PERSONNEL QUALIFICATIONS

Ralph Giernacky | Associate Principal

EDUCATION

- The Pennsylvania State University
  - Bachelor of Science, Engineering Science, Engineering Mechanics (Minor), 2002

PRACTICE AREAS

- Heavy Movable Structures
- Mechanical Engineering
- Inspections
- Balance Testing and Analysis Design
- Gear Assessment/Design
- Emergency Response
- Peer Review
- Precision Survey and Measurement
- Wire Rope Inspections

REGISTRATIONS

- Professional Engineer in FL, MD, NJ, NS, NY, ON, OR, PA, TX, and VT

PROFESSIONAL AFFILIATIONS

- American Railway Engineering and Maintenance-of-Way Association (AREMA)
- Heavy Movable Structures (HMS)

TECHNICAL COMMITTEES

- AREMA Committee 10 - Structure Maintenance and Construction

CONTACT

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EXPERIENCE

Ralph Giernacky has seventeen years of experience as a mechanical engineer providing engineering services for the movable bridge industry, where he has focused on movable bridge operating systems and span balance. Mr. Giernacky's experience encompasses all types of engineering related to rail and vehicular movable bridge operating and support systems, including balance calculations; counterweight design, strain gage and hydraulic balance testing; design of new machinery; load rating of existing machinery; and preparation of plans, specifications, and cost estimates. He is also experienced in bridge machinery inspections, machinery alignment, field project engineering, and emergency callout services to troubleshoot, identify, and resolve machinery failures and operational malfunctions.

REPRESENTATIVE PROJECTS

- Asset Management Inspections - Florida Department of Transportation (FDOT) District 4: Mechanical inspections of thirty-seven movable bridges conducted annually over two-year cycle for fourteen years
- FDOT District 5: Mechanical inspections of eight movable bridges conducted annually over a two-year cycle for fourteen years
- FDOT District 1: Mechanical inspections of twenty-three movable bridges conducted annually over a two-year cycle
- FDOT District 6: Mechanical inspections of twelve movable bridges conducted annually over a two-year cycle
- Fort Street Bascule Bridge - Detroit, MI: Mechanical work for new rolling lift bascule bridge; machinery alignment and structural support coordination, and directing of final alignment of span drive machinery open gearsets
- Hood River Lift Bridge - Port of Hood River, OR: Internal inspection of the trunnion bearings, span drive shaft bearings, and span drive-enclosed speed reducers to evaluate the components to address operational issues of the lift span
- Metro North Harlem River Lift Bridge – New York, NY: Balance testing, counterweight rope tension measurements, and direction of tension adjustments for twin tower-drive vertical lift bridge
- FDOT, Atlantic Avenue Bridge (No. 930064) - Delray Beach: Emergency response to a catastrophic failure of bearing mounting bolts; evaluation of damaged components to determine repairs for temporary operation and repairs for restoring the machinery to full operational service
- Norfolk Southern Bridge CD503.22 Hick over Indiana Harbor Canal - East Chicago, IN: Mechanical field work as part of rack replacement project at rolling lift bascule bridge, including indexing the span drive machinery to improve load sharing
- Chincoteague Bascule Bridge - Chincoteague, VA: Balance calculations for new bascule leaf; calculations determined the weight and center of gravity for components that affected final balance of bascule leaf to ensure that its balance condition met the design requirements
- Haystack Railroad Bridge - Petaluma, CA: Mechanical and structural work; design engineer for installation of a relocated rolling lift bridge from Galveston, TX to Petaluma, CA
- BNSF Bridge 8.8, Slough River Swing Bridge - Portland OR: Design work for motor and drive replacement project; design engineer for motor supports, motor pinions, and field feedback devices
- New Jersey DOT Inspections: Type I, Type II, and Type III inspections of various movable bridges, including bascule bridges, swing bridges, and vertical lift bridges
- NE 14th Street Causeway Bridge (No. 860060) - Pompano Beach, FL and Jupiter Federal U.S. 1 Bridge (No. 930005) - Jupiter, FL: Trunnion alignment evaluation of six leaves utilizing piano wire method to determine extent of misalignment
- Steel Bridge - Portland, OR: Balance testing of the upper and lower decks of double-deck span drive vertical lift bridge
- Johns Pass Bridge - Madeira Beach and Treasure Island, FL: Design and construction services for span drive machinery, span lock machinery, and span support machinery for new twin double-leaf bascule bridge