



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

February 11, 2015

ADDENDUM # 2

To: Plan Holders

From: Jeffrey E. Alspaugh
Proposal Engineer

RE:
Contract ID: DN00166
County: Jackson
Letting Date: February 24, 2015

There is now a line item for 36" TEMPORARY PIPE for Bridge # 279. The line item is 6045000000-E SP 36" TEMP PIPE. This line item pays per lineal foot. The design calls for 152 LF.

Please use the updated ebs file posted on Connect or the attached bid sheet when submitting a bid.

The structural special provisions title page, for 17BP.14.R.33, incorrectly identified the bridge number as 207; the correct bridge number should be 279. A revised set of structural special provisions for 17BP.14.R.33 – Bridge # 279 have been submitted to reflect this change.

Please insert this letter into the addendum section of the proposal and sign the verification. Thank you for your attention to this matter.

Fourteenth Division Office

Phone: (828)586-2141

253 Webster Road, Sylva, North Carolina 28779

Fax: (828)586-4043

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0030000000-N	SP	BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (10+75.00)	Lump Sum	L.S.	
0004	0030000000-N	SP	BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (13+12.50)	Lump Sum	L.S.	
0005	0030000000-N	SP	BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (STA. 12+98)	Lump Sum	L.S.	
0006	0036000000-E	225	UNDERCUT EXCAVATION	75 CY		
0007	0043000000-N	226	GRADING	Lump Sum	L.S.	
0008	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUB-BING	3 ACR		
0009	0057000000-E	226	UNDERCUT EXCAVATION	75 CY		
0010	0195000000-E	265	SELECT GRANULAR MATERIAL	150 CY		
0011	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	150 SY		
0012	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	70 TON		
0013	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	200 SY		
0014	0335200000-E	305	15" DRAINAGE PIPE	56 LF		
0015	0335300000-E	305	18" DRAINAGE PIPE	76 LF		
0016	0335400000-E	305	24" DRAINAGE PIPE	88 LF		
0017	0344000000-E	310	18" SIDE DRAIN PIPE	60 LF		
0018	0995000000-E	340	PIPE REMOVAL	149 LF		

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0019	1077000000-E	SP	#57 STONE	5		TON
0020	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	150		TON
0021	1121000000-E	520	AGGREGATE BASE COURSE	526		TON
0022	1220000000-E	545	INCIDENTAL STONE BASE	150		TON
0023	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	330		TON
0024	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	300		TON
0025	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	40		TON
0026	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	1		EA
0027	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	1		EA
0028	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	100		LF
0029	2556000000-E	846	SHOULDER BERM GUTTER	15		LF
0030	3030000000-E	862	STEEL BM GUARDRAIL	87.5		LF
0031	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	50		LF
0032	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	8		EA
0033	3165000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE ***** (350 TL-2)	10		EA
0034	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	2		EA
0035	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	12		EA
0036	3628000000-E	876	RIP RAP, CLASS I	14		TON

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0037	3635000000-E	876	RIP RAP, CLASS II	45		TON
0038	3649000000-E	876	RIP RAP, CLASS B	6		TON
0039	3651000000-E	SP	BOULDERS	20		TON
0040	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	424		SY
0041	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	96		SF
0042	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	556		SF
0043	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	20		SF
0044	4430000000-N	1130	DRUMS	130		EA
0045	4445000000-E	1145	BARRICADES (TYPE III)	32		LF
0046	4455000000-N	1150	FLAGGER	4		DAY
0047	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	4		EA
0048	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	2		EA
0049	4485000000-E	1170	PORTABLE CONCRETE BARRIER	190		LF
0050	4500000000-E	1170	RESET PORTABLE CONCRETE BARRIER	100		LF
0051	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	3,640		LF
0052	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	40		LF
0053	6000000000-E	1605	TEMPORARY SILT FENCE	3,125		LF
0054	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	65		TON
0055	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	25		TON

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0056	6012000000-E	1610	SEDIMENT CONTROL STONE	55		TON
0057	6015000000-E	1615	TEMPORARY MULCHING	2.6		ACR
0058	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	250		LB
0059	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	1.25		TON
0060	6024000000-E	1622	TEMPORARY SLOPE DRAINS	400		LF
0061	6029000000-E	SP	SAFETY FENCE	200		LF
0062	6030000000-E	1630	SILT EXCAVATION	30		CY
0063	6036000000-E	1631	MATTING FOR EROSION CONTROL	14,100		SY
0064	6037000000-E	SP	COIR FIBER MAT	250		SY
0065	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	75		SY
0066	6042000000-E	1632	1/4" HARDWARE CLOTH	100		LF
0067	6045000000-E	SP	*** TEMPORARY PIPE (18")	48		LF
0068	6070000000-N	1639	SPECIAL STILLING BASINS	1		EA
0069	6071010000-E	SP	WATTLE	575		LF
0070	6084000000-E	1660	SEEDING & MULCHING	2.54		ACR
0071	6090000000-E	1661	SEED FOR REPAIR SEEDING	150		LB
0072	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.75		TON
0073	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	150		LB
0074	6108000000-E	1665	FERTILIZER TOPDRESSING	2.25		TON
0075	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	33		EA

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0076	6123000000-E	1670	REFORESTATION	0.4	ACR	
0077	6126000000-E	SP	STREAMBANK REFORESTATION	0.05	ACR	
0099	6045000000-E	SP	*** TEMPORARY PIPE (36")	152	LF	

STRUCTURE ITEMS

0078	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (10+75.00)	Lump Sum	L.S.	
0079	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (12+98.00)	Lump Sum	L.S.	
0080	8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (13+12.50)	Lump Sum	L.S.	
0081	8112730000-N	450	PDA TESTING	2	EA	
0082	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (10+75.00)	Lump Sum	L.S.	
0083	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (12+98.00)	Lump Sum	L.S.	
0084	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (13+12.50)	Lump Sum	L.S.	
0085	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	109.5	CY	
0086	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (10+75.00)	Lump Sum	L.S.	
0087	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (12+98.00)	Lump Sum	L.S.	

County : Jackson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0088	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (13+12.50)	Lump Sum	L.S.	
0089	8217000000-E	425	REINFORCING STEEL (BRIDGE)	14,395 LB		
0090	8364000000-E	450	HP12X53 STEEL PILES	525 LF		
0091	8391000000-N	450	STEEL PILE POINTS	30 EA		
0092	8392500000-E	450	PREDRILLING FOR PILES	50 LF		
0093	8505000000-E	460	VERTICAL CONCRETE BARRIER RAIL	270.83 LF		
0094	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	293 TON		
0095	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	325 SY		
0096	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0097	8762000000-E	430	3'-0" X 1'-9" PRESTRESSED CONC CORED SLABS	1,280 LF		
0098	8007000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP STRUCTURE AT STA ***** (STA. 11+15.79)	Lump Sum	L.S.	

1357/Feb11/Q45353.67/D444955340000/E99

Total Amount Of Bid For Entire Project :

**17BP.14.R.33 – JACKSON COUNTY
BRIDGE 279 ON SR 1371 OVER BRUSHY FORK CREEK**

PROJECT SPECIAL PROVISIONS - STRUCTURE

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2/11/15

FALSEWORK AND FORMWORK**(4-5-12)****1.0 DESCRIPTION**

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term “temporary works” is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS**A. Working Drawings**

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screenshot Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 1/2" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than $\frac{3}{4}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft ² for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

5.0 REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

6.0 METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

7.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

SUBMITTAL OF WORKING DRAWINGS**(2-10-12)****8.0 GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, “submittals” refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Resident Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

9.0 ADDRESSES AND CONTACTS

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:

Mr. G. R. Perfetti, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1581 Mail Service Center
Raleigh, NC 27699-1581

Attention: Mr. P. D. Lambert, P. E.

Via other delivery service:

Mr. G. R. Perfetti, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1000 Birch Ridge Drive
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

Send an additional e-copy of the submittal to the following address:

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
1570 Mail Service Center
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
3301 Jones Sausage Road, Suite 100
Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. John Pilipchuk, L. G., P. E.
Western Regional Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

Via other delivery service:

Mr. John Pilipchuk, L. G., P. E.
Western Region Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact: Paul Lambert (919) 707 – 6407
(919) 250 – 4082 facsimile
plambert@ncdot.gov

Secondary Structures Contacts: James Gaither (919) 707 – 6409
James Bolden (919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):
K. J. Kim (919) 662 – 4710
(919) 662 – 3095 facsimile
kkim@ncdot.gov

Western Regional Geotechnical Contact (Divisions 8-14):

John Pilipchuk (704) 455 – 8902
 (704) 455 – 8912 facsimile
jpilipchuk@ncdot.gov

10.0 SUBMITTAL COPIES

Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structure Design Unit and/or the Geotechnical Engineering Unit.

The first table below covers “Structure Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Structure Design Unit. The second table in this section covers “Geotechnical Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

Unless otherwise required, submit one set of supporting calculations to either the Structure Design Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal¹
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework ⁷	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals ⁶	9	0	“Foam Joint Seals”
Expansion Joint Seals (hold down plate type with base angle)	9	0	“Expansion Joint Seals”
Expansion Joint Seals (modular)	2, then 9	0	“Modular Expansion Joint Seals”
Expansion Joint Seals (strip seals)	9	0	“Strip Seals”

Falsework & Forms ² (substructure)	8	0	Article 420-3 & “Falsework and Formwork”
Falsework & Forms (superstructure)	8	0	Article 420-3 & “Falsework and Formwork”
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	“Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____”
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	“Optional Disc Bearings”
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings ⁴	8	0	“Pot Bearings”
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078- 11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3

Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans ⁵	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel ⁴	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
TFE Expansion Bearings ⁴	8	0	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18” or greater.

GEOTECHNICAL SUBMITTALS

	Copies Required by Geotechnical Engineering Unit	Copies Required by Structure Design Unit	Contract Reference Requiring Submittal¹
Drilled Pier Construction Plans ²	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports ²	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms ^{2,3}	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports ²	1	0	Subarticle 450-3(F)(3)
Retaining Walls ⁴	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring ⁴	5 drawings, 2 calculations	2 drawings	“Temporary Shoring” & “Temporary Soil Nail Walls”

FOOTNOTES

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
- Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
- The Pile Driving Equipment Data Form is available from:
www.ncdot.org/doh/preconstruct/highway/geotech/formdet/
See second page of form for submittal instructions.
- Electronic copy of submittal is required. See referenced provision.

CRANE SAFETY**(8-15-05)**

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

- A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.
- D. **Certifications:** **By July 1, 2006**, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

GROUT FOR STRUCTURES**9-30-11****1.0 DESCRIPTION**

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

2.0 MATERIAL REQUIREMENTS

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

3.0 SAMPLING AND PLACEMENT

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

4.0 BASIS OF PAYMENT

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

PILE DRIVING CRITERIA**(10-30-12)**Revise *Section 450 Piles* of the *2012 Standard Specifications* as follows:

Page 4-72, Subarticle 450-3(D)(3) Required Driving Resistance, lines 26-30, delete first paragraph and replace with the following:

The Engineer will determine if the proposed pile driving methods and equipment are acceptable and provide the blows/ft and equivalent set for the required driving resistance noted in the plans, i.e., “pile driving criteria” except for structures with pile driving analyzer (PDA) testing. For structures with PDA testing, provide pile driving criteria for any bents and end bents with piles in accordance with Subarticle 450-3(F)(4).

Page 4-73, Subarticle 450-3(F) Pile Driving Analyzer, lines 45-48, delete third paragraph and replace with the following:

The Engineer will complete the review of the proposed pile driving methods and equipment within 10 days of receiving PDA reports and pile driving criteria. Do not place concrete for caps or footings on piles until PDA reports and pile driving criteria have been accepted.

Page 4-75, Article 450-4 MEASUREMENT AND PAYMENT, replace all phrases shown as “*___Prestressed Concrete Piles, ___Steel Piles and ___Galvanized Steel Piles*” in the lines 25 through 43 with the following:

HP 12x53 Steel Piles

Page 4-75, Article 450-4 MEASUREMENT AND PAYMENT, delete lines 44 through 48.

Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT, replace line 9 with the following:

HP 12x53 Steel Piles

Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT, replace line 11 with the following:

prices for HP 12x53 Steel Piles

Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT, replace the pay items below line 33 with the following:

Pay Item	Pay Unit
HP 12x53 Steel Piles	Linear Foot
Steel Pile Points	Each
Predrilling for Piles	Linear Foot
Pile Redrives	Each
Pile Excavation in Soil	Linear Foot
Pile Excavation Not in Soil	Linear Foot
PDA Testing	Each