COUNTY OF SAN LUIS OBISPO
Department of Public Works
John Diodati, *Director*

April 15, 2025

County of San Luis Obispo
Flood Control and Water Conservation District
976 Osos Street, Suite 207
San Luis Obispo, California 93408

Re: Arroyo Grande Creek Channel Waterway Management Program – 2025 Annual Vegetation Management and Sediment Removal Work Plan

The County of San Luis Obispo Flood Control and Water Conservation District (District) has prepared this Annual Vegetation Management and Sediment Removal Plan (plan) with support from SWCA Environmental Consultants (SWCA) and Waterways Consulting, Inc. (Waterways) to describe maintenance work that is needed within the project area, pursuant to requirements with the following permits issued for the Arroyo Grande Creek Waterways Management Program (WMP; project):

- Regional Water Quality Control Board, Clean Water Act Section 401 Water Quality Certification, WDID No. 34012WQ01
- National Marine Fisheries Service (NMFS), Biological Opinion, File No. SPL-2012-00317-JWM
- California Department of Fish and Wildlife, Pending Amendment of Routine Maintenance Agreement Notification No. 1600-2018-0115-R4

In accordance with permit requirements, this plan includes the following specific information:

- Proposed vegetation management work planned to be conducted in the summer and early fall.
- Vegetation objectives for the proposed maintenance describing the desired vegetation condition (e.g., vegetation type, density) that optimizes environmental values while still promoting the designed flood flow conveyance.
- Descriptions of additional mitigation activities including riparian planting, invasive species control, and removal of trash and pollutants from homeless encampments.
- Roughness and sediment objectives for proposed maintenance, including the assumptions and rationale used to develop the objectives.
- If feasible for necessary flood protection, sediment removal shall not exceed 20 percent of the channel length in any consecutive two-year period, which equates to a yearly maximum of 2,740 feet in Arroyo Grande Creek and 640 feet in the Los Berros Creek diversion channel.
- If feasible for necessary flood protection, no individual sediment removal site shall exceed 500 feet along the channel bed and each sediment removal site shall be separated by a distance where no sediment removal activities will occur in the same year.
- Maintenance required on established habitat features (log structures and alcoves).
- Stabilization of rock slope protection (RSP) to eliminate erosion and undermining at the January 2023 south levee breach site near the Union Pacific Railroad (UPRR) bridge. In 2023, the breach

site was repaired using RSP during emergency conditions and upon recent inspection has been determined to be unstable, and vulnerable to failure. Stabilization of the breach site would restore the integrity of the levee and allow for restoration of the riparian buffer in this location by creating a stable slope which would be actively planted with riparian vegetation.

This year, 2025, is the fifth full year that the entire project is in the post-construction mitigation, maintenance, and monitoring phase. The project area experienced multiple extreme rain events in the winter of 2022-2023 which resulted in high storm flows that damaged sections of the levees and deposited large amounts of sediment within the project area. The District implemented emergency sediment removal and levee repair activities in 2023 in order to restore flood capacity and maintain levee integrity. The project area again experienced high storm flows in the winter of 2023-2024, though not as severe as in 2022-2023. As a result of those two high flow winters, the channel morphology within the project area has been altered due to sediment deposition in portions of the main channel which has resulted in the entirety of the main flow of the creek switching to the secondary channels in some sediment management zones (SMZs). The main flow of the creek is now in the secondary channel through the entirety of SMZ 14 and 19 (Attachment A: Photo 1), and a portion of the secondary channel of SMZ 16 (Attachment A: Photo 2) and 18. As a result, the main flow of the creek is now through channels that only have riparian canopy along one side, reducing canopy shading and riparian habitat quality along these sections. In addition, sediment deposition has occurred in some SMZs, particularly SMZ 7 where high flows trapped debris on portions of the Union Pacific Railroad Bridge resulting in sediment deposition within SMZ 7 and along the main channel adjacent SMZ 7 (Attachment A: Photo 3). Further, the high storm flows resulted in scour and undercutting at some log structures, compromising their function and stability. In order to maintain flood capacity, levee stability, instream habitat quality, and log structure and alcove function and stability, the District plans to implement sediment removal, log structure maintenance, and levee repair in 2025.

Mitigation and maintenance activities planned for this year are described below. All activities will be conducted in compliance with project permits and approved plans.

This work plan addresses the objectives, goals, and requirements defined in the project permits and the *Arroyo Grande Creek Channel Waterway Management Program Habitat Mitigation and Monitoring Plan* (HMMP; SWCA 2019), which include:

PROJECT OBJECTIVES

Roughness and sediment objectives:

- Maintain a composite channel roughness of 0.04.
- Maintain a minimum of fifty percent of the designed freeboard for 10-year capacity (i.e., no less than one foot of freeboard for a 10-year storm event).

Vegetation Objectives:

- Increase riparian canopy cover.
- Create and maintain continuous riparian tree cover throughout the project area.
- Increase riparian species richness and density in the action area.
- Rehabilitate the riparian corridor through the removal of invasive, non-native species.

PROPOSED WMP ACTIVITIES FOR 2025

Sediment Removal, Log Structure and Alcove Maintenance

To support a potential opportunity to implement proposed sediment removal within the 2025 in-water work window, which extends from June 15th through October 31st, a reconnaissance-level assessment of the Sediment Management Zones (SMZ) was conducted in conjunction with the log structure monitoring on February 28, 2025. The reconnaissance-level assessment was observational, which limits the accuracy of the volumes of sediment within each specific footprint that are recommended for removal. Instead, it is meant to be a qualitative evaluation of areas of concern, along with rough estimates of sediment volume and linear feet of SMZ that might require sediment management to understand how the proposed work fits within the annual sediment management thresholds established through the Reasonable and Prudent Alternative (RPA). SMZs recommended for sediment management will be surveyed and compared to as-built or original-design condition to determine the final extents and volumes of sediment removal. Alcove reestablishment and repairs to damaged log structures that fall within the SMZs where sediment management is recommended are also included to take advantage of the proposed activities and to balance sediment removal with improvements to habitat, a key goal of the WMP. A secondary 2025 work plan will be provided on or before August 1, 2025 with definite sediment removal quantities and hydraulic modeling results used to determine the need to remove sediment.

Based on the preliminary reconnaissance-level assessment, two areas of work are proposed with one area clustered downstream of the 22nd Street Bridge and the other occurring upstream of Highway 1. Table 1 provides a summary of the SMZs where work is proposed, along with estimates of the channel length to be impacted, preliminary quantity estimates, whether or not sediment removal is recommended within an existing alcove, and whether or not existing log structures within the SMZs require repairs. Modeled conditions and verified quantities will be discussed in detail in the secondary 2025 work plan.

Areas identified as Priority 1 were determined based on both observed and modeled conditions that show less flood conveyance occurring downstream of the 22nd Street Bridge relative to areas upstream of Highway 1. This is especially true of Sites 18 and 19 which are located upstream of the Los Berros Creek confluence. Construction methods including identification of disposal areas will be provided in the secondary 2025 work plan. Existing alcoves in SMZ 2 and SMZ 8 would be excavated concurrent with sediment management activity. To limit impacts to flowing waters, sediment removal occurring within former main channels and alcoves would maintain a 3-foot buffer between excavation areas and actively flowing water within Arroyo Grande Creek to the maximum extent feasible. However, in-stream work requiring diversion/dewatering may be necessary in areas of significant sediment deposition up to the edge of the active channel. Where streambed substrate is recommended to address undercutting or flanking of Type B (downstream) log structures, a gradation is recommended based on hydraulic parameter output from the HEC-RAS model (e.g. velocity, shear) and composed primarily of rounded river rock, to the extent feasible.

Table 1: Summary of preliminary sediment removal recommendations and log structure repairs.

SMZ ID	Length (ft)	Volume (cy)	Priority	Alcove	Log Structure	Notes
2	300	~320	1	Yes	Yes – 2B	~70CY at alcove; ~250 CY in SMZ2; Stream substrate at Structure 2B to prevent undermining of footer log
5	175	~120	1	No	No	~120CY in SMZ5 at upstream end
7	500	~1,200	1	No	No	~1,200CY along entire SMZ including under the UPRR Bridge

SMZ ID	Length (ft)	Volume (cy)	Priority	Alcove	Log Structure	Notes
8	350	~160	1	Yes	No	~60CY at alcove; ~100CY in SMZ8
16	375	~300	2	No	Yes	~300CY at downstream extent of former primary channel to re-engage primary flow path; Stream substrate at Structure 16B to address undermining and flanking
18	325	~800	2	No	No	~800CY along extent of former primary channel to re-engage primary flow path
19	200	~120	2	No	No	~120CY where debris jam removed at upstream end of former primary channel
Total	**2,225**	**3,020**				

Status Update-January 2023 Breach Site Stabilization and Riparian Buffer Restoration

The District provided a letter dated June 19, 2024, detailing that upon inspection of the south levee breach site that occurred downstream of the UPRR bridge on January 9, 2023, bank erosion was discovered within the area of rock slope protection used to rebuild the levee at the breach site. The District determined that in its current condition the site presents an increased risk for failure at flows below the design capacity of the levee, therefore adaptive management is necessary to address the vulnerability at this location.

The existing condition of the project site is comprised of a steep and unstable armored levee slope devoid of riparian vegetation where existing RSP boulders have been displaced along the toe of the slope undermining the stability of the levee. The proposed project will consist of placing approximately 205 cubic yards of 18-inch to 36-inch diameter RSP along the base of 115-linear feet of existing RSP within the inner levee slope. The purpose of the new RSP is to rebuild the toe of the levee slope to anchor the existing RSP and to create a more stable slope angle. The stabilization of the levee slope at this location will provide an opportunity to also restore the riparian buffer by incorporating vegetation within RSP voids.

The proposed design incorporates filling RSP voids with topsoil to support vegetation regrowth. Following construction of the repair, the District intends to plant native riparian species using the list of appropriate species discussed in the Revegetation section of this Annual Work Plan. This includes installing container stock, hydroseeding, and installing cottonwood stakes between RSP voids to establish riparian vegetation. The vegetated RSP is expected to restore the ecological value provided by the riparian buffer throughout the WMP that was lost at this location as a result of the levee breach.

Construction of the proposed project would be conducted by equipment operating from the top of the levee, and is anticipated to last 8 working days and is proposed to occur from October 22nd through October 31st, 2025. Stream diversion and dewatering to temporarily dewater the channel during construction is anticipated to be necessary based on current conditions. A proposed project plan set and stream diversion and dewatering plan will be provided for your review and to support ongoing permit compliance correspondence. This project will be further detailed in a secondary 2025 work plan to be provided on or before August 1st, 2025 that reflects appropriate permit authorizations.

Woody Vegetation Removal

Typical annual removal of woody vegetation will occur in the late summer or early fall (September 1 through October 31). Live vegetation trimming will be limited to the minimum amount necessary to maintain storm flows through the channel and minimize the risk of debris jams and flooding. The following specific activities will occur within the Los Berros Creek diversion channel and Arroyo Grande Creek within the project area:

- All woody vegetation within 20 feet of existing bridges (i.e., Union Pacific Railroad bridge, 22nd Street bridge, and Highway 1 bridge) will be removed.
- Any fallen limbs or trees that threaten the integrity of the levee or have potential to increase flooding risk will be removed.
- Low-hanging limbs, dead or broken branches, and trees that have fallen over will be trimmed to maintain six feet of vertical clearance above the main channels of both the Los Berros Creek diversion channel and Arroyo Grande Creek.
- Low-hanging limbs, dead or broken branches, and trees that have fallen over along the outer edge of the buffer area will be trimmed to maintain storm flows through the system.
- All woody vegetation under four inches DBH that has re-grown or established within sediment management zones will be cut within six inches of the ground.

Vegetation will be removed by hand crews using mechanized and non-mechanized hand equipment including, but not limited to, chainsaws, loppers, and pruners.

Revegetation

In order to meet HMMP vegetation objectives, mitigation plantings were first installed following the completion of Phase I construction in March 2020 and again following the completion of Phase II construction in February/ March 2021. The existing habitat within the project area consisted of riparian woodland dominated by arroyo willow (*Salix lasiolepis*), with limited cover by other riparian trees. To increase riparian tree diversity in the project area, box elder (*Acer negundo*), western sycamore (*Platanus racemosa*), black cottonwood (*Populus trichocarpa*), and white alder (*Alnus rhombifolia*) were planted as part of this effort. Some of these plantings were impacted due to changes in channel morphology that resulted in erosion of portions of the buffer areas adjacent to SMZs. To address loss of mitigation plantings, additional riparian trees will be installed within the Los Berros Channel buffer areas of SMZs 20, 21, and 22, and in gaps in the riparian canopy within the buffer along Arroyo Grande Creek.

In addition, the District is planning to plant container stock consisting of perennial herbaceous plants that will compete with invasive plant species present within the project area. Plant installation and maintenance is scheduled to follow the sediment removal and log structure/alcove maintenance activities to reestablish native cover within disturbed areas adjacent to the SMZs. The plant palette will include the following species (dependent on availability):

- Mugwort (*Artemisia douglasiana*)
- Marsh baccharis (*Baccharis glutinosa*)
- Evening primrose (*Oenothera elata*)
- Deergrass (*Muhlenbergia ringens*)
- Western goldenrod (*Euthamia occidentalis*)

- Pacific and Douglas aster (*Symphyotrichum subspicatum* and *S. chilense*)

Installation of these plantings will follow the methods, species, and requirements described in the HMMP, and detailed in annual status reports. Planting locations will be grouped together in naturally spaced patches for ease of maintaining and watering newly planted container stock during the first year. Temporary drip irrigation may be installed during the first year for ease of watering, if needed and would be removed ahead of the rainy season.

In addition to perennial herbaceous plants, bare areas will be seeded, as needed, using a modified plant palette. This seed mix is modified from the previous seed mixes identified in the HMMP to incorporate locally occurring species and species that would be more successful on the drier upper levee slopes. The plant palette will include the following species included in Table 2 (dependent on availability):

Table 2. Inner Levee Slope Seed Mix

Scientific Name	Common Name	Lbs. / Acre
Achillea millefolium	Yarrow	2
Acmispon americanus	American bird's foot trefoil	2
Acmispon glaber	Deerweed	2
Ambrosia psilostachya	Western ragweed	1
Artemisia douglasiana	Mugwort	2
Bromus carinatus	California brome	6
Camissoniopsis cheiranthifolia	Beach evening primrose	0.5
Diplacus aurantiacus	Sticky monkeyflower	1.5
Elymus glaucus	Blue wildrye	2
Elymus triticoides	Creeping rye	2
Eschscholzia californica	California poppy	3
Festuca microstachys	Small fescue	4
Hordeum brachyantherum	Meadow Barley	3
Lupinus succulentus	Arroyo lupine	1
Melica californica	California melica	3
Muhlenbergia rigens	Deer grass	0.5
Oenothera elata	Evening primrose	0.5
Stipa pulchra	Purple needle grass	2
Verbena lasiostachys	Western vervain	0.5

Seed will be applied either using hydroseeding or hand broadcasting.

Trash Removal

The District will continue to track new encampments and remove trash and debris from the channel for disposal off-site, whenever encountered.

Invasive Species Control

Several highly invasive species that are known to occur in the project area are identified in project permits for targeted removal. Species that will be targeted during 2025 may include:

- Giant reed (*Arundo donax*)
- English ivy (*Hedera helix*)
- Cape ivy (*Delairea odorata*)
- Greater periwinkle (*Vinca major*)
- Castor bean (*Ricinus communis*)
- Poison hemlock (*Conium maculatum*)
- Fennel (*Foeniculum vulgare*)
- Tree tobacco (*Nicotiana glauca*)

Patches of vining invasive species including English ivy, cape ivy, and greater periwinkle present within the buffer zones (i.e., mature riparian woodland bordering each side of the low flow channel) will be treated with herbicide throughout the year and/or manually removed from the site, where appropriate, in a manner that minimizes disturbance to native vegetation.

Limited stands of giant reed present in the project area will be treated with herbicide according to the methods described in the project-specific Aquatic Pesticide Application Plan (APAP) and/or manually removed from the site in a manner that minimizes disturbance to native vegetation.

Castor bean is removed by hand opportunistically whenever encountered, and may be treated with herbicide in areas where large numbers are present. Poison hemlock, fennel, mustards (*Brassica, Raphanus,* and *Hirschfeldia*), thistles (*Carduus pycnocephalus* and *Silybum marianum*) and crown daisy (*Glebionis coronaria*) are established widely throughout the project area and are managed regularly through manual removal, weed whipping, goat grazing, and herbicide application, as part of the standard maintenance activities for the mitigation areas.

In addition to the target invasive species listed above, non-native, herbaceous species that have become established within the mitigation areas and present a threat to the success of mitigation efforts will be periodically targeted for hand removal, weed whipping, herbicide application, and/or goat grazing. Grazing areas will be limited to specific areas with temporary electric fencing and contractor monitoring.

Pre-activity Surveying for Sensitive Species and Nesting Birds

All permitted avoidance and minimization measures will be implemented for WMP maintenance activities. These measures include, but are not limited to daytime work hours, flagging sensitive resources for avoidance, and pre-activity surveys for special-status species and nesting birds. The project-approved biologist will conduct pre-activity surveys ahead of all maintenance activities for special-status species with a focus on the detection of California red-legged frog (CRLF; *Rana draytonii*), south-central California coast steelhead (*Oncorhynchus mykiss*), tidewater goby (*Eucyclogobius newberryi*), southwestern pond turtle (*Actinemys pallida*), least Bell's vireo (*Vireo bellii pusillus*), tricolored blackbird (*Agelaius tricolor*), coast horned lizard (*Phrynosoma blainvillii*), California legless lizard (*Anniella pulchra*), roosting bats, and nesting birds. All pre-activity survey records and findings will be provided in the Annual Monitoring Status Reports. Further, all appropriate agency notifications will be made by the

District immediately following the identification of a State or Federally listed threatened or endangered species within the project area.

Attachment:

A – Representative Site Photographs

REFERENCES CITED

SWCA Environmental Consultants. 2019. *Arroyo Grande Creek Waterway Management Program Habitat Mitigation and Monitoring Plan*

ATTACHMENT A

Representative Site Photographs

Photo 1. View south of sediment deposition and lack of water flow within the former main channel adjacent to SMZ 19 (February 28, 2025).

Photo 2. View north of sediment deposition within a portion of the main channel adjacent to SMZ 16 (February 21, 2025).

Photo 3. View south of sediment deposition under the Union Pacific Railroad Bridge with SMZ 7 in the foreground and the main channel in the background (December 5, 2024).

Photo 4. View south of sediment deposition and lack of water flow within the former main channel adjacent to SMZ 19 (October 22, 2024).

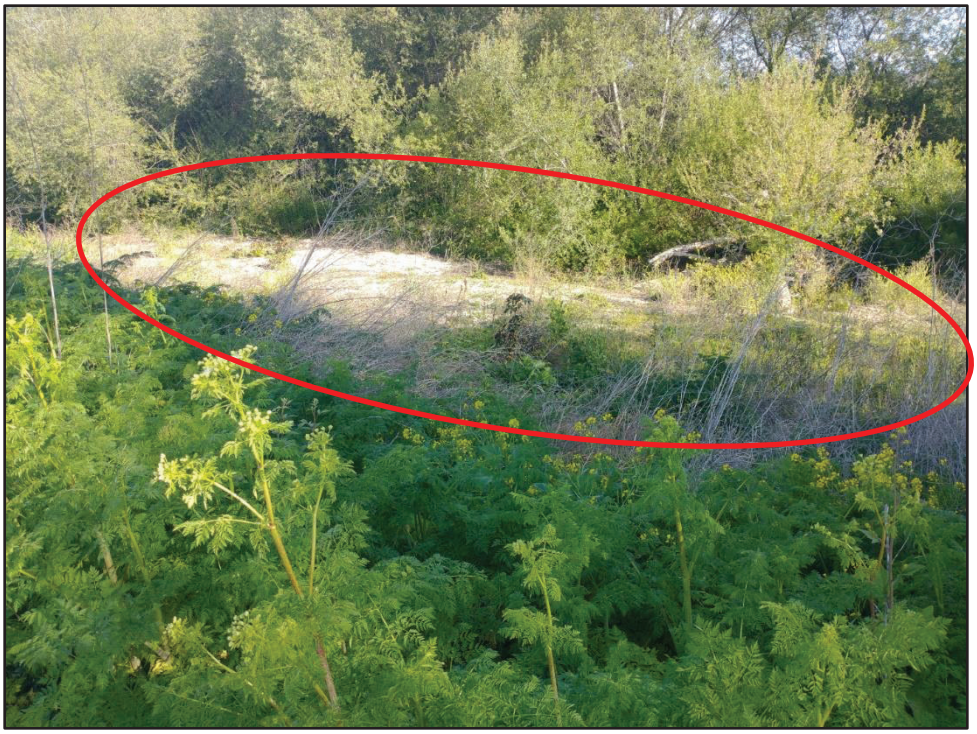

Photo 5. View northwest of sediment deposition within SMZ 5 (April 11, 2025).

Photo 6. View southwest of sediment deposition within the alcove of SMZ 8. The downstream log structure is just out of frame to the left (April 11, 2025).

Photo 7. View northwest of sediment deposition within the alcove of SMZ 3 (April 11, 2025).

Photo 8. View looking down from the top of the south levee at the breach site repair instability just west of the UPRR (April 3, 2024).