



ENGINEERING CONSULTANTS, INC.



www.trigoneng.com

P.O. Box 18846 • Zip 27419-8846 • 313 Gallimore Dairy Road • Greensboro, NC 27409 • p 336.668.0093 • f 336.668.3868

STATE PROJECT:	8.1811201 (U-2408)
WBS ELEMENT :	34799.1.1
FEDERAL PROJECT:	STP-274(1)
COUNTY:	Gaston
DESCRIPTION:	Widening of Bridge No. 57 Over Norfolk Southern Railroad on NC 274 Between Isley Drive and Delta Drive
SUBJECT:	Geotechnical Report of Structure Subsurface Investigation

Trigon Engineering Consultants, Inc. has completed the authorized geotechnical investigation for the above referenced project in Gaston County, North Carolina. The purpose of this exploration was to investigate the subsurface conditions at the proposed bridge bent locations and to provide general construction considerations based on the subsurface conditions.

1.0 SITE DESCRIPTION

The project site is located in the western portion of Gaston County, at the approximate location shown on the Project Vicinity Map (Drawing No. 1) attached to this report. The project description of the proposed project is “NC 274 (Bessemer City Road) from NC 275 (Dallas-Bessemer City Road) to US 29-74 (Franklin Boulevard”), and the site description is “Widening of Bridge No. 57 over Norfolk Southern Railroad on NC 274 Between Isley Drive and Delta Drive”. Topographically, the site slopes down towards the Norfolk

Mr. Njoroge W. Wainaina, P.E., NCDOT
Widening of Bridge No.57 over Norfolk Southern Railroad on NC 274, Gaston County, North Carolina

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Trigon Project No. 071 -04-005

Southern Railroad line from each end of the existing bridge. The topography of the general site vicinity consists of gently rolling hills.

At the time of this exploration, a three-span bridge (existing Bridge No. 57) was present at the site. The existing bridge consists of a reinforced concrete deck on reinforced concrete girders. The existing end bents consist of reinforced concrete caps on steel piles, while the existing interior bents consist of reinforced concrete columns on steel piles. The existing bridge is approximately 72.4 meters in length and approximately 12.8 meters (out to out) in width. The bents of the bridge have a skew angle of 150°00’48”.

2.0 PROJECT DESCRIPTION

Proposed for construction is widening of the existing Bridge No. 57 on NC 274 (Bessemer City Road) over the Norfolk Southern Railroad. Information for the proposed bridge structure was obtained from the Preliminary General Drawings dated December 18, 2003, which were provided to Trigon by the NCDOT. The centerline of -L- (NC 274) intersects the centerline of the Norfolk Southern Railroad tracks (-RR-) at Stations 20+57.6 (-L-) and 11+00.9 (-RR-), which is 223.8 meters west of Mile Post 403. The proposed bridge length and skew angle will remain unchanged from the existing bridge (72.4 meters and 150 °00’48”, respectively). The existing bridge is to be widened by 3.45 meters on the left side, and by 1.80 meters on the right side. New embankment fill will be required above the existing ground surface on the sides of the existing embankment fills at the end bents to accommodate the proposed wider roadway. Slopes for the widened embankment slopes are to match the existing embankment slopes which are on the order of 1.5(H):1(V).

The Preliminary General Drawings are in Metric units with meters as the primary unit of length.

3.0 SCOPE OF INVESTIGATION

3.1 FIELD TESTING

The as-drilled locations for the soil test borings were located by personnel from Trigon using the existing bridge for reference. Elevations at the as-drilled boring locations, along the existing ground surface at the bent locations, and along the structure profile were surveyed by personnel from Trigon using the PINC 9 benchmark elevation (Elevation 265.149m) established by an NCDOT survey crew as a reference point. The location of the PINC 9 benchmark is “-LBL- Sta. 17+09.446”. As-drilled boring locations are shown on the Boring Identification Diagram (Drawing No. 2).