

Riparian Livestock Crossing BUILDING A BRIDGE



It can be a challenge to move livestock over a stream (or draw or drainage ditch) without damaging it. Different stream crossing solutions work in different locations; this factsheet shares the experience of building one specific livestock crossing structure.



Why Install a stream crossing here?

The challenges:

- Long livestock drives on public roads
- A previous crossing had been washed out
- Livestock crossing directly through the stream had negative impacts on the water quality, riparian area (banks, floodplain soils, and vegetation), and livestock health

The benefits:

- Less streambank erosion, which reduces the risk of slumping and loss of land
- Healthier livestock due to reduced stress, dry feet, and lowered risk of drowning
- Intact riparian vegetation and firmer stream banks
- Cleaner water for fish and for livestock to drink (due to less manure, urine, and sediment in water)
- Potential access route for machinery and people
- Easier livestock management (time and effort)

Why a rig mat bridge design?

There are many examples of stream crossings and they can all look very different, but this one worked best in this space:

- The stream had well-defined and stable banks
- We could build above the high-water level
- Availability of repurposed materials
- The span of the stream was 30 feet and the rig mat was 40 feet in length
- There was an appropriate crossing site with existing alleyways
- The crossing site was on a straight section of the stream
- The stream floods fairly regularly so the concept of a free span bridge was appealing because it would allow water and debris to flow more freely

Getting started

Once the decision was made of what kind of stream crossing to use at this site, the producer worked with a group of professionals from multiple disciplines on design, approvals, construction, and funding to build a rig mat bridge.

They assessed the stream characteristics, determined the needs, and scoped out costs and alternatives. Alberta Environment and Parks, Public Lands, and Fisheries and Oceans Canada were contacted and provided with necessary documentation. No permit was required to move forward with this particular stream crossing and no land zoning issues (e.g., conservation easement, Land Title caveat) were identified at this site.

Anytime construction projects have the potential to impact a watercourse, it is important to check with Alberta Environment and Parks, Public Lands, and Fisheries and Oceans Canada regarding approvals and special permitting. Also be sure to inquire about any bylaws your municipality may have in place.

Construction

It was a goal of this project to source durable and low-cost materials where possible. Repurposed oil field pipe, I-beams, and pressure-treated bridge timbers were used. The rig mat was purchased new to ensure that it was not contaminated with petroleum products or invasive weed seed. The sides of the bridge deck were lined with new livestock panels and closed in with plywood.

Transporting the rig mats through narrow alleyways was a challenge, but otherwise, construction went smoothly due to contractor and machine operator.

The bridge was installed when ground conditions were dry and before the ground was frozen.

Costs


Used Oilfield Pipe	salvaged
Transportation	\$700
I-beams	salvage
Pressure treated bridge timbers	salvage
Rig mat (delivered)	\$6,500
Panels (delivered)	\$1,600
Panel siding	\$500
Contractor	\$3,400
Total	\$12,700

What we've learned

Livestock needed to be conditioned to use this new bridge; the hollow sound of the bridge deck or seeing through open panels may be deterrents for livestock. To mitigate these deterrents, straw was laid upon the bridge deck to dampen the hollow sound and plywood was used along the sides of the crossing structure to create a visual barrier.

Building your own

Stream crossings are an integral part of stewardship within the agricultural sector. As a way to help producers install crossings on their land, the Canadian Agricultural Partnership is offering grant funding for a variety of agricultural stewardship projects. If you want to learn more, visit the "Canadian Agricultural Partnership" page on the Government of Canada website.

Thanks to the Alberta Government for funding through the Watershed Resiliency and Restoration Program 



Mighty Peace Watershed Alliance (mightypeacewatershedalliance.org)



**Mighty Peace
Watershed Alliance**
Diverse, Responsible, Connected