STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

September 14, 2009

Addendum No. 1

Contract No.:	C 202365
TIP No.:	B-5018
County:	Hertford
Project Description:	Replace Bridge #12 and Bridge #25 over the Ahoskie Creek on US 13-NC 42

RE: Addendum No. 1 to Final RFP

October 20, 2009 Letting

To Whom It May Concern:

Reference is made to the Request for Proposal recently furnished to you on the above project. The following revisions have been made to the Request for Proposal:

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

Page Nos. 13 and 14 of the *Disadvantaged Business Enterprise Project Special Provision* have been revised. Please void Page Nos. 13 and 14 in your proposal and staple the revised Page Nos. 13 and 14 thereto.

Page No. 37 of the *General Section* has been revised. Please void Page No. 37 in your proposal and staple the revised Page No. 37 thereto.

Page Nos. 50 and 51 of the *Roadway Scope of Work* have been revised. Please void Page Nos. 50 and 51 in your proposal and staple the revised Page Nos. 50 and 51 thereto.

Page Nos. 57 and 59 of the *Geotechnical Engineering Scope of Work* have been revised. Please void Page Nos. 57 and 59 in your proposal and staple the revised Page Nos. 57 and 59 thereto.

Page Nos. 66, 67 and 69 of the *Erosion and Sedimentation Control Scope of Work* have been revised. Please void Page Nos. 66, 67 and 69 in your proposal and staple the revised Page Nos. 66, 67 and 69 thereto.

Page Nos. 86, 89, 91, 95 and 97 of the *Asphalt Pavements – Superpave Standard Special Provision* have been revised. Please void Page Nos. 86, 89, 91, 95 and 97 in your proposal and staple the revised Page Nos. 86, 89, 91, 95 and 97 thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PROGRAM MANAGEMENT
1595 MAIL SERVICE CENTER
RALEIGH NC 27699-1595

TELEPHONE: 919-250-4234
FAX: 919-212-5711

WEBSITE:
WWW.NCDOT.GOV

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-1
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Page No. 89A has been added to the *Asphalt Pavements – Superpave Standard Special Provision.* Please add Page 89A in your proposal.

If you have any questions or need additional information, I can be reached by telephone at (919) 250-4124.

Sincerely,

R.A. Garris, P.E.
Contract Officer

RAG/ns

cc:
Mr. Jon Nance, PE
Mr. Ellis Powell, PE
Mr. Ron Hancock, PE (w/)
Mr. Jay Bennett, PE
Ms. Judith Corley-Lay, Ph.D., PE
Mr. Doug Allison
Mr. Calvin Leggett, PE
Mr. Jerry Jennings, PE
Mr. Njoroge Wainaina, PE
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Mr. Brad Hibbs (w/3)
Mr. Phillip Harris, PE
Mr. Ron Davenport, PE (w/)
Mr. Ray McIntyre, PE
Mr. Haywood Daughtry, PE (w/)
Mr. Bob Capehart, PE (w/2)
Mr. Wiley Jones, PE (w/)
TRC Members (w/)
File (w/)
Ms. Jackie Armstrong, PE (Roadway) (w/)
Mr. Lonnie Brooks, PE (Structures) (w/)
Ms. Anne Gamber PE (Hydraulics) (w/)
Dr. K. J. Kim, PE (Geotechnical) (w/)
Dr. Clark Morrison, PE (Pavement) (w/)
Mr. Barney Blackburn, PE (Erosion & Sed. Control) (w/2)
Mr. Lee Johnson (Utilities Coordination) (w/)
Ms. Elizabeth Lusk (Environmental Permits) (w/)
Ms. Teresa Bruton, PE (w/4)
Ms. Marsha Sample (w/)
Mr. Warren Walker, PE (w/)
Mr. Chad Edge (w/)
Mr. Clay Willis (w/)
Mr. Sterling Baker, PE (w/)

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COVER SHEET

PROPOSAL SHEETS

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SCOPES OF WORK (GREEN SHEETS)

STANDARD SPECIAL PROVISIONS (YELLOW SHEETS)

(d) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(e) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement. The value of services performed under lease agreements between the DBE and Design-Build Team shall not count towards the contract requirement.

(f) For purposes of this paragraph, a lease shall indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks shall display the name and identification number of the DBE.

(D) A Design-Build Team may count toward its DBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from DBE regular dealer and 100 percent of such expenditures to a DBE manufacturer.

(E) A Design-Build Team may count toward its DBE requirement the following expenditures to DBE firms that are not manufacturers or regular dealers:

(1) The fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.

(2) The fees or commissions charged for assistance in the procurement of the materials and supplies, or for transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are not from a manufacturer or regular dealer and provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Good Faith Effort for Projects with Goals More than Zero

If the DBE participation submitted in the Price Proposal by the Proposer with the apparent adjusted low price does not meet or exceed the DBE contract goal, this Proposer shall submit to

the Department documentation of its good faith efforts made to reach the contract goal. One complete set and 9 copies of this information shall be received in the office of the State Contractor Utilization Engineer no later than 12:00 noon of the sixth calendar day following opening of Price Proposals. Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Department considers in judging good faith efforts. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The following factors will be used to determine if the Proposer has made adequate good faith effort:

(A) Whether the Proposer attended any pre-bid meetings that were scheduled by the Department to inform DBEs of subcontracting opportunities.

(B) Whether the Proposer provided solicitations through all reasonable and available means (e.g. advertising in newspapers owned and targeted to the Disadvantaged at least 10 calendar days prior to Price Proposal opening). Whether the Proposer provided written notice to all DBEs listed in the NCDOT Directory of Transportation Firms, within the Divisions and surrounding Divisions where the project is located, that specialize in the areas of work (as noted in the DBE Directory) that the Proposer will be subletting.

(C) Whether the Proposer followed up initial solicitations of interests by contacting DBEs to determine with certainty whether they were interested. If a reasonable amount of DBEs within the targeted Divisions do not provide an intent to quote or no DBEs specialize in the subcontracted areas, the Proposer shall notify DBEs outside of the targeted Divisions that specialize in the subcontracted areas, and contact the State Contractor Utilization Engineer in the NCDOT Contractual Services Unit to give notification of the Proposer's inability to get DBE quotes.

(D) Whether the Proposer selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Proposer might otherwise perform these work items with its own forces.

(E) Whether the Proposer provided interested DBEs with adequate and timely information about the plans, specifications and requirements of the contract.

(F) Whether the Proposer negotiated in good faith with interested DBEs without rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be noted in writing with a description as to why an agreement could not be reached.

Guidelines", which by reference are incorporated and made a part of this contract. All submittals shall be made simultaneously to the Transportation Program Management Director 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 Transportation Program Management Director 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 of the design submittals.

OVERVIEW

The Design-Build Project, B-5018, is the replacement of Bridge Number 12 and Bridge Number 25 over Ahoskie Creek in Hertford County. The total project length is approximately 0.45 mile.

Project services shall include, but are not limited to:

- **Design Services** – completion of construction plans, including Record Drawings
- **Construction Services** – necessary to build and ensure workmanship of the designed facility
- **Permit Preparation / Application** - development of all documents for required permits
- **Right of Way** – acquisition of right of way necessary to construct project

The Updated B-5018 Categorical Exclusion (CE) was approved on September 8, 2009

Construction Engineering Inspection will be provided by the NCDOT Division personnel.

GENERAL SCOPE

The scope of work for this project includes design, construction and management of the project. The design work includes all aspects to construct the replacement of Bridge Number 12 and Bridge Number 25. 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.

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 bridge replacement. Construction engineering and management shall be the responsibility of the Design-Build Team. Construction shall comply with 2006 *NCDOT Standard Specifications for Roads and Structures* and any special provisions.

ROADWAY SCOPE OF WORK (9-14-09)

Project Details

- Unless noted otherwise elsewhere in this RFP, the -L- line shall be designed as a two-lane facility that meets a 60 mph design speed for a level rural arterial. The Design-Build Team may design an -L- Line vertical alignment that has design elements that adhere to a 55 mph design speed. Spiral curves are not required. The Design-Build Team shall provide all other design criteria in the Technical Proposal and submit to the Department for review and acceptance prior to submittal of the Preliminary Roadway Plans. The northern -L- Line construction limits shall be of sufficient length to tie to existing based upon the current NCDOT guidelines and standards. The southern -L- Line construction limits, including but not limited to paving, shall extend at least to the most southern existing concrete ditch terminus.

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct minimum six-foot shoulders, four-foot of which shall be full depth paved shoulders along the -L- Line. Where guardrail is warranted, the shoulder width shall be increased by two feet. Between the two bridge structures, the Design-Build Team shall provide six foot shoulders, four-foot of which shall be full depth paved shoulders. The Design-Build Team shall provide four-foot bridge rail offsets.

- The Design-Build Team shall be responsible for designing, fabricating and installing Type D signs that designate Ahoskie Creek. The Design-Build Team shall be responsible for relocating existing signs on new supports within the project construction limits. Sign details may be submitted in lieu of a full signing plan submittal.

- Reference the Geotechnical Engineering Scope of Work found elsewhere in this RFP for allowable permanent cut and fill slope requirements.

- The grade may be adjusted as needed by the Design-Build Team to assist in the attainment of FEMA compliance. (Reference the Hydraulics Scope of Work)

- Along both sides of US 13 / NC 42, the Design-Build Team shall completely remove and dispose of the existing concrete ditches. All work associated with the removal of the concrete ditches shall be within the existing right of way. Expressway gutter may replace the concrete ditches. The Design-Build Team shall minimize impacts to the slopes adjacent to the cemeteries to the greatest extent possible and tie into these slopes within the existing right of way.

- Design exceptions are expected along the -L- Line. The Design-Build Team shall clearly note in the Technical Proposal design parameters requiring a design exception. Prior to requesting / incorporating a design exception into the Final Plans, the Design-Build Team shall obtain prior conceptual approval from the Transportation Program Management Director and the FHWA. If approval is obtained, the Design-Build Team shall be responsible for development and approval of all design exceptions.

- The Design-Build Team shall submit Structure Recommendations and Design Criteria for NCDOT review and acceptance prior to submittal of the Preliminary Plans developed by the Design-Build Team. The Design-Build Team shall develop Structure Recommendations that adhere to the format noted in the March 25, 2003 and September 1, 2004 memos from Mr. Jay Bennett, PE, State Roadway Design Engineer.

- There is no proposed control of access along US 13 / NC 42.

- All guardrail placement shall be in accordance with the July 2006 *NCDOT Standard Drawings* and / or approved details in lieu of standards. Along both sides of US 13 / NC 42, the Design-Build Team shall provide continuous guardrail between the two bridge structures. The Design-Build Team shall install seven-foot guardrail posts in accordance with the Guardrail Detail – 7 Foot Post Detail provided by the Department. The guardrail design shall be submitted for review with the Preliminary Plans submittal.

General

The design shall be in accordance with the 2004 AASHTO *A Policy on Geometric Design of Highways and Streets,* 2006 NCDOT *Roadway Standard Drawings,* 2002 NCDOT *Roadway Design Manual, Roadway Design Policy and Procedure Manual, Roadway Design Guidelines for Design-Build Projects,* 2006 NCDOT *Standard Specifications for Roads and Structures,* and the 2002 AASHTO *Roadside Design Guide.*

If the 2004 NCDOT NCDOT *Roadway Design Manual,* the 2004 AASHTO *A Policy on Geometric Design of Highways and Streets*, the 2006 *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 otherwise noted elsewhere in this RFP. Similarly, in case of conflicting design parameters, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.

NCDOT Information Supplied

- The NCDOT will provide copies of the Updated Categorical Exclusion approved on September 8, 2009 and all pertinent approvals and correspondence. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall adhere to all commitments stated in these documents.

- 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. 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 type of facility. All supplemental SUE work shall be the responsibility of the Design-Build Team.

- The NCDOT will provide final pavement designs for B-5018.

applicable NCDOT Geotechnical Engineering Unit Standard Provisions, NCDOT *Structure Design Manual*, NCDOT *Roadway Design Manual* and the NCDOT Geotechnical Engineering Unit *Roadway and Structure Foundation Guidelines*, unless noted otherwise in this RFP. The NCDOT *LRFD Driven Pile Foundation Design Policy* is located on the NCDOT Geotechnical Engineering Unit's website at:

www.ncdot.org/doh/preconstruct/highway/geotech/LRFD_Driven_Pile_Foundation_Design_Policy.pdf

For *Geotechnical Guidelines For Design-Build Projects*, the Design-Build Team shall adhere to the guidelines located at the following website:

http://www.ncdot.org/doh/preconstruct/altern/design_build/default.html

A. Structure Foundations

End bent slopes shall be 1.5:1 (H:V) or flatter with rip rap slope protection. Place end bent slope protection from the toe of slope to berm and to protect the approach embankment from scour.

Analyze deep foundations using either LPile or FB-Pier computer program. Default soil lateral strength parameters in LPile and FB-Pier shall be utilized unless the use of alternative strength parameters is supported by laboratory or field test data that is accepted by the Department. Design deep foundations with sufficient embedment in soil and/or rock to achieve "fixity".

B. Roadway Foundations

All proposed unreinforced fill and cut slopes shall be 3:1 (H:V) or flatter. In areas where a sliver fill is required to tie the proposed grade into the existing ground, fill slopes may be steeper than 3:1 (H:V) provided the existing slopes are stable and erosion control measures are utilized on the sliver fill slopes. The Design-Build Team shall submit slope stability analysis verifying stability of the existing slopes and details of erosion control measures to the NCDOT for review and acceptance. For all other proposed slopes steeper than 3:1 (H:V), the slopes shall be reinforced and detailed design calculations shall be submitted to the NCDOT Geotechnical Engineering Unit, via the Design-Build Office, for review and acceptance. Proposed cut slopes may be steeper than 3:1 for tie-in work but the Design-Build Team shall be responsible for the stability of all proposed slopes.

Design and construct bridge approach embankments such that no more than 2 inches of settlement shall occur after the waiting periods end. Soil improvement techniques to mitigate long term settlement problems or to transfer the embankment load to a deeper bearing stratum are allowed. Soil improvement techniques shall follow the current industry standard practices and the guidelines of *Ground Improvement Methods FHWA publication NHI-04-001 or Geosynthetic Design and Construction Guidelines FHWA-HI-95-038.*

Embankment settlement monitoring shall be required when a waiting period of more than one month is recommended in the foundation design recommendation

When using abutment retaining walls, design and construct the end bent and the wall independent of each other. When using abutment retaining walls, the end bent foundation shall be designed and constructed with a deep foundation. The calculations and supporting documentation for this analysis shall be submitted to the NCDOT for review and acceptance prior to construction.

III. CONSTRUCTION REQUIREMENTS

All construction and materials shall be in accordance with the latest AASHTO *LRFD Bridge Construction Specifications*, NCDOT *Driven Pile Foundation Design Policy*, NCDOT 2006 *Standard Specifications for Roads and Structures* and current NCDOT *Project Special Provisions* unless noted otherwise elsewhere in this RFP. The Design-Build Team shall be responsible for investigating, proposing and incorporating remedial measures for all construction problems related to foundations, retaining walls, subgrades, settlement, slopes and construction vibrations. Submit the proposed remedial measures to the Geotechnical Engineering Unit for review and acceptance prior to incorporation.

The prequalified geotechnical firm that prepared the foundation designs shall review the embankment settlement monitoring data a minimum of once a month and issue a letter prior to releasing the embankment from the waiting period. Waiting periods shall not end until less than 0.10 inches of settlement is measured over a period of four weeks. Submit the settlement monitoring data to the NCDOT prior to issuing the release letter. If the fill height is not raised more than two feet, then the settlement waiting period is not required.

The prequalified geotechnical firm that prepared the foundation designs shall review and approve all pile driving hammers and drilled pier construction sequences. After the prequalified geotechnical firm has approved these sequences, the Design-Build Team shall submit to the NCDOT Geotechnical Engineering Unit for review and acceptance prior to beginning construction.

Perform hammer approvals with GRLWEAP Version 2002 or later and in accordance with the NCDOT 2006 *Standard Specifications for Roads and Structures*. The required pile bearing capacity shall be verified with a pile driving system capable of providing a driving resistance of between 30 and 180 blows per feet. Provide pile driving inspection charts or tables for all approved pile hammers.

Limit driving stresses in accordance with the AASHTO *LRFD Bridge Design Specifications*. If a tip elevation is noted on the plans, drive piles to the minimum required driving resistance and tip elevation. Otherwise, drive piles to the minimum required driving resistance and a penetration into natural ground of at least 10 feet.

The minimum required driving resistance shall be equal to the factored resistance noted on the plans developed by the Design-Build Team divided by a resistance factor plus any additional resistance for downdrag and scour, if applicable.

Perform Pile Driving Analyzer (PDA) testing to develop pile driving inspection charts or tables. Provide PDA testing, and pile driving inspection charts or tables by a NCDOT pre-approved company. Analyze data with the Case Pile Wave Analysis Program (CAPWAP), version 2006 or later. At a minimum, CAPWAP analysis shall be required

duration (ARI) time series type). Infiltration Basin shall be designed to dewater in 3 days or less. An Infiltration Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.

10. Skimmer Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc_pfds.html for partial duration (ARI) time series type). A Skimmer Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
11. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively.
12. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans.
13. Include any culvert and / or pipe construction sequence plan sheets in the Clearing & Grubbing Erosion Control Plans; all pipes 48" or larger, or any combination of pipes that total 48" or more require a construction sequence. Prior to installation of pipes smaller than 48 inches in jurisdictional areas, the Design Build Team shall submit a phasing plan for managing the watercourse to the Resident Engineer for review and acceptance. The phasing plan shall be in accordance with the Best Management Practices for Construction and Maintenance Activities.
14. Incorporate temporary sediment basins into permanent stormwater devices.
15. Utilize Wattles with Polyacrylamide (PAM) in temporary and permanent, existing and proposed ditches at a spacing of 50 ft. in areas where sediment basins are not feasible at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.), and in areas where sediment basins at drainage outlets cannot be properly sized to surface area and/or sediment storage requirements due to safety concerns, ROW limitations, utility conflicts, or other construction limitations approved by the Roadside Environmental Unit.

B. Final Grade Phase

1. Use correct NCDOT symbology
2. Protect existing and proposed drainage structure inlets with RIST-A, RIST-C, PIST-A, etc.
3. Utilize adequate perimeter controls (TSD, TSF, etc.)
4. Utilize TRSC-B's to reduce velocity in existing and proposed ditches with spacing of 250 feet divided by percentage of ditch grade. Also utilize TRSC-B's in proposed TSD's and TD's
5. Utilize temporary slope drains and earth berms at top of fill slopes 5 feet or higher and a fill slope grade of 3:1 or steeper, or where there are superelevations above 0.04 and fills are greater than 3 feet. Maximum slope drain spacing shall be 200 feet.
6. Utilize rock energy dissipater and / or silt basin at outlet of slope drain

7. Devices at all drainage turnouts shall utilize infiltration, skimmer, or sediment control stone (TRSD-B, TRSC-A, etc.) and a spillway with an adequately designed base length to distribute outflow
8. Provide adequate silt storage for 3600 cubic feet per disturbed acre and sediment basins shall be sized with surface area equal to 435 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc_pfds.html for partial duration (ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by NCDOT REU upon request
9. Provide matting for erosion control in all ditch lines where the velocity is greater than 2.0 ft./s, and the shear stress is 1.55 psf or less. For ditch lines with a shear stress above 1.55 psf, Permanent Soil Reinforcement Mat or Rip Rap shall be utilized
10. Provide matting for erosion control on all fill slopes 2:1 or steeper
11. Infiltration Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc_pfds.html for partial duration (ARI) time series type). Infiltration Basin shall be designed to dewater in 3 days or less. An Infiltration Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
12. Skimmer Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc_pfds.html for partial duration (ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request
13. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively
14. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans
15. Incorporate temporary sediment basins into permanent stormwater devices
16. Utilize Wattles with Polyacrylamide (PAM) in temporary and permanent, existing and proposed ditches at a spacing of 50 ft. in areas where sediment basins are not feasible at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.), and in areas where sediment basins at drainage outlets cannot be properly sized to surface area and/or sediment storage requirements due to safety concerns, ROW limitations, utility conflicts, or other construction limitations approved by the 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.

F. 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 Division of Solid Waste Management (NCDENR). The Design-Build Team shall submit the permit number for waste / borrow sites covered by the Mining Act or regulated by DSWM (DENR) concurrently to the Transportation Program Management Director and the Resident Engineer. For Reclamation Procedures, see:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

G. 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.

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

I. Any Erosion Control Design revisions made during the construction of the project shall be submitted to NCDOT REU by the 15th of the month via the Transportation Program Management Director. At anytime requested by the Engineer or the Roadside Environmental Unit, the Design-Build Team shall provide an updated version of the Erosion and Sedimentation Control Plans for distribution to all parties involved in the construction process.

J. The Design-Build Team shall comply with the *North Carolina Administrative Code Title 15 A Department of Environment and Natural Resources Chapter 4, Sediment Control*.

K. A pre-design meeting shall take place between the NCDOT REU Soil & Water Engineering Section, the Design Build Team, and any other pertinent NCDOT personnel before any Erosion and Sedimentation Control Designs are submitted to NCDOT REU. Erosion and Sedimentation Control Plan submittals shall only be reviewed and accepted by NCDOT REU after the Erosion Control Pre-Design Meeting. The Design Build Team shall be required to submit a tentative Erosion and Sedimentation Control Plan submittal schedule at the pre-design meeting.

L. At minimum, the Design Build Team shall bring one erosion control plan sheet with a Clearing & Grubbing erosion control design to the Erosion and Sedimentation Control Plan pre-design meeting.

M. All RFC Erosion and Sedimentation Control Plans, including any red line revisions, shall be kept on site at all times throughout the duration of the project.

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

O. Prior to installation of any erosion control devices, the Design-Build Team shall verify boundaries of jurisdictional areas in the field and delineated with Safety Fence.

EROSION CONTROL LIQUIDATED DAMAGES:

The Design-Build Team shall take all reasonable precautions to comply with all regulations of all authorities having jurisdiction over public and private land governing the protection of erosion and sedimentation. Any fines, remediation required or charges levied against the Department for failing to comply with all rules and regulations concerning erosion and sediment control, due to the Design-Build Team's negligence, carelessness, or failure to implement the

For mix incorporated into the project, record full test series data from all regularly scheduled random samples or directed samples that replace regularly scheduled random samples, on control charts the same day the test results are obtained.

Page 6-15, Subarticle 609-5(C)(3) Control Charts, first paragraph on this page, delete the last sentence and substitute the following:

Denote the moving average control limits with a dash green line and the individual test limits with a dash red line.

Subarticle 609-5(C)(3)(a), (b) and (c), replace (a) (b) and (c) with the following:

(a) A change in the binder percentage, aggregate blend, or G_{mm} is made on the JMF, or,

(b) When the Contractor elects to stop or is required to stop production after one or two moving average values, respectively, fall outside the moving average limits as outlined in subarticle 609-5(C)6 or,

(c) If failure to stop production after two consecutive moving averages exceed the moving average limits occurs, but production does stop at a subsequent time, re-establish a new moving average beginning at the actual production stop point.

Subarticle 609-5(C)(4) Control Limits, replace the first paragraph and the CONTROL LIMITS Table on page 6-16 with the following.

The following are established as control limits for mix production. Apply the individual limits to the individual test results. Control limits for the moving average limits are based on a moving average of the last 4 data points. Apply all control limits to the applicable target source.

CONTROL LIMITS

Mix Control Criteria	Target Source	Moving Average Limit	Individual Limit
2.36 mm Sieve	JMF	±4.0 %	±8.0 %
0.075mm Sieve	JMF	±1.5 %	±2.5 %
Binder Content	JMF	±0.3 %	±0.7 %
VTM @ N_{des}	JMF	±1.0 %	±2.0 %
VMA @ N_{des}	Min. Spec. Limit	Min. Spec. Limit	-1.0%
$P_{0.075}$/ P_{be} Ratio	1.0	±0.4	±0.8
$\%G_{mm}$ @ N_{ini}	Max. Spec. Limit	N/A	+2.0%
TSR	Min. Spec. Limit	N/A	- 15%

Page 6-16, Subarticle 609-5(C)(5) Warning Bands, delete this subarticle in its entirety.

(H) By any combination of the above

Page 6-28, Subarticle 610-3(A) Mix Design-General, delete the fourth and fifth paragraphs and replace with the following:

Reclaimed Asphalt Pavement (RAP) or Reclaimed Asphalt Shingles (RAS) may be incorporated into asphalt plant mixes in accordance with Article 1012-1 and the following applicable requirements.

Reclaimed asphalt pavement (RAP) may constitute up to 50% of the total material used in recycled mixtures, except for mix Type S 12.5D, Type S 9.5D, and mixtures containing reclaimed asphalt shingle material (RAS). Reclaimed asphalt shingle (RAS) material may constitute up to 6% by weight of total mixture for any mix. When both RAP and RAS are used, do not use a combined percentage of RAS and RAP greater than 20% by weight of total mixture, unless otherwise approved. When the percent of binder contributed from RAS or a combination of RAS and RAP exceeds 20% but not more than 30% of the total binder in the completed mix, the virgin binder PG grade shall be one grade below (both high and low temperature grade) the binder grade specified in Table 610-2 for the mix type, unless otherwise approved. When the percent of binder contributed from RAS or a combination of RAS and RAP exceeds 30% of the total binder in the completed mix, the Engineer will establish and approve the virgin binder PG grade. Use approved methods to determine if any binder grade adjustments are necessary to achieve the performance grade for the specified mix type.

For Type S 12.5D and Type S 9.5D mixes, the maximum percentage of reclaimed asphalt material is limited to 20% and shall be produced using virgin asphalt binder grade PG 76-22. For all other recycled mix types, the virgin binder PG grade shall be as specified in Table 610-2A for the specified mix type.

When the percentage of RAP is greater than 20% but not more than 30% of the total mixture, use RAP meeting the requirements for processed or fractionated RAP in accordance with the requirements of Section 1012-1.

When the percentage of RAP is greater than 30% of the total mixture, use an approved stockpile of RAP in accordance with Section 1012-1(C). Use approved test methods to determine if any binder grade adjustments are necessary to achieve the performance grade for the specified mix type. The Engineer will establish and approve the virgin asphalt binder grade to be used.

Page 6-34, Insert the following immediately after Table 610-2:

Page 6-34, Subarticle 610-3(C),

Delete Table 610-2 and associated notes. Substitute the following:

TABLE 610-2
SUPERPAVE MIX DESIGN CRITERIA

Mix Type	Design ESALs Millions (a)	Binder PG Grade (b)	Compaction Levels No. Gyrations @		Max. Rut Depth (mm)	Volumetric Properties (c)			
			N_{ini}	N_{des}		VMA % Min.	VTM %	VFA Min. - Max.	$\%G_{mm}$ @ N_{ini}
S-4.75A**(e)**	< 0.3	64 -22	6	50	-----	20.0	7.0 - 15.0	-----	-----
SF-9.5A	< 0.3	64 -22	6	50	11.5	16.0	3.0 - 5.0	70 - 80	≤ 91.5
S-9.5B	0.3 - 3	64 -22	7	65	9.5	15.5	3.0 - 5.0	65 - 80	≤ 90.5
S-9.5C	3 - 30	70 -22	7	75	6.5	15.5	3.0 - 5.0	65 - 78	≤ 90.5
S-9.5D	> 30	76 -22	8	100	4.5	15.5	3.0 - 5.0	65 - 78	≤ 90.0
S-12.5C	3 - 30	70 -22	7	75	6.5	14.5	3.0 - 5.0	65 - 78	≤ 90.5
S-12.5D	> 30	76 -22	8	100	4.5	14.5	3.0 - 5.0	65 - 78	≤ 90.0
I-19.0B	< 3	64 -22	7	65	-----	13.5	3.0 - 5.0	65 - 78	≤ 90.5
I-19.0C	3 - 30	64 -22	7	75	-----	13.5	3.0 - 5.0	65 - 78	≤ 90.0
I-19.0D	> 30	70 -22	8	100	-----	13.5	3.0 - 5.0	65 - 78	≤ 90.0
B-25.0B	< 3	64 -22	7	65	-----	12.5	3.0 - 5.0	65 - 78	≤ 90.5
B-25.0C	> 3	64 -22	7	75	-----	12.5	3.0 - 5.0	65 - 78	≤ 90.0
All Mix Types	**Design Parameter** 1. Dust to Binder Ratio ($P_{0.075}$ / P_{be}) 2. Retained Tensile Strength (TSR) (AASHTO T283 Modified)					**Design Criteria** 0.6 – 1.4 85% Min. **(d)**			

Notes:
(a) Based on 20 year design traffic.
(b) When Recycled Mixes are used, select the binder grade to be added in accordance with Subarticle 610-3(A).
(c) Volumetric Properties based on specimens compacted to N_{des} as modified by the Department.
(d) AASHTO T 283 Modified (No Freeze-Thaw cycle required). TSR for Type S 4.75A, Type B 25.0B, and Type B 25.0C mixes is 80% minimum.
(e) Mix Design Criteria for Type S 4.75A may be modified subject to the approval of the Engineer.

As an exception, when the first layer of mix is a surface course and is being placed directly on an unprimed aggregate or soil base, the layer will be included in the "Other" construction category.

Page 6-50, Article 610-13 Density Acceptance, delete the formula and description in the middle of the page and replace with the following:

$$PF = 100 - 10(D)^{1.465}$$

where: PF = Pay Factor (computed to 0.1%)
D = the deficiency of the lot average density, not to exceed 2.0%

Page 6-53, Article 620-4 Measurement and Payment

Sixth paragraph, delete the last sentence.

Seventh paragraph, delete the paragraph and replace with the following:

The adjusted contract unit price will then be applied to the theoretical quantity of asphalt binder authorized for use in the plant mix placed during the partial payment period involved, except that where recycled plant mix is used, the adjusted unit price will be applied only to the theoretical number of tons of additional asphalt binder materials required by the job mix formula.

Page 6-54, Article 620-4 Measurement and Payment, add the following pay item:

Pay Item	**Pay Unit**
Asphalt Binder for Plant Mix, Grade PG 70-28	Ton

Page 6-69, Table 660-1 Material Application Rates and Temperatures, add the following:

Type of Coat	**Grade of Asphalt**	**Asphalt Rate gal/yd^2**	**Application Temperature ^{o}F**	**Aggregate Size**	**Aggregate Rate lb./sq. yd. Total**
Sand Seal	CRS-2 or CRS-2P	0.22-0.30	150-175	Blotting Sand	12-15

Page 6-75, Subarticle 660-9(B), add the following as sub-item (5)

(5) Sand Seal

Place the fully required amount of asphalt material in one application and immediately cover with the seal coat aggregate. Uniformly spread the fully required amount of aggregate in one application and correct all non-uniform areas prior to rolling.

Immediately after the aggregate has been uniformly spread, perform rolling.

When directed, broom excess aggregate material from the surface of the seal coat.

When the sand seal is to be constructed for temporary sealing purposes only and will not be used by traffic, other grades of asphalt material meeting the requirements of Articles 1020-6 and 1020-7 may be used in lieu of the grade of asphalt required by Table 660-1 when approved.

Page 6-76, Article 661-1 Description, add the following as the 2nd paragraph:

Provide and conduct the quality control and required testing for acceptance of the UBWC in accordance with "Quality Management System for Asphalt Pavements (OGAFC, PADL, and Ultra-Thin HMA Version)", included in the contract.

For the Stockpiled RAP to be considered for approval, the gradation and asphalt content shall be uniform. Individual test results, when compared to the target, will be accepted if within the tolerances listed below:

APPROVED STOCKPILED RAP GRADATION and BINDER TOLERANCES (Apply Tolerances to Mix Design Data)

P_b %	±0.3%
Sieve Size (mm)	Percent Passing
25.0	± 5%
19.0	± 5%
12.5	± 5%
9.5	± 5%
4.75	± 5%
2.36	± 4%
1.18	± 4%
0.300	± 4%
0.150	± 4%
0.075	± 1.5%

Note: If more than 20% of the individual sieves are out of the gradation tolerances, or if more than 20 % of the asphalt binder content test results fall outside the appropriate tolerances, the RAP shall not be used in HMA unless the RAP representing the failing tests is removed from the stockpile.

Do not add additional material to any approved RAP stockpile, unless otherwise approved by the Engineer.

Maintain at the plant site a record system for all approved RAP stockpiles. Include at a minimum the following: Stockpile identification and a sketch of all stockpile areas at the plant site; all RAP test results (including asphalt content, gradation, and asphalt binder characteristics).

(2) Mix Production RAP

During mix production, use RAP that meets the criteria for one of the following categories:

(a) Mix Design RAP

RAP contained in the mix design stockpiles as described above may be used in all applicable JMFs. These stockpiles have been pretested: however, they are subject to required QC/QA testing in accordance with Subarticle 609-5(C)(2).

TABLE 1012-2
NEW SOURCE RAP GRADATION and BINDER TOLERANCES
(Apply Tolerances to Mix Design Data)

Mix Type	0-20% RAP			20^{+}-30 % RAP			30^{+} % RAP		
Sieve (mm)	Base	Inter.	Surf.	Base	Inter.	Surf.	Base	Inter.	Surf.
P_b %	± 0.7%			± 0.4%			± 0.3%		
25.0	± 10	-	-	± 7	-	-	± 5	-	-
19.0	± 10	± 10	-	± 7	± 7	-	± 5	± 5	-
12.5	-	± 10	± 10	-	± 7	± 7	-	± 5	± 5
9.5	-	-	± 10	-	-	± 7	-	-	± 5
4.75	± 10	-	± 10	± 7	-	± 7	± 5	-	± 5
2.36	± 8	± 8	± 8	± 5	± 5	± 5	± 4	± 4	± 4
1.18	± 8	± 8	± 8	± 5	± 5	± 5	± 4	± 4	± 4
0.300	± 8	± 8	± 8	± 5	± 5	± 5	± 4	± 4	± 4
0.150	-	-	± 8	-	-	± 5	-	-	± 4
0.075	± 4	± 4	± 4	± 2	± 2	± 2	± 1.5	± 1.5	± 1.5

ASPHALT PAVER - FIXED AND MOBILE STRING LINE

10-21-03 DB6 R07

The Design Build Team's attention is directed to Article 610-8 of the 2006 *Standard Specifications for Roads and Structures* dealing with automatically controlled screeds on the asphalt pavement spreaders.

A mobile string line consisting of a 30 to 40 foot long ski is required for the widening and resurfacing on this project. A fixed string line is required for the new pavement construction on this project.

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES

(10-6-05) DB6 R15

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

Asphalt Concrete Base Course	Type B 25.0_	4.3%
Asphalt Concrete Intermediate Course	Type I 19.0_	4.7%
Asphalt Concrete Surface Course	Type S 4.75_	7.0%
Asphalt Concrete Surface Course	Type SF 9.5_	6.5%
Asphalt Concrete Surface Course	Type S 9.5_	6.0%
Asphalt Concrete Surface Course	Type S 12.5_	5.5%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2006 Standard Specifications* or Project Special Provisions.