

TriAx[®]

LAKE BELLE VIEW RESTORATION PROJECT VILLAGE OF BELLEVILLE, WISCONSIN

Application: The Village has been working on a plan to restore Lake Belle View for more than 30 years. Sedimentation and agricultural contamination caused the 94-acre lake to slowly silt up to an average depth of less than two feet. To begin the restoration, the project planners needed to construct a 3,200 foot-long berm and pedestrian path to separate the lake from the nearby Sugar River.



A layer of Tensar[®] TriAx[®] Geogrid was placed directly at the base of the berm to bridge the lake sediment.

The Challenge: The berm had to be constructed on a portion of the lakebed, which consisted of soft soil sediments. The engineer, Montgomery Associates, determined that building on top of the existing grade offered the simplest and most cost-effective solution. For this approach, the engineer decided to incorporate a mechanically stabilized layer (MSL) utilizing Tensar[®] TriAx[®] Geogrid at the base of the berm structure. The MSL created an unyielding and stable platform for constructing the berm embankment.

Site Conditions: The subgrade consisted of saturated silty lake sediments with very low shear strength.

Alternative Solution: The project owners and engineers considered excavation and replacement of the lake sediments, but the variable depth of the sediments made it difficult to predict both the feasibility and cost of this approach. Additionally, removal of the sediments would have increased environmental impacts with larger construction limits needed for over excavation. By utilizing the Tensar solution, the owners would save an estimated \$250,000.

The Solution: Construct the berm directly over the existing soft sediment by incorporating one

PROJECT HIGHLIGHTS

Project:

Structural section enhancement

Location:

Lake Belle View,
Belleville, Wisconsin

Installation:

August – September 2010

Product:

Tensar[®] TX160 Geogrid

Quantity:

17,000 square yards

Owner/Developer:

Village of Belleville

Design Engineer:

Montgomery Associates Resources
Solutions, Inc.

General Contractor:

Advance Construction Co., Inc.

Materials Supplier:

CONTECH Construction Products, Inc.

CASE STUDY

layer of Tensar TriAx TX160 Geogrid at the base of the berm to bridge over the lake sediment soils.

"The TriAx Geogrid functions as both a separator and reinforcement," says Tensar International Corporation North Central Regional Manager Jim Howley, P.E. "Its ribs offer a higher profile and the triangular apertures are arranged in a unique hexagonal shape to give a 360 degree load distribution. These properties provide superior base confinement and stiffness."

The project design called for covering the existing subgrade with Tensar Geogrid. Adjacent rolls were overlapped three feet and secured with nylon ties. The geogrid layer was then covered with approximately 24 inches of well-graded sand to support construction operations. Subsequent lifts of select granular fill were used to build up the berm to approximately five feet above grade.

The TriAx® Advantage: More owners are selecting Tensar TriAx Geogrid to:

- Simplify and expedite construction while increasing the performance of pavement structures.
- Reduce aggregate fill thickness.
- Decrease labor and equipment requirements.
- Reduce overexcavation and replacement requirements.



TriAx Geogrid created an unyielding and stable platform for constructing the berm.

- Enable construction to proceed in difficult working conditions.

Additional Information and Services:

Tensar International, the leader in geosynthetic soil reinforcement, offers systems for improving structures including but not limited to roadways, railyards, construction platforms and parking lots. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost-effective and installation-friendly, Tensar solutions provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources and expertise that have set the industry standard for more than two decades.

For more information on Tensar® TriAx® Geogrid or any Tensar System, call **800-TENSAR-1**, e-mail info@tensarcorp.com or visit www.tensar-international.com.

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