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June 24, 2020

Evan Carnes
Senior Project Manager
U.S. Army Corps of Engineers, Seattle District Regulatory

Re: Keys Road Bank Stabilization Project—No Effect Letter for Streaked Horned-Lark and Yellow-Billed Cuckoo

Dear Mr. Carnes:

We have prepared this No Effect Letter for the Key Road Bank Stabilization Project for your records for compliance with the federal Endangered Species Act, addressing the avoidance of project related impacts to streaked horned-lark and yellow-billed cuckoo and potentially suitable habitat for these species within the project action area.

This No Effect Letter provides a project description, delineation of the project action area, discussion of the potential occurrence of both birds within the project action area and rationale for a determination of No Effect for each bird.

PROJECT DESCRIPTION

Project Area

The project area is located approximately 1.5 miles north of the confluence of the Satsop River with the Chehalis River, approximately 1.5 miles south of the community of Satsop Washington and within Water Resources Inventory Area (WRIA) 22, the Lower Chehalis Watershed. The project area is specifically located near the center of Section 6 in Township 17N, Range 6W.

The Satsop River and its eroding streambanks are located along the western edge of the project area. The river flows south with significant meanders at approximately RM 1.5 and 0.5. Four large ponds formed from past mining of the floodplain for gravels in the 1970s-1980s are located between the meanders and surrounded by young floodplain forest. The Port of Grays Harbor's well is located near the center of the RM 0.5 portion of the project area. Keys Road forms the eastern edge of the project area; adjacent land uses east of the road are rural residential and agricultural (primarily pasture).

The project area lies in a unique geomorphic setting which can help explain its active rates of channel migration. The Satsop River leaves its own valley and enters the Chehalis River valley directly downstream from Highway 12. Here, it forms a region of elevated land that surrounds the Satsop River

and extends above the Chehalis River floodplain. Bank stratigraphy indicates that the underlying material is highly erodible silt which was likely deposited by floods from both river basins. Because the "confluence ridge" lies within the over-widened Chehalis River Valley[1], there are no hillslopes to constrain the river's lateral migration, and thus, the Satsop River moves through the valley with few resistant features.

Topography of the project area is relatively flat with higher cut banks along the western bank of the river outside of the project area and an area of higher elevation sidecast along the northern edge of the ponds. Vegetation is primarily young deciduous forest dominated by red alder (*Alnus rubra*) with a dense shrub understory of mixed native and invasive species such as giant knotweed (*Fallopia sachalinensis*), Himalayan blackberry (*Rubus armeniacus*), and reed canarygrass (*Phalaris arundinacea*).

Project Background

Prior to European Settlement, resistance to erosion on the landscape was likely provided by old-growth conifer forests and the stable logjams that they created. Logjams and patches of mature forest would have provided stability to the river channel banks (logjams by deflecting flow, roughening and strengthening banks and trees through their extensive root systems). The mature trees were also a source of the "key pieces" of large wood essential for forming stable logjams and creating an important ecosystem function referred to as the 'floodplain large wood cycle' in which stable logjams create stable areas where trees can mature within areas of frequent channel migration.

Today however, the resistance provided by the old-growth forest and stable logjams is no longer present on the landscape and the system is lacking natural material that can provide erosional resistance. The only features that are resisting lateral migration within the project area are man-made structures, such as roads and revetments. These features do not react dynamically to the river in a manner that slows erosion (such as a tree falling in and forming a stable log jam), rather they act as static features that direct the river.

Channel migration in the project area is driven by lateral migration of meander bends and channel avulsions, or cutoffs. It is these processes that establish the river's "meander belt" where meander bends expand in both directions around a central axis until they are cutoff by a channel avulsion when the slope of the bend gets too low. The lower meander between RM 0.0 and RM 1.0 experienced this expansion/cutoff process between ~1990 until November 2018. Prior to 2006, the meander sequence eroded outward from a central axis in both eastward and westward directions. However, when the eastern portion of the sequence met resistance with riprap protecting the Port's well, the bend between

[1] The Chehalis River was one of the main drainage paths of the Puget Lobe of the Cordilleran Ice Sheet at the end of the last ice age. As the ice sheet melted, large quantities of water, ice, and rock were transported through the modern-day Chehalis River Valley into the ocean. During these flood waves, the valley was scoured and widened with forces much greater than the modern-day river can exert. Because of this, the valley is wider than it would have been, had it only been subject to erosion from the river alone. (*First discussed in Bretz, J.H. 1913. Glaciation of the Puget Sound Region. Washington Geological Survey Bulletin No. 8*).

RM 0.2 and RM 0.6 began migrating towards itself from both ends because the stream's energy could no longer move eastward. The bends continued to migrate closer towards each other, until they eventually cutoff in a neck cutoff avulsion at RM 0.4 on November 27, 2018.

The current issues with the river are the result of confining the river and concentrating its power in locations where the river hasn't been in thousands of years. The system is now concentrating stream power resulting in increased erosion rates, loss of riparian vegetation, and loss of aquatic habitat. Since the avulsion, the primary flow path is now to the west, along the avulsion route. The cutoff shifted the central axis of the meander belt towards the west where it is likely to remain until the river expands in both directions and another bend eventually cuts off.

Because of this, both right bank outer bends are likely to migrate into existing farmland. The avulsed channel's proximity to landowner residences and the highly erodible soils have placed homes and valuable farmland in imminent danger. River discharge at the time of the avulsion coincided approximately with a 2-year peak flow recurrence event.

Prior to the avulsion, the river's primary route was through the meander bends which convey flow past the Port of Grays Harbor potable water well and adjacent to Keys Road. Although these meander bends are now secondary flow paths, they are engaged multiple times every year at relatively low flows and are experiencing rapid bank erosion which endangers Keys Road and the Port's well.

Proposed Project

The goals of the proposed bank stabilization project are to distribute stream power across the floodplain, creating a system with dynamic equilibrium that supports riparian vegetation, aquatic habitat, and a restored historic channel migration zone. To achieve this goal, the proposed project focuses on stabilizing the floodplain, stabilizing river flow paths, and reducing rates of erosion along the lower approximately 2 miles of the Satsop River.

The proposed project will use ecologically sensitive solutions consistent with habitat restoration projects in the basin. Specifically, the project would construct two setback revetments comprised of 18 engineered log jams (ELJs) on the floodplain to protect Keys Road and to ultimately support full removal of revetments along the left bank adjacent to the upstream most structures to be constructed (see Attachment A—Figure 1). The project also includes construction of a 1,200-foot-long bypass/side channel, 7 floodplain roughness ELJs, 17 ELJs in the river, and 320 feet of timber complex ELJ directly in front of the Port of Grays Harbor's potable water well to further reduce erosion of opposite bank agricultural lands by improving floodplain connectivity and helping distribute stream power across the floodplain and reducing main channel velocities. The proposed project also includes removal of sections of embedded rock toe that have contributed to truncating the natural extent of floodplain. The planned removal of this rock is estimated to extract approximately 300 CY of riprap. Removal includes riprap

rock toe only; no native alluvium would be excavated from the river as part of this work. Removal activities would be conducted from the left bank; no equipment access would occur below the ordinary high water mark (OHWM). Additional elements associated with this work include approximately 0.5 acre of stream buffer clearing for a temporary access route and subsequent revegetation of the access route following construction activities.

The setback revetments will be installed within the floodplain of the Satsop River, but will be installed in-the-dry, and not in-water. Similarly, the Floodplain Roughness ELJ's will be installed on a gravel bar and are anticipated to be in-the-dry during installation, and not in-water. The other ELJ structures will be installed in-water. All the structures will be installed using a vibratory pile driver.

In-water structures will require fish removal and exclusion. Fish removal and exclusion will adhere to the WSDOT protocols.

Post-project conditions are anticipated to reduce erosion and channel migration rates near the two meanders that currently threaten Keys Road and the Port of Grays Harbor well. Post-project instream conditions are anticipated to include higher quality habitat for aquatic species around the installed ELJ structures. These structures are designed to create habitat by:

- Scouring pools;
- Sorting sediment for spawning;
- Providing velocity refuge; and
- Supporting production of allochthonous organic matter in the ELJs which supports benthic macroinvertebrate productivity and thus provides food-web support to aquatic species.

Once the system is able to return to, and distribute its energy across its historic floodplain, a less intensive approach to improve habitat functions and further reduce bank erosion will be more feasible.

ACTION AREA

The project is in a rural setting and will require the use of heavy machinery, including a tracked excavator, vibratory pile-driver and a dump truck along the active channel of the Satsop River. The Satsop River is forested along both banks, and the work will occur below the top of the river banks. This will reduce the extent terrestrial construction related noise can travel. Typical noise levels generated by this type of heavy equipment are around 90 A-weighted decibels (dBA) at 50 feet, decreasing to approximately 60-70 dBA at 3,000 feet. Ambient noise levels in a rural setting with a low-speed and high-speed arterial (i.e., Keys Road to the east and Hwy 101 to the north) are approximately 60-70 dBA at 50 feet from the roadway, decreasing to approximately and 43 dBA at 3,000 feet. Thus, construction noise

levels are anticipated to be at ambient noise levels at a distance of 3,000 feet (0.57 mile) from the project site, based on the noise buffer provided by the vegetation and the river banks, the rural setting in which the project is located and the noise levels generated by project construction activities; thus, the action area associated with impacts from noise is delineated at 3,000 feet.

Temporary degradation to water quality associated with project construction is not anticipated to occur beyond 3,000 feet downstream of any project-related in-water work with the incorporation of appropriate BMPs to avoid or minimize temporary increases in turbidity associated with in-water work.

The indirect effects of the project include the potential increase in production for salmonids within the Satsop River. The anticipated increase in production will have a temporal, beneficial impact to fish and other aquatic organisms, but will not affect the delineation of the project action area because conditions within the project reach will improve for fish locally over time but not over a known or measurable distance.

No interrelated or interdependent actions are anticipated as a result of the project.

The construction activities required to complete the project were the basis of the determination that an action area of 3,000 feet is adequate for analysis of potential impacts to federally listed species. See Attachment A—Figure 1. Project Action Area.

SPECIES INFORMATION

This section provides general relevant information on streaked horned larks and yellow-billed cuckoos.

Streaked Horned Lark

The streaked horned lark was once widespread throughout western Washington, Oregon, and British Columbia. Due primarily to habitat loss, this subspecies now breeds and winters over a fraction of its former range. USFWS estimated the overall population of streaked horned larks between 1,170 and 1,610 individuals, and listed the species as threatened on October 3, 2013 (U.S. Fish and Wildlife Service 2012).

The breeding range for this species historically ranged from southern British Columbia south through the Puget lowlands; Washington Coast; Lower Columbia River, Willamette, Rogue and Umpqua River valleys; and the Oregon Coast (U.S. Fish and Wildlife Service 2012). It has been eliminated as a breeding species from at least half of that range and is no longer found in southern British Columbia, the San Juan Islands, the northern Puget Trough, the Washington coast north of Grays Harbor (Pearson and Altman 2005; U.S. Fish and Wildlife Service 2012).

Streaked horned larks prefer wide-open spaces characterized by flat, treeless landscapes of 300 acres or more, sparse grass/forb vegetation, and few or no shrubs. They will use smaller habitat patches if there is

an adjacent open landscape, such as agricultural fields or water (U.S. Fish and Wildlife Service 2012). Active establishment of territories and breeding occurs from late March until early August.

Critical habitat for the streaked horn lark has not been designated in the project action area.

Yellow-billed Cuckoo

The yellow-billed cuckoo breeds in deciduous, forested, and riparian habitats, typically 25 to 100 acres in area. The species is insectivorous and generally occupies breeding grounds from May through September. They are believed to have been extirpated as a breeder in Washington State (Stokes and Stokes 1996; Wiles and Kalasz 2017). WDFW reports that no potential yellow-billed cuckoo breeding habitat is located within Washington State (Wiles and Kalasz, 2017).

Critical habitat for the yellow-billed cuckoo has not been designated in the project action area.

POTENTIAL IMPACTS

A relatively small amount of riparian vegetation will be removed as part of the project, and to the extent practicable, every effort will be made to preserve riparian vegetation. The project includes the restoration and enhancement of habitat to improve conditions for salmonids, which also includes restoration of riparian habitat.

During construction, approximately 5.5 acres of buffer vegetation will be temporarily impacted along the left bank. All buffer areas temporarily impacted will be replanted post-construction with native species. The temporal loss of approximately 5.5 acres of buffer vegetation is expected to have a negligible impact to the terrestrial environment and species. The vegetation to be removed would not affect the overall suitability of the riparian forest area for species such as yellow-billed cuckoo, since existing primitive roads would be used to provide most of the construction access, reducing the extent of clearing required for project construction to 0.5 acre. Likewise, the project would not impact potentially suitable habitat for streaked horned lark, as described previously.

EFFECT DETERMINATIONS

Streaked Horned Lark

Streaked horned larks use a wide range of habitats, including open prairie and agricultural fields, which while present in the project action area, would not be affected by the project. Additionally, project area is located at the northern extent of the potential range of the streaked horned lark along the Washington coast. The nearest recorded occurrence of streaked horned lark was approximately 30 miles west of the project area, near Ocean Shores, WA (Pearson et al 2005). The project will not modify or otherwise affect potentially suitable habitat within the project action area and streaked horned larks are not anticipated to

occur within the project action area, thus the project warrants a determination of **No Effect** for streaked horned lark.

Yellow-billed Cuckoo

The yellow-billed cuckoo nests in deciduous habitats with clearings and dense shrubby vegetation, especially those near rivers, streams and wetlands. However, the last confirmed record of cuckoos nesting in Washington occurred in Seattle in 1923. While a yellow-billed cuckoo was sighted in Grays Harbor County in 1996, the species is no longer believed to breed in Washington State (Stokes and Stokes 1996; Wiles and Kalasz 2017) and WDFW reports that no potential yellow-billed cuckoo breeding habitat is located within Washington State (Wiles and Kalasz, 2017). It is unlikely, cuckoos would occur in the small areas of fragmented forest habitat in the project action area and thus the project warrants a determination of **No Effect** for yellow-billed cuckoo.

REFERENCES

Pearson, S.F., H.E. Anderson and M. Hopey. 2005. Streaked horned lark monitoring, habitat manipulations, and a conspecific attraction experiment. Washington Department of Fish and Wildlife, Olympia, WA. 38pp.

Pearson, S.F. and B. Altman. 2005. Range-wide Streaked Horned Lark (*Eremophila alpestris strigata*) Assessment and Preliminary Conservation Strategy. WDFW, Olympia, WA.

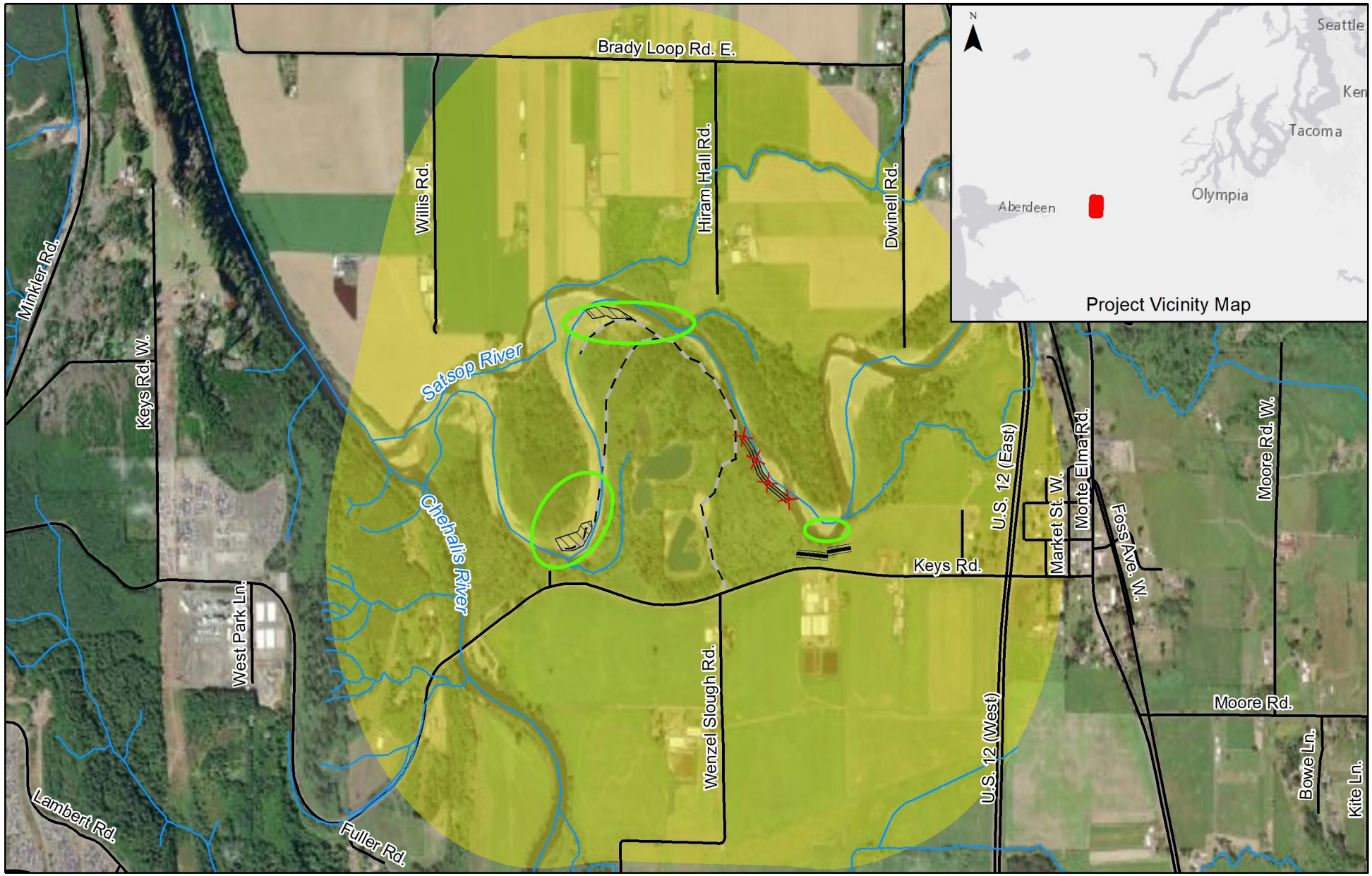
Stokes, D.W. and L. Q. Stokes, 1996. Field guide to birds, western region. Little, Brown & Co. Boston, MA

U.S. Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants: Listing Taylor's Checkerspot Butterfly and Streaked Horned Lark and Designation of Critical Habitat; Proposed Rule. October 11, 2012. *Federal Register* 77(197):61938–62058.

Wiles, G.J., and K.S. Kalasz. 2017. Status report for the yellow-billed cuckoo in Washington. Washington Department of Fish and Wildlife, Olympia WA.

Attachment A

Figure 1—Vicinity Map and Project Action Area



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0 550 1,100 2,200 Feet

0 120 240 480 Meters

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River/Stream
Road
Access Road
Material Staging Area
Riprap Revetment Removal
Setback Revetment
Action Area
Engineered Log Jam Location

Figure 1. Project Action Area