FAST FACTS:

Rigified FRP

**PROJECT LOCATION:** M-25 over Harbor Beach Creek, Huron County, Michigan

**PROJECT NAME:** C19 of 32092, JN 100622A

**BRIDGE MATERIAL DESIGN OPTION:** Rigified FRP

**UNIQUE FEATURE:** Composite MSE Walls; Composite Arch Tubes

**PROJECT DESCRIPTION:** Replacement of M-25 bridge over Harbor Beach Creek
**Purpose and Need:**
To gain experience with ABC construction, in this case, a Rigified FRP structure, otherwise known as a “bridge-in-a-backpack.”

**Contract Amount:**
N/A

**Engineer’s Estimate:**
$1,225,551

**Bid Amount:**
$1,128,491

**Final Contract Value:**
$1,580,284

**What was unique about this project?**
Structure location – rural, low volume traffic route, over waterway—selected for use of innovative materials.

**Traditional Approach:**
Design a three-sided prefabricated structure.

**New Approach:**
Use Rigified FRP (composite arch tubes) embedded in an abutment.

**Bridge Details:**
- **Span:** 37’ 7”
- **Rise:** 6’ 7” (From Top Abutment to Bottom of Composite Arch Tube)
- **Width:** 52’ 4 ½”
- **Skew:** 20 degrees
- **Arch:** Composite Arch Tubes
- **Headwall:** Composite MSE Wall

**Benefits Realized/Expected:**
Provides experience with composite arch structures to the State of Michigan. Composite superstructure eliminates the need for superstructure reinforcing and structural steel, which should require less long-term maintenance.

**Duration of Activity:**
July to October 2012

**Owner:**
State of Michigan

**Team/Affiliations:**
Advanced Infrastructure Technologies; Milbocker and Sons, Inc; Michigan Department of Transportation

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M-25, Prior to replacement