

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

C204933

CONTRACT AND  
CONTRACT BONDS  
FOR CONTRACT NO. C204933

WBS 48548.3.3 STATE FUNDED

T.I.P NO. R-5930B

COUNTY OF CHATHAM

THIS IS THE ROADWAY & STRUCTURE CONTRACT

ROUTE NUMBER LENGTH 1.483 MILES

LOCATION CHATHAM PARKWAY FROM NORTH OF PROPOSED GRANT DRIVE TO US-15/US-501.

CONTRACTOR BARNHILL CONTRACTING CO

ADDRESS P.O. BOX 7948  
ROCKY MOUNT, NC 27804

BIDS OPENED MARCH 18, 2025

CONTRACT EXECUTION 04/19/2025

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

PROPOSAL

**INCLUDES ADDENDUM No. 1 DATED 03-13-2025**

DATE AND TIME OF BID OPENING: **Mar 18, 2025 AT 02:00 PM**

CONTRACT ID C204933  
WBS 48548.3.3

FEDERAL-AID NO. STATE FUNDED  
COUNTY CHATHAM  
T.I.P NO. R-5930B  
MILES 1.483  
ROUTE NO.  
LOCATION CHATHAM PARKWAY FROM NORTH OF PROPOSED GRANT DRIVE TO US-15/US-501.

TYPE OF WORK GRADING, DRAINAGE, PAVING, AND STRUCTURES.

**NOTICE:**

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

**BIDS WILL BE RECEIVED AS SHOWN BELOW:**

**THIS IS A ROADWAY & STRUCTURE PROPOSAL**

**5% BID BOND OR BID DEPOSIT REQUIRED**

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**PROPOSAL FOR THE CONSTRUCTION OF  
CONTRACT No. C204933 IN CHATHAM COUNTY, NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION,  
RALEIGH, NORTH CAROLINA**

The Bidder has carefully examined the location of the proposed work to be known as Contract No. C204933 has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with the *2018 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. C204933 in Chatham County, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2018* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer.

The quantities shown in the itemized proposal for the project are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient.

An increase or decrease in the quantity of an item will not be regarded as sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for the contract.

Accompanying this bid is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Bidder shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by him, as provided in the *Standard Specifications*; otherwise said deposit will be returned to the Bidder.



*State Contract Officer*

Signed by:

*Ronald Elton Davenport, Jr.*

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03/13/2025



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**PROJECT SPECIAL PROVISIONS****GENERAL****CONTRACTOR PREQUALIFICATION:**

(10-18-22)(Rev. 7-18-23)

102

SP1 G01

Revise the *2018 Standard Specifications* as follows:

**Page 1-9, Subarticle 102-2(A)(1) Bidder Prequalification**, lines 34-36, delete and replace the first sentence with the following:

Applicant shall submit a completed Department Prequalification Application and *Bidder Experience Questionnaire*, along with any additional supporting information requested by the Department, as noted in the application and experience questionnaire package.

**Page 1-10, Subarticle 102-2(A) Bidder Prequalification**, lines 30-31, delete and replace the first sentence with the following:

Prospective bidders shall obtain prequalification approval at least two business days prior to any letting in which they intend to submit a bid. It is recommended that the prospective bidder file all required statements and documents with the State Prequalifications Engineer no less than 4 weeks before a given letting.

**Page 1-10, Subarticle 102-2(B) Purchase Order Bidder Prequalification**, lines 34-39, delete and replace the title and first paragraph with the following:

**(B) Purchase Order (PO) Prime Contractor Prequalification**

Contractors who have been approved to be placed on the Prequalified Bidders' List as noted above may perform work for the Department as a Purchase Order (PO) Prime Contractor and need not apply further. However, Purchase Order (PO) Prime Contractors will not be placed on the Prequalified Bidders' List unless they submit through the prequalification process described above.

**Page 1-9, Subarticle 102-2(B)(1) Purchase Order Bidder Prequalification**, lines 40-42, delete and replace the first sentence with the following:

Applicant shall submit a completed Department Prequalification Application along with any additional supporting information requested by the Department, as noted in the application.

**Page 1-11, Subarticle 102-2(B) Purchase Order Bidder Prequalification**, lines 16-18, delete and replace the first sentence with the following:

Prospective bidders shall obtain prequalification approval at least two business days prior to any letting in which they intend to submit a bid. It is recommended that the applicant file all required statements and documents with the State Prequalifications Engineer no less than 4 weeks before



a given bid opening for their bid to be considered.

**Page 1-11, Subarticle 102-2(C) Subcontractor Prequalification**, lines 22-26, delete and replace the first paragraph with the following:

Contractors who have been approved to be placed on the Prequalified Bidders' List or the Purchase Order (PO) Prime Contractor's List as noted above may perform work for the Department as a subcontractor and need not apply further. However, subcontractors will not be placed on the Prequalified List or the Purchase Order (PO) Prime Contractor's List unless they submit through the prequalification process described above.

**Page 1-11, Subarticle 102-2(C)(1) Subcontractor Prequalification**, lines 27-28, delete and replace the first sentence with the following:

Applicant shall submit a completed Department Prequalification Application along with any additional supporting information requested by the Department, as noted in the application.

**Page 1-11, Subarticle 102-2(C) Subcontractor Prequalification**, lines 44-45, delete and replace the first sentence with the following:

The subcontractor shall file all required statements and documents with the State Prequalifications Engineer no less than 4 weeks before beginning work.

**Page 1-12, Subarticle 102-2(E) Renewal and Requalification**, lines 38-40, delete and replace the first sentence with the following:

It is recommended that the renewing or requalifying firm file all required statements and documents with the State Prequalifications Engineer no less than 4 weeks before a given letting for their bid to be considered.

#### **HAUL ROADS:**

(7-16-24)

105

SP1 G04

Revise the *Standard Specifications* as follows:

**Page 1-50, Article 105-15 RESTRICTION OF LOAD LIMITS, line 5**, add the following after second sentence of the second paragraph:

At least 30 days prior to use, the Contractor shall notify the Engineer of any public road proposed for use as a haul road for the project.

#### **LIABILITY INSURANCE:**

(5-16-23)

107

SP1 G05

Revise the *2018 Standard Specifications* as follows:

**Page 1-64, Article 107-15 LIABILITY INSURANCE**, replace the first sentence with the following:



The Contractor shall at its sole cost and expense obtain and furnish to the Department an original standard Association for Cooperative Operations Research and Development (ACORD) certificate of liability insurance evidencing commercial general liability with a limit for bodily injury and property damage in the amount of \$5,000,000 per occurrence and \$5,000,000 general aggregate, covering the Contractor from claims or damages for bodily injury, personal injury, or for property damages that may arise from operating under the contract by the employees and agents of the Contractor.

**CONTRACT TIME AND LIQUIDATED DAMAGES:**

(8-15-00) (Rev. 5-16-23)

108

SP1 G08 A

The date of availability for this contract is **April 28, 2025**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **February 11, 2028**.

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

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

**INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:**

(7-1-95) (Rev. 2-21-12)

108

SP1 G13 A

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

The date of availability for this intermediate contract time is **April 28, 2025**.

The completion date for this intermediate contract time is **August 15, 2027**.

The liquidated damages for this intermediate contract time are **Two Thousand Dollars (\$ 2,000.00)** per calendar day.

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work except *Planting, Reforestation* and/or *Permanent Vegetation Establishment*. The Contractor will be responsible



for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

**INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:**

(2-20-07)

108

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on **Chatham Park Way (-L-), US 15-501 (-Y11-), -Y9-, or Any Ramp associated with US 64 (-Y1-)** during the following time restrictions:

**DAY AND TIME RESTRICTIONS**

**Monday thru Friday, 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM**

In addition, the Contractor shall not close or narrow a lane of traffic on **Chatham Park Way (-L-), US 15-501 (-Y11-), -Y9-, or Any Ramp associated with US 64 (-Y1-)**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

**HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS**

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **6:00 AM** December 31<sup>st</sup> and **7:00 PM** January 2<sup>nd</sup>. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **7:00 PM** the following Tuesday.
3. For **Easter**, between the hours of **6:00 AM** Thursday and **7:00 PM** Monday.
4. For **Memorial Day**, between the hours of **6:00 AM** Friday and **7:00 PM** Tuesday.
5. For **Independence Day**, between the hours of **6:00 AM** the day before Independence Day and **7:00 PM** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **6:00 AM** the Thursday before Independence Day and **7:00 PM** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **6:00 AM** Friday and **7:00 PM** Tuesday.
7. For **Thanksgiving**, between the hours of **6:00 AM** Tuesday and **7:00 PM** Monday.
8. For **Christmas**, between the hours of **6:00 AM** the Friday before the week of Christmas Day and **7:00 PM** the following Tuesday after the week of Christmas Day.



Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the existing traffic pattern.

**The Day and Time Restrictions, as well as Holiday and Holiday Weekend Lane Closure Restrictions, for Chatham Park Way (-L-) only apply to the limits of intersections along existing sections of Chatham Park Way (-L-) during signal installation or pavement marking operations.**

The liquidated damages are **Two Hundred Fifty Dollars (\$ 250.00)** per hour.

**PERMANENT VEGETATION ESTABLISHMENT:**

(2-16-12) (Rev. 10-15-13)

104

SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2018 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control, Seeding and Mulching, Repair Seeding, Supplemental Seeding, Mowing, Fertilizer Topdressing, Silt Excavation, and Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the



*2018 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

**MAJOR CONTRACT ITEMS:**

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2018 Standard Specifications*):

| Line # | Description                  |
|--------|------------------------------|
| 7      | Borrow Excavation            |
| 185    | Class A Concrete (Culvert)   |
| 187    | Soldier Pile Retaining Walls |

**SPECIALTY ITEMS:**

(7-1-95)(Rev. 7-20-21)

108-6

SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2018 Standard Specifications*).

| Line #         | Description                 |
|----------------|-----------------------------|
| 79-82          | Guardrail                   |
| 87-93, 108-109 | Signing                     |
| 98-102         | Life-Long Pavement Markings |
| 107            | Permanent Pavement Markers  |
| 110-119        | Utility Construction        |
| 120-154        | Erosion Control             |
| 155            | Reforestation               |
| 156-181        | Signals/ITS System          |

**FUEL PRICE ADJUSTMENT:**

(11-15-05) (Rev. 11-15-22)

109-8

SP1 G43

Revise the *2018 Standard Specifications* as follows:

**Page 1-87, Article 109-8, Fuel Price Adjustments**, add the following:

The base index price for DIESEL #2 FUEL is \$ 2.4729 per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

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

| Description                                       | Units   | Fuel Usage Factor Diesel |
|---------------------------------------------------|---------|--------------------------|
| Unclassified Excavation                           | Gal/CY  | 0.29                     |
| Borrow Excavation                                 | Gal/CY  | 0.29                     |
| Class IV Subgrade Stabilization                   | Gal/Ton | 0.55                     |
| Aggregate Base Course                             | Gal/Ton | 0.55                     |
| Sub-Ballast                                       | Gal/Ton | 0.55                     |
| Erosion Control Stone                             | Gal/Ton | 0.55                     |
| Rip Rap, Class _____                              | Gal/Ton | 0.55                     |
| Asphalt Concrete Base Course, Type _____          | Gal/Ton | 0.90 or 2.90             |
| Asphalt Concrete Intermediate Course, Type _____  | Gal/Ton | 0.90 or 2.90             |
| Asphalt Concrete Surface Course, Type _____       | Gal/Ton | 0.90 or 2.90             |
| Open-Graded Asphalt Friction Course               | Gal/Ton | 0.90 or 2.90             |
| Permeable Asphalt Drainage Course, Type _____     | Gal/Ton | 0.90 or 2.90             |
| Sand Asphalt Surface Course, Type _____           | Gal/Ton | 0.90 or 2.90             |
| Ultra-thin Bonded Wearing Course                  | Gal/Ton | 0.90 or 2.90             |
| Aggregate for Cement Treated Base Course          | Gal/Ton | 0.55                     |
| Portland Cement for Cement Treated Base Course    | Gal/Ton | 0.55                     |
| > 11" Portland Cement Concrete Pavement           | Gal/SY  | 0.327                    |
| Concrete Shoulders Adjacent to > 11" Pavement     | Gal/SY  | 0.327                    |
| 9" to 11" Portland Cement Concrete Pavement       | Gal/SY  | 0.272                    |
| Concrete Shoulders Adjacent to 9" to 11" Pavement | Gal/SY  | 0.272                    |
| < 9" Portland Cement Concrete Pavement            | Gal/SY  | 0.245                    |
| Concrete Shoulders Adjacent to < 9" Pavement      | Gal/SY  | 0.245                    |

For the asphalt items noted in the chart as eligible for fuel adjustments, the bidder may include the *Fuel Usage Factor Adjustment Form* with their bid submission if they elect to use the fuel usage factor. The *Fuel Usage Factor Adjustment Form* is found at the following link:

<https://connect.ncdot.gov/letting/LetCentral/Fuel%20Usage%20Factor%20Adjustment%20Form%20-%20Starting%20Nov%202022%20Lettings.pdf>

Select either 2.90 Gal/Ton fuel factor or 0.90 Gal/Ton fuel factor for each asphalt line item on the *Fuel Usage Factor Adjustment Form*. The selected fuel factor for each asphalt item will remain in effect for the duration of the contract.

Failure to complete the *Fuel Usage Factor Adjustment Form* will result in using 2.90 gallons per ton as the Fuel Usage Factor for Diesel for the asphalt items noted above. The contractor will not be permitted to change the Fuel Usage Factor after the bids are submitted.



**STEEL PRICE ADJUSTMENT:**

(4-19-22)(Rev. 12-20-22)

SP1 G47

**Description and Purpose**

Steel price adjustments will be made to the payments due the Contractor for items as defined herein that are permanently incorporated into the work, when the price of raw steel mill products utilized on the contract have fluctuated. The Department will adjust monthly progress payments up or down as appropriate for cost changes in steel according to this provision.

**Eligible Items**

The list of eligible bid items for steel price adjustment can be found on the Departments website at the following address:

<https://connect.ncdot.gov/letting/LetCentral/Eligible%20Bid%20Items%20for%20Steel%20Price%20Adjustment.xlsx>

Nuts, bolts, anchor bolts, rebar chairs, connecting bands and other miscellaneous hardware associated with these items shall not be included in the price adjustment.

Adjustments will only be made for fluctuations in the material cost of the steel used in the above products as specified in the Product Relationship Table below. The producing mill is defined as the source of steel product before any fabrication has occurred (e.g., coil, plate, rebar, hot rolled shapes, etc.). No adjustment will be made for changes in the cost of fabrication, coating, shipping, storage, etc.

No steel price adjustments will be made for any products manufactured from steel having an adjustment date, as defined by the Product Relationship Table below, prior to the letting date.

**Bid Submittal Requirements**

The successful bidder, within 14 calendar days after the notice of award is received by him, shall provide the completed Form SPA-1 to the Department (State Contract Officer or Division Contract Engineer) along with the payment bonds, performance bonds and contract execution signature sheets in a single submittal. If Form SPA-1 is not included in the same submittal as the payment bonds, performance bonds and contract execution signature sheets, the Contractor will not be eligible for any steel price adjustment for any item in the contract for the life of the contract. Form SPA-1 can be found on the Department's website at the following address:

<https://connect.ncdot.gov/letting/LetCentral/Form%20SPA-1.xlsm>

The Contractor shall provide Form SPA-1 listing the Contract Line Number, (with corresponding Item Number, Item Description, and Category) for the steel products they wish to have an adjustment calculated. Only the contract items corresponding to the list of eligible item numbers for steel price adjustment may be entered on Form SPA-1. The Contractor may choose to have steel price adjustment applied to any, all, or none of the eligible items. However, the Contractor's selection of items for steel price adjustment or non-selection (non-participation)



may not be changed once Form SPA-1 has been received by the Department. Items the Bidder chooses for steel price adjustment must be designated by writing the word "Yes" in the column titled "Option" by each Pay Item chosen for adjustment. Should the bidder elect an eligible steel price item, the entire quantity of the line item will be subject to the price adjustment for the duration of the Contract. The Bidder's designations on Form SPA-1 must be written in ink or typed and signed by the Bidder (Prime Contractor) to be considered complete. Items not properly designated, designated with "No", or left blank on the Bidder's Form SPA-1 will automatically be removed from consideration for adjustment. No steel items will be eligible for steel price adjustment on this Project if the Bidder fails to return Form SPA-1 in accordance with this provision.

### Establishing the Base Price

The Department will use a blend of monthly average prices as reported from the Fastmarkets platform to calculate the monthly adjustment indices (BI and MI). This data is typically available on the first day of the month for the preceding month. The indices will be calculated by the Department for the different categories found on the Product Relationship Table below. For item numbers that include multiple types of steel products, the category listed for that item number will be used for adjusting each steel component.

The bidding index for Category 1 Steel items is \$ 36.00 per hundredweight.  
 The bidding index for Category 2 Steel items is \$ 43.23 per hundredweight.  
 The bidding index for Category 3 Steel items is \$ 60.53 per hundredweight.  
 The bidding index for Category 4 Steel items is \$ 37.33 per hundredweight.  
 The bidding index for Category 5 Steel items is \$ 48.19 per hundredweight.  
 The bidding index for Category 6 Steel items is \$ 45.95 per hundredweight.  
 The bidding index for Category 7 Steel items is \$ 39.15 per hundredweight.

The bidding index represents a selling price of steel based on Fastmarkets data for the month of **January 2025**.

MI = Monthly Index. - in Dollars (\$) per hundredweight (CWT). Use the adjustment indices from the month the steel was shipped from the producing mill, received on the project, or member cast as defined in the Product Relationship Table.

BI = Bidding Index. - in Dollars (\$) per hundredweight (CWT). Use the adjustment indices as listed in the proposal.

| <i>Product Relationship Table</i>             |                                          |                                   |          |
|-----------------------------------------------|------------------------------------------|-----------------------------------|----------|
| <i>Steel Product (Title)</i>                  | BI, MI*                                  | Adjustment Date for MI            | Category |
| Reinforcing Steel, Bridge Deck, and SIP Forms | Based on one or more Fastmarkets indices | Delivery Date from Producing Mill | 1        |
| Structural Steel and Encasement Pipe          | Based on one or more Fastmarkets indices | Delivery Date from Producing Mill | 2        |
| Steel H-Piles, Soldier Pile Walls             | Based on one or more Fastmarkets indices | Delivery Date from Producing Mill | 3        |
| Guardrail Items and Pipe                      | Based on one or more                     | Material Received Date**          | 4        |



|                                                                                                                                                                                                                                                                              |                                          |                          |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------|---|
| Piles                                                                                                                                                                                                                                                                        | Fastmarkets indices                      |                          |   |
| Fence Items                                                                                                                                                                                                                                                                  | Based on one or more Fastmarkets indices | Material Received Date** | 5 |
| Overhead Sign Assembly, Signal Poles, High Mount Standards                                                                                                                                                                                                                   | Based on one or more Fastmarkets indices | Material Received Date** | 6 |
| Prestressed Concrete Members                                                                                                                                                                                                                                                 | Based on one or more Fastmarkets indices | Cast Date of Member      | 7 |
| * BI and MI are in converted units of Dollars per Hundredweight (\$/CWT)                                                                                                                                                                                                     |                                          |                          |   |
| ** Material Received Date is defined as the date the materials are received on the project site. If a material prepayment is made for a Category 4-6 item, the Adjustment Date to be used will be the date of the prepayment request instead of the Materials Received Date. |                                          |                          |   |

Submit documentation to the Engineer for all items listed in the Contract for which the Contractor is requesting a steel price adjustment.

### Submittal Requirements

The items in categories 1,2, and 3, shall be specifically stored, labeled, or tagged, recognizable by color marking, and identifiable by Project for inspection and audit verification immediately upon arrival at the fabricator.

Furnish the following documentation for all steel products to be incorporated into the work and documented on Form SPA-2, found on the Departments website at the following address:

<https://connect.ncdot.gov/projects/construction/Construction%20Forms/Form%20SPA-2.xlsx>

Submit all documentation to the Engineer prior to incorporation of the steel into the completed work. The Department will withhold progress payments for the affected contract line item if the documentation is not provided and at the discretion of the Engineer the work is allowed to proceed. Progress payments will be made upon receipt of the delinquent documentation.

#### Step 1 (Form SPA -2)

Utilizing Form SPA-2, submit separate documentation packages for each line item from Form SPA-1 for which the Contractor opted for a steel price adjustment. For line items with multiple components of steel, each component should be listed separately. Label each SPA-2 documentation package with a unique number as described below.

- a. Documentation package number; (Insert the contract line-item) - (Insert sequential package number beginning with "1").  
 Example: 412 - 1,  
               412 - 2,  
               424 - 1,  
               424 - 2,  
               424 - 3, etc.
- b. The steel product quantity in pounds

- i. The following sources should be used, in declining order of precedence, to determine the weight of steel/iron, based on the Engineers decision:
  1. Department established weights of steel/iron by contract pay item per pay unit;
  2. Approved Shop Drawings;
  3. Verified Shipping Documents;
  4. Contract Plans;
  5. Standard Drawing Sheets;
  6. Industry Standards (i.e., AISC Manual of Steel Construction, AWWA Standards, etc.); and
  7. Manufacture's data.
- ii. Any item requiring approved shop drawings shall have the weights of steel calculated and shown on the shop drawings or submitted and certified separately by the fabricator.
- c. The date the steel product, subject to adjustment, was shipped from the producing mill (Categories 1-3), received on the project (Categories 4-6), or casting date (Category 7).

#### Step 2 (Monthly Calculator Spreadsheet)

For each month, upon the incorporation of the steel product into the work, provide the Engineer the following:

- 1) Completed NCDOT Steel Price Adjustment Calculator Spreadsheet, summarizing all the steel submittal packages (Form SPA-2) actually incorporated into the completed work in the given month.
  - a. Contract Number
  - b. Bidding Index Reference Month
  - c. Contract Completion Date or Revised Completion Date
  - d. County, Route, and Project TIP information
  - e. Item Number
  - f. Line-Item Description
  - g. Submittal Number from Form SPA-2
  - h. Adjustment date
  - i. Pounds of Steel
- 2) An affidavit signed by the Contractor stating the documentation provided in the NCDOT Steel Price Adjustment Calculator Spreadsheet is true and accurate.

#### Price Adjustment Conditions

Download the Monthly Steel Adjustment Spreadsheet with the most current reference data from the Department's website each month at the following address:

<https://connect.ncdot.gov/projects/construction/Construction%20Forms/Form%20SPA-3%20NCDOT%20Steel%20Price%20Adjustment%20Calculator.xlsx>



If the monthly Fastmarkets data is not available, the data for the most recent immediately preceding month will be used as the basis for adjustment.

### **Price Adjustment Calculations**

The price adjustment will be determined by comparing the percentage of change in index value listed in the proposal (BI) to the monthly index value (MI). (See included sample examples). Weights and date of shipment must be documented as required herein. The final price adjustment dollar value will be determined by multiplying this percentage increase or decrease in the index by the represented quantity of steel incorporated into the work, and the established bidding index (BI) subject to the limitations herein.

**Price increase/decrease will be computed as follows:**

$$SPA = ((MI/BI) - 1) * BI * (Q/100)$$

Where;

SPA = Steel price adjustment in dollars

MI = Monthly Shipping Index. - in Dollars (\$) per hundredweight (CWT). Use the adjustment indices from the month the steel was shipped from the producing mill, received on the project, or member cast as defined in the Product Relationship Table.

BI = Bidding Index. - in Dollars (\$) per hundredweight (CWT). Use the adjustment indices as listed in the proposal.

Q = Quantity of steel, product, pounds actually incorporated into the work as documented by the Contractor, or Design Build Team and verified by the Engineer.

Calculations for price adjustment shall be shown separate from the monthly progress estimate and will not be included in the total cost of work for determination of progress or for extension of Contract time in accordance with Subarticle 108-10(B)(1).

Any apparent attempt to unbalance bids in favor of items subject to price adjustment may result in rejection of the bid proposal.

Adjustments will be paid or charged to the Contractor only. Any Contractor receiving an adjustment under this provision shall distribute the proper proportional part of such adjustments to the subcontractor who performed the applicable work.

Delays to the work caused by steel shortages may be justification for a Contract time extension but will not constitute grounds for claims for standby equipment, extended office overhead, or other costs associated with such delays.

If an increase in the steel material price is anticipated to exceed 50% of the original quoted price, the contractor must notify the Department within 7 days prior to purchasing the material. Upon receipt of such notification, the Department will direct the Contractor to either (1) proceed with the work or (2) suspend the work and explore the use of alternate options.



If the decrease in the steel material exceeds 50% of the original quoted price, the contractor may submit to the Department additional market index information specific to the item in question to dispute the decrease. The Department will review this information and determine if the decrease is warranted.

When the steel product adjustment date, as defined in the Product Relationship Table, is after the approved contract completion date, the steel price adjustments will be based on the lesser value of either the MI for the month of the approved contract completion date or the MI for the actual adjustment date.

If the price adjustment is based on estimated material quantities for that time, and a revision to the total material quantity is made in a subsequent or final estimate, an appropriate adjustment will be made to the price adjustment previously calculated. The adjustment will be based on the same indices used to calculate the price adjustment which is being revised. If the adjustment date of the revised material quantity cannot be determined, the adjustment for the quantity in question, will be based on the indices utilized to calculate the steel price adjustment for the last initial documentation package submission, for the steel product subject to adjustment, that was incorporated into the particular item of work, for which quantities are being finalized.

Example: Structural steel for a particular bridge was provided for in three different shipments with each having a different mill shipping date. The quantity of structural steel actually used for the bridge was calculated and a steel price adjustment was made in a progress payment. At the conclusion of the work an error was found in the plans of the final quantity of structural steel used for the bridge. The quantity to be adjusted cannot be directly related to any one of the three mill shipping dates. The steel price adjustment for the quantity in question would be calculated using the indices that were utilized to calculate the steel price adjustment for the quantity of structural steel represented by the last initial structural steel documentation package submission. The package used will be the one with the greatest sequential number.

**Extra Work/Force Account:**

When steel products, as specified herein, are added to the contract as extra work, in accordance with the provisions of Article 104-7 or 104-3, the Engineer will determine and specify in the supplemental agreement, the need for application of steel price adjustments on a case-by-case basis. No steel price adjustments will be made for any products manufactured from steel having an adjustment date prior to the supplemental agreement execution date. Price adjustments will be made as provided herein, except the Bidding Index will be based on the month in which the supplemental agreement pricing was executed.

For work performed on force account basis, reimbursement of actual material costs, along with the specified overhead and profit markup, will be considered to include full compensation for the current cost of steel and no steel price adjustments will be made.



**Examples Form SPA-2****Steel Price Adjustment Submission Form**Contract Number C203394 Bid Reference Month January 2019Submittal Date 8/31/2019Contract Line Item 237Line Item Description APPROX...LBS Structural SteelSequential Submittal  
Number 2

| Supplier         | Description of material        | Location information   | Quantity in lbs. | Adjustment Date |
|------------------|--------------------------------|------------------------|------------------|-----------------|
| XYZ mill         | Structural Steel               | Structure 3, Spans A-C | 1,200,000        | May 4, 2020     |
| ABC distributing | Various channel & angle shapes | Structure 3 Spans A-C  | 35,000           | July 14, 2020   |
|                  |                                |                        |                  |                 |
|                  |                                |                        |                  |                 |
|                  |                                |                        |                  |                 |
|                  |                                |                        |                  |                 |
|                  |                                |                        |                  |                 |
|                  |                                | Total Pounds of Steel  | 1,235,000        |                 |

Note: Attach the following supporting documentation to this form.

- Bill of Lading to support the shipping dates
- Supporting information for weight documentation (e.g., Pay item reference, Shop drawings, shipping documents, Standards Sheets, industry standards, or manufacturer's data)

By providing this data under my signature, I attest to the accuracy of and validity of the data on this form and certify that no deliberate misrepresentation in any manner has occurred.

Printed Name

Signature

**Examples Form SPA-2****Steel Price Adjustment Submission Form**Contract Number C203394 Bid Reference Month January 2019Submittal Date August 31, 2019Contract Line Item 237Line Item Description SUPPORT, OVRHD SIGN STR -DFEB – STA 36+00Sequential Submittal  
Number 2

| Supplier         | Description of material                    | Location information  | Quantity in lbs. | Adjustment Date   |
|------------------|--------------------------------------------|-----------------------|------------------|-------------------|
| XYZ mill         | Tubular Steel (Vertical legs)              | -DFEB – STA 36+00     | 12000            | December 11, 2021 |
| PDQ Mill         | 4" Tubular steel (Horizontal legs)         | -DFEB – STA 36+00     | 5900             | December 11, 2021 |
| ABC distributing | Various channel & angle shapes (see quote) | -DFEB – STA 36+00     | 1300             | December 11, 2021 |
|                  | Catwalk assembly                           | -DFEB – STA 36+00     | 2000             | December 11, 2021 |
| Nucor            | Flat plate                                 | -DFEB – STA 36+00     | 650              | December 11, 2021 |
|                  |                                            |                       |                  |                   |
|                  |                                            |                       |                  |                   |
|                  |                                            | Total Pounds of Steel | 21,850           |                   |

Note: Attach the following supporting documentation to this form.

- Bill of Lading to support the shipping dates
- Supporting information for weight documentation (e.g., Pay item reference, Shop drawings, shipping documents, Standards Sheets, industry standards, or manufacturer's data)

By providing this data under my signature, I attest to the accuracy of and validity of the data on this form and certify that no deliberate misrepresentation in any manner has occurred.

Printed Name

Signature



**Price Adjustment Sample Calculation (increase)**

---

Project bid on September 17, 2019

Line Item 635 "Structural Steel" has a plan quantity of 2,717,000 lbs.

Bidding Index for Structural Steel (Category 2) in the proposal was \$36.12/CWT = BI

450,000 lbs. of Structural Steel for Structure 2 at Station 44+08.60 were shipped to fabricator from the producing mill in same month, May 2021.

Monthly Index for Structural Steel (Category 2) for May 2021 was \$64.89/CWT = MI

The Steel Price Adjustment formula is as follows:

$$\text{SPA} = ((\text{MI} / \text{BI}) - 1) * \text{BI} * (\text{Q} / 100)$$

Where; SPA = Steel price adjustment in dollars

BI = Bidding Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices as listed in the proposal.

MI = Mill Shipping Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices from the month the steel was shipped from the producing mill, received on the project, or member cast as defined in the Product Relationship Table.

Q = Quantity of steel product, in pounds (lbs.) actually incorporated into the work as documented by the Contractor, or Design Build Team and verified by the Engineer.

$$\text{BI} = \$36.12 / \text{CWT}$$

$$\text{MI} = \$64.89 / \text{CWT}$$

$$\% \text{ change} = ((\text{MI} / \text{BI}) - 1) = (\$64.89 / \$36.12 - 1) = (1.79651 - 1) = 0.79651162791$$

$$\text{Q} = 450,000 \text{ lbs.}$$

$$\text{SPA} = 0.79651162791 \times \$36.12 \times (450,000 / 100)$$

$$\text{SPA} = 0.79651162791 * \$36.12 * 4,500$$

$$\text{SPA} = \$129,465 \text{ pay adjustment to Contractor for Structural Steel (Structure 2 at Station 44+08.60)}$$

**Price Adjustment Sample Calculation (decrease)**

---

Project bid on December 18, 2018

Line Item 635 Structural Steel has a plan quantity of 2,717,000 lbs.

Bidding Index for Structural Steel (Category 2) in the proposal was \$46.72/CWT = BI

600,000 lbs. of Structural Steel for Structure 1 at Station 22+57.68 were shipped to fabricator from the producing mill in same month, August 2020.

Monthly Index for Structural Steel (Category 2) for August 2020 was \$27.03/CWT = MI

The Steel Price Adjustment formula is as follows:

$$\text{SPA} = ((\text{MI} / \text{BI}) - 1) * \text{BI} * (\text{Q} / 100)$$

Where; SPA = Steel price adjustment in dollars

BI = Bidding Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices as listed in the proposal.

MI = Mill Shipping Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices from the month the steel was shipped from the producing mill, received on the project, or member cast as defined in the Product Relationship Table.

Q = Quantity of steel product, in pounds (lbs.) actually incorporated into the work as documented by the Contractor, or Design Build Team and verified by the Engineer.

$$\text{BI} = \$46.72 / \text{CWT}$$

$$\text{MI} = \$27.03 / \text{CWT}$$

$$\% \text{ change} = ((\text{MI} / \text{BI}) - 1) = (\$27.03 / \$46.72 - 1) = (0.57855 - 1) = -0.421446917808$$

$$\text{Q} = 600,000 \text{ lbs.}$$

$$\text{SPA} = -0.421446917808 * \$46.72 * (600,000 / 100)$$

$$\text{SPA} = -0.421446917808 * \$46.72 * 6,000$$

$$\text{SPA} = \$ 118,140.00 \text{ Credit to the Department for Structural Steel (Structure 1 at Station 22+57.68)}$$



**Price Adjustment Sample Calculation (increase)**

---

Project bid on July 16, 2020

Line Item 614 Reinforced Concrete Deck Slab has a plan quantity of 241974 lbs.

Bidding Index Reference Month was May 2020. Bidding Index for Reinforced Concrete Deck Slab (Category 1) in the proposal was \$29.21/CWT = BI

51,621 lbs. of reinforcing steel and 52,311 lbs. of epoxy coated reinforcing steel for Structure 2 at Station 107+45.55 -L- was shipped to fabricator from the producing mill in same month, May 2021.

Monthly Index for Reinforced Concrete Deck Slab (Category 1) for May 2021 was \$43.13/CWT = MI

The Steel Price Adjustment formula is as follows:

$$\text{SPA} = ((\text{MI} / \text{BI}) - 1) * \text{BI} * (\text{Q} / 100)$$

Where; SPA = Steel price adjustment in dollars

BI = Bidding Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices as listed in the proposal.

MI = Mill Shipping Index – in dollars (\$) per hundredweight (CWT). Use the adjustment indices from the month the steel was shipped from the producing mill, received on the project, or member cast as defined in the Product Relationship Table.

Q = Quantity of steel product, in pounds (lbs.) actually incorporated into the work as documented by the Contractor, or Design Build Team and verified by the Engineer.

$$\text{BI} = \$29.21 / \text{CWT}$$

$$\text{MI} = \$43.13 / \text{CWT}$$

$$\% \text{ change} = ((\text{MI} / \text{BI}) - 1) = (\$43.13 / \$29.21 - 1) = (1.47655 - 1) = 0.47654912701$$

$$\text{Q} = 103932 \text{ lbs.}$$

$$\text{SPA} = 0.47654912701 * \$29.21 * (103,932 / 100)$$

$$\text{SPA} = 0.47654912701 * \$29.21 * 1,039.32$$

$$\text{SPA} = \$14,467.33 \text{ Pay Adjustment to Contractor for Reinforced Concrete Deck Slab (Category 1) at Station 107+45.55 -L-}$$

**SCHEDULE OF ESTIMATED COMPLETION PROGRESS:**

(7-15-08) (Rev. 6-20-23)

108-2

SP1 G58

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

|      | <b><u>Fiscal Year</u></b> | <b><u>Progress (% of Dollar Value)</u></b> |
|------|---------------------------|--------------------------------------------|
| 2025 | (7/01/24 - 6/30/25)       | 12% of Total Amount Bid                    |
| 2026 | (7/01/25 - 6/30/26)       | 50% of Total Amount Bid                    |
| 2027 | (7/01/26 - 6/30/27)       | 36% of Total Amount Bid                    |
| 2028 | (7/01/27 - 6/30/28)       | 2% of Total Amount Bid                     |

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2018 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

**MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE:**

(10-16-07)(Rev. 5-9-24)

102-15(J)

SP1 G66

**Description**

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

**Definitions**

*Additional MBE/WBE Subcontractors* - Any MBE/WBE submitted at the time of bid that will not be used to meet the Combined MBE /WBE Goal. No submittal of a Letter of Intent is required.

*Combined MBE/WBE Goal*: A portion of the total contract, expressed as a percentage that is to be performed by committed MBE/WBE subcontractors.

*Committed MBE/WBE Subcontractor* - Any MBE/WBE submitted at the time of bid that is being used to meet the Combined MBE /WBE goal by submission of a Letter of Intent. Or any MBE or WBE used as a replacement for a previously committed MBE or WBE firm.

*Contract Goal Requirement* - The approved participation at time of award, but not greater than the advertised Combined MBE/WBE contract goal.

*Goal Confirmation Letter* - Written documentation from the Department to the bidder confirming the Contractor's approved, committed participation along with a listing of the committed MBE and WBE firms.



*Manufacturer* - A firm that owns (or leases) and operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor. A firm that makes minor modifications to the materials, supplies, articles, or equipment is not a manufacturer.

*MBE Participation (Anticipated)* - A portion of the total contract, expressed as a percentage that is anticipated to be performed by committed MBE subcontractor(s).

*Minority Business Enterprise (MBE)* - A firm certified as a Disadvantaged Minority-Owned Business Enterprise through the North Carolina Unified Certification Program.

*Regular Dealer* - A firm that owns (or leases), and operates a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in sufficient quantities, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, concrete or concrete products, gravel, stone, asphalt and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Any supplement of regular dealers' own distribution equipment shall be by a long-term operating lease and not on an ad hoc or contract-by-contract basis.

*Distributor* - A firm that engages in the regular sale or lease of the items specified by the contract. A distributor assumes responsibility for the items it purchases once they leave the point of origin (e.g., a manufacturer's facility), making it liable for any loss or damage not covered by the carrier's insurance.

*Replacement / Substitution* - A full or partial reduction in the amount of work subcontracted to a committed (or an approved substitute) MBE/WBE firm.

*North Carolina Unified Certification Program (NCUCP)* - A program that provides comprehensive services and information to applicants for MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

*United States Department of Transportation (USDOT)* - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

*WBE Participation (Anticipated)* - A portion of the total contract, expressed as a percentage, that is anticipated to be performed by committed WBE subcontractor(s).

*Women Business Enterprise (WBE)* - A firm certified as a Disadvantaged Women-Owned Business Enterprise through the North Carolina Unified Certification Program.



**Forms and Websites Referenced in this Provision**

*Payment Tracking System* - On-line system in which the Contractor enters the payments made to MBE and WBE subcontractors who have performed work on the project.  
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

*DBE-IS Subcontractor Payment Information* - Form for reporting the payments made to all MBE/WBE firms working on the project. This form is for paper bid projects only.  
<https://connect.ncdot.gov/business/Turnpike/Documents/Form%20DBE-IS%20Subcontractor%20Payment%20Information.pdf>

*RF-1 MBE/WBE Replacement Request Form* - Form for replacing a committed MBE or WBE.  
<https://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Form%20and%20Instructions.pdf>

*SAF Subcontract Approval Form* - Form required for approval to sublet the contract.  
<https://connect.ncdot.gov/projects/construction/Construction%20Forms/SAF%20Form%20-%20Subcontract%20Approval%20Form%20Revised%2004-19.xlsm>

*JC-1 Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.  
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

*Letter of Intent* - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the estimated amount (based on quantities and unit prices) listed at the time of bid.  
<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

*Listing of MBE and WBE Subcontractors Form* - Form for entering MBE/WBE subcontractors on a project that will meet the Combined MBE/WBE goal. This form is for paper bids only.  
[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20\(State\).docx](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).docx)

*Subcontractor Quote Comparison Sheet* - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.  
<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>



*DBE Regular Dealer/Distributor Affirmation Form* – Form is used to make a preliminary counting determination for each DBE listed as a regular dealer or distributor to assess its eligibility for 60 or 40 percent credit, respectively of the cost of materials or supplies based on its demonstrated capacity and intent to perform as a regular dealer or distributor, as defined in section 49 CFR 26.55 under the contract at issue. A Contractor will submit the completed form with the Letter of Intent.

<https://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20Regular%20Dealer-Distributor%20Affirmation%20Form%20-%20USDOT%202024.pdf>

### **Combined MBE/WBE Goal**

The Combined MBE/WBE Goal for this project is **5.0 %**

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

**(A) Minority Business Enterprises 2.0 %**

- (1) *If the anticipated MBE participation is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above.
- (2) *If the anticipated MBE participation is zero*, the Contractor shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

**(B) Women Business Enterprises 3.0 %**

- (1) *If the anticipated WBE participation is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above.
- (2) *If the anticipated WBE participation is zero*, the Contractor shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

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

### **Directory of Transportation Firms (Directory)**

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

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



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

#### **Listing of MBE/WBE Subcontractors**

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

##### **(A) Electronic Bids**

Bidders shall submit a listing of MBE and WBE participation in the appropriate section of the electronic submittal file.

- (1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in the electronic submittal file, the bidder may use the dropdown menu to access the name and address of the firms.
- (2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.
- (3) The bidder shall be responsible for ensuring that the MBE and WBE are certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the Combined MBE/WBE goal.

##### **(B) Paper Bids**

- (1) *If the Combined MBE/WBE Goal is more than zero,*
  - (a) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.



- (b) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.
  - (c) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the Combined MBE/WBE Goal.
- (2) *If the Combined MBE/WBE Goal is zero, entries on the Listing of MBE and WBE Subcontractors are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.*

#### **MBE or WBE Prime Contractor**

When a certified MBE or WBE firm bids on a contract that contains a Combined MBE/WBE goal, the firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet the Combined MBE/WBE Goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the MBE or WBE bidder and any other similarly certified subcontractors will count toward the goal. The MBE or WBE bidder shall list itself along with any MBE or WBE subcontractors, if any, in order to receive credit toward the goal.

MBE/WBE prime contractors shall also follow Sections A and B listed under *Listing of MBE/WBE Subcontractor* just as a non-MBE/WBE bidder would.

#### **Written Documentation – Letter of Intent**

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the Combined MBE/WBE Goal of the contract, indicating the bidder's commitment to use the MBE/WBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*.

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. of the sixth calendar day following opening of bids, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the Combined MBE/WBE Goal, or if the form is incomplete (i.e. both signatures are not



present), the MBE/WBE participation will not count toward meeting the Combined MBE/WBE Goal. If the lack of this participation drops the commitment below the Combined MBE/WBE Goal, the Contractor shall submit evidence of good faith efforts for the goal, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 10:00 a.m. on the eighth calendar day following opening of bids, unless the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

#### **Banking MBE/WBE Credit**

If the bid of the lowest responsive bidder exceeds \$500,000 and if the committed MBE/WBE participation submitted exceeds the algebraic sum of the Combined MBE /WBE Goal by \$1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

When the apparent lowest responsive bidder fails to submit sufficient participation by MBE and WBE firms to meet the advertised goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the Combined MBE/WBE Goal as long as there are adequate funds available from the bidder's MBE and WBE bank accounts.

#### **Submission of Good Faith Effort**

If the bidder fails to meet or exceed the Combined MBE/WBE Goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal.

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. on the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day. If the Contractor cannot send the information electronically, then one complete set and 5 copies of this information shall be received under the same time constraints above.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of MBE/WBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.



**Consideration of Good Faith Effort for Projects with a Combined MBE/WBE Goal More Than Zero**

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient MBE/WBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought MBE/WBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs that are also prequalified subcontractors. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.
- (B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the Combined MBE/WBE Goal will be achieved.
  - (1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - (2) Negotiate with subcontractors to assume part of the responsibility to meet the advertised goal when the work to be sublet includes potential for MBE/WBE participation (2<sup>nd</sup> and 3<sup>rd</sup> tier subcontractors).
- (C) Providing interested certified MBEs/WBEs that are also prequalified subcontractors with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D) (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications



for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.

- (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as the advertised goal into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening the Business Opportunity and Work Force Development Unit at BOWD@ncdot.gov to give notification of the bidder's inability to get MBE or WBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the advertised goal.

In addition, the Department may take into account the following:

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the Combined MBE/WBE Goal.
- (2) The bidders' past performance in meeting the contract goal.
- (3) The performance of other bidders in meeting the advertised goal. For example, when the apparent successful bidder fails to meet the goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts



the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the advertised goal, but meets or exceeds the average MBE and WBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the Combined MBE/WBE Goal can be met or that an adequate good faith effort has been made to meet the advertised goal.

#### **Non-Good Faith Appeal**

The State Prequalification Engineer will notify the Contractor verbally and in writing of non-good faith. A Contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a Contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the State Prequalification Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

#### **Counting MBE/WBE Participation Toward Meeting the Combined MBE/WBE Goal**

##### **(A) Participation**

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by a committed MBE/WBE will be based upon the value of work performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

##### **(B) Joint Checks**

Prior notification of joint check use shall be required when counting MBE/WBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 (*Joint Check Notification Form*) and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

##### **(C) Subcontracts (Non-Trucking)**

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the anticipated MBE participation. The same holds true for work that a WBE subcontracts to another WBE firm. Work that a MBE/WBE subcontracts to a non-MBE/WBE firm does not count toward the contract goal requirement. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the MBE or WBE participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified



firms and there is no interest or availability, and they can get assistance from other certified firms, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE breakdown. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(F) Manufacturer, Regular Dealer, Distributor

A Contractor may count toward its MBE/WBE requirement 40 percent of its expenditures for materials or supplies (including transportation costs) from a MBE/WBE distributor, 60 percent of its expenditures for materials or supplies (including transportation costs) from a MBE/WBE regular dealer and 100 percent of such expenditures obtained from a MBE/WBE manufacturer.

A Contractor may count toward its MBE/WBE requirement the following expenditures to MBE/WBE firms that are not manufacturers, regular dealers or distributors:

- (1) The fees or commissions charged by a MBE/WBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.
- (2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer, regular dealer, nor a distributor count the entire amount of fees or commissions charged that the Department deems to be reasonable, including transportation charges for the delivery of materials or supplies. Do not count any portion of the cost of the materials and supplies themselves.

A Contractor will submit a completed *DBE Regular Dealer/Distributor Affirmation Form* with the Letter of Intent to the State Contractor Utilization Engineer or [DBE@ncdot.gov](mailto:DBE@ncdot.gov). The State Contractor Utilization Engineer will make a preliminary assessment as to whether a MBE/WBE supplier has the demonstrated capacity to perform a commercially useful function (CUF) on a contract-by-contract basis *prior* to its participation.



**Commercially Useful Function****(A) MBE/WBE Utilization**

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by performing, managing, and supervising the work involved. To perform a commercially useful function, the MBE/WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE/WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors. If it is determined that a MBE or WBE is not performing a Commercially Useful Function, the contractor may present evidence to rebut this presumption to the Department.

**(B) MBE/WBE Utilization in Trucking**

The following factors will be used to determine if a MBE or WBE trucking firm is performing a commercially useful function:

- (1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the Combined MBE/WBE Goal.
- (2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith



effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE participation breakdown.

- (5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.
- (6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

#### **MBE/WBE Replacement**

When a Contractor has relied on a commitment to a MBE or WBE subcontractor (or an approved substitute MBE or WBE subcontractor) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE subcontractor or any portion of its work for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate.

The Contractor must give notice in writing both by certified mail and email to the MBE/WBE subcontractor, with a copy to the Engineer of its intent to request to terminate a MBE/WBE subcontractor or any portion of its work, and the reason for the request. The Contractor must give the MBE/WBE subcontractor five (5) business days to respond to the Contractor's Notice of Intent to Request Termination and/or Substitution. If the MBE/WBE subcontractor objects to the intended termination/substitution, the MBE/WBE, within five (5) business days must advise the Contractor and the Department of the reasons why the action should not be approved. The five-day notice period shall begin on the next business day after written notice is provided to the MBE/WBE subcontractor.



A committed MBE/WBE subcontractor may only be terminated or any portion of its work after receiving the Department's written approval based upon a finding of good cause for the proposed termination and/or substitution. Good cause does not exist if the Contractor seeks to terminate a MBE/WBE or any portion of its work that it relied upon to obtain the contract so that the Contractor can self-perform the work for which the MBE/WBE was engaged, or so that the Contractor can substitute another MBE/WBE or non-MBE/WBE contractor after contract award. For purposes of this section, good cause shall include the following circumstances:

- (a) The listed MBE/WBE subcontractor fails or refuses to execute a written contract;
- (b) The listed MBE/WBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the MBE/WBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (c) The listed MBE/WBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
- (d) The listed MBE/WBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (e) The listed MBE/WBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR parts 180, 215 and 1200 or applicable State law;
- (f) The listed MBE/WBE subcontractor is not a responsible contractor;
- (g) The listed MBE/WBE voluntarily withdraws from the project and provides written notice of withdrawal;
- (h) The listed MBE/WBE is ineligible to receive MBE/WBE credit for the type of work required;
- (i) A MBE/WBE owner dies or becomes disabled with the result that the listed MBE/WBE contractor is unable to complete its work on the contract; and
- (j) Other documented good cause that compels the termination of the MBE/WBE subcontractor.

The Contractor shall comply with the following for replacement of a committed MBE/WBE:

(A) Performance Related Replacement

When a committed MBE/WBE is terminated for good cause as stated above, an additional MBE/WBE that was submitted at the time of bid may be used to fulfill the MBE/WBE commitment to meet the Combined MBE/WBE Goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no additional MBE/WBEs submitted at the time of bid to cover the same amount of work as the MBE/WBE that was terminated.



If a replacement MBE/WBE is not found that can perform at least the same amount of work as the terminated MBE/WBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

- (1) Copies of written notification to MBE/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with MBE/WBEs for specific subbids including, at a minimum:
  - (a) The names, addresses, and telephone numbers of MBE/WBEs who were contacted.
  - (b) A description of the information provided to MBE/WBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why MBE/WBE quotes were not accepted.
- (4) Efforts made to assist the MBE/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

- (1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement but not the overall goal.
  - (i) If the MBE/WBE's ineligibility is caused solely by its having exceeded the size standard during the performance of the contract. The Department may continue to count participation equal to the remaining work performed by the decertified firm which will count toward the contract goal requirement and overall goal.
  - (ii) If the MBE/WBE's ineligibility is caused solely by its acquisition by or merger with a non- MBE/WBE during the performance of the contract. The Department may not continue to count the portion of the decertified firm's performance on the contract remaining toward either the contract goal or the overall goal, even if the Contractor has executed a subcontract with the firm or the Department has executed a prime contract with the MBE/WBE that was later decertified.
- (2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the



Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another MBE/WBE subcontractor to perform at least the same amount of work to meet the Combined MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

All requests for replacement of a committed MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 (*DBE Replacement Request*). If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

### **Changes in the Work**

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed MBE/WBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed by a MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed MBE/WBE, the Contractor shall seek participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE participation caused by the changes.

### **Reports and Documentation**

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a MBE/WBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving MBE/WBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a MBE/WBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall



furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for MBE/WBE credit.

#### **Reporting Minority and Women Business Enterprise Participation**

The Contractor shall provide the Engineer with an accounting of payments made to all MBE/WBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

- (A) Withholding of money due in the next partial pay estimate; or
- (B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to MBEs/WBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for work on future DOT projects until the required information is submitted.

Contractors reporting transportation services provided by non-MBE/WBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments.

The Contractor shall report the accounting of payments through the Department's Payment Tracking System.

#### **Failure to Meet Contract Requirements**

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *Standard Specifications* may be cause to disqualify the Contractor.



**CONTRACTOR'S LICENSE REQUIREMENTS:**

(7-1-95)

102-14

SP1 G88

If the successful bidder does not hold the proper license to perform any plumbing, heating, air conditioning, or electrical work in this contract, he will be required to sublet such work to a contractor properly licensed in accordance with *Article 2 of Chapter 87 of the General Statutes* (licensing of heating, plumbing, and air conditioning contractors) and *Article 4 of Chapter 87 of the General Statutes* (licensing of electrical contractors).

**RESTRICTIONS ON ITS EQUIPMENT AND SERVICES:**

(11-17-20)

SP01 G090

All telecommunications, video or other ITS equipment or services installed or utilized on this project must be in conformance with UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS **2 CFR, § 200.216 Prohibition on certain telecommunications and video surveillance services or equipment.**

**USE OF UNMANNED AIRCRAFT SYSTEM (UAS):**

(8-20-19)

SP1 G092

The Contractor shall adhere to all Federal, State and Local regulations and guidelines for the use of Unmanned Aircraft Systems (UAS). This includes but is not limited to US 14 CFR Part 107 *Small UAS Rule*, NC GS 15A-300.2 *Regulation of launch and recovery sites*, NC GS 63-95 *Training required for the operation of unmanned aircraft systems*, NC GS 63-96 *Permit required for commercial operation of unmanned aircraft system*, and NCDOT UAS Policy. The required operator certifications include possessing a current Federal Aviation Administration (FAA) Remote Pilot Certificate, a NC UAS Operator Permit as well as operating a UAS registered with the FAA.

Prior to beginning operations, the Contractor shall complete the NCDOT UAS – Flight Operation Approval Form and submit it to the Engineer for approval. All UAS operations shall be approved by the Engineer prior to beginning the operations.

All contractors or subcontractors operating UAS shall have UAS specific general liability insurance to cover all operations under this contract.

The use of UAS is at the Contractor's discretion. No measurement or payment will be made for the use of UAS. In the event that the Department directs the Contractor to utilize UAS, payment will be in accordance with Article 104-7 Extra Work.

**EQUIPMENT IDLING GUIDELINES:**

(1-19-21)

107

SP1 G096

Exercise reduced fuel consumption and reduced equipment emissions during the construction of all work associated with this contract. Employees engaged in the construction of this project should turn off vehicles when stopped for more than thirty (30) minutes and off-highway equipment should idle no longer than fifteen (15) consecutive minutes.



These guidelines for turning off vehicles and equipment when idling do not apply to:

1. Idling when queuing.
2. Idling to verify the vehicle is in safe operating condition.
3. Idling for testing, servicing, repairing or diagnostic purposes.
4. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane, mixing concrete, etc.).
5. Idling required to bring the machine system to operating temperature.
6. Emergency vehicles, utility company, construction, and maintenance vehicles where the engines must run to perform needed work.
7. Idling to ensure safe operation of the vehicle.
8. Idling when the propulsion engine is providing auxiliary power for other than heating or air conditioning. (such as hydraulic systems for pavers)
9. When specific traffic, safety, or emergency situations arise.
10. If the ambient temperature is less than 32 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants (e.g. to run the heater).
11. If the ambient temperature is greater than 90 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants of off-highway equipment (e.g. to run the air conditioning) no more than 30 minutes.
12. Diesel powered vehicles may idle for up to 30 minutes to minimize restart problems.

Any vehicle, truck, or equipment in which the primary source of fuel is natural gas or electricity is exempt from the idling limitations set forth in this special provision.

**SUBSURFACE INFORMATION:**

(7-1-95)

450

SP1 G112 C

Subsurface information is available on the roadway and structure portions of this project.

**MAINTENANCE OF THE PROJECT:**

(11-20-07) (Rev. 1-17-12)

104-10

SP1 G125

Revise the *2018 Standard Specifications* as follows:

**Page 1-39, Article 104-10 Maintenance of the Project, line 25,** add the following after the first sentence of the first paragraph:

All guardrail/guiderail within the project limits shall be included in this maintenance.

**Page 1-39, Article 104-10 Maintenance of the Project, line 30,** add the following as the last sentence of the first paragraph:

The Contractor shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. *Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in accordance with this article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.*



**Page 1-39, Article 104-10 Maintenance of the Project, lines 42-44,** replace the last sentence of the last paragraph with the following:

The Contractor will not be directly compensated for any maintenance operations necessary, except for maintenance of guardrail/guiderail, as this work will be considered incidental to the work covered by the various contract items. The provisions of Article 104-7, Extra Work, and Article 104-8, Compensation and Record Keeping will apply to authorized maintenance of guardrail/guiderail. Performance of weekly inspections of guardrail/guiderail, and the damage reports required as described above, will be considered to be an incidental part of the work being paid for by the various contract items.

**COOPERATION BETWEEN CONTRACTORS:**

(7-1-95)

105-7

SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2018 Standard Specifications*.

R-5930A (C204872) is located adjacent to this project. C204872 is currently under construction and not anticipated to be completed prior to the letting of this project.

R-5963D (C204922) is located in proximity to this project. C204922 is currently under construction and not anticipated to be completed prior to the letting of this project.

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

**ELECTRONIC BIDDING:**

(2-19-19)

101, 102, 103

SP1 G140

Revise the *2018 Standard Specifications* as follows:

**Page 1-4, Article 101-3, DEFINITIONS, BID (OR PROPOSAL) *Electronic Bid*, line 1,** replace "Bid Express®" with "the approved electronic bidding provider".

**Page 1-15, Subarticle 102-8(B), Electronic Bids, lines 39-40,** replace "to Bid Express®" with "via the approved electronic bidding provider".

**Page 1-15, Subarticle 102-8(B)(1), Electronic Bids, line 41,** delete "from Bid Express®"

**Page 1-17, Subarticle 102-9(C)(2), Electronic Bids, line 21,** replace "Bid Express® miscellaneous folder within the .ebs" with "electronic submittal".

**Page 1-29, Subarticle 103-4(C)(2), Electronic Bids, line 32,** replace ".ebs miscellaneous data file of Expedite" with "electronic submittal file"



**AWARD LIMITS:**

(4-19-22)

103

SPI G141

Revise the *2018 Standard Specifications* as follows:

**Page 1-29, Subarticle 103-4(C), Award Limits**, line 4-8, delete and replace the first sentence in the first paragraph with the following:

A bidder who desires to bid on more than one project on which bids are to be opened in the same letting and who desires to avoid receiving an award of more projects than he is equipped to handle, may bid on any number of projects but may limit the total amount of work awarded to him on selected projects by completing the form Award Limits on Multiple Projects for each project subject to the award limit.

**TWELVE MONTH GUARANTEE:**

(7-15-03)

108

SPI G145

- (A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of the Department, and/or for use in excess of the design.
- (B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that the Department would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

To ensure uniform application statewide the Division Engineer will forward details regarding the circumstances surrounding any proposed guarantee repairs to the Chief Engineer for review and approval prior to the work being performed.



**OUTSOURCING OUTSIDE THE USA:**

(9-21-04) (Rev. 5-16-06)

SPI G150

All work on consultant contracts, services contracts, and construction contracts shall be performed in the United States of America. No work shall be outsourced outside of the United States of America.

*Outsourcing* for the purpose of this provision is defined as the practice of subcontracting labor, work, services, staffing, or personnel to entities located outside of the United States.

The North Carolina Secretary of Transportation shall approve exceptions to this provision in writing.

**EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:**

(1-16-07) (Rev 12-15-20)

105-16, 225-2, 16

SPI G180

**General**

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollution discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control/Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

- (A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.
- (B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.
- (C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.
- (D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

**Roles and Responsibilities**

- (A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project



within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:

- (1) Manage Operations - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.
  - (a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
  - (b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
  - (c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
  - (d) Implement the erosion and sediment control/stormwater site plans requested.
  - (e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
  - (f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
  - (g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
  - (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
  - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
  - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
  - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.
- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:



- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
  - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days and within 24 hours after a rainfall event equal to or greater than 1.0 inch that occurs within a 24 hour period. Additional monitoring may be required at the discretion of Division of Water Resources personnel if the receiving stream is 303(d) listed for turbidity and the project has had documented problems managing turbidity.
  - (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
  - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
  - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
  - (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
  - (g) Provide secondary containment for bulk storage of liquid materials.
  - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
  - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
  - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
  - (c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
  - (d) Conduct the inspections required by the NPDES permit.
  - (e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
  - (f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.



- (g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
  - (h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
  - (i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
  - (j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.
- (B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:
- (1) Foreman in charge of grading activities
  - (2) Foreman in charge of bridge or culvert construction over jurisdictional areas
  - (3) Foreman in charge of utility activities

The Contractor may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Contractor may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

- (C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control/stormwater crew:
- (1) Seeding and Mulching
  - (2) Temporary Seeding
  - (3) Temporary Mulching
  - (4) Sodding
  - (5) Silt fence or other perimeter erosion/sediment control device installations
  - (6) Erosion control blanket installation
  - (7) Hydraulic tackifier installation
  - (8) Turbidity curtain installation
  - (9) Rock ditch check/sediment dam installation
  - (10) Ditch liner/matting installation
  - (11) Inlet protection
  - (12) Riprap placement
  - (13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
  - (14) Pipe installations within jurisdictional areas



If a Level I *Certified Installer* is not onsite, the Contractor may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

- (D) *Certified Designer* - Include the certification number of the Level III Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the certification number of the Level III Certified Designer on the design of the project erosion and sediment control/stormwater plan.

### **Preconstruction Meeting**

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* and notify the Engineer of changes in certified personnel over the life of the contract within 2 days of change.

### **Ethical Responsibility**

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

### **Revocation or Suspension of Certification**

Upon recommendation of the Chief Engineer to the certification entity, certification for *Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* may be revoked or suspended with the issuance of an *Immediate Corrective Action (ICA)*, *Notice of Violation (NOV)*, or *Cease and Desist Order* for erosion and sediment control/stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of certification due to the following:

- (A) Failure to adequately perform the duties as defined within this certification provision.
- (B) Issuance of an ICA, NOV, or Cease and Desist Order.
- (C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
- (D) Demonstration of erroneous documentation or reporting techniques.
- (E) Cheating or copying another candidate's work on an examination.
- (F) Intentional falsification of records.
- (G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
- (H) Dismissal from a company for any of the above reasons.
- (I) Suspension or revocation of one's certification by another entity.

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.



A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

Chief Engineer  
1536 Mail Service Center  
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

#### **Measurement and Payment**

*Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers and Certified Designer* will be incidental to the project for which no direct compensation will be made.

#### **PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:**

(2-20-07) (Rev. 4-5-19)

105-16, 230, 801

SP1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

If during any operating day, the downstream water quality exceeds the standard, the Contractor shall do all of the following:

- (A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or
- (B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.



- (C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.
- (D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

During the Environmental Assessment required by Article 230-4 of the *2018 Standard Specifications*, the Contractor shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

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

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

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at <https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/TurbidityReductionOptionSheet.pdf> to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

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



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



**PROJECT SPECIAL PROVISIONS****ROADWAY****CLEARING AND GRUBBING - METHOD III:**

(4-6-06) (Rev. 8-18-15)

200

SP2 R02B

Perform clearing on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the *2018 Roadway Standard Drawings*. Conventional clearing methods may be used except where permit drawings or conditions have been included in the proposal which require certain areas to be cleared by hand methods.

**SHOULDER AND FILL SLOPE MATERIAL:**

(5-21-02)

235, 560

SP2 R45 B

**Description**

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2018 Standard Specifications*.

**Measurement and Payment**

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

Material generated from undercut excavation, unclassified excavation or clearing and grubbing operations that is placed directly on shoulders or slope areas, will not be measured separately for payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.



When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *2018 Standard Specifications*.

**BORROW EXCAVATION (In Place or Truck Measurement):**

(7-1-95)

230

SP2 R58

The borrow material used on this project will be measured for payment by in place measurement as provided in Article 230-5 of the *2018 Standard Specifications*, or by truck measurement as provided in Article 230-5 of the *2018 Standard Specifications*, as directed by the Engineer.

**MANUFACTURED QUARRY FINES IN EMBANKMENTS:**

(01-17-17)(Rev. 7-18-23)

235

SP02 R72

**Description**

This specification addresses the use of manufactured quarry fines that are not classified as select materials. The specification allows the Contractor an option, with the approval of the Engineer, to use manufactured quarry fines (MQFs) in embankments as a substitute for conventional borrow material. Furnish and place geotextile for subgrade stabilization in accordance with the contract. Geotextile for subgrade stabilization is required to prevent pavement cracking and provide separation between the subgrade and pavement section at embankment locations where manufactured quarry fines are utilized and as directed by the Engineer.

**Materials**

Manufactured Quarry Fines.

Site specific approval of MQFs material will be required prior to beginning construction as detailed in the preconstruction requirements of this provision.

The following MQFs are unacceptable:

- (A) Frozen material,
- (B) Material with a maximum dry unit weight of less than 90 pounds per cubic foot when tested in accordance with AASHTO T-99 Method A or C.
- (C) Material with greater than 80% by weight Passing the #200 sieve

Collect and transport MQFs in a manner that will prevent nuisances and hazards to public health and safety. Moisture condition the MQFs as needed and transport in covered trucks to prevent dusting. If MQFs are blended with natural earth material, follow Borrow Criteria in Section 1018 of the *Standard Specifications*.

**Geotextiles**

Areas of embankment where MQFs are incorporated, Geotextile for Subgrade Stabilization shall be used. If the Geotextile for Subgrade Stabilization special provision is not included elsewhere in this contract, then it along with a detail will be incorporated as part of the contractors request to use.



**Preconstruction Requirements**

When MQFs are to be used as a substitute for earth borrow material, request written approval from the Engineer at least ninety (90) days in advance of the intent to use MQFs and include the following details:

- (A) Description, purpose and location of project.
- (B) Estimated start and completion dates of project.
- (C) Estimated volume of MQFs to be used on project with specific locations and construction details of the placement.
- (D) The names, address, and contact information for the generator of the MQFs.
- (E) Physical location of the site at which the MQFs were generated.

The Engineer will forward this information to the State Materials Engineer for review and material approval.

**Construction Methods**

Place MQFs in the core of the embankment section with at least 4 feet of earth cover to the outside limits of the embankments or subgrade.

Construct embankments by placing MQFs in level uniform lifts with no more than a lift of 10 inches and compacted to at least a density of 95 percent as determined by test methods in AASHTO T-99, Determination of Maximum Dry Density and Optimum Moisture Content, Method A or C depending upon particle size of the product. Provide a moisture content at the time of compaction of within 4 percent of optimum but not greater than one percent above optimum as determined by AASHTO T-99, Method A or C.

Areas of embankment where MQFs are incorporated, Geotextile for Subgrade Stabilization shall be used. See the contract for geotextile type and construction method for Geotextile for Subgrade Stabilization.

**Measurement and Payment**

*Borrow Excavation* will be measured by truck volume and paid in cubic yards in accordance with Article 230-5 of the *2018 Standard Specifications*. As an alternate weigh tickets can be provided and payment made by converting weight to cubic yards based on the verifiable unit weight.

When the pay item for *Geotextile for Subgrade Stabilization* is included in the original contract the material will be measured and paid in accordance with the contract. When the pay item for *Geotextile for Subgrade Stabilization* is not included in the original contract then no payment will be made for this item and will be considered incidental to the use of MQFs in embankment.



**CORRUGATED ALUMINUM ALLOY CULVERT PIPE:**

(9-21-21)

305, 310

SP3 R34

Revise the *Standard Specifications* as follows:

**Page 3-5, Article 305-2, MATERIALS,** add the following after line 16:

| Item             | Section |
|------------------|---------|
| Waterborne Paint | 1080-9  |
| Hot Bitumen      | 1081-3  |

**Page 3-5, Article 305-3, CONSTRUCTION METHODS,** add the following after line 24:

Coating must be applied to the aluminum when in contact with concrete. Immediately prior to coating, aluminum surfaces to be coated shall be cleaned by a method that will remove all dirt, oil, grease, chips, and other foreign substances. Aluminum to be coated shall be given one coat of suitable quality coating such as:

Approved waterborne paint (Section 1080-9)

Approved Hot Bitumen (Section 1081-3)

Other coating materials may be submitted to the Engineer for approval.

**Page 3-7, Article 310-6, MEASUREMENT AND PAYMENT, lines 6-11,** delete the fourth sentence and replace with the following:

Select bedding and backfill material and coating will be included in the cost of the installed pipe. Such price and payment will be full compensation for all materials, labor, equipment, and other incidentals necessary to complete the work.

**CULVERT PIPE:**

(8-20-19)(Rev. 5-17-22)

305,310

SP3 R35

Revise the *2018 Standard Specifications* as follows:

**Page 3-5, Article 305-1 DESCRIPTION,** lines 12-14, replace with the following:

Where shown in the plans, the Contractor may use reinforced concrete pipe, aluminum alloy pipe, aluminized corrugated steel pipe, galvanized corrugated steel pipe, HDPE pipe, Polypropylene pipe or PVC pipe in accordance with the following requirements.

**Page 3-5, Article 305-2 MATERIALS,** add the following after line 16:

| Item                             | Section |
|----------------------------------|---------|
| Polypropylene Pipe               | 1032-9  |
| Galvanized Corrugated Steel Pipe | 1032-3  |



**Page 3-6, Article 310-2 MATERIALS**, add the following after line 9:

| Item                             | Section |
|----------------------------------|---------|
| Polypropylene Pipe               | 1032-9  |
| Galvanized Corrugated Steel Pipe | 1032-3  |

**Page 3-6, Article 310-4 SIDE DRAIN PIPE**, lines 24-25, replace the first sentence of the second paragraph with the following:

Where shown in the plans, side drain pipe may be Class II reinforced concrete pipe, aluminized corrugated steel pipe, galvanized corrugated steel pipe, corrugated aluminum alloy pipe, Polypropylene pipe, HDPE pipe or PVC pipe.

**Page 3-7, Article 310-5 PIPE END SECTIONS**, lines 2-4, replace the second sentence with the following:

Both corrugated steel and concrete pipe end sections will work on concrete pipe, corrugated steel pipe, Polypropylene pipe and HDPE smooth lined corrugated plastic pipe.

**Page 3-7, Article 310-6 MEASUREMENT AND PAYMENT**, add the following after line 14:

| Pay Item                | Pay Unit    |
|-------------------------|-------------|
| ___" Polypropylene Pipe | Linear Foot |

**Page 10-60, add Article 1032-9:**

**(A) General**

Use polypropylene pipe from sources participating in the Department's Polypropylene Pipe QA/QC Program. A list of participating sources is available from the Materials and Tests Unit. The Department will remove a manufacturer of polypropylene pipe from this program if the monitoring efforts indicated that non-specification material is being provided or test procedures are not being followed.

Use polypropylene culvert pipe that meets AASHTO M 330 for Type S or Type D, or ASTM F2881 or ASTM F2764 Double or Triple wall; and has been evaluated by NTPEP.

**(B) End Treatments, Pipe Tees and Elbows**

End treatments, pipe tees and elbows shall meet AASHTO M 330, Section 7.7, or ASTM F2764, Section 6.6.

**(C) Marking**

Clearly mark each section of pipe, end section, tee and elbow and other accessories according to the Department's Polypropylene Pipe QC/QA Program:



- (1) AASHTO or ASTM Designation
- (2) The date of manufacture
- (3) Name or trademark of the manufacturer

When polypropylene pipe, end sections, tees and elbows have been inspected and accepted a sticker will be applied to the inside of the pipe. Do not use pipe sections, flared end sections, tees or elbows which do not have this seal of approval.

**AGGREGATE SUBGRADE:**

(5-15-18)(Rev. 4-18-23)

505

SP5 R8

Revise the 2018 *Standard Specifications* as follows:

**Page 5-8, Section 505 AGGREGATE SUBGRADE, lines 3-32,** replace the section with the following:

**505-1 DESCRIPTION**

Construct aggregate subgrades in accordance with the contract. Install geotextile for subgrade stabilization and place Class IV subgrade stabilization at locations shown in the plans and as directed by the Engineer.

Undercut natural soil materials if necessary to construct aggregate subgrades. Define "subsoil" as the portion of the roadbed below the Class IV subgrade stabilization. For Type 2 aggregate subgrades, undercut subsoil as needed. The types of aggregate subgrade with thickness and compaction requirements for each are as shown below.

**Type 1** – A 6 to 24 inch thick aggregate subgrade with Class IV subgrade stabilization compacted to 92% of AASHTO T 180 as modified by the Department or to the highest density that can be reasonably obtained.

**Type 2** – An 8 inch thick aggregate subgrade on a proof rolled subsoil with Class IV subgrade stabilization compacted to 97% of AASHTO T 180 as modified by the Department.

**505-2 MATERIALS**

Refer to Division 10.

| Item                                          | Section |
|-----------------------------------------------|---------|
| Geotextile for Subgrade Stabilization, Type 5 | 1056    |
| Select Material, Class IV                     | 1016    |

Use Class IV select material for Class IV subgrade stabilization.



### 505-3 CONSTRUCTION METHODS

When shallow undercut is required to construct aggregate subgrades, undercut 6 inches to 24 inches as shown on the plans or as directed by the Engineer. For Type 2 aggregate subgrades, proof roll subsoil in accordance with Section 260 before installing geotextile for subgrade stabilization. Perform undercut excavation in accordance with Section 225.

Do not leave geotextiles exposed for more than 7 days before covering geotextiles with Class IV subgrade stabilization (standard size no. ABC). Install geotextile for subgrade stabilization on subsoil with the long dimension, i.e., machine direction (MD), of the roll parallel to the roadway centerline and completely cover subsoil with geotextiles. For fill sections, the minimum roll width is required under roadway edges and shoulders nearest to fill slopes as shown in the plans. Overlap adjacent geotextiles at least 18 inches in the direction that ABC will be placed to prevent lifting the edge of the top geotextile. Pull geotextiles taut so they are in tension and free of kinks, folds, wrinkles or creases. Hold geotextiles in place as needed with wire staples or anchor pins.

Place Class IV subgrade stabilization by end dumping ABC on geotextiles. Do not operate heavy equipment on geotextiles until geotextiles are covered with Class IV subgrade stabilization. Compact ABC as required for the type of aggregate subgrade constructed.

Maintain Class IV subgrade stabilization in an acceptable condition and minimize the use of heavy equipment on ABC in order to avoid damaging aggregate subgrades. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate subgrades.

### 505-4 MEASUREMENT AND PAYMENT

*Shallow Undercut* of natural soil materials from subsoil for Type 1 aggregate subgrades will be measured and paid in cubic yards, measured in the original position and computed by the average end area method that is acceptably excavated in accordance with the contract. The contract unit price for *Shallow Undercut* will be full compensation for excavating, hauling and disposing of materials to construct aggregate subgrades.

*Undercut Excavation* of natural soil materials from subsoil for Type 2 aggregate subgrades will be measured and paid in accordance with Article 225-7 or 226-3. No measurement will be made for any undercut excavation of fill materials from subsoil.

*Class IV Subgrade Stabilization* will be measured and paid in tons. Class IV subgrade stabilization will be measured by weighing material in trucks in accordance with Article 106-7. The contract unit price for *Class IV Subgrade Stabilization* will be full compensation for furnishing, hauling, handling, placing, compacting and maintaining ABC.

*Geotextile for Subgrade Stabilization* will be measured and paid in square yards. Geotextiles will be measured along the ground surface as the square yards of exposed geotextiles before placing ABC. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Subgrade Stabilization* will be full compensation for providing, transporting and installing geotextiles, wire staples and anchor pins.



Payment will be made under:

| Pay Item                              | Pay Unit    |
|---------------------------------------|-------------|
| Shallow Undercut                      | Cubic Yard  |
| Class IV Subgrade Stabilization       | Ton         |
| Geotextile for Subgrade Stabilization | Square Yard |

**AGGREGATE SUBGRADE IN LIEU OF CHEMICAL STABILIZATION:**

(6-16-15) (Rev. 3-21-23)

501, 505, 542

SP5 R17

**Description**

At the Contractor's option and in lieu of chemical stabilization, replace 8 inches of subgrade with Type 2 aggregate subgrade. This substitution is allowed in full typical section width and cannot result in chemically stabilized sections less than 1,000 feet in length, unless otherwise approved by the Engineer. This substitution is not allowed for chemically stabilized sections with geotextile for subgrade stabilization. Notify the Engineer at least 30 days before starting aggregate subgrade in lieu of chemical stabilization. Define "subsoil" as the portion of the roadbed below the Class IV subgrade stabilization.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

| Item                                          | Section |
|-----------------------------------------------|---------|
| Geotextile for Subgrade Stabilization, Type 5 | 1056    |

**Construction Methods**

Proof roll subsoil, install geotextile for subgrade stabilization and place, compact and maintain Class IV subgrade stabilization in accordance with Article 505-3 of the *Standard Specifications* for a Type 2 aggregate subgrade.

**Measurement and Payment**

*Aggregate Subgrade in Lieu of Chemical Stabilization* will be paid at the prices established in the contract that relate to the chemical stabilization type that is being replaced (lime or cement). No direct payment will be made for additional excavation required to accommodate this alternate.

The total amount paid for this subgrade stabilization alternative will be limited to the contract amounts per square yard for replacement for Portland cement or lime, theoretical tons of Portland cement or lime replaced, mixing of cement or lime, and theoretical gallons of asphalt curing seal replaced at the rate of 0.15 gallons per square yard.

A supplement agreement will be executed prior to starting the work to create a square yard price for the *Aggregate Subgrade in Lieu of Chemical Stabilization* and deleting the quantities associated with the work being replaced.



**INCIDENTAL MILLING:**

(11-15-22)(Rev. 1-17-23)

607

SP6 R02R

Revise the *2018 Standard Specifications* as follows:

**Page 6-5, Article 607-3 CONSTRUCTION METHODS**, add the following paragraph after line 45:

Variable depth milling is intended to improve the cross-sectional slope of the pavement.

**Page 6-6, Article 607-3 CONSTRUCTION METHODS, line 9**, delete and replace the first sentence in the sixth paragraph with the following:

The Engineer may require re-milling of any area exhibiting pavement laminations, scabbing or other defects.

**Page 6-6, Article 607-4 TOLERANCE, lines 17-18**, delete and replace the second sentence with the following:

The Engineer may vary the depth of milling by not more than one inch. In the event the directed depth of milling cut is altered by the Engineer more than one inch, either the Department or the Contractor may request an adjustment in unit price in accordance with Article 104-3. In administering Article 104-3, the Department will give no consideration to value given to RAP due to the deletion or reduction in quantity of milling. Article 104-3 will not apply to the item of *Incidental Milling*.

**Page 6-6, Subarticle 607-5(A) Milled Asphalt Pavement, lines 21-23**, delete and replace the first sentence with the following:

Milled Asphalt Pavement, \_\_\_" Depth will be measured and paid as the actual number of square yards of pavement surface milled in accordance with this specification.

**Page 6-6, Subarticle 607-5(A) Milled Asphalt Pavement, lines 24-28**, delete and replace the third and fourth sentence with the following:

The width will be the width required by the plans or directed by the Engineer, measured along the pavement surface. Areas to be paid under this item include mainline travel lanes, full width turn lanes greater than 500 feet in length, collector lanes, shoulders, and any additional equipment necessary to remove pavement in the area of manholes, water valves, curb, gutter and other obstructions.

**Page 6-6, Subarticle 607-5(B) Milled Asphalt Pavement Depth Varies from Required Depth, lines 29-37**, delete and replace the title and first paragraph with the following:

**(B) Variable Depth Milled Asphalt Pavement**

*Milling Asphalt Pavement*, \_\_\_" to \_\_\_" will be measured and paid as the actual number of square yards of pavement surface milled in accordance with this specification. In measuring this



quantity, the length will be the actual length milled, measured along the pavement surface. The width will be the width required by the plans or directed by the Engineer, measured along the pavement surface. Areas to be paid under this item include mainline travel lanes, full width turn lanes greater than 500 feet in length, collector lanes, shoulders, and any additional equipment necessary to remove pavement in the area of manholes, water valves, curb, gutter and other obstructions.

**Page 6-6, Subarticle 607-5(C) Incidental Milling, lines 45-49,** delete and replace the first and second sentence with the following:

*Incidental Milling* will be measured and paid as the actual number of square yards of surface milled where the Contractor is required to mill butt joints, irregular areas, full width turn lanes 500 feet or less, intersections and re-mill areas that are not due to the Contractor's negligence. In measuring this quantity, the length will be the actual length milled, measured along the pavement surface. The width will be the width required by the plans or directed by the Engineer, measured along the pavement surface.

**Page 6-7, Subarticle 607-5(D) Milling of Defects, lines 6-10,** delete and replace the second sentence with the following:

If the Engineer directs re-milling of an area and is not due to the Contractor's negligence, the re-milled area will be measured as provided in Subarticle 607-5(C) and paid at the contract unit price per square yard for *Incidental Milling*.

**PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:**

(11-21-00)

620

SP6 R25

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

The base price index for asphalt binder for plant mix is \$ 559.38 per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **February 1, 2025**.

**ASPHALT CONCRETE PLANT MIX PAVEMENTS:**

(2-20-18) (Rev. 7-18-23)

610, 1012

SP6 R65

Revise the *2018 Standard Specifications* as follows:

**Page 6-14, Table 609-3, LIMITS OF PRECISION FOR TEST RESULTS,** replace with the following:

| TABLE 609-3<br>LIMITS OF PRECISION FOR TEST RESULTS |                     |
|-----------------------------------------------------|---------------------|
| Mix Property                                        | Limits of Precision |
| 25.0 mm sieve (Base Mix)                            | ± 10.0%             |
| 19.0 mm sieve (Base Mix)                            | ± 10.0%             |
| 12.5 mm sieve (Intermediate & Type P-57)            | ± 6.0%              |



|                                                                  |                       |
|------------------------------------------------------------------|-----------------------|
| 9.5 mm sieve (Surface Mix)                                       | ± 5.0%                |
| 4.75 mm sieve (Surface Mix)                                      | ± 5.0%                |
| 2.36 mm sieve (All Mixes, except S4.75A)                         | ± 5.0%                |
| 1.18 mm sieve (S4.75A)                                           | ± 5.0%                |
| 0.075 mm sieve (All Mixes)                                       | ± 2.0%                |
| Asphalt Binder Content                                           | ± 0.5%                |
| Maximum Specific Gravity ( $G_{mm}$ )                            | ± 0.020               |
| Bulk Specific Gravity ( $G_{mb}$ )                               | ± 0.030               |
| TSR                                                              | ± 15.0%               |
| QA retest of prepared QC Gyratory Compacted Volumetric Specimens | ± 0.015               |
| Retest of QC Core Sample                                         | ± 1.2% (% Compaction) |
| Comparison QA Core Sample                                        | ± 2.0% (% Compaction) |
| QA Verification Core Sample                                      | ± 2.0% (% Compaction) |
| Density Gauge Comparison of QC Test                              | ± 2.0% (% Compaction) |
| QA Density Gauge Verification Test                               | ± 2.0% (% Compaction) |

**Page 6-17, Table 610-1, MIXING TEMPERATURE AT THE ASPHALT PLANT**, replace with the following:

| <b>TABLE 610-1<br/>MIXING TEMPERATURE AT THE ASPHALT PLANT</b> |                        |
|----------------------------------------------------------------|------------------------|
| <b>Binder Grade</b>                                            | <b>JMF Temperature</b> |
| PG 58-28; PG 64-22                                             | 250 - 290°F            |
| PG 76-22                                                       | 300 - 325°F            |

**Page 6-17, Subarticle 610-3(C), Job Mix Formula (JMF), lines 38-39**, delete the fourth paragraph.

**Page 6-18, Subarticle 610-3(C), Job Mix Formula (JMF), line 12**, replace “SF9.5A” with “S9.5B”.

**Page 6-18, Table 610-3, MIX DESIGN CRITERIA**, replace with the following:

| TABLE 610-3<br>MIX DESIGN CRITERIA |                                                              |                 |                   |                  |                     |                                    |           |                  |                                        |
|------------------------------------|--------------------------------------------------------------|-----------------|-------------------|------------------|---------------------|------------------------------------|-----------|------------------|----------------------------------------|
| Mix Type                           | Design ESALs millions <sup>A</sup>                           | Binder PG Grade | Compaction Levels |                  | Max. Rut Depth (mm) | Volumetric Properties <sup>B</sup> |           |                  |                                        |
|                                    |                                                              |                 | G <sub>mm</sub> @ |                  |                     | VMA<br>% Min.                      | VTM<br>%  | VFA<br>Min.-Max. | %G <sub>mm</sub><br>@ N <sub>ini</sub> |
|                                    |                                                              |                 | N <sub>ini</sub>  | N <sub>des</sub> |                     |                                    |           |                  |                                        |
| S4.75A                             | < 1                                                          | 64 - 22         | 6                 | 50               | 11.5                | 16.0                               | 4.0 - 6.0 | 65 - 80          | ≤ 91.5                                 |
| S9.5B                              | 0 - 3                                                        | 64 - 22         | 6                 | 50               | 9.5                 | 16.0                               | 3.0 - 5.0 | 70 - 80          | ≤ 91.5                                 |
| S9.5C                              | 3 - 30                                                       | 64 - 22         | 7                 | 65               | 6.5                 | 15.5                               | 3.0 - 5.0 | 65 - 78          | ≤ 90.5                                 |
| S9.5D                              | > 30                                                         | 76 - 22         | 8                 | 100              | 4.5                 | 15.5                               | 3.0 - 5.0 | 65 - 78          | ≤ 90.0                                 |
| I19.0C                             | ALL                                                          | 64 - 22         | 7                 | 65               | -                   | 13.5                               | 3.0 - 5.0 | 65 - 78          | ≤ 90.5                                 |
| B25.0C                             | ALL                                                          | 64 - 22         | 7                 | 65               | -                   | 12.5                               | 3.0 - 5.0 | 65 - 78          | ≤ 90.5                                 |
| Design Parameter                   |                                                              |                 |                   |                  |                     | Design Criteria                    |           |                  |                                        |
| All Mix Types                      | Dust to Binder Ratio (P <sub>0.075</sub> / P <sub>be</sub> ) |                 |                   |                  |                     | 0.6 - 1.4 <sup>C</sup>             |           |                  |                                        |
|                                    | Tensile Strength Ratio (TSR) <sup>D</sup>                    |                 |                   |                  |                     | 85% Min. <sup>E</sup>              |           |                  |                                        |



- A. Based on 20 year design traffic.
- B. Volumetric Properties based on specimens compacted to  $N_{des}$  as modified by the Department.
- C. Dust to Binder Ratio ( $P_{0.075} / P_{100}$ ) for Type S4.75A is 1.0 - 2.0.
- D. NCDOT-T-283 (No Freeze-Thaw cycle required).
- E. TSR for Type S4.75A & B25.0C mixes is 80% minimum.

**Page 6-19, Table 610-5, BINDER GRADE REQUIREMENTS (BASED ON RBR%),** replace with the following:

| TABLE 610-5<br>BINDER GRADE REQUIREMENTS (BASED ON RBR%) |                       |                            |              |
|----------------------------------------------------------|-----------------------|----------------------------|--------------|
| Mix Type                                                 | %RBR $\leq$ 20%       | 21% $\leq$ %RBR $\leq$ 30% | %RBR $>$ 30% |
| S4.75A, S9.5B, S9.5C,<br>I19.0C, B25.0C                  | PG 64-22              | PG 64-22 <sup>A</sup>      | PG-58-28     |
| S9.5D, OGFC                                              | PG 76-22 <sup>B</sup> | n/a                        | n/a          |

- A. If the mix contains any amount of RAS, the virgin binder shall be PG 58-28.
- B. Maximum Recycled Binder Replacement (%RBR) is 18% for mixes using PG 76-22 binder.

**Page 6-20, Table 610-6, PLACEMENT TEMPERATURES FOR ASPHALT,** replace with the following:

| TABLE 610-6<br>PLACEMENT TEMPERATURES FOR ASPHALT |                                     |
|---------------------------------------------------|-------------------------------------|
| Asphalt Concrete Mix Type                         | Minimum Surface and Air Temperature |
| B25.0C                                            | 35°F                                |
| I19.0C                                            | 35°F                                |
| S4.75A, S9.5B, S9.5C                              | 40°F <sup>A</sup>                   |
| S9.5D                                             | 50°F                                |

- A. For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50°F.

**Page 6-21, Article 610-8, SPREADING AND FINISHING, lines 34-35,** delete the second sentence and replace with the following:

Use an MTV for all surface mix regardless of binder grade on Interstates, US Routes, and NC Routes (primary routes) that have 4 or more lanes and are median divided.

**Page 6-21, Article 610-8, SPREADING AND FINISHING, lines 36-38,** delete the fourth sentence and replace with the following:

Use MTV for all ramps, loops, and Y-lines that have 4 or more lanes and are median divided, and all full width acceleration lanes, full width deceleration lanes, and full width turn lanes that are greater than 1000 feet in length.

**Page 6-23, Table 610-7, DENSITY REQUIREMENTS,** replace with the following:



**TABLE 610-7  
DENSITY REQUIREMENTS**

| <b>Mix Type</b>              | <b>Minimum % G<sub>mm</sub><br/>(Maximum Specific Gravity)</b> |
|------------------------------|----------------------------------------------------------------|
| S4.75A                       | 85.0 <sup>A</sup>                                              |
| S9.5B                        | 90.0                                                           |
| S9.5C, S9.5D, I19.0C, B25.0C | 92.0                                                           |

A. Compaction to the above specified density shall be required when the S4.75A mix is applied at a rate of 100 lbs/sy or higher.

**Page 6-24, Article 610-13, FINAL SURFACE TESTING, lines 35-36,** delete the second sentence and replace with the following:

Final surface testing is not required on ramps, loops and turn lanes.

**Page 6-26, Subarticle 610-13(A)(1), Acceptance for New Construction, lines 29-30,** delete the second sentence and replace with the following:

Areas excluded from testing by the profiler may be tested using a 10-foot straightedge in accordance with Article 610-12.

**Page 6-27, Subarticle 610-13(B), Option 2- North Carolina Hearne Straightedge, lines 41-46,** delete the eighth and ninth sentence of this paragraph and replace with the following:

Take profiles over the entire length of the final surface travel lane pavement exclusive of structures, approach slabs, paved shoulders, tapers, or other irregular shaped areas of pavement, unless otherwise approved by the Engineer. Test in accordance with this provision all mainline travel lanes, full width acceleration or deceleration lanes and collector lanes.

**Page 6-28, Subarticle 610-13(B), Option 2- North Carolina Hearne Straightedge, lines 1-2,** delete these two lines.

**Page 6-32, Article 610-16 MEASUREMENT AND PAYMENT,** replace with the following:

| <b>Pay Item</b>                                   | <b>Pay Unit</b> |
|---------------------------------------------------|-----------------|
| Asphalt Concrete Base Course, Type B25.0C         | Ton             |
| Asphalt Concrete Intermediate Course, Type I19.0C | Ton             |
| Asphalt Concrete Surface Course, Type S4.75A      | Ton             |
| Asphalt Concrete Surface Course, Type S9.5B       | Ton             |
| Asphalt Concrete Surface Course, Type S9.5C       | Ton             |
| Asphalt Concrete Surface Course, Type S9.5D       | Ton             |

**Page 10-30, Table 1012-1, AGGREGATE CONSENSUS PROPERTIES,** replace with the following:



**TABLE 1012-1  
AGGREGATE CONSENSUS PROPERTIES<sup>A</sup>**

| <b>Mix Type</b>       | <b>Coarse Aggregate Angularity<sup>B</sup></b> | <b>Fine Aggregate Angularity % Minimum</b> | <b>Sand Equivalent % Minimum</b> | <b>Flat and Elongated 5 : 1 Ratio % Maximum</b> |
|-----------------------|------------------------------------------------|--------------------------------------------|----------------------------------|-------------------------------------------------|
| <i>Test Method</i>    | <i>ASTM D5821</i>                              | <i>AASHTO T 304</i>                        | <i>AASHTO T 176</i>              | <i>ASTM D4791</i>                               |
| S4.75A; S9.5B         | 75 / -                                         | 40                                         | 40                               | -                                               |
| S9.5C; I19.0C; B25.0C | 95 / 90                                        | 45                                         | 45                               | 10                                              |
| S9.5D                 | 100 / 100                                      | 45                                         | 50                               | 10                                              |
| OGFC                  | 100 / 100                                      | 45                                         | 45                               | 10                                              |
| UBWC                  | 100 / 85                                       | 45                                         | 45                               | 10                                              |

A. Requirements apply to the design aggregate blend.

B. 95 / 90 denotes that 95% of the coarse aggregate has one fractured face and 90% has 2 or more fractured faces.

**Page 10-30, Subarticle 1012-1(B)(6), Toughness (Resistance to Abrasion), line 12, replace "OGAFC" with "OGFC".**

**GUARDRAIL END UNITS & TEMPORARY GUARDRAIL END UNITS, TYPE - TL-3:**

(4-20-04) (Rev. 5-16-23)

862

SP8 R65

**Description**

Furnish and install guardrail end units in accordance with the details in the plans, the applicable requirements of Section 862 of the *Standard Specifications*, and at locations shown in the plans.

**Materials**

Furnish guardrail end units listed on the NCDOT APL. Units shall not be modified by the manufacturer and installer once approved and on the NCDOT APL.

Prior to installation the Contractor shall submit to the Engineer certified working drawings and assembling instructions from the manufacturer for each guardrail end unit in accordance with Article 105-2 of the *Standard Specifications*.

Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.



## Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *Standard Specifications* and is incidental to the cost of the guardrail end unit.

## Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *Standard Specifications*.

Payment will be made under:

| Pay Item                                 | Pay Unit |
|------------------------------------------|----------|
| Guardrail End Units, Type TL-3           | Each     |
| Temporary Guardrail End Units, Type TL-3 | Each     |

## ADJUSTMENT OF CATCH BASINS, MANHOLES, DROP INLETS, METER BOXES AND VALVE BOXES:

(11-15-22)

858

SP8 R98R

Revise the 2018 *Standard Specifications* as follows:

**Page 8-38, Article 858-4 MEASUREMENT AND PAYMENT**, lines 10-11, delete and replace the fifth paragraph with the following:

Where any catch basin, drop inlet, manhole, meter box or valve box is adjusted more than once because of milling operations, each adjustment will be measured and paid.

## FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES:

(1-17-12) (Rev. 1-16-18)

9, 14, 17

SP9 R05

## Description

Foundations for metal poles include foundations for signals, cameras, overhead and dynamic message signs (DMS) and high mount and light standards supported by metal poles or upright trusses. Foundations consist of footings with pedestals and drilled piers with or without grade beams or wings. Anchor rod assemblies consist of anchor rods (also called anchor bolts) with nuts and washers on the exposed ends of rods and nuts and a plate or washers on the other ends of rods embedded in the foundation.

Construct concrete foundations with the required resistances and dimensions and install anchor rod assemblies in accordance with the contract and accepted submittals. Construct drilled piers consisting of cast-in-place reinforced concrete cylindrical sections in excavated holes. Provide temporary casings or polymer slurry as needed to stabilize drilled pier excavations. Use a prequalified Drilled Pier Contractor to construct drilled piers for metal poles. Define "excavation" and "hole" as a drilled pier excavation and "pier" as a drilled pier.



This provision does not apply to foundations for signal pedestals; see Section 1743 of the *2018 Standard Specifications* and 2018 Roadway Standard Drawing No. 1743.01.

### Materials

Refer to the *2018 Standard Specifications*.

| Item                     | Section     |
|--------------------------|-------------|
| Conduit                  | 1091-3      |
| Grout, Type 2            | 1003        |
| Polymer Slurry           | 411-2(B)(2) |
| Portland Cement Concrete | 1000        |
| Reinforcing Steel        | 1070        |
| Rollers and Chairs       | 411-2(C)    |
| Temporary Casings        | 411-2(A)    |

Provide Type 3 material certifications in accordance with Article 106-3 of the *2018 Standard Specifications* for conduit, rollers, chairs and anchor rod assemblies. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store foundation and anchor rod assembly materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

Use conduit type in accordance with the contract. Use Class A concrete for footings and pedestals, Class Drilled Pier concrete for drilled piers and Class AA concrete for grade beams and wings including portions of drilled piers above bottom of wings elevations. Corrugated temporary casings may be accepted at the discretion of the Engineer. A list of approved polymer slurry products is available from:

[connect.ncdot.gov/resources/Geological/Pages/Products.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Products.aspx)

Provide anchor rod assemblies in accordance with the contract consisting of the following:

- (A) Straight anchor rods,
- (B) Heavy hex top and leveling nuts and flat washers on exposed ends of rods, and
- (C) Nuts and either flat plates or washers on the other ends of anchor rods embedded in foundations.

Do not use lock washers. Use steel anchor rods, nuts and washers that meet ASTM F1554 for Grade 55 rods and Grade A nuts. Use steel plates and washers embedded in concrete with a thickness of at least 1/4". Galvanize anchor rods and exposed nuts and washers in accordance with Article 1076-4 of the *2018 Standard Specifications*. It is not necessary to galvanize nuts, plates and washers embedded in concrete.



**Construction Methods**

Install the required size and number of conduits in foundations in accordance with the plans and accepted submittals. Construct top of piers, footings, pedestals, grade beams and wings flat, level and within 1" of elevations shown in the plans or approved by the Engineer. Provide an Ordinary Surface finish in accordance with Subarticle 825-6(B) of the *2018 Standard Specifications* for portions of foundations exposed above finished grade. Do not remove anchor bolt templates or pedestal or grade beam forms or erect metal poles or upright trusses onto foundations until concrete attains a compressive strength of at least 3,000 psi.

**(A) Drilled Piers**

Before starting drilled pier construction, hold a predrill meeting to discuss the installation, monitoring and inspection of the drilled piers. Schedule this meeting after the Drilled Pier Contractor has mobilized to the site. The Resident or Division Traffic Engineer, Contractor and Drilled Pier Contractor Superintendent will attend this predrill meeting.

Do not excavate holes, install piles or allow equipment wheel loads or vibrations within 20 ft of completed piers until 16 hours after Drilled Pier concrete reaches initial set.

Check for correct drilled pier alignment and location before beginning drilling. Check plumbness of holes frequently during drilling.

Construct drilled piers with the minimum required diameters shown in the plans. Install piers with tip elevations no higher than shown in the plans or approved by the Engineer.

Excavate holes with equipment of the sizes required to construct drilled piers. Depending on the subsurface conditions encountered, drilling through rock and boulders may be required. Do not use blasting for drilled pier excavations.

Contain and dispose of drilling spoils and waste concrete as directed and in accordance with Section 802 of the *2018 Standard Specifications*. Drilling spoils consist of all materials and fluids removed from excavations.

If unstable, caving or sloughing materials are anticipated or encountered, stabilize holes with temporary casings and/or polymer slurry. Do not use telescoping temporary casings. If it becomes necessary to replace a temporary casing during drilling, backfill the excavation, insert a larger casing around the casing to be replaced or stabilize the excavation with polymer slurry before removing the temporary casing.

If temporary casings become stuck or the Contractor proposes leaving casings in place, temporary casings should be installed against undisturbed material. Unless otherwise approved, do not leave temporary casings in place for mast arm poles and cantilever signs. The Engineer will determine if casings may remain in place. If the Contractor proposes leaving temporary casings in place, do not begin drilling until a casing installation method is approved.



Use polymer slurry and additives to stabilize holes in accordance with the slurry manufacturer's recommendations. Provide mixing water and equipment suitable for polymer slurry. Maintain the required slurry properties at all times except for sand content.

Define a "sample set" as slurry samples collected from mid-height and within 2 ft of the bottom of holes. Take sample sets from excavations to test polymer slurry immediately after filling holes with slurry, at least every 4 hours thereafter and immediately before placing concrete. Do not place Drilled Pier concrete until both slurry samples from an excavation meet the required polymer slurry properties. If any slurry test results do not meet the requirements, the Engineer may suspend drilling until both samples from a sample set meet the required polymer slurry properties.

Remove soft and loose material from bottom of holes using augers to the satisfaction of the Engineer. Assemble rebar cages and place cages and Drilled Pier concrete in accordance with Subarticle 411-4(E) of the *2018 Standard Specifications* except for the following:

- (1) Inspections for tip resistance and bottom cleanliness are not required,
- (2) Temporary casings may remain in place if approved, and
- (3) Concrete placement may be paused near the top of pier elevations for anchor rod assembly installation and conduit placement or
- (4) If applicable, concrete placement may be stopped at bottom of grade beam or wings elevations for grade beam or wing construction.

If wet placement of concrete is anticipated or encountered, do not place Drilled Pier concrete until a concrete placement procedure is approved. If applicable, temporary casings and fluids may be removed when concrete placement is paused or stopped in accordance with the exceptions above provided holes are stable. Remove contaminated concrete from exposed Drilled Pier concrete after removing casings and fluids. If holes are unstable, do not remove temporary casings until a procedure for placing anchor rod assemblies and conduit or constructing grade beams or wings is approved.

Use collars to extend drilled piers above finished grade. Remove collars after Drilled Pier concrete sets and round top edges of piers.

If drilled piers are questionable, pile integrity testing (PIT) and further investigation may be required in accordance with Article 411-5 of the *2018 Standard Specifications*. A drilled pier will be considered defective in accordance with Subarticle 411-5(D) of the *2018 Standard Specifications* and drilled pier acceptance is based in part on the criteria in Article 411-6 of the *2018 Standard Specifications* except for the top of pier tolerances in Subarticle 411-6(C) of the *2018 Standard Specifications*.

If a drilled pier is under further investigation, do not grout core holes, backfill around the pier or perform any work on the drilled pier until the Engineer accepts the pier. If the drilled pier is accepted, dewater and grout core holes and backfill around the pier with approved material to finished grade. If the Engineer determines a pier is unacceptable,



remediation is required in accordance with Article 411-6 of the *2018 Standard Specifications*. No extension of completion date or time will be allowed for remediation of unacceptable drilled piers or post repair testing.

Permanently embed a plate in or mark top of piers with the pier diameter and depth, size and number of vertical reinforcing bars and the minimum compressive strength of the concrete mix at 28 days.

(B) Footings, Pedestals, Grade Beams and Wings

Excavate as necessary for footings, grade beams and wings in accordance with the plans, accepted submittals and Section 410 of the *2018 Standard Specifications*. If unstable, caving or sloughing materials are anticipated or encountered, shore foundation excavations as needed with an approved method. Notify the Engineer when foundation excavation is complete. Do not place concrete or reinforcing steel until excavation dimensions and foundation material are approved.

Construct cast-in-place reinforced concrete footings, pedestals, grade beams and wings with the dimensions shown in the plans and in accordance with Section 825 of the *2018 Standard Specifications*. Use forms to construct portions of pedestals and grade beams protruding above finished grade. Provide a chamfer with a 3/4" horizontal width for pedestal and grade beam edges exposed above finished grade. Place concrete against undisturbed soil or backfill and fill in accordance with Article 410-8 of the *2018 Standard Specifications*. Proper compaction around footings and wings is critical for foundations to resist uplift and torsion forces.

(C) Anchor Rod Assemblies

Size anchor rods for design and the required projection above top of foundations. Determine required anchor rod projections from nut, washer and base plate thicknesses, the protrusion of 3 to 5 anchor rod threads above top nuts after tightening and the distance of one nut thickness between top of foundations and bottom of leveling nuts.

Protect anchor rod threads from damage during storage and installation of anchor rod assemblies. Before placing anchor rods in foundations, turn nuts onto and off rods past leveling nut locations. Turn nuts with the effort of one workman using an ordinary wrench without a cheater bar. Report any thread damage to the Engineer that requires extra effort to turn nuts.

Arrange anchor rods symmetrically about center of base plate locations as shown in the plans. Set anchor rod elevations based on required projections above top of foundations. Securely brace and hold rods in the correct position, orientation and alignment with a steel template. Do not weld to reinforcing steel, temporary casings or anchor rods.



Install top and leveling (bottom) nuts, washers and the base plate for each anchor rod assembly in accordance with the following procedure:

- (1) Turn leveling nuts onto anchor rods to a distance of one nut thickness between the top of foundation and bottom of leveling nuts. Place washers over anchor rods on top of leveling nuts.
- (2) Determine if nuts are level using a flat rigid template on top of washers. If necessary, lower leveling nuts to level the template in all directions or if applicable, lower nuts to tilt the template so the metal pole or upright truss will lean as shown in the plans. If leveling nuts and washers are not in full contact with the template, replace washers with galvanized beveled washers.
- (3) Verify the distance between the foundation and leveling nuts is no more than one nut thickness.
- (4) Place base plate with metal pole or upright truss over anchor rods on top of washers. High mount luminaires may be attached before erecting metal poles but do not attach cables, mast arms or trusses to metal poles or upright trusses at this time.
- (5) Place washers over anchor rods on top of base plate. Lubricate top nut bearing surfaces and exposed anchor rod threads above washers with beeswax, paraffin or other approved lubricant.
- (6) Turn top nuts onto anchor rods. If nuts are not in full contact with washers or washers are not in full contact with the base plate, replace washers with galvanized beveled washers.
- (7) Tighten top nuts to snug-tight with the full effort of one workman using a 12" wrench. Do not tighten any nut all at once. Turn top nuts in increments. Follow a star pattern cycling through each nut at least twice.
- (8) Repeat (7) for leveling nuts.
- (9) Replace washers above and below the base plate with galvanized beveled washers if the slope of any base plate face exceeds 1:20 (5%), any washer is not in firm contact with the base plate or any nut is not in firm contact with a washer. If any washers are replaced, repeat (7) and (8).
- (10) With top and leveling nuts snug-tight, mark each top nut on a corner at the intersection of 2 flats and a corresponding reference mark on the base plate. Mark top nuts and base plate with ink or paint that is not water-soluble. Use the turn-of-nut method for pretensioning. Do not pretension any nut all at once. Turn top nuts in increments for a total turn that meets the following nut rotation requirements:

| NUT ROTATION REQUIREMENTS<br>(Turn-of-Nut Pretensioning Method) |                    |
|-----------------------------------------------------------------|--------------------|
| Anchor Rod Diameter, inch                                       | Requirement        |
| $\leq 1 \frac{1}{2}$                                            | 1/3 turn (2 flats) |
| $> 1 \frac{1}{2}$                                               | 1/6 turn (1 flat)  |

Follow a star pattern cycling through each top nut at least twice.

- (11) Ensure nuts, washers and base plate are in firm contact with each other for each anchor rod. Cables, mast arms and trusses may now be attached to metal poles and upright trusses.
- (12) Between 4 and 14 days after pretensioning top nuts, use a torque wrench



calibrated within the last 12 months to check nuts in the presence of the Engineer. Completely erect mast arm poles and cantilever signs and attach any hardware before checking top nuts for these structures. Check that top nuts meet the following torque requirements:

| TORQUE REQUIREMENTS       |                    |
|---------------------------|--------------------|
| Anchor Rod Diameter, inch | Requirement, ft-lb |
| 7/8                       | 180                |
| 1                         | 270                |
| 1 1/8                     | 380                |
| 1 1/4                     | 420                |
| ≥ 1 1/2                   | 600                |

If necessary, retighten top nuts in the presence of the Engineer with a calibrated torque wrench to within  $\pm 10$  ft-lb of the required torque. Do not overtighten top nuts.

- (13) Do not grout under base plate.

### Measurement and Payment

Foundations and anchor rod assemblies for metal poles and upright trusses will be measured and paid for elsewhere in the contract.

No payment will be made for temporary casings that remain in drilled pier excavations. No payment will be made for PIT. No payment will be made for further investigation of defective piers. Further investigation of piers that are not defective will be paid as extra work in accordance with Article 104-7 of the *2018 Standard Specifications*. No payment will be made for remediation of unacceptable drilled piers or post repair testing.

### **PORTLAND CEMENT CONCRETE PRODUCTION AND DELIVERY:**

(9-15-20)

1000, 1014, 1024

SP10 R01

Revise the *2018 Standard Specifications* as follows:

**Page 10-6, Table 1000-1, REQUIREMENTS FOR CONCRETE**, replace with the following:

| TABLE 1000-1<br>REQUIREMENTS FOR CONCRETE |                                      |                            |                   |                            |                   |                           |              |                |              |              |              |
|-------------------------------------------|--------------------------------------|----------------------------|-------------------|----------------------------|-------------------|---------------------------|--------------|----------------|--------------|--------------|--------------|
| Class of Concrete                         | Min. Compressive Strength at 28 days | Maximum Water-Cement Ratio |                   |                            |                   | Consistency Maximum Slump |              | Cement Content |              |              |              |
|                                           |                                      | Air-Entrained Concrete     |                   | Non-Air-Entrained Concrete |                   | Vibrated                  | Non-Vibrated | Vibrated       |              | Non-Vibrated |              |
|                                           |                                      | Rounded Aggregate          | Angular Aggregate | Rounded Aggregate          | Angular Aggregate |                           |              | Min.           | Max.         | Min.         | Max.         |
| <i>Units</i>                              | <i>psi</i>                           |                            |                   |                            |                   | <i>inch</i>               | <i>inch</i>  | <i>lb/cy</i>   | <i>lb/cy</i> | <i>lb/cy</i> | <i>lb/cy</i> |
| AA                                        | 4500                                 | 0.381                      | 0.426             | ---                        | ---               | 3.5 <sup>A</sup>          | ---          | 639            | 715          | ---          | ---          |
| AA Slip Form                              | 4500                                 | 0.381                      | 0.426             | ---                        | ---               | 1.5                       | ---          | 639            | 715          | ---          | ---          |



|                                         |                                    |                     |                     |           |           |                                    |              |           |           |           |           |
|-----------------------------------------|------------------------------------|---------------------|---------------------|-----------|-----------|------------------------------------|--------------|-----------|-----------|-----------|-----------|
| Drilled Pier                            | 4500                               | ---                 | ---                 | 0.450     | 0.450     | ---                                | 5 - 7<br>dry | ---       | ---       | 640       | 800       |
| A                                       | 3000                               | 0.488               | 0.532               | 0.550     | 0.594     | 3.5 <sup>A</sup>                   | 7 - 9<br>wet | 564       | ---       | 602       | ---       |
| B                                       | 2500                               | 0.488               | 0.567               | 0.559     | 0.630     | 1.5<br>machine<br>placed           | 4.0          | 508       | ---       | 545       | ---       |
|                                         |                                    |                     |                     |           |           | 2.5 <sup>A</sup><br>hand<br>placed |              |           |           |           |           |
| Sand Light-weight                       | 4500                               | ---                 | 0.420               | ---       | ---       | 4.0 <sup>A</sup>                   | ---          | 715       | ---       | ---       | ---       |
| Latex Modified                          | 3000<br>(at 7<br>days)             | 0.400               | 0.400               | ---       | ---       | 6.0                                | ---          | 658       | ---       | ---       | ---       |
| Flowable<br>Fill<br>excavatable         | 150<br>max.<br>(at 56<br>days)     | as needed           | as needed           | as needed | as needed | ---                                | Flowable     | ---       | ---       | 40        | 100       |
| Flowable<br>Fill<br>non-<br>excavatable | 125                                | as needed           | as needed           | as needed | as needed | ---                                | Flowable     | ---       | ---       | 100       | as needed |
| Pavement                                | 4500<br>Design,<br>field           | 0.559               | 0.559               | ---       | ---       | 1.5<br>slip form                   | ---          | 526       | ---       | ---       | ---       |
|                                         | 650<br>flexural,<br>design<br>only |                     |                     |           |           | 3.0<br>hand<br>placed              |              |           |           |           |           |
| Precast                                 | See<br>Table<br>1077-1             | as needed           | as needed           | ---       | ---       | 6.0                                | as needed    | as needed | as needed | as needed | as needed |
| Prestressed                             | per<br>contract                    | See Table<br>1078-1 | See Table<br>1078-1 | ---       | ---       | 8.0                                | ---          | 564       | as needed | ---       | ---       |

- A. The slump may be increased to 6 inches, provided the increase in slump is achieved by adding a chemical admixture conforming to Section 1024-3. In no case shall the water-cement ratio on the approved design be exceeded. Concrete exhibiting segregation and/or excessive bleeding will be rejected. Utilizing an Admixture to modify slump does not relinquish the contractor's responsibility to ensure the final product quality and overall configuration meets design specifications. Caution should be taken when placing these modified mixes on steep grades to prevent unintended changes to the set slope.

#### **THERMOPLASTIC INTERMIXED BEAD TESTING:**

7-19-22

1087

SP10 R04

Revise the 2018 *Standard Specifications* as follows:



**Page 10-183, Subarticle 1087-7(B) Thermoplastic Pavement Marking Material Composition,** delete line 34 and 35.

**Page 10-184, Article 1087-8 MATERIAL CERTIFICATION,** delete and replace with the following after line 34:

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| Drop-on Glass Beads  | Type 3 Material Certification and Type 4 Material Certification |
| Intermix Glass Beads | Type 2 Material Certification and Type 3 Material Certification |
| Paint                | Type 3 Material Certification                                   |
| Removable Tape       | Type 3 Material Certification                                   |
| Thermoplastic        | Type 3 Material Certification and Type 4 Material Certification |
| Cold Applied Plastic | Type 2 Material Certification and Type 3 Material Certification |
| Polyurea             | Type 2 Material Certification and Type 3 Material Certification |

**THERMOPLASTIC PAVEMENT MARKING MATERIAL – COLOR TESTING:**

3-19-19

1087

SP10 R05

Revise the *2018 Standard Specifications* as follows:

**Pages 10-183 and 10-184, Subarticle 1087-7(D)(1)(b) Yellow,** lines 9-11, delete and replace with the following:

Obtain Color Values Y,x,y per ASTM E1349 using C/2° illuminant/observer.  
Results shall be  $Y \geq 45\%$ , and x,y shall fall within PR#1 chart chromaticity limits.

**ELECTRONIC TICKETING SYSTEM:**

(7-16-24)(Rev. 12-17-24)

1020

SP10 R20

**Description**

At the contractor's option, the use of an electronic ticketing system for reporting individual and cumulative asphalt material deliveries may be utilized on this project. At the preconstruction conference, the contractor shall notify the Engineer if they intend to utilize an electronic ticketing system for reporting individual and cumulative asphalt material deliveries to the project.

**Electronic Ticketing Requirements**

- The electronic ticketing system must be fully integrated with the load read-out system at the plant. The system shall be designed so data inputs from scales cannot be altered by either the Contractor or the Department.
- Material supplier must test to confirm that ticketing data can be shared from the originating system no less than 30 days prior to project start.
- After each truck is loaded, ticket data must be electronically captured, and ticket information uploaded via Application Programming Interface (API) to the Department.



- d. Obtain security token from NCDOT for access to E-Ticketing portal (to send tickets). To request a Security Key, fill out the below E-Ticketing Security Request Form: <https://forms.office.com/g/XnT7QeRtgt>
- e. Obtain API from NCDOT containing the required e-ticketing data fields and format. Download the API from the NCDOT E-ticketing Webpage: <https://connect.ncdot.gov/projects/construction/E-Ticketing/Pages/default.aspx>
- f. Provide all ticket information in real time and daily summaries to the Department's designated web portal. If the project contains locations with limited cellular service, an alternative course of action must be agreed upon.
- g. Electronic ticketing submissions must be sent between the Material Supplier and the Department.
- h. The electronic ticket shall contain the following information:

Date  
Contract Number  
Supplier Name  
Contractor Name  
Material  
JMF  
Gross Weight  
Tare Weight  
Net Weight  
Load Number  
Cumulative Weight  
Truck Number  
Weighmaster Certification  
Weighmaster Expiration  
Weighmaster Name  
Facility Name  
Plant Certification Number  
Ticket Number  
Hauling Firm (optional)  
Voided Ticket Number (if necessary)  
Original Ticket Number (if necessary)  
Supplier Revision (If necessary)

The Contractor/supplier can use the electronic ticketing system of their choice to meet the requirements of this provision.

#### **Measurement and Payment**

No measurement or payment will be made for utilizing an electronic ticketing system as the cost of such shall be included in the contract price bid for the material being provided.



**MATERIALS FOR PORTLAND CEMENT CONCRETE:**

(9-15-20)

1000, 1024

SP10 R24

Revise the *2018 Standard Specifications* as follows:

**Page 10-52, Article 1024-4, WATER, lines 3-6,** delete and replace with the following:

Test water from wells at all locations. Test public water supplies from all out of state locations and in the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrell and Washington unless the Engineer waives the testing requirements.

**Page 10-52, Table 1024-2, PHYSICAL PROPERTIES OF WATER,** replace with the following:

| TABLE 1024-2<br>PHYSICAL PROPERTIES OF WATER                           |                                               |              |
|------------------------------------------------------------------------|-----------------------------------------------|--------------|
| Property                                                               | Requirement                                   | Test Method  |
| Compression Strength,<br>minimum percent of control at<br>3 and 7 days | 90%                                           | ASTM C1602   |
| Time of set, deviation from<br>control                                 | From 1:00 hr.<br>earlier to 1:30 hr.<br>later | ASTM C1602   |
| pH                                                                     | 4.5 to 8.5                                    | ASTM D1293 * |
| Chloride Ion Content, Max.                                             | 250 ppm                                       | ASTM D512 *  |
| Total Solids Content<br>(Residue), Max.                                | 1,000 ppm                                     | SM 2540B *   |
| Resistivity, Min.                                                      | 0.500 kohm-cm                                 | ASTM D1125 * |

\*Denotes an alternate method is acceptable. Test method used shall be referenced in the test report.

**GEOSYNTHETICS:**

(03-21-23)(Rev. 4-18-23)

1056

SP10 R56

Revise the *Standard Specifications* as follows:

**Page 10-77, Article 1056-1 DESCRIPTION, lines 13-16,** delete and replace the second sentence in the second paragraph with the following:



Steel anchor pins shall have a diameter of at least 3/16 inch, a length of at least 18 inches, a point at one end and a head at the other end that will retain a steel washer with an outside diameter of at least 1.5 inches.

**Page 10-77, Article 1056-2 HANDLING AND STORING, lines 20-21,** delete and replace the third sentence in the first paragraph with the following:

Geosynthetics with defects, flaws, deterioration or damage will be rejected by the Engineer.

**Page 10-77, Article 1056-3 CERTIFICATIONS AND IDENTIFICATION, lines 25-27,** delete and replace the first sentence in the first paragraph with the following:

Provide Type 1, Type 2 or Type 4 material certifications in accordance with Article 106-3 for geosynthetics except certifications are not required for Type 1 through Type 5 geotextiles.

**Page 10-77, Article 1056-3 CERTIFICATIONS AND IDENTIFICATION, lines 32-35,** delete the second paragraph.

**Page 10-77, Article 1056-3 CERTIFICATIONS AND IDENTIFICATION, lines 36-41,** delete and replace the third paragraph with the following:

Allow the Engineer to visually identify geosynthetic products before installation. Open packaged geosynthetics just before use in the presence of the Engineer to verify the correct product. Geosynthetics that are missing original packaging or product labels or that have been unwrapped or previously opened will be rejected unless otherwise approved by the Engineer.

**Page 10-77, Article 1056-4 GEOTEXTILES, lines 43-45,** delete the first paragraph.

**Page 10-78, Article 1056-4 GEOTEXTILES, before line 1 and lines 1-5,** delete Table 1056-1 and lines 1-5 and replace with the following:



**TABLE 1056-1  
GEOTEXTILE REQUIREMENTS**

| Property <sup>A</sup>                            | Requirement (MARV <sup>A</sup> )                                       |                                                                        |                          |                                |                                  | Test Method |
|--------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------|--------------------------------|----------------------------------|-------------|
|                                                  | Type 1                                                                 | Type 2                                                                 | Type 3 <sup>B</sup>      | Type 4                         | Type 5 <sup>C</sup>              |             |
| <i>Typical Application</i>                       | <i>Shoulder Drains</i>                                                 | <i>Under Rip Rap</i>                                                   | <i>Silt Fence Fabric</i> | <i>Soil Stabilization</i>      | <i>Subgrade Stabilization</i>    |             |
| Elongation (MD & CD)                             | ≥ 50%                                                                  | ≥ 50%                                                                  | ≤ 25%                    | < 50%                          | < 50%                            | ASTM D4632  |
| Grab Strength (MD & CD) <sup>A</sup>             | Table 1 <sup>D</sup> , Class 3                                         | Table 1 <sup>D</sup> , Class 1                                         | 100 lb                   | Table 1 <sup>D</sup> , Class 3 | —                                | ASTM D4632  |
| Tear Strength (MD & CD) <sup>A</sup>             |                                                                        |                                                                        | —                        |                                |                                  | ASTM D4533  |
| Puncture Strength                                |                                                                        |                                                                        | —                        |                                |                                  | ASTM D6241  |
| Ultimate Tensile Strength (MD & CD) <sup>A</sup> | —                                                                      | —                                                                      | —                        | —                              | Table 12 <sup>D</sup> , Class 4A | ASTM D4595  |
| Permittivity                                     | Table 2 <sup>D</sup> , 15% to 50% in <i>Situ</i> Soil Passing 0.075 mm | Table 6 <sup>D</sup> , 15% to 50% in <i>Situ</i> Soil Passing 0.075 mm | Table 7 <sup>D</sup>     | Table 5 <sup>D</sup>           | Table 12 <sup>D</sup> , Class 4A | ASTM D4491  |
| Apparent Opening Size                            |                                                                        |                                                                        |                          |                                |                                  | ASTM D4751  |
| UV Stability (Retained Strength)                 |                                                                        |                                                                        |                          |                                |                                  | ASTM D4355  |

A. MD, CD and MARV per Article 1056-3.

B. Minimum roll width of 36 inches required.

C. Minimum roll width of 13 feet required unless otherwise approved by the Engineer for the application.

D. Per AASHTO M 288.

**Page 10-78, Article 1056-5 GEOCOMPOSITE DRAINS, before line 9 and lines 9-10, delete Table 1056-2 and lines 9-10 and replace with the following:**

**TABLE 1056-2  
GEOCOMPOSITE DRAIN REQUIREMENTS**

| Property                                                                             | Requirement                                               |                                                              |                                                                         | Test Method |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------|-------------|
|                                                                                      | Sheet Drain                                               | Strip Drain                                                  | Wick Drain                                                              |             |
| Width                                                                                | ≥ 12"                                                     | 12" ± 1/4"                                                   | 4" ± 1/4"                                                               | N/A         |
| In-Plane Flow Rate <sup>A</sup><br>(with gradient of 1.0 and 24-hour seating period) | 6 gpm/ft<br>@ applied normal compressive stress of 10 psi | 15 gpm/ft<br>@ applied normal compressive stress of 7.26 psi | 1.5 gpm <sup>B</sup><br>@ applied normal compressive stress of 1.45 psi | ASTM D4716  |

A. MARV per Article 1056-3.

B. Per foot of width tested.



**Page 10-79, Article 1056-5 GEOCOMPOSITE DRAINS, before line 3, delete Table 1056-3 and replace with the following:**

| <b>TABLE 1056-3<br/>DRAINAGE CORE REQUIREMENTS</b> |                    |                    |                     |
|----------------------------------------------------|--------------------|--------------------|---------------------|
| <b>Property</b>                                    | <b>Requirement</b> |                    | <b>Test Method</b>  |
|                                                    | <b>Sheet Drain</b> | <b>Strip Drain</b> |                     |
| Thickness                                          | 1/4"               | 1"                 | ASTM D1777 or D5199 |
| Compressive Strength <sup>A</sup>                  | 40 psi             | 30 psi             | ASTM D6364          |

**A.** MARV per Article 1056-3.

**Page 10-79, Article 1056-5 GEOCOMPOSITE DRAINS, before line 6 and lines 6-11, delete Table 1056-4, lines 6-7 and the last paragraph and replace with the following:**

| <b>TABLE 1056-4<br/>WICK DRAIN GEOTEXTILE REQUIREMENTS</b> |                                                                         |                    |
|------------------------------------------------------------|-------------------------------------------------------------------------|--------------------|
| <b>Property</b>                                            | <b>Requirement</b>                                                      | <b>Test Method</b> |
| Elongation                                                 | ≥ 50%                                                                   | ASTM D4632         |
| Grab Strength                                              | Table 1 <sup>A</sup> ,<br>Class 3                                       | ASTM D4632         |
| Tear Strength                                              |                                                                         | ASTM D4533         |
| Puncture Strength                                          |                                                                         | ASTM D6241         |
| Permittivity <sup>B</sup>                                  | 0.7 sec <sup>-1</sup>                                                   | ASTM D4491         |
| Apparent Opening Size (AOS)                                | Table 2 <sup>A</sup> ,<br>> 50% <i>in Situ</i> Soil<br>Passing 0.075 mm | ASTM D4751         |
| UV Stability (Retained Strength)                           |                                                                         | ASTM D4355         |

**A.** Per AASHTO M 288.

**B.** MARV per Article 1056-3.

For wick drains with a geotextile fused to both faces of a corrugated drainage core along the peaks of the corrugations, use wick drains with an ultimate tensile strength of at least 1,650 lbs. per 4 inch width in accordance with ASTM D4595 and geotextiles with a permittivity, AOS and UV stability that meet Table 1056-4.

**Page 10-80, Article 1056-6 GEOCELLS, before line 1 and lines 1-4, delete Table 1056-5 and lines 1-4 and replace with the following:**



**TABLE 1056-5  
GEOCELL REQUIREMENTS**

| Property                                                                                                | Requirement      | Test Method                                                                      |
|---------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------|
| Cell Depth                                                                                              | 4"               | N/A                                                                              |
| Fully Expanded Cell Area                                                                                | 100 sq.in. max   | N/A                                                                              |
| Sheet Thickness                                                                                         | 50 mil -5%, +10% | ASTM D5199                                                                       |
| Density                                                                                                 | 58.4 pcf min     | ASTM D1505                                                                       |
| Carbon Black Content                                                                                    | 1.5% min         | ASTM D1603 or D4218                                                              |
| ESCR <sup>A</sup>                                                                                       | 5000 hr min      | ASTM D1693                                                                       |
| Coefficient of Direct Sliding<br>(with material that meets AASHTO<br>M 145 for soil classification A-2) | 0.85 min         | ASTM D5321<br><br>USACE <sup>C</sup> Technical<br>Report GL-86-19,<br>Appendix A |
| Short-Term Seam (Peel)<br>Strength (for 4" seam)                                                        | 320 lb min       |                                                                                  |
| Long-Term Seam (Hang)<br>Strength <sup>B</sup> (for 4" seam)                                            | 160 lb min       |                                                                                  |

A. Environmental Stress Crack Resistance.

B. Minimum test period of 168 hours with a temperature change from 74°F to 130°F in 1-hour cycles.

C. US Army Corps of Engineers (USACE).

**GLASS BEAD GRADATION FOR PAVEMENT MARKINGS:**

(9-17-24)

1087

SP10 R87

Revise the *Standard Specifications* as follows:

**Page 10-182, Subarticle 1087-4(C), Gradation & Roundness, after line 17, delete and replace Table 1087-2 with the following:**

| <b>TABLE 1087-2<br/>GLASS BEAD GRADATION REQUIREMENTS</b> |                        |         |
|-----------------------------------------------------------|------------------------|---------|
| Sieve Size                                                | Gradation Requirements |         |
|                                                           | Minimum                | Maximum |
| Passing #20                                               | 100%                   | --      |
| Retained on #30                                           | 5%                     | 15%     |
| Retained on #50                                           | 40%                    | 80%     |
| Retained on #80                                           | 15%                    | 40%     |
| Passing #80                                               | 0%                     | 10%     |
| Retained on #200                                          | 0%                     | 5%      |

**MATERIAL AND EQUIPMENT STORAGE & PARKING OF PERSONAL VEHICLES:**

(11-17-21)(Rev. 8-16-22)

1101

SP11 R03

Revise the *2018 Standard Specifications* as follows:

**Page 11-2, Article 1101-8 MATERIAL AND EQUIPMENT STORAGE, line 35-38, delete and replace with the following:**



When work is not in progress, keep all personnel, equipment, machinery, tools, construction debris, materials and supplies away from active travel lanes that meets Table 1101-1.

| TABLE 1101-1<br>MATERIAL AND EQUIPMENT STORAGE FROM ACTIVE TRAVEL LANES |               |
|-------------------------------------------------------------------------|---------------|
| Posted Speed Limit (mph)                                                | Distance (ft) |
| 40 or less                                                              | ≥ 18          |
| 45-50                                                                   | ≥ 28          |
| 55                                                                      | ≥ 32          |
| 60 or higher                                                            | ≥ 40          |

When vehicles, equipment and materials are protected by concrete barrier or guardrail, they shall be offset at least 5 feet from the barrier or guardrail.

**Page 11-2, Article 1101-9 PARKING OF PERSONAL VEHICLES, line 40-41,** delete and replace with the following:

Provide staging areas for personal vehicle parking in accordance with Article 1101-8 or as directed by the Engineer before use.

**WORK ZONE INSTALLER:**

(7-20-21)

1101, 1150

SP11 R04

Provide the service of at least one qualified work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way. The qualified work zone installer shall serve as crew leader and shall be on site and directing the installation and removal of temporary traffic control. If multiple temporary traffic control installations or removals are occurring simultaneously, then each shall have a qualified work zone installer.

The work zone installer shall be qualified by an NCDOT approved training agency in the safe and competent set up of temporary traffic control. For a complete listing of approved training agencies, see the Work Zone Safety Training webpage.

A work zone supervisor, in accordance with Article 1101-13 of the *Standard Specifications*, may fulfill the role of the work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way provided they are on site and directing the installation and removal of temporary traffic control.

All other individuals participating in the setup, installation, and removal of temporary traffic control within the highway right of way shall be certified as a qualified flagger in accordance with Article 1150-3 of the *Standard Specifications*, even if flagging is not being performed as part of the traffic control.

Provide the name and contact information of all qualified work zone installers to the Engineer prior to or at the preconstruction conference. Additionally, provide a qualification statement that all other individuals participating in the setup, installation, and removal of temporary traffic control are qualified flaggers that have been properly trained through an NCDOT approved training agency.



**EXTRUDED THERMOPLASTIC PAVEMENT MARKING THICKNESS:**

(3-19-19)(Rev. 6-21-22)

1205

SP12 R05

Revise the 2018 *Standard Specifications* as follows:

**Page 12-6, Subarticle 1205-4(A)(1) General, lines 5-8,** delete the second sentence and replace with the following:

Use application equipment that provides multiple width settings ranging from 4 inches to 12 inches and multiple thickness settings to achieve the required thickness above the surface of the pavement as shown in Table 1205-3.

**Page 12-7, Table 1205-3, THICKNESS REQUIREMENTS FOR THERMOPLASTIC,** replace with the following:

| TABLE 1205-3<br>MINIMUM THICKNESS REQUIREMENTS FOR THERMOPLASTIC |                                                                                                                                                                   |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thickness                                                        | Location                                                                                                                                                          |
| 240 mils                                                         | In-lane and shoulder-transverse pavement markings (rumble strips). May be placed in 2 passes.                                                                     |
| 90 mils                                                          | Center lines, skip lines, transverse bands, mini-skip lines, characters, bike lane symbols, crosswalk lines, edge lines, gore lines, diagonals, and arrow symbols |

**PERMANENT SEEDING AND MULCHING:**

(7-1-95)

1660

SP16 R02

The Department desires that permanent seeding and mulching be established on this project as soon as practical after slopes or portions of slopes have been graded. As an incentive to obtain an early stand of vegetation on this project, the Contractor's attention is called to the following:

For all permanent seeding and mulching that is satisfactorily completed in accordance with the requirements of Section 1660 in the 2018 *Standard Specifications* and within the following percentages of elapsed contract times, an additional payment will be made to the Contractor as an incentive additive. The incentive additive will be determined by multiplying the number of acres of seeding and mulching satisfactorily completed times the contract unit bid price per acre for Seeding and Mulching times the appropriate percentage additive.

| Percentage of Elapsed Contract Time | Percentage Additive |
|-------------------------------------|---------------------|
| 0% - 30%                            | 30%                 |
| 30.01% - 50%                        | 15%                 |

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.



**STANDARD SPECIAL PROVISION**  
**AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS**

(5-20-08)

Z-2

*General Statute 143C-6-11. (h) Highway Appropriation* is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(D) of the *2018 Standard Specifications*.



**STANDARD SPECIAL PROVISION**  
**NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY**

(5-17-11)

Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sickledod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

| <b><u>Restricted Noxious Weed</u></b> | <b><u>Limitations per Lb. Of Seed</u></b> | <b><u>Restricted Noxious Weed</u></b> | <b><u>Limitations per Lb. of Seed</u></b> |
|---------------------------------------|-------------------------------------------|---------------------------------------|-------------------------------------------|
| Blessed Thistle                       | 4 seeds                                   | Cornflower (Ragged Robin)             | 27 seeds                                  |
| Cocklebur                             | 4 seeds                                   | Texas Panicum                         | 27 seeds                                  |
| Spurred Anoda                         | 4 seeds                                   | Bracted Plantain                      | 54 seeds                                  |
| Velvetleaf                            | 4 seeds                                   | Buckhorn Plantain                     | 54 seeds                                  |
| Morning-glory                         | 8 seeds                                   | Broadleaf Dock                        | 54 seeds                                  |
| Corn Cockle                           | 10 seeds                                  | Curly Dock                            | 54 seeds                                  |
| Wild Radish                           | 12 seeds                                  | Dodder                                | 54 seeds                                  |
| Purple Nutsedge                       | 27 seeds                                  | Giant Foxtail                         | 54 seeds                                  |
| Yellow Nutsedge                       | 27 seeds                                  | Horsenettle                           | 54 seeds                                  |
| Canada Thistle                        | 27 seeds                                  | Quackgrass                            | 54 seeds                                  |
| Field Bindweed                        | 27 seeds                                  | Wild Mustard                          | 54 seeds                                  |
| Hedge Bindweed                        | 27 seeds                                  |                                       |                                           |

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed



shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

**FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:**

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza  
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

|                                      |                            |
|--------------------------------------|----------------------------|
| Tall Fescue (all approved varieties) | Bermudagrass               |
| Kobe Lespedeza                       | Browntop Millet            |
| Korean Lespedeza                     | German Millet – Strain R   |
| Weeping Lovegrass                    | Clover – Red/White/Crimson |
| Carpetgrass                          |                            |

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)  
Kentucky Bluegrass (all approved varieties)  
Hard Fescue (all approved varieties)  
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

|                      |                   |
|----------------------|-------------------|
| Centipedegrass       | Japanese Millet   |
| Crownvetch           | Reed Canary Grass |
| Pensacola Bahiagrass | Zoysia            |



## Creeping Red Fescue

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass  
Big Bluestem  
Little Bluestem  
Bristly Locust  
Birdsfoot Trefoil  
Indiangrass  
Orchardgrass  
Switchgrass  
Yellow Blossom Sweet Clover



**STANDARD SPECIAL PROVISION**  
**ERRATA**

(10-16-18) (Rev. 6-20-23)

Z-4

Revise the *2018 Standard Specifications* as follows:

**Division 1**

**Page 1-1, Article 101-2 Abbreviations, line 13,** replace " American National Standards Institute, Inc." with "American National Standards Institute".

**Page 1-1, Article 101-2 Abbreviations, line 32,** replace "Equivalent Single Axis Load" with "Equivalent Single Axle Load".

**Page 1-16, Subarticle 102-9(A) General, line 26,** replace "10 U.S.C. 2304(g)" with "10 U.S.C. 3205".

**Page 1-43, Article 104-13 RECYCLED PRODUCTS OR SOLID WASTE MATERIALS, line 4,** replace "104-13(B)(2)" with "104-13(B)".

**Page 1-52, Article 106-1 RECYCLED PRODUCTS OR SOLID WASTE MATERIALS, line 25,** replace "13 NCAC 7CF.0101(a)(99)" with "29 CFR 1910.1200".

**Page 1-79, Article 109-1 MEASUREMENT AND PAYMENT, Test Method prior to line 34,** replace "AASHTO M 32" with "AASHTO M 336".

**Division 2**

**Page 2-5, Article 210-2 CONSTRUCTION METHODS, line 21,** replace " NCGS §§ 130A-444 to -452" with "NCGS §§ 130A-444 to -453".

**Page 2-13, Article 225-2 EROSION CONTROL REQUIREMENTS, line 17,** replace "the Sedimentation and Pollution Control Act" with "Article 107-12".

**Page 2-20, Subarticle 230-4(B)(3) Reclamation Plan, line 12,** replace " Department's borrow and waste site reclamation procedures for contracted projects" with "Department's *Borrow Waste and Staging Site Reclamation Procedures for Contract Projects*".

**Page 2-25, Subarticle 235-3(E) Surcharges and Waiting Periods, line 21 and 27,** delete "Department's Materials and Tests Unit."

**Page 2-27, Article 240-4 MEASUREMENT AND PAYMENT, line 23,** replace "Section 225" with "Article 225-7".

**Page 2-30, Article 275-4 MEASUREMENT AND PAYMENT, line 33,** replace "Section 815" with "Article 815-4".



**Division 4**

**Page 4-18, Subarticle 411-5(C)(3) Coring, line 11,** replace “in accordance with ASTM D5079” with “with methods acceptable to the Engineer”.

**Page 4-50, Article 430-2 MATERIALS, prior to line 15,** replace Section “1080-9” with “1080-7”.

**Page 4-53, Article 440-2 MATERIALS, prior to line 6,** replace Section “1080-9” with “1080-7”.

**Page 4-58, Article 442-2 MATERIALS, prior to line 15,** replace Section “1080-6” with “1080-12”.

**Page 4-59, Subarticle 442-7(A) Blast Cleaning, line 36,** replace Article “1080-6” with “1080-12”.

**Page 4-76, Article 454-2 MATERIALS, prior to line 24,** replace Section “815-2” with “1044”.

**Page 4-79, Article 455-2 MATERIALS, prior to line 21,** replace Section “815” with “1044”.

**Page 4-80, Subarticle 455-3(B) Precast Gravity Wall Designs, line 23 and lines 25-26,** replace “AASHTO LRFD specifications” with “*AASHTO LRFD Bridge Design Specifications*”.

**Page 4-84, Article 458-5 MEASUREMENT AND PAYMENT, line 31,** replace article number “454-1” with “458-1”.

**Division 6**

**Page 6-7, Article 609-1 DESCRIPTION, line 29,** replace article number “609-10” with “609-9”.

**Page 6-10, Subarticle 609-6(C) Control Charts, line 17,** replace Section number “7021” with “7.20.1”.

**Page 6-13, Article 609-9 QUALITY ASSURANCE, line 31,** replace Section number “7.60” with “7.6”.

**Page 6-26, Subarticle 610-13(A)(1) Acceptance for New Construction, line 31,** replace Table number “610-7” with “610-8”.

**Page 6-29, Subarticle 610-13(B) North Carolina Hearne Straightedge, line 32,** replace Table number “610-8” with “610-9”.

**Page 6-31, Article 610-14 DENSITY ACCEPTANCE, Specified Density prior to line 30 and line 32,** replace Table number “610-6” with “610-7”.



**Page 6-37, Article 650-5 CONSTRUCTION METHODS, line 10, replace Section number "9.5(E)" with "9.5.1(E)".**

**Page 6-44, Subarticle 660-8(B) Asphalt Mat and Seal, line 40, replace Subarticle number "660-8(A)" with "660-8(C)".**

**Page 6-44, Subarticle 660-8(B) Asphalt Mat and Seal, line 42, replace Subarticle number "660-8(C)" with "660-8(A)".**

#### **Division 7**

**Page 7-11, Subarticle 700-15(E) Compressive Strength, line 5, replace "AASHTO T 23" with "AASHTO R 100".**

**Page 7-24, Article 723-4 Very High Early Strength Concrete for Concrete Pavement Repair, line 4, replace "AASHTO T126" with "AASHTO R 39".**

**Page 7-24, Article 723-5 MEASUREMENT AND PAYMENT, line 34, replace "Section 225" with "Article 225-7".**

**Page 7-24, Article 723-5 MEASUREMENT AND PAYMENT, line 36, replace "Section 270" with "Article 270-4".**

**Page 7-27, Article 725-1 MEASUREMENT AND PAYMENT, line 4, replace article number "725-1" with "724-4".**

**Page 7-28, Article 725-1 MEASUREMENT AND PAYMENT, line 10, replace article number "725-1" with "725-3".**

#### **Division 8**

**Page 8-11, Article 815-1 MATERIALS, after line 35, replace "1080-12" with "1080-10".**

**Page 8-13, Article 816-1 MATERIALS, after line 28, replace "1080-12" with "1080-10".**

**Page 8-17, Article 825-1 Description, line 5, delete "853" and "855".**

#### **Division 10**

**Page 10-2, Subarticle 1000-3(B) Air Entrainment, line 33, replace "Chase" with "Chace".**

**Page 10-4, Subarticle 1000-4(A) Composition and Design, after line 17, replace "T23" with "R100".**

**Page 10-4, Subarticle 1000-4(B) Air Entrainment, line 31 and 33, replace "Chase" with "Chace".**

**Page 10-4, Subarticle 1000-4(C) Strength of Concrete, line 39 and 41, replace "T 23" with "R 100".**

**Page 10-15, Subarticle 1000-11(B) Mixing Time for Central Mixed Concrete, after line 35, replace "T 23" with "R 100".**



**Page 10-22, Article 1003-3 COMPOSITION AND DESIGN, line 9,** replace “Engineer” with “engineer”.

**Page 10-23, Article 1003-4 GROUT REQUIREMENTS, line 16 and 18,** replace “T 23” with “R 100”.

**Page 10-26, Article 1005-4 TESTING, after line 26,** replace “1014-2E(6)” with “1014-2E(6)” in C. of Table 1005-1 footnote and replace “Lightweight<sup>B</sup>” with “Lightweight<sup>C</sup>”.

**Page 10-29, Subarticle 1012-1(B)(4) Flat and Elongated Pieces, line 44,** delete “SF9.5A”

**Page 10-36, Subarticle 1012-2(E) Toughness (Resistance to Abrasion), line 31,** replace “course” with “coarse”.

**Page 10-37, Article 1012-4, LIGHTWEIGHT AGGREGATE, line 4,** replace Table number “1012-8” with “1012-5”.

**Page 10-48, Subarticle 1020-10(A) Mineral Fibers, line 27,** replace “Table 1012-5” with “Table 1020-2”.

**Page 10-52, Article 1024-5 FLY ASH, line 12,** replace “Table 2” with “Table 3”.

**Page 10-60, Subarticle 1032-6(F) Joint Materials, line 15,** replace “AASHTO M 198” with “ASTM C990” and delete “Type B”.

**Page 10-61, Article 1034-3 CONCRETE SEWER PIPE, line 33,** replace “AASHTO M 198” with “ASTM C990” and delete “Type A or B”.

**Page 10-64, Article 1040-1 BRICK, line 12,** replace “ASTM C62” with “ASTM C62 or ASTM C216”.

**Page 10-67, Article 1044-7 CORRUGATED PLASTIC PIPE AND FITTINGS, line 24,** replace “AASHTO M 294 for heavy duty tubing” with “Article 1032-7 and AASHTO M 252”.

**Page 10-68, Subarticle 1046-3(D) Offset Blocks, lines 30-32,** delete “Before beginning the installation of recycled offset block, submit the FHWA acceptance letter for each type of block to the Engineer for approval.”

**Page 10-69, Subarticle 1046-3(D) Offset Blocks, before line 1,** replace “WIRE DIAMETER” with “COMPOSITE OFFSET BLOCKS” as the title of Table 1046-1, delete “Testing” property and associated requirement from Table 1046-1, and replace “Approval” requirement of “Approved for use by the FHWA” with “Approved for use on the NCDOT APL” in Table 1046-1.

**Page 10-80, Article 1060-2 FERTILIZER, line 18,** replace “North Carolina Fertilizer Law” with “North Carolina Commercial Fertilizer Law”.



**Page 10-83, Article 1060-9 WATER, line 9,** replace “15 NCAC 2B.0200” with “15A NCAC 02B.0200”.

**Page 10-86, Article 1070-3 COLD DRAWN STEEL WIRE AND WIRE REINFORCEMENT, line 23 and 25,** replace “M 32” and “M 55” with “M 336”.

**Page 10-87, Article 1070-6 DOWELS AND TIE BARS FOR PORTLAND CEMENT CONCRETE PAVEMENT, line 17,** replace “AASHTO M 32” with “AASHTO M 336”.

**Page 10-88, Subarticle 1070-7(D) Handling, Storage and Transportation, line 40,** replace “Section” with “Subarticle”.

**Page 10-89, Article 1070-8 SPIRAL COLUMN REINFORCING STEEL, line 21,** replace “AASHTO M 32” with “AASHTO M 336”.

**Page 10-91, Article 1072-3 BEARING PLATE ASSEMBLIES, line 44,** replace “Article 1080-9” with “Article 1080-7”.

**Page 10-92, Subarticle 1072-5(A) General, after line 30,** replace “SAMPLING REQUIREMENTS FOR HIGH STRENGTH BOLTS, NUTS AND WASHERS” with “SAMPLING REQUIREMENTS FOR HIGH STRENGTH BOLTS, NUTS AND WASHERS TO INCLUDE DIRECT TENSION INDICATORS” as the title of Table 1072-1.

**Page 10-95, Subarticle 1072-5(D)(7)(a) Mill Test Report(s), line 18,** replace title with “Mill Test Report(s) (MTR)”.

**Page 10-95, Subarticle 1072-5(D)(7)(b) Manufacturer Certified Test Report(s), line 24,** replace title with “Manufacturer Certified Test Report(s) (MCTR)”.

**Page 10-96, Subarticle 1072-5(D)(7)(c) Distributor Certified Test Report(s), line 1,** replace title with “Distributor Certified Test Report(s) (DCTR)”.

**Page 10-98, Subarticle 1072-5(F) Galvanized High Strength Bolts, Nuts and Washers, line 11,** replace “Article 1080-9” with “Article 1080-7”.

**Page 10-111, Subarticle 1072-18(B) General, line 24,** replace “Structural Welding Code-Reinforcing Steel” with “Structural Welding Code-Steel Reinforcing Bars”.

**Page 10-117, Article 1074-1 WELDING, lines 21-22,** replace “Structural Welding Code-Reinforcing Steel” with “Structural Welding Code-Steel Reinforcing Bars”.

**Page 10-119, Article 1074-7(B) Gray Iron Castings, line 16,** replace “M306” with “AASHTO M 306”.

**Page 10-121, Article 1076-7, REPAIR OF GALVANIZING, line 8,** replace article number “1080-9” with “1080-7”.

**Page 10-125, Subarticle 1077-5(B) Testing, line 31,** replace “T 23” with “R 100”.



**Page 10-131, Subarticle 1078-4(A) Composition and Design, after line 23, in Table 1078-2** replace “T 23” with “R 100”.

**Page 10-135, Subarticle 1078-4(J)(2) Mixing Time for Central Mixed Concrete, line 46,** replace “Table 1078-2” with “Table 1078-3”

**Page 10-136, Subarticle 1078-4(J)(2) Mixing Time for Central Mixed Concrete, after line 17,** replace “T23” with “R100”.

**Page 10-153, Subarticle 1079-1 PREFORMED BEARING PADS, line 8,** replace “MIL-C882-D” with “MIL-C-882-E”.

**Page 10-154, Subarticle 1079-2(A) General, line 6,** delete “and 1079-2(E)”.

**Page 10-156, Article 1080-5 SELF-CURING INORGANIC ZINC PAINT, line 8,** replace “AASHTO M 252” with “AASHTO M 300”.

**Page 10-156, Article 1080-5 SELF-CURING INORGANIC ZINC PAINT, line 20,** replace “AASHTO M 253” with “AASHTO M 300”.

**Page 10-156, Subarticle 1080-9(A) Composition, line 40,** replace “Tables 1080-7 through 1080-14” with “Tables 1080-1 through 1080-3”.

**Page 10-157, Subarticle 1080-9(B) Properties, line 5,** replace “Tables 1080-7 through 1080-14” with “Tables 1080-1 through 1080-3”.

**Page 10-157, Subarticle 1080-9(B) Properties, line 35,** replace “Materials and Tests Standards CLS-P-1.0” with “*Structural Steel Shop Coatings Program*”.

**Page 10-159, Subarticle 1080-9(E) Color Variation, Table 1080-1,** replace “ASTM D1159” with “ASTM D1199”.

**Page 10-159, Subarticle 1080-9(E) Color Variation, Table 1080-1,** replace “NCDOT M&T P-10” with “ASTM D6280”.

**Page 10-161, Subarticle 1080-9(E) Color Variation, Table 1080-3,** replace “ASTM D13278” and “ASTM D3278”.

**Page 10-161, Subarticle 1080-9(E) Color Variation, Table 1080-3,** replace “NCDOT M&T P-10” and “*Structural Steel Shop Coatings Program*”.

**Page 10-161, Subarticle 1080-9(E) Color Variation, Table 1080-3,** add Test Method “ASTM D4400” for the Leneta Sag Test property in Table 1080-3.

**Page 10-161, Subarticle 1080-9(E) Color Variation, Table 1080-3,** add Test Method “ASTM D523” for the Gloss, Specular property in Table 1080-3.



**Page 10-161, Subarticle 1080-9(E) Color Variation, Table 1080-3,** replace Test Method “ASTM” with “ASTM E70” for the pH property in Table 1080-3.

**Page 10-162, Article 1080-50 PAINT FOR VERTICAL MARKERS, line 1,** replace article number “1080-50” with “1080-10”.

**Page 10-162, Article 1080-61 EPOXY RESIN FOR REINFORCING STEEL, line 5,** replace article number “1080-61” with “1080-11”.

**Page 10-162, Article 1080-72 ABRASIVE MATERIALS FOR BLAST CLEANING STEEL, line 22,** replace article number “1080-72” with “1080-12”.

**Page 10-163, Article 1080-83 FIELD PERFORMANCE AND SERVICES, line 25,** replace article number “1080-83” with “1080-13”.

**Page 10-166, Subarticle 1081-1(E) Prequalification, line 24,** replace “Value Management Unit” with “Product Evaluation Program”.

**Page 10-168, Subarticle 1081-3(A) Physical Requirements, after line 25,** replace “Subarticle 1081-4(B)” with “Subarticle 1081-3(B)” in Table 1081-2.

**Page 10-168, Subarticle 1087-2(A) Paint Composition, lines 19-20,** replace “Federal Specification TTP 1952F” with “Federal Specification TT-P-1952”.

**Page 10-200, Subarticle 1090-1(C) Anchor Bolts, line 38,** replace ASTM number “A325” with “F3125”.

**Page 10-202, Subarticle 1091-3(F) Solid Wall HDPE Conduit, line 5,** replace “, Table 1091-1, 1091-2 and 1091-3” with “and Table 1091-1”.

**Page 10-208, Subarticle 1094-1(A) Breakaway or Simple Steel Beam Sign Supports, line 19,** replace ASTM number “A325” with “F3125”.

**Page 10-209, Subarticle 1094-1(D) Steel Square Tube Posts, line 10,** replace ASTM number “A123” with “A653”.

**Page 10-209, Subarticle 1094-1(E) Wood Supports, line 17,** replace “Article 1082-2 and 1082-3” with “Section 1082”.

**Page 10-212, Subarticle 1098-1(H) Electrical Service, line 21,** replace “NEMA Type 3R” with “NEMA 3R”.

**Page 10-212, Subarticle 1098-1(H) Electrical Service, line 36,** replace “UL Standard 231” with “UL Standard UL-231”.

**Page 10-212, Subarticle 1098-1(H) Electrical Service, line 37,** replace “UL Standard 67” with “UL Standard UL-67”.



**Page 10-224, Subarticle 1098-14(H)(1) Type I – Pedestrian Pushbutton Post, line 3, replace ASTM number “325” with “F3125”.**

**Page 10-224, Article 1098-16 CABINET BASE ADAPTER/EXTENDER, line 33, replace Section number “6.7” with “6.8”.**

#### **Division 14**

**Page 14-11, Subarticle 1401-2(B) Lowering Device, line 36, replace Military Specification “MIL-W-83420E” with “MIL-DTL-83420”.**

**Page 14-22, Article 1412-2 MATERIALS, line 29, replace UL Standard “1572” with “1598”.**

#### **Division 15**

**Page 15-6, Subarticle 1510-3(B) Testing and Sterilization, line 40, replace Section number “4.4.3” with “4.4”.**

**Page 15-14, Article 1525-2 MATERIALS, line 9, replace “AASHTO M 198” with “ASTM C990”.**

**Page 15-14, Article 1525-2 MATERIALS, lines 17-18, delete “in the Grout Production and Delivery provision”.**

**Page 15-19, Article 1550-2 MATERIALS, line 16, replace “AASHTO LRFD Bridge Design Specifications” with “AASHTO LRFD Bridge Construction Specifications”.**

#### **Division 16**

**Page 16-9, Article 1630-3 MEASUREMENT AND PAYMENT, line 7, replace “Section 225” with “Article 225-7”.**

**Page 16-9, Article 1630-3 MEASUREMENT AND PAYMENT, line 8, replace “Section 230” with “Article 230-5”.**

**Page 16-16, Article 1637-5 MEASUREMENT AND PAYMENT, line 17, replace “Section 310” with “Article 310-6”.**

#### **Division 17**

**Page 17-15, Article 1715-4 MEASUREMENT AND PAYMENT, lines 42-44, replace the second sentence with the following:**

An example is an installation of a single 1.25 inch HDPE conduit would be paid as:

Directional Drill (1)(1.25”) Linear Foot

**Page 17-15, Subarticle 1715-3(E) Bore and Jack, line 5, replace article number “1540-4” with “1550-4”.**



**Page 17-15, Subarticle 1715-3(E) Bore and Jack, lines 10 & 11,** replace "*NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way*" with "*NCDOT Utilities Accommodations Manual*".



**STANDARD SPECIAL PROVISION****PLANT AND PEST QUARANTINES**

**(Imported Fire Ant, Guava Root Knot Nematode, Spongy Moth (formerly known as gypsy moth), Witchweed, Cogon Grass, And Any Other Regulated Noxious Weed or Plant Pest)**  
(3-18-03)(Rev. 3-18-25) Z-04a

**Within Quarantined Area**

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

**Originating in a Quarantined County**

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

**Contact**

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-707-3730, or <https://www.ncagr.gov/divisions/plant-industry/plant-protection/plant-industry-plant-pest-quarantines> to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

**Regulated Articles Include**

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance of any character, if determined by an inspector present a hazard of spreading imported fire ant, guava root knot nematode, spongy moth (formerly known as gypsy moth), witchweed, cogon grass, or other regulated noxious weed or plant pest.

**STANDARD SPECIAL PROVISION****MINIMUM WAGES**

(7-21-09)

Z-5

**FEDERAL:** The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

**STATE:** The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.



**STANDARD SPECIAL PROVISION****TITLE VI AND NONDISCRIMINATION:**

(6-28-77)(Rev 6/19/2018)

Z-6

Revise the 2018 *Standard Specifications* as follows:

Replace Article 103-4(B) with the following:

The North Carolina Department of Transportation is committed to carrying out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts.

The provisions of this section related to United States Department of Transportation (US DOT) Order 1050.2A, Title 49 Code of Federal Regulations (CFR) part 21, 23 United States Code (U.S.C.) 140 and 23 CFR part 200 (or 49 CFR 303, 49 U.S.C. 5332 or 49 U.S.C. 47123) are applicable to all North Carolina Department of Transportation (NCDOT) contracts and to all related subcontracts, material supply, engineering, architectural and other service contracts, regardless of dollar amount. Any Federal provision that is specifically required not specifically set forth is hereby incorporated by reference.

**(1) Title VI Assurances (USDOT Order 1050.2A, Appendix A)**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

**(a) Compliance with Regulations**

The contractor (hereinafter includes consultants) shall comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

**(b) Nondiscrimination**

The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

**(c) Solicitations for Subcontractors, Including Procurements of Materials and Equipment**

In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

**(d) Information and Reports**



The contractor shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor shall so certify to the Recipient or the FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(e) Sanctions for Noncompliance:

In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it and/or the FHWA may determine to be appropriate, including, but not limited to:

- (i) Withholding payments to the contractor under the contract until the contractor complies; and/or
- (ii) Cancelling, terminating, or suspending a contract, in whole or in part.

(f) Incorporation of Provisions

The contractor shall include the provisions of paragraphs (a) through (f) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor shall take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

**(2) Title VI Nondiscrimination Program (23 CFR 200.5(p))**

The North Carolina Department of Transportation (NCDOT) has assured the USDOT that, as a condition to receiving federal financial assistance, NCDOT will comply with Title VI of the Civil Rights Act of 1964 and all requirements imposed by Title 49 CFR part 21 and related nondiscrimination authorities to ensure that no person shall, on the ground of race, color, national origin, limited English proficiency, sex, age, or disability (including religion/creed or income-level, where applicable), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs, activities, or services conducted or funded by NCDOT. Contractors and other organizations under contract or agreement with NCDOT must also comply with Title VI and related authorities, therefore:

- (a) During the performance of this contract or agreement, contractors (e.g., subcontractors, consultants, vendors, prime contractors) are responsible for complying with NCDOT's Title VI Program. Contractors are not required to prepare or submit Title VI Programs. To comply with this section, the prime contractor shall:
  - 1. Post NCDOT's Notice of Nondiscrimination and the Contractor's own Equal Employment Opportunity (EEO) Policy in conspicuous locations accessible to all employees, applicants and subcontractors on the jobsite.



2. Physically incorporate the required Title VI clauses into all subcontracts on federally-assisted and state-funded NCDOT projects, and ensure inclusion by subcontractors into all lower-tier subcontracts.
  3. Required Solicitation Language. The Contractor shall include the following notification in all solicitations for bids and requests for work or material, regardless of funding source:

“The North Carolina Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. In accordance with other related nondiscrimination authorities, bidders and contractors will also not be discriminated against on the grounds of sex, age, disability, low-income level, creed/religion, or limited English proficiency in consideration for an award.”
  4. Physically incorporate the FHWA-1273, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only.
  5. Provide language assistance services (i.e., written translation and oral interpretation), free of charge, to LEP employees and applicants. Contact NCDOT OCR for further assistance, if needed.
  6. For assistance with these Title VI requirements, contact the NCDOT Title VI Nondiscrimination Program at 1-800-522-0453.
- (b) Subrecipients (e.g. cities, counties, LGAs, planning organizations) may be required to prepare and submit a Title VI Plan to NCDOT, including Title VI Assurances and/or agreements. Subrecipients must also ensure compliance by their contractors and subrecipients with Title VI. (23 CFR 200.9(b)(7))
- (c) If reviewed or investigated by NCDOT, the contractor or subrecipient agrees to take affirmative action to correct any deficiencies found within a reasonable time period, not to exceed 90 calendar days, unless additional time is granted by NCDOT. (23 CFR 200.9(b)(15))
- (d) The Contractor is responsible for notifying subcontractors of NCDOT's External Discrimination Complaints Process.
1. Applicability

Title VI and related laws protect participants and beneficiaries (e.g., members of the public and contractors) from discrimination by NCDOT employees, subrecipients and contractors, regardless of funding source.



## 2. Eligibility

Any person—or class of persons—who believes he/she has been subjected to discrimination based on race, color, national origin, Limited English Proficiency (LEP), sex, age, or disability (and religion in the context of employment, aviation, or transit) may file a written complaint. The law also prohibits intimidation or retaliation of any sort.

## 3. Time Limits and Filing Options

Complaints may be filed by the affected individual(s) or a representative and must be filed no later than 180 calendar days after the following:

- (i) The date of the alleged act of discrimination; or
- (ii) The date when the person(s) became aware of the alleged discrimination; or
- (iii) Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

Title VI and related discrimination complaints may be submitted to the following entities:

- North Carolina Department of Transportation, Office of Civil Rights, Title VI Program, 1511 Mail Service Center, Raleigh, NC 27699-1511; toll free 1-800-522-0453
- Federal Highway Administration, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601, 919-747-7010
- US Department of Transportation, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

## 4. Format for Complaints

Complaints must be in writing and signed by the complainant(s) or a representative, and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages, including Braille.

## 5. Discrimination Complaint Form

Contact NCDOT Civil Rights to receive a full copy of the Discrimination Complaint Form and procedures.

## 6. Complaint Basis

Allegations must be based on issues involving race, color, national origin (LEP), sex, age, disability, or religion (in the context of employment, aviation or transit). "Basis" refers to the complainant's membership in a protected group category.

|                                                      |
|------------------------------------------------------|
| <p><b>TABLE 103-1</b><br/><b>COMPLAINT BASIS</b></p> |
|------------------------------------------------------|



| Protected Categories                                                                                                            | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Examples                                                                                                               | Applicable Nondiscrimination Authorities                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Race and Ethnicity                                                                                                              | An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group                                                                                                                                                                                                                                                                                                                                                     | Black/African American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White | Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200; 49 U.S.C. 5332(b); 49 U.S.C. 47123. <i>(Executive Order 13166)</i>   |
| Color                                                                                                                           | Color of skin, including shade of skin within a racial group                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Black, White, brown, yellow, etc.                                                                                      |                                                                                                                                            |
| National Origin <i>(Limited English Proficiency)</i>                                                                            | Place of birth. Citizenship is not a factor. <i>(Discrimination based on language or a person's accent is also covered)</i>                                                                                                                                                                                                                                                                                                                                                                                                | Mexican, Cuban, Japanese, Vietnamese, Chinese                                                                          |                                                                                                                                            |
| Sex                                                                                                                             | Gender. The sex of an individual. <i>Note: Sex under this program does not include sexual orientation.</i>                                                                                                                                                                                                                                                                                                                                                                                                                 | Women and Men                                                                                                          | 1973 Federal-Aid Highway Act; 49 U.S.C. 5332(b); 49 U.S.C. 47123.                                                                          |
| Age                                                                                                                             | Persons of any age                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 21-year-old person                                                                                                     | Age Discrimination Act of 1975 49 U.S.C. 5332(b); 49 U.S.C. 47123.                                                                         |
| Disability                                                                                                                      | Physical or mental impairment, permanent or temporary, or perceived.                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Blind, alcoholic, para-amputee, epileptic, diabetic, arthritic                                                         | Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990                                                     |
| Religion (in the context of employment) <i>(Religion/ Creed in all aspects of any aviation or transit-related construction)</i> | An individual belonging to a religious group; or the perception, based on distinguishable characteristics that a person is a member of a religious group. In practice, actions taken as a result of the moral and ethical beliefs as to what is right and wrong, which are sincerely held with the strength of traditional religious views. <i>Note: Does not have to be associated with a recognized religious group or church; if an individual sincerely holds to the belief, it is a protected religious practice.</i> | Muslim, Christian, Sikh, Hindu, etc.                                                                                   | Title VII of the Civil Rights Act of 1964; 23 CFR 230; FHWA-1273 Required Contract Provisions. <i>(49 U.S.C. 5332(b); 49 U.S.C. 47123)</i> |

### (3) Pertinent Nondiscrimination Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);



- (c) Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- (d) Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability) and 49 CFR Part 27;
- (e) The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- (f) Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- (g) The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- (h) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- (i) The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- (j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- (k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- (l) Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq.).
- (m) Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e et seq., Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin).

#### **(4) Additional Title VI Assurances**

*\*\*The following Title VI Assurances (Appendices B, C and D) shall apply, as applicable*

- (a) Clauses for Deeds Transferring United States Property (1050.2A, Appendix B)

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4.



NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the North Carolina Department of Transportation (NCDOT) will accept title to the lands and maintain the project constructed thereon in accordance with the North Carolina General Assembly, the Regulations for the Administration of the Federal-Aid Highway Program, and the policies and procedures prescribed by the Federal Highway Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the NCDOT all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the North Carolina Department of Transportation (NCDOT) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the NCDOT, its successors and assigns.

The NCDOT, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]\* (2) that the NCDOT will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended [, and (3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].\*

(\*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

- (b) Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program (1050.2A, Appendix C)



The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(a):

1. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:
  - (i.) In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
2. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued. \*
3. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. \*

(\*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

- (c) Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program (1050.2A, Appendix D)

The following clauses will be included in deeds, licenses, permits, or similar instruments/ agreements entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(b):



1. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.
2. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non- discrimination covenants, the NCDOT will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued. \*
3. With respect to deeds, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. \*

(\*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)



**STANDARD SPECIAL PROVISION****ON-THE-JOB TRAINING**

(10-16-07) (Rev. 4-21-15)

Z-10

**Description**

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

**Minorities and Women**

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

**Assigning Training Goals**

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year.\



**Training Classifications**

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

|                     |                                  |
|---------------------|----------------------------------|
| Equipment Operators | Office Engineers                 |
| Truck Drivers       | Estimators                       |
| Carpenters          | Iron / Reinforcing Steel Workers |
| Concrete Finishers  | Mechanics                        |
| Pipe Layers         | Welders                          |

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

**Records and Reports**

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.



Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

**Trainee Interviews**

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

**Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| 60 percent | of the journeyman wage for the first half of the training period    |
| 75 percent | of the journeyman wage for the third quarter of the training period |
| 90 percent | of the journeyman wage for the last quarter of the training period  |

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

**Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

**Measurement and Payment**

No compensation will be made for providing required training in accordance with these contract documents.



## PROJECT SPECIAL PROVISIONS

## GEOTECHNICAL

GEOTEXTILE FOR SUBGRADE STABILIZATION (SPECIAL)

GT-1.1 - GT-1.1

SIMULATED STONE FORM LINER FINISH (SPECIAL)

GT-2.1 - GT-2.5

SOLDIER PILE RETAINING WALLS (LRFD) - (01/16/2024)

GT-3.1 - GT-3.8

DocuSigned by:  
*Geotechnical Engineering Unit*  
01/21/2025  
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**GEOTEXTILE FOR SUBGRADE STABILIZATION****(SPECIAL)****Description**

Provide geotextile for subgrade stabilization in accordance with the contract. Geotextile for subgrade stabilization is required for subgrades to prevent pavement cracking at locations shown in the plans and as directed by the Engineer.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

**Item**

Geotextile, Type 5

**Section**

1056

Provide Type 5 geotextile for geotextile for subgrade stabilization that has a melting point of 300° F or greater in accordance with ASTM D276.

**Construction Methods**

Do not leave geotextiles exposed for more than 7 days before covering geotextiles with asphalt base course or ABC. Place geotextile for subgrade stabilization on subgrades as shown in the plans. Install geotextile for subgrade stabilization on subgrades with the long dimension of the roll parallel to the roadway centerline and the minimum roll width under roadway edges and shoulders adjacent to fill slopes. Overlap adjacent geotextiles at least 18 inches in the direction that asphalt base course or ABC will be placed to prevent lifting the edge of the top geotextile. Pull geotextiles taut so they are in tension and free of kinks, folds, wrinkles or creases. Hold geotextiles in place as needed with wire staples or anchor pins.

For asphalt base courses, asphalt mixture temperatures in the truck may not exceed 315° F at the time of placement. Do not damage geotextile for subgrade stabilization when placing asphalt base course or ABC. Place and compact asphalt base course or ABC in accordance with the contract and *Standard Specifications*. Do not operate heavy equipment on geotextiles any more than necessary to construct base courses. Replace any damaged geotextiles to the satisfaction of the Engineer.

**Measurement and Payment**

*Geotextile for Subgrade Stabilization* will be measured and paid in accordance with Article 505-4 of the *Standard Specifications*.





**SIMULATED STONE FORM LINER FINISH****(SPECIAL)****GENERAL**

- A. The work covered by this special provision consists of constructing textured surfaces on formed reinforced concrete surfaces as indicated on the Plans and in this Special Provision. The Contractor shall furnish all materials, labor, equipment, and incidentals necessary for the construction of architectural concrete surface treatment using simulated stone masonry form liners (molds) and a compatible concrete coloring system. The terms "Form Liner Architectural Finish" listed in the wall plans and "architectural concrete surface treatment" discussed in this provision are synonymous with the "Simulated Stone Form Liner System and Surface Finish" discussed in this provision.

The architectural concrete surface treatment should match the appearance (stone size and shape, stone color, and stone texture, pattern, and relief) of natural stone and rock, in the project vicinity, or as directed by the Engineer. Grout pattern joints (mortar joints) and bed thickness should re-create the appearance and color of natural stone on the cast-in-place reinforced concrete face for Retaining Wall No. 1 and Retaining Wall No. 2 as indicated in the Plans, this Special Provision, or as directed by the Engineer. The architectural concrete surface treatment shall be performed on the exposed face (**both sides when above grade**) of the cast-in-place reinforced concrete retaining walls.

**SUBMITTALS**

**Shop Drawings** - The Contractor shall submit for review and acceptance, plan and elevation views and details showing overall simulated stone pattern, joint locations, form tie locations, and end, edge or other special conditions. The drawings should include typical cross sections of applicable surfaces, joints, corners, stone relief, stone size, pitch/working line, mortar joint and bed depths. If necessary, the Contractor shall revise the shop drawings until the proposed form liner patterns and arrangement have been accepted by the Engineer. Shop drawings should be of sufficient scale to show the detail of all stone and joints patterns. The size of the sheets used for the shop drawings shall be 22 in x 34 in.

The form liner shall be patterned such that long continuous horizontal or vertical lines do not occur on the finished exposed surface. The line pattern shall be random in nature and shall conceal construction joint lines. Special attention should be given to details for wrapping form liners around corners.

Shop drawings shall be reviewed and accepted prior to fabrication of form liners.

**Sample Panels and Barrier** - After the shop drawings have been reviewed and accepted by the Engineer, the Contractor shall construct 24 in x 24 in transportable sample panel(s) at the project site. The materials used in construction of the sample panel(s) shall comply with section 420 of the Standard Specifications. The sample panel(s) shall be constructed using approved form liners. Sample panels will be required for each different form liner pattern that is to be used on the project. Any sample panel that is not accepted by the Engineer is to be removed from the project site and a new sample panel produced at no additional expense to the Department.

Architectural surface treatments and patterns of the finished work shall achieve the same



final effect as demonstrated on the accepted sample panel(s). Upon acceptance by the Engineer, the sample panel(s) shall be used as the quality standard for the project. After the acceptance of the completed structure, the Contractor shall dispose of the sample panels as directed by the Engineer.

#### MATERIAL REQUIREMENTS

**Form Liner** - The form liner shall be a high quality, re-useable product manufactured of high strength urethane rubber or other approved material which attaches easily to the form work system and shall not compress more than  $\frac{1}{4}$  in when concrete is poured at a rate of 10 vertical feet per hour. The form liners shall be removable without causing deterioration of the surface or underlying concrete.

The Contractor is required to use the same source of form liner for all required elements. The architectural concrete surface treatment should match the appearance (stone size and shape, stone texture, pattern, color, and relief) of dry stacked natural stone to resemble a pattern similar to the pattern shown below. Multiple colors are required for the pattern.



All texture is to be in addition to the nominal thickness of each element within tolerances. Relief of any texture is to have a minimum depth of  $\frac{1}{2}$  inch, a maximum depth of 4 inches, and an average of  $2\frac{1}{2}$  inches.

The form liners are to be patterned as referenced above and as directed by the Engineer.

The Contractor may choose one of the following manufactures to supply the stone-textured surface treatment as specified above. One form liner pattern will be used on this project.

Hunt Valley Distributors, LLC  
3705 Crondall Lane  
Owings Mills, MD 21117  
410.356.9677

Custom Rock International  
1156 Homer Street  
St. Paul, Minnesota 55116  
800.637.2447



**Form Release Agent** - Form release agent shall be a non-staining petroleum distillate free from water, asphaltic, and other insoluble residue, or an equivalent product. Form release agents shall be compatible with the color system applied and any special surface finish.

**Form Ties** - Form ties shall be set back a minimum of 2 inches from the finished concrete surface. The ties shall be designed so that all material in the device to a depth of at least 2 inches back of the concrete face (bottom of simulated mortar groove) can be disengaged and removed without spalling or damaging the concrete. The Contractor shall submit the type of form ties to the Engineer for approval.

**Concrete Color System/Stain** - The final coloration of the wall and Precast Reinforced Concrete Barrier, Single Faced (Stained) is to be approved by the Engineer prior to application.

Color stains shall be a special penetrating stain mix as provided by the manufacturer and shall be in multiple colors of red, orange, yellow, gray, brown, white, and black, or as required by the engineer, to achieve a full, natural color variation in the finished surface. The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight, or weathering. Stain mix shall meet the requirements for mildew resistance of Federal Test Method Standard 144, Method 6271, and requirements for weathering resistance of 1,000 hours accelerated exposure measures by Weatherometer in accordance with ASTM G 26. Color samples must be submitted for approval. Concrete stains shall be supplied by one of the following or as approved by the Engineer.

Sherwin Williams  
H & C Shield Plus  
101 Prospect Ave., NW  
Cleveland, OH 44115

Canyon Tone Stain  
United Coatings  
E 1901 Cataldo  
Green Acres, Washington 90016

Cementrate Acrylic Stain  
Fosroc, Inc.  
55 Skyline Drive  
Plainview, New York 11803

Hydroshield Stain  
Robson-Downes Associates, Inc.  
Oxford, Maryland 21654

**Quality Standards** - Manufacturer of simulated stone masonry form liners and custom coloring system shall have at least five years' experience making stone masonry molds and



color stains to create formed concrete surfaces to match natural stone shapes, surface textures and colors.

The Contractor shall schedule a pre-installation conference with manufacturer representative and the Engineer to assure understanding of simulated stone masonry form liner use, color application, requirements for construction of sample panel(s), and to coordinate the work. The Contractor shall be required to disclose their source of simulated stone masonry manufacturer and final coloration contractor at the Preconstruction Conference.

## CONSTRUCTION

### A. Simulated Stone Form Liner System

The Contractor shall demonstrate his workmanship by first constructing a sample panel of the simulated stone masonry form liner pattern and coloration. The sample panel shall be constructed on site a minimum of six weeks prior to the construction of the walls. The sample panel shall measure 3 ft height by 5 ft length by 8 in thick and shall be unreinforced, vertically cast, and of concrete construction to determine the surface texture resulting from the use of form liners. Sample panels shall be cast, finished, and stained until approved by the Engineer. The approved sample panel shall remain on site as the basis for comparison for work constructed on the project. The architectural surface treatment and pattern of the finished work shall achieve the same final effect as demonstrated on the approved sample panel. Upon completion of all work, the panel shall be removed from the site.

The simulated stone form liners are to be capable of withstanding anticipated concrete pour pressures without leakage or without causing physical or visual defects. The simulated stone form liners are to be removable without causing concrete surface deterioration or weakness in the substrate. Form release agents, form stripping methods, patching materials, as well as related construction are to be in accordance with the manufacturer's recommendations or as directed by the Engineer.

Linear butt joints shall be carefully blended into the approved pattern and finished off the final concrete surface. No visible vertical or horizontal seams or conspicuous form marks created by butt joining will be permitted.

The Contractor shall submit the type of form ties to be used in this construction to the Engineer for approval prior to use. Form tie holes shall be finished in accordance with standard concreting practices and shall be acceptable to the Engineer. All patching material shall exactly match the color and appearance of the poured concrete surface.

### B. Surface Finish

Concrete surfaces shall be clean, free of laitance, dirt, dust, grease, efflorescence, paint, or other foreign material, following manufacturer's specifications for surface preparation prior to application of color stain. The surface area shall also be free of blemishes, discolorations, surface voids, and unnatural form marks. The Contractor is advised that sandblasting will not be allowed for cleaning concrete surfaces. Pressure



washing for removal of laitance shall be used.

The contractor shall provide a Color Application Artist who is trained in the special techniques to achieve realistic surface appearances, if requested by the Engineer. To avoid contaminating or damaging the wall surfaces, color stain application shall be scheduled when all concrete work is completed, the concrete has cured a minimum of 28 days, the surface has been determined to be acceptable for coloring, and after adjacent earthwork is complete. The Contractor is to coordinate coloring applications without interference from other work. The Contractor is required to apply coloring to an appropriate test area of 50 square feet and as designated by the Engineer, which will serve as a quality standard for the remaining surface to be colored. Upon approval of the test area by the Engineer, the remaining surfaces may be colored. Stains shall be applied when ambient air temperatures are in accordance with manufacturer's specifications or as directed by the Engineer. The number of coats of stain applied shall be in accordance with manufacturer's specifications or as directed by the Engineer. Treated surfaces located adjacent to exposed soil or pavement shall be temporarily covered to prevent dirt or soil splatter from rain.

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

**Experience and Qualifications** - The Contractor shall have a minimum of three consecutive years of experience in architectural concrete surface treatment construction on similar types of projects. The Contractor shall furnish to the Engineer 5 references who were responsible for supervision of similar projects and will testify to the successful completion of these projects. Include name, address, telephone number, and specific type of application.

#### MEASUREMENT AND PAYMENT

##### A. Simulated Stone Form Liner System and Surface Finish

The Simulated Stone Form Liner System and Surface Finish will be measured and paid in square feet. Simulated Stone Form Liner System and Surface Finish will be measured as the square feet of wall face area with the pay height equal to the difference between top of wall and top of leveling pad elevation. Define "top of wall" as top of concrete facing.

Payment will include the furnishing and use of all form liners, coloring stains, the construction, finishing, and removal of all sample panels, and all equipment, materials, labor, and incidentals necessary to complete the work in conformance with the Contract Documents.



DocuSigned by:

Shane Johnson

12/12/2024

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**SOLDIER PILE RETAINING WALLS****(1-16-24)****1.0 GENERAL**

Construct soldier pile retaining walls consisting of driven or drilled-in steel H-piles with either precast concrete panels in between piles or a CIP reinforced concrete face attached to front of piles unless required otherwise in the plans. Timber lagging is typically used for temporary support of excavations during construction. Provide CIP reinforced concrete coping as required. Design and construct soldier pile retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Cantilever Wall Contractor to construct soldier pile retaining walls. Define "soldier pile wall" as a soldier pile retaining wall. Define "panel" as a precast concrete panel and "concrete facing" as a CIP reinforced concrete face. Define "pile" as a steel H-pile and "coping" as CIP concrete coping.

**2.0 MATERIALS**

Refer to the *Standard Specifications*.

| Item                                      | Section |
|-------------------------------------------|---------|
| Asphalt Concrete Base Course, Type B25.0C | 620     |
| Flowable Fill, Excavatable                | 1000-7  |
| Geosynthetics                             | 1056    |
| Grout, Type 1                             | 1003    |
| Joint Materials                           | 1028    |
| Masonry                                   | 1040    |
| Portland Cement Concrete                  | 1000    |
| Reinforcing Steel                         | 1070    |
| Retaining Wall Panels                     | 1077    |
| Select Materials                          | 1016    |
| Shoulder Drain Materials                  | 816-2   |
| Steel H-Piles                             | 1084-1  |
| Untreated Timber                          | 1082-2  |
| Welded Stud Shear Connectors              | 1072-6  |

Provide Type 2 geotextile for separation geotextiles and Class VI select material (standard size No. 57 stone) for leveling pads and backfilling. Use Class A concrete for concrete facing and coping and Class A concrete that meets Article 450-2 of the *Standard Specifications* or grout for drilled-in piles. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

Unless required otherwise in the contract, produce panels with a smooth flat final finish that meets Article 1077-11 of the *Standard Specifications*. When noted in the plans, produce panels with an exposed aggregate finish that meets Article 1077-12 of the *Standard Specifications*. Produce panels within 1/4" of the panel dimensions shown in the accepted submittals. Damaged panels with excessive discoloration, chips or cracks as determined by the Engineer will be rejected.



For soldier pile walls with panels, galvanize piles in accordance with Section 1076 of the *Standard Specifications*. When noted in the plans, paint galvanized piles in accordance with Article 442-13 of the *Standard Specifications*. Apply the following system to paint galvanized piles gray with waterborne paints that meet Article 1080-9 of the *Standard Specifications*. For painting galvanized piles other colors, contact the Materials and Tests (M&T) Unit for an appropriate paint system.

| GRAY PAINT SYSTEM FOR GALVANIZED PILES |       |                               |                |
|----------------------------------------|-------|-------------------------------|----------------|
| Coat                                   | Color | Dry/Wet Film Thickness (Mils) |                |
|                                        |       | Min.                          | Max.           |
| Intermediate                           | Brown | 3.0 DFT                       | 5.0 DFT        |
| Stripe                                 | White | 4.0 WFT                       | 7.0 WFT        |
| Topcoat                                | Gray  | 2.0 DFT                       | 4.0 DFT        |
| <b>Total</b>                           |       | <b>5.0 DFT</b>                | <b>9.0 DFT</b> |

Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store soldier pile wall materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

### 3.0 PRECONSTRUCTION REQUIREMENTS

#### A. Soldier Pile Wall Surveys

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each soldier pile wall. Before beginning soldier pile wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of soldier pile wall locations as needed. For proposed slopes above or below soldier pile walls, survey existing ground elevations to at least 10 ft beyond slope stake points. Based on these elevations, finished grades and actual soldier pile wall dimensions and details, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

#### B. Soldier Pile Wall Designs

For soldier pile wall designs, submit PDF files of working drawings and design calculations at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until a design submittal is accepted.

Use a prequalified Cantilever Wall Design Consultant to design soldier pile walls. Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the Cantilever Wall Design Consultant.

Design soldier pile walls in accordance with the plans and Article 11.8 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design soldier pile walls



for a maximum deflection of 2" or 1.5% of H, whichever is less, with H as shown in the plans.

When noted in the plans, design soldier pile walls for a live load (traffic) surcharge of 250 psf in accordance with Article 11.5.6 of the AASHTO LRFD specifications. For steel beam guardrail with 8 ft posts above soldier pile walls, analyze walls for a nominal horizontal load ( $P_{HI}$ ) of 300 lb/ft of wall in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications. For concrete barrier rail above soldier pile walls, analyze walls for a nominal  $P_{HI}$  of 500 lb/ft of wall in accordance with Figure 3.11.6.3-2(a).

When a rock mass shear strength ( $S_m$ ) is noted in the plans, analyze piles using the equation shown in Figure 3.11.5.6-2 of the AASHTO LRFD specifications to calculate the passive resistance of the rock ( $\bar{P}_p$ ). Use a maximum H-pile spacing of 10 ft. At the Contractor's option, use driven or drilled-in piles for soldier pile walls with concrete facing unless otherwise required. For soldier pile walls with panels, use drilled-in piles unless noted otherwise in the plans. Use concrete or grout for embedded portions of drilled-in piles. Install drilled-in piles by excavating holes with diameters that will result in at least 3" of clearance all around piles.

Provide temporary support of excavations for excavations more than 4 ft deep and timber lagging in accordance with the *AASHTO Guide Design Specifications for Bridge Temporary Works*. At the Contractor's option and when noted in the plans, provide temporary slopes instead of temporary support of excavations. Do not extend temporary slopes outside right-of-way or easement limits. Except for fill sections or when using temporary slopes, backfill voids behind panels, lagging and piles with No. 57 stone. Separation geotextiles are required between No. 57 stone and overlying fill sections. When placing pavement sections directly on No. 57 stone, cap stone with 4" of asphalt concrete base course.

At the Contractor's option, use panels or concrete facing unless required otherwise in the plans. Design panels and concrete facing in accordance with the plans and Section 5 of the *AASHTO LRFD Bridge Design Specifications*. Provide reinforcing steel of sufficient density to satisfy Article 5.7.3.4 of the AASHTO LRFD specifications. Use panels or concrete facing with the dimensions shown in the plans and attach facing to front of H-piles with welded stud shear connectors.

Use No. 57 stone for aggregate leveling pads. Use 6" thick leveling pads beneath panels and concrete facing. Unless required otherwise in the plans, embed top of leveling pads at least 12" below bottom of walls shown in the plans.

Provide wall drainage systems consisting of geocomposite sheet drains, an aggregate shoulder drain and outlet components. Place sheet drains with a horizontal spacing of no more than 10 ft and center drains between adjacent piles. Attach sheet drains to front of timber lagging or back of panels or concrete facing and connect drains to aggregate leveling pads. Locate a continuous aggregate shoulder drain along the base of panels or concrete facing in front of piles and leveling pads. Provide aggregate shoulder drains



and outlet components in accordance with Roadway Standard Drawing No. 816.02.

Unless required otherwise in the plans, use CIP reinforced concrete coping at top of soldier pile walls with panels. Use coping dimensions shown in the plans and at the Contractor's option, connect coping to panels with dowels or extend coping down back of panels. When concrete barrier rail is required above soldier pile walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with pile locations, typical sections and details of piles, drainage, temporary support, leveling pads, panels and concrete facing. If necessary, include details on working drawings for coping, concrete barrier rail with moment slab and obstructions extending through walls or interfering with piles, barriers or moment slabs. Submit design calculations including deflection calculations for each wall section with different surcharge loads, geometry or material parameters. Include analysis of temporary conditions in design calculations. When designing soldier pile walls with computer software, a hand calculation is required for the tallest wall section.

#### C. Soldier Pile Wall Construction Plan

Submit a PDF file of a soldier pile wall construction plan at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until the construction plan submittal is accepted. Provide project specific information in the soldier pile wall construction plan including a detailed construction sequence. For driven piles, submit proposed pile driving methods and equipment in accordance with Subarticle 450-3(D)(2) of the *Standard Specifications*. For drilled-in piles, submit installation details including drilling equipment and methods for stabilizing and filling holes. Provide details in the construction plan of excavations including temporary support and any other information shown in the plans or requested by the Engineer.

If alternate construction procedures are proposed or necessary, a revised soldier pile wall construction plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend soldier pile wall construction until a revised plan is accepted.

#### D. Preconstruction Meeting

Before starting soldier pile wall construction, hold a preconstruction meeting to discuss the construction and inspection of the soldier pile walls. If this meeting occurs before all soldier pile wall submittals have been accepted, additional preconstruction meetings may be required before beginning construction of soldier pile walls without accepted submittals. The Resident or Bridge Maintenance Engineer, Area Construction Engineer, Geotechnical Operations Engineer, Contractor and Cantilever Wall Contractor Superintendent will attend preconstruction meetings.

### 4.0 CONSTRUCTION METHODS



Control drainage during construction in the vicinity of soldier pile walls. Direct run off away from soldier pile walls and areas above and behind walls. Contain and maintain No. 57 stone and backfill and protect material from erosion.

Notify the Engineer before blasting in the vicinity of soldier pile walls. Perform blasting in accordance with the contract. Unless required otherwise in the plans, install foundations located behind soldier pile walls before beginning wall construction if the horizontal distance to the closest foundation is less than the height of the tallest wall section.

Install soldier pile walls in accordance with the accepted submittals and as directed. Do not excavate behind soldier pile walls unless a temporary slope is shown in the accepted submittals. If overexcavation occurs and is not approved, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

#### A. Piles

If a temporary slope is shown in the accepted submittals, excavate the slope before installing piles. Otherwise, install piles before excavating for soldier pile walls. Weld stud shear connectors to piles in accordance with Article 1072-6 of the *Standard Specifications*.

Install piles within 1" of horizontal and vertical alignment shown in the accepted submittals and with no negative batter (piles leaning forward). Minimize alignment variations between piles for soldier pile walls with concrete facing since variations can result in thicker concrete facing in some locations in order to provide the minimum required facing thickness elsewhere. Locate piles so the minimum required concrete facing thickness, if applicable, and roadway clearances are maintained for variable pile alignments.

Install piles to the required elevations in accordance with Subarticles 450-3(D) and 450-3(E) of the *Standard Specifications*. Piles may be installed with a vibratory hammer as approved by the Engineer. Do not splice piles. If necessary, cut off piles at elevations shown in the accepted submittals along a plane normal to the pile axis.

Use pile excavation to install drilled-in piles. If overexcavation occurs, fill to required elevations with No. 57 stone before setting piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the required penetration. When this occurs, a revised soldier pile wall design or construction plan submittal may be required. When a minimum pile penetration into rock is noted in the plans, rock is as determined by the Engineer.

#### B. Excavation

If a temporary slope is shown in the accepted submittals, excavate the slope as shown.



Otherwise, excavate in front of piles from the top down in accordance with the accepted submittals. Excavate in staged horizontal lifts with a maximum height of 5 ft. Use timber lagging or an alternate approved method for temporary support of excavations in accordance with the accepted submittals.

Install temporary support within 24 hours of excavating each lift unless otherwise approved. The installation may be delayed if it can be demonstrated that delays will not adversely affect excavation stability. If excavation faces will be exposed for more than 24 hours, use polyethylene sheets anchored at top and bottom of lifts to protect excavation faces from changes in moisture content.

If an excavation becomes unstable at any time, suspend soldier pile wall construction and temporarily stabilize the excavation by immediately placing an earth berm up against the unstable excavation face. When this occurs, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

Remove flowable fill and material in between piles as necessary to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until temporary support for the current lift is accepted.

#### C. Wall Drainage Systems

Install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*. Place geocomposite sheet drains with the geotextile side facing away from wall faces. Secure sheet drains so drains are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soldier pile walls. Discontinuous sheet drains are not allowed. If splices are needed, overlap sheet drains at least 12" so flow is not impeded. Connect sheet drains to aggregate leveling pads by embedding drain ends at least 4" into No. 57 stone.

#### D. Leveling Pads, Panels, Coping and Concrete Facing

Construct aggregate leveling pads at elevations and with dimensions shown in the accepted submittals. Compact leveling pads with a vibratory compactor to the satisfaction of the Engineer.

Set panels against pile flanges as shown in the accepted submittals. Position panels with at least 2" of contact in the horizontal direction between the panels and pile flanges. If contact cannot be maintained, remove panels, fill gaps with joint filler and reset panels. Securely support panels until enough No. 57 stone or backfill is placed to hold panels in place.

Construct coping as shown in the accepted submittals and Subarticle 452-4(B) of the *Standard Specifications*. When single faced precast concrete barrier is required in front of and against soldier pile walls, stop coping just above barrier so coping does not interfere with placing barrier up against wall faces. If the gap between a single faced barrier and wall face is wider than 2", fill gap with Class V select material (standard size



No. 78M stone). Otherwise, fill gap with backer rod and seal joint between barrier and soldier pile wall with silicone sealant.

Construct concrete facing in accordance with the accepted submittals and Section 420 of the *Standard Specifications*. Do not remove forms until concrete attains a compressive strength of at least 2,400 psi. Unless required otherwise in the plans, provide a Class 2 surface finish for concrete facing that meets Subarticle 420-17(F) of the *Standard Specifications*. Construct concrete facing joints at a spacing of 10 ft to 12 ft unless required otherwise in the plans. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction or sawed joints that meet Subarticle 825-10(B) or 825-10(E) respectively for the remaining joints. Stop reinforcing steel for concrete facing 2" on either side of expansion joints.

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to soldier pile walls in accordance with Subarticle 453-4 of the *Standard Specifications*. Seal joints above and behind soldier pile walls between coping or concrete facing and concrete slope protection with silicone sealant.

#### E. Backfill

For fill sections or if a temporary slope is shown in the accepted submittals, backfill behind piles, panels and concrete facing in accordance with Article 410-8 of the *Standard Specifications*. Backfill voids behind panels, lagging and piles with No. 57 stone as shown in the accepted submittals. Ensure all voids between panels and lagging and between piles, lagging and excavation faces are filled with No. 57 stone. Compact stone to the satisfaction of the Engineer. When separation geotextiles are required, overlap adjacent geotextiles at least 18" and hold separation geotextiles in place with wire staples or anchor pins as needed.

#### F. Pile Coatings

For soldier pile walls with panels, clean exposed galvanized or painted surfaces of piles with a 2,500 psi pressure washer after wall construction is complete. Repair galvanized surfaces that are exposed and damaged in accordance with Article 1076-7 of the *Standard Specifications*. Repair painted surfaces that are exposed and damaged by applying 4.0 to 7.0 mils wet film thickness of a topcoat to damaged areas with brushes or rollers. Use the same paint for damaged areas that was used for the topcoat when painting piles initially. Feather or taper topcoats in damaged areas to be level with surrounding areas.

### 5.0 MEASUREMENT AND PAYMENT

*Soldier Pile Retaining Walls* will be measured and paid in square feet. Soldier pile walls will be measured as the square feet of wall face area with the pay height equal to the difference between top of wall and top of leveling pad elevations. Define "top of wall" as top of coping or top of panels or concrete facing for soldier pile walls without coping.



The contract unit price for *Soldier Pile Retaining Walls* will be full compensation for providing designs, submittals, labor, tools, equipment and soldier pile wall materials, installing piles, excavating, hauling and removing excavated materials, placing and compacting No. 57 stone and backfill material and supplying temporary support of excavations, wall drainage systems, leveling pads, panels, concrete facing, No. 57 stone, geotextiles, aggregate concrete base course and any incidentals necessary to construct soldier pile walls. The contract unit price for *Soldier Pile Retaining Walls* will also be full compensation for coping, pile coatings, backer rod and silicone sealant, No. 78M stone and brick veneers, if required. No additional payment will be made and no extension of completion date or time will be allowed for repairing overexcavations or unstable excavations or thicker concrete facing.

The contract unit price for *Soldier Pile Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with soldier pile walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind soldier pile walls from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

Soldier Pile Retaining Walls

**Pay Unit**

Square Foot



DocuSigned by:  
Scott A. Hidden  
E79C4E8B8EC4D3...  
12/12/2024



Project: R-5930B

UC-1

County: Chatham

PROJECT SPECIAL PROVISIONS  
Utility Construction

**Kimley»Horn**

P.O. Box 33068, Raleigh, NC 27636-3068



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

Where brand names and model numbers are specified in these Special Provisions or in the plans, the cited examples are used only to denote the quality standard of product desired and do not restrict bidders to a specific brand, make, or manufacturer. They are provided to set forth the general style, type, character, and quality of the product desired. Equivalent products will be acceptable.

The utility owner is TriRiver Water, part of the City of Sanford. The contact person is Mary DePina and she can be reached by phone at 919-777-1121.

The provisions contained within these Utilities Construction Project Special Provisions modify the *Standard Specifications* only for materials used and work performed constructing water or sewer facilities owned by TriRiver Water.

**SUBMITTALS AND RECORDS**  
**(9-5-23)**

Revise the 2018 *Standard Specifications* as follows:

**Page 15-2, Article 1500-7 SUBMITTALS AND RECORDS, lines 28-30, replace with the following:**

Provide as-built plans of the installed wet utilities in accordance with the Utility Owner's requirements. Final acceptance for service of wet utilities by the Utility Owner is contingent upon the contractor's submission of satisfactory as-built plans.

As-built plans must include the following data:

1. Horizontal and vertical coordinates (NC State Plane NAD83 northing, easting, and NAVD88 elevation) of the installed location for the following:
  - All fittings – Including but not limited to vertical and horizontal bends, tees, reducers, sleeves. Include size(s) and angle.



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- All utility controls – Including but not limited to valves, meters, fire hydrants, sampling stations, vaults, manholes, line stops installed as part of the project (whether abandoned or remaining active), and blow offs. Include size, type, and other descriptor(s) as applicable to specifically identify the control.
- All cleanouts. Include size and material.
- All piping – With survey points taken at intervals no greater than 100-feet along straight sections, and 50-feet along curved sections.
- Start and end points of restrained joint piping.
- Start and end points of encasement pipes. Include size and material of encasement.
- Start and end points trenchless installations, including but not limited to pipe installed by horizontal directional drill.
- Sanitary sewer manholes and cleanouts. Include rim and each invert.

*Note: The elevation coordinate for buried facilities must be the elevation of the buried facility and not the surface elevation.*

2. Size, material, and class of all piping, including identification of any special coatings or linings.
3. Identify new and existing facilities and connection point(s) to existing facilities

Verify accuracy and completeness of as-built plans in the field with the Utility Owner's inspections staff prior to submittal. Submit as-built drawings in PDF format as well as Microstation or AutoCAD format, sealed by a surveyor licensed in the state of North Carolina, to the Utility Owner for review and approval.

## **GENERAL**

### **Owner Coordination and Inspections**

The existing potable water, reclaimed water, and sanitary sewer utilities within the project area (hereinafter "wet utilities") belong to TriRiver Water (hereinafter "Owner"). The Contractor shall provide access for the Owner's representatives to all phases of construction. Testing, inspection, and acceptance shall be in accordance with the Owner's requirements. Contractor shall coordinate with the Owner to ensure all testing, inspection, and documentation requirements are met.

### **Owner Specifications**

The proposed utility construction shall meet the applicable requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" (hereinafter "NCDOT Standard Specifications") dated January 2018, the Owner's Standard Specifications, the Utility Construction plans, and the following Special Provisions.

Measurement and payment for proposed Utility Construction shall conform to the applicable requirements of the 2018 NCDOT Standard Specifications, as appended by these Special Provisions. If a discrepancy arises between the NCDOT Standard Specifications and the Owner's Specifications that is not related to measurement and payment, the more stringent requirements shall prevail.



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**Material Requirements**

Materials for pipe and appurtenances shall be as specified herein or as shown on the plans.

**Service Outages**

Any wet utility service outages shall take place at a time and date acceptable to the Owner, including nights and weekends, shall be limited to no more than 8 hours per service interruption, unless otherwise specified on the plans or by the Owner. The Contractor shall coordinate all shutdowns with the Owner and shall provide notice as required by the Owner to all affected users. The Contractor shall not be entitled to any additional compensation or delay claims associated with these requirements.

**WET UTILITY INSTALLATION PLAN****Description**

For each wet utility relocation, the Contractor shall submit a plan, detailing the intended wet utility construction to the Owner for approval prior to installing any component of the proposed wet utility or interrupting wet utility service. The Plan shall include at minimum:

1. Schedule and Sequence
  - a. Proposed installation schedule and sequence including all connections to active pressure pipes (line stops, tapping sleeves, or cut-in work), connections to manholes, or other connections to the Owner's system, installation phasing, pressure testing, disinfection, flushing, water quality testing, service connection switchovers, and abandonment or removal of lines to be abandoned.
2. Shutdowns
  - a. For each phase of wet utility construction requiring a service outage (defined as the closure of one or more valves, resulting in depressurization of any portion of the existing system, including services), the Contractor shall provide the following:
    - i. Location of proposed work and justification for shutdown
    - ii. Schedule (date and time) and duration
    - iii. Affected customers

Implementation of foregoing installation plans shall not commence until approval of the submittals required under this Section. The Owner's may, at its sole discretion, require an on-site preconstruction meeting prior to certain utility construction activities.

The Contractor shall allow sufficient time for review and approval of each submitted installation plan, including any test shutdowns required by Owner, and shall not be entitled to any delay claims related to review, rejection, resubmittal, modifications, or any other actions necessary to obtain approved installation plans.



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**UC-4**

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### **Measurement and Payment**

Wet Utility Installation Plan is considered incidental to the utility line to which each plan applied. No measurement nor payment will be made.

### **CONNECTIONS TO EXISTING PIPE**

#### **Materials**

Materials for connections to existing piping shall be in accordance with NCDOT Standard Specifications and Owner's Specifications.

- (A) Mechanical Joint (MJ) Sleeves  
MJ sleeves shall be long body, ductile iron, conforming to the requirements of ANSI A21.10 (AWWA C110).
- (B) MJ Restraints  
MJ Restraints consist of follower glands, meeting the applicable requirements of ANSI/AWWA C110/A21.10, incorporating multiple gripping wedges, actuated by torque-limiting bolts. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.
- (C) Transition Couplings  
Transition Couplings shall be steel or ductile iron body with fusion bonded epoxy coating, EPDM rubber gaskets, and bolt-actuated metallic seal rings with stainless steel hardware and shall be suitable for a wide range of host pipe outside diameters and material types. Transition couplings shall be NSF 61 rated for use in potable or reclaimed water systems or rated for wastewater exposure for use in wastewater systems.

#### **Construction Methods**

- (A) Mechanical Joint (MJ) Sleeves  
Use MJ Sleeve fittings to connect proposed ductile iron piping to existing ductile iron piping where indicated on the plans.  
  
Restrain MJ Sleeves with MJ Restraints whose working pressure rating is equal to or greater than the host pipe.
- (B) Transition Couplings  
Use Transition Couplings to connect proposed ductile iron piping to existing piping that is not ductile iron.  
  
Restrain connections made with Transition Couplings using thrust collars on the proposed piping, or with threaded rods connecting to the nearest MJ fitting on the proposed piping.



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**UC-5**

County: Chatham

**Measurement and Payment**

Connections to Existing Piping are incidental to the project and no specific measurement nor payment shall be made.

**THRUST RESTRAINT****Materials**

Materials for connections to existing piping shall be in accordance with NCDOT Standard Specifications and Owner's Specifications.

**(A) MJ Restraints**

MJ Restraints consist of follower glands, meeting the applicable requirements of ANSI/AWWA C110/A21.10, incorporating multiple gripping wedges, actuated by torque-limiting bolts. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN. MJ Restraints shall be rated for a working pressure equal to or greater than that of the host pipe.

**(B) Concrete Thrust Collars**

All reinforcing steel for thrust collars shall be Grade 60 in accordance with Article 1070-2. All concrete shall be Class B in accordance with Article 1000-4.

**(C) Thrust Blocking**

Concrete for reaction blocking shall be Class B in accordance with Article 1000-4.

**(D) Rodding**

Rodding for thrust restraint shall be 3/4-inch diameter threaded rods, hot dipped galvanized steel or stainless steel.

**Construction Methods**

Restrain all bend fittings, valves, caps, reducers, and other components of pressurized pipeline systems that are subject to hydrostatic thrust. Use both MJ Restraints and Reaction Blocking or Concrete Thrust Collars. Use Rodding in addition to other methods of restraint as shown on the detail drawings.

Concrete used for thrust restraint shall cure a minimum of 72-hours prior to operating valves being restrained or pressurizing pipelines being restrained.

**(E) MJ Restraints**

Install MJ Restraints on all MJ connections. Do not use MJ Restraints on existing piping, unless that piping is ductile iron.

**(F) Concrete Thrust Collars**

Install concrete thrust collars as indicated on the plans and detail drawings, as necessary to restrain existing piping or appurtenances, and as necessary to facilitate phased construction.



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**UC-6**

County: Chatham

Excavation for Concrete Thrust Collars shall be made in a manner which minimizes disturbance to adjacent soils.

Dual opposing MJ Restraints may be used in lieu of welded-on rings as directed by the Owner. Do not use MJ Restraints on existing piping, unless that piping is ductile iron.

Where Concrete Thrust Collars cannot be connected to the host pipe with welded-on rings or MJ Restraints, use cast-in rodding to connect Concrete Thrust Collars to the fitting or valve being restrained.

**(G) Thrust Blocking**

Install Thrust Blocking in accordance with the detail drawings. Use polyethylene sheeting to prevent contact between fittings and concrete. Concrete must not obstruct access to nor operation of connecting or MJ Restraint hardware.

**(H) Rodding**

Use the number of 3/4-inch rods specified in the table below. For sizes not listed, use the next larger size to determine number of rods.

| <b>Pipe/Fitting Size</b> | <b>Number of 3/4-inch<br/>Rods Required</b> |
|--------------------------|---------------------------------------------|
| 4-inch                   | 2                                           |
| 6-inch                   | 2                                           |
| 8-inch                   | 4                                           |
| 12-inch                  | 4                                           |
| 16-inch                  | 6                                           |

**Measurement and Payment**

Thrust Restraint is incidental to the project and no specific measurement nor payment shall be made.

**PVC CASINGS:**

**Description**

Provide watertight PVC casings for future use.

**Materials**

PVC casings shall be made of solvent weld, bell and spigot Schedule 40 Electrical Polyvinyl Chloride Conduit (EPC-40) in accordance with National Electric Manufacturers (NEMA) TC 2-2020.



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**UC-7**

County: Chatham

**Construction Methods**

Install \_\_\_" *PVC Casing* at the locations and cover depths shown on the plan sheets. Provide a minimum separation of 12-inches where PVC casings cross existing or proposed utilities or storm drainage piping. Install vertical 90° bend at the right-of-way line on both ends of each casing, extend casings vertically to at least 3-feet above grade, and install watertight cap.

**Measurement and Payment**

\_\_\_" *PVC Casing* will be measured and paid per linear foot, measured horizontally, for the appropriate size. Vertical portions of PVC casings, including bend fittings and caps are considered incidental and no measurement nor payment will be made.

Payment will be made under:

**Pay Item**

\_\_\_" PVC Casing

**Pay Unit**

Linear Foot

END OF UC SPECIAL PROVISIONS



PROJECT SPECIAL PROVISIONS

## Utilities by Others

**General:**

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

- A. Duke Energy – Power
- B. Enbridge Gas North Carolina – Gas (Distribution)
- C. Brightspeed – Communications
- D. Charter/Spectrum – Communications
- E. Conterra – Communications

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

The Contractor's attention is directed to Article 105-8 of the 2018 Standard Specifications.

**Utilities Requiring Adjustment:**

Utility relocations are shown on the Utilities by Others Plans.

- A. Duke Energy – Power
  - 1. Contact Person for Duke Energy is Cynthia Ball at 918-278-3529.
- B. Enbridge Gas North Carolina –
  - 1. Enbridge Gas North Carolina will install new service lines within the project limits after the contractor has determined if the service line is in conflict. Enbridge Gas North Carolina requires 3 weeks notice by the contractor to begin work and 2 weeks to complete the work.
  - 2. Contact Person for B. Enbridge Gas North Carolina is Michael Davidson at 984-778-5685.
- C. Brightspeed – Communications
  - 1. Contact Person for Brightspeed is Timothy Nunley at 276-340-7392.
- D. Charter/Spectrum – Communications
  - 1. Contact Person for Charter/Spectrum is Robert Dabrowski at 919-288-4867.
- E. Conterra – Communications
  - 1. Contact person for Conterra is Kim Brown at 704-778-5685

**Project Special Provisions  
Erosion Control**

**STABILIZATION REQUIREMENTS:**

(4-30-2019)

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

**SEEDING AND MULCHING:****(East)**

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Roadway Areas

**March 1 - August 31**

|       |                       |
|-------|-----------------------|
| 50#   | Tall Fescue           |
| 10#   | Centipede             |
| 25#   | Bermudagrass (hulled) |
| 500#  | Fertilizer            |
| 4000# | Limestone             |

**September 1 - February 28**

|       |                         |
|-------|-------------------------|
| 50#   | Tall Fescue             |
| 10#   | Centipede               |
| 35#   | Bermudagrass (unhulled) |
| 500#  | Fertilizer              |
| 4000# | Limestone               |

Waste and Borrow Locations

**March 1 - August 31**

|       |                       |
|-------|-----------------------|
| 75#   | Tall Fescue           |
| 25#   | Bermudagrass (hulled) |
| 500#  | Fertilizer            |
| 4000# | Limestone             |

**September 1 - February 28**

|       |                         |
|-------|-------------------------|
| 75#   | Tall Fescue             |
| 35#   | Bermudagrass (unhulled) |
| 500#  | Fertilizer              |
| 4000# | Limestone               |



Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

### Approved Tall Fescue Cultivars

|                            |                 |                 |                    |
|----------------------------|-----------------|-----------------|--------------------|
| 06 Dust                    | Escalade        | Justice         | Serengeti          |
| 2 <sup>nd</sup> Millennium | Essential       | Kalahari        | Shelby             |
| 3 <sup>rd</sup> Millennium | Evergreen 2     | Kitty Hawk 2000 | Sheridan           |
| Apache III                 | Falcon IV       | Legitimate      | Signia             |
| Avenger                    | Falcon NG       | Lexington       | Silver Hawk        |
| Barlexas                   | Falcon V        | LSD             | Sliverstar         |
| Barlexas II                | Faith           | Magellan        | Shenandoah Elite   |
| Bar Fa                     | Fat Cat         | Matador         | Sidewinder         |
| Barrera                    | Festnova        | Millennium SRP  | Skyline            |
| Barrington                 | Fidelity        | Monet           | Solara             |
| Barrobusto                 | Finelawn Elite  | Mustang 4       | Southern Choice II |
| Barvado                    | Finelawn Xpress | Ninja 2         | Speedway           |
| Biltmore                   | Finesse II      | Ol' Glory       | Spyder LS          |
| Bingo                      | Firebird        | Olympic Gold    | Sunset Gold        |
| Bizem                      | Firecracker LS  | Padre           | Taccoa             |
| Blackwatch                 | Firenza         | Patagonia       | Tanzania           |
| Blade Runner II            | Five Point      | Pedigree        | Trio               |
| Bonsai                     | Focus           | Picasso         | Tahoe II           |
| Braveheart                 | Forte           | Piedmont        | Talladega          |
| Bravo                      | Garrison        | Plantation      | Tarheel            |
| Bullseye                   | Gazelle II      | Proseeds 5301   | Terrano            |
| Cannavaro                  | Gold Medallion  | Prospect        | Titan Ltd          |
| Catalyst                   | Grande 3        | Pure Gold       | Titanium LS        |
| Cayenne                    | Greenbrooks     | Quest           | Tracer             |
| Cessane Rz                 | Greenkeeper     | Raptor II       | Traverse SRP       |
| Chipper                    | Gremlin         | Rebel Exeda     | Tulsa Time         |
| Cochise IV                 | Greystone       | Rebel Sentry    | Turbo              |
| Constitution               | Guardian 21     | Rebel IV        | Turbo RZ           |
| Corgi                      | Guardian 41     | Regiment II     | Tuxedo RZ          |
| Corona                     | Hemi            | Regenerate      | Ultimate           |
| Coyote                     | Honky Tonk      | Rendition       | Venture            |
| Darlington                 | Hot Rod         | Rhambler 2 SRP  | Umbrella           |
| Davinci                    | Hunter          | Rembrandt       | Van Gogh           |
| Desire                     | Inferno         | Reunion         | Watchdog           |
| Dominion                   | Innovator       | Riverside       | Wolfpack II        |
| Dynamic                    | Integrity       | RNP             | Xtremegreen        |
| Dynasty                    | Jaguar 3        | Rocket          |                    |
| Endeavor                   | Jamboree        | Scorpion        |                    |

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

**NUTRIENT MANAGEMENT TRAINING REQUIREMENTS:**

(07/17/2014)(rev 05/10/2023)

The person(s) responsible for applying fertilizer or person(s) conducting the application of fertilizer on this project within the Jordan Lake or Falls Lake Watershed shall complete the 'Urban Only' or the 'Ag and Urban' combined web-based training and obtain a certificate of completion from NCDEQ prior to performing this work. The training and NCDEQ contact information may be found under "Fertilizer Management Training" heading at the following link:

<https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/jordan-lake-nutrient-strategy#implementation>

A certificate of completion must be presented by the person(s) responsible for fertilizer application or person(s) conducting the application of fertilizer to the Engineer prior to performing fertilizer application on the project within the limits of the Jordan Lake or Fall Lake Watershed. The certificate must remain on-site with the applicator during all applications of fertilizer.

**Native Grass Seeding And Mulching**

**(West)**

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation and/or trout stream construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

**August 1 - June 1**

|       |                     |
|-------|---------------------|
| 18#   | Creeping Red Fescue |
| 8#    | Big Bluestem        |
| 6#    | Indiangrass         |
| 4#    | Switchgrass         |
| 35#   | Rye Grain           |
| 500#  | Fertilizer          |
| 4000# | Limestone           |

**May 1 - September 1**

|       |                           |
|-------|---------------------------|
| 18#   | Creeping Red Fescue       |
| 8#    | Big Bluestem              |
| 6#    | Indiangrass               |
| 4#    | Switchgrass               |
| 25#   | German or Browntop Millet |
| 500#  | Fertilizer                |
| 4000# | Limestone                 |



## Approved Creeping Red Fescue Cultivars:

Aberdeen

Boreal

Epic

Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

**Measurement and Payment**

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

**CRIMPING STRAW MULCH:**

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

**TEMPORARY SEEDING:**

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Sweet Sudan Grass, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

**FERTILIZER TOPDRESSING:**

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.



Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

#### **SUPPLEMENTAL SEEDING:**

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

#### **MOWING:**

The minimum mowing height on this project shall be 4 inches.

#### **LAWN TYPE APPEARANCE:**

All areas adjacent to lawns must be hand finished as directed to give a lawn type appearance. Remove all trash, debris, and stones  $\frac{3}{4}$ " and larger in diameter or other obstructions that could interfere with providing a smooth lawn type appearance. These areas shall be reseeded to match their original vegetative conditions, unless directed otherwise by the Field Operations Engineer.

#### **REFORESTATION:**

##### **Description**

*Reforestation* will be planted in areas as directed. *Reforestation* is not shown on the plan sheets. See the Reforestation Detail Sheet.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire *Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

##### **Materials**

*Reforestation* shall be bare root seedlings 12"-18" tall.



**Construction Methods**

*Reforestation* shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

**Root dip:** The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

**Seasonal Limitations:** *Reforestation* shall be planted from November 15 through March 15.

**Measurement and Payment**

*Reforestation* will be measured and paid for in accordance with Article 1670-17 of the *Standard Specifications*.

**RESPONSE FOR EROSION CONTROL:****Description**

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

| Section | Erosion Control Item             | Unit   |
|---------|----------------------------------|--------|
| 1605    | Temporary Silt Fence             | LF     |
| 1606    | Special Sediment Control Fence   | LF/TON |
| 1615    | Temporary Mulching               | ACR    |
| 1620    | Seed - Temporary Seeding         | LB     |
| 1620    | Fertilizer - Temporary Seeding   | TN     |
| 1631    | Matting for Erosion Control      | SY     |
| SP      | Coir Fiber Mat                   | SY     |
| 1640    | Coir Fiber Baffles               | LF     |
| SP      | Permanent Soil Reinforcement Mat | SY     |
| 1660    | Seeding and Mulching             | ACR    |
| 1661    | Seed - Repair Seeding            | LB     |

|      |                               |     |
|------|-------------------------------|-----|
| 1661 | Fertilizer - Repair Seeding   | TON |
| 1662 | Seed - Supplemental Seeding   | LB  |
| 1665 | Fertilizer Topdressing        | TON |
| SP   | Safety/Highly Visible Fencing | LF  |
| SP   | Response for Erosion Control  | EA  |

### Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

### Measurement and Payment

*Response for Erosion Control* will be measured and paid for by counting the actual number of times the subcontractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

#### Pay Item

Response for Erosion Control

#### Pay Unit

Each

### ENVIRONMENTALLY SENSITIVE AREAS:

#### Description

This project is located in an *Environmentally Sensitive Area*. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the Environmentally Sensitive Areas identified on the plans and as designated by the Engineer. This also requires special procedures to be used for seeding and mulching and staged seeding within the project.

The Environmentally Sensitive Area shall be defined as a 50-foot buffer zone on both sides of the stream or depression measured from top of streambank or center of depression.

### Construction Methods

#### (A) Clearing and Grubbing

In areas identified as Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the *Standard Specifications*. Only



clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

(B) Grading

Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and areas are permanently stabilized prior to beginning of next phase. Failure on the part of the Contractor to complete any phase of construction in a continuous manner in Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

(C) Temporary Stream Crossings

Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-12 of the *Standard Specifications*.

(D) Seeding and Mulching

Seeding and mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the Environmentally Sensitive Areas.

(E) Stage Seeding

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional payments will not be made for the requirements of this section, as the cost for this work shall be included in the contract unit prices for the work involved.

**MINIMIZE REMOVAL OF VEGETATION:**

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.



**STOCKPILE AREAS:**

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

**ACCESS AND HAUL ROADS:**

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

**CONSTRUCTION MATERIALS MANAGEMENT**

(3-19-19) (rev. 04-27-20)

**Description**

The requirements set forth shall be adhered to in order to meet the applicable materials handling requirements of the NCG010000 permit. Structural controls installed to manage construction materials stored or used on site shall be shown on the E&SC Plan. Requirements for handling materials on construction sites shall be as follows:

**Polyacrylamides (PAMS) and Flocculants**

Polyacrylamides (PAMS) and flocculants shall be stored in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures designed to protect adjacent surface waters. PAMS or other flocculants used shall be selected from the NC DWR List of Approved PAMS/Flocculants. The concentration of PAMS and other flocculants used shall not exceed those specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions. The NC DWR List of Approved PAMS/Flocculants is available at:

[https://files.nc.gov/ncdeq/Water+Quality/Environmental+Sciences/ATU/PAM8\\_30\\_18.pdf](https://files.nc.gov/ncdeq/Water+Quality/Environmental+Sciences/ATU/PAM8_30_18.pdf)

**Equipment Fluids**

Fuels, lubricants, coolants, and hydraulic fluids, and other petroleum products shall be handled and disposed of in a manner so as not to enter surface or ground waters and in accordance with applicable state and federal regulations. Equipment used on the site must be operated and maintained properly to prevent discharge of fluids. Equipment, vehicle, and other wash waters shall not be discharged into E&SC basins or other E&SC devices. Alternative controls should be provided such that there is no discharge of soaps, solvents, or detergents.



**Waste Materials**

Construction materials and land clearing waste shall be disposed of in accordance with North Carolina General Statutes, Chapter 130A, Article 9 - Solid Waste Management, and rules governing the disposal of solid waste (15A NCAC 13B). Areas dedicated for managing construction material and land clearing waste shall be at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. Paint and other liquid construction material waste shall not be dumped into storm drains. Paint and other liquid construction waste washouts should be located at least 50 feet away from storm drain inlets unless there is no alternative. Other options are to install lined washouts or use portable, removable bags or bins. Hazardous or toxic waste shall be managed in accordance with the federal Resource Conservation and Recovery Act (RCRA) and NC Hazardous Waste Rules at 15A NCAC, Subchapter 13A. Litter and sanitary waste shall be managed in a manner to prevent it from entering jurisdictional waters and shall be disposed of offsite.

**Herbicide, Pesticide, and Rodenticides**

Herbicide, pesticide, and rodenticides shall be stored and applied in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, North Carolina Pesticide Law of 1971 and labeling restrictions.

**Concrete Materials**

Concrete materials onsite, including excess concrete, must be controlled and managed to avoid contact with surface waters, wetlands or buffers. No concrete or cement slurry shall be discharged from the site. (Note that discharges from onsite concrete plants require coverage under a separate NPDES permit – NCG140000.) Concrete wash water shall be managed in accordance with the *Concrete Washout Structure* provision. Concrete slurry shall be managed and disposed of in accordance with *NCDOT DGS and HOS DCAR Distribution of Class A Residuals Statewide* (Permit No. WQ0035749). Any hardened concrete residue will be disposed of, or recycled on site, in accordance with state solid waste regulations.

**Earthen Material Stock Piles**

Earthen material stock piles shall be located at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available.

**Measurement and Payment**

Conditions set within the *Construction Materials Management* provision are incidental to the project for which no direct compensation will be made.

**WASTE AND BORROW SOURCES:**

(2-16-11) (Rev. 3-17-22)

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

<https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/Contract%20Reclamation%20Procedures.pdf>

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

**TEMPORARY DIVERSION:**

This work consists of installation, maintenance, and cleanout of *Temporary Diversions* in accordance with Section 1630 of the *Standard Specifications*. The quantity of excavation for installation and cleanout will be measured and paid for as *Silt Excavation* in accordance with Article 1630-3 of the *Standard Specifications*.

**CLEAN WATER DIVERSION:****Description**

This work consists of installing, maintaining, and removing any and all material required for the construction of clean water diversions. The clean water diversions shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

**Materials**

Refer to Division 10

**Item**

Geotextile for Soil Stabilization, Type 4

**Section**

1056



**Construction Methods**

The Contractor shall install the clean water diversions in accordance with the details in the plans and at locations indicated in the plans, and as directed. Upon installation, the excavated material shall be immediately stabilized as provided in Section 1620 of the *Standard Specifications*. Other stabilization methods may be utilized with prior approval from the Engineer.

Line clean water diversion with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

**Measurement and Payment**

*Silt Excavation* will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Stabilization of the excavated material will be paid for as *Temporary Seeding* as provided in Section 1620 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of the clean water diversions.

**SAFETY FENCE AND JURISDICTIONAL FLAGGING:****Description**

*Safety Fence* shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence along the outside riparian buffer, wetland, or water boundary, or other boundaries located within the construction corridor to mark the areas that have been approved to infringe within the buffer, wetland, endangered vegetation, culturally sensitive areas or water. The fence shall be installed prior to any land disturbing activities.

Interior boundaries for jurisdictional areas noted above shall be delineated by stakes and highly visible flagging.

Jurisdictional boundaries at staging areas, waste sites, or borrow pits, whether considered outside or interior boundaries shall be delineated by stakes and highly visible flagging.



**Materials****(A) Safety Fencing**

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length.

**(B) Boundary Flagging**

Wooden stakes shall be 4 feet in length with a minimum nominal 3/4" x 1-3/4" cross section. The flagging shall be at least 1" in width. The flagging material shall be vinyl and shall be orange in color and highly visible.

**Construction Methods**

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

**(A) Safety Fencing**

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position and hand set or set with a post driver. Posts shall be installed a minimum of 2 ft. into the ground. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.



**(B) Boundary Flagging**

Boundary flagging delineation of interior boundaries shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Interior boundaries may be staked on a tangent that runs parallel to buffer but must not encroach on the buffer at any location. Interior boundaries of hand clearing shall be identified with a different colored flagging to distinguish it from mechanized clearing.

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as *Construction Surveying*, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(5) or Subarticle 802-2(F) of the *Standard Specifications*. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

The Contractor shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

**Measurement and Payment**

*Safety Fence* will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

**Pay Item**  
Safety Fence

**Pay Unit**  
Linear Foot

**SKIMMER BASIN WITH BAFFLES:****Description**

Provide a skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Skimmer Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of temporary slope drain



pipe and coir fiber baffles, furnishing, installation and cleanout of skimmer, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing a geotextile spillway liner, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

### Materials

| Item                                      | Section |
|-------------------------------------------|---------|
| Stone for Erosion Control, Class B        | 1042    |
| Geotextile for Soil Stabilization, Type 4 | 1056    |
| Fertilizer for Temporary Seeding          | 1060-2  |
| Seed for Temporary Seeding                | 1060-4  |
| Seeding and Mulching                      | 1060-4  |
| Matting for Erosion Control               | 1060-8  |
| Staples                                   | 1060-8  |
| Coir Fiber Mat                            | 1060-14 |
| Temporary Slope Drain                     | 1622-2  |
| Coir Fiber Baffle                         | 1640    |

Provide appropriately sized and approved skimmer device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

#### Wooden Stakes:

Provide hardwood stakes 12" - 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1" - 2" long head at the top with a 1" - 2" notch following to catch and secure the coir fiber mat.

#### Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.



**Staples:**

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

**Construction Methods**

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the primary spillway according to the Skimmer Basin with Baffles Detail sheet in the erosion control plans. Temporary slope drain pipe at inlet of basin may be replaced by geotextile as directed. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*.

Install skimmer device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and skimmer according to manufacturer recommendations. The coupling shall be rigid and non-buoyant and not exceed a diameter of 4" and 12" in length. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line primary spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the primary spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and



1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

### **Measurement and Payment**

*Silt Excavation* will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

*Coir Fiber Baffles* will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

\_\_\_" *Skimmer* will be measured in units of each. \_\_\_" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of \_\_\_" *Skimmer* is considered incidental to the measurement of the quantity of \_\_\_" *Skimmer* and no separate payment will be made. No separate payment shall be made if \_\_\_" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

*Coir Fiber Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

*Temporary Slope Drain* will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

*Stone for Erosion Control, Class \_\_\_* will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

*Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

*Seed for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Fertilizer for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Matting for Erosion Control* will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.



Payment will be made under:

**Pay Item**

\_\_\_" Skimmer  
Coir Fiber Mat

**Pay Unit**

Each  
Square Yard

**COIR FIBER WATTLES WITH POLYACRYLAMIDE (PAM):****Description**

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of coir fiber wattles, matting installation, PAM application, and removing wattles.

**Materials**

Coir Fiber Wattle shall meet the following specifications:

|                            |                                |
|----------------------------|--------------------------------|
| 100% Coir (Coconut) Fibers |                                |
| Minimum Diameter           | 12 in.                         |
| Minimum Density            | 3.5 lb/ft <sup>3</sup> +/- 10% |
| Net Material               | Coir Fiber                     |
| Net Openings               | 2 in. x 2 in.                  |
| Net Strength               | 90 lbs.                        |
| Minimum Weight             | 2.6 lbs./ft. +/- 10%           |

Anchors: Stakes shall be used as anchors.

**Wooden Stakes:**

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with



each wattle. The PAM product used shall be listed on the North Carolina Department of Environmental Quality Division of Water Resources web site as an approved PAM product for use in North Carolina.

### **Construction Methods**

Coir Fiber Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install coir fiber wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the coir fiber wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the coir fiber wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

### **Measurement and Payment**

*Coir Fiber Wattles* will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Coir Fiber Wattles*.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

*Polyacrylamide(PAM)* will be measured and paid for by the actual weight in pounds of PAM applied to the coir fiber wattles. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.



Payment will be made under:

| Pay Item            | Pay Unit    |
|---------------------|-------------|
| Polyacrylamide(PAM) | Pound       |
| Coir Fiber Wattle   | Linear Foot |

**TEMPORARY ROCK SILT CHECK TYPE A WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM):**

**Description**

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

**Materials**

Structural stone shall be class B stone that meets the requirements of Section 1042 of the *Standard Specifications* for Stone for Erosion Control, Class B.

Sediment control stone shall be #5 or #57 stone, which meets the requirements of Section 1005 of the *Standard Specifications* for these stone sizes.

Matting shall meet the requirements of Excelsior Matting in Subarticle 1060-8(B) of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environmental Quality Division of Water Resources web site as an approved PAM product for use in North Carolina.

**Construction Methods**

Temporary Rock Silt Checks Type A shall be installed in accordance with Subarticle 1633-3(A) of the *Standard Specifications*, Roadway Standard Drawing No. 1633.01 and the detail provided in the plans.



Installation of matting shall be in accordance with the detail provided in the plans, and anchored by placing Class B stone on top of the matting at the upper and lower ends.

Apply PAM at a rate of 4 ounces over the center portion of the Temporary Rock Silt Checks Type A and matting where the water is going to flow over. PAM applications shall be done during construction activities and after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM until the project is accepted or until the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are removed, and shall remove and dispose of silt accumulations at the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

#### **Measurement and Payment**

*Temporary Rock Silt Checks Type A* will be measured and paid for in accordance with Article 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

*Polyacrylamide(PAM)* will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.

Payment will be made under:

| <b>Pay Item</b>     | <b>Pay Unit</b> |
|---------------------|-----------------|
| Polyacrylamide(PAM) | Pound           |

#### **CULVERT DIVERSION CHANNEL:**

##### **Description**

This work consists of providing a *Culvert Diversion Channel* to detour the existing stream around the culvert construction site at locations shown on the plans. Work includes constructing the diversion channel, disposing of excess materials, providing and placing geotextile liner, maintaining the diversion area in an acceptable condition, removing geotextile liner, backfilling diversion channel area with suitable material, and providing proper drainage when diversion channel area is abandoned.

##### **Materials**

Refer to Division 10



| Item                                      | Section |
|-------------------------------------------|---------|
| Geotextile for Soil Stabilization, Type 4 | 1056    |

**Construction Methods**

Grade channel according to the plans with channel surface free of obstructions, debris, and pockets of low-density material. Utilize suitable material and provide disposal area for unsuitable material.

Line channel with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

**Measurement and Payment**

*Culvert Diversion Channel* will be measured and paid for as the actual number of cubic yards excavated, as calculated from the typical section throughout the length of the diversion channel as shown on the final approved plans.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of *Culvert Diversion Channel*.

Payment will be made under:

| Pay Item                  | Pay Unit   |
|---------------------------|------------|
| Culvert Diversion Channel | Cubic Yard |

**IMPERVIOUS DIKE:**  
(9-9-11)(Rev. 11-15-22)**Description**

This work consists of furnishing, installing, maintaining, pumping and removing an *Impervious Dike* for the purpose of diverting normal stream flow around the construction site. The Contractor shall construct an impervious dike in such a manner approved by the Engineer. The impervious dike shall not permit seepage of water into the construction site or contribute to siltation of the stream. The impervious dike shall be constructed of an acceptable material in the locations noted on the plans or as directed by the Engineer.

**Materials**

Acceptable materials shall include but not be limited to sheet piles, sandbags, and/or the placement of an acceptable size stone lined with polypropylene or other impervious geotextile.

Earth material shall not be used to construct an impervious dike when it is in direct contact with the stream unless vegetation can be established before contact with the stream takes place.

**Construction Methods**

Where impervious dikes are shown on the plans and used to dewater or lower the water elevation, construct in accordance with Article 410-4 and 410-5.

**Measurement and Payment**

*Impervious Dike* will be measured and paid as the actual number of linear feet of impervious dike(s) constructed, measured in place from end to end of each separate installation that has been completed and accepted by the Engineer. Such price and payment will be full compensation for all work including but not limited to furnishing materials, construction, maintenance, pumping and removal of the impervious dike.

Payment will be made under:

**Pay Item**

Impervious Dike

**Pay Unit**

Linear Foot

**PUMP AROUND OPERATION:****Description**

The work covered by this section consists of furnishing, installing, maintaining and removing any and all pump around systems used on this project. The Contractor shall install a pump around system in locations as shown in the plans and in other locations approved by the Engineer. The pump around system shall provide a passageway for the stream flow around the work site.

The quantity of pump around systems may be increased, decreased, or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work. See NCDOT *Best Management Practices for Construction and Maintenance Activities* manual for example pump around operation.

**Materials****Item**

Special Stilling Basin

**Section**

1639

*Impervious Dike* shall meet the specifications as provided elsewhere in this contract.



Pumps shall be of sufficient size to divert the stream flow around the work area, as approved by the Engineer.

#### **Construction Methods**

Install *impervious dike(s)* as shown on the plans or as directed. Pump water around the work site. If the water is turbid or exposed to bare soil, pump through a *special stilling basin*. Once the work is complete in an area remove the *impervious dike(s)* and pump system, and stabilize the area.

#### **Measurement and Payment**

*Impervious Dike* will be measured and paid for as provided elsewhere in this contract.

*Special Stilling Basin* will be measured and paid for in accordance with Article 1639-4 of the *Standard Specifications*.

Payment for pumping operations shall be considered incidental to the work of installing pipes, culverts and channels. The pumping operations shall include but not be limited to, diverting the stream flow around the work area and pumping runoff from the work area into a stilling basin, special stilling basin or other sediment control device. No additional payment will be made for furnishing materials or maintenance of the pumping operations for the installation of pipes, culverts and channels.

The above prices and payments will be full compensation for all work covered by this section including, but not limited to furnishing all of the necessary materials, construction, maintenance and removal of the impervious dike and pump around system.

#### **TEMPORARY PIPE FOR CLEAN WATER DIVERSION:**

(03-28-2022)

#### **Description**

This work consists of furnishing, installing, maintaining and removing any and all temporary pipe used on this project in conjunction with the clean water diversions. The temporary pipe for clean water diversion shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

#### **Construction Methods**

The Contractor shall install temporary pipe in locations shown on the plans in such a manner approved by the Engineer. The temporary pipe for clean water diversion shall provide a passageway for offsite stormwater runoff to be routed around or through the work-site. The minimum size requirements will be as stated on the erosion control plans.

**Measurement and Payment**

\_\_\_" *Temporary Pipe* will be measured and paid for at the contract unit price per linear foot of temporary pipe approved by the Engineer and measured in place from end to end. Such price and payment will be full compensation for all work covered by this section including but not limited to furnishing all materials required for installation, construction, maintenance, and removal of temporary pipe.

Payment will be made under:

**Pay Item****Pay Unit**

\_\_\_" Temporary Pipe

Linear Foot

**COIR FIBER MAT:****Description**

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

**Materials****Item****Section**

Coir Fiber Mat

1060-14

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

**Wooden Stakes:**

Provide hardwood stakes 12" - 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1" - 2" long head at the top with a 1" - 2" notch following to catch and secure the coir fiber mat.

**Steel Reinforcement Bars:**

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

**Staples:**

Provide staples made of 0.125" diameter new steel wire formed into a U shape not less than 12" in length with a throat of 1" in width.



**Construction Methods**

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

**Measurement and Payment**

*Coir Fiber Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for anchor items.

Payment will be made under:

**Pay Item**

Coir Fiber Mat

**Pay Unit**

Square Yard

**CONCRETE WASHOUT STRUCTURE:**

(8-17-23)

**Description**

Concrete washout structures are enclosures above or below grade to contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete washouts must collect and retain all the concrete washout water and solids, so that this material does not migrate to surface waters or into the ground water. These enclosures are not intended for concrete waste not associated with wash out operations.

The concrete washout structure may include constructed devices above or below ground and or commercially available devices designed specifically to capture concrete wash water.

**Materials****Item**

Temporary Silt Fence

**Section**

1605

*Safety Fence* shall meet the specifications as provided elsewhere in this contract.

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil thick geomembrane. If the minimum setback dimensions can be achieved the liner is not required. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

**Construction Methods**

Build an enclosed earthen berm or excavate to form an enclosure in accordance with the details and as directed.

Install temporary silt fence around the perimeter of the enclosure in accordance with the details and as directed if structure is not located in an area where existing erosion and sedimentation control devices are capable to containing any loss of sediment.

Post a sign with the words "Concrete Washout" in close proximity of the concrete washout area, so it is clearly visible to site personnel. Install safety fence as directed for visibility to construction traffic.

Alternate details for accommodating concrete washout may be submitted for review and approval.

The alternate details shall include the method used to retain and dispose of concrete waste water within the project limits and in accordance with the minimum setback requirements. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

**Maintenance and Removal**

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. Grade the earth material to match the existing contours and permanently seed and mulch area.



**Measurement and Payment**

*Concrete Washout Structure* will be paid for per each enclosure installed in accordance with the details. If alternate details or commercially available devices are approved, then those devices will also be paid for per each approved and installed device.

*Temporary Silt Fence* will be measured and paid for in accordance with Article 1605-5 of the *Standard Specifications*.

*Safety Fence* shall be measured and paid for as provided elsewhere in this contract.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

| <b>Pay Item</b>            | <b>Pay Unit</b> |
|----------------------------|-----------------|
| Concrete Washout Structure | Each            |

**TACK FOR MULCH FOR EROSION CONTROL:**

(07-19-22)

**Description**

This work consists of supplying and installing of an approved material for binding mulch for erosion control in accordance with Section 1060-5, Section 1615 and Section 1660 of the *Standard Specifications*. This provision defines acceptable materials and rates for tacking material for holding mulch in place.

**Materials**

(a) Emulsified Asphalt

Asphalt emulsion tack shall conform to the requirements of AASHTO M 140, Specification for Emulsified Asphalt. The emulsified asphalt may be rapid setting, medium setting, or slow setting. Apply emulsified asphalt tackifier at a rate of 0.10 gallons per square yard (approximately 484 gallons per acre).

(b) Cellulose Hydromulch

Cellulose hydromulch products shall be non-toxic, weed-free, prepackaged cellulose fiber (pulp) material containing no more than 3% ash or other inert materials. Cellulose hydromulches may contain dyes or binders specifically formulated to enhance the adhesive qualities of the hydromulch. Apply cellulose hydromulches at a rate of 1000 pounds (dry weight) per acre.

Wood fiber or wood fiber blend hydromulches may be substituted for cellulose hydromulch at the same application rate.

(c) Other tackifiers

Other approved materials, specifically designed and manufactured for application as a straw mulch tacking agent, may be used at the manufacturer's recommended rate.

**Construction Methods**

Apply the Tack for Mulch for Erosion Control uniformly across straw mulch per Section 1615 and Section 1660 of the *Standard Specifications*.

**Payment**

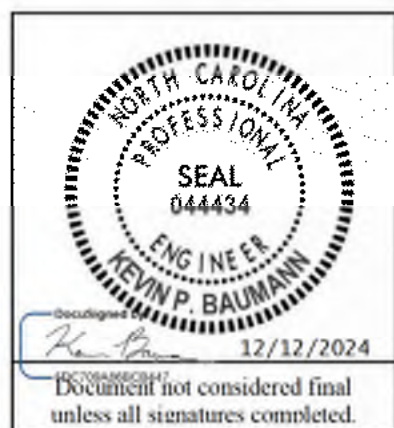
*Tack for Mulch for Erosion Control* is incidental to the application of *Temporary Mulching*, Section 1615-4, and *Seeding and Mulching*, Section 1660-8, and no additional payment will be made.



R-5930B

TS-1

Chatham County



**Signals and Intelligent Transportation Systems  
Project Special Provisions  
(Version 18.9)**

Prepared By: KWS/KPB  
11-Dec-24

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**1. 2018 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES**

*The 2018 Standard Specifications are revised as follows:*

**1.1. ELECTRICAL JUNCTION BOXES (1091-5)**

Page 10-209, revise paragraphs beginning on line 26 to read "Provide electrical junction boxes with covers of the type and size indicated by the contract or plans for the termination of conduits. Boxes and covers shall meet all requirements and specifications of ANSI/SCTE 77 2017. Structural load tests shall meet the Tier 15 application type."

Page 10-209, line 28, revise title of section 1091-5(B) from "Polymer Concrete (PC) Junction Boxes" to "Polymer Concrete (PC), Composite, and Thermoplastic Junction Boxes".

Page 10-209, revise paragraphs beginning on line 29 through line 41 to read "For PC junction boxes, use polymer concrete material made of an aggregate consisting of sand and gravel bound together with a polymer and reinforced with glass strands to fabricate box and cover components. Provide junction boxes which have bolted covers and open bottoms. Provide vertical extensions of 6 inches to 12 inches as required by project provisions.

Provide the required logo on the cover. Provide at least two size 3/8 inch diameter hex head stainless steel cover bolts to match inserts in the box. Provide pull slot(s) with stainless steel pin(s). Bodies of junction boxes shall be a single piece.

Polymer concrete, composite, and thermoplastic junction boxes are not required to be listed electrical devices."

**1.2. TRAFFIC SIGNAL ACTIVATION (1700-4)**

Page 17-4, revise paragraph beginning on line 42 through line 46 to read "Prior to placing signal in the steady (stop-and-go) mode, the signal should be placed in yellow-red flashing mode for up to 7 days or as directed by the Engineer. Yellow-red flashing mode differs from the red-red flashing mode shown in the signal plan. Yellow-red flash mode includes flashing the yellow signal indications on all main street through movements while flashing the red signal indications on all side street signal heads and any left turn heads on the main street. The signal should not be placed in the steady (stop-and-go) mode on a Saturday or Sunday without prior approval from the Engineer. Do not place the signal in steady (stop-and-go) mode until inspected and without prior approval of the Engineer."

**2. SIGNAL HEADS****2.1. MATERIALS****A. General:**

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel.

Fabricate tunnel and traditional visors from sheet aluminum.

Paint all surfaces inside and outside of signal housings and doors. Paint outside surfaces of tunnel and traditional visors, wire outlet bodies, wire entrance fitting brackets and end caps when



supplied as components of messenger cable mounting assemblies, pole and pedestal mounting assemblies, and pedestrian pushbutton housings. Have electrostatically-applied, fused-polyester paint in highway yellow (Federal Standard 595C, Color Chip Number 13538) a minimum of 2.5 to 3.5 mils thick. Do not apply paint to the latching hardware, rigid vehicle signal head mounting brackets for mast-arm attachments, messenger cable hanger components or balance adjuster components.

Have the interior surfaces of tunnel and traditional visors painted an alkyd urea black synthetic baking enamel with a minimum gloss reflectance and meeting the requirements of MIL-E-10169, "Enamel Heat Resisting, Instrument Black."

Where required, provide polycarbonate signal heads and visors that comply with the provisions pertaining to the aluminum signal heads listed on the QPL with the following exceptions:

Fabricate signal head housings, end caps, and visors from virgin polycarbonate material. Provide UV stabilized polycarbonate plastic with a minimum thickness of  $0.1 \pm 0.01$  inches that is highway yellow (Federal Standard 595C, Color Chip 13538). Ensure the color is incorporated into the plastic material before molding the signal head housings and end caps. Ensure the plastic formulation provides the following physical properties in the assembly (tests may be performed on separately molded specimens):

| Test                                               | Required           | Method     |
|----------------------------------------------------|--------------------|------------|
| Specific Gravity                                   | 1.17 minimum       | ASTM D 792 |
| Flammability                                       | Self-extinguishing | ASTM D 635 |
| Tensile Strength, yield, PSI                       | 8500 minimum       | ASTM D 638 |
| Izod impact strength, ft-lb/in [notched, 1/8 inch] | 12 minimum         | ASTM D 256 |

For pole mounting, provide side of pole mounting assemblies with framework and all other hardware necessary to make complete, watertight connections of the signal heads to the poles and pedestals. Fabricate the mounting assemblies and frames from aluminum with all necessary hardware, screws, washers, etc. to be stainless steel. Provide mounting fittings that match the positive locking device on the signal head with the serrations integrally cast into the brackets. Provide upper and lower pole plates that have a 1 1/4-inch vertical conduit entrance hubs with the hubs capped on the lower plate and 1 1/2-inch horizontal hubs. Ensure that the assemblies provide rigid attachments to poles and pedestals so as to allow no twisting or swaying of the signal heads. Ensure that all raceways are free of sharp edges and protrusions, and can accommodate a minimum of ten Number 14 AWG conductors.

For pedestal mounting, provide a post-top slipfitter mounting assembly that matches the positive locking device on the signal head with serrations integrally cast into the slipfitter. Provide stainless steel hardware, screws, washers, etc. Provide a minimum of six 3/8 X 3/4-inch long square head bolts for attachment to pedestal. Provide a center post for multi-way slipfitters.

For light emitting diode (LED) traffic signal modules, provide the following requirements for inclusion on the Department's Qualified Products List for traffic signal equipment.

1. Sample submittal,
2. Third-party independent laboratory testing results for each submitted module with evidence of testing and conformance with all of the Design Qualification Testing specified in section 6.4 of each of the following Institute of Transportation Engineers (ITE) specifications:



- Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement
- Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement
- Pedestrian Traffic Control Signal Indications –Light Emitting Diode (LED) Signal Modules.

(Note: The Department currently recognizes two approved independent testing laboratories. They are Intertek ETL Semko and Light Metrics, Incorporated with Garwood Laboratories. Independent laboratory tests from other laboratories may be considered as part of the QPL submittal at the discretion of the Department,

3. Evidence of conformance with the requirements of these specifications,
4. A manufacturer's warranty statement in accordance with the required warranty, and
5. Submittal of manufacturer's design and production documentation for the model, including but not limited to, electrical schematics, electronic component values, proprietary part numbers, bill of materials, and production electrical and photometric test parameters.
6. Evidence of approval of the product to bear the Intertek ETL Verified product label for LED traffic signal modules.

Ensure LED traffic signal modules meet the performance requirements for the minimum period of 15 years, provide a written warranty against defects in materials and workmanship for the modules for a period of 15 years after installation of the modules. During the warranty period, the manufacturer must provide new replacement modules within 45 days of receipt of modules that have failed at no cost to the State. Repaired or refurbished modules may not be used to fulfill the manufacturer's warranty obligations. Provide manufacturer's warranty documentation to the Department during evaluation of product for inclusion on Qualified Products List (QPL).

#### **B. Vehicle Signal Heads:**

Comply with the ITE standard "Vehicle Traffic Control Signal Heads". Provide housings with provisions for attaching backplates.

Provide visors that are 10 inches in length for 12-inch vehicle signal heads.

Provide a termination block with one empty terminal for field wiring for each indication plus one empty terminal for the neutral conductor. Have all signal sections wired to the termination block. Provide barriers between the terminals that have terminal screws with a minimum Number 8 thread size and that will accommodate and secure spade lugs sized for a Number 10 terminal screw.

Mount termination blocks in the yellow signal head sections on all in-line vehicle signal heads. Mount the termination block in the red section on five-section vehicle signal heads.

Furnish vehicle signal head interconnecting brackets. Provide one-piece aluminum brackets less than 4.5 inches in height and with no threaded pipe connections. Provide hand holes on the bottom of the brackets to aid in installing wires to the signal heads. Lower brackets that carry no wires and are used only for connecting the bottom signal sections together may be flat in construction.

For mast-arm mounting, provide rigid vehicle signal head mounting brackets and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the mast arms and to provide a means for vertically adjusting the vehicle signal heads to proper alignment. Fabricate the mounting assemblies from aluminum, and provide serrated rings made of aluminum. Provide stainless steel cable attachment assemblies to secure the brackets to the mast arms. Ensure all fastening hardware and fasteners are fabricated from stainless steel.



Provide LED vehicular traffic signal modules (hereafter referred to as modules) that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections. Use LEDs that are aluminum indium gallium phosphorus (AlInGaP) technology for red and yellow indications and indium gallium nitride (InGaN) for green indications. Install the ultra bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 15 years and to meet all parameters of this specification during this period of useful life.

For the modules, provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard signal head. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Tint the red, yellow and green lenses to correspond with the wavelength (chromaticity) of the LED. Transparent tinting films are unacceptable. Provide a lens that is integral to the unit with a smooth outer surface.

#### **1. LED Circular Signal Modules:**

Provide modules in the following configurations: 12-inch circular sections. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" dated June 27, 2005 (hereafter referred to as VTCSH Circular Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Circular Supplement:

| Module Type            | Max. Wattage at 165° F | Nominal Wattage at 77° F |
|------------------------|------------------------|--------------------------|
| 12-inch red circular   | 17                     | 11                       |
| 12-inch green circular | 15                     | 15                       |

For yellow circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch circular module.

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

#### **2. LED Arrow Signal Modules**

Provide 12-inch omnidirectional arrow signal modules. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that



each module meets or exceeds the requirements for 12-inch omnidirectional modules specified in the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" dated July 1, 2007 (hereafter referred to as VTCSH Arrow Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Arrow Supplement:

| Module Type         | Max. Wattage at 165° F | Nominal Wattage at 77° F |
|---------------------|------------------------|--------------------------|
| 12-inch red arrow   | 12                     | 9                        |
| 12-inch green arrow | 11                     | 11                       |

For yellow arrow signal modules, provide modules tested under the procedures outlined in the VTCSH Arrow Supplement to insure power required at 77° F is 12 Watts or less.

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

### C. Pedestrian Signal Heads:

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

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

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

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

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

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

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

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



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

Design all modules to operate using a standard 3 - wire field installation. Provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard pedestrian signal housing. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Provide modules in the following configuration: 16-inch displays which have the solid hand/walking man overlay on the left and the countdown on the right. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Pedestrian Traffic Control Signal Indicators - Light Emitting Diode (LED) Signal Modules" dated August 04, 2010 (hereafter referred to as PTCSI Pedestrian Standard) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the PTCSI Pedestrian Standard:

| Module Type            | Max. Wattage at 165° F | Nominal Wattage at 77° F |
|------------------------|------------------------|--------------------------|
| Hand Indication        | 16                     | 13                       |
| Walking Man Indication | 12                     | 9                        |
| Countdown Indication   | 16                     | 13                       |

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

Provide module lens that is hard coated or otherwise made to comply with the material exposure and weathering effects requirements of the Society of Automotive Engineers (SAE) J576. Ensure all exposed components of the module are suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with function or appearance.

Ensure the countdown display continuously monitors the traffic controller to automatically learn the pedestrian phase time and update for subsequent changes to the pedestrian phase time.

Ensure the countdown display begins normal operation upon the completion of the preemption sequence and no more than one pedestrian clearance cycle.



### 3. CONTROLLERS WITH CABINETS

#### 3.1. MATERIALS – TYPE 2070LX CONTROLLERS

Furnish model 2070LX controller units that conform to CALTRANS *Transportation Electrical Equipment Specifications* (TEES) (dated March 12, 2009, plus Errata 1 dated January 21, 2010 and Errata 2 dated December 5, 2014) except as required herein.

The Department will provide software at the beginning of the burning-in period. Contractor shall give 5 working days notice before needing software. Program software provided by the Department.

Provide model 2070LX controllers with Linux kernel 2.6.18 or higher and device drivers, composed of the unit chassis and at a minimum the following modules and assemblies:

- MODEL 2070-1C, CPU Module, Single Board, with 8Mb Datakey (blue in color)
- MODEL 2070-2E+, Field I/O Module (FI/O)
  - Note: Configure the Field I/O Module to disable both the External WDT Shunt/Toggle Switch and SP3 (SP3 active indicator is "off")
- MODEL 2070-3B, Front Panel Module (FP), Display B (8x40)
- MODEL 2070-4A, Power Supply Module, 10 AMP

Provide a Board Support Package (BSP) to the state and to any specified applications software manufacturer when requested by the state to facilitate the porting of application software.

#### 3.2. MATERIALS – GENERAL CABINETS

Provide a moisture resistant coating on all circuit boards.

Provide one 20 mm diameter radial lead UL-recognized metal oxide varistor (MOV) between each load switch field terminal and equipment ground. Electrical performance is outlined below.

| PROPERTIES OF MOV SURGE PROTECTOR            |                          |
|----------------------------------------------|--------------------------|
| Maximum Continuous Applied Voltage at 185° F | 150 VAC (RMS)<br>200 VDC |
| Maximum Peak 8x20µs Current at 185° F        | 6500 A                   |
| Maximum Energy Rating at 185° F              | 80 J                     |
| Voltage Range 1 mA DC Test at 77° F          | 212-268 V                |
| Max. Clamping Voltage 8x20µs, 100A at 77° F  | 395 V                    |
| Typical Capacitance (1 MHz) at 77° F         | 1600 pF                  |

Provide a power line surge protector that is a two-stage device that will allow connection of the radio frequency interference filter between the stages of the device. Ensure that a maximum continuous current is at least 10A at 120V. Ensure that the device can withstand a minimum of 20 peak surge current occurrences at 20,000A for an 8x20 microsecond waveform. Provide a maximum clamp voltage of 395V at 20,000A with a nominal series inductance of 200µh. Ensure that the voltage does not exceed 395V. Provide devices that comply with the following:



| Frequency (Hz) | Minimum Insertion Loss (dB) |
|----------------|-----------------------------|
| 60             | 0                           |
| 10,000         | 30                          |
| 50,000         | 55                          |
| 100,000        | 50                          |
| 500,000        | 50                          |
| 2,000,000      | 60                          |
| 5,000,000      | 40                          |
| 10,000,000     | 20                          |
| 20,000,000     | 25                          |

### 3.3. MATERIALS – TYPE 170E CABINETS

#### A. Type 170 E Cabinets General:

Conform to the city of Los Angeles' Specification No. 54-053-08, *Traffic Signal Cabinet Assembly Specification* (dated July 2008), except as required herein.

Furnish model 332 base mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details.

Provide model 200 load switches, model 222 loop detector sensors, model 252 AC isolators, and model 242 DC isolators according to the electrical details. As a minimum, provide one (1) model 2018 conflict monitor, one (1) model 206L power supply unit, two (2) model 204 flashers, one (1) DC isolator (located in slot I14), and four (4) model 430 flash transfer relays (provide seven (7) model 430 flash transfer relays if auxiliary output file is installed) with each cabinet.

#### B. Type 170 E Cabinet Electrical Requirements:

Provide a cabinet assembly designed to ensure that upon leaving any cabinet switch or conflict monitor initiated flashing operation, the controller starts up in the programmed start up phases and start up interval.

Furnish two sets of non-fading cabinet wiring diagrams and schematics in a paper envelope or container and placed in the cabinet drawer.

All AC+ power is subject to radio frequency signal suppression.

Provide surge suppression in the cabinet for each type of cabinet device. Provide surge protection for the full capacity of the cabinet input file. Provide surge suppression devices that operate properly over a temperature range of -40° F to +185° F. Ensure the surge suppression devices provide both common and differential modes of protection.

Provide a pluggable power line surge protector that is installed on the back of the PDA (power distribution assembly) chassis to filter and absorb power line noise and switching transients. Ensure the device incorporates LEDs for failure indication and provides a dry relay contact closure for the purpose of remote sensing. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20µs).....20,000A



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|                                          |                      |
|------------------------------------------|----------------------|
| Occurrences (8x20 $\mu$ s waveform)..... | 10 minimum @ 20,000A |
| Maximum Clamp Voltage.....               | 395VAC               |
| Operating Current.....                   | 15 amps              |
| Response Time.....                       | < 5 nanoseconds      |

Provide a loop surge suppressor for each set of loop terminals in the cabinet. Ensure the device meets the following specifications:

|                                            |                 |
|--------------------------------------------|-----------------|
| Peak Surge Current (6 times, 8x20 $\mu$ s) |                 |
| (Differential Mode).....                   | 400A            |
| (Common Mode).....                         | 1,000A          |
| Occurrences (8x20 $\mu$ s waveform).....   | 500 min @ 200A  |
| Maximum Clamp Voltage                      |                 |
| (Differential Mode @400A).....             | 35V             |
| (Common Mode @1,000A).....                 | 35V             |
| Response Time.....                         | < 5 nanoseconds |
| Maximum Capacitance.....                   | 35 pF           |

Provide a data communications surge suppressor for each communications line entering or leaving the cabinet. Ensure the device meets the following specifications:

|                                                      |                               |
|------------------------------------------------------|-------------------------------|
| Peak Surge Current (Single pulse, 8x20 $\mu$ s)..... | 10,000A                       |
| Occurrences (8x20 $\mu$ s waveform).....             | 100 min @ 2,000A              |
| Maximum Clamp Voltage.....                           | Rated for equipment protected |
| Response Time.....                                   | < 1 nanosecond                |
| Maximum Capacitance.....                             | 1,500 pF                      |
| Maximum Series Resistance.....                       | 15 $\Omega$                   |

Provide a DC signal surge suppressor for each DC input channel in the cabinet. Ensure the device meets the following specifications:

|                                                      |                |
|------------------------------------------------------|----------------|
| Peak Surge Current (Single pulse, 8x20 $\mu$ s)..... | 10,000A        |
| Occurrences (8x20 $\mu$ s waveform).....             | 100 @ 2,000A   |
| Maximum Clamp Voltage.....                           | 30V            |
| Response Time.....                                   | < 1 nanosecond |

Provide a 120 VAC signal surge suppressor for each AC+ interconnect signal input. Ensure the device meets the following specifications:



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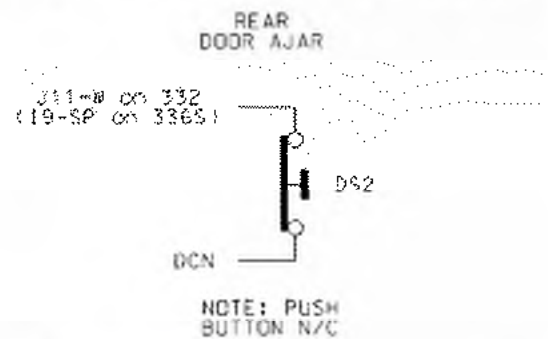
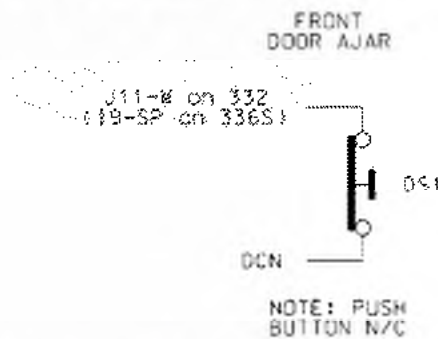
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|                                                |                     |
|------------------------------------------------|---------------------|
| Peak Surge Current (Single pulse, 8x20μs)..... | 20,000A             |
| Maximum Clamp Voltage.....                     | 350VAC              |
| Response Time.....                             | < 200 nanoseconds   |
| Discharge Voltage.....                         | <200 Volts @ 1,000A |
| Insulation Resistance.....                     | ≥100 MΩ             |

Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum overcurrents which could occur before protective device thresholds are attained and current flow is interrupted.

If additional surge protected power outlets are needed to accommodate fiber transceivers, modems, etc., install a UL listed, industrial, heavy-duty type power outlet strip with a minimum rating of 15 A / 125 VAC, 60 Hz. Provide a strip that has a minimum of 3 grounded outlets. Ensure the power outlet strip plugs into one of the controller unit receptacles located on the rear of the PDA. Ensure power outlet strip is mounted securely; provide strain relief if necessary.

Provide a door switch in the front and a door switch in the rear of the cabinet that will provide the controller unit with a Door Ajar alarm when either the front or the rear door is open. Ensure the door switches apply DC ground to the Input File when either the front door or the rear door is open.



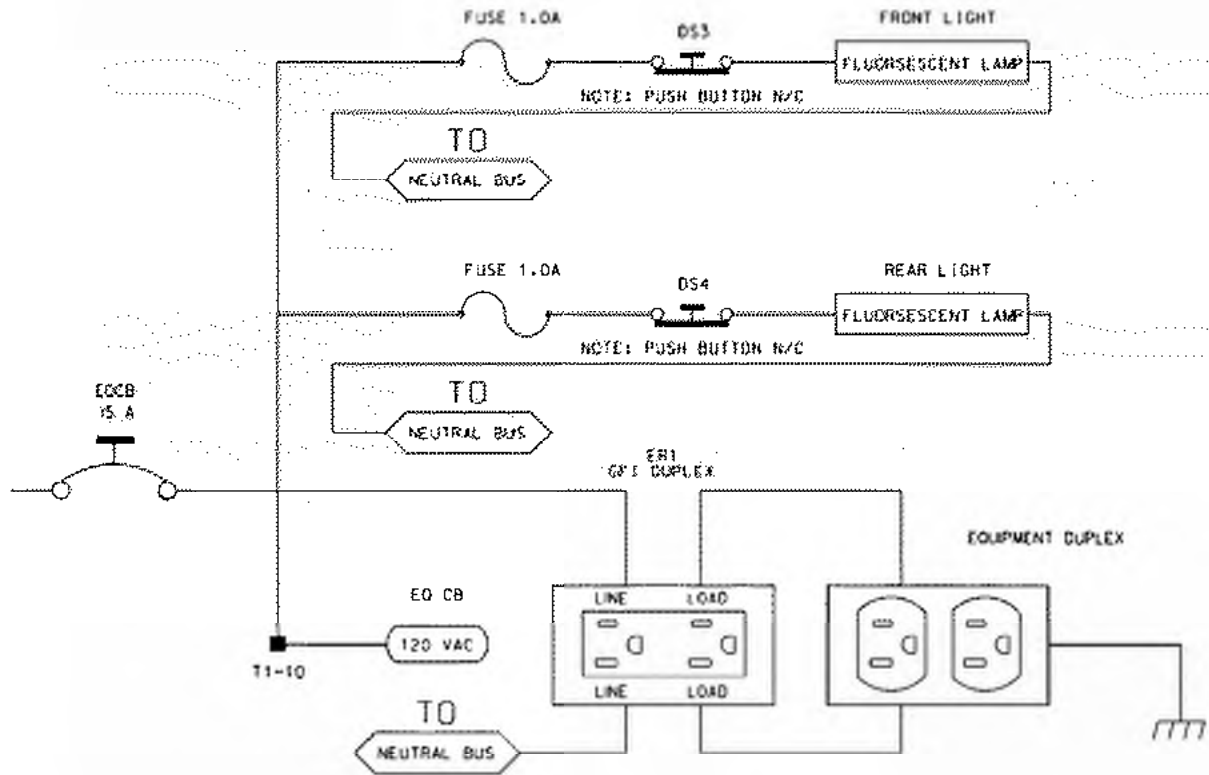
Furnish a fluorescent fixture in the rear across the top of the cabinet and another fluorescent fixture in the front across the top of the cabinet at a minimum. Ensure that the fixtures provide sufficient light to illuminate all terminals, labels, switches, and devices in the cabinet. Conveniently locate the fixtures so as not to interfere with a technician's ability to perform work on any devices or terminals in the cabinet. Provide a protective diffuser to cover exposed bulbs. Install 16 watt T-4 lamps in the fluorescent fixtures. Provide a door switch to provide power to each fixture when the respective door is open. Wire the fluorescent fixtures to the 15 amp ECB (equipment circuit breaker).



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Furnish a police panel with a police panel door. Ensure that the police panel door permits access to the police panel when the main door is closed. Ensure that no rainwater can enter the cabinet even with the police panel door open. Provide a police panel door hinged on the right side as viewed from the front. Provide a police panel door lock that is keyed to a standard police/fire call box key. In addition to the requirements of LA Specification No. 54-053-08, provide the police panel with a toggle switch connected to switch the intersection operation between normal stop-and-go operation (AUTO) and manual operation (MANUAL). Ensure that manual control can be implemented using inputs and software such that the controller provides full programmed clearance times for the yellow clearance and red clearance for each phase while under manual control.

Provide a 1/4-inch locking phone jack in the police panel for a hand control to manually control the intersection. Provide sufficient room in the police panel for storage of a hand control and cord.

For model 332 base mounted cabinets, ensure terminals J14-E and J14-K are wired together on the rear of the Input File. Connect TB9-12 (J14 Common) on the Input Panel to T1-2 (AC-) on the rear of the PDA.

Provide detector test switches mounted at the top of the cabinet rack or other convenient location which may be used to place a call on each of eight phases based on the chart below. Provide three positions for each switch: On (place call), Off (normal detector operation), and Momentary On (place momentary call and return to normal detector operation after switch is released). Ensure that the switches are located such that the technician can read the controller display and observe the intersection.

Connect detector test switches for cabinets as follows:



| 332 Cabinet            |           |
|------------------------|-----------|
| Detector Call Switches | Terminals |
| Phase 1                | I1-W      |
| Phase 2                | I4-W      |
| Phase 3                | I5-W      |
| Phase 4                | I8-W      |
| Phase 5                | J1-W      |
| Phase 6                | J4-W      |
| Phase 7                | J5-W      |
| Phase 8                | J8-W      |

Provide the PCB 28/56 connector for the conflict monitor unit (CMU) with 28 independent contacts per side, dual-sided with 0.156 inch contact centers. Provide the PCB 28/56 connector contacts with solder eyelet terminations. Ensure all connections to the PCB 28/56 connector are soldered to the solder eyelet terminations.

Ensure that all cabinets have the CMU connector wired according to the 332 cabinet connector pin assignments (include all wires for auxiliary output file connection). Wire pins 13, 16, R, and U of the CMU connector to a separate 4 pin plug, P1, as shown below. Provide a second plug, P2, which will mate with P1 and is wired to the auxiliary output file as shown below. Provide an additional plug, P3, which will mate with P1 and is wired to the pedestrian yellow circuits as shown below. When no auxiliary output file is installed in the cabinet, provide wires for the green and yellow inputs for channels 11, 12, 17, and 18, the red inputs for channels 17 and 18, and the wires for the P2 plug. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

| P1  |          |         | P2       |         | P3       |         |
|-----|----------|---------|----------|---------|----------|---------|
| PIN | FUNCTION | CONN TO | FUNCTION | CONN TO | FUNCTION | CONN TO |
| 1   | CH-9G    | CMU-13  | OLA-GRN  | A123    | 2P-YEL   | 114     |
| 2   | CH-9Y    | CMU-16  | OLA-YEL  | A122    | 4P-YEL   | 105     |
| 3   | CH-10G   | CMU-R   | OLB-GRN  | A126    | 6P-YEL   | 120     |
| 4   | CH-10Y   | CMU-U   | OLB-YEL  | A125    | 8P-YEL   | 111     |

Do not provide the P20 terminal assembly (red monitor board) or red interface ribbon cable as specified in LA Specification No. 54-053-08.

Provide a P20 connector that mates with and is compatible with the red interface connector mounted on the front of the conflict monitor. Ensure that the P20 connector and the red interface connector on the conflict monitor are center polarized to ensure proper connection. Ensure that removal of the P20 connector will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.



Wire the P20 connector to the output file and auxiliary output file using 22 AWG stranded wires. Ensure the length of these wires is a minimum of 42 inches in length. Provide a durable braided sleeve around the wires to organize and protect the wires.

Wire the P20 connector to the traffic signal red displays to provide inputs to the conflict monitor as shown below. Ensure the pedestrian Don't Walk circuits are wired to channels 13 through 16 of the P20 connector. When no auxiliary output file is installed in the cabinet, provide wires for channels 9 through 12 reds. Provide a wire for special function 1. Terminate the unused wires with ring type lugs, insulated, and bundled for optional use.

| P20 Connector |                |         |     |                 |         |
|---------------|----------------|---------|-----|-----------------|---------|
| PIN           | FUNCTION       | CONN TO | PIN | FUNCTION        | CONN TO |
| 1             | Channel 15 Red | 119     | 2   | Channel 16 Red  | 110     |
| 3             | Channel 14 Red | 104     | 4   | Chassis GND     | 01-9    |
| 5             | Channel 13 Red | 113     | 6   | N/C             |         |
| 7             | Channel 12 Red | AUX 101 | 8   | Spec Function 1 |         |
| 9             | Channel 10 Red | AUX 124 | 10  | Channel 11 Red  | AUX 114 |
| 11            | Channel 9 Red  | AUX 121 | 12  | Channel 8 Red   | 107     |
| 13            | Channel 7 Red  | 122     | 14  | Channel 6 Red   | 134     |
| 15            | Channel 5 Red  | 131     | 16  | Channel 4 Red   | 101     |
| 17            | Channel 3 Red  | 116     | 18  | Channel 2 Red   | 128     |
| 19            | Channel 1 Red  | 125     | 20  | Red Enable      | 01-14   |

Ensure the controller unit outputs to the auxiliary output file are pre-wired to the C5 connector. When no auxiliary output file is installed in the cabinet, connect the C5 connector to a storage socket located on the Input Panel or on the rear of the PDA.

Do not wire pin 12 of the load switch sockets.

In addition to the requirements of LA Specification No. 54-053-08, ensure relay K1 on the Power Distribution Assembly (PDA) is a four pole relay and K2 on the PDA is a two pole relay.

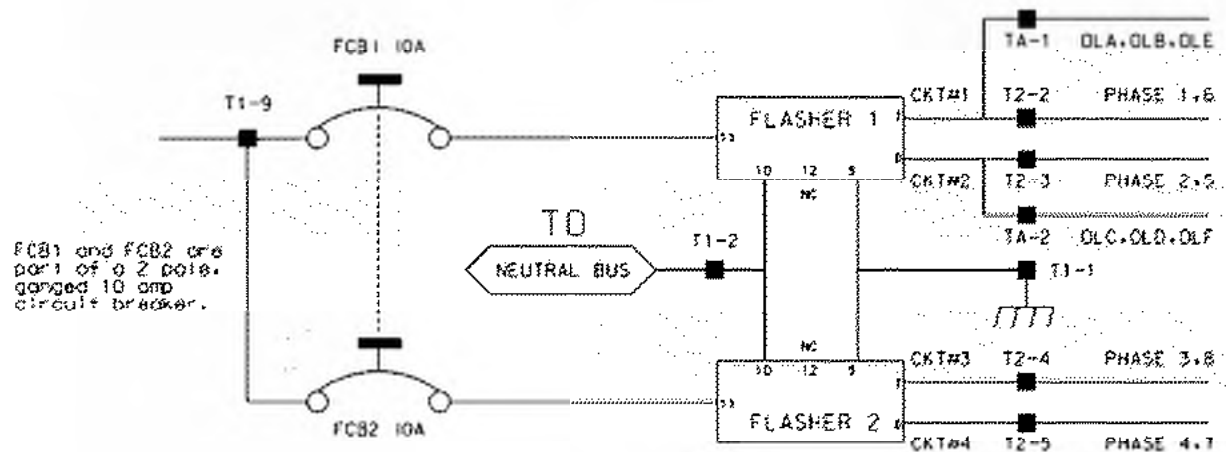
Provide a two pole, ganged circuit breaker for the flash bus circuit. Ensure the flash bus circuit breaker is an inverse time circuit breaker rated for 10 amps at 120 VAC with a minimum of 10,000 RMS symmetrical amperes short circuit current rating. Do not provide the auxiliary switch feature on the flash bus circuit breaker. Ensure the ganged flash bus circuit breaker is certified by the circuit breaker manufacturer to provide gang tripping operation.



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Ensure auxiliary output files are wired as follows:

| AUXILIARY OUTPUT FILE         |                                                       |
|-------------------------------|-------------------------------------------------------|
| TERMINAL BLOCK TA ASSIGNMENTS |                                                       |
| POSITION                      | FUNCTION                                              |
| 1                             | Flasher Unit #1, Circuit 1/FTR1 (OLA, OLB)/FTR3 (OLE) |
| 2                             | Flasher Unit #1, Circuit 2/FTR2 (OLC, OLD)/FTR3 (OLF) |
| 3                             | Flash Transfer Relay Coils                            |
| 4                             | AC -                                                  |
| 5                             | Power Circuit 5                                       |
| 6                             | Power Circuit 5                                       |
| 7                             | Equipment Ground Bus                                  |
| 8                             | NC                                                    |

Provide four spare load resistors mounted in each cabinet. Ensure each load resistor is rated as shown in the table below. Wire one side of each load resistor to AC-. Connect the other side of each resistor to a separate terminal on a four (4) position terminal block. Mount the load resistors and terminal block either inside the back of Output File No. 1 or on the upper area of the Service Panel.

| ACCEPTABLE LOAD RESISTOR VALUES |           |
|---------------------------------|-----------|
| VALUE (ohms)                    | WATTAGE   |
| 1.5K – 1.9 K                    | 25W (min) |
| 2.0K – 3.0K                     | 10W (min) |



Provide Model 200 load switches, Model 204 flashers, Model 242 DC isolators, Model 252 AC isolators, and Model 206L power supply units that conform to CALTRANS' *Transportation Electrical Equipment Specifications* dated March 12, 2009 with Erratum 1.

### C. Type 170 E Cabinet Physical Requirements:

Do not mold, cast, or scribe the name "City of Los Angeles" on the outside of the cabinet door as specified in LA Specification No. 54-053-08. Do not provide a Communications Terminal Panel as specified in LA Specification No. 54-053-08. Do not provide terminal block TBB on the Service Panel. Do not provide Cabinet Verification Test Program software or associated test jigs as specified in LA Specification No. 54-053-08.

Furnish unpainted, natural, aluminum cabinet shells. Ensure that all non-aluminum hardware on the cabinet is stainless steel or a Department approved non-corrosive alternate.

Ensure the lifting eyes, gasket channels, police panel, and all supports welded to the enclosure and doors are fabricated from 0.125 inch minimum thickness aluminum sheet and meet the same standards as the cabinet and doors.

Provide front and rear doors with latching handles that allow padlocking in the closed position. Furnish 0.75 inch minimum diameter stainless steel handles with a minimum 0.5 inch shank. Place the padlocking attachment at 4.0 inches from the handle shank center to clear the lock and key. Provide an additional 4.0 inches minimum gripping length.

Provide Corbin #2 locks on the front and rear doors. Provide one (1) Corbin #2 and one (1) police master key with each cabinet. Ensure main door locks allow removal of keys in the locked position only.

Provide a surge protection panel with 16 loop surge protection devices and designed to allow sufficient free space for wire connection/disconnection and surge protection device replacement. For model 332 cabinets, provide an additional 20 loop surge protection devices. Provide an additional two AC+ interconnect surge devices to protect one slot and eight DC surge protection devices to protect four slots. Provide no protection devices on slot I14.

For base mounted cabinets, mount surge protection panels on the left side of the cabinet as viewed from the rear. Attach each panel to the cabinet rack assembly using bolts and make it easily removable. Mount the surge protection devices in vertical rows on each panel and connect the devices to one side of 12 position, double row terminal blocks with #8 screws. For each surge protection panel, terminate all grounds from the surge protection devices on a copper equipment ground bus attached to the surge protection panel. Wire the terminals to the rear of a standard input file using spade lugs for input file protection.

Provide permanent labels that indicate the slot and the pins connected to each terminal that may be viewed from the rear cabinet door. Label and orient terminals so that each pair of inputs is next to each other. Indicate on the labeling the input file (I or J), the slot number (1-14) and the terminal pins of the input slots (either D & E for upper or J & K for lower).

Provide a minimum 14 x 16 inch pull out, hinged top shelf located immediately below controller mounting section of the cabinet. Ensure the shelf is designed to fully expose the table surface outside the controller at a height approximately even with the bottom of the controller. Ensure the shelf has a storage bin interior which is a minimum of 1 inch deep and approximately the same dimensions as the shelf. Provide an access to the storage area by lifting the hinged top of the shelf. Fabricate the shelf and slide from aluminum or stainless steel and ensure the assembly can support the 2070L controller plus 15 pounds of additional weight. Ensure shelf has a locking mechanism to secure it in the fully extended position and does not inhibit the removal of the 2070L controller or removal of



cards inside the controller when fully extended. Provide a locking mechanism that is easily released when the shelf is to be returned to its non-use position directly under the controller.

**D. Model 2018 Enhanced Conflict Monitor:**

Furnish Model 2018 Enhanced Conflict Monitors that provide monitoring of 18 channels. Ensure each channel consists of a green, yellow, and red field signal input. Ensure that the conflict monitor meets or exceeds CALTRANS' Transportation Electrical Equipment Specifications dated March 12, 2009, with Erratum 1 (hereafter referred to as CALTRANS' 2009 TEES) for a model 210 monitor unit and other requirements stated in this specification.

Ensure the conflict monitor is provided with an 18 channel conflict programming card. Pin EE and Pin T of the conflict programming card shall be connected together. Pin 16 of the conflict programming card shall be floating. Ensure that the absence of the conflict programming card will cause the conflict monitor to trigger (enter into fault mode), and remain in the triggered state until the programming card is properly inserted and the conflict monitor is reset.

Provide a conflict monitor that incorporates LED indicators into the front panel to dynamically display the status of the monitor under normal conditions and to provide a comprehensive review of field inputs with monitor status under fault conditions. Ensure that the monitor indicates the channels that were active during a conflict condition and the channels that experienced a failure for all other per channel fault conditions detected. Ensure that these indications and the status of each channel are retained until the Conflict Monitor is reset. Furnish LED indicators for the following:

- AC Power (Green LED indicator)
- VDC Failed (Red LED indicator)
- WDT Error (Red LED indicator)
- Conflict (Red LED indicator)
- Red Fail (Red LED indicator)
- Dual Indication (Red LED indicator)
- Yellow/Clearance Failure (Red LED indicator)
- PCA/PC Ajar (Red LED indicator)
- Monitor Fail/Diagnostic Failure (Red LED indicator)
- 54 Channel Status Indicators (1 Red, 1 Yellow, and 1 Green LED indicator for each of the 18 channels)

Provide a switch to set the Red Fail fault timing. Ensure that when the switch is in the ON position the Red Fail fault timing value is set to 1350 +/- 150 ms (2018 mode). Ensure that when the switch is in the OFF position the Red Fail fault timing value is set to 850 +/- 150 ms (210 mode).

Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1 s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1 s (210 mode).

Provide a jumper or switch to set the AC line brown-out levels. Ensure that when the jumper is present or the switch is in the ON position the AC line dropout voltage threshold is 98 +/- 2 Vrms, the AC line restore voltage threshold is 103 +/- 2 Vrms, and the AC line brown-out timing value is set to 400 +/- 50ms (2018 mode). Ensure that when the jumper is not present or the switch is in the OFF position the AC line dropout voltage threshold is 92 +/- 2 Vrms, the AC line restore voltage

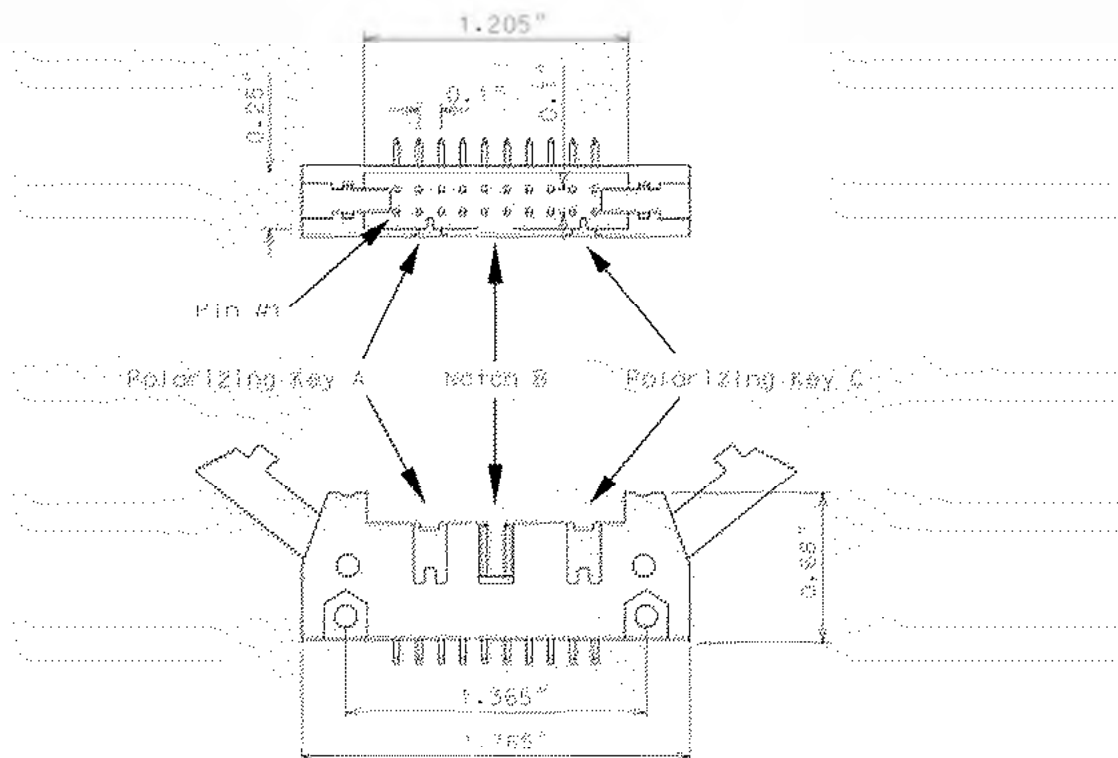


threshold is 98 +/- 2 Vrms, and the AC line brown-out timing value is set to 80 +/- 17 ms (210 mode).

Provide a jumper or switch that will enable and disable the Watchdog Latch function. Ensure that when the jumper is not present or the switch is in the OFF position the Watchdog Latch function is disabled. In this mode of operation, a Watchdog fault will be reset following a power loss, brownout, or power interruption. Ensure that when the jumper is present or the switch is in the ON position the Watchdog Latch function is enabled. In this mode of operation, a Watchdog fault will be retained until a Reset command is issued.

Provide a jumper that will reverse the active polarity for pin #EE (output relay common). Ensure that when the jumper is not present pin #EE (output relay common) will be considered 'Active' at a voltage greater than 70 Vrms and 'Not Active' at a voltage less than 50 Vrms (Caltrans mode). Ensure that when the jumper is present pin #EE (output relay common) will be considered 'Active' at a voltage less than 50 Vrms and 'Not Active' at a voltage greater than 70 Vrms (Failsafe mode).

In addition to the connectors required by CALTRANS' 2009 TEES, provide the conflict monitor with a red interface connector mounted on the front of the monitor. Ensure the connector is a 20 pin, right angle, center polarized, male connector with latching clip locks and polarizing keys. Ensure the right angle solder tails are designed for a 0.062" thick printed circuit board. Keying of the connector shall be between pins 3 and 5, and between 17 and 19. Ensure the connector has two rows of pins with the odd numbered pins on one row and the even pins on the other row. Ensure the connector pin row spacing is 0.10" and pitch is 0.10". Ensure the mating length of the connector pins is 0.24". Ensure the pins are finished with gold plating 30µ" thick.





Ensure the red interface connector pins on the monitor have the following functions:

| Pin # | Function       | Pin # | Function           |
|-------|----------------|-------|--------------------|
| 1     | Channel 15 Red | 2     | Channel 16 Red     |
| 3     | Channel 14 Red | 4     | Chassis Ground     |
| 5     | Channel 13 Red | 6     | Special Function 2 |
| 7     | Channel 12 Red | 8     | Special Function 1 |
| 9     | Channel 10 Red | 10    | Channel 11 Red     |
| 11    | Channel 9 Red  | 12    | Channel 8 Red      |
| 13    | Channel 7 Red  | 14    | Channel 6 Red      |
| 15    | Channel 5 Red  | 16    | Channel 4 Red      |
| 17    | Channel 3 Red  | 18    | Channel 2 Red      |
| 19    | Channel 1 Red  | 20    | Red Enable         |

Ensure that removal of the P20 cable connector will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Provide Special Function 1 and Special Function 2 inputs to the unit which shall disable only Red Fail Monitoring when either input is sensed active. A Special Function input shall be sensed active when the input voltage exceeds 70 Vrms with a minimum duration of 550 ms. A Special Function input shall be sensed not active when the input voltage is less than 50 Vrms or the duration is less than 250 ms. A Special Function input is undefined by these specifications and may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms or the duration is between 250 ms and 550 ms.

Ensure the conflict monitor recognizes field signal inputs for each channel that meet the following requirements:

- consider a Red input greater than 70 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Red input less than 50 Vrms or with a duration of less than 200 ms as an “off” condition (no valid signal);
- consider a Red input between 50 Vrms and 70 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications;
- consider a Green or Yellow input greater than 25 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Green or Yellow input less than 15 Vrms or with a duration of less than 200 ms as an “off” condition; and
- consider a Green or Yellow input between 15 Vrms and 25 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications.

Provide a conflict monitor that recognizes the faults specified by CALTRANS’ 2009 TEES and the following additional faults. Ensure the conflict monitor will trigger upon detection of a fault and



will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input for the following failures:

1. **Red Monitoring or Absence of Any Indication (Red Failure):** A condition in which no "on" voltage signal is detected on any of the green, yellow, or red inputs to a given monitor channel. If a signal is not detected on at least one input (R, Y, or G) of a conflict monitor channel for a period greater than 1000 ms when used with a 170 controller and 1500 ms when used with a 2070 controller, ensure monitor will trigger and put the intersection into flash. If the absence of any indication condition lasts less than 700 ms when used with a 170 controller and 1200 ms when used with a 2070 controller, ensure conflict monitor will not trigger. Red fail monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. Have red monitoring occur when all of the following input conditions are in effect:
  - a) Red Enable input to monitor is active (Red Enable voltages are "on" at greater than 70 Vrms, off at less than 50 Vrms, undefined between 50 and 70 Vrms), and
  - b) Neither Special Function 1 nor Special Function 2 inputs are active.
  - c) Pin #EE (output relay common) is not active
2. **Short/Missing Yellow Indication Fault (Clearance Error):** Yellow indication following a green is missing or shorter than 2.7 seconds (with  $\pm 0.1$ -second accuracy). If a channel fails to detect an "on" signal at the Yellow input for a minimum of 2.7 seconds ( $\pm 0.1$  second) following the detection of an "on" signal at a Green input for that channel, ensure that the monitor triggers and generates a clearance/short yellow error fault indication. Short/missing yellow (clearance) monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. This fault shall not occur when the channel is programmed for Yellow Inhibit, when the Red Enable signal is inactive or pin #EE (output relay common) is active.
3. **Dual Indications on the Same Channel:** In this condition, more than one indication (R,Y,G) is detected as "on" at the same time on the same channel. If dual indications are detected for a period greater than 500 ms, ensure that the conflict monitor triggers and displays the proper failure indication (Dual Ind fault). If this condition is detected for less than 200 ms, ensure that the monitor does not trigger. G-Y-R dual indication monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. G-Y dual indication monitoring shall be enabled for all channels by use of a switch located on the conflict monitor. This fault shall not occur when the Red Enable signal is inactive or pin #EE (output relay common) is active.
4. **Configuration Settings Change:** The configuration settings are comprised of (as a minimum) the permissive diode matrix, dual indication switches, yellow disable jumpers, any option switches, any option jumpers, and the Watchdog Enable switch. Ensure the conflict monitor compares the current configuration settings with the previous stored configuration settings on power-up, on reset, and periodically during operation. If any of the configuration settings are changed, ensure that the conflict monitor triggers and causes the program card



indicator to flash. Ensure that configuration change faults are only reset by depressing and holding the front panel reset button for a minimum of three seconds. Ensure the external remote reset input does not reset configuration change faults.

Ensure the conflict monitor will trigger and the AC Power indicator will flash at a rate of  $2 \text{ Hz} \pm 20\%$  with a 50% duty cycle when the AC Line voltage falls below the “drop-out” level. Ensure the conflict monitor will resume normal operation when the AC Line voltage returns above the “restore” level. Ensure the AC Power indicator will remain illuminated when the AC voltage returns above the “restore” level. Should an AC Line power interruption occur while the monitor is in the fault mode, then upon restoration of AC Line power, the monitor will remain in the fault mode and the correct fault and channel indicators will be displayed.

Provide a flash interval of at least 6 seconds and at most 16 seconds in duration following a power-up, an AC Line interruption, or a brownout restore. Ensure the conflict monitor will suspend all fault monitoring functions, close the Output relay contacts, and flash the AC indicator at a rate of  $4 \text{ Hz} \pm 20\%$  with a 50% duty cycle during this interval. Ensure the termination of the flash interval after at least 6 seconds if the Watchdog input has made 5 transitions between the True and False state and the AC Line voltage is greater than the “restore” level. If the watchdog input has not made 5 transitions between the True and False state within  $10 \pm 0.5$  seconds, the monitor shall enter a WDT error fault condition.

Ensure the conflict monitor will monitor an intersection with a minimum of four approaches using the four-section Flashing Yellow Arrow (FYA) vehicle traffic signal as outlined by the NCHRP 3-54 research project for protected-permissive left turn signal displays. Ensure the conflict monitor will operate in the FYA mode and FYAc (Compact) mode as specified below to monitor each channel pair for the following fault conditions: Conflict, Flash Rate Detection, Red Fail, Dual Indication, and Clearance. Provide a switch to select between the FYA mode and FYAc mode. Provide a switch to select each FYA phase movement for monitoring.

#### FYA mode

| FYA Signal Head       | Phase 1          | Phase 3           | Phase 5           | Phase 7           |
|-----------------------|------------------|-------------------|-------------------|-------------------|
| Red Arrow             | Channel 9 Red    | Channel 10 Red    | Channel 11 Red    | Channel 12 Red    |
| Yellow Arrow          | Channel 9 Yellow | Channel 10 Yellow | Channel 11 Yellow | Channel 12 Yellow |
| Flashing Yellow Arrow | Channel 9 Green  | Channel 10 Green  | Channel 11 Green  | Channel 12 Green  |
| Green Arrow           | Channel 1 Green  | Channel 3 Green   | Channel 5 Green   | Channel 7 Green   |

If a FYA channel pair is enabled for FYA operation, the conflict monitor will monitor the FYA logical channel pair for the additional following conditions:



1. **Conflict:** Channel conflicts are detected based on the permissive programming jumpers on the program card. This operation remains unchanged from normal operation except for the solid Yellow arrow (FYA clearance) signal.
2. **Yellow Change Interval Conflict:** During the Yellow change interval of the Permissive Turn channel (flashing Yellow arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active. These conflicting channels shall be determined by the program card compatibility programming of the Permissive Turn channel (flashing Yellow arrow). During the Yellow change interval of the Protected Turn channel (solid Green arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active as determined by the program card compatibility programming of the Protected Turn channel (solid Green arrow).
3. **Flash Rate Detection:** The conflict monitor unit shall monitor for the absence of a valid flash rate for the Permissive turn channel (flashing Yellow arrow). If the Permissive turn channel (flashing Yellow arrow) is active for a period greater than 1600 milliseconds, ensure the conflict monitor triggers and puts the intersection into flash. If the Permissive turn channel (flashing Yellow arrow) is active for a period less than 1400 milliseconds, ensure the conflict monitor does not trigger. Ensure the conflict monitor will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input. Provide a jumper or switch that will enable and disable the Flash Rate Detection function. Ensure that when the jumper is not present or the switch is in the OFF position the Flash Rate Detection function is enabled. Ensure that when the jumper is present or the switch is in the ON position the Flash Rate Detection function is disabled.
4. **Red Monitoring or Absence of Any Indication (Red Failure):** The conflict monitor unit shall detect a red failure if there is an absence of voltage on all four of the inputs of a FYA channel pair (RA, YA, FYA, GA).
5. **Dual Indications on the Same Channel:** The conflict monitor unit shall detect a dual indication if two or more inputs of a FYA channel pair (RA, YA, FYA, GA) are "on" at the same time.
6. **Short/Missing Yellow Indication Fault (Clearance Error):** The conflict monitor unit shall monitor the solid Yellow arrow for a clearance fault when terminating both the Protected Turn channel (solid Green arrow) interval and the Permissive Turn channel (flashing Yellow arrow) interval.

Ensure that the conflict monitor will log at least nine of the most recent events detected by the monitor in non-volatile EEPROM memory (or equivalent). For each event, record at a minimum the time, date, type of event, status of each field signal indication with RMS voltage, and specific channels involved with the event. Ensure the conflict monitor will log the following events: monitor reset, configuration, previous fault, and AC line. Furnish the signal sequence log that shows all channel states (Greens, Yellows, and Reds) and the Red Enable State for a minimum of 2 seconds prior to the current fault trigger point. Ensure the display resolution of the inputs for the signal sequence log is not greater than 50 ms.

For conflict monitors used within an Ethernet communications system, provide a conflict monitor with an Ethernet 10/100 Mbps, RJ-45 port for data communication access to the monitor by a local notebook computer and remotely via a workstation or notebook computer device connected to the signal system local area network. The Ethernet port shall be electrically isolated from the



conflict monitor's electronics and shall provide a minimum of 1500 Vrms isolation. Integrate monitor with Ethernet network in cabinet. Provide software to retrieve the time and date from a network server in order to synchronize the on-board times between the conflict monitor and the controller. Furnish and install the following Windows based, graphic user interface software on workstations and notebook computers where the signal system client software is installed: 1) software to view and retrieve all event log information, 2) software that will search and display a list of conflict monitor IP addresses and IDs on the network, and 3) software to change the conflict monitor's network parameters such as IP address and subnet mask.

For non-Ethernet connected monitors, provide a RS-232C/D compliant port (DB-9 female connector) on the front panel of the conflict monitor in order to provide communications from the conflict monitor to the 170/2070 controller or to a Department-furnished laptop computer. Electrically isolate the port interface electronics from all monitor electronics, excluding Chassis Ground. Ensure that the controller can receive all event log information through a controller Asynchronous Communications Interface Adapter (Type 170E) or Async Serial Comm Module (2070). Furnish and connect a serial cable from the conflict monitor's DB-9 connector to Comm Port 1 of the 2070 controller. Ensure conflict monitor communicates with the controller. Provide a Windows based graphic user interface software to communicate directly through the same monitor RS-232C/D compliant port to retrieve and view all event log information to a Department-furnished laptop computer. The RS-232C/D compliant port on the monitor shall allow the monitor to function as a DCE device with pin connections as follows:

| <b>Conflict Monitor RS-232C/D (DB-9 Female) Pinout</b> |                 |            |
|--------------------------------------------------------|-----------------|------------|
| <b>Pin Number</b>                                      | <b>Function</b> | <b>I/O</b> |
| 1                                                      | DCD             | O          |
| 2                                                      | TX Data         | O          |
| 3                                                      | RX Data         | I          |
| 4                                                      | DTR             | I          |
| 5                                                      | Ground          | -          |
| 6                                                      | DSR             | O          |
| 7                                                      | CTS             | I          |
| 8                                                      | RTS             | O          |
| 9                                                      | NC              | -          |



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**MONITOR BOARD EDGE CONNECTOR**


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| Pin # | Function (Back Side)        | Pin # | Function (Component Side)     |
|-------|-----------------------------|-------|-------------------------------|
| 1     | Channel 2 Green             | A     | Channel 2 Yellow              |
| 2     | Channel 13 Green            | B     | Channel 6 Green               |
| 3     | Channel 6 Yellow            | C     | Channel 15 Green              |
| 4     | Channel 4 Green             | D     | Channel 4 Yellow              |
| 5     | Channel 14 Green            | E     | Channel 8 Green               |
| 6     | Channel 8 Yellow            | F     | Channel 16 Green              |
| 7     | Channel 5 Green             | H     | Channel 5 Yellow              |
| 8     | Channel 13 Yellow           | J     | Channel 1 Green               |
| 9     | Channel 1 Yellow            | K     | Channel 15 Yellow             |
| 10    | Channel 7 Green             | L     | Channel 7 Yellow              |
| 11    | Channel 14 Yellow           | M     | Channel 3 Green               |
| 12    | Channel 3 Yellow            | N     | Channel 16 Yellow             |
| 13    | Channel 9 Green             | P     | Channel 17 Yellow             |
| 14    | Channel 17 Green            | R     | Channel 10 Green              |
| 15    | Channel 11 Yellow           | S     | Channel 11 Green              |
| 16    | Channel 9 Yellow            | T     | Channel 18 Yellow             |
| 17    | Channel 18 Green            | U     | Channel 10 Yellow             |
| --    |                             | --    |                               |
| 18    | Channel 12 Yellow           | V     | Channel 12 Green              |
| 19    | Channel 17 Red              | W     | Channel 18 Red                |
| 20    | Chassis Ground              | X     | Not Assigned                  |
| 21    | AC-                         | Y     | DC Common                     |
| 22    | Watchdog Timer              | Z     | External Test Reset           |
| 23    | +24VDC                      | AA    | +24VDC                        |
| 24    | Tied to Pin 25              | BB    | Stop Time (Output)            |
| 25    | Tied to Pin 24              | CC    | Not Assigned                  |
| 26    | Not Assigned                | DD    | Not Assigned                  |
| 27    | Relay Output, Side #3, N.O. | EE    | Relay Output, Side #2, Common |
| 28    | Relay Output, Side #1, N.C. | FF    | AC+                           |

-- Slotted for keying between Pins 17/U and 18/V



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**CONFLICT PROGRAM CARD PIN ASSIGNMENTS**


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| <b>Pin #</b> | <b>Function (Back Side)</b> | <b>Pin #</b> | <b>Function (Component Side)</b> |
|--------------|-----------------------------|--------------|----------------------------------|
| 1            | Channel 2 Green             | A            | Channel 1 Green                  |
| 2            | Channel 3 Green             | B            | Channel 2 Green                  |
| 3            | Channel 4 Green             | C            | Channel 3 Green                  |
| 4            | Channel 5 Green             | D            | Channel 4 Green                  |
| 5            | Channel 6 Green             | E            | Channel 5 Green                  |
| 6            | Channel 7 Green             | F            | Channel 6 Green                  |
| 7            | Channel 8 Green             | H            | Channel 7 Green                  |
| 8            | Channel 9 Green             | J            | Channel 8 Green                  |
| 9            | Channel 10 Green            | K            | Channel 9 Green                  |
| 10           | Channel 11 Green            | L            | Channel 10 Green                 |
| 11           | Channel 12 Green            | M            | Channel 11 Green                 |
| 12           | Channel 13 Green            | N            | Channel 12 Green                 |
| 13           | Channel 14 Green            | P            | Channel 13 Green                 |
| 14           | Channel 15 Green            | R            | Channel 14 Green                 |
| 15           | Channel 16 Green            | S            | Channel 15 Green                 |
| 16           | N/C                         | T            | PC AJAR                          |
| 17           | Channel 1 Yellow            | U            | Channel 9 Yellow                 |
| 18           | Channel 2 Yellow            | V            | Channel 10 Yellow                |
| 19           | Channel 3 Yellow            | W            | Channel 11 Yellow                |
| 20           | Channel 4 Yellow            | X            | Channel 12 Yellow                |
| 21           | Channel 5 Yellow            | Y            | Channel 13 Yellow                |
| 22           | Channel 6 Yellow            | Z            | Channel 14 Yellow                |
| 23           | Channel 7 Yellow            | AA           | Channel 15 Yellow                |
| 24           | Channel 8 Yellow            | BB           | Channel 16 Yellow                |
| --           |                             | --           |                                  |
| 25           | Channel 17 Green            | CC           | Channel 17 Yellow                |
| 26           | Channel 18 Green            | DD           | Channel 18 Yellow                |
| 27           | Channel 16 Green            | EE           | PC AJAR (Program Card)           |
| 28           | Yellow Inhibit Common       | FF           | Channel 17 Green                 |

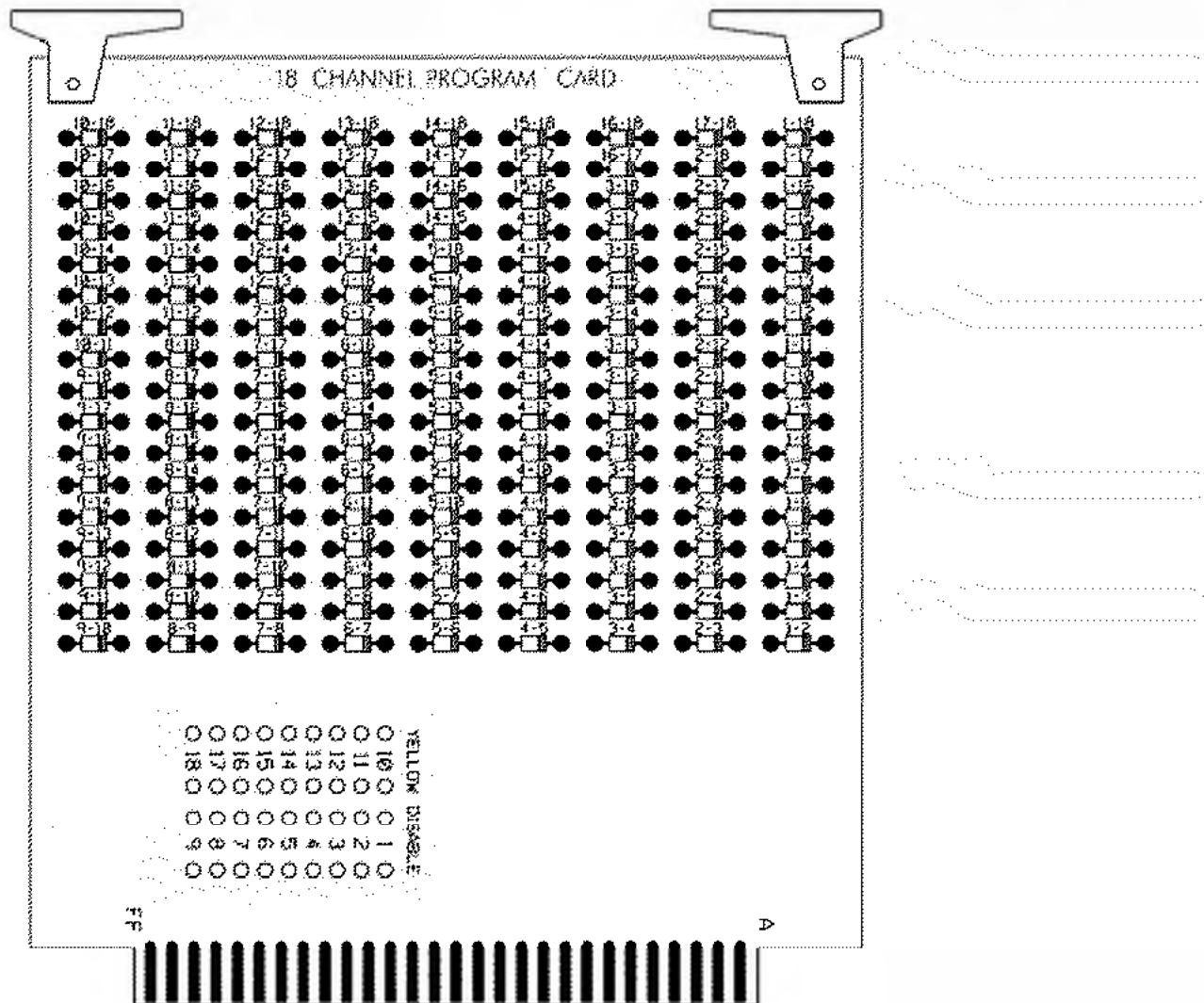
-- Slotted for keying between Pins 24/BB and 25/CC



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### 3.4. MATERIALS – TYPE 170 DETECTOR SENSOR UNITS

Furnish detector sensor units that comply with Chapter 5 Section 1, "General Requirements," and Chapter 5 Section 2, "Model 222 & 224 Loop Detector Sensor Unit Requirements," of the CALTRANS "Transportation Electrical Equipment Specifications" dated March 12, 2009 with Erratum 1.



#### 4. METAL POLE SUPPORTS

##### 4.1. METAL POLES

###### A. General:

Furnish and install metal poles, grounding systems, and all necessary hardware. Work covered under this special provision includes requirements for design, fabrication, and installation of standard and custom/site-specific designed metal pole supports and associated foundations.

Comply with applicable sections of the *2018 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES*, hereinafter referred to as the *Standard Specifications*. Provide designs of completed assemblies with hardware equaling or exceeding *AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* 1<sup>st</sup> Edition, 2015 (hereinafter called 1<sup>st</sup> Edition AASHTO), including the latest interim specifications. Provide assemblies with a round or near-round (18 sides or more) cross-section, or a multi-sided cross section with no less than six sides. The sides may be straight, convex, or concave.

For bid purposes, pole heights shown on plans are estimated from available data. Prior to furnishing metal poles, use field measurements and adjusted cross-sections to determine whether pole heights will meet required clearances. If pole heights do not meet required clearances, the Contractor should immediately notify the Engineer of the required revised pole heights.

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

<https://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx>

Comply with article 1098-1(B) of the *Standard Specifications* for submittal requirements. Furnish shop drawings for approval. Provide copies of detailed shop drawings for each type of structure as summarized below. Ensure shop drawings include material specifications for each component. Ensure shop drawings identify welds by type and size on the detail drawing only, not in table format. **Do not release structures for fabrication until shop drawings have been approved by NCDOT.** Ensure shop drawings contain an itemized bill of materials for all structural components and associated connecting hardware.

Comply with article 1098-1(A) of the *Standard Specifications* for Qualified Products List (QPL) submittals. All shop drawings must include project location description, signal or asset inventory number(s) and project number or work order number.

Summary of information required for metal pole review submittal:



| Item                                                | Electronic Submittal | Comments / Special Instructions                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scaled, Approved Signal or ITS Plan/Loading Diagram | 1 set                | All structure design information needs to reflect the latest approved Signal or ITS plans                                                                                                                                                                                                                                             |
| Custom Pole Shop Drawings                           | 1 set                | Submit drawings on 11" x 17" format media. Show NCDOT signal or asset inventory number(s), Contractor's name and relevant revision number in the title block. All drawings must have a <u>unique drawing number</u> for each project.                                                                                                 |
| Standard Strain Pole Shop Drawings (from the QPL)   | 1 set                | Submit drawings on 11" x 17" format media. Show NCDOT signal inventory number(s), Contractor's name and relevant revision number in the title block. All drawings must have a <u>unique drawing number</u> for each project.                                                                                                          |
| Structure Calculations                              | 1 set                | Not required for Standard QPL Poles                                                                                                                                                                                                                                                                                                   |
| Standard Strain Pole Foundation Drawings            | 1 set                | Submit drawings on 11" x 17" format media. Submit a completed Standard Foundation Selection form for each pole using foundation table on Metal Pole Drawing M8.                                                                                                                                                                       |
| Custom Foundation Drawings                          | 1 set                | Submit drawings on 11" x 17" format media. Show NCDOT signal or asset inventory number(s), Contractor's name and relevant revision number in the title block. All drawings must have a <u>unique drawing number</u> for each project.<br>If QPL Poles are used, include the corresponding QPL pole shop drawings with this submittal. |
| Foundation Calculations                             | 1 set                | <b>Submit copies of LPILE input, output, and pile tip deflection graph per Section titled Drilled Pier Foundations for Metal Poles of this specification for each foundation.</b><br>Not required for Standard Strain Poles (from the QPL)                                                                                            |
| Soil Boring Logs and Report                         | 1 set                | Report shall include a location plan and a soil classification report including soil capacity, water level, hammer efficiency, soil bearing pressure, soil density, etc. for each pole.                                                                                                                                               |

**NOTE** – All shop drawings and custom foundation design drawings must be sealed by a Professional Engineer licensed in the state of North Carolina. All geotechnical information must be sealed by either a Professional Engineer or Geologist licensed in the state of North Carolina. Include a title block and revision block on the shop drawings and foundation drawings showing the NCDOT signal or asset inventory number(s).

**Shop drawings and foundation drawings may be submitted together or separately for approval. However, shop drawings must be approved before foundations can be reviewed.** Foundation designs will be returned without review if the associated shop drawing has not been approved. Boring reports shall include the following: Engineer's summary, boring location maps,



soil classification per AASHTO Classification System, hammer efficiency, and Metal Pole Standard Foundation Selection Form. Incomplete submittals will be returned without review. The Reviewer has the right to request additional analysis and copies of the calculations to expedite the approval process.

#### **B. Materials:**

Fabricate metal pole from coil or plate steel that meet the requirements of ASTM A 572 Gr 55 or ASTM A 595 Grade A tubes. For structural steel shapes, plates, and bars use, as a minimum, ASTM A572 Gr 50, AASHTO M270 Gr 50, ASTM A709 Gr 50, or an approved equivalent. Provide pole shafts of round or near round (18 sides or more) cross-section, or multi-sided tubular cross-section with no less than six sides, having a uniform linear taper of 0.14 in/ft. Construct shafts from one piece of single-ply plate or coil. For anchor base fabrication, conform to the applicable bolt pattern and orientation as shown on Metal Pole Standard Drawing Sheet M2.

Use the submerged arc process, or other NCDOT previously approved process suitable for shafts, to continuously weld pole shafts along their entire length. Finish the longitudinal seam weld flush with the outside contour of the base metal. Ensure shaft has no circumferential welds except at the lower end joining the shaft to the pole base. Use full penetration groove welds with backing ring for all tube-to-transverse-plate connections in accordance with 1<sup>st</sup> Edition AASHTO. Provide welding that conforms to Article 1072-18 of the *Standard Specifications*. No field welding on any part of the pole will be permitted unless approved by a qualified Engineer.

After fabrication, hot-dip galvanize steel poles and all assembly components in accordance with section 1076-3 of the *Standard Specifications*. Design structural assemblies with weep holes large enough and properly located to drain molten zinc during the galvanization process. Galvanize hardware in accordance with section 1076-4 of the *Standard Specifications*. Ensure threaded material is brushed and retapped as necessary after galvanizing. Perform repair of damaged galvanizing in accordance with section 1076-7 of the *Standard Specifications*. Ensure all hardware is galvanized steel or stainless steel. The Contractor is responsible for ensuring the Designer/Fabricator specifies connecting hardware and/or materials that prevent a dissimilar metal corrosive reaction.

Ensure each anchor rod is 2-inch minimum diameter and 60-inch length. Provide 10-inch minimum thread projection at the top of the rod, and 8-inch minimum at the bottom of the rod. Use anchor rod assembly and drilled pier foundation materials complying with SP09\_R005, hereinafter referred to as *Foundations and Anchor Rod Assemblies for Metal Poles*.

Ensure anchor bolt hole diameters are 1/4-inch larger than the anchor bolt diameters in the base plate.

Provide a circular anchor bolt lock plate securing the anchor bolts at the embedded end with two (2) washers and two (2) nuts. Provide a base plate template matching the bolt circle diameter of the anchor bolt lock plate. Construct plates and templates from 1/4-inch minimum thick steel with a minimum width of 4 inches. Hot-dip galvanizing is not required for both plates.

Provide four (4) heavy hex nuts and four (4) flat washers for each anchor bolt. For nuts, use AASHTO M291 grade 2H, DH, or DH3 or equivalent material. For flat washers, use AASHTO M293 or equivalent material. Ensure anchor bolts have required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

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



Provide a removable pole cap with stainless steel attachment screws for the top of each pole. Ensure cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the pole with a sturdy stainless-steel chain that is long enough to permit cap to hang clear of the pole-top opening when cap is removed.

Where required by the plans, furnish couplings 42 inches above bottom of the pole base for mounting of pedestrian pushbuttons. Provide mounting points consisting of 1½-inch internally threaded half-couplings complying with the NEC, mounted within the poles. Ensure that couplings are essentially flush with the outside surfaces of the poles and are installed before any required hot-dip galvanizing. Provide a threaded plug in each mounting point. Ensure the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed slot that will accommodate a ½ "drive standard socket wrench.

Metal poles may be erected and fully loaded after concrete has attained a minimum allowable compressive strength of 3,000 psi.

Connect poles to grounding electrodes and bond them to the electrical service grounding electrodes.

When field drilling is necessary for wire or cable entrances into the pole, comply with the following requirements:

- Do not drill holes within 2 inches of any welds.
- Do not drill any holes larger than 3 inches in diameter without checking with the ITS & Signals Structure Engineers.
- Avoid drilling multiple holes along the same cross section of tube shafts.
- Install rubber grommets in all field drilled holes that wire, or cable will directly enter unless holes are drilled for installation of weather heads or couplings.
- Treat the inside of the drilled holes and repair all galvanized surfaces in accordance with Section 1076-7 of the latest edition of the *Standard Specification prior to installing grommets, caps, or plugs*.
- Cap or plug any existing field drilled holes that are no longer used with rubber, aluminum, or stainless-steel hole plugs.

When street lighting is installed on metal signal structures, isolate the conductors feeding the luminaires inside the pole shaft using liquid tight flexible metal conduit (Type LFMC), liquid tight flexible nonmetallic conduit (Type LFNC), high density polyethylene conduit (Type HDPE), or approved equivalent. All conductors supplying power for luminaires must run through an external disconnect prior to entrance into the structure. In accordance with the National Electrical Code (NEC) Article 230.2(E), provide identification of the electrical source provider for the luminaire feeder circuit with contact information on a permanent label located in the pole hand hole near the feeder circuit raceway.

Install a ¼-inch thick plate for a concrete foundation tag to include the following information: concrete grade, depth, diameter, and reinforcement sizes of the installed foundation. Install galvanized wire mesh to cover gap between the base plate and top of foundation for debris and pest control. Refer to standard drawing M7 for further details.

Immediately notify the Engineer of any structural deficiency that becomes apparent in any assembly, or member of any assembly, because of the design requirements imposed by these specifications, the plans, or the typical drawings.



**C. Design:**

Unless otherwise specified, design all metal pole support structures using the following 1<sup>st</sup> Edition AASHTO specifications:

- Use 700-Year MRI and 10-Year MRI wind pressure maps developed from 3-second gust speeds, as provided in Section 3.8.
- Ensure metal pole support structures include natural wind gust loading and truck-induced gust loading for fatigue design, as provided in Sections 11.7.1.2 and 11.7.1.3, respectively. Designs need not consider periodic galloping forces.
- Assume 11.2 mph natural wind gust speed in North Carolina. For natural wind fatigue stress calculations, utilize a drag coefficient ( $C_d$ ) based on the yearly mean wind velocity of 11.2 mph.
- When selecting Fatigue Importance Factors, utilize Fatigue Importance Category II, as provided for in Table 11.6-1, unless otherwise specified.
- Calculate all forces using applicable equations from Section 5. The Maximum allowable force ratio for all metal pole support designs is 0.9.
- Conform to Sections 10.4.2 and 11.8 for deflection requirements. For CCTV and MVD support structures, ensure maximum deflection at top of pole does not exceed 2.0 percent of pole height.
- Assume the combined minimum weight of a messenger cable bundle (including messenger cable, signal cable and detector lead-in cables) is 1.3 lbs/ft. Assume the combined minimum diameter of the cable bundle is 1.3 inches.
- Fillet-welded tube-to-transverse-plate connections are not permitted.

Unless otherwise specified by special loading criteria, the following computed surface area for ice load on signal heads shall be used:

- 3-section, 12-inch, Surface area: 26.0 ft<sup>2</sup>
- 4-section, 12-inch, Surface area: 32.0 ft<sup>2</sup>
- 5-section, 12-inch, Surface area: 42.0 ft<sup>2</sup>

Design a base plate for each pole. The minimum base plate thickness for all poles is determined by the following criteria:

Case 1 Circular or rectangular solid base plate with the upright pole welded to the top surface of base plate with full penetration butt weld, where no stiffeners are provided. A base plate with a small center hole, which is less than 1/3 of the upright diameter, and located concentrically with the upright pole, may be considered as a solid base plate.

The magnitude of bending moment in the base plate, induced by the anchoring force of each anchor bolt is  $M = (P \times D_1) / 2$ , where

$M$  = bending moment at the critical section of the base plate induced by one (1) anchor bolt

$P$  = anchoring force of each anchor bolt

$D_1$  = horizontal distance between the anchor bolt center and the outer face of the upright, or the difference between the bolt circle radius and the outside radius of the upright

Locate the critical section at the face of the anchor bolt and perpendicular to the bolt circle radius. The overlapped part of two (2) adjacent critical sections is considered ineffective.



Case 2 Circular or rectangular base plate with the upright pole socketed into and attached to the base plate with two (2) lines of fillet weld, and where no stiffeners are provided, or any base plate with a center hole that is larger in diameter than 1/3 of the upright diameter.

The magnitude of bending moment induced by the anchoring force of each anchor bolt is  $M = P \times D_2$ ,

where  $P$  = anchoring force of each anchor bolt

$D_2$  = horizontal distance between the face of the upright and the face of the anchor bolt nut

Locate the critical section at the face of the anchor bolt top nut and perpendicular to the radius of the bolt circle. The overlapped part of two (2) adjacent critical sections is considered ineffective.

If the base plate thickness calculated for Case 2 is less than Case 1, use the thickness calculated for Case 1.

The following additional requirements apply concerning pole base plates.

- Ensure that whichever case governs as defined above, the anchor bolt diameter is set to match the base plate thickness. If the minimum diameter required for the anchor bolt exceeds the thickness required for the base plate, set the base plate thickness equal to the required bolt diameter.
- For all metal poles, use a full penetration groove weld with a backing ring to connect the pole upright component to the base. Refer to Metal Pole Standard Drawing Sheet M3 or M4.

The Professional Engineer is wholly responsible for the design of all poles. Review and acceptance of these designs by the Department does not relieve the said Professional Engineer of his or her responsibility.

#### D. Mast Arm Poles:

Refer to Metal Pole Standard Drawing Sheets M2 through M5 for fabrication details.

Fabricate metal arm shaft from coil or plate steel that meet the requirements of ASTM A 595 Grade A tubes. Provide arm shafts of round or near round (18 sides or more) cross-section, or multi-sided tubular cross-section with no less than six sides, having a uniform linear taper of 0.14 in/ft. Construct shafts from one piece of single-ply plate or coil, eliminating circumferential weld splices.

Use the submerged arc process, or other NCDOT previously approved process suitable for arm shafts, to continuously weld arm shafts along their entire length. The longitudinal seam weld shall be finished flush to the outside contour of the base metal. Ensure arm shaft has no circumferential welds except at the lower end joining the shaft to the arm flange plate. Use full penetration groove welds with backing ring for all tube-to-transverse-plate connections in accordance with 1<sup>st</sup> Edition AASHTO. Provide welding that conforms to Article 1072-18 of the *Standard Specifications*, except no field welding on any part of the arm shaft will be permitted unless approved by a qualified Engineer.

After fabrication, hot-dip galvanize steel arm shafts and all assembly components per section 1076 of the *Standard Specifications*. Design arm shafts with weep holes large enough and properly located to drain molten zinc during the galvanization process. Provide hot-dip galvanizing on steel arm shafts that meets or exceeds ASTM Standard A-123, AASHTO M111, or an approved equivalent. Perform repair of damaged galvanizing that complies with the following *Standard Specifications* article:

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



Ensure metal arm shafts permit cables to be installed inside arm shafts. For holes in arm shafts used to accommodate cables, provide full-circumference grommets. Wire access holes for arm flange plates should be deburred, non-grommets, and oversized to fit around 4-inch diameter grommets wire access holes for shaft flange plates.

Provide a minimum of four (4) 1-1/2" diameter high strength bolts for connection between arm plate and pole plate. Increase number of bolts to a minimum of six (6) 1-1/2" diameter high strength bolts when arm lengths are greater than 50'-0" long.

Provide designs with a 6" x 12" hand hole with reinforcing frame for each pole.

Provide a terminal compartment with cover and screws in each pole encompassing the hand hole and containing a 12-terminal barrier type terminal block. Provide two (2) terminal screws with a removable shorting bar between them for each termination. Furnish terminal compartment covers attached to the pole by a sturdy chain or cable approved by the Engineer. Ensure chain or cable is long enough to permit cover to hang clear of the compartment opening when cover is removed and is strong enough to prevent vandalism. Ensure chain or cable will not interfere with service to cables in the pole base.

Have poles permanently stamped above the hand holes with the identification tag details as shown on Metal Pole Standard Drawing Sheets M2 and M4.

Provide a removable end cap with stainless steel attachment screws for the end of each mast arm. Ensure cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to arm with a sturdy chain or cable approved by the Engineer. Ensure chain or cable is long enough to permit cap to hang clear of arm end opening when cap is removed.

Provide pole flange plates and associated gussets and fittings for attachment of required mast arms. As part of each mast arm attachment, provide a cable passage hole in pole to allow passage of cables from pole to arm. Provide a grommets 4-inch diameter cable passage hole on the shaft side of the connection to allow passage of cables from pole to arm.

Furnish all arm plates and necessary attachment hardware, including bolts and brackets.

Provide two (2) extra bolts for each arm.

Provide arms with weatherproof connections for attaching to the pole shaft.

Provide hardware that is galvanized steel, stainless steel, or corrosive-resistant aluminum.

Install metal poles, hardware, and fittings as shown on the manufacturer's installation drawings. Ensure the installed pole, when fully loaded, is within 1 degree 40 minutes (1°40') of vertical. Install poles with the manufacturer's recommended "rake." Where required, use threaded leveling nuts to establish rake.

Install horizontal-type arms with a manufactured rise preventing arm from deflecting below arm attachment height.

Ensure maximum angular rotation of the top of mast arm pole does not exceed 1 degree 40 minutes (1°40'). Ensure allowable mast arm deflection does not exceed that allowed per 1<sup>st</sup> Edition AASHTO. For all load combination limit states specified under Section 3 of 1<sup>st</sup> Edition AASHTO, restrict tip of fully loaded arm from going below arm attachment point with the pole.

#### **4.2. DRILLED PIER FOUNDATIONS FOR METAL POLES**

Analysis procedures and formulas shall be based on AASHTO 1<sup>st</sup> Edition, latest ACI-318 code and the *Drilled Shafts: Construction Procedures and Design Methods* FHWA-NHI-10-016 manual. Design methods based on engineering publications or research papers must have prior approval from NCDOT. The Department reserves the right to accept or reject any method used for the analysis.



Ensure deflection at top of foundation does not exceed 1 inch for worst-case (Service Limit State) lateral load.

Use LPILE Plus V6.0 or later for lateral analysis. Submit inputs, results and corresponding graphs with the design calculations.

Calculate skin friction using the  $\alpha$ -method for cohesive soils and the  $\beta$ -method for cohesion-less soils (**Broms method will not be accepted**). Detailed descriptions of the " $\alpha$ " and " $\beta$ " methods can be found in *FHWA-NHI-10-016*.

Omit first 2.5 feet for cohesive soils when calculating skin friction.

Assume a hammer efficiency of 0.70 unless value is provided.

Design custom foundations to carry maximum capacity of each metal pole. For standard case strain poles with custom design, use actual shear, axial and moment reactions from the Standard Strain Pole Foundation Selection Table shown on Standard Drawing No. M8.

When poor soil conditions are encountered, which could create an excessively large foundation design, consideration may be given to allow an exemption to the maximum capacity design. The Contractor must gain approval from the Engineer before reducing a foundation's capacity. On projects where poor soil is known to be present, the Contractor should have foundation designs approved before releasing poles for fabrication.

Have the Contractor notify the Engineer if the proposed foundation is to be installed on a slope other than 8H: 1V or flatter.

#### **A. Description:**

Furnish and install foundations for NCDOT metal poles with all necessary hardware in accordance with the plans and specifications.

Metal Pole Standards have been developed and implemented by NCDOT for use at signalized intersections in North Carolina. If the plans call for a standard strain pole, then a standard foundation may be selected from the plans. However, the Contractor is not required to use a standard foundation. If the Contractor chooses to design a non-standard site-specific foundation for a standard strain pole or if the plans call for a non-standard site-specific pole, design the foundation to conform to the applicable provisions in the NCDOT Metal Pole Standard Drawings and Section B4 (Non-Standard Foundation Design) below. If non-standard site-specific foundations are designed for standard QPL approved strain poles, the foundation designer must use the design moment specified by load case on Metal Pole Standard Drawing Sheet M8. Failure to conform to this requirement will be grounds for rejection of the design.

If the Contractor chooses to design a non-standard foundation for a standard strain pole and the soil test results indicate a standard foundation is feasible for the site, the Contractor will be paid the cost of the standard foundation. Any additional cost associated with a non-standard site-specific foundation including additional materials, labor and equipment will be considered incidental to the cost of the standard foundation. All costs for the non-standard foundation design will be considered incidental to the cost of the standard foundation.

#### **B. Soil Test and Foundation Determination:**

##### **1. General:**

Drilled piers are reinforced concrete sections, cast-in-place against in situ, undisturbed material. Drilled piers are of straight shaft type and vertical.



**2. Soil Test:**

Perform a soil test at each proposed metal pole location. Complete all required fill placement and excavation at each pole location to finished grade before drilling each boring. Soil tests performed that are not in compliance with this requirement may be rejected and will not be paid. Drill one boring to a depth of 26 feet within a 25-foot radius of each proposed foundation.

Perform standard penetration tests (SPT) in accordance with ASTM D 1586 at depths of 1, 2.5, 5, 7.5, 10, 15, 20 and 26 feet. Discontinue the boring if one of the following occurs:

- A total of 100 blows have been applied in any two consecutive 6-inch intervals.
- A total of 50 blows have been applied with < 3-inch penetration.

Describe each pole location along the project corridor in a manner that is easily discernible to both the Contractor's Designer and NCDOT Reviewers. If the pole is at an intersection, label the boring the "Intersection of (Route or SR #), (Street Name) and (Route or SR #), (Street Name), \_\_\_\_\_ County, Signal or Asset Inventory No. \_\_\_\_\_". Label borings with "B- N, S, E, W, NE, NW, SE or SW" corresponding to the quadrant location within the intersection.

If the pole location is located between intersections, provide a coordinate location and offset, or milepost number and offset. Pole numbers should be made available to the Drill Contractor. Include pole numbers in the boring label if they are available. If they are not available, ensure the boring labels can be cross-referenced to corresponding pole numbers. For each boring, submit a legible (hand-written or typed) boring log signed and sealed by a licensed Geologist or Professional Engineer registered in North Carolina. Include on each boring the SPT blow counts and N-values at each depth, depth of the boring, hammer efficiency, depth of water table and a general description of the soil types encountered using the AASHTO Classification System.

Borings that cannot be easily correlated to their specific pole location will be returned to the Contractor for clarification; or if approved by the Engineer, the foundation may be designed using the worst-case soil condition obtained as part of this project.

**3. Standard Foundation Determination:**

Use the following method for determining the Design N-value:

$$N_{AVG} = \frac{N_{@1'} + N_{@2.5'} + \dots + N_{@Deepest \text{ Boring Depth}}}{\text{Total Number of N values}}$$

$$Y = (N_{@1'})^2 + (N_{@2.5'})^2 + \dots + (N_{@Deepest \text{ Boring Depth}})^2$$

$$Z = N_{@1'} + N_{@2.5'} + \dots + N_{@Deepest \text{ Boring Depth}}$$

$$N_{STD \text{ DEV}} = \sqrt{\left( \frac{(\text{Total Number of N values} \times Y) - Z^2}{(\text{Total Number of N values}) \times (\text{Total Number of N values} - 1)} \right)}$$

**Design N-value** equals lesser of the following two conditions:

$$N_{AVG} - (N_{STD \text{ DEV}} \times 0.45)$$

**OR**



$$\text{Average of First Four (4) } N \text{ values} = \frac{N_{@1'} + N_{@2.5'} + N_{@5'} + N_{@7.5'}}{4}$$

*Note: If less than four (4) N-values are obtained because of criteria listed in Section 2 above, use average of N-values collected for second condition. Do not include the N-value at the deepest boring depth for above calculations if the boring is discontinued at or before the required boring depth because of criteria listed in Section 2 above. Use N-value of zero (0) for weight of hammer or weight of rod. If N-value is greater than fifty (50), reduce N-value to fifty (50) for calculations.*

If standard NCDOT strain poles are shown on the plans and the Contractor chooses to use standard foundations, determine a drilled pier length, "L," for each signal pole from the Standard Strain Pole Foundations Chart (sheet M8) based on the Design N-value and the predominant soil type. For each standard pole location, submit a completed "Metal Pole Standard Foundation Selection Form" signed by the Contractor's representative. Signature on form is for verification purposes only. Include the Design N-value calculation and resulting drilled pier length, "L," on each form.

If non-standard site-specific poles are shown on the plans, submit completed boring logs collected in accordance with Section 2 (Soil Test) along with pole loading diagrams from the plans to the Contractor-selected pole Fabricator to assist in the pole and foundation design.

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

- The Design N-value is less than four (4).
- The drilled pier length, "L", determined from the Standard Foundations Chart, is greater than the depth of the corresponding boring.

In the case where a standard foundation cannot be used, the Department will be responsible for the additional cost of the non-standard foundation.

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

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

<https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

If assistance is needed, contact the Engineer.

#### **4. Non-Standard Foundation Design:**

Design non-standard foundations based upon site-specific soil test information collected in accordance with Section 2 (Soil Test). Design drilled piers for side resistance in accordance with Section 10.8 of the 2014 AASHTO LRFD Bridge Design Specifications, 7<sup>th</sup> Edition. Use computer software LPILE version-6.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Use computer software gINT V8i or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide a drilled pier foundation for each pole with a length and diameter resulting in horizontal lateral movement less than 1 inch at top of the pier, and horizontal rotational movement less than 1 inch at the edge of pier.



Contact the Engineer for pole loading diagrams of standard poles used for non-standard foundation designs. Submit non-standard foundation designs including drawings, calculations, and soil boring logs to the Engineer for review and approval before construction.

**C. Drilled Pier Construction:**

Construct drilled pier foundation and Install anchor rod assemblies in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* Standard Special Provision SP09-R005 located at:

<https://connect.ncdot.gov/resources/Specifications/Pages/2018-Specifications-and-Special-Provisions.aspx>

**4.3. POLE NUMBERING SYSTEM**

Attach an identification tag to each pole shaft section as shown on Metal Pole Standard Sheet M2 "Typical Fabrication Details for All Metal Poles."

**4.4. MEASUREMENT AND PAYMENT**

Actual number of metal poles with single mast arms furnished, installed, and accepted.

Actual number of designs for mast arms with metal poles furnished and accepted.

Actual number of soil tests with SPT borings drilled furnished and accepted.

Actual volume of concrete poured in cubic yards of drilled pier foundation furnished, installed and accepted.

**Payment will be made under:**

|                                       |            |
|---------------------------------------|------------|
| Metal Pole with Single Mast Arm ..... | Each       |
| Mast Arm with Metal Pole Design ..... | Each       |
| Soil Test.....                        | Each       |
| Drilled Pier Foundation.....          | Cubic Yard |

**5. PROTECTIVE COATING FOR METAL POLES**

**5.1. General**

This special provision is intended for use as an additional treatment to metal traffic signal structures installed in areas where maintaining an aesthetic appearance is important and specified in the project documents. The provision contains all of the requirements necessary to accomplish this additional treatment to galvanized steel traffic signal structures fabricated by a steel manufacturer using their local powder coating/paint facility and includes the material and shop certification requirements. The provision also contains pay items for protective coating treatment to aluminum signal and pedestrian pedestals that are Standard Specification items (See Section 1743 and associated Standard Drawings). These aluminum pedestals are on the Qualified Product List (QPL), and as such would not likely be powder coated at the same facility and thus not bound by the material certification requirements in this provision. In this case, the pedestal supplier should comply with Type 6 – Supplier's Certification as defined in Section 106-3 of the Standard Specification.

**5.2. Description**

Protective coating for metal poles is a supplemental durable color coating that is applied to galvanized steel and aluminum traffic signal structures. Powder Coating is the preferred



**supplemental protective coating process for coating galvanized steel and aluminum structures. However, for the purposes of this special provision, an Acrylic Primer and topcoat paint system is included as an acceptable alternative when protective color coating is required.**

Provide protective coating over galvanization for all steel poles including all necessary hardware in accordance with the plans and specifications.

### **5.3. Materials**

With the exception of aluminum components, furnish all metal poles with galvanic protection along with a tough and durable application of protective coating. Aluminum components shall have a durable powder coating application. Galvanization is not required for aluminum components.

Furnish pole caps that have a low gloss powder finish applied over a hot-dipped galvanized surface. Comply with the applicable provisions of Section 442-10 and 442-13 of the 2018 Standard Specifications.

**Furnish metal poles with a protective coating finish that is agate gray (RAL Color Standard 7038). Ensure the selected color for protective coating has been verified and approved by the Engineer prior to fabrication.**

### **5.4. Facility Approval**

The Department maintains an approved producer/supplier listing for various facility types associated with this work, which include powder applicator (PA), structural steel galvanizer (SSG), and structural steel shop coating facilities (SCF). A complete list of approved facilities can be found at the following weblink: <https://apps.ncdot.gov/vendor/ApprovedProducts/Producer.aspx>. Approve the coating shop facility prior to the application of any coating process. Submit all new facility requests, procedures, and documents electronically to:

Materials and Test  
1801 Blue Ridge Road  
Raleigh, NC 27607  
Attn: Manufactured Products Engineer

#### **Powder Coating Shop Approval**

- A) Submit a quality control procedure that the company has established to ensure a quality and durable coating. The quality control procedure shall contain at a minimum the following:
  - Qualified / Certified personnel to manage the QC Program and to conduct Quality Control tests
  - Qualified / certified coaters
  - Source and type of powder
  - How the powder will be stored
  - Powder application facility (heated or unheated)
  - Surface pre-treatment
  - Surface preparation including profile



- Application methods
  - Curing conditions (conventional or infrared)
  - Curing Temperature
  - Adhesion & Holiday Detection
  - Repair Procedure
  - Storage and protection of coated items
  - Shipping and handling (packing, protection, and wrapping)
- B) Submit a powder certification from the manufacturer
- C) Submit the following to the Chemical Testing Engineer a minimum of four weeks prior to coating application.
1. Two test panels of ASTM A36 steel, ¼ or greater in thickness measuring 8 inches by 11 inches using the proposed color of the final coat; a powder coated over galvanized test panel and a powder coated over un-galvanized test panel.
  2. In addition, provide two (2) samples of the same or comparable material and thickness as production pieces. Ensure production piece replicas do not exceed twelve inches (12") in length and width nor 50 pounds in weight.
  3. Submit all test panels with inspection reports and records according to *Standard Specifications*, Section 442, Section 1072, Section 1076, and Section 1080.
  4. Acceptance of the panels is determined by meeting the requirements of ASTM D-4541 of 800 psi for both galvanized and un-galvanized and production piece test panels.
  5. Send all panels to:
 

Materials and Tests Unit  
1801 Blue Ridge Road  
Raleigh, NC 27607  
Attn: Chemical Lab

## 5.5. POWDER COATING

### A. Galvanizing

Galvanize steel products in accordance with Section 1076 of the Standard Specifications. Ensure the fabricator or designated representative(s) that is supplying the components to be galvanized communicates with the galvanizer to indicate that the galvanized pieces will be powder coated to avoid water or chromate quenching.

### B. Surface Preparation

Comply with manufacturer's recommended surface coating specifications, Steel Structure Painting Council (SSPC) specifications and applicable articles of Section 442 (Painting Steel Structures) of the Standard Specifications. Ensure that surface preparations and treatments are performed and meet the requirements of the above referenced specifications.

Some pole components, specifically steel plates ¾ inches or more in thickness, may need blast cleaning prior to structure assembly to remove impurities and non-metallic foreign materials. Mechanically remove all weld flux after structure is assembled



Degrease and prepare steel structure for zinc coating after assembly using full immersion baths and pickling processes in heat controlled caustic and acid solutions. Rinse and clean structure to remove caustic or acid solutions by immersion in a circulating fresh water bath. Immerse structure in a heat controlled concentrated zinc ammonium chloride flux solution and air dry as a final prep before hot-dip galvanization.

Ensure that the surface preparation is no less than specified by the powder manufacturer's recommendations. Prepare all components to be coated in accordance with SSPC SP-2 (Hand Tool Cleaning) and/or SSPC SP-3 (Power Tool Cleaning). Remove all drainage spikes, high spots, protrusions or other surface defects using hand or power tools. Do not remove the galvanization below the limits set forth in AASHTO M111.

Remove grease, oils, moisture, scale, rust or any other foreign matter prior to powder coating to ensure ideal adhesion and coating performance. Prepare and coat the galvanized surface as soon as possible after the galvanization process.

#### **C. Powder Coating Application and Curing**

Prepare galvanized finish for powder coating by brush blasting in accordance with SSPC-SP7. Ensure all threaded components of the structure are protected from damage during blasting process.

Use thermosetting powder resin that meets 5A or 5B classifications of ASTM D3359. Apply powder coating electrostatically. Follow manufacturer's recommended preheating requirements. Ensure the topcoat finish is applied uniformly to all surfaces with a dry film thickness of between 3.0 to 5.0 mils. Cure the topcoat by heating the structure to manufacturer recommended temperatures at the duration required to ensure complete and uniform bond.

#### **D. Quality Control**

Ensure the applicator provides all test reports and documentation and inspects all coated material as outlined in the Standard Specifications, Section 442, Section 1072, Section 1076, and Section 1080. Ensure the quality control inspection is kept separate from the production functions.

#### **E. Storage, Shipping, and Handling**

Store all powder coated material inside or as directed by the Engineer.

Protect the product from incurring damage during all shipping, handling, and storing activities. Do not store the product directly on the ground or in areas where water may pool; the Engineer determines the effectiveness of all storage, shipping and handling methods.

#### **F. Repair of Powder Coated Material**

Repair all damage to the coating by the original method of application as outlined in the coating facility's repair procedure. Ensure all repair areas meet the original requirements for adhesion as stated in this Project Special Provision.

Photograph, document, and report all damages upon delivery to the project site prior to unloading. Provide documented damage notifications to the Engineer or to their authorized representative so the application firm can be notified. The Engineer has the authority to accept or reject the material as outlined in the Standard Specifications.

Submit to the Engineer a repair procedure for damaged coatings which occur during storage, transporting, handling and or installation. Utilize a liquid paint approved by the Department, compatible with the powder applied product. Ensure all repair areas demonstrate an adhesion rating of 400 psi in accordance with ASTM D-4541. Obtain Engineer's acceptance of the final finish.



## 5.6. ACRYLIC PRIMER AND TOPCOAT PAINT SYSTEM

### A. Description

Follow NCDOT procedures for Powder Coating over Galvanizing. Provide an Acrylic Primer and topcoat when a substitute for powder coating is necessary.

Provide supplemental coating for all mast arms with metal signal poles and all necessary hardware for the signalized intersection in accordance with the Structural Steel Shop Coatings Program, NCDOT Standard specifications – sections 442 and 1080, as contained herein, and as shown on the plans. The Structural Steel Shop Coatings Program can be found at the following link: <https://connect.ncdot.gov/resources/Materials/MaterialsResources/Structural%20Steel%20Shop%20Coatings%20Program.pdf>

Ensure all painting work for new structures, except field touch-up and bolt painting is performed in the shop.

#### Coatings Shop Approval

Use only NCDOT approved shop coating facilities meeting the requirements outlined in the current edition of the Structural Steel Shop Coatings Program. This program is available on the Materials and Tests website. [Structural Steel Shop Coatings Program.pdf \(ncdot.gov\)](#)

Provide shop certification in accordance with the Structural Steel Shop Coatings Program (Shop facilities that are currently certified and in good standing with the American Institute Steel Construction (AISC) / Sophisticated Paint Endorsement (SPE) and/or the Society of Protective Coatings (SSPC) Qualification Procedure Three (QP-3).

### B. Surface Preparation

Ensure all surface preparation is not less than that specified by the paint manufacturer's recommendations.

Clean galvanized surfaces to be painted with a 2,500-psi pressure washer. Allow surfaces to dry completely before beginning surface preparation.

Ensure all components to be coated are prepared in accordance with SSPC SP2 (Hand Tool Cleaning and or SSPC SP-3 (Power Tool Cleaning). Smooth high spots and rough edges, such as metal drip lines, of galvanized surfaces in accordance with ASTM D6386. Do not remove the galvanization below the limits set forth in AASHTO M111.

Perform abrasive sweep blasting in accordance with ASTM D6386. Refer to this section for a description of the abrasive blast material to be used. Use a material and technique capable of stripping action to remove corrosion products and to provide a rough surface profile while leaving base zinc layers intact.

Blow down all blasted surfaces with clean compressed air to provide a clean, dry surface.

Ensure all surfaces are free of visible zinc oxides or zinc hydroxides.

### C. Materials

Use an approved/qualified waterborne paint meeting the requirements of NCDOT Standard specification section 1080. Do not apply paint until each batch has been tested by the Department. Provide color as specified in the contract documents.

Ensure all paint used on this contract is produced by the same manufacturer.



**D. Painting**

Apply paint in accordance with the requirements of the Structural Steel Shop Coatings Program, Section 442 and Section 1080 of the *Standard Specifications* as modified herein.

**System for Paint over Galvanize  
Acrylic Primer and Topcoats**

| Coat         | Material     | Mils Dry/Wet Film<br>Thickness | Mils Dry/Wet Film<br>Thickness |
|--------------|--------------|--------------------------------|--------------------------------|
|              |              | Minimum                        | Maximum                        |
| Primer       | 1080-9 White | 3.0 DFT                        | 5.0 DFT                        |
| Stripe       | 1080-9 *     | 4.0 WFT                        | 7.0 WFT                        |
| Topcoat      | 1080-9 *     | 2.0 DFT                        | 4.0 DFT                        |
| <b>Total</b> |              | 5.0 DFT                        | 9.0 DFT                        |

**\*Ensure the selected color for protective coating has been verified and approved by the Engineer prior to fabrication.**

The time between blast and coating application shall be in accordance with ASTM D6386 time requirements. In no case shall the prepared surface extend beyond 8 hours.

Mask off and do not paint all data plates and faying surfaces prior to application.

Spray apply all coatings except for the stripe coat. Brush apply the stripe coat to all plate edges, welds, bolt holes and bolts prior to applying the finish coat.

**E. Curing**

Follow manufacturer recommendations.

**F. Inspection**

Quality Control shall conduct the required quality control tests as outlined in the Structural Steel Shop Coatings Program and report the minimum information required by the appropriate ASTM test methods. At a minimum, quality control forms shall be on company letterhead with logo that provides a daily inspection report form equivalent to the information required on the M&T-611 Form. The M&T-611 Form can be found in the Structural Steel Shop Coatings Program. Dry Film Thickness (DFT) measurements shall be obtained on all coating layers, including the galvanized layer and shall incorporate the use of a Type 2 gauge as defined in SSPC PA-2.

Ensure all material is of a uniform appearance free of runs, drips, and sags.

**G. Handling**

Do not handle, ship, or erect coated members until paint is thoroughly dry.

Protect all shipping and handling either from the coating facility to project site and or storage site to area(s) to construction location from incurring damage to product. Wood blocks and nylon slings are recommended for securing, loading, hoisting or storing members.



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## H. Repair of Damaged Coating

Repair damage occurring to the galvanized portion of the coating during shipment or installation in accordance with Articles 1076-7 and 1080-7 of the *Standard Specifications*. Repair damage occurring to the painted portion of the coating during shipment or installation by applying 4.0-7.0 wet mils of topcoat with a brush or roller and feather or taper this to be level with the surrounding areas.

### 5.7. MEASUREMENT AND PAYMENT

Actual number of single mast arm poles with protective coating applied furnished, installed, and accepted.

Actual number of signal TYPE II pedestals with protective coating applied furnished, installed, and accepted.

#### Payment will be made under:

Protective Coating for Single Mast Arm Pole (\_\_\_\_\_).....Each  
Protective Coating for TYPE II Signal Pedestal (\_\_\_\_\_).....Each

## 6. ETHERNET EDGE SWITCH

Furnish and install a managed Ethernet edge switch as specified below that is fully compatible, interoperable, and completely interchangeable and functional within the existing City, Division, or Statewide traffic signal system communications network.

### 6.1. DESCRIPTION

#### A. Ethernet Edge Switch:

Furnish and install a hardened, field Ethernet edge switch (hereafter "edge switch") for the traffic signal controller or ITS device as specified below. Ensure that the edge switch provides wire-speed, fast Ethernet connectivity at transmission rates of 1000 megabits per second from each remote traffic signal controller or ITS device location to the routing switches.

Contact the City or NCDIT to arrange for the programming of the new Field Ethernet Switches with the necessary network configuration data, including but not limited to, the IP Address, Default Gateway, Subnet Mask and VLAN ID information. Provide a minimum ten (10) working days notice to allow the City or NCDIT to program the new devices.

#### B. Network Management:

Ensure that the edge switch is fully compatible with the existing City, Division, or Statewide Network Management Software.

### 6.2. MATERIALS

#### A. General:

Ensure that the edge switch is fully compatible and interoperable with the trunk Ethernet network interface and that the edge switch supports half and full duplex Ethernet communications.

Furnish an edge switch that provide 99.999% error-free operation, and that complies with the Electronic Industries Alliance (EIA) Ethernet data communication requirements using single-mode fiber-optic transmission medium and copper transmission medium. Ensure that the edge switch has a



minimum mean time between failures (MTBF) of 10 years, or 87,600 hours, as calculated using the Bellcore/Telcordia SR-332 standard for reliability prediction.

#### **B. Compatibility Acceptance**

The Engineer has the authority to require the Contractor to submit a sample Field Ethernet Switch and SFP along with all supporting documentation, software and testing procedures to allow a compatibility acceptance test be performed prior to approving the proposed Field Ethernet Switch and Field Ethernet Transceiver for deployment. **The Compatibility Acceptance testing will ensure that the proposed device is 100% compatible and interoperable with the existing City, Division, or Statewide Signal System network, monitoring software and Traffic Operations Center network hardware.** Allow fifteen (15) working days for the Compatibility Acceptance Testing to be performed

#### **C. Standards:**

Ensure that the edge switch complies with all applicable IEEE networking standards for Ethernet communications, including but not limited to:

- IEEE 802.1D standard for media access control (MAC) bridges used with the Spanning Tree Protocol (STP);
- IEEE 802.1Q standard for port-based virtual local area networks (VLANs);
- IEEE 802.1P standard for Quality of Service (QoS);
- IEEE 802.1w standard for MAC bridges used with the Rapid Spanning Tree Protocol (RSTP);
- IEEE 802.1s standard for MAC bridges used with the Multiple Spanning Tree Protocol;
- IEEE 802.1x standard for port based network access control, including RADIUS;
- IEEE 802.3 standard for local area network (LAN) and metropolitan area network (MAN) access and physical layer specifications;
- IEEE 802.3u supplement standard regarding 100 Base TX/100 Base FX;
- IEEE 802.3x standard regarding flow control with full duplex operation; and
- IFC 2236 regarding IGMP v2 compliance.
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- IEEE 802.3ad Ethernet Link Aggregation
- IEEE 802.3i for 10BASE-T (10 Mbit/s over Fiber-Optic)
- IEEE 802.3ab for 1000BASE-T (1 Gbit/s over Ethernet)
- IEEE 802.3z for 1000BASE-X (1 Gbit/s Ethernet over Fiber-Optic)

#### **D. Functional:**

Ensure that the edge switch supports all Layer 2 management features and certain Layer 3 features related to multicast data transmission and routing. These features shall include, but not be limited to:

- An STP healing/convergence rate that meets or exceeds specifications published in the IEEE 802.1D standard.
- An RSTP healing/convergence rate that meets or exceeds specifications published in the IEEE 802.1w standard.
- An Ethernet edge switch that is a port-based VLAN and supports VLAN tagging that meets or exceeds specifications as published in the IEEE 802.1Q standard, and has a minimum 4-kilobit VLAN address table (254 simultaneous).



- A forwarding/filtering rate that is a minimum of 14,880 packets per second for 10 megabits per second and 148,800 packets per second for 100 megabits per second.
- A minimum 4-kilobit MAC address table.
- Support of Traffic Class Expediting and Dynamic Multicast Filtering.
- Support of, at a minimum, snooping of Version 2 & 3 of the Internet Group Management Protocol (IGMP).
- Support of remote and local setup and management via telnet or secure Web-based GUI and command line interfaces.
- Support of the Simple Network Management Protocol version 3 (SNMPv3). Verify that the Ethernet edge switch can be accessed using the resident EIA-232 management port, a telecommunication network, or the Trivial File Transfer Protocol (TFTP).
- Port security through controlling access by the users. Ensure that the Ethernet edge switch has the capability to generate an alarm and shut down ports when an unauthorized user accesses the network.
- Support of remote monitoring (RMON-1 & RMON-2) of the Ethernet agent.
- Support of the TFTP and SNTP. Ensure that the Ethernet edge switch supports port mirroring for troubleshooting purposes when combined with a network analyzer.

#### **E. Physical Features:**

*Ports:* Provide 10/100/1000 Mbps auto-negotiating ports (RJ-45) copper Fast Ethernet ports for all edge switches. Provide auto-negotiation circuitry that will automatically negotiate the highest possible data rate and duplex operation possible with attached devices supporting the IEEE 802.3 Clause 28 auto-negotiation standard.

*Optical Ports:* Ensure that all fiber-optic link ports operate at 1310 or 1550 nanometers in single mode. Provide Type LC connectors for the optical ports, as specified in the Plans or by the Engineer. Do not use mechanical transfer registered jack (MTRJ) type connectors.

Provide an edge switch having a minimum of two optical 100/1000 Base X ports capable of transmitting data at 100/1000 megabits per second. Ensure that each optical port consists of a pair of fibers; one fiber will transmit (TX) data and one fiber will receive (RX) data. Ensure that the optical ports have an optical power budget of at least 15 dB. Provide small form-factor pluggable modules (SFPs) with a maximum range that meets or exceeds the distance requirement as indicated on the Plans.

*Copper Ports:* Provide an edge switch that includes a minimum of four copper ports. Provide Type RJ-45 copper ports and that auto-negotiate speed (i.e., 10/100/1000 Base) and duplex (i.e., full or half). Ensure that all 10/100/1000 Base TX ports meet the specifications detailed in this section and are compliant with the IEEE 802.3 standard pinouts. Ensure that all Category 6 unshielded twisted pair/shielded twisted pair network cables are compliant with the EIA/TIA-568-B standard.

*Port Security:* Ensure that the edge switch supports/complies with the following (remotely) minimum requirements:

- Ability to configure static MAC addresses access;
- Ability to disable automatic address learning per ports; know hereafter as Secure Port. Secure Ports only forward; and



- Trap and alarm upon any unauthorized MAC address and shutdown for programmable duration. Port shutdown requires administrator to manually reset the port before communications are allowed.

#### **F. Management Capabilities:**

Ensure that the edge switch supports all Layer 2 management features and certain Layer 3 features related to multicast data transmission and routing. These features shall include, but not be limited to:

- An STP healing/convergence rate that meets or exceeds specifications published in the IEEE 802.1 D standards;
- An RSTP healing/convergence rate that meets or exceeds specifications published in the IEEE 802.1w standard;
- An Ethernet edge switch that is a port-based VLAN and supports VLAN tagging that meets or exceeds specifications as published in the IEEE 802.1Q standard, and has a minimum 4-kilobit VLAN address table (254 simultaneous);
- A forwarding/filtering rate that is a minimum of 14,880 packets per second for 10 megabits per second, 148,800 packets per second for 100 megabits per second and 1,488,000 packets per second for 1000 megabits per second;
- A minimum 4-kilobit MAC address table;
- Support of Traffic Class Expediting and Dynamic Multicast Filtering.
- Support of, at a minimum, snooping of Version 2 & 3 of the Internet Group Management Protocol (IGMP);
- Support of remote and local setup and management via telnet or secure Web-based GUI and command line interfaces; and
- Support of the Simple Network Management Protocol (SNMP). Verify that the Ethernet edge switch can be accessed using the resident EIA-232 management port, a telecommunication network, or the Trivial File Transfer Protocol (TFTP).

*Network Capabilities:* Provide an edge switch that supports/complies with the following minimum requirements:

- Provide full implementation of IGMPv2 snooping (RFC 2236);
- Provide full implementation of SNMPv1, SNMPv2c, and/or SNMPv3;
- Provide support for the following RMON-I groups, at a minimum:
  - Part 1: Statistics
  - Part 2: History
  - Part 3: Alarm
  - Part 9: Event
- Provide support for the following RMON-2 groups, at a minimum:
  - Part 13: Address Map
  - Part 16: Layer Host
  - Part 17: Layer Matrix
  - Part 18: User History
- Capable of mirroring any port to any other port within the switch;
- Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLANs;
- Meet the IEEE 802.3ad (Port Trunking) standard for a minimum of two groups of four ports;
- Password manageable;
- Telnet/CLI;



- HTTP (Embedded Web Server) with Secure Sockets Layer (SSL); and
- Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.

**Network Security:** Provide an edge switch that supports/complies with the following (remotely) minimum network security requirements:

- Multi-level user passwords;
- RADIUS centralized password management (IEEE 802.1X);
- SNMPv3 encrypted authentication and access security;
- Port security through controlling access by the users: ensure that the Ethernet edge switch has the capability to generate an alarm and shut down ports when an unauthorized user accesses the network;
- Support of remote monitoring (RMON-1&2) of the Ethernet agent; and
- Support of the TFTP and SNTP. Ensure that the Ethernet edge switch supports port mirroring for troubleshooting purposes when combined with a network analyzer.

#### **G. Electrical Specifications:**

Ensure that the edge switch operates and power is supplied with 115 volts of alternating current (VAC). Ensure that the edge switch has a minimum operating input of 110 VAC and a maximum operating input of 130 VAC. Ensure that if the device requires operating voltages other than 120 VAC, supply the required voltage converter. Ensure that the maximum power consumption does not exceed 50 watts. Ensure that the edge switch has diagnostic light emitting diodes (LEDs), including link, TX, RX, speed (for Category 6 ports only), and power LEDs.

#### **H. Environmental Specifications:**

Ensure that the edge switch performs all of the required functions during and after being subjected to an ambient operating temperature range of -30 degrees to 165 degrees Fahrenheit as defined in the environmental requirements section of the NEMA TS 2 standard, with a noncondensing humidity of 0 to 95%.

Provide certification that the device has successfully completed environmental testing as defined in the environmental requirements section of the NEMA TS 2 standard. Provide certification that the device meets the vibration and shock resistance requirements of Sections 2.1.9 and 2.1.10, respectively, of the NEMA TS 2 standard. Ensure that the edge switch is protected from rain, dust, corrosive elements, and typical conditions found in a roadside environment.

The edge switch shall meet or exceed the following environmental standards:

- IEEE 1613 (electric utility substations)
- IEC 61850-3 (electric utility substations)
- IEEE 61800-3 (variable speed drive systems)
- IEC 61000-6-2 (generic industrial)
- EMF – FCC Part 15 CISPR (EN5502) Class A

#### **I. Ethernet Patch Cable:**

Furnish a factory pre-terminated/pre-connectorized Ethernet patch cable with each edge switch. Furnish Ethernet patch cables meeting the following physical requirements:

- Five (5)-foot length
- Category 6 or better



- Factory-installed RJ-45 connectors on both ends
- Molded anti-snag hoods over connectors
- Gold plated connectors
- Copper-clad aluminum is **NOT** allowed.

Furnish Fast Ethernet patch cords meeting the following minimum performance requirements:

- TIA/EIA-568-B-5, Additional Transmission Performance Specifications for 4-pair 100  $\Omega$  Enhanced Category 6 Cabling
- Frequency Range: 1-100 MHz
- Near-End Crosstalk (NEXT): 30.1 dB
- Power-sum NEXT: 27.1 dB
- Attenuation to Crosstalk Ratio (ACR): 6.1 dB
- Power-sum ACR: 3.1 dB
- Return Loss: 10dB
- Propagation Delay: 548 nsec

### 6.3. CONSTRUCTION METHODS

#### A. General:

Ensure that the edge switch is UL listed.

Verify that network/field/data patch cords meet all ANSI/EIA/TIA requirements for Category 6 four-pair unshielded twisted pair cabling with stranded conductors and RJ45 connectors.

Contact the City, Division, or NCDIT a minimum of 10 working days prior to installation to allow for the programming of the edge switch.

#### B. Edge Switch:

Mount the edge switch inside each field cabinet by securely fastening the edge switch to the upper end of the right rear vertical rail of the equipment rack using manufacturer-recommended or Engineer-approved attachment methods, attachment hardware and fasteners.

Ensure that the edge switch is mounted securely in the cabinet and is fully accessible by field technicians without blocking access to other equipment. Verify that fiber-optic jumpers consist of a length of cable that has connectors on both ends, primarily used for interconnecting termination or patching facilities and/or equipment.

### 6.4. MEASUREMENT AND PAYMENT

*Ethernet edge switch* will be measured and paid as the actual number of Ethernet edge switches furnished, installed, and accepted.

No separate measurement will be made for Ethernet patch cable, small form factor pluggable modules (SFPs), power cord, mounting hardware, nuts, bolts, brackets, or edge switch programming as these will be considered incidental to furnishing and installing the edge switch.

Payment will be made under:

Ethernet Edge Switch ..... Each



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## 7. CELLULAR MODEM AND ANTENNA

### 7.1. DESCRIPTION

Install a Department-furnished cellular telephone modem for ethernet communications to remote signal controllers at locations shown in the Plans.

Request cellular telephone modems and antennas from the Regional ITS Engineer a minimum of 8 weeks in advance of need.

### 7.2. CONSTRUCTION METHODS

Install the antenna on the side or top of the signal cabinet. Install the modem in the signal cabinet and connect the modem power supply to an available receptacle inside the signal cabinet. Connect the modem to the ethernet switch using appropriate cables.

### 7.3. MEASUREMENT AND PAYMENT

*Install Cellular Modem and Antenna* will be measure and paid as the actual number of Department-furnished modems and antennas installed, integrated, and accepted. No separate payment will be made for any required cables or for any hardware and fasteners required to mount the antenna.

Payment will be made under:

Install Cellular Modem and Antenna ..... Each



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**FALSEWORK AND FORMWORK****(11-30-23)****GENERAL**

Use this Special Provision as a guide to develop temporary works submittals required by the *Standard Specifications* or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term "temporary works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

**MATERIALS**

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

**DESIGN REQUIREMENTS****(A) Working Drawings**

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.



If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

| Member Type (PCG) | Member Depth, (inches) | Max. Overhang Width, (inches) | Max. Slab Edge Thickness, (inches) | Max. Scribed Wheel Weight, (lbs.) | Bracket Min. Vertical Leg Extension, (inches) |
|-------------------|------------------------|-------------------------------|------------------------------------|-----------------------------------|-----------------------------------------------|
| II                | 36                     | 39                            | 14                                 | 2000                              | 26                                            |
| III               | 45                     | 42                            | 14                                 | 2000                              | 35                                            |
| IV                | 54                     | 45                            | 14                                 | 2000                              | 44                                            |
| MBT               | 63                     | 51                            | 12                                 | 2000                              | 50                                            |
| MBT               | 72                     | 55                            | 12                                 | 1700                              | 48                                            |

Overhang width is measured from the centerline of the girder to the edge of the deck slab. For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 1/2" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

For link slabs, the top of girders directly beneath the link slab shall be free of overhang falsework attachments or other hardware. Submit calculations and working drawings for overhang falsework in the link slab region.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.



Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than  $\frac{3}{4}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the current edition of *AASHTO Guide Design Specifications for Bridge Temporary Works* except as noted herein.

#### (1) Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

**Table 2.2 - Wind Pressure Values**

| Height Zone<br>feet above ground | Pressure, lb/ft <sup>2</sup> for Indicated Wind Velocity, mph |    |    |     |     |
|----------------------------------|---------------------------------------------------------------|----|----|-----|-----|
|                                  | 70                                                            | 80 | 90 | 100 | 110 |
| 0 to 30                          | 15                                                            | 20 | 25 | 30  | 35  |
| 30 to 50                         | 20                                                            | 25 | 30 | 35  | 40  |
| 50 to 100                        | 25                                                            | 30 | 35 | 40  | 45  |
| over 100                         | 30                                                            | 35 | 40 | 45  | 50  |

#### (2) Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the *Standard Specifications* and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent surface damage.



**Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina**

| COUNTY     | 25 YR<br>(mph) | COUNTY      | 25 YR<br>(mph) | COUNTY       | 25 YR<br>(mph) |
|------------|----------------|-------------|----------------|--------------|----------------|
| Alamance   | 70             | Franklin    | 70             | Pamlico      | 100            |
| Alexander  | 70             | Gaston      | 70             | Pasquotank   | 100            |
| Alleghany  | 70             | Gates       | 90             | Pender       | 100            |
| Anson      | 70             | Graham      | 80             | Perquimans   | 100            |
| Ashe       | 70             | Granville   | 70             | Person       | 70             |
| Avery      | 70             | Greene      | 80             | Pitt         | 90             |
| Beaufort   | 100            | Guilford    | 70             | Polk         | 80             |
| Bertie     | 90             | Halifax     | 80             | Randolph     | 70             |
| Bladen     | 90             | Harnett     | 70             | Richmond     | 70             |
| Brunswick  | 100            | Haywood     | 80             | Robeson      | 80             |
| Buncombe   | 80             | Henderson   | 80             | Rockingham   | 70             |
| Burke      | 70             | Hertford    | 90             | Rowan        | 70             |
| Cabarrus   | 70             | Hoke        | 70             | Rutherford   | 70             |
| Caldwell   | 70             | Hyde        | 110            | Sampson      | 90             |
| Camden     | 100            | Iredell     | 70             | Scotland     | 70             |
| Carteret   | 110            | Jackson     | 80             | Stanley      | 70             |
| Caswell    | 70             | Johnston    | 80             | Stokes       | 70             |
| Catawba    | 70             | Jones       | 100            | Surry        | 70             |
| Cherokee   | 80             | Lee         | 70             | Swain        | 80             |
| Chatham    | 70             | Lenoir      | 90             | Transylvania | 80             |
| Chowan     | 90             | Lincoln     | 70             | Tyrell       | 100            |
| Clay       | 80             | Macon       | 80             | Union        | 70             |
| Cleveland  | 70             | Madison     | 80             | Vance        | 70             |
| Columbus   | 90             | Martin      | 90             | Wake         | 70             |
| Craven     | 100            | McDowell    | 70             | Warren       | 70             |
| Cumberland | 80             | Mecklenburg | 70             | Washington   | 100            |
| Currituck  | 100            | Mitchell    | 70             | Watauga      | 70             |
| Dare       | 110            | Montgomery  | 70             | Wayne        | 80             |
| Davidson   | 70             | Moore       | 70             | Wilkes       | 70             |
| Davie      | 70             | Nash        | 80             | Wilson       | 80             |
| Duplin     | 90             | New Hanover | 100            | Yadkin       | 70             |
| Durham     | 70             | Northampton | 80             | Yancey       | 70             |
| Edgecombe  | 80             | Onslow      | 100            |              |                |
| Forsyth    | 70             | Orange      | 70             |              |                |



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**ST-6**

Chatham County

**(B) Review and Approval**

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

**CONSTRUCTION REQUIREMENTS**

All requirements of Section 420 of the *Standard Specifications* apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

**(A) Maintenance and Inspection**

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.



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Chatham County

**(B) Foundations**

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

**REMOVAL**

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

**MEASUREMENT AND PAYMENT**

Unless otherwise specified, *Falsework and Formwork* will not be directly measured.

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

**SUBMITTAL OF WORKING DRAWINGS****(11-30-23)****GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this Special Provision. For this Special Provision, "submittals" refers to only those listed in this Special Provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Engineer. Either the Structures Management Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.



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**ST-8**

Chatham County

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Engineer, Structures Management Unit contacts or the Geotechnical Engineering Unit contacts noted below.

To facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

**ADDRESSES AND CONTACTS**

For submittals to the Structures Management Unit, use the following addresses:

Via Email: [SMU-wdr@ncdot.gov](mailto:SMU-wdr@ncdot.gov) (do not cc SMU Working Drawings staff)

**Via US mail:**

Mr. B. C. Hanks, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1581 Mail Service Center  
Raleigh, NC 27699-1581

Attention: Mr. J. L. Bolden, P. E.

**Via other delivery service:**

Mr. B. C. Hanks, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1000 Birch Ridge Drive  
Raleigh, NC 27610

Attention: Mr. J. L. Bolden, P. E.

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office addresses:

Via Email: [EastGeotechnicalSubmittal@ncdot.gov](mailto:EastGeotechnicalSubmittal@ncdot.gov)

**Via US mail:**

Mr. Thomas Santee, P. E.  
Assistant State Geotechnical  
Engineer – Eastern Region  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
1570 Mail Service Center  
Raleigh, NC 27699-1570

**Via other delivery service:**

Mr. Thomas Santee, P. E.  
Assistant State Geotechnical  
Engineer – Eastern Region  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
3301 Jones Sausage Road, Suite 100  
Garner, NC 27529



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Chatham County

For projects in Divisions 8-14, use the following Western Regional Office addresses:

Via Email: [WestGeotechnicalSubmittal@ncdot.gov](mailto:WestGeotechnicalSubmittal@ncdot.gov)

Via US mail or other delivery service:

Mr. Eric Williams, P. E.  
Assistant State Geotechnical  
Engineer – Western Region  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Western Regional Office  
5253 Z Max Boulevard  
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structures Management Unit can be viewed from the Unit's website, via the "[Drawing Submittal Status](#)" link.

The status of the review of geotechnical-related submittals sent to the Geotechnical Engineering Unit can be viewed from the Unit's website, via the "[Geotechnical Construction Submittals](#)" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact: James Bolden (919) 707 – 6408  
[jbolden@ncdot.gov](mailto:jbolden@ncdot.gov)

Secondary Structures Contacts: Emmanuel Omile (919) 707 – 6451  
[eomile@ncdot.gov](mailto:eomile@ncdot.gov)

Madonna Rorie (919) 707 – 6508  
[mrorie@ncdot.gov](mailto:mrorie@ncdot.gov)

Eastern Regional Geotechnical Contact (Divisions 1-7):  
Thomas Santee (919) 920-8901  
[tsantee@ncdot.gov](mailto:tsantee@ncdot.gov)

Western Regional Geotechnical Contact (Divisions 8-14):  
Eric Williams (704) 455 – 8902  
[ewilliams3@ncdot.gov](mailto:ewilliams3@ncdot.gov)

#### **SUBMITTAL COPIES**

Furnish one complete copy of each submittal, including all attachments, to the Engineer. At the same time, submit a copy of the same complete submittal directly to the Structures Management Unit and/or the Geotechnical Engineering Unit as specified in the tables below.



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Chatham County

The first table below covers "Structure Submittals." The Engineer will receive review comments and drawing markups for these submittals from the Structures Management Unit. The second table in this section covers "Geotechnical Submittals." The Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

Unless otherwise required, submit one set of supporting calculations to either the Structures Management Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

**STRUCTURE SUBMITTALS**

| <b>Submittal</b>                                                       | <b>Submittal<br/>Required by<br/>Structures<br/>Management<br/>Unit?</b> | <b>Submittal<br/>Required by<br/>Geotechnical<br/>Engineering<br/>Unit?</b> | <b>Contract Reference<br/>Requiring Submittal <sup>1</sup></b>                              |
|------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Arch Culvert Falsework                                                 | Y                                                                        | N                                                                           | Plan Note, SN Sheet &<br>"Falsework and Formwork"                                           |
| Box Culvert Falsework <sup>7</sup>                                     | Y                                                                        | N                                                                           | Plan Note, SN Sheet &<br>"Falsework and Formwork"                                           |
| Cofferdams                                                             | Y                                                                        | Y                                                                           | Article 410-4                                                                               |
| Foam Joint Seals <sup>6</sup>                                          | Y                                                                        | N                                                                           | "Foam Joint Seals"                                                                          |
| Expansion Joint Seals<br>(hold down plate type with base<br>angle)     | Y                                                                        | N                                                                           | "Expansion Joint Seals"                                                                     |
| Expansion Joint Seals<br>(modular)                                     | Y                                                                        | N                                                                           | "Modular Expansion Joint<br>Seals"                                                          |
| Expansion Joint Seals<br>(strip seals)                                 | Y                                                                        | N                                                                           | "Strip Seal Expansion<br>Joints"                                                            |
| Falsework & Forms <sup>2</sup><br>(substructure)                       | Y                                                                        | N                                                                           | Article 420-3 &<br>"Falsework and Formwork"                                                 |
| Falsework & Forms<br>(superstructure)                                  | Y                                                                        | N                                                                           | Article 420-3 &<br>"Falsework and Formwork"                                                 |
| Girder Erection over Railroad                                          | Y                                                                        | N                                                                           | Railroad Provisions                                                                         |
| Maintenance and Protection of<br>Traffic Beneath Proposed<br>Structure | Y                                                                        | N                                                                           | "Maintenance and<br>Protection of Traffic<br>Beneath Proposed Structure<br>at Station ____" |



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# **ST-11**

Chatham County

|                                                                            |   |   |                                                                    |
|----------------------------------------------------------------------------|---|---|--------------------------------------------------------------------|
| Metal Bridge Railing                                                       | Y | N | Plan Note                                                          |
| Metal Stay-in-Place Forms                                                  | Y | N | Article 420-3                                                      |
| Metalwork for Elastomeric Bearings <sup>4,5</sup>                          | Y | N | Article 1072-8                                                     |
| Miscellaneous Metalwork <sup>4,5</sup>                                     | Y | N | Article 1072-8                                                     |
| Disc Bearings <sup>4</sup>                                                 | Y | N | "Disc Bearings"                                                    |
| Overhead and Digital Message Signs (DMS) (metalwork and foundations)       | Y | N | Applicable Provisions                                              |
| Placement of Equipment on Structures (cranes, etc.)                        | Y | N | Article 420-20                                                     |
| Prestressed Concrete Box Beam (detensioning sequences) <sup>3</sup>        | Y | N | Article 1078-11                                                    |
| Precast Concrete Box Culverts                                              | Y | N | "Optional Precast Reinforced Concrete Box Culvert at Station ____" |
| Prestressed Concrete Cored Slab (detensioning sequences) <sup>3</sup>      | Y | N | Article 1078-11                                                    |
| Prestressed Concrete Deck Panels                                           | Y | N | Article 420-3                                                      |
| Prestressed Concrete Girder (strand elongation and detensioning sequences) | Y | N | Articles 1078-8 and 1078-11                                        |
| Removal of Existing Structure over Railroad                                | Y | N | Railroad Provisions                                                |
| <hr/>                                                                      |   |   |                                                                    |
| Revised Bridge Deck Plans (adaptation to prestressed deck panels)          | Y | N | Article 420-3                                                      |
| Revised Bridge Deck Plans (adaptation to modular expansion joint seals)    | Y | N | "Modular Expansion Joint Seals"                                    |
| Sound Barrier Wall (precast items)                                         | Y | N | Article 1077-2 & "Sound Barrier Wall"                              |
| Sound Barrier Wall Steel Fabrication Plans <sup>5</sup>                    | Y | N | Article 1072-8 & "Sound Barrier Wall"                              |
| Structural Steel <sup>4</sup>                                              | Y | N | Article 1072-8                                                     |



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# ST-12

Chatham County

|                                     |   |   |                                                                                                            |
|-------------------------------------|---|---|------------------------------------------------------------------------------------------------------------|
| Temporary Detour Structures         | Y | Y | Article 400-3 &<br>"Construction,<br>Maintenance and Removal<br>of Temporary Structure at<br>Station ____" |
| TFE Expansion Bearings <sup>4</sup> | Y | N | Article 1072-8                                                                                             |

## FOOTNOTES

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
- Submittals for these items are necessary only when required by a note on plans.
- Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
- The fabricator may submit these items directly to the Structures Management Unit.
- The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
- Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
- Submittals are necessary only when the top slab thickness is 18" or greater.

## GEOTECHNICAL SUBMITTALS

| Submittal                                             | Submittals<br>Required by<br>Geotechnical<br>Engineering<br>Unit | Submittals<br>Required by<br>Structures<br>Management<br>Unit | Contract Reference<br>Requiring Submittal <sup>1</sup> |
|-------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------|
| Drilled Pier Construction Plans <sup>2</sup>          | Y                                                                | N                                                             | Subarticle 411-3(A)                                    |
| Crosshole Sonic Logging (CSL)<br>Reports <sup>2</sup> | Y                                                                | N                                                             | Subarticle 411-5(A)(2)                                 |
| Pile Driving Equipment Data<br>Forms <sup>2,3</sup>   | Y                                                                | N                                                             | Subarticle 450-3(D)(2)                                 |



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**ST-13**

Chatham County

|                                                  |                              |             |                                                   |
|--------------------------------------------------|------------------------------|-------------|---------------------------------------------------|
| Pile Driving Analyzer (PDA) Reports <sup>2</sup> | Y                            | N           | Subarticle 450-3(F)(3)                            |
| Retaining Walls <sup>4</sup>                     | Y; drawings and calculations | Y; drawings | Applicable Provisions                             |
| Temporary Shoring <sup>4</sup>                   | Y; drawings and calculations | Y; drawings | "Temporary Shoring" & "Temporary Soil Nail Walls" |

**FOOTNOTES**

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
- Submit one hard copy of submittal to the Engineer. Submit a second copy of submittal electronically (PDF via email), US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
- The Pile Driving Equipment Data Form is available from:  
<https://connect.ncdot.gov/projects/construction/ConstManRefDocs/PILE%20DRIVING%20EQUIPMENT%20DATA%20FORM.pdf>  
 See second page of form for submittal instructions.
- Electronic copy of submittal is required. See referenced provision.

**CRANE SAFETY****(6-20-19)****GENERAL**

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration (OSHA) regulations.

Submit all items listed below to the Engineer prior to beginning crane operations. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.



R-5930B

**ST-14**

Chatham County

# **CRANE SAFETY SUBMITTAL LIST**

- (A) Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- (B) Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- (C) Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.
- (D) Certifications:** Crane operators shall be certified by the National Commission for the Certification of Crane Operators (NCCCO) or the National Center for Construction Education and Research (NCCER). Other approved nationally accredited programs will be considered upon request. In addition, crane operators shall have a current CDL medical card. Submit a list of crane operator(s) and include current certification for each type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

## **MEASUREMENT AND PAYMENT**

No direct payment will be made for *Crane Safety*. All costs shall be considered incidental to items for which direct payment is made.

## **GROUT FOR STRUCTURES**

(12-1-17)

### **GENERAL**

This Special Provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This Special Provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, decks, end bent caps, or bent caps. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the *Standard Specifications* and this Special Provision.

### **MATERIAL REQUIREMENT**

Unless otherwise noted on the plans, use a Type 3 Grout in accordance with Section 1003 of the *Standard Specifications*.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Construction loading and traffic loading shall not be allowed until the 3-day compressive strength is achieved.



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**ST-15**

Chatham County

**SAMPLING AND PLACEMENT**

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease, and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

**MEASUREMENT AND PAYMENT**

No separate payment will be made for *Grout for Structures*. The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.



**PROJECT SPECIAL PROVISION**

(10-18-95) (Rev. 10-15-24)

Z-1

**PERMITS**

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

| <b><u>PERMIT</u></b>                                  | <b><u>AUTHORITY GRANTING THE PERMIT</u></b>                 |
|-------------------------------------------------------|-------------------------------------------------------------|
| Dredge and Fill and/or Work in Navigable Waters (404) | U. S. Army Corps of Engineers                               |
| Water Quality (401)                                   | Division of Water Resources, DEQ<br>State of North Carolina |
| Buffer Certification                                  | Division of Water Resources, DEQ<br>State of North Carolina |

The Contractor shall comply with all applicable permit conditions during construction of this project.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

**Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the restricted waters, wetlands or buffer zones, provided that activities outside those areas is done in such a manner as to not affect the restricted waters, wetlands or buffer zones.**





DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
69 DARLINGTON AVENUE  
WILMINGTON, NORTH CAROLINA 28403-1343

July 27, 2023

Regulatory Division

Action ID. SAW-2020-00746

Mr. Art King  
NCDOT Division 8  
121 DOT Drive  
Carthage, North Carolina 28327

Mr. Timothy Smith  
Chatham Park Investors, LLC.  
100 Weston Estates Way  
Cary, North Carolina 27513

Dear Mr. Art King and Mr. Timothy Smith,

Reference the Department of the Army (DA) permit issued on March 2, 2022, which authorized the permanent discharge of dredged or fill material into a total of 3,014 linear feet (LF) of stream channel (2,320 LF of which are considered a permanent loss) and 0.411 acre of wetland, and the temporary discharge of dredged or fill material into 1,366 LF of stream channel and 0.008 acre of wetland. The Project is comprised of two components: 1) Chatham Park North Village and 2) Chatham Park Way North (R-5930). Chatham Park North Village consists of approximately 2,224 acres of land and is located on the northeast side of the Town of Pittsboro, in Chatham County, North Carolina. Chatham Park Way North (R-5930) includes approximately 2.7 miles of roadway (334 acres) from approximately 1,400 feet north of US Highway 64 Bypass (beginning at Suttles Road [SR 1809]) to US Highway 15-501 (near Russell Chapel Church Road [SR 1520]) and would cross through the western section of Chatham Park North Village, intersecting with other proposed roads within the North Village.

This modification requests changes associated solely with the Chatham Park Way North (R-5930) Project component. The proposed roadway design has been revised to include roadway improvements along US Highway 15-501 at its proposed intersection with Chatham Park Way at the northern terminus of the proposed project; however, these improvements would not result in a discharge of dredged or fill material into any aquatic resources. The impacts previously authorized for Chatham Park Way





**DEPARTMENT OF THE ARMY**  
**WILMINGTON DISTRICT, CORPS OF ENGINEERS**  
 69 DARLINGTON AVENUE  
 WILMINGTON, NORTH CAROLINA 28403-1343

North (R-5930) were based on functional level of design (15%) and included a 20-foot offset from the anticipated slope stakes. This modification proposes to update the previously permitted quantities to reflect the proposed final design. This request also addresses a stream impact calculation error included in the initial DA permit, in which the permanent loss of stream channel was calculated based on the linear footage of the proposed culvert rather than the stream channel length impacted by the culvert. The originally authorized permanent stream channel loss and the corrected permanent stream channel loss are documented in this modification. The proposed changes in impacts due to final design calculation error corrections are shown on the submitted revised drawings and itemized by impact site in Table 1 and summarized for the Project in Table 2 below:

**Table 1. Discharge Summary of Permit Modification**

| Site   | Impact Type | Duration             | Permitted<br>(stream = LF,<br>wetland = acre) | Proposed<br>(stream = LF,<br>wetland = acre) | Difference<br>(stream = LF,<br>wetland = acre) |
|--------|-------------|----------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------|
| Site 1 | Wetland     | Temporary            | 0                                             | 0.018                                        | +0.018<br>(Increase)                           |
| Site 2 | Stream      | Permanent<br>Loss    | 244*                                          | 245                                          | +1 (Increase)                                  |
|        |             |                      | 251**                                         |                                              | -6 (Decrease)                                  |
|        |             | Permanent<br>No Loss | 77                                            | 34                                           | -43 (Decrease)                                 |
|        |             | Temporary            | 20                                            | 25                                           | +5 (Increase)                                  |
| Site 3 | Stream      | Permanent<br>Loss    | 167*                                          | 201                                          | +34 (Increase)                                 |
|        |             |                      | 170**                                         |                                              | +31 (Increase)                                 |
|        |             | Permanent<br>No Loss | 76                                            | 44                                           | -32 (Decrease)                                 |
|        |             | Temporary            | 20                                            | 63                                           | +43 (Increase)                                 |
| Site 4 | Stream      | Permanent<br>Loss    | 175*                                          | 203                                          | +28 (Increase)                                 |
|        |             |                      | 242**                                         |                                              | -39 (Decrease)                                 |
|        |             | Permanent<br>No Loss | 103                                           | 71                                           | -32 (Decrease)                                 |
|        |             | Temporary            | 20                                            | 89                                           | +79 (Increase)                                 |
| Site 5 | Stream      | Permanent<br>Loss    | 123*                                          | 125                                          | +2 (Increase)                                  |
|        |             |                      | 128**                                         |                                              | -3 (Decrease)                                  |
|        |             | Permanent<br>No Loss | 66                                            | 38                                           | -28 (Decrease)                                 |
|        |             | Temporary            | 20                                            | 20                                           | No Change                                      |

\*Permitted linear footage error using culvert length in place of stream loss

\*\*Linear footage of stream loss based on permitted plans





**DEPARTMENT OF THE ARMY**  
**WILMINGTON DISTRICT, CORPS OF ENGINEERS**  
 69 DARLINGTON AVENUE  
 WILMINGTON, NORTH CAROLINA 28403-1343

**Table 2. Discharge Summary of Project**

| Project Component                  | Impact Type | Duration             | Permitted<br>(stream = LF,<br>wetland = acre) | Proposed<br>(stream = LF,<br>wetland = acre) | Difference<br>(stream = LF,<br>wetland = acre) |
|------------------------------------|-------------|----------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------|
| Chatham Park<br>North Village      | Wetland     | Permanent            | 0.411                                         | N/A                                          | No Change                                      |
|                                    |             | Temporary            | 0.008                                         | N/A                                          | No Change                                      |
|                                    | Stream      | Permanent<br>Loss    | 1,611                                         | N/A                                          | No Change                                      |
|                                    |             | Permanent<br>No Loss | 392                                           | N/A                                          | No Change                                      |
|                                    |             | Temporary            | 1,286                                         | N/A                                          | No Change                                      |
|                                    | Wetland     | Temporary            | 0                                             | 0.018                                        | +0.018<br>(Increase)                           |
| Chatham Park Way<br>North (R-5930) | Stream      | Permanent<br>Loss    | 709*                                          | 799                                          | +90<br>(Increase)                              |
|                                    |             |                      | 791**                                         |                                              | +8<br>(Increase)                               |
|                                    |             | Permanent<br>No Loss | 322                                           | 187<br>197                                   | -135<br>(Decrease)                             |
|                                    |             | Temporary            | 80                                            |                                              | +117<br>(Increase)                             |

\*Permitted linear footage error using culvert length in place of stream loss

\*\*Linear footage of stream loss based on permitted plans

The proposed project revisions result in a net increase of 8 LF of stream channel loss, a net increase of 177 LF of temporary discharge of fill material within stream channel, a net increase of temporary discharge of fill material within 0.018 ac of wetland, a net decrease of 135 LF of permanent discharge of fill material resulting in no loss of stream channel.

I have determined that the proposed project modifications described above are not contrary to the public interest and are consistent with the 404(b)(1) Guidelines and therefore, the DA permit is hereby modified. The authorized work shall be completed in accordance with the attached revised drawings and the following additional Special Condition:

Special Condition 27. In order to compensate for impacts associated with this permit modification, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special





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conditions listed on this form, are hereby incorporated as special conditions of this permit modification.

All other conditions of the original permit, including the Compensatory Mitigation Responsibility Transfer Forms attached to the DA permit issued February 2, 2022, remain applicable and the expiration date remains unchanged.

This approved modification should be attached to the original permit and will be utilized for future compliance reviews of the Project. If you have questions, please contact George Lyle Phillips III of the Raleigh Regulatory Field Office, at telephone (919) 588-9200, or email [George.L.Phillips@usace.army.mil](mailto:George.L.Phillips@usace.army.mil).

FOR THE DISTRICT ENGINEER

A handwritten signature in cursive script that reads "Jean B. Gibby".

Brad A. Morgan  
COL, U.S. Army  
District Commander

Enclosures:

Copies Furnished (electronic):

Mr. Ryan Conchilla, PWS  
Division of Water Resources  
North Carolina Department of Environmental Quality  
[ryan.conchilla@deq.nc.gov](mailto:ryan.conchilla@deq.nc.gov)

Mr. Todd Bowers  
Oceans, Wetlands and Streams Protection Branch  
Wetlands and Streams Regulatory Section  
U.S. Environmental Protection Agency – Region 4  
[bowers.todd@epa.gov](mailto:bowers.todd@epa.gov)





REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
69 DARLINGTON AVENUE  
WILMINGTON, NORTH CAROLINA 28403-1343

March 02, 2022

Regulatory Division/1200A

Action ID: SAW-2020-00746

Mr. Tim Smith  
Chatham Park Investors, LLC (CPI)  
100 Weston Estates Way  
Cary, North Carolina 27513

Mr. Art King  
North Carolina Department of Transportation (NCDOT)  
121 DOT Drive  
Carthage, North Carolina 28327

Dear Messrs. Smith and King:

In accordance with your written request of April 13, 2020, and additional information received September 3, 2020, and February 21, 2022, and the ensuing administrative record, enclosed are two copies of a permit to construct the Chatham Park North Village and associated infrastructure, including the NCDOT Chatham Parkway (TIP No. R-5930). These activities involve the permanent discharge of dredged or fill material into a total of 3,014 linear feet (LF) of stream channel (2,320 LF permanent stream channel loss from culvert installation, 714 LF of stream channel impacts from rip rap installation), 1,366 LF of temporary stream channel impacts from construction access, 0.411 acre of permanent wetland loss from fill, and 0.008 acre of temporary wetland impacts from construction access.

You should acknowledge that you accept the terms and conditions of the enclosed permit by signing and dating each copy in the spaces provided ("Permittee" on page 3). Your signature, as Permittee, indicates that, as consideration for the issuance of this permit, you voluntarily accept and agree to comply with all of the terms and conditions of this permit. All pages of both copies of the signed permit with drawings should then be returned to this office for final authorization. A self-addressed envelope is enclosed for your convenience.



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Title 33, Part 325.1(f), of the Code of Federal Regulations reads, in part, that, "A \$10 fee will be charged for permit applications when the work is noncommercial in nature and provides personal benefits that have no connection with a commercial enterprise...", and "A fee of \$100 will be charged for permit applications when the planned or ultimate purpose of the project is commercial or industrial in nature and is in support of operations that charge for the production, distribution, or sale of goods or services." As your application fits the latter category, you are requested to remit your check for \$100, made payable to the Finance and Accounting Officer, USAED, Wilmington. The check should accompany the signed and dated copies of your permit.

This correspondence contains a proffered permit for the above described site. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division  
Attn: James C. Lastinger  
69 Darlington Avenue  
Wilmington, North Carolina 28403

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by April 30, 2022.

It is not necessary to submit an RFA form to the Division Office if you do not object to the decision contained in this correspondence.

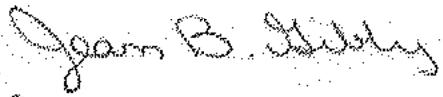
After the permit is authorized in this office, the original copy will be returned to you; the duplicate copy will be permanently retained in this office. If you have questions, please contact James C. Lastinger at the Raleigh Regulatory Field Office, telephone 919-554-4884, extension 32.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web site at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=136:4:0](http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0) and completing the survey online. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.



-3-

Sincerely,



For Tyler Crumbley  
Acting Chief, Regulatory Division  
Wilmington District

Enclosures

Copy Furnished:

Mr. Bob Zarzecki  
Soil and Environmental Consultants  
8412 Falls of Neuse Road, suite 104  
Raleigh, NC 27615

Mr. Jason Hartshorn  
Kimley-Horn  
421 Fayetteville Street, suite 600  
Raleigh, NC 27601



## DEPARTMENT OF THE ARMY PERMIT

Permittee **CHATHAM PARK INVESTORS****ATTN: MR. TIM SMITH****NORTH CAROLINA DEPARTMENT OF TRANSPORTATION****ATTN: MR. ART KING**Permit No. **SAW-2020-00746**Issuing Office **CESAW-RG-R**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Description:** The project involves construction of Chatham Park North Village and associated infrastructure, including the NCDOT Chatham Parkway (TIP No. R-5930). The project involves the permanent discharge of dredged or fill material into 3,014 linear feet of intermittent and perennial stream channel, 0.411 acre of riparian non-riverine wetlands, the temporary discharge of fill material into 1,366 linear feet of stream channel and 0.008 acre of wetlands.

**Project Location:** Chatham Park North Village comprises approximately 2,224 acres of land and is located on the northeast side of the Town of Pittsboro, in Chatham County, North Carolina. The property is bound by the Haw River to the north and east, US 15-501 to the west, and US 64 Business to the south. In addition, there are approximately 2.7 miles of roadway proposed on new location comprising 334 acres from approximately 1,400 feet north of US 64 Bypass (beginning at Suttles Road [SR 1809]) to US 15-501 (near Russell Chapel Church Road [SR 1520]) and would cross through the western section of Chatham Park North Village, intersecting with other proposed roads within the North Village.

## Permit Conditions:

## General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2052**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you



abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

**SEE ATTACHED SPECIAL CONDITIONS**

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.



- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.
- 3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
  - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
  - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
  - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
  - d. Design or construction deficiencies associated with the permitted work.
  - e. Damage claims associated with any future modification, suspension, or revocation of this permit.
- 4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
- 5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
  - a. You fail to comply with the terms and conditions of this permit.
  - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
  - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with



such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

R. D. D. V.P. / AGENT  
(PERMITTEE) CHATHAM PARK INVESTORS  
MR. TIM SMITH

3/2/22  
(DATE)

[Signature]  
(PERMITTEE) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
for MR. ART KING

3/2/2022  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

[Signature]  
for (DISTRICT COMMANDER) BENJAMIN A. BENNETT, COLONEL

2 Mar 2022  
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFeree)

(DATE)



**SPECIAL CONDITIONS  
ACTION ID: SAW-2020-00746  
CHATHAM PARK INVESTORS  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
CHATHAM PARK NORTH VILLAGE AND NCDOT TIP NO. R-5930  
CHATHAM COUNTY**

**SPECIAL CONDITIONS**

Failure to institute and carry out the details of the following special conditions below (listed as 1-26) will result in a directive to cease all ongoing and permitted work within waters of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.

**WORK LIMITS / NOTIFICATION**

1. **Work Limits:** All work authorized by this permit shall be performed in strict compliance with the attached permit plans entitled "Chatham Park" dated March 30, 2020. The Permittees shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.
2. **Unauthorized Dredge and/or Fill:** Except as authorized by this permit or any Corps-approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.
3. **Permit Distribution:** The Permittees shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions and drawings shall be available at the project site during construction and maintenance of this project.
4. **Preconstruction Meeting:** The Permittees shall conduct an onsite preconstruction meeting between their representatives, contractor's representatives, and the appropriate U.S. Army Corps of Engineers Project Manager prior to undertaking any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all terms and conditions contained within the Department of the Army permit. The



**SPECIAL CONDITIONS  
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CHATHAM PARK NORTH VILLAGE AND NCDOT TIP NO. R-5930  
CHATHAM COUNTY**

- Permittees shall schedule the preconstruction meeting for a time frame when the Corps and NCDWR Project Managers can attend. The Permittees shall invite the Corps and NCDWR Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting. The thirty (30) day requirement can be waived with the concurrence of the Corps.
5. Notification of Construction Commencement and Completion: The Permittees shall notify the U.S. Army Corps of Engineers in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.
  6. Reporting Address: All reports, documentation, and correspondence required by the conditions of this permit shall be submitted to the following: U.S. Army Corps of Engineers, Wilmington District Raleigh Field Office, Attn: James Lastinger at 919-554-4884 Ext. 32 / [James.c.Lastinger@usace.army.mil](mailto:James.c.Lastinger@usace.army.mil). The Permittees shall reference the following permit number, SAW-2020-00746, on all submittals.
  7. Permit Revocation: The Permittees, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.
  8. Reporting Violations: Violation of these permit conditions or violation of Section 404 of the Clean Water Act shall be reported to the Corps in writing and by telephone at: 919-554-4884 Ext. 32 / [James.C.Lastinger@usace.army.mil](mailto:James.C.Lastinger@usace.army.mil) within 24 hours of the Permittee's discovery of the violation.
  9. Endangered Species Act: The Permittees shall implement all necessary measures to ensure the authorized activity does not kill, injure, capture, harass, or otherwise harm any federally listed threatened or endangered species. While accomplishing the authorized work, if the Permittees discover or observe an injured or dead threatened or endangered species, the U.S. Army Corps of Engineers, Wilmington District Raleigh Field Office, Attn: James Lastinger at 919-554-4884 Ext. 32 /

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CHATHAM COUNTY**

James.C.Lastinger@usace.army.mil will be immediately notified to initiate the required Federal coordination.

10. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (PBO) titled, "NCDOT Program Effects on the Northern Long-eared Bat in Divisions 1-8", dated November 6, 2020, contains agreed upon conservation measures for the NLEB. As noted in the PBO, applicability of these conservation measures varies depending on the location of the project. Your authorization under this Department of the Army permit is conditional upon your compliance with all applicable conservation measures in the PBO, which are incorporated by reference in this permit. Failure to comply with the applicable conservation measures would constitute non-compliance with your Department of the Army permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO, and with the ESA.
11. National Historic Preservation Act: While accomplishing the authorized work, if the Permittees discover any previously unknown cultural resources, the District Engineer will be immediately notified so that required coordination can be initiated with the North Carolina Division of Natural and Cultural Resources.

**RELATED LAWS**

12. The North Carolina Division of Water Resources (DWR) permit/certification number 4228 was issued for this project on March 31, 2021. Special conditions were issued associated with this water quality permit/certification and a copy of these conditions is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.
13. Maintain Flows and Circulation Patterns of Waters: Except as specified in the plans attached to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters and/or wetlands.
14. Sediment and Erosion Control:



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- a. During the clearing phase of the project, heavy equipment shall not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.
- b. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit. This includes, but is not limited to, sediment control fences and other barriers intended to catch sediment losses.
- c. The Permittees shall remove all sediment and erosion control measures placed in waters and/or wetlands, and shall restore natural grades on those areas, prior to project completion.
- d. The Permittees shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project shall remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures shall be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures shall be inspected and maintained regularly, especially following rainfall events. All fill material shall be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

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CHATHAM COUNTY**

15. **Clean Fill:** The Permittees shall use only clean fill material for this project. The fill material shall be free of items such as trash, construction debris, metal and plastic products, and concrete block with exposed metal reinforcement bars. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source.
16. **Water Contamination:** All mechanized equipment shall be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the Permittees shall immediately report it to the N.C. Division of Water Resources at (919) 733-3300 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act shall be followed.

**AQUATIC LIFE**

17. **Aquatic Life Movement:** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. All discharges of dredged or fill material within waters of the United States shall be designed and constructed, except as authorized as indirect impacts, to maintain low flows to sustain the movement of aquatic species.
18. **Prohibitions on Concrete:** The Permittees shall take measures necessary to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with any water in or entering into waters of the United States. Water inside coffer dams or casings that has been in contact with concrete shall only be returned to waters of the United States when it no longer poses a threat to aquatic organisms (concrete is set and cured).

**CULVERTS**

19. Unless otherwise requested in the application and depicted on the approved permit plans, culverts greater than 48 inches in diameter shall be buried at



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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
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least one foot below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert shall be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Culverts shall be designed and constructed in a manner that minimizes destabilization and head cutting.

20. Measures shall be included in the culvert construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a culvert or pipe shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.
21. The Permittee shall implement all reasonable and practicable measures to ensure that equipment, structures, fill pads, work, and operations associated with this project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or stream bank erosion. The Permittee shall routinely monitor for these effects, cease all work when detected, take initial corrective measures to correct actively eroding areas, and notify this office immediately. Permanent corrective measures may require additional authorization by the U.S. Army Corps of Engineers.

**UTILITY LINES**

22. Temporary Impacts Restoration Measures: Within thirty (30) days of the date of completing the authorized work, the Permittee shall remove all temporary fills in waters of the United States and restore the affected areas to pre-construction contours and elevations. The affected areas shall be re-vegetated with native, non-invasive vegetation as necessary to minimize erosion and ensure site stability. In wetland areas where pipeline installation via trenching is authorized, wetland topsoil shall be segregated from the

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underlying subsoil, and the top 6 to 12 inches of the trench shall be backfilled with topsoil from the trench.

23. The Permittee shall submit to the Corps as-built surveys of each of the authorized jurisdictional crossings associated with the utility line installation. The Permittee shall submit the surveys within sixty (60) days of construction completion of the subject utilities.
24. Cleared wetland areas shall be re-vegetated with a wetland seed mix or a mix of native woody species. Fescue grass or any invasive species such as *Lespedeza* spp., shall not be used within the wetland areas.
25. Prior to construction within any jurisdictional areas, the Permittee shall correctly install silt fencing (with or without safety fencing) parallel with the utility line corridor, on both sides of the jurisdictional crossing. This barrier is to serve both as an erosion control measure and a visual identifier of the limits of construction within any jurisdictional area. The Permittee shall maintain the fencing, at minimum, until the wetlands have re-vegetated and stabilized.

**COMPENSATORY MITIGATION**

26. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Forms. The requirements of these forms, including any special conditions listed on these forms, are hereby incorporated as special conditions of this permit.

Construction within jurisdictional areas on the property shall begin only after the permittee has made payments per the below mitigation table to either the DMS or an approved mitigation bank within the service area and provided a written confirmation to the Corps that it agrees to accept responsibility for the mitigation work required.

The cost of credits will be the current price at the time of payment, not the current price at the time of permit issuance. No work on any phase of the project shall begin until the payment for that phase has been issued.



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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**CHATHAM PARK NORTH VILLAGE AND NCDOT TIP NO. R-5930**  
**CHATHAM COUNTY**

| Payment/Phase | Impact numbers                 | Mitigation Required                  | Mitigation Payment deadline                                 |
|---------------|--------------------------------|--------------------------------------|-------------------------------------------------------------|
| 1             | 2, 26, 27, 28, 28A, 40         | 892 SMU's<br>0.102 acre of wetlands  | Prior to construction or 12/31/2022 which ever occurs first |
| 2             | 31, 48, 50, 74, 81, 92, 118    | 1,310 SMU's<br>0.72 acre of wetlands | Prior to construction or 9/1/2026 which ever occurs first   |
| 3             | 13, 53, 61, 100, 104, 108, 115 | 1,327 SMU's                          | Prior to construction or 9/1/2031 which ever occurs first   |

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director



July 11, 2023

DWR # 20200533v3\_Rev 1  
Chatham County

NCDOT Division 8  
Attn: Mr. Art King  
121 DOT Drive  
Carthage, NC 28327  
**Delivered via email to: acking@ncdot.gov**

Chatham Park Investors LLC  
Attn: Mr. Timothy Smith  
100 Weston Estates Way  
Cary, NC 27513  
**Delivered via email to: tim@prestondev.com**

**Subject: Approval of Individual 401 Water Quality Certification -Modification**  
NCDOT Chatham Park Way North (R-5930)  
USACE Action ID. No. SAW-2020-00746

Dear Sirs:

Attached hereto is a copy of Certification No. WQC004228 issued to Art King and NCDOT Division 8 and Timothy Smith and Chatham Park Investors LLC ("CPI") dated July 11, 2023. This approval is for the purpose and design described in your application for a modification. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)].

This Water Quality Certification does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user.



Upon the presentation of proper credentials, the Division may inspect the property.

This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Non-compliance with or violation of the conditions herein set forth may result in revocation of this Water Quality Certification for the project and may also result in criminal and/or civil penalties.

If you are unable to comply with any of the conditions of this Water Quality Certification you must notify the Raleigh Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

This approval and its conditions are final and binding unless contested [G.S. 143-215.5].

This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center  
Raleigh, NC 27699-1601

This letter completes the Division's review under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Ryan Conchilla at 919-707-9111 or [ryan.conchilla@deg.nc.gov](mailto:ryan.conchilla@deg.nc.gov) if you have any questions or concerns.

Sincerely,

DocuSigned by:  
*Amy Chapman*  
9C9886312DD474...

Richard E. Rogers, Director  
Division of Water Resources

cc: Willie Sullivan, Kimley-Horn (via email)  
Lyle Phillips, USACE Raleigh Regulatory Field Office (via email)  
Beth Harmon, Division of Mitigation Services (via email)  
DWR 401 & Buffer Permitting Branch Electronic file

Filename: 20200533v3\_Rev 1\_Chatham Park Way North\_401\_IC-MOD.doc



**NORTH CAROLINA 401 WATER QUALITY CERTIFICATION**

**CERTIFICATION # WQC004228** is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to North Carolina's Regulations in 15 NCAC 02H .0500 and 15A NCAC 02B .0200, to Art King and NCDOT Division 8 and Timothy Smith and Chatham Park Investors LLC ("CPI"), who have authorization for the impacts listed below, as described within your IP modification request received by the N.C. Division of Water Resources (Division) on June 27, 2023.

The State of North Carolina certifies that this activity will comply with water quality requirements and the applicable portions of Sections 301, 302, 303, 306, 307 of the Public Laws 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, and conditions hereinafter set forth.

The following impacts are hereby approved. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b)]

| <b>SITE</b>                                                            | <b>Amount Approved (units) Permanent</b> | <b>Amount Approved (units) Temporary</b> |
|------------------------------------------------------------------------|------------------------------------------|------------------------------------------|
| <b>Chatham Park Way North (NCDOT R-5930) – Stream Impacts</b>          |                                          |                                          |
| Impact 1- Construction Easement                                        | 0 (linear feet)                          | 15 (linear feet)                         |
| Impact 2- Outlet Protection                                            | 17 (linear feet)                         | 0 (linear feet)                          |
| Impact 3 – 1 @ 7'x 7' RCBC                                             | 270 (linear feet)                        | 0 (linear feet)                          |
| Impact 4- Inlet Protection                                             | 17 (linear feet)                         | 0 (linear feet)                          |
| Impact 5- Construction Easement                                        | 0 (linear feet)                          | 10 (linear feet)                         |
| Impact 6- Construction Easement                                        | 0 (linear feet)                          | 33 (linear feet)                         |
| Impact 7- Outlet Protection                                            | 26 (linear feet)                         | 0 (linear feet)                          |
| Impact 8 - 1 @ 11'x 7' RCBC                                            | 201 (linear feet)                        | 0 (linear feet)                          |
| Impact 9- Inlet Protection                                             | 18 (linear feet)                         | 0 (linear feet)                          |
| Impact 10- Construction Easement                                       | 0 (linear feet)                          | 30 (linear feet)                         |
| Impact 11- Construction Easement                                       | 0 (linear feet)                          | 31 (linear feet)                         |
| Impact 12- Outlet Protection                                           | 33 (linear feet)                         | 0 (linear feet)                          |
| Impact 13 - 3 @ 11'x 12' RCBC                                          | 174 (linear feet)                        | 0 (linear feet)                          |
| Impact 14- Inlet Protection                                            | 38 (linear feet)                         | 0 (linear feet)                          |
| Impact 15- Construction Easement                                       | 0 (linear feet)                          | 38 (linear feet)                         |
| Impact 15- Channel Change                                              | 29 (linear feet)                         | 20 (linear feet)                         |
| Impact 16- Construction Easement                                       | 0 (linear feet)                          | 10 (linear feet)                         |
| Impact 17- Outlet Protection                                           | 29 (linear feet)                         | 0 (linear feet)                          |
| Impact 18- 1 @ 54' RCP                                                 | 125 (linear feet)                        | 0 (linear feet)                          |
| Impact 19- Inlet Protection                                            | 9 (linear feet)                          | 0 (linear feet)                          |
| Impact 20- Construction Easement                                       | 0 (linear feet)                          | 10 (linear feet)                         |
| <b>TOTAL</b>                                                           | <b>986 (linear feet)</b>                 | <b>197 (linear feet)</b>                 |
| <b>Chatham Park Way North (NCDOT R-5930) - 404/401 Wetland Impacts</b> |                                          |                                          |
| Impact 1- Skimmer Basin Hand Clearing                                  | 0 (acres)                                | 0.018 (acres)                            |

This approval requires you to follow the conditions listed in the certification below.

**CONDITIONS OF CERTIFICATION [15A NCAC 02H .0507(c)]:**

1. The Division has received an updated acceptance letter from the NC Division of Mitigation Services (DMS) dated March 28, 2023 for impacts to 799 linear feet of jurisdictional streams located in the Cape Fear River Basin in Chatham County. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate for each phase outlined in the mitigation plan submitted with the application and updated (*Mitigation Plan, Revised August 2020*) shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

Phase 1 Mitigation:

|         | Compensatory Mitigation Required | River & Sub-basin Number |
|---------|----------------------------------|--------------------------|
| Streams | 799 linear feet                  | Cape Fear (03030002)     |

*Citation: 15A NCAC 02H .0506(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the project must provide for replacement of existing uses through compensatory mitigation.*

2. Mitigation for NCDOT Chatham Park Way (R-5930) for must be provided for the proposed impacts as specified in the table above. The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

*Citation: 15A NCAC 02H .0506(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the project must provide for replacement of existing uses through compensatory mitigation.*

3. Any final construction plans for development within the Chatham Park Way portion of this project must include or reference the application and plans approved by the Division under this authorization letter and certification. CPI shall evaluate all final construction plans for all phases of the project, including any areas that are sold, leased, or otherwise constructed by others, to assure that they are consistent, and all relative impacts are accounted for and shown on the application documents.



*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

4. NCDOT shall submit final construction plans for the Chatham Park Way (R-5930) portion of this project for review and approval by DWR. The final design of Chatham Park Way shall follow the NCDOT Post-Construction Stormwater Plan and Stormwater Best Management Practices Toolbox and that all stormwater measures shall be properly inspected and maintained in accordance with NCDOT's National Pollutant Discharge Elimination System (NPDES) stormwater permit NCS000250.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

5. CPI shall ensure that all final construction plans for the development within Chatham Park North portion of this project comply with the approved Master Stormwater Manual Additional Element as approved by the Town. CPI shall evaluate all proposed SCM locations in detail to ensure that downstream hydrology is provided to all jurisdictional features within the project limits. CPI shall notify DWR if any future modifications occur to approved Master Stormwater Manual Additional Element which would result in less stringent stormwater requirements for the overall project.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

6. CPI shall notify all future buyers, tenants, and/or leases of the conditions of this certification, particularly with attention to the requirements that may be above and beyond typical erosion control and/or stormwater measures. CPI shall retain documentation of these communications and provide them to DWR upon request.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

7. NCDOT shall schedule and conduct a pre-construction meeting with the construction contractors, NCDOT staff, and Division staff to review the conditions and requirements of the respective certifications and permits for clarity and understanding before any impacts authorized in this Certification occur.

*Citation: 15A NCAC 02H .0507 (c) and 15A NCAC 02H .0502 (e) and 15A NCAC 02H .0506 (b)(3)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

8. All sewer lines shall be designed, constructed and maintained in accordance with Title 15A NCAC Chapter 02T, applicable Minimum Design Criteria (MDC), and/or Alternative Design Criteria.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: The referenced Minimum Design criteria and 02T rules were adopted to ensure that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

9. Any utility construction corridor that is parallel to a stream or open water shall not be closer than 10 feet to the top of bank or ordinary high-water mark.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

10. Construction corridors in wetlands and/or across stream channels shall be minimized to the maximum extent practicable and shall not exceed 40 feet wide for utility lines.

For construction corridors in wetlands and across stream channels, stumps shall be grubbed only as needed to install the utility and remaining stumps shall be cut off at grade level. The general stripping of topsoil within wetlands along the construction corridor is prohibited.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*



11. Permanent maintained access corridors in wetlands and across stream channels shall be restricted to the minimum width practicable and shall not exceed 30 feet wide except at manhole locations.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

12. For all utility lines constructed within wetlands, an anti-seep collar shall be placed at the downstream (utility line gradient) wetland boundary and every 150 feet up the gradient until the utility exits the wetland. Anti-seep collars may be constructed with class B concrete, compacted clay, PVC pipe, or metal collars. Wetland crossings that are directionally drilled, and perpendicular wetland crossings that are open cut and less than 150 feet long do not require anti-seep collars. The compacted clay shall have a specific infiltration of  $1 \times 10^{-5}$  cm/sec or less. A section and plan view diagram is attached for the anti-seep collars.

The following specifications shall apply to class B concrete:

- Minimum cement content, sacks per cubic yard with rounded coarse aggregate 5.0
- Minimum cement content, sacks per cubic yard with angular coarse aggregate 5.5
- Maximum water-cement ratio gallons per sack 6.8
- Slump range 2" to 4"
- Minimum strength – 28-day psi 2,500

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

13. The permittee shall have a specific plan for restoring wetland contours to pre-construction conditions. Any excess material will be removed to a high ground disposal area.

The mixing of topsoil and subsoils within the wetlands along utility corridors shall be minimized to the greatest extent practical. During excavation, the soils shall be placed on fabric to minimize impacts whenever possible. Topsoil excavated from utility trenches will be piled separately from subsoils and will be backfilled into the trench only after the subsoils have been placed and compacted.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

14. The permittee shall report to the DWR Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200], including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Timely reporting of non-compliance is important in identifying and minimizing detrimental impacts to water quality and avoiding impacts due to water pollution that precludes any best use on a short-term or long-term basis.*

15. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the approved impacts [including temporary impacts].

*Citation: 15A NCAC 02H .0506; 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

16. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2B of Title 15A in the North Carolina Administrative Code.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: The referenced Riparian Buffer rules were adopted to address water quality impairments and further protect existing uses.*

17. All construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973), the Chatham County Soil Erosion and Sedimentation Control Ordinance, as well as 15A NCAC 04B .0124: Design Standards for Sensitive Watersheds items (b), (c) and (e).

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*



18. Sediment and erosion control measures shall not be installed in wetland or waters except within the footprint of temporary or permanent impacts otherwise authorized by this Certification. If placed within authorized impact areas, then placement of such measures shall not be conducted in a manner that results in dis-equilibrium of any wetlands, streambeds, or streambanks. Any silt fence installed within wetlands shall be removed from wetlands and the natural grade restored within two (2) months of the date that DEMLR or locally delegated program has released the specific area within the project to ensure wetland standards are maintained upon completion of the project.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

19. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses (including aquatic life propagation and biological integrity), and the water quality to protect such uses, are protected. Protections are necessary to ensure any remaining surface waters or wetlands, and any surface waters or wetlands downstream, continue to support existing uses during and after project completion. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

20. If the project is covered by NPDES Construction Stormwater Permit Number NCG010000 or NPDES Construction Stormwater Permit Number NCG250000, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity*

*in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

21. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC Department of Transportation Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.*

22. In-stream structures installed to mimic natural channel geomorphology such as cross-vanes, sills, step-pool structures, etc. shall be designed and installed in such a manner that allow for continued aquatic life movement.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that in-stream structures are installed properly will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

23. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. If the width of the culvert is wider than the stream channel, the culvert shall include multiple boxes/pipes, baffles, benches and/or sills to maintain the natural width of the stream channel. If multiple culverts/pipes/barrels are used, low flows shall be accommodated in one culvert/pipe and additional culverts/pipes shall be installed such that they receive only flows above bank full.



Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life. If the culvert outlet is submerged within a pool or scour hole and designed to provide for aquatic passage, then culvert burial into the streambed is not required.

For structures less than 72" in diameter/width, and topographic constraints indicate culvert slopes of greater than 2.5% culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross-vanes, sills, baffles etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 30 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required, provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 30 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that structures are installed properly in waters will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

24. Bridge deck drains shall not discharge directly into streams or wetlands. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering streams or wetlands.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that in-stream structures are installed properly will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

25. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters.

*Citation: 15A 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

26. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state.

*Citation: 15A 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

27. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross-sectional dimensions, planform pattern, and longitudinal bed profile. All temporarily impacted sites shall be restored and stabilized with native vegetation.

*Citation: 15A NCAC 02H.0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Protections are necessary to ensure any remaining surface waters or wetlands, and any surface waters or wetlands downstream, continue to support existing uses after project completion.*

28. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams or wetlands shall be installed as outlined in the most recent edition of the North Carolina Sediment and Erosion Control Planning and Design Manual or the North Carolina Surface Mining Manual or the North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities so as not to restrict stream flow or cause dis-equilibrium during use of this Certification.



*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that structures are installed properly in waters will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

29. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original streambed elevation and streambank contours are restored and maintained and shall consist of clean rock or masonry material free of debris or toxic pollutants. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or be installed in a manner that precludes aquatic life passage.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

30. Any rip-rap used for stream stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows, and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0201*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

31. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication, and general equipment maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland*

*Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

32. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance and compaction.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0231*

*Justification: Wetland standards require maintenance or enhancement of existing uses of wetlands such that hydrologic conditions necessary to support natural biological and physical characteristics are protected; populations of wetland flora and fauna are maintained to protect biological integrity of the wetland; and materials or substances are not present in amounts that may cause adverse impact on existing wetland uses.*

33. In accordance with 143-215.85(b), the permittee shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

*Citation: 15A NCAC 02H .0507(c); N.C.G.S 143-215.85(b)*

*Justification: Person(s) owning or having control over oil or other substances upon notice of discharge must immediately notify the Department, or any of its agents or employees, of the nature, location, and time of the discharge and of the measures which are being taken or are proposed to be taken to contain and remove the discharge. This action is required in order to contain or divert the substances to prevent entry into the surface waters. Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

34. The permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

35. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this General Certification. A copy of this General Certification shall be available at the project site during the construction and maintenance of this project.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*



*Justification: Those actually performing the work should be aware of the requirements of this 401 Water Quality General Certification to minimize water quality impacts.*

This approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 or CAMA Permit. The conditions in effect on the date of issuance shall remain in effect for the life of the project, regardless of the expiration date of this Certification. [15A NCAC 02H .0507(c)]

This, the 11<sup>th</sup> day of July 2023

DocuSigned by:  
*Amy Chapman*  
9C5866312DCD474...

Richard E. Rogers, Director  
Division of Water Resources

WQC004228-Modification

ROY COOPER  
*Governor*  
DIONNE DELLI-GATTI  
*Secretary*  
S. DANIEL SMITH  
*Director*



March 31, 2021

DWR # 20200533v2  
Chatham County

NCDOT Division 8  
Attn: Mr. Art King  
121 DOT Drive  
Carthage, NC 28327  
Delivered via email to: [acking@ncdot.gov](mailto:acking@ncdot.gov)

Chatham Park Investors LLC  
Attn: Mr. Timothy Smith  
100 Weston Estates Way  
Cary, NC 27513  
Delivered via email to: [tim@prestondev.com](mailto:tim@prestondev.com)

**Subject: Approval of Individual 401 Water Quality Certification**  
Chatham Park North Village & NCDOT Chatham Park Way North (R-5930)  
USACE Action ID. No. SAW-2020-00746

Dear Sirs:

Attached hereto is a copy of Certification No. WQC004228 issued to Art King and NCDOT Division 8 and Timothy Smith and Chatham Park Investors LLC ("CPI") dated March 31, 2021. This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)].

This Water Quality Certification does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This



Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user.

Upon the presentation of proper credentials, the Division may inspect the property.

This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Non-compliance with or violation of the conditions herein set forth may result in revocation of this Water Quality Certification for the project and may also result in criminal and/or civil penalties.

If you are unable to comply with any of the conditions of this Water Quality Certification you must notify the Raleigh Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

This approval and its conditions are final and binding unless contested [G.S. 143-215.5].

This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center  
Raleigh, NC 27699-1601

This letter completes the Division's review under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Sue Homewood at 336-776-9693 or [Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov) if you have any questions or concerns.

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Daniel Smith".

S. Daniel Smith, Director  
Division of Water Resources

cc: Jason Hartshorn, Kimley-Horn (via email)  
Bob Zarzecki, Soil & Environmental Consultants, PA (via email)  
James Lastinger, USACE Raleigh Regulatory Field Office (via email)  
Todd Bowers, EPA, (via email)  
Gabriela Garrison, NCWRC (via email)  
Emily Wells, USFWS (via email)  
DWR 401 & Buffer Permitting Branch Electronic file

Filename: 20200533v2ChathamPark{Chatham}\_401\_IC.docx



### NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

**CERTIFICATION # WQC004228** is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to North Carolina's Regulations in 15 NCAC 02H .0500 and 15A NCAC 02B .0200, to Art King and NCDOT Division 8 and Timothy Smith and Chatham Park Investors LLC ("CPI"), who have authorization for the impacts listed below, as described within your application received by the N.C. Division of Water Resources (Division) on September 8, 2020 and subsequent information on November 13, 2020, and by Public Notice issued by the Division on December 4, 2020 and Public Hearing held on January 7, 2021.

The State of North Carolina certifies that this activity will comply with water quality requirements and the applicable portions of Sections 301, 302, 303, 306, 307 of the Public Laws 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, and conditions hereinafter set forth.

The following impacts are hereby approved. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b)]

| Type of Impact                                                | Amount Approved (units)<br>Permanent  | Amount Approved (units)<br>Temporary |
|---------------------------------------------------------------|---------------------------------------|--------------------------------------|
| <b>Chatham Park Way North (NCDOT R-5930) – Stream Impacts</b> |                                       |                                      |
| Site 3 - Perennial                                            | 251 (linear feet)                     | 0 (linear feet)                      |
| Site 8 - Perennial                                            | 170 (linear feet)                     | 0 (linear feet)                      |
| Site 13 - Perennial                                           | 242 (linear feet)                     | 0 (linear feet)                      |
| Site 18 - Intermittent                                        | 138 (linear feet)                     | 0 (linear feet)                      |
| <b>Chatham Park North Village – Stream Impacts</b>            |                                       |                                      |
| Impact 1                                                      | 0 (linear feet)                       | 15 (linear feet)                     |
| Impact 2 & 3<br>Culvert<br>Dissipator                         | 80 (linear feet)<br>20 (linear feet)  | 0 (linear feet)                      |
| Impact 4                                                      | 0 (linear feet)                       | 5 (linear feet)                      |
| Impact 5                                                      | 0 (linear feet)                       | 30 (linear feet)                     |
| Impact 10                                                     | 0 (linear feet)                       | 35 (linear feet)                     |
| Impact 11                                                     | 0 (linear feet)                       | 10 (linear feet)                     |
| Impact 12 & 13<br>Culvert<br>Dissipator                       | 100 (linear feet)<br>20 (linear feet) | 0 (linear feet)                      |
| Impact 14                                                     | 0 (linear feet)                       | 10 (linear feet)                     |
| Impact 15                                                     | 0 (linear feet)                       | 35 (linear feet)                     |
| Impact 16                                                     | 0 (linear feet)                       | 35 (linear feet)                     |
| Impact 26                                                     | 66 (linear feet)                      | 0 (linear feet)                      |
| Impact 27                                                     | 155 (linear feet)                     | 0 (linear feet)                      |
| Impact 29                                                     | 0 (linear feet)                       | 5 (linear feet)                      |
| Impact 30 & 31<br>Culvert                                     | 125 (linear feet)                     | 0 (linear feet)                      |

|                                         |                                       |                  |
|-----------------------------------------|---------------------------------------|------------------|
| Dissipator                              | 20 (linear feet)                      |                  |
| Impact 32                               | 0 (linear feet)                       | 10 (linear feet) |
| Impact 33                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 34                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 35 & 36<br>Culvert<br>Dissipator | 165 (linear feet)<br>50 (linear feet) | 0 (linear feet)  |
| Impact 37                               | 0 (linear feet)                       | 10 (linear feet) |
| Impact 38                               | 0 (linear feet)                       | 10 (linear feet) |
| Impact 39 & 40<br>Culvert<br>Dissipator | 145 (linear feet)<br>25 (linear feet) | 0 (linear feet)  |
| Impact 42                               | 0 (linear feet)                       | 30 (linear feet) |
| Impact 43                               | 0 (linear feet)                       | 30 (linear feet) |
| Impact 44                               | 0 (linear feet)                       | 30 (linear feet) |
| Impact 45                               | 0 (linear feet)                       | 30 (linear feet) |
| Impact 46                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 47 & 48<br>Culvert<br>Dissipator | 170 (linear feet)<br>50 (linear feet) | 0 (linear feet)  |
| Impact 49                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 51                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 52                               | 0 (linear feet)                       | 10 (linear feet) |
| Impact 53 & 54<br>Culvert<br>Dissipator | 75 (linear feet)<br>20 (linear feet)  | 0 (linear feet)  |
| Impact 55                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 57                               | 0 (linear feet)                       | 40 (linear feet) |
| Impact 58                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 59                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 60                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 61 & 62<br>Culvert<br>Dissipator | 135 (linear feet)<br>40 (linear feet) | 0 (linear feet)  |
| Impact 63                               | 0 (linear feet)                       | 10 (linear feet) |
| Impact 65                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 68                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 69                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 70                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 71                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 72                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 73                               | 0 (linear feet)                       | 35 (linear feet) |
| Impact 80                               | 0 (linear feet)                       | 5 (linear feet)  |
| Impact 81 & 82<br>Culvert<br>Dissipator | 120 (linear feet)<br>40 (linear feet) | 0 (linear feet)  |



|                                                             |                   |                  |
|-------------------------------------------------------------|-------------------|------------------|
| Impact 83                                                   | 0 (linear feet)   | 5 (linear feet)  |
| Impact 84                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 85                                                   | 0 (linear feet)   | 35 (linear feet) |
| Impact 86                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 87                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 88                                                   | 0 (linear feet)   | 35 (linear feet) |
| Impact 89                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 90                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 91                                                   | 0 (linear feet)   | 10 (linear feet) |
| Impact 92 & 93                                              |                   | 0 (linear feet)  |
| Culvert                                                     | 155 (linear feet) |                  |
| Dissipator                                                  | 60 (linear feet)  |                  |
| Impact 94                                                   | 0 (linear feet)   | 30 (linear feet) |
| Impact 95                                                   | 0 (linear feet)   | 5 (linear feet)  |
| Impact 96                                                   | 0 (linear feet)   | 35 (linear feet) |
| Impact 97                                                   | 0 (linear feet)   | 35 (linear feet) |
| Impact 98                                                   | 0 (linear feet)   | 5 (linear feet)  |
| Impact 99 & 100                                             |                   | 0 (linear feet)  |
| Culvert                                                     | 45 (linear feet)  |                  |
| Dissipator                                                  | 30 (linear feet)  |                  |
| Impact 101                                                  | 0 (linear feet)   | 5 (linear feet)  |
| Impact 102                                                  | 0 (linear feet)   | 5 (linear feet)  |
| Impact 103 & 104                                            |                   | 0 (linear feet)  |
| Culvert                                                     | 40 (linear feet)  |                  |
| Dissipator                                                  | 7 (linear feet)   |                  |
| Impact 105                                                  | 0 (linear feet)   | 5 (linear feet)  |
| Impact 106                                                  | 0 (linear feet)   | 5 (linear feet)  |
| Impact 107 & 108                                            |                   | 0 (linear feet)  |
| Culvert                                                     | 70 (linear feet)  |                  |
| Dissipator                                                  | 30 (linear feet)  |                  |
| Impact 109                                                  | 0 (linear feet)   | 6 (linear feet)  |
| Impact 115 & 116                                            |                   | 0 (linear feet)  |
| Culvert                                                     | 110 (linear feet) |                  |
| Dissipator                                                  | 30 (linear feet)  |                  |
| Impact 117                                                  | 0 (linear feet)   | 30 (linear feet) |
| Impact 119                                                  | 0 (linear feet)   | 35 (linear feet) |
| Impact 120                                                  | 0 (linear feet)   | 25 (linear feet) |
| Impact 121                                                  | 0 (linear feet)   | 35 (linear feet) |
| <b>Chatham Park North Village – 404/401 Wetland Impacts</b> |                   |                  |
| Impact Location 28                                          | 0.041 (acres)     | 0 (acres)        |
| Impact Location 28A                                         | 0.01 (acres)      | 0 (acres)        |
| Impact Location 50                                          | 0.111 (acres)     | 0 (acres)        |
| Impact Location 67                                          | 0 (acres)         | 0.008 (acres)    |
| Impact Location 74                                          | 0.217 (acres)     | 0 (acres)        |
| Impact Location 118                                         | 0.032 (acres)     | 0 (acres)        |

This approval requires you to follow the conditions listed in the certification below.

**CONDITIONS OF CERTIFICATION [15A NCAC 02H .0507(c)]:**

1. Mitigation for Chatham Park North Village must be provided for the proposed impacts as specified in the mitigation plan included in your permit application titled "*Mitigation Plan, Revised August 2020*" and as revised below to reflect the Division's mitigation requirements and project phasing. The Division acknowledges that the phasing of the impacts and associated mitigation, as well as the mitigation provider(s) (i.e., DMS, mitigation bank, etc.), as described in the mitigation plan may change. The Division shall be notified in writing of any changes to the mitigation plan and required mitigation as outlined below. Changes will require written approval by the Division and may require modification of this condition.

The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate for each phase outlined in the mitigation plan submitted with the application and updated (*Mitigation Plan, Revised August 2020*) shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

Phase 1 Mitigation\*:

|          | Compensatory Mitigation Required | River & Sub-basin Number |
|----------|----------------------------------|--------------------------|
| Streams  | 611 linear feet                  | Cape Fear (03030002)     |
| Wetlands | 0.051 (acres)                    | Cape Fear (03030002)     |

\*Phase 1 Impacts include 2, 3, 26, 27, 28, 28A, 35, 36, 39, 40.

Phase 2 Mitigation\*\*:

|          | Compensatory Mitigation Required | River & Sub-basin Number |
|----------|----------------------------------|--------------------------|
| Streams  | 570 linear feet                  | Cape Fear (03030002)     |
| Wetlands | 0.36 (acres)                     | Cape Fear (03030002)     |

\*\*Phase 2 Impacts include 30, 31, 47, 48, 50, 74, 76, 77, 79, 81, 82, 92, 93, 114, 118.

Phase 3 Mitigation\*\*\*:



|         | Compensatory Mitigation<br>Required | River & Sub-basin Number |
|---------|-------------------------------------|--------------------------|
| Streams | 575 linear feet                     | Cape Fear (03030002)     |

\*\*\*Phase 3 Impacts currently include 12, 13, 53, 54, 61, 62, 99, 100, 103, 104, 107, 108, 115, 116.

*Citation: 15A NCAC 02H .0506(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the project must provide for replacement of existing uses through compensatory mitigation.*

- Mitigation for NCDOT Chatham Park Way (R-5930) for must be provided for the proposed impacts as specified in the tables below. The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

|                   | Compensatory Mitigation<br>Required | River & Sub-basin Number |
|-------------------|-------------------------------------|--------------------------|
| Perennial Streams | 663 linear feet                     | Cape Fear (03030002)     |

*Citation: 15A NCAC 02H .0506(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the project must provide for replacement of existing uses through compensatory mitigation.*

- Any final construction plans for development within the Chatham Park North Village portion of this project must include or reference the application and plans approved by the Division under this authorization letter and certification. CPI shall evaluate all final construction plans for all phases of the project, including any areas that are sold, leased, or otherwise constructed by others, to assure that they are consistent, and all relative impacts are accounted for and shown on the application documents.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

4. NCDOT shall submit final construction plans for the Chatham Park Way (R-5930) portion of this project for review and approval by DWR. The final design of Chatham Park Way shall follow the NCDOT Post-Construction Stormwater Plan and Stormwater Best Management Practices Toolbox and that all stormwater measures shall be properly inspected and maintained in accordance with NCDOT's National Pollutant Discharge Elimination System (NPDES) stormwater permit NCS000250.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

5. CPI shall ensure that all final construction plans for the development within Chatham Park North Village portion of this project comply with the approved Master Stormwater Manual Additional Element as approved by the Town. CPI shall evaluate all proposed SCM locations in detail to ensure that downstream hydrology is provided to all jurisdictional features within the project limits. CPI shall notify DWR if any future modifications occur to approved Master Stormwater Manual Additional Element which would result in less stringent stormwater requirements for the overall project.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

6. CPI shall notify all future buyers, tenants, and/or leases of the conditions of this certification, particularly with attention to the requirements that may be above and beyond typical erosion control and/or stormwater measures. CPI shall retain documentation of these communications and provide them to DWR upon request.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*



7. NCDOT shall schedule and conduct a pre-construction meeting with the construction contractors, NCDOT staff, and Division staff to review the conditions and requirements of the respective certifications and permits for clarity and understanding before any impacts authorized in this Certification occur.

*Citation: 15A NCAC 02H .0507 (c) and 15A NCAC 02H .0502 (e) and 15A NCAC 02H .0506 (b)(3)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

8. All sewer lines shall be designed, constructed and maintained in accordance with Title 15A NCAC Chapter 02T, applicable Minimum Design Criteria (MDC), and/or Alternative Design Criteria.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: The referenced Minimum Design criteria and 02T rules were adopted to ensure that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

9. Any utility construction corridor that is parallel to a stream or open water shall not be closer than 10 feet to the top of bank or ordinary high-water mark.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

10. Construction corridors in wetlands and/or across stream channels shall be minimized to the maximum extent practicable and shall not exceed 40 feet wide for utility lines.

For construction corridors in wetlands and across stream channels, stumps shall be grubbed only as needed to install the utility and remaining stumps shall be cut off at grade level. The general stripping of topsoil within wetlands along the construction corridor is prohibited.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

11. Permanent maintained access corridors in wetlands and across stream channels shall be restricted to the minimum width practicable and shall not exceed 30 feet wide except at manhole locations.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

12. For all utility lines constructed within wetlands, an anti-seep collar shall be placed at the downstream (utility line gradient) wetland boundary and every 150 feet up the gradient until the utility exits the wetland. Anti-seep collars may be constructed with class B concrete, compacted clay, PVC pipe, or metal collars. Wetland crossings that are directionally drilled, and perpendicular wetland crossings that are open cut and less than 150 feet long do not require anti-seep collars. The compacted clay shall have a specific infiltration of  $1 \times 10^{-5}$  cm/sec or less. A section and plan view diagram is attached for the anti-seep collars.

The following specifications shall apply to class B concrete:

- i. Minimum cement content, sacks per cubic yard with rounded coarse aggregate 5.0
- ii. Minimum cement content, sacks per cubic yard with angular coarse aggregate 5.5
- iii. Maximum water-cement ratio gallons per sack 6.8
- iv. Slump range 2" to 4"
- v. Minimum strength – 28-day psi 2,500

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*

13. The permittee shall have a specific plan for restoring wetland contours to pre-construction conditions. Any excess material will be removed to a high ground disposal area.

The mixing of topsoil and subsoils within the wetlands along utility corridors shall be minimized to the greatest extent practical. During excavation, the soils shall be placed on fabric to minimize impacts whenever possible. Topsoil excavated from utility trenches will be piled separately from subsoils and will be backfilled into the trench only after the subsoils have been placed and compacted.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. In determining that the proposed activity will comply with state water quality standards (including designated uses, numeric criteria, narrative criteria and the state's antidegradation policy), the Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards or would result in secondary or cumulative impacts.*



14. The permittee shall report to the DWR Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200], including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Timely reporting of non-compliance is important in identifying and minimizing detrimental impacts to water quality and avoiding impacts due to water pollution that precludes any best use on a short-term or long-term basis.*

15. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the approved impacts (including temporary impacts).

*Citation: 15A NCAC 02H .0506; 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

16. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2B of Title 15A in the North Carolina Administrative Code.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: The referenced Riparian Buffer rules were adopted to address water quality impairments and further protect existing uses.*

17. All construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973), the Chatham County Soil Erosion and Sedimentation Control Ordinance, as well as 15A NCAC 04B .0124: Design Standards for Sensitive Watersheds items (b), (c) and (e).

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3)*

*Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

18. Sediment and erosion control measures shall not be installed in wetland or waters except within the footprint of temporary or permanent impacts otherwise authorized by this Certification. If placed within authorized impact areas, then placement of such measures shall not be conducted in a manner that results in dis-equilibrium of any wetlands, streambeds, or streambanks. Any silt fence installed within wetlands shall be removed from wetlands and the natural grade restored within two (2) months of the date that DEMLR or locally delegated program has released the specific area within the project to ensure wetland standards are maintained upon completion of the project.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

19. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: A project that affects waters shall not be permitted unless the existing uses (including aquatic life propagation and biological integrity), and the water quality to protect such uses, are protected. Protections are necessary to ensure any remaining surface waters or wetlands, and any surface waters or wetlands downstream, continue to support existing uses during and after project completion. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

20. If the project is covered by NPDES Construction Stormwater Permit Number NCG010000 or NPDES Construction Stormwater Permit Number NCG250000, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*



*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

21. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC Department of Transportation Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses; and (21) turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.*

22. In-stream structures installed to mimic natural channel geomorphology such as cross-vanes, sills, step-pool structures, etc. shall be designed and installed in such a manner that allow for continued aquatic life movement.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that in-stream structures are installed properly will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

23. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The

width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. If the width of the culvert is wider than the stream channel, the culvert shall include multiple boxes/pipes, baffles, benches and/or sills to maintain the natural width of the stream channel. If multiple culverts/pipes/barrels are used, low flows shall be accommodated in one culvert/pipe and additional culverts/pipes shall be installed such that they receive only flows above bankfull.

Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life. If the culvert outlet is submerged within a pool or scour hole and designed to provide for aquatic passage, then culvert burial into the streambed is not required.

For structures less than 72" in diameter/width, and topographic constraints indicate culvert slopes of greater than 2.5% culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross-vanes, sills, baffles etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 30 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required, provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 30 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that structures are installed properly in waters will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

24. Bridge deck drains shall not discharge directly into streams or wetlands. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering streams or wetlands.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*



*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that in-stream structures are installed properly will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

25. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters.

*Citation: 15A 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

26. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state.

*Citation: 15A 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

27. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross-sectional dimensions, planform pattern, and longitudinal bed profile. All temporarily impacted sites shall be restored and stabilized with native vegetation.

*Citation: 15A NCAC 02H.0506(b); 15A NCAC 02H .0507(c)*  
*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Protections are necessary to ensure any remaining*

*surface waters or wetlands, and any surface waters or wetlands downstream, continue to support existing uses after project completion.*

28. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams or wetlands shall be installed as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities* so as not to restrict stream flow or cause dis-equilibrium during use of this Certification.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. Ensuring that structures are installed properly in waters will ensure that surface water quality standards are met and conditions of waters are suitable for all best uses.*

29. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original streambed elevation and streambank contours are restored and maintained and shall consist of clean rock or masonry material free of debris or toxic pollutants. Placement of rip-rap or other approved materials shall not result in destabilization of the stream bed or banks upstream or downstream of the area or be installed in a manner that precludes aquatic life passage.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

30. Any rip-rap used for stream stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows, and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0201*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

31. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication, and general equipment



maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

*Justification: A project that affects waters shall not be permitted unless the existing uses, and the water quality to protect such uses, are protected. Activities must not cause water pollution that precludes any best use on a short-term or long-term basis. As cited in Stream Standards: (12) Oils, deleterious substances, or colored or other wastes; only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. As cited in Wetland Standards: (c)(1) Liquids, fill or other solids, or dissolved gases shall not be present in amounts that may cause adverse impacts on existing wetland uses; and (3) Materials producing color or odor shall not be present in amounts that may cause adverse impacts on existing wetland uses.*

32. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance and compaction.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0231*

*Justification: Wetland standards require maintenance or enhancement of existing uses of wetlands such that hydrologic conditions necessary to support natural biological and physical characteristics are protected; populations of wetland flora and fauna are maintained to protect biological integrity of the wetland; and materials or substances are not present in amounts that may cause adverse impact on existing wetland uses.*

33. In accordance with 143-215.85(b), the permittee shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

*Citation: 15A NCAC 02H .0507(c); N.C.G.S 143-215.85(b)*

*Justification: Person(s) owning or having control over oil or other substances upon notice of discharge must immediately notify the Department, or any of its agents or employees, of the nature, location, and time of the discharge and of the measures which are being taken or are proposed to be taken to contain and remove the discharge. This action is required in order to contain or divert the substances to prevent entry into the surface waters. Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule (including, at minimum: aquatic life propagation, survival, and maintenance of biological integrity; wildlife; secondary contact recreation; agriculture); and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis.*

34. The permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Surface water quality standards require that conditions of waters be suitable for all best uses provided for in state rule, and that activities must not cause water pollution that precludes any best use on a short-term or long-term basis. The Division must evaluate if the activity has avoided and minimized impacts to waters, would cause or contribute to a violation of standards, or would result in secondary or cumulative impacts.*

35. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this General Certification. A copy of this General Certification shall be available at the project site during the construction and maintenance of this project.

*Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)*

*Justification: Those actually performing the work should be aware of the requirements of this 401 Water Quality General Certification to minimize water quality impacts.*

This approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 or CAMA Permit. The conditions in effect on the date of issuance shall remain in effect for the life of the project, regardless of the expiration date of this Certification. [15A NCAC 02H .0507(c)]

This, the 31<sup>st</sup> day of March 2021

S. Daniel Smith, Director  
Division of Water Resources

PAW/SLH

WQC004228



ROY COOPER  
*Governor*  
DIONNE DELLI-GATTI  
*Secretary*  
S. DANIEL SMITH  
*Director*



March 31, 2021

DWR # 20200533v2  
Chatham County

Chatham Park Investors LLC  
Attn: Mr. Timothy Smith  
100 Weston Estates Way  
Cary, NC 27513  
Delivered via email to: [tim@prestondev.com](mailto:tim@prestondev.com)

**Subject: Approval of Individual Isolated and Other Non-404 Jurisdictional Wetlands and Waters  
Permit with Additional Conditions**  
Chatham Park North Village  
USACE Action ID. No. SAW-2020-00746

Dear Mr. Smith:

Attached hereto is a copy of Isolated Wetlands Permit# IWP000007 issued to Timothy Smith and Chatham Park Investors LLC ("CPI") dated March 31, 2021. This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Isolated Wetlands Permit. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Permit and is responsible for complying with all conditions. [15A NCAC 02H .1304(d)(2)].

This Isolated Wetlands Permit does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

This Isolated Wetlands Permit neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Isolated Wetlands Permit does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Isolated Wetlands Permit not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Isolated Wetlands Permit to possess any prescriptive or other right of priority with respect to any other consumptive user.

Upon the presentation of proper credentials, the Division may inspect the property.

This Isolated Wetlands Permit shall expire on the same day as the expiration date of the corresponding Section 401 Water Quality Certification. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Isolated Wetlands Permit.

Non-compliance with or violation of the conditions herein set forth may result in revocation of this Isolated Wetlands Permit for the project and may also result in criminal and/or civil penalties.

If you are unable to comply with any of the conditions of this Isolated Wetlands Permit you must notify the Raleigh Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

This approval and its conditions are final and binding unless contested [G.S. 143-215.5].

This authorization can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncogh.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center  
Raleigh, NC 27699-1601



This letter completes the Division's review under section the Isolated Wetlands Rules 15A NCAC 02H .1300. Please contact Sue Homewood at 336-776-9693 or [Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov) if you have any questions or concerns.

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Daniel Smith".

S. Daniel Smith, Director  
Division of Water Resources

cc: Jason Hartshorn, Kimley-Horn (via email)  
Bob Zarzecki, Soil & Environmental Consultants, PA (via email)  
James Lastinger, USACE Raleigh Regulatory Field Office (via email)  
Todd Bowers, EPA, (via email)  
Gabriela Garrison, NCWRC (via email)  
Emily Wells, USFWS (via email)  
DWR 401 & Buffer Permitting Branch Electronic file

Filename: 20200533v2ChathamPark(Chatham)\_Isolated.docx

### NORTH CAROLINA ISOLATED WETLANDS PERMIT

**ISOLATED WETLANDS PERMIT # IWP000007** is issued in conformity with the requirements of North Carolina's Regulations in 15 NCAC 02H .1300 and 15A NCAC 02B .0200, to Timothy Smith and Chatham Park Investors LLC ("CPI"), who have authorization for the impacts listed below, as described within your application received by the N.C. Division of Water Resources (Division) on September 8, 2020 and subsequent information on November 13, 2020, and by Public Notice issued by the Division on December 4, 2020 and Public Hearing held on January 7, 2021.

The following impacts are hereby approved. No other impacts are approved, including incidental impacts. [15A NCAC 02H .1305(b)]

| Type of Impact      | Amount Approved (units)<br>Permanent | Amount Approved (units)<br>Temporary |
|---------------------|--------------------------------------|--------------------------------------|
| Impact Location 76  | 0.735 (acres)                        | 0 (acres)                            |
| Impact Location 77  | 0.180 (acres)                        | 0 (acres)                            |
| Impact Location 79  | 0.031 (acres)                        | 0 (acres)                            |
| Impact Location 114 | 0.160 (acres)                        | 0 (acres)                            |

This approval requires you to follow the conditions listed below.

#### CONDITIONS OF PERMIT [15A NCAC 02H .1304(c)]:

1. Mitigation for Chatham Park North Village must be provided for the proposed impacts as specified in the table below. The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate for each phase outlined in the mitigation plan submitted with the application shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

|                   | Compensatory Mitigation<br>Required | River & Sub-basin Number |
|-------------------|-------------------------------------|--------------------------|
| Isolated Wetlands | 1.106 (acres)                       | Cape Fear (03030002)     |

Citation: 15A NCAC 02H .1305(c)

2. Any final construction plans for development within the Chatham Park North Village portion of this project must include or reference the application and plans approved by the Division under this authorization letter and permit. CPI shall evaluate all final construction plans for all phases of the project, including any areas that are sold, leased, or otherwise constructed by others, to assure that they are consistent, and all relative impacts are accounted for and shown on the application documents.



*Citation: 15A NCAC 02H .1302 (a) and 15A NCAC 02H .1305 (b)(1)*

3. CPI shall ensure that all final construction plans for the development within Chatham Park North Village portion of this project comply with the approved Master Stormwater Manual Additional Element as approved by the Town. CPI shall evaluate all proposed SCM locations in detail to ensure that downstream hydrology is provided to all jurisdictional features within the project limits. CPI shall notify DWR if any future modifications occur to approved Master Stormwater Manual Additional Element which would result in less stringent stormwater requirements for the overall project.

*Citation: 15A NCAC 02H .1302 (a) and 15A NCAC 02H .1305 (b)(1)*

4. CPI shall notify all future buyers, tenants, and/or leases of the conditions of this permit, particularly with attention to the requirements that may be above and beyond typical erosion control and/or stormwater measures. CPI shall retain documentation of these communications and provide them to DWR upon request.

*Citation: 15A NCAC 02H .01302 (a), 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

5. All sewer lines shall be designed, constructed and maintained in accordance with Title 15A NCAC Chapter 02Y, applicable Minimum Design Criteria (MDC), and/or Alternative Design Criteria.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c), 15A NCAC 02T et. seq.;*

6. Construction corridors in wetlands and/or across stream channels shall be minimized to the maximum extent practicable and shall not exceed 40 feet wide for utility lines.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c);*

7. For construction corridors in wetlands and across stream channels, stumps shall be grubbed only as needed to install the utility and remaining stumps shall be cut off at grade level. The general stripping of topsoil within wetlands along the construction corridor is prohibited.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c);*

8. Permanent maintained access corridors in wetlands and across stream channels shall be restricted to the minimum width practicable and shall not exceed 30 feet wide except at manhole locations.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c);*

9. For all utility lines constructed within wetlands, an anti-seep collar shall be placed at the downstream (utility line gradient) wetland boundary and every 150 feet up the gradient until the utility exits the wetland. Anti-seep collars may be constructed with class B concrete, compacted clay, PVC pipe, or metal collars. Wetland crossings that are directionally drilled, and perpendicular wetland crossings that are open cut and less than 150 feet long do not require anti-seep collars. The compacted clay shall have a specific infiltration of  $1 \times 10^{-5}$  cm/sec or less. A section and plan view diagram is attached for the anti-seep collars.

The following specifications shall apply to class B concrete:

- i. Minimum cement content, sacks per cubic yard with rounded coarse aggregate 5.0
- ii. Minimum cement content, sacks per cubic yard with angular coarse aggregate 5.5
- iii. Maximum water-cement ratio gallons per sack 6.8
- iv. Slump range 2" to 4"
- v. Minimum strength – 28-day psi 2,500

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c);*

10. The permittee shall have a specific plan for restoring wetland contours to pre-construction conditions. Any excess material will be removed to a high ground disposal area.

The mixing of topsoil and subsoils within the wetlands along utility corridors shall be minimized to the greatest extent practical. During excavation, the soils shall be placed on fabric to minimize impacts whenever possible. Topsoil excavated from utility trenches will be piled separately from subsoils and will be backfilled into the trench only after the subsoils have been placed and compacted.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c);*

11. The permittee shall report to the DWR Raleigh Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200], including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)*

12. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the approved impacts (including temporary impacts).

*Citation: 15A NCAC 02H .1305; 15A NCAC 02H .1304(c)*

13. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2B of Title 15A in the North Carolina Administrative Code.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)*

14. All construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973), the Chatham County Soil Erosion and Sedimentation Control Ordinance, as well as 15A NCAC 04B .0124: Design Standards for Sensitive Watersheds items (b), (c) and (e).

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

15. Sediment and erosion control measures shall not be installed in wetland or waters except within the footprint of temporary or permanent impacts otherwise authorized by this Permit. If placed within authorized impact areas, then placement of such measures shall not be conducted in a manner that results in dis-equilibrium of any wetlands, streambeds, or streambanks. Any silt fence installed within wetlands shall be removed from wetlands and the natural grade restored within two (2)



months of the date that DEMLR or locally delegated program has released the specific area within the project to ensure wetland standards are maintained upon completion of the project.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

16. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)*

17. If the project is covered by NPDES Construction Stormwater Permit Number NCG010000 or NPDES Construction Stormwater Permit Number NCG250000, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

18. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters.

*Citation: 15A 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

19. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state.

*Citation: 15A 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

20. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication, and general equipment maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231*

21. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance and compaction.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1305(c); 15A NCAC 02B .0231*

22. In accordance with 143-215.85(b), the permittee shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

*Citation: 15A NCAC 02H .1304(c); N.C.G.S 143-215.85(b)*

23. The permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)*

24. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this Permit. A copy of this Permit shall be available at the project site during the construction and maintenance of this project.

*Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)*

This approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the corresponding 401 Water Quality Certification. The conditions in effect on the date of issuance shall remain in effect for the life of the project, regardless of the expiration date of this Permit. [15A NCAC 02H .1304(c)]

This, the 31<sup>st</sup> day of March 2021



S. Daniel Smith, Director  
Division of Water Resources

PAW/SLH

IWP000007



ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director



July 10, 2023

DWR # 20200533v3

Chatham County

NCDOT Division 8

Attn: Mr. Art King

121 DOT Drive

Carthage, NC 28327

Delivered via email to: acking@ncdot.gov

**Subject: APPROVAL of JORDAN LAKE RIPARIAN BUFFER IMPACTS WITH ADDITIONAL CONDITIONS**  
 NCDOT Chatham Park Way North (R-5930)- Modification Request

Dear Mr. King:

You have our approval for the impacts listed below for the purpose described in your application received by the Division of Water Resources (Division) June 27, 2023. These impacts are covered by the Jordan Lake Riparian Buffer Rules and the conditions listed below. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Clean Water Act Section 404 and/or 401 Authorizations, Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The following impacts are hereby approved, provided that all of the Conditions listed below and all of the conditions of the Jordan Lake Riparian Buffer Rules are met. No other impacts are approved, including incidental impacts. [15A NCAC 02B .0267(11)]

| Type of Impact   | Amount Approved (units)<br>Permanent | Amount Approved (units)<br>Temporary |
|------------------|--------------------------------------|--------------------------------------|
| Buffers – Zone 1 |                                      |                                      |
| Impact Site 1    | 19,685 (square feet)                 | 0 (square feet)                      |
| Impact Site 2    | 18,034 (square feet)                 | 0 (square feet)                      |
| Impact Site 3    | 18,235 (square feet)                 | 0 (square feet)                      |
| Buffers – Zone 2 |                                      |                                      |
| Impact Site 1    | 12,600 (square feet)                 | 0 (square feet)                      |
| Impact Site 2    | 12,638 (square feet)                 | 0 (square feet)                      |
| Impact Site 3    | 10,135 (square feet)                 | 0 (square feet)                      |

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Authorization Certificate. If you change your project, you must notify the Division and you may be required to submit a new application package. If the property is sold, the new owner must be given a copy of this Authorization Certificate and is responsible for complying with all conditions. [15A NCAC 02B .0267(11)]

If you are unable to comply with any of the conditions below, you must notify the Raleigh Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Raleigh Regional Office any noncompliance with the conditions of this Authorization Certificate and/or any violation of state regulated riparian buffer rules [15A NCAC 02B .0267]. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the applicant became aware of the circumstances.

**Additional Conditions:**

1. Mitigation for NCDOT Chatham Park Way (R-5930) for must be provided for the proposed impacts as specified in the tables below. The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

|         | Compensatory Mitigation<br>Required | River & Sub-basin Number |
|---------|-------------------------------------|--------------------------|
| Buffers | 91,326 square feet                  | Cape Fear (03030002)     |

*Citation: 15A NCAC 02H .0506(c)*

2. NCDOT shall submit final construction plans for the Chatham Park Way (R-5930) portion of this project for review and approval by DWR. The final design of Chatham Park Way shall follow the NCDOT Post-Construction Stormwater Plan and Stormwater Best Management Practices Toolbox and that all stormwater measures shall be properly inspected and maintained in accordance with NCDOT's National Pollutant Discharge Elimination System (NPDES) stormwater permit NCS000250.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

3. NCDOT shall schedule and conduct a pre-construction meeting with the construction contractors, NCDOT staff, and Division staff to review the conditions and requirements of the respective certifications and permits for clarity and understanding before any impacts authorized in this Certification occur.

*Citation: 15A NCAC 02H .0507 (c) and 15A NCAC 02H .0502 (e) and 15A NCAC 02H .0506 (b)(3)*

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]



This Authorization Certificate can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncogh.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center  
Raleigh, NC 27699-1601

This Authorization Certificate neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Authorization Certificate does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person, nor does it create any prescriptive right or any right of priority regarding any usage of water. This Authorization Certificate shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Authorization Certificate to possess any prescriptive or other right of priority with respect to any other consumptive user.

**This Authorization shall expire when the corresponding 401 Water Quality Certification Approval DWR#20200533v3 expires.**

This letter completes the Division's review under the Raleigh Riparian Buffer Rules as described in 15A NCAC 02B.0267. Please contact Ryan Conchilla at 919-707-9111 or [ryan.conchilla@deg.nc.gov](mailto:ryan.conchilla@deg.nc.gov) if you have any questions or concerns.

Sincerely,

DocuSigned by:

*Amy Chapman*

3C986312DCD474

Richard E. Rogers, Director  
Division of Water Resources

cc: Wille Sullivan, Kimley-Horn (via email)  
Lyle Phillips, USACE Raleigh Regulatory Field Office (via email)  
Beth Harmon, Division of Mitigation Services (via email)  
DWR 401 & Buffer Permitting Branch Electronic file

ROY COOPER  
Governor  
DIONNE DELLI-GATTI  
Secretary  
S. DANIEL SMITH  
Director



March 31, 2021

DWR # 20200533v2  
Chatham County

NCDOT Division 8  
Attn: Mr. Art King  
121 DOT Drive  
Carthage, NC 28327  
Delivered via email to: acking@ncdot.gov

**Subject: APPROVAL of JORDAN LAKE RIPARIAN BUFFER IMPACTS WITH ADDITIONAL CONDITIONS**  
NCDOT Chatham Park Way North (R-5930)

Dear Mr. King:

You have our approval for the impacts listed below for the purpose described in your application received by the Division of Water Resources (Division) September 8, 2020 with subsequent information on November 13, 2020 and by Public Notice issued by the Division on December 4, 2020 and Public Hearing held on January 7, 2021. These impacts are covered by the Jordan Lake Riparian Buffer Rules and the conditions listed below. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Clean Water Act Section 404 and/or 401 Authorizations, Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The following impacts are hereby approved, provided that all of the Conditions listed below and all of the conditions of the Jordan Lake Riparian Buffer Rules are met. No other impacts are approved, including incidental impacts. [15A NCAC 02B .0267(11)]

| Type of Impact   | Amount Approved (units)<br>Permanent | Amount Approved (units)<br>Temporary |
|------------------|--------------------------------------|--------------------------------------|
| Buffers – Zone 1 |                                      |                                      |
| Impact Site 1    | 15291 (square feet)                  | 0 (square feet)                      |
| Impact Site 2    | 10672 (square feet)                  | 0 (square feet)                      |
| Impact Site 3    | 14493 (square feet)                  | 0 (square feet)                      |
| Buffers – Zone 2 |                                      |                                      |
| Impact Site 1    | 13893 (square feet)                  | 0 (square feet)                      |
| Impact Site 2    | 10850 (square feet)                  | 0 (square feet)                      |
| Impact Site 3    | 14440 (square feet)                  | 0 (square feet)                      |



This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Authorization Certificate. If you change your project, you must notify the Division and you may be required to submit a new application package. If the property is sold, the new owner must be given a copy of this Authorization Certificate and is responsible for complying with all conditions. [15A NCAC 02B .0267(11)]

If you are unable to comply with any of the conditions below, you must notify the Raleigh Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Raleigh Regional Office any noncompliance with the conditions of this Authorization Certificate and/or any violation of state regulated riparian buffer rules [15A NCAC 02B .0267]. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the applicant became aware of the circumstances.

**Additional Conditions:**

1. Mitigation for NCDOT Chatham Park Way (R-5930) for must be provided for the proposed impacts as specified in the tables below. The Division has received an acceptance letter from the NC Division of Mitigation Services (DMS) to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement:

|         | Compensatory Mitigation<br>Required | River & Sub-basin Number |
|---------|-------------------------------------|--------------------------|
| Buffers | 79,639 square feet                  | Cape Fear (03030002)     |

*Citation: 15A NCAC 02H .0506(c)*

2. NCDOT shall submit final construction plans for the Chatham Park Way (R-5930) portion of this project for review and approval by DWR. The final design of Chatham Park Way shall follow the NCDOT Post-Construction Stormwater Plan and Stormwater Best Management Practices Toolbox and that all stormwater measures shall be properly inspected and maintained in accordance with NCDOT's National Pollutant Discharge Elimination System (NPDES) stormwater permit NCS000250.

*Citation: 15A NCAC 02H .0502 (a) and 15A NCAC 02H .0506 (b)(1)*

3. NCDOT shall schedule and conduct a pre-construction meeting with the construction contractors, NCDOT staff, and Division staff to review the conditions and requirements of the respective certifications and permits for clarity and understanding before any impacts authorized in this Certification occur.

*Citation: 15A NCAC 02H .0507 (c) and 15A NCAC 02H .0502 (e) and 15A NCAC 02H .0506 (b)(3)*

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]

This Authorization Certificate can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center  
Raleigh, NC 27699-1601

This Authorization Certificate neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Authorization Certificate does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person, nor does it create any prescriptive right or any right of priority regarding any usage of water. This Authorization Certificate shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Authorization Certificate to possess any prescriptive or other right of priority with respect to any other consumptive user.

**This Authorization shall expire when the corresponding 401 Water Quality Certification Approval DWR#20200533v2 expires.**

This letter completes the Division's review under the Raleigh Riparian Buffer Rules as described in 15A NCAC 02B.0267. Please contact Sue Homewood at 336-776-9693 or [Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov) if you have any questions or concerns.

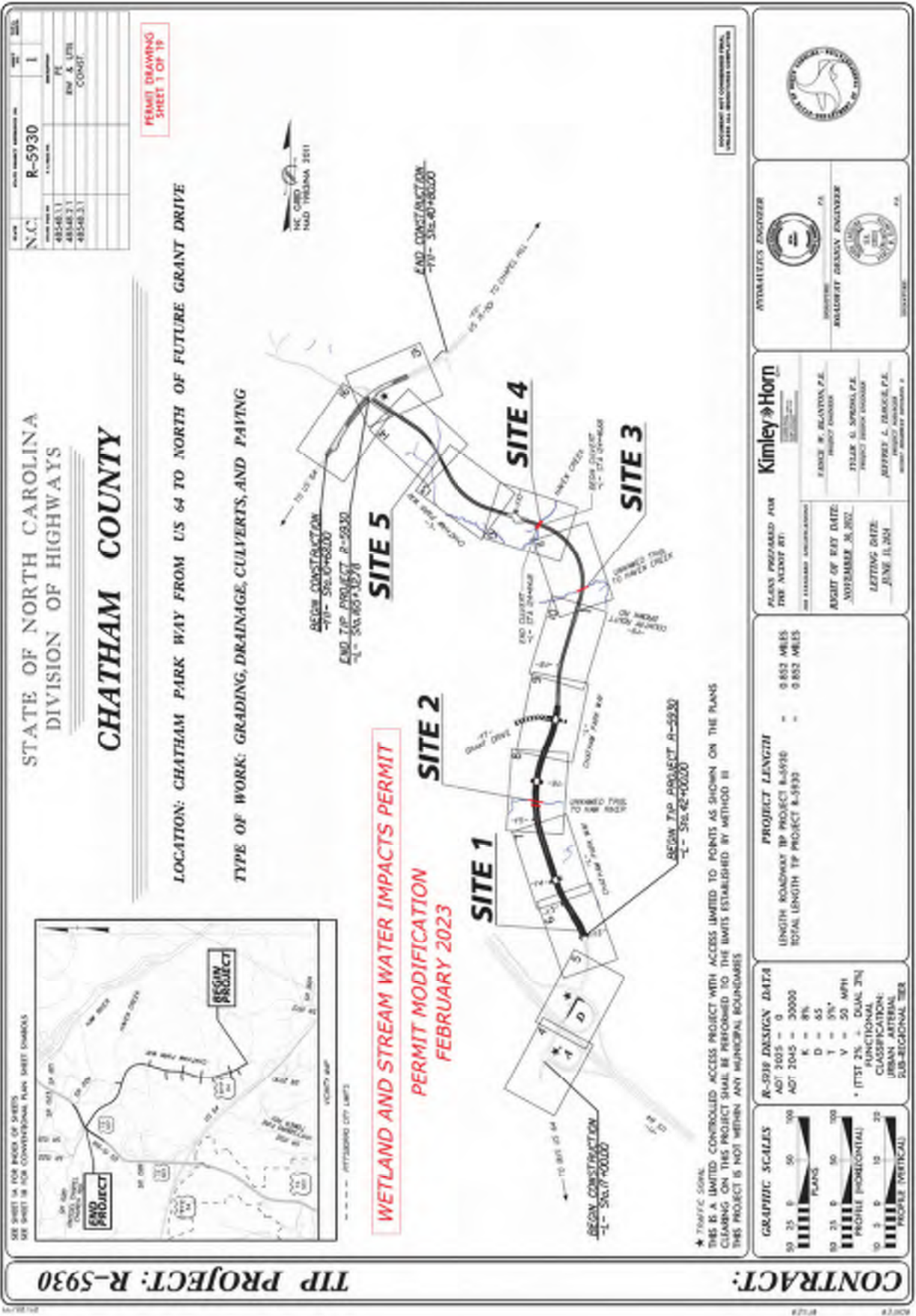
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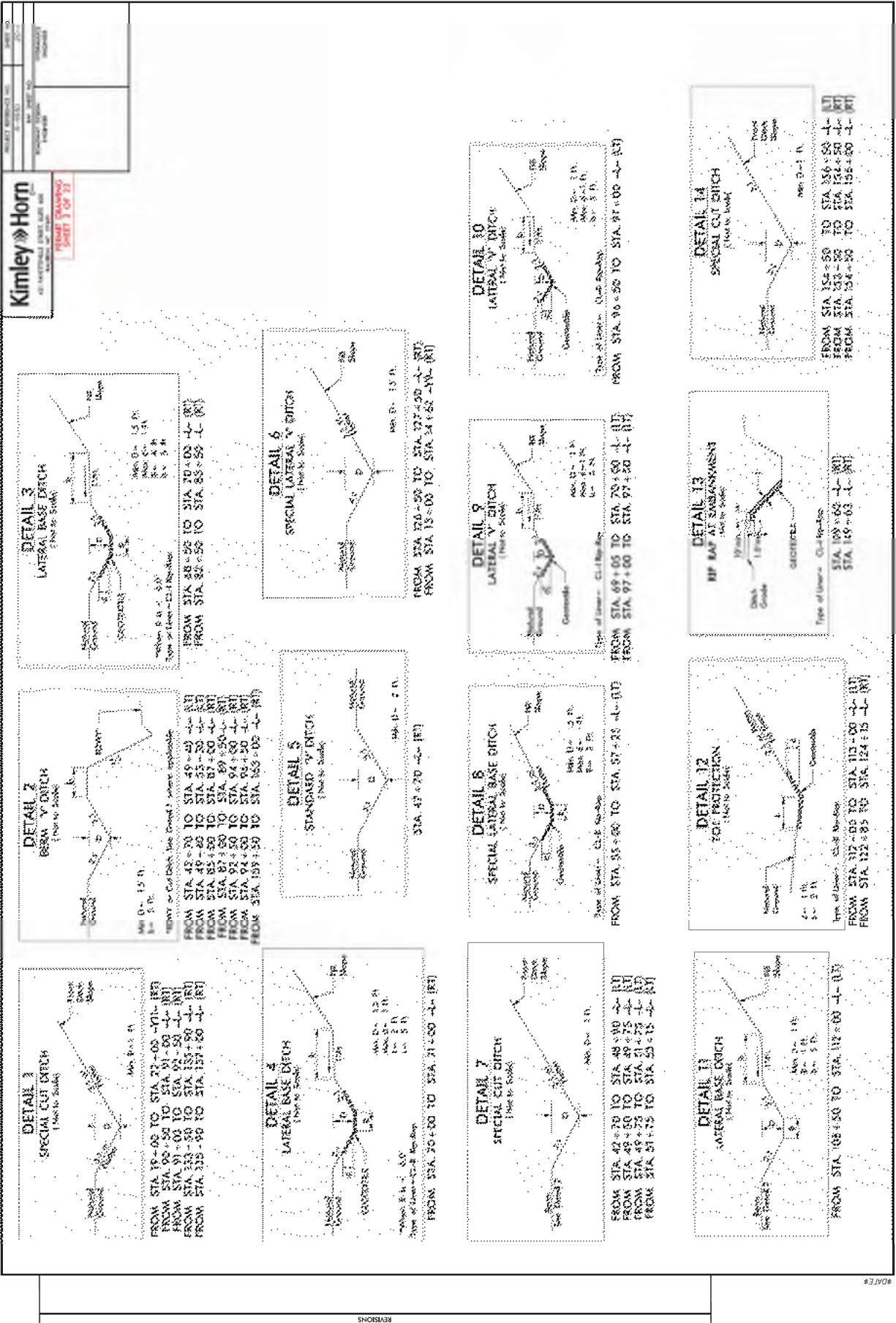


S. Daniel Smith, Director  
Division of Water Resources

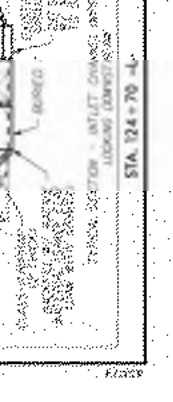
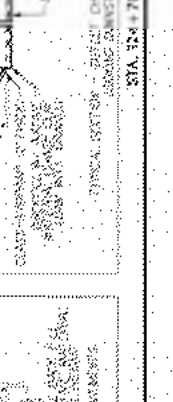
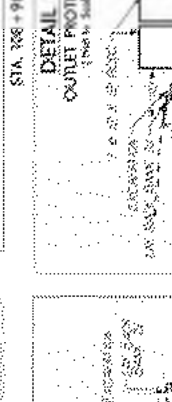
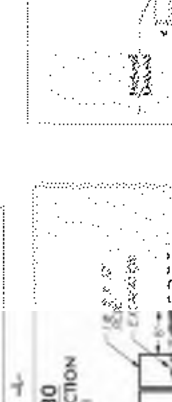
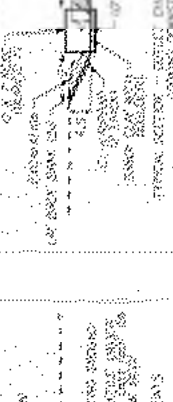
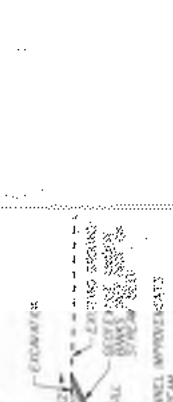
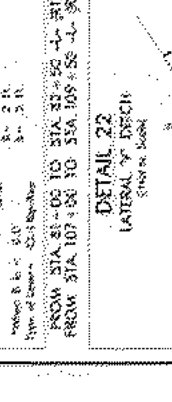
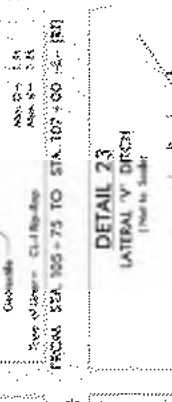
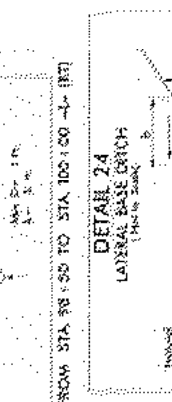
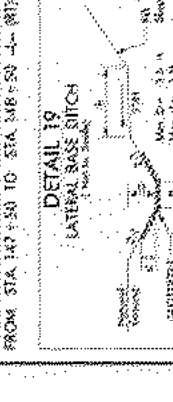
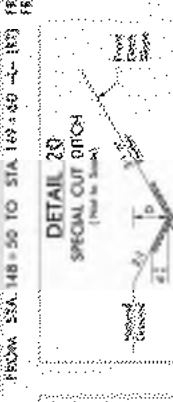
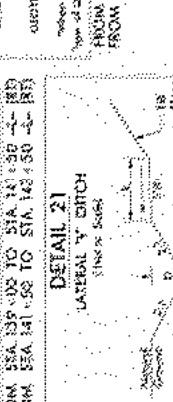
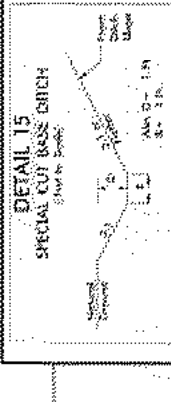
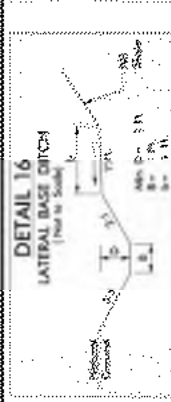
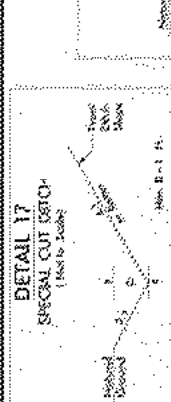
cc: Jason Hartshorn, Kimley-Horn (via email)  
Bob Zarzecki, Soil & Environmental Consultants, PA (via email)  
James Lastinger, USACE Raleigh Regulatory Field Office (via email)  
Todd Bowers, EPA, (via email)  
Gabriela Garrison, NCWRC (via email)  
Emily Wells, USFWS (via email)  
DWR 401 & Buffer Permitting Branch Electronic file

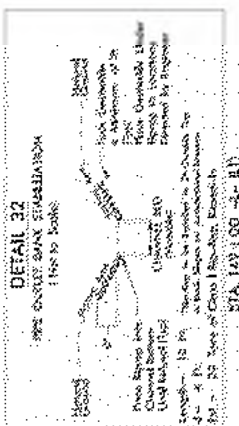
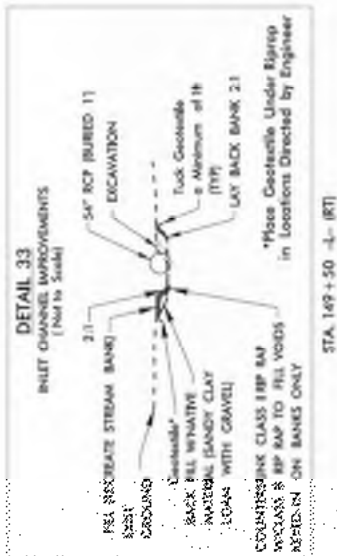




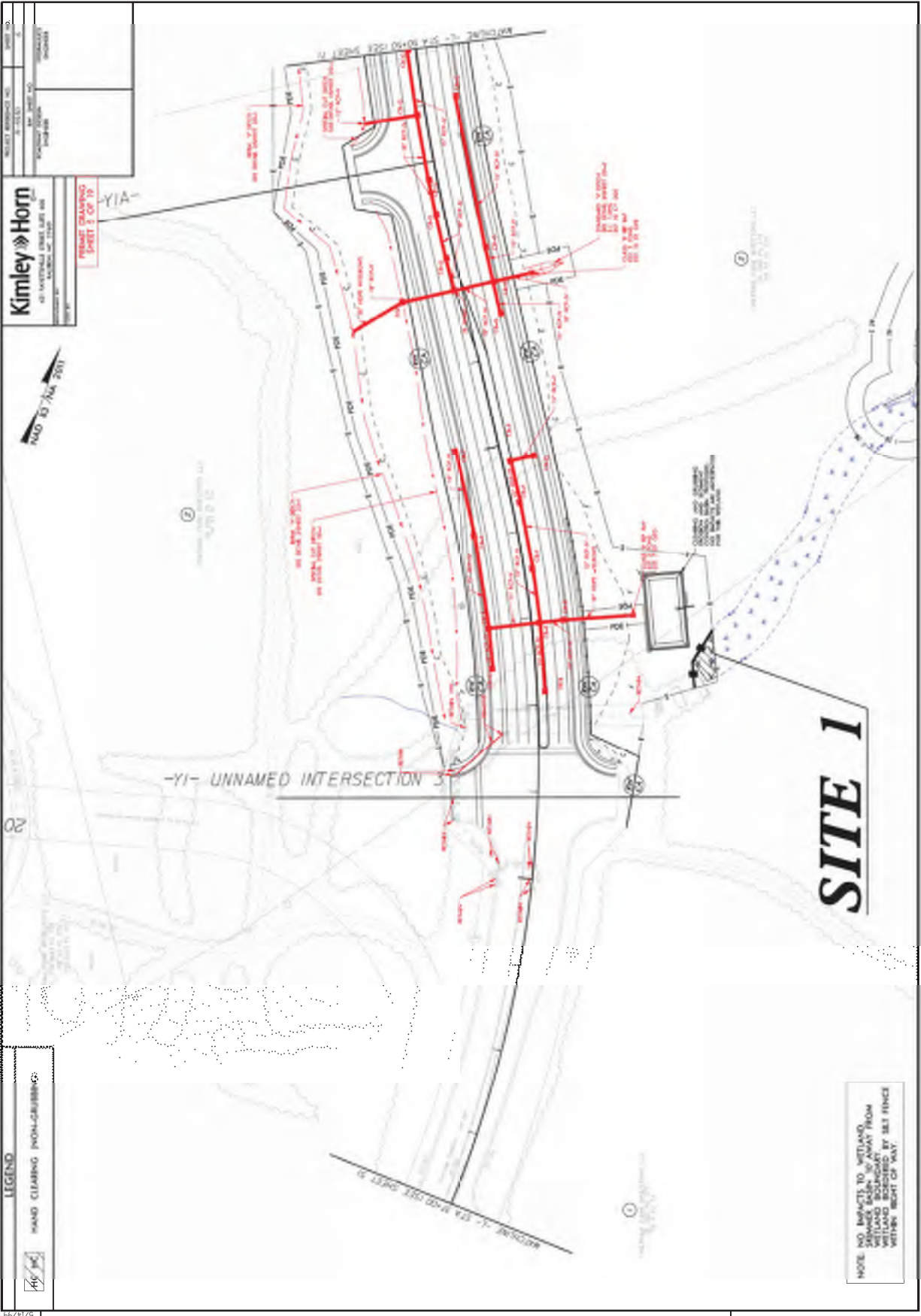


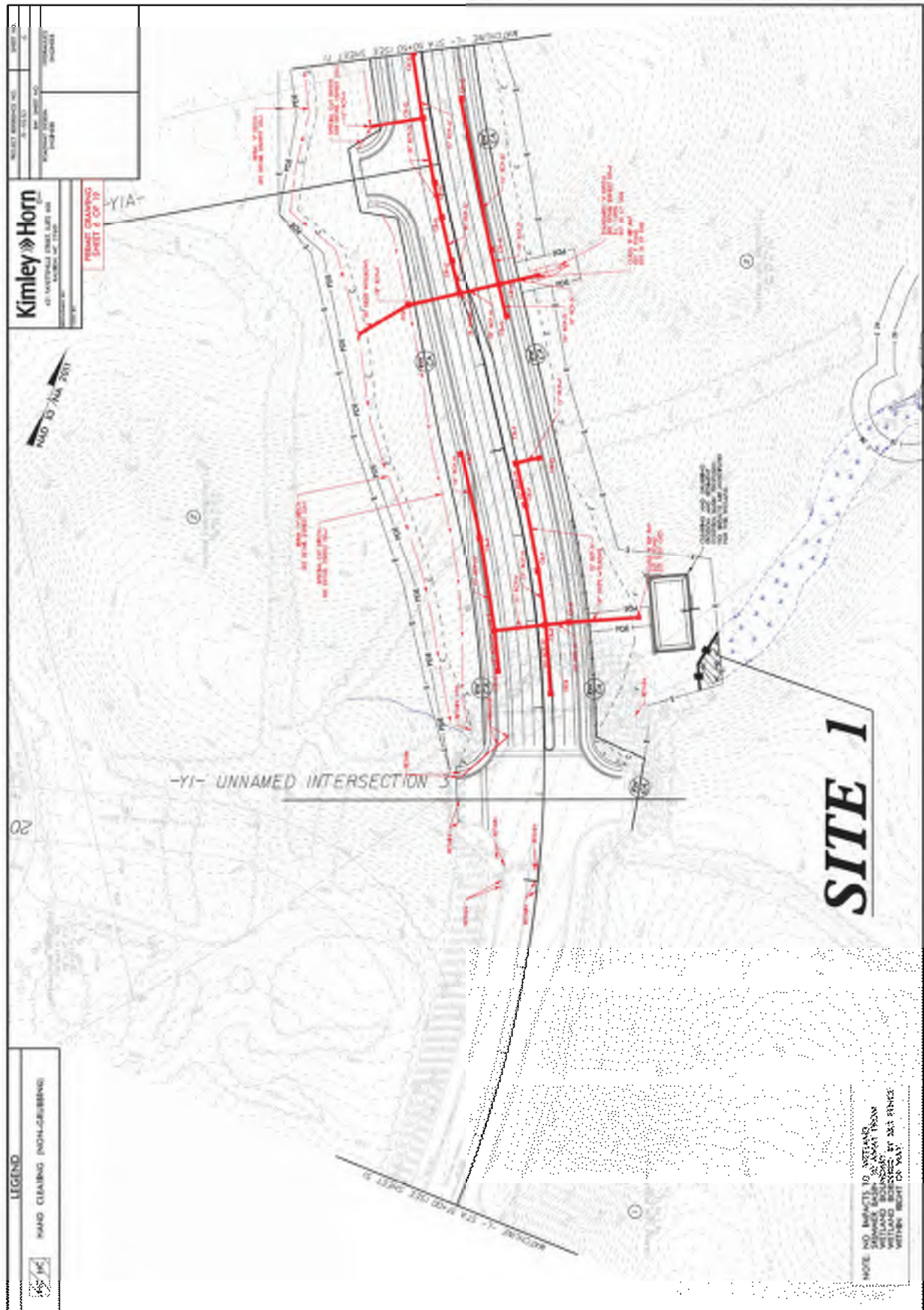










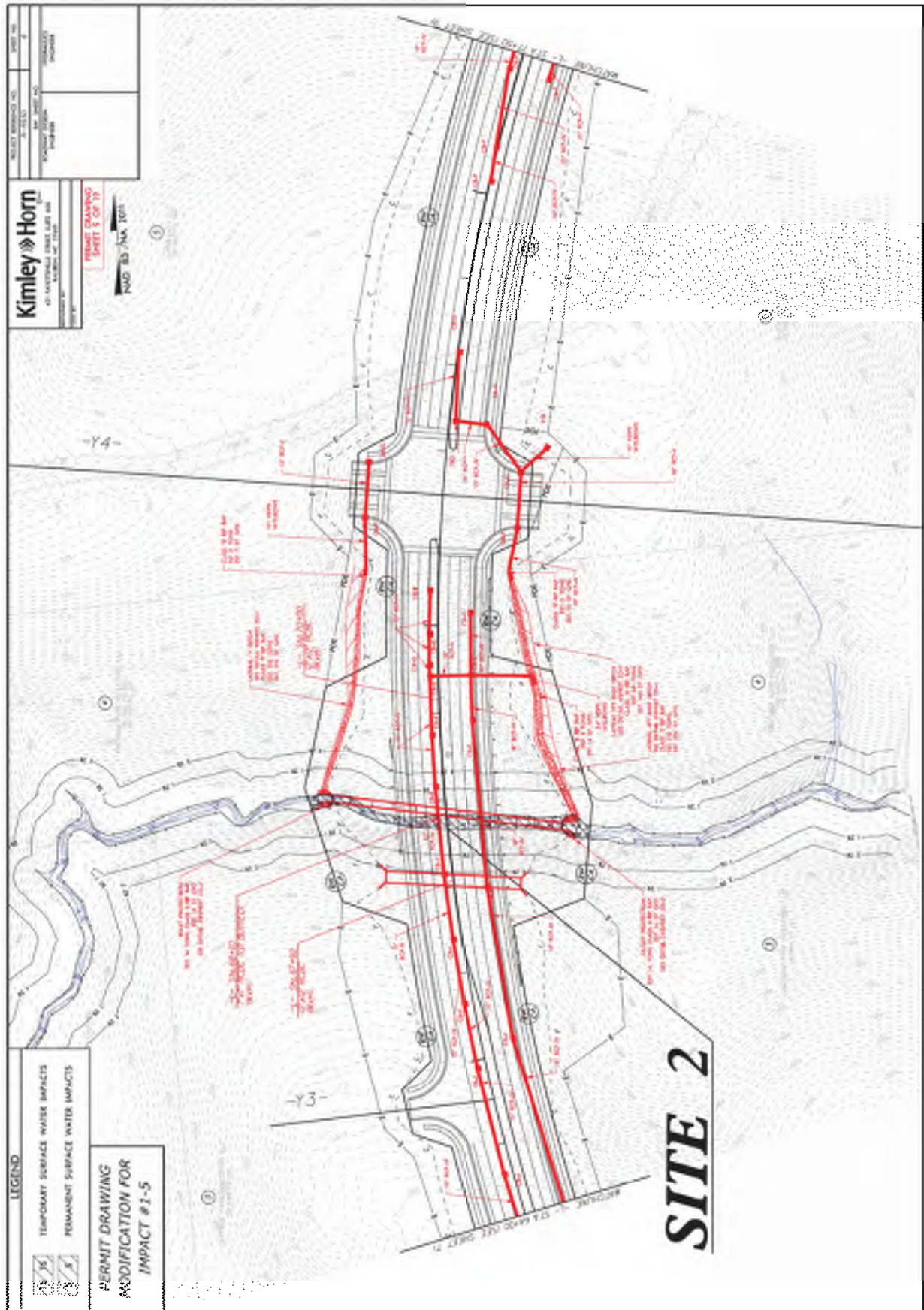


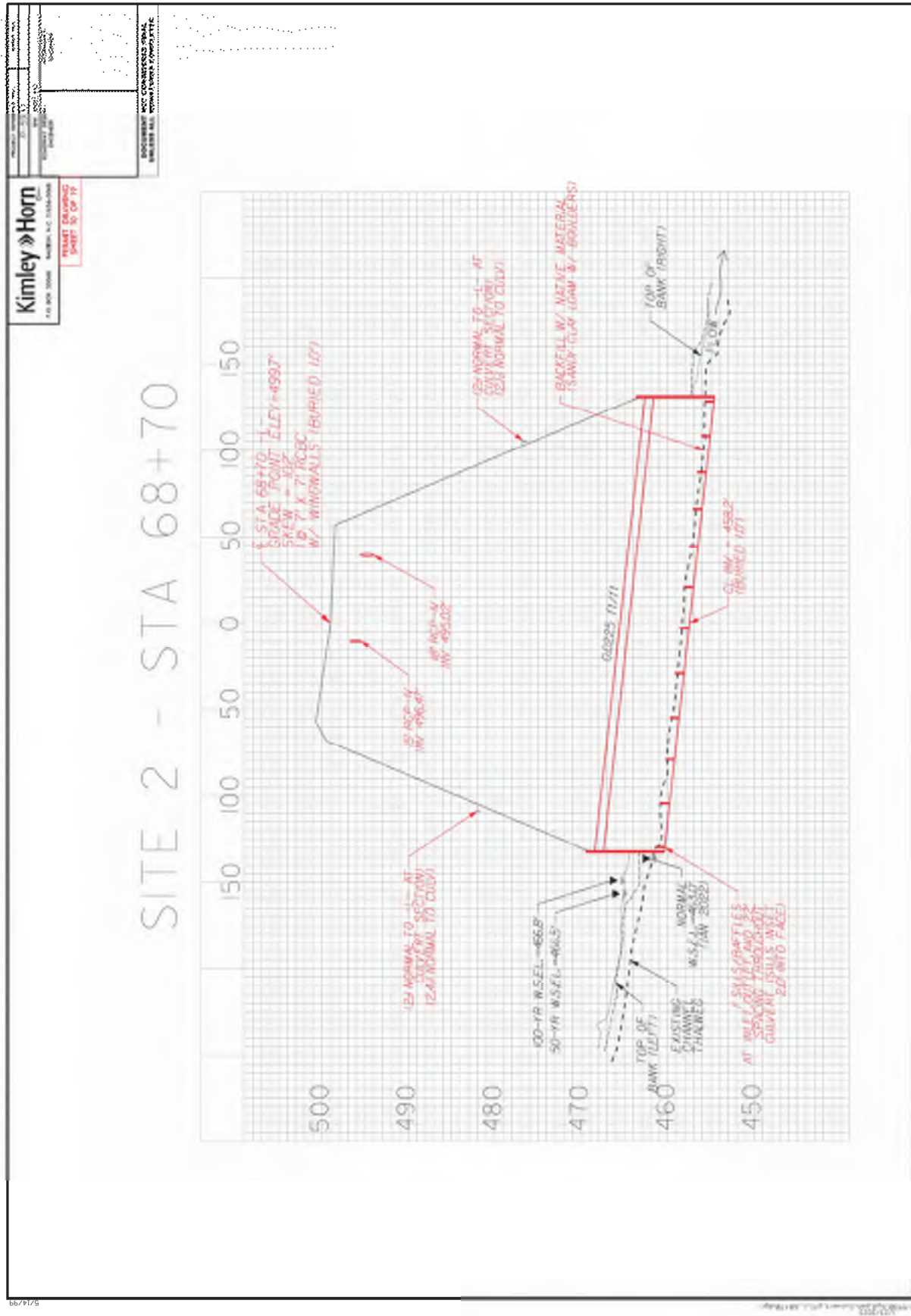




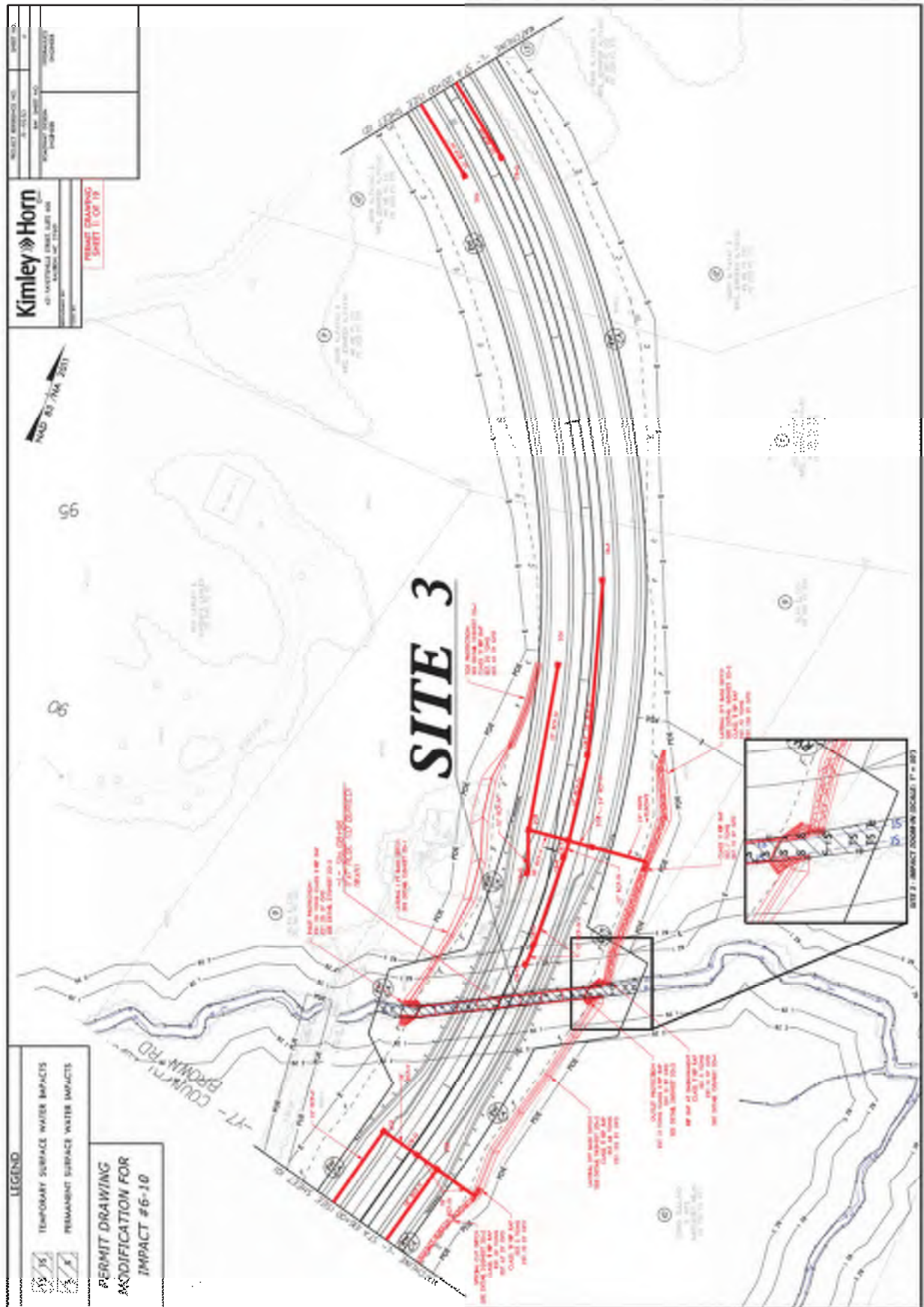


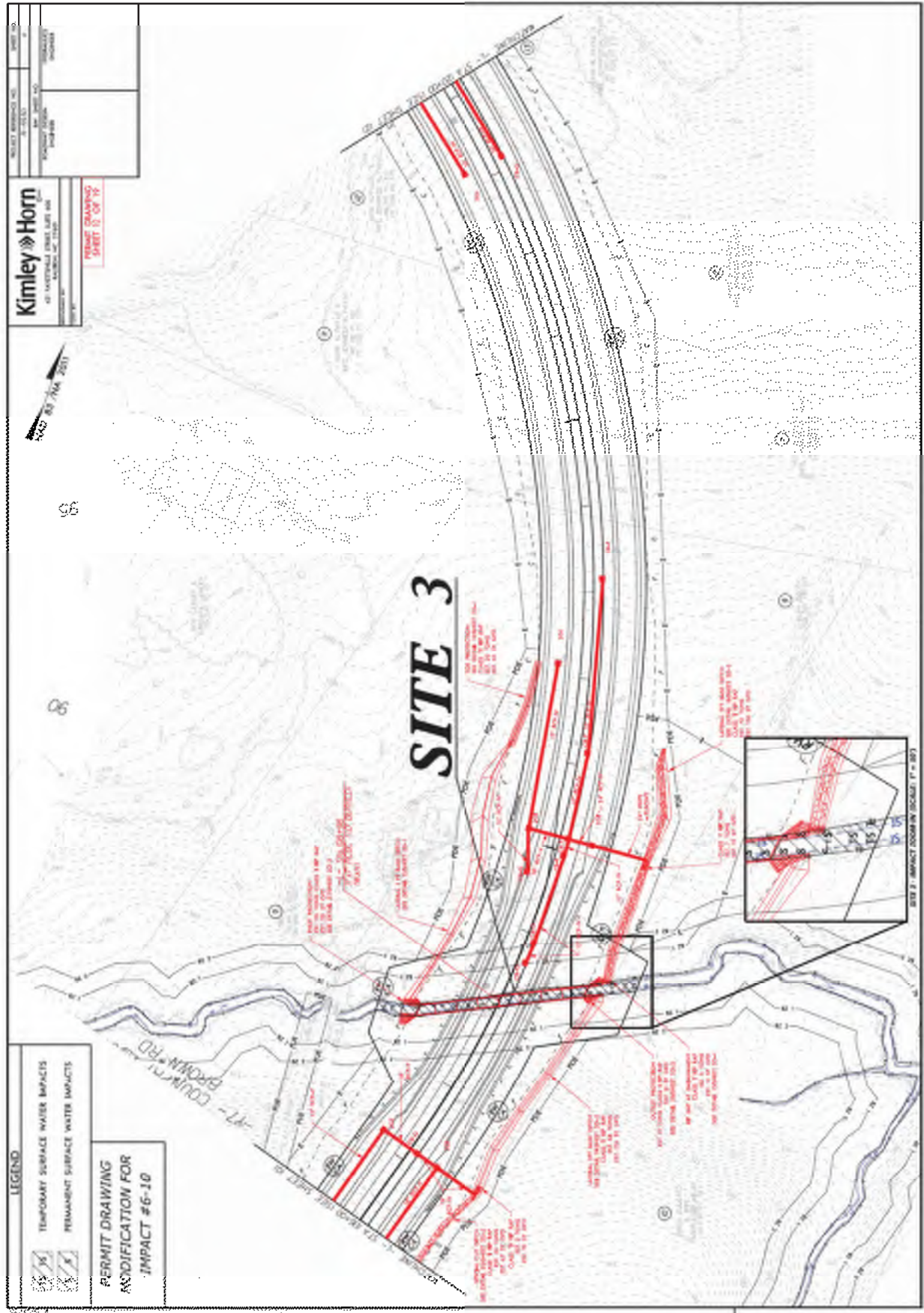




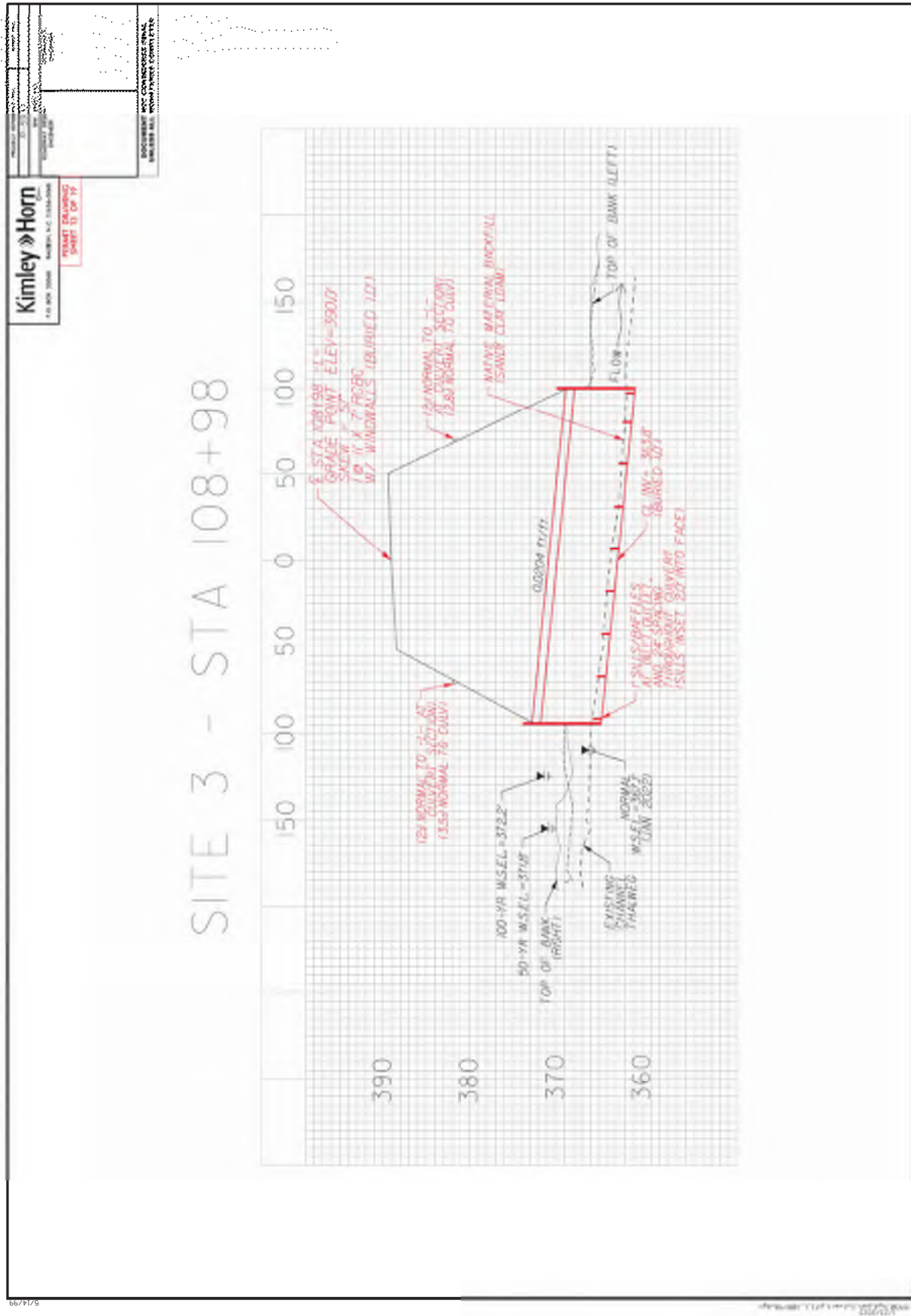


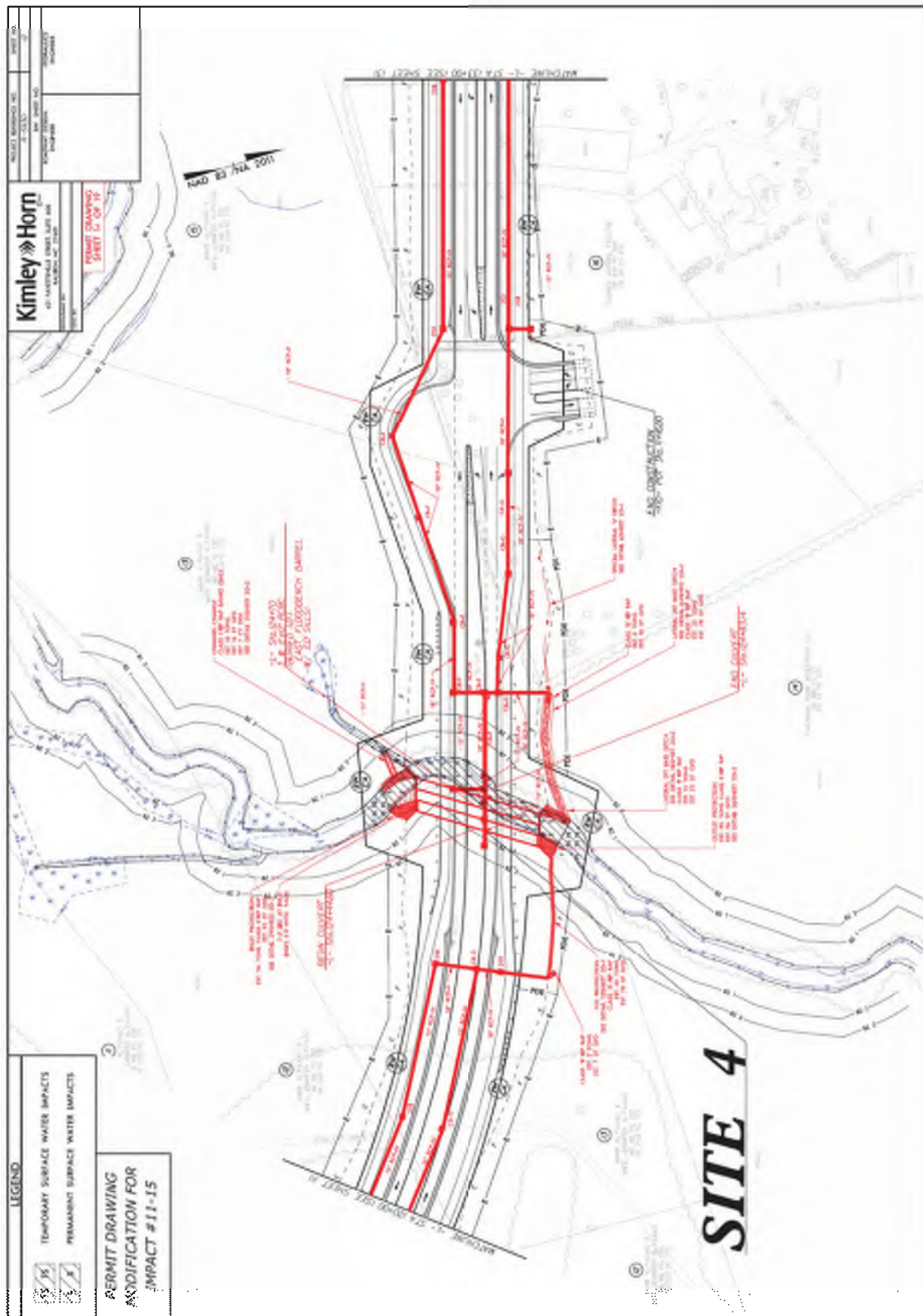




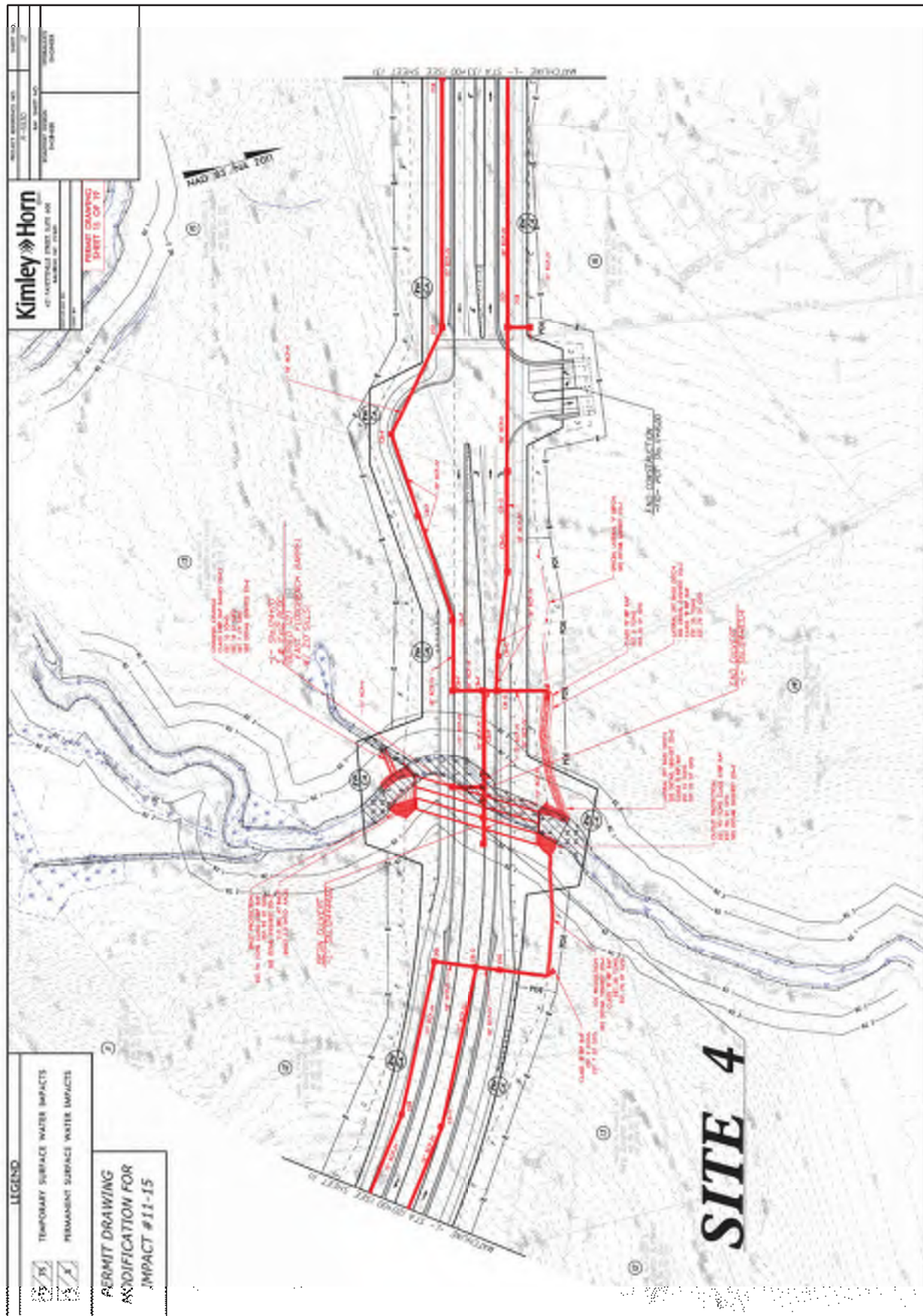






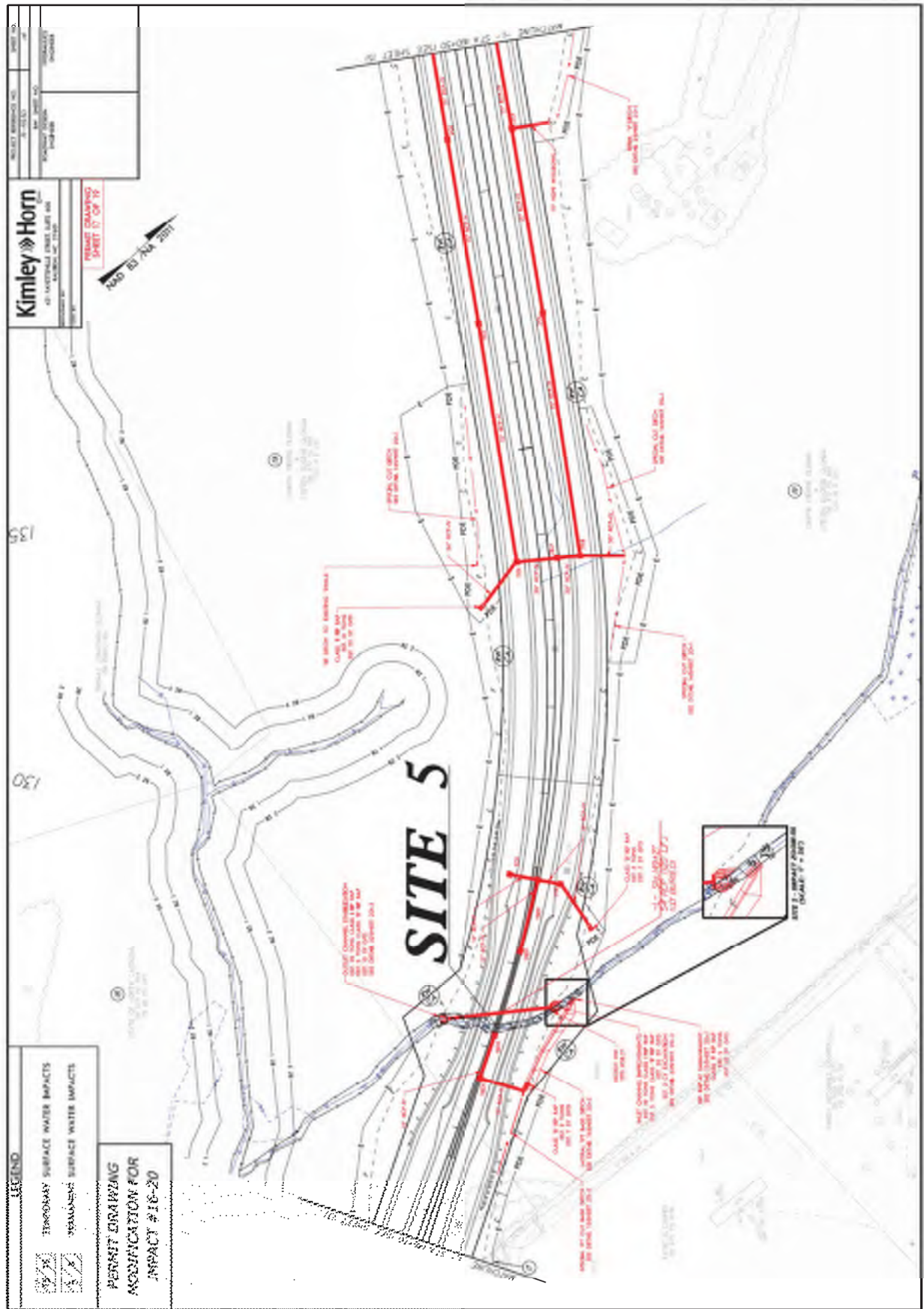


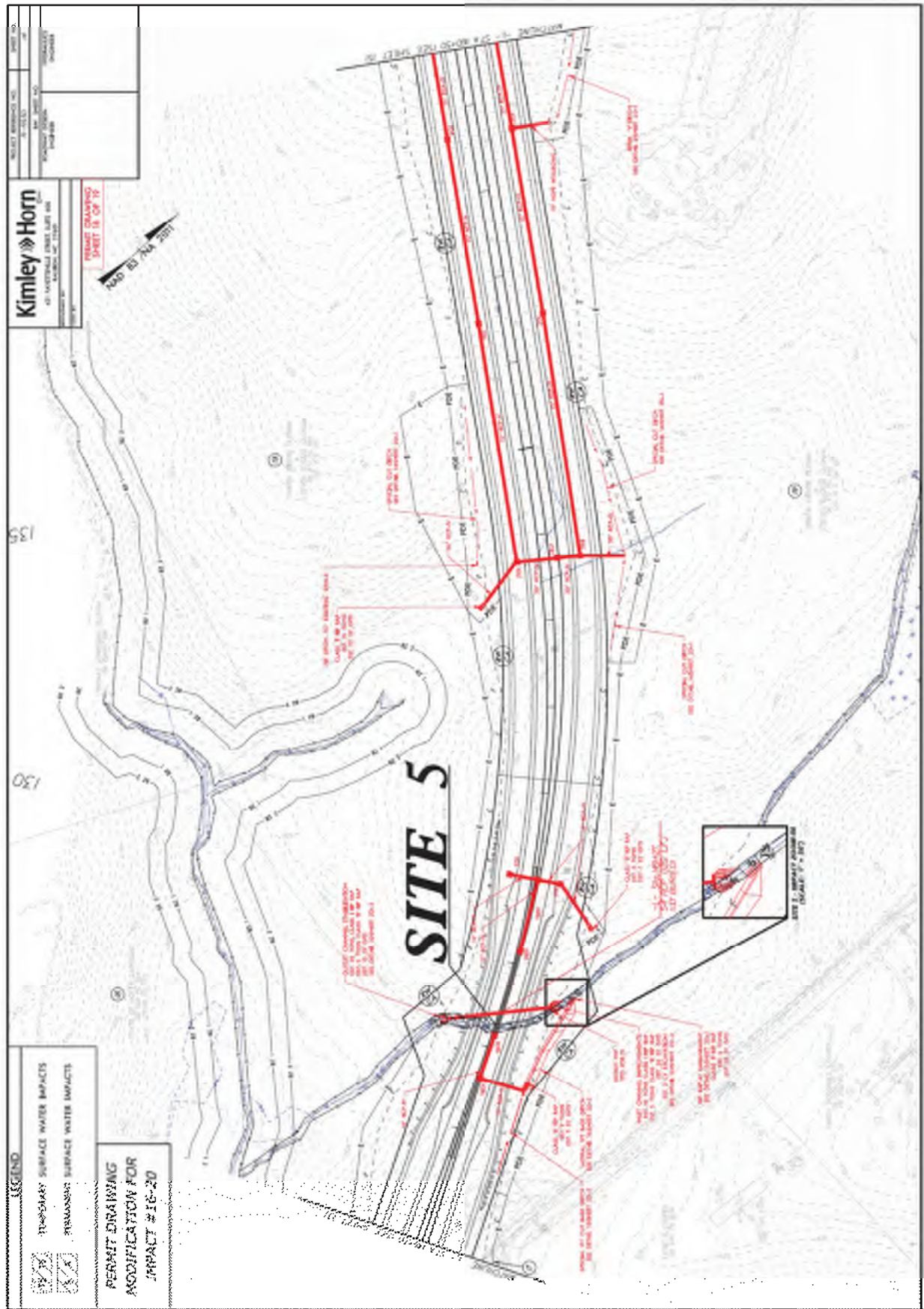














| WETLAND AND SURFACE WATER IMPACTS SUMMARY |                          |                           |                                        |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------------------|--------------------------|---------------------------|----------------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
| WETLAND IMPACTS                           |                          |                           |                                        | SURFACE WATER IMPACTS           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| Permit Modification Site No.              | Original Permit Impact # | Station (From/To)         | Structure Size / Type                  | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation In Wetlands (ac) | Mechanized Clearing In Wetlands (ac) | Hand Clearing In Wetlands (ac) | Permanent SW Impacts (ac) | Temp. SW Impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 1                                         | -                        | -L-43+01 / -L- 43+50 (RT) | Skimmer Basin                          |                                 |                             |                             |                                      | 0.02                           | 0.09                      | 0.04                  | 304                                     | 25                                  |                            |
|                                           |                          | -L-48+23 / -L- 59+00      | TOTAL                                  |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 15                                  |                            |
| 2                                         | 1                        |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 17                                      |                                     |                            |
|                                           | 2                        |                           | Outlet Protection (Bank Stabilization) |                                 |                             |                             |                                      |                                | 0.08                      |                       | 270                                     |                                     |                            |
|                                           | 3                        |                           | 1 @ 7' x 7' RCBC, Buried 1'            |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 17                                      |                                     |                            |
|                                           | 4                        |                           | Inlet Protection (Bank Stabilization)  |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           | 5                        |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | 0.03                      | 0.02                  |                                         | 10                                  |                            |
|                                           |                          | -L-108+17 / -L- 109+84    | TOTAL                                  |                                 |                             |                             |                                      |                                | 0.08                      | 0.02                  | 245                                     | 63                                  |                            |
| 3                                         | 6                        |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | < 0.01                    | 0.01                  | 26                                      | 33                                  |                            |
|                                           | 7                        |                           | Outlet Protection (Bank Stabilization) |                                 |                             |                             |                                      |                                | 0.06                      |                       | 201                                     |                                     |                            |
|                                           | 8                        |                           | 1 @ 11' x 7' RCBC, Buried 1'           |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 19                                      |                                     |                            |
|                                           | 9                        |                           | Inlet Protection (Bank Stabilization)  |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           | 10                       |                           | Construction Easement                  |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 30                                  |                            |
|                                           |                          | -L-124+00 / -L- 125+26    | TOTAL                                  |                                 |                             |                             |                                      |                                | 0.15                      | 0.05                  | 274                                     | 89                                  |                            |
| 4                                         | 11                       |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | 0.02                      | 0.02                  | 33                                      | 31                                  |                            |
|                                           | 12                       |                           | Outlet Protection (Bank Stabilization) |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           | 13                       |                           | 3 @ 11' x 12' RCBC, Buried 1'          |                                 |                             |                             |                                      |                                | 0.10                      |                       | 174                                     |                                     |                            |
|                                           | 14                       |                           | East Floodbench Barrel, 2' Sills       |                                 |                             |                             |                                      |                                | 0.02                      |                       | 38                                      |                                     |                            |
|                                           | 15                       |                           | Inlet Protection (Bank Stabilization)  |                                 |                             |                             |                                      |                                | < 0.01                    | 0.02                  | 29                                      | 38                                  |                            |
|                                           |                          |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 29                                      | 20                                  |                            |
|                                           |                          | -L-148+65 / -L- 149+73    | Channel Change                         |                                 |                             |                             |                                      |                                | 0.03                      | < 0.01                | 163                                     | 29                                  |                            |
|                                           |                          |                           | TOTAL                                  |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 10                                  |                            |
| 5                                         | 16                       |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 29                                      |                                     |                            |
|                                           | 17                       |                           | Outlet Protection (Bank Stabilization) |                                 |                             |                             |                                      |                                | 0.03                      |                       | 129                                     |                                     |                            |
|                                           | 18                       |                           | 1 @ 34" RCP, Buried 1'                 |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 9                                       |                                     |                            |
|                                           | 19                       |                           | Inlet Protection (Bank Stabilization)  |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 10                                  |                            |
|                                           | 20                       |                           | Construction Easement                  |                                 |                             |                             |                                      |                                | 0.35                      | 0.11                  | 966                                     | 197                                 |                            |
| TOTALS:                                   |                          |                           |                                        |                                 |                             |                             |                                      | 0.02                           |                           |                       |                                         |                                     |                            |

\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
02/13/2023  
CHATHAM COUNTY  
R-5530

Sheet 20 of 24

SHEET 19 OF 19

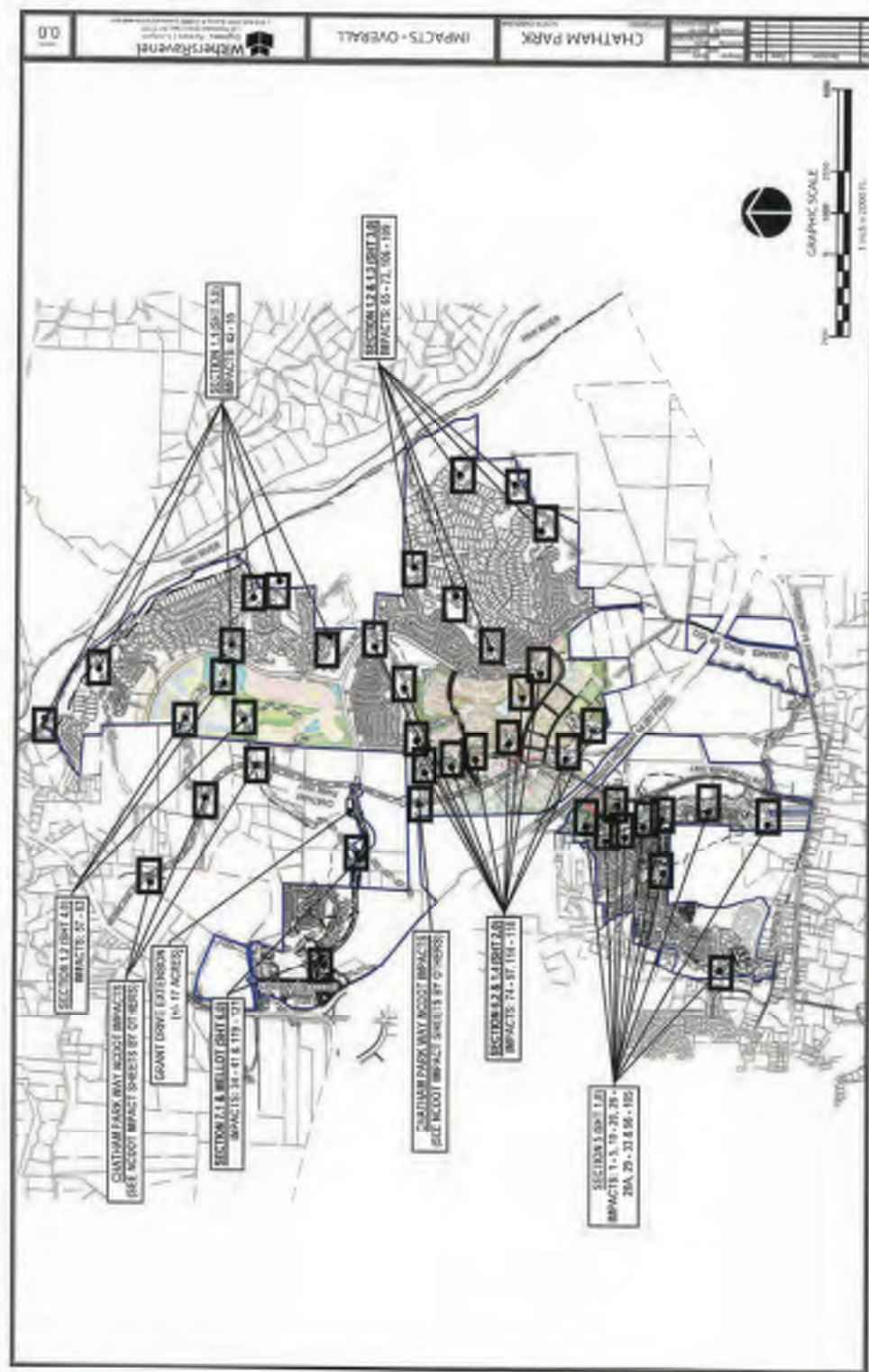
\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
02/13/2023  
CHATHAM COUNTY  
R-5930

Revised 2019 P-48

SHEET 19 OF 19

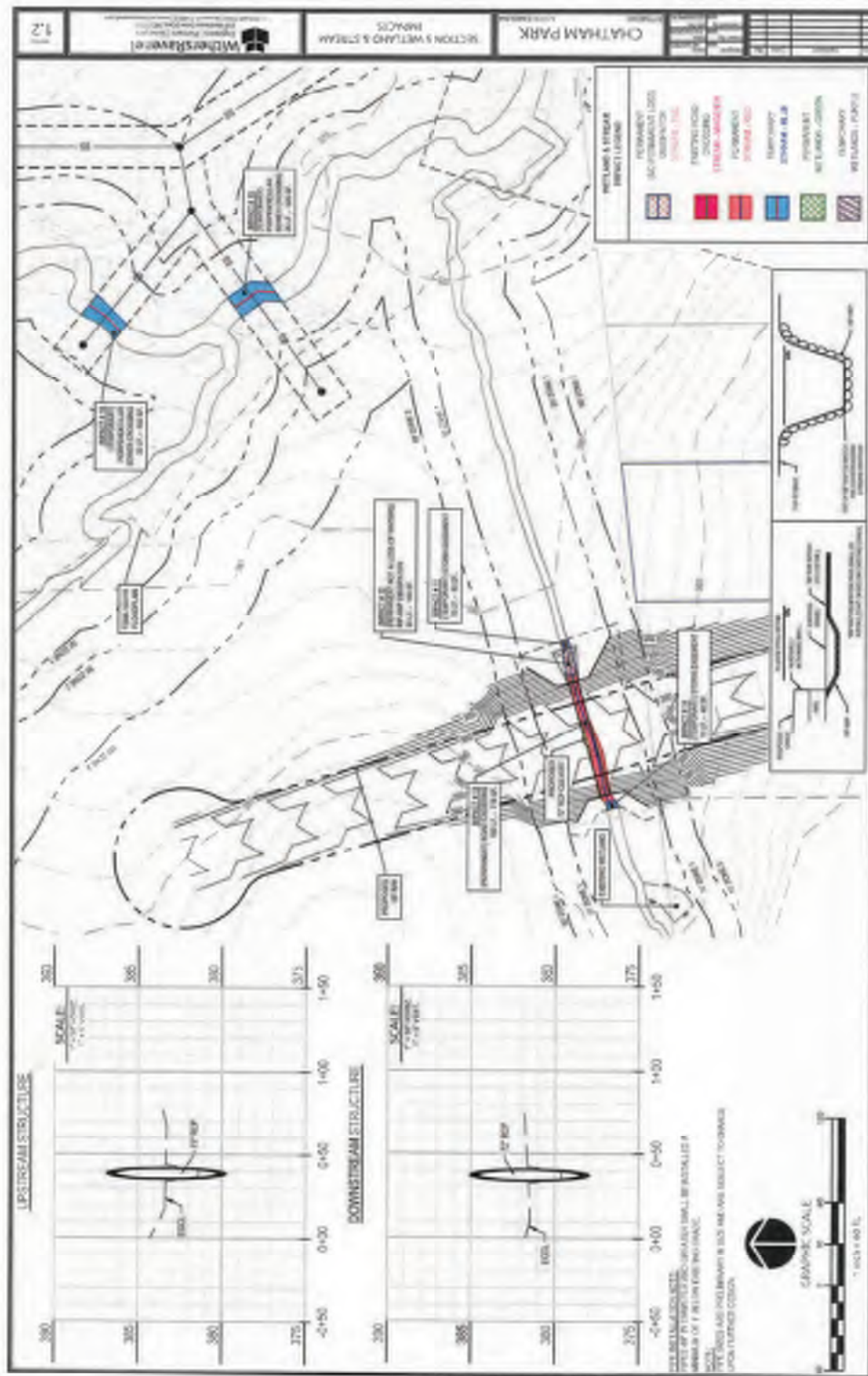




















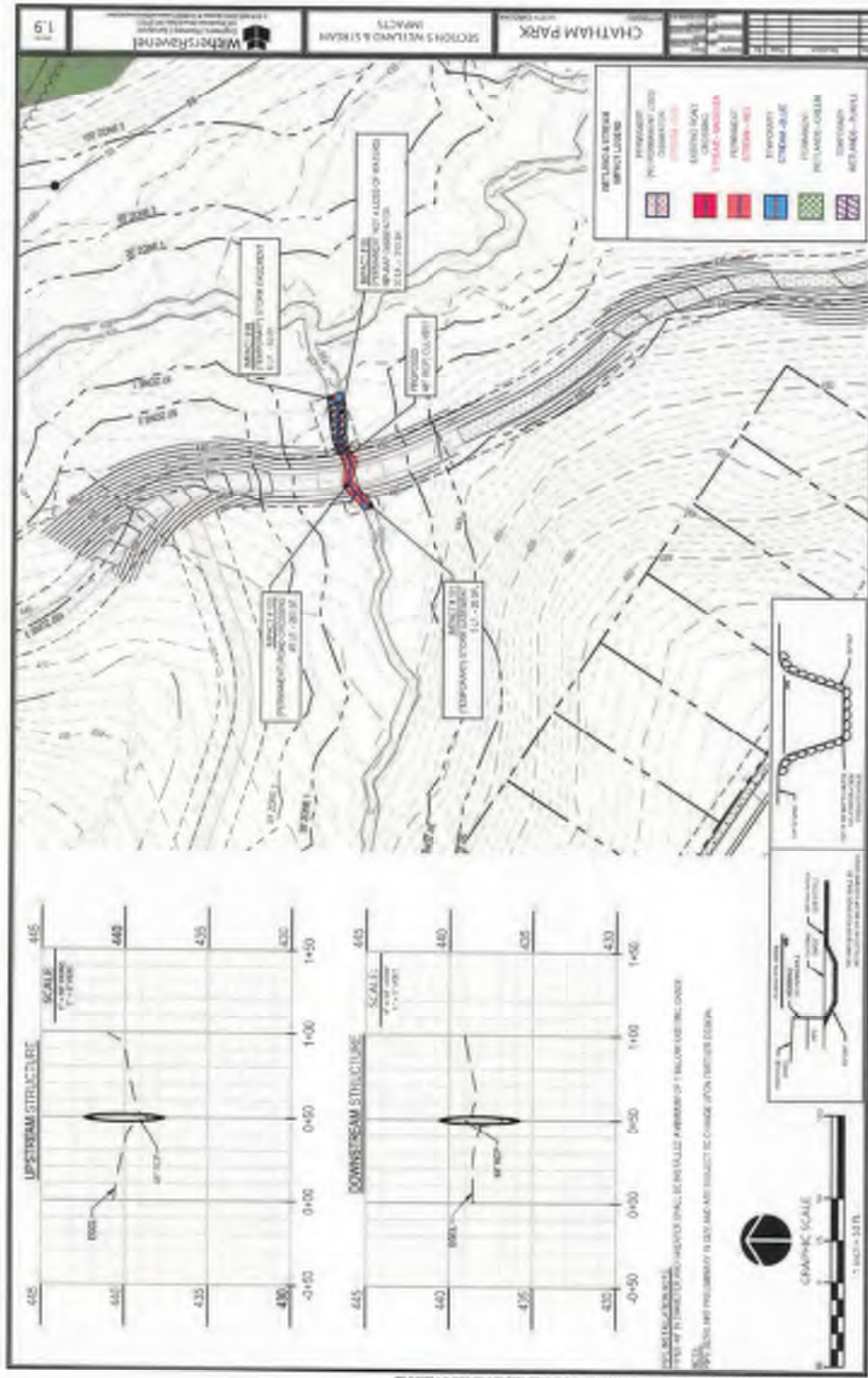














1.10

SECTION 5 SWIMLAND & STREAM

CHATHAM PARK

SECTION 5 SWIMLAND & STREAM

WETLANDS & STREAM

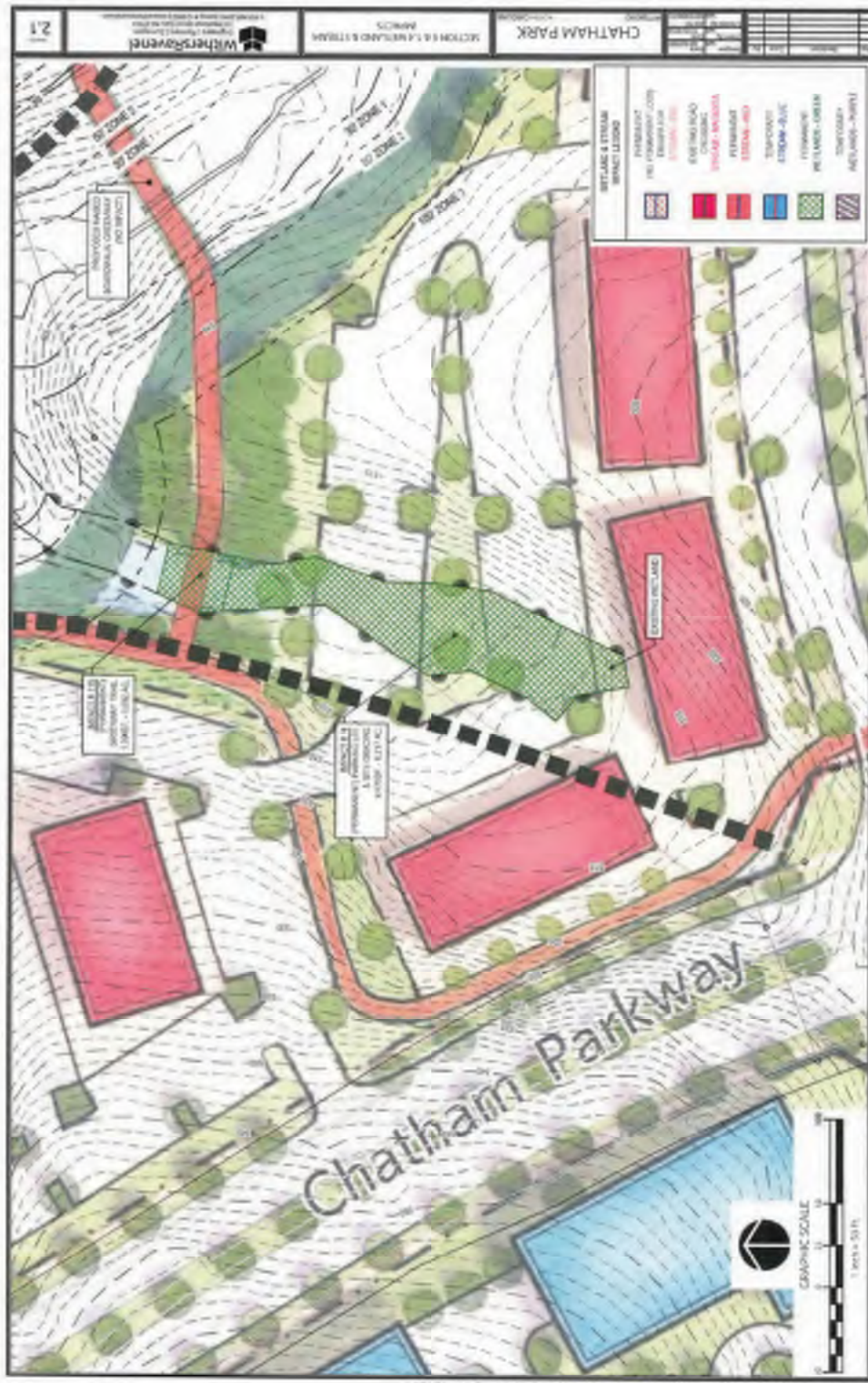
| SECTION | SHEET NUMBER | IMPACT SPECIFICATION        | TEMPORARY |      |        |      | PERMANENT          |      |        |       | PERMANENT (NOT ALLOWS OF WATERS) |       |        |      | PERMANENT IMPACT MINIMIZATION SUMMARY **                          |
|---------|--------------|-----------------------------|-----------|------|--------|------|--------------------|------|--------|-------|----------------------------------|-------|--------|------|-------------------------------------------------------------------|
|         |              |                             | WETLANDS  |      | STREAM |      | WETLANDS           |      | STREAM |       | WETLANDS                         |       | STREAM |      |                                                                   |
|         |              |                             | S.F.      | (SF) | (AC)   | (SF) | PROPOSED PIPE (LF) | (SF) | (AC)   | (SF)  | (SF)                             | (AC)  | (SF)   | (SF) |                                                                   |
| 1.1     | 1            | STORM EASEMENT              | 15        | 106  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 2            | ROAD CROSSING               | -         | -    | -      | -    | 60                 | 725  | 87     | -     | -                                | -     | -      | -    | 2.5:1 (H:V) SLOPE SLOPES AND GEOMETRIC BLOCK OR PRECAST HEADWALLS |
|         | 3            | ROAD EASEMENT               | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | PLUNGE POOL                                                       |
|         | 4            | STORM EASEMENT              | 8         | 42   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 5            | PERMANENT EASEMENT CROSSING | 30        | 245  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
| 1.2     | 11           | STORM EASEMENT              | 10        | 48   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 12           | ROAD EASEMENT               | -         | -    | -      | -    | 100                | 710  | 96     | -     | -                                | -     | -      | -    | PLUNGE POOL                                                       |
|         | 13           | ROAD CROSSING               | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | 2.5:1 (H:V) SLOPE SLOPES AND GEOMETRIC BLOCK OR PRECAST HEADWALLS |
|         | 14           | STORM EASEMENT              | 10        | 48   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 15           | PERMANENT EASEMENT CROSSING | 30        | 245  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
| 1.3     | 16           | PERMANENT EASEMENT CROSSING | 30        | 245  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
|         | 25           | ROAD CROSSING               | -         | -    | -      | -    | 90                 | 600  | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
|         | 27           | SCM GRADING                 | -         | -    | -      | -    | 155                | 910  | -      | -     | -                                | -     | -      | -    | FILL SLOPE AND CONSTRUCTED WETLAND                                |
|         | 28           | SCM GRADING                 | -         | -    | -      | -    | -                  | -    | -      | 1,790 | 1,041                            | -     | -      | -    | CONSTRUCTED WETLAND                                               |
|         | 29           | SCM GRADING                 | -         | -    | -      | -    | -                  | -    | -      | 400   | 5,510                            | -     | -      | -    | CONSTRUCTED WETLAND                                               |
| 1.5     | 29           | STORM EASEMENT              | 5         | 40   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 30           | ROAD EASEMENT               | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | PLUNGE POOL                                                       |
|         | 31           | ROAD CROSSING               | -         | -    | -      | -    | 125                | 825  | 105    | -     | -                                | -     | -      | -    | 2.5:1 (H:V) SLOPE SLOPES AND GEOMETRIC BLOCK OR PRECAST HEADWALLS |
|         | 32           | STORM EASEMENT              | 10        | 80   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 33           | PERMANENT EASEMENT CROSSING | 30        | 290  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
| 1.7     | 33           | PERMANENT EASEMENT CROSSING | 30        | 166  | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY UTILITY CROSSING                                        |
|         | 38           | STORM EASEMENT              | 5         | 52   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 39           | ROAD EASEMENT               | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | PLUNGE POOL                                                       |
|         | 100          | GREENWAY CROSSING           | -         | -    | -      | -    | 0                  | 263  | 30     | -     | -                                | -     | -      | -    | 2.5:1 (H:V) SLOPE SLOPES AND GEOMETRIC BLOCK OR PRECAST HEADWALLS |
|         | 101          | STORM EASEMENT              | 8         | 30   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
| 1.9     | 102          | STORM EASEMENT              | 6         | 40   | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | 103          | ROAD EASEMENT               | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | PLUNGE POOL                                                       |
|         | 104          | OVERWATER CROSSING          | 5         | 35   | -      | -    | 40                 | 215  | 29     | -     | -                                | -     | -      | -    | 2.5:1 (H:V) SLOPE SLOPES AND GEOMETRIC BLOCK OR PRECAST HEADWALLS |
|         | 105          | STORM EASEMENT              | -         | -    | -      | -    | -                  | -    | -      | -     | -                                | -     | -      | -    | TEMPORARY CONSTRUCTION EASEMENT                                   |
|         | TOTAL        |                             |           | 240  | 2,015  | -    | -                  | 611  | 4,085  | 100   | 2,215                            | 1,030 | 87     | 150  | -                                                                 |

\*\*50% MINIMIZATION SHOWING IS TO BE SUBMITTED TO THE REGIONAL REPORT PROVIDED BY GEOTECHNOLOGIES INC.

\*\* SLOPE MINIMIZATION SHOWN BASED ON RECOMMENDATIONS FROM GEOLOGICAL REPORT PROVIDED BY GEOTECHNOLOGIES INC.







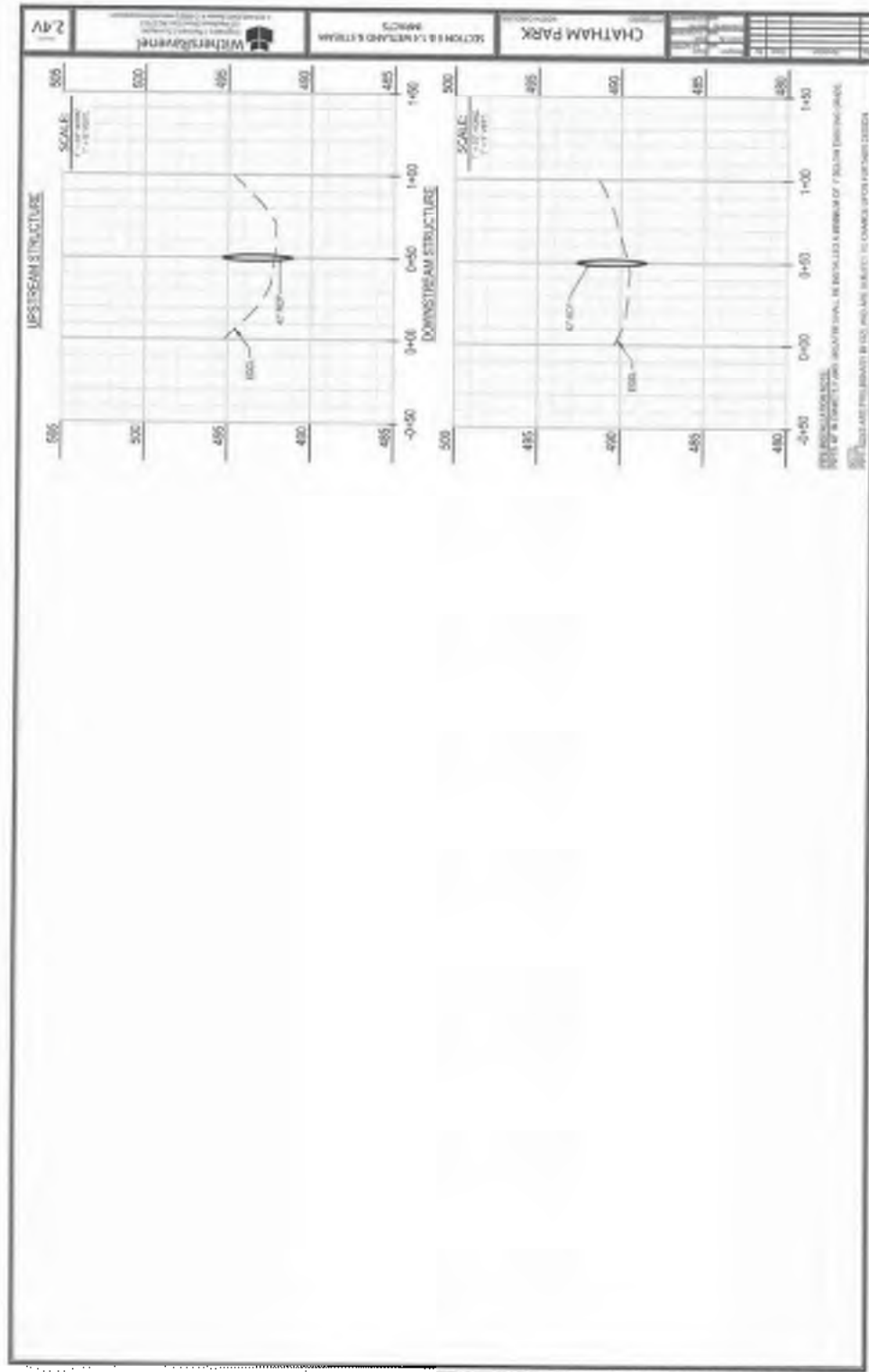


























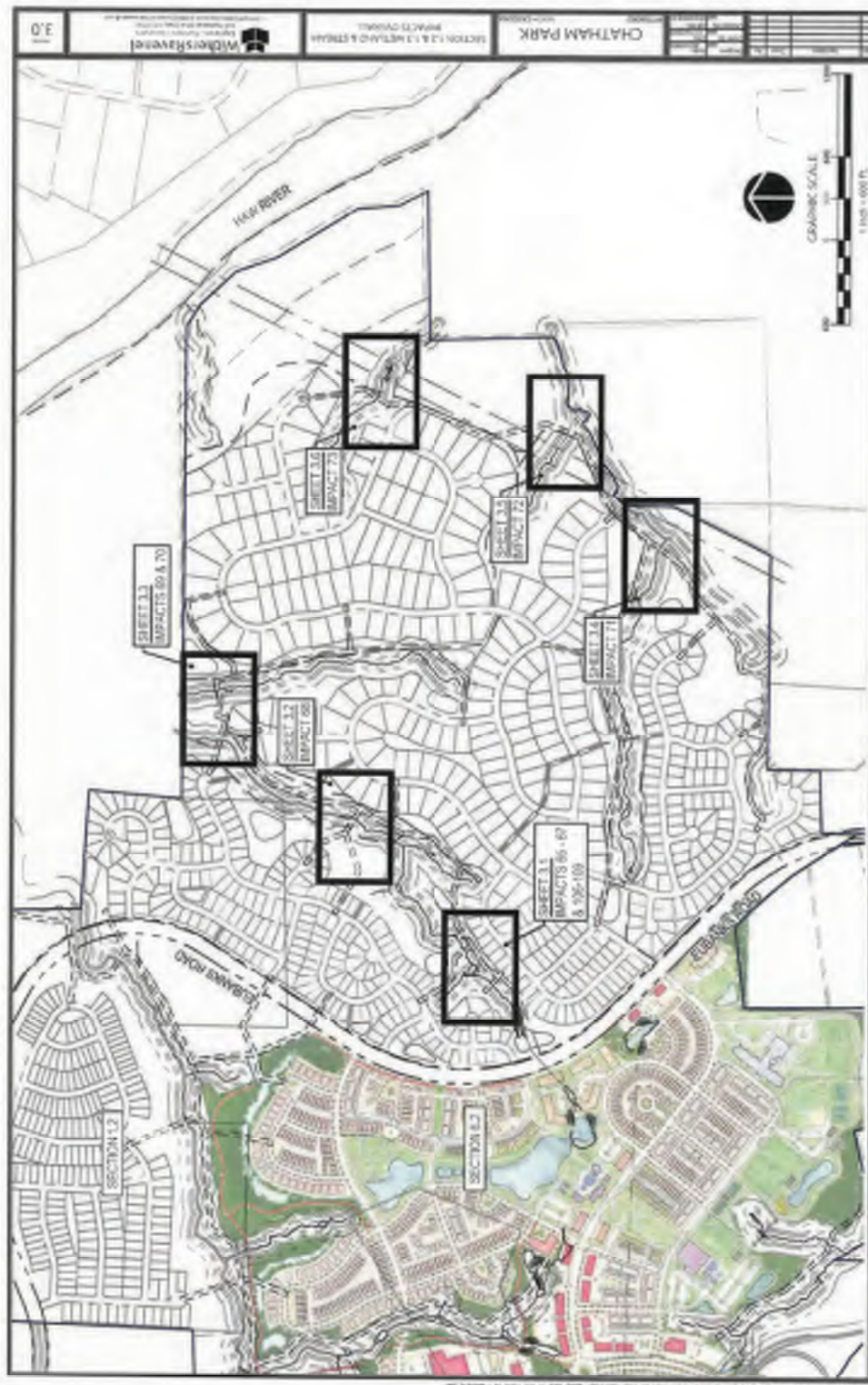






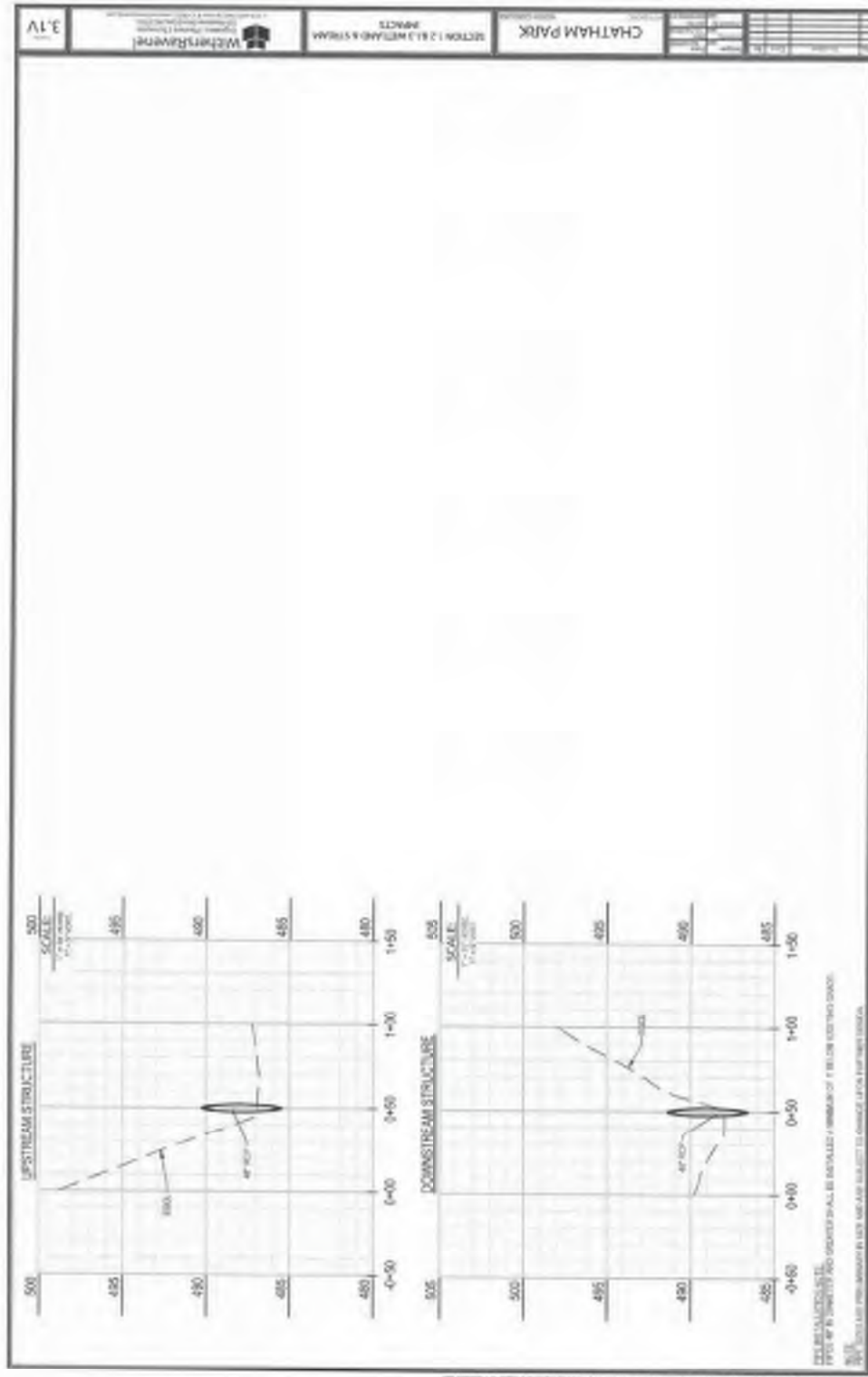




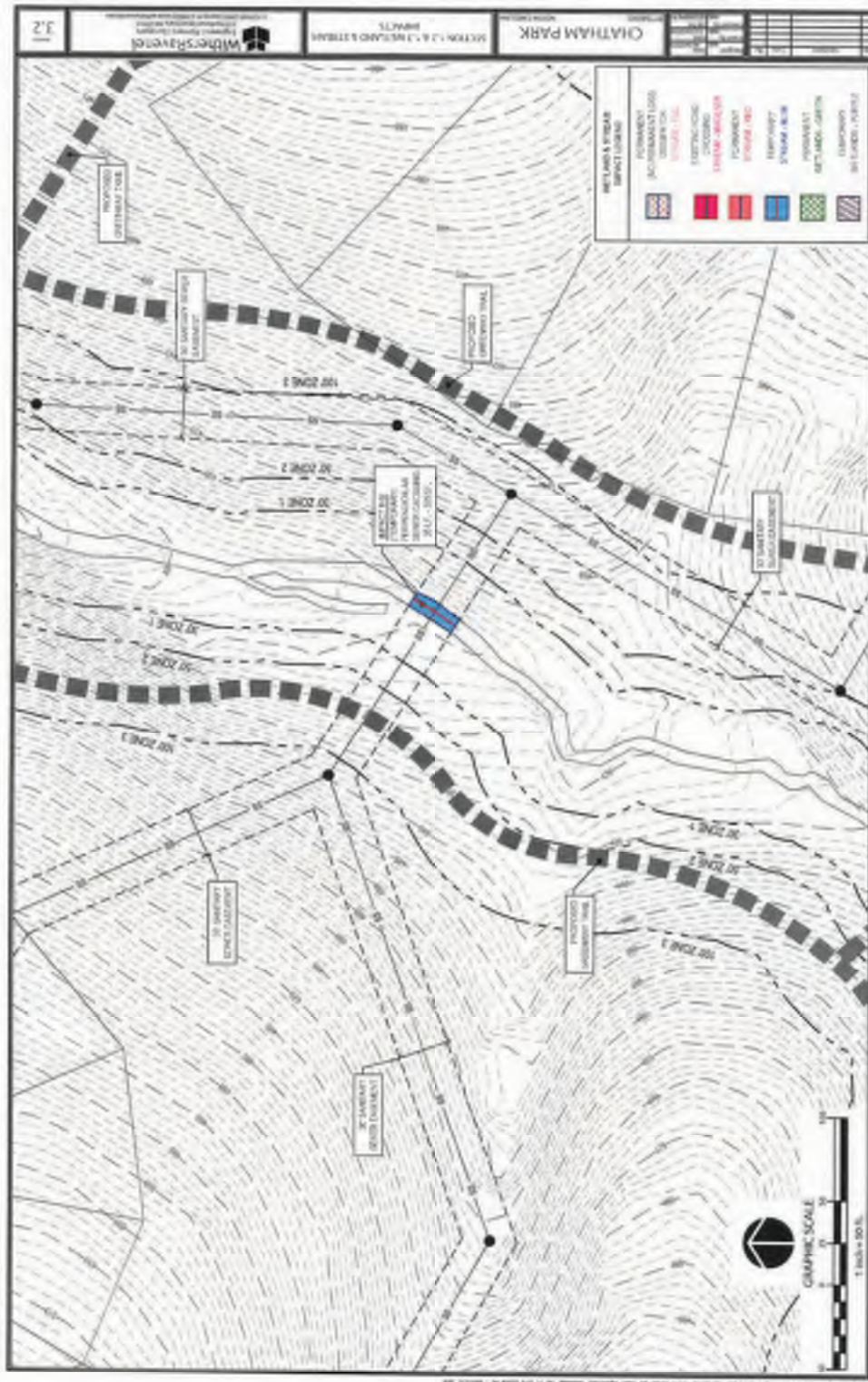








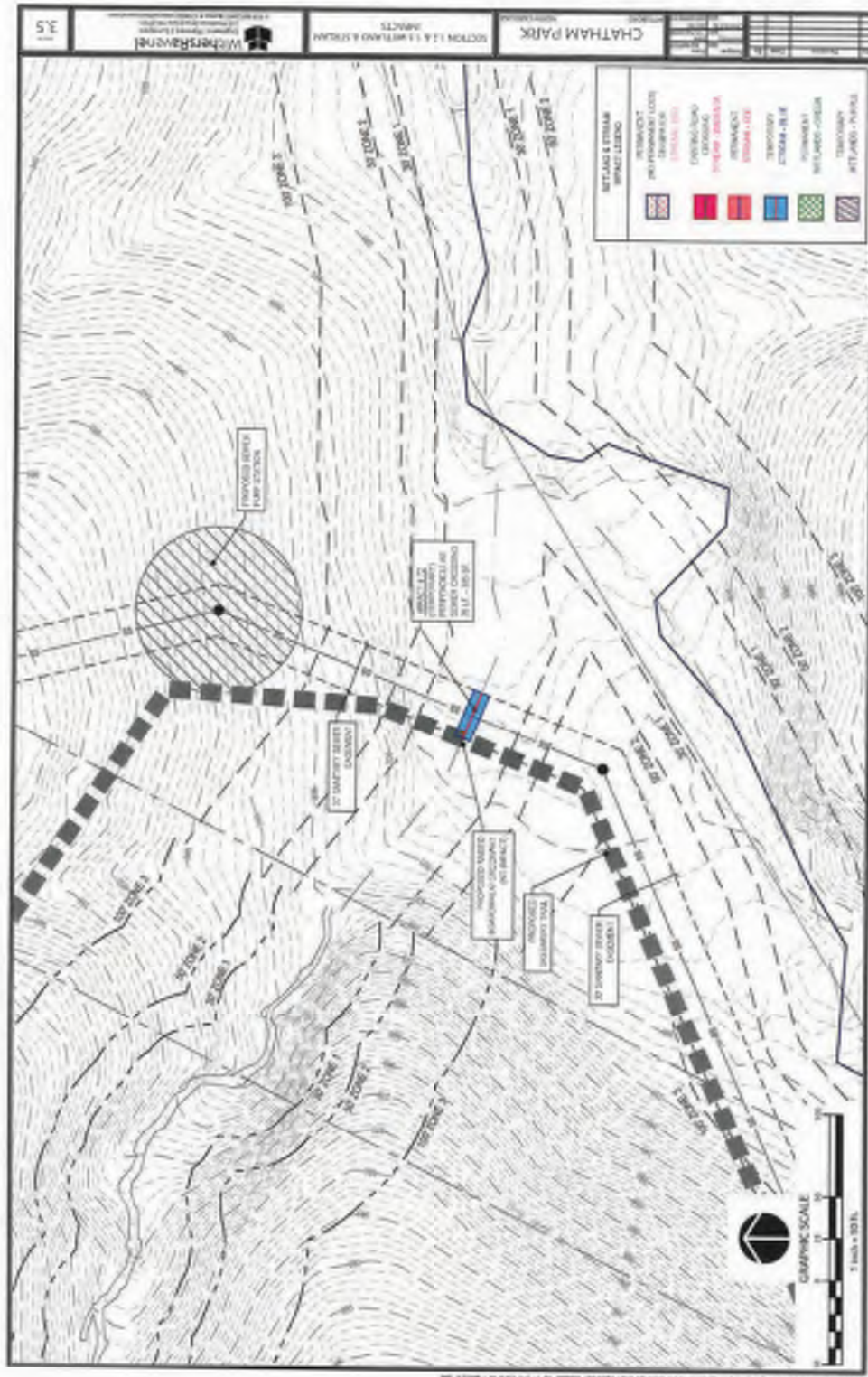




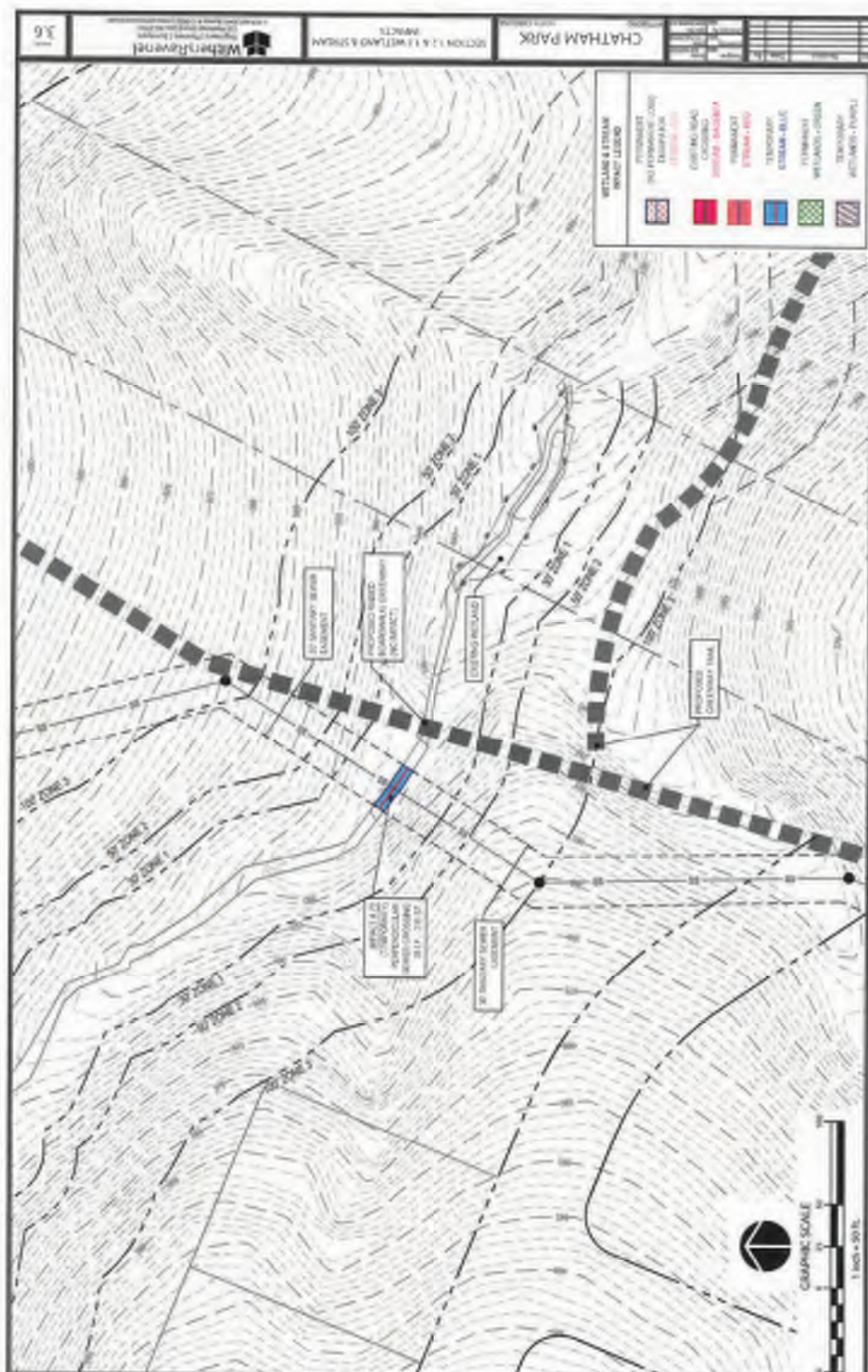












| SECTION | SHEET NUMBER | IMPACT SPECIFICATION         | TEMPORARY |       |          |       |          |      |          |      |          |      | PERMANENT |      |          |      |          |      |          |      |  |  | PERMANENT IMPACT MINIMIZATION SUMMARY |
|---------|--------------|------------------------------|-----------|-------|----------|-------|----------|------|----------|------|----------|------|-----------|------|----------|------|----------|------|----------|------|--|--|---------------------------------------|
|         |              |                              | STREAM    |       | WETLANDS |       | WETLANDS |      | WETLANDS |      | WETLANDS |      | WETLANDS  |      | WETLANDS |      | WETLANDS |      | WETLANDS |      |  |  |                                       |
|         |              |                              | (LF)      | (SF)  | (SF)     | (AC)  | (SF)     | (AC) | (SF)     | (AC) | (SF)     | (AC) | (SF)      | (AC) | (SF)     | (AC) | (SF)     | (AC) | (SF)     | (AC) |  |  |                                       |
| 3.1     | 65           | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 67           | PERPENDICULAR SWALE CROSSING | -         | -     | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 106          | STORM DRAINAGE               | 5         | 35    | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 107          | IMP. RAMP 265574230          | -         | -     | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 108          | GRASSY/ST. CROSSING          | -         | -     | -        | -     | 72       | 445  | 55       | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
| 3.2     | 109          | STORM DRAINAGE               | 5         | 45    | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 110          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 111          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 112          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 113          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
| 3.3     | 114          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 115          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 116          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 117          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 118          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
| 3.4     | 119          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 120          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 121          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 122          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 123          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
| 3.5     | 124          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 125          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 126          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 127          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
|         | 128          | PERPENDICULAR SWALE CROSSING | 25        | 225   | -        | -     | -        | -    | -        | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |
| TOTAL   |              |                              | 208       | 2,120 | 350      | 6,008 | 72       | 445  | 55       | -    | -        | -    | -         | -    | -        | -    | -        | -    | -        | -    |  |  |                                       |

WETLAND & STREAM

PERMANENT IMPACT MINIMIZATION SUMMARY

PERMANENT

NO PERMANENT LOSS

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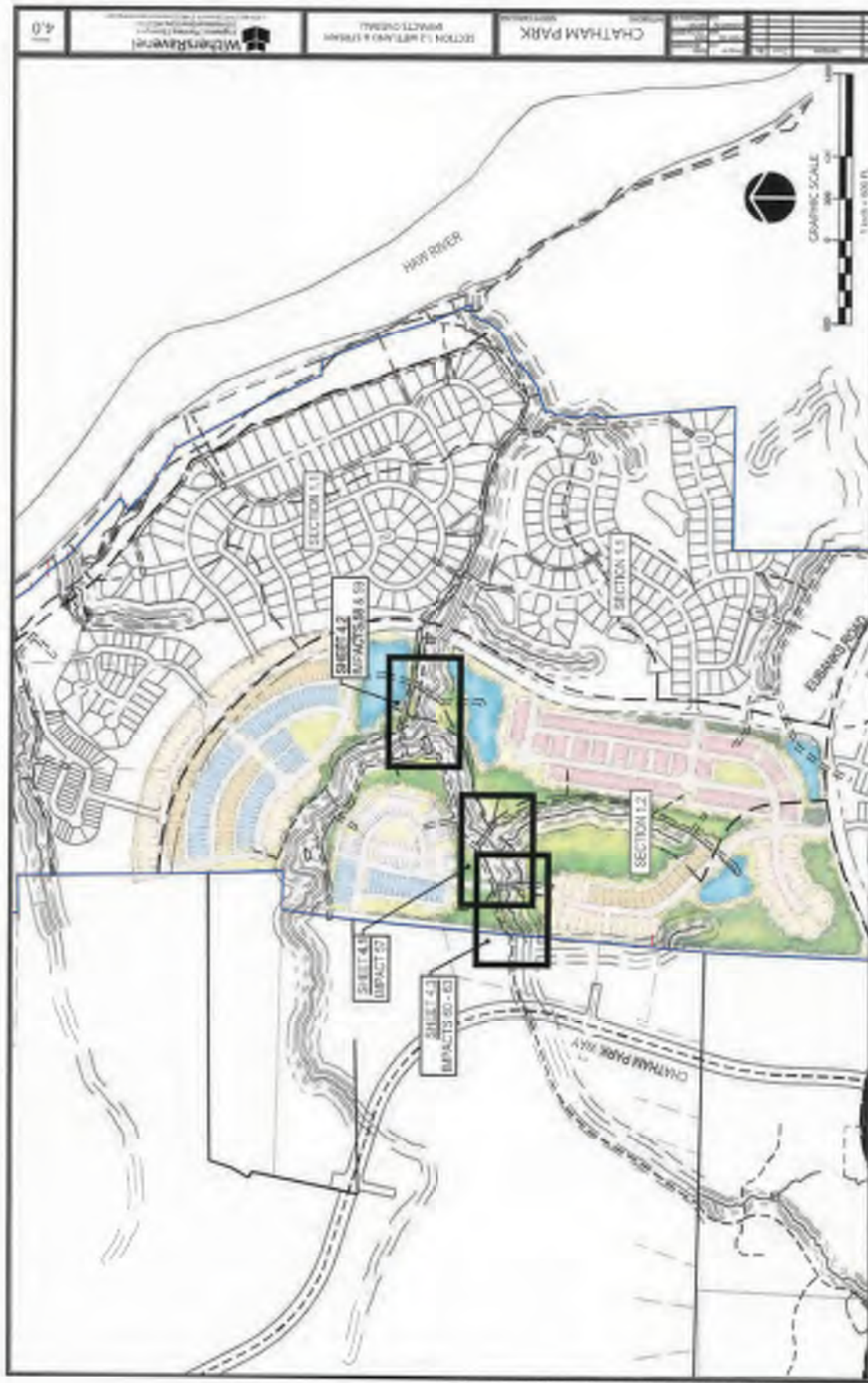
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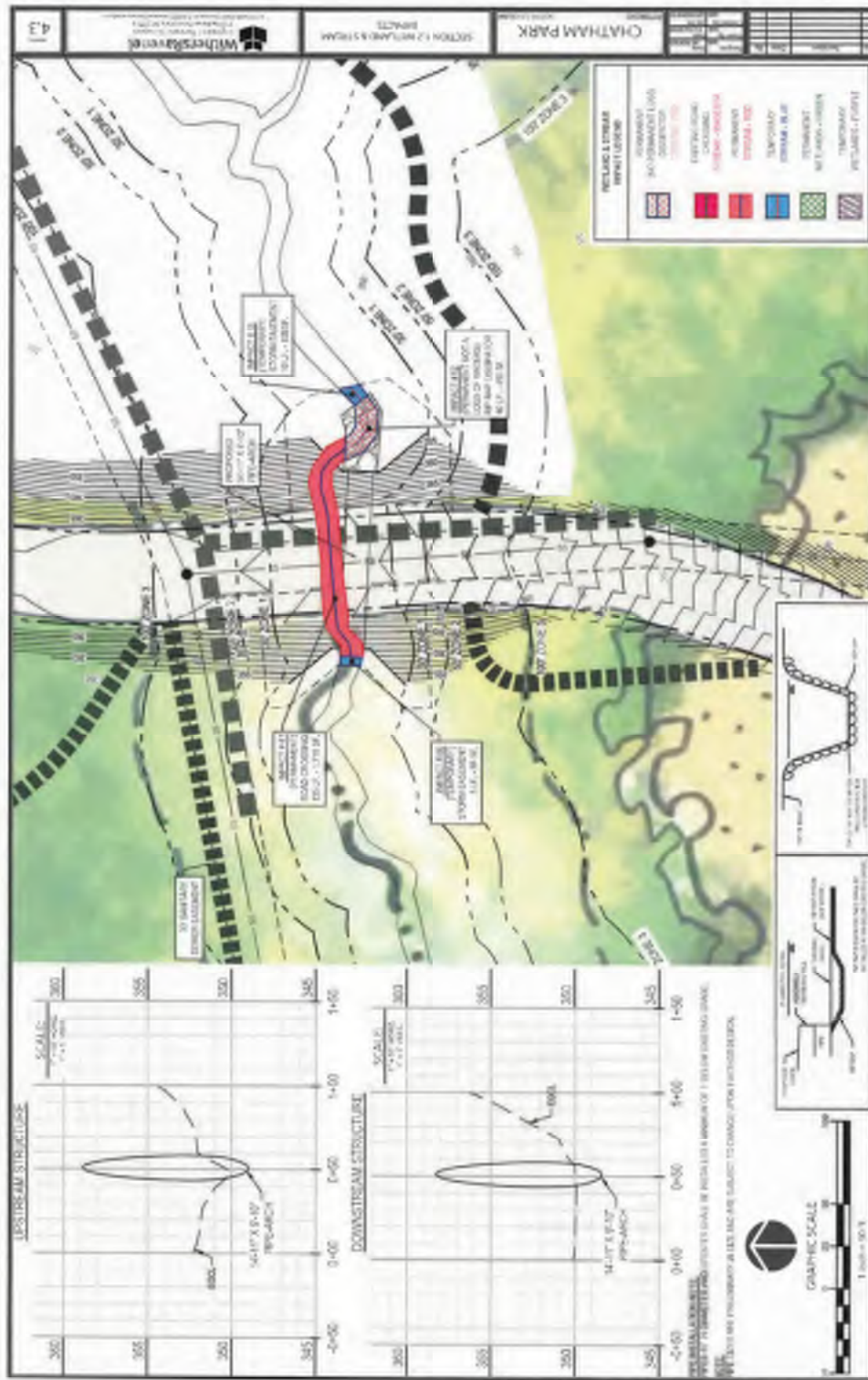














4.4

WETLANDS/STREAM

SECTION 1.1 WETLAND & STREAM IMPACTS OVERALL

CHATHAM PARK

| SECTION | SHEET NUMBER | IMPACT NUMBER | IMPACT DESCRIPTION | TEMPORARY |        |          |        |          |        |          |        |          |        | PERMANENT |        |          |        |          |        |          |        |          |        | WETLAND & STREAM PERMANENT (AND PERMANENT LOSS) |        |          |        |          |        |          |        |          |        | PERMANENT IMPACT INDICATOR ON DUBUAGH ** |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |     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|         |              |               |                    | STREAM    |        | WETLANDS |        | WETLANDS |        | WETLANDS |        | WETLANDS |        | WETLANDS  |        | WETLANDS |        | WETLANDS |        | WETLANDS |        | WETLANDS |        | WETLANDS                                        |        | WETLANDS |        | WETLANDS |        | WETLANDS |        | WETLANDS |        |                                          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |     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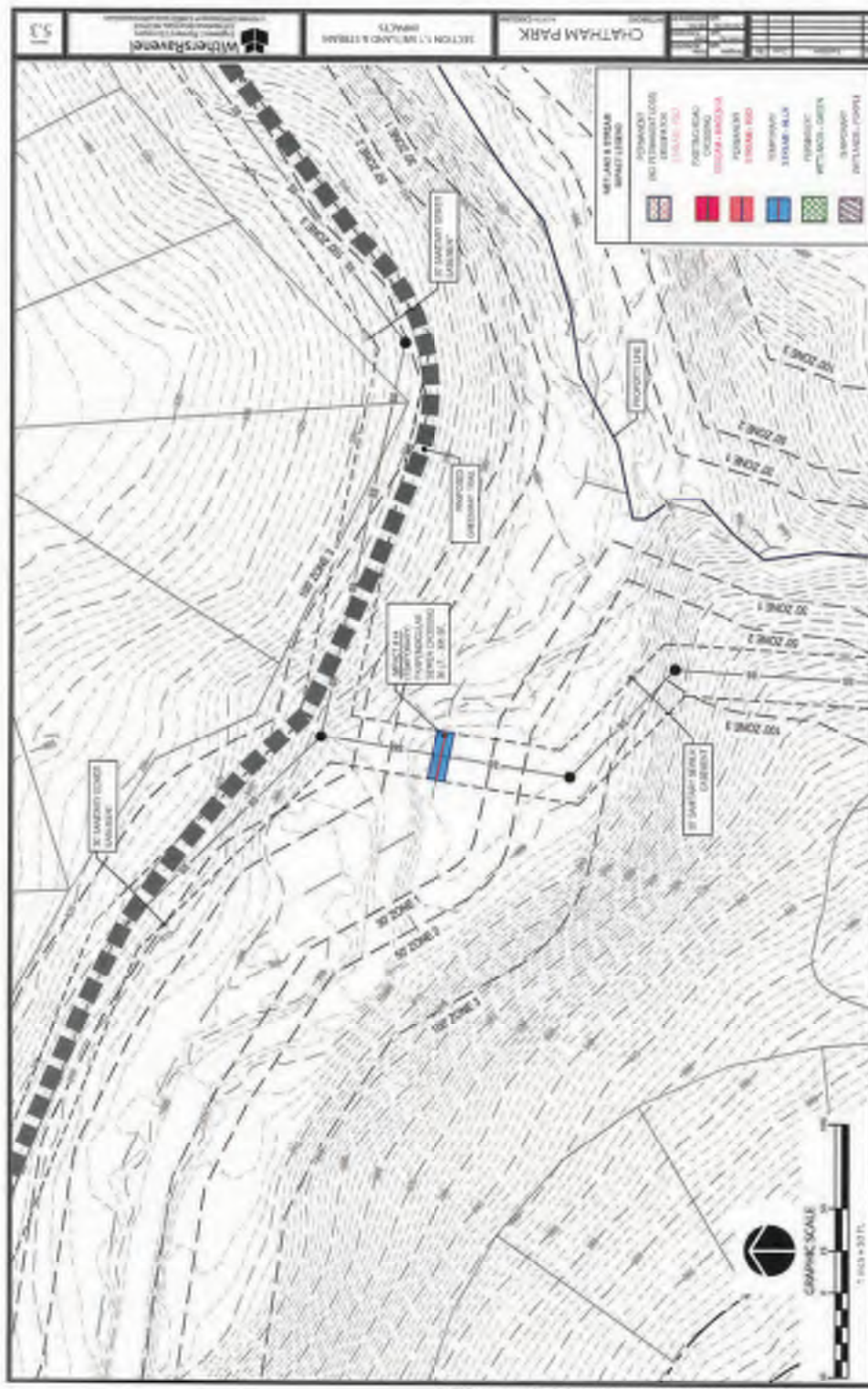


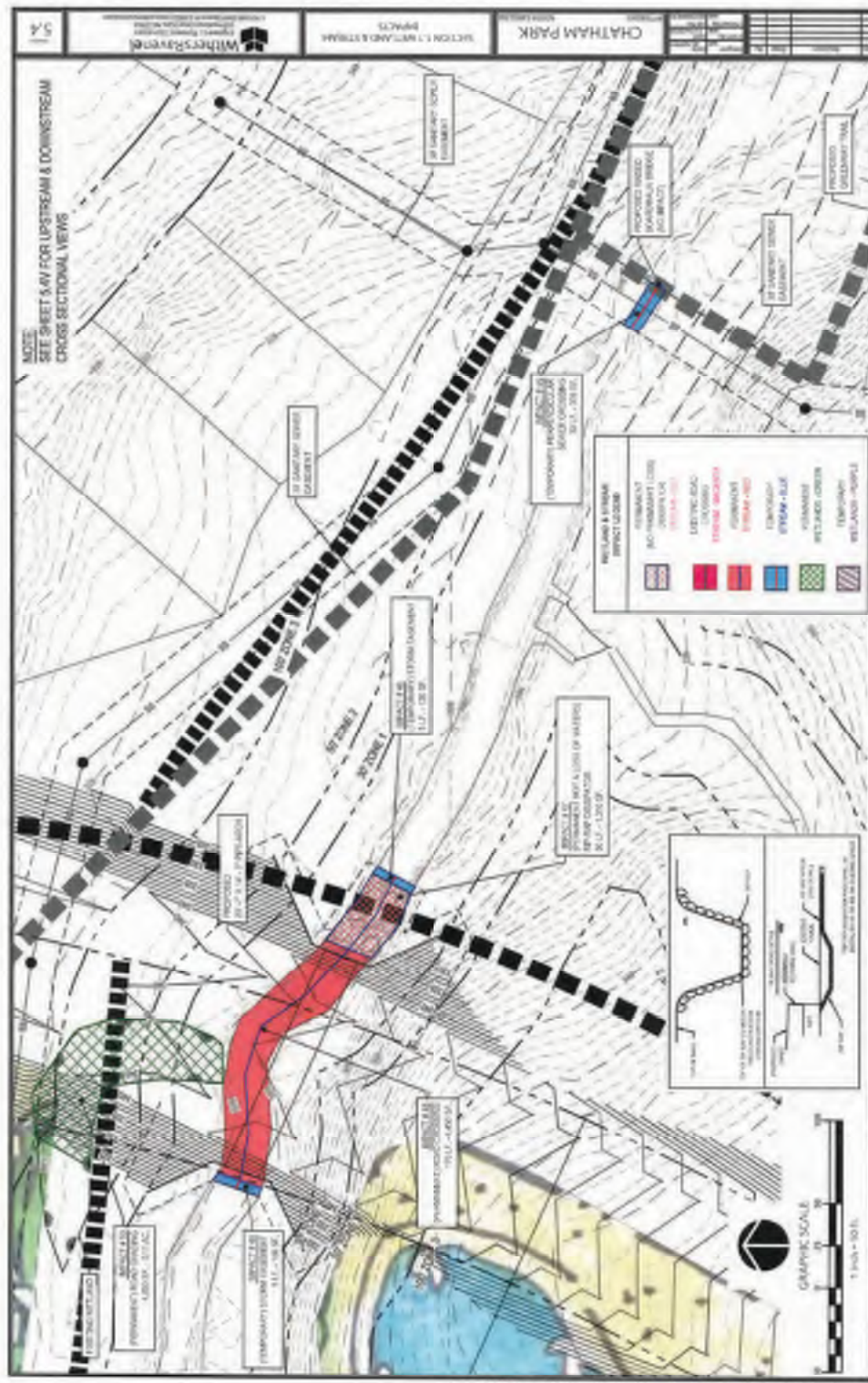




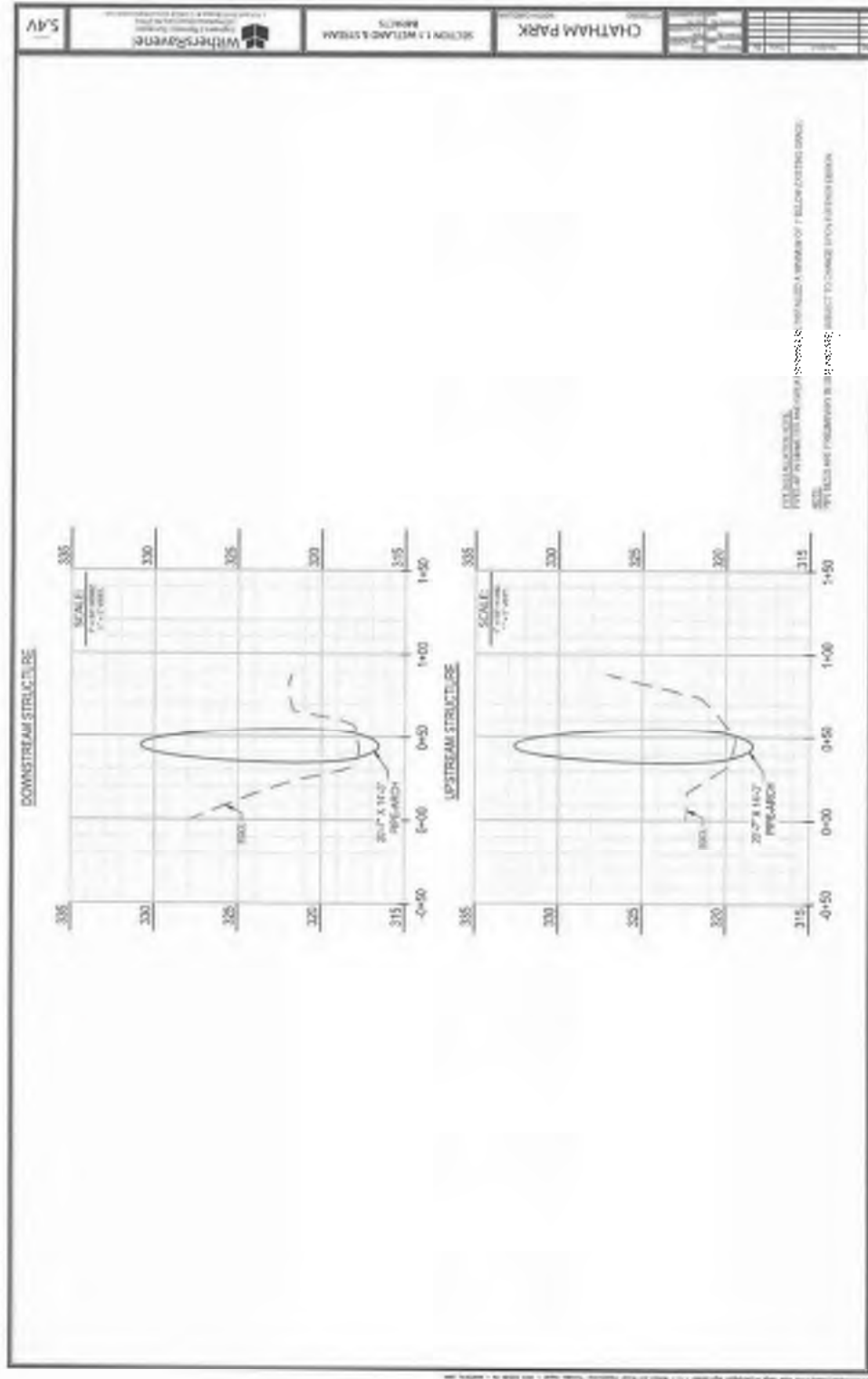


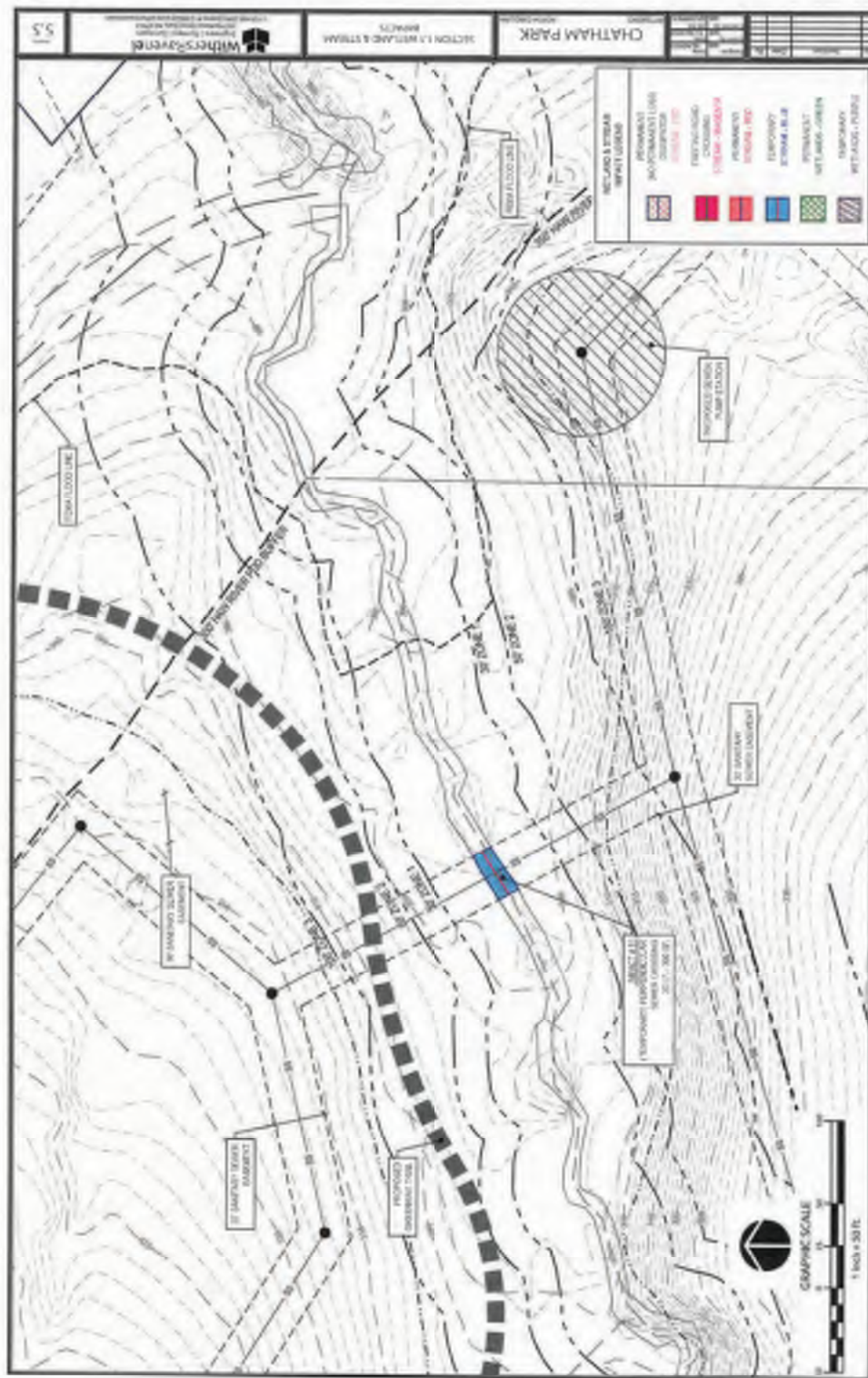




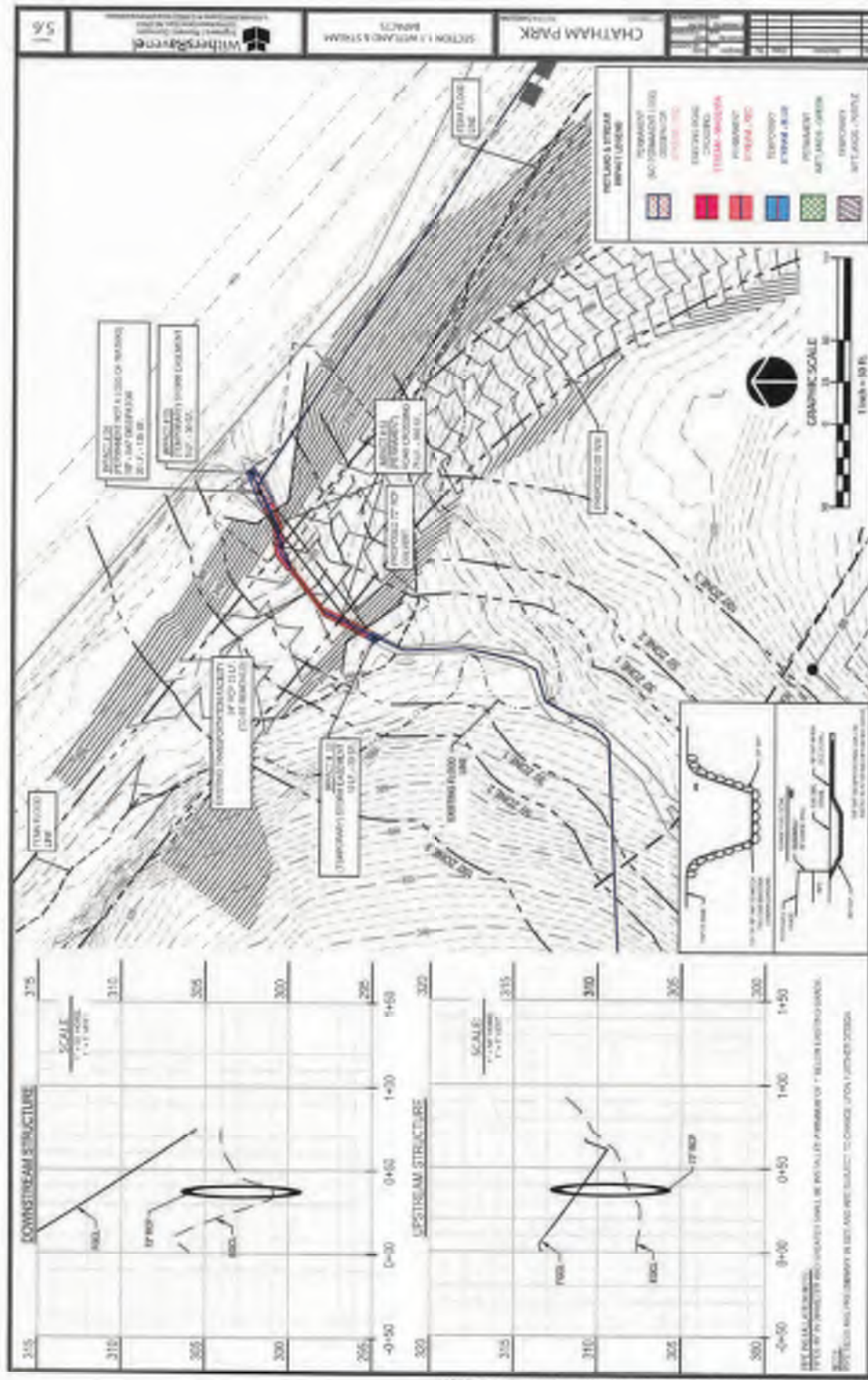








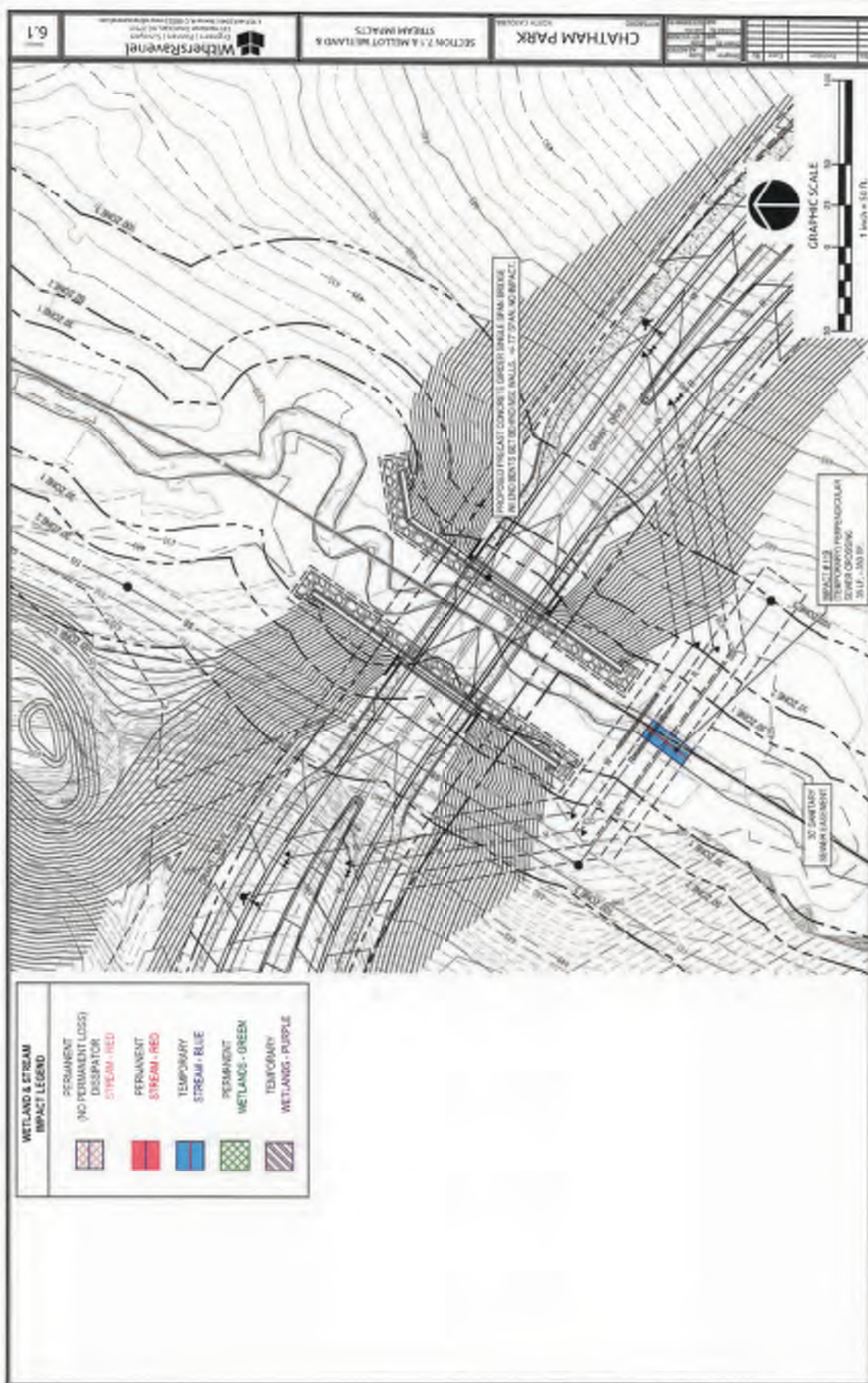






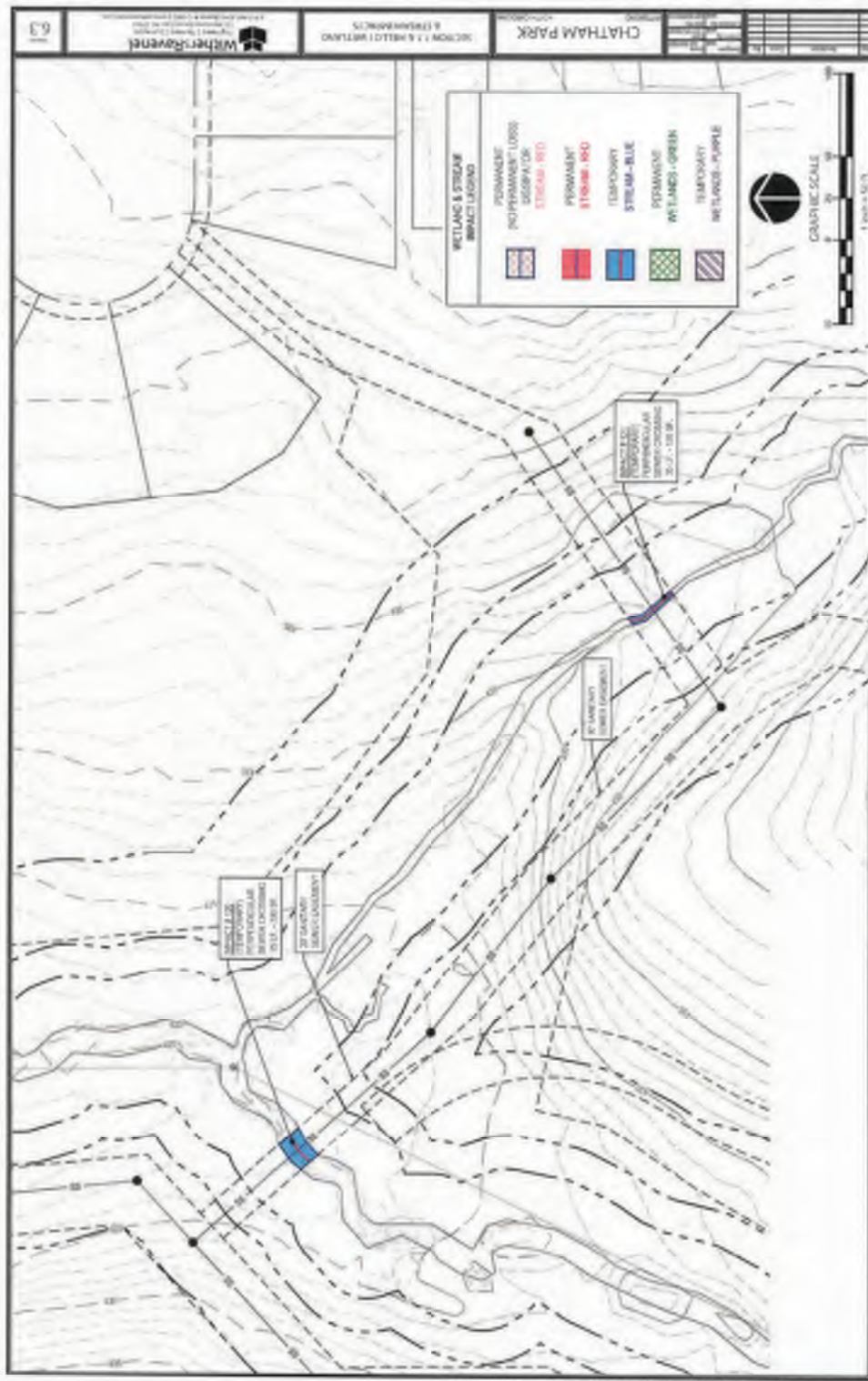








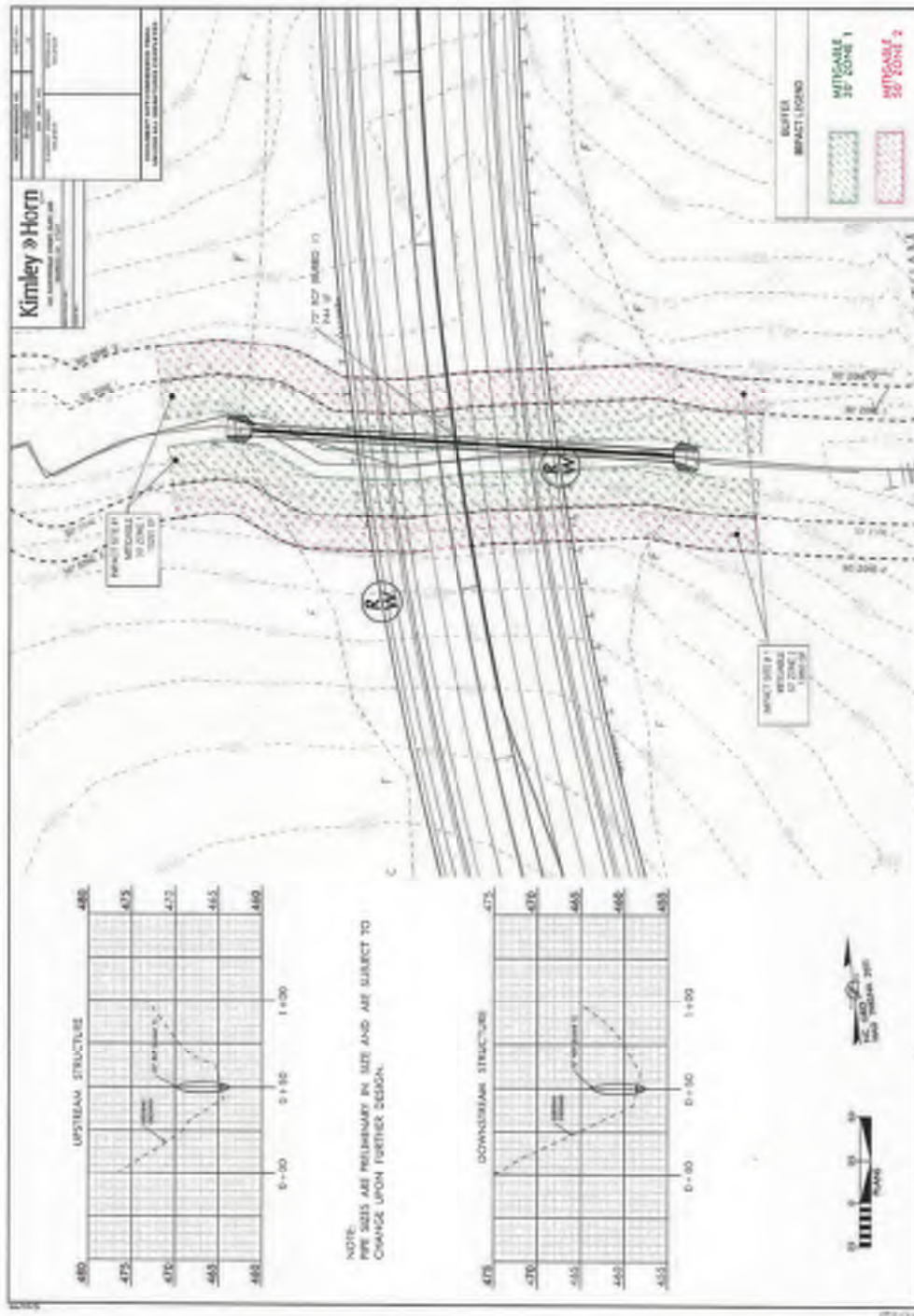




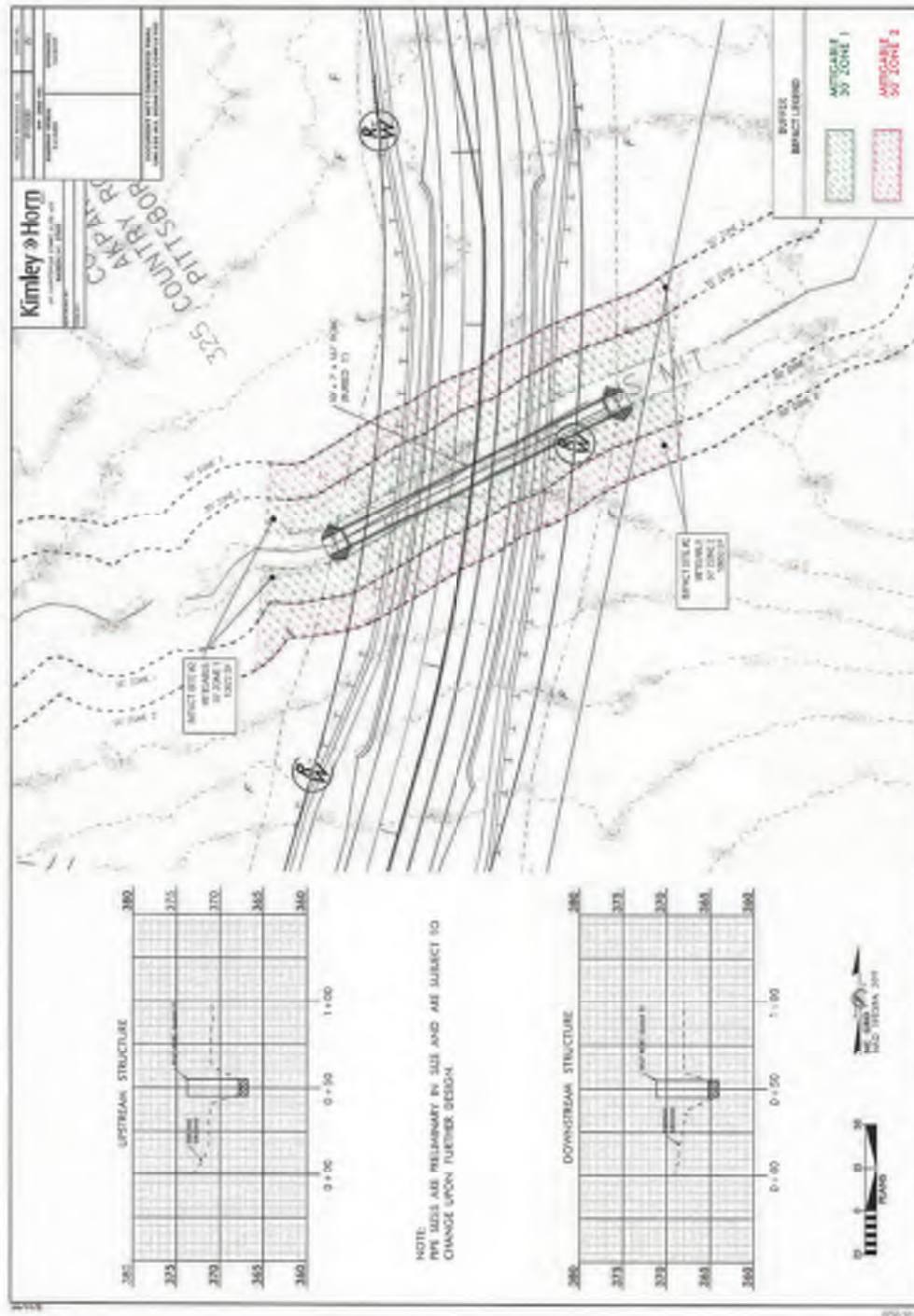


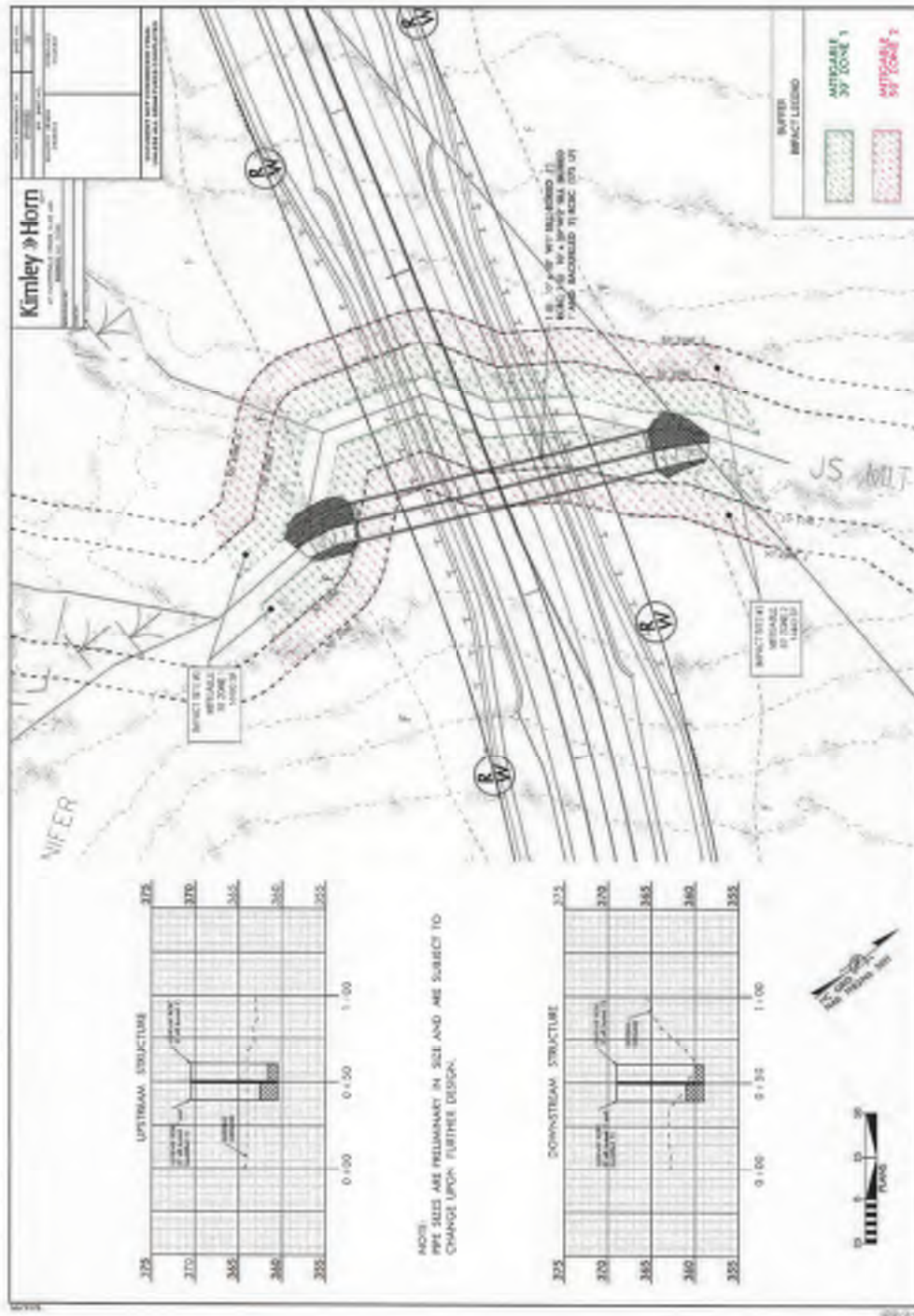
| SECTION      |               |                              | WETLAND & STREAM |          |          |           |          |          |          |          |                               |          | IMPACTS OVERALL |                                          | CHATHAM PARK                                                   |              | 6.4 |  |
|--------------|---------------|------------------------------|------------------|----------|----------|-----------|----------|----------|----------|----------|-------------------------------|----------|-----------------|------------------------------------------|----------------------------------------------------------------|--------------|-----|--|
| SHEET NUMBER | IMPACT NUMBER | IMPACT SPECIFICATION         | TEMPORARY        |          |          | PERMANENT |          |          |          |          | PERMANENT (NO PERMANENT LOSS) |          |                 | PERMANENT IMPACT MINIMIZATION SUMMARY ** | 7.1 WETLAND & STREAM                                           | CHATHAM PARK | 6.4 |  |
|              |               |                              | STREAM           | WETLANDS | WETLANDS | STREAM    | WETLANDS | WETLANDS | WETLANDS | WETLANDS | STREAM                        | WETLANDS | WETLANDS        |                                          |                                                                |              |     |  |
|              |               |                              | (LF)             | (SF)     | (AC)     | (LF)      | (SF)     | (AC)     | (SF)     | (AC)     | (LF)                          | (SF)     | (AC)            |                                          |                                                                |              |     |  |
| 6.1          | 119           | PERPENDICULAR SEWER CROSSING | 36               | 360      | -        | -         | -        | -        | -        | -        | -                             | -        | -               | TEMPORARY UTILITY CROSSING               | 2.1 (H-V) SIDE SLOPES AND SEGMENTAL BLOCK OR PRECAST HEADWALLS | CHATHAM PARK | 6.4 |  |
|              | 38            | STORM EASEMENT               | 10               | 25       | -        | -         | -        | -        | -        | -        | -                             | -        | -               | TEMPORARY CONSTRUCTION EASEMENT          |                                                                |              |     |  |
|              | 39            | RI-UP DISSEMINATOR           | -                | -        | -        | -         | -        | -        | -        | -        | -                             | -        | -               | PLUNGE POOL                              |                                                                |              |     |  |
| 6.2          | 40            | ROAD CROSSING                | -                | -        | -        | 145       | 910      | 125      | -        | -        | -                             | -        | -               | TEMPORARY UTILITY CROSSING               | 2.1 (H-V) SIDE SLOPES AND SEGMENTAL BLOCK OR PRECAST HEADWALLS | CHATHAM PARK | 6.4 |  |
|              | 120           | PERPENDICULAR SEWER CROSSING | 25               | 300      | -        | -         | -        | -        | -        | -        | -                             | -        | -               | TEMPORARY UTILITY CROSSING               |                                                                |              |     |  |
|              | 121           | PERPENDICULAR SEWER CROSSING | 35               | 120      | -        | -         | -        | -        | -        | -        | -                             | -        | -               | TEMPORARY UTILITY CROSSING               |                                                                |              |     |  |
| TOTAL        |               |                              | 185              | 765      | -        | 145       | 910      | 125      | -        | -        | 25                            | 85       | -               |                                          |                                                                |              |     |  |

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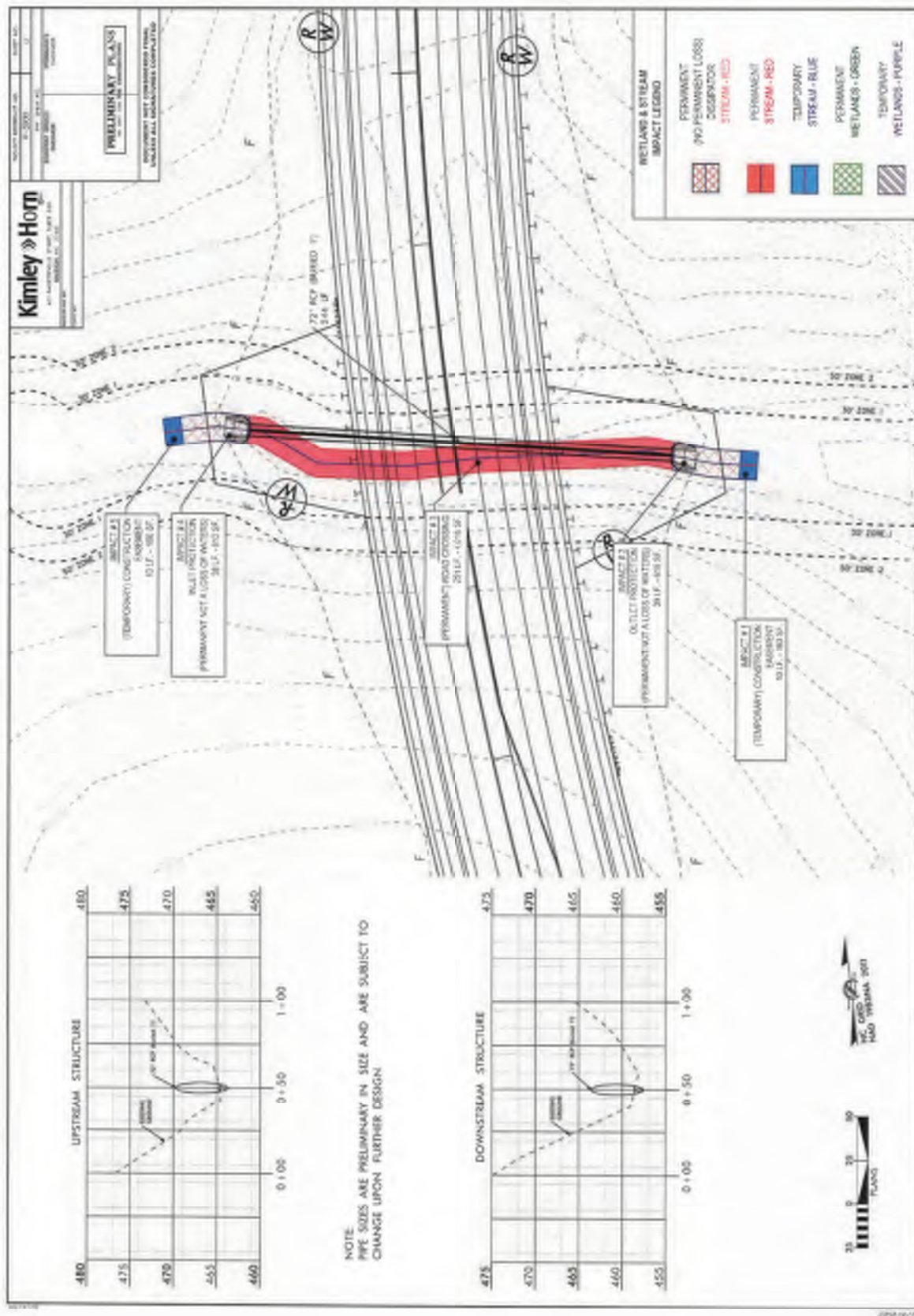


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SHEET: 10000 E. 15th Ave. Interchange  
DATE: 10/1/2010

DESIGNED BY: J. H. Kimley  
CHECKED BY: J. H. Kimley  
APPROVED BY: J. H. Kimley

| BUFFER IMPACT SUMMARY TABLE |              |               |                      |                   |            |                                                               |
|-----------------------------|--------------|---------------|----------------------|-------------------|------------|---------------------------------------------------------------|
| SECTION                     | SHEET NUMBER | IMPACT NUMBER | IMPACT SPECIFICATION | MITIGABLE IMPACTS |            |                                                               |
|                             |              |               |                      | 50' ZONE 1        | 50' ZONE 2 | PERMANENT IMPACT MINIMIZATION SUMMARY                         |
|                             |              |               |                      | (SF)              | (SF)       |                                                               |
|                             |              |               |                      | (SF)              | (SF)       |                                                               |
|                             | 1.1          | 1             | ROAD CROSSING        | 15291             | 13893      | 72" RCP-IV (BURIED 1')                                        |
|                             | 2.1          | 2             | ROAD CROSSING        | 10672             | 10850      | 50' x 7' RCBC (BURIED 1')                                     |
|                             | 3.1          | 3             | ROAD CROSSING        | 14493             | 14440      | 16@10' x 10' RCBC (BURIED 1') & 16@10' x 10' RCBC (BURIED 2') |
| TOTAL                       |              |               |                      | 40456             | 39183      |                                                               |













|                                                                                   |  |                                                          |  |
|-----------------------------------------------------------------------------------|--|----------------------------------------------------------|--|
|  |  | PROJECT: 15-000000-00<br>SHEET: P-151<br>DATE: 10/1/2015 |  |
| PREPARED BY: J. H. HORN<br>CHECKED BY: J. H. HORN<br>APPROVED BY: J. H. HORN      |  | INCOMPLETE PLANS<br>PRELIMINARY PLANS<br>NO SCALE        |  |
| DOCUMENT NOT FORWARDED FROM<br>EXISTING ALL INFORMATION COMPLETE                  |  |                                                          |  |

| SECTION | SHEET NUMBER | IMPACT SPECIFICATION  | TEMPORARY |      |          |      |        |          | PERMANENT |                |      |      | PERMANENT IMPACT MINIMIZATION SUMMARY |      |                                                               |
|---------|--------------|-----------------------|-----------|------|----------|------|--------|----------|-----------|----------------|------|------|---------------------------------------|------|---------------------------------------------------------------|
|         |              |                       | STREAM    |      | WETLANDS |      | STREAM | WETLANDS |           | PERMANENT LOSS |      |      |                                       |      |                                                               |
|         |              |                       | [LF]      | [SF] | [SF]     | [AC] |        | [LF]     | [SF]      | [SF]           | [AC] |      |                                       |      |                                                               |
| 1.1     | 1            | CONSTRUCTION EASEMENT | 10        | 200  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
|         | 2            | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 30   | 625  |                                       |      | OUTLET PROTECTION                                             |
|         | 3            | ROAD CROSSING         |           |      |          |      | 251    | 4026     | 246       |                |      |      |                                       |      | 72" RCP IV (BURIED 3')                                        |
|         | 4            | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 38   | 623  |                                       |      | INLET PROTECTION                                              |
|         | 5            | CONSTRUCTION EASEMENT | 30        | 300  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
| 2.1     | 6            | CONSTRUCTION EASEMENT | 30        | 300  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
|         | 7            | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 38   | 758  |                                       |      | OUTLET PROTECTION                                             |
|         | 8            | ROAD CROSSING         |           |      |          |      | 170    | 3203     | 357       |                |      |      |                                       |      | 30" x 7' RCP (BURIED 2')                                      |
|         | 9            | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 38   | 762  |                                       |      | INLET PROTECTION                                              |
|         | 10           | CONSTRUCTION EASEMENT | 20        | 200  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
| 3.1     | 11           | CONSTRUCTION EASEMENT | 20        | 200  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
|         | 12           | BANK STABILIZATION    |           |      |          |      | 342    | 4649     | 375       |                |      | 53   | 991                                   |      | OUTLET PROTECTION                                             |
|         | 13           | ROAD CROSSING         |           |      |          |      |        |          |           |                |      |      |                                       |      | 24" 10' x 10' RCP (BURIED 2') & 18" 10' x 10' RCP (BURIED 2') |
|         | 14           | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 53   | 1362 |                                       |      | INLET PROTECTION                                              |
|         | 15           | CONSTRUCTION EASEMENT | 30        | 300  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
| 4.1     | 16           | CONSTRUCTION EASEMENT | 50        | 500  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
|         | 17           | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 33   | 334  |                                       |      | INLET PROTECTION                                              |
|         | 18           | ROAD CROSSING         |           |      |          |      | 128    | 1278     | 129       |                |      |      |                                       |      | 54" RCP IV (BURIED 3')                                        |
|         | 19           | BANK STABILIZATION    |           |      |          |      |        |          |           |                | 33   | 330  |                                       |      | OUTLET PROTECTION                                             |
|         | 20           | CONSTRUCTION EASEMENT | 30        | 300  |          |      |        |          |           |                |      |      |                                       |      | TEMPORARY CONSTRUCTION ACCESS                                 |
| TOTAL   |              |                       | 80        | 1205 | 0        | 0    | 791    | 13536    | 309       |                | 0    | 0    | 513                                   | 5483 | 0                                                             |



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| Line #        | Item Number  | Sec # | Description                                        | Quantity      | Unit Cost | Amount |
|---------------|--------------|-------|----------------------------------------------------|---------------|-----------|--------|
| ROADWAY ITEMS |              |       |                                                    |               |           |        |
| 0001          | 0000100000-N | 800   | MOBILIZATION                                       | Lump Sum      | L.S.      |        |
| 0002          | 0000400000-N | 801   | CONSTRUCTION SURVEYING                             | Lump Sum      | L.S.      |        |
| 0003          | 0001000000-E | 200   | CLEARING & GRUBBING ... ACRE(S)                    | Lump Sum      | L.S.      |        |
| 0004          | 0008000000-E | 200   | SUPPLEMENTARY CLEARING & GRUBBING                  | 2<br>ACR      |           |        |
| 0005          | 0022000000-E | 225   | UNCLASSIFIED EXCAVATION                            | 112,000<br>CY |           |        |
| 0006          | 0036000000-E | 225   | UNDERCUT EXCAVATION                                | 2,835<br>CY   |           |        |
| 0007          | 0106000000-E | 230   | BORROW EXCAVATION                                  | 110,000<br>CY |           |        |
| 0008          | 0134000000-E | 240   | DRAINAGE DITCH EXCAVATION                          | 1,400<br>CY   |           |        |
| 0009          | 0141000000-E | 240   | BERM DITCH CONSTRUCTION                            | 700<br>LF     |           |        |
| 0010          | 0156000000-E | 250   | REMOVAL OF EXISTING ASPHALT PAVEMENT               | 1,300<br>SY   |           |        |
| 0011          | 0192000000-N | 260   | PROOF ROLLING                                      | 30<br>HR      |           |        |
| 0012          | 0195000000-E | 265   | SELECT GRANULAR MATERIAL                           | 1,335<br>CY   |           |        |
| 0013          | 0196000000-E | 270   | GEOTEXTILE FOR SOIL STABILIZATION                  | 4,150<br>SY   |           |        |
| 0014          | 0318000000-E | 300   | FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES | 1,219<br>TON  |           |        |
| 0015          | 0320000000-E | 300   | FOUNDATION CONDITIONING GEOTEXTILE                 | 3,803<br>SY   |           |        |
| 0016          | 0335200000-E | 305   | 15" DRAINAGE PIPE                                  | 224<br>LF     |           |        |
| 0017          | 0335300000-E | 305   | 18" DRAINAGE PIPE                                  | 132<br>LF     |           |        |

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| Line # | Item Number  | Sec # | Description                                                      | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|------------------------------------------------------------------|--------------|-----------|--------|
| 0018   | 0335400000-E | 305   | 24" DRAINAGE PIPE                                                | 140<br>LF    |           |        |
| 0019   | 0335500000-E | 305   | 30" DRAINAGE PIPE                                                | 96<br>LF     |           |        |
| 0020   | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(15")                                | 4<br>EA      |           |        |
| 0021   | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(18")                                | 4<br>EA      |           |        |
| 0022   | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(24")                                | 4<br>EA      |           |        |
| 0023   | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(30")                                | 2<br>EA      |           |        |
| 0024   | 0354000000-E | 310   | **** RC PIPE CULVERTS, CLASS *****<br>(15", V)                   | 268<br>LF    |           |        |
| 0025   | 0354000000-E | 310   | **** RC PIPE CULVERTS, CLASS *****<br>(18", V)                   | 892<br>LF    |           |        |
| 0026   | 0448000000-E | 310   | ***** RC PIPE CULVERTS, CLASS IV<br>(54")                        | 120<br>LF    |           |        |
| 0027   | 0448200000-E | 310   | 15" RC PIPE CULVERTS, CLASS IV                                   | 6,232<br>LF  |           |        |
| 0028   | 0448300000-E | 310   | 18" RC PIPE CULVERTS, CLASS IV                                   | 2,296<br>LF  |           |        |
| 0029   | 0448400000-E | 310   | 24" RC PIPE CULVERTS, CLASS IV                                   | 304<br>LF    |           |        |
| 0030   | 0448500000-E | 310   | 30" RC PIPE CULVERTS, CLASS IV                                   | 248<br>LF    |           |        |
| 0031   | 0448600000-E | 310   | 36" RC PIPE CULVERTS, CLASS IV                                   | 372<br>LF    |           |        |
| 0032   | 0995000000-E | 340   | PIPE REMOVAL                                                     | 243<br>LF    |           |        |
| 0033   | 1004500000-E | 505   | GENERIC GRADING ITEM<br>GEOTEXTILE FOR SUBGRADE<br>STABILIZATION | 10,350<br>SY |           |        |
| 0034   | 1011000000-N | 500   | FINE GRADING                                                     | Lump Sum     | L.S.      |        |



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| Line # | Item Number  | Sec # | Description                                   | Quantity  | Unit Cost | Amount |
|--------|--------------|-------|-----------------------------------------------|-----------|-----------|--------|
| 0035   | 1044000000-E | 501   | LIME TREATED SOIL (SLURRY METHOD)             | 21,000 SY |           |        |
| 0036   | 1066000000-E | 501   | LIME FOR LIME TREATED SOIL                    | 260 TON   |           |        |
| 0037   | 1099500000-E | 505   | SHALLOW UNDERCUT                              | 575 CY    |           |        |
| 0038   | 1099700000-E | 505   | CLASS IV SUBGRADE STABILIZATION               | 1,150 TON |           |        |
| 0039   | 1110000000-E | 510   | STABILIZER AGGREGATE                          | 300 TON   |           |        |
| 0040   | 1121000000-E | 520   | AGGREGATE BASE COURSE                         | 6,900 TON |           |        |
| 0041   | 1176000000-E | 542   | SOIL CEMENT BASE                              | 21,000 SY |           |        |
| 0042   | 1187000000-E | 542   | PORTLAND CEMENT FOR SOIL CEMENT BASE          | 590 TON   |           |        |
| 0043   | 1220000000-E | 545   | INCIDENTAL STONE BASE                         | 500 TON   |           |        |
| 0044   | 1330000000-E | 607   | INCIDENTAL MILLING                            | 920 SY    |           |        |
| 0045   | 1491000000-E | 610   | ASPHALT CONC BASE COURSE, TYPE B25.0C         | 7,540 TON |           |        |
| 0046   | 1503000000-E | 610   | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C | 8,160 TON |           |        |
| 0047   | 1519000000-E | 610   | ASPHALT CONC SURFACE COURSE, TYPE S9.5B       | 9,280 TON |           |        |
| 0048   | 1575000000-E | 620   | ASPHALT BINDER FOR PLANT MIX                  | 1,335 TON |           |        |
| 0049   | 1693000000-E | 654   | ASPHALT PLANT MIX, PAVEMENT REPAIR            | 100 TON   |           |        |
| 0050   | 2000000000-N | 806   | RIGHT-OF-WAY MARKERS                          | 4 EA      |           |        |
| 0051   | 2020000000-N | 806   | CONTROL-OF-ACCESS MARKERS                     | 65 EA     |           |        |

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| Line # | Item Number  | Sec # | Description                                            | Quantity    | Unit Cost | Amount |
|--------|--------------|-------|--------------------------------------------------------|-------------|-----------|--------|
| 0052   | 2022000000-E | 815   | SUBDRAIN EXCAVATION                                    | 168<br>CY   |           |        |
| 0053   | 2026000000-E | 815   | GEOTEXTILE FOR SUBSURFACE DRAINS                       | 500<br>SY   |           |        |
| 0054   | 2036000000-E | 815   | SUBDRAIN COARSE AGGREGATE                              | 84<br>CY    |           |        |
| 0055   | 2044000000-E | 815   | 6" PERFORATED SUBDRAIN PIPE                            | 500<br>LF   |           |        |
| 0056   | 2070000000-N | 815   | SUBDRAIN PIPE OUTLET                                   | 1<br>EA     |           |        |
| 0057   | 2077000000-E | 815   | 6" OUTLET PIPE                                         | 6<br>LF     |           |        |
| 0058   | 2143000000-E | 818   | BLOTTING SAND                                          | 10<br>TON   |           |        |
| 0059   | 2209000000-E | 838   | ENDWALLS                                               | 6.8<br>CY   |           |        |
| 0060   | 2220000000-E | 838   | REINFORCED ENDWALLS                                    | 5<br>CY     |           |        |
| 0061   | 2253000000-E | 840   | PIPE COLLARS                                           | 0.656<br>CY |           |        |
| 0062   | 2286000000-N | 840   | MASONRY DRAINAGE STRUCTURES                            | 114<br>EA   |           |        |
| 0063   | 2308000000-E | 840   | MASONRY DRAINAGE STRUCTURES                            | 100.1<br>LF |           |        |
| 0064   | 2366000000-N | 840   | FRAME WITH TWO GRATES, STD<br>840.24                   | 47<br>EA    |           |        |
| 0065   | 2367000000-N | 840   | FRAME WITH TWO GRATES, STD<br>840.29                   | 1<br>EA     |           |        |
| 0066   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD<br>840.03, TYPE **<br>(E) | 3<br>EA     |           |        |
| 0067   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD<br>840.03, TYPE **<br>(F) | 18<br>EA    |           |        |
| 0068   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD<br>840.03, TYPE **<br>(G) | 27<br>EA    |           |        |



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| Line # | Item Number  | Sec # | Description                                      | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|--------------------------------------------------|--------------|-----------|--------|
| 0069   | 2396000000-N | 840   | FRAME WITH COVER, STD 840.54                     | 1<br>EA      |           |        |
| 0070   | 2407000000-N | 840   | STEEL FRAME WITH TWO GRATES,<br>STD 840.37       | 17<br>EA     |           |        |
| 0071   | 2440000000-N | 852   | CONCRETE TRANSITIONAL SECTION<br>FOR CATCH BASIN | 33<br>EA     |           |        |
| 0072   | 2451000000-N | 852   | CONCRETE TRANSITIONAL SECTION<br>FOR DROP INLET  | 17<br>EA     |           |        |
| 0073   | 2542000000-E | 846   | 1'-6" CONCRETE CURB & GUTTER                     | 14,300<br>LF |           |        |
| 0074   | 2549000000-E | 846   | 2'-6" CONCRETE CURB & GUTTER                     | 3,800<br>LF  |           |        |
| 0075   | 2605000000-N | 848   | CONCRETE CURB RAMPS                              | 13<br>EA     |           |        |
| 0076   | 2619000000-E | 850   | 4" CONCRETE PAVED DITCH                          | 220<br>SY    |           |        |
| 0077   | 2655000000-E | 852   | 5" MONOLITHIC CONCRETE ISLANDS<br>(KEYED IN)     | 1,190<br>SY  |           |        |
| 0078   | 2815000000-N | 858   | ADJUSTMENT OF DROP INLETS                        | 1<br>EA      |           |        |
| 0079   | 3030000000-E | 862   | STEEL BEAM GUARDRAIL                             | 2,125<br>LF  |           |        |
| 0080   | 3150000000-N | 862   | ADDITIONAL GUARDRAIL POSTS                       | 5<br>EA      |           |        |
| 0081   | 3210000000-N | 862   | GUARDRAIL END UNITS, TYPE CAT-1                  | 6<br>EA      |           |        |
| 0082   | 3287000000-N | SP    | GUARDRAIL END UNITS, TYPE TL-3                   | 6<br>EA      |           |        |
| 0083   | 3628000000-E | 876   | RIP RAP, CLASS I                                 | 320<br>TON   |           |        |
| 0084   | 3635000000-E | 876   | RIP RAP, CLASS II                                | 190<br>TON   |           |        |
| 0085   | 3649000000-E | 876   | RIP RAP, CLASS B                                 | 290<br>TON   |           |        |

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| Line # | Item Number  | Sec # | Description                                                  | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|--------------------------------------------------------------|--------------|-----------|--------|
| 0086   | 3656000000-E | 876   | GEOTEXTILE FOR DRAINAGE                                      | 3,050<br>SY  |           |        |
| 0087   | 4025000000-E | 901   | CONTRACTOR FURNISHED, TYPE ***<br>SIGN<br>(E)                | 140<br>SF    |           |        |
| 0088   | 4025000000-E | 901   | CONTRACTOR FURNISHED, TYPE ***<br>SIGN<br>(F)                | 80<br>SF     |           |        |
| 0089   | 4072000000-E | 903   | SUPPORTS, 3-LB STEEL U-CHANNEL                               | 375<br>LF    |           |        |
| 0090   | 4102000000-N | 904   | SIGN ERECTION, TYPE E                                        | 19<br>EA     |           |        |
| 0091   | 4108000000-N | 904   | SIGN ERECTION, TYPE F                                        | 6<br>EA      |           |        |
| 0092   | 4116100000-N | 904   | SIGN ERECTION, RELOCATE TYPE ****<br>(GROUND MOUNTED)<br>(E) | 1<br>EA      |           |        |
| 0093   | 4155000000-N | 907   | DISPOSAL OF SIGN SYSTEM, U-<br>CHANNEL                       | 7<br>EA      |           |        |
| 0094   | 4400000000-E | 1110  | WORK ZONE SIGNS (STATIONARY)                                 | 80<br>SF     |           |        |
| 0095   | 4410000000-E | 1110  | WORK ZONE SIGNS (BARRICADE<br>MOUNTED)                       | 40<br>SF     |           |        |
| 0096   | 4430000000-N | 1130  | DRUMS                                                        | 115<br>EA    |           |        |
| 0097   | 4445000000-E | 1145  | BARRICADES (TYPE III)                                        | 80<br>LF     |           |        |
| 0098   | 4685000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (4", 90 MILS)        | 28,217<br>LF |           |        |
| 0099   | 4695000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (8", 90 MILS)        | 3,311<br>LF  |           |        |
| 0100   | 4700000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (12", 90 MILS)       | 560<br>LF    |           |        |
| 0101   | 4709000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (24", 90 MILS)       | 373<br>LF    |           |        |
| 0102   | 4725000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING SYMBOL (90 MILS)           | 41<br>EA     |           |        |



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| Line # | Item Number  | Sec # | Description                           | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|---------------------------------------|--------------|-----------|--------|
| 0103   | 4810000000-E | 1205  | PAINT PAVEMENT MARKING LINES (4")     | 20,075<br>LF |           |        |
| 0104   | 4820000000-E | 1205  | PAINT PAVEMENT MARKING LINES (8")     | 1,598<br>LF  |           |        |
| 0105   | 4825000000-E | 1205  | PAINT PAVEMENT MARKING LINES (12")    | 116<br>LF    |           |        |
| 0106   | 4845000000-N | 1205  | PAINT PAVEMENT MARKING SYMBOL         | 6<br>EA      |           |        |
| 0107   | 4900000000-N | 1251  | PERMANENT RAISED PAVEMENT MARKERS     | 241<br>EA    |           |        |
| 0108   | 4915000000-E | 1264  | 7' U-CHANNEL POSTS                    | 5<br>EA      |           |        |
| 0109   | 4955000000-N | 1264  | OBJECT MARKERS (END OF ROAD)          | 5<br>EA      |           |        |
| 0110   | 5326200000-E | 1510  | 12" WATER LINE                        | 986<br>LF    |           |        |
| 0111   | 5329000000-E | 1510  | DUCTILE IRON WATER PIPE FITTINGS      | 740<br>LB    |           |        |
| 0112   | 5540000000-E | 1515  | 6" VALVE                              | 2<br>EA      |           |        |
| 0113   | 5558000000-E | 1515  | 12" VALVE                             | 1<br>EA      |           |        |
| 0114   | 5589200000-E | 1515  | 2" AIR RELEASE VALVE                  | 1<br>EA      |           |        |
| 0115   | 5666000000-N | 1515  | FIRE HYDRANT                          | 2<br>EA      |           |        |
| 0116   | 5673000000-E | 1515  | FIRE HYDRANT LEG                      | 27<br>LF     |           |        |
| 0117   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>2" PVC CASING | 946<br>LF    |           |        |
| 0118   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>4" PVC CASING | 3,730<br>LF  |           |        |
| 0119   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>6" PVC CASING | 1,884<br>LF  |           |        |

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| Line # | Item Number  | Sec # | Description                           | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|---------------------------------------|--------------|-----------|--------|
| 0120   | 6000000000-E | 1605  | TEMPORARY SILT FENCE                  | 21,360<br>LF |           |        |
| 0121   | 6006000000-E | 1610  | STONE FOR EROSION CONTROL,<br>CLASS A | 1,350<br>TON |           |        |
| 0122   | 6009000000-E | 1610  | STONE FOR EROSION CONTROL,<br>CLASS B | 3,200<br>TON |           |        |
| 0123   | 6012000000-E | 1610  | SEDIMENT CONTROL STONE                | 2,940<br>TON |           |        |
| 0124   | 6015000000-E | 1615  | TEMPORARY MULCHING                    | 20.5<br>ACR  |           |        |
| 0125   | 6018000000-E | 1620  | SEED FOR TEMPORARY SEEDING            | 1,200<br>LB  |           |        |
| 0126   | 6021000000-E | 1620  | FERTILIZER FOR TEMPORARY<br>SEEDING   | 6.5<br>TON   |           |        |
| 0127   | 6024000000-E | 1622  | TEMPORARY SLOPE DRAINS                | 1,350<br>LF  |           |        |
| 0128   | 6029000000-E | SP    | SAFETY FENCE                          | 1,560<br>LF  |           |        |
| 0129   | 6030000000-E | 1630  | SILT EXCAVATION                       | 10,810<br>CY |           |        |
| 0130   | 6036000000-E | 1631  | MATTING FOR EROSION CONTROL           | 46,000<br>SY |           |        |
| 0131   | 6037000000-E | SP    | COIR FIBER MAT                        | 100<br>SY    |           |        |
| 0132   | 6042000000-E | 1632  | 1/4" HARDWARE CLOTH                   | 3,940<br>LF  |           |        |
| 0133   | 6045000000-E | SP    | *** TEMPORARY PIPE<br>(24")           | 270<br>LF    |           |        |
| 0134   | 6045000000-E | SP    | *** TEMPORARY PIPE<br>(30")           | 430<br>LF    |           |        |
| 0135   | 6045000000-E | SP    | *** TEMPORARY PIPE<br>(36")           | 370<br>LF    |           |        |
| 0136   | 6046000000-E | 1636  | TEMPORARY PIPE FOR STREAM<br>CROSSING | 75<br>LF     |           |        |



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| Line # | Item Number  | Sec # | Description                   | Quantity     | Unit Cost | Amount |
|--------|--------------|-------|-------------------------------|--------------|-----------|--------|
| 0137   | 6070000000-N | 1639  | SPECIAL STILLING BASINS       | 4<br>EA      |           |        |
| 0138   | 6071012000-E | SP    | COIR FIBER WATTLE             | 350<br>LF    |           |        |
| 0139   | 6071020000-E | SP    | POLYACRYLAMIDE (PAM)          | 170<br>LB    |           |        |
| 0140   | 6071030000-E | 1640  | COIR FIBER BAFFLE             | 2,360<br>LF  |           |        |
| 0141   | 6071050000-E | SP    | *** SKIMMER<br>(1-1/2")       | 7<br>EA      |           |        |
| 0142   | 6071050000-E | SP    | *** SKIMMER<br>(2")           | 1<br>EA      |           |        |
| 0143   | 6071050000-E | SP    | *** SKIMMER<br>(2-1/2")       | 1<br>EA      |           |        |
| 0144   | 6084000000-E | 1660  | SEEDING & MULCHING            | 25<br>ACR    |           |        |
| 0145   | 6087000000-E | 1660  | MOWING                        | 18<br>ACR    |           |        |
| 0146   | 6090000000-E | 1661  | SEED FOR REPAIR SEEDING       | 200<br>LB    |           |        |
| 0147   | 6093000000-E | 1661  | FERTILIZER FOR REPAIR SEEDING | 1<br>TON     |           |        |
| 0148   | 6096000000-E | 1662  | SEED FOR SUPPLEMENTAL SEEDING | 650<br>LB    |           |        |
| 0149   | 6108000000-E | 1665  | FERTILIZER TOPDRESSING        | 18.25<br>TON |           |        |
| 0150   | 6111000000-E | SP    | IMPERVIOUS DIKE               | 175<br>LF    |           |        |
| 0151   | 6114500000-N | 1667  | SPECIALIZED HAND MOWING       | 10<br>MHR    |           |        |
| 0152   | 6117000000-N | SP    | RESPONSE FOR EROSION CONTROL  | 75<br>EA     |           |        |
| 0153   | 6117500000-N | SP    | CONCRETE WASHOUT STRUCTURE    | 6<br>EA      |           |        |

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| Line # | Item Number  | Sec # | Description                                            | Quantity    | Unit Cost | Amount |
|--------|--------------|-------|--------------------------------------------------------|-------------|-----------|--------|
| 0154   | 6120000000-E | SP    | CULVERT DIVERSION CHANNEL                              | 41<br>CY    |           |        |
| 0155   | 6123000000-E | 1670  | REFORESTATION                                          | 0.1<br>ACR  |           |        |
| 0156   | 7048500000-E | 1705  | PEDESTRIAN SIGNAL HEAD (16", 1<br>SECTION W/COUNTDOWN) | 12<br>EA    |           |        |
| 0157   | 7060000000-E | 1705  | SIGNAL CABLE                                           | 7,875<br>LF |           |        |
| 0158   | 7120000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 3<br>SECTION)                | 24<br>EA    |           |        |
| 0159   | 7132000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 4<br>SECTION)                | 11<br>EA    |           |        |
| 0160   | 7144000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 5<br>SECTION)                | 1<br>EA     |           |        |
| 0161   | 7288000000-E | 1715  | PAVED TRENCHING (*****<br>(2, 2")                      | 175<br>LF   |           |        |
| 0162   | 7300000000-E | 1715  | UNPAVED TRENCHING (*****<br>(2, 2")                    | 3,150<br>LF |           |        |
| 0163   | 7301000000-E | 1715  | DIRECTIONAL DRILL (*****<br>(2, 2")                    | 1,125<br>LF |           |        |
| 0164   | 7324000000-N | 1716  | JUNCTION BOX (STANDARD SIZE)                           | 23<br>EA    |           |        |
| 0165   | 7348000000-N | 1716  | JUNCTION BOX (OVER-SIZED, HEAVY<br>DUTY)               | 11<br>EA    |           |        |
| 0166   | 7444000000-E | 1725  | INDUCTIVE LOOP SAWCUT                                  | 2,100<br>LF |           |        |
| 0167   | 7575142010-N | 1736  | 900MHZ SERIAL/ETHERNET SPREAD<br>SPECTRUM RADIO        | 2<br>EA     |           |        |
| 0168   | 7588000000-N | SP    | METAL POLE WITH SINGLE MAST ARM                        | 11<br>EA    |           |        |
| 0169   | 7613000000-N | SP    | SOIL TEST                                              | 11<br>EA    |           |        |
| 0170   | 7614100000-E | SP    | DRILLED PIER FOUNDATION                                | 60.5<br>CY  |           |        |



County: CHATHAM

| Line #               | Item Number  | Sec # | Description                                                              | Quantity      | Unit Cost | Amount |
|----------------------|--------------|-------|--------------------------------------------------------------------------|---------------|-----------|--------|
| 0171                 | 7631000000-N | SP    | MAST ARM WITH METAL POLE DESIGN                                          | 11<br>EA      |           |        |
| 0172                 | 7636000000-N | 1745  | SIGN FOR SIGNALS                                                         | 23<br>EA      |           |        |
| 0173                 | 7642200000-N | 1743  | TYPE II PEDESTAL WITH FOUNDATION                                         | 12<br>EA      |           |        |
| 0174                 | 7684000000-N | 1750  | SIGNAL CABINET FOUNDATION                                                | 4<br>EA       |           |        |
| 0175                 | 7696000000-N | 1751  | CONTROLLERS WITH CABINET<br>(*****)<br>(2070LX BASE MTD)                 | 4<br>EA       |           |        |
| 0176                 | 7744000000-N | 1751  | DETECTOR CARD (TYPE 170)                                                 | 25<br>EA      |           |        |
| 0177                 | 7901000000-N | 1753  | CABINET BASE EXTENDER                                                    | 4<br>EA       |           |        |
| 0178                 | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>ETHERNET EDGE SWITCH                              | 2<br>EA       |           |        |
| 0179                 | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>INSTALL CELLULAR MODEM AND<br>ANTENNA             | 1<br>EA       |           |        |
| 0180                 | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>PROTECTIVE COATING FOR SINGLE<br>MAST ARM POLE    | 11<br>EA      |           |        |
| 0181                 | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>PROTECTIVE COATING FOR TYPE II<br>SIGNAL PEDESTAL | 11<br>EA      |           |        |
| <b>CULVERT ITEMS</b> |              |       |                                                                          |               |           |        |
| 0182                 | 8126000000-N | 414   | CULVERT EXCAVATION, STA *****<br>(108+98.22 -L-)                         | Lump Sum      | L.S.      |        |
| 0183                 | 8126000000-N | 414   | CULVERT EXCAVATION, STA *****<br>(124+63.87 -L-)                         | Lump Sum      | L.S.      |        |
| 0184                 | 8133000000-E | 414   | FOUNDATION CONDITIONING<br>MATERIAL, BOX CULVERT                         | 638<br>TON    |           |        |
| 0185                 | 8196000000-E | 420   | CLASS A CONCRETE (CULVERT)                                               | 1,202.8<br>CY |           |        |
| 0186                 | 8245000000-E | 425   | REINFORCING STEEL (CULVERT)                                              | 177,098<br>LB |           |        |

| Line #                                    | Item Number  | Sec # | Description                                                                            | Quantity    | Unit Cost | Amount |
|-------------------------------------------|--------------|-------|----------------------------------------------------------------------------------------|-------------|-----------|--------|
| <b>WALL ITEMS</b>                         |              |       |                                                                                        |             |           |        |
| 0187                                      | 8802014000-E | SP    | SOLDIER PILE RETAINING WALLS                                                           | 3,818<br>SF |           |        |
| 0188                                      | 8847000000-E | SP    | GENERIC RETAINING WALL ITEM<br>SIMULATED STONE FORM LINER<br>SYSTEM AND SURFACE FINISH | 3,818<br>SF |           |        |
| 1627/Mar12/Q731747.406/D757109668010/E188 |              |       | Total Amount Of Bid For Entire Project :                                               |             |           |        |



Vendor 1 of 12: BARNHILL CONTRACTING CO (3516)  
Call Order 005 (Proposal: C204933)

Bid Information

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**Proposal County:** CHATHAM

**Vendor Address:** P.O. Box 7948  
ROCKY MOUNT, NC, 27804

**Signature Check:** Kelly Lynn Barnhill

**Time Bid Received:** March 18, 2025 01:22 PM

**Amendment Count:** 1

**Bid Checksum:** 648454EC43

**Bid Total:** \$14,818,648.21

**Items Total:** \$14,818,648.21

**Time Total:** \$0.00

**Bidding Errors:**

None.

DBE Goal Set 5%  
DBE Goal OBT 6.21%

**Vendor 1 of 12: BARNHILL CONTRACTING CO (3516)**  
**Call Order 005 (Proposal: C204933)**

**Bid Bond Information**

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|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| <b>Projects:</b>              | <b>Bond Maximum:</b>                                                         |
| <b>Counties:</b>              | <b>State of Incorporation:</b>                                               |
| <b>Bond ID:</b> SNC0227434073 | <b>Agency Execution Date:</b> 02/27/2025 10:32:23 PM                         |
| <b>Paid by Check:</b> No      | <b>Surety Name:</b> Surety2000                                               |
| <b>Bond Percent:</b> 5%       | <b>Bond Agency Name:</b> Travelers Casualty and Surety<br>Company of America |



## DBE Load Information

Letting ID: L250318

Letting Date: 03/18/2025

Call Order: 005

DBE Goal Set 5%

DBE Goal OBT 6.21%

Contract ID: C204933

Project: STATE FUNDEDSTATE FUNDEDSTATE FUNDEDSTATE FUNDED

Bid Total: \$14,818,648.21

DBE Goal: 5.00% (\$740,932.41)

Vendor ID: 3516

Vendor Name: Barnhill Contracting Company

DBE Entered: 6.21% (\$920,383.25)

| Vendor ID | DBE Name                     | Is Supplier? | City/State                                    | Goods/Service | Amount     |
|-----------|------------------------------|--------------|-----------------------------------------------|---------------|------------|
| 3346      | LINEBERRY INC                | False        | P.O. Box 307<br>CLIMAX, NC<br>27233           | SubContractor | 298,878.25 |
| 11572     | CRUZ BROTHERS CONCRETE, INC. | False        | 1572 PAYNE ROAD<br>LOT 75 GRAHAM,<br>NC 27253 | SubContractor | 621,505.00 |

BondID: SNC0227434073

Surety Registry Agency: Surety2000

Verified?: 1

Surety Agency: Travelers Casualty and Surety Company of America

Bond Execution Date: 02/27/2025 10:32:23 PM



| Line Number   | Item Number                                                        | Quantity   | Unit | Unit Price     | Extension Price |
|---------------|--------------------------------------------------------------------|------------|------|----------------|-----------------|
| Section 0001  |                                                                    |            |      |                |                 |
| ROADWAY ITEMS |                                                                    |            |      |                |                 |
| 0001          | 0000100000-N<br>MOBILIZATION                                       | 1.000      | LS   | \$720,000.0000 | \$720,000.00    |
| 0002          | 0000400000-N<br>CONSTRUCTION SURVEYING                             | 1.000      | LS   | \$251,580.0000 | \$251,580.00    |
| 0003          | 0001000000-E<br>CLEARING & GRUBBING .. ACRE(S)                     | 1          | LS   | \$805,000.0000 | \$805,000.00    |
| 0004          | 0008000000-E<br>SUPPLEMENTARY CLEARING & GRUBBING                  | 2.000      | ACR  | \$6,500.0000   | \$13,000.00     |
| 0005          | 0022000000-E<br>UNCLASSIFIED EXCAVATION                            | 112000.000 | CY   | \$6.5000       | \$728,000.00    |
| 0006          | 0036000000-E<br>UNDERCUT EXCAVATION                                | 2835.000   | CY   | \$24.2000      | \$68,607.00     |
| 0007          | 0106000000-E<br>BORROW EXCAVATION                                  | 110000.000 | CY   | \$13.8000      | \$1,518,000.00  |
| 0008          | 0134000000-E<br>DRAINAGE DITCH EXCAVATION                          | 1400.000   | CY   | \$20.6000      | \$28,840.00     |
| 0009          | 0141000000-E<br>BERM DITCH CONSTRUCTION                            | 700.000    | LF   | \$8.6000       | \$6,020.00      |
| 0010          | 0156000000-E<br>REMOVAL OF EXISTING ASPHALT PAVEMENT               | 1300.000   | SY   | \$5.8000       | \$7,540.00      |
| 0011          | 0192000000-N<br>PROOF ROLLING                                      | 30.000     | HR   | \$261.6000     | \$7,848.00      |
| 0012          | 0195000000-E<br>SELECT GRANULAR MATERIAL                           | 1335.000   | CY   | \$34.0000      | \$45,390.00     |
| 0013          | 0196000000-E<br>GEOTEXTILE FOR SOIL STABILIZATION                  | 4150.000   | SY   | \$3.1000       | \$12,865.00     |
| 0014          | 0318000000-E<br>FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES | 1219.000   | TON  | \$44.0000      | \$53,636.00     |
| 0015          | 0320000000-E<br>FOUNDATION CONDITIONING GEOTEXTILE                 | 3803.000   | SY   | \$5.8000       | \$22,057.40     |
| 0016          | 0335200000-E<br>15" DRAINAGE PIPE                                  | 224.000    | LF   | \$41.7000      | \$9,340.80      |
| 0017          | 0335300000-E<br>18" DRAINAGE PIPE                                  | 132.000    | LF   | \$49.4000      | \$6,520.80      |
| 0018          | 0335400000-E<br>24" DRAINAGE PIPE                                  | 140.000    | LF   | \$67.3000      | \$9,422.00      |
| 0019          | 0335500000-E<br>30" DRAINAGE PIPE                                  | 96.000     | LF   | \$87.3000      | \$8,380.80      |
| 0020          | 0335850000-E<br>**" DRAINAGE PIPE ELBOWS (15")                     | 4.000      | EA   | \$175.0000     | \$700.00        |
| 0021          | 0335850000-E<br>**" DRAINAGE PIPE ELBOWS (18")                     | 4.000      | EA   | \$295.0000     | \$1,180.00      |
| 0022          | 0335850000-E<br>**" DRAINAGE PIPE ELBOWS (24")                     | 4.000      | EA   | \$400.0000     | \$1,600.00      |
| 0023          | 0335850000-E<br>**" DRAINAGE PIPE ELBOWS (30")                     | 2.000      | EA   | \$715.0000     | \$1,430.00      |

|      |                                                            |              |                |              |
|------|------------------------------------------------------------|--------------|----------------|--------------|
| 0024 | 0354000000-E                                               | 268.000 LF   | \$84.2000      | \$22,565.60  |
|      | ***** RC PIPE CULVERTS, CLASS ***** (15", V)               |              |                |              |
| 0025 | 0354000000-E                                               | 892.000 LF   | \$77.6000      | \$69,219.20  |
|      | ***** RC PIPE CULVERTS, CLASS ***** (18", V)               |              |                |              |
| 0026 | 0448000000-E                                               | 120.000 LF   | \$338.0000     | \$40,560.00  |
|      | ***** RC PIPE CULVERTS, CLASS IV (54")                     |              |                |              |
| 0027 | 0448200000-E                                               | 6232.000 LF  | \$56.4000      | \$351,484.80 |
|      | 15" RC PIPE CULVERTS, CLASS IV                             |              |                |              |
| 0028 | 0448300000-E                                               | 2296.000 LF  | \$67.9000      | \$155,898.40 |
|      | 18" RC PIPE CULVERTS, CLASS IV                             |              |                |              |
| 0029 | 0448400000-E                                               | 304.000 LF   | \$95.6000      | \$29,062.40  |
|      | 24" RC PIPE CULVERTS, CLASS IV                             |              |                |              |
| 0030 | 0448500000-E                                               | 248.000 LF   | \$133.0000     | \$32,984.00  |
|      | 30" RC PIPE CULVERTS, CLASS IV                             |              |                |              |
| 0031 | 0448600000-E                                               | 372.000 LF   | \$174.1000     | \$64,765.20  |
|      | 36" RC PIPE CULVERTS, CLASS IV                             |              |                |              |
| 0032 | 0995000000-E                                               | 243.000 LF   | \$20.7000      | \$5,030.10   |
|      | PIPE REMOVAL                                               |              |                |              |
| 0033 | 1004500000-E                                               | 10350.000 SY | \$3.5000       | \$36,225.00  |
|      | GENERIC GRADING ITEM GEOTEXTILE FOR SUBGRADE STABILIZATION |              |                |              |
| 0034 | 1011000000-N                                               | 1.000 LS     | \$380,000.0000 | \$380,000.00 |
|      | FINE GRADING                                               |              |                |              |
| 0035 | 1044000000-E                                               | 21000.000 SY | \$5.2900       | \$111,090.00 |
|      | LIME TREATED SOIL (SLURRY METHOD)                          |              |                |              |
| 0036 | 1066000000-E                                               | 260.000 TON  | \$308.0000     | \$80,080.00  |
|      | LIME FOR LIME TREATED SOIL                                 |              |                |              |
| 0037 | 1099500000-E                                               | 575.000 CY   | \$40.0000      | \$23,000.00  |
|      | SHALLOW UNDERCUT                                           |              |                |              |
| 0038 | 1099700000-E                                               | 1150.000 TON | \$41.0000      | \$47,150.00  |
|      | CLASS IV SUBGRADE STABILIZATION                            |              |                |              |
| 0039 | 1110000000-E                                               | 300.000 TON  | \$45.0000      | \$13,500.00  |
|      | STABILIZER AGGREGATE                                       |              |                |              |
| 0040 | 1121000000-E                                               | 6900.000 TON | \$34.9000      | \$240,910.00 |
|      | AGGREGATE BASE COURSE                                      |              |                |              |
| 0041 | 1176000000-E                                               | 21000.000 SY | \$5.2900       | \$111,090.00 |
|      | SOIL CEMENT BASE                                           |              |                |              |
| 0042 | 1187000000-E                                               | 590.000 TON  | \$232.0000     | \$136,880.00 |
|      | PORTLAND CEMENT FOR SOIL CEMENT BASE                       |              |                |              |
| 0043 | 1220000000-E                                               | 500.000 TON  | \$29.0000      | \$14,500.00  |
|      | INCIDENTAL STONE BASE                                      |              |                |              |
| 0044 | 1330000000-E                                               | 920.000 SY   | \$19.3000      | \$17,756.00  |
|      | INCIDENTAL MILLING                                         |              |                |              |
| 0045 | 1491000000-E                                               | 7540.000 TON | \$70.9000      | \$534,586.00 |
|      | ASPHALT CONC BASE COURSE, TYPE B25.0C                      |              |                |              |
| 0046 | 1503000000-E                                               | 8160.000 TON | \$68.4000      | \$558,144.00 |
|      | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C              |              |                |              |
| 0047 | 1519000000-E                                               | 9260.000 TON | \$74.9000      | \$693,574.00 |
|      | ASPHALT CONC SURFACE COURSE, TYPE S9.5B                    |              |                |              |
| 0048 | 1575000000-E                                               | 1335.000 TON | \$550.0000     | \$734,250.00 |



ASPHALT BINDER FOR PLANT MIX

|      |                                                  |             |              |              |
|------|--------------------------------------------------|-------------|--------------|--------------|
| 0049 | 1693000000-E                                     | 100.000 TON | \$200.0000   | \$20,000.00  |
|      | ASPHALT PLANT MIX, PAVEMENT REPAIR               |             |              |              |
| 0050 | 2000000000-N                                     | 4.000 EA    | \$380.0000   | \$1,520.00   |
|      | RIGHT-OF-WAY MARKERS                             |             |              |              |
| 0051 | 2020000000-N                                     | 65.000 EA   | \$380.0000   | \$24,700.00  |
|      | CONTROL-OF-ACCESS MARKERS                        |             |              |              |
| 0052 | 2022000000-E                                     | 168.000 CY  | \$40.0000    | \$6,720.00   |
|      | SUBDRAIN EXCAVATION                              |             |              |              |
| 0053 | 2026000000-E                                     | 500.000 SY  | \$8.2000     | \$4,100.00   |
|      | GEOTEXTILE FOR SUBSURFACE DRAINS                 |             |              |              |
| 0054 | 2036000000-E                                     | 84.000 CY   | \$88.0000    | \$7,392.00   |
|      | SUBDRAIN COARSE AGGREGATE                        |             |              |              |
| 0055 | 2044000000-E                                     | 500.000 LF  | \$22.0000    | \$11,000.00  |
|      | 6" PERFORATED SUBDRAIN PIPE                      |             |              |              |
| 0056 | 2070000000-N                                     | 1.000 EA    | \$1,000.0000 | \$1,000.00   |
|      | SUBDRAIN PIPE OUTLET                             |             |              |              |
| 0057 | 2077000000-E                                     | 6.000 LF    | \$71.7000    | \$430.20     |
|      | 6" OUTLET PIPE                                   |             |              |              |
| 0058 | 2143000000-E                                     | 10.000 TON  | \$255.0000   | \$2,550.00   |
|      | BLOTTING SAND                                    |             |              |              |
| 0059 | 2209000000-E                                     | 6.800 CY    | \$1,390.0000 | \$9,452.00   |
|      | ENDWALLS                                         |             |              |              |
| 0060 | 2220000000-E                                     | 5.000 CY    | \$2,810.0000 | \$14,050.00  |
|      | REINFORCED ENDWALLS                              |             |              |              |
| 0061 | 2253000000-E                                     | 0.656 CY    | \$1,650.0000 | \$1,082.40   |
|      | PIPE COLLARS                                     |             |              |              |
| 0062 | 2286000000-N                                     | 114.000 EA  | \$2,405.0000 | \$274,170.00 |
|      | MASONRY DRAINAGE STRUCTURES                      |             |              |              |
| 0063 | 2308000000-E                                     | 100.100 LF  | \$608.0000   | \$60,860.80  |
|      | MASONRY DRAINAGE STRUCTURES                      |             |              |              |
| 0064 | 2366000000-N                                     | 47.000 EA   | \$1,115.0000 | \$52,405.00  |
|      | FRAME WITH TWO GRATES, STD 840.24                |             |              |              |
| 0065 | 2367000000-N                                     | 1.000 EA    | \$1,132.0000 | \$1,132.00   |
|      | FRAME WITH TWO GRATES, STD 840.29                |             |              |              |
| 0066 | 2374000000-N                                     | 3.000 EA    | \$1,154.0000 | \$3,462.00   |
|      | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) |             |              |              |
| 0067 | 2374000000-N                                     | 18.000 EA   | \$1,154.0000 | \$20,772.00  |
|      | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F) |             |              |              |
| 0068 | 2374000000-N                                     | 27.000 EA   | \$1,154.0000 | \$31,158.00  |
|      | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) |             |              |              |
| 0069 | 2396000000-N                                     | 1.000 EA    | \$840.0000   | \$840.00     |
|      | FRAME WITH COVER, STD 840.54                     |             |              |              |
| 0070 | 2407000000-N                                     | 17.000 EA   | \$2,735.0000 | \$46,495.00  |
|      | STEEL FRAME WITH TWO GRATES, STD 840.37          |             |              |              |
| 0071 | 2440000000-N                                     | 33.000 EA   | \$1,000.0000 | \$33,000.00  |
|      | CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN    |             |              |              |
| 0072 | 2451000000-N                                     | 17.000 EA   | \$1,000.0000 | \$17,000.00  |
|      | CONCRETE TRANSITIONAL SECTION FOR DROP INLET     |             |              |              |

|      |                                                        |              |              |              |
|------|--------------------------------------------------------|--------------|--------------|--------------|
| 0073 | 2542000000-E                                           | 14300.000 LF | \$17.7500    | \$253,825.00 |
|      | 1'-6" CONCRETE CURB & GUTTER                           |              |              |              |
| 0074 | 2549000000-E                                           | 3800.000 LF  | \$29.1500    | \$110,770.00 |
|      | 2'-6" CONCRETE CURB & GUTTER                           |              |              |              |
| 0075 | 2605000000-N                                           | 13.000 EA    | \$2,650.0000 | \$34,450.00  |
|      | CONCRETE CURB RAMPS                                    |              |              |              |
| 0076 | 2619000000-E                                           | 220.000 SY   | \$110.5000   | \$24,310.00  |
|      | 4" CONCRETE PAVED DITCH                                |              |              |              |
| 0077 | 2655000000-E                                           | 1190.000 SY  | \$85.0000    | \$101,150.00 |
|      | 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)              |              |              |              |
| 0078 | 2815000000-N                                           | 1.000 EA     | \$1,000.0000 | \$1,000.00   |
|      | ADJUSTMENT OF DROP INLETS                              |              |              |              |
| 0079 | 3030000000-E                                           | 2125.000 LF  | \$23.0000    | \$48,875.00  |
|      | STEEL BEAM GUARDRAIL                                   |              |              |              |
| 0080 | 3150000000-N                                           | 5.000 EA     | \$44.0000    | \$220.00     |
|      | ADDITIONAL GUARDRAIL POSTS                             |              |              |              |
| 0081 | 3210000000-N                                           | 6.000 EA     | \$850.0000   | \$5,100.00   |
|      | GUARDRAIL END UNITS, TYPE CAT-1                        |              |              |              |
| 0082 | 3287000000-N                                           | 6.000 EA     | \$3,250.0000 | \$19,500.00  |
|      | GUARDRAIL END UNITS, TYPE TL-3                         |              |              |              |
| 0083 | 3628000000-E                                           | 320.000 TON  | \$75.0000    | \$24,000.00  |
|      | RIP RAP, CLASS I                                       |              |              |              |
| 0084 | 3635000000-E                                           | 190.000 TON  | \$115.0000   | \$21,850.00  |
|      | RIP RAP, CLASS II                                      |              |              |              |
| 0085 | 3649000000-E                                           | 290.000 TON  | \$68.0000    | \$19,720.00  |
|      | RIP RAP, CLASS B                                       |              |              |              |
| 0086 | 3656000000-E                                           | 3050.000 SY  | \$2.0000     | \$6,100.00   |
|      | GEOTEXTILE FOR DRAINAGE                                |              |              |              |
| 0087 | 4025000000-E                                           | 140.000 SF   | \$12.5000    | \$1,750.00   |
|      | CONTRACTOR FURNISHED, TYPE *** SIGN (E)                |              |              |              |
| 0088 | 4025000000-E                                           | 80.000 SF    | \$12.5000    | \$1,000.00   |
|      | CONTRACTOR FURNISHED, TYPE *** SIGN (F)                |              |              |              |
| 0089 | 4072000000-E                                           | 375.000 LF   | \$6.0000     | \$2,250.00   |
|      | SUPPORTS, 3-LB STEEL U-CHANNEL                         |              |              |              |
| 0090 | 4102000000-N                                           | 19.000 EA    | \$125.0000   | \$2,375.00   |
|      | SIGN ERECTION, TYPE E                                  |              |              |              |
| 0091 | 4108000000-N                                           | 6.000 EA     | \$125.0000   | \$750.00     |
|      | SIGN ERECTION, TYPE F                                  |              |              |              |
| 0092 | 4116100000-N                                           | 1.000 EA     | \$250.0000   | \$250.00     |
|      | SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (E) |              |              |              |
| 0093 | 4155000000-N                                           | 7.000 EA     | \$10.0000    | \$70.00      |
|      | DISPOSAL OF SIGN SYSTEM, U-CHANNEL                     |              |              |              |
| 0094 | 4400000000-E                                           | 80.000 SF    | \$10.5000    | \$840.00     |
|      | WORK ZONE SIGNS (STATIONARY)                           |              |              |              |
| 0095 | 4410000000-E                                           | 40.000 SF    | \$11.0000    | \$440.00     |
|      | WORK ZONE SIGNS (BARRICADE MOUNTED)                    |              |              |              |
| 0096 | 4430000000-N                                           | 115.000 EA   | \$85.0000    | \$9,775.00   |
|      | DRUMS                                                  |              |              |              |
| 0097 | 4445000000-E                                           | 80.000 LF    | \$50.0000    | \$4,000.00   |



BARRICADES (TYPE III)

|      |                                                     |              |               |              |
|------|-----------------------------------------------------|--------------|---------------|--------------|
| 0098 | 4685000000-E                                        | 28217.000 LF | \$0.8200      | \$23,137.94  |
|      | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)  |              |               |              |
| 0099 | 4695000000-E                                        | 3311.000 LF  | \$1.8000      | \$5,959.80   |
|      | THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)  |              |               |              |
| 0100 | 4700000000-E                                        | 560.000 LF   | \$3.0000      | \$1,680.00   |
|      | THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS) |              |               |              |
| 0101 | 4709000000-E                                        | 373.000 LF   | \$13.0000     | \$4,849.00   |
|      | THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS) |              |               |              |
| 0102 | 4725000000-E                                        | 41.000 EA    | \$125.0000    | \$5,125.00   |
|      | THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)     |              |               |              |
| 0103 | 4810000000-E                                        | 20075.000 LF | \$0.3000      | \$6,022.50   |
|      | PAINT PAVEMENT MARKING LINES (4")                   |              |               |              |
| 0104 | 4820000000-E                                        | 1598.000 LF  | \$0.7000      | \$1,118.60   |
|      | PAINT PAVEMENT MARKING LINES (8")                   |              |               |              |
| 0105 | 4825000000-E                                        | 116.000 LF   | \$0.8000      | \$92.80      |
|      | PAINT PAVEMENT MARKING LINES (12")                  |              |               |              |
| 0106 | 4845000000-N                                        | 6.000 EA     | \$50.0000     | \$300.00     |
|      | PAINT PAVEMENT MARKING SYMBOL                       |              |               |              |
| 0107 | 4900000000-N                                        | 241.000 EA   | \$10.0000     | \$2,410.00   |
|      | PERMANENT RAISED PAVEMENT MARKERS                   |              |               |              |
| 0108 | 4915000000-E                                        | 5.000 EA     | \$56.0000     | \$280.00     |
|      | 7' U-CHANNEL POSTS                                  |              |               |              |
| 0109 | 4955000000-N                                        | 5.000 EA     | \$115.0000    | \$575.00     |
|      | OBJECT MARKERS (END OF ROAD)                        |              |               |              |
| 0110 | 5326200000-E                                        | 986.000 LF   | \$116.0000    | \$114,376.00 |
|      | 12" WATER LINE                                      |              |               |              |
| 0111 | 5329000000-E                                        | 740.000 LB   | \$12.5000     | \$9,250.00   |
|      | DUCTILE IRON WATER PIPE FITTINGS                    |              |               |              |
| 0112 | 5540000000-E                                        | 2.000 EA     | \$2,750.0000  | \$5,500.00   |
|      | 6" VALVE                                            |              |               |              |
| 0113 | 5558000000-E                                        | 1.000 EA     | \$5,800.0000  | \$5,800.00   |
|      | 12" VALVE                                           |              |               |              |
| 0114 | 5589200000-E                                        | 1.000 EA     | \$12,800.0000 | \$12,800.00  |
|      | 2" AIR RELEASE VALVE                                |              |               |              |
| 0115 | 5666000000-N                                        | 2.000 EA     | \$9,140.0000  | \$18,280.00  |
|      | FIRE HYDRANT                                        |              |               |              |
| 0116 | 5673000000-E                                        | 27.000 LF    | \$102.0000    | \$2,754.00   |
|      | FIRE HYDRANT LEG                                    |              |               |              |
| 0117 | 5888000000-E                                        | 946.000 LF   | \$16.7000     | \$15,798.20  |
|      | GENERIC UTILITY ITEM 2" PVC CASING                  |              |               |              |
| 0118 | 5888000000-E                                        | 3730.000 LF  | \$20.1000     | \$74,973.00  |
|      | GENERIC UTILITY ITEM 4" PVC CASING                  |              |               |              |
| 0119 | 5888000000-E                                        | 1884.000 LF  | \$24.8000     | \$46,723.20  |
|      | GENERIC UTILITY ITEM 6" PVC CASING                  |              |               |              |
| 0120 | 6000000000-E                                        | 21360.000 LF | \$2.7000      | \$57,672.00  |
|      | TEMPORARY SILT FENCE                                |              |               |              |
| 0121 | 6006000000-E                                        | 1350.000 TON | \$54.0000     | \$72,900.00  |
|      | STONE FOR EROSION CONTROL, CLASS A                  |              |               |              |

|      |                                    |              |              |              |
|------|------------------------------------|--------------|--------------|--------------|
| 0122 | 6009000000-E                       | 3200.000 TON | \$56.0000    | \$179,200.00 |
|      | STONE FOR EROSION CONTROL, CLASS B |              |              |              |
| 0123 | 6012000000-E                       | 2940.000 TON | \$46.0000    | \$135,240.00 |
|      | SEDIMENT CONTROL STONE             |              |              |              |
| 0124 | 6015000000-E                       | 20.500 ACR   | \$1,500.0000 | \$30,750.00  |
|      | TEMPORARY MULCHING                 |              |              |              |
| 0125 | 6018000000-E                       | 1200.000 LB  | \$3.0000     | \$3,600.00   |
|      | SEED FOR TEMPORARY SEEDING         |              |              |              |
| 0126 | 6021000000-E                       | 6.500 TON    | \$900.0000   | \$5,850.00   |
|      | FERTILIZER FOR TEMPORARY SEEDING   |              |              |              |
| 0127 | 6024000000-E                       | 1350.000 LF  | \$15.8000    | \$21,330.00  |
|      | TEMPORARY SLOPE DRAINS             |              |              |              |
| 0128 | 6029000000-E                       | 1560.000 LF  | \$3.0000     | \$4,680.00   |
|      | SAFETY FENCE                       |              |              |              |
| 0129 | 6030000000-E                       | 10810.000 CY | \$11.8000    | \$127,558.00 |
|      | SILT EXCAVATION                    |              |              |              |
| 0130 | 6036000000-E                       | 46000.000 SY | \$1.4500     | \$66,700.00  |
|      | MATTING FOR EROSION CONTROL        |              |              |              |
| 0131 | 6037000000-E                       | 100.000 SY   | \$6.0000     | \$600.00     |
|      | COIR FIBER MAT                     |              |              |              |
| 0132 | 6042000000-E                       | 3940.000 LF  | \$3.5000     | \$13,790.00  |
|      | 1/4" HARDWARE CLOTH                |              |              |              |
| 0133 | 6045000000-E                       | 270.000 LF   | \$50.0000    | \$13,500.00  |
|      | **" TEMPORARY PIPE (24")           |              |              |              |
| 0134 | 6045000000-E                       | 430.000 LF   | \$66.0000    | \$28,380.00  |
|      | **" TEMPORARY PIPE (30")           |              |              |              |
| 0135 | 6045000000-E                       | 370.000 LF   | \$90.0000    | \$33,300.00  |
|      | **" TEMPORARY PIPE (36")           |              |              |              |
| 0136 | 6046000000-E                       | 75.000 LF    | \$205.0000   | \$15,375.00  |
|      | TEMPORARY PIPE FOR STREAM CROSSING |              |              |              |
| 0137 | 6070000000-N                       | 4.000 EA     | \$3,230.0000 | \$12,920.00  |
|      | SPECIAL STILLING BASINS            |              |              |              |
| 0138 | 6071012000-E                       | 350.000 LF   | \$10.5000    | \$3,675.00   |
|      | COIR FIBER WATTLE                  |              |              |              |
| 0139 | 6071020000-E                       | 170.000 LB   | \$8.0000     | \$1,360.00   |
|      | POLYACRYLAMIDE (PAM)               |              |              |              |
| 0140 | 6071030000-E                       | 2360.000 LF  | \$7.0000     | \$16,520.00  |
|      | COIR FIBER BAFFLE                  |              |              |              |
| 0141 | 6071050000-E                       | 7.000 EA     | \$1,625.0000 | \$11,375.00  |
|      | **" SKIMMER (1-1/2")               |              |              |              |
| 0142 | 6071050000-E                       | 1.000 EA     | \$1,965.0000 | \$1,965.00   |
|      | **" SKIMMER (2")                   |              |              |              |
| 0143 | 6071050000-E                       | 1.000 EA     | \$2,175.0000 | \$2,175.00   |
|      | **" SKIMMER (2-1/2")               |              |              |              |
| 0144 | 6084000000-E                       | 25.000 ACR   | \$2,575.0000 | \$64,375.00  |
|      | SEEDING & MULCHING                 |              |              |              |
| 0145 | 6087000000-E                       | 18.000 ACR   | \$250.0000   | \$4,500.00   |
|      | MOWING                             |              |              |              |
| 0146 | 6090000000-E                       | 200.000 LB   | \$6.0000     | \$1,200.00   |



| SEED FOR REPAIR SEEDING |                                                     |             |               |              |
|-------------------------|-----------------------------------------------------|-------------|---------------|--------------|
| 0147                    | 6093000000-E                                        | 1.000 TON   | \$980.0000    | \$980.00     |
|                         | FERTILIZER FOR REPAIR SEEDING                       |             |               |              |
| 0148                    | 6096000000-E                                        | 650.000 LB  | \$6.0000      | \$3,900.00   |
|                         | SEED FOR SUPPLEMENTAL SEEDING                       |             |               |              |
| 0149                    | 6108000000-E                                        | 18.250 TON  | \$1,025.0000  | \$18,706.25  |
|                         | FERTILIZER TOPDRESSING                              |             |               |              |
| 0150                    | 6111000000-E                                        | 175.000 LF  | \$100.0000    | \$17,500.00  |
|                         | IMPERVIOUS DIKE                                     |             |               |              |
| 0151                    | 6114500000-N                                        | 10.000 MHR  | \$180.0000    | \$1,800.00   |
|                         | SPECIALIZED HAND MOWING                             |             |               |              |
| 0152                    | 6117000000-N                                        | 75.000 EA   | \$50.0000     | \$3,750.00   |
|                         | RESPONSE FOR EROSION CONTROL                        |             |               |              |
| 0153                    | 6117500000-N                                        | 6.000 EA    | \$4,600.0000  | \$27,600.00  |
|                         | CONCRETE WASHOUT STRUCTURE                          |             |               |              |
| 0154                    | 6120000000-E                                        | 41.000 CY   | \$125.0000    | \$5,125.00   |
|                         | CULVERT DIVERSION CHANNEL                           |             |               |              |
| 0155                    | 6123000000-E                                        | 0.100 ACR   | \$3,200.0000  | \$320.00     |
|                         | REFORESTATION                                       |             |               |              |
| 0156                    | 7048500000-E                                        | 12.000 EA   | \$1,100.0000  | \$13,200.00  |
|                         | PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN) |             |               |              |
| 0157                    | 7060000000-E                                        | 7875.000 LF | \$2.5000      | \$19,687.50  |
|                         | SIGNAL CABLE                                        |             |               |              |
| 0158                    | 7120000000-E                                        | 24.000 EA   | \$1,100.0000  | \$26,400.00  |
|                         | VEHICLE SIGNAL HEAD (12", 3 SECTION)                |             |               |              |
| 0159                    | 7132000000-E                                        | 11.000 EA   | \$1,400.0000  | \$15,400.00  |
|                         | VEHICLE SIGNAL HEAD (12", 4 SECTION)                |             |               |              |
| 0160                    | 7144000000-E                                        | 1.000 EA    | \$1,900.0000  | \$1,900.00   |
|                         | VEHICLE SIGNAL HEAD (12", 5 SECTION)                |             |               |              |
| 0161                    | 7288000000-E                                        | 175.000 LF  | \$30.0000     | \$5,250.00   |
|                         | PAVED TRENCHING (***** (2, 2"))                     |             |               |              |
| 0162                    | 7300000000-E                                        | 3150.000 LF | \$14.0000     | \$44,100.00  |
|                         | UNPAVED TRENCHING (***** (2, 2"))                   |             |               |              |
| 0163                    | 7301000000-E                                        | 1125.000 LF | \$31.0000     | \$34,875.00  |
|                         | DIRECTIONAL DRILL (***** (2, 2"))                   |             |               |              |
| 0164                    | 7324000000-N                                        | 23.000 EA   | \$825.0000    | \$18,975.00  |
|                         | JUNCTION BOX (STANDARD SIZE)                        |             |               |              |
| 0165                    | 7348000000-N                                        | 11.000 EA   | \$1,300.0000  | \$14,300.00  |
|                         | JUNCTION BOX (OVER-SIZED, HEAVY DUTY)               |             |               |              |
| 0166                    | 7444000000-E                                        | 2100.000 LF | \$12.0000     | \$25,200.00  |
|                         | INDUCTIVE LOOP SAWCUT                               |             |               |              |
| 0167                    | 7575142010-N                                        | 2.000 EA    | \$9,000.0000  | \$18,000.00  |
|                         | 900MHZ SERIAL/ETHERNET SPREAD SPECTRUM RADIO        |             |               |              |
| 0168                    | 7588000000-N                                        | 11.000 EA   | \$24,100.0000 | \$265,100.00 |
|                         | METAL POLE WITH SINGLE MAST ARM                     |             |               |              |
| 0169                    | 7613000000-N                                        | 11.000 EA   | \$1,600.0000  | \$17,600.00  |
|                         | SOIL TEST                                           |             |               |              |
| 0170                    | 7614100000-E                                        | 60.500 CY   | \$1,400.0000  | \$84,700.00  |
|                         | DRILLED PIER FOUNDATION                             |             |               |              |

|                    |                                                                    |           |               |                 |
|--------------------|--------------------------------------------------------------------|-----------|---------------|-----------------|
| 0171               | 7631000000-N                                                       | 11.000 EA | \$500.0000    | \$5,500.00      |
|                    | MAST ARM WITH METAL POLE DESIGN                                    |           |               |                 |
| 0172               | 7636000000-N                                                       | 23.000 EA | \$525.0000    | \$12,075.00     |
|                    | SIGN FOR SIGNALS                                                   |           |               |                 |
| 0173               | 7642200000-N                                                       | 12.000 EA | \$3,650.0000  | \$43,800.00     |
|                    | TYPE II PEDESTAL WITH FOUNDATION                                   |           |               |                 |
| 0174               | 7684000000-N                                                       | 4.000 EA  | \$3,200.0000  | \$12,800.00     |
|                    | SIGNAL CABINET FOUNDATION                                          |           |               |                 |
| 0175               | 7696000000-N                                                       | 4.000 EA  | \$22,500.0000 | \$90,000.00     |
|                    | CONTROLLERS WITH CABINET (***** (2070LX BASE MTD)                  |           |               |                 |
| 0176               | 7744000000-N                                                       | 25.000 EA | \$300.0000    | \$7,500.00      |
|                    | DETECTOR CARD (TYPE 170)                                           |           |               |                 |
| 0177               | 7901000000-N                                                       | 4.000 EA  | \$650.0000    | \$2,600.00      |
|                    | CABINET BASE EXTENDER                                              |           |               |                 |
| 0178               | 7980000000-N                                                       | 2.000 EA  | \$1,750.0000  | \$3,500.00      |
|                    | GENERIC SIGNAL ITEM ETHERNET EDGE SWITCH                           |           |               |                 |
| 0179               | 7980000000-N                                                       | 1.000 EA  | \$2,500.0000  | \$2,500.00      |
|                    | GENERIC SIGNAL ITEM INSTALL CELLULAR MODEM AND ANTENNA             |           |               |                 |
| 0180               | 7980000000-N                                                       | 11.000 EA | \$4,450.0000  | \$48,950.00     |
|                    | GENERIC SIGNAL ITEM PROTECTIVE COATING FOR SINGLE MAST ARM POLE    |           |               |                 |
| 0181               | 7980000000-N                                                       | 11.000 EA | \$275.0000    | \$3,025.00      |
|                    | GENERIC SIGNAL ITEM PROTECTIVE COATING FOR TYPE II SIGNAL PEDESTAL |           |               |                 |
| Section 0001 Total |                                                                    |           |               | \$12,375,737.69 |

Section 0002  
CULVERT ITEMS

|                    |                                               |               |               |                |
|--------------------|-----------------------------------------------|---------------|---------------|----------------|
| 0182               | 8126000000-N                                  | 1.000 LS      | \$50,000.0000 | \$50,000.00    |
|                    | CULVERT EXCAVATION, STA ***** (108+98.22 -L-) |               |               |                |
| 0183               | 8126000000-N                                  | 1.000 LS      | \$60,000.0000 | \$60,000.00    |
|                    | CULVERT EXCAVATION, STA ***** (124+63.87 -L-) |               |               |                |
| 0184               | 8133000000-E                                  | 638.000 TON   | \$80.0000     | \$51,040.00    |
|                    | FOUNDATION CONDITIONING MATERIAL, BOX CULVERT |               |               |                |
| 0185               | 8196000000-E                                  | 1202.800 CY   | \$600.0000    | \$721,680.00   |
|                    | CLASS A CONCRETE (CULVERT)                    |               |               |                |
| 0186               | 8245000000-E                                  | 177098.000 LB | \$1.9500      | \$345,341.10   |
|                    | REINFORCING STEEL (CULVERT)                   |               |               |                |
| Section 0002 Total |                                               |               |               | \$1,228,061.10 |

Section 0003  
WALL ITEMS

|                    |                                                                                  |             |            |                |
|--------------------|----------------------------------------------------------------------------------|-------------|------------|----------------|
| 0187               | 8802014000-E                                                                     | 3818.000 SF | \$305.7700 | \$1,167,429.86 |
|                    | SOLDIER PILE RETAINING WALLS                                                     |             |            |                |
| 0188               | 8847000000-E                                                                     | 3818.000 SF | \$12.4200  | \$47,419.56    |
|                    | GENERIC RETAINING WALL ITEM SIMULATED STONE FORM LINER SYSTEM AND SURFACE FINISH |             |            |                |
| Section 0003 Total |                                                                                  |             |            | \$1,214,849.42 |



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|            |                 |
|------------|-----------------|
| Item Total | \$14,818,648.21 |
|------------|-----------------|

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## **ELECTRONIC BID SUBMISSION**

By submitting this bid electronically, I hereby acknowledge that all requirements included in the hard copy proposal, addendum, amendments, plans, standard specifications, supplemental specifications and special provisions are part of the bid and contract. Further, I acknowledge that I have read, understand, accept, acknowledge and agree to comply with all statements in this electronic bid.

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## **NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION**

The prequalified bidder declares (or certifies, verifies, or states) under penalty of perjury under the laws of the United States that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating N.C.G.S. §133-24 within the last three years, and that the prequalified bidder intends to do the work with his own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. §133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

## **DEBARMENT CERTIFICATION OF PREQUALIFIED BIDDER**

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation that is file with the Department, or has become erroneous because of changed circumstances.

2. The terms covered transaction, debarred, suspended, ineligible, lower tier



covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.

3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.

4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal- Aid Provision titled Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273) provided by the Department, without subsequent modification, in all lower tier covered transactions.

5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.

6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

### **DEBARMENT CERTIFICATION**

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or

commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and

d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

#### **EXPLANATION:**

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## Award Limits on Multiple Projects

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects? **Yes** ☐ **No** ☒

A bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than he is equipped to handle, may bid on any number of projects but may limit the total amount of work awarded to him on selected projects by completing the AWARD LIMITS ON MULTIPLE PROJECTS.

The Award Limits on Multiple Projects must be filled in on each project bid for which the Bidder desires protection.

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of     for those

projects indicated herein, for which bids will be opened on     (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number  
County

Contract Number  
County

Contract Number  
County

Contract Number  
County

Contract Number  
County

Contract Number  
County

It is agreed that if I am (we are) the low Bidder(s) on indicated projects, the total value of which is more than the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated

that have a total value not to exceed the award limit and will result in the lowest total bids to the Department of Transportation.



## DBE List Summary

Project: STATE FUNDED

Bidder ID: 3516

Bid Total: 14,818,648.21

Business Name: Barnhill Contracting Company

Goal: 5.00% (740,932.41)

Total Entered: 6.21% (920,383.25)

| ID    | Name                         | Supp?/Dist? | Item Count | Amount     | Is Complete? |
|-------|------------------------------|-------------|------------|------------|--------------|
| 3346  | LINEBERRY INC                | No          | 19         | 298,878.25 | True         |
| 11572 | CRUZ BROTHERS CONCRETE, INC. | No          | 8          | 621,505.00 | True         |

Name: LINEBERRY INC ID: 3346

Address: P.O. Box 307 CLIMAX, NC 27233

Used As: SubContractor DBE Items Total:\$298,878.25

Items for LINEBERRY INC

|      |                               |           |     |              |             |
|------|-------------------------------|-----------|-----|--------------|-------------|
| 0001 | ROADWAY ITEMS                 |           |     |              |             |
| 0120 | 6000000000-E                  | 21360.000 | LF  | \$2.7000     | \$57,672.00 |
|      | TEMPORARY SILT FENCE          |           |     |              |             |
| 0124 | 6015000000-E                  | 20.500    | ACR | \$1,500.0000 | \$30,750.00 |
|      | TEMPORARY MULCHING            |           |     |              |             |
| 0125 | 6018000000-E                  | 1200.000  | LB  | \$3.0000     | \$3,600.00  |
|      | SEED FOR TEMPORARY SEEDING    |           |     |              |             |
| 0128 | 6029000000-E                  | 1560.000  | LF  | \$3.0000     | \$4,680.00  |
|      | SAFETY FENCE                  |           |     |              |             |
| 0130 | 6036000000-E                  | 46000.000 | SY  | \$1.4500     | \$66,700.00 |
|      | MATTING FOR EROSION CONTROL   |           |     |              |             |
| 0131 | 6037000000-E                  | 100.000   | SY  | \$6.0000     | \$600.00    |
|      | COIR FIBER MAT                |           |     |              |             |
| 0132 | 6042000000-E                  | 3940.000  | LF  | \$3.5000     | \$13,790.00 |
|      | 1/4" HARDWARE CLOTH           |           |     |              |             |
| 0138 | 6071012000-E                  | 350.000   | LF  | \$10.5000    | \$3,675.00  |
|      | COIR FIBER WATTLE             |           |     |              |             |
| 0139 | 6071020000-E                  | 170.000   | LB  | \$8.0000     | \$1,360.00  |
|      | POLYACRYLAMIDE (PAM)          |           |     |              |             |
| 0140 | 6071030000-E                  | 2360.000  | LF  | \$7.0000     | \$16,520.00 |
|      | COIR FIBER BAFFLE             |           |     |              |             |
| 0144 | 6084000000-E                  | 25.000    | ACR | \$2,575.0000 | \$64,375.00 |
|      | SEEDING & MULCHING            |           |     |              |             |
| 0145 | 6087000000-E                  | 18.000    | ACR | \$250.0000   | \$4,500.00  |
|      | MOWING                        |           |     |              |             |
| 0146 | 6090000000-E                  | 200.000   | LB  | \$6.0000     | \$1,200.00  |
|      | SEED FOR REPAIR SEEDING       |           |     |              |             |
| 0147 | 6093000000-E                  | 1.000     | TON | \$980.0000   | \$980.00    |
|      | FERTILIZER FOR REPAIR SEEDING |           |     |              |             |
| 0148 | 6096000000-E                  | 650.000   | LB  | \$6.0000     | \$3,900.00  |
|      | SEED FOR SUPPLEMENTAL SEEDING |           |     |              |             |
| 0149 | 6108000000-E                  | 18.250    | TON | \$1,025.0000 | \$18,706.25 |
|      | FERTILIZER TOPDRESSING        |           |     |              |             |
| 0151 | 6114500000-N                  | 10.000    | MHR | \$180.0000   | \$1,800.00  |
|      | SPECIALIZED HAND MOWING       |           |     |              |             |
| 0152 | 6117000000-N                  | 75.000    | EA  | \$50.0000    | \$3,750.00  |
|      | RESPONSE FOR EROSION CONTROL  |           |     |              |             |



Letting: L250318  
03/18/2025 02:00:00 PM

North Carolina Department of Transportation  
3516 - Barnhill Contracting Company

Contract ID: C204933  
Call: 005

|                    |              |           |              |              |
|--------------------|--------------|-----------|--------------|--------------|
| 0155               | 6123000000-E | 0.100 ACR | \$3,200.0000 | \$320.00     |
| REFORESTATION      |              |           |              |              |
| Section 0001 Total |              |           |              | \$298,878.25 |
|                    |              |           |              |              |
| Item Total         |              |           |              | \$298,878.25 |

Name: CRUZ BROTHERS CONCRETE, INC. ID: 11572

Address: 1572 PAYNE ROAD LOT 75 GRAHAM, NC 27253

Used As: SubContractor DBE Items Total:\$621,505.00

Items for CRUZ BROTHERS CONCRETE, INC.

|                                               |              |              |              |              |
|-----------------------------------------------|--------------|--------------|--------------|--------------|
| 0001<br>ROADWAY ITEMS                         |              |              |              |              |
| 0062                                          | 2286000000-N | 47 EA        | \$1,000.0000 | \$47,000.00  |
| MASONRY DRAINAGE STRUCTURES                   |              |              |              |              |
| Note: Pour aprons around drop inlets          |              |              |              |              |
| 0071                                          | 2440000000-N | 33.000 EA    | \$1,000.0000 | \$33,000.00  |
| CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN |              |              |              |              |
| 0072                                          | 2451000000-N | 17.000 EA    | \$1,000.0000 | \$17,000.00  |
| CONCRETE TRANSITIONAL SECTION FOR DROP INLET  |              |              |              |              |
| 0073                                          | 2542000000-E | 14300.000 LF | \$17.7500    | \$253,825.00 |
| 1'-6" CONCRETE CURB & GUTTER                  |              |              |              |              |
| 0074                                          | 2549000000-E | 3800.000 LF  | \$29.1500    | \$110,770.00 |
| 2'-6" CONCRETE CURB & GUTTER                  |              |              |              |              |
| 0075                                          | 2605000000-N | 13.000 EA    | \$2,650.0000 | \$34,450.00  |
| CONCRETE CURB RAMPS                           |              |              |              |              |
| 0076                                          | 2619000000-E | 220.000 SY   | \$110.5000   | \$24,310.00  |
| 4" CONCRETE PAVED DITCH                       |              |              |              |              |
| 0077                                          | 2655000000-E | 1190.000 SY  | \$85.0000    | \$101,150.00 |
| 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)     |              |              |              |              |
| Section 0001 Total                            |              |              |              | \$621,505.00 |
|                                               |              |              |              |              |
| Item Total                                    |              |              |              | \$621,505.00 |



THIS PROPOSAL CONTAINS THE FOLLOWING ERRORS/WARNINGS (IF ANY)

This Bid contains 1 amendment files

1 03/12/2025 MODIFY ITEMS

**Electronic Bid Submission**

By submitting this bid electronically, I hereby acknowledge that all requirements included in the hard copy proposal, addendum, amendments, plans, standard specifications, supplemental specifications and special provisions are part of the bid and contract. Further, I acknowledge that I have read, understand, accept, acknowledge and agree to comply with all statements in this electronic bid.

I hereby certify that I have the authority to submit this bid.

Signature \_\_\_\_\_

Agency \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

Agency \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

Agency \_\_\_\_\_

Date \_\_\_\_\_

## Attachments

Failure to complete and attach the Fuel Usage Factor Adjustment Form will result in using 2.90 gallons per ton as the Fuel Usage Factor for Diesel for the asphalt items included on the form. The contractor will not be permitted to change the option after the bids are submitted.

NOTE: The maximum upload limit is 5 MB.

☐ Verify



| Line #               | ItemNumber   | Sec # | Description                                           | Quantity Unit  | Unit Bid Price | Amount Bid   |
|----------------------|--------------|-------|-------------------------------------------------------|----------------|----------------|--------------|
| <b>ROADWAY ITEMS</b> |              |       |                                                       |                |                |              |
| 0001                 | 0000100000-N | 800   | MOBILIZATION                                          | LUMP SUM       | 720,000.00     | 720,000.00   |
| 0002                 | 0000400000-N | 801   | CONSTRUCTION SURVEYING                                | LUMP SUM       | 251,580.00     | 251,580.00   |
| 0003                 | 0001000000-E | 200   | CLEARING & GRUBBING .. ACRE(S)                        | LUMP SUM<br>LS | 805,000.00     | 805,000.00   |
| 0004                 | 0008000000-E | 200   | SUPPLEMENTARY CLEARING &<br>GRUBBING                  | 2<br>ACR       | 6,500.00       | 13,000.00    |
| 0005                 | 0022000000-E | 225   | UNCLASSIFIED EXCAVATION                               | 112,000<br>CY  | 6.50           | 728,000.00   |
| 0006                 | 0036000000-E | 225   | UNDERCUT EXCAVATION                                   | 2,835<br>CY    | 24.20          | 68,607.00    |
| 0007                 | 0106000000-E | 230   | BORROW EXCAVATION                                     | 110,000<br>CY  | 13.80          | 1,518,000.00 |
| 0008                 | 0134000000-E | 240   | DRAINAGE DITCH EXCAVATION                             | 1,400<br>CY    | 20.60          | 28,840.00    |
| 0009                 | 0141000000-E | 240   | BERM DITCH CONSTRUCTION                               | 700<br>LF      | 8.60           | 6,020.00     |
| 0010                 | 0156000000-E | 250   | REMOVAL OF EXISTING ASPHALT<br>PAVEMENT               | 1,300<br>SY    | 5.80           | 7,540.00     |
| 0011                 | 0192000000-N | 260   | PROOF ROLLING                                         | 30<br>HR       | 261.60         | 7,848.00     |
| 0012                 | 0195000000-E | 265   | SELECT GRANULAR MATERIAL                              | 1,335<br>CY    | 34.00          | 45,390.00    |
| 0013                 | 0196000000-E | 270   | GEOTEXTILE FOR SOIL<br>STABILIZATION                  | 4,150<br>SY    | 3.10           | 12,865.00    |
| 0014                 | 0318000000-E | 300   | FOUNDATION CONDITIONING<br>MATERIAL, MINOR STRUCTURES | 1,219<br>TON   | 44.00          | 53,636.00    |
| 0015                 | 0320000000-E | 300   | FOUNDATION CONDITIONING<br>GEOTEXTILE                 | 3,803<br>SY    | 5.80           | 22,057.40    |
| 0016                 | 0335200000-E | 305   | 15" DRAINAGE PIPE                                     | 224<br>LF      | 41.70          | 9,340.80     |
| 0017                 | 0335300000-E | 305   | 18" DRAINAGE PIPE                                     | 132<br>LF      | 49.40          | 6,520.80     |
| 0018                 | 0335400000-E | 305   | 24" DRAINAGE PIPE                                     | 140<br>LF      | 67.30          | 9,422.00     |
| 0019                 | 0335500000-E | 305   | 30" DRAINAGE PIPE                                     | 96<br>LF       | 87.30          | 8,380.80     |
| 0020                 | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(15")                     | 4<br>EA        | 175.00         | 700.00       |
| 0021                 | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(18")                     | 4<br>EA        | 295.00         | 1,180.00     |
| 0022                 | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS<br>(24")                     | 4<br>EA        | 400.00         | 1,600.00     |

## Contract Item Sheets For C204933

| Line # | ItemNumber   | Sec # | Description                                                      | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|------------------------------------------------------------------|---------------|----------------|------------|
| 0023   | 0335850000-E | 305   | *** DRAINAGE PIPE ELBOWS (30")                                   | 2 EA          | 715.00         | 1,430.00   |
| 0024   | 0354000000-E | 310   | **** RC PIPE CULVERTS, CLASS ***** (15", V)                      | 268 LF        | 84.20          | 22,565.60  |
| 0025   | 0354000000-E | 310   | **** RC PIPE CULVERTS, CLASS ***** (18", V)                      | 892 LF        | 77.60          | 69,219.20  |
| 0026   | 0448000000-E | 310   | ***** RC PIPE CULVERTS, CLASS IV (54")                           | 120 LF        | 338.00         | 40,560.00  |
| 0027   | 0448200000-E | 310   | 15" RC PIPE CULVERTS, CLASS IV                                   | 6,232 LF      | 56.40          | 351,484.80 |
| 0028   | 0448300000-E | 310   | 18" RC PIPE CULVERTS, CLASS IV                                   | 2,296 LF      | 67.90          | 155,898.40 |
| 0029   | 0448400000-E | 310   | 24" RC PIPE CULVERTS, CLASS IV                                   | 304 LF        | 95.60          | 29,062.40  |
| 0030   | 0448500000-E | 310   | 30" RC PIPE CULVERTS, CLASS IV                                   | 248 LF        | 133.00         | 32,984.00  |
| 0031   | 0448600000-E | 310   | 36" RC PIPE CULVERTS, CLASS IV                                   | 372 LF        | 174.10         | 64,765.20  |
| 0032   | 0995000000-E | 340   | PIPE REMOVAL                                                     | 243 LF        | 20.70          | 5,030.10   |
| 0033   | 1004500000-E | 505   | GENERIC GRADING ITEM<br>GEOTEXTILE FOR SUBGRADE<br>STABILIZATION | 10,350 SY     | 3.50           | 36,225.00  |
| 0034   | 1011000000-N | 500   | FINE GRADING                                                     | LUMP SUM      | 380,000.00     | 380,000.00 |
| 0035   | 1044000000-E | 501   | LIME TREATED SOIL (SLURRY METHOD)                                | 21,000 SY     | 5.29           | 111,090.00 |
| 0036   | 1066000000-E | 501   | LIME FOR LIME TREATED SOIL                                       | 260 TON       | 308.00         | 80,080.00  |
| 0037   | 1099500000-E | 505   | SHALLOW UNDERCUT                                                 | 575 CY        | 40.00          | 23,000.00  |
| 0038   | 1099700000-E | 505   | CLASS IV SUBGRADE STABILIZATION                                  | 1,150 TON     | 41.00          | 47,150.00  |
| 0039   | 1110000000-E | 510   | STABILIZER AGGREGATE                                             | 300 TON       | 45.00          | 13,500.00  |
| 0040   | 1121000000-E | 520   | AGGREGATE BASE COURSE                                            | 6,900 TON     | 34.90          | 240,810.00 |
| 0041   | 1176000000-E | 542   | SOIL CEMENT BASE                                                 | 21,000 SY     | 5.29           | 111,090.00 |
| 0042   | 1187000000-E | 542   | PORTLAND CEMENT FOR SOIL CEMENT BASE                             | 590 TON       | 232.00         | 136,880.00 |
| 0043   | 1220000000-E | 545   | INCIDENTAL STONE BASE                                            | 500 TON       | 29.00          | 14,500.00  |
| 0044   | 1330000000-E | 607   | INCIDENTAL MILLING                                               | 920 SY        | 19.30          | 17,756.00  |



| Line # | ItemNumber   | Sec # | Description                                      | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|--------------------------------------------------|---------------|----------------|------------|
| 0045   | 1491000000-E | 610   | ASPHALT CONC BASE COURSE, TYPE B25.0C            | 7,540 TON     | 70.90          | 534,586.00 |
| 0046   | 1503000000-E | 610   | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C    | 8,160 TON     | 68.40          | 558,144.00 |
| 0047   | 1519000000-E | 610   | ASPHALT CONC SURFACE COURSE, TYPE S9.5B          | 9,260 TON     | 74.90          | 693,574.00 |
| 0048   | 1575000000-E | 620   | ASPHALT BINDER FOR PLANT MIX                     | 1,335 TON     | 550.00         | 734,250.00 |
| 0049   | 1693000000-E | 654   | ASPHALT PLANT MIX, PAVEMENT REPAIR               | 100 TON       | 200.00         | 20,000.00  |
| 0050   | 2000000000-N | 806   | RIGHT-OF-WAY MARKERS                             | 4 EA          | 380.00         | 1,520.00   |
| 0051   | 2020000000-N | 806   | CONTROL-OF-ACCESS MARKERS                        | 65 EA         | 380.00         | 24,700.00  |
| 0052   | 2022000000-E | 815   | SUBDRAIN EXCAVATION                              | 168 CY        | 40.00          | 6,720.00   |
| 0053   | 2026000000-E | 815   | GEOTEXTILE FOR SUBSURFACE DRAINS                 | 500 SY        | 8.20           | 4,100.00   |
| 0054   | 2036000000-E | 815   | SUBDRAIN COARSE AGGREGATE                        | 84 CY         | 88.00          | 7,392.00   |
| 0055   | 2044000000-E | 815   | 6" PERFORATED SUBDRAIN PIPE                      | 500 LF        | 22.00          | 11,000.00  |
| 0056   | 2070000000-N | 815   | SUBDRAIN PIPE OUTLET                             | 1 EA          | 1,000.00       | 1,000.00   |
| 0057   | 2077000000-E | 815   | 6" OUTLET PIPE                                   | 6 LF          | 71.70          | 430.20     |
| 0058   | 2143000000-E | 818   | BLOTTING SAND                                    | 10 TON        | 255.00         | 2,550.00   |
| 0059   | 2209000000-E | 838   | ENDWALLS                                         | 6.8 CY        | 1,390.00       | 9,452.00   |
| 0060   | 2220000000-E | 838   | REINFORCED ENDWALLS                              | 5 CY          | 2,810.00       | 14,050.00  |
| 0061   | 2253000000-E | 840   | PIPE COLLARS                                     | 0.66 CY       | 1,650.00       | 1,082.40   |
| 0062   | 2286000000-N | 840   | MASONRY DRAINAGE STRUCTURES                      | 114 EA        | 2,405.00       | 274,170.00 |
| 0063   | 2308000000-E | 840   | MASONRY DRAINAGE STRUCTURES                      | 100.1 LF      | 608.00         | 60,860.80  |
| 0064   | 2366000000-N | 840   | FRAME WITH TWO GRATES, STD 840.24                | 47 EA         | 1,115.00       | 52,405.00  |
| 0065   | 2367000000-N | 840   | FRAME WITH TWO GRATES, STD 840.29                | 1 EA          | 1,132.00       | 1,132.00   |
| 0066   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) | 3 EA          | 1,154.00       | 3,462.00   |

| Line # | ItemNumber   | Sec # | Description                                      | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|--------------------------------------------------|---------------|----------------|------------|
| 0067   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F) | 18 EA         | 1,154.00       | 20,772.00  |
| 0068   | 2374000000-N | 840   | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) | 27 EA         | 1,154.00       | 31,158.00  |
| 0069   | 2396000000-N | 840   | FRAME WITH COVER, STD 840.54                     | 1 EA          | 840.00         | 840.00     |
| 0070   | 2407000000-N | 840   | STEEL FRAME WITH TWO GRATES, STD 840.37          | 17 EA         | 2,735.00       | 46,495.00  |
| 0071   | 2440000000-N | 852   | CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN    | 33 EA         | 1,000.00       | 33,000.00  |
| 0072   | 2451000000-N | 852   | CONCRETE TRANSITIONAL SECTION FOR DROP INLET     | 17 EA         | 1,000.00       | 17,000.00  |
| 0073   | 2542000000-E | 846   | 1'-6" CONCRETE CURB & GUTTER                     | 14,300 LF     | 17.75          | 253,825.00 |
| 0074   | 2549000000-E | 846   | 2'-6" CONCRETE CURB & GUTTER                     | 3,800 LF      | 29.15          | 110,770.00 |
| 0075   | 2605000000-N | 848   | CONCRETE CURB RAMPS                              | 13 EA         | 2,650.00       | 34,450.00  |
| 0076   | 2619000000-E | 850   | 4" CONCRETE PAVED DITCH                          | 220 SY        | 110.50         | 24,310.00  |
| 0077   | 2655000000-E | 852   | 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)        | 1,190 SY      | 85.00          | 101,150.00 |
| 0078   | 2815000000-N | 858   | ADJUSTMENT OF DROP INLETS                        | 1 EA          | 1,000.00       | 1,000.00   |
| 0079   | 3030000000-E | 862   | STEEL BEAM GUARDRAIL                             | 2,125 LF      | 23.00          | 48,875.00  |
| 0080   | 3150000000-N | 862   | ADDITIONAL GUARDRAIL POSTS                       | 5 EA          | 44.00          | 220.00     |
| 0081   | 3210000000-N | 862   | GUARDRAIL END UNITS, TYPE CAT-1                  | 6 EA          | 850.00         | 5,100.00   |
| 0082   | 3287000000-N | SP    | GUARDRAIL END UNITS, TYPE TL-3                   | 6 EA          | 3,250.00       | 19,500.00  |
| 0083   | 3628000000-E | 876   | RIP RAP, CLASS I                                 | 320 TON       | 75.00          | 24,000.00  |
| 0084   | 3635000000-E | 876   | RIP RAP, CLASS II                                | 190 TON       | 115.00         | 21,850.00  |
| 0085   | 3649000000-E | 876   | RIP RAP, CLASS B                                 | 290 TON       | 68.00          | 19,720.00  |
| 0086   | 3656000000-E | 876   | GEOTEXTILE FOR DRAINAGE                          | 3,050 SY      | 2.00           | 6,100.00   |
| 0087   | 4025000000-E | 901   | CONTRACTOR FURNISHED, TYPE *** SIGN (E)          | 140 SF        | 12.50          | 1,750.00   |



| Line # | ItemNumber   | Sec # | Description                                                  | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|--------------------------------------------------------------|---------------|----------------|------------|
| 0088   | 4025000000-E | 901   | CONTRACTOR FURNISHED, TYPE ***<br>SIGN<br>(F)                | 80<br>SF      | 12.50          | 1,000.00   |
| 0089   | 4072000000-E | 903   | SUPPORTS, 3-LB STEEL U-CHANNEL                               | 375<br>LF     | 6.00           | 2,250.00   |
| 0090   | 4102000000-N | 904   | SIGN ERECTION, TYPE E                                        | 19<br>EA      | 125.00         | 2,375.00   |
| 0091   | 4108000000-N | 904   | SIGN ERECTION, TYPE F                                        | 6<br>EA       | 125.00         | 750.00     |
| 0092   | 4116100000-N | 904   | SIGN ERECTION, RELOCATE TYPE ****<br>(GROUND MOUNTED)<br>(E) | 1<br>EA       | 250.00         | 250.00     |
| 0093   | 4155000000-N | 907   | DISPOSAL OF SIGN SYSTEM, U-<br>CHANNEL                       | 7<br>EA       | 10.00          | 70.00      |
| 0094   | 4400000000-E | 1110  | WORK ZONE SIGNS (STATIONARY)                                 | 80<br>SF      | 10.50          | 840.00     |
| 0095   | 4410000000-E | 1110  | WORK ZONE SIGNS (BARRICADE<br>MOUNTED)                       | 40<br>SF      | 11.00          | 440.00     |
| 0096   | 4430000000-N | 1130  | DRUMS                                                        | 115<br>EA     | 85.00          | 9,775.00   |
| 0097   | 4445000000-E | 1145  | BARRICADES (TYPE III)                                        | 80<br>LF      | 50.00          | 4,000.00   |
| 0098   | 4685000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (4", 90 MILS)        | 28,217<br>LF  | 0.82           | 23,137.94  |
| 0099   | 4695000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (8", 90 MILS)        | 3,311<br>LF   | 1.80           | 5,959.80   |
| 0100   | 4700000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (12", 90 MILS)       | 560<br>LF     | 3.00           | 1,680.00   |
| 0101   | 4709000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING LINES (24", 90 MILS)       | 373<br>LF     | 13.00          | 4,849.00   |
| 0102   | 4725000000-E | 1205  | THERMOPLASTIC PAVEMENT<br>MARKING SYMBOL (90 MILS)           | 41<br>EA      | 125.00         | 5,125.00   |
| 0103   | 4810000000-E | 1205  | PAINT PAVEMENT MARKING LINES (4")                            | 20,075<br>LF  | 0.30           | 6,022.50   |
| 0104   | 4820000000-E | 1205  | PAINT PAVEMENT MARKING LINES (8")                            | 1,598<br>LF   | 0.70           | 1,118.60   |
| 0105   | 4825000000-E | 1205  | PAINT PAVEMENT MARKING LINES<br>(12")                        | 116<br>LF     | 0.80           | 92.80      |
| 0106   | 4845000000-N | 1205  | PAINT PAVEMENT MARKING SYMBOL                                | 6<br>EA       | 50.00          | 300.00     |
| 0107   | 4900000000-N | 1251  | PERMANENT RAISED PAVEMENT<br>MARKERS                         | 241<br>EA     | 10.00          | 2,410.00   |
| 0108   | 4915000000-E | 1264  | 7' U-CHANNEL POSTS                                           | 5<br>EA       | 56.00          | 280.00     |
| 0109   | 4955000000-N | 1264  | OBJECT MARKERS (END OF ROAD)                                 | 5<br>EA       | 115.00         | 575.00     |

| Line # | ItemNumber   | Sec # | Description                           | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|---------------------------------------|---------------|----------------|------------|
| 0110   | 5326200000-E | 1510  | 12" WATER LINE                        | 986 LF        | 116.00         | 114,376.00 |
| 0111   | 5329000000-E | 1510  | DUCTILE IRON WATER PIPE FITTINGS      | 740 LB        | 12.50          | 9,250.00   |
| 0112   | 5540000000-E | 1515  | 6" VALVE                              | 2 EA          | 2,750.00       | 5,500.00   |
| 0113   | 5558000000-E | 1515  | 12" VALVE                             | 1 EA          | 5,800.00       | 5,800.00   |
| 0114   | 5589200000-E | 1515  | 2" AIR RELEASE VALVE                  | 1 EA          | 12,800.00      | 12,800.00  |
| 0115   | 5666000000-N | 1515  | FIRE HYDRANT                          | 2 EA          | 9,140.00       | 18,280.00  |
| 0116   | 5673000000-E | 1515  | FIRE HYDRANT LEG                      | 27 LF         | 102.00         | 2,754.00   |
| 0117   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>2" PVC CASING | 946 LF        | 16.70          | 15,798.20  |
| 0118   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>4" PVC CASING | 3,730 LF      | 20.10          | 74,973.00  |
| 0119   | 5888000000-E | SP    | GENERIC UTILITY ITEM<br>6" PVC CASING | 1,884 LF      | 24.80          | 46,723.20  |
| 0120   | 6000000000-E | 1605  | TEMPORARY SILT FENCE                  | 21,360 LF     | 2.70           | 57,672.00  |
| 0121   | 6006000000-E | 1610  | STONE FOR EROSION CONTROL,<br>CLASS A | 1,350 TON     | 54.00          | 72,900.00  |
| 0122   | 6009000000-E | 1610  | STONE FOR EROSION CONTROL,<br>CLASS B | 3,200 TON     | 56.00          | 179,200.00 |
| 0123   | 6012000000-E | 1610  | SEDIMENT CONTROL STONE                | 2,940 TON     | 46.00          | 135,240.00 |
| 0124   | 6015000000-E | 1615  | TEMPORARY MULCHING                    | 20.5 ACR      | 1,500.00       | 30,750.00  |
| 0125   | 6018000000-E | 1620  | SEED FOR TEMPORARY SEEDING            | 1,200 LB      | 3.00           | 3,600.00   |
| 0126   | 6021000000-E | 1620  | FERTILIZER FOR TEMPORARY<br>SEEDING   | 6.5 TON       | 900.00         | 5,850.00   |
| 0127   | 6024000000-E | 1622  | TEMPORARY SLOPE DRAINS                | 1,350 LF      | 15.80          | 21,330.00  |
| 0128   | 6029000000-E | SP    | SAFETY FENCE                          | 1,560 LF      | 3.00           | 4,680.00   |
| 0129   | 6030000000-E | 1630  | SILT EXCAVATION                       | 10,810 CY     | 11.80          | 127,558.00 |
| 0130   | 6036000000-E | 1631  | MATTING FOR EROSION CONTROL           | 46,000 SY     | 1.45           | 66,700.00  |
| 0131   | 6037000000-E | SP    | COIR FIBER MAT                        | 100 SY        | 6.00           | 600.00     |
| 0132   | 6042000000-E | 1632  | 1/4" HARDWARE CLOTH                   | 3,940 LF      | 3.50           | 13,790.00  |



| Line # | ItemNumber   | Sec # | Description                        | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|------------------------------------|---------------|----------------|------------|
| 0133   | 6045000000-E | SP    | *** TEMPORARY PIPE (24")           | 270 LF        | 50.00          | 13,500.00  |
| 0134   | 6045000000-E | SP    | *** TEMPORARY PIPE (30")           | 430 LF        | 66.00          | 28,380.00  |
| 0135   | 6045000000-E | SP    | *** TEMPORARY PIPE (36")           | 370 LF        | 90.00          | 33,300.00  |
| 0136   | 6046000000-E | 1636  | TEMPORARY PIPE FOR STREAM CROSSING | 75 LF         | 205.00         | 15,375.00  |
| 0137   | 6070000000-N | 1639  | SPECIAL STILLING BASINS            | 4 EA          | 3,230.00       | 12,920.00  |
| 0138   | 6071012000-E | SP    | COIR FIBER WATTLE                  | 350 LF        | 10.50          | 3,675.00   |
| 0139   | 6071020000-E | SP    | POLYACRYLAMIDE (PAM)               | 170 LB        | 8.00           | 1,360.00   |
| 0140   | 6071030000-E | 1640  | COIR FIBER BAFFLE                  | 2,360 LF      | 7.00           | 16,520.00  |
| 0141   | 6071050000-E | SP    | *** SKIMMER (1-1/2")               | 7 EA          | 1,625.00       | 11,375.00  |
| 0142   | 6071050000-E | SP    | *** SKIMMER (2")                   | 1 EA          | 1,965.00       | 1,965.00   |
| 0143   | 6071050000-E | SP    | *** SKIMMER (2-1/2")               | 1 EA          | 2,175.00       | 2,175.00   |
| 0144   | 6084000000-E | 1660  | SEEDING & MULCHING                 | 25 ACR        | 2,575.00       | 64,375.00  |
| 0145   | 6087000000-E | 1660  | MOWING                             | 18 ACR        | 250.00         | 4,500.00   |
| 0146   | 6090000000-E | 1661  | SEED FOR REPAIR SEEDING            | 200 LB        | 6.00           | 1,200.00   |
| 0147   | 6093000000-E | 1661  | FERTILIZER FOR REPAIR SEEDING      | 1 TON         | 980.00         | 980.00     |
| 0148   | 6096000000-E | 1662  | SEED FOR SUPPLEMENTAL SEEDING      | 650 LB        | 6.00           | 3,900.00   |
| 0149   | 6108000000-E | 1665  | FERTILIZER TOPDRESSING             | 18.25 TON     | 1,025.00       | 18,706.25  |
| 0150   | 6111000000-E | SP    | IMPERVIOUS DIKE                    | 175 LF        | 100.00         | 17,500.00  |
| 0151   | 6114500000-N | 1667  | SPECIALIZED HAND MOWING            | 10 MHR        | 180.00         | 1,800.00   |
| 0152   | 6117000000-N | SP    | RESPONSE FOR EROSION CONTROL       | 75 EA         | 50.00          | 3,750.00   |
| 0153   | 6117500000-N | SP    | CONCRETE WASHOUT STRUCTURE         | 6 EA          | 4,600.00       | 27,600.00  |
| 0154   | 6120000000-E | SP    | CULVERT DIVERSION CHANNEL          | 41 CY         | 125.00         | 5,125.00   |
| 0155   | 6123000000-E | 1670  | REFORESTATION                      | 0.1 ACR       | 3,200.00       | 320.00     |

| Line # | ItemNumber   | Sec # | Description                                              | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|----------------------------------------------------------|---------------|----------------|------------|
| 0156   | 7048500000-E | 1705  | PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN)      | 12 EA         | 1,100.00       | 13,200.00  |
| 0157   | 7060000000-E | 1705  | SIGNAL CABLE                                             | 7,875 LF      | 2.50           | 19,687.50  |
| 0158   | 7120000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 3 SECTION)                     | 24 EA         | 1,100.00       | 26,400.00  |
| 0159   | 7132000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 4 SECTION)                     | 11 EA         | 1,400.00       | 15,400.00  |
| 0160   | 7144000000-E | 1705  | VEHICLE SIGNAL HEAD (12", 5 SECTION)                     | 1 EA          | 1,900.00       | 1,900.00   |
| 0161   | 7288000000-E | 1715  | PAVED TRENCHING (*****)<br>(2, 2")                       | 175 LF        | 30.00          | 5,250.00   |
| 0162   | 7300000000-E | 1715  | UNPAVED TRENCHING (*****)<br>(2, 2")                     | 3,150 LF      | 14.00          | 44,100.00  |
| 0163   | 7301000000-E | 1715  | DIRECTIONAL DRILL (*****)<br>(2, 2")                     | 1,125 LF      | 31.00          | 34,875.00  |
| 0164   | 7324000000-N | 1716  | JUNCTION BOX (STANDARD SIZE)                             | 23 EA         | 825.00         | 18,975.00  |
| 0165   | 7348000000-N | 1716  | JUNCTION BOX (OVER-SIZED, HEAVY DUTY)                    | 11 EA         | 1,300.00       | 14,300.00  |
| 0166   | 7444000000-E | 1725  | INDUCTIVE LOOP SAWCUT                                    | 2,100 LF      | 12.00          | 25,200.00  |
| 0167   | 7575142010-N | 1736  | 900MHZ SERIAL/ETHERNET SPREAD SPECTRUM RADIO             | 2 EA          | 9,000.00       | 18,000.00  |
| 0168   | 7588000000-N | SP    | METAL POLE WITH SINGLE MAST ARM                          | 11 EA         | 24,100.00      | 265,100.00 |
| 0169   | 7613000000-N | SP    | SOIL TEST                                                | 11 EA         | 1,600.00       | 17,600.00  |
| 0170   | 7614100000-E | SP    | DRILLED PIER FOUNDATION                                  | 60.5 CY       | 1,400.00       | 84,700.00  |
| 0171   | 7631000000-N | SP    | MAST ARM WITH METAL POLE DESIGN                          | 11 EA         | 500.00         | 5,500.00   |
| 0172   | 7636000000-N | 1745  | SIGN FOR SIGNALS                                         | 23 EA         | 525.00         | 12,075.00  |
| 0173   | 7642200000-N | 1743  | TYPE II PEDESTAL WITH FOUNDATION                         | 12 EA         | 3,650.00       | 43,800.00  |
| 0174   | 7684000000-N | 1750  | SIGNAL CABINET FOUNDATION                                | 4 EA          | 3,200.00       | 12,800.00  |
| 0175   | 7696000000-N | 1751  | CONTROLLERS WITH CABINET<br>(*****)<br>(2070LX BASE MTD) | 4 EA          | 22,500.00      | 90,000.00  |
| 0176   | 7744000000-N | 1751  | DETECTOR CARD (TYPE 170)                                 | 25 EA         | 300.00         | 7,500.00   |
| 0177   | 7901000000-N | 1753  | CABINET BASE EXTENDER                                    | 4 EA          | 650.00         | 2,600.00   |



| Line # | ItemNumber   | Sec # | Description                                                              | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|--------------------------------------------------------------------------|---------------|----------------|------------|
| 0178   | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>ETHERNET EDGE SWITCH                              | 2<br>EA       | 1,750.00       | 3,500.00   |
| 0179   | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>INSTALL CELLULAR MODEM AND<br>ANTENNA             | 1<br>EA       | 2,500.00       | 2,500.00   |
| 0180   | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>PROTECTIVE COATING FOR SINGLE<br>MAST ARM POLE    | 11<br>EA      | 4,450.00       | 48,950.00  |
| 0181   | 7980000000-N | SP    | GENERIC SIGNAL ITEM<br>PROTECTIVE COATING FOR TYPE II<br>SIGNAL PEDESTAL | 11<br>EA      | 275.00         | 3,025.00   |

## Contract Item Sheets For C204933

| Line #        | ItemNumber   | Sec # | Description                                      | Quantity Unit | Unit Bid Price | Amount Bid |
|---------------|--------------|-------|--------------------------------------------------|---------------|----------------|------------|
| CULVERT ITEMS |              |       |                                                  |               |                |            |
| 0182          | 8126000000-N | 414   | CULVERT EXCAVATION, STA *****<br>(108+98.22 -L-) | LUMP SUM      | 50,000.00      | 50,000.00  |
| 0183          | 8126000000-N | 414   | CULVERT EXCAVATION, STA *****<br>(124+63.87 -L-) | LUMP SUM      | 60,000.00      | 60,000.00  |
| 0184          | 8133000000-E | 414   | FOUNDATION CONDITIONING<br>MATERIAL, BOX CULVERT | 638<br>TON    | 80.00          | 51,040.00  |
| 0185          | 8196000000-E | 420   | CLASS A CONCRETE (CULVERT)                       | 1,202.8<br>CY | 600.00         | 721,680.00 |
| 0186          | 8245000000-E | 425   | REINFORCING STEEL (CULVERT)                      | 177,098<br>LB | 1.95           | 345,341.10 |



## Contract Item Sheets For C204933

| Line #                                 | ItemNumber   | Sec # | Description                                                                            | Quantity Unit | Unit Bid Price | Amount Bid      |
|----------------------------------------|--------------|-------|----------------------------------------------------------------------------------------|---------------|----------------|-----------------|
| WALL ITEMS                             |              |       |                                                                                        |               |                |                 |
| 0187                                   | 8802014000-E | SP    | SOLDIER PILE RETAINING WALLS                                                           | 3,818 SF      | 305.77         | 1,167,429.86    |
| 0188                                   | 8847000000-E | SP    | GENERIC RETAINING WALL ITEM<br>SIMULATED STONE FORM LINER<br>SYSTEM AND SURFACE FINISH | 3,818 SF      | 12.42          | 47,419.56       |
| TOTAL AMOUNT OF BID FOR ENTIRE PROJECT |              |       |                                                                                        |               |                | \$14,818,648.21 |

1248/Mar31/Q731747.406/D757109668010/E188

|                              |                                                                 |
|------------------------------|-----------------------------------------------------------------|
| Contract Number              | C204933                                                         |
| Tip Number                   | R-5930B                                                         |
| Standard Specifications Year | 2018                                                            |
| County and Route             | CHATHAM -CHATHAM PARKWAY FROM NORTH OF GRANT DR TO US-15/US-501 |

### 2018 Bid Items Eligible for Steel Price Adjustment

Instructions: This form shall be completed in accordance with the Special Provision. If you choose to have Steel Price Adjustments applied to any of the items listed below, select the word "Yes" in the "Option" column corresponding to the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required by the Special Provision.

[illegible]



Contract No. C204933

Rev. 10-31-24

County Chatham

**EXECUTION OF CONTRACT  
NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION**

**CORPORATION**

The Contractor declares (or certifies, verifies, or states) under penalty of perjury under the laws of the United States that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating N.C.G.S. § 133-24 within the last three years, and that the Contractor intends to do the work with its own bona fide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, non-collusion, debarment and gift ban certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

**SIGNATURE OF CONTRACTOR**

Barnhill Contracting Company

Full name of Corporation

PO Box 7948, Rocky Mount, NC 27804

Address as prequalified

Attest

Stacey L. Morgan  
Signature of ~~Secretary~~ Assistant Secretary  
Select appropriate title

By

Kelly Barnhill  
Signature of ~~President~~ Vice President, Assistant Vice President  
Select appropriate title

Stacey L. Morgan

Print or type Signer's name

Kelly Barnhill

Print or type Signer's name

**CORPORATE SEAL**



**DEBARMENT CERTIFICATION**

## Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.



**DEBARMENT CERTIFICATION**

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.

Contract No. C204933

County (ies): Chatham

ACCEPTED BY THE  
DEPARTMENT OF TRANSPORTATION

Signed by:

Ronald E. Davenport, Jr.

52C45060351F443...

Contract Officer

04/19/2025

Date

Execution of Contract and Bonds  
Approved as to Form:

Signed by:

Emily Loree

00B6FA7F705F4C9...

Attorney General

04/16/2025

Date

Signature Sheet (Bid - Acceptance by Department)



Contract No  
County

C204933  
Chatham

Rev. 10-31-24

## CONTRACT PAYMENT BOND

Date of Payment Bond Execution March 31, 2025

Name of Principal Contractor Barnhill Contracting Company

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: North Carolina Department of Transportation  
Raleigh, North Carolina

Amount of Bond: \$14,818,648.21

Contract ID No.: C204933

County Name: Chatham

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No. C204933  
County Chatham

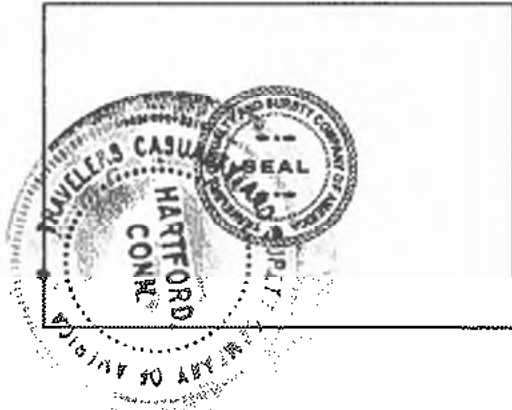
Rev 10-31-24

### CONTRACT PAYMENT BOND

*Affix Seal of Surety Company*

Travelers Casualty and Surety Company of America 31194  
Print or type Surety Company Name NAIC #

By Angela D. Ramsey  
Print, stamp or type name of Attorney-in-Fact



Angela D. Ramsey  
Signature of Attorney-in-Fact

J. C. Hoehn  
Signature of Witness

Jennifer C. Hoehn  
Print or type Signer's name

6100 Fairview Rd., Charlotte, NC 28210  
Address of Attorney-in-Fact



Contract No.  
County

C204933  
Chatham

Rev 10-31-24

**CONTRACT PAYMENT BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

Barnhill Contracting Company

Full name of Corporation

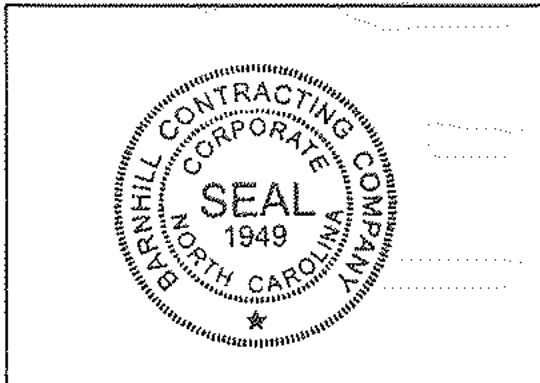
P.O. Box 7948, Rocky Mount, NC 27804

Address as prequalified

By

*Kelly Branly*

Signature of President, Vice President, Assistant Vice President  
Select appropriate title



Affix Corporate Seal

*Kelly Branly*

Print or type Signer's name

Attest

*Stacey Morgan*

Signature of Secretary, Assistant Secretary  
Select appropriate title

*STACEY MORGAN*

Print or type Signer's name

Contract No. C204933  
County Chatham

Rev 10-31-24

Bond No.: 108209426

### CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: March 31, 2025

Name of Principal Contractor: Barnhill Contracting Company

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: North Carolina Department of Transportation

Raleigh, North Carolina

Amount of Bond: \$14,818,648.21

Contract ID No.: C204933

County Name: Chatham

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.



Contract No. C204933  
County Chatham

Rev 10-31-24

### CONTRACT PERFORMANCE BOND

*Affix Seal of Surety Company*

Travelers Casualty and Surety Company of America 31194  
Print or type Surety Company Name NAIC #

By Angela D. Ramsey  
Print, stamp or type name of Attorney-in-Fact

Angela Ramsey  
Signature of Attorney-in-Fact

[Signature]  
Signature of Witness

Jennifer C. Hoehn  
Print or type Signer's name

6100 Fairview Rd., Charlotte, NC 28210  
Address of Attorney-in-Fact

Contract No. C204933  
County Chatham

Rev 10-31-24

**CONTRACT PERFORMANCE BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

Barnhill Contracting Company

Full name of Corporation

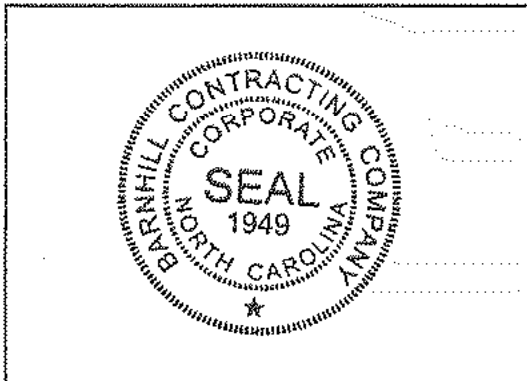
P.O. Box 7948, Rocky Mount, NC 27804

Address as prequalified

By

Kelly Barnhill

Signature of ~~President~~ Vice President, Assistant ~~Vice President~~  
Select appropriate title



Affix Corporate Seal

Kelly Barnhill

Print or type Signer's name

Attest

Stacey L Morgan

Signature of Secretary Assistant Secretary  
Select appropriate title

STACEY L MORGAN

Print or type Signer's name





Travelers Casualty and Surety Company of America  
Travelers Casualty and Surety Company  
St. Paul Fire and Marine Insurance Company  
Farmington Casualty Company

#### POWER OF ATTORNEY

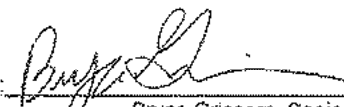
Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, St. Paul Fire and Marine Insurance Company, and Farmington Casualty Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and the Companies do hereby make, constitute and appoint Angela D. Ramsey of Charlotte, NC, their true and lawful Attorney(s)-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this 4th day of March 2024.



State of Connecticut

City of Hartford ss.

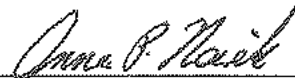
By:   
Bryce Grissom, Senior Vice President

On this the 4th day of March, 2024, before me personally appeared Bryce Grissom, who acknowledged himself to be the Senior Vice President of each of the Companies, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the 30th day of June, 2026



  
Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of each of the Companies, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her, and it is

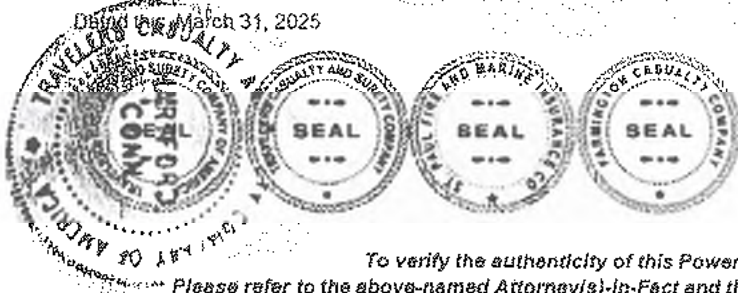
FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary, and it is

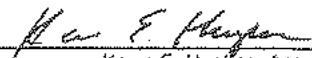
FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary, or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority, and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary of each of the Companies, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this March 31, 2025



  
Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.

Please refer to the above-named Attorney(s)-in-Fact and the details of the bond to which this Power of Attorney is attached.