



"Morph", Allan Johnson's daughter's poodle puppy oversees construction while Arlin Grimes digs a new course for Fox Creek.

MORPHING FOX CREEK BIG SUCCESS FOR MAN (AND DOG)

MORPH: verb - to undergo transformation; also, noun - small, feisty, black toy poodle

By Steve Stuebner

When Teton County looked at widening a county road, West 6000 South, by more than a foot on each side, county officials knew that there would be impacts to adjacent wetlands near the headwaters of the Teton River and some mitigation would be required.

But Teton County Commissioner Cindy

Riegel wanted the wetlands mitigation to be "meaningful."

"We could have dug a pond for \$15,000, but I wanted to do something with more ecological value," Riegel said.

She approached the Teton Soil and Water Conservation District in Driggs to see if they might be able to help.

The answer was yes! District officials told Riegel that Allan Johnson, an engineer for the Conservation Commission who serves the Eastern Idaho region, might be available to work on the project and do something more meaningful.

Turns out that Johnson had a healthy chunk of discretionary (time not previously allocated to other specific proj-

ects for Districts) engineering time to work on restoring Fox Creek to its original channel across the road.

Through the Commission's allocation of Johnson's engineering time, restoring Fox Creek to its original channel was something that Teton County could afford. The project cost was approximately \$85,000, with Johnson's services being contributed through a discretionary award to Teton SWCD pro bono.

"The bottom line is, it takes patience and perseverance to put a project like this together," Riegel said. "It's not easy to do, but totally worth it to have completed a more meaningful project located in a critical spawning area for native cutthroat trout."

Years ago, a short reach of Fox Creek had been removed from its historic channel, straightened, and placed in a ditch next to West 6000 South. The old channel had been filled in and turned into a cattle pasture. Using aerial photographs, Johnson began crafting the stream design.

"I could see a faint green signature on the aerial photos where the old stream course was located," Johnson said. "I basically tried to restore the stream to its old natural channel, building in curves and meanders, pools and riffles, the whole bit."



Aerial photography revealed Fox Creek's historic stream course, providing a blueprint for Johnson's design.

designed a number of stream-restoration projects over the last 20 years, including daylighting Whiskey Creek, a successful project in the Gentile Valley near Soda Springs. In 2017, when the Fox Creek project started, Johnson had just finished a course in river-restoration at Portland State University, earning a professional certificate.

Darryl Johnson, Director of Public Works for Teton County, worked directly with Johnson on the stream design and secured an easement from a private property owner to make the project possible.

"Working with Allan and the environmental firm, we identified the old stream course and pretty much tried to follow that," Johnson said. "Allan did his magic and did a great job."

The county's Fox Creek restoration project complements several other projects located nearby and downstream.

The Huntsman

a conservation easement, downstream of the county project. The Huntsman's property lies adjacent to 3,000 acres of permanently protected private lands held in easements by the Teton Regional Land Trust, and next to 251 acres of land owned by the Idaho Department of Fish and Game, known as Fox Creek East and Fox Creek West, providing access for anglers to the headwaters of the Teton River.

"We've done a ton of restoration on Fox Creek, so anytime there's an opportunity to restore more cutthroat trout habitat, we're all about it," said Joselin Matkins, executive director of the Teton Regional Land Trust. "Because of all the work downstream, we're even more thrilled about it."

The Friends of the Teton River has been doing fish counts in the Fox Creek area, and new fish life has been observed in the newly restored section of Fox Creek, officials said.

"We've seen some big fish in there," Johnson said. "It's in the second year now, so the fish are getting bigger."

"It's really neat to see how we're moving into a whole watershed approach vs. these one-off stream-restoration projects," said Amy Verbeten, executive director of Friends of the Teton River. "Through all of these conserva-

Stream-restoration is just about Johnson's favorite thing to do. He has

Family has permanently protected 220 acres of the Fox Creek Ranch with



Grimes follows Johnson's design with on-dash GPS unit providing precise excavation.

have had to stake out the new stream course, all of the twists and turns in the creek, the different grades, and the pools and riffles.

"If you stake it out, you have 1,000 stakes to work around when you're building the

stream bed," he said. "With the GPS system, you bypass the stakes altogether."

"After construction, I checked it, and the whole stream was surveyed to within an inch of where it was supposed to be," Johnson said. "I was impressed. I'd never worked with a contractor who had that kind of capability."

A Morph of a Different Sort

While the conservation project was running amazingly smooth on Fox Creek, Johnson drove a two-hour daily commute each way to the project site to ensure that the contractor was staying on course. He lives in Grace, and the project site was near Victor.

A father of four children, Johnson had to commute daily to the project site because his 13-year-old daughter, Ellie, had been diagnosed with Non-Hodgkin's Lymphoma. Ellie and Johnson's wife, Mariah, were at the Primary Children's Hospital in Salt Lake City every other week for Ellie to receive chemotherapy treatments. The other kids needed a parent a home in the evening to make dinner, supervise homework, etc.

In addition, the terms of the 404 wetlands permit with the Army Corps of Engineers required daily project

supervision. "During that October of 2018, I spent nearly a month in Victor working on projects in the cab of my truck, while occasionally answering questions from Arlin and tracking the progress of the project," Johnson said. "Often times, I would bring Ellie's new toy poodle puppy 'Morph' with me, since there was no one at home to watch him.

"I have to admit, that was a pretty stressful time for me."

The good news is that Grimes followed the design plans perfectly, Johnson said. "As the construction proceeded, it was like watching a masterpiece painting come to life before my very eyes," he said.

And his daughter would recover fully from cancer. "The nurses in Salt Lake told us that Ellie had more than a 97 percent chance of beating the cancer. That gave us hope."

Old stream channel comes to life

Johnson had dug several test pits with staff from the Natural Resources Conservation Service office in Teton County to confirm if they would hit alluvial

tion partnerships, working together, we're able to do a great deal more than we could alone."

An innovative contractor

After Johnson crafted the initial stream-restoration designs in 2017, the county worked on obtaining the necessary stream-alteration and wetlands permits from the Idaho Department of Water Resources and Army Corps of Engineers. The project went out for bid in the summer of 2018. Aqua Terra Restoration LLC, a local contractor based in Driggs, was selected to do the work.

In October 2018, Johnson met Arlin Grimes, owner of Aqua Terra, on site. "I had planned on spending a full day or more setting grade, alignment and offset stakes for construction," Johnson said. "Imagine my surprise when he told me that he needed only two benchmarks to calibrate his GPS equipment and then to email him my AutoCAD point file for the project."

Grimes has a GPS unit and screen mounted on the dash of his heavy equipment, and he follows the project designs to a high level of accuracy. The stream-restoration project covered about 200 acres, and about 2,000 feet of the stream course, with a 4-5 foot drop over that distance.

Back in the day, Grimes said he would

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gravel about four feet below the top-soil and surface dirt, which would be ideal substrate for the newly restored creek channel. That meant they didn't need to import different types of rock for the bottom of the stream bed and the riffles between the pools.

Grimes rolled back the surface sod with his heavy equipment, built the stream sections, and then rolled the sod back into place and tamped it down. He also added willow clumps in the meander bends, woody material in the flood plains, and willow pole cuttings in the streambanks along the course of the project.



Fox Creek meander with willows.

"I had planned for the riparian sod to be transplanted, but the meadow grass already contained sedges and rushes, we didn't need to import any sod," Johnson said. "After the excavation was completed, we had a large pile of top soil, which was used to fill in the old ditch next to the road."

Teton County and the Teton District hosted a tour of the site in August 2019. "The willows were growing and the sod was greening up," Johnson said. "It almost looked like the stream had been there forever."

Between the county's Fox Creek restoration project and the other restoration projects downstream, more than a mile of Fox Creek has been enhanced through conservation projects. The county also built a buck fence on either side of the newly restored stream to prevent livestock from harming the recovery process.

"It was amazing to see Allan's design come to life," said Darryl Johnson of Teton County. "It was really neat to see all the riffles and pools in place. The contractor did a great job."

"I thought the project turned out really well," said Lynn Bagley, chairman of the Teton Soil and Water Conservation District. "We looked at the project as part of our farm tour, and everyone seemed to think it turned out well."

"I truly consider this project to be my best and greatest engineering achievement," Johnson says.

After serving 20 years as a project engineer for the Conservation Commission, Allan Johnson recently took a new job with the Idaho Department of Environmental Quality in Pocatello. We will miss him.

Steve Stuebner contributes to Conservation the Idaho Way on regular basis.



Next to family, cowboying, and hunting, Johnson most enjoys designing stream restoration projects.



New growth was already occurring in the spring-time, as are the willows planted in the bends of the stream.



Fox Creek was a popular stop on the Teton County Farm Tour.

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