

DESIGN-BUILD

SUBMITTAL GUIDELINES

FOR NORTH CAROLINA TURNPIKE AUTHORITY

April 2012

The submittal process used in the Design-Build program is a critical link to the successful delivery of Design-Build projects. The submittal process is geared for rapid review, while ensuring that the project is safe, environmentally conscious, satisfies all national and state codes and manuals, and fulfills the requirements set forth in the Request for Proposals. This document outlines the procedures to be followed by both the Design-Build Team, NCTA staff, and the NCDOT Transportation Program Management Unit in the submittal, distribution, and review of plan submittals.

GENERAL

Design and Personnel Expectations

The Design-Build Team (DBT) is responsible for designing in accordance with the applicable national and state codes, standards, manuals, and current revisions and supplements thereto. Any design exceptions to these documents must be pre-approved

by the appropriate reviewing personnel and the FHWA, if applicable, prior to incorporation into the plan submittal. In addition, if a plan submittal incorporates or assumes a design exception, then the DBT shall note this fact clearly on the submittal form that accompanies that submittal.

Prior to any submittals, the Design-Build Team shall provide the NCTA and the NCDOT Design-Build Project Engineer with a list of key design and construction staff. The NCTA and NCDOT will reciprocate by providing the DBT with a list of NCTA and NCDOT contacts to be used when submitting plans for review. The list of NCTA and NCDOT contacts shall only be used to accurately complete the submittal forms. All submittal correspondence, both verbal and written shall be directly among the DBT and the NCTA and/or NCDOT Design-Build Group, unless otherwise approved.

The comments, or lack thereof, provided by the NCTA and/or NCDOT in no way relieves the Design-Build Team of liability or the responsibility to correct any error in their plans, computations, or construction. The Design-Build Team will be required to make design and field construction corrections without additional compensation.

The NCDOT Transportation Program Management Unit is serving in a consultant capacity to the NCTA in the coordination, distribution, and review of submittals. Comments from any NCDOT staff as conveyed through the Transportation Program Management Unit shall be construed as comments from the NCTA. Any reference contained herein to the NCTA's review of submittals shall be construed as the review as completed by the NCTA and/or Transportation Program Management Unit.

Scheduling of Submittals

If a Critical Path Model is required for the project, major design milestones and required design submittals shall be identified as activities on the approved CPM for the project. The Design-Build Team shall prioritize submittals in the event that multiple submittals are made based on the approved CPM. If the project contract does not require a CPM, the DBT shall submit an initial schedule of anticipated submittals, denoting those submittals that are of critical importance to the project schedule. A new schedule shall be submitted if the critical submittals change or if the schedule or order of anticipated submittals is modified significantly.

Submittal Process

Unless otherwise stated in the Final Contract scopes of work, all submittals shall be simultaneously delivered to the Transportation Program Management Director, NCTA

Director of Construction, and the NCTA Project Manager. As noted herein or in the Final Contract, other concurrent distributions may be required of the DBT. Submittals shall be made in the number of copies as noted herein or otherwise noted in the Final Contract. Pertinent submittals may also require design calculations, files, and special provisions. No construction work shall be performed prior to the NCTA's review, receipt of satisfactory response to the submittal comments, and the subsequent production of sealed Release for Construction Plans. With the exception of Erosion Control Plans, all Release for Construction Plans shall be clearly labeled as RFC and signed and sealed by a Professional Engineer registered in the State of North Carolina. The term RFC shall be solely reserved for those plans for which the NCTA agrees that no further review is necessary.

All submittals shall be accompanied with a standard color-coded submittal form. The Design-Build Team and the NCDOT Design-Build Project Engineer will decide on a color for each project prior to the first submittal.

The number of copies and the information transmitted shall be clearly noted on the submittal form. A submittal containing multiple copies of the same information shall be transmitted with the copies individually packaged and covered with the appropriate submittal form. For example, a submittal containing four sets of plans and cross-sections shall be submitted as four individual rolls each containing one set of plans and one set of cross-sections. Each roll shall have an identical color-coded submittal form.

Each submittal shall be assigned a submittal number. This submittal number shall not have suffixes other than those reflecting re-submittals of the same information. Specifically, "Revise and Resubmit" submittal responses require the Design-Build Team to correct and re-submit the same information with the original submittal number and an "R" suffix. For example, submittal S-001 shall be revised to S-001R1 to reflect the 1st re-submittal and S-001R2 to reflect the 2nd re-submittal of submittal S-001.

Submittals shall contain information for only one discipline. For example, if Structure Plans and Traffic Control Plans are submitted on the same day, two separate submittals are required. The Transportation Program Management Unit will then forward the submittals to the appropriate reviewing personnel.

If an individual is copied on a submittal, it shall be clearly noted whether that individual received the attachments or simply a copy of the submittal form.

For FHWA step-by-step projects, one additional set of plans and Project Special Provisions of all plans submittals shall be provided to the Transportation Program

Management Director. Unless otherwise noted herein, the staff of the Transportation Program Management Unit will make all distributions, including the set for the FHWA.

For projects that specific disciplines are not included in the Design-Build Team's or the NCTA's Scope of Work, submittal copies for that discipline are not required as noted herein.

For major design submittals, the Design-Build Team may request that a meeting be held with the NCTA, Transportation Program Management Unit, and/or the applicable reviewers of the specific submittal to briefly introduce and explain the submittal. This meeting will in no way affect the review time as stated below if the meeting is held within the first three business days after the submittal, inclusive of the day of the submittal. In the event that the meeting is held after the third day following the submittal, the NCTA reserves the right to begin the review period on the day of the meeting. The meetings shall be requested in writing to the NCDOT Design-Build Project Engineer, with a copy to the Transportation Program Management Director and the NCTA Director of Construction. Although every attempt will be made to accommodate the Design-Build Team's request for a meeting, the NCTA in no way guarantees that all parties of the NCTA or NCDOT will be available for these meetings or that the meeting can occur in a timely manner.

NCTA uses the Internet/Web-based project collaboration software package Constructware, developed by Autodesk, to manage and track projects., the Design-Build Team will be asked to use Constructware to facilitate design reviews, transmittals, and RFIs; to store and retain project files, design, plans, test results and all other plan documents; and to communicate collaboratively among project members. Traditional hard copies will be required by some units in the review process as outlined in the submittal guidelines.

Record Drawings / As-Built Plans

For those projects that the NCTA provides Construction Engineering Inspection the Design-Build Team shall provide Record Drawings. Specifically, upon completion of the project, and in addition to the sets required by the NCTA Project Manager, two sets of Record Drawings, signed and sealed by a Professional Engineer registered in the State of North Carolina, shall be submitted to the NCTA and two copies to the Transportation Program Management Director . The Transportation Program

Management Director will retain one set and distribute one set to the appropriate Maintenance Unit.

For those projects that the Design-Build Team provides Construction Engineering Inspection, the Design-Build Team shall provide As-Built Plans in accordance with the Final Contract. Specifically, upon completion of the project, and in addition to the sets required by the NCTA Project Manager, two sets of As-Built Plans, signed and sealed by a Professional Engineer registered in the State of North Carolina, shall be submitted to the NCTA and two sets to the Transportation Program Management Director. The Transportation Program Management Director will retain one set and distribute one set to the appropriate Maintenance Unit.

Review Time

Unless otherwise noted herein or in the Final Contract scopes of work, submittals will be reviewed within 10 working days (15 working days for temporary structures, overhead sign assemblies, MSE walls, FEMA compliance documents and temporary shoring) from the date of the NCTA's receipt. Submittals delivered to the Transportation Program Management Director must be stamped in at the front desk before 2 pm to start the specified review period on that day. If submittals are received after 2 pm, the review period will begin on the following business day. The 10-day review period includes only NCDOT workdays.

NCDOT will respond to all submittals by calling the contact person specified by the DBT and notifying them that plans and comments are available. The DBT will have the option to (1) pick up plans/comments at the Transportation Program Management Unit; (2) receive plans/comments by regular mail at no charge; or (3) receive plans/comments by overnight FED-EX at the DBT's expense. If possible, comments will be e-mailed or faxed and the original copy sent by one of the above methods.

Submittal Responses

The NCTA, or the Transportation Program Management Unit, on behalf of the NCTA, will respond to all submittals. The submittal response will include a standard response form that indicates whether the NCTA has comments or requires a re-submittal on that item.

The comments will be returned to the DBT as noted above. The NCTA Project Manager will be notified by copy of all submittal response forms returned to the DBT.

Copies of the comments, particularly if made directly on the submitted plan sheets, will also be transmitted to the NCTA Project Manager, unless otherwise requested.

The staff of the Transportation Program Management Unit will maintain a database to ensure that all submittals are addressed within the allotted time. A copy of the log of all submittals for a given project is available to any NCTA staff upon request. The Transportation Program Management Unit staff will supply this log to the NCTA Project Manager periodically and upon request.

Submittal Prerequisites

Unless otherwise noted herein, the NCTA will not accept subsequent submittals until prior submittal reviews have been completed for that item. For example, the 100% submittal for a discipline cannot occur prior to the 25%, 50%, etc. for that same discipline.

Submittals shall be transmitted in a logical order and in accordance with the project CPM or submittal schedule most recently submitted by the DBT. However, if the DBT chooses to submit plans that require prerequisite reviews, the DBT assumes all risks should the prerequisite plan review result in comments that impact the current submittal. Should this occur, NCTA will begin a new review period. Depending on the complexity of the project, certain iterations of these submittals may be waived by the NCTA.

The Design-Build Team may also have the option to divide a project into segments. This approach may prove beneficial to both the DBT and the NCTA on large projects. For example, the project may be broken into a southern, middle, and northern section, resulting in three submittals for each milestone submittal. However, upon completion of the project design, the DBT will be required to provide one set of complete signed and sealed plans that include all design disciplines.

The Design-Build Team shall notify the NCTA and Transportation Program Management Director of any changes to previously reviewed submittals. For example, if the NCTA reviews the horizontal and vertical alignments, the DBT will be required to advise of any subsequent revisions made to those alignments. A re-submittal of that item will generally be necessary. Similarly, any design / construction changes made after submittal of RFC Plans will require submittal for review and acceptance to ensure that dependent plan reviews are based on the most current and accurate information. At a

minimum, this submittal shall follow the standard submittal guidelines, as well as the appropriate discipline prerequisites and review.

Any information included in a submittal for informational purposes shall be noted as such. For example, if the Roadway Plans are included to assist in reviewing the Signing Plans, they shall be noted with "FYI".

SUBMITTALS REQUIRED BY DISCIPLINE

All design submittals shall be made simultaneously to the Transportation Program Management Director, NCTA Director of Construction, and the NCTA Project Manager.

ROADWAY DESIGN

The submittal of Roadway Plans will generally be comprised of five steps, beginning with design criteria and culminating with RFC Plans. Plans for right-of-way recordation will also be required, if applicable. The various Roadway Plans also need to be submitted with plans for other disciplines as noted throughout this chapter. Any changes to a stage of the Roadway Plans made after that stage's initial review and comment by the NCTA will require re-submittal to ensure that dependent plan reviews are based on the most current and accurate Roadway Plans.

For guidance in preparing these plan submittals, see the document entitled "Roadway Design Guidelines for Design-Build Projects" located on the NCDOT Design-Build website. All submittals must adhere to the NCDOT Review requirements for Preliminary, Right of Way, and Final Plans located on the NCDOT Design-Build website.

The Design-Build Team shall develop plans using the current version of Microstation and Geopak software required by the Department and shall be in English units, unless otherwise noted in the Final Contract. The plans shall follow the Department's CADD standards including, but not limited to, file naming convention, leveling chart, and file folder structure. These standards can be found through a link on the NCDOT website.

The Design-Build Team shall submit electronic files of the Roadway Plans upon request by the NCTA.

Design Criteria and Structure Recommendations

- | | |
|--|----------|
| <u>Total Number Required:</u> | (3 sets) |
| □ Transportation Program Management Unit | (3 sets) |

Line and Grade Plans

At the request of the Design-Build Team, the Department will review Line and Grade Plans. This submittal shall include the Team's horizontal and vertical alignments and shall not replace the Preliminary Roadway Plans submittal. The Design-Build Team may submit Design Criteria and Structure Recommendations concurrent with this submittal. If the Design-Build Team elects to combine these submittals, then the review time for the combination of Line and Grade Plans, Design Criteria, and Structure Recommendations will be 15 days.

Prerequisites:

- ❑ Accepted Design Criteria (Provide one set with this submittal) if separate submittal
- ❑ Accepted Structure Recommendations if separate submittal

Total Number Required:

(2 – 4 Full-size, 1 Half-size)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ NCTA Design Manager (1 Full-size)
- ❑ Transportation Program Management Unit (1 Full-size with design calculations)
- ❑ Congestion Management Section (1 Half-size w/Capacity Analysis)
- ❑ Railroad Division, if applicable (1 Full-size)
- ❑ FHWA, if applicable (1 Full-size)
 - Sent directly by the DBT
- ❑ Roadway Lighting Section, if applicable (Microstation files)

Preliminary Roadway Plans

Prerequisites:

- ❑ Accepted Design Criteria (Provide one set with this submittal)
- ❑ Accepted Preliminary Bridge / Culvert Survey Reports (If grade is hydraulically controlled) or letter stating that grade is not hydraulically controlled
- ❑ Accepted Structure Recommendations

Total Number Required: (5 – 7 Full-size, 1 Half-size, 6 – 8 x-sections)

- NCTA Project Manager (1 Full-size with x-sections)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
- Post directly onto Constructware NCTA Design Manager(1 Full-size with x-sections)
- Transportation Program Management Unit (1 Full-size with x-sections & design calcs.)
- Hydraulics Unit (1 Full-size with x-sections)
- Utilities Coordination Unit (1 Full-size with x-sections)
- Congestion Management Section (1 Half-size w/Capacity Analysis)
- Railroad Division, if applicable (1 Full-size with x-sections)
- FHWA, if applicable (1 Full-size with x-sections)
 - Sent directly by the DBT
- Roadway Lighting Section, if applicable (Microstation files)

Right of Way/Roadway Plans

The Design-Build Team shall provide Right of Way/Roadway Plans for review. If the Design-Build Team is acquiring the right of way, this submittal shall be noted as Right of Way Plans, otherwise this submittal shall be referred to as Right of Way/Roadway Plans. In either case the Design-Build Team shall be responsible for submitting the Right of Way plan sheets and area data sheets as specified in the RFP.

The Design-Build Team shall provide a copy of the Right of Way Plans for right of way recordation in both electronic and hard copy format.

Prerequisites:

- Approved Design Exceptions
- Accepted 100% Hydraulics Design Plans
- Accepted Preliminary Roadway Plans

Total Number Required: (5 - 7 Full-size, , 5 - 7x-sections)

- NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)

- ❑ Post directly onto Constructware NCTA Design Manager(1 Full-size with x-sections)
- ❑ Transportation Program Management Unit (1 Full-size with x-sections)
- ❑ Utilities Coordination Unit (1 Full-size with x-sections)
- ❑ Railroad Division, if applicable (1 Full-size with x-sections)
- ❑ FHWA, if applicable (1 Full-size with x-sections)
 - Sent directly by the DBT

Final Roadway Plans

This submittal does not require all summary and quantity sheets.

Total Number Required: (– 4 - 5 Full-size with cross-sections)

- ❑ NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
 - Sent directly by the DBT
- ❑ NCTA Design Manager (1 Full-size with x-sections)
- ❑ Transportation Program Management Unit (1 Full-size with x-sections)
- ❑ FHWA, if applicable (1 Full-size with x-sections)
 - Sent directly by the DBT

RFC Roadway Plans

The Design-Build Team shall provide a copy of the RFC Roadway Plans (final plans) in both electronic and hard copy form. All final designs shall be signed and sealed by a Professional Engineer registered in the State of North Carolina.

Prerequisites:

- ❑ Submittal of Typical Sections for the NCTA to sign and seal the pavement design, if applicable

Total Number Required: (4 – 8 Full-size, 1 – 3 Half-size, 4 – 8 x-sections)

- ❑ NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT

- NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
 - Post directly onto Constructware
- NCTA Design Manager (1 Full-size with x-sections)
- Transportation Program Management Unit (1 Full-size & 1 Half-size with x-sections)
- FHWA, if applicable (1 Full-size with x-sections)
 - Sent directly by the DBT

- Roadway Lighting Section, if applicable (1 Full size with x-sections)
- Signals Section, if applicable (1 Half-size with x-sections)
- ITS Engineer, if applicable (1 Half-size with x-sections)

Temporary Roadway Alignments

The Design-Build Team shall submit all temporary roadway alignments for review. The submittal of temporary roadway alignments shall adhere to the Preliminary and Final Plans requirements noted above.

Prerequisites:

- No Prerequisites

NCTA ROADWAY DESIGN GUIDELINES FOR DESIGN-BUILD PROJECTS

GENERAL

The design shall be in accordance with the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, January 2012 *NCDOT Roadway Standard Drawings*, NCDOT 2002 *Roadway Design Manual*, *Roadway Design Policy and Procedure Manual*, January 2012 *North Carolina Standard Specifications for Roads and Structures*, and the 2011 AASHTO *Roadside Design Guide, 4th Edition*.

If the NCDOT *Roadway Design Manual*, the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, the January 2012 *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 the RFP. Similarly, in case of conflicting design parameters in the various resources, the proposed design shall adhere to the most conservative values.

If applicable, the project shall follow the NCDOT-FHWA Oversight Agreement. The Department shall provide this agreement. Any changes that affect previous approvals shall be re-submitted by the Design-Build Team for FHWA approval.

The Design-Build Team shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, rock plating, special guardrail, retaining walls, concrete barrier designs, etc.) and shall provide special design drawings. The Project Services Unit may have special details available that can be provided to the Design-Build Team upon request. The Design-Build Team shall refer to the list of details to be used in lieu of standards located at

http://www.ncdot.org/doh/preconstruct/ps/std_draw/default.html

PLAN SUBMITTALS

All plans submitted shall be printed on white bond paper. Plans that are submitted on vellum, photo Mylar, blue prints, etc., are not acceptable. All full size reproducible copies shall be on 22" x 34" sheets with a 3" border on the left end and all half size reproducible copies shall be on 11" x 17" sheets. All cross-sections containing over thirty (30) sheets shall be on 11" x 17" sheets. Cross-sections containing less than thirty sheets will be on 22" x 34" sheets. Plans that do not meet these requirements will not be accepted.

REQUIREMENTS FOR PRELIMINARY ROADWAY PLANS

Prior to submission of the Preliminary Roadway Plans, the Design-Build Team shall submit detailed Design Criteria and Structure Recommendations for review by the Department. Design criteria not in compliance with AASHTO standards should be brought to the Department's attention for evaluation of a design exception prior to incorporation in the design.

The Preliminary Roadway Plans shall incorporate the specific details noted in the Review List for Preliminary Roadway Plans, shown below as Exhibit "A", and include, but not be limited to, the following:

1. Title Sheet
2. Typical Sections defining overall dimensions of the proposed design.
3. Plan and profile sheets with horizontal and vertical design
4. Vertical clearance calculations
5. Sight distance calculations at bridges or other obstructions
6. Capacity Analysis (for revisions to RFP plans only)
7. Preliminary Interchange Design including ramp control gore calculations
8. Shear Point Diagram (if applicable)
9. Copies of the accepted R.C. Box Culvert and / or Bridge Survey Report(s) if grades are controlled by these reports. The Design-Build Team shall inform the Department if grades are not controlled by these reports.
10. Preliminary slope stake lines
11. Design Exception Checklist (see Roadway Design web-site)
12. Ground surface profiles and preliminary grade profiles for the mainline and intersecting roads. If project requires a resurfacing grade, this should be submitted along with control point calculations for review. All -Y- Line grades shall have mainline and -Y- Line station, offset and pavement elevation shown at the alignment intersecting point and the mainline edge of pavement.

13. Preliminary cross sections shall be shown for all proposed construction. The cross sections shall contain grid lines at 1- foot intervals with the station and elevation of the existing ground shown below the section at the centerline and the finished grade elevation shown above the template. A bar scale shall be shown on all sheets.
14. All existing utilities shall be labeled with type, size and invert elevation.
15. All existing and proposed guardrail.
16. Interchange detail sheets shall be prepared at a scale of 1" = 50' on 34" x 68" white bond sheets. Slight variation from these dimensions may be allowable if approved by the Department. These sheets shall meet the same requirements for content as specified for plan sheets. Ground profiles and proposed grade lines for ramps shall be prepared on separate sheets. Ramp stations shall begin at the -L- line and run toward the -Y- Line. The direction of stationing on ramp profiles shall match the plan sheet.
17. A cross section layout showing numbered shear points and break points shall be prepared for obtaining field data for earthwork. It is not necessary to use shear sections in diamond interchanges and other ramps that do not depart radically from the alignment, unless requested by the Design-Build Staff.
18. Slopes inside the gore areas 200' - 300' ± from nose, should be 6:1 or flatter. Slopes inside the interchange area should be a maximum of 4:1. Topographic conditions, wetlands, property values, and earthwork requirements may dictate steeper or flatter slopes. Interior slopes steeper than 4:1 will require written justification and approval by the Department. The entire interchange shall be graded to provide adequate sight distances.
19. Preliminary Plans Review List (Exhibit "A")

Preliminary Roadway Plans will not be accepted until all of the above requirements are met.

REQUIREMENTS FOR RIGHT OF WAY PLANS

Prior to submission of the Right of Way Plans, 100% Hydraulic Design must be completed and accepted.

The Right of Way Plans shall incorporate the specific details noted in the Review List for Right of Way Plans, shown below as Exhibit “B”, and include, but not be limited to, the following:

1. Proposed design for the roadway, intersections and interchanges.
2. Existing ground surface profiles and project grade profiles for the mainline and intersecting roads (including resurfacing grades) and interchanges.
3. Proposed guardrail design
4. The location and size of all drainage structures and systems required for complete drainage of the project
5. Delineation of wetlands
6. The location of slope stake limits and construction limits including berm or lateral ditches and channel changes
7. Details for all drainage ditches
8. Display all property lines within the right of way limits and immediately adjacent to the proposed right of way along with all bearings, curve data, distances and corners of such property lines obtained from owner provided survey data . All affected parcels from which right of way or easements will be acquired shall show property owner names and parcel numbers
9. Right-of-Way plan sheets in accordance with the guidelines specified by the NCTA Right of Way Manager in the RFP. These sheets shall not include design elements, data and labels not pertinent to the acquisition of right of way.
10. The existing right of way lines of public roads within the project limits.
11. Proposed right of way and easements shall be appropriately labeled on the plans. All right of way and easement points will be flagged with an offset station and distance.
12. All typical sections required for construction of the project with dimensions that affect the right of way shown.
13. Cross sections for all proposed construction. If available, this includes showing temporary slopes for traffic control and retaining wall locations. The cross sections shall contain grid lines at 1- foot intervals with the station and elevation of the

- existing ground shown below the section at the centerline and the finished grade elevation shown above the template.
14. Wall envelopes for all retaining walls
 15. The Design-Build Team shall provide the location of any proposed service roads (if applicable)
 16. Any on-site detour or median crossover requiring an alignment shall be included in the Roadway Plans in the 2 sheet series. Information required for detour construction include as a minimum, horizontal and vertical alignments, temporary and permanent drainage designs, temporary and permanent easement / right of way.
 17. For complex interchanges, a detail of the interchange shall be prepared on a separate sheet that shows finished contours at 2' intervals between the mainline and ramps. These contour sheets are generally not required for simple diamond type interchanges. A reduction of the interchange sheet (22" x 34") shall be part of the Final Roadway Plan submittal.
 18. A tabulation showing property owner name, parcel number, total area of tract, area within right of way, area of residue on each side of the right of way, and area of easements.
 19. Right of Way Plans Review List (Exhibit "B")

Plans for this submittal will not be accepted until all the above requirements are met.

When revisions are made to the Right of Way Plans, the Design-Build Team shall place a revision note in the upper left-hand corner of the sheet. All Right of Way Revision notes are to be removed at the Final Roadway Plan Submittal.

REQUIREMENTS FOR FINAL ROADWAY PLANS

The Final Roadway Plans shall incorporate the specific details noted in the Review List for Final Roadway Plans, shown below as Exhibit "C", and include, but not be limited to, the following:

1. General Notes
2. Standard Details
3. Special Details
4. Special Provisions
5. Index of Sheets
6. Final Plans Checklist

Plans for this submittal will not be accepted until all the above requirements are met.

REVIEW LIST FOR PRELIMINARY ROADWAY PLANS
EXHIBIT "A"

TITLE SHEET

- _____ (1) LOCATION OF PROJECT IS COMPLETE AND ACCURATE
- _____ (2) COUNTY IS SHOWN
- _____ (3) TYPE OF WORK IS COMPLETE AND ACCURATE
- _____ (4) GRAPHIC SCALES ARE SHOWN FOR PLAN AND PROFILE SHEETS
- _____ (5) DESIGN DATA IS SHOWN
- _____ (6) VICINITY MAP INCLUDES THE FOLLOWING
 - _____ (A) CITY AND CITY LIMITS
 - _____ (B) INTERSTATE, U.S. AND STATE ROUTES
 - _____ (C) NORTH ARROW
 - _____ (D) BEGINNING AND END OF PROJECT
 - _____ (E) TITLE BLOCK
 - _____ (F) OFFSITE DETOURS
- (7) PROJECT LAYOUT ON NUMBERED SUPERIMPOSED SHEETS INCLUDES THE FOLLOWING:
 - _____ (A) PROJECT ALIGNMENT FOR ALL PROPOSED CONSTRUCTION, (-L-LINES, -Y- LINES, SERVICE ROADS, DETOURS, ETC.)
 - _____ (B) EXISTING ROADS AND STREETS AFFECTED BY CONSTRUCTION, BUT NOT A PART OF THE PROJECT
 - _____ (C) ROUTE NUMBERS, SURVEY LINE NUMBERS, STREET NAMES, ETC.
 - _____ (D) EQUALITIES SHOWN ON SURVEY LINE USED FOR LENGTH OF PROJECT (CHECK WITH EQUALITIES SHOWN ON PLAN SHEETS)
 - _____ (E) PROPOSED BRIDGES AND CULVERTS 20' / 6 m AND OVER
 - _____ (F) STREAMS AND RIVERS
 - _____ (G) RAILROADS
 - _____ (H) CITY LIMITS
 - _____ (I) STATE AND COUNTY LIMITS
 - _____ (J) BEGINNING AND ENDING STATIONS FOR EACH PROJECT
 - _____ (K) BEGINNING AND ENDING STATIONS FOR CONSTRUCTION OUTSIDE PROJECT LIMITS
 - _____ (L) DESTINATION POINTS AT BEGINNING AND ENDING OF PROJECT
 - _____ (M) NORTH ARROW
- (8) PROJECT NUMBER INFORMATION INCLUDES THE FOLLOWING:
 - _____ (A) T.I.P. NUMBER ON LEFT END OF SHEET (CONTRACT NUMBER ON LEFT END OF SHEET)

- _____ (B) P.E. F.A. PROJECT NUMBER IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)
- _____ (C) P.E. WBS ELEMENT IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)
- _____ (9) LENGTH OF PROJECT CORRECT
- _____ (10) SHOW PLANS PREPARED BY: _____
- _____ (11) R/W AND LETTING DATES (MONTH, DATE AND YEAR) (RIGHT OF WAY DATE SHOWN ON TITLE SHEET IS DATE SUBMITTED TO RIGHT OF WAY BRANCH IF NCDOT IS ACQUIRING THE RIGHT OF WAY OR AWARD OF CONTRACT IF THE DESIGN-BUILD TEAM IS ACQUIRING THE RIGHT OF WAY)
- _____ (12) AREAS NOT PART OF PROJECT NOTED
- _____ (13) CLEARING METHOD NOTE
- _____ (14) CHECK FOR DESIGN EXCEPTION NEEDS
- _____ (15) "PRELIMINARY PLANS", SUBMITTAL NUMBER AND SUBMITTAL DATE CLEARLY NOTED

TYPICAL SECTIONS

- _____ (1) PAVEMENT SCHEDULE CORRESPONDS WITH PAVEMENT DESIGN
- _____ (2) PAVEMENT COMPOSITIONS LABELED TO CORRESPOND WITH PAVEMENT SCHEDULE
- _____ (3) DIMENSIONS SHOWN ON PAVEMENT, SUBGRADES, STABILIZATION, SHOULDERS, DITCHES, SLOPES, CENTERLINE TO CENTERLINE, MEDIANS, SIDEWALKS, UTILITY STRIPS, CURB & GUTTER, ETC.
- _____ (4) SLOPES SHOWN ON PAVEMENT, FLEXIBLE PAVEMENT EDGE, SHOULDERS, SUBGRADE, DITCHES, HINGE POINT GRADING, CUTS AND FILLS
- _____ (5) STATION TO STATION SHOWN WITH CORRECT LINE REFERENCE
- _____ (6) STATIONS ARE BROKEN FOR BRIDGES
- _____ (7) GRADING LIMIT LINES SHOWN
- _____ (8) GRADE POINT SHOWN ON EACH TYPICAL SECTION
- _____ (9) INFORMATION RELATED TO FUTURE CONSTRUCTION SHOWN
- _____ (10) VARIABLE LIMITS SHOWN
- _____ (11) NECESSARY NOTES OF EXPLANATION SHOWN

PLAN SHEETS

- _____ (1) BEGINNING AND ENDING STATIONS ARE SHOWN ON FIRST AND LAST PLAN SHEET TO AGREE WITH TITLE SHEET AND TYPICAL SECTIONS
- _____ (2) EXISTING PAVEMENT WIDTH AND TYPE IS SHOWN

- _____ (3) GRADE LINES AND DESIGN CORRECT
- _____ (4) THE FOLLOWING ARE SHOWN ON EACH PLAN AND / OR PROFILE SHEET:
 - _____ (A) NORTH ARROW
 - _____ (B) BEARINGS
 - _____ (C) BENCH MARKS
 - _____ (D) CURVE DATA WITH SUPERELEVATION AND RUNOFF, INCLUDING THE DESIGN SPEED FOR ALL PROPOSED VERTICAL AND HORIZONTAL CURVES
 - _____ (E) CONSTRUCTION LIMITS
 - _____ (F) PROPERTY OWNERS AND PROPERTY LINES
 - _____ (G) ALL EXISTING UTILITIES
 - _____ (H) STREETS, ROADS AND DRIVEWAYS
 - _____ (I) DETOURS
 - _____ (J) DISPOSITION OF OLD ROADS IF PROJECT IS A RELOCATION
 - _____ (K) PROPOSED PAVEMENT AT THE BEGINNING AND END OF EACH SHEET
 - _____ (L) -Y- LINES WITH BEGINNING AND ENDING CONSTRUCTION STATIONS AND STATION TIES WITH MAIN LINE
 - _____ (M) TRAFFIC DATA FOR INTERSECTIONS
 - _____ (N) LIMITS OF PAVED SHOULDERS AT INTERSECTIONS
 - _____ (O) NOTES WHERE SIGHT DISTANCE GRADING IS REQUIRED AT INTERSECTIONS
 - _____ (P) CROSS REFERENCE NOTES CORRECT
 - _____ (Q) SYMBOL DENOTING PAVEMENT REMOVAL LOCATIONS
 - _____ (R) ENSURE BASELINE DATA IS SHOWN AS FOLLOWS: POINT SYMBOL, POINT NUMBER, STATION AND OFFSET FROM DESIGN ALIGNMENT

INTERCHANGE SHEETS

- _____ (1) INTERCHANGE SHEETS PROPERLY MATCHED WITH ADJACENT PLAN SHEET WITH NO OVERLAPPING COVERAGE, IF POSSIBLE
- _____ (2) STRUCTURES CHECKED FOR VERTICAL AND HORIZONTAL CLEARANCES TO ASSURE THAT TIE POINTS AND CENTERLINE GRADES ARE CORRECT
- _____ (3) THE FOLLOWING INFORMATION CORRECTLY SHOWN ON THE INTERCHANGE DETAILS AND PROFILES:
 - _____ (A) TRAFFIC DATA
 - _____ (B) BAR SCALE
 - _____ (C) ADDITIONAL ITEMS AS LISTED UNDER PLANS SHEETS
- _____ (4) CROSS-SECTION LAYOUT DETAIL (NOT ALWAYS REQUIRED FOR DIAMOND INTERCHANGE)
- _____ (5) SUFFICIENT SIGHT DISTANCE PROVIDED AT RAMP TERMINALS AND STRUCTURES

CROSS-SECTIONS

- _____ (1) GROUND LINE, STATIONS AND EXISTING CENTERLINE ELEVATIONS
- _____ (2) TEMPLATES SHOWING CUT AND FILL SLOPES, SLOPE TRANSITIONS, GUARDRAIL WIDENING, ETC.
- _____ (3) GEOLOGY REPORT REVIEWED TO ASSURE CONFORMITY WITH PLANS
- _____ (4) CROSS-SECTIONS CHECK TO ASSURE ADEQUATE SIGHT DISTANCES
- _____ (5) SCALE SHOWN ON EACH SHEET
- _____ (6) NOTE ON FIRST CROSS SECTION: "PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION" AND "DO NOT USE FOR RIGHT OF WAY ACQUISITION"

GUARDRAIL DESIGN

- _____ (1) GUARDRAIL SHOWN FOR BRIDGE PIERS, CULVERTS, LARGE PIPE, SIGN SUPPORTS AND OTHER FIXED OBJECTS
- _____ (2) GUARDRAIL SHOWN FOR PONDS, RIVERS AND OTHER WATER RELATED HAZARDS
- _____ (3) INVESTIGATE "FALSE CUTS"
- _____ (4) INVESTIGATE POSSIBLY FLATTENING SLOPES TO REDUCE GUARDRAIL

GENERAL

- _____ (1) T.I.P. NUMBER IS SHOWN ON ALL SHEETS
- _____ (2) PLANS ARE STAMPED "PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION" AND "DO NOT USE FOR RIGHT OF WAY ACQUISITION"
- _____ (3) ENSURE PLANS INCLUDE ANY "ENVIRONMENTAL COMMITMENTS".

REVIEW LIST FOR RIGHT OF WAY PLANS
EXHIBIT “B”

TITLE SHEET

- _____ (1) CONTROL OF ACCESS NOTE SHOWN ON PLANS, IF APPLICABLE
- _____ (2) METHOD OF CLEARING NOTE
- _____ (3) P.E., RIGHT OF WAY AND UTILITY F.A. PROJECT NUMBERS IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)
- _____ (4) P.E. RIGHT OF WAY AND UTILITY WBS ELEMENTS IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)

- _____ (5) NOTE SPECIFYING MUNICIPAL BOUNDARIES FOR THE PROJECT
- _____ (6) CONTRACT NUMBER ON LEFT END OF SHEET
- _____ (7) “RIGHT OF WAY PLANS”, SUBMITTAL NUMBER AND SUBMITTAL DATE CLEARLY NOTED

TYPICAL SECTIONS

- _____ (1) DIMENSIONS THAT WOULD AFFECT THE RIGHT OF WAY ARE SHOWN

PLAN SHEETS AND PROFILE SHEETS

- _____ (1) RIGHT OF WAY, EASEMENTS AND CONTROL OF ACCESS BREAKS ARE SHOWN BY STATION AND OFFSET
- _____ (2) DETOURS SHOWN WITH REQUIRED DRAINAGE, RIGHT OF WAY AND EASEMENTS
- _____ (3) SERVICE ROADS SHOWN
- _____ (4) DISPOSITION OF OLD ROAD IS SHOWN IN AREAS WHERE A RELOCATION IS NECESSARY
- _____ (5) CONSTRUCTION LIMITS
- _____ (6) DRAINAGE SYSTEMS, BERM DITCHES AND LATERAL DITCHES, INCLUDING DIRECTIONAL ARROWS FOR THE WATER FLOW IN ALL DRAINAGE PIPES
- _____ (7) FENCING LIMITS SHOWN AND TYPE OF FENCE SHOWN
- _____ (8) TEMPORARY EROSION CONTROL MEASURES SHOWN THAT AFFECT RIGHT OF WAY OR EASEMENTS
- _____ (9) PROPERTY OWNERS, PROPERTY LINES AND PARCEL NUMBERS CHECKED AND PROVIDED
- _____ (10) SLOPE STAKE LINES SHOWN

- _____ (11) RIGHT OF WAY, EASEMENT AND CONTROL OF ACCESS BREAKS (MINIMUM 60-FOOT WIDTH REQUIRED) ARE SHOWN BY STATION AND OFFSET DISTANCE
- _____ (12) ALL AREAS THAT ARE TO REMAIN UNDISTURBED WITHIN THE RIGHT OF WAY ARE CLEARLY MARKED
- _____ (13) HYDRAULIC DATA (DRAINAGE AREA, FREQUENCY, ETC.)

CROSS-SECTIONS

- _____ (1) TEMPLATES SHOW ALL CONSTRUCTION LIMITS AFFECTING RIGHT OF WAY AND EASEMENTS
- _____ (2) TEMPLATES SHOW CUT AND FILL SLOPES, SLOPE TRANSITIONS, GUARDRAIL WIDENING, DITCHES, CHANNEL CHANGES, ETC.

GENERAL

- _____ (1) CULVERT AND STRUCTURE LOCATIONS HAVE BEEN REVIEWED TO ASSURE ADEQUATE RIGHT OF WAY AND / OR EASEMENT IS PROVIDED FOR ALL STRUCTURE DESIGNS AND CONSTRUCTION
- _____ (2) ADEQUATE CONSTRUCTION AREAS ARE AVAILABLE FOR DRAINAGE AND EROSION CONTROL MEASURES
- _____ (3) ADDITIONAL RIGHT OF WAY REQUIREMENTS TO ACCOMMODATE NOISE ABATEMENT MEASURES HAVE BEEN INVESTIGATED
- _____ (4) CONTROL OF ACCESS HAS BEEN ESTABLISHED AND PROPERTY ACCESS HAS BEEN PROVIDED BY SERVICE ROADS OR ACCESS POINTS WHEN NECESSARY
- _____ (5) DESIGN EXCEPTION REQUESTED AND APPROVED

- _____ (6) REMOVE "DO NOT USE FOR RIGHT OF WAY ACQUISITION" NOTE FROM ALL SHEETS
- _____ (7) PLACE SURVEY CONTROL SHEETS IN THE NO. 1 SERIES OF SHEETS, AFTER THE CONVENTIONAL SYMBOLS SHEET
- _____ (8) PLACE CENTERLINE COORDINATE LIST IN NO. 1 SERIES SHEETS AFTER SURVEY CONTROL SHEETS (APPLICABLE TO NEW LOCATION PROJECTS)

REVIEW LIST FOR FINAL ROADWAY PLANS
EXHIBIT "C"

TITLE SHEET

- _____ (1) LOCATION OF PROJECT IS COMPLETE AND ACCURATE
- _____ (2) COUNTY IS SHOWN
- _____ (3) TYPE OF WORK INCLUDES ALL ITEMS SHOWN ON CURRENT TENTATIVE LETTING LIST
- _____ (4) GRAPHIC SCALES ARE SHOWN FOR PLAN AND PROFILE SHEETS
- _____ (5) DESIGN DATA IS SHOWN
- _____ (6) CONTROL OF ACCESS NOTE SHOWN
- _____ (7) SHOW ANY ADDITIONAL "CONVENTIONAL SYMBOLS" ON SHEET 1B
- _____ (8) VICINITY MAP INCLUDES THE FOLLOWING:
 - _____ (A) CITY AND CITY LIMITS
 - _____ (B) INTERSTATE, U.S. AND STATE ROUTES
 - _____ (C) NORTH ARROW
 - _____ (D) BEGINNING AND END OF PROJECT
 - _____ (E) TITLE BLOCK
 - _____ (F) OFFSITE DETOURS
- _____ (9) PROJECT LAYOUT ON NUMBERED SUPERIMPOSED SHEETS INCLUDES THE FOLLOWING:
 - _____ (A) PROJECT ALIGNMENT FOR ALL PROPOSED CONSTRUCTION, (-L- LINES, -Y- LINES, SERVICE ROADS, DETOURS, ETC)
 - _____ (B) EXISTING ROADS AND STREETS AFFECTED BY CONSTRUCTION BUT NOT A PART OF THE PROJECT
 - _____ (C) ROUTE NUMBERS, SURVEY LINE NUMBERS, STREET NAMES, ETC.
 - _____ (D) SYMBOLS FOR PROPOSED BRIDGES AND CULVERTS 20' / 6 m AND OVER WITH BEGINNING AND ENDING STATIONS
 - _____ (E) STREAMS AND RIVERS
 - _____ (F) RAILROADS
 - _____ (G) CITY LIMITS
 - _____ (H) STATE AND COUNTY LIMITS
 - _____ (I) BEGINNING AND ENDING STATIONS FOR EACH PROJECT
 - _____ (J) BEGINNING AND ENDING STATIONS FOR CONSTRUCTION OUTSIDE PROJECT LIMITS
 - _____ (K) DESTINATION POINTS AT BEGINNING AND ENDING OF PROJECT
 - _____ (L) NORTH ARROW

- (10) PROJECT NUMBER INFORMATION INCLUDES THE FOLLOWING:
 - _____ (A) PROJECT CONTRACT NUMBER AND T.I.P. NUMBER ON LEFT END OF SHEET
 - _____ (B) P.E., R/W, UTILITY AND CONSTRUCTION F.A. PROJECT NUMBERS IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)
 - _____ (C) P.E., R/W, UTILITY AND CONSTRUCTION WBS ELEMENTS IN PROJECT IDENTIFICATION BLOCK (TOP RIGHT CORNER)
- _____ (11) LENGTH OF PROJECT CORRECT (LENGTH SHOWN FOR ROADWAY, STRUCTURE AND TOTAL PROJECT)
- _____ (12) SHOWN PLANS PREPARED BY: _____
- _____ (13) MONTH, DAY AND YEAR OF R/W AND LETTING SHOWN
- _____ (14) AREAS NOT PART OF PROJECT NOTED
- _____ (15) REMOVE NOTE FOR MUNICIPAL BOUNDARIES
- _____ (16) "FINAL PLANS", SUBMITTAL NUMBER AND SUBMITTAL DATE CLEARLY NOTED

INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS

- _____ (1) INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS ARE SHOWN ON SHEET 1-A

TYPICAL SECTIONS

- _____ (1) PAVEMENT SCHEDULE CORRESPONDS WITH PAVEMENT DESIGN
- _____ (2) PAVEMENT COMPOSITIONS LABELED TO CORRESPOND WITH PAVEMENT SCHEDULE
- _____ (3) DIMENSIONS SHOWN ON PAVEMENT, SUBGRADES, STABILIZATION, SHOULDERS, DITCHES, SLOPES, CENTERLINE TO CENTERLINE, MEDIANS, SIDEWALKS, UTILITY STRIPS, CURB & GUTTER, ETC.
- _____ (4) SLOPES SHOWN ON PAVEMENT, FLEXIBLE PAVEMENT EDGE, SHOULDERS, SUBGRADE, DITCHES, HINGE POINT GRADING, CUTS AND FILLS
- _____ (5) STATION TO STATION SHOWN WITH CORRECT LINE REFERENCE
- _____ (6) STATIONS ARE BROKEN FOR BRIDGES AND EQUALITIES
- _____ (7) GRADING LIMIT LINES SHOWN
- _____ (8) GRADE POINT SHOWN ON EACH TYPICAL SECTION
- _____ (9) INFORMATION RELATED TO FUTURE CONSTRUCTION SHOWN
- _____ (10) VARIABLE LIMITS SHOWN
- _____ (11) NECESSARY NOTES OF EXPLANATION SHOWN
- _____ (12) TYPICAL SECTIONS INCLUDED FOR ALL TEMPORARY PAVEMENT DESIGNS

DETAILS (WHERE APPLICABLE)

- _____ (1) INTERSECTIONS AND ISLANDS WITH DETAILS
- _____ (2) TEMPORARY DETOURS
- _____ (3) RIP RAP NOT SHOWN BY STANDARDS
- _____ (4) SPECIAL PAVED DITCHES OTHER THAN ON STANDARDS
- _____ (5) FUNNEL DRAIN INSTALLATION (SPECIAL INSTALLATION, NOT STD.)
- _____ (6) BENCH CUT SLOPES
- _____ (7) UNDERCUT EXCAVATION
- _____ (8) PRE-SPLITTING OF ROCK CUTS
- _____ (9) SPECIAL DRAINAGE STRUCTURE OR ENDWALLS
- _____ (10) SPECIAL DITCHES
- _____ (11) GUARDRAIL NOT COVERED BY STANDARDS
- _____ (12) ASPHALT WEARING SURFACE ON CORED SLAB BRIDGES
- _____ (13) TEMPORARY SHORING

PLAN SHEETS

- _____ (1) BEGINNING AND ENDING STATIONS ARE SHOWN ON FIRST AND LAST PLAN SHEET TO AGREE WITH TITLE SHEET AND TYPICAL SECTIONS
- _____ (2) EXISTING PAVEMENT WIDTH AND TYPE IS SHOWN
- _____ (3) GRADE LINES AND DESIGN CORRECT
- _____ (4) THE FOLLOWING ARE SHOWN ON EACH PLAN AND / OR PROFILE SHEET:
 - _____ (A) NORTH ARROW
 - _____ (B) BEARINGS
 - _____ (C) BENCH MARKS
 - _____ (D) CURVE DATA WITH SUPERELEVATION AND RUNOFF INCLUDING THE DESIGN SPEED FOR ALL PROPOSED VERTICAL AND HORIZONTAL CURVES
 - _____ (E) CONSTRUCTION LIMITS, BERM DITCHES AND LATERAL DITCHES
 - _____ (F) PROPERTY OWNERS, PROPERTY LINES AND PARCEL NUMBERS
 - _____ (G) R/W, EASEMENT, CONTROL OF ACCESS BREAKS (MINIMUM 60-FOOT WIDTH) BY STATION AND OFFSET DISTANCE
 - _____ (H) AREAS TO REMAIN UNDISTURBED WITHIN THE RIGHT-OF-WAY ARE CLEARLY MARKED
 - _____ (I) FENCE AND TYPE
 - _____ (J) STREETS, ROADS AND DRIVEWAYS

- _____ (K) DETOURS
- _____ (L) DISPOSITION OF OLD ROADS IF PROJECT IS A RELOCATION
- _____ (M) DIMENSIONS OF PAVEMENT AND SHOULDERS IN
RELATION TO PROPOSED BRIDGE WIDTH (SKETCH)
- _____ (N) PROPOSED PAVEMENT AND RIGHT-OF-WAY WIDTHS AT
THE BEGINNING AND END OF EACH SHEET
- _____ (O) SHOW LANE LINES AT INTERSECTIONS, TAPERS,
AUXILIARY LANES, ETC.
- _____ (P) -Y- LINES WITH BEGINNING AND ENDING CONSTRUCTION
STATIONS AND STATION TIES WITH MAIN LINE
- _____ (Q) TRAFFIC DATA FOR INTERSECTIONS
- _____ (R) LIMITS OF PAVED SHOULDERS AT INTERSECTIONS
- _____ (S) NOTES WHERE SIGHT DISTANCE GRADING IS REQUIRED
AT INTERSECTIONS
- _____ (T) REMOVAL OF EXISTING PIPES
- _____ (U) PIPES TO BE PLUGGED
- _____ (V) CROSS REFERENCE NOTES CORRECT
- _____ (W) SYMBOL DENOTING PAVEMENT REMOVAL LOCATIONS
- _____ (X) BEGINNING AND ENDING STATIONS FOR BRIDGES AND
CULVERTS
- _____ (Y) STRUCTURAL SHEET NUMBERS
- _____ (Z) HYDRAULIC DATA (DRAINAGE AREA, FREQUENCY, ETC.)
- _____ (AA) QUANTITY OF RIP RAP AT EACH LOCATION

- _____ (BB) QUANTITY OF FILTER FABRIC FOR DRAINAGE AT EACH
LOCATION
- _____ (CC) LAYOUT OF SYMBOLS FOR TYPES OF CONCRETE
PAVEMENT (THROUGH LANES, RAMPS AND
MISCELLANEOUS)
- _____ (DD) DRAINAGE SYSTEMS, BERM DITCHES AND LATERAL
DITCHES, INCLUDING DIRCTIONAL ALLOWS FOR THE
WATER FLOW IN ALL DRAINAGE PIPES
- _____ (EE) DATUM DESCRIPTIONS (NOT APPLICABLE TO PROJECTS
WITH SURVEY CONTROL SHEETS)

- _____ (FF) ENSURE BASELINE DATA IS SHOWN AS FOLLOWS: POINT
SYMBOL AND POINT NUMBER

INTERCHANGE SHEETS

- _____ (1) INTERCHANGE SHEETS PROPERLY MATCHED WITH ADJACENT PLAN SHEET WITH NO OVERLAPPING COVERAGE, IF POSSIBLE
- _____ (2) STRUCTURES CHECKED FOR VERTICAL AND HORIZONTAL CLEARANCES TO ASSURE THAT TIE POINTS AND CENTERLINE GRADES ARE CORRECT
- _____ (3) THE FOLLOWING INFORMATION SHOWN ON THE INTERCHANGE DETAILS AND PROFILES:
 - _____ (A) TRAFFIC DATA
 - _____ (B) BAR SCALE
 - _____ (C) ADDITIONAL ITEMS AS LISTED UNDER PLANS SHEETS
- _____ (4) CROSS-SECTION LAYOUT DETAIL (NOT ALWAYS REQUIRED FOR DIAMOND INTERCHANGE)

INTERSECTION SHEETS

THE INFORMATION SHOWN ON THE INTERSECTION DETAILS SHALL BE RESTRICTED TO DESIGN DATA ONLY. THE FOLLOWING SHALL BE SHOWN:

- _____ (1) SHOW INFORMATION FOR CONSTRUCTING THREE CENTERED CURVES IF NOT SHOWN IN THE DESIGN MANUAL
- _____ (2) ISLAND DETAILS
- _____ (3) LEGEND FOR ISLANDS, SIDEWALKS, WHEEL CHAIR RAMPS,
- _____ (4) ALIGNMENT
- _____ (5) LANE MARKINGS
- _____ (6) BAR SCALE
- _____ (7) PROPOSED EDGES OF PAVEMENT
- _____ (8) NORTH ARROWS
- _____ (9) SUPERELEVATION RATES
- _____ (10) PAVED SHOULDER WIDTHS
- _____ (11) SUFFICIENT DIMENSIONS AND TIE POINTS FOR FIELD LOCATION AND CONSTRUCTION

CROSS-SECTIONS

- _____ (1) GROUND LINE, STATIONS AND EXISTING CENTERLINE ELEVATIONS SHOWN
- _____ (2) TEMPLATES SHOWING CUT AND FILL SLOPES, SLOPE TRANSITIONS, GUARDRAIL WIDENING, DITCHES, CHANNEL CHANGES, ETC.

- _____ (3) PRE-SPLITTING OF ROCK CUT SLOPES SHOWN AND LABELED
- _____ (4) CROSS-SECTIONS CHECK TO ASSURE ADEQUATE SIGHT DISTANCES AT BRIDGES, RAMP TERMINALS, INTERSECTIONS AND MAJOR ENTRANCES WITH LARGE TRAFFIC VOLUMES
- _____ (5) SCALE SHOWN ON EACH SHEET
- _____ (6) LABEL CUT AND FILL SLOPES

GUARDRAIL DESIGN

- _____ (1) GUARDRAIL SHOWN FOR BRIDGE PIERS, CULVERTS, LARGE PIPE, SIGN SUPPORTS AND OTHER FIXED OBJECTS
- _____ (2) GUARDRAIL SHOWN FOR PONDS, RIVERS AND OTHER WATER RELATED HAZARDS
- _____ (3) GUARDRAIL SHOWN ON PLANS
- _____ (4) SPECIAL DETAILS SHOWN AS REQUIRED
- _____ (5) GUARDRAIL IS IN ACCORDANCE TO STANDARDS

GENERAL

- _____ (1) NOTE TYPE OF PIPE TO BE USED FOR CROSS DRAINS UNDER HIGH TYPE PAVEMENT AND FOR SIDE DRAINS OVER 24 INCHES / 600 MM
- _____ (2) REMOVE “PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION” NOTE FROM ALL SHEETS
- _____ (3) LIST OF APPLICABLE “ROADWAY STANDARDS” COMPLETED
- _____ (4) LIST OF “GENERAL NOTES” COMPLETED
- _____ (5) RIGHT-OF-WAY REVISION NOTES REMOVED FROM THE PLANS
- _____ (6) T.I.P. NUMBER IS SHOWN ON ALL SHEETS
- _____ (7) COORDINATE FINAL PLANS TO ENSURE COMPLIANCE WITH PERMIT
- _____ (8) RIGHT-OF-WAY PLAN SHEET NUMBER SHOWN ON THE PLANS IN THE MARGIN ABOVE THE TITLE BLOCK (EXAMPLE R/W-102) (ONLY IF DIFFERENT SHEET NUMBERS)
- _____ (9) PLACE P.E. SEALS ON PLANS
- _____ (10) PROVIDE SHOULDER DRAIN LOCATIONS
- _____ (11) REINFORCED BRIDGE APPROACH FILLS ARE REQUIRED FOR EACH PROPOSED BRIDGE UNLESS THE FOUNDATION RECOMMENDATION STATES OTHERWISE.

- _____ (12) PROVIDE SEALED TYPICAL SECTIONS FOR FINAL PAVEMENT DESIGNS
- _____ (13) ENSURE PLANS INCLUDE ANY “ENVIRONMENTAL COMMITMENTS”.
- _____ (14) ALL SHEETS IN PLANS MUST BE 34” WIDE X 22” HIGH.
- _____ (15) DESIGN EXCEPTIONS ARE TO BE NOTED ON PLANS.

- _____ (16) PLACE "SURVEY CONTROL SHEETS" (APPLICABLE TO PROJECTS SENT TO R/W AFTER 03-01-2003) IN THE 1 SERIES OF SHEETS AFTER THE "CONVENTIONAL SYMBOLS" SHEET.

SPECIAL PROVISIONS

- _____ (1) SPECIAL PROVISIONS WRITTEN FOR ITEMS AND CONTRACT IMPLEMENTATION ITEMS NOT COVERED BY THE CURRENT “STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES”, PROJECT SPECIAL PROVISIONS OR STANDARD SPECIAL PROVISIONS.

PAVEMENT DESIGN

The Pavement submittals will consist of typical sections, shoulder drains and temporary pavement designs, including but not limited to the evaluation of existing shoulders and roadways regarding their suitability for carrying traffic.

Typical Sections

This submittal shall include all typical sections, wedging details and pavement schedules required to build the project. Prior to submittal, the Design-Build Team's Roadway Design Engineer of Record shall have signed and sealed the typical sections.

Prerequisites:

- Accepted Foundation Design Recommendation Report

Total Number Required: (1 Full-Size)

- NCTA Director of Construction (1 Full-size PDF)
Post directly onto Constructware
- Transportation Program Management Unit (1 Full Size)

Shoulder Drains

This submittal shall include the shoulder drain locations, designs and outlet locations, including all required details.

Prerequisites:

- Accepted Foundation Design Recommendation Report
- Accepted 100% Hydraulic Design

Total Number Required: (1 Full-Size)

- NCTA Director of Construction (1 Full-size PDF)
Post directly onto Constructware
- Transportation Program Management Unit (1 Full Size)

Temporary Pavement Design

This submittal shall include all information / calculations required to review the temporary pavement design, including but not limited to the temporary traffic volumes, duration of use, existing pavement structure and geotechnical details.

Prerequisites:

- Accepted appropriate Traffic Control Plans

Total Number Required:

(1 Full-Size)

- NCTA Director of Construction (1 Full-size PDF)
Post directly onto Constructware
- Transportation Program Management Unit (1 Full Size)

STRUCTURE DESIGN

Plan submittals for bridges will be delineated into two stages, preliminary and final. Culvert and noise wall plans may be submitted in one stage. For retaining wall plan submittals, see "Geotechnical Design" later in this chapter.

Bridge Preliminary General Drawings

Preliminary General Drawings shall contain sufficient details (drawings or narrative) to explain the scope of design and construction intended for the bridge, and shall list all anticipated special provisions and notes describing design data and material properties.

Prerequisites:

- ❑ Accepted Preliminary Roadway Plans
- ❑ Accepted Roadway Structure Recommendations
- ❑ Accepted Hydraulic Bridge Survey Report
- ❑ Provide two sets of Half-size plans and reports / recommendations of the above to Transportation Program Management Unit concurrently with this bridge submittal

Total Number Required:

(1 Full-size, 4 – 6 Half-size)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Half-size)
- ❑ Structure Design Unit (2 Half-size)
- ❑ Railroad Division, if applicable (1 Half-size)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT

- Geotechnical Engineering Unit (1 Half-size)
 - For information only

Bridge Substructure / Superstructure Final Plans

Final Plans are expected to have all plan details and notes completed for final review. The Final Plans may be separated into substructure and superstructure or other submittals as necessary to accommodate construction schedules.

All comments by the NCTA, FHWA, Railroad, or other agency on all submittals shall be addressed in writing and by making appropriate changes to designs or drawings before construction of those elements begins.

Prerequisites:

- Accepted Bridge Geotechnical Foundation Recommendations
- Provide two sets of recommendations to Transportation Program Management Unit concurrently with this bridge submittal

Total Number Required: (2 Full-size, 4 - 6 Half-size)

- NCTA Project Manager (2 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Railroad Division, if applicable (1 Half-size)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- Transportation Program Management Unit (1 Half-size)
- Structure Design Unit (2 Half-size)
- Geotechnical Engineering Unit (1 Half-size)

Bridge / Culvert RFC Plans

One complete set of original design files shall be submitted concurrently with the RFC plans submitted to the Transportation Program Management Unit and the NCTA Director of Construction. Structure Project Special Provisions may be found through the NCDOT website. The record plan set, design files, and Project Special Provisions shall bear the seal of a North Carolina registered Professional Engineer.

Total Number Required: (2 Full-size, 5 – 7 Half-size, 5 - 7 sets of PSPs)

- NCTA Project Manager (2 Full-size and 2 sets of PSPs)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 set of PSPs PDF)
 - Post directly onto Constructware
- Railroad Division, if applicable (1 Half-size and 1 set of PSPs)
- FHWA, if applicable (1 Half-size and 1 set of PSPs)
 - Sent directly by the DBT
- Transportation Program Management Unit (1 Half-size and 1 set of PSPs)
- Structure Design Unit (2 Half-size and 2 sets of PSPs)
- Geotechnical Engineering Unit (1 Half-size and 1 set of PSPs)
- Materials and Tests Unit (2 Half-size)
 - For Prestressed Concrete Bridges only

Working Drawing Submittals

Working drawing submittals shall be in accordance with the “Submittal of Working Drawings” Project Special Provision available at the following site:

<http://www.ncdot.org/doh/preconstruct/highway/structur/psp/PSP2012/PSP033.doc>

Sufficient data and one set of the applicable RFC plans shall be submitted prior to, or with, the working drawings to facilitate review.

These submittals shall be submitted to the State Transportation Program Management Director and shall be covered with a color-coded transmittal form. All other aspects of the aforementioned Project Special Provision apply, including the number of copies and concurrent submittal to the NCTA Project Manager. All working drawing submittals shall include a submittal number with the prefix “WD-“

Responses to working drawing submittals will be routed directly to the NCTA Project Manager, with a copy of the response to the State Transportation Program Management Director.

HYDRAULIC DESIGN

Hydraulic design plans shall not be submitted prior to the NCTA's acceptance of the Preliminary Roadway Plans. Culvert and bridge survey reports are also required unless otherwise noted in the Final Contract that the NCTA will provide them. Any design and / or construction methods that nullify a culvert or bridge survey report provided by the NCTA shall require the Design-Build Team to revise and submit the report as noted below. The NCDOT Hydraulics Unit also reviews key submittals for permit application packages. The Design-Build Team is solely responsible for ensuring that the design plans exactly match those details included in the permit impact sheets.

Preliminary Bridge / Culvert Survey Reports

Prior to submittal of the Preliminary Roadway Plans, the Design-Build Team shall provide one of the following:

- If the proposed grade is not hydraulically controlled at bridge / culvert location(s), the Design-Build Team shall provide a letter to the NCTA stating such.
- If the proposed grade is hydraulically controlled at bridge / culvert location(s), the Design-Build Team shall provide preliminary reports that are clearly identified as preliminary.

<u>Total Number Required:</u>	(2 Copies)
<input type="checkbox"/> NCTA Director of Construction	(1 Copy PDF)
<input type="checkbox"/> Post directly onto Constructware	
<input type="checkbox"/> Transportation Program Management Unit	(1 Copy)
<input type="checkbox"/> Hydraulics Unit	(1 Copy)

Bridge / Culvert Survey Reports

Prerequisites:

Accepted Preliminary Roadway Plans and x-sections

<u>Total Number Required:</u>	(3 Copies)
<input type="checkbox"/> Transportation Program Management Unit	(1 Copy)
<input type="checkbox"/> Hydraulics Unit	(1 Copy)
<input type="checkbox"/> NCTA Project Manager	(1 Copy)

- Sent directly by the DBT
- NCTA Director of Construction (1 Copy PDF)
 - Post directly onto Constructware

Upon acceptance from the NCTA, the Design-Build Team shall provide a report signed and sealed by a Professional Engineer registered in the State of North Carolina for each of the Units noted below, for informational purposes only.

- Transportation Program Management Unit
- Hydraulics Unit
- Structure Design Unit
- Geotechnical Engineering Unit Regional Office
- Roadside Environmental Unit (If construction phasing is required)
- NCTA Project Engineer
 - Sent directly by the DBT
- NCTA Director of Construction (PDF Format)
 - Post directly onto Constructware

Concurrence Point 4B Meeting (30% Plans)

This submittal shall include the Title Sheet and all Plan Sheets. The Plan Sheets should incorporate subdued contour lines. If subdued contour lines are not legible, two copies of each plan sheet shall be required, one with contour lines and one without. Unless otherwise stated in the RFP, this submittal shall be submitted a minimum of five weeks prior to the 4B Meeting as applicable for review. Design-Build Teams shall make available full size 30% red-line drainage with contours at the 4B Meeting for the primary use of the conceptual hydraulic design layout review. The red-line drainage shall not be included in the plan distribution prior to the meeting.

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections
- One set of Preliminary Roadway Plans to be submitted concurrently with this submittal

Total Number Required: (3 Half-size)

- Transportation Program Management Unit (1 Half-size)
- Hydraulics Unit (include 30% full-size red-line drainage at 4B mtg.) (1 Half-size)

- PDEA (1 Half-size)
- NCTA Director of Construction (1 Half-size PDF)
 - Post directly onto Constructware

Upon acceptance from the NCTA, submit one additional set of half-size plans for each of the above Units as stated above and for each of the following agencies. This submittal shall provide adequate time for the NCTA to forward the plans to the agencies for their receipt a minimum of two weeks prior to the 4B meeting.

US Army Corps of Engineers

NC Wildlife Resources Commission

US Fish and Wildlife Service

NC DENR - Division of Water Quality

EPA

All Other Agencies and NCDOT Personnel as Needed

100% Hydraulic Design

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections

Number Required:

(3 Full-size)

- Transportation Program Management Unit (1 Full-size)
- Hydraulics Unit (include hydraulic calculations and red-line mark ups) (1 Full-size)
- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware

4C and / or Permit Application / Modification Review Submittal

This submittal shall include all necessary documents required for a permit application including, but not necessarily limited to a cover letter, meeting minutes, plans, permit impact sheets, and forms. Unless otherwise stated in the RFP, this package shall be submitted a minimum of five weeks prior to the intended permit application submittal date or 4C meeting, as applicable.

Prerequisites:

- Accepted 100% Hydraulic Plans

Number Required:

(5 or 7 Half-size)

- Transportation Program Management Unit (1 Half-size)
- Hydraulics Unit (1 Half-size)
- PDEA (2 Half-size)
- Structure Design Unit (If causeway is required) (1 Half-size)
- NCTA Project Manager (1 Half-size)
- NCTA Director of Construction (1 Half-size PDF)
 - Post directly onto Constructware

Upon acceptance from the NCTA, submit one set of half-size plans and permit impact sheets for each of the above Units and for each of the following agencies. This submittal shall provide adequate time for the NCTA to forward the plans and permit impact sheets to the agencies for their receipt a minimum of two weeks prior to the 4C meeting.

US Army Corps of Engineers
US Fish and Wildlife Service
EPA

NC Wildlife Resources Commission
NC DENR - Division of Water Quality
All Other Agencies and NCDOT Personnel as
Needed

GEOTECHNICAL DESIGN

The Geotechnical submittals will consist of retaining wall plans and design, foundation recommendations, and temporary shoring plans and designs, and other items as required by the RFP. Permanent retaining walls do not require a Foundation Design Recommendation Report.

Permanent Retaining Wall Layout

For each retaining wall, with the exception of standard gravity walls, submit a wall layout and design. The wall layout submittal shall include (1) wall envelope with top and bottom of wall, existing ground and finished grade elevations at incremental stations; (2) wall alignment with stations and offsets; (3) typical sections showing top and bottom of wall, drainage, embedment, slopes, barriers, fences, etc.; and (4) details of conflicts with utilities and drainage structures. This submittal must also include calculations for bearing capacity, global stability and settlement.

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections at wall locations
- Provide 1 Half-size set of each of the above concurrently with the wall layout

Total Number Required:

(3 Full-size and 1 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Full-size)
- Geotechnical Engineering Unit Regional Office (1 Full-size)
- Structure Design Unit (1 Half-size)

Permanent Retaining Wall Design

If temporary shoring is required to construct a retaining wall, submit the temporary shoring design as part of the wall design submittal.

Prerequisites:

- ❑ Accepted Retaining Wall Layout
- ❑ Temporary Shoring Design (if required for construction of retaining wall)
- ❑ Provide 1 set of each of the above with each Retaining Wall design

Total Number Required: (5 Full-size)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Full-size)
- ❑ Geotechnical Engineering Unit Regional Office (1 Full-size)
- ❑ Structure Design Unit (1 Full-size)
- ❑ FHWA, if applicable (1 Full-size)
 - Sent directly by the DBT

Foundation Design Recommendation Reports

A separate Structure Foundation Design Recommendation Report is required for each structure (bridges and culverts). In addition one Roadway Foundation Design Recommendation Report is required for the entire project to include all items with exception to bridges, culverts and permanent retaining walls. All sound barrier foundations shall be addressed in a foundation design report and will be considered one submittal.

All Foundation Design Recommendation Reports, plans, Project Special Provisions and calculations shall be sealed by a registered Professional Engineer licensed in the state of North Carolina.

Total Number Required: (5 sets of all reports, PSPs, and calculations)

- ❑ NCTA Project Manager (1 set)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware

- Transportation Program Management Unit (1 set)
- Geotechnical Engineering Unit Regional Office (2 sets)
- FHWA, if applicable (1 set)
 - Sent directly by the DBT

Soil Improvement and Reinforced Fill Designs

Submit each soil improvement and reinforced fill design in two stages. The first is a conceptual design and the latter is a final design. The conceptual design must be reviewed and accepted prior to the submission of the final design. All designs shall be sealed by a registered Professional Engineer licensed in the state of North Carolina.

Total Number Required: (4 - 5 sets of designs)

- NCTA Project Manager (1 set)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)
- Geotechnical Engineering Unit Regional Office (2 sets)
- FHWA, if applicable (1 set)
 - Sent directly by the DBT

TRAFFIC CONTROL

The Traffic Control Plans shall be submitted in three distinct phases, including a staging concept, phase submittals, and RFC plans.

The Design-Build Team shall follow the "Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design Build Projects", available through the NCTA website, as a guideline for developing plans.

Traffic Control Staging Concept

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections
- Accepted 30% Hydraulics Plans
- Accepted Bridge Preliminary General Drawings (if staging construction)
- Provide 1 set of the above with each staging concept submittal

Total Number Required:

(2 Full-size and 2 - 3 Half-size)

- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Full size and 1 Half-size)
- Work Zone Traffic Control Unit (1 Full Size and 1 Half-size)
- Signals Section, if applicable (1 Half-size)

Traffic Control Phase Submittals

Phase submittals shall include more detailed information than that required for the staging concept. A separate submittal shall be required for each Traffic Control Phase unless prior approval of another submittal process is obtained from the Transportation Program Management Director.

Prerequisites:

- Accepted Culvert and Structure Staging
- Accepted Temporary Signal Plans
- Provide 1 Half-size set of Signals Plans, if applicable

Total Number Required: (2 Full-size and 3 - 5 Half-size)

- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Work Zone Traffic Control Unit (1 Full Size and 1 Half-size)
- Signals Section, if applicable (1 Half-size)
- Signing and Delineation Unit, if submittal contains detour signing (1 Half-size)

Traffic Control RFC Plans

The Design-Build Team shall release Traffic Control Plans for construction one phase at time, unless prior approval is obtained from the Transportation Program Management Director.

Total Number Required: (2 Full-size and – 4 - 5 Half-size)

- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Work Zone Traffic Control Unit (1 Full Size and 1 Half-size)
- Signals Section, if applicable (1 Half-size)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT

PAVEMENT MARKINGS

The Design-Build Team shall follow the “Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects”, available through the NCTA website, as a guideline for developing plans

Preliminary Pavement Marking Plans

Prerequisites:

- ❑ Accepted Right of Way/Roadway Plans
- ❑ Provide 1 Half-size set of Right of Way/Roadway Plans with this submittal

Total Number Required: (2 Full-size and 5 - 6 Half-size)

- ❑ NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Half-size)
- ❑ Signing and Delineation Unit (1 Full-size and 1 Half-size)
- ❑ Work Zone Traffic Control Unit (1 Half-size)
 - (For Information Only)
- ❑ Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT
- ❑ Signals Section, if applicable (1 Half-size)

Final Pavement Marking Plans

Prerequisites:

- ❑ Final Signals Plans
- ❑ Provide 1 Half-size set of Final Signal Plans with this submittal

Total Number Required: (2 Full-size and – 4 - 5 Half-size)

- ❑ NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware

- Transportation Program Management Unit (1 Half-size)
- Signing and Delineation Unit (1 Full-size and 1 Half-size)
- Work Zone Traffic Control Unit (1 Half-size)
 - (For Information Only)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT
- Signals Section, if applicable (1 Half-size)

RFC Pavement Marking Plans

After the reviewed Final Pavement Marking Plan is returned, if any comments require changes to the plans, a sealed set of revised plans will be required before final traffic control devices, final pavement markings and final pavement markers can be installed. Otherwise, the Final Pavement Marking Plans can be signed and sealed by a Professional Engineer registered in the State of North Carolina and re-distributed as RFC Plans as follows:

- Total Number Required: (2 Full-size and – 4 - 6 Half-size)
- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
 - NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
 - Transportation Program Management Unit (1 Half-size)
 - Signing and Delineation Unit (1 Full-size and 1 Half-size)
 - Signals Section, if applicable (1 Half-size)
 - Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT

TRAFFIC SIGNAL & INTELLIGENT TRANSPORTATION SYSTEMS

The Traffic Signal & Intelligent Transportation System Plans shall be divided into Preliminary, Final and RFC plans. The Traffic Signal & Intelligent Transportation System Plans shall follow the “Guidelines for Preparation of Traffic Signal & Intelligent Transportation System Plans on Design-Build Projects” available on the NCTA website.

For all plan submittals, the Design-Build Team shall provide the NCTA a copy of all supporting documentation, computer files (in native format), and any other pertinent information as required for a complete and accurate review by the Department. Supporting documentation may include, but not be limited to the information shown in the Guidelines mentioned above.

The Design-Build Team shall develop plans using the current version of Microstation software required by the NCDOT and shall be in English units, unless otherwise noted in the Final Contract. The plans shall follow the NCDOT’s CADD standards including, but not limited to, file naming convention, leveling chart, and file folder structure. These standards can be found through a link on the NCDOT website.

The Design-Build Team shall submit electronic files of the Traffic Signal & Intelligent Transportation System Plans once they are released for construction.

Traffic Signal Plans (Preliminary, Final, & RFC)

-

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections
- Accepted 30% Hydraulic Plans (red-line drainage)

Total Number Required:

(3 Full-size and 7 Half-size)

- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Signals and/or ITS Section (as applicable) (2 Full-size and 2 Half-size)
- Division Traffic Engineer (1 Half-size)

- Sent directly by the DBT
- Regional ITS Engineer (as applicable) (1 Half-size)
 - Sent directly by the DBT
- Traffic Systems Operation (as applicable) (1 Half-size)
 - Sent directly by the DBT

Utility Make-Ready Plans (Preliminary, Final, & RFC)

Total Number Required: (3 Full-size and 7 Half-size)

- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Signals or ITS Section (as applicable) (2 Full-size and 2 Half-size)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT
- Regional ITS Engineer (as applicable) (1 Half-size)
 - Sent directly by the DBT
- Traffic Systems Operation (as applicable) (1 Half-size)
 - Sent directly by the DBT

Electrical and Programming Detail Plans (Final & RFC)

Final Electrical and Programming Detail Plans must be sealed by a Professional Engineer registered in the State of North Carolina.

Prerequisites:

- Accepted Preliminary Traffic Signal Plans

Total Number Required:

(3 Full-size and 5 Half-size)

-
- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Signals or ITS Section (as applicable) (2 Full-size and 2 Half-size)
- Division Traffic Engineer or Regional ITS Engineer (as applicable) (1 Half-size)
 - Sent directly by the DBT

Intelligent Transportation System Plans (Preliminary, Final, & RFC)

The ITS Plans will include the following information with all supporting documentation and information in addition to the material described in the “Guidelines for Preparation of Traffic Signal & Intelligent Transportation System Plans on Design-Build Projects”:

- Typical details,
- Plan specific details,
- Communications cable routing,
- Communications schematic (aka logic diagram)
 - Separate 1-sheet diagrams for ITS network and tolls network
- Splicing details
- Cable attachment locations (as applicable),
- Block diagrams,
- Structural details,
- Mounting details, and
- Equipment rack layouts.

All plans must be sealed by a Professional Engineer registered in the State of North Carolina.

Prerequisites:

- Accepted Final Utility Make-Ready Plans

Total Number Required: (3 Full-size and 7 Half-size)

-
- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Signals and/or ITS Section (as applicable) (2 Full-size and 2 Half-size)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT
- Regional ITS Engineer (as applicable) (1 Half-size)
 - Sent directly by the DBT
- Traffic Systems Operation (as applicable) (1 Half-size)
 - Sent directly by the DBT

Project Special Provisions (Final and RFC)

Project Special Provisions will cover all items of work, material, equipment, and methods of construction for the installation of a complete traffic signal system that are not otherwise covered in the Standard Specifications for Roads and Structures, dated January 2012. All Project Special Provisions must be sealed by a Professional Engineer registered in the State of North Carolina.

Prerequisites:

- Preliminary Traffic Signal Plans
- Preliminary Intelligent Transportation System Plans

Total Number Required: (8 sets)

- NCTA Project Manager (2 sets)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)
- Signals and/or ITS Section (as applicable) (2 sets)

- Division Traffic Engineer (1 set)
 - Sent directly by the DBT
- Regional ITS Engineer (as applicable) (1 set)
 - Sent directly by the DBT
- Traffic Systems Operation (as applicable) (1 set)
 - Sent directly by the DBT

Product Catalog Cut Sheets:

Product Catalog Cut Sheets shall be submitted and shall include the manufacturer's make and model number for each piece of equipment, and the quantity of items to be used. The Engineer is not required to seal product catalog cut sheets.

Provide written certification to NCTA that all Design-Build Team-furnished material is in accordance with the contract. When requested by NCTA, provide additional certifications from independent testing laboratories and sufficient data to verify that the item meets applicable Specifications. Ensure additional certification states the testing laboratory is independent of the material manufacturer and neither the laboratory nor the manufacturer has a vested interest in the other.

Identify all proprietary parts in Design-Build Team-furnished material. NCTA reserves the right to reject material that uses proprietary components not commercially available through electronic or electrical supply houses.

For Design-Build Team-furnished material listed on the QPL, furnish submittals in the format defined by the QPL.

For Design-Build Team-furnished material not on the QPL, furnish in Constructware the equipment list including the catalog cuts. Identify proposed material on catalog cuts by a reproducible means (highlighter pen does not transfer to copies). Ensure material lists contain material description, brand name, manufacturer's address and telephone number, stock number, size, identifying trademark or symbol, and other appropriate ratings.

Prerequisites:

- Preliminary Traffic Signal Plans
- Preliminary Intelligent System Plans

Total Number Required: (6 sets)

- NCTA Project Manager (2 sets)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)
- Signals or ITS Section (as applicable) (3 sets)

Test Results:

Refer to product specific requirements in the scope of work of the project.

Prerequisites: Completed tests.

Total Number Required: (4 sets)

- NCTA Project Manager (1 set)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)
- Signals or ITS Section (as applicable) (1 set)
- Division Traffic Engineer or Regional ITS Engineer (as applicable) (1 set)
 - Sent directly by the DBT

Plan of Record Documentation:

Before final acceptance, furnish plan of record documentation of all field work. Plan of record documentation will be subject to approval before final acceptance. Store documentation for ITS installations in a manila envelope placed in a weatherproof holder mounted within each cabinet or housing for easy access. Provide the Engineer with two copies of the plan of record documentation for all cable routing plans and splice diagrams.

Provide real world coordinates for all field devices (including but not limited to DMS signs, road weather information station [RWIS], microwave vehicle detection systems [MVDS], closed circuit television cameras [CCTV], power meters, transformers, and junction boxes) installed and/or modified under this project. Provide the coordinates in U.S. Survey feet units using the North Carolina State Plane coordinate system horizontal units North American Datum 1983 (NAD 1983); vertical units North America

Vertical Datum 1988 (NAVD 1988). Furnish coordinates that do not deviate more than 1.7 feet in the horizontal plane and 3.3 feet in the vertical plane. Global positioning system (GPS) equipment able to obtain the coordinate data within these tolerances may be used. Submit cut sheets on the GPS unit proposed to collect the data for approval by the Engineer. For equipment cabinets, obtain and provide the location of the cabinet.

Obtain the location of the pole or structure to which the ITS device is attached. In the event the ITS device is attached to a structure other than a pole (such as a noise wall, water tower or a building), obtain the ITS device position as directed by the Engineer. For all other devices, unless otherwise directed by the Engineer, obtain the location of the device controller/communications cabinet.

Provide a digital copy of all information regarding the device (including but not limited to, manufacturer, model number, and NCTA inventory number) in the Microsoft spreadsheet provided by the Authority. See below for an example.

NCTA Inv #	Name	Location	Latitude	Longitude	Manufacturer	Model #	Comm Media	Destination
42-7009	DMS # 1	Triangle Parkway	-78.8123	35.8625	Acme ITS	123-456	48 SMFO	TMC
42-7001	MVDS # 20	Western Wake Freeway	-78.7631	35.8523	Acme ITS	123-456	48 SMFO	TMC
42-7003	CCTV # 3	Triangle Parkway	-77.952	35.2456	Acme ITS	123-456	48 SMFO	TMC
42-7004	RWIS # 1	Western Wake Freeway	-78.7631	35.8523	Acme ITS	123-456	48 SMFO	TMC

Provide operations and maintenance manual, electrical schematic diagram, and cabinet wiring diagram for each control equipment cabinet and piece of equipment in cabinet. Place a marked-up "redline" copy of the cabinet wiring diagram inside the cabinet immediately upon installation of the cabinet and provide an electronic copy upon final acceptance. Place manuals and prints in weatherproof holder. For wiring diagrams and electrical schematic diagrams not bound into printed manuals, provide copies at least 22" x 34". Provide detailed wiring diagrams that include interconnection of equipment with pin-out configurations, pin functions, and cable parts numbers.

For communications systems, camera systems, intelligent transportation systems, and other computerized systems, provide system connection diagrams showing system interconnection cables/jumpers, as-built terminations for both copper and fiber-optic

cables, port assignments, IP addresses, MAC addresses, VLAN structure, server rack layout, electrical panel detail, and other pertinent related information.

Except for standard bound manuals, bind all 8 1/2" x 11" documentation, including 11" x 17" drawings folded to 8 1/2" x 11", in logical groupings in either 3-ring or plastic slide-ring loose-leaf binders. Permanently label each grouping of documentation.

Provide the NCTA with a license to duplicate all programmable devices in equipment for maintenance and software upgrades. Provide binary or hexadecimal format files for each device that may be programmed by the NCTA. Ensure files are provided on PC compatible compact disks or other approved media.

Ensure firmware performance upgrades that occur during the contract period up through final acceptance of the project are furnished to the NCTA at no additional cost.

Make firmware upgrades that are developed to correct operating characteristics available to the NCTA at no additional cost until the warranty period expires.

Prerequisites:

- Completion of all construction and all punch list items.

Total Number Required: (5 sets)

- NCTA Project Manager (2 sets)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)
- Signals or ITS Section (as applicable) (1 set)
- Division Traffic Engineer or Regional ITS Engineer (as applicable) (1 set)
 - Sent directly by the DBT

SIGNING

Signing submittals shall generally be made in three phases. Prior to the submittal of the 50% plans, the Design-Build Team shall coordinate with the NCTA and Transportation Program Management Unit. The Signing Plans shall follow the “Signing Design Guidelines for Design-Build Projects” located on the NCTA website. Signing submittals shall be reviewed by at the following milestones:

25% Preliminary Signing Plans

The signing plan sheets and plan view rollout of the entire project shall include all existing, proposed and future signs (including messages), as well as all necessary sign relocations. This submittal may be eliminated by holding a field review meeting to discuss potential conflicts or constructability issues with the approved signing layout schematic and agree on proposed locations in the field. Representatives from the Design-Build Team, Transportation Program Management Unit, Signing and Delineation Unit, and Division and Regional Traffic Engineering shall be in attendance.

Prerequisites:

- Accepted Preliminary Roadway Plans and x-sections
- Accepted 30% Hydraulic Plans (red-line drainage)
- Provide one set of half-size Preliminary Roadway Plans to Transportation Program Management Unit concurrently with this signing submittal

Total Number Required: (1 Full-size, – 4 - 6 Half-size, and 2 Half-size roll-out)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (2 Half-size and 1 Half-size rollout)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- Signing and Delineation Unit (1 Half-size and 1 Half-size rollout)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT
- Signals Section, if applicable (1 Half-size)

50% Initial Signing Plans

This submittal shall include the revised signing plan view sheets with all signs located by station reference, sign designs, completed Type E and F sign sheets, ground-mounted sign support chart with support designs and design calculation information (S-Dimension Worksheets), and overhead structure line drawing(s), completed in the format of the final product.

Prerequisites:

- ❑ Meeting with NCTA, Transportation Program Management Unit, and Signing Section to discuss the Preliminary Signing Plans
- ❑ Accepted Preliminary Roadway Plans and x-sections
- ❑ Provide one set of half-size Preliminary Roadway Plans to Transportation Program Management Unit concurrently with this signing submittal

Total Number Required: (1 Full-size, 3 - 4 Half-size, and 2 Half-size rollout)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Half-size and 1 Half-size rollout)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- ❑ Signing and Delineation Unit (1 Half-size and 1 Half-size rollout)
- ❑ Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT

100% Final Signing Plans

This submittal shall include structure line drawings, and overhead sign lighting design sheets completed in the format of the final product, and all corrected signing sheets, sign designs of accepted Type A, B and Overlay signs on plan sheets, and supporting documentation required in the 50% submittal. If applicable, this submittal shall include an electronic version of the overhead sign lighting design. The NCTA and Transportation Program Management Unit shall be capable of reviewing the lighting design using the software provided as outlined in the Standard Lighting Design Section

of the Signing Design Guidelines for Design-Build Projects. Location of signalized intersections must also be provided to ensure the proper signing at intersections. This submittal shall also include the General Notes sheet with list of applicable Roadway Standard Drawings, a draft of Project Special Provisions, and all corrected signing sheets and supporting documentation required by the 50% submittal review. A 4½" x 4½" area for full size sheets, directly below the project information block in the upper right corner of all sheets, shall be left blank and unobstructed.

Prerequisites:

- ❑ Accepted Right of Way/Roadway Plans
- ❑ Accepted Final Pavement Marking Plans
- ❑ Accepted Traffic Control Staging Concept
- ❑ Provide one set of half-size plans of each of the above to Project Services Unit concurrently with this signing submittal

Total Number Required: (1 Full-size, 3 - 4 Half-size)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Half-size)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- ❑ Signing and Delineation Unit (1 Half-size)
- ❑ Division Traffic Engineer (1 Half-size)

RFC Signing Plans

This set of plans shall be clearly marked as RFC. All copies shall be sealed by a Professional Engineer registered in the State of North Carolina. This submittal shall include (1) original set of Project Special Provisions sealed by a Professional Engineer registered in the State of North Carolina (see the Project Special Provision section of the Signing Design Guidelines for Design-Build Projects); (2) design files on CD that have name of the Professional Engineer, registration number, and seal date inserted where seal, signature, and date are located on original plans; and (3) all other supporting documentation.

Note:

- Field verification of “S” Dimensions for ground mounted sign supports and overhead sign assemblies shall be submitted prior to acceptance of supports and assemblies.

Total Number Required:

(1 Full-size, 3 - 4 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
- CTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- Signing and Delineation Unit (1 Half-size)
- Division Traffic Engineer (1 Half-size)
 - Sent directly by the DBT

Project Special Provisions

The Design-Build Team shall prepare complete Project Special Provisions for review at both the 100% and RFC plan submittal. A Professional Engineer registered in the State of North Carolina shall seal the final submittal of these Project Special Provisions. A copy of the sealed Project Special Provisions shall be submitted in the manner and quantity designated above for the RFC Signing Plans. The Project Special Provisions shall also be submitted electronically to the NCTA and the Transportation Program Management Unit.

Overhead Sign Structures Design Shop Drawings

The Design-Build Team shall prepare shop drawings and computations for the design of all overhead sign structures.

Prerequisites:

- Accepted RFC Signing Plans

- Field verification of “S” Dimensions for ground mounted and overhead sign assemblies. Design-Build Team may submit shop drawings prior to field verification of S-Dimensions. Design-Build Team assumes responsibility for all corrective action necessary to comply with comments made during shop drawing review.
- Provide one set of half-size accepted RFC Signing Plans that include field verification of “S” Dimensions for all overhead sign assemblies to Structure Design Unit

Total Number Required: (12 Half-size)

- Structure Design Unit Shop Drawings (13 Half-size)
Design Computations (1 copy)
- Transportation Program Management Unit (1 Half-size)
- NCTA Project Manager (1 Half-Size)
- NCTA Director of Construction (1 Half-size PDF)
 - Post directly onto Constructware

EROSION CONTROL DESIGN

All Erosion and Sedimentation Control Plans must be reviewed and accepted by the NCTA for each distinct project section before **any** land disturbing activities, including clearing and grubbing, can commence on that project section. The RFC Final Grade Erosion Control Plans may only be deemed final after the roadway drainage design has been finalized and accepted by the NCTA. Specifically, acceptance of all Erosion Control submittals, prior to and including the RFC Final Grade Erosion Control Plans, shall be contingent on acceptance of the roadway drainage design. Design modifications developed after acceptance of the RFC Final Grade Erosion Control Plans shall require the Design-Build Team to submit Intermediate Erosion Control Plans for review and acceptance as noted below. Each plan submittal must include all pertinent design information required for review, such as design calculations, drainage areas, etc.

The NCTA will provide a sample set of Erosion and Sedimentation Control plans and MicroStation Erosion Control workspace to the Design-Build Team upon request. The Design-Build Team shall coordinate a pre-design meeting between the NCDOT REU Soil and Water Engineering Section, the NCTA, the Design-Build Team and other pertinent personnel before beginning the erosion control design. The NCTA shall only review Erosion and Sediment Control Plans after the aforementioned pre-design meeting. Release for Construction (RFC) Final Grade Erosion Control Plans shall be accepted by the NCTA and submitted to all personnel listed below before **any** land disturbing activities, including clearing and grubbing, shall commence.

75% Clearing & Grubbing Review Plans

Prerequisites:

- ❑ Accepted Roadway Line and Grade or Preliminary Roadway Plans and x-sections
- ❑ Pre-design meeting with the NCDOT REU Soil and Water Engineering Section, the NCTA, the Design-Build Team and any other pertinent personnel
- ❑ Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines, and x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

Total Number Required: (1 Full-size and 4 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT
-

100% Clearing & Grubbing Review Plans

Prerequisites:

- Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines, and x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

Total Number Required: (1 Full-size and 4 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT
-

RFC Clearing & Grubbing Plans

Prerequisites:

- Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines and drainage, as well as x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

Total Number Required: (2 Full-size and 5 Half-size)

- NCTA Project Manager (2 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT

75% Final Grade Erosion Control Plans

Prerequisites:

- Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines and drainage, as well as x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

Total Number Required: (1 Full-size and 4 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT
-

100% Final Grade Erosion Control Plans

Prerequisites:

- Accepted Final Roadway Plans and x-sections when the Design-Build Team is acquiring the permit
- Accepted 100% Hydraulic Plans when the Design-Build Team is acquiring the permit
- Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines and drainage, as well as x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

Total Number Required: (1 Full-size and 4 Half-size)

- NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)

- Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT

RFC Final Grade Erosion Control Plans

This submittal shall include seven sets of Project Special Provisions. Erosion Control Special Provisions are available through the NCDOT website.

Total Number Required: (3 Full-size and 7 Half-size)

- NCTA Project Manager (3 Full-size and 3 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Half-size)
- Roadside Environmental Unit (1 Half-size)
- Roadside Environmental Field Operations Engineer (1 Half-size)
 - Sent directly by the DBT
- Division Environmental Officer (1 Half-size)
 - Sent directly by the DBT
-

Intermediate Plans (if required)

This submittal shall be required if design modifications and / or site conditions require additional erosion control design or design revisions to the RFC Clearing and Grubbing and / or the RFC Final Grade Erosion Control Plans. This submittal shall also be required to review all basins requiring individual calculations. The NCTA shall review and accept Intermediate Plans prior to construction of any aspect impacted by the revised erosion control design.

Prerequisites:

- Accepted Roadway and / or Hydraulic Plans of the design modifications
- Provide one set of half-size Roadway Plans, that delineate the proposed slope / stake lines and drainage, as well as x-sections to both the NCTA and the Transportation Program Management Unit concurrently with this submittal
- Provide one set of basin calculations to both the NCTA and the Transportation Program Management Unit concurrently with this submittal

<u>Total Number Required:</u>	(3 Full-size and 7 Half-size)
<ul style="list-style-type: none"> □ NCTA Project Manager (3 Full-size and 3 Half-size) <ul style="list-style-type: none"> • Sent directly by the DBT □ NCTA Director of Construction (1 Full-size PDF) <ul style="list-style-type: none"> • Post directly onto Constructware □ Transportation Program Management Unit (1 Half-size) □ Roadside Environmental Unit (1 Half-size) □ Roadside Environmental Field Operations Engineer (1 Half-size) <ul style="list-style-type: none"> • Sent directly by the DBT □ Division Environmental Officer (1 Half-size) <ul style="list-style-type: none"> • Sent directly by the DBT □ 	

LIGHTING

Transportation Program Management Unit

All components of the lighting systems shall be designed by the Design-Build Team. The design shall ensure uniformity by compliance with the established applicable codes and design standards, however, where unique needs apply, location specific designs may be necessary.

Illuminance calculations shall be submitted for all areas where lighting systems are required. Calculations shall also be provided for each stage of construction, where temporary roadways or lighting systems are in use.

90% Lighting Plans

This submittal shall include all required lighting systems, illuminance calculations, location drawings and lighting design sheets completed in the format of the final product. If applicable, this submittal shall include an electronic version of the lighting design and IES photometric files used in calculations for existing and/or proposed equipment.

Submit one set of electronic and hard copy Right of Way/Roadway Plans to the NCTA and the Transportation Program Management Unit to enable the light standard locations and details to be reviewed

Prerequisites:

- ❑ Accepted Right of Way/Roadway Plans

Total Number Required:

(3 Full-size and 3 – 4 Half-size)

- ❑ NCTA Project Manager (2 Full-size and 2 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Full-size)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT

RFC Lighting Plans

This submittal shall include any revisions or updates to the 90% Lighting Plan and pole and foundation designs and details.

Submit one set of electronic and hard copy RFC Roadway Plans to the NCTA and the Transportation Program Management Unit to enable the light standard locations and details to be reviewed.

Transportation Program Management Unit

Prerequisites:

- ❑ Accepted Final Roadway Plans
- ❑ Accepted 90% Lighting Plans

Total Number Required:

- | | |
|--|-----------------------------------|
| | (2 Full-size and 4 - 5 Half-size) |
| ❑ NCTA Project Manager | (2 Full-size and 2 Half-size) |
| • Sent directly by the DBT | |
| ❑ NCTA Director of Construction | (1 Full-size PDF) |
| • Post directly onto Constructware | |
| ❑ Transportation Program Management Unit | (1 Half-size) |
| ❑ Special Design Section | (1 Half-size) |
| ❑ FHWA, if applicable | (1 Half-size) |
| • Sent directly by the DBT | |

ALL-ELECTRONIC TOLLING (AET) FACILITIES – TOLL GANTRIES

The Toll Gantry Submittal will consist of design calculations and plans for the proposed AET Toll Gantries. All designs, plans and calculations shall be signed and sealed by a Professional Engineer registered in the State of North Carolina. Each of the submittals listed below shall have the following prerequisites and distribution:

AET Toll Gantry Conceptual Plans

The toll gantry plan sheets and plan view rollout of the entire project shall include all existing, proposed and future toll gantries.

Prerequisites:

- ❑ Accepted Preliminary Roadway Plans and x-sections
- ❑ Provide one set of half-size Preliminary Roadway Plans to Transportation Program Management Unit concurrently with this toll gantry submittal

Total Number Required: (3 Full-size, 2 - 3 Half-size, and 3 Half-size rollout)

- ❑ NCTA Project Manager (1 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- ❑ NCTA Director of Toll Road Operations (2 Full-size and 1 Half-size rollout)
 - Sent directly by the DBT
- ❑ Transportation Program Management Unit (1 Half-size and 1 Half-size rollout)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT

60% Toll Gantry Plans

This submittal shall include toll gantry plan view sheets with all toll gantries located by station reference, gantry designs with vertical support designs, toll equipment and aesthetic cladding attachment locations, overhead structure line drawing(s) completed in the format of the final product, and a draft of Project Special Provisions

Prerequisites:

- ❑ Meeting with NCTA (Engineering and Operations groups), NCTA Toll Integrator, Transportation Program Management Unit
- ❑ Accepted ROW/Roadway Plans and x-sections
- ❑ Accepted AET Location and Layout Preliminary Plans
- ❑ Accepted aesthetic submittals
- ❑ Provide one set of half-size ROW/Roadway Plans to Transportation Program Management Unit concurrently with this toll gantry submittal

Total Number Required:

(7 Full-size, 10 - 11 Half-size)

- ❑ NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ NCTA Director of Toll Road Operations (4 Full-size and 4 Half-size)
 - Sent directly by the DBT
- ❑ Transportation Program Management Unit (1 Full-size and 2 Half-size)
 - Electronic Roadway Design Files & Computations (1 copy)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- ❑ Structure Design Unit (1 Full-size and 2 Half-size)
 - Design Computations (1 copy)
-

AET Toll Gantry 100% Plans

This submittal shall include structure line drawings in the format of the final product. This submittal shall also include the General Notes sheet with list of applicable Roadway Standard Drawings, a draft of Project Special Provisions, and all corrected toll gantry sheets, supporting documentation required by the 60% submittal review and design calculation information (S-Dimension Worksheets). A 4½" x 4½" area for full size sheets, directly below the project information block in the upper right corner of all sheets, shall be left blank and unobstructed.

Prerequisites:

- ❑ Accepted Final Roadway Plans
- ❑ Accepted Toll Gantry Foundation Recommendation report and investigation
- ❑ Accepted Final Pavement Marking Plans
- ❑ Provide one set of half-size Final Roadway Plans to Transportation Program Management Unit concurrently with this toll gantry submittal

Total Number Required:

(6 Full-size, 5 - 6 Half-size)

- ❑ NCTA Project Manager (2 Full-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- ❑ NCTA Director of Toll Road Operations (4 Full-size)
 - Sent directly by the DBT
- ❑ Transportation Program Management Unit (2 Half-size)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- ❑ Structure Design Unit (1 Half-size)
- ❑ Geotechnical Engineering Unit (1 Half-size)
 -

AET Toll Gantry RFC Plans

This set of plans shall be clearly marked as RFC. All copies shall be sealed by a Professional Engineer registered in the State of North Carolina. This submittal shall include (1) original set of Project Special Provisions sealed by a Professional Engineer registered in the State of North Carolina; (2) design files on CD that have name of the Professional Engineer, registration number, and seal date inserted where seal, signature, and date are located on original plans; and (3) all other supporting documentation.

Prerequisites:

- ❑ Accepted Final Roadway Plans
- ❑ Accepted Toll Gantry Foundation Recommendation report and investigation
- ❑ Accepted Final Pavement Marking Plans
- ❑ Field verification of "S" Dimensions for toll gantries
- ❑ Provide one set of half-size Final Roadway Plans to Transportation Program Management Unit concurrently with this toll gantry submittal

Total Number Required: (6 Full-size, 11 - 12 Half-size, and 1 Half-size rollout)

- ❑ NCTA Project Manager (3 Full-size and 3 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half-size rollout PDF)
 - Post directly onto Constructware
- ❑ NCTA Director of Toll Road Operations (3 Full-size and 3 Half-size)
 - Sent directly by the DBT
- ❑ Transportation Program Management Unit (2 Half-size and 1 Half-size rollout)
- ❑ FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT
- ❑ Structure Design Unit (2 Half-size)
 -

Project Special Provisions

The Design-Build Team shall prepare complete Project Special Provisions for review at the 60%, 100%, and RFC plan submittal. A Professional Engineer registered in the State of North Carolina shall seal the final submittal of these Project Special Provisions. A copy of the sealed Project Special Provisions shall be submitted in the manner and quantity designated above for the RFC Toll Gantry Plans. The Project Special Provisions shall also be submitted electronically to the NCTA and the Transportation Program Management Unit.

Toll Gantry Shop Drawings

The Design-Build Team shall prepare shop drawings and computations for the design of all toll gantries.

Prerequisites:

- ❑ Accepted AET RFC Location and Layout Plans
- ❑ Accepted AET Toll Gantry RFC Plans
- ❑ Accepted Roadway RFC Plans and x-sections
- ❑ Field verification of "S" Dimensions for toll gantry assemblies
- ❑ Provide one set of half-size accepted RFC Toll Gantry Plans that include field verification of "S" Dimensions for all toll gantry assemblies to Structure Design Unit

Total Number Required: (8 Half-size)

- ❑ NCTA Project Manager (1 Half-size)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Half-size PDF)
 - Post directly onto Constructware
- ❑ NCTA Director of Toll Road Operations (1 Half-size)
- ❑ Transportation Program Management Unit (1 Half-size)
- ❑ Structure Design Unit Shop Drawings (4 Half-size)
Design Computations (2 copy)
-

ALL-ELECTRONIC TOLLING (AET) FACILITIES – ARCHITECTURAL AND STRUCTURAL

The Architectural Plan Submittal will consist of design calculations and plans for the proposed AET (All-Electronic Tolling) Vaults. All designs, plans and calculations shall be signed and sealed by a Professional Engineer or Architect registered in the State of North Carolina. The minimum drawing scale shall be 1"=16', but shall be adequate to clearly present the design intent. Each of the submittals listed below shall have the following prerequisites and distribution:

Prerequisites:

- Accepted Roadway RFC Plans

Total Number Required: (2 Full-size and 5 Half-size)

- NCTA Project Manager (2 Full-size and 2 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (2 Half-size)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT

AET Vault (Structure) / 75% Plans

In addition to the above, this submittal shall contain, at a minimum:

1. Design criteria and general notes sheets which include finalized design loads.
2. Typical structural details sheet.
3. Construction plans for each AET vault including component sizes and other information sufficient for construction.
4. Connections and bracing detail sheets.
5. Materials list.

AET Vault (Structure) / RFC Plans

In addition to the above, the Design Build-Team shall submit all the final detailed construction drawings and all associated details, including aesthetic treatments and color schemes. All previous NCTA comments shall be addressed.

ALL-ELECTRONIC TOLLING (AET) FACILITIES – ELECTRICAL, HVAC, AND MONITORING SYSTEM

This submittal shall include Electrical, HVAC Monitoring plans. Provide design calculations including lighting, HVAC and electrical for all components. All designs, plans and calculations shall be signed and sealed by a Professional Engineer registered in the State of North Carolina.

Each of the submittals listed below shall have the following prerequisites and distribution:

Prerequisites:

- Accepted Roadway RFC Plans

Total Number Required: (2 Full-size and 5 Half-size)

- NCTA Project Manager (2 Full-size and 2 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (2 Half-size)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT

Electrical, HVAC and Monitoring Systems / 75% Plans

In addition to the above, submit the following items. These drawings shall include as a minimum, but not limited to:

1. HVAC equipment plans and sections, including ductwork, louvers and exterior mounted equipment locations.
2. Electrical power, lighting, emergency, and communications systems.
3. Standby generator and propane storage tank locations.
4. Monitoring system utilized for connection to mechanical systems provided by others.
5. Conduit runs, junction boxes and conduit entrances into vaults.

Calculations & Equipment Cuts – the Design-Build Team shall submit mechanical and electrical calculations and shall include as a minimum, but not be limited to, the following information:

1. Proposed electrical, HVAC and monitoring equipment cuts.
2. HVAC load calculations based on the vault envelope.
3. Lighting point-by-point calculations for exterior and interior lighting.
4. Standby generator load calculations.
5. Propane tank size calculations.
6. Electrical service sizing calculations.

Electrical, HVAC and Monitoring Systems / RFC Plans

In addition to the above, the Design Build-Team shall submit all the final detailed construction drawings and all associated details. All previous NCTA comments shall be addressed. In addition to the above, submit the following items

1. Listing of special tools and testing equipment required for operation, installation, and maintenance of the equipment.
2. Code compliance shall be provided by submission of final code documentation.
3. Final calculations and equipment cuts.
4. Complete finish schedule for all items associated with the vault.

Product Catalog Cut Sheets:

Product Catalog Cut Sheets shall be submitted and shall include the manufacturer's make and model number for each piece of equipment, and the quantity of items to be used. The Engineer is not required to seal product catalog cut sheets.

Provide written certification to NCTA that all Design-Build Team-furnished material is in accordance with the contract. When requested by NCTA, provide additional certifications from independent testing laboratories and sufficient data to verify that the item meets applicable Specifications. Ensure additional certification states the testing laboratory is independent of the material manufacturer and neither the laboratory nor the manufacturer has a vested interest in the other.

Identify all proprietary parts in Design-Build Team-furnished material. NCTA reserves the right to reject material that uses proprietary components not commercially available through electronic or electrical supply houses.

Furnish in Constructware the equipment list including the catalog cuts. Identify proposed material on catalog cuts by a reproducible means (highlighter pen does not transfer to copies). Ensure material lists contain material description, brand name, manufacturer's address and telephone number, stock number, size, identifying trademark or symbol, and other appropriate ratings.

- Total Number Required: (3 sets)
- NCTA Project Manager (2 sets)
 - Sent directly by the DBT
 - NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
 - Transportation Program Management Unit (1 set)

Test Results:

Refer to product specific requirements in the scope of work of the project.

Prerequisites: Completed tests.

- Total Number Required: (2 sets)
- NCTA Project Manager (1 set)
 - Sent directly by the DBT
 - NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
 - Transportation Program Management Unit (1 set)

Plan of Record Documentation:

Before final acceptance, furnish plan of record (as-built) documentation of all field work. Plan of record documentation will be subject to approval before final acceptance.

As-built plans shall include, at a minimum:

- Conduit and cable/wire size, purpose and routing
- Lightning protection and grounding system details
- Interior and exterior equipment (cabinets, meters, sensors, fixtures, etc.) location and dimensions

- Electrical panel schedule
- Legend for all symbology
- Unique plan for each vault

Store documentation for installations in a manila envelope placed in a weatherproof holder mounted within each cabinet or housing for easy access. Provide real world coordinates for all field devices installed and/or modified under this project. Provide the coordinates in U.S. Survey feet units using the North Carolina State Plane coordinate system (horizontal units North American Datum 1983 (NAD 1983); vertical units North American Vertical Datum 1988 (NAVD 1988). Furnish coordinates that do not deviate more than 1.7 feet in the horizontal plane and 3.3 feet in the vertical plane. Global positioning system (GPS) equipment able to obtain the coordinate data within these tolerances may be used. Submit cut sheets on the GPS unit proposed to collect the data for approval by the Engineer. For equipment cabinets, obtain and provide the location of the cabinet.

Provide a digital copy of all information regarding the device (including but not limited to, manufacturer, model number, and NCTA inventory number) in the Microsoft spreadsheet provided by the Authority.

Provide operations and maintenance manual, electrical schematic diagram, and cabinet wiring diagram for each piece of equipment installed. Place a marked-up "redline" copy of the cabinet wiring diagram inside the cabinet immediately upon installation of the cabinet and provide an electronic copy upon final acceptance. Place manuals and prints in weatherproof holder. For wiring diagrams and electrical schematic diagrams not bound into printed manuals, provide copies at least 22" x 34". Provide detailed wiring diagrams that include interconnection of equipment with pin-out configurations, pin functions, and cable parts numbers.

Except for standard bound manuals, bind all 8 1/2" x 11" documentation, including 11" x 17" drawings folded to 8 1/2" x 11", in logical groupings in either 3-ring or plastic slide-ring loose-leaf binders. Permanently label each grouping of documentation.

Prerequisites:

- Completion of all construction and all punch list items.

Total Number Required: (3 sets)

- NCTA Project Manager (2 sets)
 - Sent directly by the DBT
- NCTA Director of Construction (1 set PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 set)

ALL-ELECTRONIC TOLLING (AET) FACILITIES LOCATION AND LAYOUT PLANS

The purpose of the AET Location and Layout Plans is to provide a separate, “contained” submittal containing roadway design details relating to the All-Electronic Toll (AET) zones and related details (site grading, shoulders, screen walls, parking areas, drainage details, etc.). The submittal of AET Location and Layout Plans will generally be comprised of four steps, beginning with preliminary plans and culminating with RFC Plans. Any changes to a stage of the AET Location and Layout Plans made after that stage’s initial review and comment by the NCTA will require re-submittal to ensure that dependent plan reviews are based on the most current and accurate Roadway Plans.

For guidance in preparing these plan submittals, see the document entitled “Roadway Design Guidelines for Design-Build Projects” located on the NCDOT Design-Build website. All submittals must adhere to the NCDOT Review requirements for Preliminary, Right of Way, and Final Plans located on the NCDOT Roadway Design website.

The AET Location and Layout Plans shall follow all design submittal guidelines as noted in the Roadway Plans section.

The Design-Build Team shall submit electronic files of the AET Location and Layout Plans upon request by the NCTA.

It is recommended that a conceptual toll site meeting occur with the Design-Build Team, NCTA Operations, NCTA Engineering and Toll Integrator prior to beginning activities for the AET Location and Layout Preliminary Plans. Roadway Design Line and Grade drawings would be beneficial for this meeting.

AET Location and Layout Preliminary Plans

Prerequisites:

- ❑ Accepted Design Criteria (Provide one set with this submittal)
- ❑ Accepted Preliminary Roadway Design Plans

Total Number Required: (2 Full-size and 2 x-sections)

- ❑ NCTA Project Manager (1 Full-size with x-sections)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Full-size with x-sections & design calcs.)

AET Location and Layout 60% Plans

The Design-Build Team shall provide 60% AET Location and Layout Plans for review.

Prerequisites:

- ❑ Accepted Preliminary Roadway Plans

Total Number Required: (4 - 6 Full-size, and 4 - 6 x-sections)

- ❑ NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT
- ❑ NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
 - Post directly onto Constructware
- ❑ Transportation Program Management Unit (1 Full-size with x-sections)
- ❑ Utilities Coordination Unit (1 Full-size with x-sections)
- ❑ Railroad Division, if applicable (1 Full-size with x-sections)
- ❑ FHWA, if applicable (1 Full-size with x-sections)
 - Sent directly by the DBT

AET Location and Layout 100% Plans

The Design-Build Team shall provide all details for construction in this submittal. This submittal does not require summary and quantity sheets.

Total Number Required: (3 Full-size with x-sections)

- NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size and 1 Half Size x-sections PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Full-size with x-sections)

AET Location and Layout RFC Plans

The Design-Build Team shall provide a copy of the RFC AET Location and Layout Plans (final plans) in both electronic and hard copy form. All final designs shall be signed and sealed by a Professional Engineer registered in the State of North Carolina.

Total Number Required: (3 Full-size, 1 Half-size and 3 x-sections)

- NCTA Project Manager (2 Full-size with x-sections)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half Size x-sections PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (1 Full-size & 1 Half-size with x-sections)

RAILROAD INSURANCE

Prior to commencing any activities within a railroad right of way, insurance approval shall be obtained, per activity, from the appropriate railroad(s). The Design-Build Team shall concurrently submit two copies of the insurance documents, which contain all the railroad requirements, to the NCTA and the Transportation Program Management Unit. The NCTA may forward the insurance documents to the NCDOT Rail Division for coordination with the appropriate railroad(s).

FINAL SUBMITTAL

Upon completion of the project, the Design-Build Team shall provide both electronic and hard copies of the entire project in accordance with the requirements of the Final Contract. The hard copies shall adhere to the NCDOT Design Manual's plan preparation format.

Total Number Required: (3 Full-size and – 3 - 4 Half-size)

- NCTA Project Manager (1 Full-size and 1 Half-size)
 - Sent directly by the DBT
- NCTA Director of Construction (1 Full-size PDF and 1 Half-size x-sections PDF)
 - Post directly onto Constructware
- Transportation Program Management Unit (2 Full-size and 2 Half-size)
- FHWA, if applicable (1 Half-size)
 - Sent directly by the DBT