



US Army Corps
of Engineers

Water Quality Technical Note MI-05
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Using Road Culverts to Create Wetlands and Improve Reservoirs

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Purpose

This technical note presents a possible conceptual solution to sedimentation problems and loss of aquatic habitat associated with culverted influx into reservoirs.

Problem

A number of small reservoirs (less than 2,500 acres) are bisected by roads. Reservoir or stream waters pass from upstream to downstream under the highway via a box culvert or corrugated metal pipe. In addition, these reservoirs are often plagued with sedimentation problems such as the formation of deltas or sediment deposition throughout the reservoir, which leads to the loss of aquatic habitat and the associated fishery and other recreation benefits.

Solution

One solution to the problems of sedimentation and loss of aquatic habitat is to create wetlands using the road embankment and rock (Figure 1). The rock can be sized appropriately and placed in a semicircle around the culvert. It is suggested that the rock semicircle be raised above the water level not more than 6 in. to 1 ft, although greater heights can be used at appropriate sites. Costs associated with this method are quite small and include only the purchase, transportation, and placement of rock.

Caution

Care should be taken so that nonproject lands are not impacted. In addition, the culvert is designed to pass the flows associated with a storm event of a particular size and duration and thus should not be blocked. Sediment cleanout may be necessary at times to maintain the wetland and sediment trapping efficiency. This cleanout of a

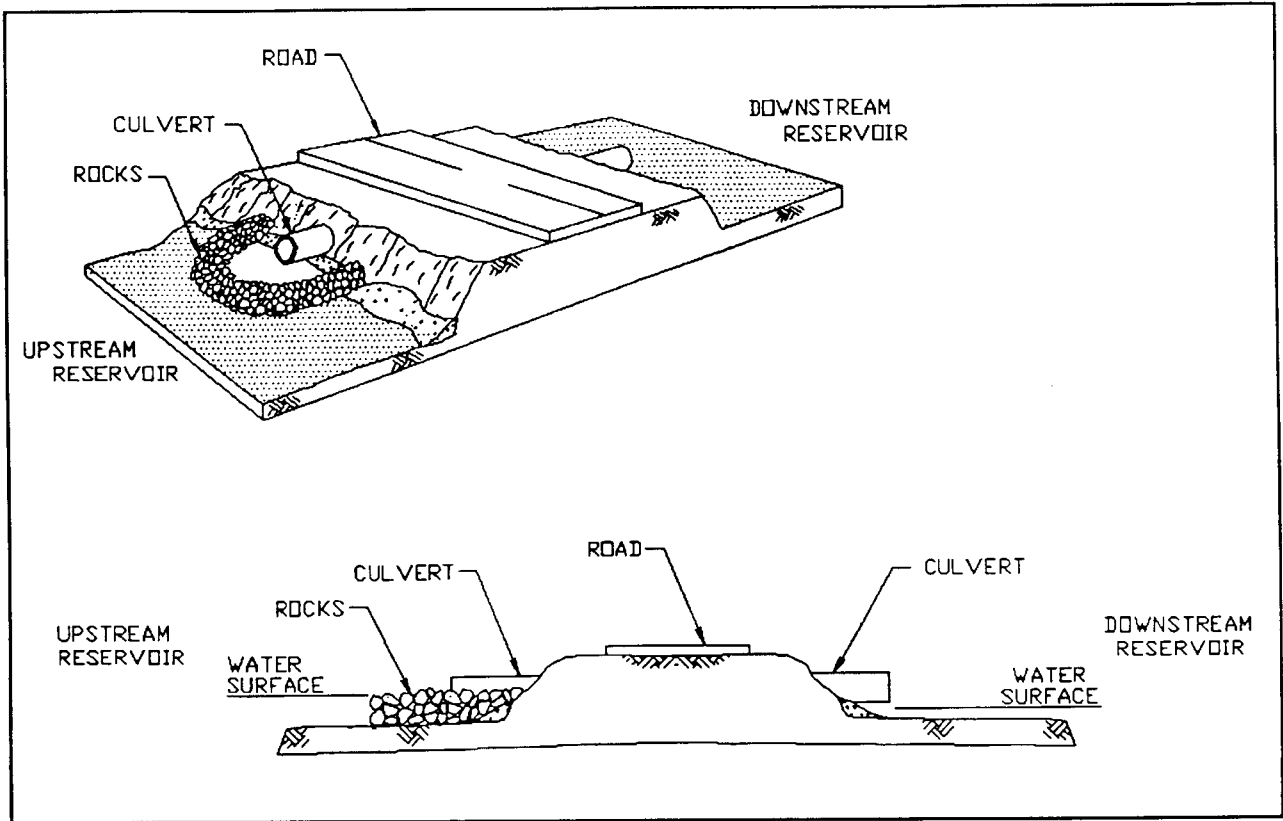


Figure 1. Design for use of road culverts to create wetlands and improve reservoirs

small area is much cheaper than renovating the lake if the sediment problems remain unchecked.

Point of Contact

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