STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 2, 2018

Addendum No. 4

Contract No.:	C 203970
TIP No.:	I-5507 / R-0211EC / U-4714AB
County:	Mecklenburg
Project Description:	I-485 from I-77 to US 74 (Independence Boulevard); I-485 / Weddington Road Interchange; and I-485 / East John Street – Old Monroe Road Interchange

RE: Addendum No. 4 to Final RFP

September 18, 2018 Letting

To Whom It May Concern:

Reference is made to the Final Request for Proposals dated May 7, 2018 recently furnished to you on the above project. We have since incorporated changes, and have attached a copy of Addendum No. 4 for your information. Please note that all revisions have been highlighted in gray and are as follows:

On the COVER SHEET, change the date for Technical and Price Proposal Submission to **August 23, 2018** and the date for the Price Proposal Opening to **September 18, 2018.** Please mark through the dates shown on the May 7, 2018 (Labeled) RFP and insert the new dates. This correction must be done in ink and initialed and dated by your Team's primary contractor (reference the attached example). The corrected Final RFP must be used to submit the Price Proposal for return to this office.

The first, second and third pages of the *Table of Contents* have been revised. Please void the first, second and third pages in your proposal and staple the revised first, second and third pages thereto.

Page No. 1 of the *Contract Time and Liquidated Damages* Project Special Provision has been revised. Please void Page No. 1 in your proposal and staple the revised Page No. 1 thereto.

Page No. 5 of the *Submittal of Quantities, Fuel Base Index Price and Opt-Out Option* Project Special Provision has been revised. Please void Page No. 5 in your proposal and staple the revised Page No. 5 thereto.

Page No. 13 of the *Schedule of Estimated Completion Progress* Special Provision has been revised. Please void Page No. 13 in your proposal and staple the revised Page No. 13 thereto.

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
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

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

Page Nos. 16 and 17 of the *Minority Business Enterprise and Women Business Enterprise* Special Provision have been revised. Please void Page Nos. 16 and 17 in your proposal and staple the revised Page Nos. 16 and 17 thereto.

Page No. 56 of the *Procedure for Monitoring Borrow Pit Discharge* Project Special Provision has been revised. Please void Page No. 56 in your proposal and staple the revised Page No. 56 thereto.

Page No. 64 of the *Price Adjustments for Asphalt Binder* Project Special Provision has been revised. Please void Page No. 64 in your proposal and staple the revised Page No. 64 thereto.

Page Nos. 95 and 97 of the *High Definition CCTV Metal Pole and Field Equipment* Project Special Provision have been revised. Please void Page Nos. 95 and 97 in your proposal and staple the revised Page Nos. 95 and 97 thereto.

Page Nos. 246, 247, 248, 249, 250 and 251 of the *Overlay Surface Preparation* Project Special Provision have been revised. Please void Page Nos. 246, 247, 248, 249, 250 and 251 in your proposal and staple the revised Page Nos. 246, 247, 248, 249, 250 and 251 thereto.

Page Nos. 251, 252, 252A and 252B of the *Latex Modified Concrete* Project Special Provision have been revised. Please void Page Nos. 251, 252, 252A and 252B in your proposal and staple the revised Page Nos. 251, 252, 252A and 252B thereto.

Page Nos. 262, 263 and 267 of the *General* Section have been revised. Please void Page Nos. 262, 263 and 267 in your proposal and staple the revised Page Nos. 262, 263 and 267 thereto.

Page Nos. 280, 283, 289 and 295 of the *Roadway* Scope of Work have been revised. Please void Page Nos. 280, 283, 289 and 295 in your proposal and staple the revised Page Nos. 280, 283, 289 and 295 thereto.

Page No. 301 of the *Structures* Scope of Work has been revised. Please void Page No. 301 in your proposal and staple the revised Page No. 301 thereto.

Page Nos. 358 and 363 of the *Signing* Scope of Work have been revised. Please void Page Nos. 358 and 363 in your proposal and staple the revised Page Nos. 358 and 363 thereto.

Page No. 370 of the *Pavement Management* Scope of Work has been revised. Please void Page No. 370 in your proposal and staple the revised Page No. 370 thereto.

Page Nos. 372, 382, 383 and 385 of the *Environmental Permits* Scope of Work have been revised. Please void Page Nos. 372, 382, 383 and 385 in your proposal and staple the revised Page Nos. 372, 382, 383 and 385 thereto.

Page No. 427 of the *Traffic Signals and Signal Communications* Scope of Work has been revised. Please void Page No. 427 in your proposal and staple the revised Page No. 427 thereto.

Page No. 438 of the *Utilities Coordination* Scope of Work has been revised. Please void Page No. 438 in your proposal and staple the revised Page No. 438 thereto.

Page No. 446 of the *Right of Way* Scope of Work has been revised. Please void Page No. 446 in your proposal and staple the revised Page No. 446 thereto.

If you have any questions or need additional information, I can be reached by telephone at (919) 707-6900.

Sincerely,

DocuSigned by:
Ronald E. Davenport, Jr.
F81B6038A47A442...

Ronald E. Davenport, Jr., PE
State Contract Officer

Cc: Ron Hancock, PE
Scott Cole, PE
Teresa Bruton, PE
File

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

FINAL REQUEST FOR PROPOSALS
DESIGN-BUILD PROJECT

TIP I-5507 / R-0211EC / U-4714AB

May 7, 2018

VOID FOR BIDDING

DATE AND TIME OF TECHNICAL AND PRICE PROPOSAL SUBMISSION: ~~**July 25, 2018**~~ BY **4:00 PM**
XYZ Date
August 23, 2018

DATE AND TIME OF PRICE PROPOSAL OPENING: ~~**August 21, 2018**~~ AT **2:00 PM**
September 18, 2018
XYZ Date

CONTRACT ID: C203970

WBS ELEMENT NO. 43609.3.2

FEDERAL-AID NO. N/A

COUNTY: Mecklenburg

ROUTE NO. I-485 (Charlotte Outer Loop)

MILES: 16.6

LOCATION: I-485 from I-77 to US 74 (Independence Boulevard); I-485 / Weddington Road Interchange; and I-485 / East John Street – Old Monroe Road Interchange

TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

NOTICE:

ALL PROPOSERS 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 PROPOSER 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. PROPOSERS 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. NOT WITHSTANDING THESE LIMITATIONS ON BIDDING, THE PROPOSER WHO IS AWARDED ANY PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

_____

5% BID BOND OR BID DEPOSIT REQUIRED

_____

TABLE OF CONTENTS

COVER SHEET

PROPOSAL SHEETS

PROJECT SPECIAL PROVISIONS *PAGE NO.*

STANDARD SPECIAL PROVISIONS

*** PROJECT SPECIAL PROVISIONS ***

CONTRACT TIME AND LIQUIDATED DAMAGES

(7-12-7) DB1 G04A

The date of availability for this contract is October 29, 2018, except that the Design-Build Team shall only begin ground disturbing activities as allowed by this Request for Proposals (RFP). The Design-Build Team shall consider this factor in determining the proposed completion date for this project.

The completion date for this contract is defined as the date proposed in the Technical Proposal by the proposer who is awarded the project. The completion date thus proposed shall not be later than December 1, 2022.

When observation periods are required by the special provisions, they are not a part of the work to be completed by the completion date and / or intermediate contract times. Should an observation period extend beyond the Final Completion Date proposed by the Design-Build Team in the Technical Proposal, the performance and payment bonds shall remain in full force and effect until the observation period has been completed and the work accepted by the Department.

The liquidated damages for this contract are **Five Thousand Dollars ($5000.00)** per calendar day. As an exception to this amount, where the contract has been determined to be substantially complete as defined by the *Substantial Completion* Project Special Provision found elsewhere in this RFP, the liquidated damages will be reduced to **One Thousand Five Hundred Dollars ($1500.00)** per calendar day.

Where the Design-Build Team who is awarded the contract has proposed a completion date for the contract as required above, but also has proposed an earlier date for substantial completion, then both of these proposed dates will become contract requirements.

Liquidated damages of **Five Thousand Dollars ($5000.00)** per calendar day will be applicable to the early date for substantial completion proposed by the bidder. Liquidated damages of **One Thousand Five Hundred Dollars ($1500.00)** per calendar day will be applicable to the Final Completion Date proposed by the bidder where the Design-Build Team has proposed an earlier date for substantial completion.

OTHER LIQUIDATED DAMAGES AND INCENTIVES

(3/22/07) (Rev. 02/14/08) DB1 G11

Reference the Transportation Management Scope of Work found elsewhere in this RFP for more information on the following time restrictions and liquidated damages:

> Liquidated Damages for Intermediate Contract Time #1 for lane narrowing, lane closure, holiday and special event time restrictions for I-485, including all collector distributors, ramps and loops; and US 521 (Johnston Road) are $2,500.00 per 15-minute period or any portion thereof.

The Design-Build Team shall prepare an Estimate of Quantities that they anticipate incorporating into the completed project and upon which the Price Proposal was based. The quantity breakdown shall include all items of work that appear in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet. Only those items of work which are specifically noted in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet will be subject to fuel price adjustments.

Submittal The submittal shall be signed and dated by an officer of the Design-Build Team. The information shall be copied and submitted in a separate sealed package with the outer wrapping clearly marked "Fuel Price Adjustment" and shall be delivered at the same time and location as the Technical and Price Proposal. The original shall be submitted in the Price Proposal.

Trade Secret Information submitted on the *Fuel Usage Factor Chart and Estimate of Quantities* sheet will be considered "Trade Secret" in accordance with the requirements of G.S. 66-152(3) until such time as the Price Proposal is opened.

(B) **Base Index Price**

The Design-Build Team's Estimate of Quantities will be used on the various partial payment estimates to determine fuel price adjustments. The Design-Build Team shall submit a payment request for quantities of work completed based on the work completed for that estimate period. The quantities requested for partial payment shall be reflective of the work actually accomplished for the specified period. The Design-Build Team shall certify that the quantities are reasonable for the specified period. The base index price for DIESEL #2 FUEL is **$2.2375** per gallon.

(C) **Opt Out of Fuel Price Adjustment**

If the Design-Build Team elects not to pursue reimbursement for Fuel Price Adjustments, a quantity of zero shall be entered for all quantities in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet and the declination box shall be checked. Failure to complete this form will mean that the Design-Build Team is declining the Fuel Price Adjustments for this project.

(D) **Change Option**

The proposer will not be permitted to change the option after the Price Proposal and the copy of the *Fuel Usage Factor Chart and Estimate of Quantities* sheet are submitted.

(E) **Failure to Submit**

Failure to submit the completed *Fuel Usage Factor Chart and Estimate of Quantities* sheet separately and in the Price Proposal will result in the Technical and Price Proposal being considered irregular by the Department and the Technical and Price Proposal may be rejected.

Preliminary ATC is denied; (2) that the Preliminary ATC would be considered as a Formal ATC if the Team so elects to pursue a Formal ATC submission; (3) that an ATC is not required; (4) a documented question has been received outside of the ATC process on the same topic and the RFP will be revised to address that question; (5) more than one ATC has been received on the same topic and the Department has elected to exercise its right to revise the RFP; 6) that the ATC takes advantage of an error or omission in the RFP or other documents incorporated into the contract by reference, in which case the ATC will not be considered and the RFP will be revised to correct the error or omission; or (7) the ATC contains multiple concepts and the Department did not evaluate any of the concepts, in which case an ATC for each individual concept will be required. The Department in no way warrants that a favorable response to a Preliminary ATC submittal will translate into a favorable response to a Formal ATC submittal. Likewise, a favorable response to a Preliminary ATC submittal is not sufficient to include the ATC in a Technical Proposal.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS

(9-1-11) (Rev. 8/31/17) DB1 G58

The Design-Build Team's attention is directed to the *Availability of Funds - Termination of Contracts* Standard Special Provision found elsewhere in this RFP. 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)
2019 (07/01/18 – 06/30/19)	11% of Total Amount Bid
2020 (07/01/19 – 06/30/20)	34% of Total Amount Bid
2021 (07/01/20 – 06/30/21)	31% of Total Amount Bid
2022 (07/01/21 – 06/30/22)	19% of Total Amount Bid
2023 (07/01/22 – 06/30/23)	5% of Total Amount Bid

The Design-Build Team shall also furnish its own progress schedule in accordance with Article 108-2 of the 2018 *Standard Specifications for Roads and Structures*. Any acceleration of the progress as shown by the Design-Build Team's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE

(10-16-07) (Rev. (3-2-18) 102-15(J) DB1 G66

Description

The purpose of this project special provision is to carry out the North Carolina Department of Transportation’s policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with State funds.

https://connect.ncdot.gov/municipalities/Pages/Bid-Proposals-for-LGA.aspx

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.

http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls

COMBINED MBE / WBE Goal

The Combined MBE / WBE Goal for this project is **7.0 %**

The Combined MBE / WBE Goal was established utilizing the following anticipated participation for Minority Business Enterprises and Women Business Enterprises:

(A) Minority Business Enterprises **3.0%**

(1) *If the anticipated MBE participation is more than zero*, the Design-Build Team shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above.

(2) *If the anticipated MBE participation is zero*, the Design-Build Team shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

(B) Women Business Enterprises **4.0%**

(1) *If the anticipated WBE participation is more than zero*, the Design-Build Team shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above as the WBE goal.

(2) *If the anticipated WBE participation is zero*, the Design-Build Team shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

The Proposer is required to submit only participation to meet the Combined MBE / WBE Goal. The Combined MBE / WBE Goal may be met by submitting all MBE participation, all WBE participation, or a combination of MBE and WBE participation.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as MBE and WBE certified shall be used to meet the Combined MBE / WBE Goal. The Directory can be found at the following link:

https://www.ebs.nc.gov/VendorDirectory/default.html

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

Listing of MBE / WBE Subcontractors

At the time of bid, Proposers shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the Combined MBE / WBE Goal will be considered committed, even though the listing shall include both committed MBE / WBE subcontractors and additional MBE / WBE subcontractors. Any additional MBE / WBE subcontractor participation above the goal for which letters of intent are received will follow the banking guidelines found elsewhere in this provision. All other additional MBE / WBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of Price Proposal opening will be acceptable for listing in the Proposer's submittal of MBE and WBE participation. The Design-Build Team shall indicate the following required information:

(1) *If either the Combined MBE / WBE Goal is more than zero,*

(a) Proposers, at the time the Price Proposal is submitted, shall submit a listing of MBE / WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the Price Proposal to be considered responsive. Proposers shall indicate the total dollar value of the MBE and WBE participation for the contract.

(b) If Proposers have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation**. Price Proposals submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of Price Proposals. The Department will not consider these Price Proposals for award and the proposal will be rejected.

(c) The Proposer shall be responsible for ensuring that the MBE / WBE is certified at the time of bid by checking the Directory of Transportation

sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the Design-Build Team's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Design-Build Team.

To plan, design, construct, and maintain BMPs to address water quality standards, the Design-Build Team shall use the NCDOT *Turbidity Reduction Options for Borrow Pits Matrix,* available at the website noted below:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/TurbidityReductionOptionSheet.pdf

Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWR's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Design-Build Team exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Design-Build Team may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the Price Proposal for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.

Submittals for Review During Construction

The Design-Build Team shall submit the unconfined compressive strength test results for review and acceptance.

PRICE ADJUSTMENTS FOR ASPHALT BINDER

(9-1-11) (Rev. 9-8-17) DB6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the 2018 *Standard Specifications for Roads and Structures.*

When it is determined that the monthly selling price of asphalt binder on the first business day of the calendar month during which the last day of the partial payment period occurs varies either upward or downward from the Base Price Index, the partial payment for that period will be adjusted. The partial payment will be adjusted by adding the difference (+ or -) of the base price index subtracted from the monthly selling price multiplied by the total theoretical quantity of asphalt binder authorized for use in the plant mix placed during the partial payment period involved.
The base price index for asphalt binder for plant mix is **$553.33** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on August 1, 2018.

PRICE ADJUSTMENTS - ASPHALT CONCRETE PLANT MIX

(9-1-11) (Rev. 9-8-17) DB6 R26

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 6-15, Article 609-11 and Page 6-31, Article 610-14

Add the following paragraph before the first paragraph:

The "Asphalt Price" used to calculate any price adjustments set forth in this section shall be $40.00 per theoretical ton. This price shall apply for all mix types.

FIELD OFFICE

(6-1-07) (Rev. 8-3-15) DB 08-01

Description

This work consists of furnishing, erecting, equipping, and maintaining a field office for the exclusive use of Department Engineers and Inspectors at a location on the project approved by the Engineer. Provide a field office that complies with the current A.D.A. Design and Accessibility Standards, the National Electric Code, local, state, and federal regulations, and the following:

Submit completed boring logs collected in accordance with sub-section (1) Soil Test above along with pole loading diagrams to the Design-Build Team-selected pole fabricator to assist in the pole and foundation design.

If one of the following occurs, the Standard Foundations Chart shown on the plans developed by the Design-Build Team may not be used and a non-standard foundation may be required. In such case, contact the Engineer.

The Design N-value is less than 4,

The drilled pier length, "L", determined from the Standard Foundations Chart, is greater than the depth of the corresponding boring.

In the case where a standard foundation cannot be used, the Design-Build Team shall be responsible for all additional design and construction costs associated with the non-standard foundation.

Foundation designs shall be based on level ground around the traffic signal pole. If the slope around the edge of the drilled pier is steeper than 8:1 (H:V) or the proposed foundation will be less than 10 feet from the top of an embankment slope, the Design-Build Team shall be responsible for providing slope information to the foundation designer and to the Engineer so it can be considered in the design and review, respectively.

The "Metal Pole Standard Foundation Selection Form" may be found at:

https://connect.ncdot.gov/resources/safety/ITS%20and%20Signals%20Resources/Standard%20Foundation%20Selection%20Form.pdf

If assistance is needed, contact the Engineer.

Non-Standard Foundation Design:

Design non-standard foundations based upon site-specific soil test information collected in accordance with sub-section (1) Soil Test above. Design drilled piers for side resistance only in accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version 5.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Use the computer software gINT version 8.0 or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. The Design-Build Team shall provide a drilled pier foundation for each pole with a length and diameter that result in a horizontal lateral movement of less than 1 inch at the top of the pier and a horizontal rotational movement of less than 1 inch at the edge of the pier. Submit any non-standard foundation designs including drawings, calculations, and soil boring logs to the Engineer for review and approval before construction. Foundations installed without prior approval may be rejected.

3.2 MATERIALS

CCTV Metal Poles

The Design-Build Team shall provide CCTV poles that are a minimum of 50 feet tall.

Fabricate CCTV metal pole from coil or plate steel to meet the requirements of ASTM A 595 Grade A tubes. For structural steel shapes, plates and bars use A572 Gr 50 min or ASTM A709 Gr 50 min. The Design-Build Team shall provide poles that are round

The Design-Build Team shall provide a 2-inch hole equipped with an associated coupling and weatherhead approximately 5 feet below the top of the pole to accommodate passage of CCTV cables from inside the pole to the CCTV camera.

The Design-Build Team shall provide a 2-inch hole equipped with an associated coupling and conduit fittings/bodies approximately 18 inches above the base of the pole accommodate passage of CCTV cables from the CCTV cabinet to the inside of the pole. Refer to Metal Pole Standard Drawing Sheet M3 for fabrication details.

The Design-Build Team shall provide a hand hole access with a watertight cover and have poles permanently stamped above the base hand hole with the identification tag details as shown on Metal Pole Standard Drawing Sheet M2.

For each pole, The Design-Build Team shall provide a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate #4 AWG ground wire. Ensure that the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

The Design-Build Team shall provide a removable pole cap with stainless steel attachment screws for the top of each pole. Ensure that the cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the pole with a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cap to hang clear of the pole-top opening when the cap is removed.

After fabrication, have steel poles, required mast arms, and all parts used in the assembly hot-dip galvanized per section 1076. Design structural assemblies with weep holes large enough and properly located to drain molten zinc during galvanization process. The Design-Build Team shall provide hot-dip galvanizing on structures that meets or exceeds ASTM Standard A-123. The Design-Build Team shall provide galvanizing on hardware that meets or exceeds ASTM Standard A-153. Ensure that threaded material is brushed and retapped as necessary after galvanizing. Perform repair of damaged galvanizing that complies with the following:

Repair of Galvanizing.....Article 1076-7

Standard Drawings for Metal Poles are available that supplement these project special provisions. These drawings are located on the Department's website:

https://connect.ncdot.gov/resources/safety/Pages/ITS-and-Signals.aspx

Comply with article 1098-1B "General Requirements" of the 2018 *Standard Specifications for Roads and Structures* for submittal requirements. The Design-Build Team shall provide shop drawings for approval. The Design-Build Team shall provide the copies of detailed shop drawings for each type of structure as summarized below. Ensure that shop drawings include material specifications for each component and identify welds by type and size on the drawing details, not in table format. Do not release structures for fabrication until shop drawings have been approved by NCDOT. The Design-Build Team shall provide an itemized bill of materials for all structural components and associated connecting hardware on the drawings.

Comply with article 1098-1A "General Requirements" of the 2018 *Standard Specifications for Roads and Structures* for Qualified Products List (QPL) submittals. All shop drawings

Final surface shall be free of blemishes, discolorations, surface voids, and other irregularities. All patterns shall be continuous without visual disruption.

Reinforced concrete shall be finished in accordance with the 2018 *Standard Specifications for Roads and Structures*, except that curing of concrete shall be done to accommodate the application of coloring and surface finish treatment.

Grout Pattern Joints – Grout pattern joints shall be constructed to simulate the appearance of mortared joints produced in laid up masonry work. Grout pattern joints shall be produced in accordance with the form liner / concrete color system manufacturer.

Color / Stain Application – Finished concrete and patches shall stand in place 30 days after form liners are removed prior to application of coloring / staining agent. Maintain the concrete temperature between 40° F and 85° F during color / stain application and for 48 hours after color / stain application. Consult the manufacturer's recommendations for preparation, application, curing and storage of coloring agents / stains. The Design-Build Team shall provide a Color Application Artist who is trained in the special techniques to achieve realistic surface appearances, if requested by the Engineer. Treated surfaces located adjacent to exposed soil or pavement shall be temporarily covered to prevent dirt or soil splatter from rain.

Anti-Graffiti Coating Application - The Design-build Team shall apply anti-graffiti coating after full cure of the color coating. The anti-graffiti coating shall be applied by brush, roller or airless spray when the ambient temperature is between 45° F and 90° F, and the surface temperature is between 50° F and 100° F. Ensure the surface is clean and dry before applying the anti-graffiti coating. The minimum dry film thickness of the anti-graffiti coating shall be 2.0 mils.

Following the completion of all work, repairs of any damage made by other construction operations shall be made to the form lined and colored surfaces, as directed by the Engineer.

Experience and Qualifications – The Design-Build Team shall have a minimum of three consecutive years' experience in architectural concrete surface treatment construction on similar types of projects. The Design-Build Team shall furnish to the Engineer five references who were responsible for supervision of similar projects and will testify to the successful completion of these projects. Include name, address, telephone number, and specific type of application.

**** NOTE **** Deleted *Repair of Bridge Decks and Approach Pavement with Latex Modified Concrete* Project Special Provision

OVERLAY SURFACE PREPARATION

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 shall also be 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 developed by the Design-Build Team.

Hydro-demolition shall consist of the removal of the deck surface by means of high-pressure water blasting which shall 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.

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 depth shown on the plans developed by the Design-Build Team.
- 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 the scarifying or chipping operation, and for removing rehydrated dust left from scarification.
- Power driven hand tools for removal of unsound concrete shall be required that meet the following requirements:
    - Pneumatic hammers weighing a nominal 35 lb or less.
    - Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.
- Hand tools such as hammers and chisels for removal of final particles of unsound concrete.
- Self-propelled vacuum capable of picking up water, dust, and other loose material from prepared deck surface.
- Vibratory screed for overlays, except as noted herein.

The hydro-demolition machine shall be self-propelled and capable of producing a water-jet through an orifice at a pressure of at least 17,000 psi. The machine shall move the jet transversely across the area and forward and backward so that the entire deck is covered with the water-jet and operated at a pressure sufficient to remove the unsound concrete.

The machine shall have sufficient means to control and vary the following functions:

(1) Water pressure.
(2) Angle and distance of the orifice in relation to the surface to be blasted.
(3) Limits of transverse and longitudinal movement of the orifice.
(4) Speed of the orifice in the transverse and longitudinal direction.

High pressure pump(s) shall be equipped with over-pressurization relief valves and rupture disc systems. All high pressure components shall be rated at full working pressure of the hydro-demolition system. The complete hydro-demolition system must be capable of depressurization from a single point.

The equipment must operate at a noise level less than 90 decibels at a distance of 50 feet.

MANAGEMENT AND DISPOSAL OF CONCRETE GRINDING RESIDUALS

The Design-Build Team shall collect and properly dispose of water, Hydro-demolition Operation Slurry (HOS), Diamond Grinding Slurry (DGS), and solids from bridge deck preparation, otherwise referred to as Concrete Grinding Residuals (CGR). Prior to beginning work, submit for approval by the Engineer an HOS / DGS Management Plan. Prepare the plan in accordance with the NCDOT Guidelines on the Management and Disposal of CGR available at:

https://connect.ncdot.gov/resources/Environmental/Environmental Permits and Guidelines/Forms/AllItems.aspx

The Design-Build Team shall comply with applicable regulations concerning such water disposal.

The Design-Build Team shall submit a paper copy of all completed records pertaining to disposal of CGR.

OSP PLAN SUBMITTAL

Prior to beginning surface preparation activities, the Design-Build Team shall submit for review and approval the Overlay Surface Preparation (OSP) Plan to the Engineer. The OSP Plan shall detail the type of equipment that is intended to be used and the means by which the Design-Build Team will achieve the following requirements:

- Estimate depth of reinforcing steel.
- Scarification of deck to depth required.
- Measure depth of scarification to show completed within limits.
- Hydro-demolition of deck with appropriate profile and to depth required.
- Measure depth of hydro-demolition to show completed within limits.

SURFACE PREPARATION

Remove all existing asphalt overlays and all loose, disintegrated, unsound, or contaminated concrete to the limits shown on the plans developed by the Design-Build Team with the following requirements:

A. Sealing of Bridge Deck: Seal all expansion joints subject to run-off water from the hydro-demolition process with material approved by the Engineer, prior to beginning any demolition. The expansion joints shall remain sealed until water from the hydro-demolition process no longer passes over them. Take all steps necessary to eliminate the flow of water through the expansion joints, and any other locations water could leak from the deck.

All deck drains in the immediate work area and other sections of the bridge affected by the work being performed shall be sealed prior to beginning scarification. Drains shall remain sealed until

it has been determined that materials from the hydro-demolition and concrete overlay operations cannot be discharged through them any longer.

B. Scarifying Bridge Deck: Removal of any asphalt wearing surface from the bridge deck and scarification of the concrete deck to remove the entire concrete surface of the deck to a uniform depth within ½" of the overlay thickness shown on the plans developed by the Design-Build Team, but not less than ½" inch above the top mat of reinforcing steel.

It shall be the Design-Build Team's responsibility to determine amount of cover for the reinforcing steel. Use a pachometer or other approved device, as directed by Engineer, prior to scarification. Readings shall be read and recorded in the presence of the Engineer. Readings shall be recorded for each span at 1/5 points longitudinally and 1/3 points transversely.

Calibrate scarifying equipment in order to avoid damaging the reinforcing steel in the bridge floor or the approach slab. If reinforcing bars or bridge drainage devices are pulled up or snagged during scarification operations, then cease work and consult with the Engineer to determine any necessary adjustments to the roto-milling operation.

Remove and dispose of all concrete and asphalt, and thoroughly clean the scarified surface. In areas where reinforcing steel is located in the depth to be scarified, use another method with the Engineer's approval.

C. Calibration of Hydro-Demolition Equipment: Two trial areas shall be designated by the Engineer to demonstrate that the equipment, personnel, and methods of operation are capable of producing results to the satisfaction of the Engineer. The first trial area shall consist of approximately 50 square feet of sound concrete, as determined by the Engineer. The equipment shall be calibrated to remove the sound concrete from the scarified surface to the depth required to achieve the overlay thickness as shown on the plans developed by the Design-Build Team. After completion of this test area, the equipment shall be moved to the second area consisting of deteriorated or defective concrete, to determine whether this unsound concrete will be completely removed with the previous calibration and to establish a baseline for requiring the Design-Build Team to place under-deck containment in areas subject to full depth removal, before beginning the hydro-demolition process in a span. Should it be determined that not all defective concrete has been removed, the hydro-demolition system shall be recalibrated to remove an additional 1/4 inch of sound concrete, then re-test on deteriorated concrete.

If additional defective concrete is found, the depth of cut will increase in 1/4 inch increments until only sound concrete is found remaining.

When satisfactory results are obtained, the machine parameters shall be recorded and then used for production removal. The Design-Build Team shall make adjustments to the operating parameters, as required, to perform concrete removal as indicated on the plans developed by the Design-Build Team and to adjust to the variance in the compressive strength of the concrete.

Hand held water blasting equipment, pneumatic hammers, and hand tools may be substituted for the hydro-demolition unit in inaccessible or inconvenient areas.

The Engineer will re-inspect after each removal and require additional removals until compliance with the plans developed by the Design-Build Team and specifications are met.

Regardless of the method of removal, the removal operation shall be stopped if it is determined that sound concrete is being removed to a depth greater than required by the plans developed by the Design-Build Team including any 1/4 inch increments added per the above calibration process.

Appropriate recalibration, or change in equipment and methods shall be performed prior to resuming the removal operation.

D. Hydro-demolition (Overlay Depth): Remove by hydro-demolition or chipping with hand tools all loose, unsound and contaminated deck concrete and, if necessary, sound concrete in order to allow for the placement of an overlay with the minimum depth shown on the plans developed by the Design-Build Team. Reinforcing steel that is exposed and loose shall be tied to the crossing bar(s) as needed to secure the steel. Reinforcing steel shall be considered loose if when struck, movement or vibration can be observed. Concrete below crossing bar shall be removed as necessary to tie reinforcing steel to crossing bar with a wire tie. Dispose of the unsound concrete, clean, repair or replace damaged reinforcing steel and thoroughly clean the newly exposed surface.

Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

E. Preparation of Reinforcing Steel: Remove concrete without cutting or damaging existing steel unless otherwise noted in the plans developed by the Design-Build Team. Damaged reinforcing steel, such as bars with nicks deeper than 20% of the bar diameter, shall be repaired or replaced. Reinforcing steel that has a cross section reduced to 75% or less shall be replaced with new reinforcing steel of similar cross section area. Replacement bars shall be Grade 60 and meet the material requirements of Section 1070 of the 2018 *Standard Specifications for Roads and Structures*. Replacement bars shall be spliced to existing bars using either minimum 30 bar diameter lap splices to existing steel with 100% cross sectional area or approved mechanical connectors.

Support and protect the exposed reinforcing steel left unsupported by the hydro-demolition process against displacement and damage from loads such as those caused by removal equipment and delivery buggies. All reinforcing steel damaged or dislodged by these operations shall be replaced with bars of the same size at the Design-Build Team's expense.

Reinforcing steel exposed and cleaned by hydro-demolition will not require additional cleaning if encased in concrete within seven (7) days. Rebar exposed for more than seven (7) days shall be cleaned by high velocity water jets, with a minimum pressure 4,000 psi, prior to placement of the new concrete.

When large areas of the deck on composite bridges are removed resulting in the debonding of the primary reinforcing bars, the removal shall be performed in stages to comply with the construction sequence shown on the plans or as directed by the Engineer.

F. Surface Cleaning: Any areas modified by chipping or hammering shall be cleaned with high pressure water at 7,500 psi minimum to remove any bond-breaking residue, loose concrete, and any deleterious material. This material shall be collected and disposed of by the Design-Build Team.

Any areas of the prepared surface contaminated by oil or other materials detrimental to good bond as a result of the Design-Build Team's operations shall be cleaned at the Design-Build Team's expense.

Removal of concrete debris shall be accomplished either by hand or mechanical means capable of removing wet debris and water in the same pass and after the hydro-demolition process to prevent debris from setting or adhering to the surface of the sound concrete. All concrete debris shall become the property of the Design-Build Team and shall be legally disposed of at the Design-Build Team's expense. The Design-Build Team shall be responsible for disposing of all debris generated by the scarification and hydro-demolition operations**.**

Any debris that is allowed to set or adhere to the surface of the sound concrete shall be carefully removed at no additional cost. Exercise care to avoid any damage to the remaining sound concrete or exposed reinforcement

G. Safety: Provide a containment system for handling expected and unexpected blow thru of the deck. The containment system shall retain runoff water and debris and protect the area under the bridge deck. The Design-Build Team shall be responsible for any injury or damage caused by these operations. The containment system shall remain in place until the concrete has been cast and reach minimum strength.

Provide adequate lighting when performing hydro-demolition activities at night. Submit a lighting plan to the Engineer for approval prior to beginning work.

LATEX MODIFIED CONCRETE

Description

This provision addresses the requirements for furnishing and placing an overlay of latex modified concrete over existing concrete or repair concrete on bridge decks and approach pavement. Perform this work in accordance with this Special Provision and the applicable parts of the 2018 *Standard Specifications for Roads and Structures*.

Materials

For materials, equipment, and proportioning and mixing of modified compositions, see Section 1000-7 of the 2018 *Standard Specifications for Roads and Structures*.

Provide aggregates for use in the LMC that are free from ice, frost, frozen particles or other contaminants when introduced into the mixer.

The 2018 *Standard Specifications for Roads and Structures* shall be revised as follows:

1000-7(A) – Add the following paragraph to the end of the section:

Submit the LMC mix design, including laboratory compressive strength data for a minimum of six 4-inch by 8-inch cylinders at the appropriate age (7 days for normal setting concrete; 3 hours for very early strength concrete) to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T 22, T 119 and T 152.

Preparation of Surface

Completely clean all surfaces within 48 hours prior to placing the overlay unless otherwise approved by the Engineer.

Thoroughly soak the clean surface and maintain a wet surface for at least 12 hours immediately prior to placing the latex modified concrete. After soaking the surface for at least 12 hours, cover it with a layer of white opaque polyethylene film that is at least 4 mils thick. Immediately prior to placing the latex modified concrete, remove standing water from the surface using an approved vacuum system.

Placing and Finishing

Prior to placing modified material, install a bulkhead of easily compressible material at expansion joints to the required grade and profile. Placing material across expansion joints and sawing it later is not permitted.

Construction joints other than those shown on the plans developed by the Design-Build Team will not be permitted unless approved by the Engineer. At construction joints, remove 4" of previously placed LMC prior to placing the adjacent latex concrete. Also, for staged construction, 4" of previously poured LMC shall be scarified, hydro-demolitioned and recast with the next stage.

Place and fasten screed rails in position to ensure finishing the new surface to the required profile. Do not treat screed rails with parting compound to facilitate their removal. Prior to placing the overlay attach a filler block to the bottom of the screed and pass it over the area to be repaired to check the thickness. The filler block thickness shall be equal to the design overlay thickness as shown in the plans developed by the Design-Build Team. Remove all concrete that the block does not clear. Individual aggregates left after hydro-demolition may be allowed to project above the base of the filler block. Remove aggregate that does not provide a 1" clear cover to the top of the overlay.

Brush a latex cement mixture onto all vertical surfaces and do not let the brushed material dry before it is covered with the additional material required for the final grade. Remove all loose aggregate from the latex cement brushed surface prior to latex concrete placement (NOTE: For surfaces not prepared with hydro-demolition brush the lean latex mixture over horizontal and vertical surfaces).

Do not place the latex modified concrete until the burlap is saturated and approved by the Engineer. Drain excess water from the wet burlap before placement.

Place the latex modified concrete in one operation. Provide a minimum overlay thickness as shown in the plans developed by the Design-Build Team.

Once latex modified concrete placement begins, a single layer of wet burlap shall be placed 5 feet behind the screed's burlap drag. In the event of a delay of 10 minutes or more, temporarily cover all exposed latex concrete with wet burlap and white opaque polyethylene.

When a tight, uniform surface is achieved and before the concrete becomes non-plastic, further finish the surface of the floor by burlap dragging or another acceptable method that produces an acceptable uniform surface texture.

Within 1 hour of covering with wet burlap, place a layer of 4 mil white opaque polyethylene film on the wet burlap and cure the surface for 48 hours. Then remove the curing material for an additional 48 hours air cure.

Screed rails or construction dams shall be separated from the newly placed concrete by passing a pointing trowel along the face of the formwork and the newly placed concrete. Carefully make this trowel cut for the entire depth and length of rails or dams after the latex modified concrete has sufficiently stiffened and cannot flow back.

As soon as practical, after the concrete has hardened sufficiently, test the finished surface with an approved rolling straightedge that is designed, constructed, and adjusted so that it will accurately indicate or mark all deck areas which deviate from a plane surface by more than 1/8 inch in 10 feet.

Remove all high areas in the hardened surface in excess of 1/8 inch in 10 feet with an approved grinding or cutting machine. Additionally, the final latex modified concrete deck surface shall not deviate from the line and elevation indicated on the plans developed by the Design-Build Team by more than 0.3 inches over any 50-foot length. Where variations are such that the corrections extend below the limits of the top layer of grout, seal the corrected surface with an approved sealing agent as required by the Engineer. If approved by the Engineer, correct low areas in an acceptable manner.

Unless otherwise indicated on the plans developed by the Design-Build Team, groove the bridge floor in accordance with Article 420-14(B) of the 2018 *Standard Specifications for Roads and Structures*.

Limitations of Operations

The mixer is not permitted on the bridge deck unless otherwise approved.

No traffic is permitted on the finished latex modified concrete surface until the total specified curing time is completed and until the concrete reaches the minimum specified compressive strength.

Do not place latex modified concrete if the temperature of the concrete surface on which the overlay is to be placed is below 50° F or above 85° F. Measure the surface temperature by placing a thermometer under the insulation against the surface.

Prior to placing latex modified concrete, the Engineer determines the air temperature and wind speed. Do not place latex modified concrete if the ambient air temperature is below 50° F or above 85° F, or if the wind velocity is greater 10 mph.

Do not place latex modified concrete when the temperature of the latex modified concrete is below 45° F or above 85° F.

Do not place latex modified concrete if the rate of evaporation of surface moisture from the latex modified concrete exceeds 0.05 pounds per square foot per hour during placement. The evaporation rate is calculated using the following formula:

$$E = (T_c^{2.5} - r*T_a^{2.5})*(1+0.4V)*(10^{-6})$$

where,

E = Evaporation Rate,

T_c = Concrete Temp (^{0}F),

r = Relative Humidity (%/100)

T_a = Air Temp (^{0}F),

V=Wind Velocity (mph)

Do not place latex modified concrete if the National Weather Service predicts the air temperature at the site to be below 35° F during the next 72 hours. If the predicted air temperature is above 35° F but below 50° F, then use insulation to protect the latex modified concrete for a period of at least 48 hours.

Use insulation that meets the requirements of Subarticle 420-7(C) and, if required, place it on the latex modified concrete as soon as initial set permits.

When using insulation to protect latex modified concrete during the wet curing period, do not remove the insulation until the ambient air temperature is at least 50° F and rising. Leave the latex modified concrete uncovered for the 48 hour air curing period.

Stop all placement operations during periods of precipitation. Take adequate precautions to protect freshly placed latex modified concrete from sudden or unexpected precipitation. Keep an adequate quantity of protective coverings at the worksite to protect the freshly placed pavement from precipitation.

If working at night, submit a lighting plan to the Engineer for approval prior to beginning work.

TYPICAL MEDIAN ACCESS AREAS

(5/3/18)

Description

Perform the work covered by this section including, but not limited to, constructing, maintaining, and removing Typical Median Access Areas for construction vehicle ingress to and egress from the median to / from active travel lanes on controlled access facilities.

Typical Median Access Areas are not required when construction vehicle ingress and egress is conducted using lane closures as shown on Roadway Standard Drawing No. 1101.05, Sheet 2 of 2.

Materials

Refer to Divisions 6, 10, 11, 12, and 17 in the 2018 *Standard Specifications for Roads and Structures.*

Provide temporary traffic control devices listed on the NCDOT Approved Products List (APL).

Provide Work Zone Performance Pavement Markings (Reference the Transportation Management Scope of Work found elsewhere in this RFP)

Provide High Visibility Devices (Reference the *High Visibility Devices* Project Special Provision found elsewhere in this RFP)

Flashing Beacon and Detection System

(A) General

Provide flashing beacon and detection system components listed on the NCDOT ITS and Signals Qualified Products List (QPL).

Provide a trailer mounted flashing beacon and warning sign assembly that meets or exceeds the physical and operational requirements of the MUTCD, or other mounting method

Guidelines, which by reference are incorporated and made a part of this contract. All submittals shall be made simultaneously to the Design-Build Unit and the Resident Engineer. The Department will not accept subsequent submittals until prior submittal reviews have been completed for that item. The Design-Build Team shall inform the Design-Build Unit in writing of any proposed changes to the NCDOT preliminary designs, Technical Proposal and / or previously reviewed submittals and obtain approval prior to incorporation. The Design-Build Team shall prioritize submittals in the event that multiple submittals are made based on the current schedule. All submittals shall include pertinent Special Provisions. No work shall be performed prior to Department review and acceptance of the design submittals.

OVERVIEW

The Design-Build Project I-5507 provides an eastbound and westbound express lane within the I-485 median from I-77 to US 74 (Independence Boulevard), a distance of approximately 16.6 miles. The project will also provide a new I-485 / Weddington Road interchange, and modifications to the I-485 / East Johns Street - Old Monroe Road interchange. The proposed improvements will include the design and construction of All-Electronic Toll (AET) toll zone facility infrastructure along the express lanes and Direct Connectors at Westinghouse Boulevard and Johnston Road. The North Carolina Turnpike Authority will procure a Toll System Integrator (TSI) to design, install, test, and operate all roadside toll AET equipment and technology components (antennas, cameras, cables, etc.).

Project services shall include but are not limited to:

- **Design Services** – completion of construction plans
- **Construction Services** – necessary to build and ensure workmanship of the designed facility
- **Intelligent Transportation System** – design and construction of ITS components, including CCTV cameras, dynamic message signs (DMS), fiber-optic communications cable and conduit, and ITS integration.
- **All-Electronic Toll (AET) Toll Zone Facilities Infrastructure** - design and construction of AET toll site infrastructure to support the toll collection system (toll technology components to be installed by others)
- **Permit Preparation / Application –** development of all documents for required permits
- **Right of Way** – acquisition of right of way necessary to construct project
- **As Constructed Drawings**
- **As-Built Plans**

The following project planning documents have been completed or are in process:

- The I-5507 Categorical Exclusion (CE) is anticipated to be approved in Summer 2018.
- The R-0211EC Environmental Assessment (EA) was approved in May 2007 and the R-0211EC Finding of No Significant Impact (FONSI) was approved in February 27, 2009.
- The U-4714 Environmental Assessment (EA) was approved in July 13, 2016 and the U-4714 Finding of No Significant Impact (FONSI) was approved in June 2018.

NCDOT is currently developing the I-5507 Categorical Exclusion (CE) which is anticipated to be completed in the Summer 2018. It is important for Proposers to note, at this time, the proposed project remains in the environmental process and that final environmental approvals have not been secured. Additional alternatives, including a no-build alternative, are always considered in the environmental process, and it is possible that the project scope may need to be modified to comply with the environmental process, or that a no-build alternative may be adopted. Nothing contained in the RFP is intended to modify, limit, or otherwise constrain the environmental process or commit NCDOT to undertake any action with respect to the project.

Construction Engineering Inspection will be provided by the NCDOT Division personnel or will be performed under a separate contract.

GENERAL SCOPE

The scope of work for this project includes design, construction and management of the project. The design work will include all aspects to construct approximately 16.6 miles of an eastbound and westbound express lane within the I-485 median from I-77 to US 74 (Independence Boulevard). The project will also provide 1) a Direct Connector at Westinghouse Boulevard and Johnston Road, 2) an I-485 eastbound and westbound General Purpose Lane from Rea Road to Providence Road, 3) a new I-485 / Weddington Road interchange, 4) modifications to the I-485 / East Johns Street - Old Monroe Road interchange, and 5) an eastbound and westbound auxiliary lane between the new Weddington Road interchange and the modified East Johns Street - Old Monroe Road interchange. Unless allowed otherwise elsewhere in this RFP, the designs shall meet all appropriate latest versions of AASHTO *Policy on Geometric Design of Highways and Streets*, AASHTO *LRFD Bridge Design Specifications*, *Manual of Uniform Traffic Control Devices* and all NCDOT design policies that are current as of the Technical and Price Proposal submission date or the Best and Final Offer submission date.

Unless noted otherwise elsewhere in this RFP, all documents referenced herein shall be the edition / version, including all interim revisions, effective on the Design-Build submittal date.

Construction shall include, but not be limited to, all necessary clearing, grading, roadway, drainage, structures, utility coordination and relocation, and erosion and sediment control work items for the proposed four-lane facility and installation of the control of access fence. Construction engineering and management shall be the responsibility of the Design-Build Team. Construction shall comply with 2018 NCDOT *Standard Specifications for Roads and Structures* and any special provisions.

Areas of work required for this project shall include, but are not limited to the following items:

Permit Application
Hydraulic Design
Roadway Design
Structure Design
Geotechnical Engineering
GeoEnvironmental Remediation
Construction

Drafting the contract
Defining the contract scope
Design-Build Team selection
Negotiation of the contract cost (including calculating manhours or fees); and
Contract administration

An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation.

The Design-Build Team and their subconsultants / subcontractors shall restrict all personnel embedded within the Department, including but not limited to Design Units and Divisions, from working on any Design-Build project, including but not limited to during the procurement phase. The Design-Build Team shall provide a list of all embedded personnel to the Department, and if necessary, provide the appropriate Confidentiality Agreement for each embedded employee, as well as their employer. The Design-Build Team shall submit the aforementioned list to Mr. Ronald E. Davenport, Jr., PE, State Contract Officer, within ten business days of the issuance of the First Industry Draft RFP and provide updated lists, as appropriate, throughout the project duration.

Failure to comply with the terms stated above in this section may be grounds for termination of this contract and / or not being considered for selection of work on future contracts for a period of one year.

SUBMITTAL OF TECHNICAL AND PRICE PROPOSALS

Technical and / or Price Proposals that do not adhere to all the requirements noted below may be considered non-responsive and may result in the Department not considering the Design-Build Team for award of the contract or reading their Price Proposal publicly.

GENERAL

Technical and Price Proposals will be accepted until **4:00 p.m. Local Time on Thursday, August 23, 2018**, at the office of the State Contract Officer:

Mr. Ronald E. Davenport, Jr., P.E.
Contract Standards and Development
1020 Birch Ridge Drive
Century Center Complex - Building B
Raleigh, NC 27610

No Proposals will be accepted after the time specified.

Proposals shall be submitted in two separate, sealed parcels containing the Technical Proposal in one and the Price Proposal in the other parcel.

ROADWAY SCOPE OF WORK (8-1-18)

It should be noted that TIP Project, I-5507, as referenced throughout this Request for Proposals (RFP), represents TIP Project I-5507, R-0211EC and U-4714AB. All references to TIP Projects I-5507, R-0211EC and U-4714 in material provided by the Department shall apply to this project.

Throughout this RFP, references to the Design Map shall denote the I-5507 / R-0211EC / U-4714AB Design Public Meeting Map dated July 2018.

Project Details

- The Design-Build Team shall design and construct an eastbound and westbound express lane within the I-485 median from I-77 to US 74 (Independence Boulevard). Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct the -L- Line providing the same or better access, widening, improvements and traffic measures of effectiveness, in the Department's sole discretion, included in the Design Map provided by the Department. The limits of -L- Line construction shall be of sufficient length to tie to existing based upon the current NCDOT guidelines and standards. Unless noted otherwise elsewhere in this RFP, the -L- Line shall be designed and constructed to meet a 75 mph design speed for a rolling urban freeway designed to interstate standards. The Design-Build Team shall provide all other design criteria in the Technical Proposal.

- Within the section of I-485 constructed under TIP Project R-4902, the Design-Build Team will not be required to modify the -L- Line solely to adhere to the aforementioned 75 mph design speed. However, the Design-Build Team shall design and construct new and modified ramps / loops within the section of I-485 constructed under TIP Project R-4902 that adhere to a 75 mph design speed.

- Excluding the section of I-485 constructed under TIP Project R-4902, the Design-Build Team shall design and construct minimum 12-foot outside shoulders, ten-foot of which shall be full depth paved shoulders along the -L- Line including all acceleration, deceleration and auxiliary lanes, and ramps / loops / Direct Connections to the back of the gore (12-foot width Within the section of I-485 constructed under TIP Project R-4902, the Design-Build Team shall not reduce the existing -L- Line outside shoulder width, including but not limited to the paved shoulder width. From NC 16 (Providence Road) to the end of the project, the Design-Build Team will not be required to remove the existing shoulder section beyond the minimum shoulder widths noted above. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

- The Design-Build Team shall design and construct the I-485 / Rea Road Interchange Loop A and Loop C acceleration lengths to meet a 75 mph design speed.

- The Design-Build Team shall design and construct the Johnston Road Loop C acceleration length to meet a 75 mph design speed.

- From the beginning of the project to Rea Road, the Design-Build Team shall design and construct a full depth paved median along the -L- Line at the minimum widths shown on the Design Map. From Rea Road to the end of the project, the Design-Build Team shall design

- The Design-Build Team shall design and construct Direct Connectors in accordance with the requirements noted below:

  - At East Westinghouse Boulevard, a two-lane / two-way Direct Connector shall be designed and constructed with minimum 16-foot lanes and 14-foot outside shoulders, 12-foot of which shall be full depth paved shoulders. The lanes shall be separated by a minimum ten-foot full depth paved shoulder and appropriate double-face concrete barrier of sufficient height to provide a glare screen. The bridge section shall be designed and constructed with a 12-foot bridge rail offset on both sides of the bridge.

  - At Johnston Road, the eastbound Direct Connector (-Y2DCC-) shall be designed and constructed with 1) a minimum 16-foot lane, 2) a 14-foot outside shoulders, four-foot of which shall be full depth paved shoulder, and 3) a 12-foot inside shoulder, four-foot of which shall be full depth paved shoulder. The bridge section shall be designed and constructed with a 12-foot bridge rail offset on both sides of the bridge.

  - At Johnston Road, the westbound Direct Connector (-Y2DCD-) shall be designed and constructed with 1) a minimum 16-foot lane, 2) a 14-foot outside shoulder, 12-foot of which shall be full depth paved shoulder, and 3) a 12-foot inside shoulder, four-foot of which shall be full depth paved shoulder. The bridge section shall be designed and constructed with a 12-foot inside bridge rail offset and a four-foot outside bridge rail offset.

  - Excluding the East Westinghouse Boulevard Direct Connector, the minimum design speed for all Direct Connectors shall adhere to the middle range design speed noted in Table 10-1, *Guide Values for Ramp Design Speed as Related to Highway Design Speed* shown in AASHTO's *A Policy on Geometric Design of Highways and Streets* (2011). The East Westinghouse Boulevard Direct Connector shall be designed and constructed to meet a minimum 45-mph design speed for a rolling urban freeway designed to interstate standards.

  - The 0.06 Maximum Superelevation Table in AASHTO's *A Policy on Geometric Design of Highways and Streets* (2011) shall be used for all Direct Connectors.

- The Design-Build Team shall develop the I-485 westbound express lane in advance of the Johnston Road exit by converting the second northbound lane from the inside into an option lane.

- In lieu of the five Johnston Road northbound lanes between Brixham Hill Avenue and the exit ramp to I-485 westbound shown on the Design Map, the Design-Build Team shall match the existing four northbound lanes. In lieu of the three Johnston Road northbound lanes north of the exit ramp to I-485 westbound shown on the Design Map, the Design-Build Team shall match the existing two northbound lanes.

- The Design-Build Team shall design and construct loops that adhere to Table 3-29, *Design Widths of Pavements for Turning Roadways,* shown in AASHTO's *A Policy on Geometric Design of Highways and Streets* - Case II / Condition C for one-lane loops; Case III / Condition C for two-lane loops. All loops shall have 12-foot outside shoulders, four-foot of which shall be full depth paved shoulders. All loops shall have 2'-6" curb and gutter along the inside edge of pavement, with a 14-foot berm. The minimum loop design shall be 30-mph with a minimum 230-foot radius.

- Excluding transitions required to tie to existing and steeper cross slopes (0.025 maximum) required to eliminate hydroplaning, the I-485 normal crown cross slope shall be 0.02. Excluding the section of I-485 constructed under TIP Project R-4902, the I-485 crown point

month period, which shall begin on the date the Department accepts the DNR developed by the Design-Build Team. The Design-Build shall not construct any sound barrier walls until the balloting process has been completed by the Department.

In accordance with Subarticle 104-8(A) of the 2018 *Standard Specifications for Roads and Structures*, if the accepted DNR and balloting process require more than 940,000 square feet (sf) of sound barrier wall (excluding any required square footage resulting from the existing sound barrier wall evaluations noted above), the amount over 940,000 sf will be paid for as extra work at the unit price of $40.00 per square foot. All work tasks required to design and construct the additional sound barrier walls, including but not limited to traffic control, pavement, drainage, concrete barrier, geotechnical investigation and earthwork shall be considered inclusive in the aforementioned unit price. The amount of extra work shall be determined by deducting 1) all additional sound barrier wall square footage required as a result of horizontal and / or vertical alignment changes to the Preliminary Roadway Plans provided by the Department, 2) all sound barrier wall square footage required to raise an existing sound barrier wall, and 3) all sound barrier wall square footage required to replace an existing sound barrier wall from the accepted DNR and balloting process sound barrier wall total square footage.

The Design-Build Team shall only credit the Department the construction cost of all sound barrier walls eliminated by the balloting process. The construction costs of all sound barrier walls eliminated solely by the balloting process shall be deducted from the lump sum amount bid for the entire project.

At all sound barrier walls, the Design-Build Team shall provide 1) a minimum four-foot berm between the wall and fill / cut slopes steeper than 6:1 and 2) a parallel concrete ditch at locations where the final grade slopes toward the wall.

To satisfy the FHWA's Abatement Measure Reporting requirements, the Design-Build Team shall prepare and concurrently submit a summary of the sound barrier walls to be constructed on the project with the final sound barrier wall working drawings submittal. The Design-Build Team shall submit the sound barrier wall summary directly to the NCDOT Traffic Noise and Air Quality Group and include the information noted in Title 23 Code of Federal Regulations Part 772 Section 772.13(f), including but not limited to overall cost and unit cost per square foot.

General

- Unless allowed otherwise elsewhere in this RFP, the design shall be in accordance with the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, and 2013 *Errata*, 2002 NCDOT *Roadway Design Manual*, including all revisions effective on the Technical Proposal submittal date, 2018 NCDOT *Roadway Standard Drawings*, or as superseded by detail sheets located at **https://connect.ncdot.gov/resources/Specifications/Pages/2018-Roadway-Standard-Drawings.aspx**, *Roadway Design Policy and Procedure Manual, Roadway Design Guidelines for Design-Build Projects*, 2018 NCDOT *Standard Specifications for Roads and Structures* and the 2011 AASHTO *Roadside Design Guide*, 4th Edition and 2015 *Errata.*
- If the NCDOT *Roadway Design Manual*, including all revisions, the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets* and 2013 *Errata*, the 2018 NCDOT *Roadway Standard Drawings* and / or any other guidelines, standards or policies have desirable and / or minimum values, the Design-Build Team shall use the desirable values unless noted otherwise elsewhere in this RFP. Similarly, in case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.
- The Design Build Team shall provide a Drainage Summary Sheet, Earthwork Summary Sheet and Guardrail Summary Sheet (Permanent, Temporary and Future) in the Final and RFC Roadway Plans.

- The NCDOT will provide electronic surveys to the Design-Build Team. Any supplemental surveys, including but not limited to additional topography, existing and proposed roadway, structure sites, underground and overhead utilities, existing and proposed drainage, wetland delineation, right of way, parcel names, and deed research and descriptions shall be the responsibility of the Design-Build Team to acquire and process. The Design-Build Team shall modify / incorporate boundary information used for the determination and valuation of property solely under the direct supervision of a Professional Land Surveyor registered in North Carolina. Known existing utilities have been located and will be included with the survey data. The Design-Build Team shall be responsible for confirming the location of the utilities and the type / size of facilities. All supplemental Subsurface Utility Engineering (SUE) work shall be the responsibility of the Design-Build Team.

- The NCDOT will provide the I-5507 / R-0211EC / U-4714AB Design Public Meeting Map dated July 2018 developed by the Department. The Design-Build Team is cautioned that the preliminary designs shown on this Map are provided solely to assist the Design-Build Team in the development of the project design. The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of the project design, including, but not limited to, the use of the NCDOT's design, the use of portions of the NCDOT's design or modifications to the NCDOT's design.

- The NCDOT will provide the I-5507 / R-0211EC / U-4714AB electronic design files.

- The NCDOT will provide final pavement designs for I-5507 / R-0211EC / U-4714AB. The Design-Build Team shall be responsible for all temporary pavement designs. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

- The NCDOT will provide a Geotechnical Subsurface Investigation for I-5507 / R-0211EC / U-4714AB. The Design-Build Team shall be responsible for any additional geotechnical information, all geotechnical recommendations, as well as supplemental structural and roadway investigations. (Reference the Geotechnical Engineering Scope of Work found elsewhere in this RFP)

The Design-Build Team shall design and construct the Bridge No. 715 replacement structure in accordance with the June 18, 2018 Weddington Road bridge typical section provided by the Department. On both sides of the Bridge No. 715 replacement structure, the bridge rails shall adhere to Standard Drawings BMR34.

Use of Florida Department of Transportation Prestressed Florida I-Beams (FIB), the Prestressed Concrete Committee for Economic Fabrication (PCEF) prestressed concrete girders, and Modified Bulb Tee girders will be allowed. However, the structural details associated with the aforementioned items, including but not limited to mild reinforcing and reinforcing cover, shall be subject to Department review and acceptance post-award.

Bridge Widening and Rehabilitation

The Design-Build Team shall design and construct all new widened sections of existing bridges to achieve a minimum design service life of 75 years. For clarity, such 75-year design service life will only apply to the widened bridge section(s). For all widened bridge sections, the new bridge girder type shall be consistent with the existing bridge girder type; and the new bridge spans shall match the existing bridge spans.

The Design-Build Team shall submit a Bridge Deck Rehabilitation Evaluation Plan for all bridges to be widened. Prior to the Design-Build Team performing any pavement widening and / or rehabilitation activities, including but not limited to bridge inspections, the Department will review and accept this Plan.

Excluding the sections of bridge deck and approach slabs that were overlaid with latex modified concrete under the R-4902 project, the Design-Build Team shall overlay the existing and widened bridge decks and approach slabs of all bridges that are widened with latex modified concrete. (Reference the *Overlay Surface Preparation* and *Latex Modified Concrete* Project Special Provisions found elsewhere in this RFP). The Design-Build Team shall preform scarification, hydro-demolition and other requirements of the *Overlay Surface Preparation* Project Special Provision on the existing decks and approach slabs on all widened bridges. To allow the Department to complete a drag chain investigation immediately following the scarification / hydro-demolition operation, the Design-Build Team shall provide written notification a minimum of 21 days prior to completing the milling operation. The Design-Build Team shall provide Class II and / or Class III Surface Preparation, for areas which are found to be unsound or delaminated, as determined by the Engineer. In such case, the Class II and Class III repairs will be paid for as extra work in accordance with Subarticle 104-8(A) of the 2018 NCDOT *Standard Specifications for Roads and Structures* at the price of $300 per square yard and $700 per square yard, respectively.

The Design-Build Team may analyze the existing substructure and foundation elements using the design standards and specifications that were current at the time of the original design.

The Design-Build Team shall provide closure pours with cross-joint reinforcement / dowels. Intermediate diaphragms will not be required if three or more girders are added to the widened section. Dowels will be acceptable in the closure bay of standard closure pour widths up to four feet. Closure pours wider than four feet may require alternate details. The Design-Build Team shall provide bent diaphragms in the closure bay; and the plans developed by the Design-Build Team shall reflect that these diaphragms be connected and bolts tensioned prior to the deck pour.

- *Design-Build Submittal Guidelines*

https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

- NCDOT *Standard Specifications for Roads and Structures*

- NCDOT *Roadway Standard Drawings*

In case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.

The Department will provide the I-485 Express Lane Alt. 2C Schematic dated February 13, 2018 and March 28, 2018, which represents the minimum signing requirements. The Design-Build Team shall use the I-485 Express Lane Alt. 2C Schematic, in conjunction with all applicable standards, to develop the Signing Plans. To minimize right of way, utility, drainage and / or jurisdictional impacts, or to install a sign behind existing guardrail, the Design-Build Team will be allowed to shift signs shown on the aforementioned Signing Schematic a maximum of 100 feet. The aforementioned 100-foot maximum sign shift may be increased, at the Department's sole discretion, to improve sight distance. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall replace all existing signs affected by the project, as well as provide all required additional signs not shown on the aforementioned Signing Schematic. In accordance with the roadway design developed by the Design-Build Team, the Design-Build Team shall develop a signing concept that adheres to the aforementioned Signing Schematic requirements and all applicable standards. Any changes from the I-485 Express Lane Alt. 2C Schematic dated February 13, 2018 and March 28, 2018 shall be at the Department's sole discretion.

Signing Requirements for Technical Proposal

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience in the preparation, design, and sealing of Signing Plans for NCDOT on comparable projects. The Technical Proposal shall list projects where the Signing Plans were developed by the PEF, including description and similarity to the subject project.

Signing and Pavement Marking Plans Submittal Requirements

Prior to submitting the 50% Preliminary Signing Plans, the Design-Build Team, the Division Traffic Engineer, the Regional Traffic Engineer, the Signing and Delineation Regional Engineer and the Design-Build Unit shall meet to discuss and review the Design-Build Team's 25% Preliminary Signing Plans.

The Design-Build Team shall provide 25% Pavement Markings Plans that have been reviewed and accepted by the Department and the latest Roadway Plans with the 50% Preliminary Signing Plans submittal.

Drawings. Type D signs shall not exceed eight feet in width and / or 24 square feet. Unless positively protected, all Type D, E and F signs and sign assemblies shall be installed on a maximum of two U-channel posts.

Type B route sign assemblies shall be mounted on steel support(s) with foundation(s) designed with the latest support design software.

The Design-Build Team shall design all ground mounted sign supports on concrete median barriers.

Proposed Overhead Sign Structures

The Design-Build Team shall consider the proposed roadway geometry, number of lanes, and all advisory signing needs when selecting the type of overhead signing for a given location. At a minimum, the Design-Build Team shall provide overhead signing as shown in the I-485 Express Lane Alt. 2C Schematic dated February 13, 2018 and March 28, 2018, at the locations identified in the MUTCD, Section 2E.24 – Signing for Interchange Lane Drops, Section 2A.17 - Overhead Sign Installations, Items A – M, and the following locations, unless allowed otherwise elsewhere in this RFP:

- An option lane at a multi-lane exit or freeway / ramp split (use Arrow Per Lane signs)
- A freeway ends and "All Traffic Exit"
- A freeway lane ends (freeway lane drop)
- Three or more lanes on a freeway ramp
- For the US 521 northbound (Johnston Road) to I-485 westbound movement - One Arrow-per-Lane Guide Sign at the exit directional and one Cantilever Advance Guide Sign (two overhead sign structures)

The wind speed for the overhead sign structure and foundation designs shall be 90 mph.

The Design-Build Team shall design, fabricate and install overhead sign supports and foundations in accordance with Section 906 of the NCDOT *Standard Specifications for Roads and Structures*, the *Foundations and Anchor Rod Assemblies for Metal Poles*, and *Overhead and Dynamic Message Sign Foundations* Project Special Provisions found elsewhere in this RFP

For all overhead sign assemblies mounted on concrete median barrier, the Design-Build Team shall design, fabricate and install median barrier footing and median transitional barrier in accordance with the NCDOT Roadway Standard Drawing No. 854.05.

The vertical clearance beneath all proposed overhead sign assemblies shall be no less than 17 feet and no greater than 18 feet. For all proposed overhead sign assemblies, the Design-Build Team shall submit documentation that verifies the actual vertical clearance at all critical points.

The maximum span length for cantilever overhead sign structures shall be 52 feet.

Lighting and walkways will not be required on any overhead sign assembly.

Overhead signs shall not be attached to existing or proposed bridges.

eight feet apart. The Department shall approve all Tubular Markers prior to installation. For additional guidance on the required separation treatment between express lanes and general purpose lanes, the Design-Build Team shall reference the English Standard Drawing for *Toll Pavement Markings* located on the Signing and Delineation Unit's website.

The Design-Build Team shall tie proposed pavement marking lines to existing pavement marking lines.

The Design-Build Team shall replace any pavement markings that have been damaged by the end of each day's operation.

On the Johnston Road northbound lanes, between Brixham Hill Avenue and the exit ramp to I-485 westbound, the Design-Build Team shall install two sets of individual horizontal signing (in-lane shield markings) for the I-485 westbound general purpose lanes and the I-485 westbound express lane.

the Design-Build Team shall follow the appropriate details in the document titled "Section 404 / NEPA Merger Process Information" which can be found at the website noted below:

https://connect.ncdot.gov/resources/Environmental/Pages/Merger-Process-Guide.aspx

Unless stipulated otherwise in the Technical Proposal, the Department will schedule the interagency hydraulic design review meeting and the interagency permit impacts meeting for April 2019 and July 2019, respectively. The Design Build Team shall clearly identify in their Technical Proposal what months they would like the Department to schedule these meetings. Failure on the part of the Design-Build Team to meet these dates shall place all responsibility for delays resulting from missing these dates solely in the hands of the Design-Build Team.

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall be bound by the terms of all signed planning documents, and approved minutes and commitments of all interagency meetings. The Design-Build Team shall be held accountable for meeting all permit conditions. The Design-Build Team shall be required to staff any personnel necessary to provide permit compliance.

Unless noted otherwise elsewhere in this RFP, the Department will not honor any requests for additional contract time or compensation for any efforts required in order to obtain any permit or permit modification, including but not limited to public involvement, additional design effort, additional construction effort, and / or additional environmental agency coordination and approvals.

Permit Application Process and Timeframe for all Permits except the Nationwide Permit No. 6 for Geotechnical Investigations

It shall be the Design-Build Team's responsibility to acquire information and prepare permit drawings that reflect the impacts and minimization efforts resulting from the aforementioned interagency hydraulic design review meeting and interagency permit impacts meeting, and from the project as designed by the Design-Build Team. Further, it shall be the Design-Build Team's responsibility to provide these permit impact sheets (drawings) depicting the design and construction details to the Department as part of the permit application. The Design-Build Team shall be responsible for developing the permit application for all jurisdictional impacts. The permit application shall include all utility relocations required by the project. At a minimum, the permit application shall consist of the following:

- Cover Letter
- Minutes from the interagency hydraulic design review meeting and interagency permit impacts meeting
- Stormwater Management Plan
- Permit drawings with and without contours and, if necessary, utility drawings with and without contours
- Wetland Permit Impact Summary Sheets

II. Detail Sheets and Notes

A. Provide project specific special notes and details, including but not limited to, skimmer basin, coir fiber wattle with Polyacrylamide (PAM), etc.
B. Provide matting summary sheet(s): matting for erosion control and permanent soil reinforcement mat
C. Provide reforestation sheet(s): regular, wetland, streambank and / or buffer showing appropriate species

III. Title Sheet

A. Show correct notes: NCG-01, HQW, ESA, clearing and grubbing, etc.
B. Show correct standards for project
C. List of standard NCDOT symbology
D. Show name and certification number of Level III certified individual responsible for designing and / or reviewing Erosion and Sedimentation Control Plans
E. Show name of primary NCDOT Roadside Environmental Unit Erosion and Sedimentation Control Plan reviewer

IV. Special Provisions

A. Erosion Control Special Provisions are available at the following website:

https://connect.ncdot.gov/resources/roadside/Pages/Soil-Water.aspx

B. References in Erosion Control Special Provisions from the aforementioned website to Method of Measurement, Basis of Payment, or any other statement regarding direct payment for Erosion & Sediment Control measures shall be disregarded.

C. *Erosion & Sediment Control / Stormwater Certification* Project Special Provision found elsewhere in this RFP.

V. Miscellaneous

A. Plan submittals shall include all pertinent design information required for review, such as design calculations, drainage areas, etc.
B. The NCDOT Roadside Environmental Unit will provide a sample set of Erosion and Sedimentation Control Plans (including any special details or special provisions used by the NCDOT Roadside Environmental Unit) and MicroStation Erosion Control Workspace to the Design-Build Team for reference upon request.
C. Plans shall address any environmental issues raised during the permitting process.
D. The Design-Build Team shall allow sufficient time in the proposed schedule to address any comments to the Erosion and Sedimentation Control Plans as deemed necessary by the NCDOT Roadside Environmental Unit.
E. Temporary access and haul roads, other than public roads, constructed or used in connection with the project shall be considered a part of the project and addressed in the

Erosion and Sedimentation Control Plans. Temporary access and haul roads located within the footprint and / or the right of way / easement corridor of the project shall be part of the highway Erosion and Sedimentation Control Plans. Temporary access and haul roads associated with borrow pits and staging areas shall be included in the Reclamation Plan.

F. At a minimum, the Design-Build Team shall install Floating Turbidity Curtain at ponds, lakes, and other jurisdictional standing water bodies 1) where construction activities create surface fill impacts 2) or where sufficient erosion and sediment control devices cannot be installed to contain sediment and/or turbidity impacts.

G. To contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment, provide Concrete Washout Structures at egress points. Concrete Washout Structures must collect and retain all concrete waste water and solids so that this material does not migrate to surface waters or into the ground water. The Concrete Washout Structures are not intended for concrete waste not associated with washout operations. The Concrete Washout Structures may include devices above or below ground and / or commercially available devices designed specifically to capture concrete waste water. Concrete Washout Structure options may be found in the Special Provision, available at the website noted in Section IV above. For construction details of an above grade and below grade Concrete Washout Structure, reference the website noted below:

https://connect.ncdot.gov/resources/roadside/SoilWaterDocuments/ConcreteWashoutStructure.pdf

H. Borrow or waste areas that are part of the project shall require a separate Reclamation Plan, unless the borrow or waste activity is regulated under the *Mining Act of 1971*, or is a landfill regulated by the NCDEQ - Division of Waste Management (DWM). For newly created borrow pit(s) that require dewatering, Borrow Pit(s) Dewatering Basins shall be required and shall be in accordance with the applicable Special Provision available at the website noted in Section IV above. The Design-Build Team shall submit the location and permit number for waste / borrow sites covered by the aforementioned Mining Act or regulated by the NCDEQ - DWM concurrently to the Design-Build Unit and the Resident Engineer. For Reclamation Procedures, see:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/ContractedReclamationProcedures.pdf

I. Whenever the Engineer determines that significant erosion and sedimentation continues despite the installation of approved protective practices, the Design-Build Team shall be required to, and shall, take additional protective action.

J. An accepted Erosion and Sedimentation Control Plan shall not exempt the Design-Build Team from making every effort to contain sediment onsite.

K. Any Erosion Control Design revision made during the construction of the project shall be submitted to NCDOT Roadside Environmental Unit by the 15th of the month via the Design-Build Unit. At any time requested by the Engineer or the NCDOT Roadside Environmental Unit, the Design-Build Team shall provide an updated version of the

Q. The Design-Build Team's erosion and sedimentation control designer shall submit design calculations, for the Department's review and acceptance, for all modifications to the Erosion and Sedimentation Control Plans that result in dimension modifications and / or relocations, other than minor shifts to accurately place, to the devices noted below:

- Riser Basin
- Skimmer Basin and all devices with Skimmers
- Temporary Rock Sediment Dam Type A
- Temporary Rock Sediment Dam Type B
- Temporary Rock Silt Check Type A
- Culvert Construction Sequences
- Temporary and Permanent Stream Channel Relocations

R. Erosion & Sediment Control / Stormwater Certification shall be required according to the Project Special Provision found elsewhere in this RFP.

S. Prior to installation of any erosion control devices, the Design-Build Team shall verify boundaries of jurisdictional areas in the field and delineate with Safety Fence or flagging. For guidance on Safety Fence and flagging in jurisdictional areas, see:

https://connect.ncdot.gov/resources/roadside/Pages/Field-Operations-Documents.aspx

T. Once RFC Erosion and Sedimentation Control Plans are issued, any major design change or addition, any change that involves calculations, and any addition, deletion, or relocation of a sediment basin shall be submitted to the NCDOT Roadside Environmental Unit, via the Design-Build Unit, for review and acceptance. Minor changes such as moving silt fence, adding or moving temporary ditches (unless adding new runoff flow to a sediment basin), and adding or moving slope drains shall be reviewed by the Engineer in the field.

U. All erosion control measures with stone extending beyond the construction limits shall be considered temporary fill. If impacted wetland areas are permitted as Hand Clearing, then the aforementioned temporary fill shall be permitted as Temporary Fill in Hand Cleared Areas for Erosion Control. (Reference the Environmental Permits Scope of Work found elsewhere in this RFP)

V. Sediment basins that drain directly into jurisdictional water or have a total drainage area of one acre or more shall be designed and constructed with outlet structures that only withdraw water from the surface. For sediment basins that do not drain directly into jurisdictional water or have less than one acre of total drainage area, surface dewatering outlets or stone outlets may be provided.

W. In accordance with the requirements noted herein, the Design-Build Team shall be responsible for erosion control design, plans, plan implementation and maintenance of erosion control measures for all utility installation and relocation work performed by the Design-Build Team. To ensure that the Design-Build Team's erosion control designs, plan implementation and / or maintenance of erosion control measures do not conflict with the erosion control design, plan implementation and / or maintenance of erosion control measures for utility installation and / or relocation work performed by others, the

signal designs and implementation shall include, but not be limited to, new local controller, signal timing, cables, poles, signal span, controllers, cabinets, and / or signal heads.

Throughout the project construction, the Design-Build Team shall maintain full actuation of the traffic signals located within the roadway construction project limits, unless allowed otherwise by the Engineer in writing.

Unless allowed otherwise elsewhere in this RFP, the Design-Build Team shall incorporate all traffic signals on this project into a standalone closed loop signal system. To connect sidewalk networks, the Design-Build Team shall provide crosswalks and pedestrian signal heads for all approaches, as appropriate, based on field conditions.

Unless noted otherwise below, all new final signal installations shall utilize **wood poles** for support. All temporary signal installations, and existing signals with wood poles for support, may utilize wood poles for signal supports. All plans and associated design material and specifications shall be reviewed and accepted by NCDOT prior to installation.

The Design-Build Team shall deliver all existing cabinets and contents, including but not limited to fiber and telephone modems, that are not reinstalled on this project to the Division 10 Traffic Services Office located at 903 Coble Avenue, Albemarle, NC 28001. The Design-Build Team shall dispose of and / or retain ownership of all other traffic signal equipment.

The Design-Build Team shall be responsible for a safe and economical design for the public. The Design-Build Team shall prepare all plans and designs in accordance with the current ITS & Signals Unit design standards, including but not limited to, the version of the following documents effective on the Technical Proposal submittal date:

- NCDOT *Standard Specifications for Roads and Structures*
- NCDOT *Roadway Standard Drawings*
- ITS & Signals Unit Project Special Provisions
- ITS & Signals Unit Design Manual
- *Manual on Uniform Traffic Control Devices (MUTCD)*
- *North Carolina Supplement to the Manual on Uniform Traffic Control Devices (NCMUTCD)*
- *Guidelines for Preparation of Projects ITS & Signal Plans by Private Engineering Firms*
- *Traffic Systems Operations Project Special Provisions - (Special Provisions for the Preparation of Coordinated Traffic Signal System Timing Plans – Version 2011.1)*

Links to additional ITS & Signals Unit design standards and aides are available on the website noted below:

https://connect.ncdot.gov/resources/safety/Pages/ITS-and-Signals.aspx

UTILITIES COORDINATION SCOPE OF WORK (8-1-18)

The Design-Build Team shall obtain the services of a Professional Services Firm (PSF) knowledgeable in the NCDOT Utility Coordination Process involved with utility relocation / installation and highway construction. The Design-Build Team shall be responsible for coordinating all utility relocations, removals, and / or adjustments where the Design-Build Team and utility owner, with concurrence from the Department, determine that such work is essential for highway safety and performance of the required highway construction. Coordination shall be for all utilities whether or not they are specifically identified in this Scope of Work and shall include any necessary utility agreements when applicable. NCDOT will be the approving authority for all utility agreements and utility plans.

During the procurement phase, the Department will allow no direct contact, either by phone, e-mail or in person, between the Design-Build Team and utility owners until after the Utility Question & Answer Meetings between each individual proposer and the affected utility owners. After the aforementioned meetings and during the life of the project, the Design-Build Team will only be allowed direct contact with the utility owners when the aforementioned PSF is present. (Reference the *Individual Meeting with Proposers* Project Special Provision found elsewhere in this RFP)

In accordance with the requirements herein, the Design-Build Team shall relocate / coordinate the relocation of all existing facilities that are 1) within existing or proposed full control of access and only accessible from a freeway through lane and / or a directional ramp, 2) in physical conflict with construction, 3) within the existing or proposed right of way and structurally inadequate, and / or 4) within the existing or proposed right of way and consist of unacceptable material. (Reference the NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way – January 1, 1975, Revised April 1, 1993) Proposed / relocated underground facilities that are located beneath the pavement structure shall only be allowed to cross the roadway as close to perpendicular as possible.

Project Details

The Design-Build Team shall be responsible for verifying the utility locations, type of facilities, and identifying the utility owners in order to coordinate the relocation of any utilities, known and unknown, in conflict with the project. The following utilities are known to be located within the project construction limits:

RIGHT OF WAY SCOPE OF WORK (7-31-18)

**** NOTE ** Prior to negotiating property acquisition with property owners, the Design-Build Team shall meet with the appropriate NCDOT Location and Surveys, Right of Way and Design-Build personnel.**

The Design-Build Team shall employ qualified, competent personnel who are currently **approved by the NCDOT Right of Way Unit,** herein after referred to as the Department, to provide all services necessary to perform all appraisal (except appraisal reviews and updated appraisals required solely for condemned parcels), negotiation and relocation services required for all right of way, control of access and easements, including but not limited to permanent utility easements, necessary for completion of the project in accordance with G.S. 136-28.1 of the General Statutes of North Carolina, as amended, and in accordance with the requirements set forth in the *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way*, the *North Carolina Department of Transportation's Right of Way Manual*, the *North Carolina Department of Transportation's Rules and Regulations for the Use of Right of Way Consultants*, the *Code of Federal Regulations*, and Chapter 133 of the *General Statutes of North Carolina* from Section 133-5 through 133-18, hereby incorporated by reference, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Design-Build Team shall also field stake all right of way, control of access and easements, including but not limited to utility easements, in accordance with the requirements noted above. For a list of firms currently approved, the Design-Build Team should contact Mr. Neal Strickland, in the NCDOT Right of Way Unit, at 919-707-4364. The Design-Build Team shall perform the services as set forth herein and furnish and deliver to the Department reports accompanied by all documents, including but not limited to all revisions and electronic design files, necessary for the settlement of claims and the recordation of deeds, or necessary for condemnation proceedings covering said properties. The Design-Build Team, acting as an agent on behalf of the State of North Carolina, shall provide right of way acquisition services for TIP Project I-5507 / R-0211EC / U-4714AB in Mecklenburg County.

Acquistion services required outside of the project construction limits due solely to a rise in the floodplain water elevation on insurable structures will be considered extra work and paid for in accordance with Article 104-7 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

The Design-Build Team shall carry out the responsibilities as follows:

- With respect to the payments, costs and fees associated with the acquisition of right of way, easements and / or control of access, the Department will be responsible for only direct payments to property owners for negotiated settlements, recording fees, any relocation benefits, and deposits and fees involved in the filing of condemnation claims. The Department will assume responsibility for all costs associated with the litigation of condemned claims, including testimony by the appraiser(s). The Design-Build Team shall be responsible for all other acquisition services related to payments, costs and fees, including but not limited to attorney fees required for all non-condemnation acquisitions.

- A Department representative will be available to provide technical guidance on right of way acquisition procedures and to make timely decisions on approving relocation benefits and