

**Salinas River  
Stream Maintenance Program  
2018 Work Season**

**Annual Report**

To

**United States Army Corps of Engineers**

Regional General Permit 20, Corps File # 1996-22309S, Effective September 28, 2016



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## Executive Summary

This report summarizes the annual maintenance activities of the Salinas River Stream Maintenance Program (SMP) for the 2018 maintenance season. The SMP incorporates a cooperative planning and design process among technical experts, agencies, municipalities, landowners, and growers to establish a flood risk reduction and habitat enhancement approach for the majority of the Salinas River and three tributaries. This is achieved through vegetation maintenance, sediment management, and non-native vegetation removal primarily in designated secondary or high flow channels outside of the low flow channel. This Annual Report provides regulatory agencies and interested parties with an overview of the work completed during the maintenance season and the program's compliance with the U. S. Army Corps of Engineers' permit conditions. It also allows the MCWRA to summarize and analyze the project success and impacts for future planning activities.

Stream maintenance activities were approved for both the early and regular work seasons. Work began on Wednesday, September 5, 2018 and finished by November 15th. Maintenance activities were performed in 6 of the 7 RMUs with treatment occurring in 17 Maintenance Areas and 1 Selective Treatment Area. A total of 92.7 acres of native and non-native vegetation removal occurred within the Maintenance Areas including 2.1 acres of initial treatment and 90.6 acres of retreatment. Sediment was removed from one Maintenance Area. As mitigation for program impacts, arundo was removed via herbicide application and/or mowing on 74.9 acres outside Maintenance Areas in RMUs 3, 4, and 6, including 2.6 acres of initial treatment and 72.3 acres of retreatment. No tree planting or bar ripping was conducted. More arundo mitigation has been initiated under the SMP to-date than is required for project impacts, therefore no new arundo mitigation is required to be initiated in 2019. No new tree planting projects are required for 2018 impacts, but supplemental planting for previous years' impacts will be needed to address low survivorship of planted trees.

Biological surveys for species of concern were conducted prior to work within specified time windows, and protective measures were followed during all project activities. All personnel involved in on-site work were trained in permit conditions, project protocols, and species identification by qualified staff. Confirmed special status wildlife found in or near work sites included one active American badger den, two adult western pond turtles, four coast horned lizards, and 278 dusky-footed woodrat nests. No state- or federally- threatened or endangered animals or plants were observed. No-disturbance buffers were placed around known and potential habitats like burrows and woodrat houses and buffers were observed during work activities.

# 1 Introduction

## 1.1 Program Background

The Salinas River has experienced flooding events in recent years that have damaged agricultural crops along the river corridor. A flood maintenance program is desired by public and private entities to prevent damage from flood events. The Salinas River Stream Maintenance Program (SMP) began in 2014 with Phase 1, a multi-benefit demonstration project involving a cooperative planning and design process among public agencies, stakeholders, landowners and growers. The objective for the SMP is to reduce flood risk to land adjacent to the Salinas River while maintaining or enhancing natural habitat and ecological and hydrological processes. This is achieved through vegetation maintenance, sediment management, and non-native vegetation removal primarily in designated secondary or high flow channels outside of the low flow channel.

Phase 1 of the program occurred in two River Management Units (RMUs) along the Salinas River at river miles 22.7 to 29.2 and river miles 32.7 to 37.7. These are referred to as RMUs 4 and 5 (Gonzales and Chualar areas respectively). Phase 2 of the SMP was developed following the same process as Phase 1 and included five additional RMUs within the SMP Program Area (river miles 2 to 94). The new RMUs are concentrated near Salinas, Soledad, Greenfield, King City and San Ardo. The 2016 work season was the first to include both Phase 1 and Phase 2, using a uniform approach over the entire Program area. The SMP will continue to be implemented under one set of permits.

## 1.2 Purpose of the Annual Report

The Annual Report provides regulatory agencies, interested parties, and MCWRA an overview of work completed during the previous maintenance season as well as a summary of the program's compliance with the permit conditions. It also allows the MCWRA to summarize and analyze the project results for future planning activities. The Annual Report is due to the U.S. Army Corps of Engineers (USACE) by March 31<sup>st</sup> of each year. A similar report will be prepared for the Regional Water Quality Control Board (RWQCB) by May 31<sup>st</sup> of each year.

## 1.3 Authorizations

The Salinas River Stream Maintenance Program was approved by the Monterey County Water Resources Agency Board of Supervisors on July 29, 2014. The authorizations listed below were received to implement both phases of the Program for a period of up to ten years.

### 1.3.1 U.S. Army Corps of Engineers

The Department of the Army Regional General Permit (RGP) 20 for the Salinas River Stream Maintenance Program, Corps File No. 22309S, was executed on September 28, 2016 by the USACE. The RGP is authorized under Section 404 of the Clean Water Act (33 U.S.C. Section 1344) through November 15, 2021. The National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) concurred with the USACE determination that the project was not likely to adversely affect the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*) and the federally threatened California tiger salamander (*Ambystoma californiense*), Monterey spineflower (*Chorizanthe pungens var. pungens*) and

its critical habitat, the yellow-billed cuckoo (*Coccyzus americanus*), and the South-Central Coast (S-CCC) steelhead (*Oncorhynchus mykiss*). The USFWS issued a Biological Opinion on August 22, 2016 for the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and tidewater goby (*Eucyclogobius newberryi*) and its critical habitat and the federally threatened California red-legged frog (*Rana draytonii*).

### **1.3.2 State of California Regional Water Quality Control Board**

The Clean Water Act Section 401 Water Quality Certification for Discharge of Dredged and/or Fill Materials, Certification No. 32716WQ02, was approved on August 31, 2016 and is set to expire on November 30, 2025. The Central Coast Water Board staff will assess the implementation and effectiveness of the SMP after five years, and consider modifications to this Certification for the second five years of the permit term.

### **1.3.3 California Department of Fish & Wildlife**

Phase 1 of the SMP was authorized by Operation of Law under Notification of Lake or Streambed Alteration No. 1600-2014-0127-R4, Salinas River Multi-Benefit Demonstration Project, Salinas River – Monterey County, dated October 2, 2014. This was held by a limited liability corporation made up of participating landowners. This authorization expired on November 15, 2018 and has been replaced by a Routine Maintenance Agreement. All impacts and necessary mitigation related to this authorization are tracked separately for the purpose of reporting to the California Department of Fish & Wildlife.

Phase 2 of the SMP was authorized under a Routine Maintenance Agreement (RMA) 1600-2016-0016-R4, approved October 14, 2016 and held by the Resource Conservation District of Monterey County (RCDMC). The RMA was amended and restated on June 16, 2017 and subsequently amended on April 10, 2018. The RMA covers all impacts under the program from the original date of approval through December 31, 2026.

## **1.4 Annual Work Plan Approvals**

Each year, the specific maintenance activities need to be approved prior to commencement of work, by each of the authorizing agencies. Two plans detailing work proposed for the early and regular work seasons were submitted to the USACE and the RWQCB on April 23, 2018 and June 27, 2018 respectively. The National Marine Fisheries Service and U.S. Fish and Wildlife Service were sent a courtesy copy of the Work Plan although their authorization is facilitated through the USACE. In addition, California Department of Fish & Wildlife (CDFW) has a Verification Request Form process in place which is facilitated by the RCDMC.

### **1.4.1 U.S. Army Corps of Engineers**

The early work season plan proposed to conduct herbicide treatment of non-native vegetation in RMUs 3, 4, and 6 in areas that had already been treated in previous seasons and outside of wetland areas. USACE jurisdiction is limited in RMU's 1-6 to the activities involving grading or other fill discharge below the OHWM and in wetlands. Therefore, the early work plan was submitted to the USACE for informational purposes only and authorization for these activities was not required.

The proposed regular season activities were authorized by the USACE on August 29, 2018 with the addition of special conditions in order to ensure compliance with the RGP authorization. The conditions are outlined below:

No impacts to wetland areas are proposed or authorized. All wetlands must be avoided, and documentation of wetland identification and avoidance measures must be provided in the annual report of completed projects, particularly for potential wetland areas that have been mapped in or near the following MAs:

RMU 1: MA 1.03 and access route

RMU 3: MAs 3.16, 3.18 and access route

RMU 5: MA 5.02

RMU 6: MAs 6.10, 6.12

#### **1.4.2 State of California Regional Water Quality Control Board**

The RWQCB approved the early work plan on April 25, 2018 and the regular season work plan on July 20, 2018. All proposed activities were authorized.

#### **1.4.3 California Department of Fish & Wildlife**

Verification Request Forms (VRFs) were approved by CDFW and maintenance activities were completed under the 34 approved VRFs.



## 2 Pre-Maintenance Activities

Specific Maintenance Areas were defined using modeling and mapping tools during the Program and permit development process. Those Maintenance Areas were further refined prior to implementation of maintenance activities based on current field conditions. Successful implementation of the SMP required a diverse project team which included trained equipment operators, landowners, farm operators, biologists, ecologists, Arundo specialists, hydrologists, engineers, field staff, IT specialists, public relations staff, and legal staff. This team demonstrated a high level of coordination.

### 2.1 Training

Training was required for all participants prior to the commencement of the work period in order to ensure that a uniform and consistent approach would be followed. Multiple training workshops were held on the following dates: August 1, September 5, September 10, September 19, October 2, and October 30, 2018. The training covered techniques and procedures, pre-maintenance site preparation, and permit conditions. All project personnel attended a subsequent training on the same day related to protected species, their habitats and conservation measures specific to this Project, given by Dawn Reis of Ecological Studies.

### 2.2 Site Preparation

Participants flagged their proposed maintenance areas after the required training and prior to receipt of work authorizations. This flagging is color-coded based on the type of activity in the area. For example, existing access ways are flagged in yellow ribbon so that heavy-equipment operators will use the same site access each time and so biologists and inspectors can survey and access the area. The flagging also marks the boundary for each activity and includes red flagging for avoidance areas.

### 2.3 Biological Surveys

Surveys for special status species and their habitats were conducted for all work areas in accordance with California Department of Fish & Wildlife and the U.S. Fish & Wildlife Service requirements no more than 30 days in advance of work commencement. The permits identify the following sensitive species to survey for during the fall Work Season: American badger (*Taxidea taxus*), arroyo toad (*Anaxyrus californius*), California legless lizard (*Aniella pulchra*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californienses*), coast horned lizard (*Phrynosoma blainvillii*), foothill yellow-legged frog (*Rana boylei*), Monterey dusky-footed woodrat (*Neotoma fuscipes luciana*), San Joaquin kit fox (*Vulpes macrotis mutica*), steelhead trout (*Oncorhynchus mykiss*), tidewater goby (*Eucyclogobius newberry*), two-striped garter snake (*Thamnophis hammondi*), western pond turtles (*Emys marorata*), western spadefoot toad (*Spea hammodii*), burrowing owl (*Athene cunicularia*), yellowbilled cuckoo (*Coccyzus americanus*), least Bell's vireo (*Vireo bellii pusillus*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*), and roosting bats.

Nesting bird surveys were conducted for all work taking place before September 1, within two weeks of the start of work. Surveys for yellow-billed cuckoo and least Bell's vireo were avoided by delaying the project until October in areas of concern. Focused California red-legged frog surveys were conducted in several areas of suitable habitat within 48 hours of the start of work.

At all work sites, two types of pre-activity surveys were completed within 30 days of the start of work: habitat assessment surveys and pre-maintenance surveys. Both surveys occurred within permit-specified buffer distances of work areas after the Responsible Party had flagged the work site boundaries. Habitat assessment surveys were conducted by senior biologists from Dawn Reis Ecological Studies, and included conducting transect surveys for special status species and their habitats. Pre-maintenance surveys were conducted by RCD biological monitors and included classifying vegetation types in Maintenance Areas, identifying and flagging wetlands and large native trees for avoidance, and also looking for sensitive wildlife and their habitats. Additionally, RCD biological monitors performed morning walk-throughs of the work areas each day work occurred, and in most cases were present during all work activities.

All surveys for San Joaquin kit fox, California red-legged frogs, and California tiger salamanders were completed by USFWS-approved biologists.

The locations of all special status individuals or habitats identified during any of the above-mentioned surveys were mapped in Collector for ArcGIS and flagged with red or pink flagging tape in the field with the appropriate buffer size.

### 2.3.1 Biological Survey Results

Woodrat houses were the most common special status species found in or near work sites: 278 houses were found, most of which were confirmed active. All woodrat nests were avoided with at least a 10 foot buffer. Four adult coast horned lizards were observed, and two were captured and relocated 100 feet outside of the work area (Map 33 and Map 34). The other two lizards were near an access road and were avoided. One American badger den with sign of recent use was found. Four potential bat roosts in dead trees were identified (bat presence not confirmed). One confirmed western pond turtle and one potential were observed in the river near a work site. A group of fledgling ash-throated flycatchers, one killdeer nest, and a northern flicker family were observed during surveys for work that took place before September 1. Several inactive mammal burrows were seen and determined unsuitable for kit fox.

Tables 1 and 2 contain a summary of nesting bird and other special status species (respectively) found in or near work sites. The data will be submitted to the California Natural Diversity Database by the RCDMC with all required fields included.

**Table 1: Summary of Nesting Birds Found in or Near Work Sites Before September 1**

Maintenance Area ID	Species	Buffer	Date	Notes
4.25	Ash-throated Flycatcher	250 ft	August 6	Fledglings being fed: very dependent
4.23	Ash-throated Flycatcher	250 ft	August 9	Morning survey, no feeding activity, just sitting Same fledgling family group of 5 seen at RMU 4.25.

3.16	Killdeer	25 ft	September 4	One spotted egg, no birds observed trying to defend nest. Egg and nest appears old and abandoned.
4.24	Northern Flicker	250 ft	October 11	Northern flicker feeding 3 fledglings.

Table 2: Summary of Species Survey Results

Maintenance Area ID	Western Pond Turtle	Coast Horned Lizard	American Badger	Woodrat Nest in Work Area	Woodrat Nest Adjacent to Work Area	Potential Bat Roost
1.02	0	1 Adult (relocated)	0	31	12	0
1.06	0	0	0	26	58	0
2.05	0	1 Adult (relocated)	1 den with recent tracks	0	0	0
3.16 & Mitigation	0	0	0	0	0	1 Cavity Tree
3.18	0	2 Adults (buffered)	0	0	0	0
3.19	0	0	0	5	1	0
4.20	0	0	0	4	1	0
4.22 & Mitigation	0	0	0	3	9	1 Cavity Tree
4.23 & Mitigation	0	0	0	6	4	2 Cavity Trees
4.24 & Mitigation	2 Adults (adjacent to work area)	0	0	3	0	0
4.25 & Mitigation	0	0	0	1	2	0
4.26 & Mitigation	0	0	0	1	0	0
5.03	0	0	0	2	4	0
6.06	0	0	0	15	42	0
6.07 & Mitigation	0	0	0	15	0	0
6.08	0	0	0	1	0	0
6.10	0	0	0	19	2	0
6.11 & Mitigation	0	0	0	3	4	0
6.12	0	0	0	2	2	0
<b>Total Found</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>137</b>	<b>141</b>	<b>4</b>

### 2.3.2 Tidewater Goby Survey Plan

No work was performed in RMU 7 during the 2018 Maintenance Season but some survey data is available that was conducted for other programs. In future years when work is proposed in RMU 7 the following condition will apply: each year before the start of work in RMU 7 and no later than August 1, information on the current status of tidewater goby (e.g., presence, estimated number of individuals) in the Salinas River Lagoon will be submitted to the Service for review.

USFWS has developed a survey protocol to facilitate the determination of presence or absence of the tidewater goby in habitats that have potential to support it. The primary use for this protocol is for project-level surveys in support of requests for consultation under section 7 of the ESA, as amended. Additionally, this protocol may also be used for section 10(a)(1)(B) permit applications, and to determine general presence-absence for other management purposes. Several assessments of the tidewater goby population in various localities have been conducted using these methods.

The USACE and MCWRA in cooperation with a Service-approved biologist will develop and implement a tidewater goby survey plan to document the presence, distribution, and abundance of the species within and adjacent to the Project area, including the Salinas River downstream of the Salinas River Diversion Facility (SRDF) and the Salinas River Lagoon. The survey plan will be developed in coordination with the National Marine Fisheries Service to avoid duplication of effort and excessive disturbance of habitat. The survey plan will be submitted to the Service for review and approval.

#### 2.3.2.1 Tidewater Goby Survey Results

In 2013, a few individuals were found while conducting routine lagoon monitoring, with both individuals observed along the sandbar at the northwestern edge of the lagoon. In 2014, tidewater goby was the second most abundant fish species after threespine stickleback. One of the individuals was captured at the mouth of the lagoon near the usual location of breaching, four of the individuals were captured along the sandbar at the northwestern edge of the lagoon, and 53 individuals were captured near the Highway 1 Bridge. A doctoral student with the University of California, Los Angeles, conducted multiple surveys in the Salinas River Lagoon and Old Salinas River beginning in 2014, and was able to document and collect tidewater gobies during each visit. However, his collection information does not detail the number or sizes of tidewater gobies that were observed during each survey, but rather provides valuable information on population persistence.

Tidewater goby distribution surveys were conducted in October 2018. Tidewater gobies were found at each sampled location along the sandbar at/near the breach site and along the southwest shoreline of the lagoon until water depth precluded sampling (upstream from the wildlife refuge parking area). This finding contrasts with survey results from most previous years, when the distribution of tidewater goby appeared restricted to the lower lagoon (with exception of the year 2014, when the species was documented as far upstream as the Highway 1 bridge). Contrary to expectations, tidewater gobies were not found in the vicinity of the OSR slidegate. During past surveys, the species was regularly found in this area, and in the OSR in the vicinity of the Monterey Dunes Way road crossing. Although this location was not sampled in October 2018 due to permit restrictions, high tidewater goby densities were also expected in this area.

Numbers of tidewater goby captured with each seine haul during the 2018 survey ranged from 0 (near OSR slidegate, OSR and Hwy 1 Bridge) to 3. At sampling sites where the species was detected, every seine haul captured at least one goby. Due to these low capture numbers, estimation of index densities is not biologically meaningful. However, despite low captured numbers in individual seine hauls, tidewater goby appeared to be widely distributed within the lagoon, suggesting that the species was abundant during this time.

### **2.3.3 Water Quality Reports**

Water quality monitoring of the Salinas River Lagoon typically occurs during the spring, summer, and fall months. The lagoon remained closed to the ocean during the winter of 2013-2014 until opening in January 2017 due to the lack of flow in the Salinas River after cessation of reservoir releases in late-October 2013. The lagoon then remained open to the ocean for 263 days that season and reopened the following seasons.

Sampling in the Salinas River is associated with the Salinas Valley Water Project fish monitoring requirements. Seining has not been performed in recent years due to physical restraints, but water quality data was collected between April and October and is awaiting processing. Future monitoring reports will be forwarded to the U.S. Fish and Wildlife Service.

### **3 Maintenance Activities Conducted in 2018**

The Salinas River had significant flows during the previous winter season and conservation releases from the upstream reservoirs continued through the majority of the maintenance season. Therefore, there was water present in the low-flow channel at the beginning of the maintenance season. Some of the RMUs dried out completely before November 15<sup>th</sup> while other areas stayed wet. Work was not authorized within water or in wetlands.

Maintenance activities were conducted in 6 of the 7 RMUs in a total of 17 Maintenance Areas and 1 Selective Treatment Area. No work was performed in RMU 7. All of the activities were authorized through the Annual Work Plan approvals. The maintenance activities are displayed in map format in Section 6 of this report.

#### **3.1 Work Season Dates**

The work season began on September 5<sup>th</sup> and was completed by November 15<sup>th</sup> at which time all equipment and related items were removed from the sites. Typical work hours were daily from 7am to 5 pm during daylight hours. No work was performed at night.

##### **3.1.1 Rainfall Restrictions**

There was one rain day during the work season and no work occurred that day. But, no rain event of 0.25 inches or greater in a 24-hour period occurred during the work period.

#### **3.2 Completed Maintenance Activities**

Maintenance activities were performed in RMUs 1, 2, 3, 4, 5, and 6 for a total of 1 new Maintenance Area and retreatment of 16 Maintenance Areas. Maintenance activities occurred in one Selective Treatment Area that had previously been treated, but the work was limited in area and types of activities. The specific maintenance activities are further described below.

##### **3.2.1 Native Vegetation Management**

Native vegetation was removed within the designated maintenance areas. Disturbance of emergent vegetation did not occur in areas with suitable habitat for California red-legged frogs or for tidewater gobies. All new impacts associated with vegetation removal are quantified in the tables below by vegetation types for each maintenance area, each RMU, and the Program Area. This includes expansion of previously treated areas. Retreatment of native vegetation is included in the total area column but not under the vegetation type columns. Those impacts were addressed in the annual report following the initial removal.

Table 3: New Vegetation Impacts by Maintenance Area

<b>Maint. Area #</b>	<i>Total Area* (acres)</i>	<i>Arundo dominant</i>	<i>Unvegetated / Sparse herbaceous</i>	<i>Early successional perennial riparian</i>	<i>Mid-successional willow</i>	<i>Early to mid-successional cottonwood forest</i>	<i>Low stature herbaceous wetland</i>
1.02	10.4	retreat	retreat	retreat	retreat	retreat	retreat
1.06	4.8	retreat	retreat	retreat	retreat	retreat	retreat
2.05	1.9	0.05	1.77	0.05	0	0	0
3.16	5.4	retreat	retreat	retreat	retreat	retreat	retreat
3.18	3.7	retreat	retreat	retreat	retreat	retreat	retreat
3.19	2.6	0.13	0.05	retreat	retreat	retreat	retreat
4.22	7.6	retreat	retreat	retreat	retreat	retreat	retreat
4.23	5.2	retreat	retreat	retreat	retreat	retreat	retreat
4.24	7.1	retreat	retreat	retreat	retreat	retreat	retreat
4.25	4.1	retreat	retreat	retreat	retreat	retreat	retreat
4.26	6.5	retreat	retreat	retreat	retreat	retreat	retreat
5.03	3.9	retreat	retreat	retreat	retreat	retreat	retreat
6.06	4.1	retreat	retreat	retreat	retreat	retreat	retreat
6.07	6.4	retreat	retreat	retreat	retreat	retreat	retreat
6.08	5.6	retreat	retreat	retreat	retreat	retreat	retreat
6.10	4.1	retreat	retreat	retreat	retreat	retreat	retreat
6.11	8.2	retreat	retreat	retreat	retreat	retreat	retreat
6.12	1.0	retreat	retreat	retreat	retreat	retreat	retreat

Table 4: New Vegetation Impacts by RMU

<b>RMU</b>	<i>Total Area* (acres)</i>	<i>Arundo dominant</i>	<i>Sparse herbaceous</i>	<i>Early successional perennial riparian</i>	<i>Mid-successional willow</i>	<i>Early to mid-successional cottonwood forest</i>	<i>Low stature herbaceous wetland</i>
1	15.2	retreat	retreat	retreat	retreat	retreat	retreat
2	1.9	0.05	1.77	0.05	0	0	0
3	11.6	0.13	0.05	retreat	retreat	retreat	retreat
4	30.8	retreat	retreat	retreat	retreat	retreat	retreat
5	3.9	retreat	retreat	retreat	retreat	retreat	retreat
6	29.3	retreat	retreat	retreat	retreat	retreat	retreat
7	0	0	0	0	0	0	0

**Table 5: New Vegetation Impacts for Program Area**

<b>RMUs</b>	<i>Total Area* (acres)</i>	<i>Arundo dominant</i>	<i>Sparse herbaceous</i>	<i>Early successional perennial riparian</i>	<i>Mid-successional willow</i>	<i>Early to mid-successional cottonwood forest</i>	<i>Low stature herbaceous wetland</i>
<b>1-7</b>	92.7	0.2	1.8	0.1	0	0	0

Note: \* Total Area includes re-treated areas. Total new areas are 2.1 acres. Vegetation categories do not include the retreated areas.

### 3.2.2 Wetlands Identification and Avoidance

No wetlands were impacted during the maintenance season. Areas where wetland plants were present were marked both by GPS coordinates and red tape during pre-maintenance surveys. Additional monitoring during maintenance activities occurred to ensure avoidance and final locations of wetland plants were confirmed after maintenance activities were completed. Areas that were located within or near where maintenance activities occurred that were previously mapped as wetlands using aerial tools were field verified. If no wetland vegetation was present then these areas were assumed not to be wetlands. Wetland areas that were previously mapped using aerial tools, outside secondary channel locations, were not verified and therefore are still marked as wetlands on the maps.

The following MAs were identified as potentially containing wetlands based on preliminary aerial mapping tools. Specific details for each site is listed in the table below.

**Table 6: Wetland Identification**

<b>Maintenance Area #</b>	<b>Wetlands Identification Results</b>
1.03 and access route	Maintenance work was not performed in 2018
3.16	Maintenance work was limited in scope and avoidance measures were observed.
3.18 and access route	Maintenance work was limited in scope and avoidance measures were observed.
5.02	Maintenance work was not performed in 2018
6.10	Maintenance work was limited in scope and avoidance measures were observed.
6.12	Maintenance work was limited in scope and avoidance measures were observed.

### 3.2.3 Permanent Fill, Including Grading, Within USACE Jurisdiction

No grading and limited sediment removal occurred during the maintenance season. One stockpile location was established in the approved location outside of jurisdictional area. No open trenches or



other excavations with a 6 inch depth were made during the maintenance season. The grading and excavation activities performed within the maintenance areas are shown in the tables below.

**Table 7: Sediment Management Activities by Maintenance Area**

<b>Maint. Area #</b>	<b>Total Area Graded (acres)</b>	<b>Un-vegetated Area Graded (acres)</b>	<b>Volume of Sediment Removal (cy)</b>	<b>Volume of Sediment Displaced by Grading (cy)</b>	<b>Grading Methods Used</b>
<b>1.02</b>	9.6	5.6	25,000	0	bulldozing/ excavation

**Table 8: Sediment Management Activities by RMU**

<b>RMU</b>	<b>Total Area Graded (acres)</b>	<b>Un-vegetated Area Graded (acres)</b>	<b>Volume of Sediment Removal (cy)</b>	<b>Volume of Sediment Displaced by Grading (cy)</b>
<b>1</b>	9.6	5.6	25,000	0
<b>2</b>	0	0	0	0
<b>3</b>	0	0	0	0
<b>4</b>	0	0	0	0
<b>5</b>	0	0	0	0
<b>6</b>	0	0	0	0
<b>7</b>	0	0	0	0

**Table 9: Sediment Management Activities for Program Area**

<b>RMUs</b>	<b>Total Area Graded (acres)</b>	<b>Un-vegetated Area Graded (acres)</b>	<b>Volume of Sediment Removal (cy)</b>	<b>Volume of Sediment Displaced by Grading (cy)</b>
<b>1-7</b>	9.6	5.6	25,000	0

### 3.2.4 New Access

No new ramps were constructed and no vegetation was removed to make access ways. All maintenance activities utilized existing access ways.

### 3.3 Compensatory Mitigation

Impacts to certain native vegetation types require compensatory mitigation. The impacts are tabulated annually and the necessary compensatory mitigation are reported cumulatively after each maintenance season. The following season’s work plan must include enough mitigation to compensate for the

previous season’s impacts. Therefore, compensatory mitigation activities may occur before the related impacts or the season after the impact occurred. The following table outlines which impacts require compensatory mitigation as well as the ratios.

**Table 10: Compensatory Mitigation Ratios**

<b>Vegetation Type</b>	<b>Required Mitigation</b>
Arundo-dominated Removal	none
Sparse Herbaceous with or without Arundo	none
Early Successional Perennial Riparian	1:1 Arundo Removal within secondary channel 0.5:1 Arundo removal outside secondary channel
Mid-Successional Willow (less than 6’’)	3:1 Arundo Removal outside secondary channel
Early and Mid-Successional Cottonwood (2’’ or greater of cottonwood, sycamore and alder)	3:1 Planting of cottonwood, sycamore or alder (based on individual trees)
Large Stature Willows (6’’ or greater)	2:1 Planting of cottonwood, sycamore or alder (based on individual trees)
Low Stature Herbaceous Wetland	1:1 restoration

### 3.3.1 Summary of Impacts

The initial impacts to specific native vegetation types requires mitigation. Subsequent maintenance activities at the same location do not require additional mitigation. The impacts are documented annually and cumulatively reported. Therefore, the following tables identify the impacts from the most recent maintenance season and from the entire permit term to date, by vegetation type.

**Table 11: New Impacts Requiring Compensatory Mitigation**

<b>RMU</b>	<i>Early successional perennial riparian (acres)</i>	<i>Mid-successional willow (acres)</i>	<i>Early to mid-successional cottonwood forest (trees)</i>	<i>Large Stature Willows (trees)</i>	<i>Low stature herbaceous wetland (acres)</i>
<b>1</b>	0	0	0	0	0
<b>2</b>	0.1	0	0	0	0
<b>3</b>	0	0	0	0	0
<b>4</b>	0	0	0	0	0
<b>5</b>	0	0	0	0	0
<b>6</b>	0	0	0	0	0
<b>7</b>	0	0	0	0	0
<b>Totals</b>	0.1	0	0	0	0

**Table 12: Total Impacts for Permit Term Requiring Compensatory Mitigation**

<b>RMU</b>	<i>Early successional perennial riparian (acres)</i>	<i>Mid-successional willow (acres)</i>	<i>Early to mid-successional cottonwood forest (trees)</i>	<i>Large Stature Willows (trees)</i>	<i>Low stature herbaceous wetland (acres)</i>
<b>1</b>	10.5	3.5	0	0	0
<b>2</b>	0.1	0	0	0	0
<b>3</b>	1.6	1.5	0	0	0
<b>4</b>	13.0	3.3	7	1	0
<b>5</b>	8.9	1.9	29	18	0
<b>6</b>	15.7	4.3	0	6	0
<b>7</b>	0	0	0	0	0
<b>Totals</b>	49.7	14.4	36	25	0

**3.3.2 Arundo Treatment as Compensatory Mitigation**

The targeted invasive species for removal is arundo. Herbicide application is the preferred method of treatment for higher eradication rates. Herbicide application is most effective on green leafy plants, before they go dormant. Herbicide application was utilized during this maintenance season primarily in areas that were previously mowed. Any dense stands or browning arundo was treated through mowing and mulching, as necessary.

Mitigation is performed preferentially by RMU or throughout the Program Area as needed. The following tables document the new and retreated arundo areas for the past maintenance season. Enough arundo areas have been identified and received initial treatment to account for all SMP impacts to date.

**Table 13: New Arundo Treatment by RMU**

<b>RMU</b>	<i>New Treatment</i>				<i>Retreatment</i>			
	<i>Mowing</i>		<i>Herbicide</i>		<i>Mowing</i>		<i>Herbicide</i>	
	<i>inside MAs (acres)</i>	<i>outside MAs (acres)</i>	<i>inside MAs (acres)</i>	<i>outside MAs (acres)</i>	<i>inside MAs (acres)</i>	<i>outside MAs (acres)</i>	<i>inside MAs (acres)</i>	<i>outside MAs (acres)</i>
<b>1</b>	0	0	0	0	0	0	0	0
<b>2</b>	0	0	0.1	0	0	0	0	0
<b>3</b>	0.1	2.6	0	0	3.3	0	3.3	0
<b>4</b>	0	0	0	0	8.5	51.7	3.9	59.1
<b>5</b>	0	0	0	0	<0.1	0	0	0
<b>6</b>	0	0	0	0	<0.1	0	0	3.6
<b>7</b>	0	0	0	0	0	0	0	0

<b>Totals</b>	0.1	2.6	0.1	0	11.9	51.7	7.2	62.7
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### 3.3.3 Native Tree Species Plantings

Native trees are typically planted during the rainy season to enhance their rate of success. There had been a delay in tree planting due to the extended drought period, although some trees were planted in RMUs 4 and 5. No new tree planting projects are required for 2018 impacts, but supplemental planting for previous years' impacts will be needed to address low survivorship of planted trees. The success of native tree species plantings will continue to be monitored in future years.

Table 14: New Tree Plantings by RMU

<b>RMU</b>	<i>Cottonwoods</i>	<i>Willows</i>	<i>Other Native Trees</i>
<b>1</b>	0	0	0
<b>2</b>	0	0	0
<b>3</b>	0	0	0
<b>4</b>	0	0	0
<b>5</b>	0	0	0
<b>6</b>	0	0	0
<b>7</b>	0	0	0
<b>Totals</b>	0	0	0

### 3.3.4 Status of Compensatory Mitigation

The mitigation activities began in year two of the program and will continue until all success criteria is achieved. The areas are being tracked individually but are reported cumulatively in order to determine programmatic compliance. The tables below document the total treatment areas and compares it to the compensatory mitigation requirement ratios in Table 10. No additional initial arundo removal is required for the impacts to date.

Table 15: Status of Required Arundo as Compensatory Mitigation

<i>RMU</i>	<i>Total ESPR Impacts (acres)</i>	<i>Total Arundo treated inside MAs (acres)*</i>	<i>Total MSW Impacts (acres)</i>	<i>Total Arundo Treatment Required Outside MAs (acres)</i>	<i>Total Arundo treated outside MAs (acres)</i>	<i>Additional Arundo Removal Required (acres)</i>
<b>1-7</b>	49.7	29.0	14.4	53.7	76.3	0

\*Arundo treatment inside MAs is counted on an acre-for-acre basis for early successional perennial riparian impacts only.

**Table 16: Status of Required Tree Planting Mitigation by RMU**

<b>RMU</b>	<i>Number of non-willow trees ≥ 2" dbh removed</i>	<i>Number of willows ≥ 6" dbh removed</i>	<i>Total Number of Trees Required to Plant</i>	<i>Number of Trees Planted, species</i>	<i>Trees Required – Trees Planted</i>
<b>1</b>	0	0	0	0	-
<b>2</b>	0	0	0	0	-
<b>3</b>	0	0	0	0	-
<b>4</b>	7	1	23	50, cottonwoods 700, willows	-
<b>5</b>	29	18	123	275, cottonwoods	-
<b>6</b>	0	6	12	0	-
<b>7</b>	0	0	0	0	-
<b>Totals</b>	<b>36</b>	<b>25</b>	<b>158</b>	<b>325 cottonwoods 700 willows</b>	<b>0</b>

### **3.3.5 Success Criteria**

Mitigation sites are monitored annually. The success of the invasive plant removal will be reported by area as they reach the targeted percent cover or after five years from initial removal, whichever occurs sooner. Due to extended drought conditions, there are no sites that are nearing the success criteria.

## **4 Program Review**

### **4.1 Impacts to Listed Species**

Maintenance activities were designed to avoid direct and indirect impacts to listed species. There were no observations of any federally-listed species during the required pre-maintenance surveys. Biological Monitors performed all necessary inspections before work began each day and were present during maintenance activities. A Service-approved biologist was on-site as necessary and on-call daily.

### **4.2 Project Design Changes**

All work was in compliance with the permit applications, permit terms and conditions, and annual authorizations. Less work was performed than proposed in the approved Work Plan.

### **4.3 Effectiveness Monitoring**

Topographic surveys were conducted down the centerline of select maintenance areas both pre- and post-maintenance activities. This data is representative of each RMU and will be used over time to determine how the maintenance areas are functioning and to assess the sediment transport characteristics of the maintenance areas. The resultant longitudinal profiles are available in Section 7 of this report.

### **4.4 Adaptive Management**

Adaptive management may be necessary if significant flows (25,450 cfs or greater at the Spreckels stream gage) occur during the previous rainy season. These needs should be evaluated near the end of the rainy season in order to be prepared for the following year's maintenance. There still may be high flows during this rainy season so no conclusions can be made at this time.

### **4.5 Certification of Compliance**

MCWRA understands that this report may be reviewed by the resource agencies for compliance with the terms of the RGP. In addition, field site visits may be performed on representative sites by the employees of these resource agencies as part of their compliance evaluation. The USACE has provided a Certification of Compliance Form in their Annual Work Plan approval to verify that the applicant complied with the terms and conditions of the RGP. This certification is provided in Section 8.

## 5 Photos of Typical Work Areas

### Pre-maintenance Areas



## Vegetation Removal





**Arundo Treatment**



Selective Treatment Area Pre- and Post-work

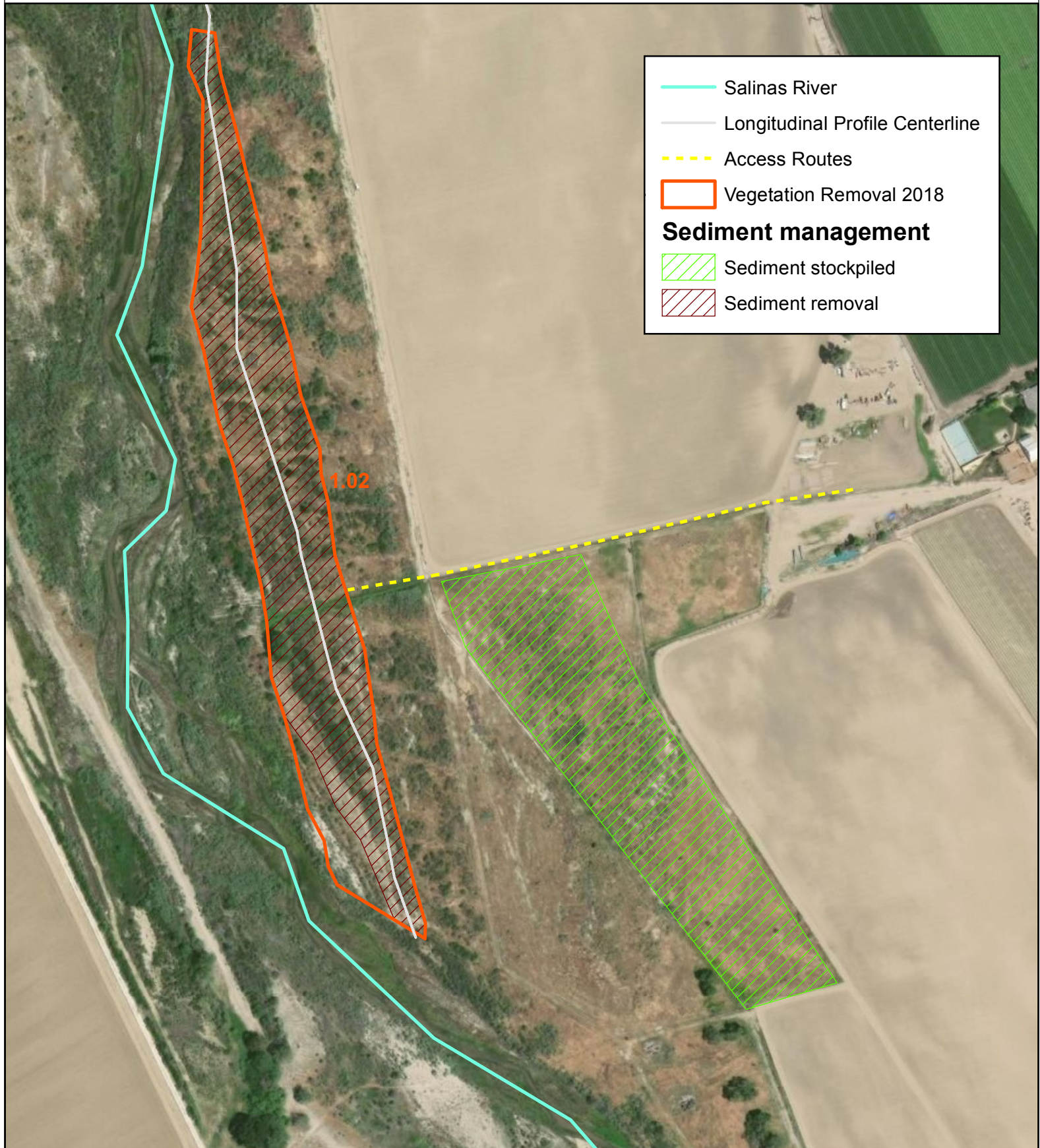


## Grading & Sediment Removal



# 2018 SMP Project Activities: VRF # 0054

## Maintenance Area 1.02

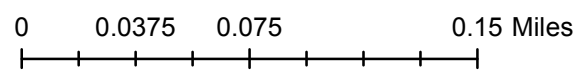


- Salinas River
- Longitudinal Profile Centerline
- Access Routes
- Vegetation Removal 2018

**Sediment management**

- Sediment stockpiled
- Sediment removal

Scale  
1:4,000





Map created February 2019



# 2018 SMP Project Activities: VRF # 0056

## Maintenance Area 1.06




	Vegetation Removal 2018
	Access Routes

Scale  
1:3,500



0 0.0325 0.065 0.13 Miles



Map created February 2019



# 2018 SMP Project Activities: VRF # 0058

## Maintenance Area 2.05



--- Access Routes  
[Red Outline] Vegetation Removal 2018

2.05

Scale  
1:1,750

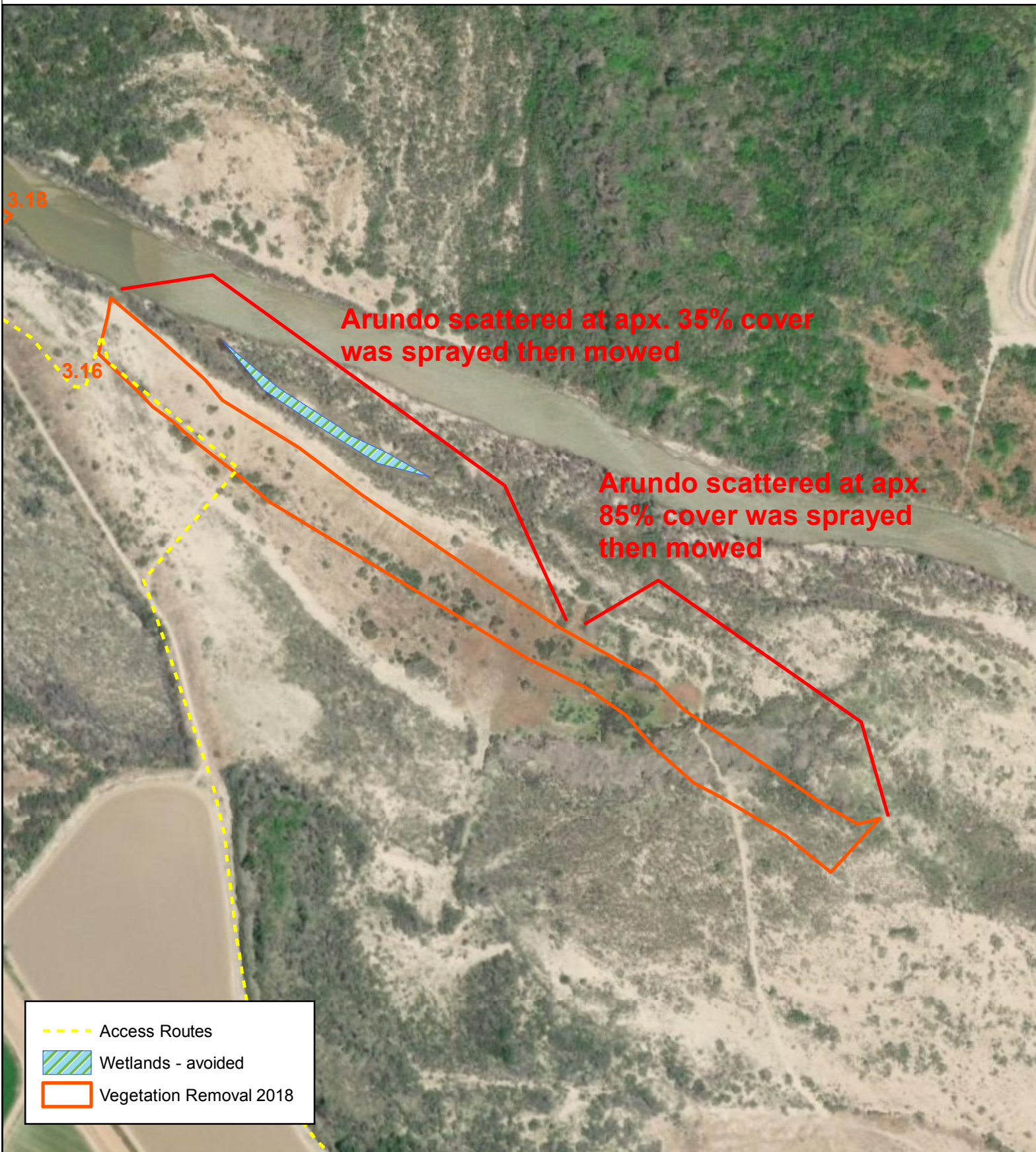


0 0.015 0.03 0.06 Miles

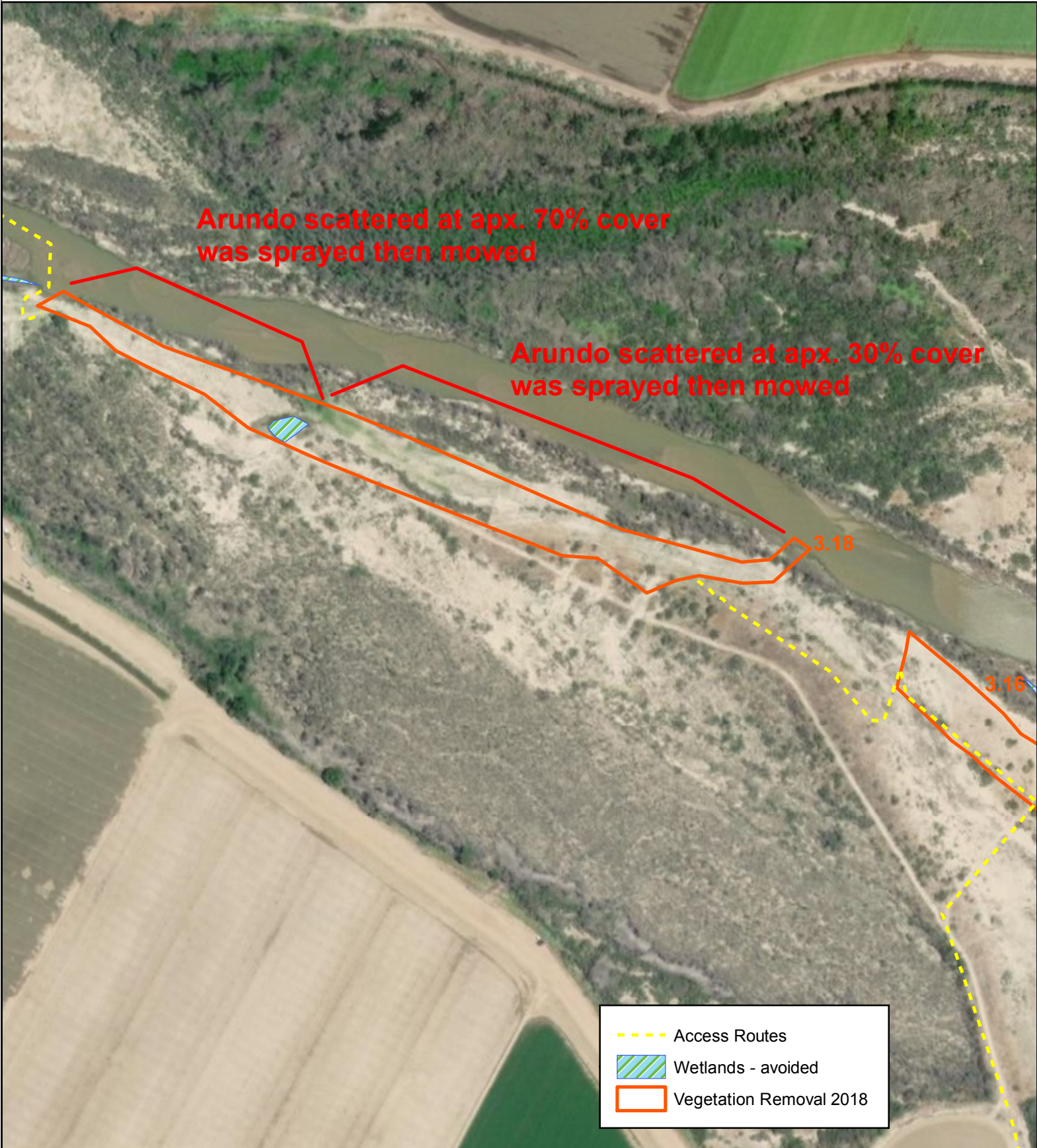
Map created February 2019



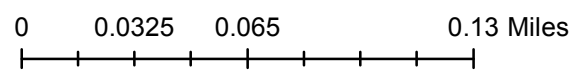
# 2018 SMP Project Activities: VRF # 0046, 0059 Maintenance Area 3.16



# 2018 SMP Project Activities: VRF # 0047, 0061 Maintenance Area 3.18



Scale  
1:3,500



Map created February 2019





# 2018 SMP Project Activities: VRF # 0062 Maintenance Area 3.19



Scale  
1:3,000

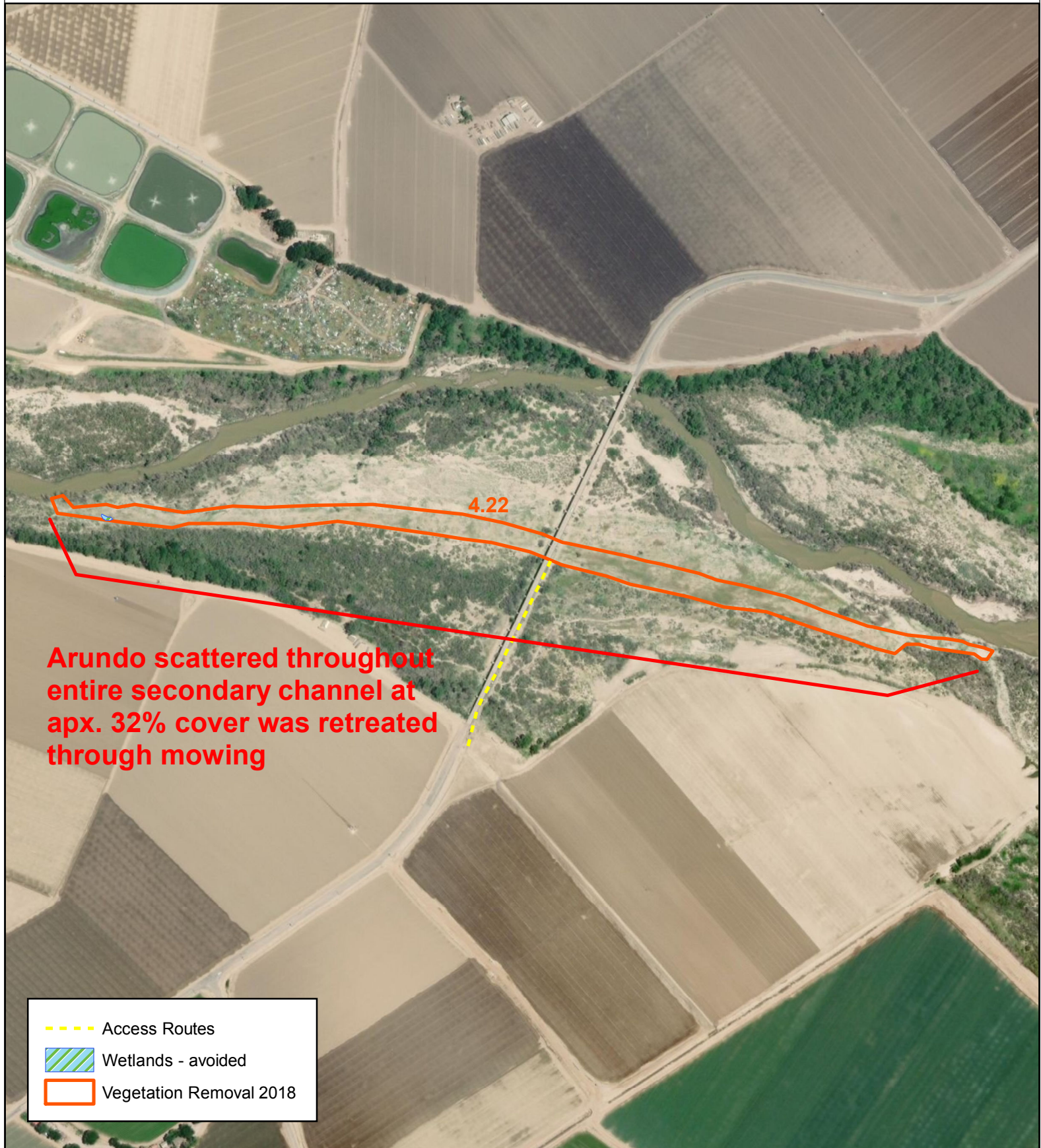


0 0.0275 0.055 0.11 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0064 Maintenance Area 4.22



**Arundo scattered throughout entire secondary channel at apx. 32% cover was retreated through mowing**

4.22

- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

Scale  
1:6,600

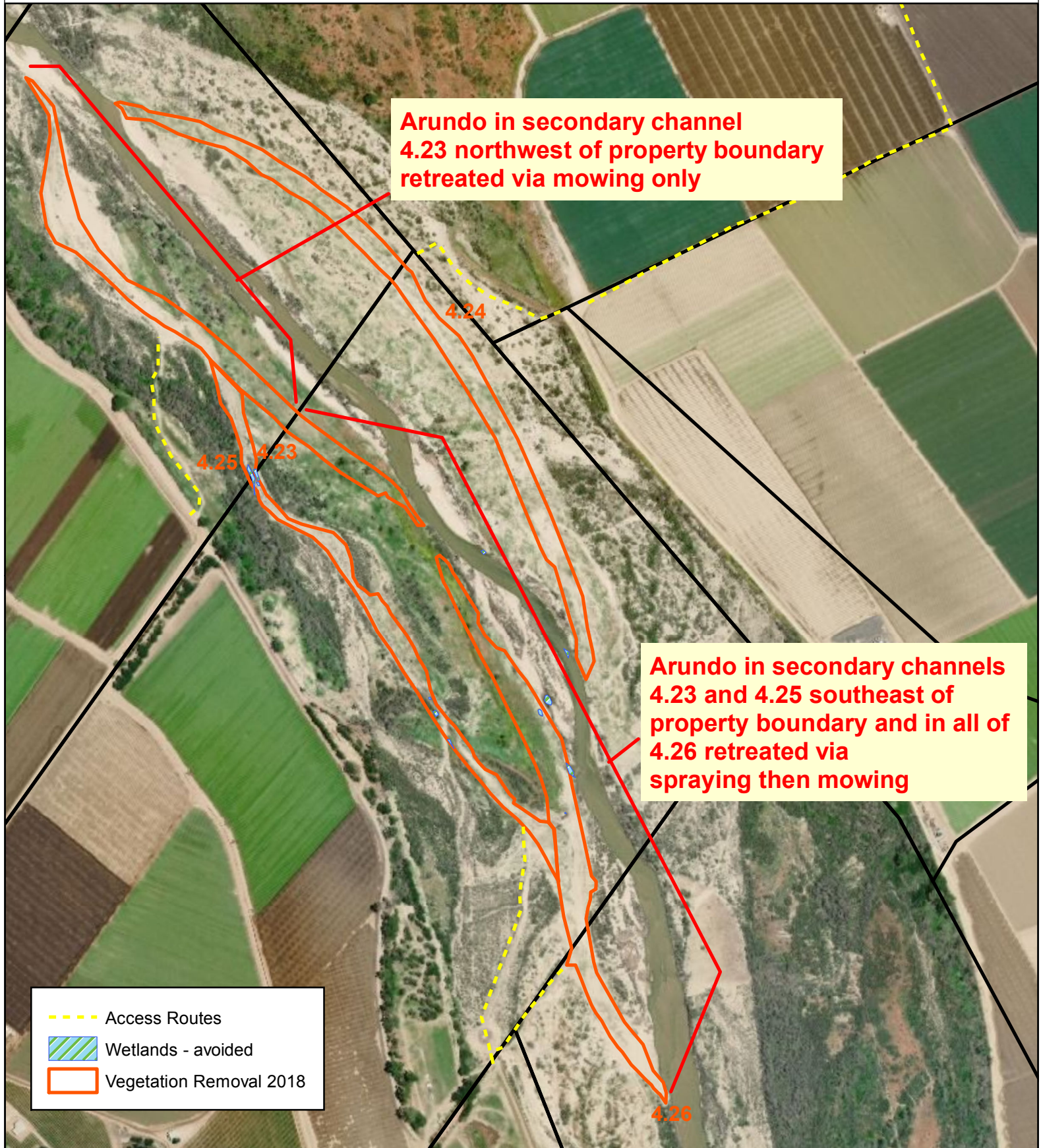


0 0.05 0.1 0.2 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0048, 0066 Maintenance Areas 4.23, 4.25, 4.26



Scale  
1:7,000

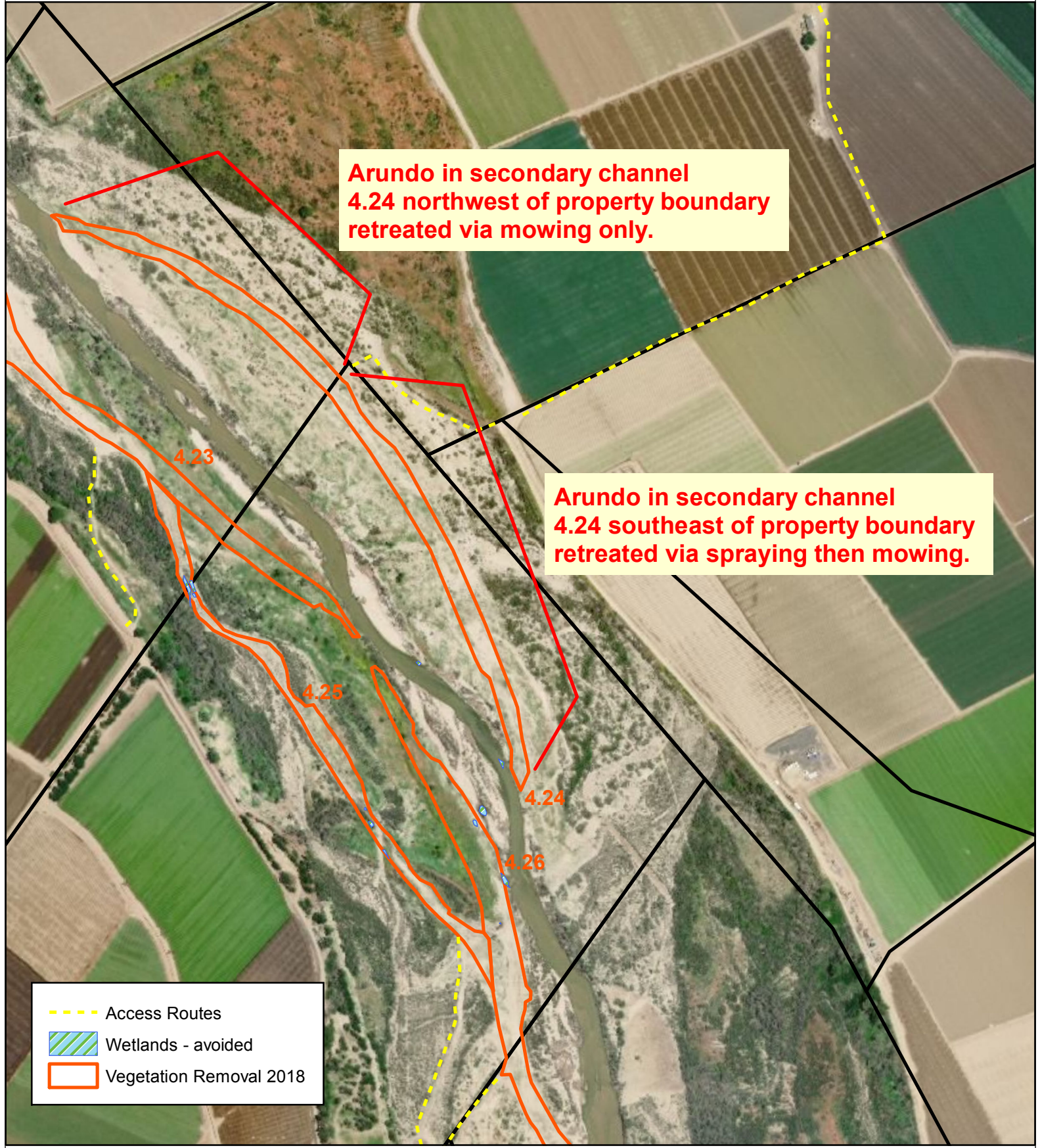


0 0.05 0.1 0.2 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0049, 0068 Maintenance Area 4.24



**Arundo in secondary channel  
4.24 northwest of property boundary  
retreated via mowing only.**

**Arundo in secondary channel  
4.24 southeast of property boundary  
retreated via spraying then mowing.**

- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

Scale  
1:7,000



0 0.05 0.1 0.2 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0071 Maintenance Area 5.03

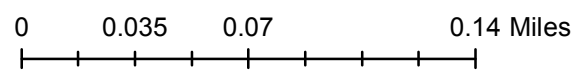


**Arundo retreatment  
via mowing**

5.03

- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

Scale  
1:3,750



Map created February 2019

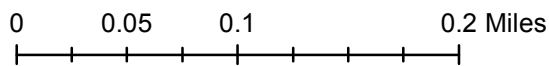


# 2018 SMP Project Activities: VRF # 0072 Maintenance Area 6.06



- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

Scale  
1:5,500

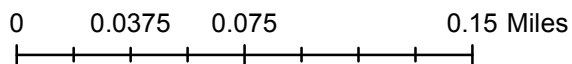


Map created February 2019

# 2018 SMP Project Activities: VRF # 0075 Maintenance Area 6.08



Scale  
1:4,000



Map created February 2019

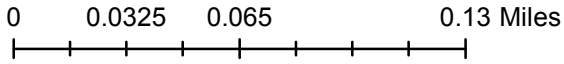


# 2018 SMP Project Activities: VRF # 0077 Maintenance Area 6.10



- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

Scale  
1:3,500



Map created February 2019





# 2018 SMP Project Activities: VRF # 0078 Maintenance Area 6.11



Scale  
1:3,500



0 0.0325 0.065 0.13 Miles

Map created February 2019

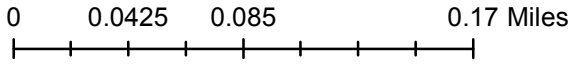


# 2018 SMP Project Activities: VRF # 0080 Maintenance Area 6.12



- Access Routes
- Wetlands - avoided
- Vegetation Removal 2018

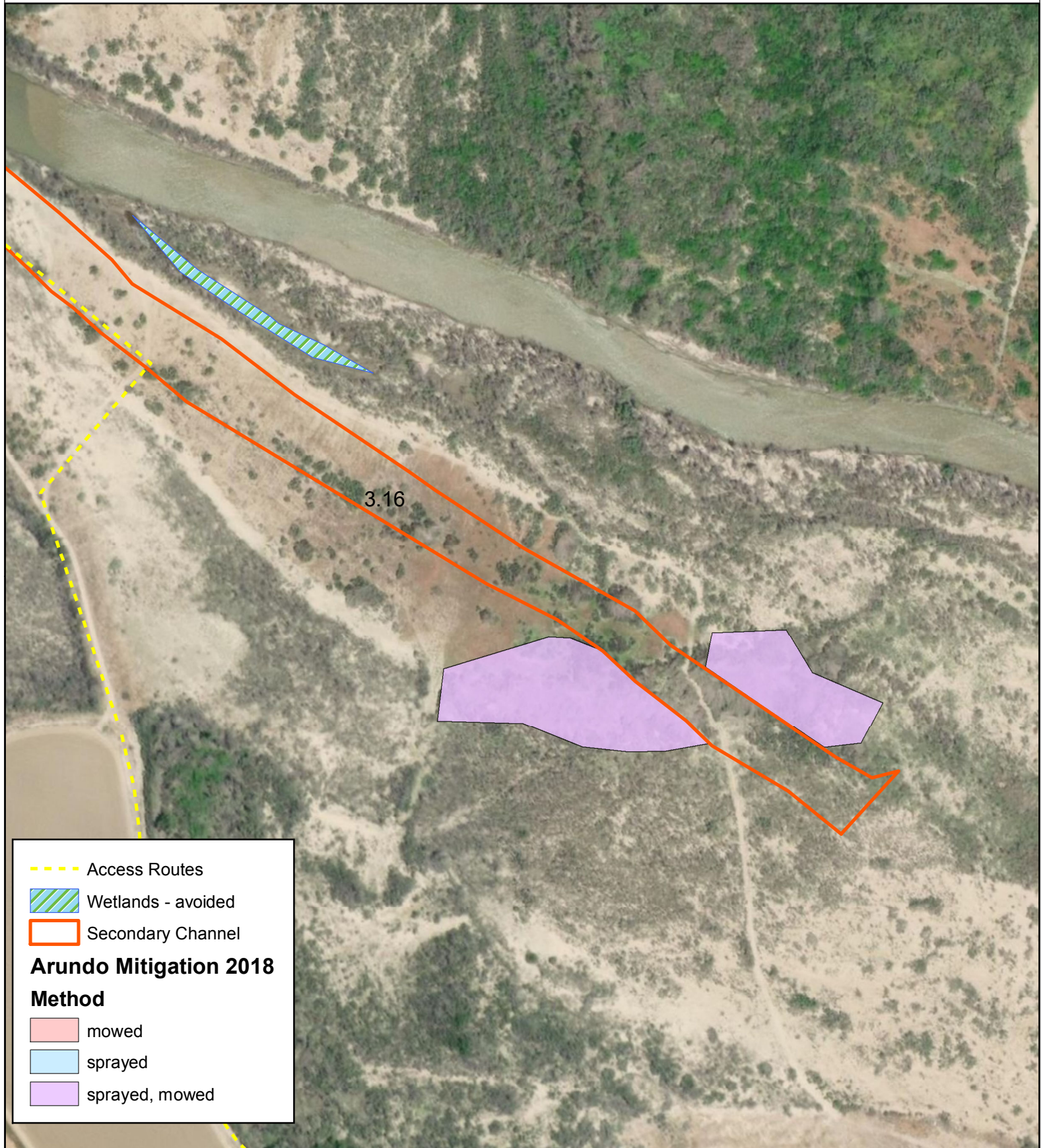
Scale  
1:4,500



Map created February 2019



# 2018 SMP Project Activities: VRF # 0046, 0059 Mitigation Area near 3.16



Scale  
1:3,000

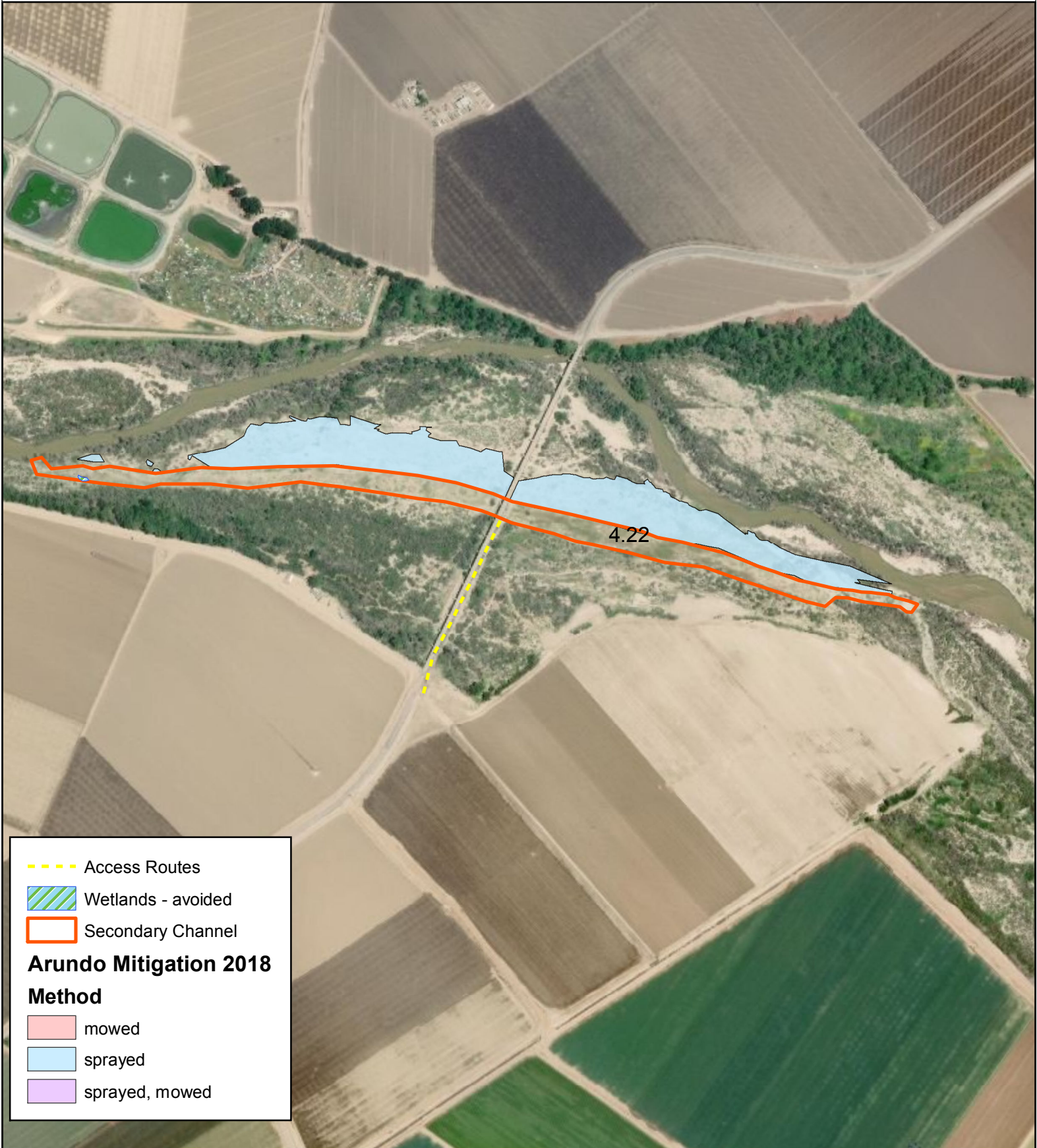


0 0.0275 0.055 0.11 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0065 Mitigation Area near 4.22



Scale  
1:7,000

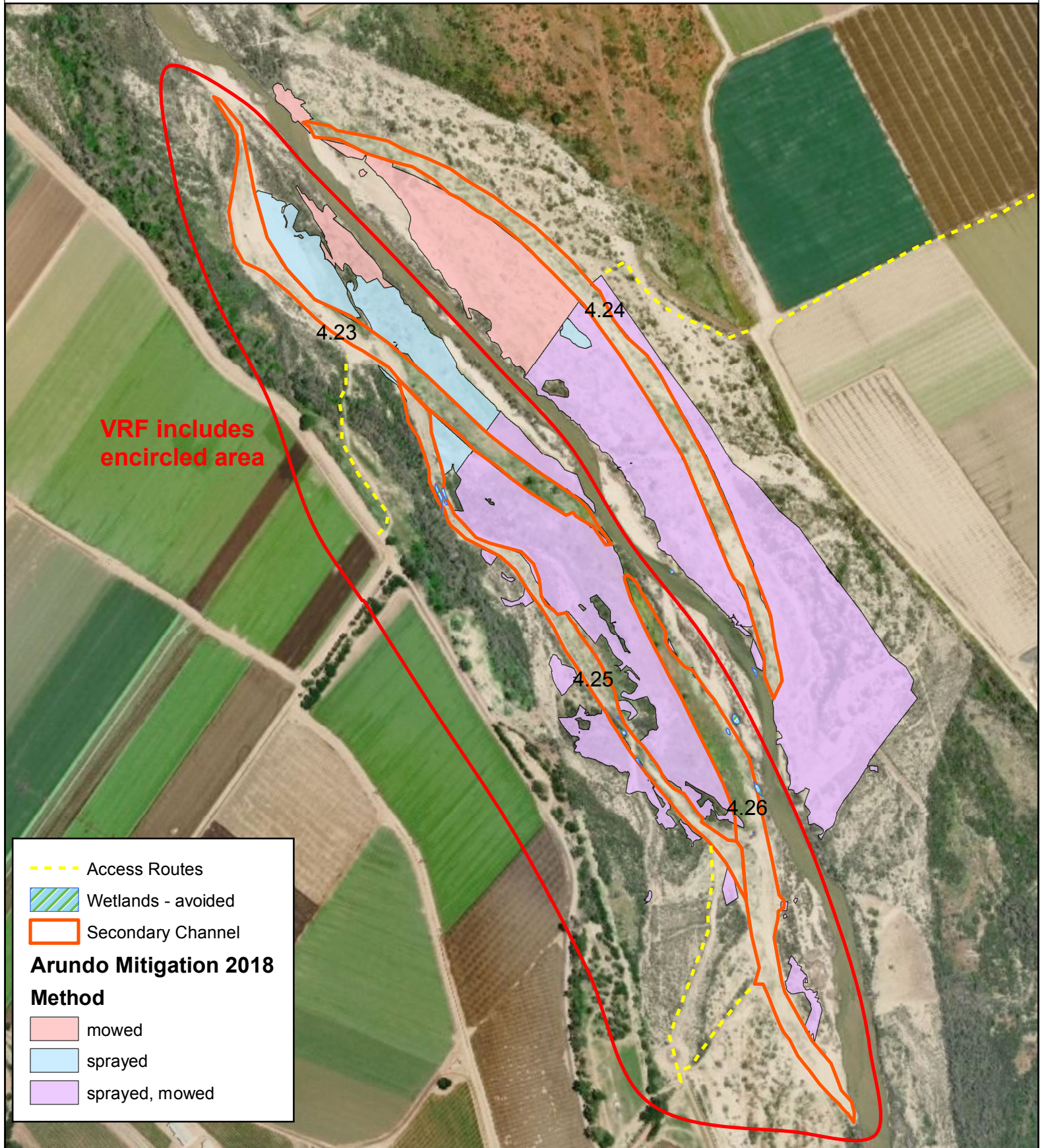


0 0.05 0.1 0.2 Miles

Map created February 2019



# 2018 SMP Project Activities: VRF # 0050, 0067 Mitigation Area near 4.23, 4.25, 4.26



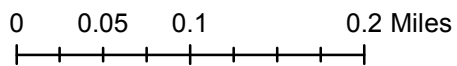
--- Access Routes  
Wetlands - avoided  
Secondary Channel

**Arundo Mitigation 2018**

**Method**

mowed  
sprayed  
sprayed, mowed

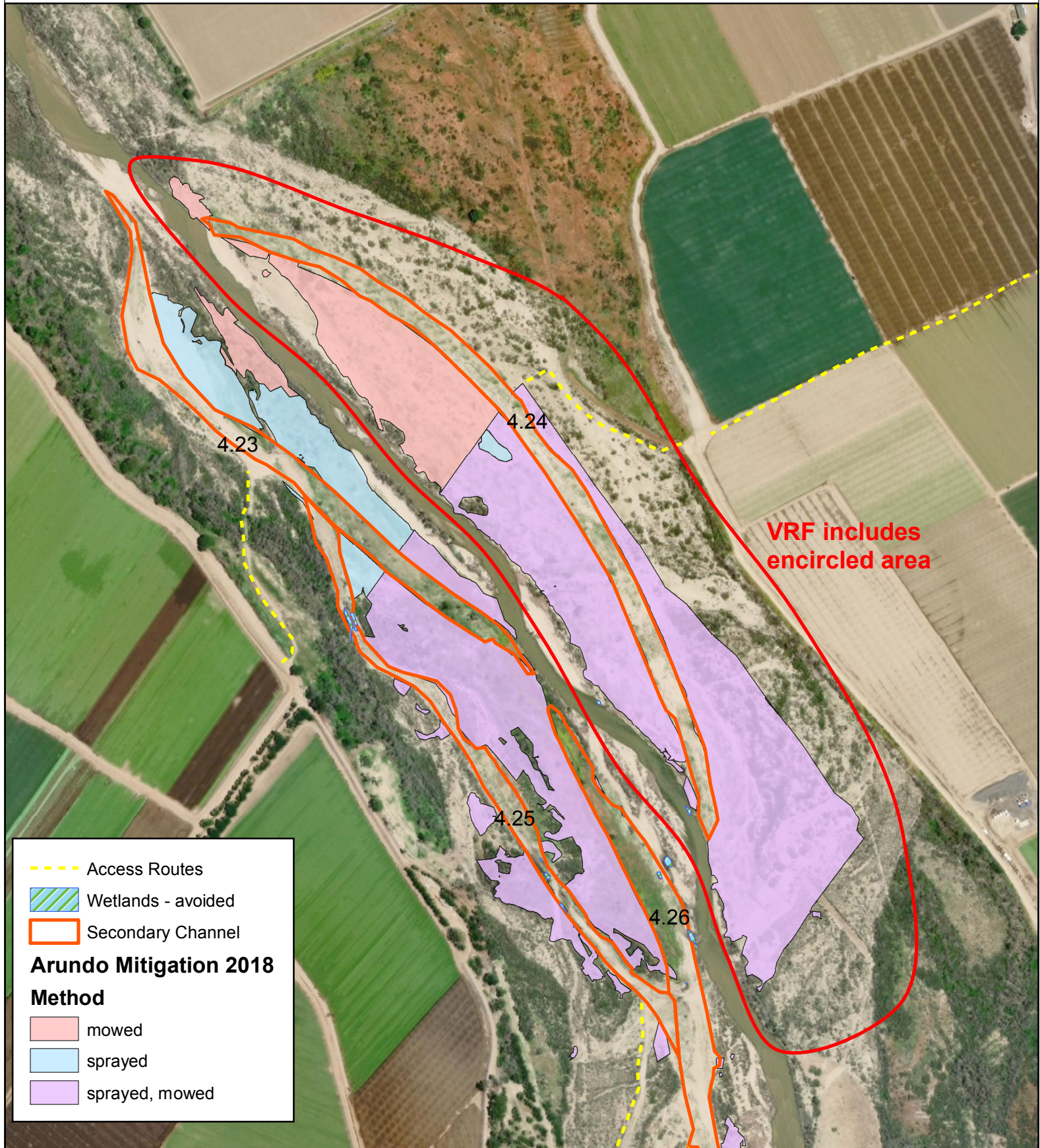
Scale  
1:7,000



Map created February 2019



# 2018 SMP Project Activities: VRF # 0051, 0069 Mitigation Area near 4.24



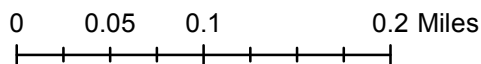
--- Access Routes  
Wetlands - avoided  
Secondary Channel

**Arundo Mitigation 2018**

**Method**

- mowed
- sprayed
- sprayed, mowed

Scale  
1:6,500



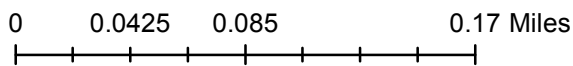
Map created February 2019



# 2018 SMP Project Activities: VRF # 0052, 0074 Mitigation Area near 6.07



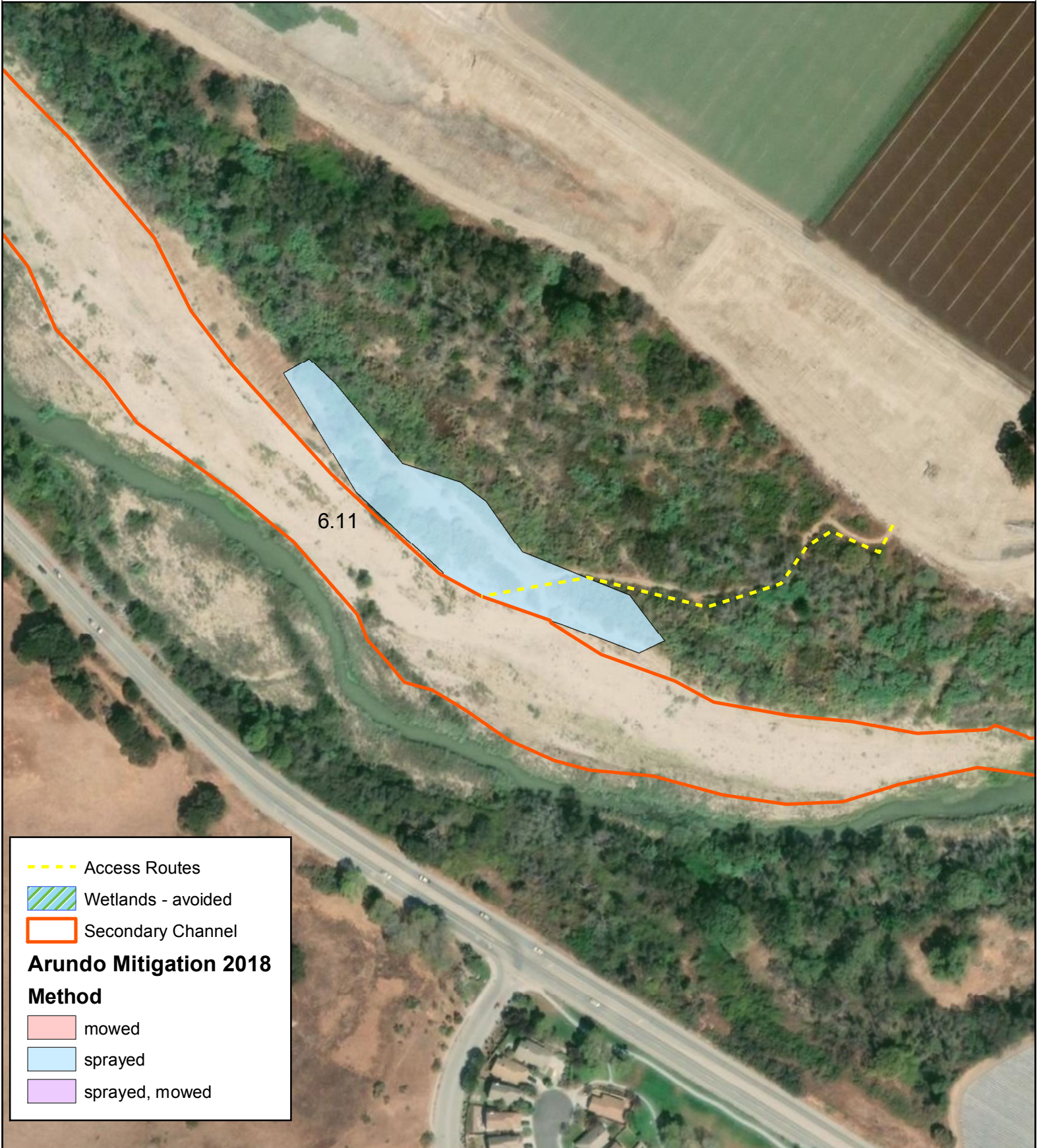
Scale  
1:4,500



Map created February 2019



# 2018 SMP Project Activities: VRF # 0053 Mitigation Area near 6.11



Scale  
1:2,500



0 0.0225 0.045 0.09 Miles

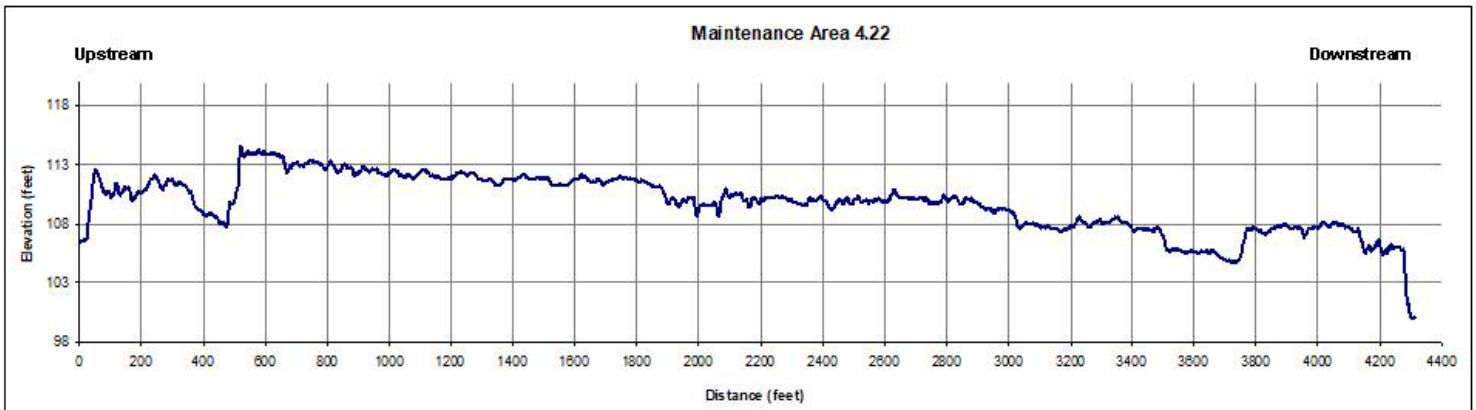
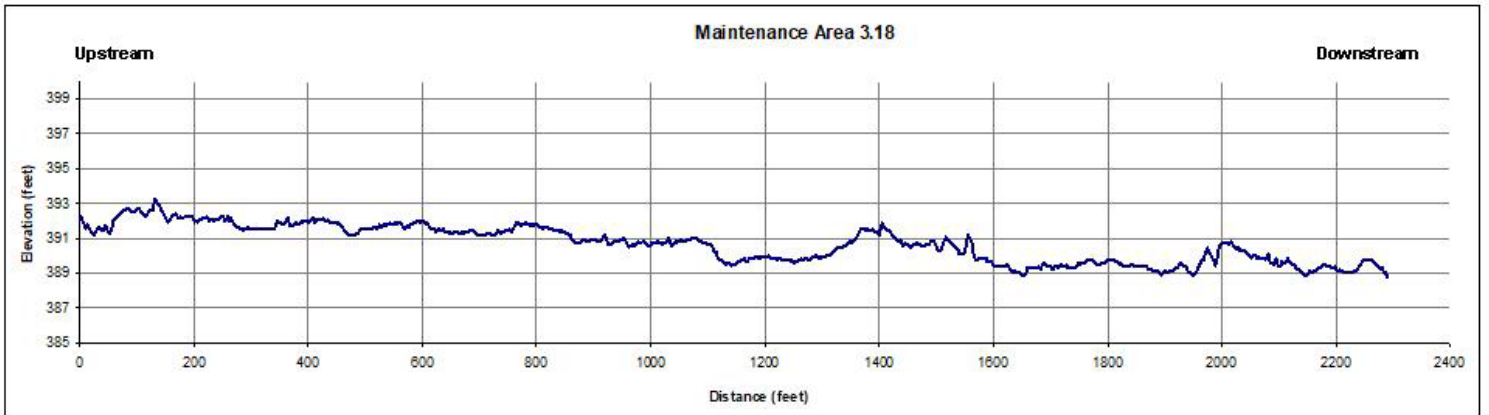
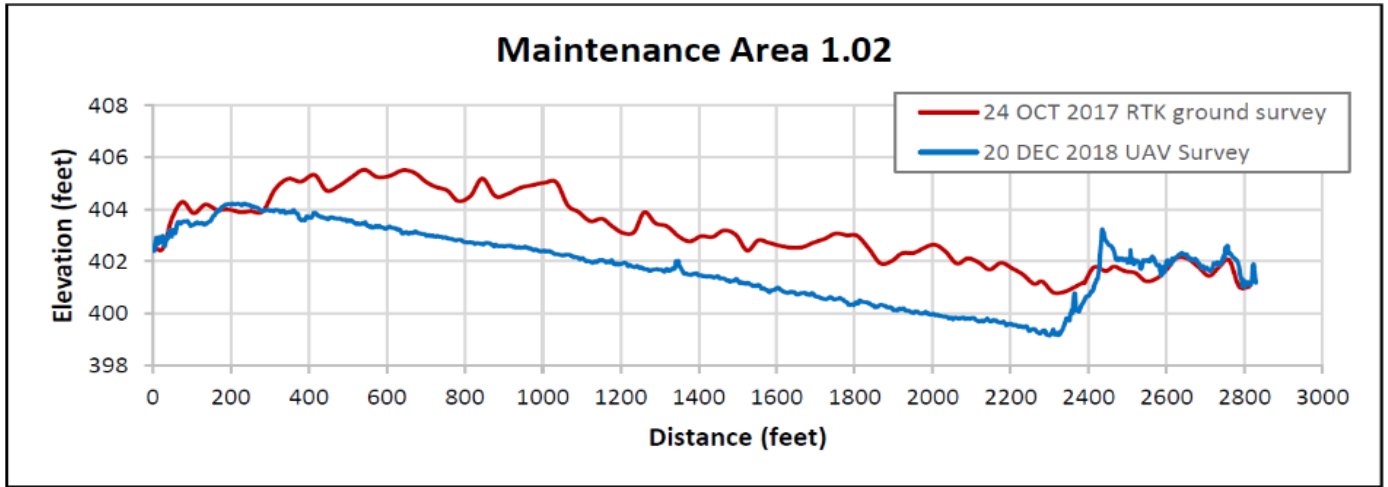
Map created February 2019

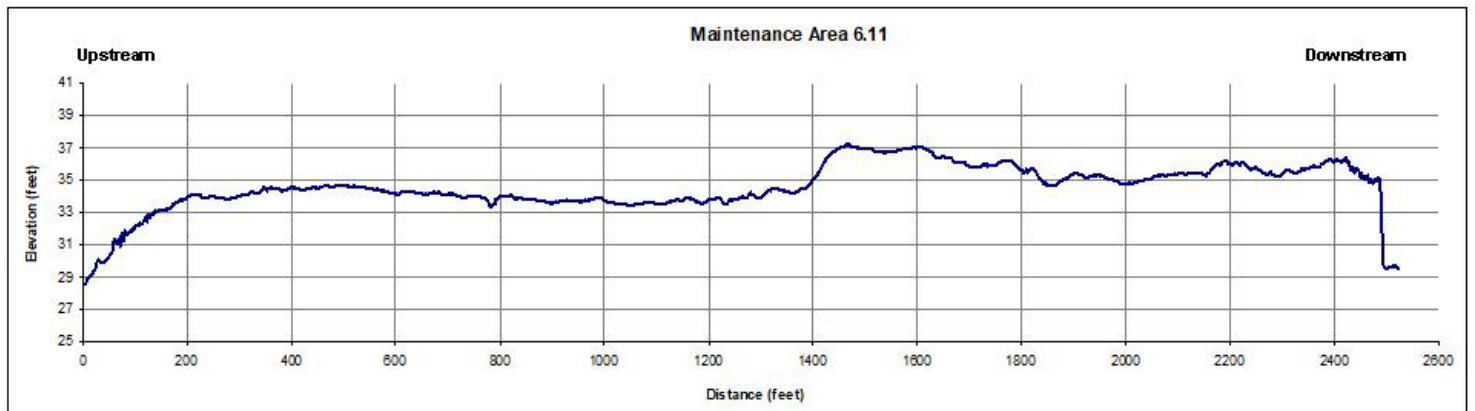
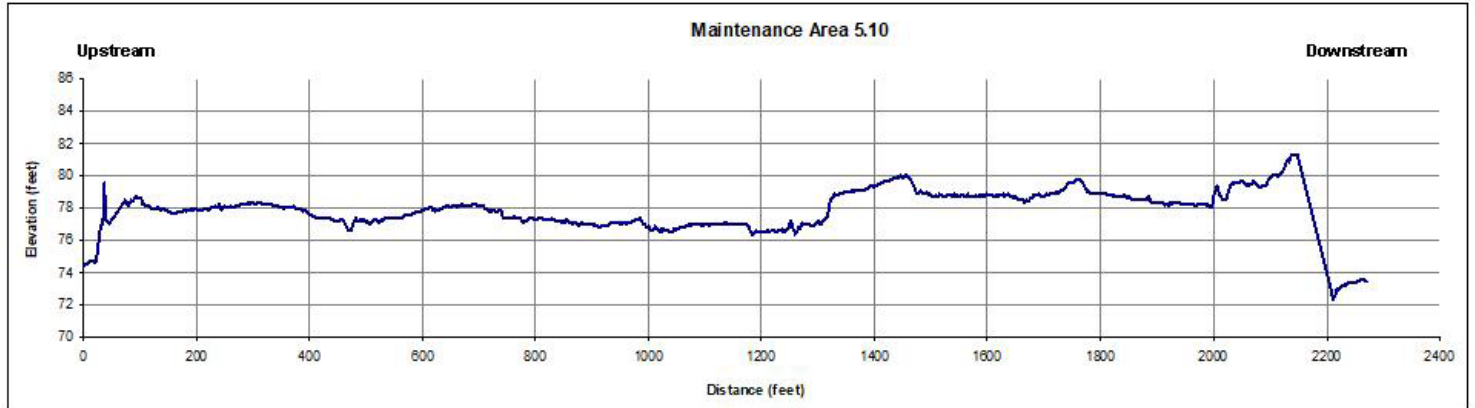




## 6 Maps of Maintenance Activities

## 7 Longitudinal Profiles





## 8 Certification of Compliance