

# EMILY LAKE ROAD BRIDGE, HOUGHTON COUNTY, MI

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**DESIGN TYPE:** TIMBER BOX CULVERT

**YEAR BUILT:** 1996

**DESIGN ENGINEER:** UP ENGINEERS & ARCHITECTS, INC.

**FABRICATED BY:** WOOD DEVELOPMENT CORP.

**INSTALLED BY:** PAUL'S REMODELING, HANCOCK, MI

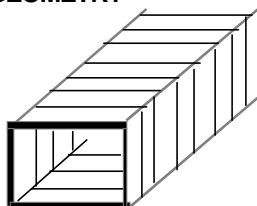
**SPANS OVER:** MISERY RIVER

**LOCATION:** SE $\frac{1}{4}$ , SEC. 22 T52N R36W



## Emily Lake Road Bridge

### BRIDGE GEOMETRY



TIMBER BOX CULVERT

Spans: 1  
 Number of Lanes: 2  
 Total Length (feet): 16'4"  
 Out-to-Out Width (feet): 28'10½"  
 Curb-to-Curb Width: 27'11½"  
 Chord Lamina Size: 1.833"x14"

Load Rating: HS-20  
 Average Daily Traffic: 200  
 Superstructure Cost: \$66,100  
 Superstructure Cost/ft<sup>2</sup>: \$140  
 Total Project Cost: \$105,400

### BRIDGE MATERIALS

#### DECK

Species: No. 2 and 3 Hemlock  
 Quantity: 35 MBF  
 Preservative: CCA

#### GUIDERAILS

Species: NA  
 Preservative: NA

#### WEARING SURFACE

Asphalt (4")

### LOCAL IMPACT

The timber box culvert replaced two existing 36" culverts which flooded regularly, causing two upstream lakes to rise over their banks and threaten cottages. Improved traffic safety is also a result of the new timber culvert.

### BRIDGE PERFORMANCE

To date, the performance of the box culvert is adequate with no evidence of material deficiency.

### FABRICATION & ERECTION

The fabricated materials were of a very high quality. Assembly time of the timber box culvert, including wing walls was 15 days with no intermittent weather delays.

### FUNDING SOURCES

USDA Forest Service: \$35,000

Other Sources: \$70,400

### LOCAL CONTACT

Name/Title: Jim Manderfield, P.E.  
 Company/Agency: Houghton County Road Commission  
 Address: P.O. Box 269  
 City: Hancock State: MI Zip Code: 49930  
 Phone: 906-482-3600 FAX: 906-482-9600  
 E-Mail: hrceng@up.net

WIT Program Proposal Number: NA-33-95

Federal Grant Identifier: NA-95-0130

### COOPERATING AGENCIES



USDA FOREST SERVICE  
 NORTHEASTERN AREA  
 STATE & PRIVATE FORESTRY

Upper Peninsula R&D Area, Inc.

