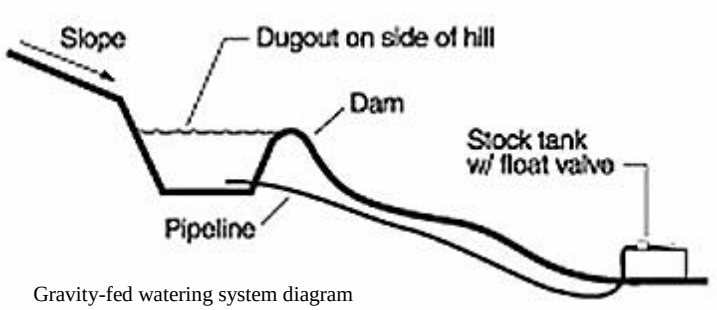
FERRY POINT RIPARIAN RESTORATION PROGRAM

GRAVITY-FED WATERING SYSTEM MANAGEMENT STRATEGY

What are gravity-fed watering systems?

Gravity fed systems use natural gravitational force to carry water from its source to a tank or water trough downhill. They may be used to supply livestock with water without using any electric power.



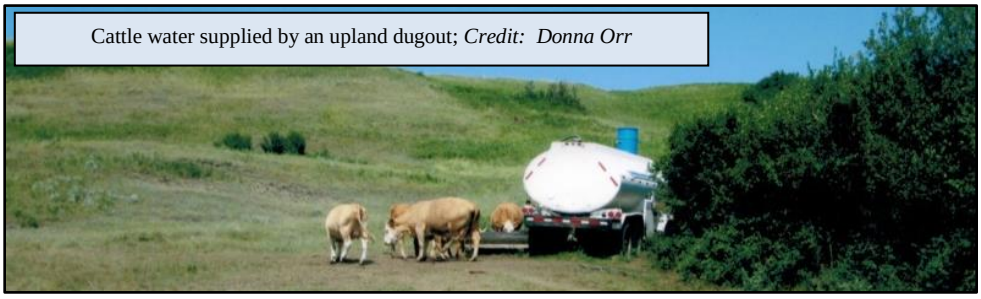
Gravity-fed watering system diagram

How do they work?

In order for a gravity fed system to work, the water source must be located upslope of the watering site. Due to the fact that lakes and rivers are often located at the lowest point of an area, these water sources are often dugouts instead of natural water bodies. All that is required to install a gravity fed system is an appropriate water source, the right length of pipe, and a water tank with a float valve. The pipe should enter the side of the dugout, low enough that it won't be exposed to the atmosphere. It is then buried underground and attached to the water trough. Once the siphon system is started, gravity carries water downslope without using any power. Alberta Agriculture and Rural Development suggests that the water level of a dugout should be at least 5ft higher than the water tank, with an additional foot for every 100ft of pipe used. This is to ensure that there is enough water pressure to provide an adequate flow rate.

What's the Cost?

These systems are relatively inexpensive, due to the fact that they are power free and require few components. However, the price will vary depending on how far away your watering site is from your water source, as well as the size and type of water trough purchased. In general, a 300 gallon stock water tanks range from $100 to $500. If you were to use 1" PE plastic roll pipe, it can cost around $0.40-$0.50 per foot of pipe.



Cattle water supplied by an upland dugout; *Credit: Donna Orr*

How so gravity-fed systems help the Riparian area?

The gravity fed watering system follows the same principals as the solar watering system. Both systems carry water from a water source (such as a dugout, river, or lake) to a separate location. They divert livestock away from riparian areas, protecting these areas from damage and allowing native plants to fill in once again.

BATTLE RIVER WATERSHED ALLIANCE

CASE STUDY: THE ORR FARM

WATER RUNS DOWNHILL

The Orr family have been in the area around Ferry Point since the time Ferry Point was a town. In some ways the area and changed a lot, but in other ways it looks the same.

Like many in the area, Neil and Donna Orr keep busy with a multitude of projects, including farming cattle and cutting hay. They raised their family along the Ferry Point Reach of the Battle River, a childhood that no doubt contributed to their daughter becoming a Water Engineer with Alberta Agriculture and Rural Development. With a daughter in the field, it is no surprise that the Orrs know the benefits of a healthy water supply for their cattle.

Laying pipe from dugout; *Credit: Donna Orr*

Tank Details

- Tank bought at an auction
- 1300 feet of 1" pipe, buried underground

Costs

Water Tank	$1645
1300 foot of 1” pipe	$698
Valves, pond strainer and accessories	$173
Pasture Pipeline Plow rental	Free
Total Cost:	**$2516**

New water trough; *Credit: Donna Orr*

In true farmer form, Neil Orr rigged up their watering system with parts he found at an auction and around the farm.

An upland dugout provides a reliable source of clean water, but it was too far out of the way and uphill for the cattle to use, and they preferred to go down to the river. This is why the Orrs decided to install a watering system downhill from the dugout, using a gravity system to draw the water.

They installed a water float in the dugout attached to 1,300 ft of 1” pipe leading down to the water tank. Once the pipe was attached, they need only to start the siphon and let gravity do the rest. The pipe was buried to reduce potential damage due to cattle and freezing.

The Orrs have also installed an electric fence along the river in the pasture portion of their field, resulting in over a mile of protected riparian area.