STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

November 3, 2014

Addendum No. 2
RE: Contract ID C203394
WBS # 34745.3.S2
State Funded
Durham County (U-0071)
East End Connector From North Of NC-98 To NC-147
(Buck Dean Freeway) In Durham

November 18, 2014 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
E1 thru E5	Revised to change from HPS luminaires to LED luminaires

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

The following revisions have been made to the proposal:

Page No.	Revisions
15	The project special provision entitled "Delay In Right Of Entry" has been revised. Three parcels have been removed from the list and most of the delay dates have changed.
18	Updated the base index price for diesel fuel within the project special provision entitled "Fuel Price Adjustment".
64	Updated the base price index for asphalt binder within the project special provision entitled "Price Adjustment-Asphalt Binder For Plant Mix"
180	Deleted the second sentence of the fourth paragraph of the project special provision entitled "Embankment Construction Using Degradable Rock".

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-707-6900
FAX: 919-250-4119
WEBSITE: www.NCDOT.GOV

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

Page No.	Revisions
208 thru 208-C	Added section "5.00 High Mast Light Emitting Diode (LED) Luminaires" to the project special provisions entitled "Lighting"
213 thru 215-A	Revised the project special provision entitled "Utilities By Others" to provide updated information concerning utility relocations (Note: 4 pages to replace 3)
261	Added paragraph to clarify requirements for the "pedestrian pushbutton pilot light" under section "C. Pedestrian Signal Heads" within the project special provisions entitled "Signals and Intelligent Transportation Systems"
426	Revised to add web address for Managing Hydro-Demolition Water within the project special provision entitled "Overlay Surface Preparation".

Please void the above listed pages in your proposal and replace with the attached revised pages. Attach new pages after the previous existing page.

On the item sheets the following pay item quantities have been revised, deleted or added.

Item	Description	Old Quantity	New Quantity
015-0029000000-N-SP	Reinforced Bridge Approach Fill, Station (32+27.49-Y4-)	Lump Sum	**DELETED**
019-0030000000-N-SP	Bridge Approach Fill, Sub-Regional Tier, Station (28+46.30-RRDET-)	Lump Sum	**DELETED**
355-5030000000-N-1403	High Mount Luminaires (400W HPS)	32 EA	**DELETED**
356-5030000000-N-1403	High Mount Luminaires (750W HPS)	78 EA	**DELETED**
366-5170000000-E-1410	(2)#8 W/G Feeder Circuit	1,085 LF	1,415 LF
367-5175000000-E-1410	(2)#6 W/G Feeder Circuit	420 LF	930 LF
368-5180000000-E-1410	(2)#4 W/G Feeder Circuit	1,155 LF	745 LF
369-5185000000-E-1410	(2)#2 W/G Feeder Circuit	540 LF	110 LF
370-5205000000-E-1410	(2)#8 W/G Feeder Circuit In 1.5" Conduit	3,045 LF	4,765 LF
371-5210000000-E-1410	(2)#6 W/G Feeder Circuit In 1.5" Conduit	2,045 LF	2,200 LF
372-5215000000-E-1410	(2)#4 W/G Feeder Circuit In 1.5" Conduit	6,880 LF	7,220 LF
373-5220000000-E-1410	(2)#2 W/G Feeder Circuit In 1.5" Conduit	2,850 LF	635 LF

377-5252000000-N-1412	Underpass Luminaires (150W HPS, Type WM)	6 EA	**DELETED**
705-5252000000-N-1412	Underpass Luminaires (Type WM, 80W Max LED)	**NEW ITEM**	6 EA
706-5270000000-N-SP	(80') High Mount Luminaire-LED	**NEW ITEM**	24 EA
707-5270000000-N-SP	(100') High Mount Luminaire-LED	**NEW ITEM**	72 EA
708-5270000000-N-SP	(120') High Mount Luminaire-LED	**NEW ITEM**	24 EA

The Contractor's bid must be based on these revised pay item quantities and include the new pay items. The contract will be prepared accordingly.

The Expedite File has been updated to reflect these revisions. Please download the Expedite Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,

R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. Ron Hancock, PE
Mr. Joey Hopkins, PE
Ms. D. M. Barbour, PE
Mr. Rodger Rochelle, PE
Mr. Glenn Mumford, PE
Mr. R.E. Davenport, PE
Mr. G. R. Perfetti, PE
Project File (2)
Mr. Ray Arnold, PE
Ms. Natalie Roskam, PE
Mr. Ronnie Higgins
Mr. Mike Gwyn
Ms. Marsha Sample
Ms. Lori Strickland
Ms. Jaci Kincaid

to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control*, *Seeding and Mulching*, *Repair Seeding*, *Supplemental Seeding*, *Mowing*, *Fertilizer Topdressing*, *Silt Excavation*, and *Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the *2012 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

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
049	MCC Outdoor advertising DBA Fairway Outdoor Advertising, LLC	11/14/14
061	FMO Real Estate, LLC, A subsidiary of Fairway Outdoor Advertising, LLC	11/14/14
068	Fairway Outdoor Advertising, LLC	11/14/14
128	William E. Andrews	01/12/15
166	Village MP, LLC	12/08/14
198	Interstate Outdoor, Inc.	12/03/14
928	Phillip C. Ransdell, II	11/27/14
417	The City of Durham	10/30/14

RAILROAD COORDINATION:

CSX

CSX Transportation (CSXT) requires a specific advance notice one (1) month before the Contractor anticipates each of Operations A-B below to begin. In addition, anticipated

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
177 thru 199 & 218	Guardrail
200 thru 217 & 644	Fencing
227 thru 288	Signing
313 thru 324 & 326, 328 thru 330, 339 thru 340	Long-Life Pavement Markings
325, 327, 331	Removable Tape
346 thru 347	Permanent Pavement Markers
350 thru 379 & 381 & 656	Lighting
382 thru 428	Utility Construction
429 thru 463, 465 thru 467	Erosion Control
464	Reforestation
468 thru 536	Signals/ITS System
602 thru 610, 675 thru 680, 683 thru 686	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 **$ 2.7552** 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

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 **$ 624.23** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **October 1, 2014**.

PEDESTRIAN SAFETY RAIL:

Description

Furnish and install, the Pedestrian Safety Rail at the location shown in the plans in accordance with the detail in the plans and as directed by the Engineer.

Measurement and Payment

Pedestrian Safety Rail will be measured along the top handrail to the nearest 0.1 of a foot. Such price and payment will be full compensation for fabricating, finishing, installing, welding, painting and all incidentals necessary to satisfactorily install the Pedestrian Safety Rail.

Payment will be made under:

Pay Item	**Pay Item**
Pedestrian Safety Rail	Linear Foot

8" CONCRETE TRUCK APRON:

Description

Construct 8" Concrete Truck Apron in accordance with the applicable requirements of Section 848 of the *Standard Specifications* as modified by the typical section in the plans and this provision.

Materials

Concrete shall be Class A Concrete meeting the requirements of Section 1000 of the *Standard Specifications*.

Revised 11-3-14

U-0071

EMBANKMENT CONSTRUCTION USING DEGRADABLE ROCK: 9-29-14

Degradable rock is defined as hard rock material which exhibits high slaking characteristics when exposed to air and water. This type material was encountered on this project and is comprised of Triassic mudstone and siltstone. Place all excavated degradable rock and all mixtures of degradable rock and soil accordance with these provisions.

Place embankments constructed of degradable rock in 12 inch (300 mm) maximum lifts. Place each lift by blading and dozing in a manner to minimize voids, pockets and bridging. Use a dozer to spread the material that is equivalent to or larger in size than a Caterpillar D-8. Provide each lift with a minimum of three (3) coverages with a static pad foot roller (minimum weight of 45,000 lbs (20,400 kg)) and two (2) coverages with a vibratory pad foot roller (minimum centrifugal force per drum of 50,000 lbs (22,700 kg)).

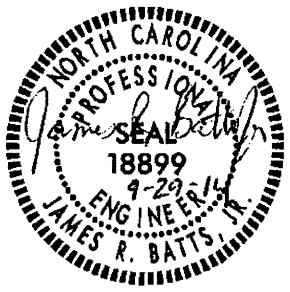
If the material is dry, add water to facilitate breakage of the rocks and compaction. Uniformly mix the added water for the entire depth of the lift by blading, disking, or other approved methods. Make sure that the amount of water added is sufficient to achieve optimum moisture of the particle size material.

The Engineer may modify the sequence or the number of coverages with either roller as deemed necessary to insure satisfactory breakage and compaction of the material.

Do not place degradable rock or degradable rock and soil mixture in the top 24 inches (600 mm) of embankment.

Wasting of degradable rock will be permitted provided the provisions and conditions of Article 225-3 of the Standard Specifications are met.

No additional compensation will be provided for the procedures outlined in this provision. This work is included in the unit price bid for unclassified excavation.



4.50 BASIS OF PAYMENT

Lump Sum Basis:

Payment for the conduit system will be made at the contract lump sum price for "Electrical Conduit System at _____".

Compensation:

Such price and payment for the conduit system as provided above will be considered full compensation for all materials, equipment, and labor necessary to complete the work in accordance with the plans and these special provisions.

Payment will be made under:

Electrical Conduit System at _____.....Lump Sum

5.00 HIGH MAST LIGHT EMITTING DIODE (LED) LUMINAIRES

5.10 DESCRIPTION

Furnish, install and place into satisfactory operation, LED luminaires on high mount standards as detailed in these Special Provisions.

The Contractor shall supply Holophane or Cooper LED high mount luminaires, part numbers HMLED114KAHGL5, or GLEON-AE-08-LED-480-5WQ-GM-EA, respectively, or approved equal on 80' high mount standards and Holophane or Cooper LED high mount luminaires, part numbers HMLED144KAHGL5, or GLEON-AE-10-LED-480-5WQ-GM-EA, respectively, or approved equal on 100' and 120' high mount standards.

Any alternate luminaire submitted for approval must meet the minimum requirements below. The Contractor shall supply the Department with current catalog cuts and 3rd party certified photometric data files in Illuminating Engineering Society (IES) format for any alternate high mount luminaire submitted for approval. The Department will thoroughly evaluate alternate luminaires to determine if proposed alternate high mount luminaire meets or exceeds design criteria.

High mount luminaire retrofit LED kits are not an acceptable alternative.

5.20 MATERIALS

5.21 LUMINAIRE REQUIREMENTS

A. General Requirements

- LM-79 photometric test reports shall be provided for all LED luminaires. LM-79 luminaire photometric reports shall be produced by an independent test laboratory and include the following:
    - Name of test laboratory. The test laboratory must hold National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for the IES LM-79 test procedure or must be qualified, verified, and recognized through the U.S. Department of Energy's CALiPER program.
    - Report number
    - Date
    - Complete luminaire catalog number. Catalog number tested must match the catalog number of the luminaire submitted, except for variations which do not affect performance.
    - Description of luminaire, LED light source(s), and LED driver(s)
    - Goniophotometry
    - Colorimetry

- LM-80 lumen maintenance test report shall be provided for each respective LED light source.
- Luminaire shall be constructed of aluminum. Each luminaire shall be finished gray in color unless otherwise noted.
- Luminaires shall have a minimum L70 rating of 60,000 hours at 25°C, 100,000 hours desirable. Provide a summary of reliability testing performed for LED driver.
- Luminaires for 80' high mast standards shall have a maximum total power consumption of 450 watts (W) at 480VAC. Luminaires for 100' and 120' high mast standards shall have a maximum total power consumption of 560W at 480VAC. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
- Luminaire shall have an IESNA distribution Type V.
- Luminaire LED modules shall meet dust and moisture rating of IP-66, minimum.
- Luminaire shall have an external label per ANSI C136.15.
- Luminaires shall have an internal label per ANSI C136.22.
- Luminaires shall start and operate in -20°C to +40°C ambient.
- Electrically test fully assembled luminaires before shipment from factory.
- Effective Projected Area (EPA) and weight of the luminaires shall not exceed 1.6 square feet and 80 lbs.
- Luminaires shall be designed for ease of electrical component replacement.
- Luminaires shall be rated for minimum 2G vibration, minimum, per ANSI C136.31-2010
- LED light sources and drivers shall be RoHS compliant.
- The luminaire manufacturer shall have no less than five (5) years of experience in manufacturing LED-based lighting products and the manufacturing facility must be ISO 9001 certified.

- Pole hardware, nuts, bolts, and washers, etc. shall be made from 18-8 stainless steel, or steel conforming to ASTM A307 galvanized in accordance with ASTM A153.

B. Driver
- Rated case temperature shall be suitable for operation in the luminaire operating in the ambient temperature range of -20°C to +40°C.
- Shall be rated for 480VAC at 50/60 Hz, and shall operate normally for input voltage fluctuations of ± 10%.
- Shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.

C. Surge Suppression
- Integral surge protection shall meet ANSI/IEEE C62.45 procedures based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High 10kV/10kA test, IEC 61000-4-2 (Electrostatic Discharge) 8kV Air/4kV Contact test and IEC 61000-4-4 (Fast Transients).

D. Electromagnetic interference
- Luminaires shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Luminaires shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

E. Electrical safety testing
- Luminaires shall be listed for wet locations.
- Luminaires shall be UL listed and labeled.

F. Finish
- Luminaires shall be painted with a corrosion resistant polyester powdered paint with a minimum 2.0 mil thickness.
- Luminaires shall exceed a rating of six per ASTM D1654 after 1000 hours of salt spray fog testing per ASTM B117.
- The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.

G. Thermal management
- Mechanical design of protruding external surfaces (heat sink fins) shall facilitate hose-down cleaning and discourage debris accumulation.

H. Color Quality
- Minimum Color Rendering Index (CRI) of 60 with a Correlated Color Temperature (CCT) of 3500K to 4500K

I. Optics
- Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.

J. The following shall be in accordance with corresponding sections of ANSI C136.37
- All internal components shall be assembled and pre-wired using modular electrical connections.
- Terminal blocks shall be used for incoming AC lines
- Latching and hinging

K. Manufacturer or local sales representative shall provide installation and troubleshooting support via telephone and/or email.

5.30 WARRANTY

Provide a minimum five-year warranty covering maintained integrity and functionality of the luminaire housing, wiring, and connections, LED light source(s) and LED driver. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.

Warranty period shall begin after project acceptance by the Department.

5.40 CONSTRUCTION METHODS

Level and secure each luminaire in all directions. Securely terminate the wiring for each high mount luminaire and include an equipment grounding conductor to bond the housing to the supply cord grounding conductor.

Adjust any luminaires, as directed by the Engineer, to provide optimal illumination distribution.

All LED packages on all luminaires must be operating normally at contract completion. Any luminaire displaying improper operating characteristics prior to contract completion will be replaced by the Contractor at no additional cost to the Department.

5.50 MEASUREMENT AND PAYMENT

The high mount luminaires measured as provided above will be paid for at the contract unit price per each "(height) High Mount Luminaires – LED". Such price and payment will be considered full compensation for providing and installing the LED high mount luminaire on the carrier ring tenon arm and connecting the LED high mount luminaire to the supply cord on the carrier ring.

Payment will be made under:

(height) High Mount Luminaire – LED ..... Each

Revised 11-3-14

County: Durham
Project: U-0071

REVISED PROJECT SPECIAL PROVISIONS
Utility

UTILITIES BY OTHERS:

General:

The following utility companies have facilities that will be in conflict with the construction of this project.

A) Duke Energy (Transmission)
B) Duke Energy (Distribution)
C) Frontier Communication
D) Time Warner Cable
E) PSNC Energy

The utility conflicts will be adjusted prior to the date of availability, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be performed by the utility owner. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105-8 of the Standard Specifications for Roads and Structures.

Utilities Requiring Adjustments:

A) Duke Energy (Transmission)
Mr. Mike Montgomery
P.O. Box 1006
Charlotte, NC 28201
(704) 382-6468
mrmontgo@duke-energy.com

1. See "Utilities By Others Plans" for utility conflicts
2. Duke Energy will have their conflicting facilities relocated by date of availability or before.

B) Duke Energy (Distribution)
Mr. Steve Whittemore
1205 N. Church Street
Burlington, NC 27217
(336) 214-8712
sawhitte@duke-energy.com

1. See "Utilities By Others Plans" for utility conflict
2. Duke Energy will complete their relocation work in 4 sections.

a. Section 1-UO sheets 2, 3, 4 and 21, Duke Energy's relocation work along Muldee Street, Holloway Street and crossing over Miami Blvd. south of Holloway Street will be completed by November 30, 2014.
b. Section 2-UO sheets 5, 6, 7, 8, Duke's relocation work along Hoover Road (temporary relocation) and crossing US70 to substation will be completed by December 15, 2014. The relocation work along the south side of US70 along Y5 will be completed by December 15 as well. At the appropriate stage of construction, Duke will install its permanent pole line along Hoover to Barnes Street inside the PUE. It will take Duke approximately 4 weeks to complete the permanent installation. After Frontier has relocated to the permanent poles Duke shall remove the temporary poles along SR2 (UO sheets 6 and 7).
c. Section 3 – UO sheets 7, 8, 18, 19, 20, 22 and 23 Duke's relocation work beginning at Barnes Street and along the north side of US70 to Pleasant Road and including Pleasant Road and Lynn Road will be completed by March 10, 2015. Relocation work at Rowena Road will be completed by December 15, 2014
d. Section 4 – UO sheets 9, 16, & 17. Relocation work along Angier Avenue is completed. Relocation work at Ellis Road will be completed by November 10, 2014.
e. Duke Energy will be responsible for removing its existing power poles in conflict with construction. Some of the conflicting poles cannot be removed until the new signal cable has been installed on Duke's new poles and the existing cable removed.

C) Frontier Communication
Marcus Dickinson
725 E. Markham Ave.
Durham, NC 27701
(919) 560-2917
marcus.dickinson@ftr.com

1. See "Utilities By Others Plans" for utility conflict
2. Frontier Communication will complete their relocation work in 4 sections.
   a. Section 1 – UO sheets 2, 3, 4, & 21 Frontier will relocate to Duke Energy's poles after Time Warner has relocated. Frontier's relocation work along Muldee Street, Holloway Street and crossing US70 north of railroad overpass will be completed by April 1, 2015.
   b. Section 2 – UO sheets 5, 6, 7, 8, 23, 24, & 25 Frontier will attach to Duke's temporary poles on UO sheets 6 and 7 up to Barnes Street after Duke Energy has completed its work. Frontier shall complete this work by the end of December. At the appropriate stage of construction, Frontier will reattach to Duke's permanent poles along SR2. This work will take approximately 3 weeks to complete including removing the temporary cable. Frontier will be attaching to Duke Energy poles along Y5. This work will be completed by January 30, 2015. Beginning in the area of Barnes Street (UO sheets 7 and 8), Frontier will be attaching to Duke Energy's poles as well as boring under US70 in the vicinity of East End Avenue. Frontier will have this area cleared of conflicts by April 30, 2015.
   c. Section 3-UO sheets 16, 17, 19, 20, 22 and 23. On UO sheets 16 and 17, Frontier has existing conduit and cable along the north side of Ellis Road under the existing bridges that is to remain in place. The roadway/bridge contractor must use caution when working around these facilities. The construction of the

Revised 11-3-14

temporary work bridge and proposed guardrail installation must avoid the cable and conduit. Along Lynn Road and Pleasant Road, Frontier will relocate to Duke's poles after Time Warner has attached to them. Frontier will complete its work in these 2 areas by May 15, 2015.

d. Section 4 – UO sheet 9 (Angier Avenue) relocation work will be completed by availability date.

D) Time Warner
George Stotler
1100 Perimeter Park Drive
Suite 118
Morrisville, NC 27560
(919) 573-7667
george.stotler@twcable.com

1. See "Utilities By Others Plans" for utility conflict
2. Time Warner will complete its relocation work in 2 sections.
   a. Section 1 – UO sheets 2, 3, 4, & 21 Time Warner will attach to Duke's new poles along Muldee Street, Holloway Street and crossing US70 north of the railroad overpass. This work will be completed by January 15, 2015.
   b. Section 2 – UO sheets 8, 9, 16, 17, 19, 20, 22 & 23. Time Warner has completed its work along Rowena Avenue and Angier Avenue. Time Warner will be installing buried cables in conduits along the south side of Ellis Road under the existing concrete slope protection. This work will be completed by December 1, 2014. The contractor must use extreme caution when working in the vicinity of the conduit and must avoid the conduit when constructing the temporary work bridge. The aerial cable in the vicinity of the existing bridges will be removed by the end of January, 2015. Time Warner will be attaching to Duke's new poles along Lynn Road and Pleasant Road. This work will be completed by April 15, 2015.

E) PSNC Energy
Reid Crane
2451 Schieffelin Road
Apex, NC 27502
(919) 367-2713
wcrane@scana.com

1. See "Utilities By Others Plans" for utility conflict
2. PSNC Energy will complete the following areas prior to the availability date
   a. UO sheets 2, 3, 4 (Y1)
   b. UO sheet 19 Y9
3. PSNC Energy will require rough grading by the NCDOT contractor to be complete prior to beginning the following locations.
   a. UO sheet 4 – SR1 PSNC Energy will require 3 weeks notification from the roadway contractor and 6 weeks construction time
   b. UO sheet 6 – SR 2 PSNC Energy will require 3 weeks notification from the roadway contractor and 4 weeks construction time.
   c. UO sheet 6, 7, & 8 – PSNC Energy cannot retire its existing 10" gas line along existing US 70 until the new 12" line is installed and placed into service along Y5, Y6 & Y8. PSNC Energy must be given 4 weeks notification from

215-A

New 11-3-14

NCDOT's contractor when rough grading is complete and 8 weeks construction time.

October 22, 2014

Note: Use a wattmeter having an accuracy of ±1% to measure the nominal wattage and maximum wattage of an arrow traffic signal module. Power may also be derived from voltage, current and power factor measurements.

C. Pedestrian Signal Heads:

Provide pedestrian signal heads with international symbols that meet the MUTCD. Do not provide letter indications.

Comply with the ITE standard for "Pedestrian Traffic Control Signal Indications" and the following sections of the ITE standard for "Vehicle Traffic Control Signal Heads" in effect on the date of advertisement:

- Section 3.00 - "Physical and Mechanical Requirements"
- Section 4.01 - "Housing, Door, and Visor: General"
- Section 4.04 - "Housing, Door, and Visor: Materials and Fabrication"
- Section 7.00 - "Exterior Finish"

Provide a double-row termination block with three empty terminals and number 10 screws for field wiring. Provide barriers between the terminals that accommodate a spade lug sized for number 10 terminal screws. Mount the termination block in the hand section. Wire all signal sections to the terminal block.

Where required by the plans, provide 16-inch pedestrian signal heads with traditional three-sided, rectangular visors, 6 inches long.

Provide 2-inch diameter pedestrian push-buttons with weather-tight housings fabricated from die-cast aluminum and threading in compliance with the NEC for rigid metal conduit. Provide a weep hole in the housing bottom and ensure that the unit is vandal resistant.

Provide push-button housings that are suitable for mounting on flat or curved surfaces and that will accept 1/2-inch conduit installed in the top. Provide units that have a heavy duty push-button assembly with a sturdy, momentary, normally-open switch. Have contacts that are electrically insulated from the housing and push-button. Ensure that the push-buttons are rated for a minimum of 5 mA at 24 volts DC and 250 mA at 12 volts AC.

Provide confirmation of the push button activation by a LED pilot light. Ensure the pilot light remains illuminated until the pedestrian's green or WALKING PERSON (symbolizing WALK) signal indication is displayed.

Provide standard R10-3 signs with mounting hardware that comply with the MUTCD in effect on the date of advertisement. Provide R10-3E signs for countdown pedestrian heads and R10-3B for non-countdown pedestrian heads.

Design the LED pedestrian traffic signal modules (hereafter referred to as modules) for installation into standard pedestrian traffic signal sections that do not contain the incandescent signal section reflector, lens, eggcrate visor, gasket, or socket. Provide modules that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp. Use LEDs that are of the latest aluminum indium gallium phosphorus (AlInGaP) technology for the Portland Orange hand and countdown displays. Use LEDs that are of the latest indium gallium nitride (InGaN) technology for the Lunar White walking man displays. Install the ultra-bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

Revised 11-3-14

PRESERVATION, REHABILITATION & REPAIR
PROJECT SPECIAL PROVISIONS

PROJECT: U-0071 **COUNTY: DURHAM** **BRIDGE NO: 188, 189, 191, 192**

OVERLAY SURFACE PREPARATION (12-18-12)

Description

This provision addresses the surface preparation activities required prior to the placement of latex modified concrete. Unless specifically mentioned below, all requirements specified for the bridge deck are also required for the approach slabs.

Definitions

Scarification shall consist of the removal of any asphalt wearing surface and concrete surface to a uniform depth within ½" of the plan overlay thickness to the limits shown on the plans.

Hydro-demolition shall consist of the removal of the deck surface by means of high pressure water blasting which will remove concrete, oil, dirt, concrete laitance and rust from the exposed reinforcing bars by direct impact, pressurization of micro and macro cracks and cavitation produced by jet instability.

Managing Hydro-Demolition Water

Prior to beginning work, submit for approval a Hydro-demolition Management Plan. This plan shall describe the collection, treatment, and disposal of run-off water generated by the scarification and hydro-demolition processes. Prepare the plan in accordance to the NCDOT Guidelines for Managing Hydro-demolition Water available at http://www.ncdot.gov/projects/ncbridges/#stats. The contractor shall comply with applicable regulation concerning such water disposal.

EQUIPMENT

Use the following surface preparation equipment:

- Scarifying equipment that is a power-operated, mechanical grinder capable of removing a minimum depth of ¼" for each pass.
- Hydro-demolition machine, self-propelled with a minimum orifice pressure of 17,000 psi.
- All water used for hydro-demolition shall be potable.
- Equipment capable of sawing concrete to the specified plan depth.
- Hand-held high velocity (7,500 psi minimum) water-jet equipment capable of removing rust scale from reinforcing steel, removing small chips of concrete partially loosened by