



BOP, LLC #10822 APN# 210-012-019-000

PACIFIC WATERSHED ASSOCIATES INC.

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December 10, 2020

California Department of Fish and Wildlife
Northern Region
619 Second Street
Eureka, California 95501
Attn: Lake or Streambed Alteration Program
Notification No. 1600-2018-0843-R1

Re: Work Completion Report for Karen and Dennis Silva, Representatives of Bridgeville Organic Pharms, LLC, Notification No. 1600-2018-0843-R1 (Silva Water Diversion and Stream Crossings Project) on Humboldt County APN 210-012-019.

Dear CDFW:

On behalf of Karen and Dennis Silva (Permittee), Pacific Watershed Associates (PWA) has developed and is submitting this Work Completion Report to fulfill the requirements stated in administrative requirement 1.7, 2.7, 3.2 and 3.3 of Notification No. 1600-2018-0843-R1 for the Silva Water Diversion and Stream Crossings Project. The project work completed was limited to two encroachments to replace one undersized culvert at Stream Crossing #1 (SC #1) with an armored fillslope crossing and upgrade the existing armored fillslope crossing at SC #2 with additional riprap. The stream crossing work was conducted on October 30 and 31, 2020 and the following report details the project inspection conducted by a PWA Staff Geologist on November 5, 2020. Additional erosion control measures were implemented on November 13, 2020. Completion of the third encroachment, installation of the surface water diversion infrastructure at Point of Diversion #1 (POD #1), is proposed for early 2021 when onsite conditions are optimal, and an appropriate location has been determined.

Completed project encroachments with treatment description

Stream Crossing #1 (40.505507, -123.700674): An undersized 36-inch diameter corrugated metal culvert was installed on a Class II watercourse. Due to the steep channel gradient and high coarse gravel and cobble bedload sediment transport rates upstream of the crossing, the undersized culvert had partially plugged at the inlet resulting in stream flow incising into the roadbed on the left edge of the culvert and washing out the crossing. The culverted stream crossing was replaced with a substantial armored fillslope crossing. The existing road fill material from the outboard edge of the roadbed and the culvert were removed from the stream channel and adjacent streamside hillslopes, the roadbed was dipped through the crossing

approximately 2 feet vertically, and 20 yd³ of locally derived 0.5-3.0-foot diameter rock armor was installed to armor the outboard fillslope and channel across the roadbed (Photos 1A – 1F).

The right road approach to the crossing was slightly insloped for the closest 100? feet from the nearing rolling dip to convey emergent cutbank spring flow and road runoff to the inboard edge of the stream channel and roadbed interface. These treatments were selected, as opposed to installation of an additional rolling dip, ditch relief culvert or outsloping of the roadbed due to a steep and erodible outboard fillslope immediately to the right of the stream crossing. An existing rolling dip was maintained to the left of the stream crossing to drain additional cutbank spring flow and hillslope runoff from the left upslope area adjacent to the stream crossing. A portion of excavated fill material from the stream crossing was utilized to increase the roadbed height of the left road approach and ensure there was no potential for future stream diversion.

Stream Crossing #2 (40.505155, -123.701849): An existing, well-functioning for several decades armored fillslope crossing on a Class II watercourse was upgraded with the addition of 15 yd³ of locally derived 1.0-3.5-foot diameter rock armor installed to reinforce the existing structure. A section of old crib log was removed from the left outboard edge of the road within the armored fillslope footprint during upgrade activities. A small lobe of aggraded sediment and over-steepened material was excavated from the upper right streamside hillslope and inboard edge of the road to reduce sinuosity and stream deflection and mitigate the potential for future erosion and fine-grained material from entering the stream channel. A rolling dip was installed approximately 100-120 feet up the right road approach to hydrologically disconnect any concentrated road runoff from the stream crossing (Photos 2A – 2F).

Due to time limitations and upcoming weather considerations for late season work application of road rock on the left and right road approaches to the two stream crossings was not able to be completed. Since these stream crossings are on a seasonal use road, vehicular traffic is expected to be non-existent during the 2020/2021 non-farming wet season and generation and delivery of fine-grained sediment is unlikely. As an interim measure both road approaches were treated with straw mulch to winterize the road surfaces for the upcoming wet season (Photos 1F and 2E – 2F). Road rock is scheduled to be applied to the road approaches at both stream crossings as per administrative requirement 2.38 in Notification No. 1600-2018-0843-R1 in the 2021 dry season when heavy equipment is onsite for additional earthwork to install the permitted county Public Health Department septic system.

Bare soil areas at both stream crossings were mulched with straw to mitigate raindrop impact and seeded to increase revegetation, root structure and soil stability. These areas were mulched with weed-free straw at a rate no less than 4,000 lb/acre of straw and seeded with native erosion control seed at no less than 50 lb/acre of seed (Appendix A). Active stream flow was not observed in either stream channel at the work locations before or during work activities and no stream dewatering or diversion around the work area was required. Excess fill material from stream crossing upgrade activities was endhauled to an area up the right road from SC #1 and stored in a location with no threat of delivery to surface waters.

Rolling dips were also installed or reconstructed as needed along the seasonal river access road to disconnect hydrologically connected road approaches from the stream crossings as well as

improve overall road drainage and reduce surface erosion, fine-grained sediment mobilization and future road maintenance and ground disturbance activities.

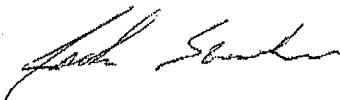
Project encroachment to be completed in early 2021

Point of Diversion #1 (40.504368, -123.701250): A spring box for surface water diversion is proposed to be installed in early 2021 following CDFW requirements included in administrative requirement 2.20 through 2.32 of Notification No. 1600-2018-0843-R1 and PWA Typical Drawings provided with the LSAA notification packet. As a location has not yet been determined for installation of the spring box the coordinates provided above are an estimate. The spring box is proposed for installation in the Class II channel upstream of Stream Crossing #2. Once the spring box has been installed, diversion of surface water will comply with CDFW requirements including measurement of diverted flow as listed in administrative requirement 2.20 through 2.32, and annual submittal of water diversion records as per administrative requirement 3.4 in the CDFW Notification. As the spring box has not yet been installed, and is not anticipated to be installed prior to December 31, 2020, no diversion of surface water has occurred, and no water diversion records will be submitted for calendar year 2020. A Diversion Infrastructure Plan (DIP) as required in administrative requirement 2.32 and 3.5 was previously submitted to CDFW for review. A work completion report including photographic documentation will be submitted to CDFW following installation of the surface water diversion infrastructure as per administrative requirement 1.7, 2.7, 3.2 and 3.3 in the CDFW Notification.

If you have any questions regarding completed or proposed encroachment work, please contact me at the contact information provided below.

Sincerely,

PACIFIC WATERSHED ASSOCIATES, INC.



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Staff Geologist
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Enclosure(s): Appendix A. Photo Pages

Cc: Karen and Dennis Silva (Bridgeville Organic Pharms, LLC)
Danny Hagans, PWA Principal Earth Scientist

Completed Project Encroachments



Photo 1A - Stream Crossing #1 (SC #1): View looking downstream from the channel across and at the outboard edge of the road (Photo 11/5/2020).



Photo 1B - SC #1: View looking toward the crossing (orange arrow) from the right road approach at implemented erosion control measures at the inboard edge of the road (Photo 11/5/2020).

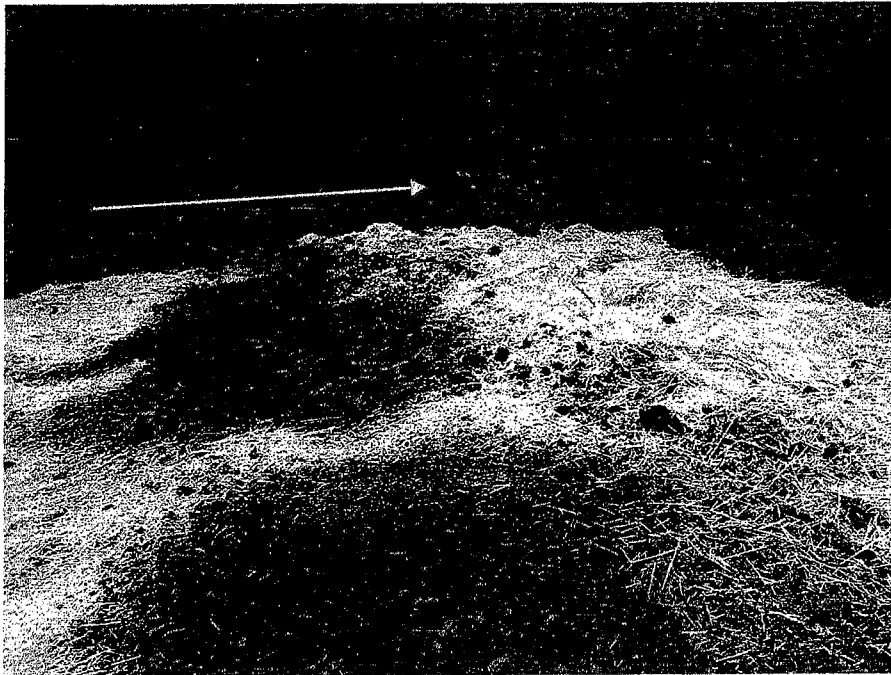


Photo 1C - SC #1: View looking toward the crossing (orange arrow) from the right road approach at implemented erosion control measures at the outboard edge of the road (Photo 11/5/2020).



Photo 1D - SC #1: View looking at the armored fillslope crossing from the right outboard edge of the road (Photo 11/5/2020).



Photo 1E - SC #1: View looking upstream at the armored fillslope crossing from the lower left side of the channel (Photo 11/5/2020).



Photo 1F - SC #1: View looking at the armored fillslope crossing and implemented erosion control measures from the left road approach (Photo 11/13/2020).



Photo 2A - SC #2: View looking downslope toward the existing, functioning well armored fillslope crossing post improvements from the upper right hillslope (Photo 11/5/2020).



Photo 2B - SC #2: View looking toward the armored fillslope crossing post the addition of additional rock armor from the right outboard edge of the road (Photo 11/5/2020).