



Valmont ABC bridge system on Geosynthetic Reinforced Abutments in Midland County, MI

Valmont™ Bridge Systems Case Study Midland County

Midland County Bundles Innovative Bridge System, Saves Big

How do you know its spring in Michigan? Seeing the road change from white to brown, feeling the pavement change from smooth to bumpy, and back again, witnessing a family of deer soaking up the sun near a drainage ditch full of snow and water.....and your peaceful drive coming to a stop for a bridge closed to traffic. This is the experience you'll have driving through Midland County, Michigan in the early spring months. Located nearest to Saginaw, MI, Midland is a typical rural county, one that can be found across the United States. And like many of these counties, Midland's rural county government agency is responsible for an increasing inventory of deteriorated bridges with a decreasing supply of funding.

Faced with the growing dilemma of replacing bridges, some counties have found increased efficiencies by manufacturing and constructing multiple bridges in one contract, a process known as "bundling." Bundling saves time, and dollars, by eliminating the need for multiple contracts. The Road Commission in Midland County recognized this efficiency, and decided to leverage its potential by pre-ordering multiple bridges. The prefabricated bridge superstructures would then be available for later installation by Midland's own labor force! This innovative concept can solve the problem of deteriorating bridges all over the country.



Existing deteriorated Orr Road Bridge.



Fabricated PFGTGs.



Stored Valmont bridge units.

These bridge systems, that can be bundled and self-installed, were the answer when Midland County Road Commission and their structural consultant, OHM Advisors, were looking for an economical method to replace two structurally deficient bridges, the Orr Road bridge over Weaks Drain and the Grey Road bridge over Bullock Creek. To get the most bang for their buck, Midland County chose to combine multiple innovative cost-cutting measures:

1. Bundling the bridges into a single package
2. Pre-ordering the bridge superstructures to be manufactured at the same time
3. Incorporating Geosynthetic Reinforced Soil (GRS) abutments
4. Utilizing the Valmont Galvanized Steel Press-Brake-Formed Tub Girder Bridge System.

Project Timeline

- **July 2018** – OHM Advisors release a single project for bid. The bid requires materials for both bridges to be delivered by spring 2019.
- **August 2018** – Valmont Prefabricated Bridge System is awarded the project and begins design and shop drawing process.
- **September 2018** – Design and drawings are reviews and approved by OHM Advisors
- **September 2018**– Valmont Structures begin fabrication of the Steel Press-Brake-Formed Tub Girders (PBFTG)
- **December 2018** – Fabrication and galvanization of all 12 PBFTG is complete
- **January 2019** – Girders are shipped to ADL Systems, a precast concrete producer in Lansing, MI
- **April 2018/2019** – Precast concrete deck is manufactured. ADL completes the process and stockpiles 12 bridge girder units until Midland County is ready for installation
- **May 2019** – An extremely wet spring and summer prevents GRS abutments for the Orr Road Bridge, an impediment that likely would have created additional costs if using a contractor and the traditional method
- **August 2019** – County finally takes delivery of 6 Valmont prefabricated bridge units for installation atop the county-installed GRS abutments for the Orr Road Bridge.



Deck joint prior to filling with T-17.



Filling with T-17.



Valmont ABC bridge system being installed in Midland County, MI



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By the end of August, all installation was completed. The bridge deck joints were then filled with a durable, high-strength polymer concrete product known as Transpo T-17. The bridge opened to traffic in October after the guardrail had been installed by the county.

The additional 6 Valmont prefabricated bridge units were delivered for the Grey Road Bridge. The county stored these for installation in 2020, whenever spring in Michigan finally decides to show up and the county's labor force has completed their snow plowing duties for the winter months.



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Completed Valmont ABC bridge system driving surface in Midland County, MI



Completed Orr Road Bridge in Midland County, MI



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