



US-24 bridge rehab wins national engineering award

Geotechnical, foundation design and construction engineering work by G2 played an important role in a bridge rehabilitation project that won a 2008 national Engineering Excellence Grand Award from the American Council of Engineering Companies (ACEC).

The project repaired a 1930s-era bridge on U.S. Route 24 over the Lower Rouge River in Dearborn, Mich., with extensive cracking and substructure movements.

The bridge abutments and pile foundations were moving laterally due to excess earth load and an inadequate lateral load design. Since the bridge superstructure (horizontal beam supports) and deck did a good job resisting the lateral movement at the top, the abutments were failing and had developed full length horizontal cracks. G2 cored the cracks to determine their depth and orientation and the location and size of the reinforcement steel (rebar). The cracks extended all the way through the abutments.

Wade-Trim, the project's prime engineering consultant, then asked if G2 could find a way to reduce the lateral earth load on existing abutments to within their actual allowable capacity.

G2 developed a reinforced backfill design that reduced soil pressure against the abutment walls by 75 percent, imposing less than the allowable lateral load and allowing reuse of the bridge abutments and foundations. The design used multiple horizontal layers of geogrid, a mesh of synthetic polymer-coated fibers, to reinforce the engineered backfill - a less expensive option than the standard EPS foam block backfill. G2's design also incorporated a compressible foam layer applied to the back of the abutment so that lower magnitude active loads could be assumed rather than higher at-rest loads. With G2's construction engineering field technicians' oversight, the abutments were repaired, the reinforced backfill was installed and the superstructure and deck were replaced at significantly lower cost than full bridge replacement, and in a much shorter timeframe.

A 33-member judging panel of industry experts and professionals from across the nation analyzed 158 entries and selected the US-24 bridge rehab as one of eight Grand Award winners. To qualify, the entry first had to win at the state level. G2 congratulates Wade-Trim, which entered the project. The bridge rehabilitation also won a "Breaking the Mold Award" from the Michigan Construction Quality Partnership.



G2 Dirt

Michael Frolov joined G2's Troy office as a staff engineer in the construction engineering services group.

G2's **Tim Dumala** and his wife Lynn had a girl, Addison, on Oct. 15, 2008. Tim is an engineering technician in G2's construction engineering services group.

Mike Guerin, a senior engineering technician in G2's construction engineering services group, and his wife Amanda welcomed daughter Kate on June 29, 2008.



Mark Smolinski, P.E., G2 founding principal, is a national director on the board of directors of the Michigan chapter of the

Association of Consulting Engineering Companies. In this role, Mark serves as the Michigan chapter's liaison to ACEC's national board of directors.

G2 helps with emergency I-696 wall repair



G2 Consulting Group provided geotechnical engineering design and construction engineering services vital to the emergency stabilization of the I-696 south abutment wall at Evergreen Road in Southfield, Mich.

After analyzing the geotechnical and survey data from the Michigan Department of Transportation (MDOT), G2 engineers and technicians — in conjunction with Posen Construction Company — developed a plan for investigation, evaluation and the subsequent corrective plan of action for stabilizing the 27-foot high gravity concrete retaining wall.

G2 designed a temporary earth retention system consisting of vertical earth-anchor-supported steel wide-flange soldier piles and horizontal timber lagging. It provided multiple benefits. It created a safe environment for excavating soil behind the unstable wall. The excavation unloaded the existing wall and also allowed the G2/Posen/MDOT team to investigate the existing wall and develop a corrective action.

(continued on back)

G2 helps with emergency I-696 wall repair
(continued from front)

The combination of soldier piles and timber lagging produced an economical wall. The earth anchors minimized lateral movement of the compromised wall, which was critical to the stability of nearby subsurface utilities and allowed vehicle traffic to continue along the service drive during construction.



MDOT's investigation of the exposed wall determined that it had rotated and had not structurally failed. G2 developed a corrective plan to unload the existing retaining wall by placing backfill behind it using reinforced earth methods. Engineered granular soils were compacted and placed along with geotextile fabric at specific intervals. The result is a freely draining backfill that is self supporting and minimizes the amount of lateral load on the existing retaining wall structure



Benefits for injured G2 employee set for Jan. 3 and 31

As many of you know, Mike Ricketts, a field technician in G2's Troy, Mich., office, was seriously injured in a project site accident on Nov. 13. Mike endured several fractures to each leg and has undergone multiple surgeries since. We send our prayers to the Ricketts family as Mike recovers from the injuries and wish him a speedy recovery.

G2 has set up a charitable donation account for anyone wishing to assist Mike and his wife Melody during his expected long recovery period. Donations may be sent to G2 Consulting Group, LLC, c/o Mark Smolinski, 1866 Woodslee Street, Troy, MI 48083, with checks made payable to "FBO Mike Ricketts".

G2 is also sponsoring a bowling fundraiser to benefit the Ricketts on Saturday, Jan. 31 at 2 p.m. at Woodland Lanes, 33775 Plymouth Road in Livonia. For a donation, attendees can bowl a couple of games, enjoy pizza and refreshments and bid on numerous donated items, including

- Detroit Tiger tickets
- Red Wing tickets
- University of Michigan hockey tickets
- One-of-a-kind Dale Earnhardt and Dale Earnhardt, Jr. bowling balls

Please join G2 at this worthy event. R.S.V.P. to Allison Lamanna at 248.680.0400.

The Ricketts family is sponsoring another fundraiser on Jan. 3 from 7 to 9 p.m. at the Skateland West roller rink at 37550 Cherry Hill in Westland. For more information, contact Skateland at 734.326.2800 or Marilyn Strunk, Mike's sister, at 734.536.9481.

G2 The Geo-logical Choice

We're proud to announce the following new clients and projects!

Client: Semaan Engineering

Project: Foundation mapping and geotechnical engineering for telecommunication sites across the U.S.

Client: AMCORE Bank

Project: Branch banks in Vernon Hills, Antioch and Naperville, Ill. - construction engineering services

Client: Richards Building Supply

Project: 42,000-SF fabrication building, Chicago, Ill. - environmental due diligence

Client: ExteNet Services

Project: Telecommunication sites in Boston, Mass., market - environmental due diligence

Client: Cunningham-Limp Company

Project: Detroit Country Day School Fieldhouse, Beverly Hills, Mich. - geotechnical and construction engineering services

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