Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

July 8, 2016

Addendum No. 2
RE: Contract # C203567
WBS # 34915.3.FR1
F. A. # STP-55(20)
Durham County (U-3308)
NC-55 (Alston Avenue) From NC-147 (Buck Dean Freeway) To North
Of US-70 Business/ NC-98 (Holloway Street)

July 19, 2016 Letting (Advertisement extended from the June 21, 2016 Letting)

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the Roadway plans:

Sheet No.	Revisions
Title Sheet	Revised to change the Letting Date to July 19, 2016

Please void the above listed sheet in your plans and staple the revised sheet thereto.

The following revisions have been made to the Structure plans:

Sheet No.	Revisions
Title Sheet	Revised to change the Letting Date to July 19, 2016
S4-4	Added note referencing "Turn of Nut Tightening" special provision
S4-55	Revised note #20 to not require painting of structural steel, Added note referencing "Turn of Nut Tightening" special provision
S4-63	Deleted note referring to painting structural steel, Added note referencing "Turn of Nut Tightening" special provision

Please void the above listed sheets in your plans and staple the revised sheets thereto.

C203657, U-3308 Durham County

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 2 Dated 07-08-16" and revised the let date to July 19, 2016
G-1	Revised the availability and completion dates within the project special provisions entitled "Contract Time and Liquidated Damages" and "Intermediate Contract Time Number 1 and Liquidated Damages"
G-13	Revised the diesel fuel price within the project special provision entitled "Fuel Price Adjustment"
G-14	Revised the percentages within the project special provision entitled "Schedule of Estimated Completion Progress"
R-14	Revised the asphalt binder base price index within the project special provision entitled "Price Adjustment-Asphalt Binder For Plant Mix"
ST-38	Added "Turn of Nut Tightening" special provision to Index Sheet, PE Seal updated
ST-78a thru ST-ST-78c	New pages to include "Turn of Nut Tightening" special provision
ST-79	PE Seal updated
ST-80	Added "Turn of Nut Tightening" special provision to Index Sheet
ST-126 thru ST-128	New pages to include "Turn of Nut Tightening" special provision

Please void the above revised pages in your proposal and replace with the revised pages. Please add the new pages listed above.

The contract will be prepared accordingly.

Please delete the EBS file you previously downloaded for the June 21, 2016 letting and download the new EBS file listed for the July 19, 2016 letting. Please note that the file for the July letting contains the quantity/pay item changes that were part of Addendum No. 1 Dated June 7, 2016. Bid Express will not accept your bid unless the new EBS file associated with the July 19, 2016 letting is used.

Sincerely,

R. A. Garris, PE
Contract Officer

RAG/jag

cc:
Mr. Lamar Sylvester, PE
Mr. Joey Hopkins, PE
Mr. Rodger Rochelle, PE
Mr. Tom Koch, PE
Mr. R.E. Davenport, PE
Mr. Ken Kennedy, PE
Ms. Lori Strickland
Project File (2)
Mr. Ray Arnold, PE
Ms. Theresa Canales, PE
Mr. Glenn Mumford, PE
Ms. Jaci Kincaid
Ms. Penny Higgins
Mr. Mitchell Dixon
Ms. Marsha Sample
Mr. Mike Gwyn

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No.1 DATED 06-07-2016

INCLUDES ADDENDUM No. 2 DATED 07-08-2016

DATE AND TIME OF BID OPENING: **JULY 19, 2016 AT 2:00 PM**

CONTRACT ID	C203567
WBS	34915.3.FR1

FEDERAL-AID NO.	STP-55(20)
COUNTY	DURHAM
T.I.P. NO.	U-3308
MILES	1.134
ROUTE NO.	NC 55
LOCATION	NC-55 (ALSTON AVE) FROM NC-147 (BUCK DEAN FREEWAY) TO NORTH OF US-70BUS/NC-98 (HOLLOWAY ST).
TYPE OF WORK	GRADING, DRAINAGE, PAVING, SIGNALS, TRACKWORK, & STRUCTURES.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS $30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

PROJECT SPECIAL PROVISIONS

GENERAL

CONTRACT TIME AND LIQUIDATED DAMAGES:
(8-15-00) (Rev. 12-18-07) 108 SP1 G07 A

The date of availability for this contract is **August 29, 2016**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **April 29, 2020**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Two Hundred Dollars ($ 200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:
(7-1-95) (Rev. 2-21-12) 108 SP1 G13 A

Except for that work required under the Project Special Provisions entitled *Planting, Reforestation* and/or *Permanent Vegetation Establishment*, included elsewhere in this proposal, the Contractor will be required to complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **August 29, 2016**

The completion date for this intermediate contract time is **November 1, 2019**.

The liquidated damages for this intermediate contract time are **Three Thousand Dollars ($ 3,000.00)** per calendar day.

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work except *Planting, Reforestation* and/or *Permanent Vegetation Establishment*. The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

DELAY IN RIGHT OF ENTRY:

(7-1-95) (Rev. 7-15-14) 108 SP1 G22

The Contractor will not be allowed right of entry to the following parcel(s) prior to the listed date(s) unless otherwise permitted by the Engineer.

Parcel No.	Property Owner	Date
019	M. M. Fowler	7/25/16
020	TTA Now or Formerly known as	8/25/16
037	Koolwater, LLC	7/25/16
072	Erwin Distributing	7/25/16
082	Veria Denson	6/21/16

NO MAJOR CONTRACT ITEMS:

(2-19-02) (Rev. 8-21-07) 104 SP1 G31

None of the items included in this contract will be major items.

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12) 108-6 SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

Line #	Description
98 thru 114	Guardrail
115 thru 124	Fencing
135 thru 139	Signing
160 thru 168, 170, 172 thru 173	Long-Life Pavement Markings
169, 171	Removable Tape
183	Permanent Pavement Markers
184 thru 205	Lighting
206 thru 239	Utility Construction
240 thru 267, 269 thru 271	Erosion Control
268	Reforestation
274 thru 333	Signals/ITS System
351 thru 354, 387 thru 392, 405 thru 407	Drilled Piers

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14) 109-8 SP1 G43

Revise the *2012 Standard Specifications* as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is **$ 1.5868** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type ____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type ____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type ____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
__" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to __" Pavement	Gal/SY	0.245

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-17-16) 108-2 SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

Fiscal Year		Progress (% of Dollar Value)
2017	(7/01/16 - 6/30/17)	**37**% of Total Amount Bid
2018	(7/01/17 - 6/30/18)	**35**% of Total Amount Bid
2019	(7/01/18 - 6/30/19)	**23**% of Total Amount Bid
2020	(7/01/19 - 6/30/20)	**5**% of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE:

(10-16-07)(Rev. 4-19-16) 102-15(J) SP1 G61

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Page 6-41, Subarticle 650-3(B), Mix Design Criteria, replace Table 650-1 with the following:

TABLE 650-1
OGAFC GRADATION CRITERIA

Sieve Size (mm)	*Type FC-1*	*Type FC-1 Modified*	*Type FC-2 Modified*
19.0	-	-	100
12.5	100	100	80 - 100
9.50	75 - 100	75 - 100	55 - 80
4.75	25 - 45	25 - 45	15 - 30
2.36	5 - 15	5 - 15	5 - 15
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:
(11-21-00) (Rev. 7-17-12) 609 SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications.*

ASPHALT PLANT MIXTURES:
(7-1-95) 609 SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:
(11-21-00) 620 SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications.*

The base price index for asphalt binder for plant mix is **$ 332.86** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **June 1, 2016**.

NCDOT TIP: U-3308 Durham Co.

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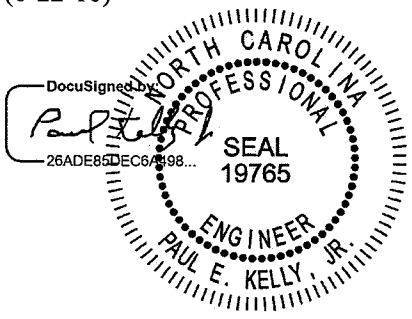


7/6/2016

ST-78a

NCDOT TIP: U-3308 Durham County

TURN-OF-NUT TIGHTENING **(6-22-16)**

The 2012 Standard Specifications shall be revised as follows:

Add the following to the end of **Section 440-8 – Connections Using High Strength Bolts:**

(E) Installation Using Turn-of-Nut Tightening

When using the turn-of-nut method to provide the required bolt tension, first provide enough bolts in a "snug tight" condition to bring the parts of the joint into full contact with each other. Snug tight is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. Following this initial operation, place bolts in any remaining holes in the connection and bring to snug tightness. After bringing all bolts in a connection to snug tightness, match mark each nut, bolt shank, and the structural base metal with a line of white ink or paint that is not water soluble. Additionally, mark the structural base metal to indicate that applicable amount of nut rotation specified in Table 440-3. Tighten all bolts in the joint additionally by the applicable amount of nut rotation specified in Table 440-3, progressing systematically from the most rigid part of the joint to its free edges. During this operation do not allow rotation of the part not turned by the wrench. To ensure compliance with this article, keep the match mark on the bolt shank and the initial mark on the structural base metal aligned. Additionally, tighten to align the match mark on the nut and the mark representing the specified amount of nut rotation.

TABLE 440-3
NUT ROTATION [a] FROM SNUG TIGHT CONDITION

	Disposition of Outer Faces of Bolted Parts		
Bolt Length As Measured from Underside of Head to Extreme End of Point	Both faces normal to bolt axis	One face normal to bolt axis and other face sloped not more than 1:20 (bevel washer not used)	Both faces sloped not more than 1:20 from normal to bolt axis (bevel washers not used)
Up to and including 4 diameters	1/3 turn	1/2 turn	2/3 turn
Over 4 diameters but not exceeding 8 diameters	1/2 turn	2/3 turn	5/6 turn

Over 8 diameters but not exceeding 12 diameters [b]	2/3 turn	5/6 turn	1 turn

a. Applicable to coarse thread heavy hex structural bolts of all sizes and lengths up to 12 diameters, and heavy hex semi-finished nuts. Nut rotation is relative to the bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance should be plus or minus 30 degrees; for bolts installed by 2/3 turn and more, the tolerance should be plus or minus 45 degrees.
b. When bolt lengths exceed 12 diameters, the required rotation shall be determined by actual tests in a suitable tension device simulating the actual conditions.

(F) Inspection of Turn-of-Nut Tightening

Allow the Engineer the opportunity to observe installation of bolts to determine that the selected tightening procedure is properly used and the bolts are properly tightened. Where the turn-of-nut method is used, each bolt is inspected visually for the correct relationship between the match marks on the nut and bolt shank. Bolts installed by the turn-of-nut method may reach tensions above the value given in Table 440-1 but this is not a cause for rejection. After properly tightening bolts, make sure that the end of the bolt is flush with or extended beyond the outer face of the nut.

Do not begin painting in the area of tightened bolts until after bolt inspection is complete.

In addition to inspecting the match mark relationship with the turn-of-nut method, use the following inspection procedure unless the contract requires a more extensive or different inspection procedure.

As directed, furnish and use, in the presence of the Engineer, or allow the Engineer to use an inspection torque wrench, calibrated as follows:

At least once each working day, place 3 calibration sample bolts of the same grade, size, representative length, and conditions as those under inspection in a tension indicating calibration device. Furnish a tension indicating calibration device certified by an approved independent testing lab within 6 calendar months prior to testing the bolts under inspection, to be in good working order and to provide accuracy within plus or minus 10 percent for the range of loads between 25,000 and 40,000 pounds. Place a washer under the part turned in tightening for each bolt if washers are so used in the structure. If no washer is used make sure that the material abutting the part turned is the same as that used in the structure.

Tighten each calibration sample bolt in the calibration device by any convenient means to an initial condition equal to 15 percent of the required tension and then

to the minimum tension specified in Table 440-1. Then apply the inspecting wrench to the tightened bolt and determine the torque necessary to turn the nut or head 5 degrees (approximately 1" at 12" radius) in the tightening direction. Use the average torque measured in the tests of 3 bolts as the job inspecting torque.

Use the inspection wrench to inspect bolts, represented by the calibration sample bolts, which are tightened in the structure by applying in the tightening direction the job inspecting torque to 10 percent of the bolts, but not less than 2 bolts, selected at random in each connection. If no nut or bolt head turns by this application of the job inspecting torque, the connection is acceptable as properly tightened. If any nut or bolt head turns by the application of the job inspecting torque, apply this torque to all bolts in the connection. Tighten and reinspect all bolts whose nut or head turns by the job inspecting torque. Alternatively, retighten all the bolts in the connection and resubmit the connection for the specified inspection.

ST-79

Durham County

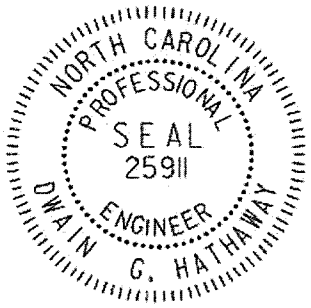
TIP U-3308

Bridge on CSXT Railway over Alston Avenue
Milepost SB-154.61

PROJECT SPECIAL PROVISIONS

Prepared by:

Baker



DocuSigned by:
Dwain Hathaway
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7/6/2016

July 6, 2016

ST-80

Project Special Provisions
Structures and Culverts

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TURN-OF-NUT TIGHTENING (6-22-16)

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As directed, furnish and use, in the presence of the Engineer, or allow the Engineer to use an inspection torque wrench, calibrated as follows:

At least once each working day, place 3 calibration sample bolts of the same grade, size, representative length, and conditions as those under inspection in a tension indicating calibration device. Furnish a tension indicating calibration device certified by an approved independent testing lab within 6 calendar months prior to testing the bolts under inspection, to be in good working order and to provide accuracy within plus or minus 10 percent for the range of loads between 25,000 and 40,000 pounds. Place a washer under the part turned in tightening for each bolt if washers are so used in the structure. If no washer is used make sure that the material abutting the part turned is the same as that used in the structure.

Tighten each calibration sample bolt in the calibration device by any convenient means to an initial condition equal to 15 percent of the required tension and then to the minimum tension specified in Table 440-1. Then apply the inspecting wrench to the tightened bolt and determine the torque necessary to turn the nut or head 5 degrees (approximately 1" at 12" radius) in the tightening direction. Use the average torque measured in the tests of 3 bolts as the job inspecting torque.

ST-128

Use the inspection wrench to inspect bolts, represented by the calibration sample bolts, which are tightened in the structure by applying in the tightening direction the job inspecting torque to 10 percent of the bolts, but not less than 2 bolts, selected at random in each connection. If no nut or bolt head turns by this application of the job inspecting torque, the connection is acceptable as properly tightened. If any nut or bolt head turns by the application of the job inspecting torque, apply this torque to all bolts in the connection. Tighten and reinspect all bolts whose nut or head turns by the job inspecting torque. Alternatively, retighten all the bolts in the connection and resubmit the connection for the specified inspection.

TIP PROJECT: U-3308

CONTRACT: C203567

21-JUN-2016 10:57
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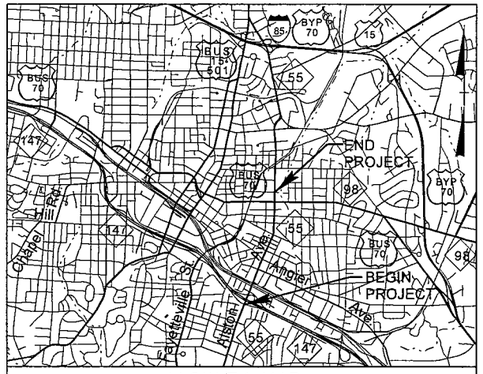
See Sheet 1-A For Index of Sheets
See Sheet 1-B For CONVENTIONAL SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

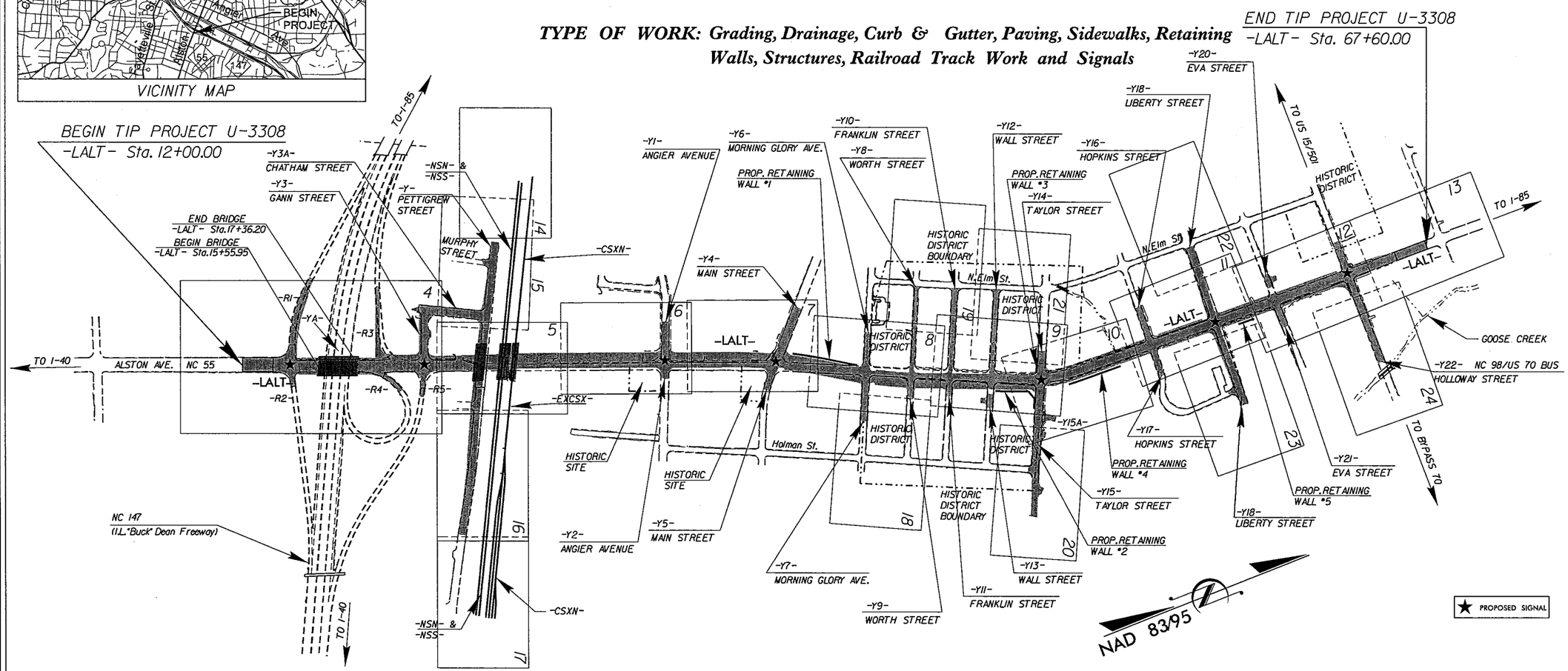
DURHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3308	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34915.1.1	STP-0055(20)	PE
34915.2.1	STP-0055(20)	R/W
34915.2.U1	STP-0055(20)	UTILITIES
34915.3.FR1	STP-0055(20)	CONST.

LOCATION: NC 55 (ALSTON AVE.) FROM NC 147 (I. L. "BUCK" DEAN FREEWAY) TO NORTH OF US 70 BUS/NC 98 (HOLLOWAY ST.)

TYPE OF WORK: Grading, Drainage, Curb & Gutter, Paving, Sidewalks, Retaining Walls, Structures, Railroad Track Work and Signals



GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 25400 VPD
ADT 2036 = 32800 VPD
K = 9 %
D = 55 %
T = 7 % *
V = 35 MPH
* TTST 1% DUAL 6%
Minor Arterial
Regional Tier

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3308 = 1.019 mi
LENGTH STRUCTURE TIP PROJECT U-3308 = 0.034 mi
TOTAL LENGTH TIP PROJECT U-3308 = 1.053 mi

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 30, 2013

LETTING DATE: JULY 19, 2016

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019721 ENGINEER WILLIAM H. ELAM

DocuSigned by: Wm. H. Elam, Jr 6/21/2016
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 6/21/2016
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

TIP PROJECT: U-3308

CONTRACT: C203567

STRUCTURES

22-JUN-2016 07:48
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jdhawk

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

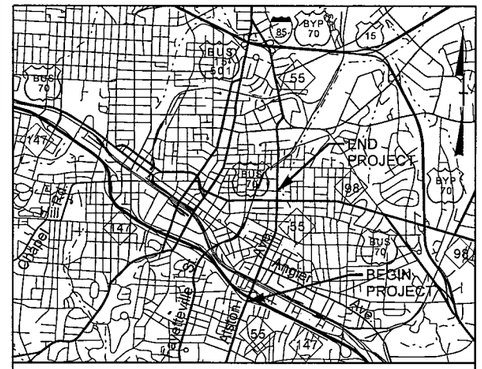
DURHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3308		

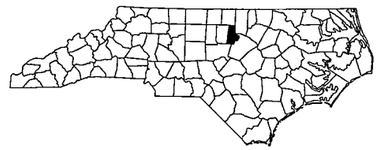
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34915.1.1	STP-55(20)	PE
34915.2.1	STP-55(20)	R/W
34915.2.U1	STP-55(20)	UTILITIES
34915.3.FR1	STP-55(20)	CONST.

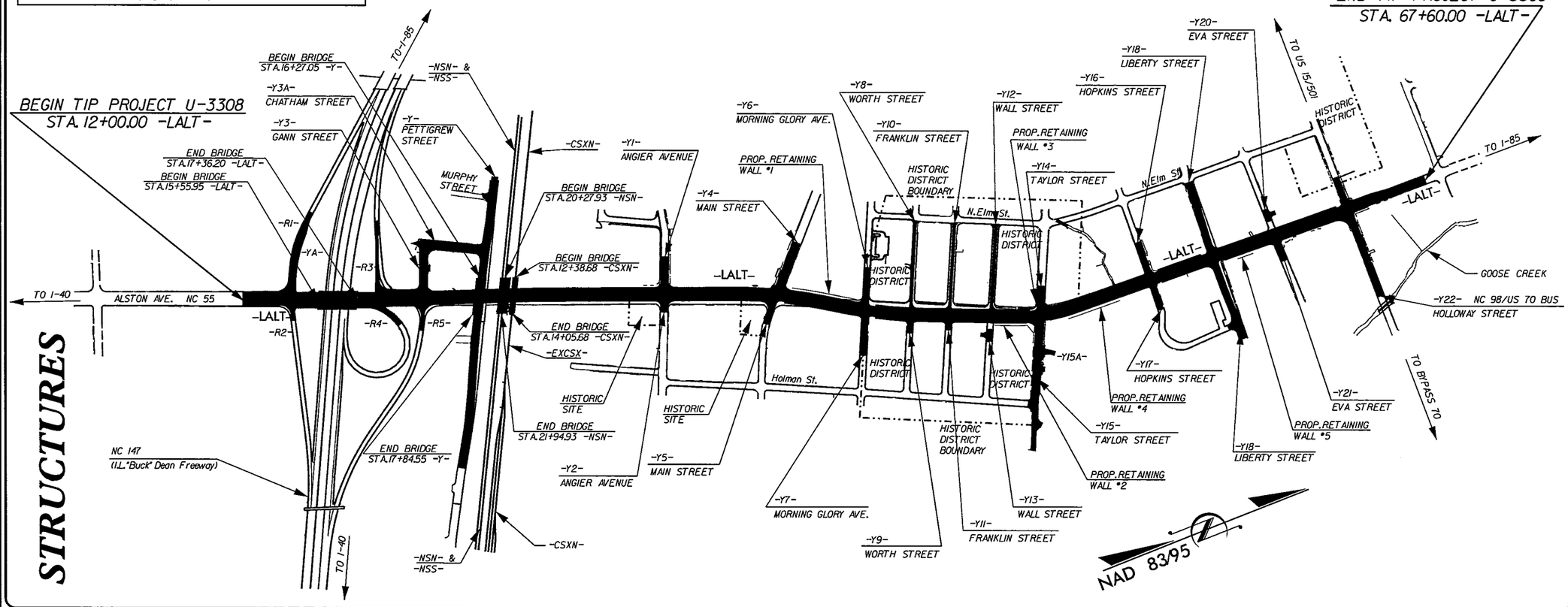
LOCATION: *NC 55 (ALSTON AVE.) FROM NC 147 (I. L. "BUCK" DEAN FREEWAY) TO NORTH OF US 70 BUS/NC 98 (HOLLOWAY ST.)*

TYPE OF WORK: *Grading, Drainage, Curb & Gutter, Paving, Sidewalks, Retaining Walls, Structures, Railroad Track Work and Signals*



VICINITY MAP





DESIGN DATA		
ADT 2016	=	25400 VPD
ADT 2036	=	32800 VPD
K	=	9 %
D	=	55 %
T	=	7 % *
V	=	35 MPH

* TTST 1% DUAL 6%

Minor Arterial
Regional Tier

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3308	=	1.019 MILES
LENGTH STRUCTURE TIP PROJECT U-3308	=	0.034 MILES
TOTAL LENGTH TIP PROJECT U-3308	=	1.053 MILES

Prepared in the Office of:

DIVISION OF HIGHWAYS

STRUCTURE MANAGEMENT UNIT

1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE:
JULY 19, 2016

L. E. SUTTON, PE
PROJECT ENGINEER

D.R. SMITH JR., PE
PROJECT DESIGN ENGINEER

GENERAL NOTES :

ASSUMED LIVE LOAD = COOPER E-80 W/ IMPACT OR ALTERNATE LIVE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT A.R.E.M.A. MANUAL, NORFOLK SOUTHERN RAILWAY GUIDELINES FOR DESIGN OF GRADE SEPARATION STRUCTURES, AND CSXT CRITERIA FOR OPEN DECK RAILROAD BRIDGES. IN CASE OF DISCREPANCY THE MORE STRINGENT CITERIA WILL GOVERN.

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", JANUARY, 2012 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (HEREIN CALLED STANDARD SPECIFICATIONS), EXCEPT AS NOTED HEREIN, ELSEWHERE ON PLANS, OR IN THE SPECIAL PROVISIONS". (STRUCTURAL STEEL IN ACCORDANCE WITH CURRENT A.R.E.M.A. SPECIFICATIONS).

CONCRETE SHALL BE 4,500 PSI (SUBSTRUCTURE) OR 5,000 PSI (SUPERSTRUCTURE) CLASS AA CONCRETE WITH NO. 57 COARSE AGGREGATE AND SHALL BE AIR-ENTRAINED. MINIMUM CEMENT CONTENT PER CUBIC YARD OF CONCRETE SHALL BE 6.0 BAGS/CY. NO SUBSTITUTION OF FLY ASH, BLAST FURNACE SLAG OR OTHER MATERIAL WILL BE PERMITTED IN MEETING THIS MINIMUM CEMENT REQUIREMENT. NO RUBBED SURFACE FINISH IS REQUIRED. CHAMFER ALL EXPOSED EDGES AND CORNERS $\frac{3}{4}$" INCH EXCEPT AS NOTED. THE USE OF GROUND GRANULATED BLAST FURNACE SLAG IS NOT PERMITTED IN THE STRUCTURE. SEE SPECIAL PROVISIONS FOR CAST-IN-PLACE CONCRETE.

REINFORCING STEEL SHALL BE ASTM DESIGNATION A615, GRADE 60. ALL REINFORCING BARS IN THE CONCRETE DECK AND CURBS SHALL BE EPOXY-COATED IN CONFORMANCE WITH ASTM A775 "STANDARD SPECIFICATION FOR EPOXY-COATED REINFORCING BARS". COMPATIBLE EPOXY-COATED STEEL TIE WIRES SHALL BE USED WITH THE EPOXY-COATED BARS. FABRICATION TO BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE" A.C.I. 315-80.

EXPANSION JOINT MATERIAL SHALL BE EITHER RUBBER OR CORK CONFORMING WITH AASHTO SPECIFICATIONS M-153-84 EXCEPT AS SHOWN ON THE PLANS OR IN THE SPECIAL PROVISIONS. CELLULAR AND BULB TYPE WATERSTOPS AND RUBBER JOINT COMPOUNDS SHALL BE AS SHOWN ON THE PLANS AND IN THE SPECIAL PROVISIONS.

STRUCTURE DRAINAGE SYSTEM: METAL DRAINS BEHIND ABUTMENTS AND DUCTILE IRON PIPE COLLECTOR SYSTEM, SHALL BE AS SHOWN ON THE PLANS AND OUTLINED IN THE SPECIAL PROVISIONS. DETAILS OF THE DRAINAGE SYSTEM SHALL BE SUBMITTED TO THE CHIEF ENGINEER-BRIDGES AND STRUCTURES, CSXT, JACKSONVILLE, FL. FOR APPROVAL.

CONTROL OF WORK: ALL WORK INVOLVED IN THE CONSTRUCTION OF THE RAILWAY STRUCTURE SHALL BE PERFORMED SATISFACTORY TO THE ENGINEER AND/OR CSXT. ALL METHODS OF HANDLING WORK AFFECTING THE SAFETY OF RAIL OPERATIONS MUST BE APPROVED BY THE RAILWAY ENGINEER BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. RAIL TRAFFIC SHALL, AT ALL TIMES, BE MAINTAINED AND PROTECTED. THE CONTRACTOR SHALL NOT AT ANY TIME DELAY OR INTERFERE WITH RAIL OPERATIONS.

ALL CONSTRUCTION JOINTS SHOWN ON THESE PLANS SHALL BE REQUIRED UNLESS SHOWN OPTIONAL. CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT AS SHOWN ON THE PLANS, OR WHERE WRITTEN APPROVAL HAS BEEN OBTAINED.

DAMPPROOFING: PIER COLUMNS UP TO GROUND LINE, BACK OF BACKWALLS AND ABUTMENT SEATS, AND BACK OF WINGS SHALL BE DAMPPROOFED.

WATERPROOFING: ALL CONSTRUCTION JOINTS AND ANY SHRINKAGE CRACKS WHICH WILL BE COVERED BY FILL SHALL BE WATERPROOFED WITH A TWO PART WATERPROOFING SYSTEM CONSISTING OF A MEMBRANE LAYER AND A PROTECTION COURSE. STRIPS OF WATERPROOFING NO LESS THAN 2 FEET WIDE SHALL BE PLACED SYMMETRICALLY OVER JOINTS OR CRACKS. ADDITIONALLY, THE HORIZONAL SURFACES OF THE BALLAST TROUGH (EXCLUDING THE END DAM) SHALL BE WATERPROOFED WITH A TWO PART WATERPROOFING SYSTEM CONSISTING OF A MEMBRANE LAYER AND A 1 INCH THICK ASPHALT PLANKING OR OTHER RAILWAY APPROVED PROTECTION MATERIAL. ALL WATERPROOFING MATERIALS SHALL CONFORM TO THE RECOMMENDED PRACTICES IN THE A.R.E.M.A. MANUAL OF RAILWAY ENGINEERING CHAPTER 29.

BACKFILLING AROUND STRUCTURE: SEE SPECIAL PROVISIONS FOR BACKFILL BEHIND ABUTMENTS AND OTHER BACKFILL AROUND THE STRUCTURE.

FOR FOUNDATION RECOMMENDATION NOTES, SEE SHEET 2 OF 5.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE USED. THE BARS FROM THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

A $\frac{3}{32}$" THICK BUTYL RUBBER MEMBRANE CONFORMING TO A.R.E.M.A. CHAPTER 8 SECTION 29.9.5 WILL BE INSTALLED ON THE BRIDGE DECK BALLAST RETAINERS. COST OF BUTYL RUBBER MEMBRANE MATERIAL AND INSTALLATION TO BE INCLUDED WITH THE COST OF "WATERPROOFING (RAILROAD STRUCTURES)", FOR "WATERPROOFING (RAILROAD STRUCTURES", SEE SPECIAL PROVISIONS.

FOR STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

FOR PAINTING STEEL STRUCTURES, SEE SPECIAL PROVISIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR METAL HANDRAIL, SEE SPECIAL PROVISIONS.

FOR GROUT, SEE A.R.E.M.A. CHAPTER 8 ARTICLE 14.4.8 AND ARTICLE 14.5.5. AND SPECIAL PROVISIONS.

FOR SUPERSTRUCTURE CONCRETE, SUBSTRUCTURE CONCRETE, REINFORCING STEEL, EPOXY COATED REINFORCING STEEL, SPIRAL COLUMN REINFORCING STEEL, AND DAMPPROOFING (RAILROAD STRUCTURES), SEE SPECIAL PROVISIONS FOR CAST-IN-PLACE CONCRETE.

THE EXISTING STRUCTURE CONSISTING OF 3 SPAN STRUCTURAL STEEL GIRDERS WITH TIMBER FLOOR ON STEEL TRESTLE BENTS AND LOCATED AT PROPOSED STRUCTURE SITE SHALL BE REMOVED.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+22.18 -CSXN-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 14 FT (LEFT) AND 16 FT (RIGHT) OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY SPAN FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY SPAN, SEE TEMPORARY SPAN SPECIAL PROVISIONS.

FOR TEMPORARY RAILROAD SHORING SPECIAL PROVISION AND PAY ITEM, SEE STR. #3.

FOR ELASTOMERIC FLASHING, SEE SPECIAL PROVISIONS.

FOR SELF-LUBRICATING EXPANSION BEARING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING ABANDONED BRIDGE SOUTH OF THE PROPOSED -CSXN- BRIDGE. ANY REQUIREMENTS PERTAINING TO THE EXISTING STRUCTURE REMOVAL ARE ALSO APPLICABLE TO THE EXISTING ABANDONED BRIDGE.

FOR TURN-OF-NUT TIGHTENING, SEE SPECIAL PROVISIONS.

DESIGN DATA:

SPECIFICATIONS:	CURRENT A.R.E.M.A., CSX TRANSPORTATION, AND NORFOLK SOUTHERN DESIGN CRITERIA FOR GRADE SEPARATION PROJECTS.
LIVE LOAD:	COOPERS E-80 + ALTERNATE WITH IMPACT AS PER A.R.E.M.A. SPECIFICATIONS.
STRUCTURAL STEEL:	ASTM A709 GRADE 50 (Fy = 50 KSI)
REINFORCED CONCRETE:	SUPERSTRUCTURE: f'c = 5000 PSI SUBSTRUCTURE: f'c = 4500 PSI
REINFORCING STEEL:	ASTM A615 GRADE 60

PROJECT NO. U-3308

DURHAM COUNTY

STATION: 24+55.20 -LALT-
13+22.18 -CSXN-

SHEET 4 OF 5

DRAWN BY : J. N. AUSTIN DATE : 1-7-14
CHECKED BY : S. A. DENNEY DATE : 2-24-14

#USER# #TIME#
#DATE# #FILE#
Filename: #FILE#

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 25911 ENGINEER C. HATHAWAY

7/6/2016

Baker

Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON CSXT RAILWAY OVER ALSTON AVE. BETWEEN NC 147 AND ANGIER AVE.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-4
1			3			TOTAL SHEETS
2			4			68

SITE 4

TEMPORARY SPAN GENERAL NOTES

1. THE TEMPORARY SPAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF AREMA'S "MANUAL FOR RAILWAY ENGINEERING, VOL. 2, STRUCTURES", AND NORFOLK SOUTHERN CORPORATION'S "UNDERPASS GRADE SEPARATION CRITERIA".

2. ASSUMED LIVE LOAD: COOPER E80 OR ALTERNATE LIVE LOAD.

3. FOR ADDITIONAL NOTES AND DESIGN DATA SEE SHEET "GENERAL DRAWING SHEET 4 OF 5". IN THE EVENT ANY NOTES CONFLICT, THE NOTES ON THIS SHEET SHALL CONTROL FOR THE TEMPORARY SPAN.

4. THE TEMPORARY SPAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC ZONE 1.

5. REINFORCING STEEL SHALL BE ASTM 615, GRADE 60. ALL DIMENSIONS RELATING TO BAR SPACING ARE TO BAR CENTERS UNLESS NOTED OTHERWISE. FABRICATION IS TO BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE", ACI 315 (CURRENT EDITION). ALL REINFORCING IN THE CONCRETE DECK SLAB AND PARAPETS SHALL BE EPOXY COATED.

6. THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

7. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", JANUARY 2012, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (HEREIN CALLED STANDARD SPECIFICATIONS), EXCEPT AS NOTED HEREIN, ELSEWHERE ON PLANS, OR IN THE SPECIAL PROVISIONS. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CURRENT AREMA SPECIFICATIONS AND NORFOLK SOUTHERN'S "SPECIFICATIONS FOR STEEL".

8. ALL CONCRETE USED FOR THE TEMPORARY SPAN (DECK AND CURBS) SHALL BE MIN. 5,000 PSI CONCRETE, WITH NO.57 OR 67 COARSE AGGREGATE AND SHALL BE AIR-ENTRAINED. MINIMUM CEMENT PER CUBIC YARD OF CONCRETE SHALL BE 6.5 BAGS. NO SUBSTITUTION OF FLY ASH, BLAST FURNACE SLAG OR OTHER MATERIAL WILL BE PERMITTED IN MEETING THIS MINIMUM CEMENT REQUIREMENT. CHAMFER ALL EXPOSED EDGES AND CORNERS ¾" EXCEPT AS NOTED ON THE PLANS. THE USE OF GROUND GRANULATED BLAST FURNACE SLAG IS NOT PERMITTED IN THIS STRUCTURE.

9. CONTROL OF WORK: ALL WORK INVOLVED IN THE CONSTRUCTION OF THE RAILWAY STRUCTURE SHALL BE PERFORMED SATISFACTORY TO THE ENGINEER AND/OR NORFOLK SOUTHERN RAILWAY COMPANY. ALL METHODS OF HANDLING THE WORK AFFECTING THE SAFETY OF RAIL OPERATIONS MUST BE APPROVED BY THE RAILWAY COMPANY BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. RAIL TRAFFIC SHALL, AT ALL TIMES, BE MAINTAINED AND PROTECTED. THE CONTRACTOR SHALL NOT AT ANY TIME DELAY OR INTERFERE WITH RAIL OPERATIONS.

10. NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

11. FOR PORTLAND CEMENT, SEE SPECIAL PROVISIONS.

12. FOR FINE AND COARSE AGGREGATE, SEE SPECIAL PROVISIONS.

13. SEE "TEMPORARY SPAN STRUCTURAL STEEL NOTES" SHEET FOR ADDITIONAL NOTES.

14. FOR RAILROAD TRACKWORK, SEE RAILROAD TRACKWORK PLANS.

15. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

16. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

17. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

18. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

19. FOR CAST-IN-PLACE CONCRETE, SEE SPECIAL PROVISION FOR NORFOLK SOUTHERN SPECIFICATIONS FOR CAST-IN-PLACE CONCRETE.

20. PAINTING STRUCTURAL STEEL OF THE TEMPORARY SPAN IS NOT REQUIRED.

21. FOR PROTECTION OF RAILWAY INTERESTS, SEE SPECIAL PROVISIONS.

22. FOR RAILROAD ROADBED, SEE RAILROAD ROADBED SPECIAL PROVISIONS.

23. FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

24. SHOCK PADS SHALL BE PREFORMED FABRIC BEARING PADS, ½" THICK, AND SHALL BE EITHER SHOCK PAD STYLE 15175, AS MANUFACTURED BY THE ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, IL; OR FABREEKA PADS, AS MANUFACTURED BY THE FABREEKA PRODUCTS COMPANY, BOSTON, MA; OR SORBTEX PADS, AS MANUFACTURED BY VOSS ENGINEERING, INC., CHICAGO, IL; OR AN APPROVED EQUAL.

25. ALL CONSTRUCTION JOINTS SHOWN ON THESE PLANS SHALL BE REQUIRED UNLESS SHOWN OPTIONAL. CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT AS SHOWN ON THE PLANS, OR WHERE WRITTEN APPROVAL HAS BEEN OBTAINED.

26. BENCHMARK: SEE LOCATION SKETCH.

27. DIRECT TENSION INDICATORS (DTI) WILL NOT BE PERMITTED. USE THE TURN-OF-NUT METHOD FOR INSTALLING AND TIGHTENING HIGH STRENGTH BOLTS. SEE SPECIAL PROVISION FOR TURN-OF-NUT TIGHTENING.

28. THE RAILROAD TRACK TOP OF RAIL ELEVATIONS ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

29. THE CONTRACTOR IS REMINDED THAT WORK ON THIS PROJECT REQUIRES WORKING NEAR EXISTING STRUCTURES. EVERY EFFORT HAS BEEN MADE TO IDENTIFY DISCREPANCIES AND ENSURE THAT THE DETAILS ARE DEPICTED CORRECTLY. HOWEVER, SINCE THE PROJECT INVOLVES WORKING NEAR EXISTING STRUCTURES, THE CONTRACTOR CAN EXPECT AND SHOULD PLAN ON ENCOUNTERING VARIANCES AND DEVIATIONS BETWEEN THE INFORMATION FOUND IN THESE DRAWINGS AND THE EXISTING CONDITIONS. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS AND QUANTITIES. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL DETAILS INCLUDING GEOMETRY AND ELEVATIONS PRIOR TO THE INSTALLATION OF ANY MATERIAL. THE CONTRACTOR SHALL SUBMIT TO NCDOT AND NORFOLK SOUTHERN COPIES OF FIELD SURVEYS AND VERIFICATIONS FOR INCLUSION INTO THE CONSTRUCTION RECORDS FOR THE PROJECT.

30. ALL COSTS ASSOCIATED WITH THE TEMPORARY SPAN, INCLUDING BUT NOT LIMITED TO ERECTION, DEMOLITION/REMOVAL, PEDESTALS AND BALLAST CURBS, ALL MATERIALS (INCLUDING BUT NOT LIMITED TO STRUCTURAL STEEL, CONCRETE, REINFORCING STEEL, DECK GRATING, TRACK, TIES, MECHANICAL ANCHORS AND ANCHOR BOLTS, ETC.) AND LABOR SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR THE "CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY SPAN". NO ADDITIONAL PAYMENT WILL BE MADE.

DRAWN BY : MTC DATE : 06-14
CHECKED BY : DJM DATE : 06-14

PROJECT NO. U-3308
DURHAM COUNTY
STATION: 24+55.20 -LALT-
13+22.18 -CSXN-
SHEET 3 OF 16

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.
7/7/2016

STV/ Ralph Whitehead Associates, Inc.
900 W Trade Street, Suite 715
Charlotte, NC 28202
NC License No. F-0991

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TEMPORARY SPAN GENERAL NOTES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-55
1			3			TOTAL SHEETS
2			4			68

TEMPORARY SPAN STRUCTURAL STEEL NOTES

FOR ADDITIONAL NOTES, SEE SHEET TITLED "TEMPORARY SPAN GENERAL NOTES"

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHAPES, PLATES AND BARS SHALL BE ASTM A709, GRADE 50 OR 50W, UNLESS NOTED OTHERWISE. FRACTURE CRITICAL MEMBERS SHALL BE ASTM A709, GRADE 50F2 OR 50WF2 (SUPPLEMENTAL REQUIREMENT S84 AND S29 SHALL APPLY). NON-FRACTURE CRITICAL MEMBERS SHALL BE ASTM A709, GRADE 50T2 OR 50WT2 (SUPPLEMENTAL REQUIREMENTS S83 SHALL APPLY). ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE FOLLOWING REQUIREMENTS:

1. THE MATERIAL SUPPLIED SHALL BE OTHER THAN RIMMED OR CAPPED STEEL.
2. THE MATERIAL SUPPLIED SHALL BE SILICONE KILLED, FINE GRAIN PRACTICE.
3. CERTAIN ELEMENTS OF THE STRUCTURE ARE NOTED AS "FRACTURE CRITICAL MEMBERS" (FCM) AND SHALL MEET THE REQUIREMENTS FOR "FRACTURE CONTROL PLAN FOR FRACTURE CRITICAL MEMBERS" (AREMA CHAPTER 15, SECTION 1.14.) THE IMPACT REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS SHALL BE AS REQUIRED FOR ZONE 2 SERVICE TEMPERATURE. TEST RESULTS SHALL BE FURNISHED TO THE ENGINEER OR AUTHORIZED REPRESENTATIVE.
4. ALL NON-FRACTURE CRITICAL MEMBERS OF THE STRUCTURE SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NON-FRACTURE CRITICAL IMPACT TEST NOTED IN AREMA CHAPTER 15, SECTION 1.2.1, TABLE 15-1-2 FOR ZONE 2 SERVICE TEMPERATURE. TEST RESULTS SHALL BE FURNISHED TO ENGINEER OR AUTHORIZED REPRESENTATIVE.

ALL STEEL MATERIAL SHALL BE STRAIGHT AND FREE FROM SHARP KINKS AND BENDS. ANY STEEL MATERIAL EXHIBITING SUCH DEFICIENCIES SHALL BE CAUSE FOR THE REJECTION OF THE MATERIAL. STRAIGHTENING OF THE MATERIAL SHALL NOT BE ACCEPTABLE.

MATERIAL AND WORKMANSHIP: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PROJECT PLANS OR SPECIFICATIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING. PROJECT SHALL ALSO ADHERE TO STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STRUCTURE DESIGN UNIT DESIGN MANUAL, 2007 REVISION. IN THE EVENT OF CONFLICTS THE MORE STRINGENT SHALL APPLY.

SPECIFICATIONS: AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING, 2014 EDITION, NORFOLK SOUTHERN UNDERPASS GRADE SEPARATION DESIGN CRITERIA, STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STRUCTURE DESIGN UNIT DESIGN MANUAL, STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ALL W-SHAPE BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER OF THE BEAM "UP".

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL UNLESS OTHERWISE NOTED.

MILL TEST REPORTS: NORFOLK SOUTHERN RAILWAY COMPANY SHALL BE FURNISHED COPIES OF MILL TEST REPORTS FOR ALL MATERIALS EXCEPT MISCELLANEOUS PLATES AND SHAPES. REPORTS SHALL INDICATE COMPLIANCE WITH ALL SPECIFIED REQUIREMENTS.

INSPECTION: SHOP INSPECTION BY NORFOLK SOUTHERN RAILWAY COMPANY OR ITS AUTHORIZED AGENT, SEE SPECIAL PROVISIONS FOR ADDITIONAL WELDING INSPECTION OF FLANGE PLATE TO WEB PLATES WELDS.

SHOP DRAWINGS: SHOP DRAWINGS SHALL BE APPROVED BY THE CHIEF ENGINEER BRIDGES & STRUCTURES, NORFOLK SOUTHERN CORPORATION, ATLANTA, GEORGIA. MATERIAL SHALL NOT BE FABRICATED UNTIL DRAWINGS HAVE BEEN APPROVED. COPIES OF APPROVED SHOP DRAWINGS ARE TO BE FURNISHED TO NCDOT. SHOP DRAWINGS SHALL BE LABELED "NORFOLK SOUTHERN M.P. H-56.10".

HOLES: OPEN HOLES AS NOTED.

ANCHOR BOLTS SHALL BE GROUTED IN FORMED HOLES AFTER GIRDERS ARE ERECTED.

BEARING PADS SHALL BE USED WHENEVER STEEL MASONRY PLATE, OR OTHER STEEL BEARING PLATE, BEARS ON CONCRETE. PADS SHALL BE PREFORMED FABRIC BEARING PADS, ½" THICK. PREFORMED BEARING PADS SHALL BE SHOCK PAD STYLE 15175, AS MANUFACTURED BY THE ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, IL; OR FABREEKA PADS, AS MANUFACTURED BY THE FABREEKA PRODUCTS COMPANY, BOSTON, MA; OR SORBTEX PADS, AS MANUFACTURED BY VOSS ENGINEERING, INC., CHICAGO, IL; OR AN APPROVED EQUAL.

FOR STRUCTURAL STEEL, SEE SPECIAL PROVISION "NORFOLK SOUTHERN SPECIFICATIONS FOR STRUCTURAL STEEL".

WELDING: WELDING SHALL BE IN ACCORDANCE WITH AASHTO/ AWS-D1.5M:2012 AND AMERICAN NATIONAL STANDARD, INCLUDING INTERIMS, AS MODIFIED OR SUPPLEMENTED BY THE AREMA MANUAL FOR RAILWAY ENGINEERING.

ALL WELDS SHALL BE MADE WITH E7018 ELECTRODES. WELDING SHALL BE PERFORMED WITH THE SUBMERGED ARC WELDING (SAW) OR SHIELDED METAL ARC WELDING (SMAW) PROCESS. FRACTURE-CRITICAL MEMBER FLANGE TO WEB WELDS SHALL BE MADE BY THE SUBMERGED ARC WELDING (SAW) PROCESS.

ALL WELDS ARE TO BE SHOP WELDS, UNLESS NOTED OTHERWISE. WELDING PROCEDURE AND SIZES SHALL BE AS SHOWN IN THE PROJECT PLANS.

THERE SHALL BE THOROUGH FUSION BETWEEN WELD METAL AND BASE METAL AND BETWEEN SUCCESSIVE PASSES OF THE WELD. ALL CRATERS SHALL BE FILLED TO THE FULL CROSS SECTION OF THE WELD.

PRIOR TO WELDING, EACH WELDER SHALL HAVE BEEN CERTIFIED IN ACCORDANCE WITH AWS REQUIREMENTS DURING A PERIOD OF ONE (1) YEAR PRIOR TO WORK ON THE BRIDGE. THE FABRICATOR SHALL FURNISH THE ENGINEER OR AUTHORIZED REPRESENTATIVE WITH AN AWS CERTIFICATE FOR EACH WELDER, COVERING THEIR ABILITY TO MAKE A COMPLETE AND SATISFACTORY WELD OF EACH KIND TO BE USED ON THE PROJECT.

SURFACES AND EDGES TO BE WELDED SHALL BE SMOOTH, UNIFORM AND FREE FROM FINS, TEARS CRACKS, OR OTHER DEFICIENCIES WHICH WOULD ADVERSELY AFFECT THE QUALITY OR STRENGTH OF THE WELD. SURFACES TO BE WELDED AND SURFACES ADJACENT TO A WELD SHALL ALSO BE FREE OF ANY SCALE, SLAG, RUST, MOISTURE, GREASE OR OTHER FOREIGN MATERIAL THAT WILL INHIBIT PROPER WELDING.

NON-DESTRUCTIVE TESTING OF THE FRACTURE CRITICAL MEMBERS IS TO BE PERFORMED BY AN INDEPENDENT TESTING COMPANY APPROVED BY THE ENGINEER AND CONTRACTED BY THE FABRICATOR. PERSONAL QUALIFICATIONS AND CERTIFICATION ARE TO BE IN ACCORDANCE WITH THE CURRENT AREMA MANUAL CHAPTER 15 FOR FRACTURE CRITICAL MEMBERS. COPIES OF THE TEST ARE TO BE FURNISHED TO THE ENGINEER OR AUTHORIZED REPRESENTATIVE FOR INCLUSION IN THEIR PROJECT FILE.

THERE SHALL BE NO FIELD WELDING ON THIS PROJECT OTHER THAN AS DIRECTLY DETAILED IN THESE PLANS, UNLESS APPROVED BY THE ENGINEER OR AUTHORIZED REPRESENTATIVE IN WRITING.

BOLTS: ALL BOLTED CONNECTIONS SHALL BE MADE WITH 7/8" DIA. ASTM A325, TYPE 3 BOLTS UNLESS NOTED OTHERWISE. NUTS AND WASHER SHALL BE A563, GRADE C3, AND F436, TYPE 3 RESPECTIVELY. ALL BOLTS, NUTS, AND WASHERS SHALL BE MECHANICALLY GALVANIZED UNLESS NOTED OTHERWISE. OPEN HOLES SHALL BE $15/16$" DIA. UNLESS NOTED OTHERWISE. ALL BOLTS, NUTS, AND WASHERS WILL BE SUPPLIED FROM A SINGLE SOURCE WITH DOCUMENTATION OF THEIR SOURCE AND QUALITY CERTIFICATION. ALL HIGH STRENGTH BOLTS SHALL BE TIGHTENED BY THE "TURN-OF-NUT METHOD" IN ACCORDANCE WITH AREMA MANUAL CHAPTER 15, SECTION 3.2.3 - INSTALLATION OF HIGH STRENGTH BOLTS. ANY BOLTS THAT REQUIRE REMOVAL AFTER BEING TIGHTENED SHALL BE DISCARDED AND A NEW BOLT INSTALLED, UNLESS OTHERWISE NOTED. FOR TURN-OF-NUT TIGHTENING SEE SPECIAL PROVISIONS.

ALL BOLT HOLES SHALL BE SUB-DRILLED AND REAMED OR DRILLED FROM THE SOLID. AT NO TIME ARE HOLES TO BE SUB-PUNCHED AND REAMED OR PUNCHED FULL SIZE.

ALL HOLES SHALL BE $1/16$" LARGER THAN THE SPECIFIED BOLT SIZE UNLESS OTHERWISE NOTED IN THE PROJECT PLANS.

BOLTS SHALL BE INSTALLED WITH THE BOLT HEADS EXPOSED TO THE WEATHER. THE SPECIFIED WASHERS SHALL BE INSTALLED BENEATH THE TURNING ELEMENT. VERTICALLY POSITIONED BOLTS WHICH HAVE BOTH THE HEAD AND NUT EXPOSED TO WEATHER SHALL HAVE THE HEAD PLACED ABOVE THE NUT. HORIZONTAL POSITIONED NUTS SHALL HAVE THE HEADS ON THE VISIBLE SIDE OF THE CONNECTION.

SWEDGED ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 55, AS DESIGNATED IN THE PROJECT PLANS. SWEDGED ANCHOR BOLTS SHALL NOT BE PAINTED. ANCHOR BOLT NUTS AND WASHER SHALL CONFORM TO ASTM A563, GRADE C3 HEAVY HEX WITH NYLON INSERT AND ASTM F436, TYPE 3 CIRCULAR WASHERS, RESPECTIVELY. ANCHOR BOLTS AND ALL ASSOCIATED HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

NO SALVAGED MATERIALS WILL BE ALLOWED FOR THE CONSTRUCTION OF THE TEMPORARY SPAN.

APPROX. STRUCTURAL STEEL QUANTITIES

ITEMS	UNIT	QUANTITY
TEMPORARY SPAN APPROX. STRUCTURAL STEEL	LBS.	90,200
TEMPORARY SPAN APPROX. STRUCTURAL STEEL - ALTERNATE	LBS.	77,000

PROJECT NO. U-3308

DURHAM COUNTY

STATION: 24+55.20 -LALT-
13+22.18 -CSXN-

SHEET 11 OF 16

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TEMPORARY SPAN STRUCTURAL STEEL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.

7/7/2016

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-63
1			3			TOTAL SHEETS
2			4			68

DRAWN BY : NMC DATE : 06-14
CHECKED BY : DJM DATE : 06-14