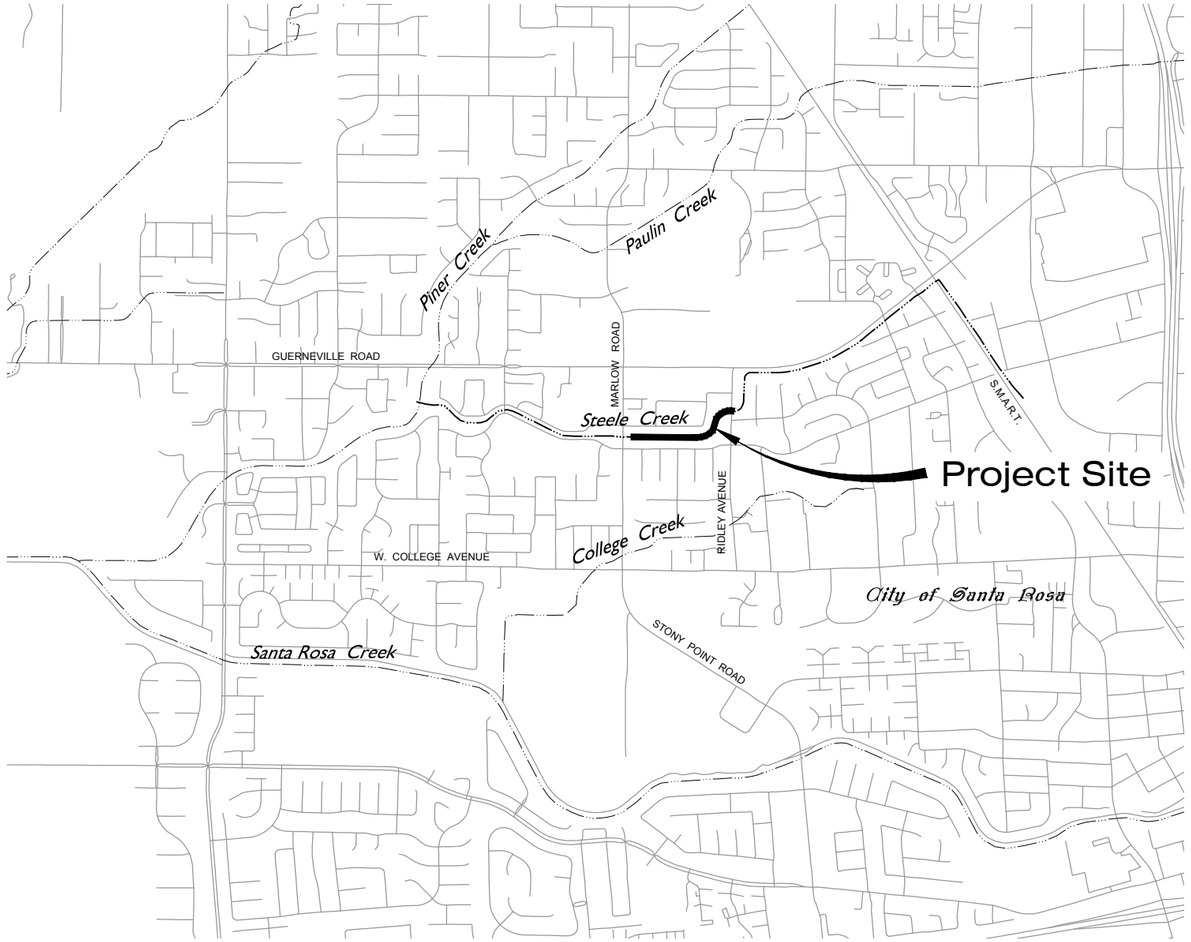
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA de SANTA ROSA WATERSHED ONE 1A

STARR CREEK - REACH 2
SECTIONS

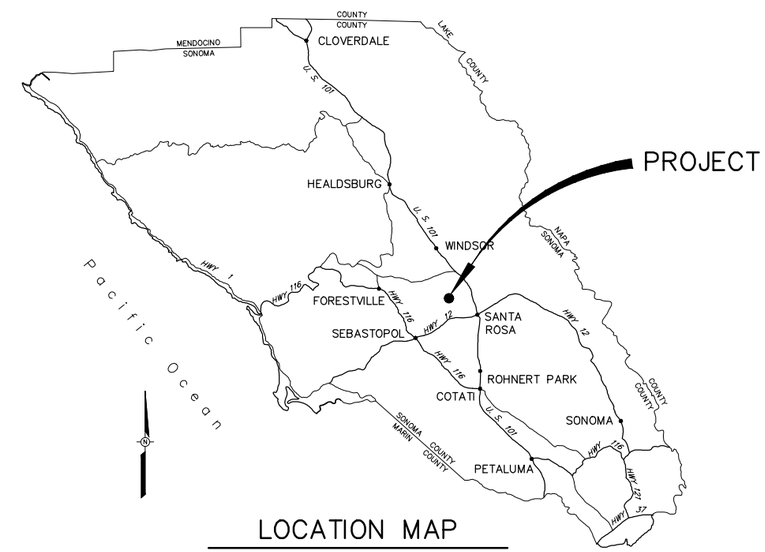
FILE NAME: 2013_Starr-Cr_ivil
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 3

# SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A STEELE CREEK - REACH 2 REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| STEELE CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAR OR FRONT END LOADER OPERATING IN CHANNEL | STA 619+02 TO STA 634+44 | 1542 | 6 | 9252 | .5 | 171 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCATION AND VICINITY MAPS |
| 2 | C-1 | SEDIMENT REMOVAL PLAN AND PROFILE STA 617+00 TO STA 628+00 |
| 3 | C-2 | SEDIMENT REMOVAL PLAN AND PROFILE STA 628+00 TO STA 635+00 |
| 4 | C-3 | SEDIMENT REMOVAL TYPICAL SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

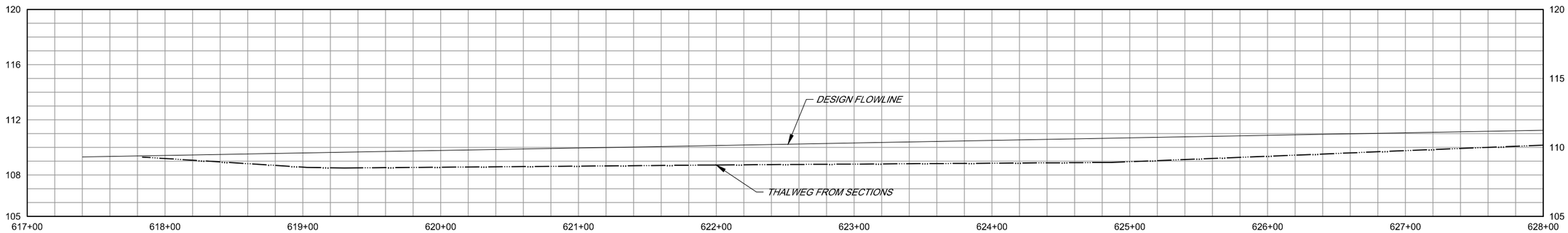
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: SMP
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
STEELE CREEK - REACH 2
INDEX TO DRAWINGS LOCATION AND VICINITY MAPS

FILE NAME: 2013_SteeleCr._General.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 4




PROFILE

SCALE HORI 1" 40
VERT 1" 4

PRELIMINARY
90 SUBMITTAL
FOR REVIEW PURPOSES ONLY
13 MAR 2013

PLAN

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

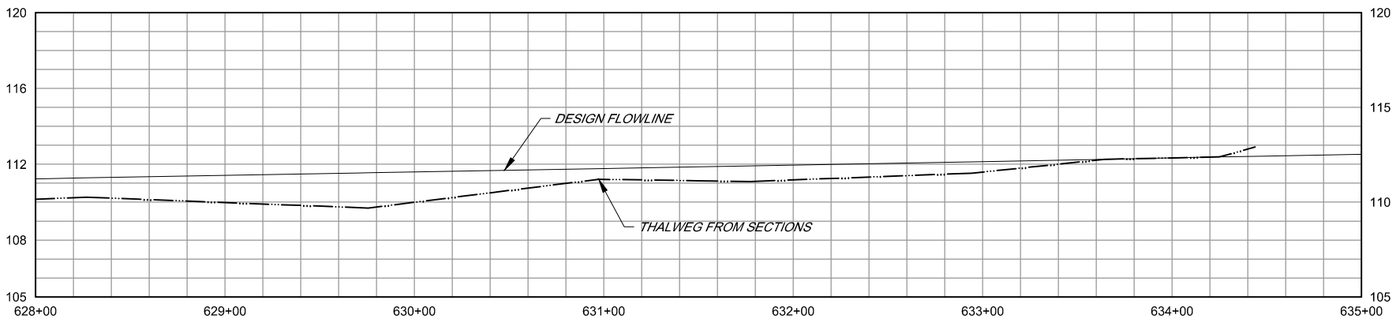
| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
STEELE CREEK - REACH 2
SEDIMENT REMOVAL PLAN AND PROFILE STA 617+00 TO STA 628+00

FILE NAME: 2013_Steele-Cr_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 4




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'

PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

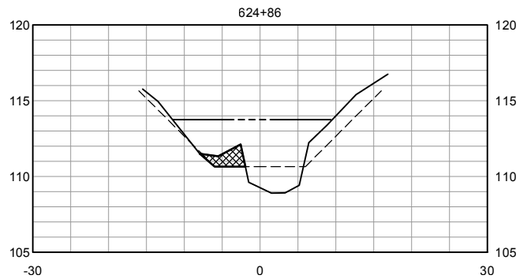
SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

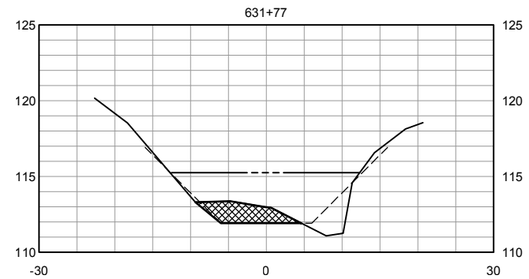
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

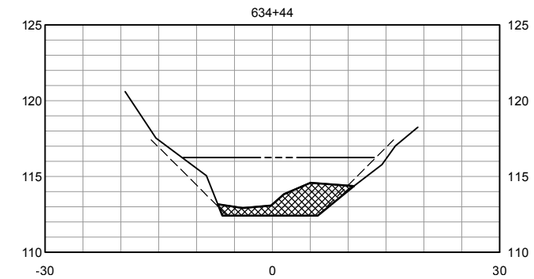
STEELE CREEK - REACH 2

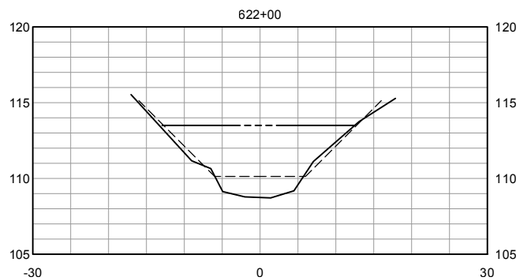
SEDIMENT REMOVAL PLAN AND PROFILE STA 628+00 TO STA 635+00

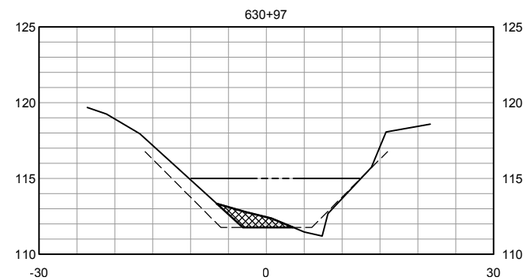
FILE NAME: 2013_Steele-Cr_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 4

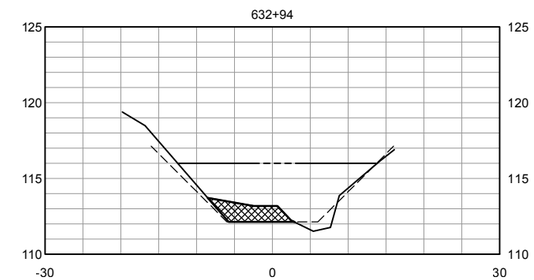


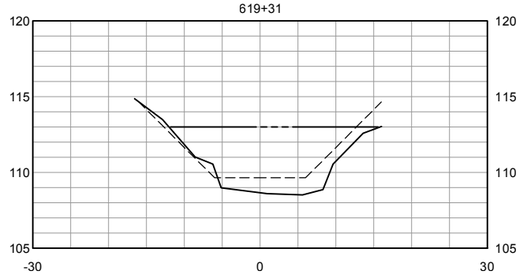



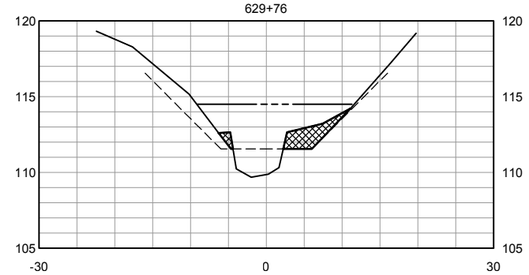



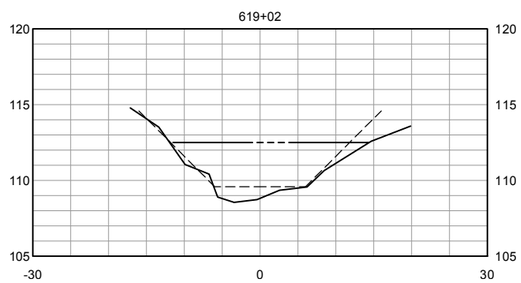



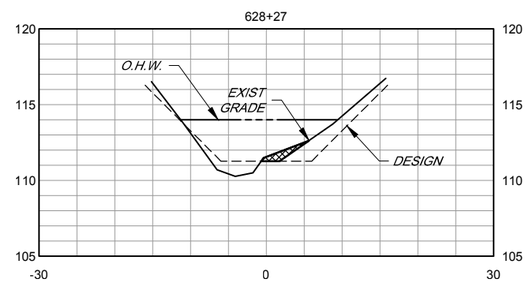



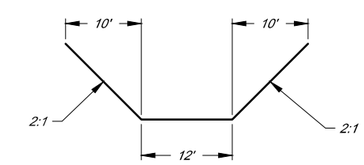




SECTIONS .

SCALE HORI 1" 10
VERT 1" 5




TYPICAL SECTION .

t t s ale

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ADF
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

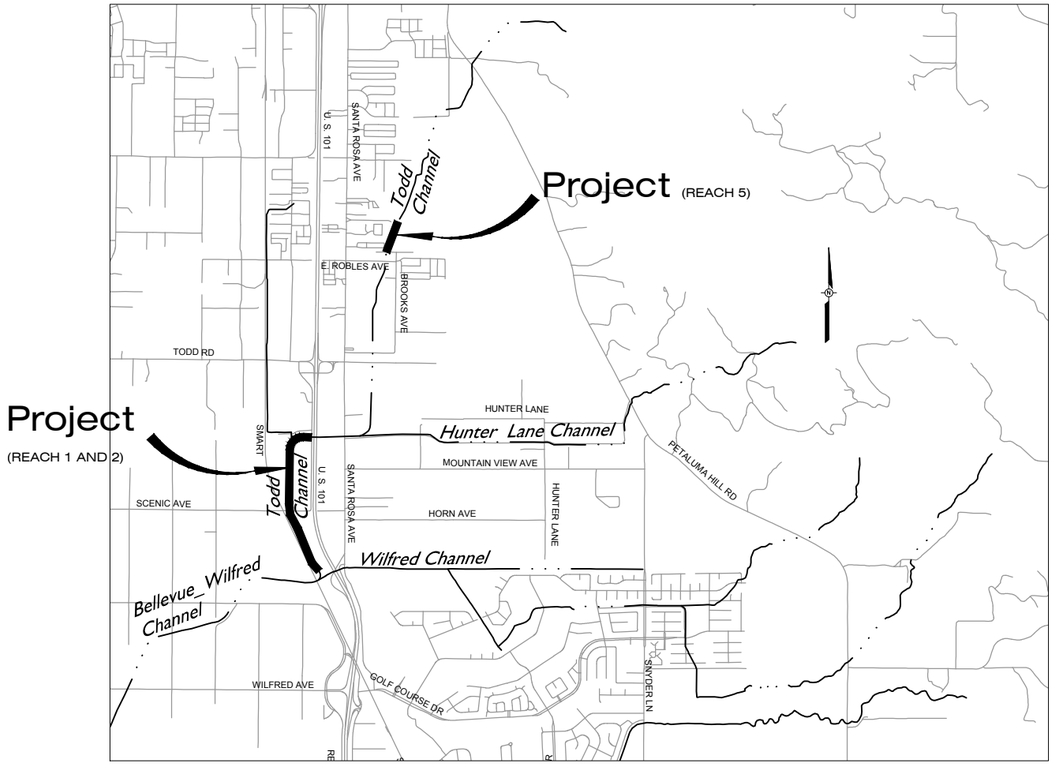
STEELE CREEK - REACH 2

SEDIMENT REMOVAL TYPICAL SECTIONS

FILE NAME: 2013_Steele-Cr_CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 4

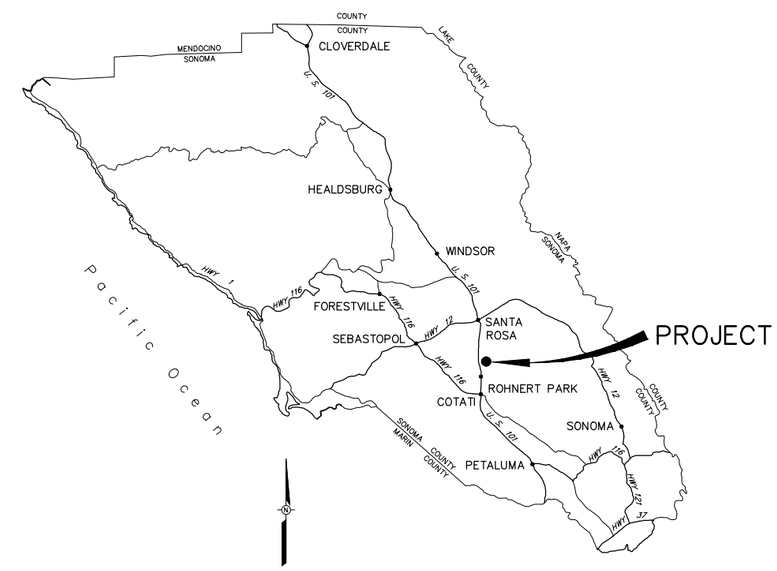
a:d:data r d tr: e 1a Steele_Cree 2013-Steele_Cr

# SMP ZONE 1A
# TODD CHANNEL - REACH 1&2
# REACH SCALE SEDIMENT REMOVAL
# TODD CHANNEL - REACH 5
# INSTREAM SEDIMENT
# BASIN CLEARING




## VICINITY MAP

NOT TO SCALE




## LOCATION MAP

NOT TO SCALE

| TODD CHANNEL | | | | | | |
|---|---|---|---|---|---|---|
| WORK TO BE DONE WITHIN CHANNEL | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING FROM SERVICE ROAD OR IN THE DEWATERED CHANNEL. | REACH 1<br>STATION 4+00<br>TO<br>STATION 21+12 | 1,712 | 6 | BELOW OHW<br>13,696 | 0.5 | BELOW OHW<br>254 |
| | REACH 2<br>STATION 21+12<br>TO<br>STATION 44+50 | 2,338 | 18.9 | BELOW OHW<br>44,389 | 0.9 | BELOW OHW<br>1,473 |
| | SMP 5<br>STA 109+50<br>TO<br>STA 116+15 | 665 | 14.3 | BELOW OHW<br>9,509 | 1.3 | BELOW OHW<br>458 |
| | TOTAL: | 4,715 | | 67,594 | | 2,185 |

## INDEX TO DRAWINGS


| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | TABLE INDEX TO DRAWINGS VICINITY AND LOCATION MAPS |
| 2 | C-1 | PLAN AND PROFILE STA 0+00 TO STA 12+00 |
| 3 | C-2 | PLAN AND PROFILE STA 12+00 TO STA 24+00 |
| 4 | C-3 | PLAN AND PROFILE STA 24+00 TO STA 36+00 |
| 5 | C-4 | PLAN AND PROFILE STA 36+00 TO STA 48+00 |
| 6 | C-5 | PLAN AND PROFILE STA 106+00 TO STA 117+00 |
| 7 | C-6 | SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

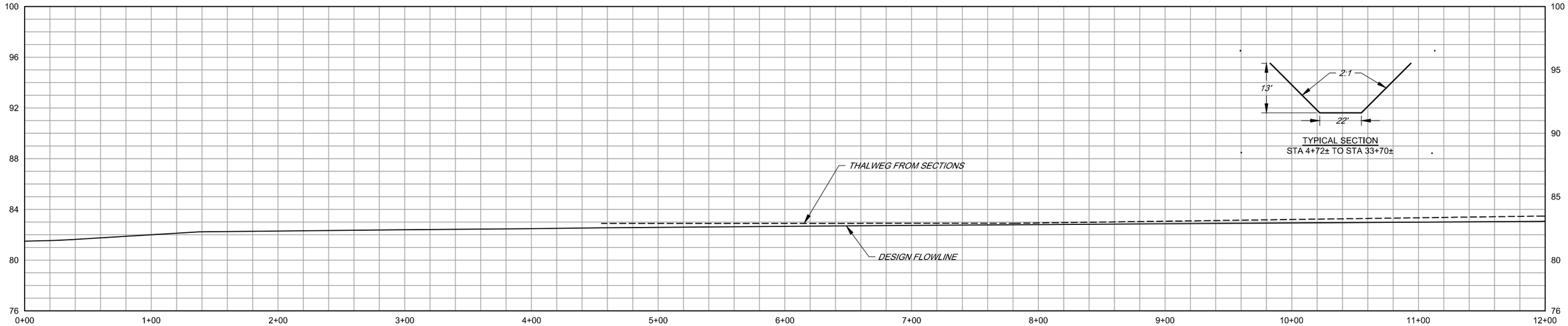
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

SMP - LAGUNA DE SANTA ROSA WATERSHED ZONE 1A
TODD CHANNEL - REACHES 1 2 & 5
TABLE INDEX TO DRAWINGS VICINITY AND LOCATION MAPS

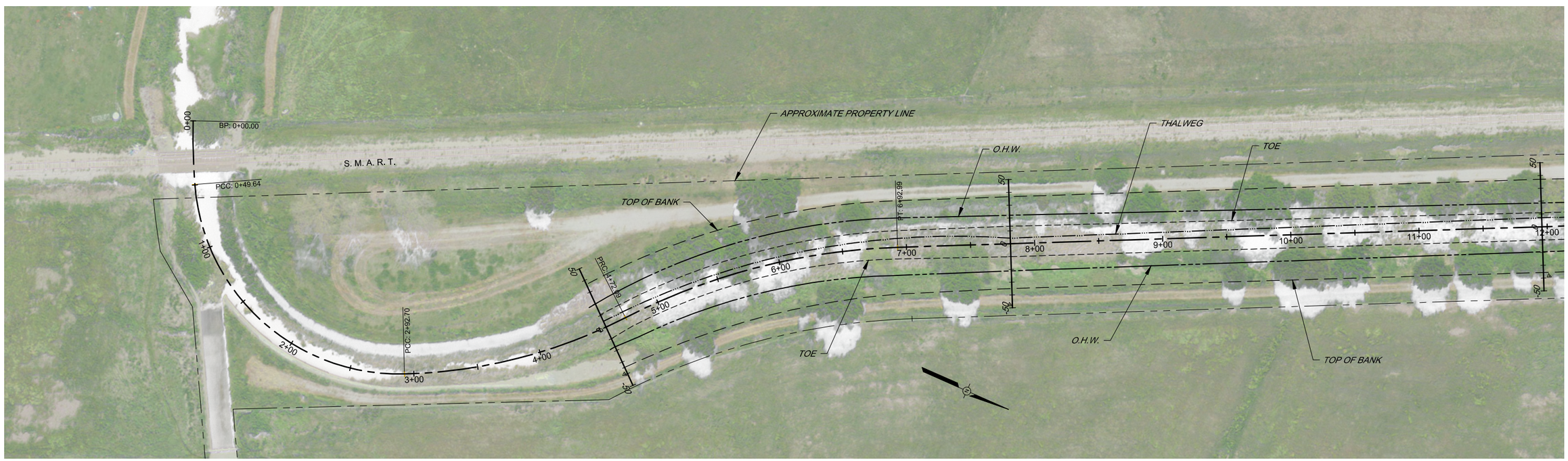
FILE NAME: 2013_TODD-GENERAL
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 7

\\sd-data\proj\flood control\zone 1a\TODD\2013-todd\2013_TODD-GENERAL




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

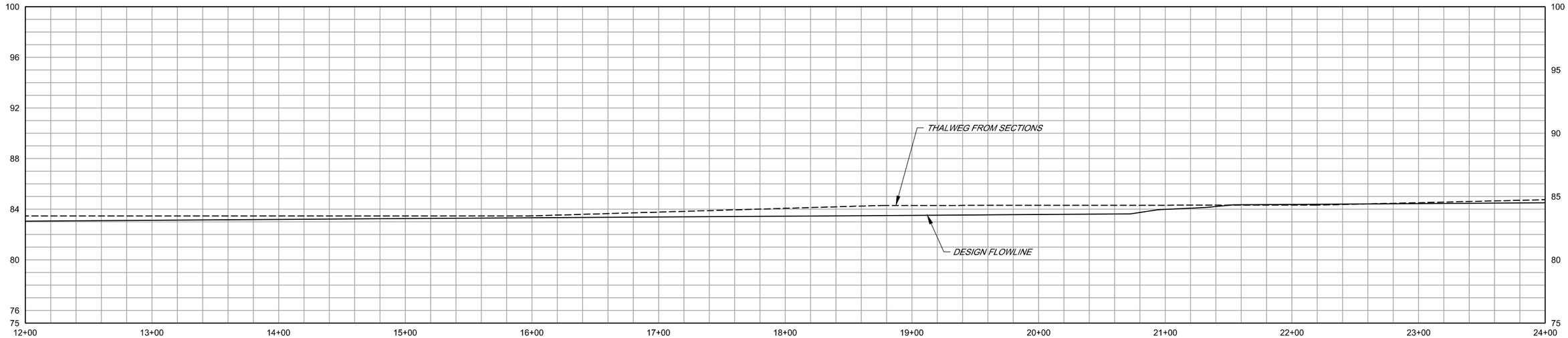
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

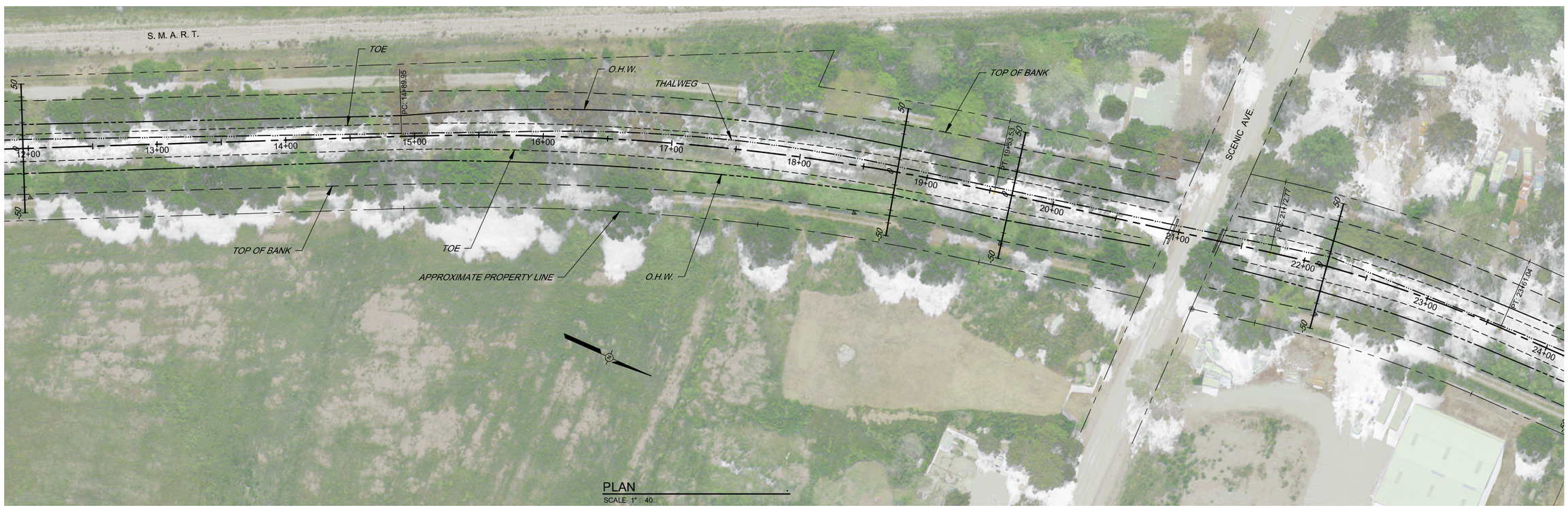
SMP - LAGUNA DE SANTA ROSA WATERSHED - ONE 1A
TODD CHANNEL - REACHES 1-2 & 5
PLAN AND PROFILE STA 0+00 TO STA 12+00

FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 7




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ADF
REVIEWED :

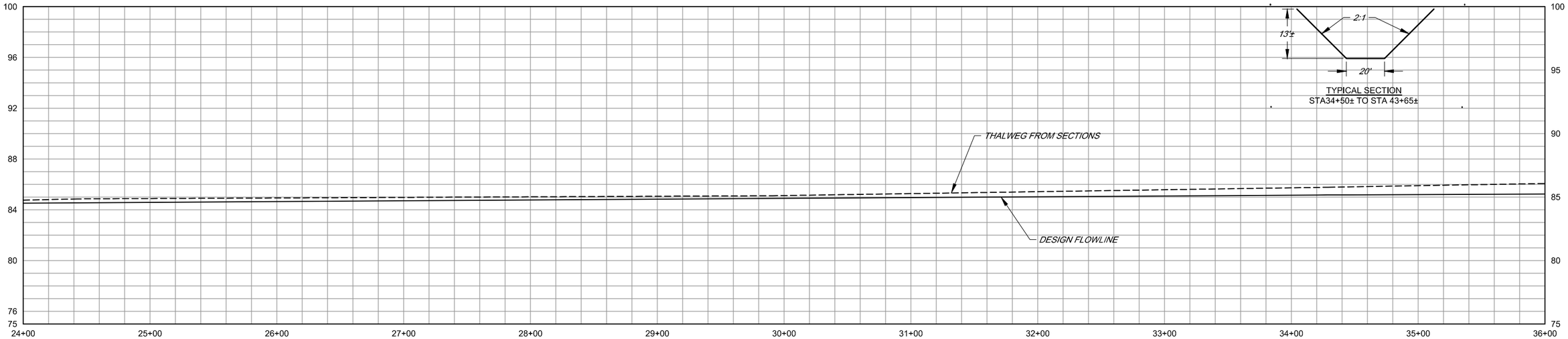
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

TODD CHANNEL - REACHES 1 2 5

PLAN AND PROFILE STA 12+00 TO STA 24+00

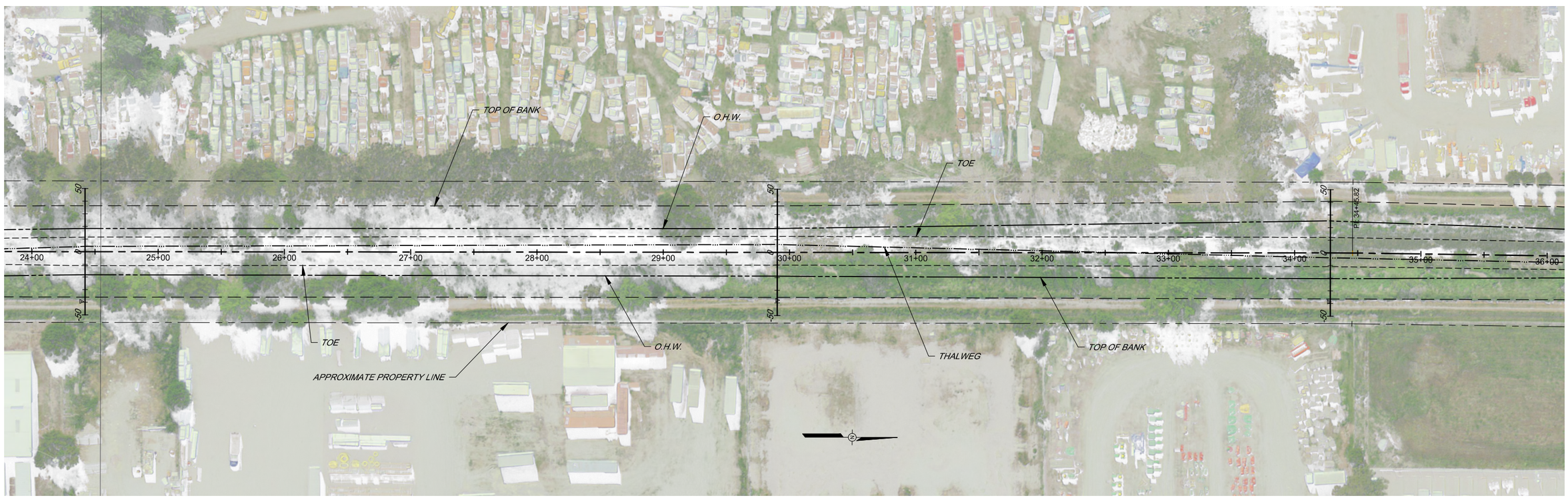
FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 7

3d-data-r d tr: e 1a TODD 2013-1 dd




PROFILE

SCALE HORI 1" 40
VERT 1" 4




PLAN

SCALE 1" 40

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

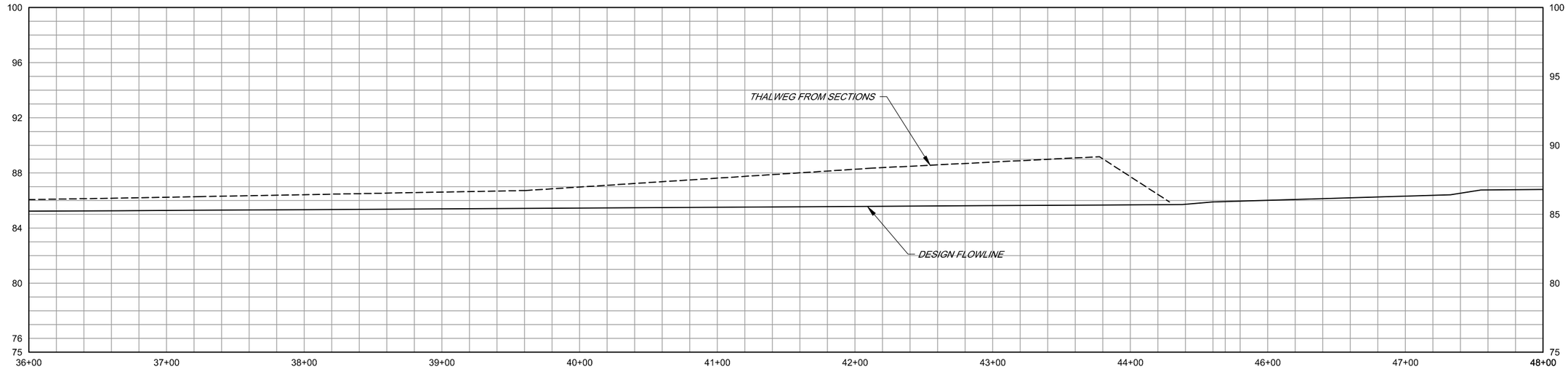
SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ADF
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

TODD CHANNEL - REACHES 1 2 5

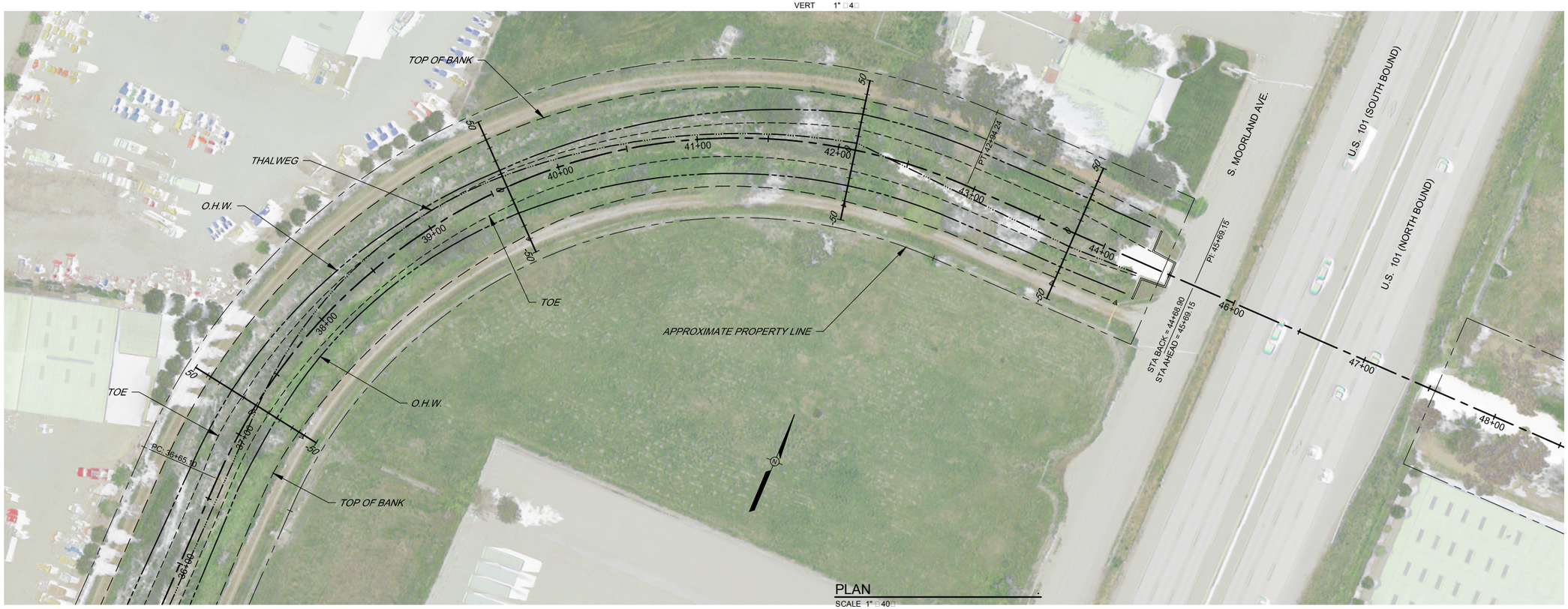
PLAN AND PROFILE STA 24+00 TO STA 36+00

FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 4 OF 7




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 3/13/2013
DRAWN: ADF
REVIEWED:

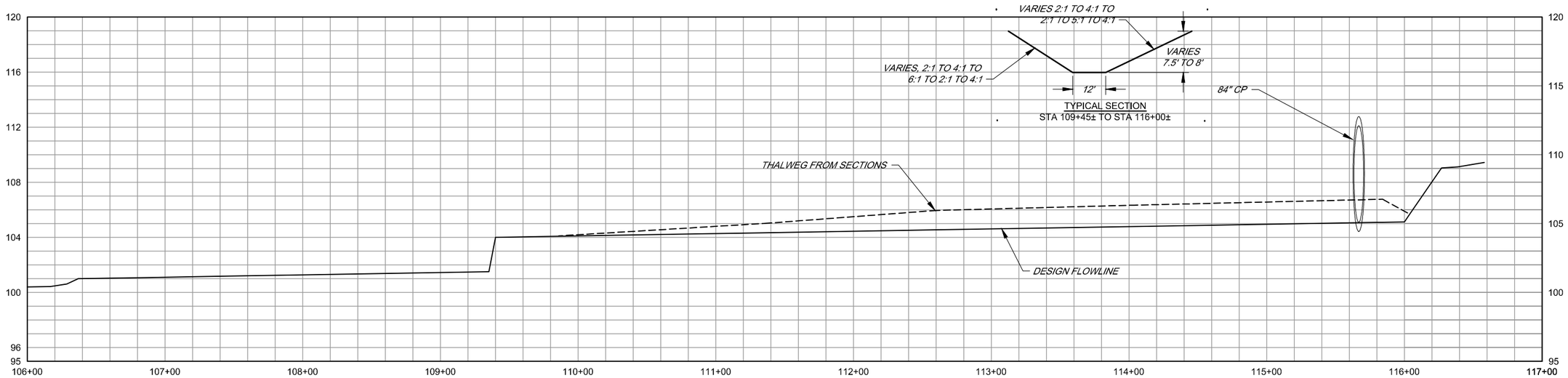
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

TODD CHANNEL - REACHES 1 2 5

PLAN AND PROFILE STA 36+00 TO STA 48+00

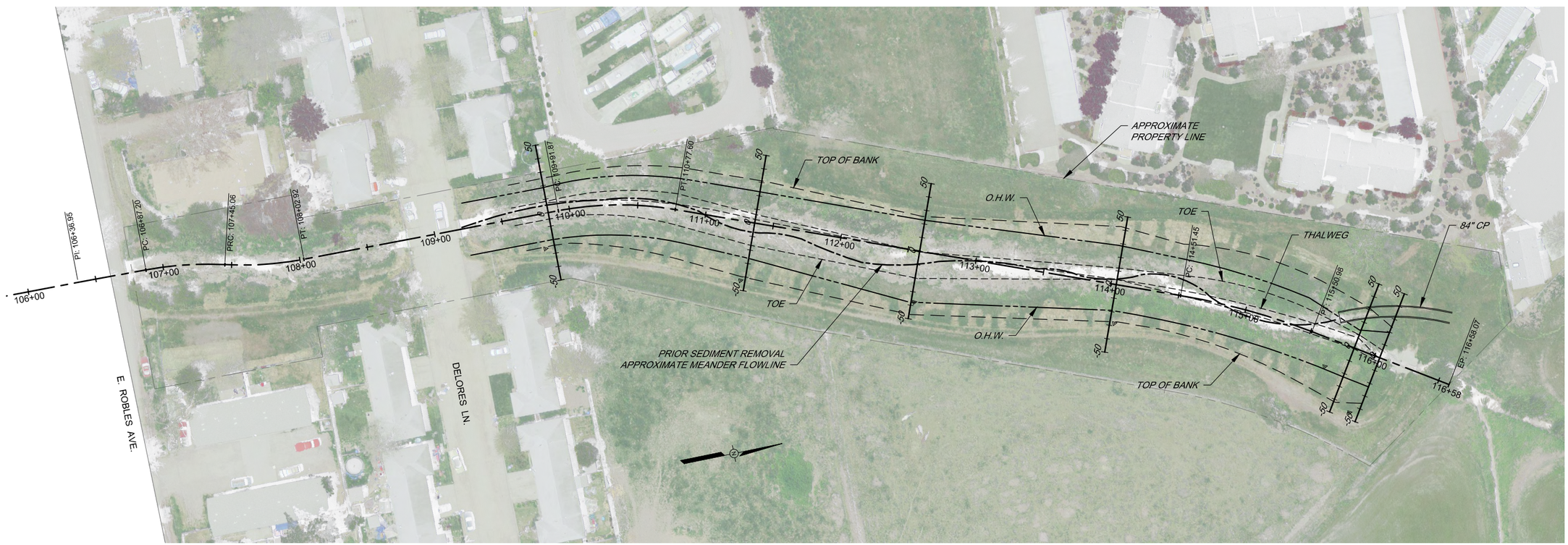
FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 5 OF 7

3d-data:r d tr: e ta TODD 2013-1. dd




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

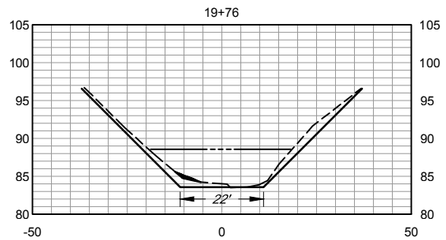
SONOMA COUNTY WATER AGENCY

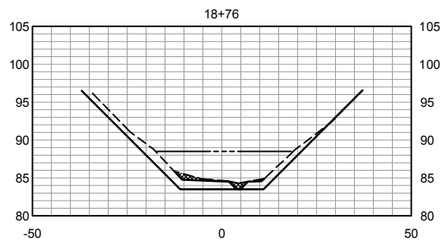
SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ADF
REVIEWED :

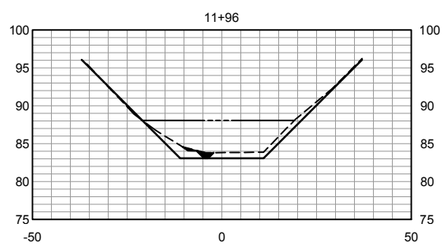
SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A
TODD CHANNEL - REACHES 1 2 5
PLAN AND PROFILE STA 106+00 TO STA 117+00

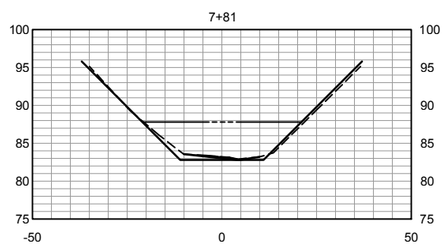
FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-5
SHEET 6 OF 7

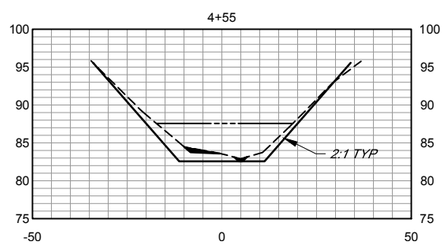
d:\cad-data\civil\d\ [illegible] e 1a TODD 2013-1.dd



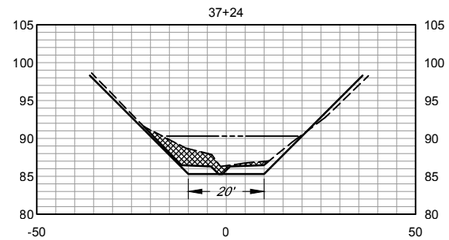



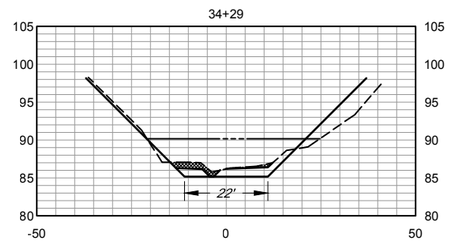



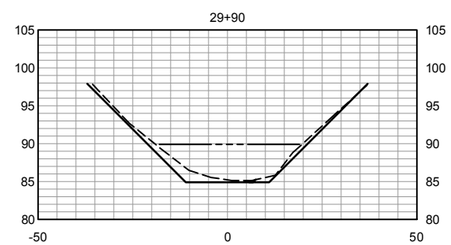



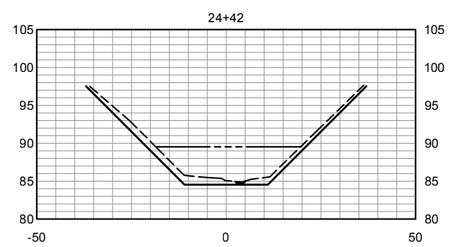

REACH - 1 SECTIONS .

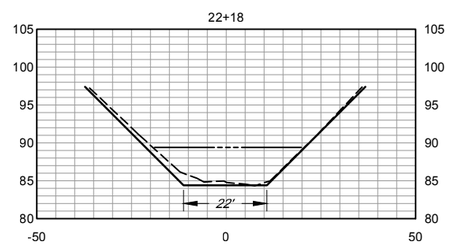
SCALE HORI 1" 20
VERT 1" 10



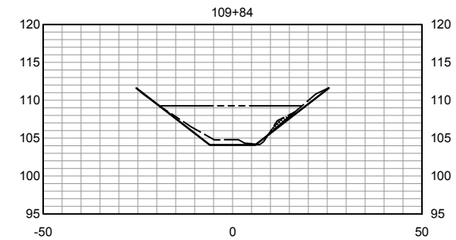



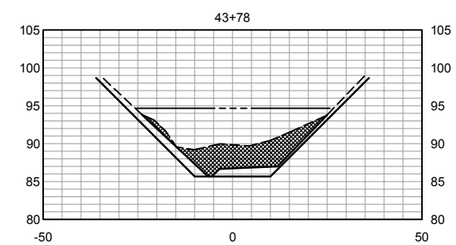

REACH - 2 SECTIONS .

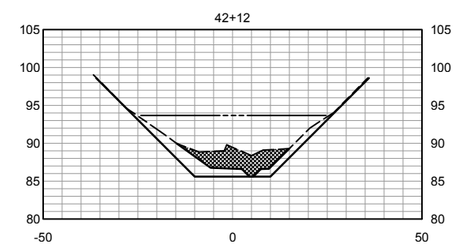
SCALE HORI 1" 20
VERT 1" 10

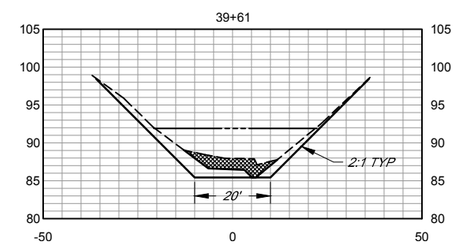



REACH - 5 SECTIONS .

SCALE HORI 1" 20
VERT 1" 10

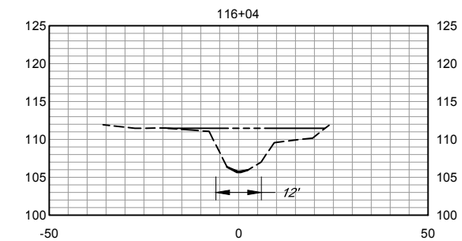


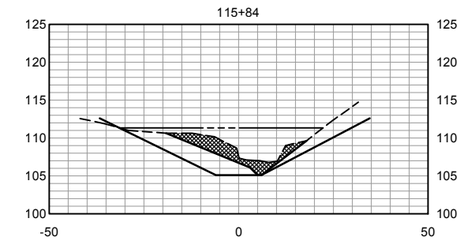



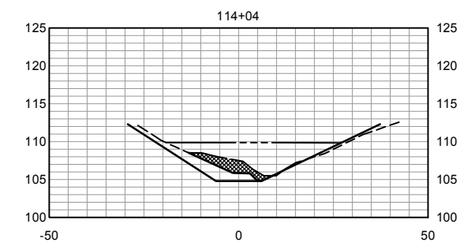



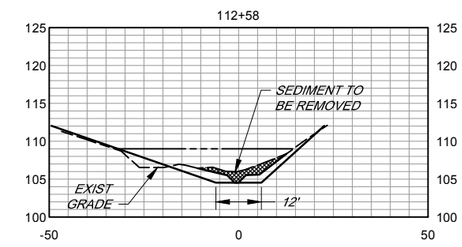

REACH - 2 SECTIONS .

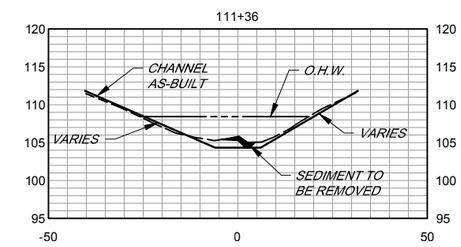
SCALE HORI 1" 20
VERT 1" 10




REACH - 5 SECTIONS .

SCALE HORI 1" 20
VERT 1" 10

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 3/13/2013
DRAWN : ADF
REVIEWED :

SMP - LAGUNA DE SANTA ROSA WATERSHED ONE 1A

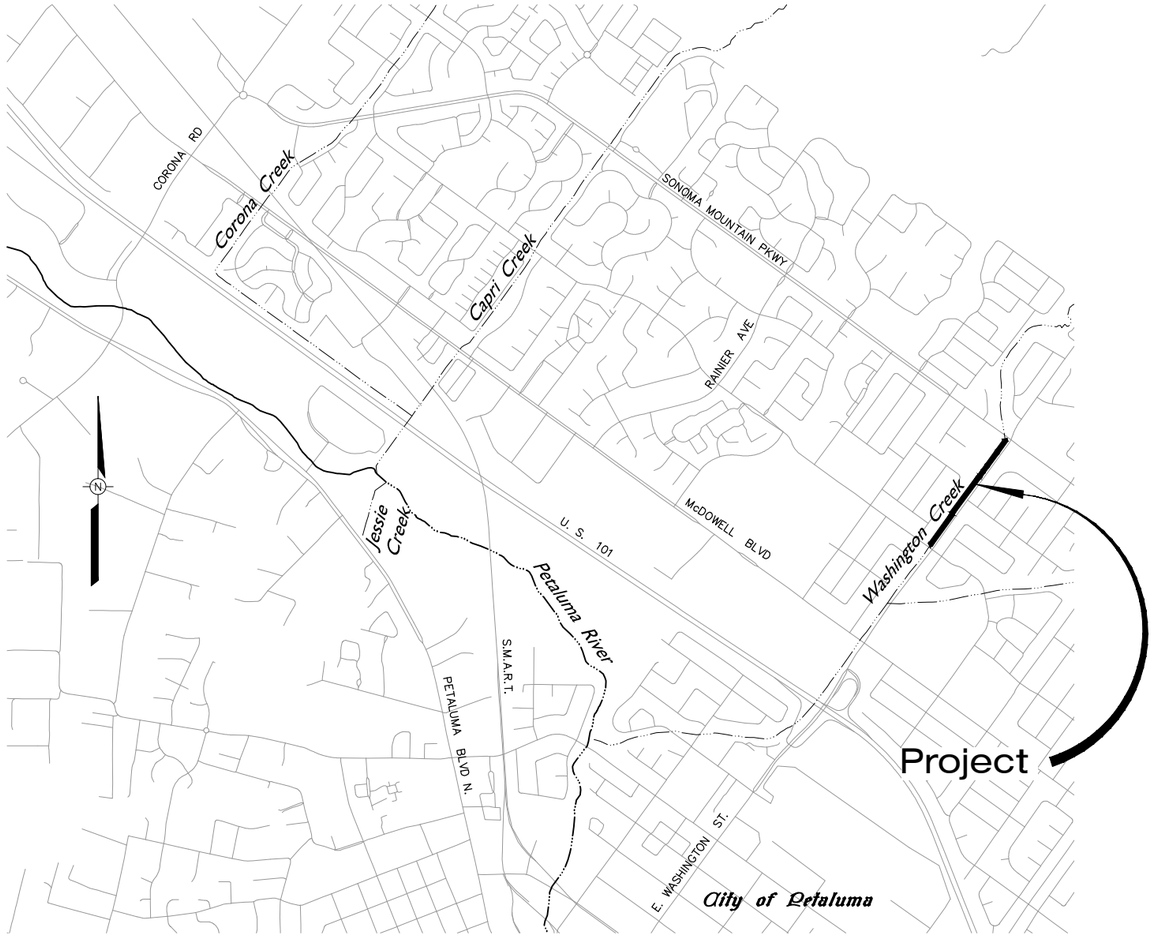
TODD CHANNEL - REACHES 1 2 5

SECTIONS

FILE NAME: 2013_TOOD-CIVIL
CONTRACT NUMBER:
DRAWING NUMBER: C-6
SHEET 7 OF 7

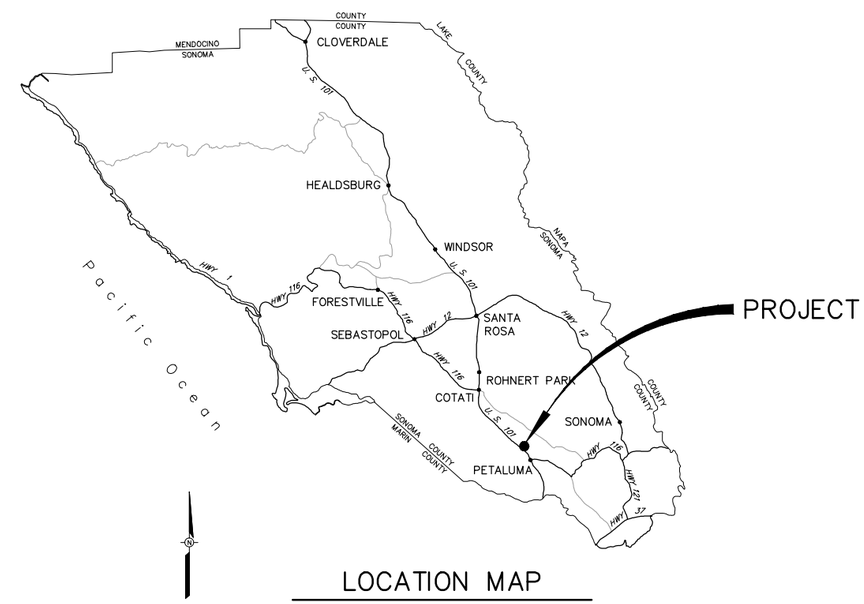
d:\sd-data\r\ d \r\r\ e 1a TODD 2013-1.dd

# SMP - PETALUMA RIVER WATERSHED ZONE 2A WASHINGTON CREEK - REACH 6 REACH SCALE SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| WASHINGTON CREEK REACH 6 | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION (BELOW OHW) | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED CHANNEL. | STA 57+90 TO STA 75+50 | 1,780 | 10.6 | 18,868 | 2.3 | 1,607 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCATION, AND VICINITY MAPS |
| 2 | C-01 | PLAN AND PROFILE STA 57+00 TO STA 68+00 |
| 3 | C-02 | PLAN AND PROFILE STA 68+00 TO STA 76+00 |
| 4 | SECTIONS | CROSS SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

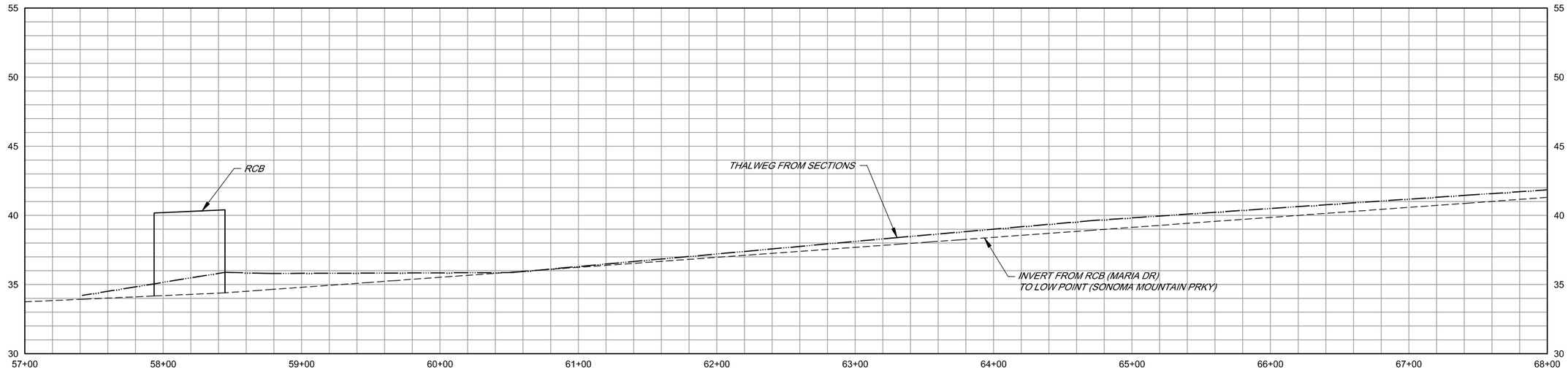
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

SMP - PETALUMA RIVER WATERSHED ONE 2A
WASHINGTON CREEK - REACH 6
INDE TO DRAWINGS LOCATION AND VICINITY MAP

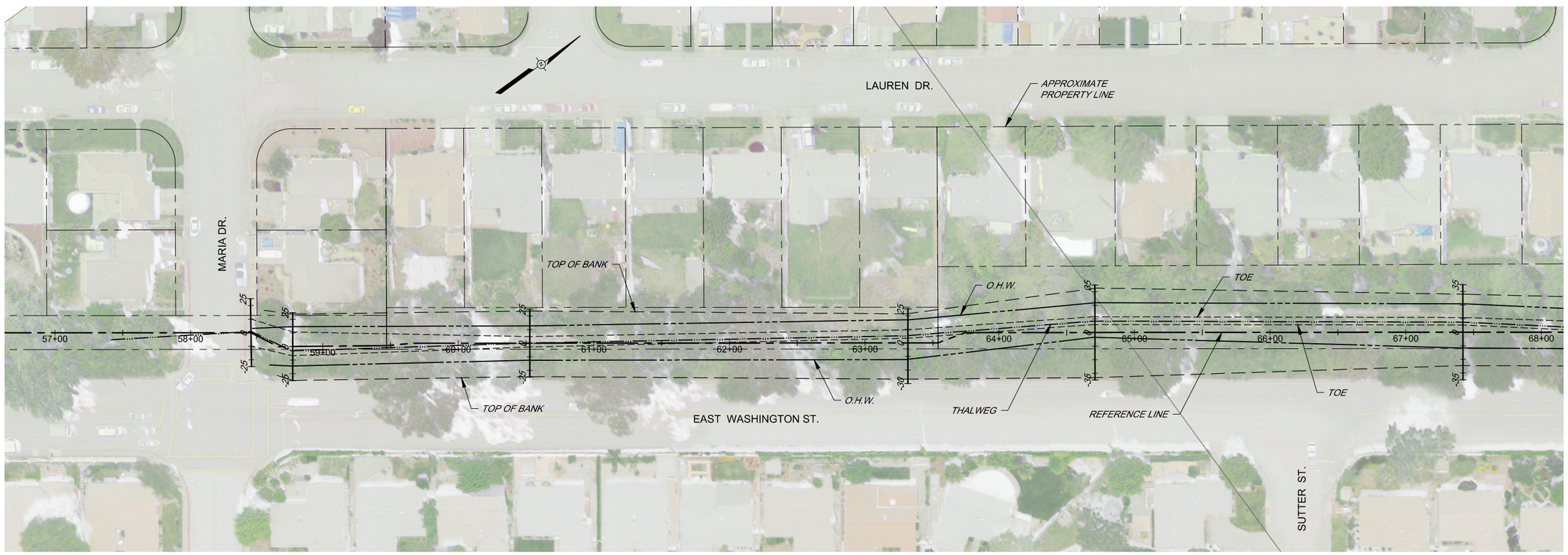
FILE NAME: 2013_Was gt _G-1.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF

\\sd-data\proj\flood control\zone 2a\Washington Creek\sediment-removal\2013_washington\2013_Washington_G-1




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

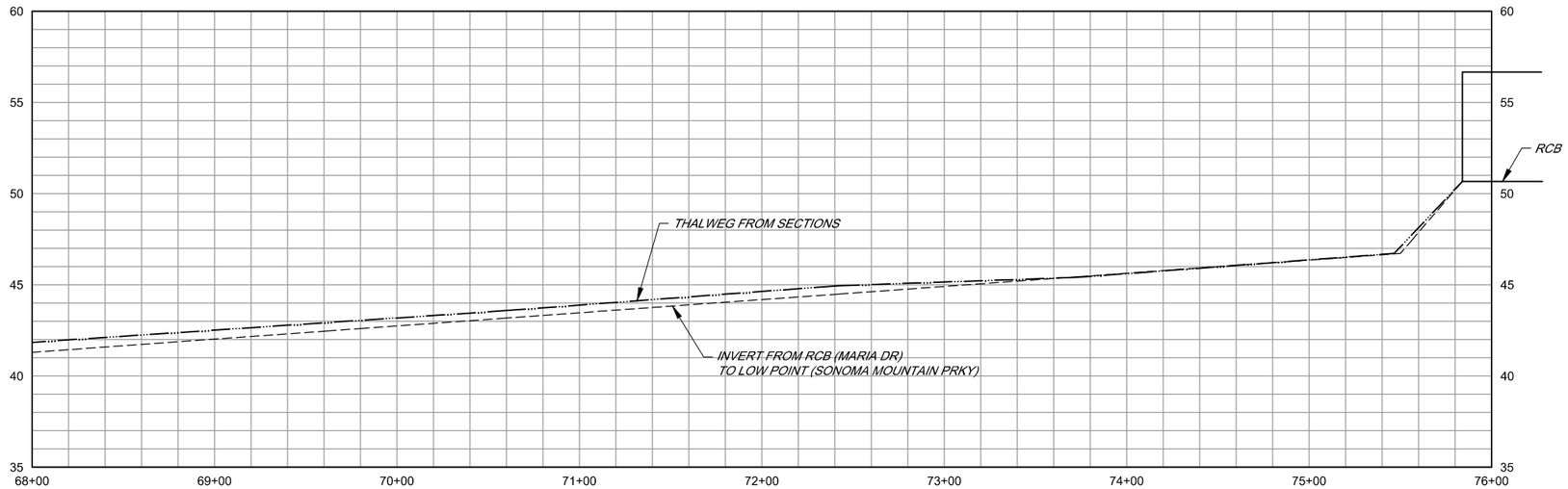
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

SMP - PETALUMA RIVER WATERSHED ZONE 2A

WASHINGTON CREEK - REACH 6

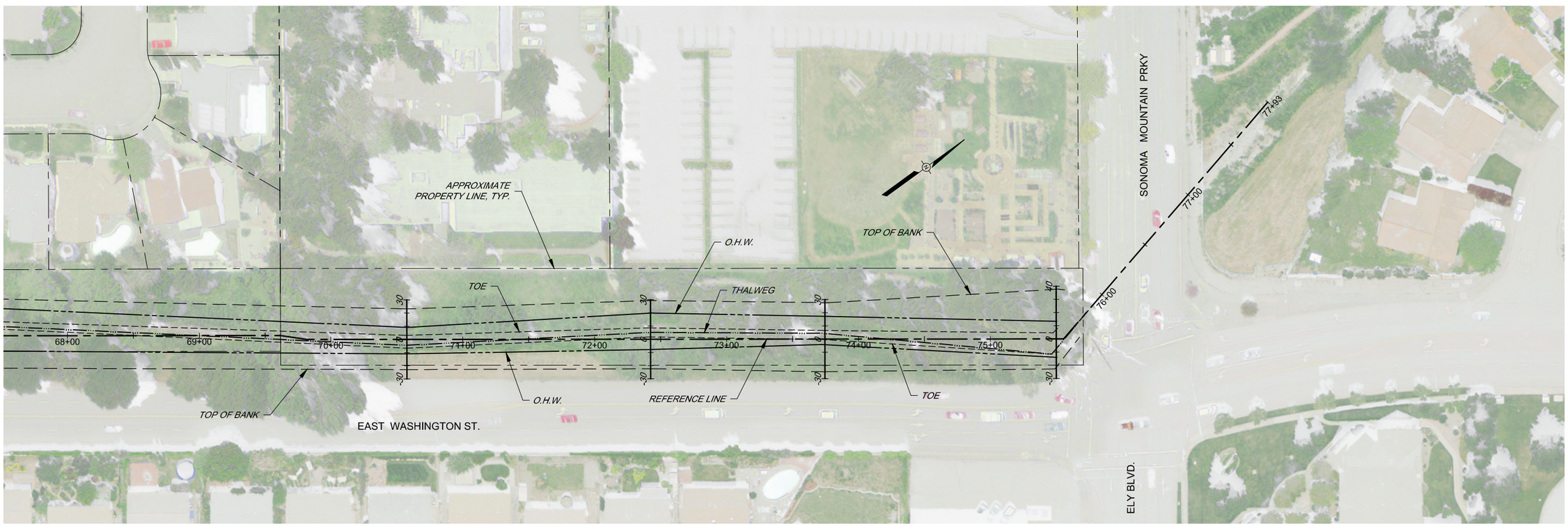
PLAN AND PROFILE STA 57+00 TO STA 68+00

FILE NAME: 2013_Washington_Creek_Reach_6_Civil.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 4




PROFILE

SCALE HORI: 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL
DRAWING EQUALS ONE INCH.
ADJUST SCALE ACCORDINGLY

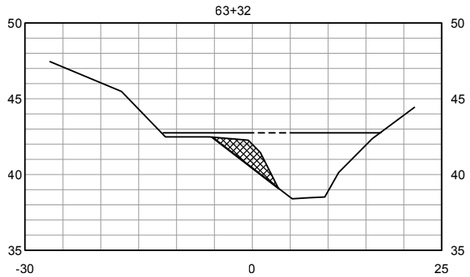
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

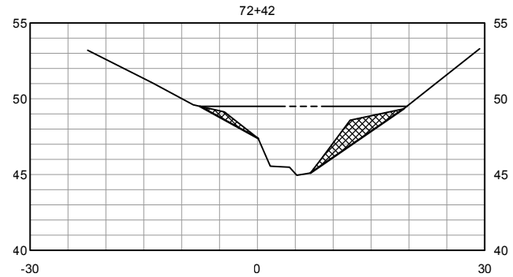
SONOMA COUNTY WATER AGENCY

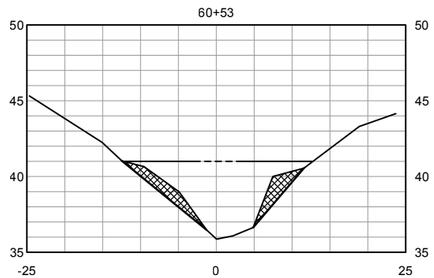
SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

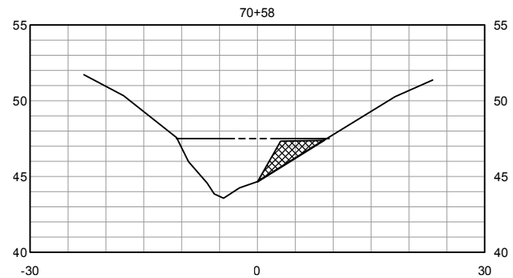
SMP - PETALUMA RIVER WATERSHED ZONE 2A
WASHINGTON CREEK - REACH 6
PLAN AND PROFILE STA 68+00 TO STA 76+00

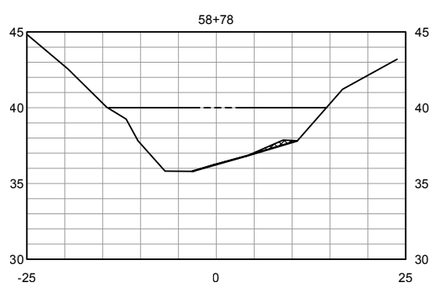
FILE NAME: 2013_Was_gt_civil.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 4

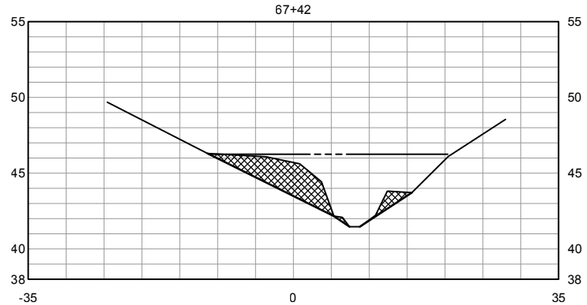


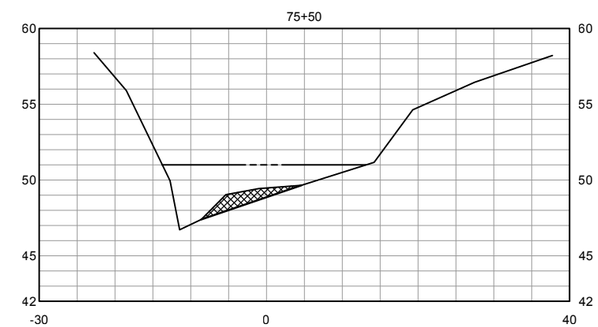



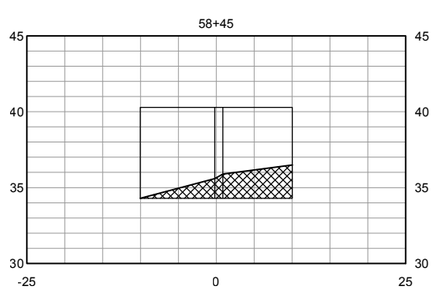



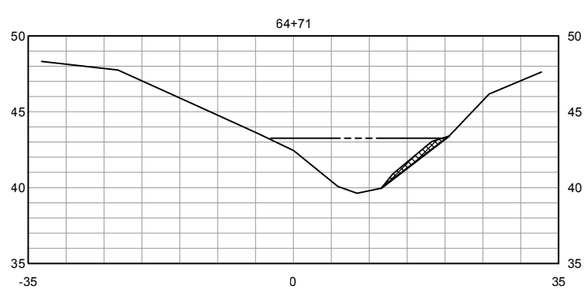



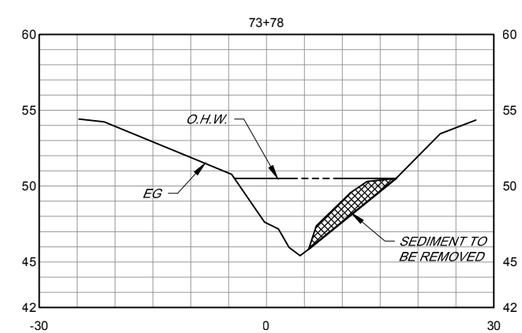



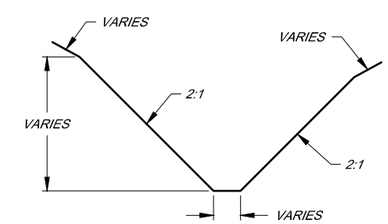




TYPICAL SECTION

NOT TO SCALE

SECTIONS

SCALE HORI 1" = 10'
VERT 1" = 5'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

SMP - PETALUMA RIVER WATERSHED ZONE 2A

WASHINGTON CREEK - REACH 6

CROSS SECTIONS

FILE NAME: 2013_Washington_Creek_Reach6_Civil.dwg
CONTRACT NUMBER:

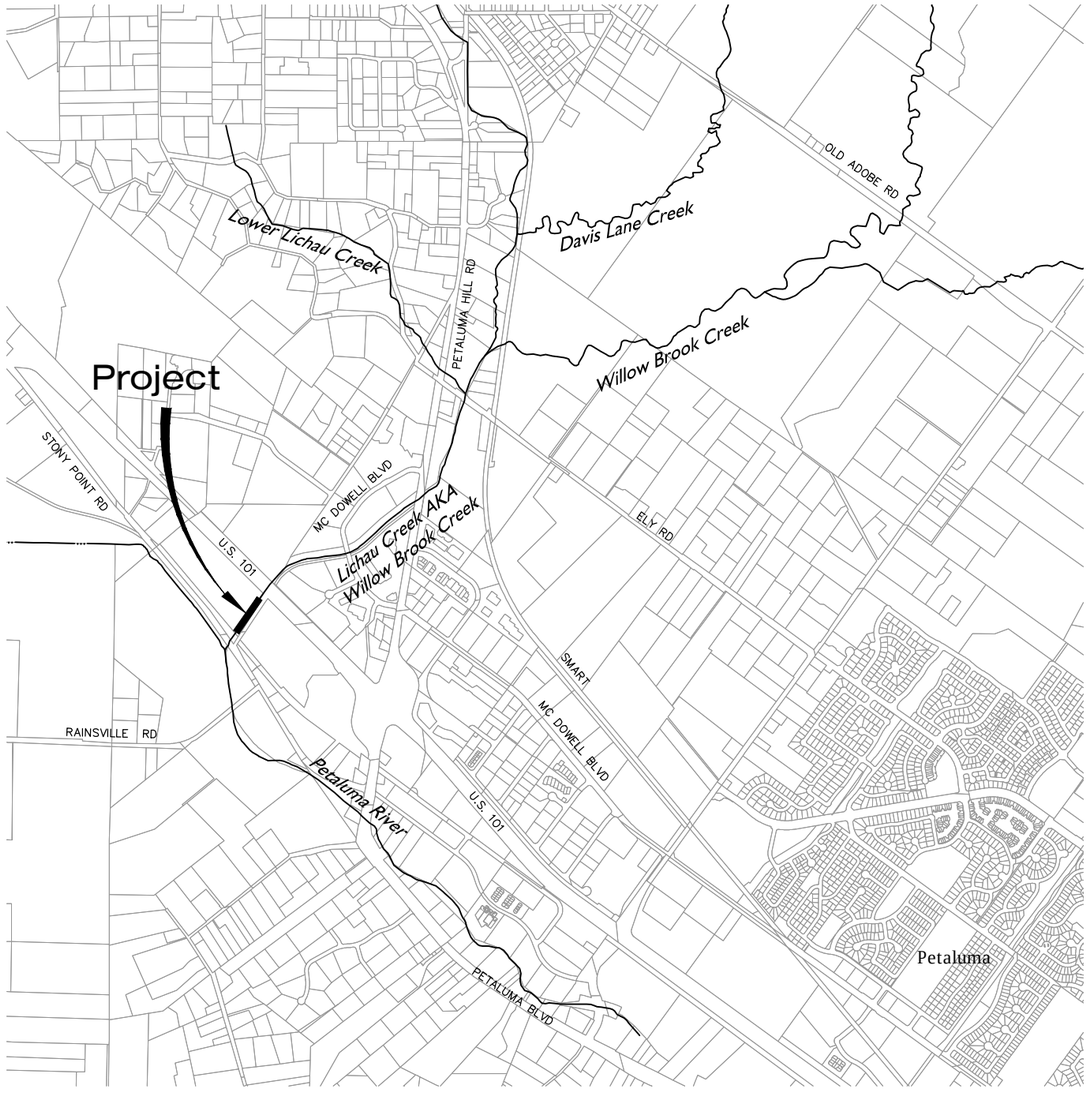
DRAWING NUMBER: C-3

SHEET 4 OF 4

# LICHAU CREEK - REACH 1

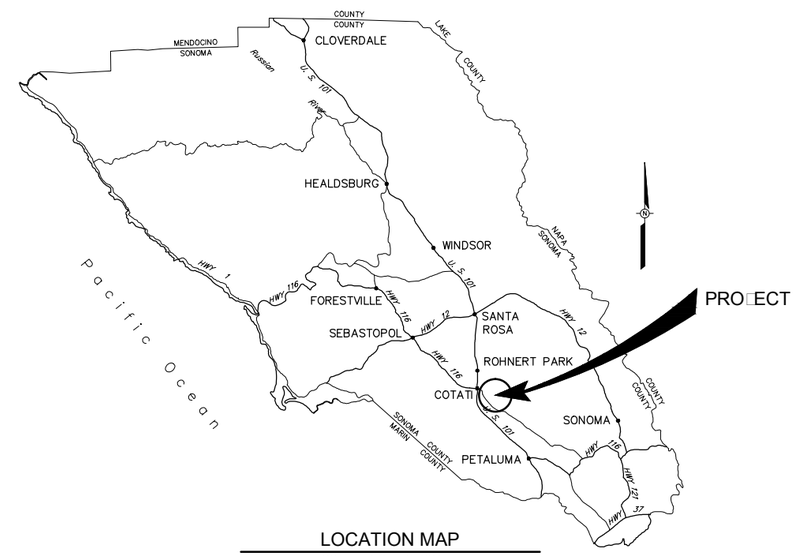
## (AKA WILLOWBROOK)

# SEDIMENT REMOVAL




VICINITY MAP

SCALE: 1" = 1000'




LOCATION MAP

SCALE: NOT TO SCALE

INDEX TO DRAWINGS

| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS/TABLE/LOCATION AND VICNITY MAPS |
| 2 | C-1 | PLAN AND PROFILE STA 2+00 TO STA 11+00 |
| 3 | C-2 | SECTIONS |

LICHAU CREEK - REACH 1 (AKA WILLOW BROOK CREEK)

EXCAVATION (BELOW O.H.W. UNLESS OTHERWISE NOTED)

| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
|---|---|---|---|---|---|---|
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN CHANNEL | STA 2+50 TO STA 10+25 | 775 | 17.7 | 13,718 | 0.5 | 254 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN

DATE: 90

DRAWN: SMP

REVIEWED:

SMP - PETALUMA RIVER WATERSHED (ZONE 2A)

LICHAU CREEK - REACH 1 INDEX TO DRAWINGS/ TABLE/LOCATION AND VICNITY MAPS

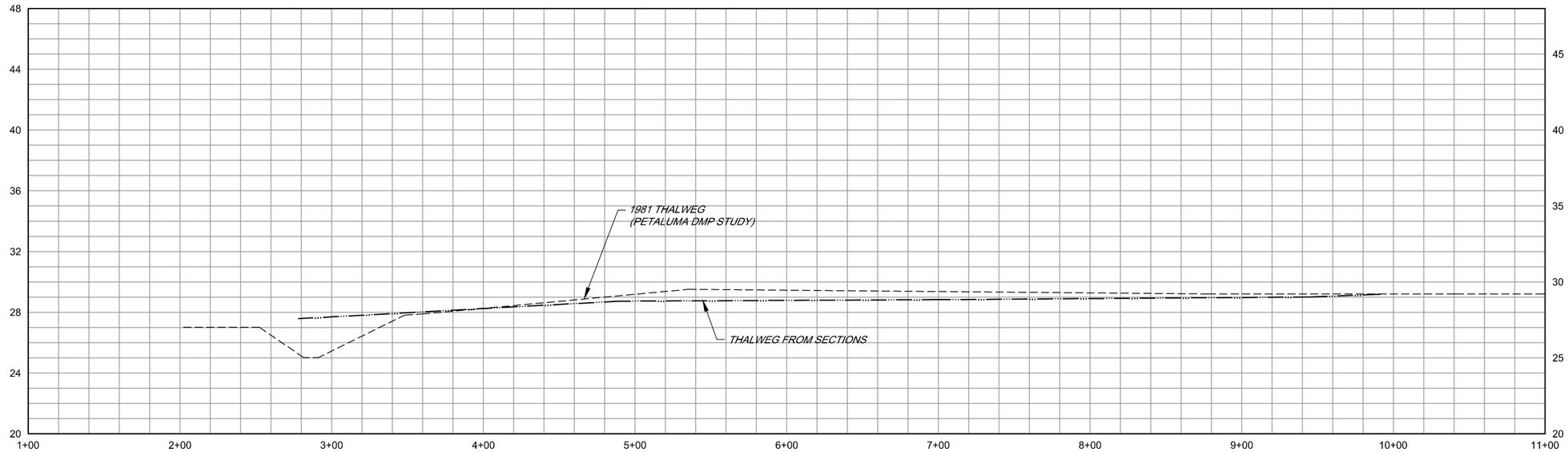
FILE NAME: 2013_Willow_r:__G.dwg

CONTRACT NUMBER: ----

DRAWING NUMBER: G-1

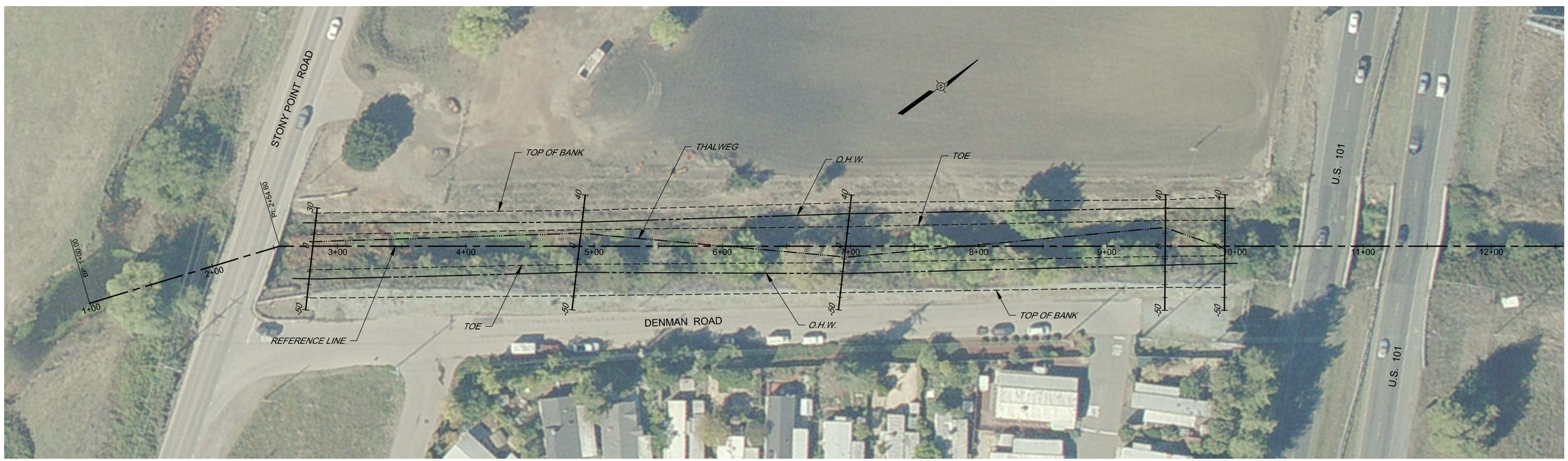
SHEET 1 OF 3

\\sd-data\proj\flood control\zone 2a\WILLOWBROOK\2013_willowbrook\2013_Willowbrook_G




PROFILE

SCALE HORI 1" = 40'
VERT 1" = 4'




PLAN

SCALE 1" = 40'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

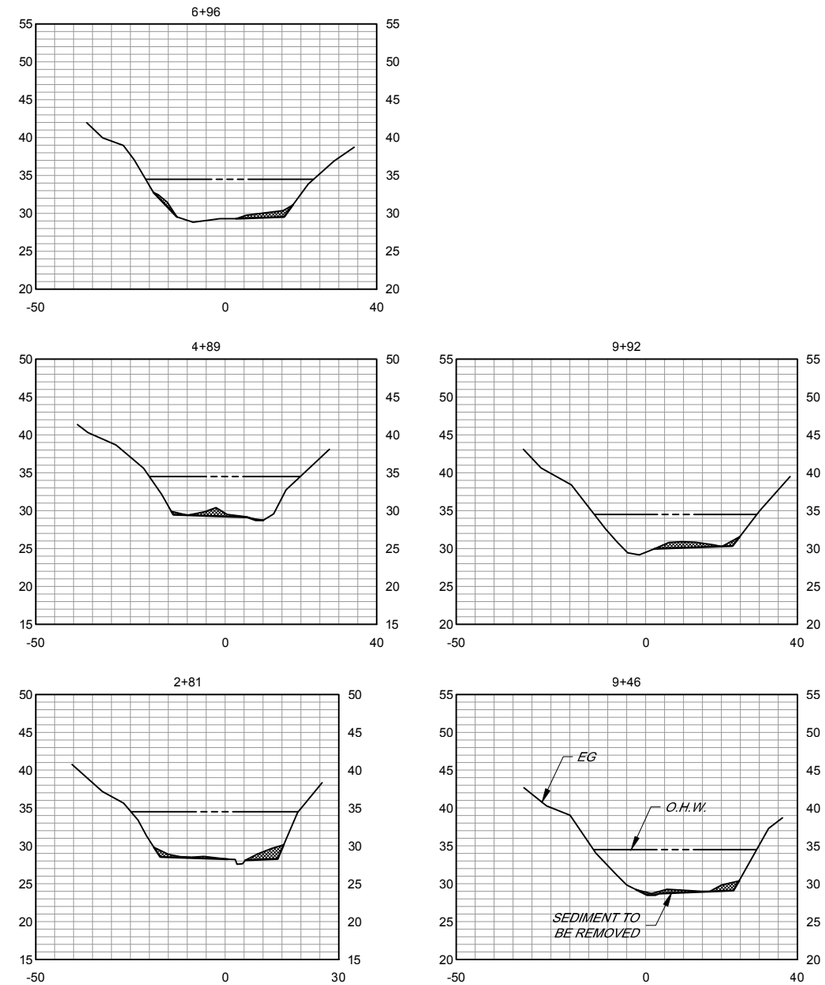
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: ----
REVIEWED:

SMP - PETALUMA RIVER WATERSHED ZONE 2A

LICHAU CREEK - REACH 1
PLAN AND PROFILE STA 2+00 TO STA 11+00

FILE NAME: will_w_r_C
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 3

:Sd-data Pr: d tr e 2a WILLOWBROOK2013_will_w r




## SECTIONS

SCALE HORI 1" 20
VERT 1" 10

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : ----
REVIEWED :

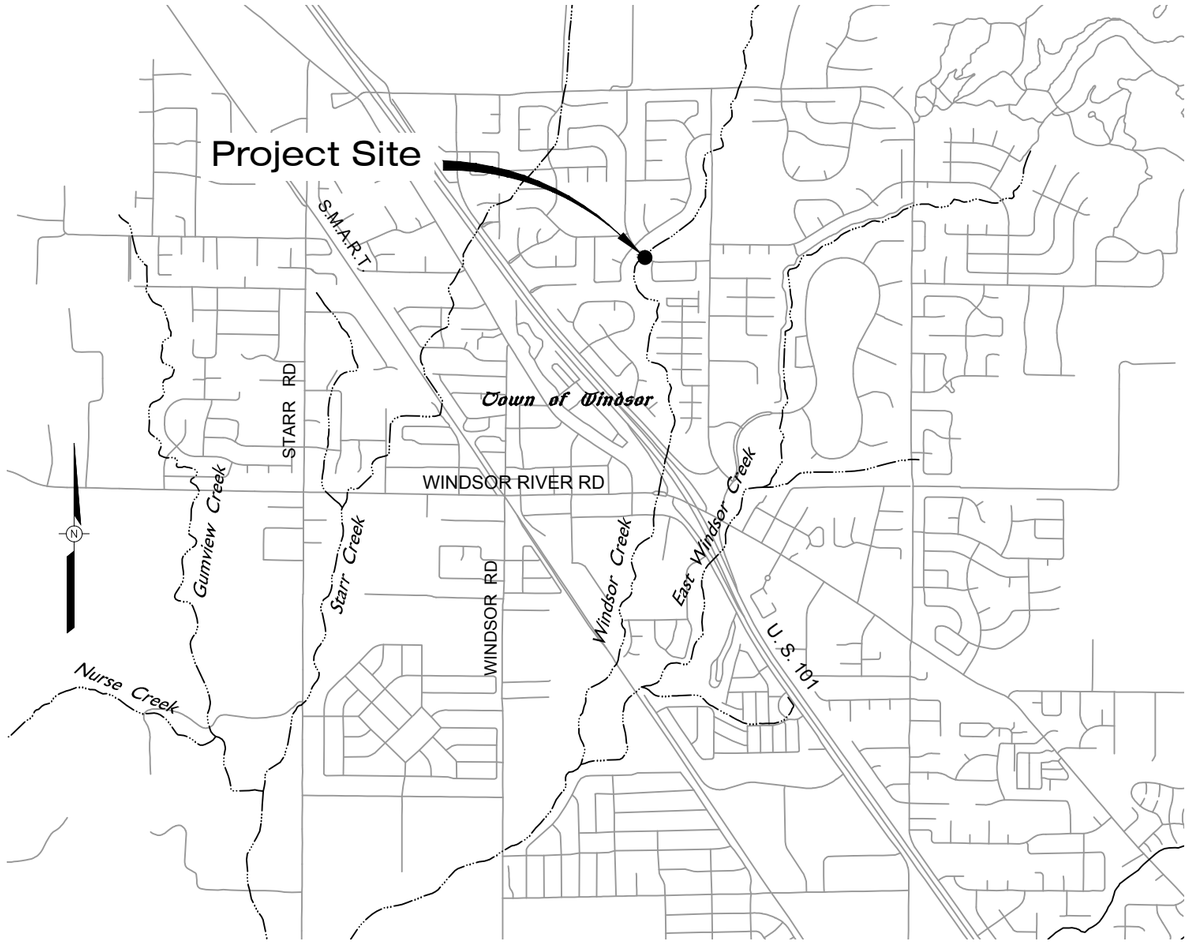
SMP - PETALUMA RIVER WATERSHED ONE 2A

LICHAU CREEK - REACH 1 SECTIONS

FILE NAME: will w r _C
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 3 OF 3

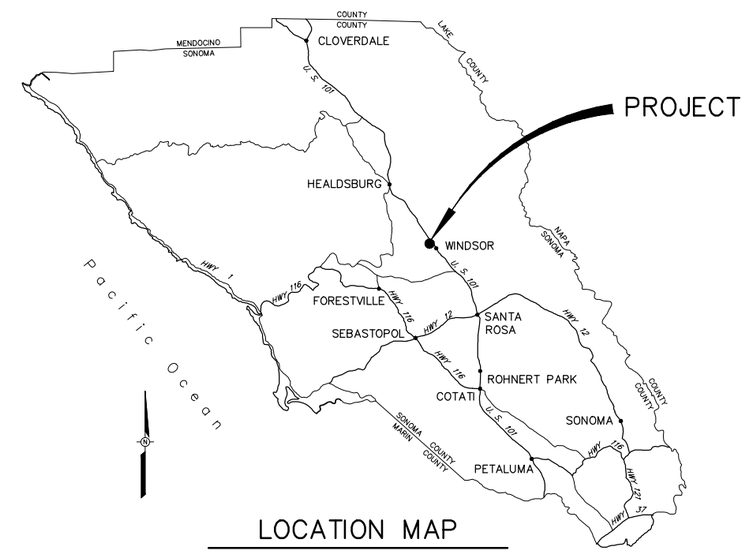
Sd-data Pr d tr e 2a WILLOWBROOK 2013_will w r

# ZONE 1A - LAGUNA DE SANTA ROSA WATERSHED WINDSOR CREEK - REACHS 3 & 4 LOCALIZED SEDIMENT REMOVAL




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

| WINDSOR CREEK REACH 3 AND 4 | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| SEDIMENT PLUG AND RCB REMOVAL USING EXCAVATOR FROM SERVICE ROAD OR IN CHANNEL | STA 132+792 TO STA 134+13 | 134 (INCLUDING RCB) | 22 | 2,948 (INCLUDING RCB) | 1.6 | 175 |

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G-1 | INDEX TO DRAWINGS, LOCAL AND VICINITY MAPS |
| 2 | C-1 | PLAN AND SECTIONS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

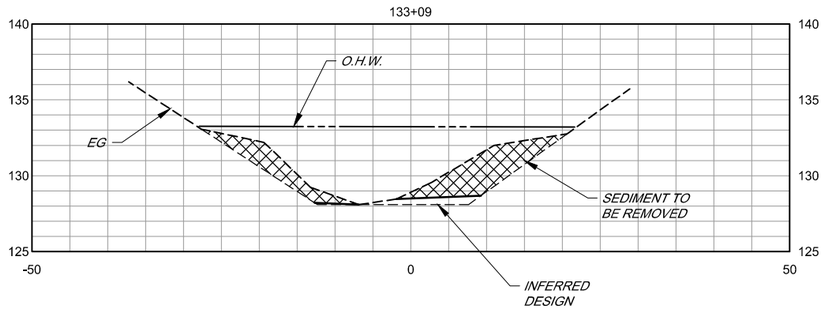
| NO. | DATE | REVISION | BY |
|---|---|---|---|

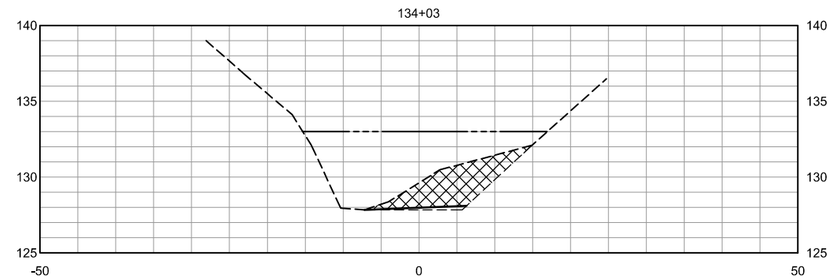
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

ONE 1A - LAGUNA DE SANTA ROSA WATERSHED
WINDSOR CREEK - REACHS 3 4
INDE TO DRAWINGS LOCAL AND VICINITY MAPS

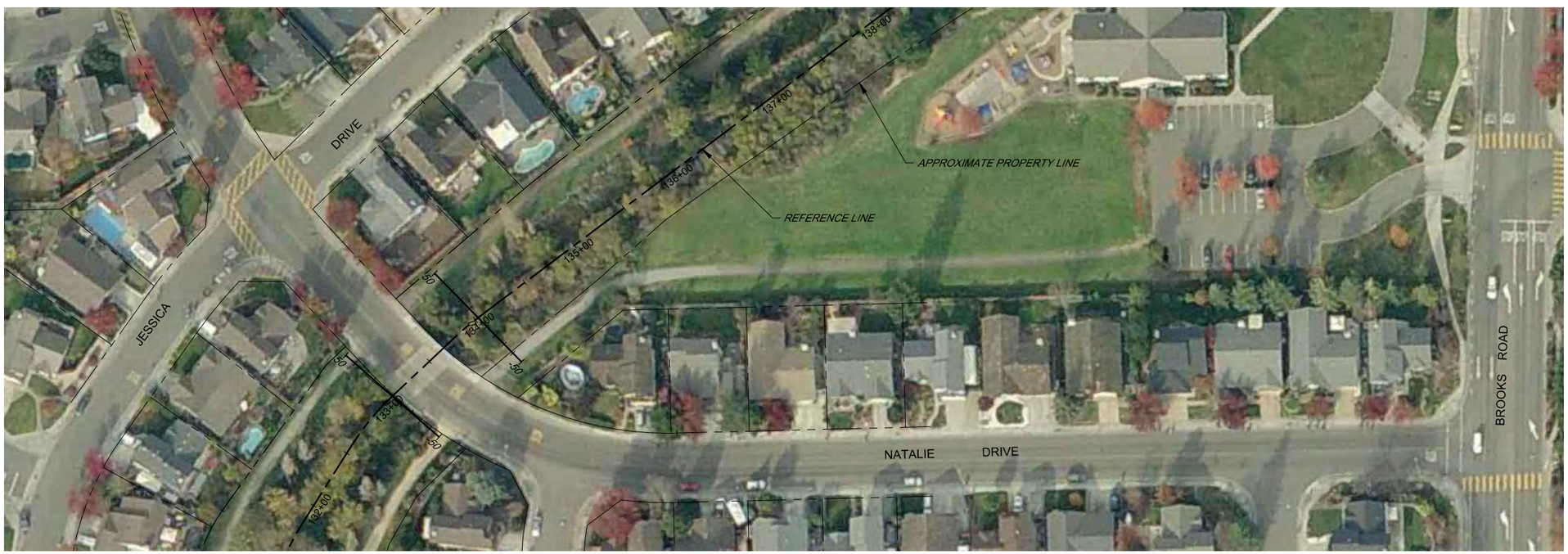
FILE NAME: 2013_Wi ds rCr _Ge eral.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 2




SECTIONS

SCALE HORI 1" = 20'
VERT 1" = 4'




PLAN

SCALE 1" = 50'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 1/02/2013
DRAWN : SMP
REVIEWED :

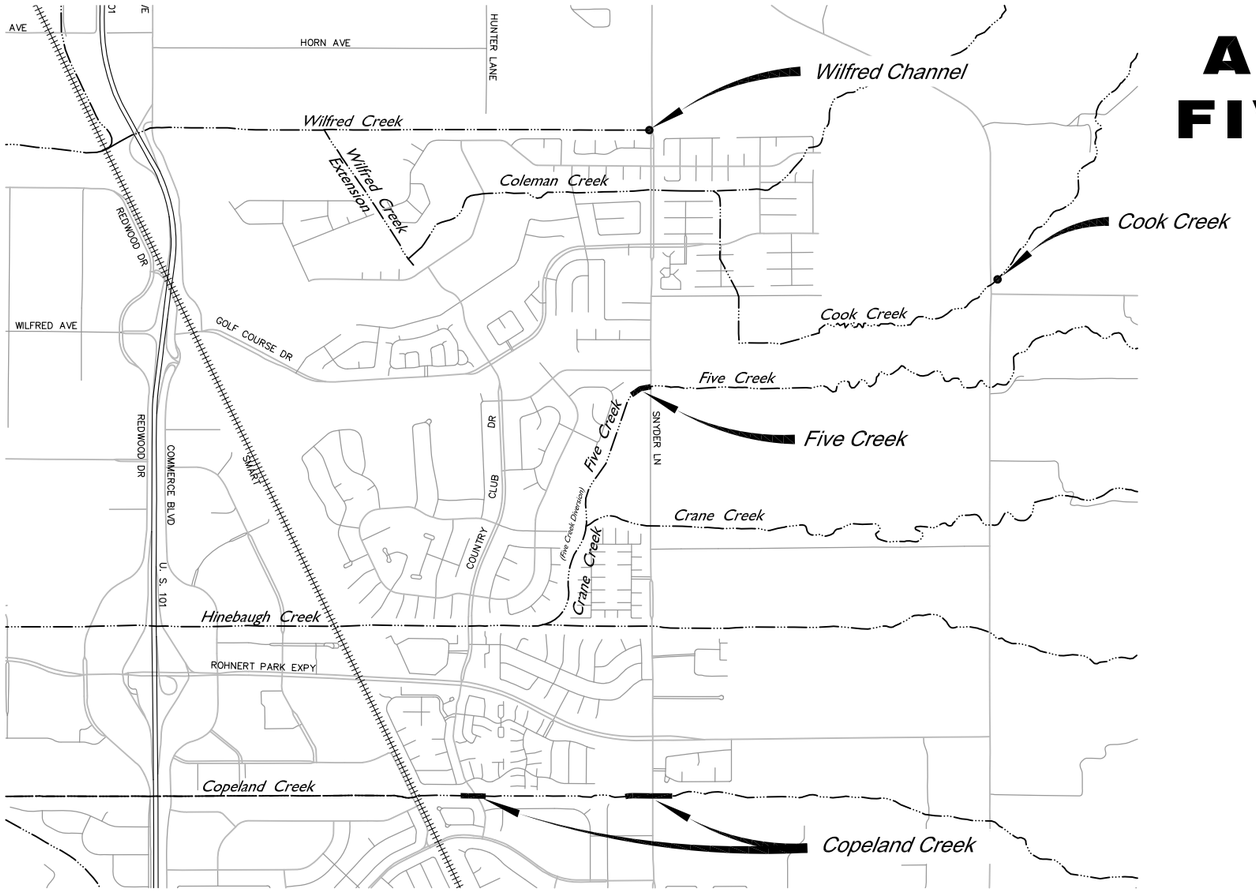
ONE 1A - LAGUNA DE SANTA ROSA WATERSHED

WINDSOR CREEK - REACHS 3 & 4

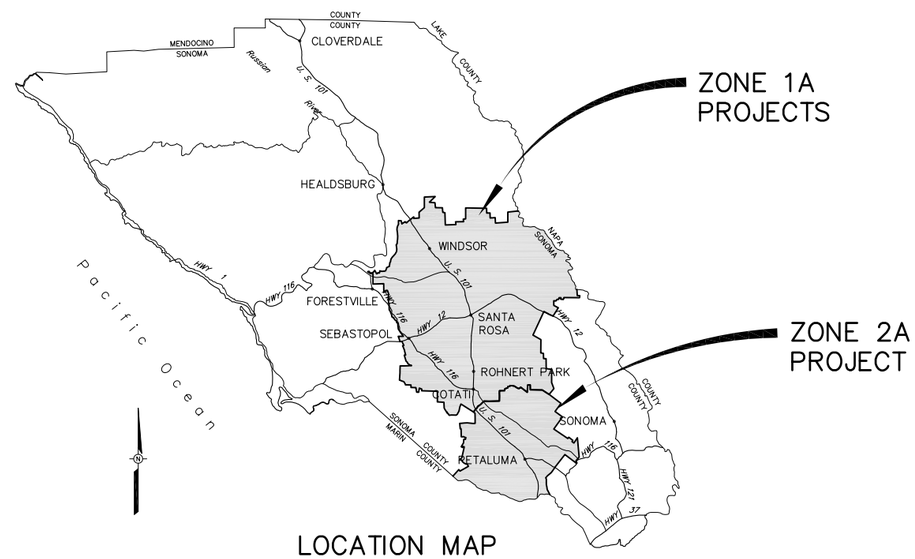
PLAN AND SECTIONS

FILE NAME: 2013_Wi ds r-Cr _CIVIL.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF 2

# ADOBE, COOK, COPELAND, FIVE, AND WILFRED CREEKS LOCALIZED SEDIMENT REMOVAL

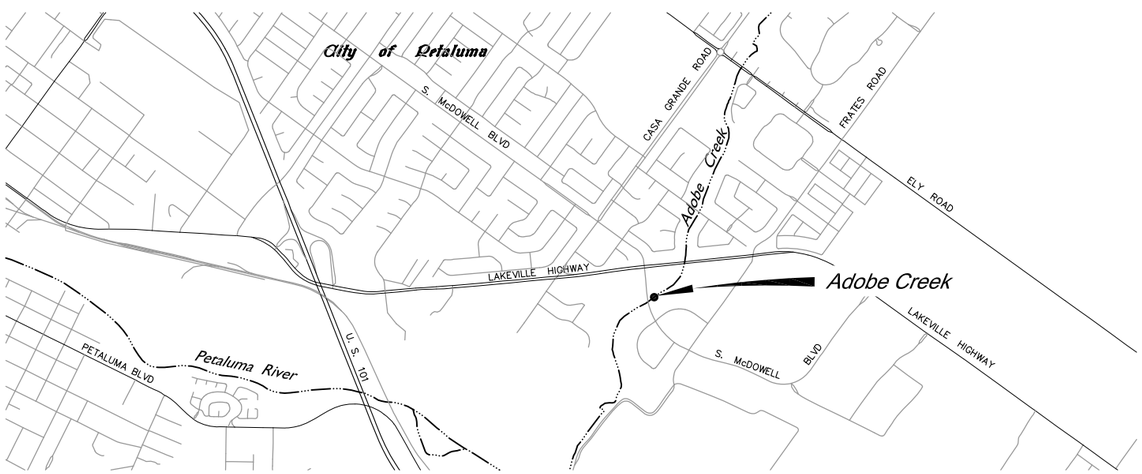



ZONE 1A




LOCATION MAP

NOT TO SCALE




ZONE 2A

VICINITY MAP

NOT TO SCALE

## DRAWING INDEX

| SHEET No. | SHEET TITLE | TITLE |
|---|---|---|
| 1 | G-1 | LOCATION AND VICINITY MAPS |
| 2 | C-5 | FIVE CREEK SEDIMENT REMOVAL PLAN, PROFILE, AND CROSS SECTIONS |
| 3 | C-3 | WILFRED CREEK SEDIMENT REMOVAL |
| 4 | C-1 | ADOBE CREEK SEDIMENT REMOVAL PLAN |
| 5 | C-2 | ADOBE CREEK SEDIMENT REMOVAL CROSS SECTIONS |
| 6 | C-1 | COPELAND CREEK AT COUNTRY CLUB DRIVE SEDIMENT REMOVAL PLAN AND CROSS SECTIONS |
| 7 | C-2 | COPELAND CREEK AT SNYDER LANE SEDIMENT REMOVAL PLAN AND CROSS SECTIONS |
| 8 | C-1 | COOK CREEK SEDIMENT REMOVAL |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

NOTE:
ALL EXCAVATION IS BELOW OHW

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

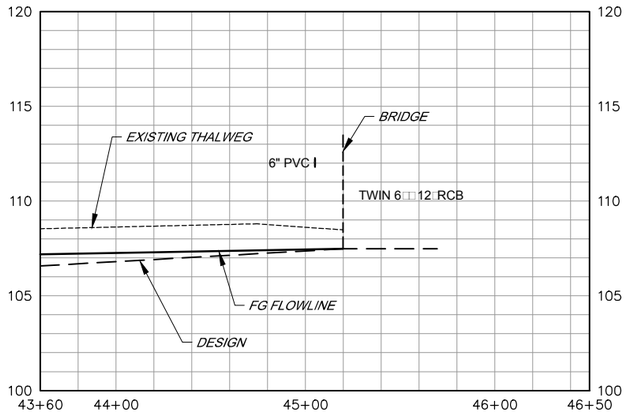
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
LOCATION AND VICINITY MAPS

FILE NAME: 2011SedRemov_BasinAndInstream_Index.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: G-1
SHEET 1 OF 8

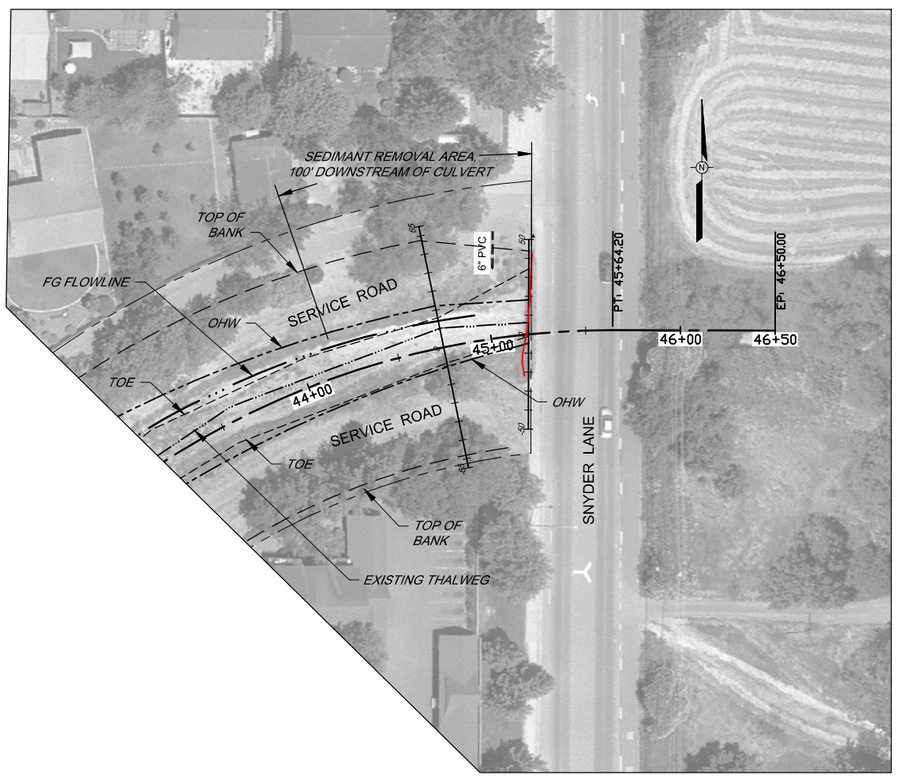
\\sd-data\proj\flood control\zone 1a\FIVE_CRK-deversion\2011\2011SedRemov_BasinAndInstream_Index




## PROFILE

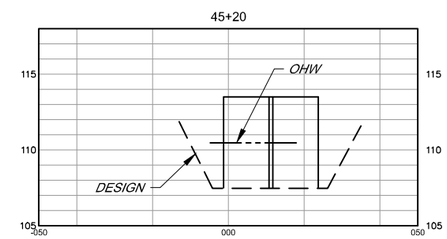
SCALE: HORIZ 1" = 40'
VERT 1" = 4'

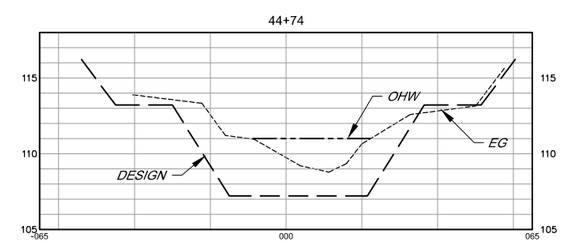
| FIVE CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAD AND DOZER IN CHANNEL | STA 44+00 TO STA 45+20 | 120 | 40 | 4,800 | .6 | 100 |
| | TOTAL = 120 | | TOTAL = 4,800 | | TOTAL = 100 | |




## PLAN

SCALE: 1" = 40'




PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

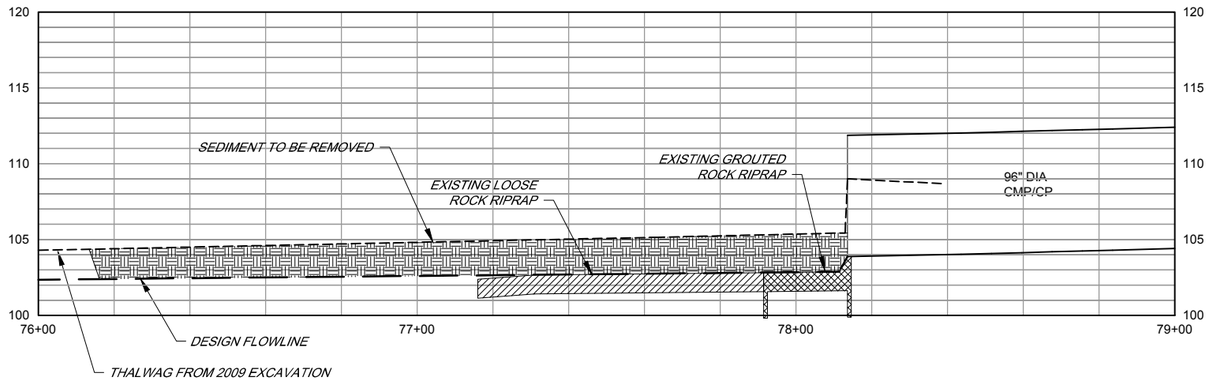
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 03/29/12
DRAWN: SMP
REVIEWED:

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
FIVE CREEK SEDIMENT REMOVAL PLAN PROFILE AND CROSS SECTIONS

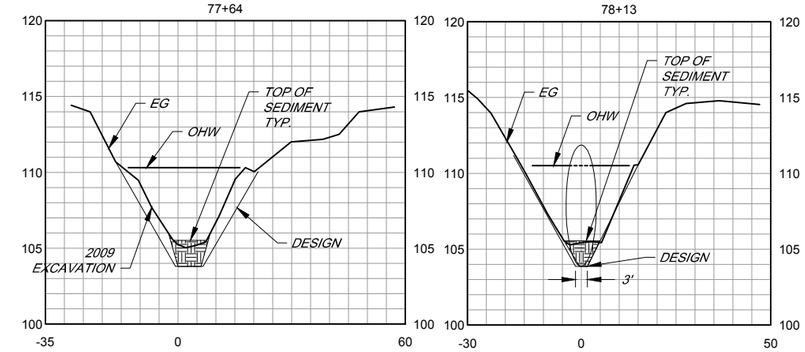
FILE NAME: FIVE_02-17-11_P&P.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-5
SHEET 2 OF 8

\\sd-data\proj\flood control\zone 1a\FIVE_CRK-deversion\2011\FIVE_02-17-11_P&P




## PROFILE

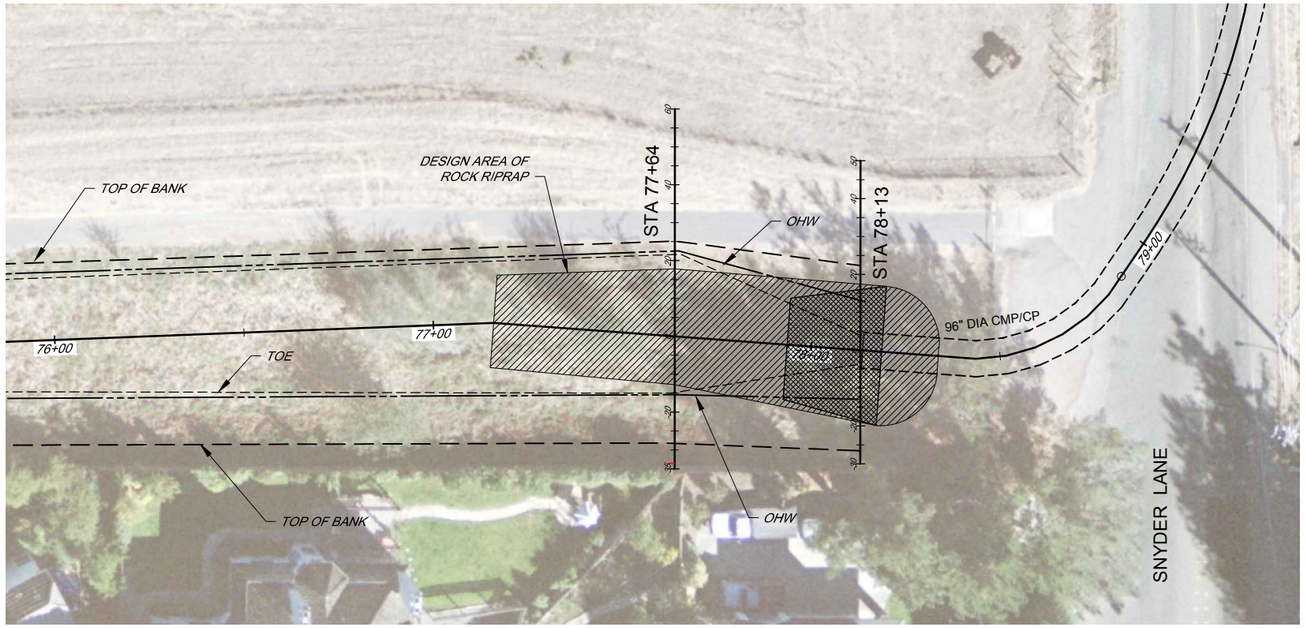
SCALE: HORIZ 1" = 20'
VERT 1"= 5'




## SECTIONS

SCALE: HORIZ 1" = 20'
VERT 1"= 5'

| WILFRED CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OPERATING FROM SERVICE ROAD | STA 76+14± TO STA 78+14 | 200 | 10 | 2000 | 1.35 | 100 |




## PLAN

SCALE: 1"□20□

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

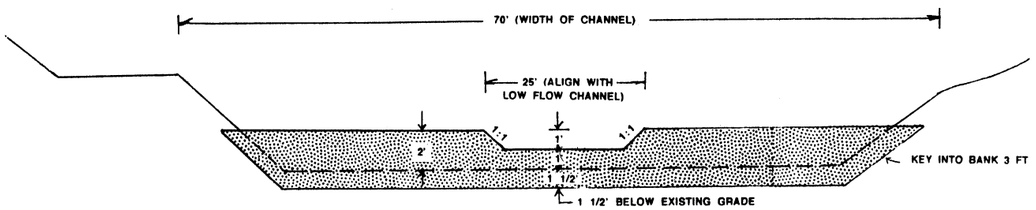
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
WILFRED CREEK SEDIMENT REMOVAL

FILE NAME: C-3.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-3
SHEET 3 OF 8

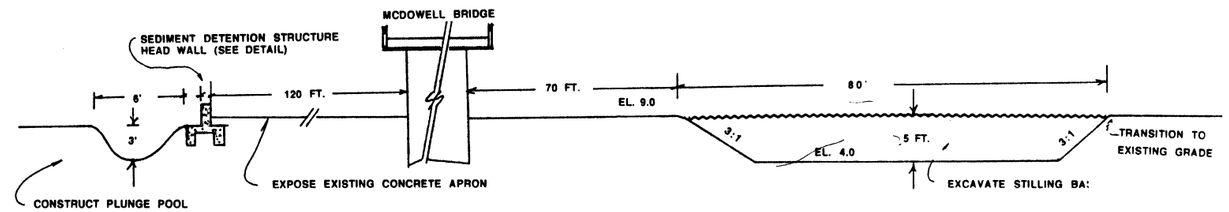
\\sd-data\proj\flood control\zone 1a\WILFRED\2011\C-3




**SEDIMENT DETENTION STRUCTURE--FRONT VIEW**

N.T.S.

DESIGN




**SEDIMENT DETENTION STRUCTURE--PROFILE**

N.T.S.

DESIGN

PLAN

SCALE: 1"□20□

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING E□UALS ONE INCH. AD□UST SCALE ACCORDINGLY

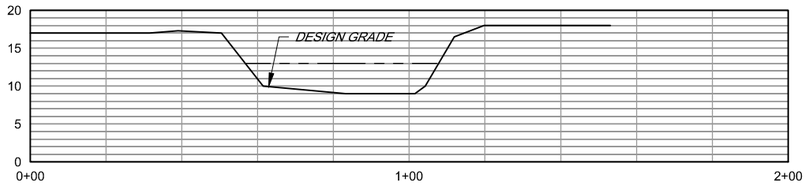
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

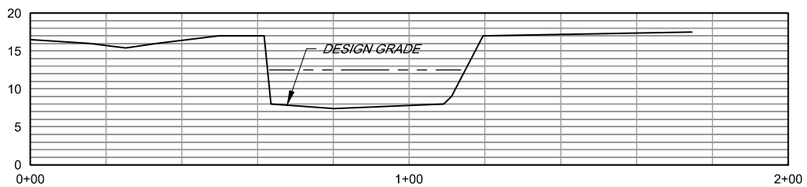
SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
ADOBE CREEK SEDIMENT REMOVAL
PLAN

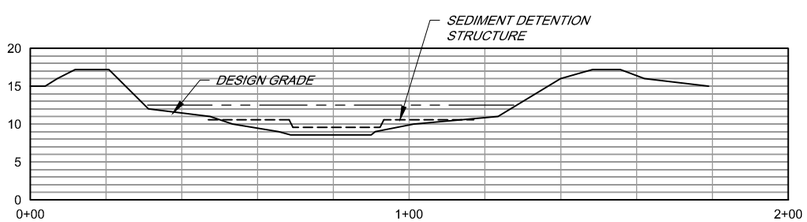
FILE NAME: C-adobe_2011.dwg
CONTRACT NUMBER: ##
DRAWING NUMBER: C-1
SHEET 4 OF 8



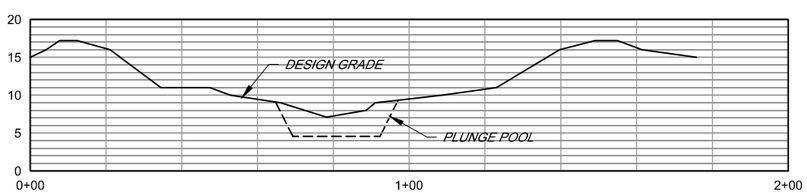

SECTION 4



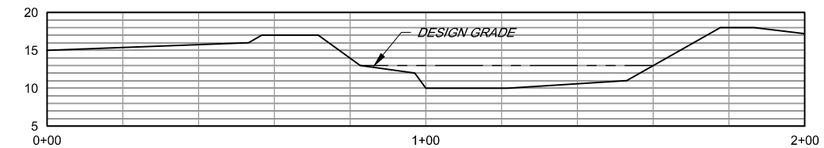

SECTION 3



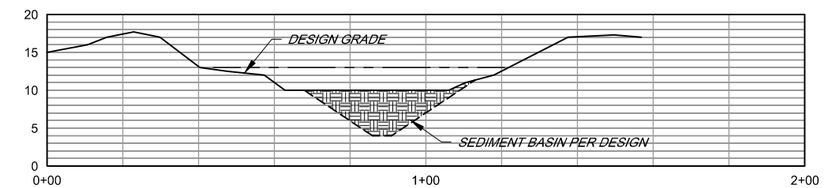

SECTION 2



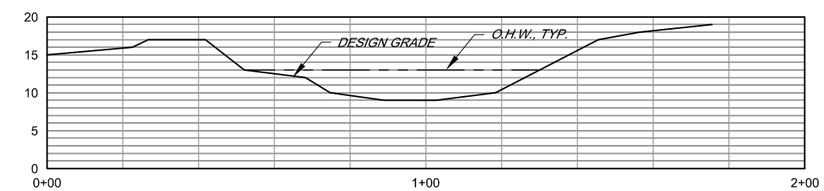

SECTION 1




SECTION 7




SECTION 6




SECTION 5

## ADOBE CREEK

### EXCAVATION

| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH □LINEAR FT.□ | AVERAGE WIDTH □LINEAR FT.□ | AREA □S□UARE FT.□ | DEPTH □FT.□ | C.Y. □TO REMOVE□ |
|---|---|---|---|---|---|---|
| ACCUMULATED SEDIMENT REMOVAL USING E□CAVATOR OPERATING FROM SERVICE ROAD | N/A | 80 | 45 | 3600 | 5.6 | 750 |

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

NOTE:
SECTIONS DRAWN FROM DESIGN CONTOURS SHOWN ON THE DESIGN PLAN PRIOR TO CONSTRUCTION OF SEDIMENT DETENTION BASIN AND SEDIMENT DETENTION STRUCTURE

BAR LENGTH ON ORIGINAL DRAWING E□UALS ONE INCH. AD□UST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

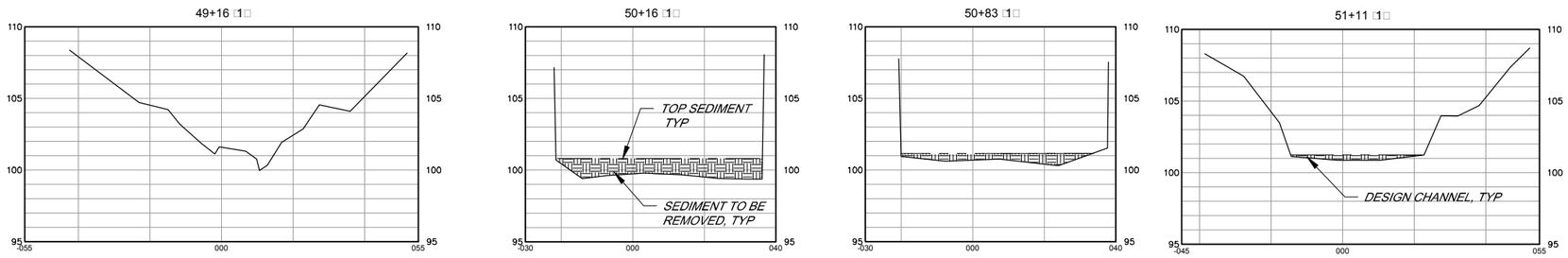
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
ADOBE CREEK SEDIMENT REMOVAL
CROSS SECTIONS

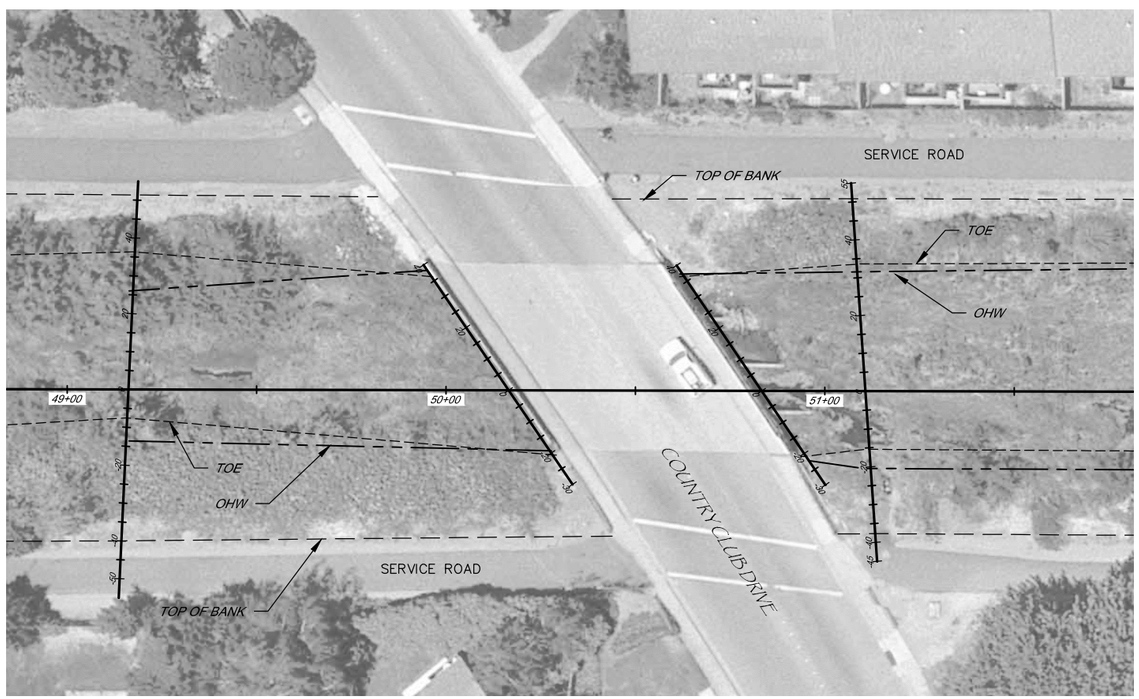
FILE NAME: C-adobe_2011.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-2
SHEET 5 OF 8

acd-data□r□□□d □□tr□□□e 2a□ad□□e ree□SED-BASIN_ad□□e 2011 C-ad□□e_2011




## SECTIONS

SCALE: HORIZ 1" = 20'
VERT 1"= 4'




## PLAN

SCALE: 1"= 20'

| COPELAND CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED CHANNEL. | STA 49+60 TO STA 51+60 | 200 | 45 | 9000 | 1.2 | 400 |

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NOTE:
AERIAL PHOTOGRAPHY FLOWN IN 2000

| NO. | DATE | REVISION | BY |
|---|---|---|---|

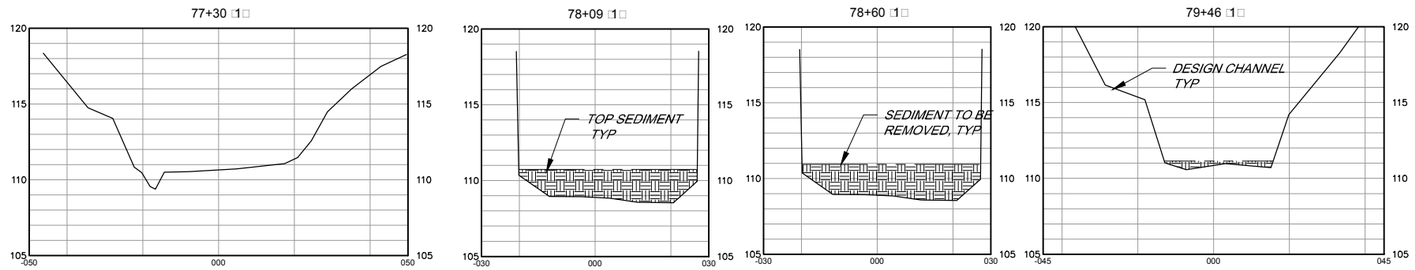
SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
COPELAND CREEK AT COUNTRY CLUB DRIVE
SEDIMENT REMOVAL PLAN AND CROSS SECTIONS

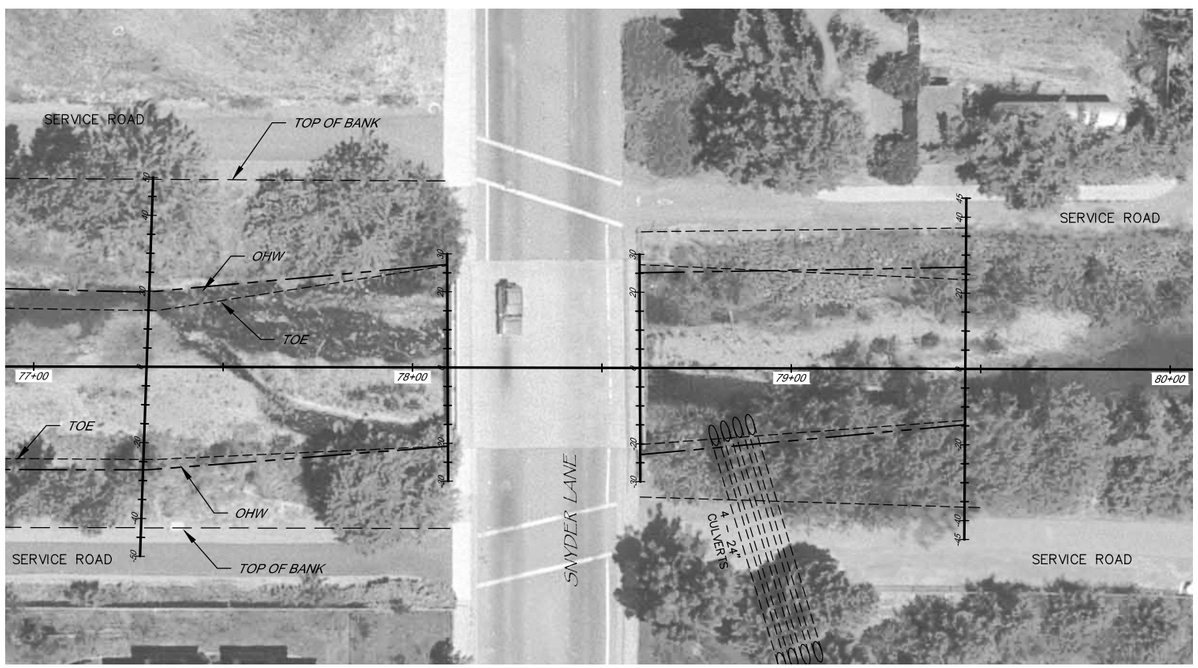
FILE NAME: C1-2_COPELAND.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-1
SHEET 6 OF 8

\\sd-data\proj\flood control\zone 1a\copeland\sediment_removal\2011\C1-2_COPELAND




## SECTIONS

SCALE: HORIZ 1" = 20'
VERT 1"= 4'




## PLAN

SCALE: 1"= 20'

| COPELAND CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED CHANNEL. | STA 77+50 TO STA 79+55 | 205 | 45 | 9,225 | 2.2 | 750 |

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NOTE:
AERIAL PHOTOGRAPHY FLOWN IN 2000

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
COPELAND CREEK AT SNYDER LANE SEDIMENT REMOVAL
PLAN AND CROSS SECTIONS

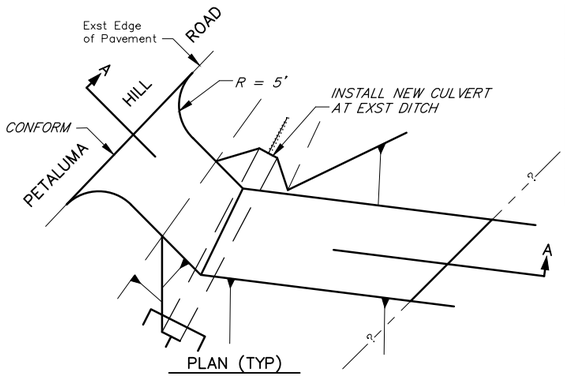
FILE NAME: C1-2_COPELAND.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-2
SHEET 7 OF 8

\\sd-data\proj\flood control\zone 1a\copeland\sediment_removal\2011\C1-2_COPELAND

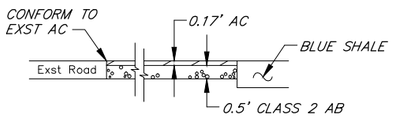
# COOK CREEK

## EXCAVATION

| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y(TO REMOVE) |
|---|---|---|---|---|---|---|
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR FROM SERVICE ROAD AND DOZER IN CHANNEL | NA | 200 | 40 | 8,000 | 0.5 | 150 |
| | TOTAL = 200 | | TOTAL = 8,000 | | TOTAL = 150 | |



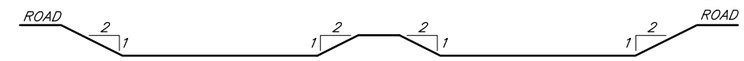

PLAN (TYP)




SECTION A–A

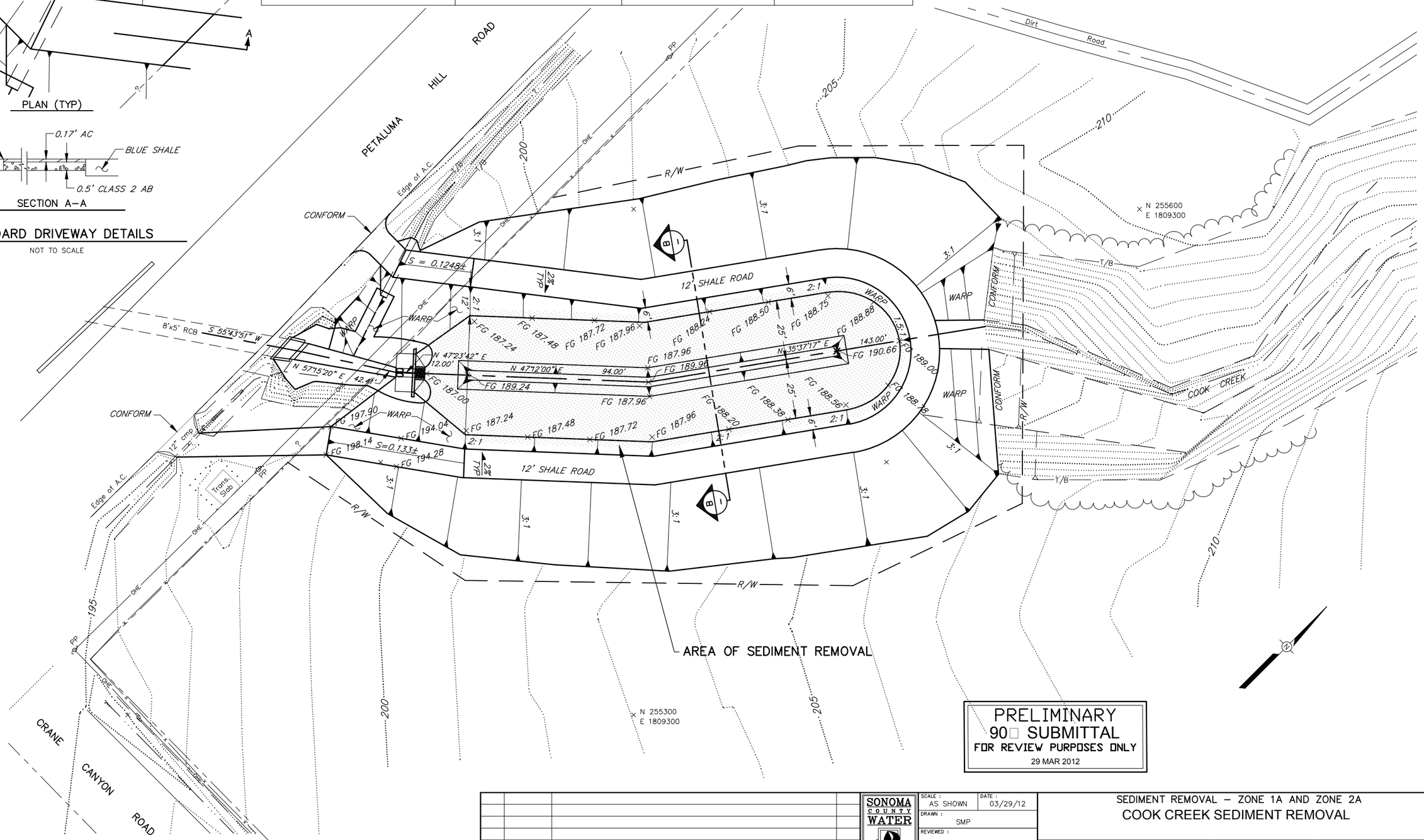
STANDARD DRIVEWAY DETAILS

NOT TO SCALE




SECTION B

NOT TO SCALE




PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
29 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

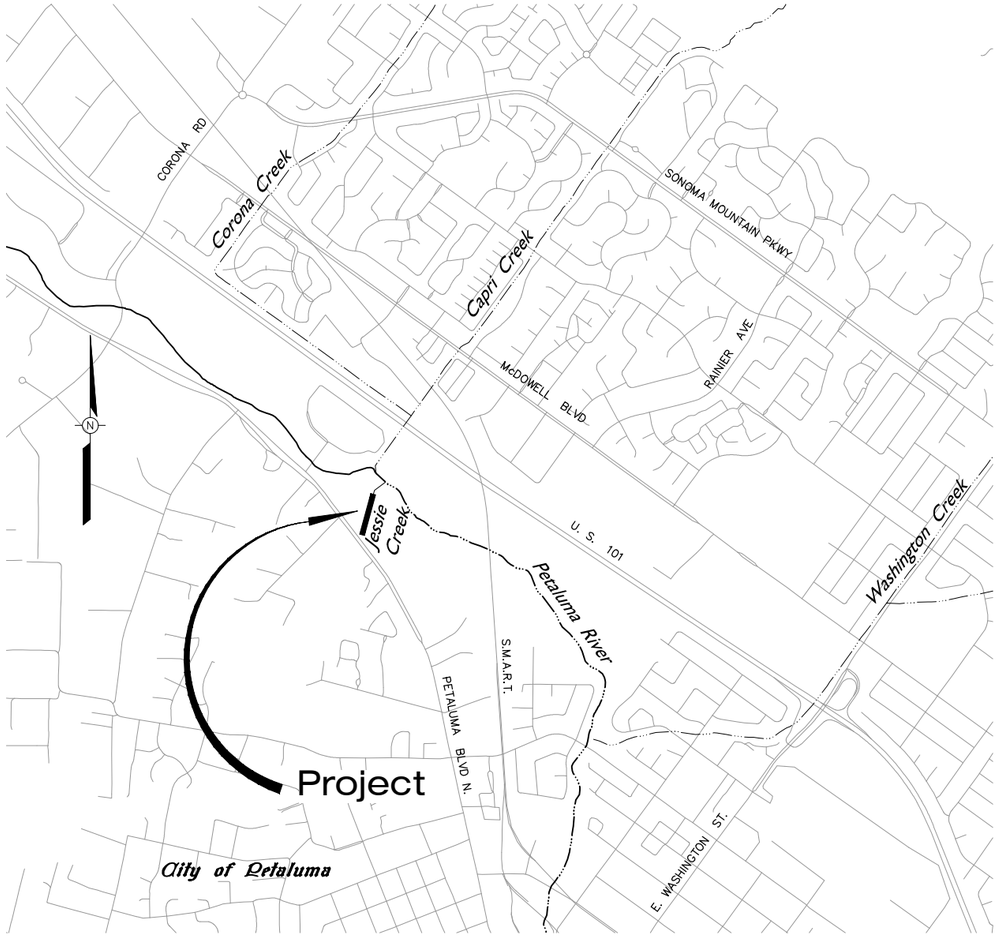
SCALE : AS SHOWN
DATE : 03/29/12
DRAWN : SMP
REVIEWED :

SEDIMENT REMOVAL – ZONE 1A AND ZONE 2A
COOK CREEK SEDIMENT REMOVAL

FILE NAME: grading-plan.dwg
CONTRACT NUMBER: --
DRAWING NUMBER: C-1
SHEET 8 OF 8

\\sd-data\proj\flood control\zone 1a\cook crk basin\sed-removal\2011\grading-plan

# SMP - PETALUMA RIVER WATERSHED ZONE 2A JESSIE LANE CREEK - REACH 1 LOCALIZED SCALE SEDIMENT REMOVAL




## VICINITY MAP

NOT TO SCALE

## LOCATION MAP

NOT TO SCALE

| CORONA CREEK | | | | | | |
|---|---|---|---|---|---|---|
| EXCAVATION (BELOW OHW) | | | | | | |
| PROJECT ACTIVITY DESCRIPTION | LOCATION AND STATIONING | LENGTH (LINEAR FT.) | AVERAGE WIDTH (LINEAR FT.) | AREA (SQUARE FT.) | DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL AT CULVERT USING AN EXCAVATOR ADJACENT TO THE CHANNEL | CULVERT TO 25' DOWN STREAM OF PETALUMA BOULEVARD | 25 | 13 | BELOW O.H.W. 325 | 1.25 | 15 |

NOTE:
SEDIMENT REMOVAL FROM THE DOWN STREAM SIDE OF PETALUMA BOULEVARD FOR A LENGTH OF 25 LINEAR FEET.

## INDEX TO DRAWINGS


| SHEET No | SHEET TITLE | SHEET DESCRIPTION |
|---|---|---|
| 1 | G–1 | INDEX TO DRAWINGS, LOCATION, AND VICINITY MAPS |
| 2 | C–1 | PLAN AND TYPICAL CROSS SECTION |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
2□AN 2013

| NO. | DATE | REVISION | BY |
|---|---|---|---|

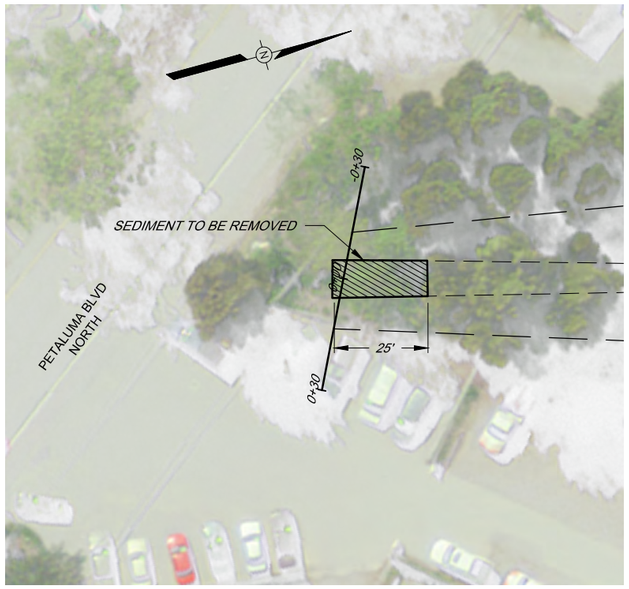
SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

SMP - PETALUMA RIVER WATERSHED □ONE 2A
□ESSIE LANE CREEK - REACH 1
INDE□ TO DRAWINGS□LOCATION□AND VICINITY MAPS

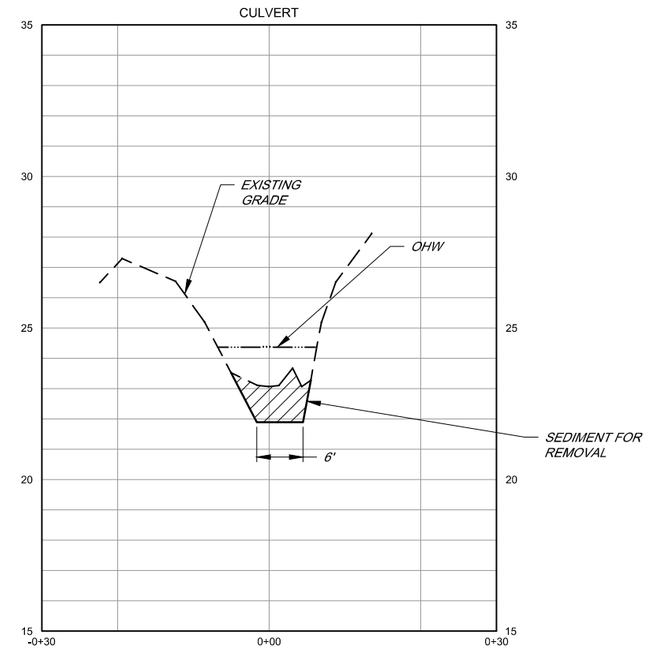
FILE NAME: □essie_G-1.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 2

\\sd-data\proj\flood control\zone 2a\JessieCreek\2013_SedRemoval\Jessie_G-1




PLAN

SCALE: 1" 20




TYPICAL CROSS SECTION AT CULVERT

SCALE: HORI 1" 10
VERT 2" 5

PRELIMINARY
90 SUBMITTAL
FOR REVIEW PURPOSES ONLY
2 AN 2013

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

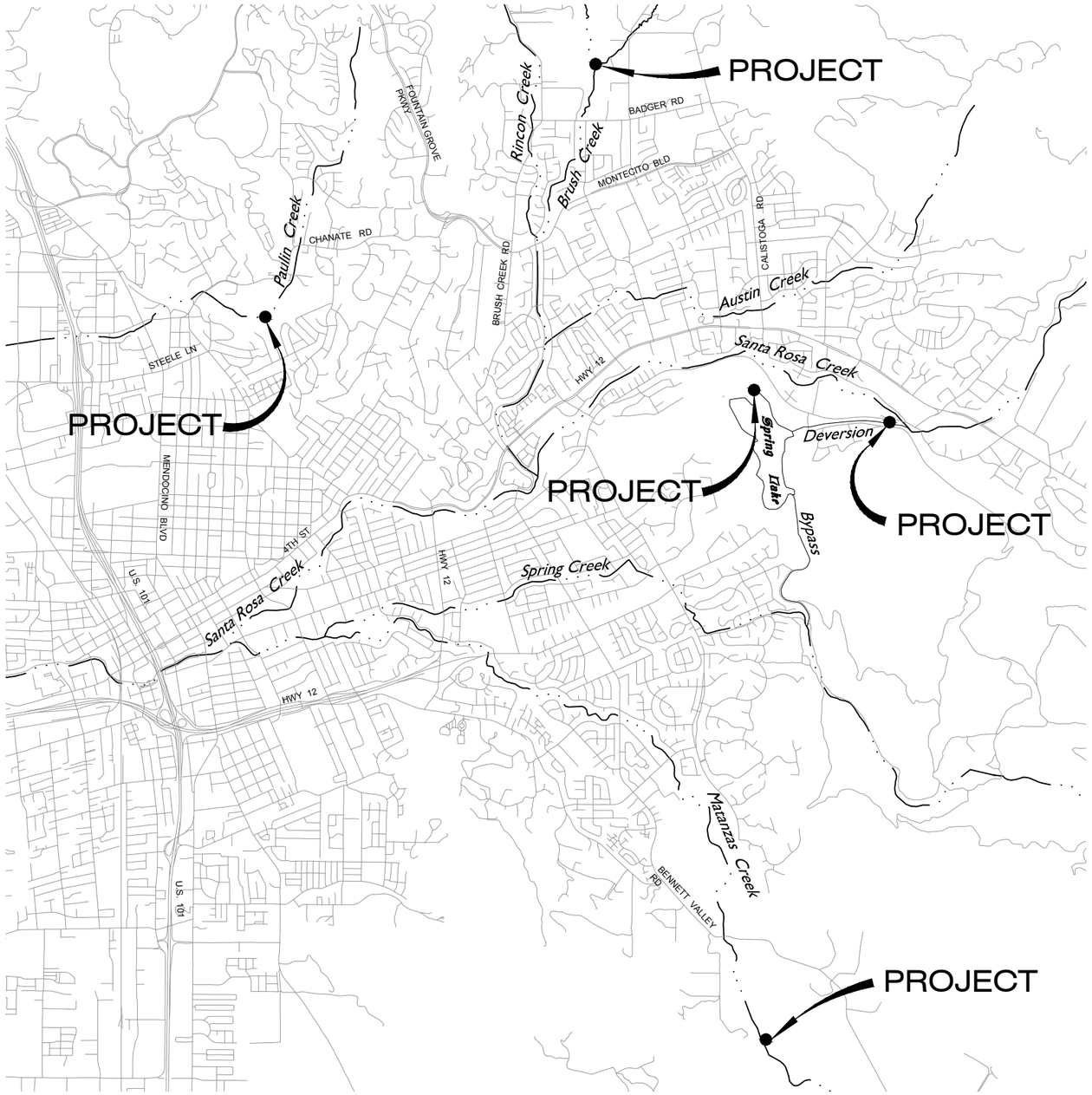
SCALE: AS SHOWN
DATE: 1/02/2013
DRAWN: SMP
REVIEWED:

SMP - PETALUMA RIVER WATERSHED ONE 2A
ESSIE LANE CREEK - REACH 1
PLAN AND TYPICAL CROSS SECTION

FILE NAME: 2013_essieLa eCree _Civil.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-1
SHEET 2 OF

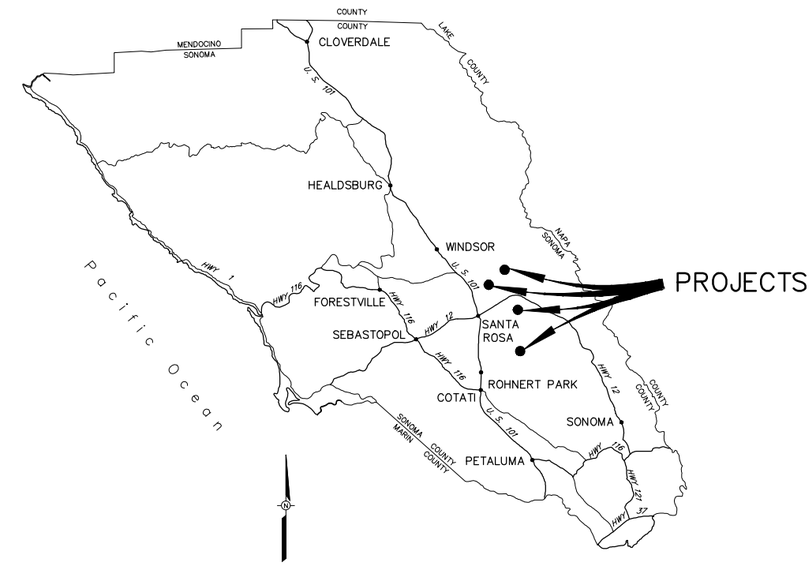
\\sd-data\proj\Flood control\zone 2a\JessieCreek\2013_SedRemoval\2013_JessieLaneCreek_Civil

# BRUSH CREEK RESERVOIR
# PINER CREEK RESERVOIR (Paulin Creek)
# MATANZAS CREEK RESERVOIR
# SANTA ROSA CREEK RESERVOIR
# (Spring Lake)
# OUTLET STRUCTURE SEDIMENT REMOVAL
# and
# SANTA ROSA CREEK DIVERSION
# FISH LADDER




VICINITY MAP

NOT TO SCALE




LOCATION MAP

NOT TO SCALE

## INDEX TO DRAWINGS:


| SHEET NUMBER | DRAWING NUMBER | TITLE |
|---|---|---|
| 1 | G-1 | |
| PINER CREEK RESERVOIR | | |
| 4 | C-2 | PINER CREEK RESERVOIR - OUTLET PLAN |
| 5 | 1-0545-102.17 | SEWER ENCASEMENT AND PRINCIPAL SPILLWAY PROFILES |
| MATAN□AS CREEK RESERVOIR | | |
| 6 | C-3 | MATAN□AS CREEK RESERVOIR PLAN - OUTLET |
| 7 | D57-4 | PRICIPAL SPILLWAY GENERAL PLAN |
| SANTA ROSA CREEK RESERVOIR □SPRING LAKE□ | | |
| 8 | C-4 | SANTA ROSA CREEK RESERVOIR □SPRING LAKE□- OUTLET |
| 9 | 1-9130-102.13 | PRINCIPAL SPILLWAY DETAILS STA 0+00 TO 3+00 |
| SANTA ROSA CREEK DIVERSION FISH LADDER | | |
| 10 | C-5 | SANTA ROSA CREEK FISH LADDER - PLAN |
| 11 | 1-9140-102.9A | SANTA ROSA CREEK RESERVOIR FISH LADDER DETAILS |


BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

| NO. | DATE | REVISION | BY |
|---|---|---|---|

PRELIMINARY
SUBJECT TO REVISION

SONOMA COUNTY WATER AGENCY

SCALE : NONE
DATE : 3/7/2012
DRAWN : SMP
REVIEWED :

LAGUNA – MARK WEST ZONE 1A
INDE□ TO DRAWINGS□VICINITY AND LOCATION MAPS

FILE NAME: G-1_RESERVOIRS_2012.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G-1
SHEET 1 OF 11

\\SD-DATA\Proj\flood control\zone 1a\Brush_Crk-reservoir\2012_BRUSH-CRK_RESERVOIR\G-1_RESERVOIRS_2012

## PLAN

1"=40'

| EXCAVATION | | | | |
|---|---|---|---|---|
| PROJECT ACTIVITY DESCRIPTION | LOCATION | AREA (SQUARE FT.) | AVERAGE DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED AREA IN RESERVOIR | AROUND OUTLET STRUCTURE | 2,250 | 3 | 250 |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

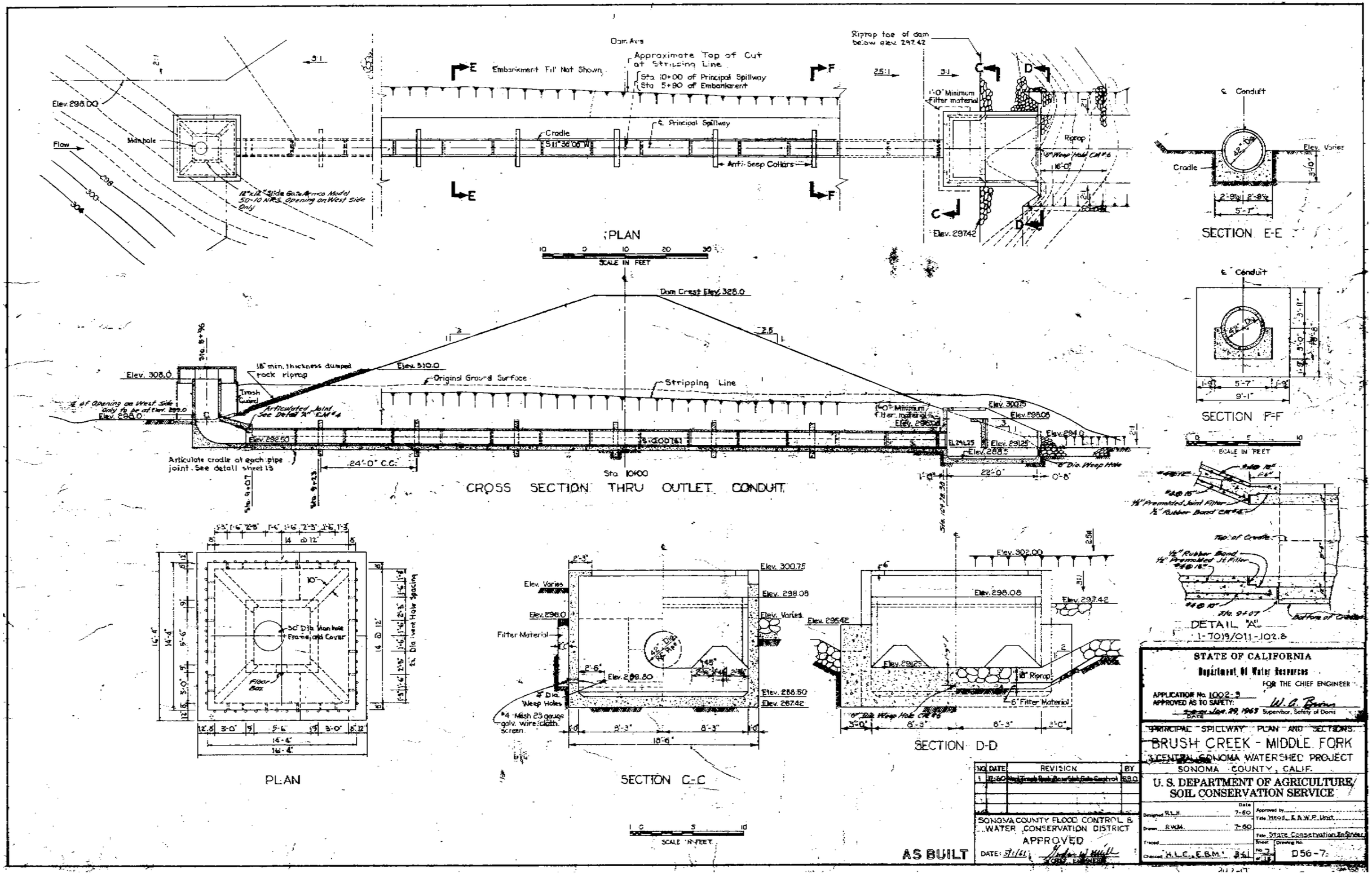
SONOMA COUNTY WATER AGENCY

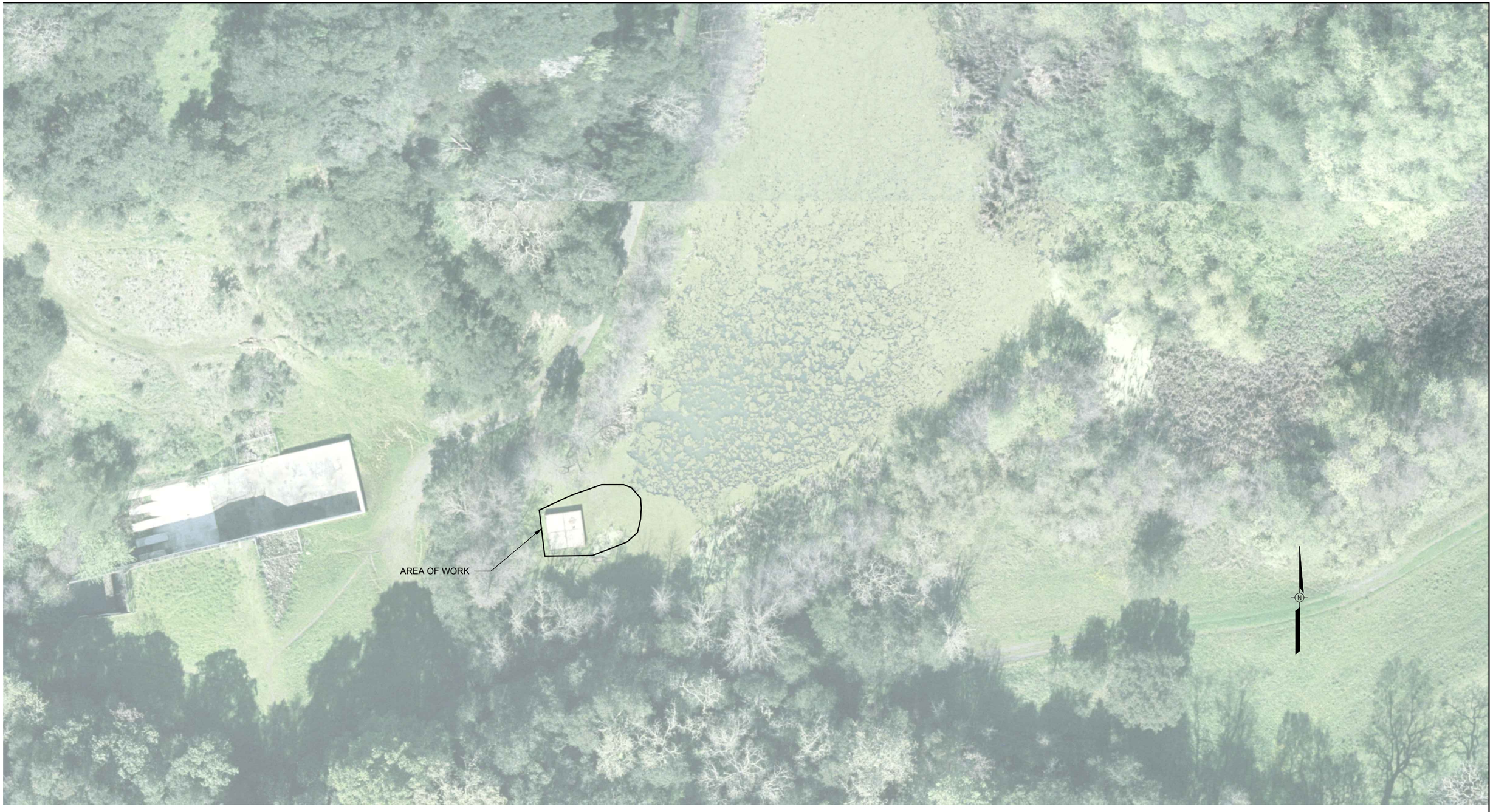
SCALE : NONE
DATE : 3/7/2012
DRAWN : SMP
REVIEWED :

LAGUNA – MARK WEST ZONE 1A
BRUSH CREEK RESERVOIR OUTLET PLAN - OUTLET

FILE NAME: Brush–Crk_Res_C–1_2012.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C–1
SHEET 2 OF 11

\\SD-DATA\Proj\flood control\zone 1a\Brush_Crk-reservoir\2012_BRUSH-CRK_RESERVOIR\Brush-Crk_Res_C-1_2012


PLAN
Dam Axis
Approximate Top of Cut at Stripping Line
Sta. 10+00 of Principal Spillway
Sta. 5+90 of Embankment
Embankment Fill Not Shown
Riprap toe of dam below elev. 297.42
1'-0" Minimum Filter material
Elev. 298.00
Manhole
Flow
Cradle
℄ Principal Spillway
Anti-Seep Collars
Riprap
Elev. 297.42
SECTION E-E
℄ Conduit
Elev. Varies
Cradle
SECTION F-F
Dam Crest Elev. 328.0
Elev. 308.0
18" min. thickness dumped rock riprap
Elev. 310.0
Original Ground Surface
Stripping Line
Trash Guard
Articulated Joint See Detail "A" Sht. 4
Elev. 298.0
Elev. 292.50
Articulate cradle at each pipe joint. See detail sheet 13
24'-0" C.C.
Sta. 10+00
CROSS SECTION THRU OUTLET CONDUIT
Elev. 300.75
Elev. 298.08
Elev. 293.25
Elev. 288.5
22'-0"
8" Dia. Weep Hole
DETAIL "A"
1-7019/011-102.8
PLAN
SECTION C-C
SECTION D-D
Elev. 302.00
Elev. 298.08
Elev. 297.42
Elev. 295.42
Elev. 293.25
18" Riprap
6" Filter Material
Elev. 300.75
Elev. 298.08
Elev. Varies
Elev. 296.0
Filter Material
Elev. 289.50
4" Dia. Weep Holes
#4 Mesh 23 gauge galv. wire cloth screen
Elev. 288.50
Elev. 287.42
18'-6"
8'-3"
SCALE IN FEET
AS BUILT
STATE OF CALIFORNIA
Department of Water Resources
FOR THE CHIEF ENGINEER
APPLICATION No. 1002-3
APPROVED AS TO SAFETY:
Sept. 29, 1963
Supervisor, Safety of Dams
PRINCIPAL SPILLWAY PLAN AND SECTIONS
BRUSH CREEK - MIDDLE FORK
CENTRAL SONOMA WATERSHED PROJECT
SONOMA COUNTY, CALIF.
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
NO. DATE REVISION BY
SONOMA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
APPROVED
DATE: 3/1/61
Designed R.L.H. 7-60
Drawn R.W.M. 7-60
Checked H.L.C., E.B.M. 3/61
Approved by
Title Head, R.A.W.P. Unit
Title State Conservation Engineer
Sheet No. 7 of 18
Drawing No. D56-7




## PLAN

SCALE: 1" = 20'

| EXCAVATION | | | | |
|---|---|---|---|---|
| PROJECT ACTIVITY DESCRIPTION | LOCATION | AREA (SQUARE FT.) | AVERAGE DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED AREA IN RESERVOIR | AROUND OUTLET STRUCTURE | 2,250 | 3 | 250 |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

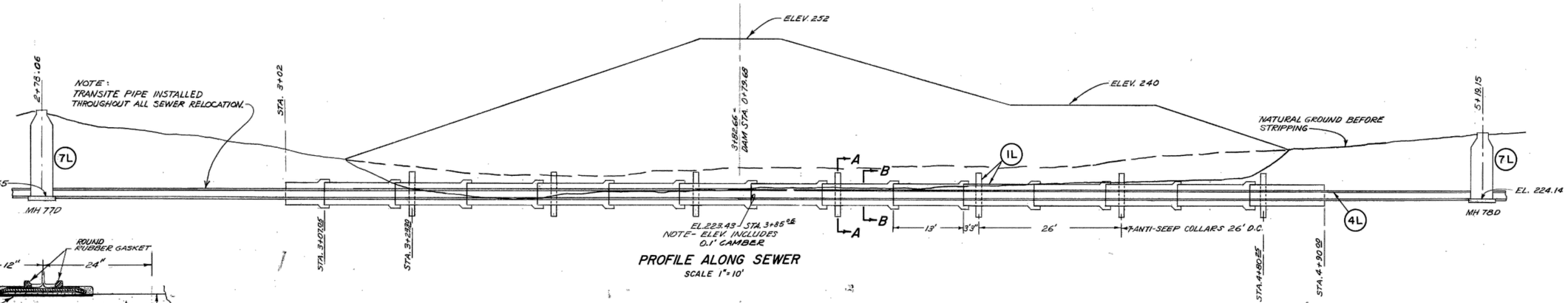
| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE: NONE
DATE: 3/7/2012
DRAWN: SMP
REVIEWED:

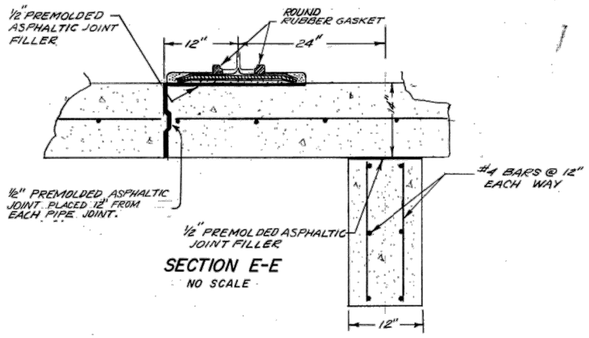
LAGUNA – MARK WEST ZONE 1A
PINER CREEK RESERVOIR - OUTLET PLAN

FILE NAME: Piner-Crk_Res_C-2___2011.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-2
SHEET 4 OF 11



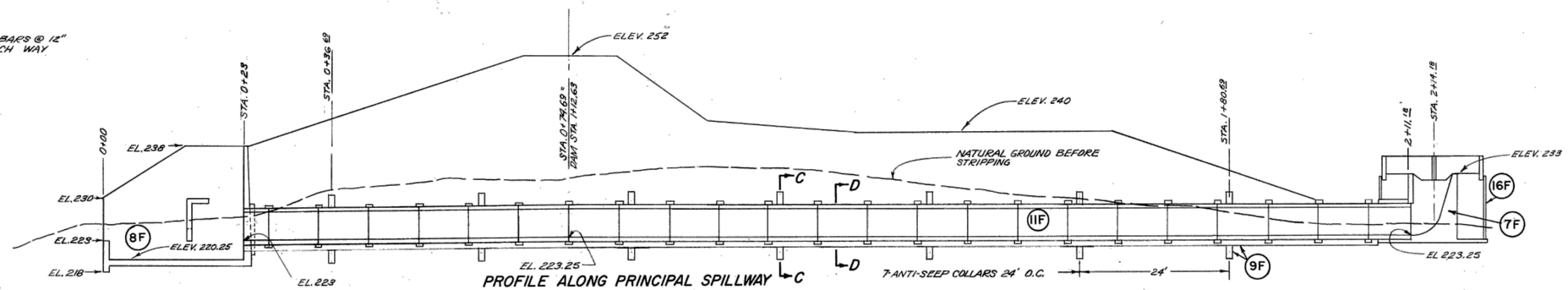

## PROFILE ALONG SEWER

SCALE 1"=10'



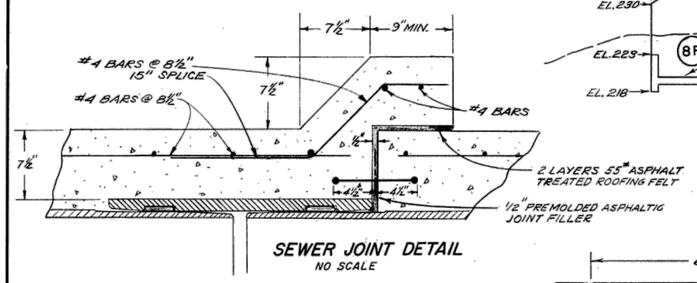

## SECTION E-E

NO SCALE



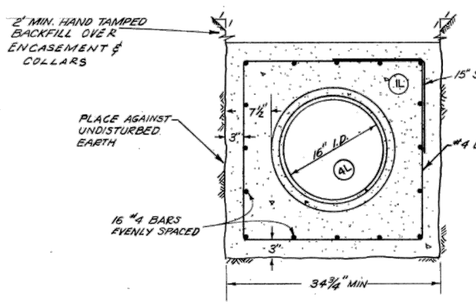

## PROFILE ALONG PRINCIPAL SPILLWAY

SCALE 1"=10'



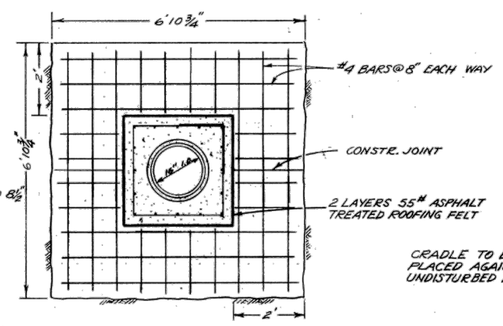

## SEWER JOINT DETAIL

NO SCALE



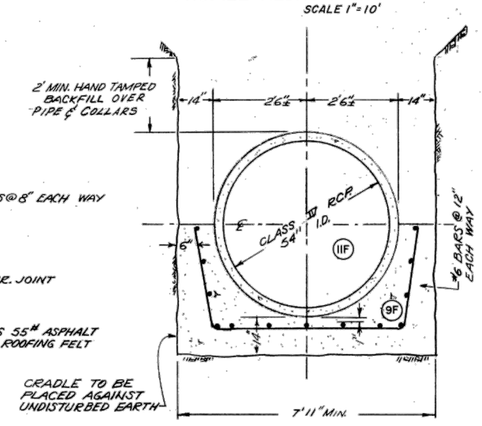

## SECTION B-B

SCALE 1"=1'



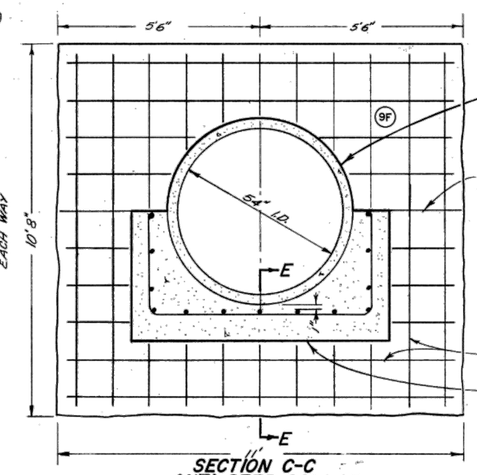

## SECTION A-A ANTI-SEEP COLLAR

SCALE 1/2"=1'



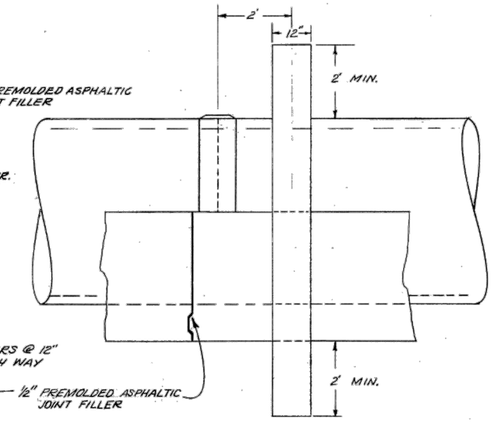

## SECTION D-D

SCALE 1/2"=1'




## SECTION C-C ANTI-SEEP COLLAR

SCALE 1/2"=1'




## MASTIC JOINT IN CONCRETE CRADLE AT PIPE JOINT

SCALE 1/2"=1'

NOTE:
FOR FIBER GLASS COUPLING BAND ALTERNATE, CRADLE & PIPE SHALL BE SEPARATED WITH ASPHALTIC PAINT BETWEEN THE PIPE JOINT & CRADLE JOINT.

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

APPLICATION NO. 1002-2

APPROVED AS TO SAFETY

DATE

AS BUILT

# PINER CREEK RESERVOIR
## SEWER ENCASEMENT & PRINCIPAL SPILLWAY PROFILES

| | | |
|---|---|---|
| SCALE: AS SHOWN | APPROVED Gordon W. Welch CHIEF ENGINEER | DRAWN SKMc |
| DATE: 1/23/1961 | | CHECKED |

SONOMA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

| | | |
|---|---|---|
| DESIGNED | SUBMITTED | DRAWING NUMBER |
| | | 1-5045-102.17 |

PRINTED ON DIEPO NO. 1000M CLEARPRINT

## PLAN

SCALE: 1" = 20'

| EXCAVATION | | | | |
|---|---|---|---|---|
| PROJECT ACTIVITY DESCRIPTION | LOCATION | AREA (SQUARE FT.) | AVERAGE DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED AREA IN RESERVOIR | AROUND OUTLET STRUCTURE | 2,250 | 3 | 250 |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

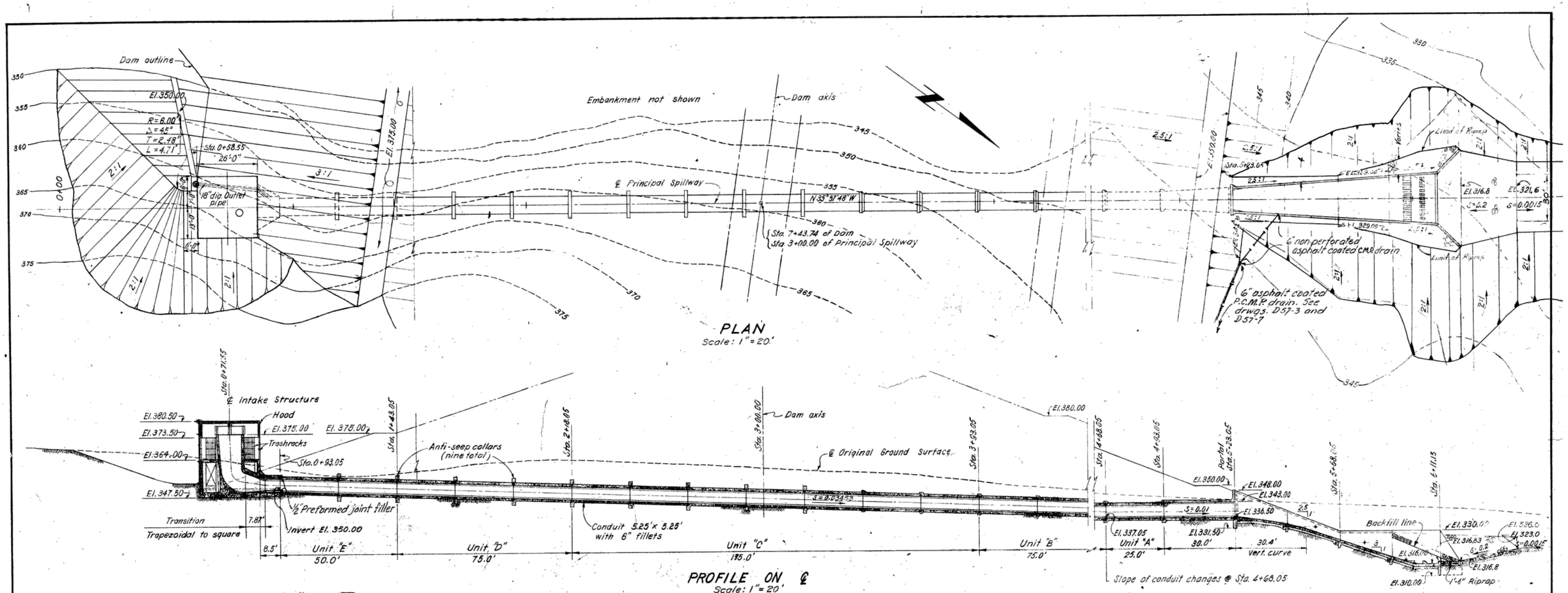
SONOMA COUNTY WATER AGENCY

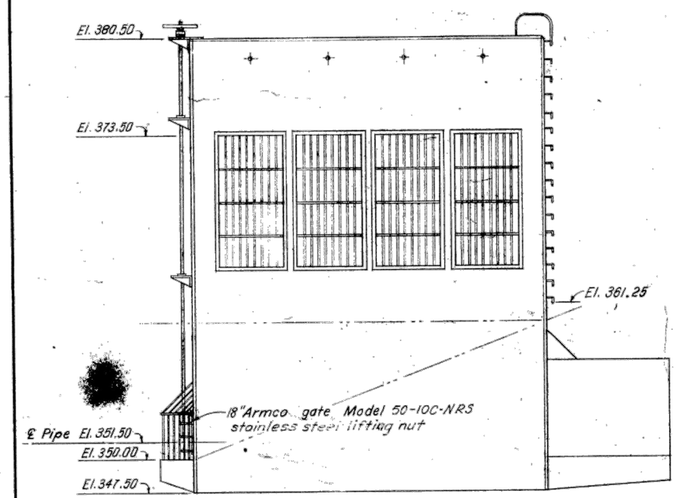
SCALE : NONE
DATE : 3/7/2012
DRAWN : SMP
REVIEWED :

LAGUNA – MARK WEST ZONE 1A
MATANZAS CREEK RESERVOIR PLAN - OUTLET

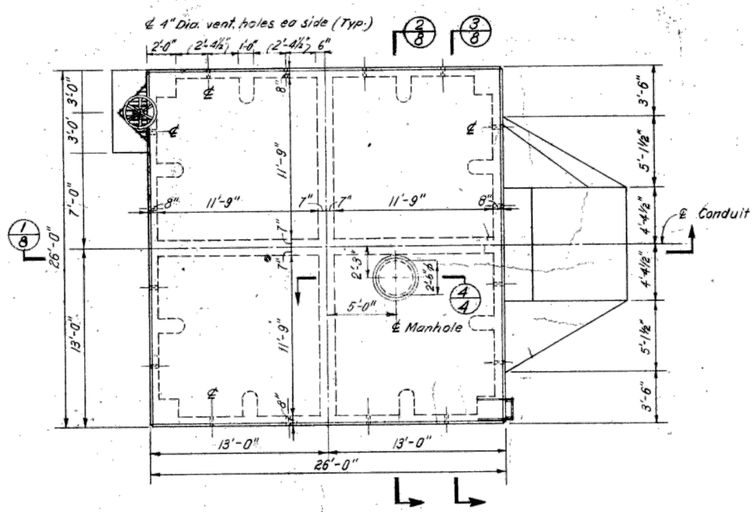
FILE NAME: Matanzas-Crk_Res_C-3_2012.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-3
SHEET 6 OF 11

SD-DATA Pr d tr i s ta ata s_r_reserv r i ist2012_SED-REMVAL Matanzas-Cr_Res_C-3_2012




INTAKE STRUCTURE ELEVATION
Scale: 3/16" = 1'-0"

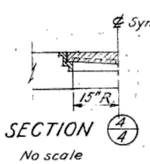



INTAKE STRUCTURE PLAN
Scale: 3/16" = 1'-0"

GRAPHIC SCALES

0 20 40 60 Feet
Scale: 1" = 20'

0 6 12 18 Feet
Scale: 3/16" = 1'-0"




SECTION
No scale

Note: C.I. Frame and locking cover to weigh not less than 500 #

NOTES:
1. For Intake Structure Details see Dwgs D57-5 and D57-6.
2. For Conduit Details see Dwg D57-6.
3. For Outlet Chute and Stilling Basin Details see Dwg D57-7.
4. For Dam Embankment Details see Dwg. D57-3

REGISTERED PROFESSIONAL ENGINEER STANLEY F. GILLENSKI #10352 CIVIL STATE OF CALIFORNIA

AS BUILT 1-6054-102.12AB

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS
APPLICATION No. 1002-4
APPROVED AS TO SAFETY
FOR THE CHIEF ENGINEER
AUG 5 1966
DIVISION ENGINEER

WOODWARD, CLYDE, SHERARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS — OAKLAND, CALIF.

| | |
|---|---|
| DESIGNED: V.I.T. | APPROVED BY: |
| CHECKED: V.S.D. | |
| DRAWN: G.B.L. | |

SONOMA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
CENTRAL SONOMA WATERSHED PROTECTION PROJECT

MATANZAS CREEK
PRINCIPAL SPILLWAY
GENERAL PLAN

| | | |
|---|---|---|
| APPROVED — SOIL CONSERVATION SERVICE STATE CONSERVATION ENGINEER | | APPROVED — SONOMA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT CHIEF ENGINEER |
| DATE MARCH, 1962 | SCALE AS NOTED | DRWG. NO. D57-4 / SHEET OF |

PH9-4c 1002-4

7-Sd-172 75

USDA-SCS-PORTLAND, OREG. 1962 M-3706

## PLAN

SCALE: 1" = 40'

| EXCAVATION | | | | |
|---|---|---|---|---|
| PROJECT ACTIVITY DESCRIPTION | LOCATION | AREA (SQUARE FT.) | AVERAGE DEPTH (FT.) | C.Y. (TO REMOVE) |
| ACCUMULATED SEDIMENT REMOVAL USING EXCAVATOR OR FRONT END LOADER OPERATING IN THE DEWATERED AREA IN RESERVOIR | AROUND OUTLET STRUCTURE | 2:700 | 1 | 100 |

PRELIMINARY
90% SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

SONOMA COUNTY WATER AGENCY

SCALE : NONE
DATE : 3/7/2012
DRAWN : SMP
REVIEWED :

LAGUNA – MARK WEST ZONE 1A
SANTA ROSA CREEK RESERVOIR (SPRING LAKE)
- OUTLET

FILE NAME: SpringLake_Out_C-4_2012.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C-4
SHEET 8 OF 11

Payment for excavation below El.275.00 for inlet riser will be included under item (36F)

DAM CREST 316.60

PLACE 57 CY. RIPRAP AS DIRECTED BY ENGINEER

EL. 281.00

EL. 274.00

10'-0"

18"

FL. 264.50

3'

12'

25.50'

24'

ANTI-SEEP COLLARS 24' CENTER TO CENTER

EXISTING GROUND LINE

60" I.D. R.C.P.

S=.00156

UNDISTURBED EARTH

4' STRIPPING IN PERVIOUS DRAIN AREA AND REPLACE WITH GRADED FILTER EXTENDED TO EL. 300.00 ON EAST & W. ABUTMENTS. SEE DRWG. NO. 1-9130-102.8 FOR LIMITS OF FILTER

ALL COLLARS ARE EQUALLY SPACED-24'

LAST COLLAR AT STA. 2+72.50

## PROFILE

NOTE: PRINCIPAL INLET RISER SHOWN HERE FOR REFERENCE ONLY FOR TRUE CONSTRUCTION DETAILS SEE DWG. 1-9130-102.15

TOE OF DAM

℄ N 32°20'00"E

## PLAN

SCALE IN FEET

NOTE: CRADLE TO BE ARTICULATED AT EACH PIPE JOINT.

LIMITS OF STRIPPING

2' MIN HAND TAMPED BACKFILL

60" I.D. R.C.P. CLASS V - ASTM SPEC. C76-59T

1" CLEAR

#6 BARS @ 12" EACH WAY

## SECTION A-A

CRADLE TO BE PLACED AGAINST UNDISTURBED EARTH

#4 BARS @ 12" EACH WAY

2 LAYERS ROOFING FEL. 55# W.

CONSTRUCTION JOINT - WITH 1/2" PREMOLDED ASPHALTIC JOINT FILLER PLACED 12" FROM EACH PIPE JOINT

#4 @ 12" EACH WAY

## JOINT DETAIL SECTION B-B

SHOWING RELATIONSHIP OF PIPE JOINTS AND COLLARS BASED ON 12' PIPE LENGTHS END TO END AND DOES NOT REFLECT THE STYLE OF REINFORCED CONCRETE PIPE

SCALE IN FEET

## ANTI-SEEP COLLAR

60" I.D. R.C.P.

1/2" PREMOLDED JOINT FILLER

#4 @ 12" EACH WAY

## MASTIC JOINT IN CONCRETE CRADLE AT PIPE JOINT

18" ± NOT TO SCALE

1/2" PREMOLDED ASPHALTIC JOINT FILLER

SCALE IN FEET

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SUPERVISION OF DAM SAFETY OFFICE

APPLICATION No. 1002-5

APPROVED AS TO SAFETY FOR THE CHIEF ENGINEER

FEB 4 1965

Supervising Dam Safety Engr.

(46F) AS BUILT

SCHEDULE -

SANTA ROSA CREEK RESERV

PRINCIPAL SPILLWAY DETAILS S

0+00 TO 3+00

| | | |
|---|---|---|
| SCALE: AS SHOWN | APPROVED | DRAWN |
| DATE: 4/1/1960 | CHIEF ENGINEER | CHECKED |

SONOMA COUNTY FLOOD CONTROL AN WATER CONSERVATION DISTRICT

DESIGNED | SUBMITTED | DRAWING NUMBER 1-9130-10

PLAN

SCALE 1" □20□

| EXCAVATION | | | | | |
|---|---|---|---|---|---|
| PROJECT ACTIVITY DESCRIPTION | LOCATION | LENGTH □LINEAL FT.□ | AREA □S□UARE FT.□ | AVERAGE DEPTH □FT.□ | C.Y. □TO REMOVE□ |
| ACCUMULATED SEDIMENT REMOVAL USING E□CAVATOR OPERATING FROM TOP OF BANK OR IN THE DEWATERED AREA IN CHANNEL | FISH LADDER AT SANTA ROSA CREEK DEVERSION | 40 | 240 | 2 | 18 |

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

PRELIMINARY
90□ SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2012

| NO. | DATE | REVISION | BY |
|---|---|---|---|

SONOMA COUNTY WATER AGENCY

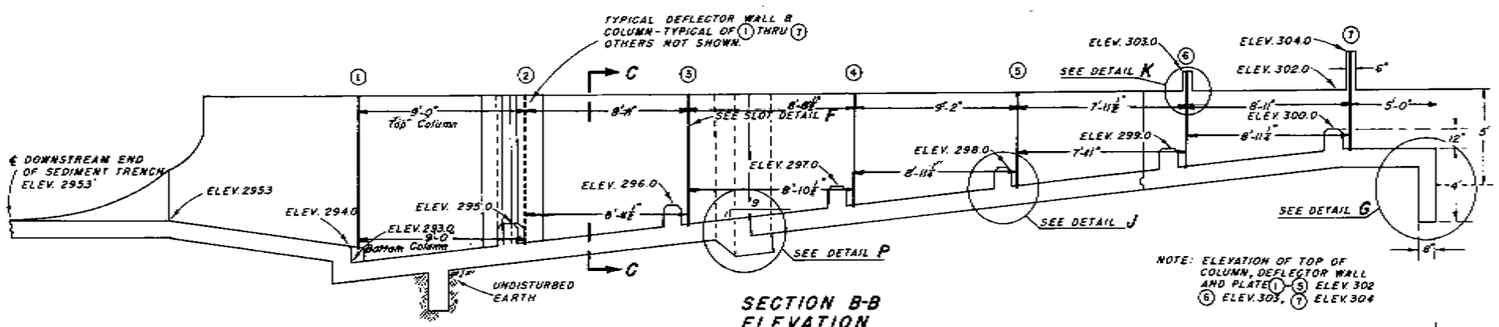
SCALE : AS SHOWN
DATE : 3/7/2012
DRAWN : ADF
REVIEWED :

LAGUNA - MARK WEST □ONE 1A

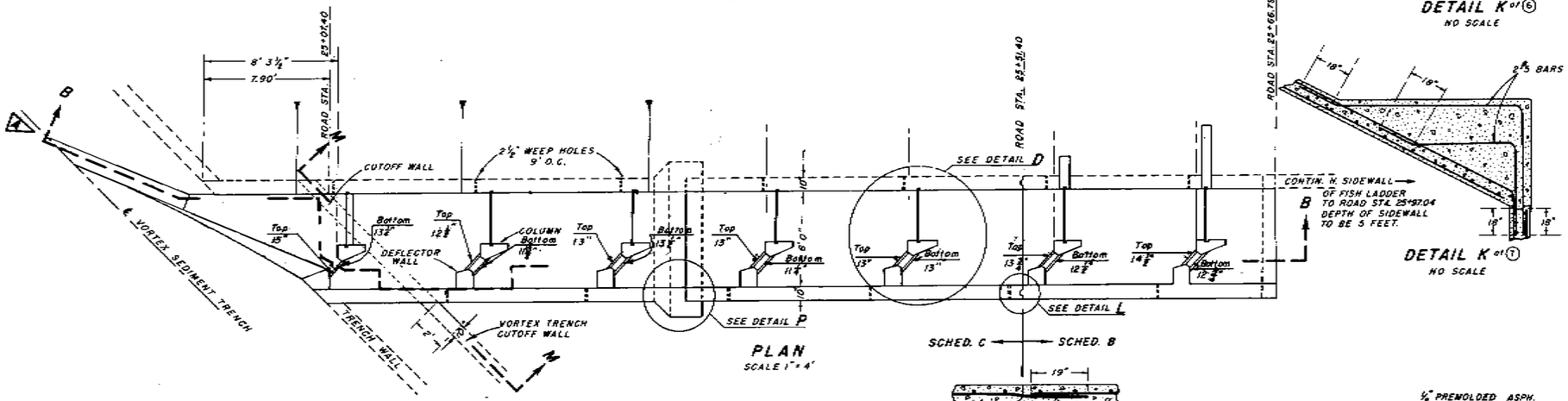
SANTA ROSA CREEK FISH LADDER - PLAN

FILE NAME: 2012_FISH-LADDER_C-5
CONTRACT NUMBER:
DRAWING NUMBER: C-5
SHEET 10 OF 11

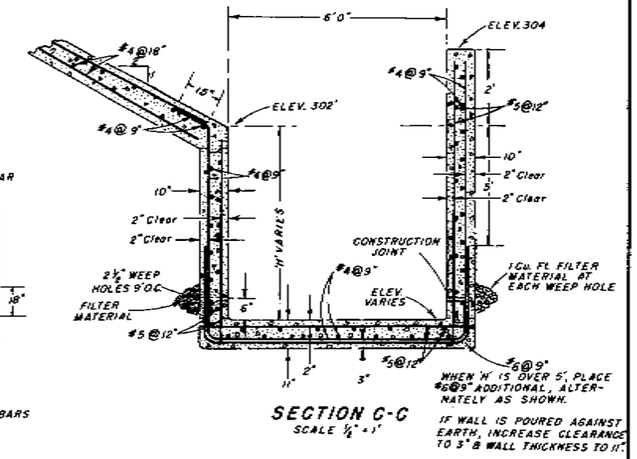
:SD-DATA Pr□□□d □□□r:□□□e ta Sa tatR sa V rte _C a : Sed: e t_Re: □ v4 2012_FISH-LADDER



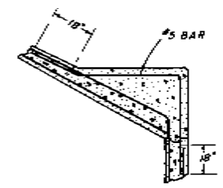

SECTION B-B
ELEVATION




PLAN
SCALE 1" = 4'



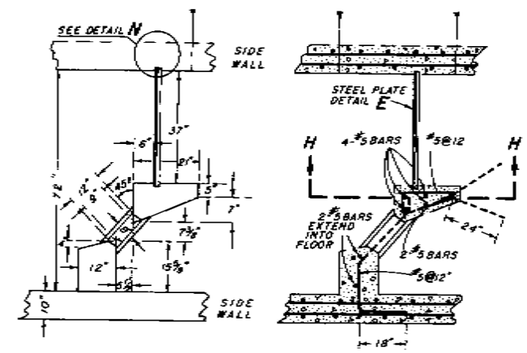

SECTION C-C
SCALE ½" = 1'



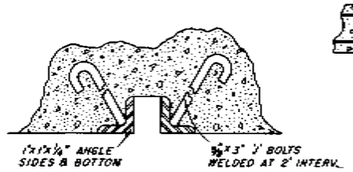

DETAIL K of ⑥
NO SCALE



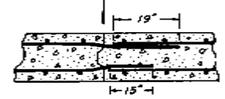

DETAIL K of ①
NO SCALE



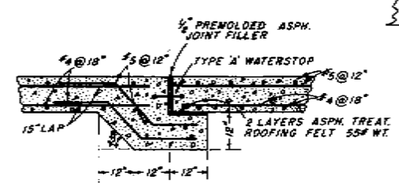

DETAIL D
NO SCALE



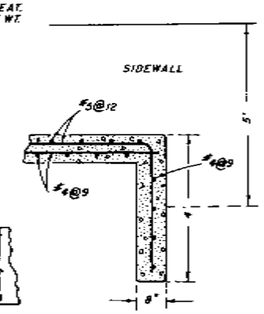

DETAIL N
NO SCALE



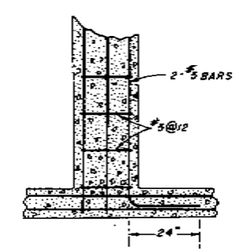
DETAIL L
NO SCALE



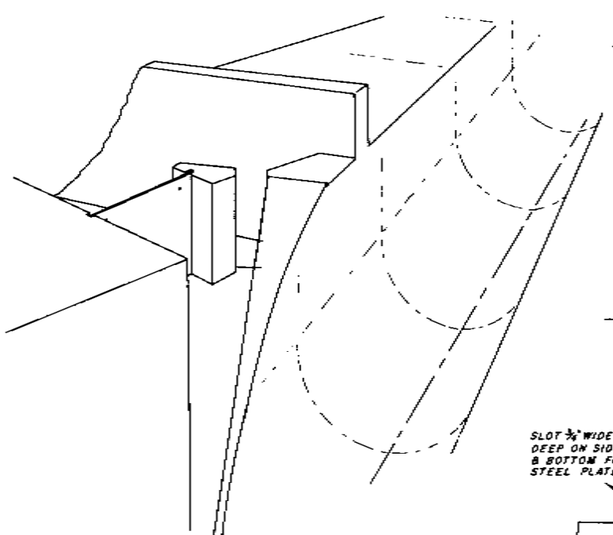

DETAIL P
NO SCALE



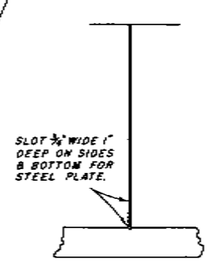

DETAIL G
SCALE ½" = 1'



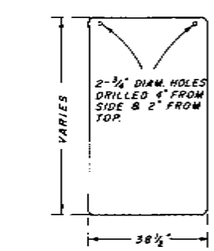

SECTION H-H
SCALE ½" = 1'



PERSPECTIVE VIEW A



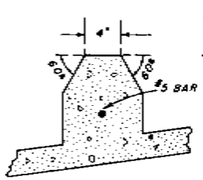

DETAIL F
NO SCALE



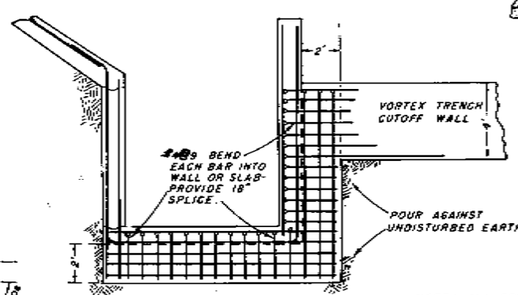

STEEL PLATE

| NO. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|---|---|---|---|---|---|---|---|
| HEIGHT | 8'1" | 8'1" | 7'1" | 6'1" | 5'1" | 5'1" | 5'1" |
| THICK. | ⅝" | ⅝" | ⅝" | ½" | ½" | ½" | ½" |

DETAIL E
NO SCALE




DETAIL J
NO SCALE




SECTION M-M
NO SCALE

NOTE: ALL CONCRETE TO BE CLASS 'B'.

AS BUILT

SCHEDULE C

SANTA ROSA CREEK RESERVOIR
FISH LADDER DETAILS

SCALE: AS SHOWN | APPROVED | DRAWN J. R.
DATE: JULY 28, 1962 | CHIEF ENGINEER | CHECKED

SONOMA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED P. FULLER | SUBMITTED | DRAWING NUMBER 1-9140-102.9 A

# Appendix D

## Project Location Maps with CTS Occurrence Overlay

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

# Potential Occurrence and Distance Ranks for California Tiger Salamander

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa A**

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

# Potential Occurrence and Distance Ranks for California Tiger Salamander

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa B**

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

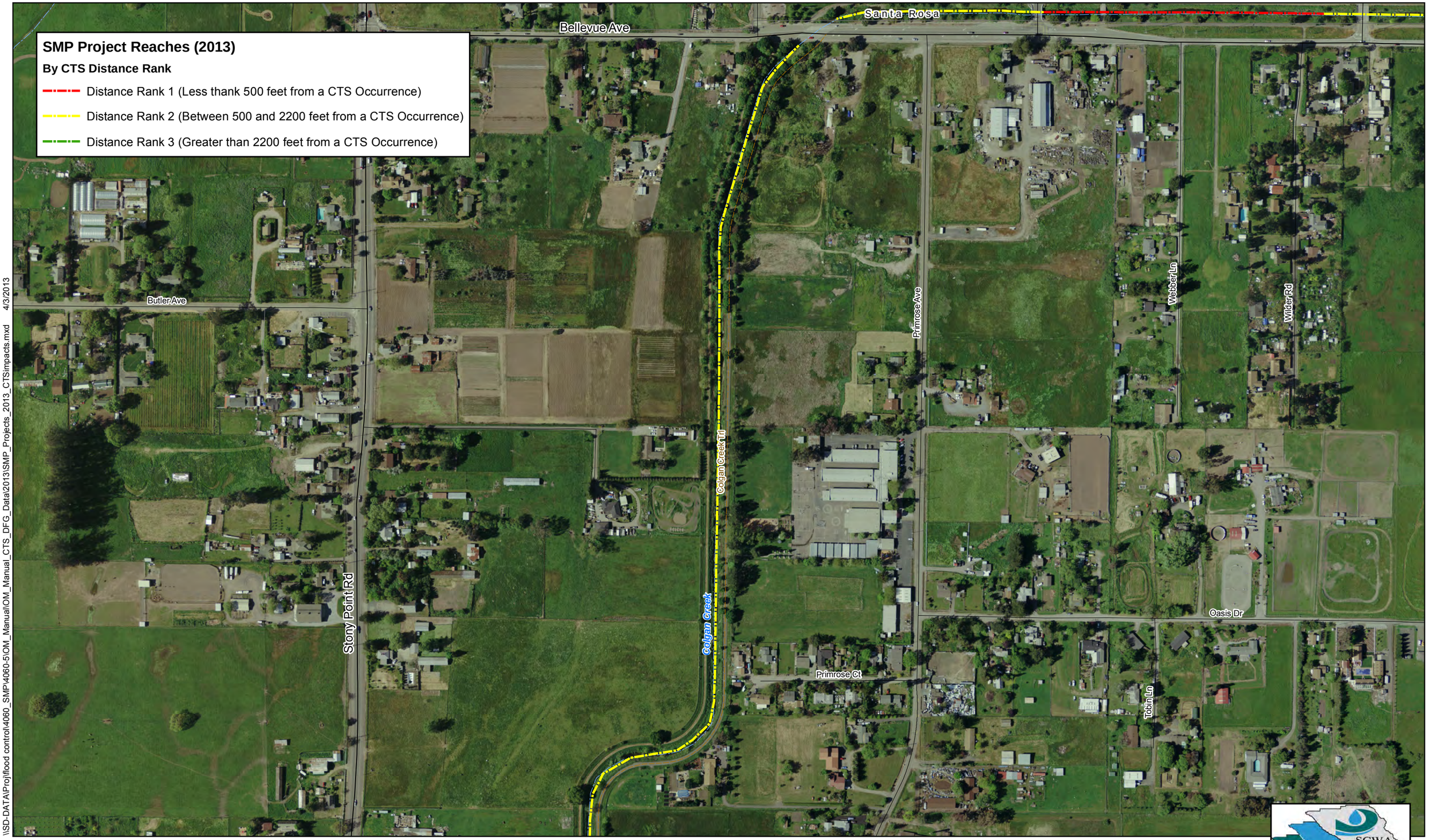
DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa C**

SCWA GIS




\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

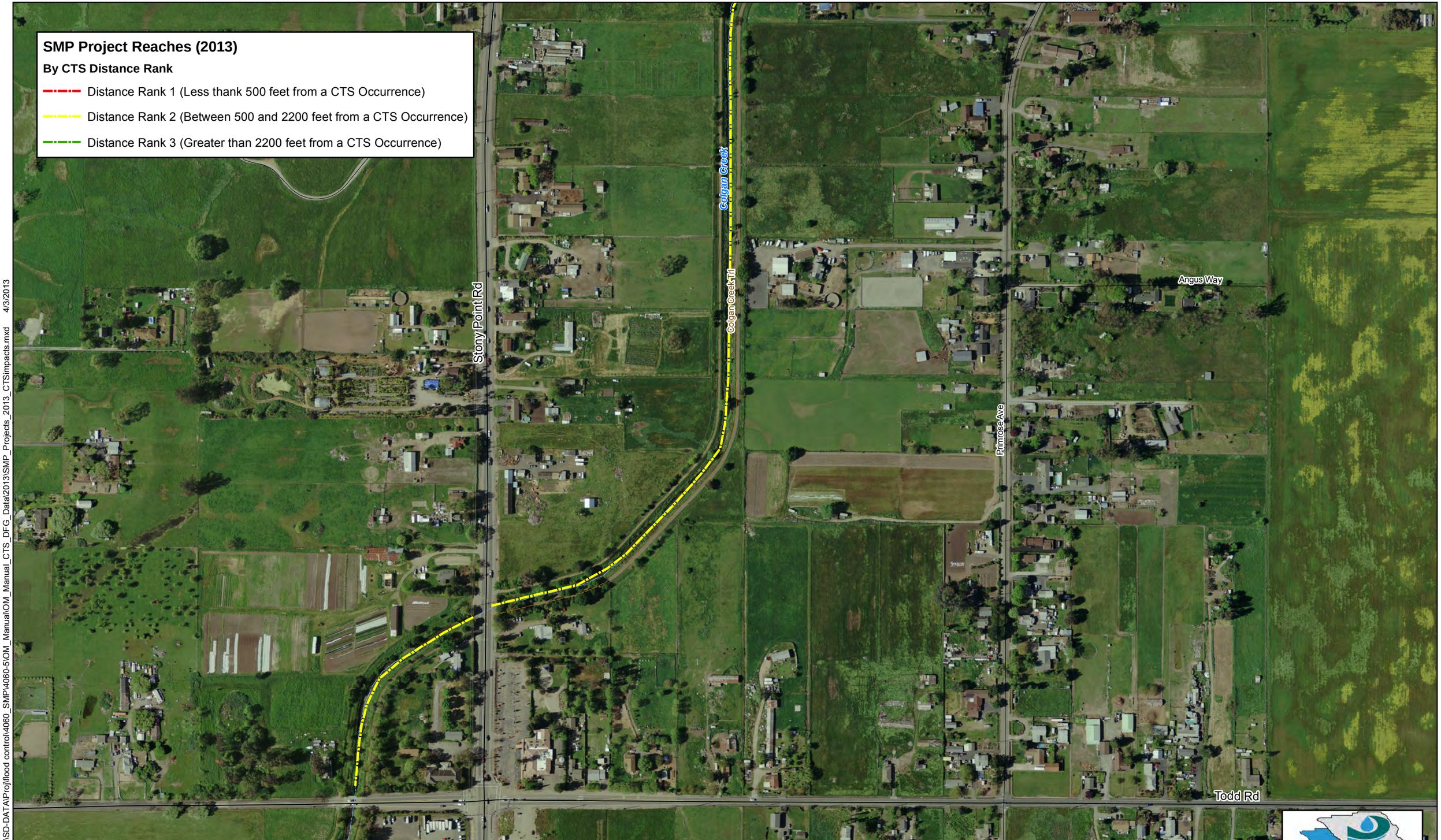
**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa D**




\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

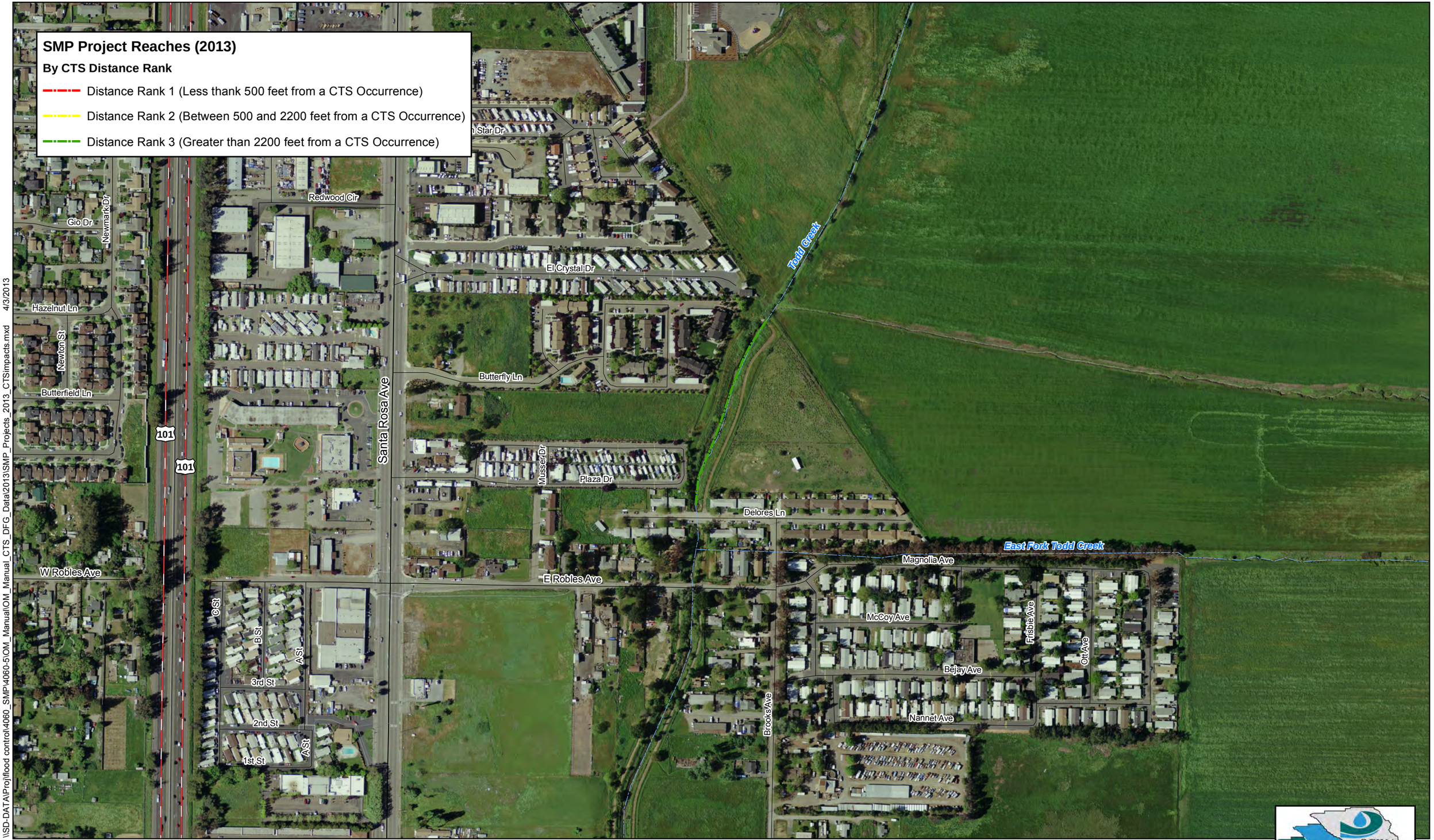
DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa E**

SCWA GIS




\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSImpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Santa Rosa F**

SCWA GIS

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park A**

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

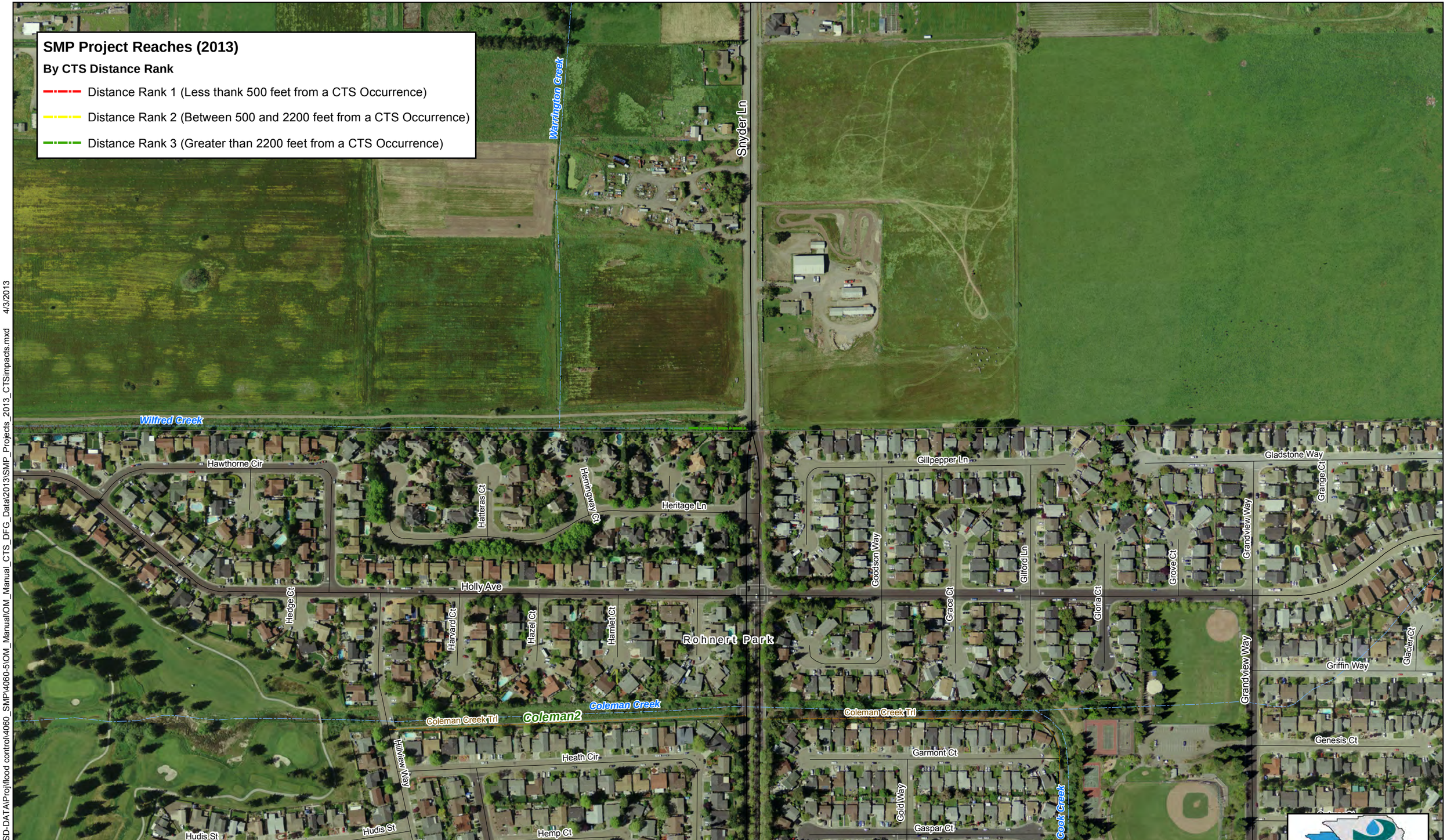
**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park B**




\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park C**

# Potential Occurrence and Distance Ranks for California Tiger Salamander

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park D**

\\SD-DATA\Proj\flood control\4060_SMP\4060-5\OM_Manual\OM_Manual_CTS_DFG_Data\2013\SMP_Projects_2013_CTSimpacts.mxd 4/3/2013

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park E**

**Potential Occurrence and Distance Ranks for California Tiger Salamander**

**Operations and Maintenance Manual, Flood Zone 1A**

DISCLAIMER
This map document and associated data are distributed for informational purposes only "AS-IS" at the published scale and provided without warranty of any kind expressed or implied. The positional accuracy of the data is approximate and not intended to represent survey map accuracy. The Sonoma County Water Agency assumes no responsibility arising from use of this information.

0 250 500 Feet

N

**Rohnert Park F**

# Appendix E

## California Department of Fish and Wildlife Application Materials

- DFW Notification of Lake or Streambed Alteration;
- Annual Notification Checklist for DFW MLSAA;
- Copy of Check for Annual Master Agreement Fee
- CD with 2013 Annual Notification

| FOR DEPARTMENT USE ONLY | | | | |
|---|---|---|---|---|
| *Date Received* | *Amount Received* | *Amount Due* | *Date Complete* | *Notification No.* |
| | $ | $ | | |

STATE OF CALIFORNIA

DEPARTMENT OF FISH AND WILDLIFE

# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

**Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.**

## 1. APPLICANT PROPOSING PROJECT

| | | | |
|---|---|---|---|
| Name | Grant Davis | | |
| Business/Agency | Sonoma County Water Agency | | |
| Street Address | 404 Aviation Boulevard | | |
| City, State, Zip | Santa Rosa, CA 95403 | | |
| Telephone | (707) 5471900 | Fax | (707) 524-3782 |
| Email | grant.davis@scwa.ca.gov | | |

## 2. CONTACT PERSON (*Complete only if different from applicant*)

| | | | |
|---|---|---|---|
| Name | Keenan Foster | | |
| Street Address | 404 Aviation Boulevard | | |
| City, State, Zip | Santa Rosa, CA 95403 | | |
| Telephone | (707) 5471941 | Fax | (707) 524-3782 |
| Email | kfoster@scwa.ca.gov | | |

## 3. PROPERTY OWNER (*Complete only if different from applicant*)

| | | | |
|---|---|---|---|
| Name | | | |
| Street Address | | | |
| City, State, Zip | | | |
| Telephone | | Fax | |
| Email | | | |

## 4. PROJECT NAME AND AGREEMENT TERM

| | | | | |
|---|---|---|---|---|
| A. Project Name | Stream Maintenance Program | | | |
| B. Agreement Term Requested | ☐ Regular (*5 years or less*)<br>☑ Long-term (*greater than 5 years)* | | | |
| C. Project Term | | D. Seasonal Work Period | | E. Number of Work Days |
| Beginning (*year*) | Ending (*year*) | Start Date (*month/day*) | End Date (*month/day*) | |
| 2013 | 2013 | 06/15 | 10/31 | |

## 5. AGREEMENT TYPE

| Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment. | |
|---|---|
| A. | ☐ Standard *(Most construction projects, excluding the categories listed below)* |
| B. | ☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:* _____ |
| C. | ☐ Timber Harvesting (*Attachment B*) THP *Number:* _____ |
| D. | ☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* _____ |
| E. | ☐ Routine Maintenance (*Attachment D*) |
| F. | ☐ CDFW Fisheries Restoration Grant Program (FRGP) *FRGP Contract Number*_____ |
| G. | ☑ Master |
| H. | ☐ Master Timber Harvesting |

## 6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

| | A. Project | B. Project Cost | C. Project Fee |
|---|---|---|---|
| 1 | Annual Fee | | 2801.50 |
| 2 | (annual project fees paid with annual report after project complete) | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | | D. Base Fee *(if applicable)* | 0.00 |
| | | **E. TOTAL FEE ENCLOSED** | 2801.50 |

## 7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☑ Yes (*Provide the information below*) ☐ No

Applicant: Sonoma County Water Agency Notification Number: 1600-2009-0399-R3 Date: 04/25/13

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

**8. PROJECT LOCATION**

A. Address or description of project location.

(*Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway*)

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3.

☑ *Continued on additional page(s)*

| | |
|---|---|
| B. River, stream, or lake affected by the project. | |
| C. What water body is the river, stream, or lake tributary to? | |
| D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts? | ☐ Yes ☑ No ☐ Unknown |
| E. County | |

| F. USGS 7.5 Minute Quad Map Name | G. Township | H. Range | I. Section | J. ¼ Section |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

☐ *Continued on additional page(s)*

| | |
|---|---|
| K. Meridian (*check one*) | ☐ Humboldt ☑ Mt. Diablo ☐ San Bernardino |

L. Assessor's Parcel Number(s)

Multiple, please see the SMP Annual Notification (attached)for project locations and conditions.

☐ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

| | | | |
|---|---|---|---|
| Latitude/Longitude | *Latitude:* see Notification (attached) | *Longitude:* | |
| | ☐ Degrees/Minutes/Seconds | ☐ Decimal Degrees | ☐ Decimal Minutes |
| UTM | *Easting:* | *Northing:* | ☐ Zone 10 ☐ Zone 11 |
| Datum used for Latitude/Longitude or UTM | ☐ NAD 27 | ☑ NAD 83 or WGS 84 | |

**9. PROJECT CATEGORY AND WORK TYPE** *(Check each box that applies)*

| PROJECT CATEGORY | NEW CONSTRUCTION | REPLACE EXISTING STRUCTURE | REPAIR/MAINTAIN EXISTING STRUCTURE |
|---|---|---|---|
| Bank stabilization – bioengineering/recontouring | ☐ | ☐ | ☐ |
| Bank stabilization – rip-rap/retaining wall/gabion | ☐ | ☐ | ☐ |
| Boat dock/pier | ☐ | ☐ | ☐ |
| Boat ramp | ☐ | ☐ | ☐ |
| Bridge | ☐ | ☐ | ☐ |
| Channel clearing/vegetation management | ☐ | ☐ | ☐ |
| Culvert | ☐ | ☐ | ☑ |
| Debris basin | ☐ | ☐ | ☑ |
| Dam | ☐ | ☐ | ☑ |
| Diversion structure – weir or pump intake | ☐ | ☐ | ☐ |
| Filling of wetland, river, stream, or lake | ☐ | ☐ | ☐ |
| Geotechnical survey | ☐ | ☐ | ☐ |
| Habitat enhancement – revegetation/mitigation | ☑ | ☐ | ☑ |
| Levee | ☐ | ☐ | ☐ |
| Low water crossing | ☐ | ☐ | ☐ |
| Road/trail | ☐ | ☐ | ☑ |
| Sediment removal – pond, stream, or marina | ☐ | ☐ | ☑ |
| Storm drain outfall structure | ☐ | ☐ | ☑ |
| Temporary stream crossing | ☐ | ☐ | ☑ |
| Utility crossing : Horizontal Directional Drilling | ☐ | ☐ | ☐ |
| Jack/bore | ☐ | ☐ | ☐ |
| Open trench | ☐ | ☐ | ☐ |
| **Other** *(specify)*: | ☐ | ☐ | ☐ |

**10. PROJECT DESCRIPTION**

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The Annual Notification contains all pertinent information for each 2013 project.

☑ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The Annual Notification contains all pertinent information for each 2013 project.

☑ *Continued on additional page(s)*

| | |
|---|---|
| C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B). | ☐ Yes ☐ No (*Skip to box 11*) |
| D. Will the proposed project require work in the wetted portion of the channel? | ☑ Yes (*Enclose a plan to divert water around work site*)<br>☐ No |

**11. PROJECT IMPACTS**

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The Annual Notification contains all pertinent information for each 2013 project.

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☐ Yes (*Complete the tables below*) ☐ No

| Vegetation Type | Temporary Impact | Permanent Impact |
|---|---|---|
| | Linear feet: _____<br>Total area: _____ | Linear feet: _____<br>Total area: _____ |
| | Linear feet: _____<br>Total area: _____ | Linear feet: _____<br>Total area: _____ |

| Tree Species | Number of Trees to be Removed | Trunk Diameter (range) |
|---|---|---|
| | | |
| | | |
| | | |

☑ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☐ Yes *(List each species and/or describe the habitat below)* ☑ No ☐ Unknown

Details are included in the Annual Notification (attached)

☑ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a “yes” or “no” answer above in Box 11.C.

CNDDB, survey data, Water Agency Reports and routine maintenance habitat evaluations

☐ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

*Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.*

F. Has a hydrological study been completed for the project or project site?

☑ Yes (*Enclose the hydrological study*) ☐ No

*Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.*

**12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES**

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The Annual Notification contains all pertinent information for each 2013 project. All projects will follow the terms and conditions of the Master Agreement and BMPs defined in the SMP Manual.

☐ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The Annual Notification contains all pertinent information for each 2013 project. All projects will follow the terms and conditions of the Master Agreement and BMPs defined in the SMP Manual.

☐ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

The mitigation program for the SMP Manual and in the Master Agreement. All projects will follow the terms and conditions of the Master Agreement and BMPs defined in the SMP Manual. The Annual Notification describes the mitigation plan for each project.

☑ *Continued on additional page(s)*

**13. PERMITS**

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. RWQCB Section 401 Certification (North Coast and SF Bay) ☐ Applied ☐ Issued

B. USACE Individual Permit ☐ Applied ☐ Issued

C. BOs from FWS and NMFS (Russian River and Zones 2A, 3A) ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

## 14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☑ Yes (*Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each*)

☐ No (*Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared*)

| | | |
|---|---|---|
| ☑ Notice of Exemption | ☐ Mitigated Negative Declaration | ☐ NEPA document (*type*): |
| ☐ Initial Study | ☐ Environmental Impact Report | ☑ CESA document (*type*): CD |
| ☐ Negative Declaration | ☐ Notice of Determination *(Enclose)* | ☑ ESA document (*type*): BOs |
| ☐ THP/ NTMP | ☐ Mitigation, Monitoring, Reporting Plan | |

| | | | |
|---|---|---|---|
| B. State Clearinghouse Number (*if applicable*) | 2005-082131 | | |
| C. Has a CEQA lead agency been determined? | ☑ Yes (*Complete boxes D, E, and F*) | ☐ No (*Skip to box 14.G*) | |
| D. CEQA Lead Agency | Sonoma County Water Agency | | |
| E. Contact Person | Keenan Foster | F. Telephone Number | (707) 547-1941 |

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

This application covers all the projects listed in the SMP's Annual Notification (attached). All of these projects should be appropriate under the Master Streambed Alteration Agreement # 1600-2009-0399-R3. The SMP's guiding document is the SMP Manual prepared in coordination with all the regulating agencies.

☐ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☑ Yes (*Enclose proof of payment*) ☐ No (*Briefly explain below the reason a filing fee has not been paid)*

*Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.*

## 15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☑ I request the Department to first contact (*insert name*) Keenan Foster at (*insert telephone number*) (707) 547-1941 to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

## 16. DIGITAL FORMAT

| Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)? |
|---|
| ☑ Yes (Please enclose the information via digital media with the completed notification form)<br>☐ No |

## 17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Signature of Applicant or Applicant's Authorized Representative

4-30-13
Date

GRANT DAVIS
Print Name

**Sonoma County Water Agency's Stream Maintenance Program**

**2013 Annual Notification Checklist for DFG Master LSAA**

| Included | Component |
|---|---|
| ☑ | Check for Annual Master Agreement Fee |
| ☑ | Completed Notification for Lake and Streambed Alteration Agreement Form<br>• Check Item 5.G. Master<br>• Check "Yes" and specify 1600-2009-0399-3 under Item 7.A. |
| ☑ | Copy of this Checklist |
| ☑ | Annual Work plan Notification Packet |
| ☑ | • Cover Letter |
| ☑ | • Project List and Locations<br>o Project Site Name<br>o Creek<br>o Tributary to<br>o SMP Reach name and number<br>o United States Geological Survey (USGS) Quad, Township, Range, Section<br>o plan view maps of project showing all areas where activity may occur, including areas traveled by equipment or used for storage of equipment or materials and known locations of sensitive species and sensitive habitats.<br>o Latitude and Longitude<br>o Permit Applicability<br>o Deviations from SMP Manual activity descriptions and BMPs<br>o Pre-construction sensitive species survey information, identification of pre-project surveys, results of prior surveys, submitted CNDDB report forms[1] |
| ☑ | • Summary of Sediment Removal and Bank Stabilization Activities |
| ☑ | • Project Designs and Setting for Sediment Removal Projects<br>o Channel characterization sheets[2]<br>o Maps identifying location of planned maintenance work in relation to known sensitive species/habitat zones<br>o Results of on-site biological surveys including presence of special-status plants[1] |

| | |
|---|---|
| ☑<br><br><br>☑<br>☑ | o Identification of other biological surveys that will be conducted during the maintenance year<br>o Longitudinal Profiles<br>o Plan Views<br>o Channel Cross Sections<br>o Sediment Sampling Locations<br>• Annual Mitigation Plan<br>o On-Site<br>o Off-Site<br>• Annual Sediment Disposal Plan<br>• Permits and Fees |
| ☑ | Status of on-site program mitigation from prior year projects. Should include status of riparian planting and reveg reports from preceding five years.[3] |

**Table notes**:

1. Pre-construction surveys (i.e. nesting birds, etc) are generally conducted 1-2 weeks prior to commencing work and associated reporting. The Annual Notification materials include a schedule and timeline for all pre-construction surveys. ). As such, we propose submitting the pre-construction survey data and evidence of appropriate BMP implementation with the Annual Report versus the Annual Notification.

2. Channel Characterization sheets are incorporated into the SMP Manual. New Channel Characterization Sheets are included in the Annual Notification only if there are changes or revisions.

3. The Annual Report provides a thorough accounting of the status of Tiers 1-3 on and off site mitigation programs for a period of 5 years. The Annual Report is generally submitted in December or January of each year.

# Appendix F

## Sediment Disposal Memorandum To North Coast Regional Water Quality Control Board

# Memorandum

**Subject:** **Sediment Sampling and Disposal Notification for the Sonoma County Water Agency's 2013 Stream Maintenance Program – Final**

~~March 26, 2013,~~ Revised April 8, 2014

To: Mark Neely, North Coast Regional Water Quality Control Board (NCRWQCB)
Stephen Bargsten (NCRWQCB)

From: Ken Schwarz, Horizon Water and Environment
Jill Sunahara, Horizon Water and Environment

CC. Jon Niehaus, Sonoma County Water Agency (SCWA)
Keenan Foster, SCWA

This is the proposed sediment sampling and disposal plan for the SCWA's 2013 Stream Maintenance Program (SMP) maintenance sites for review and approval by the NCRWQCB (or Regional Board), as required under the Monitoring and Reporting Program (MRP No. R1-2009-0049), as part of WDR No. R1-2009-0049 and Section 401 Water Quality Certification WDID No. 1B09026WNSO, as amended on July 29, 2010. This memo reflects revisions discussed during a meeting with the NCRWQCB on March 21, 2013.

This memo includes the following sections:

1. Summary of sampling efforts to date.
2. Proposed sediment sampling and testing plan for 2013.
3. Proposed sediment reuse and disposal plan for sediment removed from 2013 maintenance sites.

## 1. Summary of SMP sampling efforts to date

Regulatory approval of the SMP by the NCRWQCB was provided in July 2009. SCWA conducted sediment sampling at each of the six maintenance sites and at the sediment reuse site (at the Grossi site). The sediment sampling approach was refined for the 2010 maintenance season; fourteen maintenance sites were sampled and the Grossi site was sampled again. In 2011, 11 project sites were sampled and the majority of the material was reused or disposed at the Grossi site. In 2012, a total of 8 sediment samples were collected from 5 project sites throughout the Zone 1A. All material removed was reused or disposed at the sites listed in section 3. Table 1, below lists the sites and analytes tested since 2009.

**Table 1:** SMP Sediment Sampling Tracking Table (2009 - 2012)

| Creek Name & Reach | SMP Project Type | Volume of Sediment Removed (cy)[1] | Watershed Position (Headwater, Upper, Middle, Lower) | Number of Samples Taken | Sediment Analytes and EPA Test Method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Metals (6020A) | pH | Total Organic Carbon (9060) | Semivolatile Organics – PAH extended list (8270D or C Modified) | Organochlorine Pesticide and PCB Congeners (8081B/8082A)[2] | Organophosphorus Pesticides (8141B or 8270D) | TPH (8015)[3] | VOCs (8260B) | Asbestos, Fluoride, Nonylphenol | Dioxin (8290) |
| **Sediment Disposal Sites** | | | | | | | | | | | | | | |
| Grossi Site | | | Middle | | | | | | | | | | | |
| 2009 | -- | -- | | 5 | X | | | | | | X | X | | |
| 2010 | -- | -- | | 2 | X | X | X | X | X | X | | X | X | X |
| ***Zone 1 A*** | | | | | | | | | | | | | | |
| ***Windsor Creek Subbasin*** | | | | | | | | | | | | | | |
| Windsor Creek 1 | | | Middle | | | | | | | | | | | |
| 2011 | Localized** | tbd | | 1 | X | X | X | | | | | | | |
| Starr Creek 1 | | | Middle | | | | | | | | | | | |
| 2009 | Localized* * | 215 | | 1 | X | X | X | X | X | X | X | X | X | X |
| 2010 | Localized | 215 | | 1 | X | X | X | X | X | X | | X | X | |
| ***Santa Rosa Creek Subbasin*** | | | | | | | | | | | | | | |
| Austin Creek 3 | | | | | | | | | | | | | | |
| 2011 | Reach** | tbd | Upper | 2 | X | X | X | X | X | | X | | | |
| College Creek 3 | | | Middle | | | | | | | | | | | |
| 2010 | Bank Stabilization | -- | | 1 | X | X | X | X | X | X | | X | X | |
| Ducker Creek 2 | | | Middle | | | | | | | | | | | |
| 2010 | Localized | 56 | | 1 | X | X | X | X | X | X | | X | X | X |

[1] Note that the Annual SMP Reports should be referenced for the most accurate accounting of the volume of sediment removed that year.
[2] Method used for detection of PCB Congeners and Organochlorine Pesticides in 2011 samples was changed to 1668 HRGC/HRMS per 2010 permit updates. Method used for 2012 samples was 8081B per 2012 program approvals.
[3] Method used for 2011 samples was changed to 3550A and 8015-Modified per 2010 permit updates.
** Sediment sample collected and analyzed but maintenance activity not conducted in that year

**Table 1:** SMP Sediment Sampling Tracking Table (2009 - 2012)

| Creek Name & Reach | SMP Project Type | Volume of Sediment Removed (cy)[1] | Watershed Position (Headwater, Upper, Middle, Lower) | Number of Samples Taken | Sediment Analytes and EPA Test Method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Metals (6020A) | pH | Total Organic Carbon (9060) | Semivolatile Organics – PAH extended list (8270D or C Modified) | Organochlorine Pesticide and PCB Congeners (8081B/8082A)[2] | Organophosphorus Pesticides (8141B or 8270D) | TPH (8015)[3] | VOCs (8260B) | Asbestos, Fluoride, Nonylphenol | Dioxin (8290) |
| Lorna Dell Creek 1 | | | Upper | | | | | | | | | | | |
| 2010 | Reach | 1,260 | | 1 | X | X | X | X | X | X | | X | X | |
| Paulin Creek 2-4, 6 | | | Middle | | | | | | | | | | | |
| 2010 | Localized | 805 | | 1 | X | X | X | X | X | X | | X | X | |
| Piner Creek 6 | | | Middle | | | | | | | | | | | |
| 2012 | Localized | 207 | | 1 | X | X | X | X | X | | | | | |
| Peterson Creek 2 | | | Lower | | | | | | | | | | | |
| 2010 | Bank Stabilization | -- | | 1 | X | X | X | X | X | X | | | X | X |
| Russell Creek 1 | | | Middle | | | | | | | | | | | |
| 2010 | Localized | 74 | | 1 | X | X | X | X | X | X | | X | X | |
| Santa Rosa Creek 1 | | | Lower | | | | | | | | | | | |
| 2010 | Bank Stabilization | -- | | 1 | X | X | X | X | X | X | | | X | X |
| Santa Rosa Creek 2 | | | | | | | | | | | | | | |
| 2011 | Reach | 3,835 | Lower | 3 | X | X | X | X | X | | X | | | |
| ***Roseland and Colgan Subbasin*** | | | | | | | | | | | | | | |
| Kawana Creek 1 / Colgan Creek 7 | | | Middle | | | | | | | | | | | |
| 2009 | Reach ** | 1,059 | | 3 | X | X | | X | X | X | X | X | | |
| 2010 | Reach | 1,059 | | 2 | X | X | X | X | X | X | | X | X | |
| Colgan Creek 6 | | | | | | | | | | | | | | |
| 2011 | Reach** | tbd | Middle | 3 | X | X | X | X | X | | X | | | |

**Table 1:** SMP Sediment Sampling Tracking Table (2009 - 2012)

| Creek Name & Reach | SMP Project Type | Volume of Sediment Removed (cy)[1] | Watershed Position (Headwater, Upper, Middle, Lower) | Number of Samples Taken | Sediment Analytes and EPA Test Method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Metals (6020A) | pH | Total Organic Carbon (9060) | Semivolatile Organics – PAH extended list (8270D or C Modified) | Organochlorine Pesticide and PCB Congeners (8081B/8082A)[2] | Organophosphorus Pesticides (8141B or 8270D) | TPH (8015)[3] | VOCs (8260B) | Asbestos, Fluoride, Nonylphenol | Dioxin (8290) |
| Colgan Creek 5 | | | Middle | | | | | | | | | | | |
| 2009 | Localized** | 200 | | 1 | X | X | X | X | X | X | X | X | X | X |
| 2010 | Localized | 200 | | 1 | X | X | X | X | X | X | | X | X | X |
| Colgan Creek 4 | | | Middle | | | | | | | | | | | |
| 2012 | Localized | 100 | | 1 | X | X | X | | | | | | | |
| ***Upper Laguna Subbasin*** | | | | | | | | | | | | | | |
| Cook Creek Sediment Basin | | | Upper | | | | | | | | | | | |
| 2011 | Sediment Basin/Instream Basin Clearing | 150 | | 1 | X | X | X | | | | | | | |
| Coleman Creek 2 | | | Middle | | | | | | | | | | | |
| 2011 | Reach** | tbd | | 2 | X | X | X | X | X | | X | | | |
| Copeland Creek 4 | | | Middle | | | | | | | | | | | |
| 2011 | Sediment Basin/Instream Basin Clearing | 683 | | 1 | X | X | X | | | | | | | |
| Cotati Creek 1 | | | Middle | | | | | | | | | | | |
| 2009 | Reach | 416 | | 1 | X | X | | X | X | X | X | X | | |
| Crane Creek 1/ Five Creek 1 | | | Upper | | | | | | | | | | | |
| 2009 | Reach** | 5,213 | | 5 | X | X | | X | X | X | X | X | | |
| 2010 | Reach | 5,213 | | 5 | X | X | X | X | X | X | | X | X | X |
| Gossage Creek 1 | | | Lower | | | | | | | | | | | |
| | Reach** | tbd | | 3 | X | X | X | X | X | | X | | | |

**Table 1:** SMP Sediment Sampling Tracking Table (2009 - 2012)

| Creek Name & Reach | SMP Project Type | Volume of Sediment Removed (cy)[1] | Watershed Position (Headwater, Upper, Middle, Lower) | Number of Samples Taken | Sediment Analytes and EPA Test Method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Metals (6020A) | pH | Total Organic Carbon (9060) | Semivolatile Organics – PAH extended list (8270D or C Modified) | Organochlorine Pesticide and PCB Congeners (8081B/8082A)[2] | Organophosphorus Pesticides (8141B or 8270D) | TPH (8015)[3] | VOCs (8260B) | Asbestos, Fluoride, Nonylphenol | Dioxin (8290) |
| Gossage Creek 2/3 | | | Lower | | | | | | | | | | | |
| 2012 | Reach | 2,500 | | 2 | X | X | X | X | X | | | | | |
| Hinebaugh Creek 1 | | | Middle | | | | | | | | | | | |
| 2012 | Localized | 500 | | 1 | X | X | X | X | X | | | | | |
| Hinebaugh Creek 4 | | | Middle | | | | | | | | | | | |
| 2012 | Localized | 100 | | 1 | X | X | X | | | | | | | |
| Hinebaugh Creek 5 | | | Middle | | | | | | | | | | | |
| 2010 | Localized | 78 | City of RP project | 1 | X | X | X | X | X | X | | X | X | |
| Laguna 1 | | | Lower | | | | | | | | | | | |
| 2010 | Reach | 14,485 | | 5 | X | X | X | X | X | X | | | X | X |
| 2012 | Reach | 6,950 | | 2 | X | X | X | X | X | | | | | |
| Laguna 4/5 | | | Lower | | | | | | | | | | | |
| 2011 | Localized | 176 | | 1 | X | X | X | | | | | | | |
| Todd Creek 4 | | | Middle | | | | | | | | | | | |
| 2010 | Localized** | 325 | | 1 | X | X | X | X | X | X | | X | X | X |
| Todd Creek 3 | | | Middle | | | | | | | | | | | |
| 2011 | Reach | 3744 | | 1 | X | X | X | X | X | | X | | | |
| Wilfred Creek 1 | | | Upper | | | | | | | | | | | |
| 2009 | Intermediate | 3,250 | | 4 | X | X | | X | X | X | X | X | | |
| ***Zone 8 A*** | | | | | | | | | | | | | | |
| Bloomfield Creek | | | Middle | | | | | | | | | | | |
| 2011 | Localized | 340 | | 1 | X | X | X | | | | | | | |

## 2. Approach for 2013 Sediment Sampling and Testing

SCWA updated the Sediment Sampling and Analysis Guidelines in Appendix B of the SMP Manual in December 2012. The updates improved the sampling methods, laboratory analytes, and test result evaluation guidelines. The amended Appendix B is included with this submittal.

For the 2013 season, sediment sampling and testing will be conducted according to the requirements of the MRP and as detailed in the amended Appendix B of the SMP Manual.

A few other minor adjustments to Table 3 of the Amended MRP are proposed:

1) PCBs and organochlorine pesticides evaluated using Method 8081 or 8082A instead of Method 1668. This has proven to be a more effective method for evaluation of stream sediments.
2) The PAHs included in MRP Table 3 originate from Table 5 of the *Beneficial Reuse of Dredge Material: Sediment Screening and Testing Guidelines* (SFBRWQCB 2000). However, this list is not comprehensive. We suggest the PAH list be modified to include the following complete suite of PAHs, as evaluated under Methods 8270C Modified or 8270D. Note that we will request that the lab run the full suite of PAHs to assist with the interpretation of petroleum sources and the TPH results. However, the shortened list of PAHs below are most appropriate for PAH screening. <u>All detected peaks will be reported.</u>
    - Naphthalene
    - 2-Methylnaphthalene
    - Acenaphthylene
    - Acenaphthene
    - Fluorene
    - Phenanthrene
    - Anthracene
    - Fluoranthene
    - Pyrene
    - Benz(a)anthracene
    - Chrysene
    - Benzo(b)fluoranthene
    - Benzo(k)fluoranthene
    - Benzo(a)pyrene
    - Indeno(1,2,3-cd)pyrene
    - Dibenz(a,h)anthracene
    - Benzo(g,h,i)perylene
    - Total PAH (17 analytes)
    - Total HMW PAH
    - Total LMW PAH
3) The Aliphatics or TPH test using Method 8015 Modified and 3550A Cleanup will evaluate the “gasoline range” and not specifically 1,4 Bromoflurobenzene, as is shown in MRP Table 3.
4) <u>Testing of sediments from Paulin Creek shall always be conducted for the full suite of analytes due to the high potential for presence of industrial-related contaminants.</u>

Due to elevated chlorinated pesticide levels detected at some maintenance sites in the past, the excavated soil quality from these sites may not meet federal and state standards for disposal and reuse for the sites used in the past few years (see list in Section 3 below). Soil not suitable for disposal or reuse at previously established sites may be taken to the Sonoma County Central Landfill for use as cover material. Additional soil testing is required for the landfill's cover material acceptance criteria. Per guidance received from staff at the landfill, testing for volatile organic compounds (VOCs) under Method 8260 and reactivitiy, corrosivity, and ignitability (RCI) will be conducted on samples collected from sites that may be taken to the landfill. Once test results are complete, use of the landfill as a disposal option will be discussed further with the Regional Boards.

Maintenance reaches, estimated quantities of sediment to be removed, the number of samples to be collected, suite of analytes to be tested are shown in Table 2 below. Notes to explain the sampling proposal are also provided in the table, and project design drawings are included with this submittal. Sampling locations are targeted to evaluate the largest bulk of sediment to be removed, such that the samples are representative of the entire bulk of sediment to be removed from each creek.

Proposed 2013 Zone 1A sampling includes 12 "full suite" samples and 2 "subset" samples, for a total of 14 samples from 10 streams.

The "full suite" of analytes includes those listed in Table 3 of the amended MRP. The "subset" list of analytes includes metals listed in Table 3, total organic carbon, and total solids.

**Table 2:** Proposed Sediment Sampling Plan for 2013

| **Maintenance Reach Number and Maintenance Scale** (see SMP Manual for reach locations) | **Estimated Amount of Sediment to be Removed** (cubic yards) | **Number and Group of Analytes to be Tested** (full suite or subset) | **Comments** |
|---|---|---|---|
| **Reach Scale** | | | |
| Colgan Creek 3, 4, 5<br>(6,494 lf) | 5,881 | 2 – full suite<br>Additional tests: 8260 and RCI | Composite of multiple cores (each sample will represent 2,500 cy).<br>Downstream Composite Sample:<br>- 143+70 (reach 3)<br>- 146+00 (reach 3)<br>- 159+98 (reach 4)<br>- 154+18 (reach 4)<br>- 176+22 (reach 4)<br>Upstream Composite Sample (reach 4):<br>- 189+79<br>- 200+45<br>- 197+94<br>- 191+60<br>- 202+61<br>- 281+00 (reach 5 @ Hearn Ave)<br>Note, culvert at Stony Point (Colgan 4) tested in 2012; chlorinated pesticides detected at low levels. |
| Forestview Creek 2/3 | 901 | 1 – subset | Composite: 532+35 and 549+60<br>Full suite conducted at nearby Peterson 2 in 2010. No contaminant concentrations of concern. Similar surrounding land use. |
| Hinebaugh Creek 3/4/5<br>(5,160 lf) | 4,639 | 2 – full suite | Composite of 5 cores from Reach 3 where the bulk of sediment will be removed:<br>- 188+32<br>- 195+35<br>- 192+49<br>- -0+07<br>- 11+81 (reach 4)<br>2 cores from Reach 5 downstream from railroad:<br>- 25+35<br>- 19+21<br>Note, are near Commerce Ave was sampled in 2012. Reach 5 was sampled in 2010, but will test in 2013 downstream from the SMART railroad tracks. |
| Todd Creek 1/2<br>(4,715 lf) | 1,727 | 2 – full suite<br>Additional tests: 8260 and RCI | Composite of 2 cores each:<br>- 18+76 (reach 1)<br>- 37+24 (reach 2)<br>Downstream of Hwy 101 (reach 2)<br>- 43+78<br>- 42+12<br>Note, Todd 3 tested in 2011; chlorinated pesticides detected at low levels. |

| **Localized** | | | |
|---|---|---|---|
| Brush Creek 2<br>(at confluence with Austin Creek) | 819 | 1 -full suite<br>Additional tests: 8260 and RCI | Composite of 3 wedges<br>Austin Creek Sampled in 2011. Chlorinated pesticides detected at low levels. |
| Ducker 2 at Rinconada | 36 | N/A | Sampled in 2010. Chlorinated pesticides detected at low levels.<br>Soil to be combined with Brush Creek and disposed together. |
| Paulin Creek 5/6 | 469 | 1-full suite<br>Composite of:<br>702+14<br>695+06<br>687+95 | Localized removal at McBride, Range, and Hardies.<br><br>Sampled in 2010.<br>Industrial area with high potential for presence of contaminants |
| Roseland Creek 1 | 1,260 | 1 – full suite<br>~~subset~~ | Composite of 2 cores, from Crossing #1 and #6.<br>Sediment removal at 6 discrete cattle crossings. Culverts installed at these crossings in 2008.<br>Disposal onsite. |
| Starr Creek 2 | 444 | 1 – full suite | 43+75, downstream from the culvert outlet.<br>Starr 1 tested in 2009 and 2010 with clean results.<br>Railroad tracks immediately upstream from Reach 2. |
| Steele Creek 2 | 171 | 1 – full suite<br>~~subset~~ | Composite of 2 cores, 634+44 and 631+77<br>Surrounded by residential area. |
| Windsor Creek 3/4<br>at Natalie Drive | 175 | 1 – subset | Composite: 134+03 and 133+09<br>Residential area |
| **Sediment Basin/Instream Basin Clearing** | | | |
| Cook Creek Sediment Basin | No sampling for 5 years | Annual site. Sampled in 2011 | |
| Copeland Creek at County Club | No sampling for 5 years | Annual site. Sampled in 2011 | |
| Copeland Creek at Snyder Lane | No sampling for 5 years | Annual site. Sampled in 2011 | |
| Five Creek at Snyder Lane | No sampling for 5 years | Annual site. Sampled in 2010 | |
| Todd 5 Creek at Delores Lane | 458 cy removed<br>Additional tests: 8260 and RCI | **1 – full suite** ~~subset~~<br>115+84<br>Combine with Todd 1/2 sediment for disposal.<br>Drains agricultural headwater areas. Todd 4 sampled in 2010 with low level chlorinated pesticides detected. | |
| Wilfred Channel at Snyder Lane | No sampling for 5 years | Annual site. Sampled in 2009 | |

## 3. Sediment Disposal and Reuse Plan for 2013

The following sites are proposed for sediment disposal and reuse. These are the same sites as used for the 2011 and 2012 maintenance season.

- **Grab N' Grow**
  Grab N' Grow Products processes and sells soil products for farmers, gardeners, and landscapers. The company is located at 2759 Llano Road in Santa Rosa. The facility recycles over 80,000 cubic yards of organic materials including green waste (tree trimmings and landscaping waste) and agricultural waste each year. Grab N' Grow produces soil mixes, compost, and groundcover materials.

  This facility has the potential capacity to receive the entirety of the sediment removed as part of 2013 maintenance activities. Grab N' Grow is primarily interested in material that can be used

to augment other materials for use as fill. SCWA and Grab N' Grow have a written agreement for soil disposal.

- **Wheeler Zamaroni**
  Wheeler Zamaroni is a local company that sells landscape and building materials, and custom fabricated stone. The company operates at a 30-acre facility located at 3500 Petaluma Hill Road in south Santa Rosa. SCWA has an agreement with this company. A copy of the finalized agreement was provided to the Regional Board as part of the 2010 Notification process.

  No SMP sediments would be resold as soil products, such as for gardening or soil amendments, due to the potential for redistribution of anthropogenic bioaccumulative materials present in the stream sediments. Wheeler Zamaroni is primarily interested in material that they can sort into sand and gravels for reuse.

- **Grossi Site**
  Mr. Ed Grossi's property is located at 6652 Petaluma Hill Road in Rohnert Park. On this property, Mr. Grossi operates a landscaping nursery and grows feed grains for dairy cattle. He also maintains an open area to process soil material for potting and resale. Mr. Grossi has an existing agreement with SCWA to accept sediment from stream channels in the SMP area. As approved by the Regional Board, the Grossi property has received and reused sediment from stream maintenance activities for the past three years. The memorandum of agreement between Mr. Grossi and SCWA for sediment disposal does not expire until 2023.

  This site has the potential capacity to receive the entirety of sediment excavated from the 2013 maintenance sites. Sediment excavated from the Rohnert Park and Cotati areas would be taken to Grossi's property to reduce transportation costs. SMP sediment would not be used for agricultural purposes, such as growing feed grasses or reuse as potting soils. The sediment will be reused as fill material only.

- **Dairy Bedding**
  SCWA has received inquiries from several local dairies in the Stony Point Rd vicinity about the use of SMP sediment for use as bedding material. Any agreement with local dairies would require that material be placed in preapproved locations upon evaluation by SCWA staff and could not be used as fill in wetlands or sensitive areas. SCWA obtained approval for this type of sediment reuse from Water Board staff in 2011.

- **BoDean Company**
  BoDean Company is a supplier of aggregate and asphalt to the Santa Rosa area and Napa County. The company operates the Mark West Quarry, the Forestville Quarry, and an asphalt plant in Santa Rosa. Any excavated material from Santa Rosa Creek is taken to BoDean's Forestville plant located at 7888 Highway 116 in Forestville for sorting and reuse as fill for construction projects only.

- **Sonoma County Central Landfill, Petaluma**
  Soil that is not suitable for reuse at the sites listed above based on testing results will be taken to the Sonoma County Central Landfill in Petaluma for use as cover material. The soil must conform to the County's testing and material quality requirements. Review and approval from the Regional Board will be requested if this option will be pursued for disposal of excavated sediment.

# Appendix G

## WPP Project Descriptions

**2013 Watershed Partnership Program Project Funding Application**

**APPLICATION INFORMATION**

**Applicant/Lead Organization Address**
The Center for Social and Environmental Stewardship

**Contact Name and Title**
Nancy Lesa, Ph.D., Executive Director

**Telephone**
707-838-6641 ext. 217

**Email Address**
Nancy.Lesa@cfses.org

**Signature and Date**

Nancy Lesa, PhD. 1/30/2013
Nancy Lesa, Ph.D. Date

**PROJECT INFORMATION**

**Project Name**
Starr Creek Restoration Project

**Project Location**
The project is located on Starr Creek, on the Honsa Property adjacent to Hillview Road and Arata Lane, in Windsor, CA. APN: 161-020-040, 161-020-041

**Total Project Budget:** $54,322.00 (including a 5 year maintenance program).

**Available Matching Funds:**

**Total Requested through WPP:** $54,322.00

**Proposal Narrative** (maximum 5 pages); Respond in each of the following areas:

**1. Project Description**

The Center for Social and Environmental Stewardship (The Center) proposes to implement the Starr Creek Restoration Project under the Sonoma County Water Agency's Watershed Partnership Program (WPP). The proposed WPP Project will mitigate for dredging activities that will occur in 2013 along Starr Creek as part of the SCWA's Stream Maintenance Program (SMP). The WPP Project proposed by The Center will plant native shrubs and understory herbaceous plants and remove invasive blackberry, thin willow trees and small oak trees (<5"Diameter at Breast Height) along a section of Starr Creek located at Hillview Road and Arata Lane in Windsor (Attachment A –Restoration Plan).

Starr Creek originates in the hills north of Windsor, draining an area of 2.5 square miles before flowing into Windsor Creek. Starr Creek is one of five major creeks that flow through the Town of Windsor, including East Windsor, Pool, Pruitt, and Windsor Creek. Combined, these creeks have a total watershed area of approximately 7,320 acres and provide important ecological habitat for the natural landscape.

Due to the steep terrain in the upper watershed and highly developed surrounding area, Starr Creek has high sediment deposits resulting in annual dredging of the lower channelized reaches of the creek as part of SCWA's SMP. Annual dredging impacts native plant vegetation and requires mitigation focused on sediment reduction, exotic non-native control, and native plant revegetation. Annual SMP activities along Starr Creek include bank stabilization, sediment and debris removal and selectively thinning and removing overgrown vegetation. The SMP is designed to maximize habitat opportunities for native plants and wildlife, while also maintaining hydraulic capacity.

The proposed WPP Project will restore 1.0 acres of mixed riparian and emergent wetland, by removing 0.25 acres of invasive non-native Himalayan blackberry (*Rubus armenicus*) and planting 400 native shrubs and herbaceous plants to enhance and restore 1,156 feet of waterway, 0.16 acres of open waterway, and 0.25 acres of mixed riparian woodland (Attachment A – Restoration Plan).

Himalayan blackberry will be mechanically removed using brushcutters and manual labor followed by herbicide spot treatment of glyphosate mixed with a surfactant approved for aquatic use. Overgrown Arroyo willow (*Salix lasiolepsis*) and immature oak (*Quercus agrifolia*) sprouts will be thinned to decrease sediment trapping debris from entering the creek-bed and increasing space and light within the riparian under-story. The removal of immature oak sprouts will improve the health and canopy cover of the mature, 'parent' oaks nearby (Attachment B – Photo-Documentation).

Invasive Himalayan blackberry removal, willow and oak tree thinning is extremely labor intensive and requires the combined effort of a large labor pool and skilled workforce that will include The Center's Qualified Applicator. The most cost-effective method for Himalayan blackberry removal will be employed

and includes the mechanical removal of all above-ground bio-mass by The Center's skilled work crew employing brushcutters, chainsaws, hedge-trimmers and chipper. The initial blackberry removal will be immediately followed by discarding plant material and hand-removing remaining clusters and roots. Upon completion of this task, The Center's Licensed Qualified Applicator will return to spray emergent re-sprouts with herbicide, as necessary.

Shrubs and herbaceous plants will be planted from liner size nursery container stock. Nursery plants will be propagated at The Center's Native Plant Nursery. The Center Native Plant Nursery program educates community members on propagation and utilization of native plants in ecological communities while supplying Northern California restoration projects with native plant materials, plant storage and propagation services.

Understory shrubs will be planted along the top of bank and occasionally, depending on channel capacity, along the toe. Shrubs will be spaced appropriately (typically 10 to 15 feet on center) to allow room for mature development and provide access to the channel. Example shrub species include California rose (*Rosa californica*), snowberry (*Symphoricarpos albus*), native blackberry (*Rubus californica*), pink flowering currant (*Ribes speciosum*), toyon (*Heteromeles arbutifolia*), and coffeeberry (*Rhamnus californica*). Native grasses and sedges will be used in-stream, at the toe-of-slope, and along the side banks and spaced 2 to 10 feet on center. Example graminoid species include Santa Barbara sedge (*Carex barbarae*), common Juncus (*Juncus balticus*), blue wild-rye (*Elymus glaucus*), and tufted hair-grass (*Deschampsia elongate*) (Attachment A – Restoration Plan).

The WWP Project will follow the SMP Manual, which includes recommended plant palettes according to channel geomorphic form. All listed plants are native riparian species found in Sonoma County waterways. The WWP Project will be developed in consideration of the current and known historic native flora of the site and the Starr Creek watershed. Planting is expected to improve boundary conditions that set basic stream dimensions and function, thereby improving stream stability.

Plants will be hand-watered between the months of April and November. The watering schedule will be based on seasonal temperatures and weather conditions.

## 2. Project Benefits

Wetlands and riparian corridors are extremely important to regional ecosystem function as well as providing for flood control and recreational opportunities. These habitats provide migration routes for terrestrial and aquatic organisms. The value of the wetland and riparian habitat lies in the benefits of habitat, water-quality, and hydrologic functions provided to the ecological landscape by controlling runoff and functioning as effective water filters that help improve surface water and attenuate storm flows.

The proposed WWP Project is designed to maximize existing native vegetation and provide for planting both upland and riparian shrub understory species. From an ecosystem functioning perspective the reach is lacking in multi-canopy habitat, especially in the form of herbaceous understory and diversity in riparian species. Many of the dense patches of exotics preclude the colonization of natives. Because of the size and habitat value of some of the existing exotic species (Arroyo willow, immature oaks, and blackberry) cannot be removed unless replacements can be installed. The in-channel portion needs strategic planting of aggressive but flood control friendly natives to limit growth of sediment catching willows and cattails.

**3. How does this project advance goals for the Water Agency Stream Maintenance Program and pertain to the 2013 planned maintenance work?**

The proposed WPP Project is located upstream from the 2013 Starr Creek flood maintenance activities occurring down creek along Starr Creek in Windsor. Annual SMP activities along Starr Creek include bank stabilization, sediment and debris removal and selectively thinning and removing overgrown vegetation. The proposed WPP Project will mitigate for these activities by eradicating exotic non-native and sediment catching plants, while installing ecologically appropriate native understory species. The proposed restoration activities will improve the creek corridor's multi canopy cover, species diversity, in stream hydraulic capacity and storm water runoff filtration functioning; reducing the necessity of SCWA SMP to remove sediment and debris downstream Starr Creek in future years.

**4. Location. Right of Way Access**

The section of Starr Creek that will be the focus of this WPP Project is within the property boundaries of the Honsa Family, parcel APN: 161-020-040, 161-020-041 (Attachment A – Restoration Plan).

**5. Project Partners. Discuss the role of any project partners or public involvement.**

The Center's award winning Environmental Education, Stewardship and Service-Learning Programs engage community members in a variety of hands-on environmental education and stewardship activities designed to provide opportunities that increase stewardship efficacy and participate in the care of the local environment. To ensure the successful implementation of the restoration plan and safety of volunteers, The Center's Stewardship Manager will provide the necessary training and supervision of all activities. Work-days for volunteers will include invasive plant eradication, native plant installation and maintenance. A total of two community volunteer workdays are proposed in the first year of this project, with one volunteer workday occurring once year through the end of the contract agreement.

Volunteers are an important component to the WPP Project's success. Including community member and high school students in the stewardship, monitoring and restoration of their community creek will increase knowledge of the riparian ecosystem, native plant identification, invasive non-native plants, the impact on the environment, water quality and conservation methods. The proposed WPP Project will allow students

to gain a better understanding of how riparian communities function and will increase their familiarity with the natural history and taxonomy of the flora found in these habitats (with an emphasis herbaceous families, such as Poaceae, Juncaceae, Cyperaceae, Apiaceae, and woody families, such as Salicaceae, Fagaceae, Betulaceae, and other prominent plant families used in stream restoration).

**6. Project Schedule, including implementation, maintenance, and monitoring.**

| Year | Month | Deliverable |
|---|---|---|
| 2013 | August – November | Restoration Technicians begin blackberry removal and willow and small tree thinning. |
| 2014 | January - April | Installation of native plants. |
| 2014 | May – November | Monthly plant maintenance and weekly hand-watering. Blackberry re-growth treated. |
| 2014 | November | First of 5 annual plant survival monitoring completed. |

The remaining four years (November 2015 – December 2018) will consist of supplemental planting (if necessary), hand-watering, herbicide application focused on non-native blackberry re-growth, a minimum of 6 hand-weeding visits (April - November) annually, and yearly monitoring data collection and report submitted by December 1 of each year.

**7. Project Permitting. Discuss any necessary permits or approvals that may be necessary.**

The Center has already confirmed with the Sonoma County Permits and Resource Management Department that no permit is necessary to remove immature oak that are less than 5" D.B.H. California Department of Fish and Game may require a 1600 Streambed Alteration Agreement for the invasive removal, tree thinning, and native plant installation. The Center is currently in contact with CDFG representatives to verify if a permit is required for this project.

**8. Length and area of restoration and number and species of plants installed**

The proposed WPP Project will restore 1.0 acres of mixed riparian and emergent wetland, by removing 0.25 acres of invasive non-native Himalayan blackberry (*Rubus armenicus*) and planting 400 native shrubs and herbaceous plants to enhance and restore 1,156 feet of waterway, 0.16 acres of open waterway, and 0.25 acres of mixed riparian woodland (Attachment A – Restoration Plan).

Attachment A: Restoration Plan

## Starr Creek Restoration Project

Honsa Family Property
10504 Hillview Road, Windsor, Sonoma County, CA



| Starr Creek Restoration Project Plant Table | | | | | | |
|---|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Number of Plants in each Zone** | | | | |
| | | **Zone A** | **Zone B** | **Zone C** | **TOTAL** | **F.O.C.** |
| **UNDERSTORY** | | | | | | |
| *Calycanthus occidentalis* | spicebush | 1 | 1 | 1 | 3 | 5' - 10' |
| *Heteromeles arbutifolia* | toyon | 2 | 3 | 1 | 6 | 5' - 10' |
| *Lonicera involucrata* | twinberry | 1 | 2 | 1 | 4 | 5' - 10' |
| *Rhamnus californica* | coffeeberry | 2 | 2 | 2 | 6 | 5' - 10' |
| *Rosa californica* | wild rose | 3 | 3 | 3 | 9 | 5' - 10' |
| *Symphoricarpos albus* | snowberry | 3 | 4 | 3 | 10 | 5' - 10' |
| **SUB- TOTAL UNDERSTORY** | | **12** | **15** | **11** | **38** | |
| **Herbaceous Forbes** | | | | | | |
| *Acchillea millefolium* | yarrow | 50 | 50 | 50 | 150 | 1' - 3' |
| *Carex barbarae* | sedge | 30 | 30 | 30 | 90 | 1' - 3' |
| *Juncus patens* | common rush | 30 | 30 | 30 | 90 | 1' - 3' |
| *Festuca californica* | California fescue | 30 | 30 | 30 | 90 | 1' - 3' |
| *Elymus glaucus* | blue wild-rye | 30 | 30 | 30 | 90 | 1' - 3' |
| **SUB- TOTAL HERBACEOUS** | | **170** | **170** | **170** | **510** | |
| | | | | | | |
| **SUB-TOTAL PLANTS/ ZONE** | | **182** | **185** | **181** | **548** | |

## Attachment A: Restoration Plan

The Center for Social and Environmental Stewardship

9619 Old Redwood Highway
Windsor, CA 95492
voice 707.838.6641
www.cfses.org


| | | | |
|---|---|---|---|
| DESIGN: Anya Perron-Burdick | REVISIONS | DATE | BY |
| DRAWN: | | | |
| SCALE: 1 inch = 50 feet | | | |
| DATE: 01/29/2013 | | | |
| FILE: starr_creek_honsa.mxd | | | |

**PRODUCED FOR:**
SONOMA COUNTY WATER AGENCY
2013 WATERSHED PARTNERSHIP PROGRAM

**STARR CREEK RESTORATION PROJECT**
**HONSA FAMILY PROPERTY**
10504 HILLVIEW ROAD
WINDSOR, SONOMA COUNTY, CA

SHEET NO. 1 OF 2 SHEETS

Photo 1: North end of Zone C facing south. Date: 1/7/2013

Photo 2: Middle of Zone C, facing south; overgrown willows. Date: 1/7/2013

Photo 3: South end of Zone C, facing north. Date: 1/7/2013

Photo 4: North end of Zone B, facing south, with Himalayan blackberry and live oak trees. Date: 1/7/2013

Photo 5: Middle section of Zone B facing south. Date: 1/7/2013

Photo 6: South end of Zone B facing north. Date: 1/7/2013

Photo 7: North end of Zone A facing south. Date: 1/7/2013

Photo 8: South end of Zone A facing north. Date: 1/7/2013

## TOTAL BUDGET: (July 2013 - December 2018)

| TOTAL PROPOSED BUDGET | |
|---|---|
| Personnel Services | $48,105.00 |
| Supplies and Materials Expenses | $6,217.00 |
| **TOTAL** | **$54,322.00** |

| **Task 1: Initial Himalayan blackberry removal and willow thinning (July 2013 - November 2013)** | |
|---|---|
| | **Water Agency Share** |
| Personnel Services | $7,233.00 |
| Supplies and Materials Expenses | $950.00 |
| **TOTAL** | **$8,183.00** |
| **Task 2: Revegetation Plan Design and Installation (November 2013 - April 2014)** | |
| | **Water Agency Share** |
| Personnel Services | $11,695.00 |
| Supplies and Materials Expenses | $2,167.00 |
| **TOTAL** | **$13,862.00** |
| **Task 3: Maintenance, Monitoring, and Supplemental Planting (May 2014 - December 2018)** | |
| | **Water Agency Share** |
| Personnel Services | $29,177.00 |
| Supplies and Materials Expenses | $3,100.00 |
| **TOTAL** | **$32,277.00** |

# LANDOWNER ACCESS AGREEMENT WITH THE CENTER FOR SOCIAL AND ENVIRONMENTAL STEWARDSHIP

This Agreement is made and becomes effective on Jan 29 2013, by and between Edna and Robert Honsa, hereinafter called "Landowner," and The Center for Social and Environmental Stewardship, hereinafter called "The Center".

The Landowner is the fee owner of, or has a beneficial interest in, certain real properties located in the Russian River watershed. Referenced land is described by the grant deed recorded on County Recorder's Office Book: 161-020-040 and 161-020-040 (APN), hereinafter called the "Landowner's Property."

**PURPOSE:**
The Center proposes to implement the Starr Creek Restoration Project under the Sonoma County Water Agency's Watershed Partnership Program (WPP). The proposed WPP Project will mitigate for dredging activities that will occur in 2013 along Starr Creek as part of the SCWA's Stream Maintenance Program (SMP). The WPP Project proposed by The Center will plant native shrubs and understory herbaceous plants and remove invasive blackberry, thin willow trees and small oak trees (<5"Diameter at Breast Height) along a section of Starr Creek located at Hillview Road and Arata Lane in Windsor.

**PERTINENT FACTS:**
The Center is a California nonprofit organization existing under Section 501(c)(3) of the United States Internal Revenue Code and whose purposes are consistent with Division 21 of the California Public Resources Code. The Landowner seeks the assistance of The Center in restoring the natural resources and enhancing habitat on the property, and The Center seeks to provide this assistance.

**ACCESS PERMISSION:**
Landowner hereby grants permission to The Center, its subcontractors, project partners, and representatives of the funding agencies, to enter onto real property owned by the Landowner to perform the WPP project. Access shall be limited to those portions of the real property that must be traversed to gain access to the work site. Agents of the funding agencies will have access to visit the project site at reasonable intervals during the term of this agreement to determine whether the site is being restored and maintained in a manner consistent with the grant agreements. The Center, or its agents, will give reasonable actual notice prior to each access visit, and will work with the landowner to determine their preferred method of communication and notice requirements. Reasonable and actual notice may be given by mail, in person, or by telephone directed to the address and telephone number listed below. This agreement can be amended only by written agreement of both parties prior to executing this agreement.

**LANDOWNERS USE OF THE PROPERTY:**
Except as provided in this paragraph, the Landowner reserves the right to use the property in any manner, provided that its use does not unreasonably interfere with The Center's project responsibilities under this agreement. During the term of this agreement, the Landowner shall use the property and habitat improvements in a manner consistent with the purposes of the grant agreement; this includes, but is not limited to, refraining from harming, damaging, removing, altering, or interfering with the removal or restoration sites.

**DURATION:**
This agreement shall take effect when fully executed, on the date signed below. The term of this agreement shall be five (5) years for implementation, maintenance, and monitoring.

**LIABILITIES:**
The Center shall be responsible for and indemnify the Landowner to the extent of liability resulting from occurrences arising out of the operations of and/or the active negligence of The Center, its employees, agents or contractors. Upon request, Landowner will be named as additional insured on The Center's general liability insurance policy and be provided certifying documentation to that effect.

**ASSIGNMENT AND SURVIVAL:**
This Agreement shall be binding on any successors in interest to the Landowner only through the implementation of the project described herein.

By signing this agreement, Landowner agrees to allow The Center access to maintain the resulting improvements of the project for a period of not less than five (5) years from the date of execution shown below.

Robert & Edna Hansen
Landowner's name

10504 Hillview Road - Windsor - CA 95492
Landowner's address

- same -
Property address

(707) 838-7433
Landowner's phone number

Robert L. Hansen / Edna Hansen
Landowner's signature

1/28/13
Date

Authorized signature, The Center

Date

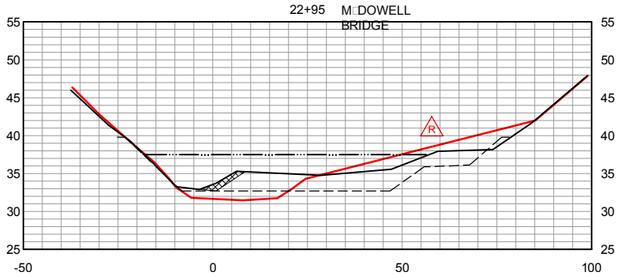
Print name

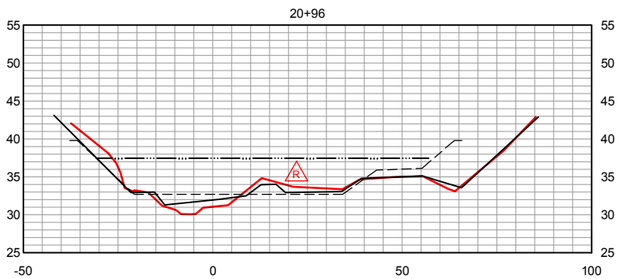
Title

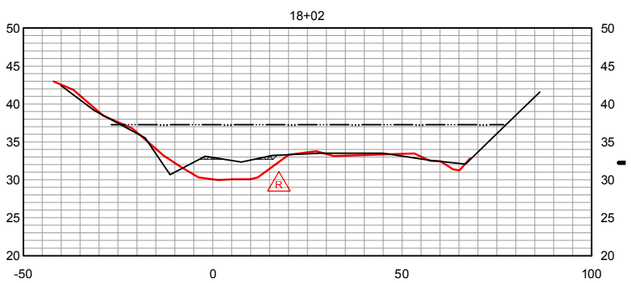
# Appendix H

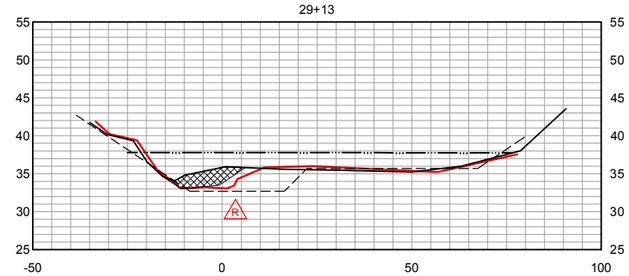
## SMP Addendums (Post Construction Cross Sections)

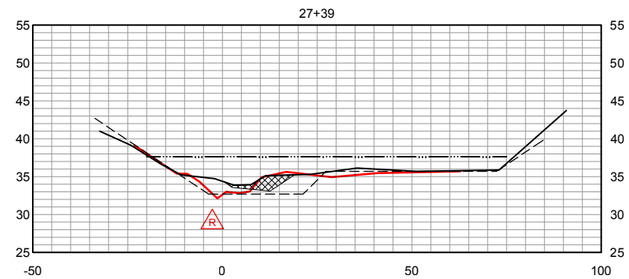
- East Fork Fryer Creek
- East Washington1, 2
- Lichau 2, 3

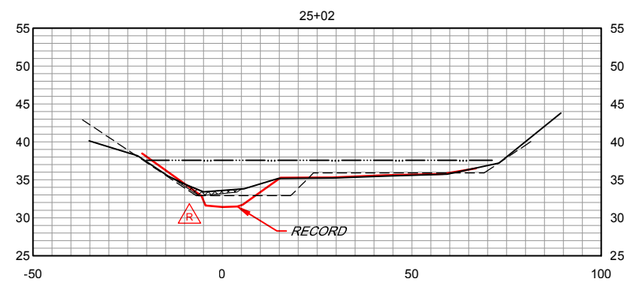


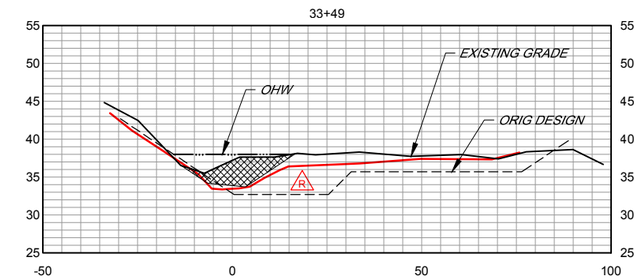



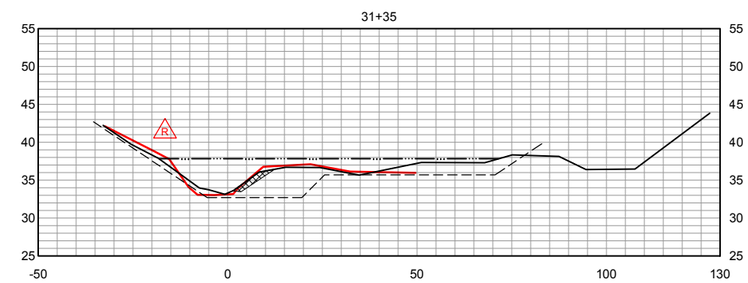



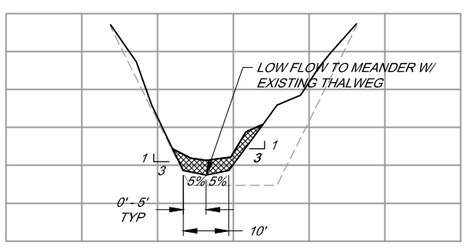




## SECTIONS

SCALE: HORI□ 1" □ 2O□
VERT 1"□ 10□




## TYPICAL CROSS SECTION

SCALE: NOT TO SCALE

RECORD DRAWING
DATE:1/30/13 BY:

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| R | 1/30/13 | RECORD INFORMATION ADDED TO DRAWING | |

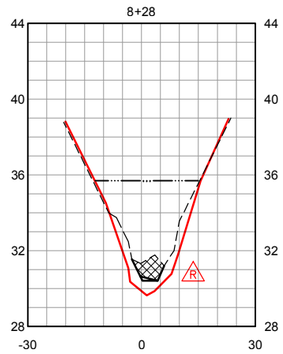
SONOMA COUNTY WATER AGENCY

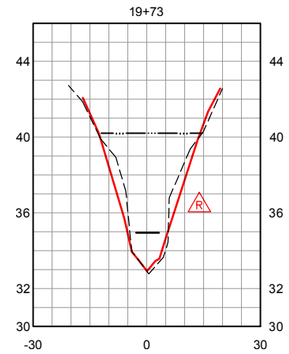
SCALE : AS SHOWN
DATE : 04/13/2012
DRAWN : ----
REVIEWED :

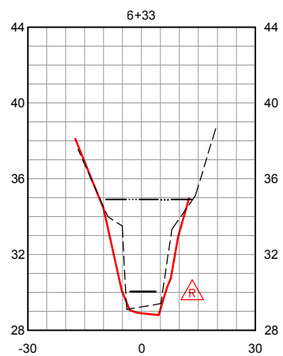
PETALUMA RIVER BASIN □ONE 2A
WILLOW BROOK CREEK SEDIMENT REMOVAL CROSS SECTIONS

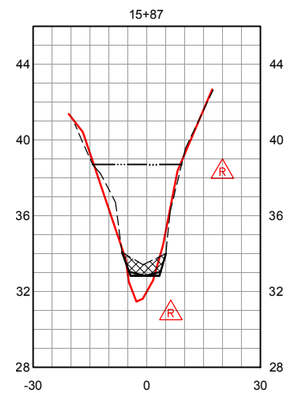
FILE NAME: 2012-Will□w□r□□□_C.dwg
CONTRACT NUMBER: □□-□□
DRAWING NUMBER: C-3
SHEET 4 OF 4

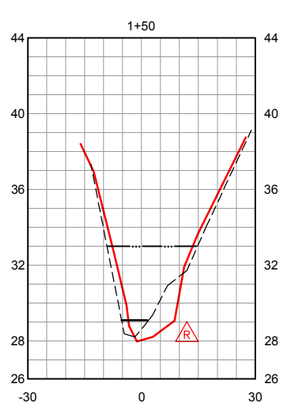
35d-data Pr□□□□ d □□ br □□□ e 2a WILLOWBROOK 2012_will w r □□2012-Will w r □□_C

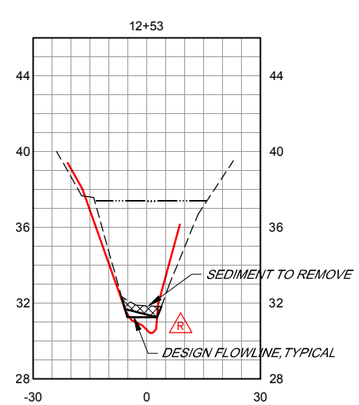


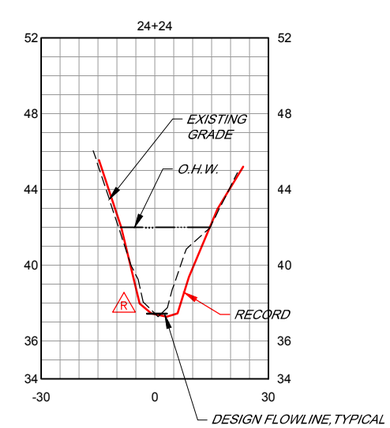



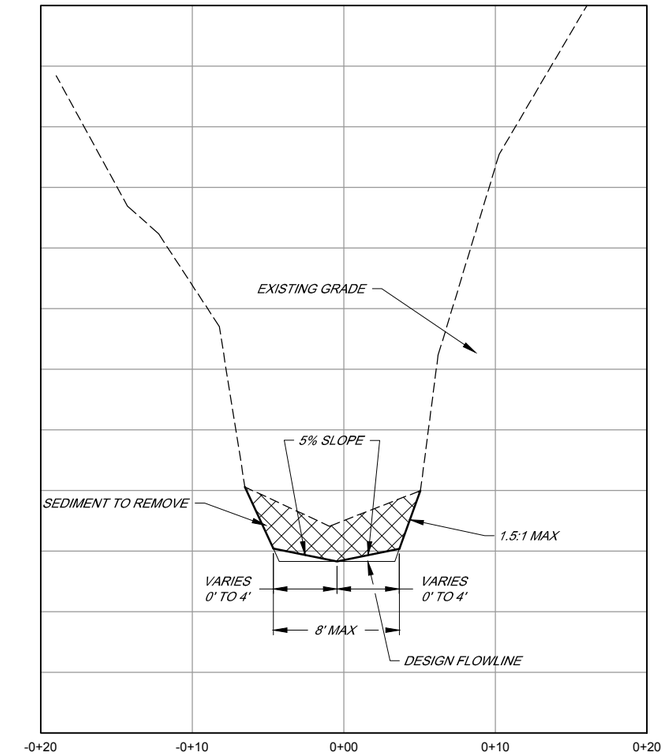




SECTIONS .

SCALE HORI 1" 20
VERT 1" 4

RECORD DRAWING
DATE: 1/30/13 BY:




TYPICAL SECTION A-A .
NOT TO SCALE

PRELIMINARY
90 SUBMITTAL
FOR REVIEW PURPOSES ONLY
07 MAR 2011

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| R | 1/30/13 | RECORD INFORMATION ADDED TO DRAWING | |

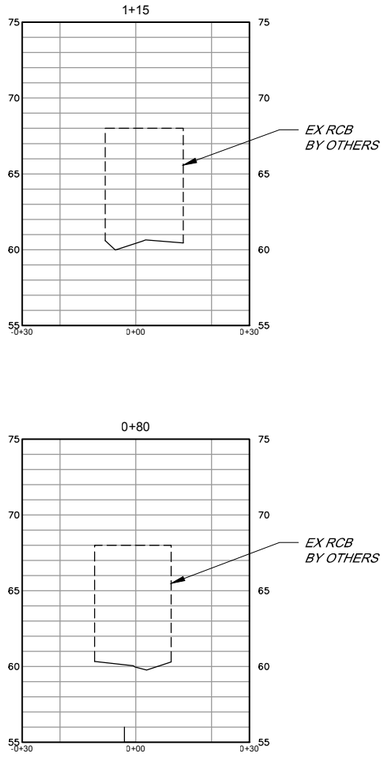
SONOMA COUNTY WATER AGENCY

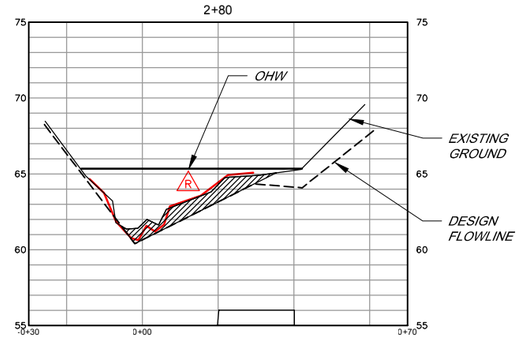
SCALE: AS SHOWN
DATE: 2/08/2011
DRAWN: ----
REVIEWED:

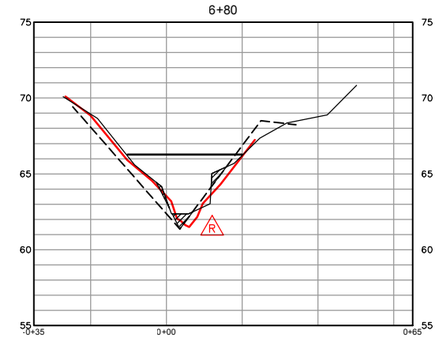
WASHINGTON AND EAST WASHINGTON CREEKS
EAST WASHINGTON CREEK CROSS SECTIONS AND TYPICAL SECTION

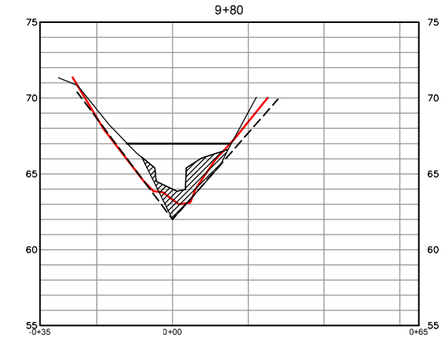
FILE NAME: 2012_WASH_C
CONTRACT NUMBER:
DRAWING NUMBER: C-5
SHEET 6 OF 6

:Sd-data Pr: d tr e 2a Was i gt: Cree: ladi: e t-re: val SMP-5_2012



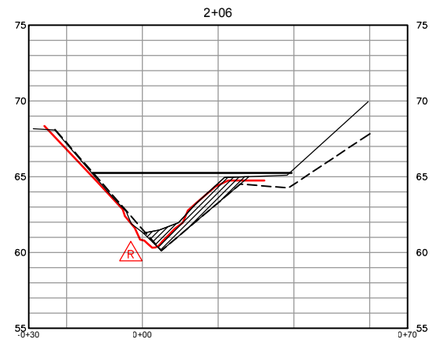



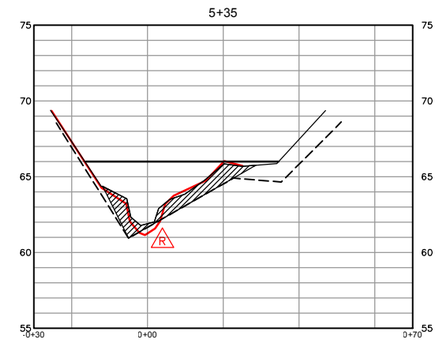



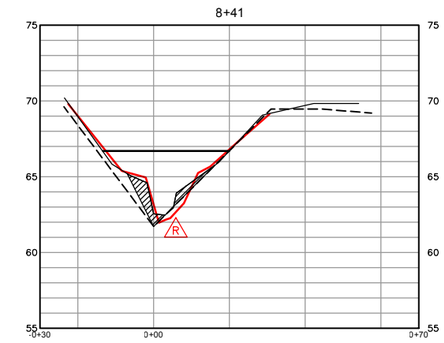



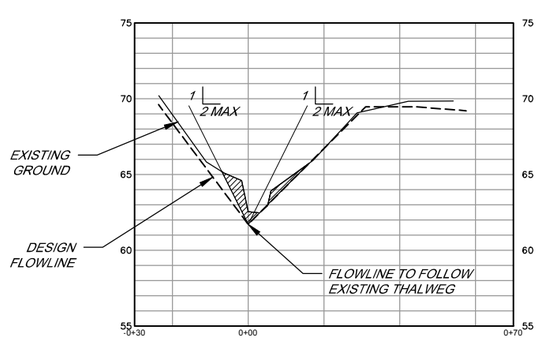






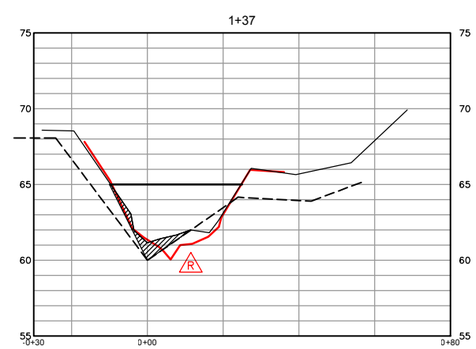



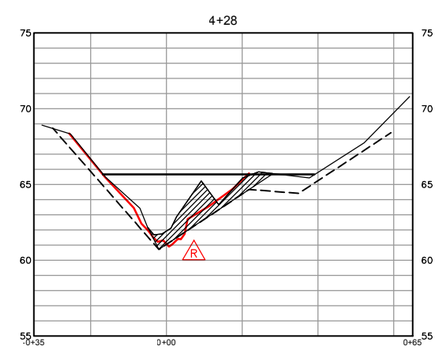



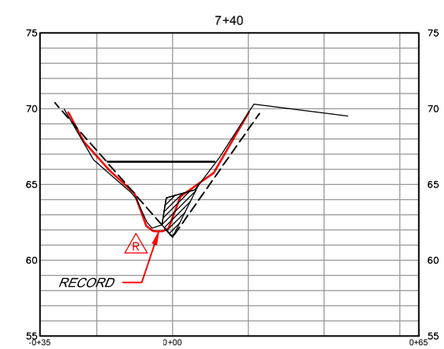




## TYPICAL SECTION

SCALE: HORIZ 1" = 20
VERT 1"= 5'




## SECTION

SCALE: HORIZ 1" = 20
VERT 1"= 5'

RECORD DRAWING
DATE:11/06/12 BY:

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| R | 11/06/12 | RECORD INFORMATION ADDED TO DRAWING | |

SONOMA COUNTY WATER AGENCY

SCALE: AS SHOWN
DATE: 01/24/12
DRAWN: SMP
REVIEWED:

EAST FRYER CREEK SEDIMENT REMOVAL
SECTIONS

FILE NAME: 2012_EastFryer_Civil.dwg
CONTRACT NUMBER: ##
DRAWING NUMBER: C-2
SHEET 3 OF 3

\\SD-DATA\Proj\flood control\zone 3a\EAST_FRYER-CREEK\2012_EastFryer_Civil