



Safe Roads Program: Culvert Protection from Beavers

The Beaver Institute's *Safe Roads Program* was created to help Highway Departments control beaver issues. We can refer you to a local professional or train your staff to make beaver blocked culverts a thing of the past.

To a beaver a road culvert looks like a hole in a dam. By "fixing" the hole they can create a large pond with minimal work. This is why blocked road culverts are such a common beaver problem.

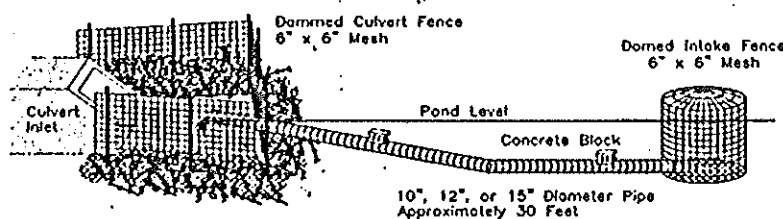
Cleaning grates, trapping, and unblocking culverts are annoying, repetitive tasks, costing time, money and taking crews away from other important duties. Sound familiar?

Fortunately various flow devices offer proven ways to protect culverts from beavers. They also save Highway Departments time, money, protect roads and workers, last for 10 or more years, and average less than 1 hour of maintenance per year! Sound better?

What is a flow device? Below are descriptions of four common flow device designs. The success rates cited for each are based on over 1,400 installations by Beaver Solutions LLC.

Fence and Pipe Device

The most successful way to protect culverts or any manmade drainage structure from beaver damming is by using a Fence and Pipe flow device. With a 99% success rate, this device maintains water flow through 10", 12", or 15" diameter pipes. An exclusion fence protects the culvert from getting plugged by beavers, while the pipe acts as a hole in the beaver dammed fence.



As seen in the diagram, the domed intake fence is sunk in the pond and is built large enough (usually 5'-6' diameter) so that the beavers cannot feel or hear the water flow into the pipe. The pipe inlet needs a water

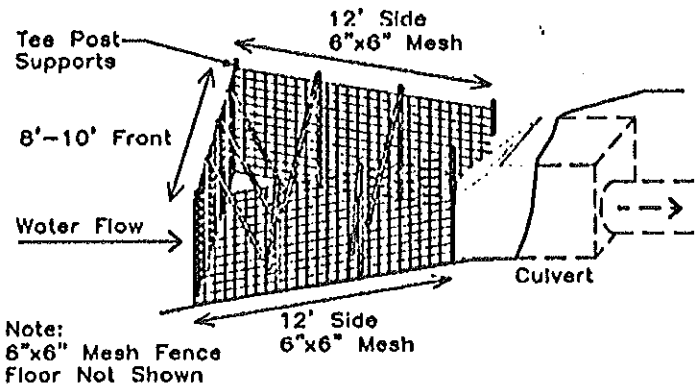
depth of 3 feet. The pipe outlet height controls the water level. Since beavers do not build dams much higher than their ponds, the pipe controls the height of the damming on the fence. Large storm flows go over the beaver dammed fence and through a completely open culvert.

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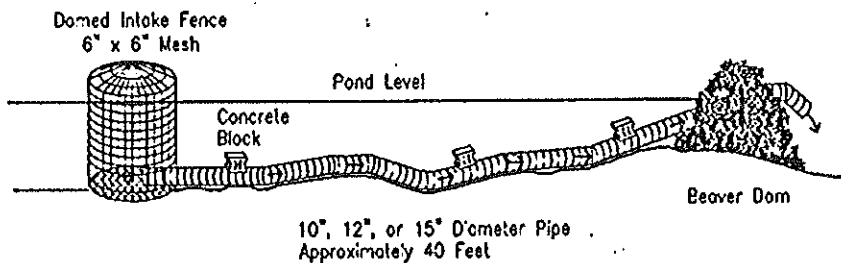
Keystone Culvert Fence

Another way to protect road culverts is to install Keystone Fence. With a 95% success rate, this design completely eliminates damming near the culvert despite continued beaver presence. It works for three main reasons. First, it creates a large fence perimeter of 30 - 40 feet which discourages damming. Second, the fence forces the beaver to dam further and further from the culvert. Third, as the beaver dams further from the culvert the opening the water flows into widens so the damming stimuli of the sound and feel of moving water decreases the more they dam. This design is ideal for shallow water or high flow streams, but needs quarterly maintenance to remove floated debris.



Flexible Pond Leveler

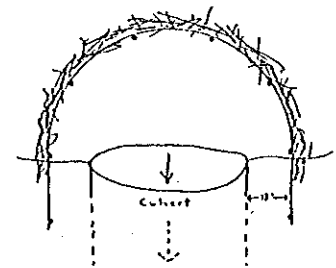
With a success rate of 90%, a Flexible Pond Leveler is usually the best option to resolve flooding from a free standing beaver dam. It is designed to prevent beavers



from detecting water flow into the pipe so they won't block it. This creates a permanent leak in the dam. The height of the pipe in the dam controls the water level. The pipe inlet usually needs 3 feet of water depth to fool the beavers.

Diversion Dam

The simplest flow device designed to protect road culverts is the Diversion Dam. It is inexpensive and relatively easy to build and has an 80% success rate. Basically you create an easier place for beavers to dam located 10 to 15 feet upstream of the culvert. As shown in the diagram, it can be constructed in a semicircle and can be made from of any kind of material (fencing, rocks, etc.) that encourages the beavers to dam there rather than the culvert. It works best if it holds back some water like a small beaver dam. It can be built to allow wildlife passage.



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