

# **POPLAR TENT 24 Inch Water Line**

**Project No.: 2018-026**

**Bid No. 2450**

## **ADDENDUM 1**

**July 17, 2020**

To all bidders:

Please make note of Addendum 1 and acknowledge receipt in the Bid Form of the Bid Documents.

Please replace pages 16 through 41 of the existing Bid Documents with attached revised pages 16 through 41 dated July 17, 2020.

End of Addendum 1

**EXHIBIT A – BID**  
**FORM REVISED**  
**7/17/2020**

| <b>Item</b> | <b>NCDOT Section</b> | <b>Item Description</b>  | <b>Quantity</b> | <b>Units</b> | <b>Unit Price Bid</b> | <b>Amount Bid</b> |
|-------------|----------------------|--|-----------------|--------------|-----------------------|-------------------|
| 1.          | 800                  | Mobilization (Max 5% of Base Bid Price)                                      | 1               | LS           |                       |                   |
| 2.          | 801                  | Construction Surveying   | 1               | LS           |                       |                   |
| 3.          | SP-12                | Comprehensive Grading  | 1               | LS           |                       |                   |
| 4.          | SP-02                | 24" Ductile Iron, PC350 Pressure Class Pipe & Fittings, Restrained & Push-On | 4,463           | LF           |                       |                   |
| 5.          | SP-03                | 12" Ductile Iron, PC350 Pressure Class Pipe & Fittings, Restrained & Push-On | 270             | LF           |                       |                   |
| 6.          | SP-04                | 24" Gate Valves  | 4               | EA           |                       |                   |
| 7.          | SP-04                | 12" Gate Valves  | 1               | EA           |                       |                   |
| 8.          | 1515                 | Fire Hydrant Assemblies  | 3               | EA           |                       |                   |
| 9.          | SP-04                | 24" Insert Valve   | 1               | EA           |                       |                   |
| 10.         | 265                  | Select Backfill  | 200             | CY           |                       |                   |
| 11.         | SP-11                | Rock Removal   | 1,000           | CY           |                       |                   |
| 12.         | SP-16                | Full Depth Asphalt Roadway Replacement                                       | 500             | TN           |                       |                   |
| 13.         | SP-16                | Concrete Driveway Replacement  | 65              | SY           |                       |                   |
| 14.         | SP-16                | Asphalt Driveway Replacement   | 510             | SY           |                       |                   |
| 15.         | SP-05                | Temporary Traffic Control Measures   | 1               | LS           |                       |                   |
| 16.         | SP-15                | Erosion Control Measures   | 4,733           | LF           |                       |                   |
| 17.         | 1660                 | Seeding & Mulching   | 1               | LS           |                       |                   |

|   |       |  |       |    |  |  |
|---|-------|--|-------|----|--|--|
| 18.   | 310   | 12" RC Pipe Culvert, Class IV          | 56    | LF |  |  |
| 19.   | 310   | 15" RC Pipe Culvert, Class IV          | 52    | LF |  |  |
| 20.   | 310   | 24" RC Pipe Culvert, Class IV          | 12    | LF |  |  |
| 21.   | SP-10 | Flushing, Testing, Disinfection        | 1     | LS |  |  |
| 22.   | SP-10 | Tie-In to Existing 24" Water Lines     | 2     | EA |  |  |
| 23.   | SP-10 | Tie-In to Existing 12" Water Lines     | 2     | EA |  |  |
| 24.   | SP-17 | Petroleum Laden Soils Removal          | 950   | CY |  |  |
| 25.   | SP-14 | Structure Assessment Report            | 58    | EA |  |  |
| 26.   | SP-14 | Foundation Protection At Addresses     | 58    | EA |  |  |
| 27.   | SP-14 | Foundation Protection (Active Shoring) | 7,000 | SF |  |  |
| <b>Base Bid Price</b>   |       |  |       |    |  |  |
| <b>Contingency Allowance (10% of Base Bid Price)</b>            |       |  |       |    |  |  |
| <b>Total Bid Price (Base Bid Price + Contingency Allowance)</b> |       |  |       |    |  |  |

5) Bidder agrees that all work will be completed and ready for final payment within **180** calendar days from the date of notice to proceed.

SIGNATURE OF BIDDER: \_\_\_\_\_

Contractor's License Number \_\_\_\_\_ License Expiration Date \_\_\_\_\_

If an Individual

By \_\_\_\_\_  
(signature of individual)

doing business as \_\_\_\_\_

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

If a Partnership

By \_\_\_\_\_  
(firm name)

\_\_\_\_\_  
(signature of general partner)

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

If a Corporation

By \_\_\_\_\_  
(corporation name)

By \_\_\_\_\_ Title \_\_\_\_\_ (signature of authorized person)

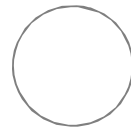
Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

(Seal)



**If a Joint Venture (Other party must sign below.)**

By (name) \_\_\_\_\_

Contractor's License Number \_\_\_\_\_ License Expiration Date \_\_\_\_\_

If an Individual

By \_\_\_\_\_  
(signature of individual)

doing business as \_\_\_\_\_

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

If a Partnership

By \_\_\_\_\_  
(firm name)

\_\_\_\_\_  
(signature of general partner)

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

If a Corporation

By \_\_\_\_\_  
(corporation name)

By \_\_\_\_\_ Title \_\_\_\_\_  
(signature of authorized person)

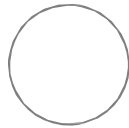
Business address \_\_\_\_\_

Phone No. \_\_\_\_\_

Date \_\_\_\_\_, 20\_\_\_\_

ATTEST \_\_\_\_\_ TITLE \_\_\_\_\_

(Seal)



**PERFORMANCE BOND**

Date of Execution of this Bond \_\_\_\_\_

Name and Address of Principal (Contractor) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name and Address of Surety \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name and Address of Contracting Body \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Amount of Bond \_\_\_\_\_  
\_\_\_\_\_

Contract                    That certain contract by and between the Principal and the Contracting Body above named  
dated \_\_\_\_\_  
for \_\_\_\_\_  
\_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that we, the 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, identified 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 the 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.

**PERFORMANCE BOND: (Continued)**

THIS PERFORMANCE BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Section 129 of Chapter 143 and in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals as of the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned and representative, pursuant to authority of its governing body.

WITNESS:

\_\_\_\_\_  
(Proprietorship or Partnership)  
Printed Name \_\_\_\_\_

\_\_\_\_\_  
Principal (Name of individual and trade name,  
partnership, corporation, or jointventure)

BY \_\_\_\_\_ (SEAL)  
Printed Name \_\_\_\_\_

TITLE \_\_\_\_\_  
(Owner, Partner, Office held in  
corporation, joint venture)

ATTEST: (Corporation)

**(Corporate Seal of Principal)**

BY \_\_\_\_\_  
Printed Name \_\_\_\_\_

TITLE \_\_\_\_\_  
(Corporation Secretary or  
Assistant Secretary Only)

WITNESS:

\_\_\_\_\_  
Surety (Name of Surety Company)

BY \_\_\_\_\_  
Printed Name \_\_\_\_\_

TITLE \_\_\_\_\_ Attorney in Fact

**(Corporate Seal of Surety)**

COUNTERSIGNED:

\_\_\_\_\_  
(Address of Attorney in Fact)

\_\_\_\_\_  
N.C. Licensed Resident Agent

## **PROJECT SPECIAL PROVISIONS**

### **Section 1.0 General Requirements**

1.1. Contractor shall utilize the latest edition of NCDOT Standard Specifications & Standard Drawings for Roads and Structures, the City of Concord Technical Standards, and Water & Sewer Authority of Cabarrus County Technical Standard specifications, the most restrictive requirement shall apply unless otherwise noted. NCDOT Article Numbers in the Bid Form and these Project Special Provisions reference the NCDOT Standard Specifications for Roadways and Structures.

Whenever the following terms are used in the NCDOT Standard Specifications, in any of the Contract Documents, or in the plans, the intended meaning of such terms shall be as follows:

- 1.1.1. **“Administrator”**, **“Chief Engineer”**, or **“State Highway Administrator”** shall mean the **“City Engineer”**
- 1.1.2. **“Alternate”** or **“Alternate Bid”** shall mean the amount stated in the Bid which may be added to or subtracted from the Base Bid amount if such Alternate(s) are accepted by the City.
- 1.1.3. **“Total Amount Bid”**, **“Total Base Bid”** or **“Total Cost”** shall mean the correct sum total obtained by adding together the amounts bid for every item in the proposal including contingencies or allowances, but excluding Alternates.
- 1.1.4. **“Board of Transportation”** shall mean **“City Council”**
- 1.1.5. **“City”** shall mean the **“City of Concord, North Carolina”**; the City is the Project Owner
- 1.1.6. **“Construction Manager”**, **“Engineer”**, or **“Resident Engineer”** shall mean the City’s duly authorized Construction Manager to oversee the construction of the project
- 1.1.7. **“Contract”** shall mean the reciprocal undertakings, obligations, and rights of the City and the Contractor evidenced by the executed agreement and other Contract Documents between the City and the Contractor, covering the performance of and compensation of the Work.
- 1.1.8. **“Contract Amount”**, **“Total Contract Amount”** or **“Contract Sum”** shall mean the Total Base Bid plus Alternates accepted by the City.
- 1.1.9. **“Contract Documents”** shall consist of the Project Manual, the Contractor’s executed bid and forms, Acceptance by the City, and any change orders issued after execution of the contract.
- 1.1.10. **“Date of Availability”** shall mean **“Notice to Proceed Date”**
- 1.1.11. **“Department”**, **“Department of Transportation”**, **“Division of Highways”**, and **“Raleigh Central Office”** shall all mean **“City of Concord Water Resources - Stormwater Services”**
- 1.1.12. **“Project Manual”** shall mean the complete set of bidding documents issued by the City of Concord or its authorized representatives, to include the Invitation to Bid, Instructions to Bidders, Bid Forms, sample project forms, conditions and special provisions of the contract, addenda issued prior to the execution of the contract, and drawings.
- 1.1.13. **“State”** shall mean **“City of Concord”**
- 1.1.14. **“Supplemental Agreements”** shall mean **“Change Orders”**

1.2. The Contractor shall adhere to the provisions of the 1985 Underground Damage



Prevention Act, North Carolina General Statutes 887, Chapter 785, Senate Bill 168, Article 3. To assist the Contractor and utility owners in meeting the requirements of this law, there is a service provider called "NC811." Most major utilities with underground facilities in the State subscribe to this service.

From within North Carolina, dial 811. For calls originating outside (or inside) of North Carolina, the toll free number (800) 632-4949 may be used. NC811 can also be accessed via the Internet at <http://nc811.org/homepage.htm>.

The Contractor shall include the cost of any coordination and cooperation of utilities in his bid.

No additional compensation shall be allowed for delays or inconvenience sustained by the Contractor due to utility relocation or adjustments. No additional payment will be made for re-mobilization required by the utility's failure to relocate a utility at the request of the Contractor. Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes, and the Contractor shall bear all costs of such changes.

- 1.3. All concrete used on City projects will be required to meet the NCDOT Standard Specifications for Roadways and Structures.
- 1.4. Maintenance of the Project shall be in accordance with Section 104-10 of the NCDOT Standard Specifications.

The Contractor shall furnish and erect, at no additional cost to the City, whatever sidewalks, bridges, culverts, or other works as may be necessary for the protection of the public, including, but not limited to, barricades, fences, etc. and for the safe and proper execution of other public utility lines so as not to interfere therewith or damage or cause damage thereto. The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault, omission, or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed hereunder until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the City.

- 1.5. The Contractor shall be responsible for locating and providing storage areas for construction materials and equipment. The material and equipment storage shall comply with all local and state ordinances throughout the construction period. The Contractor shall restore the storage area to its original condition upon completion of the Project or upon such time as directed by the Engineer. Such restoration shall be at no additional cost to the City.

The Contractor shall be responsible for the safeguarding of materials and equipment against fire, theft and vandalism and shall not hold the City responsible in any way for the occurrences of same. The Contractor shall furnish and erect, at no additional cost, whatever works may be necessary for the protection of the public, including but not limited to barricades, fences, etc. Prior to final payment being made, the Contractor shall obtain a release from the property owner of the storage area utilized for the Project.

- 1.6. All quantity tickets for items not measurable in place shall be submitted in duplicate to the Project Inspector within seventy-two (72) hours after receipt of the material on the job. Each ticket shall indicate the date, contractor, job location and name, type of material, quantity of material, truck number and signature of the Contractor or his authorized representative.

No tickets will be accepted after seventy-two (72) hours have elapsed between the time of delivery and the submittal of tickets to the Engineer.

- 1.7. Any Allowance included as a line item on the Itemized Bid Form, including but not limited to Contingency Allowances, may only be used by the Contractor upon written instructions from the Engineer. Any portion of any Allowance remaining at the end of the Contract shall revert to the City.

The City reserves the right to change any Allowance amount prior to award of the Contract.

- 1.8. The Contractor shall guarantee all materials and workmanship for a period of one (1) year from the date of acceptance by the City and shall replace any portions that fail because of faulty materials or workmanship at no additional cost to the City. A six (6) month and eleven (11) month inspection will be held during the warranty period. The Contractor shall immediately repair all defective items upon notification. Items repaired under the provisions shall have an extended warranty period of twelve (12) months from the date of repair of the item.
- 1.9. The Contract Time will begin upon the issuance of the Notice to Proceed and will extend **180** calendar days thereafter. Liquidated Damages will be assessed at the rate of **\$1,000.00 per calendar day** for failure to complete the Project within the Contract Period. Time is of the essence for this project given other projects that are modifying the pressure zones.
- 1.10. No work shall be performed on the Project, which is subject to measurement or payment when City offices are closed for observed City holidays. This restriction does not relieve the Contractor from the responsibility of ensuring the safety and well-being of pedestrian and vehicular traffic, and for the protection of public and private property.

In emergencies and certain other conditions deemed necessary by the Engineer, the Contractor may be directed to work on weekends or holidays. There will be no separate measurement or payment for work done under these directives other than those established in the Contract.

- 1.11. The Engineer will determine acceptability of materials and construction in accordance with the applicable sections of these specifications.
- 1.12. Following the application of the appropriate acceptance plan, the decision of the Engineer shall be final as to the acceptance, rejection, or acceptance at an adjusted payment of defective materials.

Nonconforming materials, projects, items of construction, or complete construction that are not adaptable to correction by reworking shall be removed and replaced, accepted without payment, or accepted at an adjusted payment as stated in these specifications, or if not stated, as directed by the Engineer.

It is the intent of these specifications to provide an equitable means of accepting materials and work that may vary slightly from the specification range stated in the Standard Specifications in lieu of total rejection, removal, repair or nonpayment.

When materials or construction are not within specifications limits, an adjusted payment may be allowed as delineated in these specifications, except where the level and variability of test results indicate a degree of nonconformance with requirements so great as to make the material or construction unacceptable. Unacceptable material and construction shall be either reworked or replaced at no cost to the City. The Engineer reserves the right to reject questionable material at any time in lieu of making reduced payment.

- 1.13. Prior to utility installation, the Contractor must attend a pre-construction meeting with the City of Concord Engineering Staff, City of Concord Electric Department staff, and the City of Concord Construction Inspection staff.
- 1.14. The Contractor should provide the City of Concord personnel with a sequence of construction operations and projected timelines for proposed utility work required on the project (electric, water, sewer). This sequence of operations should include a summary of how existing utilities will be protected during construction operations.
- 1.15. Contractor shall be responsible for any and/or all associated costs, fines, fees or levies, including but not limited to: the City's labor, equipment, administrative costs, and/or legal fees; fines imposed

by any regulatory agencies; and/or any third party claims which might be resultant of sanitary sewer overflows and/or subsequent environmental impacts caused by the Contractor during the performance of the construction activities within this contract.

- 1.16. There have been no subsurface studies or testing completed within the vicinity of the proposed utility relocations. Any preliminary geotechnical information should not be considered exhaustive, and the Contractor should perform its own investigation before bidding the job.
- 1.17. All water main and sewer main materials, equipment, labor, and workmanship shall be in accordance with and subject to the Water and Sewer Authority of Cabarrus County's (WSACC) standard specifications; the City of Concord's ordinances, policies, and standard specifications, and the North Carolina Administrative Code for wastewater collection and water distribution systems. In the event of conflict between the Water and Sewer Authority of Cabarrus County's standard specifications; the City of Concord's ordinances, policies, and standard specifications, or the North Carolina Administrative Code, the more restrictive requirements shall apply.
- 1.18. The Contractor shall make every effort to minimize the duration of any water supply disruption and/or loss to the existing City of Concord customers. The Contractor must notify the assigned City of Concord Construction Inspector at least 48 hours in advance of any scheduled water service loss or disruption, and provide written notification on a City approved form to each City of Concord customers that specifies the day and duration of any scheduled water service loss or disruption and include the appropriate City contact numbers.
- 1.19. The Contractor shall be responsible for providing temporary potable water supplies to any customer upon request by the City and/or when the duration of the water service loss or disruption exceeds 4 hours.
- 1.20. The Contractor shall be responsible for complying with the current plumbing requirements associated with re-establishing the water service connection and obtaining all necessary plumbing permits, in accordance with the most current version of the North Carolina Plumbing Code. The plumbing requirements shall include, but not be limited to, the materials, equipment, labor, and workmanship associated with the installation of piping, valves and associated appurtenances on the private homeowners plumbing, in accordance with the most current version of the North Carolina Plumbing Code.

## Section 2.0 Special Provisions

### **SP-01. MOBILIZATION**

1. Mobilization will be paid on a lump sum basis and shall include costs incurred prior to beginning the Work, including permits, licenses, fees, insurance, bonds, equipment mobilization, and other associated expenses, in accordance with the Contract Documents. Payment will be limited to 5% of the Base Bid Price. One half of the mobilization amount bid will be paid with the first payment application, and the remainder paid with the second payment application. If an amount greater than 5% of the Base Bid Price is entered for mobilization, the difference in the percentage entered and 5% of the bid will be paid on the final payment.

#### 2. MEASUREMENT

There will be no separate measurement made for MOBILIZATION.

#### 3. PAYMENT

For the above-referenced NCDOT sections and numbered Additional City Specifications, there will be no direct measurement, payment or compensation, all cost incurred to complete the work as specified shall be included in the Lump Sum price bid for "MOBILIZATION".

There will be **no separate measurement or payment** for the items listed or referenced in this specification.

Payment will be made under:

MOBILIZATION ..... LS

Paid in two payments of 50% of the lump sum unit cost each.

**SP-02. 24” DUCTILE IRON PIPE**

Water mains will be measured for payment on a horizontal plane per linear foot after installation.

1.0 The unit price bid for 24” diameter pipe and fittings, regardless of push-on or restrained joint type, shall include furnishing all labor, materials, tools, equipment, pipe, fittings, jointing materials, pipe embedment, pipe embedment material, pipe laying, backfill trench, and associated appurtenances required for the installation of water main(s) complete, tested, and placed into satisfactory service in accordance with the Contract Documents; and all other costs not included under other bid items. The unit or lump sum price bid for each item of Work which involves excavation or trenching shall be based on and shall include earth excavation throughout, from and below the ground surface to the trench bottom as excavated, regardless of the location, extent, or quantity of rock which may be encountered; each such price shall further include, as a subsidiary obligation of Contractor. This shall also include, but is not limited to, the cost of the following:

- (a.) Special scheduling necessary to complete this project in an orderly manner, as dictated by right-of-way acquisition and/or encroachment issuance or required night work to tie-in during low demand times.
- (b.) For restoring the site to a condition equal to or better than original conditions.
- (c.) For temporary patching driveways, walkways, and roadways immediately following construction and maintaining same until final or permanent repairs can be made.
- (d.) For all coordination efforts with City of Concord water personnel regarding shutdowns.
- (e.) For installing temporary watertight plugs in the new line.
- (f.) For furnishing, placing, and compacting suitable native backfill materials from trench excavations.
- (g.) For stone bedding per the details for actual trench width excavated.
- (h.) For all trenching, excavation, and backfilling for installation.
- (i.) For temporary plating of excavations at end of each work day.
- (j.) For complying with all applicable OSHA regulations.
- (k.) For all costs to accurately stake out the project for construction.
- (n.) For all flushing, testing and disinfecting new water mains complete and in place to put new facilities into successful operation.
- (o.) For removal and re-laying of sanitary sewer laterals and water services where conflicts are encountered in the field during pipe installation.
- (p.) Polywrap in locations indicated on the drawings.
- (q.) Special Viton gaskets in locations indicated on drawings.

2.0 MEASUREMENT

Measurement will be made in the field by the City Inspector on a horizontal plane per linear foot after installation.

3.0 PAYMENT

For the above-referenced NCDOT sections and numbered Additional City Specifications, there will be no direct measurement, payment or compensation, all cost incurred to complete the work as specified shall be included in the Lump Sum price bid for "Comprehensive Grading".

There will be **no separate measurement or payment** for the items listed or referenced in this specification.

Payment will be made under:

24" DUCTILE IRON PIPE..... LF

**SP-03. 12" AND SMALLER DUCTILE IRON PIPE**

1.0 The unit price bid for 12" diameter pipe and fittings, regardless of push-on or restrained joint type, shall include furnishing all labor, materials, tools, equipment, pipe, fittings, jointing materials, pipe embedment, pipe embedment material, pipe laying, backfill trench, and associated appurtenances required for the installation of water main(s) complete, tested, and placed into satisfactory service in accordance with the Contract Documents; and all other costs not included under other bid items. The per foot price bid for each item of Work which involves excavation or trenching shall be based on and shall include earth excavation throughout, from and below the ground surface to the trench bottom as excavated, regardless of the location, extent, or quantity of rock which may be encountered; each such price shall further include, as a subsidiary obligation of Contractor. This shall also include, but is not limited to, the cost of the following:

- (a.) Special scheduling necessary to complete this project in an orderly manner, as dictated by right-of-way acquisition and/or encroachment issuance or required night work to tie-in during low demand times.
- (b.) For restoring the site to a condition equal to or better than original conditions.
- (c.) For temporary patching driveways, walkways, and roadways immediately following construction and maintaining same until final or permanent repairs can be made.
- (d.) For all coordination efforts with City of Concord water personnel regarding shutdowns.
- (e.) For installing temporary watertight plugs in the new line.
- (f.) For furnishing, placing, and compacting suitable native backfill materials from trench excavations.
- (g.) For stone bedding per the details for actual trench width excavated.
- (h.) For all trenching, excavation, and backfilling for installation.
- (i.) For temporary plating of excavations at end of each workday.
- (j.) For complying with all applicable OSHA regulations.
- (k.) For all costs to accurately stake out the project for construction.
- (n.) For all flushing, testing and disinfecting new water mains complete and in place to put new facilities into successful operation.
- (o.) For removal and re-laying of sanitary sewer laterals and water services where conflicts are encountered in the field during pipe installation.
- (p.) Polywrap in locations indicated on the drawings.
- (q.) Special Viton gaskets in locations indicated on drawings.

2.0 MEASUREMENT

Measurement will be made in the field by the City Inspector on a horizontal plane per linear foot after installation.

3.0 PAYMENT

For the above-referenced NCDOT sections and numbered Additional City Specifications, there will be no direct measurement, payment or compensation, all cost incurred to complete the work as specified shall be included in the Lump Sum price bid for "Comprehensive Grading".

There will be **no separate measurement or payment** for the items listed or referenced in this specification.

Payment will be made under:

12" DUCTILE IRON PIPE..... LF

**SP-04. VALVES**

For furnishing and installing gate valves in locations shown on the drawings. Shall include factory testing of gate valves, stone bedding encapsulating all gate valves, and all other accessories as indicated on the details on the drawings. Shall be measured on a per each basis.

For insert type valves, includes furnishing all materials, equipment, labor and incidentals required to furnish, install 24" insert valve in location indicated on drawings. Shall also include testing seal prior to valve installation. Insert valve shall have 10 mils Fusion bonded epoxy exterior NSF-61 approved, 2-inch operating nut, MJ connection, AWWA C515 materials, ductile iron manufacture, resilient wedge gate Team Inc InsertValve™, Hydra-Stop, or approved equal.

**SP-05. TRAFFIC CONTROL**

Beginning Work and Street Closings: The Contractor is responsible for notifying the City of Concord Transportation Department (Phillip Graham, PE: 704-920-5338) of any work where the number of travel lanes is reduced from normal conditions.

The Contractor shall install advance warning signs for the Project. These signs shall be in place for one week before construction activity begins. The Contractor shall begin construction activity on a street on the scheduled date for the closing of the travel lane.

During daily construction work hours, the Contractor will maintain at least one lane of traffic. During periods of construction inactivity, all lanes of traffic will be open unless otherwise shown on the plans or noted in the specifications.

Traffic Control Plan: Traffic control will be performed by the Contractor based upon the Traffic Control Special Provisions stipulated herein (SP-03) and as shown on the Drawings. The Traffic Control Special Provisions may refer to plan sheets for major work items, details in the NCDOT Roadway Standard Drawings, or the NCDOT Maintenance/Utility Traffic Control Guidelines.

All traffic control devices and procedures shall conform to the requirements of the current edition of the Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD), the current edition of the North Carolina Department of Transportation (NCDOT) Supplement to the *Manual on Uniform Traffic Control Devices for Streets and Highways*, the NCDOT Roadway Standard Drawings, the current edition of the NCDOT Standard Specifications for Roads and Structures, and NCDOT Work Zone Traffic Control guidelines.

The Contractor shall maintain the traffic control as described herein unless the Contractor submits an alternate traffic control plan to the Engineer and it is approved by the Engineer. The Engineer may direct the Contractor to modify the traffic control if, in the Engineer's opinion, traffic is not moving safely

or efficiently.

Traffic Control Phasing for this project shall be in accordance with the Traffic Control Plans, NCDOT Maintenance/Utility Traffic Control Guidelines, NCDOT Standard Drawings. The contractor shall adhere rigidly to these plans and details. If these details are not typical for field conditions, the details may be combined or altered upon approval of the Engineer. The standards and details are the minimum required. Additional signs, cones, drums, barricades and warning devices may be used, but at notime will less than what is specified on the plans, in the standards, and on diagrams be acceptable.

Maintenance of Traffic: The Contractor shall maintain all travel lanes in accordance with the Traffic Control notes.

The Contractor shall use flagger control in accordance with NCDOT Maintenance/Utility Traffic Control Guidelines.

In areas of drop-offs and low shoulders, the Contractor shall backfill up to the edge and elevation of the existing pavement in accordance with Section 3.3 of the NCDOT Maintenance/Utility Traffic Control Guidelines.

Reasonable ingress and egress shall be maintained to all businesses and dwellings affected by the work activity. Access to driveways shall not be blocked unless reasonable alternative access is available or unless permission to block the driveway is granted by the affected property owner and/or tenant. Special attention shall be paid to maintaining easy access to fire hydrants.

The Contractor shall not work on both sides of the road simultaneously within the same area.

The Contractor shall provide adequate drainage under driveways and within the Project area for the duration of the Project.

The Contractor shall mark all hazards within the Project limits with well-maintained signs, barricades, warning and/or channelizing devices.

Traffic Control Devices: The Contractor shall furnish, install, operate, relocate, maintain and remove all temporary traffic control devices necessary for controlling traffic. The Contractor shall notify City of Concord Transportation Department and NCDOT Division 10 regarding conflicting permanent signs. Only City of Concord Transportation Department or NCDOT forces shall install, remove or relocate any permanent signs within the right- of-way. All construction signs and barricades shall remain in place until the appropriate permanent signs and pavement markings are installed.

Pedestrian Considerations: The Contractor shall accommodate the needs of all pedestrians in accordance with Chapter 5 of the NCDOT Maintenance/Utility Traffic Control Guidelines.

Equipment and Material Storage: During periods of construction inactivity, all construction equipment and materials may be stored in the right-of-way or temporary project easement but must be placed safely fifteen (15) or more feet away from any open travel lane. It is recommended that all construction equipment and materials be stored on private property, which is posted against trespassing. It is the responsibility of the Contractor performing the work to obtain the permission to use a property for this purpose.

Excavation and Trenches: Trenches or excavations, which cannot be properly backfilled and patched prior to the end of the workday may be bridged to permit an unobstructed flow of traffic. Trench walls and adjacent soils shall be sufficiently stabilized prior to the use of steel plates for bridging.

- Bridging must be secured against displacement by using adjustable cleats, angles, bolts, or other devices to prevent movement by traffic.
- The trench must be adequately shored to support the bridging and traffic.
- Steel plates used for bridging must extend 1 foot beyond the edges of the trench. Temporary paving materials (premix) should be used to feather the edges of the plate to minimize wheel impact.

All excavation in the public rights-of-way shall be in compliance with all current Occupational Safety and Health Act (OSHA) requirements. Any persons in an excavation not in compliance with OSHA regulations will be ordered out of the excavation until it is brought into compliance. OSHA-N.C. inspectors may be notified of any excavation not brought into compliance when ordered or if a contractor or utility company repeatedly violates OSHA regulations.

All agencies working within the public right-of-way shall comply with all of the provisions of the Underground Damage Prevention Act (Section 1, Chapter 87, Article 3 of the North Carolina General Statutes). The North Carolina 811 (NC811) is available to assist you with meeting the provisions of this act. Contacting NC811 (811) is sufficient notification to most utilities; however, the Contractor is also responsible for contacting those utilities in the area, which are not members of the NC811. Except in cases of emergency, requests for underground utility locates must be made at least 48 hours, but no more than 2 weeks, before an excavation is begun. NC811 requires that the Contractor mark the proposed excavation area limits with soluble white paint. The Contractor is responsible for any damage, which may result, from the failure to have all underground utilities properly located or for not following proper procedures in the vicinity of properly marked underground utilities.

Crane Work: All crane activity within the public rights-of-way shall comply with all current OSHA requirements. No crane operator shall swing or lift a load over an open travel lane, open sidewalk, or any other part of the public right-of-way open for use by the public.

The crane operator should avoid swinging a load over the public rights-of-way. If the operator must swing/lift a load over or near an open right-of-way, the responsible party shall follow all relevant lane closure details. The crane operator shall not swing or lift a load in a manner that endangers the public.

Payment for traffic control shall consist of furnishing, installing and maintaining all traffic control measures for the entire contract period. Shall include all phasing and requirements as outlined in the Contract Drawings.

**Payment:**

Shall be paid on a percentage of work completed , no less than 4 payments of 25% each of the LUMP SUM unit price as approved by the Owner.

**SP-06. NDEQ SEDIMENTATION AND EROSION CONTROL PLAN**

Contractor shall adhere to all the requirements of the approved plan with modifications dated March 5, 2018. The approved plan with modifications is appended following the General Conditions. Details are included on the plans.

**SP-07. NCDOT UTILITY ENCROACHMENT CONTRACT**

Contractor shall adhere to all the requirements of the approved encroachment. The approved contract is appended following the General Conditions.

**SP-08. HIGH VOLTAGE POWER POLES**

No explosive blasting of rock is to occur within 200LF of a high voltage power pole (indicated on the drawings) on this project or within 50 feet of any building structure. Contractor shall use other non-explosive means to remove solid rock when digging within this exclusion zone. Other means may include use of drilling rock and using expansion gel, drilling and installing expansion grout, rock hammer/hoel ram/bull-point attachment on excavator, or other non-explosive method as approved by the Owner.

Contractor to maintain adequate and safe clearances from existing overhead power lines. City of Poplar Tent Road 24" Water Line Extension



Concord operates and maintains High voltage power lines. All water line work to be constructed carefully and work shall be coordinated with City of Concord Electric Department (Scott Chun) minimum of 72 hours in advance of construction.

All areas with safety fencing around overhead electric power poles shall be labeled "Do Not Disturb". If blasting is required, the maximum Peak Particle Velocity (PPV) shall be 2 inches per second with a maximum air blast of 130 decibels. Blast plan must be submitted and approved 14 days prior to blasting. Contractor shall obtain a blasting permit from the City of Concord Fire Marshall. The Contractor shall be responsible for any and all damages to the distribution or transmission facilities. Blasting mats shall be used to control fly rock debris.

### **SP-09. RESTORATION OF DRIVEWAYS**

Restoration of Driveways: All driveways to be crossed will be saw-cut if asphalt or concrete. Asphalt driveways removed for construction shall be replaced with 6" ABC stone and 6" B25.0C asphalt course to original grades to match existing driveway elevations. Concrete driveways shall be replaced with 6" ABC stone and 6" 3,600psi concrete to original grades to match existing driveway elevations. Existing gravel driveways shall be furnished with minimum 6" ABC stone base to original grades. Payment for asphalt driveways shall be included under Pay Item 14. Payment for concrete driveway replacement shall be included under Pay Item 13. Stone driveway replacement shall be incidental to the work.

### **SP-10. COORDINATION OF SHUTDOWNS OF ACTIVE WATER LINES WITH CITY OF CONCORD**

Coordinate shutdowns of existing water lines with City personnel. Tie-in at Station 54+72 +/- is to take place within one single 6-hour shutdown during night hours. Contractor shall perform all preliminary work ahead of time and have all materials and equipment on site prior to shutdown. Contractor shall provide minimum 72-hours notice to Owner prior to this shutdown. Contractor shall schedule a pre-shutdown meeting with the City the day before the shutdown is scheduled to occur. Once the 24" water line is connected and placed into operation within 6-hour window, Contractor shall immediately then connect new 12" water line to existing system at both ends. Contractor shall work continuously until shutdowns are complete and water lines are placed into successful operation. Contractor shall refer to and follow all necessary requirements of the Fire Watch Procedures and Requirements outlined in Appendix C within these specifications. Contractor shall coordinate with City of Concord Water Department and Fire Department with regard to requirements relating to planned outages. This specifically relates to but is not solely with regard to any disruptions to the Dollar General Store at Rock Hill Church Road and Poplar Tent Road. See Division 15 for flushing, testing, and disinfection requirements.

### **SP-11. ROCK REMOVAL**

#### 1.0 DESCRIPTION

Work covered by this special provision consists of the removal and disposal of rock encountered within the construction limits.

#### 2.0 CONSTRUCTION METHODS

Rock shall be defined as any subsurface material (except foundations and pavements) which cannot be excavated by a backhoe, or track hoe which is capable of producing 31,000 pounds of curling force.

When rock is encountered, the Engineer shall be notified to:

- verify that the material cannot be removed as defined above or incorporated into the project feature
- determine the measurement limits

Removal methods include, but are not limited to, drilling, pneumatic hammering, blasting, etc. or as

directed by the Engineer.

Blasting shall be performed as specified in Article 220-3 of the Standard Specifications.

Disposal shall be in accordance with Section 802 in the Standard Specifications.

### 3.0 MEASUREMENT

The quantity of rock removal to be paid for will be the actual number of cubic yards of rock, measured in its original position and computed by the average end area method, which has been removed and disposed of.

Measurements for the determination of actual quantities of rock removed shall be computed as described below or as directed by the Engineer:

Rock excavation will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required to excavate and dispose of solid rock, as may be encountered in the Work, complete, and in accordance with the Contract Documents and Plans; and all other costs required to complete the work not included under other bid items.

Quantification of excavated materials will be made as follows, and shall include the excess cost only of the removal and subsequent handling of such rock, over and above that of earth excavation, because the contract price for each item of work involving excavation shall be based on and include earth excavation throughout. Rock excavation shall be measured within and to pay limits as follows, and direct payment made at the unit price bid:

- a. Below the top rock surface, as determined by surveys or other measurements made after stripping and before blasting, or, when preshooting is permitted, as determined and agreed to by Contractor and Owner after preshooting and stripping.
- b. Above the bottom surface of the rock, where such surface is above the specified bottom pay limits.
- c. Above planes which are the following distances below and parallel to the bottom of the pipe:

#### Pipe Size Pipe Clearance

12" or smaller 0.50 ft

14" to 27" inclusive 0.75 ft

30" to 60" inclusive 1.00 ft

d. Above authorized structure subgrades. WSACC 01025 Std Spec -10- Latest Revision 8/06

e. Between vertical planes separated by a horizontal distance equal to the minimum trench width permitted for the size and type of pipe being installed.

f. To vertical surfaces 12 inches outside of the outer faces of masonry manholes, 2 feet outside of the outer faces of structures poured against forms, and to the pay limits for concrete on concrete items poured directly against the excavation faces.

All rock excavation pay quantities shall be based on the volume of the excavated material in its original and undisturbed condition." Measurement shall be the volume, in cubic yards, of rock excavated as measured by the linear footage of trench, trench width, and depth of rock removed.

#### Storm Drainage

- Pipe
  - Horizontally – as illustrated in NCDOT 300.01;
  - Lower Limit – as illustrated in NCDOT 300.01
    - Box Culverts/Bends/Bottomless Culverts
  - Horizontally – outer width of culvert or footer plus six (6) feet (3 feet each side);
  - Lower Limit – one (1) foot below the bottom of the barrel or footing;

#### Channels

- Two (2) feet below the finished grade or;
- Stream/channel structures – as directed by the Engineer.

#### Ponds

- Below normal pool – to finished grade;
- Above normal pool – two (2) feet below finished grade;

Structures

*(Includes but not limited to: headwalls, drainage structures (catch basins, drop inlets, risers, etc.), rip rap aprons, flared end sections, retaining walls, etc.)*

- To the subgrade elevation as shown on the plans or details;
- Horizontally – two (2) feet from each exterior surface (outer wall of the structure or footer; boulder or rip rap extents, as approved for stream structures and rip rap aprons)

Roadways, Yards, Etc.

- Two (2) feet below finished grade;

There will be no measurement of quantities of rock removed beyond these limits. Where the Engineer makes a recommendation for incorporating the encountered rock material into the project feature, there shall be no separate payment for incorporating the in situ rock into the project feature.

4.0 PAYMENT

The quantity of rock removal, measured as provided above, will be paid for at the contract unit price per cubic yard for "Rock Removal." Such payment will be full compensation for all work covered by this special provision including but not limited to drilling, pneumatic hammering, blasting (including complying with Article 220-3 of the Standard Specifications), excavating, and disposing of rock encountered within the pay limits of the project.

Payment will be made under:

ROCK REMOVAL.....CY

**SP-12 COMPREHENSIVE GRADING**

1.0 DESCRIPTION

This item shall include all elements of work covered by the referenced NCDOT Specifications and the numbered Additional City Specifications provided herein.

NCDOT Specifications

- 200, "Clearing and Grubbing"
- 225, "Roadway Excavation"
- 235, "Embankments"
- 240, "Ditch Excavation"
- 250, "Removal of Existing Pavement"
- 260, "Proof Rolling"
- 340, "Pipe Removal"
- 412, "Unclassified Structure Excavation"
- 416, "Channel Excavation"
- 500, "Fine Grading, Sub-grade, Shoulders and Ditches"
- 545, "Incidental Stone Base"
- 560, "Shoulder Construction"
- 1530, "Abandon or Remove Utilities"
- 1607, "Gravel Construction Entrance"

Additional City Specifications

1. Clearing and Grubbing: Clearing on this Project shall be performed to the slope stake line or the Poplar Tent Road 24" Water Line Extension

right-of-way or easement lines unless directed otherwise. The Contractor shall remove all trees in the easement areas.

2. Overflow Stream Fill: Overflow stream fill upstream and downstream of the culvert, with equal parts natural material, class B riprap and #57 stone, as shown in the plans, shall be included in this item.

3. Fence Removal and Disposal and or Fence Relocation: as shown on the plans and any additional removal or relocation identified by the Contractor's means and methods shall be included in this item.

4. Hedgerow and or Planting Bed Removal and Disposal: as shown on the plans and any additional hedgerow or planting bed removal identified by the Contractor's means and methods shall be included in this item. Hedgerows to be removed shall be approved by the Engineer prior to removal.

5. Mail Boxes and Site Amenities: remove, protect, and reset mail boxes and site amenities. The Contractor shall keep mailboxes in service at all times and allow / provide for other services, including but not limited to trash pickup.

6. Existing Road Signs: remove, protect, and reset road signs. Repair or replace signs damaged in relocating. Erect signs and supports according to requirements of NCDOT Specifications 903 and 904.

7. Removal and Disposal of Existing Infrastructure: concrete curb, sidewalk, miscellaneous concrete, asphalt, driveways, pads, slabs, walls, culverts, structures, catch basins, manholes, etc. within the construction limits as shown on the plans and any additional infrastructure removal identified by the Contractor's means and methods shall be included in this item.

8. Shoring: The Contractor shall be responsible for all shoring to include means, methods, materials and engineering needed to construct the project.

9. Saw Cutting: all saw cutting required to build the Project. Where asphalt or concrete (curb, sidewalk, roadway, driveways, parking lots, etc.) is to be removed, the Contractor shall provide a neat edge along the pavement being retained by sawing the pavement a minimum of 2" deep and 1' wide before breaking and removing adjacent pavement. When the Contractor proposes to saw pavement more than one foot from the proposed pavement (curb, sidewalk, structure, etc.), the Contractor shall obtain approval from the Engineer prior to saw cutting and removing pavement. The cost of sawing asphalt or concrete shall be included in this item.

10. Sidewalk and Curb Clean-up: The Contractor shall have all related sidewalk and curb work completed within ten (10) days of placement, including but not limited to 1) removal and disposal of construction debris; 2) related grading to include fine grading; 3) site restoration; 4) seedbed preparation and dress up work; 5) seeding and mulching; and 6) final cleaning.

11. Tree Protection: The Contractor shall provide tree protection as shown on the plans, including any pruning which shall be performed by a certified arborist in accordance with proper arboricultural standards, and any additional Tree Protection identified by the Contractor's means and methods shall be in accordance with the City of Concord Landscaping Technical Standards and included in this item.

12. Tree and/or Stump Removal and Disposal: as shown on the plans and any additional tree and/or stump removal identified by the Contractor's means and methods shall be included in this item. Trees to be removed shall be approved by the Engineer prior to removal.

13. Utility Pipe/Conduit Removal and Disposal: existing public or private utility pipe / conduit, subsurface and shoulder drain pipe removal and disposal as shown on the plans and any additional utility pipe / conduit removal identified by the Contractor's means and methods shall be included in this item.

14. Property Access: all labor and materials required to maintain access to properties during

construction as directed by the Engineer.

15. Real Estate Special Provisions: The contractor will be responsible for all work in *Real Estate Special Provisions* in this contract and paid from Comprehensive Grading. This includes reinstating the existing irrigation system as shown in the plans.

## 2.0 MEASUREMENT

There will be no separate measurement made for Comprehensive Grading.

## 3.0 PAYMENT

For the above-referenced NCDOT sections and numbered Additional City Specifications, there will be no direct measurement, payment or compensation, all cost incurred to complete the work as specified shall be included in the Lump Sum price bid for "Comprehensive Grading".

There will be **no separate measurement or payment** for the items listed or referenced in this specification.

Payment will be made under:

COMPREHENSIVE GRADING ..... LS

### **SP-13. BLASTING**

Contractor shall utilize a third party, approved by the Owner, for all pre-construction condition inspection and documentation of adjacent structures on-site and off-site as indicated in SP-011. In order to allow adequate time for pre-blast surveys, Contractor shall notify Owner a minimum of 30 days prior to blasting. Contractor shall exercise the utmost care not to damage property on-site and off-site. The third party firm contracted directly with the Contractor shall notify each adjoining property owner within 2,000 feet of the site of the anticipated ground vibrations and noise which will occur due to his blasting operations. The Contractor shall limit his operations to minimize any disturbance to the adjacent property owners. Motorists on adjacent roadways shall be notified in accordance with state regulations. Contractor shall be responsible for any damage to any structure or utility line, pipes, etc. on-site and off-site as a result of his operations.

For each blast round, third party firm contracted directly with the Contractor shall monitor and record noise and air blast overpressures at the site perimeter nearest the blast location and at the on-site or off-site structure located nearest the round. The site of every blast round shall be sufficiently covered with blasting mats or other devices to prevent any flying debris. The number and type of blasting mats must be satisfactory to the Engineer. The Contractor shall be fully responsible for any damage caused by flying debris, both to on-site and off-site properties.

Whenever blasting is to be performed within 500 feet of any structure, the third-party firm shall measure peak particle velocities of ground vibration resulting from each blast at the structure. Vibrations shall be monitored utilizing a seismograph capable of providing a record of particle velocity and frequency along three mutually perpendicular axes utilizing internal calibration. Measured peak particle velocity of ground motion at the monitored structure shall not exceed 2.0 inches per second.

The Owner shall be notified immediately of any complaint received by the Contractor or third-party blast monitoring firm. The firm shall immediately review those construction activities inducing the vibration and prepare a report documenting all relevant data such as the time and date of the complaint, a description of the construction activities, data from the monitoring instruments for the subject time/date, complaint information (including photographs if possible) of the alleged damage. The firm shall submit for review a detail plan for repair and revised construction plan to address the vibration problems to minimize further damage and complaints. The Contractor shall perform necessary repairs

at no additional cost to the Owner.

Third party blast monitoring firm shall provide monthly reports containing results of the crack monitors and vibration monitors during those activities that generate earth-borne vibrations from blasting operations.

The Owner reserves the right to require the removal of rock by other means if blasting operations result in possible hazardous operations.

## **SP-14. FOUNDATION PROTECTION**

### 1.0 DESCRIPTION

Work covered in this special provision is for foundation protection measures for structures as shown on the construction drawings.

### 2.0 DEFINITIONS

*Point of Interest:* The Point of Interest (POI) is a point at the bottom of the proposed/actual trench that is closest to the Adjacent Structure.

*Construction Excavation Zone of Influence* – The Construction Excavation Zone of Influence (ZOI) is generally defined by a boundary line starting at the POI continuing upward with a 2 horizontal to 1 vertical (2H:1V) slope and projected to the ground or as directed by the Engineer.

*Adjacent Structure* – Adjacent structure (structure) is defined as a building/structure or paved public and private roadway/driveway located within the Construction Excavation ZOI in a plan view.

*Foundation Protection* – Foundation Protection (FP) is defined as measures taken to actively support the loads imposed to facilitate construction and to prevent possible damages to adjacent structures due to excavation activities.

### 3.0 CONTRACTOR QUALIFICATIONS

Foundation protection measures shall be installed and/or constructed by a qualified contractor. The foundation protection contractor shall have a minimum of ten (10) years of experience in the installation of the foundation protection measures chosen.

### 4.0 CONSTRUCTION METHODS

#### 4.1 FOUNDATION PROTECTION FOR STRUCTURES

**Structure Condition Survey** – The Contractor shall be responsible for performing both a pre- and post-construction Structure Condition Survey. The survey shall be sealed by a Professional Engineer registered in the State of North Carolina. The survey shall be a comprehensive inspection and consist of descriptions, photographs, measurements, and video of the interior and exterior conditions of the structure. Examples of items to be documented include existing cracks, damage, or other defects such as the operation of windows, doors, or other appurtenances.

The pre-construction structure condition survey of the structures shall be performed prior to beginning construction within 40 horizontal feet (or as directed by the City) to record any conditions that may be subject to possible damage claims.

The post-construction structure condition survey of the adjacent structures shall be performed no sooner than 45 days after construction is completed a minimum of 20 linear feet from the end of the FP.

Both structure conditions surveys shall be performed in the presence of the City's representative, Contractor's representative, and owner of the structure, unless the owner is deemed unresponsive as described below. Contractor shall send property owner, via certified mail, a sealed copy of each structure survey report.

List of addresses for this project are:

215 International Dr.  
225-213 International Dr. (2 buildings on parcel)  
2363 Poplar Tent Rd.  
3700 Poplar Tent Rd.  
3701 Poplar Tent Rd.  
3715 Poplar Tent Rd.  
3758 Poplar Tent Rd.  
3770 Poplar Tent Rd.  
3771 Poplar Tent Rd.  
3791 Poplar Tent Rd.  
3792 Poplar Tent Rd.  
3797 Poplar Tent Rd.  
3800 Poplar Tent Rd.  
3801 Poplar Tent Rd.  
3822 Poplar Tent Rd.  
3851 Poplar Tent Rd.  
3854 Poplar Tent Rd.  
3888 Poplar Tent Rd.  
3900 Poplar Tent Rd.  
3936 Poplar Tent Rd.  
3966 Poplar Tent Rd.  
3972 Poplar Tent Rd.  
4000 Poplar Tent Rd.  
4065 Poplar Tent Rd.  
4070 Poplar Tent Rd.  
4101 Poplar Tent Rd.  
4123 Poplar Tent Rd.  
4137 Poplar Tent Rd.  
4145 Poplar Tent Rd.  
4150 Poplar Tent Rd.  
4151 Poplar Tent Rd.  
4163 Poplar Tent Rd.  
4215 Poplar Tent Rd.  
4225 Poplar Tent Rd.  
4267 Poplar Tent Rd.  
4279 Poplar Tent Rd.  
4320 Poplar Tent Rd.

4321 Poplar Tent Rd.  
4321 Poplar Tent Rd.  
4328 Poplar Tent Rd.  
4368 Poplar Tent Rd.  
4390 Poplar Tent Rd.  
4401 Poplar Tent Rd  
4445 Poplar Tent Rd  
4475 Poplar Tent Rd  
4495 Poplar Tent Rd  
4525 Poplar Tent Rd  
4555 Poplar Tent Rd  
4625 Poplar Tent Rd.  
543 Brightleaf PL  
543 Brightleaf PL  
551 Brightleaf PL  
555 Brightleaf PL  
559 Brightleaf PL  
563 Brightleaf PL  
243 Old Speedway Dr.  
264 Old Speedway Dr.  
450 Old Speedway Dr.

**Structure Assessment Report** - The Contractor shall be responsible for preparing a Structure Assessment Report as part of both the pre- and post-construction structure condition survey. The report shall be sealed by a Professional Engineer registered in the State of North Carolina with concurrence signature by the Contractor.

The Pre-Construction Structure Assessment Report shall include, but not be limited to, the findings from the pre-construction condition survey (photographs, descriptions, measurements, etc.), a discussion of the proposed construction adjacent to the structure noting specific soil type, adjacent structure footing, foundation or slab elevation, excavation depths and widths, any potential impact to foundations and structures, and measures needed to protect the adjacent structures. If FP is deemed necessary, then the FP measures and designs, including, but not limited to, plans, drawings, calculations, and details, shall be designed and sealed by NC PE and submitted with the Structure Assessment Report. The report shall include recommendations related to leaving or removing the FP measures. Work shall not be permitted on properties, which do not have a completed pre-construction structural inspection.

The Pre-Construction Structure Assessment Report shall be submitted to the City for review two weeks prior to construction or installation of FP measures at each structure. Failure to provide for sufficient review period, time for revision and resubmittal, or incomplete submittals will not be grounds for contract time extension.

The Post-Construction Structure Assessment Report shall include, but not be limited to, the findings from the post-construction condition survey (photographs, descriptions, measurements, etc., a discussion of the completed construction adjacent to the structure including actual conditions encountered, description of the Construction Monitoring System, and the results of the monitoring, as applicable. The report shall also include as-built information about the FP installed including but not limited to descriptions of measures, depths, locations, sketches, photographs, if removed or not, etc.



The Post-Construction Structure Assessment Report shall be submitted to the City for review two weeks after the post-construction structure condition survey. Failure to provide for sufficient review period, time for revision and resubmittal, or incomplete submittals may result in delay of substantial completion or final completion.

Contractor shall send property owner, via certified mail, a sealed copy of each Structure Assessment Report.

**Property Owner Unresponsiveness** – The Contractor shall employ the following methods to initiate contact with the Owner of the subject structure:

1. Send a Certified letter to the structure owner,
2. Make two attempts to contact the structure owner via phone, and
3. Make four attempts to contact the structure owner in person. Each attempt at contact shall take place on separate days and at least once at the following timeframes: early morning (7:00 am – 8:00 am), during business hours (8:00 am – 5:00 pm), and early evening (6:00 pm – 8:00 pm).

If the Contractor is unable to contact the Owner, then the pre-construction and post-construction surveys shall be performed on the outside of the structures only. There shall be no entry, observations, photographs, etc. into the structure without the structure owner's consent.

**Construction Monitoring System** – A construction monitoring system may or may not be necessary at every location FP is required. If the Contractor's Structural Engineer determines that a construction monitoring system is necessary, construction-monitoring plans shall be specified in the Structure Assessment Report. The monitoring plan may include, but not be limited to, crack gages, settlement markers, vibration sensors, and survey control points (for monitoring vertical and/or horizontal movements) at the ground surface or on the structure. The Contractor shall regularly provide data from instrument readings to the City within 24 hours of readings. The plan shall specify measurement frequencies and values or other indicators that signal the FP may be inadequate and construction shall stop, and the notification of the Contractor and the City.

The monitoring instruments shall be removed / abandoned at the end of the project warranty period as directed by the City.

**Requirements of Excavation and Shoring** – All work shall adhere to all applicable ordinances, codes, statutory rules and regulations of the Federal, State and local authorities. In the event of a conflict, comply with the more restrictive applicable requirements.

#### 4.2 FOUNDATION PROTECTION (ACTIVE SHORING)

The Contractor shall obtain and construct all shoring to include means, methods, materials and engineering needed to construct the project. The Contractor shall construct shoring in accordance with the approved design, which provides all necessary rigidity, and supports the loads imposed to facilitate construction as shown on the plans. The design shall provide for internal and external stability of shoring, such as, but not limited to bearing capacity, settlement, sliding, overturning, internal compound stability, global stability. The design shall also take into consideration actual construction loads related to phasing, stockpiles, operation of large cranes, or operation of other large equipment near the area of shoring. All proof and verification testing of the shoring elements shall be the responsibility of the Contractor and results shall be reported to the Engineer the day after the testing was performed. The Contractor shall actively control drainage and surface runoff during the duration of construction to direct run off away from the shoring areas above and behind the shoring. The Contractor shall prevent ponding water near the shoring area and maintain drainage paths to convey water away from and around the shoring area.

Per the project plans, , Contractor shall submit to the City excavation methods, details, construction sequence, active shoring design, and shoring removal methods for storm drainage and utilities. All active shoring plans shall be designed and sealed by a North Carolina Professional Engineer. City approval shall be given before any excavation has started.

The following standards are specifically referenced:

OSHA Standard 29 CRF 1926 Subpart P – EXCAVATIONS;  
OSHA Technical Manual (OTM) Section V: Chapter 2 - EXCAVATIONS: HAZARD RECOGNITION IN  
TRENCHING AND SHORING

If during the construction activity, the City determines the foundation protection measures are not performing in accordance with the Pre-Construction Structure Assessment Report, the Contractor shall re-evaluate and resubmit revised FP designs and supporting information to the City at no additional cost to the City.

#### 5.0 MEASUREMENT

Foundation Protection for structures will be measured on a contract “Each” basis for each address upon completion and acceptance by the Engineer.

Structure Assessment Report (Pre- and Post- Construction) will be measured on a contract “Each” basis for each location upon completion and acceptance by the Engineer. Measurement of each Structure Assessment Report includes both pre- and post-construction reports.

Foundation Protection (Active Shoring) will be measured on a Square Foot basis for vertical face of exposed shoring as shown on the plans upon completion and acceptance by the Engineer.

#### 6.0 PAYMENT

Payment for Foundation Protection for structures will be made at the contract Lump Sum basis for each address. The price and payment will be full compensation for engineering and surveying fees, geotechnical testing, monitoring, installation and removal of foundation protection measures, and all incidentals necessary to complete the work as shown on the plans and described herein.

Payment for the Structure Assessment Report will be full compensation for pre- and post-construction inspections, reports, engineering and surveying fees, and all incidentals necessary to complete the report as described herein.

Foundation Protection (Active Shoring) will be paid on a Square Foot basis for vertical face of exposed shoring as shown on the plans upon completion and acceptance by the Engineer.

Payment will be made under:

|  |    |
|--|----|
| STRUCTURE ASSESSMENT REPORT.....             | EA |
| FOUNDATION PROTECTION AT [ADDRESS] .....     | EA |
| FOUNDATION PROTECTION [ACTIVE SHORING] ..... | SF |

#### **SP-15. EROSION CONTROL MEASURES**

Payment for this item includes furnishing all material, equipment and labor to install, maintain, and remove the sedimentation and erosion control measures as shown and scheduled on the drawings and as required by the approved NC DEQ Land Quality permit, including all measures required. Shall also include removal and replacement of storm sewers and all other items indicated on the drawings. Payment will be made on a linear footage basis based on the linear footage of the water line stations.

#### **SP-16. ASPHALT/CONCRETE REMOVAL AND REPLACEMENT**

Shall be as described in NCDOT Standard Specifications. For asphalt removal, the area of pay limit shall be the width indicated on the Drawings for the length of piping installed. Contractor shall limit asphalt removal to only that which is required to be removed for pipe installation. For asphalt roadway replacement, the width of pay limit shall be maximum of the trench widths indicated on the Drawings. Asphalt concrete surface and base course thicknesses in roadway and driveway areas shall be per Detail 654.01 on the Drawings. Shall include 6" base asphalt course on 6" ABC stone course asphalt driveway replacement. For Concrete driveway removal and replacement, shall include 6" concrete driveway with 6" ABC stone base.

**SP-17. PETROLEUM LADEN SOILS REMOVAL**

Payment for this item includes removal of petroleum laden soils encountered during construction, hauling to approved landfill, and replacement with select fill. Shall also include all necessary environmental materials, equipment and procedures to complete this work and dispose of soils at an approved facility. Shall also include any testing required at the facility. The Owner will provide on-site testing of soils to ascertain if this pay item is applicable when questionable soils are encountered. Payment for this item shall be on a per cubic yard basis for soils removed, disposed of off-site in approved location, and replaced with select fill.