



Stilling basin below culvert.

KEUTERVILLE ROAD IMPROVEMENTS HOLD STEADY IN SPRING 2019 FLOODING

By Steve Stuebner

Like many mountain roads in Idaho and the West, the Keuterville Loop road from Cottonwood wasn't necessarily built with state-of-the-art engineering and design in mind. The road corridor might have been a game trail or a Native American trail to start with, and then a pioneer wagon road, and then a logging road.

Pioneers often located the trails and roads in the creek-bottom because it was the easiest way to get from point A to point B.

The Keuterville Road has had a long-standing issue where the road bed wasn't any higher than the flood plain of Lawyer Creek on the west slope of Cottonwood Butte. Eileen Rowan, water quality specialist with the Conservation

Commission, worked with the Idaho Soil and Water Conservation District to apply for a Section 319 grant from the Idaho Department of Environmental Quality/Environmental Protection Agency to address the flooding and sediment issues.

"During spring runoff, we'd typically lose 300 to 1,000 tons of gravel running off the road," said Brendon Sprute, superintendent of the Keuterville Road District. "This was a real worthwhile project."

Two years ago, the \$160,000 project was funded. Three-quarters of the project was funded by the 319 grant, and one-quarter by the road district. Sprute worked with Rowan and Bill Lillibridge, engineer for the Conservation Commission, to work on a project design, permitting, and more. They installed six new culverts along a 3-mile section of the roadway and elevat-

RETURN TO OUR ROOTS? UPDATE

Last month we told you that partners were exploring new ways to collaborate to implement the new Farm Bill in Idaho. It seemed a great opportunity to revitalize the partnership AND get more conservation on the ground.

Regrettably, the Commission has determined that NRCS can only fund these new agreements through reimbursements and won't include overhead costs. As a result, the Commission doesn't have the cash flow or the ability to participate.

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ed the roadway by 2-3 feet in places to prevent future flooding and erosion on the roadway.

It's a good thing they did.

On April 9th, 2019 there was a big rain-on-snow event in the Cottonwood area, and a 100-year flood came rushing down Lawyer Creek. The culverts – designed for a 50-year flood event – held in place, while some others in the region did not.

"I'll tell you what, that road would have been completely gone," if the project improvements had not been made, Sprute said.

The big runoff event in April "was worse than anything we've seen in a long time," adds Tom Gehring, a member of the Idaho SWCD board of directors. "That road would have washed out, and the undersized culverts and road bed would have been a real mess. This is something that really needed to be done."

"We lost a lot of culverts during that event," adds State Senator Carl Crabtree of Grangeville. "I was proud of those guys in the road district for a job well done. These are some of my former 4-H students who grew up with solid roots in Idaho County, and they're continuing to contribute to their community."

"It turned out super, super good," added Rowan. "Many other culverts were failing during that big runoff event."

The new culverts were shaped like a squash plant – meaning, short and wide – to handle higher water flows and also provide room in the bottom of the culverts for gravel to benefit resident fish. After the culverts were put in place, the contractor built concrete headwalls around them at the inlet and outlet.

Below each culvert outlet, the contractor built stilling basins, i.e., small ponds, where the water flow could slow down and reduce downstream scouring effects.

The short-and-wide culverts provide greater capacity when you have a low road fill height, Lillibridge said. The top two culverts in the system measured 47 inches high by 71 inches wide, the third culvert was 52 inches high by 77 inches wide, and the last two were 57 inches high by 83 inches wide.



Both photos show lowering large culverts into place to replace undersized culverts.



"Another point of the headwall structures is to get more water diverted into the culverts," Rowan said.

Sprute said one of the big challenges with the project was figuring how to insert gravel into the bottom of the culverts for fish habitat and fish passage. He found

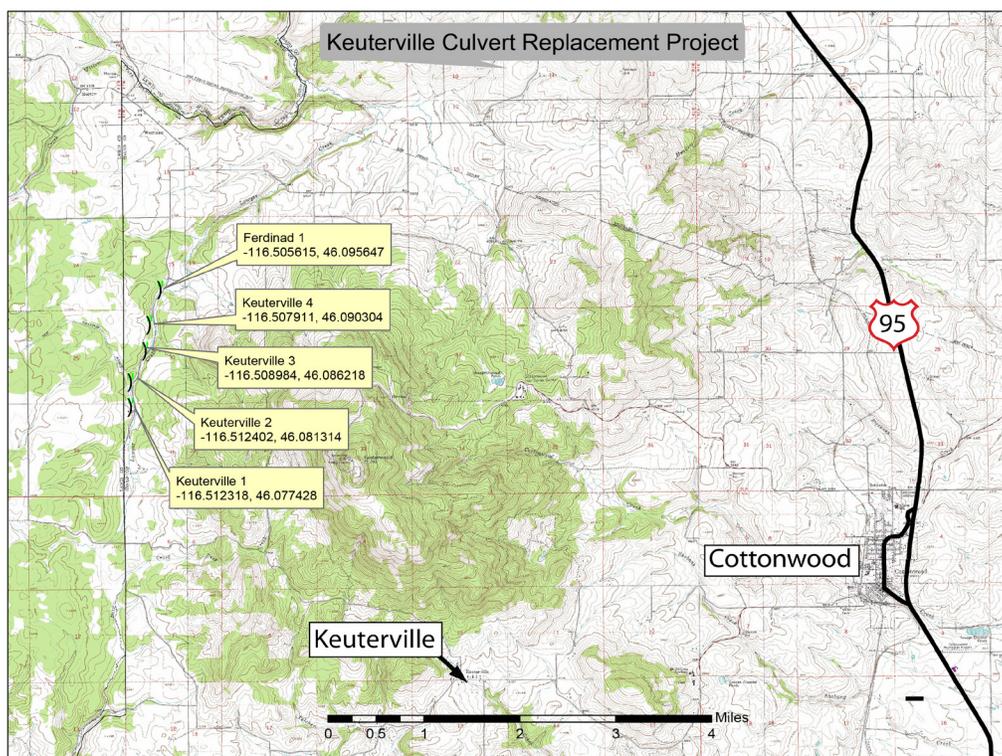
a small front end loader at a rental shop and modified it so he could pour gravel into a tight space. "We just kind of dreamed it up," he said.

After placing the rock inside the culvert, workers had to climb in on their knees to spread the gravel around.

Lawyer Creek flows east through the boundary of Lewis and Idaho counties and runs about 64.5 miles down the hill to the Clearwater River at Kamiah. The creek is well-known because of the scenic vista of Lawyer's Canyon from a prominent point on U.S. 95. The creek is named for a Nez Perce tribal leader who lived in the lower end of Lawyer's Canyon. Early fur traders called him "Lawyer" because of his command on various languages and speaking abilities, according to Lalia Boone, author of Idaho Place Names.

The Keuterville Road project should help with sediment reduction and stream temperature on Lawyer Creek, Rowan said. The project is expected to reduce sediment flow by 13.5 tons/year, and provide a 50 percent increase in shade. Lawyer Creek provides spawning and rearing habitat for steelhead trout.

The Lawyer Creek watershed is within the Lower Clearwater TMDL area (total maximum daily load). The Lawyer Creek TMDL Implementation Plan, developed by the Conservation Commission in 2006, identifies the following issues of concern for Lawyer Creek – sediment, nutrients, temperature, bacteria and organic enrichment.



According to the project application, the Keuterville Road project will address sediment and temperature issues. Improperly sized culverts compromise or eliminate fish and other aquatic species passage and can alter the quantity or quality of stream corridor habitat that provides shade to reduce stream temperatures, Rowan said.

Upgrading culverts reduces the long-term sediment load from road surface erosion, she said. In addition, raising the level of the road, with base rock laid underneath, will ensure a more sustainable future, Sprute said.

"That's a huge benefit," he said. "It's a rare piece of road where we have base rock underneath the road bed. Twenty-five thousand yards of pit run base rock."

Landowners and recreationists of all kinds will appreciate the road-improvement work because the road is used year-round,

Gehring said. "Keuterville is one of the oldest towns on the prairie," he said. "It had a blacksmith shop, a sawmill, it was mostly a timber town."

Now it's kind of a ghost town, but it actually has some part-year residents, a beautiful old Catholic Church, an RV Park, and of course, the Keuterville Pub and Grub.

"We rely on it to get to our river ranch and our winter ground for our cattle," he said.

"A lot of people live up there," Crabtree adds. "It's an important lifeline to the community."

Sprute said he's appreciative of the Conservation Commission's support on the project. Rowan provided assistance in putting together the 319 grant application, and Lillibridge provided engineering design work and permitting support.

"It was nice working with the Conservation Commission folks," he said. "They were friendly and very helpful."

Steve Stuebner writes for Conservation the Idaho Way on a regular basis.



Keuterville Road District officials used a modified, small front-end loader to place gravel in the bottom of the culverts.



The project included concrete outlet headwalls.



New culvert in place with fish gravel in the bottom.

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