



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 8, 2014

MEMORANDUM TO: J. Stuart Bourne, P.E.
State Traffic Management Engineer

ATTENTION: David Bissett, P.E.
Acting Central WZTC Engineer

FROM: DS
KK John L. Pilipchuk, L.G., P. E.
State Geotechnical Engineer DocuSigned by:
John Pilipchuk
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STATE PROJECT: 34915.1.1 (U-3308)
F. A. PROJECT: STP-0055(20)
COUNTY: DURHAM
DESCRIPTION: NC 55 (Alston Ave.) from NC 147 (Buck Dean Freeway) to US 70 Business/NC 98 (Holloway St.)

SUBJECT: Temporary Shoring Recommendations for Location No. 4

The Geotechnical Engineering Unit (GEU) has received the following proposed temporary shoring location no. 4 for the referenced project:

Shoring Location No.	Begin Station & Offset	End Station & Offset	Estimated Average Height	Estimated Maximum Height	Shoring Location Type
No. 4	-LALT- 36+30 ±, 7.9' RT	-LALT- 38+25 ±, 6.6' RT	3.2'	3.8'	Roadway

The GEU recommends the following notes on plans for the proposed shoring locations:

Shoring Location No. 4

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-707-6850
Fax: 919-250-4237

www.ncdot.gov/doh/preconstruct/highway/geotech

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -LALT- 36+30±, 7.9 FT RIGHT, TO STATION -LALT- 38+25±, 6.6 FT RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

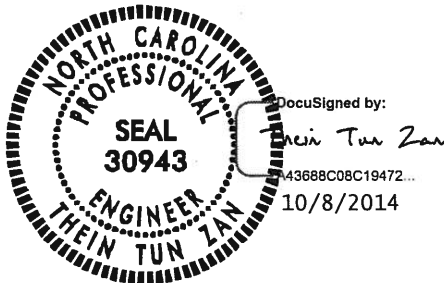
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 24 DEGREES (RESIDUAL SOIL)
FRICTION ANGLE (ϕ) = 30 DEGREES (EMBANKMENT SOIL)
FRICTION ANGLE (ϕ) = 36 DEGREES (WEATHERED ROCK)
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 349.0 FT. ±

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION -LALT- 36+30±, 7.9 FT RIGHT, TO STATION -LALT- 38+25±, 6.6 FT RIGHT, MAY NOT PENETRATE BELOW ELEVATION 356 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -LALT- 36+30±, 7.9 FT RIGHT, TO STATION -LALT- 38+25±, 6.6 FT RIGHT.

The GEU recommends including the Temporary Shoring provision (Special) in the contract for the referenced project. Please contact Thein T. Zan, P.E. or James R. Batts, P.E. at (919) 662-3576 if there are any questions concerning this memorandum.

Prepared by,



Thein T. Zan, P.E.
Geotechnical Engineer

JLP/JRB/TTZ