BMDO | Bridge Material Design Options

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

Contacts:

Jonathan Kenerson
Structural Bridge Engineer
Advanced Infrastructure Technologies
207-866-6526
jon@aitbridges.com

Brian Ulman, P.E.
Construction Engineer
Michigan DOT
989-671-1535 Ext. 304
ulmanb@michigan.gov

Andrew Zevchak, P.E.
Bridge Design Engineer
Michigan DOT
517-373-0628
zevchaka@michigan.gov

Raja Jildeh, P.E.
Michigan DOT
517-373-0097
jildehr@michigan.gov

M-25, Prior to replacement

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