

## PROJECT DESCRIPTION

### *Ridge Road Bridge Replacement*

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**Location:**  
Lackawanna, New  
York

**Client:**  
Oakgrove  
Construction, Inc.

**Client Contact:**  
Mr. Kenneth Rawe,  
P.E.  
(716) 652-2200

#### ***West Approach with Ground Anchors Installed***

The City of Lackawanna engaged Oakgrove Construction, Inc. (Oakgrove) to reconstruct the Ridge Road Bridge over various railroad tracks. The design required Oakgrove to reinforce the existing west approach embankment by installing tie-rods between the concrete retaining walls that support the approach.

Oakgrove encountered obstructions in the approach subgrade when it installed the first tie-rod and requested McMahon & Mann Consulting Engineers, P.C. (MMCE) to develop an alternative solution. The approach appeared to have been constructed with miscellaneous industrial wastes from the early 1900's. Therefore, MMCE devised a plan to provide the necessary lateral support for the retaining walls by drilling through the fill and developing support from the native soils.

MMCE designed about 40 permanent ground anchors, about 20 for each retaining wall, with corrosion protection. The ground anchors consisted of steel bars encapsulated in cement grout. MMCE specified the acceptance criteria, which required the contractor to proof test each anchor and performance test selected anchors from each retaining wall. Once the anchors were accepted, Oakgrove constructed a new facing on the retaining walls to complete this phase of the project.

