GRIDLINE

BGFMA
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Newsletter of The Bridge Grid Flooring Manufacturers Association

Gridline, Issue #16
February 2017

In this edition of the ***Gridline***, we will spotlight another **BGFMA** certified member company individual whose many years of experience can be valuable to provide sound advice during plan preparation, fabrication and installation.

Meet Mike Riley

Mike Riley is currently the Marketing Manager of Fabricated Bridge Products for the **LB Foster Company** headquartered in Pittsburgh, Pennsylvania. He has held this position since 2001.

In 1989, while studying at Miami University in Oxford, Ohio, Mike landed a summer position with **IKG Borden**, a leading manufacturer of grating products, in nearby Carlisle, Ohio. Mike excelled at his work as an Inside Sales / Customer Service Representative during that summer and was asked to continue working while attending classes. About a year later, his success in Carlisle led to an offer for a Regional Sales Manager position in Chicago. From 1990 to 1996, Mike represented the entire line of IKG products with an emphasis on grid decking. As early as 1991, he established a contract with the City of Chicago for direct purchase of bridge products, an arrangement that still exists today. With the support of IKG and the cooperation of Miami University, Mike eventually earned his Bachelor of Arts degree in Marketing while in Chicago.

Mike at the Boston Bridge on Pennsylvania Route 48. (PRNewsFoto/L.B. Foster Company)

In 1996, Mike accepted a promotion to become the Sales Manager for IKG's Bridge Flooring Division, **IKG Greulich**. **LB Foster** recruited Mike away from Greulich in 2001 to become the Sales and Marketing Manager of Fabricated Bridge Products. In 2002 Foster purchased the assets of IKG Greulich. In 2010 when LB Foster purchased the assets of Interlocking Deck Systems International, Mike adjusted his focus to a purely marketing role.

Over the 28 years in the grid deck industry, Mike has worked on many high profile projects including the **Brooklyn Bridge** in New York City and the **Walt Whitman Bridge** in Philadelphia. Somewhat of a self-taught engineer, he conceived the unique grid used on the re-decking of the eastbound **Newburgh-Beacon Bridge** in New York State.

Mike enjoys travel so his position with LB Foster is a natural fit. He dabbles in investments and coin collecting. He has a love of classic / exotic sports cars and currently has a 1965 Shelby Cobra. He also maintains a private pilot's license and wishes he had more time for this avocation.

Georgia DOT Applies ABC Techniques over the Etowah River

Accelerated construction is one of the primary advantages for utilizing grid reinforced concrete and replacement of the divided **Georgia State Route 20** over the scenic **Etowah River** bridge decks had the need for speed. Normally the construction pace is accelerated to minimize the inconvenience to the traveling public or to accommodate a maintenance of traffic pattern. Certainly these were factors, but consideration for the migratory path and roosting of protected bird and bat species pushed the decision on this project.

Replacement of the decks would take place in the unpredictable winter months of northwest Georgia. As a veteran of accelerated deck replacement with grid reinforced concrete, local contractor **The L.C. Whitford Company, Inc.** (LCW) of Alpharetta, Georgia, accepted the challenge to replace nearly 12,000 square feet on each deck within a 14-day window. **BGFMA** member fabricator **Bailey Bridges**, Fort Payne, Alabama (located just one hour west of the project site) supplied the 120 galvanized steel grid panels to LCW's yard. Precasting panels at their own facility, LCW was able to reduce costs, manage production and ensure quality control.

Utilizing a crossover off each end, bi-directional traffic was maintained on one structure while the construction took place on the other. After saw cutting the existing deck into manageable sections, an excavator with a slab bucket removed the sections from the structure. The tops of the girders were prepared and a 282' boom crawler crane, capable of reaching half way across the span, was positioned off one end of the bridge to install the new panels. LCW was able to set and level the precast panels for half the bridge in one day. Headed shear studs were installed along the length of the girders to ensure composite behavior. With minimal work remaining, Georgia buggies carted out the closure pour concrete for the half span the following day. LCW was able to remove and replace the bridge deck at a rate of **1000 square feet per day** including the slip form barrier pour. Panels were precast with an additional 1/4" concrete, so once the entire span was complete, the excess overfill was diamond ground to the proper profile before accepting the two-part polymer overlay.

South Park Bascule Bridge Replacement in King County, Washington Garners Awards

The original **South Park Bridge** over the **Duwamish River** was built under the supervision of the King County Engineering Department in 1931. It consisted of two 95 foot Scherzer Rolling Lift Bascule leaves and was the only Scherzer Rolling Lift Bascule Bridge in the State of Washington and listed on the National Register of Historic Places. However, this landmark structure was experiencing unpredictable settlement and damage from several seismic events throughout its history. For safety reasons, the bridge had to be closed to traffic in 2010.

The replacement bascule structure would be design-challenged to meet unprecedented seismic performance requirements for a movable bridge. A few of **HNTB's** creative design solutions include sunken caisson foundations, isolated trunnion frames and a collapsible center joint on the bascule leaves. HNTB earned the **2015 NCSEA Excellence in Structural Engineering Award - Outstanding Project among others.**

A vital component of the solution is the structurally efficient and lightweight grid reinforced concrete deck. The galvanized steel panels were supplied by **BGFMA** member fabricator **LB Foster,** Pittsburgh, PA to the joint venture **Kiewit-Massman** contractor that was awarded the project. The partially filled grid deck installed on the new **South Park Bascule Bridge** was constructed with 115 pounds per cubic foot lightweight concrete and weighed approximately 57 pounds per square foot. The deck was made composite with the supporting floor beams spaced at 8'-2" and the bascule girders. The reduced deck weight and structural resourcefulness of the deck system translated into savings throughout the structure including the counterweight, trunnion assemblies, drive machinery, structural steel and piers.

South Park Bascule Bridge Photos Courtesy of HNTB.

Grid Facts

Concrete specifications for grid reinforced concrete designs vary between projects. Normal 28-day design compressive strengths range from 3.5 to 5.5 ksi and air-dry unit weights typically range between 110 to 145 pounds per cubic foot. One design component which is not variable is the requirement for 3/8" maximum aggregate size. The steel grid is comprised of narrow clearances and small holes through which the concrete must flow. Larger coarse aggregate size may inhibit the flow and prevent the proper consolidation of the concrete.

More Information

If you would like to receive more information about the features and benefits of grid deck systems, please contact us at **1-877-257-5499** or **bgfma@bgfma.org**. We are also available to make presentations at your office and can offer continuing education credits for professional engineers as a registered provider in New York and Florida.

BGFMA Tradeshow Schedule

Please visit **BGFMA members** at our exhibit booth during the following upcoming bridge engineering conferences:

Southeast Bridge Preservation Partnership Annual Meeting	**April 10 - 12**	**Charleston, WV**
International Bridge Conference (IBC)	**June 4 - 8**	**National Harbor, MD**
New York City Bridge Conference	**August 21 - 22**	**New York City, NY**
Western Bridge Engineers' Seminar	**September 6 - 8**	**Portland, OR**
ABC-UTC Conference	**December 7 - 8**	**Miami, FL**

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