



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

October 5, 2006

MEMORANDUM TO:

Mr. J. Stuart Bourne, P.E.  
State Work Zone Traffic Engineer

Mr. Jay Bennett, P.E.  
State Roadway Design Engineer

Mr. Greg Perfetti, P.E.  
State Bridge Design Engineer

FROM:

*Njoroge Wainaina*  
Njoroge Wainaina, P.E.  
State Geotechnical Engineer

SUBJECT:

Temporary Shoring Recommendations

The Geotechnical Engineering Unit (GEU) has completed the development of new standard notes on plans and a standard special provision for temporary shoring. When temporary shoring recommendations are requested, the GEU will provide a special provision and recommendations using the attached form letter that includes the required project specific notes. Any details required will be sent directly to Roadway Design.

Electronic copies of the special provision and notes are available upon request. The provision has been sent to Project Services for implementation beginning with the December 2006 letting. If there are any questions regarding this memorandum, please contact Scott Hidden, P.E. or Mohammed Mulla, P.E. at (919) 250-4088.

Attachment: Standard Temporary Shoring Recommendations Form Letter

cc: John Pilipchuk, L.G., P.E.  
K. J. Kim, Ph.D., P.E.  
Don Moore, L.G.  
Victor Barbour, P.E., Project Services Unit  
Roger Worthington, P.E., Utilities Section Engineer

ROADWAY DESIGN UNIT		
OCT 5 6 2006		
<input checked="" type="checkbox"/> ALLEN	<input checked="" type="checkbox"/> STEVENS	<input checked="" type="checkbox"/> SYKES
<input checked="" type="checkbox"/> BILLY	<input checked="" type="checkbox"/> G. HOUSER	<input checked="" type="checkbox"/> T. HOUSER
<input checked="" type="checkbox"/> CLAWSON	<input checked="" type="checkbox"/> T. TAYLOR	<input checked="" type="checkbox"/> GOODWRIGHT
<input checked="" type="checkbox"/> M. MOORE	<input checked="" type="checkbox"/> C. HARRIS	<input checked="" type="checkbox"/> SPEER
<input checked="" type="checkbox"/> BYNDO	<input checked="" type="checkbox"/> TIPPETT	<input checked="" type="checkbox"/> THORNS
<input checked="" type="checkbox"/> SECRETARY		<input checked="" type="checkbox"/> WALLS
<input type="checkbox"/> T. TAYLOR		
<input checked="" type="checkbox"/> PREPARE FOR REVIEW	<input type="checkbox"/> SIGNATURE	
<input type="checkbox"/> REVIEW		
<input type="checkbox"/> REVIEW/REWORK		

CC:

TEMPORARY SHORING  
FOR MAINTENANCE  
OF TRAFFIC WILL  
BE IDENTIFIED &  
COORDINATED THROUGH  
THE WORK ZONE  
TRAFFIC CONTROL UNIT.  
THEY WILL PROVIDE  
US WITH THE  
ROADWAY PAY ITEMS.  
ADDITIONAL  
DETAILS  
WILL  
FOLLOW  
SHOWING  
ROLES &  
RESPONSIBILITIES.  
THE  
TEMPORARY  
SHORING  
DETAILS WILL  
BE SHOWN  
IN THE  
2-SERIES  
SHEETS OF  
THE ROADWAY  
PLANS.  
MORE  
INFORMATION  
WILL BE  
AVAILABLE  
SOON.  
JAY

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

TELEPHONE: 919-250-4088  
Fax: 919-250-4237  
Website: www.ncdot.org/doh

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



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

October 5, 2006

MEMORANDUM TO: Mr. \_\_\_\_\_, P.E.  
Responsible Unit Head Title

ATTENTION: Mr./Ms. \_\_\_\_\_, P.E.  
Responsible Unit Project Engineer Title

FROM: Njoroge W. Wainaina, P.E.  
State Geotechnical Engineer

STATE PROJECT: WBS El. # (TIP #)  
FEDERAL PROJECT: N/A  
COUNTY:

DESCRIPTION:

SUBJECT: Temporary Shoring Recommendations

The Geotechnical Engineering Unit has received the following proposed temporary shoring locations.

Shoring ID No.	Begin Sta. & Ref. Line	Offset (Lt/Rt)	End Sta. & Ref. Line	Offset (Lt/Rt)	Shoring Type
No. 1					Roadway and/or Structure
No. 2					Roadway and/or Structure

*(List all temporary shoring and 1.5:1 slope locations in table.)*

The Geotechnical Engineering Unit recommends placing the following notes on the Traffic Control, Roadway or Structure Plans for the referenced project. The Geotechnical Engineering Unit also recommends the use of a temporary 1.5:1 (H:V) slope in lieu of temporary shoring for shoring ID nos. . *(optional)*

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

TELEPHONE: 919-250-4088  
Fax: 919-250-4237  
Website: [www.ncdot.org/doh](http://www.ncdot.org/doh)

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

Temporary Shoring No. 1

*(Insert notes as necessary and fill in blanks. Choices are shown in italics.)*

USE A 1.5:1 (H:V) SLOPE OR FLATTER IN LIEU OF TEMPORARY SHORING FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_ AS SHOWN ON THE PLANS.

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE STANDARD SHORING FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE STANDARD TEMPORARY SHORING FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. A TEMPORARY MSE WALL OR CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE A TEMPORARY MSE WALL FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. STANDARD TEMPORARY SHORING OR CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

USE A TEMPORARY MSE WALL FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. SEE TEMPORARY SHORING SPECIAL PROVISION AND STANDARD TEMPORARY MSE WALL DETAILS.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_,

USE THE FOLLOWING SOIL PARAMETERS:

- UNIT WEIGHT OF SOIL ABOVE WATER TABLE,  $\gamma =$  \_\_\_\_\_ PCF (KN/M<sup>3</sup>)
- UNIT WEIGHT OF SOIL BELOW WATER TABLE,  $\gamma =$  \_\_\_\_\_ PCF (KN/M<sup>3</sup>)
- FRICTION ANGLE,  $\phi =$  \_\_\_\_\_ DEGREES
- COHESION,  $c =$  \_\_\_\_\_ PSF (KPA)

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION \_\_\_\_\_,  
\_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_  
WILL OR MAY NOT PENETRATE BELOW ELEVATION \_\_\_\_\_ FT (m) DUE TO THE  
PRESENCE OF AN OBSTRUCTION, VERY DENSE OR HARD SOIL, WEATHERED OR  
HARD ROCK. SEE SUBSURFACE INFORMATION FOR ADDITIONAL DETAILS.

IT MAY BE PREFERRED OR NECESSARY TO ANCHOR THE TEMPORARY SHORING  
FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_, TO STATION  
\_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. THE TEMPORARY SHORING SPECIAL  
PROVISION DOES NOT APPLY TO ANCHORED TEMPORARY SHORING. IF  
ANCHORED TEMPORARY SHORING IS PROPOSED, THE ENGINEER WILL PROVIDE  
AN APPLICABLE SPECIAL PROVISION.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO  
DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE  
BEGINNING DESIGN.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY  
SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR  
ANCHORED) OR AN OREGON TALL "F" SHAPE CONCRETE BARRIER IN  
ACCORDANCE WITH THE TEMPORARY SHORING SPECIAL PROVISION.

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE  
TEMPORARY SHORING FROM STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_,  
TO STATION \_\_\_\_\_, \_\_\_\_\_ FT (m) \_\_\_\_\_. THE INFORMATION  
PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE  
ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

WHEN BACKFILL FOR A \_\_\_\_\_ *RETAINING WALL OR REINFORCED BRIDGE  
APPROACH FILL* OVERLAPS WITH THE REINFORCED ZONE OF A TEMPORARY MSE  
WALL, USE EITHER SHORING BACKFILL OR THE MATERIAL SPECIFIED FOR THE  
\_\_\_\_\_  
*RETAINING WALL OR REINFORCED BRIDGE APPROACH FILL*,  
WHICHEVER IS BETTER, IN THE REINFORCED ZONE.

Temporary Shoring No. 2  
(Repeat as necessary for each location.)

The following estimated average shoring heights may be used for quantity calculation purposes.  
(Only provide for roadway shoring for maintenance of traffic.)

Shoring ID No.	Estimated Average Height (ft/m)
No. 1	
No. 2	

TIP #  
Date  
Page 4

The Geotechnical Engineering Unit recommends including the attached Temporary Shoring Special Provision in the contract documents for the referenced project. Temporary Shoring Details have been sent to the Roadway Design Unit under a separate cover. *(optional)* Please call Primary Contact or Secondary Contact at Phone # if there are any questions concerning this memorandum.

NWW/

Attachment

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FOR REFERENCE ONLY