



CHALLENGE: Years-long flooding problem at the Miller Creek railroad crossing and the collapse of one of two century-old pipes.

SOLUTION: Remove century-old pipes, replacing drainage system with box culverts in multiple places.

OWNER: Grand Traverse County Drain Commission

CONTRACT AMOUNT: \$1,398,834

DESIGN ENGINEER: Jennifer Hodges, Gourdie-Fraser

ENGINEER CONTACT: (231) 946-5874

LOCATION: Traverse City, Michigan

DATE STARTED: 3/14/21

DATE COMPLETED: 7/31/21

SELF-PERFORMED: 97%

PARTNERS: G&J Site Solutions

BY THE NUMBERS

1 - 10'x7' Box Culvert installed

1 - 12'x6' Box Culvert installed

420 cubic yard Berm Installed

2 Box Culverts Removed

HMA Surface Removal: 553.8 sq yds

HMA: 196.55 ton

Aggregate Base: 672.4 sq yds

The Cass Road drainage district in Garfield Township is a series of natural creeks, ditches, pipes, and culverts intertwined above and underground between the Boardman River, Miller Creek, South Airport Road, and McRae Hill Road.

Within the drainage district, the Cass Road drain is an inlet, an outlet, a large metal grate, and a retention pond on the west side of the road behind a series of commercial buildings.

The drain is supposed to handle the storm water runoff so it doesn't flood local businesses and homes, swamp parking lots, or foul

natural waterways with sediment and pollutants. But two century-old, undersized, and poorly functioning culverts had storm water flowing behind commercial buildings on Cass Road, plaguing Grand Traverse County for years.

Things got worse when one of the pipes collapsed, funneling 90 percent of the Miller Creek water flow through a single 24-inch pipe, causing water to rise over the banks on the west side of Cass and inundate the low-lying properties there.

Team Elmer's submitted the low bid to help alleviate flooding in the Cass Road drainage district.

TEAM ELMER'S PROJECT PROFILE | Cass Road Drain



The project was broken down into 3 sites: Miller Creek, MDOT Railroad - Miller Creek, and the Cass Road Culvert Upgrade.

At the Miller Creek site, Team Elmer's worked to restore an open channel by removing a 15" and a 30" culvert, installing an Agridrain water control structure and piping, and constructing an earthen berm.

At the MDOT Railroad - Miller Creek site, Team Elmer's removed the existing crossing and installed 101 linear feet of a 12' span x 6' rise concrete box culvert with upstream and downstream headworks and wingwalls. Energy dissipators were placed to help alleviate soil erosion from stormwater, including downstream riffle material, instream boulders, and riprap.

A concrete box culvert stretching 80 linear feet with a 10 foot span and 7 foot rise was installed at Cass Road and the water main was lowered. Accompanying road construction work included sand subbase, aggregate base, HMA paving, guardrail, and traffic control.

The new box culverts allow an open channel that will better handle water flow, reduce flooding, and permit wildlife passage and new habitat creation.



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