TriAx®

Rex Energy Well Pads

Butler County, Pennsylvania

APPLICATION: Rex Energy, the project owner, used the Spectra® Subgrade Improvement System, a mechanically stabilized layer incorporating TriAx® Geogrid, to create unyielding platforms at two locations. The first location (Bame) needed a drill site and a 1,000-foot access road. The second location (Warner) required a drill site and a 2,500-foot access road.

THE CHALLENGE: Rex Energy is an independent energy company engaged in the acquisition, production, exploration, and development of oil, natural gas, and natural gas liquids with a majority working interest in multiple natural gas exploration projects in Butler County, Pa. The Bame and Warner sites are farmland where there is no provision for heavy-equipment access.

SITE CONDITIONS: Most of the soils on the Warner site needed moderate improvement, but the subgrade at the site entrance was quite soft. At the Bame pad, a high water table contributed to very soft soil conditions throughout the site.

ALTERNATIVE SOLUTIONS: Kozik Construction, the owner's general contractor, typically used one to two feet of crusher run over geotextile to stabilize project sites. But aggregate costs are increasing throughout the region, making this approach increasingly expensive.

THE SOLUTION: Tensar International Corporation regional manager David Lipomi advised using the Spectra System with a combination of TriAx TX190L Geogrid and TriAx TX160 Geogrid.

Tensar® TriAx® Geogrid was installed at the Warner and Bame well pad sites to stabilize soft soils.

Designed for the demanding loads of the rail industry, TX190L Geogrid offers an aperture that is ideal for bridging saturated and crumbling soils with less expensive 3-inch-minus stone. TX160 Geogrid has a smaller aperture that works well with a well-graded aggregate with a top size of 1.5 inches.

"TriAx Geogrid has a high-rib profile and a unique hexagonal shape that gives 360-degree load distribution," says Lipomi. "Our deep product line shows how we can address tough site conditions while still using less aggregate than more traditional stabilization methods."

Lipomi specified TriAx TX190L Geogrid for the Bame site's well pad and 1,000 linear feet of access road. To install the project, Kozik's crew leveled the sites so they could lay the geogrid flat and level.

PROJECT HIGHLIGHTS

Project:
Bame and Warner Well Pads

Location:
Butler County, PA

Installation:
November - December 2012

Product/System:
Tensar® TriAx® Geogrid

Quantity:
10,000 square yards of TX160
30,000 square yards of TX190

Owner/Developer:
Rex Energy

Design Engineer:
Tensar International Corporation

General Contractor:
Kozik Construction, Inc.,
Butler County, Pennsylvania

Materials Supplier:
L.B. Water Service and
PS Construction Fabrics

They overlapped adjoining rolls by 18 inches and secured them with zip ties to prevent movement. The design also called for an initial layer of geotextile filter fabric under the base layer to help prevent the migration of water-borne fines into the aggregate layer.

The crew stabilized most areas at Bame with a 14-inch base layer of 3 inch minus stone choked down with 2 inches of 2 inch minus stone. A few particularly soggy areas required additional 3 inch minus stone in the base to ensure a stable platform.

For the Warner site, Kozik's crew used TriAx TX190L Geogrid and 18 inches of 3-inch aggregate for the well pad. For the half-mile access road, which had significantly stronger subgrade conditions, they used TX160 Geogrid and 8 inches of 1.5 inch minus stone.

Workers finished both sites with 2 to 4 inches of small stone to choke down the platforms and provide a smoother surface for walking and vehicular movement.

By using the TriAx Geogrids, the project designer was able to specify thinner aggregate layers. On average, it allowed the general contractor to create stable areas for work and vehicular traffic with 6 inches less stone.

"Subgrade conditions in our area are very challenging," says Rex Energy project manager Mike Endler. "Tensar has provided excellent support as we determine the best strategy for each well site, and, where we have installed TriAx Geogrid, the projects are holding up well and effectively supporting our drill rigs and other equipment."

TriAx Geogrid proved to be extremely effective in stabilizing soft soils for the Rex Energy well pads and access roads.

THE TRIAX ADVANTAGE: More owners are selecting Tensar TriAx Geogrid to:

- Decrease labor and equipment requirements
- Reduce aggregate fill thickness
- Reduce undercut, overexcavation, and removal requirements
- Improve durability by changing the dynamics of load interaction with the subgrade and more evenly distributing load pressures
- Enable construction to proceed even in difficult working conditions.

ADDITIONAL INFORMATION AND SERVICES: Tensar International, the leader in geosynthetic soil reinforcement, offers systems for improving structures such as 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, they 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 TriAx Geogrids or other Tensar Systems, call 800-TENSAR-1, email info@tensarcorp.com or visit www.tensarcorp.com

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